Precision catalog





Dating back to our origin in 1946, providing unmatched service has always been the focus of our business. Rice Lake's unique beginning as a service company helped construct this principle and it has endured the test of time. It is ingrained in everything we do and continues to be the epicenter of our identity.

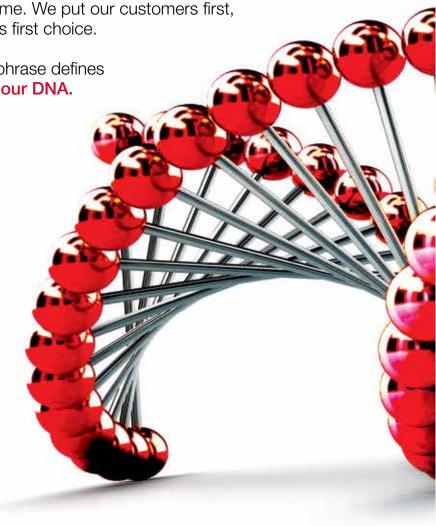
Today, Rice Lake Weighing Systems carries over 40,000 different products in stock and ready to ship, including laboratory balances, mixers, pipettes, static solutions, weights, accessories and more—meeting the needs of almost any precision application.

Over 80 percent of orders we receive are shipped the same day because we recognize the value of time. We put our customers first, making Rice Lake the scale industry's first choice.

Service, selection, and speed—this phrase defines Rice Lake Weighing Systems. It's in our DNA.

Service.

Represented by the most dedicated scale experts in the industry, we provide unmatched service for our customers, 24 hours a day, 7 days a week, 365 days a year.







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Cast iron

are painted weights with an adjusting cavity for sealing. Weight capacities of 10kg/20lb and up meet NIST Handbook 105-1 and Handbook 44 specifications.

Applications where cast iron weights are used include field standards for testing industrial devices.

The classes are NIST Class F, ASTM Class 6 and 7, OIML Class M1 and M2.



16 Spage

Electronic balances -

(ASTM) are Type II design featuring a sealing cavity for adjusting material in 100 g or larger weights. Finish for ASTM Class 1 is polished: Class 2-4 are satin. Applications include calibrating Class I and II balances or ASTM Class 4, 5 and 6 weights.



Aluminum (OIML) are used for denominations of 5 mg to 1 mg and are one-piece precision design.

test weights

Rice Lake offers cast iron weights and three designs of stainless steel weights. Due to varying configurations, the actual appearance of your product may be slightly different from examples shown.



Precision laboratory

(OIML) that are a Type I, (one-piece construction) have no added adjusting material. ASTM Class 0 and OIML E1, E2, F1, and F2 have a polished finish. OIML M1 and M2 have a satin finish.



Stainless steel

(NIST) are available as cylindrical, electronic balance and grip-handle.



Precision laboratory (ASTM)

(screw-knob design) are Type II design with sealing cavity for adjusting material. ASTM Classes 1-4 have a polished finish. ASTM Class 0 is a one piece design with a polished finish. Applications include calibrating Class I and II balances and ASTM Class 4, 5 and 6 weights, student laboratory use and general weighing.

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Shipping Information

FREIGHT SERVICES OFFERED	"SMALL PACK"	LTL	TRUCK LOAD
Nationwide Same Day Service	Y*	Y*	N
Same Day, Counter to Counter***	Υ	N	N
Next Day (AM)	Υ	Y**	Y**
Next Day (END OF DAY)	Υ	Y**	Y**
2 Day	Υ	Υ	Υ
3 Day	Υ	Y	Υ
Ground	Υ	Υ	Υ
Canada	Υ	Υ	Υ
Mexico	Υ	Υ	Υ
Express Freight (Air-over 150 lb)***	Υ	Y	N
International (Sea)	Υ	Υ	Υ
International (Air)	Υ	Υ	N

^{*} Subject to cost/distance

Same Day Services

These services do not carry the same service guarantees that standard delivery schedules do and are subject to availability

Small Parcel Services

We ship with internationally recognized parcel carriers based on delivery time and services offered.

Determining Dimensional Weigh for Small Parcel Shipments for Air (& Ground 2015 →)

When shipping via air services, couriers require that the shipping weight be determined by the greater of the actual weight of the boxed product or its dimensional shipping weight. The formula for calculating dimensional shipping weight is as follows:

L x W x H/166 for domestic air shipments and L x W x H/139 for international air shipments. RLWS takes the added precaution of double boxing some of our electronic products and balances. This may result in dimensional weight charges by the carrier when shipping by air. Even with this added precaution, we suggest that you always ship high precision and fragile products via air service.

Less Than Truck Load (LTL)

Full service LTL coverage for the Continental United States, Puerto Rico, Canada and Mexico.

Note: A standard LTL delivery is considered to be one that ships from either a company or partner dock to arrival at a standard commercial address with disposition of the goods at the rear of the truck to enable off loading by material handling equipment provided by the consignee at either ground level or via loading dock. Allied to this, the freight in question should be pelletized and secured in a way to facilitate the safe handling of the freight with no one dimension over 7'6".

Any LTL delivery falling outside of this criteria may well accrue accessorial charges levied by the carrier in line with their tariff rules. It is recommended that any potential accessorial cost are discussed at the time of order placement so that these costs can be billed appropriately at the time of shipment. If this is not the case, RLWS reserves the right to charge the customer retrospectively for any accessorial costs incurred during the delivery process.

Accessorial charges include, but are not limited to the following:

- Lift gate: \$100.00
- Call for appointment: \$40.00
- Guaranteed delivery: Day \$45.00, 10:30 a.m. (where available) \$100.00
- Inside delivery: \$100.00 NOTE: To inside of first threshold crossed only
- High cost delivery areas: Excessive length, government sites, and mines, re-delivery, re-consignment, residential and restricted access shipments

Full Truckload

Various truckload providers that give us the ability to ship to the contiguous United States, Alaska, Canada and Mexico

Forwarders (International Freight)

We can provide service through a forwarder of our choice, or select one of your preferred forwarders.

Air Freight: All of our forwarders are internationally recognized brands

Ocean Freight: All of our forwarders are internationally recognized brands

Overseas Ocean Freight: Call for estimated delivery time.



^{**} Subject to distance

^{***} Subject to flight availability and proximity of nearest airport



On average, regardless of carrier, 2% of all freight is damaged in transit. Don't let the delivery person slip away. And don't get left holding the bag.

Rice Lake merchandise is packaged carefully to arrive at your location on time, intact and in perfect working order. We don't ship damaged goods, and we work with many of the most reputable national carriers. But know this—anytime a package is sent, as many as 2 out of 100 will be mishandled. To be sure your business doesn't take the hit for someone else's mistake—INSPECT before you sign.

Whether or not the product itself has been damaged, remember—your signature accepts the delivery as is, releasing the carrier and supplier of all liability, unless you take action:

- Make note of any damage to the packaging, no matter how slight, including re-packaging, water damage, scratches to paint, etc. Take photos if possible to back up any necessary claims.
- Do not accept or sign for as "unchecked"—this is not an acceptable disclaimer.
- Where damage to contents is obvious, take photos and refuse the shipment.

Notify your supplier immediately with the claim number provided by the driver. Noting the condition of your delivery upon receipt is the only recourse when making a damage claim. Follow these steps and you'll get replacement merchandise faster, keep costs down and ensure the carrier is held responsible for their mistakes; not you, and not your supplier.

RICE LAKE WEIGHING SYSTEMS
To be the best by every measure

800-472-6703 **www.ricelake.com**

Trademarks

The following product names, logos, brands and other trademarks featured or referred to within this publication are the property of their respective trademark holders.

Access™ Adventure Pro® Allen-Bradley® Amphenol® AstraLabel™ AstraLink™ AutoCal™ Beldfoil® Bitstream® Bluetooth® Cardinal® Cent-O-Gram® Centronics® Citizen® ConnexLink™ ControlNet® **CRS™** Cubis®

Datalogic QuickScan® Datamax-O'Neil® DeviceNet™ Dial-O-Gram® DIGI® Discovery™ Dymo® **EPL®** EPL2® **EPSON®** ESC/POS® Excel™ Explorer® Fairbanks™ Flintec™ Genius®

Hewlett-Packard™

Intel® Interchange® Intercomp CS™ Intercomp PT300DW™ Intercomp PT300™ IONMASTER™ $iPAQ^{TM}$ ISOBAR® ISOBLOK® JavaPOS™ LabelView™ LifeGuard™ LoopTracker™ Lotus™ Maxi-Scoop™ MaxWax™ Microline® Microsoft® Midrics® MIFARE® Mobile 5.0™ $Motiontrap^{\intercal_M}$ Motorola ColdFire® MS-DOS™

NatraSorb®

pcANYWHERE® Peachtree®

Novell®

 $OKI^{\mathbb{R}}$

Pax®

OHAUS®

Pioneer™ PowerCell® Powerware® $\mathsf{PreVent}^\mathsf{TM}$ Prodigy Max™ Prodigy™ Profibus® ProPrinter® Quickbooks® QuickScan® QuikSharp™ R Stahl® Ranger™ Rapid Exchange® Rockwell Automation® Roman and Swiss™ S4M™ Sartorius® Satorious® Scout Pro® $SI^{\mathbb{R}}$ STAR® The Crosby Group LLC SUREFOOT™ Symbol® TekLvnx® Toledo® Torque™ TRANSCORE® Trooper® Turck® Valor® Voyager® Vulcan® WinCT® Windows® WinWedge® Xscale® XTend-PKG™ Zebra® ZigBee™ ZPL®

Howe™ IBM® InCal™

Customer Service Contacts

At Rice Lake Weighing Systems we strive to give you the best customer service in the industry. You can depend on our knowledgeable staff to deliver decisive, courteous assistance when you need it most.

Customer Service Representative Hours (CST): Monday through Friday 6:30 AM to 6:30 PM; Saturday 8:00 AM to Noon

United States and Canada Field Sales



Michael Bordino Southeast Region 715-434-5079



Tim Campbell Great Lakes Region 715-434-5067



Jeff Canfield Allegheny Region 715-434-5081



Chris Hanson Midsouth Region 715-434-5069



International Field Sales

Martin Devilla Rice Lake de Mexico 715-434-5258



Manuel Talancon Latin America 715-434-5041



Northwest Region 715-434-5097



Jim Lynch Mid-Atlantic Region 715-434-5077



Southwest Region 715-434-5134



Bill Murphy Heavy Capacity Sal



Jaap Oosterlee Europe 715-434-5816



Jose Mathew Middle East/Asia/Afric 715-434-5048



Cal Schumacher Midwest Region



Scott Schumacher Northeast Region



lan Scott Eastern Canada Region 715-434-5049



Murray Stewart Western Canada Region 715-434-5194



Duco Kroon Europe 715-434-5804



Fred Slack Eastern Europe 715-434-5822

Customer Relations



Mark O. Johnson Chief Executive Officer



Mark Johnson, Jr. President



Steve Parkman Chief Operating Officer



John Hughes Vice President of Business Development



Tom Kowalski Vice President of Technology



Todd Backer Vice President of Engineering and Innovation



Scott Davis Director of Electronic Engineering



Dominic Hodkiewicz Director of Manufacturing



Patrick Ranfranz Director of Marketing



Walter Hendriks Managing Director, Europe



Joe Grell Vice President Heave Capacity



Kevin Marshall Logistics Manager



Dick Shipmar Quality Manager



Bruce Johnson Customer Service Manager



Guru Ganesh Director, India Operations

Inside Sales



Deanna Stanley Inside Sales Supervisor



Terica Schamberger Sales Referral Coordinator



Janelle Alton



Andrew Burish



Linda Burmester



Becky Clausen



Dave Jalowitz



Karja Keller



Jennifer Krahenbuhl



Tricia Larson



Len Nicpon



Brittny Olson



Tom Peterson



Russ Schnacky



Rob Shofner



John Tennant



Lynnette Thompson



Kally Wagner

Sales Engineers



Ben Fauske Technical Sales Supervisor



John Eisele



Doug Hagie



Darin Ides



Sharon Miller



Efrain Molinari Habla Español



Marvin Stodola

Technical Support



Sam Brower



Chuck Crowley



Alan Dobrowolski



Joe Heinicke



Patrick Hillman



Mark Hopland



Preston Reed



Greg Stager Jr.



Scott Ross

Directors of Strategic Accounts



Layne Siverling



Mark Ware



Don O'Connell Retail



Savanah Emerson

Mobile Marketing Unit



Ann Crowley Precision 715-434-5466



Steve Delaney Livestock Scales 715-434-5293



Joe Giglio Medical 715-434-5068



Thomas Kendall Onboard Systems 715-434-5177



Jeff Malinowski MMU Sales Director



Jeff White MMU Sales Associate

Customer Service Contacts Continued

Repair Department



Phil Stoeberl Electronic Assemb Repair Manager



Diane Gagner Warranty/Returns



Lisa Maciosek Warranty/Returns



TOM AEBLY



Randee Bauch



Art Folstad



Les Karpiel



Dale Koehler



Tracy Lavaliere



Landon Nielson



Dan Tronstad

MSI



Tim Carroll National Sales Manager



Ron Wenzel Vice President International Sales and Aviation Products



Phil Gray Director of Operations



Dave Taylor Director of Engineering



Jim Norvid Mechanical Engineering Manager

Heavy Capacity Sales



Karen Hansen



Eric Torrison



Tony Zillmer

Peter Allen Export Customer Service Supervisor



Connie Genatempo



Gloria Miranda Habla Español



Bobbie Stiver Habla Español Parle Français

Financial Services



Sandy Raby Financial Services Manager









Tammy Kline





Angela Santillan



Vivian Kroon



Lynette Marshall



Kathleen Miller



Shannon Ullom

Terms and Conditions

The terms "Buyer," "Authorized Reseller," and "Customer" as used herein, shall mean the party placing the purchase order with Rice Lake Weighing Systems. No contractual relationship between Rice Lake Weighing Systems and said party shall arise until such time as a purchase order has been accepted by Rice Lake Weighing Systems and such acceptance has been indicated on a written acknowledgment. Tenders which do not stipulate an acceptance period shall not be binding. Orders shall be subject to Rice Lake Weighing Systems' standard terms and conditions as printed below, subject to correction for clerical errors.

These Sales Terms and Conditions shall be binding if declared applicable in the tender or in the order acknowledgement. Any conditions stipulated by the Buyer which are in contradiction to these Sales Terms and Conditions shall only be valid if expressively acknowledged by Rice Lake Weighing Systems in writing.

1. Prices

- (a) Rice Lake Weighing Systems (RLWS) prices are net 30 days EX Works RLWS plant. Orders are subject to approval of our credit department with rights reserved to change or withdraw credit terms without notice and to terminate any orders when invoices for work done thereon have gone unpaid for 60 days.
- (b) Prices do not include taxes of any kind by federal, state, municipality or other governmental authority, which RLWS may be required to collect or pay with respect to the sale or shipment of goods sold hereunder. Regardless of when any such taxes are determined or become payable, all taxes would be the responsibility of the Customer and would be in addition to the prices quoted hereon.
- (c) This quotation is made upon the basis of the cost of materials and labor as of the date of this quotation. A change in such costs shall give RLWS the right to alter prices to reflect such changes in cost.

2. Shipment, Title, Risk of Loss

- (a) All shipments are EX Works point of shipment. Title and risk of loss or damage passes to the Customer upon presentation of the goods to the Customer's carrier at RLWS's facility, except that title and risk of loss or damage as to Customer's partially manufactured parts and raw materials delivered to RLWS, and as to jigs, fixtures and tools specially ordered for the Customer shall at all times remain with the Customer.
- (b) RLWS does not carry fire insurance upon jigs, fixtures and tooling built by RLWS for Customers or supplied to RLWS by Customers, nor does RLWS carry insurance upon raw materials supplied to RLWS by Customers. Customers assume all risk of loss, damage or destruction of jigs, fixtures, tooling or raw materials belonging to the Customer in RLWS custody caused by fire, water, gas, acts of God, strikes, insurrection, riots or by acts of the civil or military authorities and whether or not such loss, damage or destruction was the result of our negligence or misconduct or that of our agents or employees. The Customer agrees to indemnify and hold RLWS harmless from all direct and consequential costs and damages resulting from such loss.

(c) Except as hereinabove stated, we agree to maintain all jigs, fixtures and tooling built by RLWS in working condition for their normal life only, except that our liability in this respect shall not extend more than one year after the completion of the most recent production order.

3. Quantity, Materials and Tolerances

- (a) Unless dimensions are limited by a specific tolerance, it is understood that the production variations as published by RLWS will be acceptable.
- (b) RLWS will not be responsible for color, thickness variations, or flaws in sheets or parts from which fabrications are made, nor for other material variations beyond our control.
- (c) RLWS assumes no responsibility for loss or damage occurring by reason of delay or inability to deliver caused by fires, strikes, accidents, embargoes, car shortages, delays of carriers, insurrection, riots, acts of the civil or military authorities, nor will we assume responsibility for any reason whatever for damages of any kind on account of failure to deliver at the time specified. The Customer shall indemnify and hold RLWS harmless from all direct and consequential costs and damages resulting from such loss or delay.
- (d) Unless otherwise specified, delivery of 10 percent more or less of completed parts than the quantity specified shall constitute fulfillment of this order and any excess not exceeding 10 percent shall be accepted and paid for by the Customer.
- (e) In the event any raw material specified for incorporation into the product covered by this proposal shall become unavailable, RLWS shall notify the Customer and the Customer may direct RLWS to substitute available material for that originally specified, it being understood and agreed that the Customer shall assume any and all consequences resulting from such substitution.

4. Patents

If this quotation covers parts made specifically for the Customer, the Customer agrees to indemnify and hold RLWS harmless against any loss resulting from infringement of patents or trademarks, or from claims of such infringements and shall pay all legal and defense costs incurred by RLWS in the defense of such actions.

5. Software

Unless specifically otherwise stated, any and all software associated or part of any product sold, loaned on trial or demonstration to the Customer is to be considered proprietary to RLWS. The Customer agrees not to duplicate for distribution or to sell or distribute in any way without the prior written consent of RLWS.

6. Changes and Cancellation: Rejection, Claims

- (a) Orders placed with RLWS are not subject to cancellation, change or reduction in amount, or suspension of deliveries except with RLWS's consent and upon terms that indemnify RLWS against loss. Unless confirmed in writing, all verbal agreements are void.
- (b) RLWS will not be responsible for changes in design, deliveries or other instructions, unless they are furnished in writing. The Customer agrees to pay for all tooling charges caused by changes in design or specifications.

Terms and Conditions

- (c) Samples submitted shall be deemed approved unless written rejection is received within two weeks of submission.
- (d) Manufactured parts will be shipped and billed as they are produced.
- (e) Claims for shortage or rejections for defects must be made within 10 days of receipt of goods. Credit will be rendered on such defective parts after we have had an opportunity to inspect them, provided they are returned to our factory, transportation charges prepaid, within 30 days, and provided they have not been altered or defaced in any way.

7. Tooling and Designing

- (a) In consideration of the engineering service necessary in the designing of jigs, fixtures and tooling not being charged for, but being quoted on the basis of labor and material only, and not at their fair market value, such jigs, fixtures and tooling shall remain in our possession for at least one year. Thereafter, the Customer desiring delivery of such jigs, fixtures and tooling shall pay an engineering charge of 50 percent of the original price of said jigs, fixtures and tooling and accept same as is.
- (b) When requested, we will submit suggestions concerning design and construction of parts, but we will not accept responsibility of liability for the practicability of these suggestions if adopted by the Customer.

8. Delivery and Adjustment to Price

- (a) If the Customer requests that the goods be manufactured and shipped on a date (or dates) earlier than originally agreed to by RLWS and the Customer, and RLWS agrees to the earlier date (or dates), any increase in the cost of performance incurred by RLWS resulting from earlier manufacture and shipment will be included in an adjustment of the purchase price to be made by RLWS and will be paid by the Customer.
- (b) Should shipments be held beyond scheduled date for convenience of the Customer, goods will be billed and charges will be made for warehousing, trucking, and other expenses incident to such delay. Reasonable and sufficient care is taken by RLWS in crating its goods. RLWS cannot be held responsible for breakage after having received "in good order" receipts from the transportation carrier. All claim for loss and damage must be made by the Customer to the carrier, but we will assist insofar as practical in securing satisfactory adjustment of such claims.

9. Payment and Liens

- (a) All invoices shall be due and payable when submitted for payment in accordance with the revisions of RLWS terms. No withholding of funds, back charges or credits against amounts otherwise due to RLWS will be permitted unless specifically agreed to in writing by RLWS. Settlement of any amounts due Customer will be negotiated as separate items and not as offsets against amounts otherwise due to RLWS from the Customer for products sold hereunder.
- (b) Any unpaid account for work done shall constitute a lien on any jigs, fixtures, manufactured parts, and raw materials in RLWS possession. In the event any account remains open and unpaid for 90 days, RLWS reserves the right to use the Customer's jigs and fixtures to make parts therefrom, and to sell or dispose of manufactured parts and raw materials.

(c) The Customer shall not assign or transfer any rights or obligations arising from this proposal, or monies payable thereunder, without the prior written consent of RLWS, and any such assignment or transfer made without such written consent shall be deemed null and void.

10. Additional Provisions

- (a) Errors—Stenographic and clerical errors are subject to correction.
- (b) These terms and conditions constitute the entire contract between the Customer and RLWS, transcending any oral arrangements or representations which may be inconsistent therewith
- (c) This quotation is made under and shall be governed by the laws of the state of Wisconsin.

11. Resale of Rice Lake Weighing Systems Products

In order to ensure compliance with the U.S. Export Administration Regulations we ask you to comply with the following:

- (a) The Customer shall not export or re-export Rice Lake Weighing System products, either directly or indirectly, in contravention of any applicable law, statute or regulation and will first obtain any required licenses or authorizations from the relevant government authority when necessary as prescribed by law.
- (b) The Customer confirms that it is familiar with and complies with the relevant national and international export control regulations and embargo regulations. The Customer furthermore confirms that it is in particular familiar with and complies with the U.S. Department of Commerce, Export Administration Regulations; U.S. Department of Treasury, OFAC Sanctions; the U.S. Department of Defense, ITAR requirements and the U.S. Department of State regulations.
- (c) If deemed necessary, Rice Lake Weighing Systems, in individual cases may make further requests from the Customer for information required for export compliance.
- (d) Should it be necessary for the Customer to obtain an export license from the appropriate authorities pursuant to the aforementioned regulations, the Customer shall apply for such a license autonomously and at their own expense.

The foregoing warranties are exclusive and in lieu of all other express and implied warranties whatsoever, including but not limited to implied warranties of merchantability and fitness for a particular purpose. RLWS shall not be subject to any other obligations or liabilities whatsoever with respect to parts manufactured or supplied by RLWS or services rendered by it.

Anything herein to the contrary notwithstanding, RLWS shall not be liable for incidental and consequential damages, and in substitution for all remedies which the Customer may have under any applicable law. The Customer's sole and exclusive remedy against RLWS for any breach of warranty or any other breach relating to goods delivered pursuant hereto shall be for repair or replacement (at RLWS's option) of the goods or parts effected by such breach.

Warranties

Standard Product Limited Warranty

Rice Lake Weighing Systems (Rice Lake) warrants that all Rice Lake brand equipment and systems properly installed by an Authorized Reseller or original equipment manufacturer (OEM) will operate per written specifications as confirmed by the authorized reseller/OEM and accepted by Rice Lake. All systems and components are warranted against defects in materials and workmanship for one (1) year from the date of shipment from Rice Lake, unless otherwise stated in the product catalog or manual.

Rice Lake warrants that the equipment sold hereunder will conform to the current written specifications authorized by Rice Lake. Rice Lake warrants the equipment against faulty workmanship and defective materials. If any equipment fails

to conform to these warranties, Rice Lake will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by the Customer of such nonconformity,
 Rice Lake will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Individual electronic components returned to Rice Lake for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in the publication, "Protecting Your Components From Static Damage
 - in Shipment," available from the Rice Lake Equipment Return Department.
- Examination of such equipment by Rice Lake confirms that the non-conformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair, or improper testing. Rice Lake shall be the sole judge of all alleged nonconformities.
- Such equipment has not been modified, altered, or changed by any person other than Rice Lake or its duly authorized repair agents.
- Rice Lake will have a reasonable time to repair or replace the defective equipment. The Customer is responsible for shipping the product to Rice Lake. Rice Lake is responsible for shipping the product back to the Customer.
- In no event will Rice Lake be responsible for travel time or on-location repairs, including assembly or disassembly of equipment. Nor will Rice Lake be liable for the cost of any repairs made by others.
- On all intrinsically safe equipment, any field repair or modifications voids any and all warranties expressed or implied and void F.M. approval.
- Any loose hardware, screws, washers or non-ESD bags of hardware stored inside indicator will void warranty. This could cause harm to repair technician or damage CPU board.
- If just the board is sent in for repair, the serial number of the product the board is from should accompany the board.

These warranties exclude all other warranties, expressed or implied, including without limitation warranties of merchantability or fitness for a particular purpose. Neither Rice Lake nor the authorized reseller will, in any event, be liable for incidental or consequential damages at the point of use.

Rice Lake and the Customer agree that Rice Lake's sole and exclusive liability hereunder is limited to repair or replacement of such goods. In accepting this warranty, the Customer waives any and all other claims to warranty.

Should the seller be other than Rice Lake, the Customer agrees to look only to the seller for warranty claims.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of Rice Lake and the Customer.

Custom Software Limited Warranty

Rice Lake Weighing Systems (Rice Lake) warrants that (a) the software will perform in accordance with the specification and accompanying written endorsement by the Customer for a period of 90 days from the date of receipt; (b) any hardware accompanying the software will be free from defects in materials and workmanship under normal use and service for a period of one (1) year from the date of shipment from Rice Lake; and (c) the Customer should perform inspection and testing of software products prior to installation.

This limited warranty is void if failure of the software or hardware has resulted from accident, abuse, misapplication, or incorrect Customer specification. Any replacement software will be warranted for the remainder of the original warranty period or 30 days, whichever is longer.

If the software fails to conform to these warranties, Rice Lake will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by the Customer of such nonconformity,
 Rice Lake will be given prompt written notice with a detailed explanation of the alleged deficiencies.
- Examination of software by Rice Lake confirms that the nonconformity exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair, improper testing, or incorrect Customer specification.
 Rice Lake shall be the sole judge of all alleged nonconformities.
- Rice Lake will have a reasonable time to repair or replace the software. The Customer is responsible for shipping charges both ways.
- In no event will Rice Lake be responsible for travel time or on-location repairs, including assembly or disassembly of equipment. Nor will Rice Lake be liable for the cost of any repairs made by others.

These warranties exclude all other warranties, expressed or implied, including without limitation warranties of merchantability or fitness for a particular purpose. Neither Rice Lake nor the authorized reseller will, in any event, be liable for incidental or consequential damages at the point of use.

Rice Lake and Customer agree that Rice Lake' sole and exclusive liability hereunder is limited to repair or replacement of such goods. In accepting this warranty, the Customer waives any and all other claims to warranty.

Should the seller be other than Rice Lake, the Customer agrees to look only to the seller for warranty claims.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of Rice Lake and the Customer.

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Return Policies

Our commitment to our Customers states that if any standard product purchased from Rice Lake does not work, or if the incorrect product is shipped, return it in its original shipping carton with all accessories in "like new" condition for full credit or replacement within 30 days of purchase. Electronic components returned to Rice Lake must be properly packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in the publication, "Protecting Your Components From Static Damage in Shipment," available online or from our Returns Department. This policy and the 30-day limit also apply to any products drop-shipped directly from the manufacturer.

Please note that if an incorrect quantity of product was shipped, Rice Lake must be contacted within 10 days of the purchase. Upon notification, we will immediately correct the situation.

A restocking charge will apply if equipment is not in likenew condition. The restocking charge is directly proportional to the amount of time and material required to return the item to resalable condition—we will make every effort to do this quickly and economically. Equipment that has been abused and/or shows signs of excessive wear and cannot be reconditioned and resold will not be accepted for return or credit after excessive wear or has been modified.

As Applied to Drop Shipments

All Rice Lake return guidelines apply to products drop-shipped directly from the manufacturer. If a perceived error occurs, Rice Lake will investigate to the best of our ability to determine if the error occurred prior to shipping, during shipping, or at the end user site. If our records and subsequent investigation indicate that the shipment was correct when it left our factory, our responsibility extends only to the authorized reseller, not their end user. Our standard product warranty notes that our coverage extends only to equipment and systems properly installed by an authorized reseller.

Obtaining an RMA

A return authorization number (RMA) is required for all materials being returned to Rice Lake for credit. Flat rate repairs require purchase orders at time of RMA issuance.

When returning equipment for repair or warranty reimbursement consideration, these simple steps will help to expedite your request:

- 1. Call our Returns Department.
- 2. Please have your customer number and both the item description and problem for a repair.
- Please have the original sales order or invoice number for items to be returned for credit or warranty. NOTE: See return policy
- 4. An RMA number will be given for eligible returns. This RMA number may also be faxed or emailed per your request.

Return Shipments Outside United States for repair, warranty, calibration or other services and re-export.

For shipment to the USA:

- 1. The commercial invoice must include the following statement:
 - a. "These goods are being returned for maintenance under"
 - i. Goods Made in the USA -- "HTS 9801.00.1012"
 - ii. Goods NOT made in the USA -- "HTS 9801.00.2500"
- The commercial invoice must list items individually and include the fair market value of the item based on its present condition for customs purposes only.
- 3. Please reference original RLWS commercial invoice number and date item was purchased if applicable.
- Please note that failure to follow these procedures may cause delay and will certainly incur extra charges that will NOT be absorbed by Rice Lake.

Return Shipments Outside United States other than for repair, or service work not being returned.

For shipment to the USA:

- The commercial invoice must include the following statement:
 - i. Goods Made in the USA -- "HTS 9801.00.1045"
 - ii. Goods NOT made in the USA -- "HTS 9801.00.2500"
- The commercial invoice must list items individually and include the fair market value of the item based on its present condition for customs purposes only.
- 3. Please reference original RLWS commercial invoice number and date item was purchased if applicable.
- 4. Please note that failure to follow these procedures may cause delay and possible reduction in your refund.
- Please be advised that you may qualify for a refund of your duties and should contact your local customs authority for instructions and forms.

Special Order, Modified, Non-Catalog, or Non-Stock Items

Due to the added resources and difficulty in reselling special or non-standard products, returns or credit are not allowed for special order equipment, special software programs, equipment physically modified or altered in the field, discrete electronic components, relays, manuals, or opened software packages.

Test Weights

All weights returned for credit will be assessed a restocking charge because of the required inspection and verification. Credit is not allowed for serialized weights, calibration or traceable services performed on weights.

Balances

Balances returned for credit within 30 days of purchase may be subject to a restocking fee if assessed by balance manufacturer.

Carrier Product Damage

As part of our commitment to customer satisfaction and in accordance with ISO 9001 standards, we make every attempt to pack our products so they will arrive in new condition. Occasionally due to rough handling or carelessness, product may arrive in a damaged condition. When this happens, don't assume that the shipment left Rice Lake in that condition or that the original packing was not sufficient.

The receiver, whether it is the authorized reseller or their Customer, is responsible for making a notation of damaged or missing items when signing the carrier's delivery receipt. If you or your Customer are not sure whether there is damage, we suggest adding a statement "CONDITION UNKNOWN" to the delivery receipt. In the event that damage or missing items are not properly documented at time of receipt, the carrier is relieved of responsibility and the receiver is then responsible for the cost to get the product back to new condition.

After the damage or shortage has been properly noted with the carrier, contact Rice Lake immediately and keep all the original packaging material for inspection by the carrier's representative. It is also helpful in the claim process to take pictures of the condition of the packaging and damage.

When drop-shipping items to your Customers, it is imperative that you advise them of their responsibility in accepting shipments from common carriers. Even if the equipment is not expected to be installed or used for a period of time, the shipment must be inspected at time of receipt in order to preserve their rights for making a claim.

How to Prepare a Balance for Shipment

The best and most effective method for shipping a balance at any time and for any reason is to use the original manufacturer's packaging materials and subsequently double box it as described below. Teach your Customers to retain the packing set. Please remember that due to the nature of the equipment, new packaging materials can be very expensive.

In the event that the original manufacturer's packaging materials are not available, follow these instructions for top loading balances.

- Remove the weighing platform cover, support buttons, weighing platform, floor plate, and other devices installed in the weighing chamber. Pack these pieces individually in bubble wrap and tape the wrapping closed. Follow this same procedure for AC adapters and power cords. Please note that AC adapters and power cords are necessary to adequately evaluate the problem.
- Examine the device (refer to the operating instructions) and if necessary, re-install or tighten any shipping screws/retaining devices to prevent damage to the weighing mechanism during shipment.
- If the floor plate is not removable, ensure it is securely in place and cannot come loose during shipment, even if the balance is inverted. Do NOT invert the balance to test the security of the floor plate.
- Clean the device of any loose debris or potential contaminants to our testing facility.

- Prepare and sign a Statement of Decontamination (form #0679). This form MUST be included in a separate packing list envelope on the outside of the box with the "Statement of Decontamination Form" statement clearly visible.
- 6. Using scotch tape or "speed" tape, tape all the glass doors on the device CLOSED. Be sure the tape is securely affixed and will not come off during shipment. Please note that on some devices, the glass breeze break around the weighing chamber can actually be disassembled and packed separate prior to shipment. Refer to the manufacturer's operating instructions. If this is a feature of the device being return, disassemble the breeze break and pack it in its own packing material and box.
- Use a large box that will provide a minimum of 3 inches of space around the device for loose-fill packing material.
- 8. Place a padding of foam or Styrofoam (at least 1" thick) at the bottom of the box.
- Place the balance in a large plastic bag and seal the bag closed.
- Please put the device on top of the foam padding or Styrofoam from step 8 above.
- 11. Ensure that there is at least three inches of clearance between the top of the balance and the top of the box.
- 12. Using generous amounts of anti-static loose-fill packing material, fill all the spaces around the balance. Shake the box to cause the material to settle and add additional loose fill as necessary.
- 13. Place the small box containing all the items from step 1 above on top of the loose fill covering the balance. Add additional loose fill to completely cover all items within the box.
- 14. Double pack this box in another box that will again provide an additional two inches of space around the inner box. Fill all existing space between the inner and outer box with copious amounts of anti-static loose fill packing material.
- 15. Seal the box and include all the necessary documentation on the outside of the box. Don't forget the Decontamination Form (form #0679) from step 5 above.

Repair Service Policies

Our Service Department is staffed Monday through Friday from 6:30 A.M. to 6:30 P.M., and Saturday from 8:00 A.M. to noon, Central time. For those utilizing the conveniences of the internet, we have an e-mail address dedicated to technical support. Please contact RLWS at service@ricelake.com for answers to your technical questions and the status of repair products during normal business hours.

Standard Repair Service Policy and Rates

We provide quality and timely repairs for the products we sell. Flat rate repair is offered for selected models of indicators, printers, and remote displays. Prior to returning a product for repair, our Returns Department will work with you to determine some key factors that will help RLWS better serve you. Please provide the following via phone to extensions 5348 or an RMA form.

- Customer number: without a customer number we cannot issue an RMA number.
- Ship-to address: your customer number will bring up the bill-to address. You must inform RLWS of the ship-to address if it's different than the bill-to address.
- Original sales and invoice orders: Required on warranty claims.
- Freight type: unless stated otherwise, we ship the device back to you utilizing the same freight type in which we received it. If Rice Lake is responsible for freight charges, the carrier will be selected at the sole discretion of Rice Lake.
- Definition of product and problem: please provide as much detail as possible regarding the type of product, application, and problem.
- Purchase order number for flat rate repair: once we receive the equipment and the RMA, equipment for flat rate repair will be processed immediately. Other equipment will be evaluated and a minimum \$45 evaluation charge will apply.

You may be asked about the possibility of a new replacement product. It may be in your Customer's best interest to explore the option of purchasing a new product if the repair will exceed 50% of authorized reseller net price, since new products carry full warranty benefits.

Please note that our hourly service rate on all current Rice Lake products is \$125.00/hour. There is a 120-day limited warranty on parts and workmanship performed and noted under the scope of the specific repair.

Balance Repair Policy and Rates

We offer repair support on the following balance models:

All Rice Lake brand models

Once we receive the equipment and the RMA form, an estimate will be prepared.

A minimum charge of one hour will apply.

Please note that the hourly service rate on all balances is \$125.00/hour. All balance repairs are covered by a 90-day limited warranty on parts and workmanship performed and noted under the scope of the specific repair. Balances must be packaged to adequately protect them from damage in transit. Please refer to "How to Prepare a Balance for Shipment" available on our website and from our Returns Department.

Test Weights

No returns will be accepted for items that are specifically modified for the Customer's requirements. Examples of such modifications may include, but not necessarily limited to:

- Weights that have been specifically built to the Customer's specifications.
- 2. Standard product specifically modified to the Customer's specifications.
- 3. Standard product engraved with serial numbers at the customer's request.
- 4. Laboratory procedure charges.
- 5. Laboratory documentation fees.

Load Cell Evaluation Policy, Repairs, and Rates

We support, service, repair and perform warranty evaluations on all Rice Lake brand load cells. We also provide repair evaluation for other manufacturers' load cells through each manufacturer's established service policies.

Power Conditioning Policy

Rice Lake Weighing Systems recommends the installation of AC and/or DC transient protection which has proven to be effective in significantly reducing both the frequency and degree of damage caused by AC and/or DC transient voltage occurrences. Rice Lake Weighing Systems does not warrant or guarantee any transient protection device against damage or repair sold by it or any of its representatives or authorized resellers. Rice Lake Weighing Systems does not warrant or guarantee any scale-related or other electrical/electronic device against damage or repair which is intended to be protected by any transient protection device sold by it or any of its representatives or authorized resellers. Any damage or repair expense resulting from a transient strike or occurrence including the transient device itself, as well as the components intended to be protected, will not be at the expense of Rice Lake Weighing Systems. No other warranty or guarantees—express or implied—contrary to this written policy are supported or acknowledged by Rice Lake Weighing Systems.

Field Service Rate Policy

For field service, we provide the services of highly-trained professionals for the following rate: \$1080.00 list per work day (not to exceed eight work hours). Additional daily hours are prorated at \$200.00/hour.

An additional 50% charge is added for services performed on Saturday and Sunday. The authorized reseller is responsible for travel expenses between Rice Lake, Wisconsin and the job location, regardless of the mode of transportation. Meals, lodging, and shipment of special equipment to and from the on-site location are billed to you at cost.

Exchange Board Policy

Exchange Procedures

Simply call Rice Lake Weighing Systems' Service Department and specify the exchange circuit board you require. We issue a Return Authorization number for your return and immediately ship you a reconditioned circuit board.

Upon receipt of your returned product, an inspection is made to ensure that it can be rebuilt or repaired. If it meets the inspection/analysis criteria for our exchange program, a credit is immediately applied to your account. Credit is not issued on any returned product that, upon inspection and analysis by our Service Department, is determined to be unrepairable or obsolete. Circuit boards that have been physically altered or modified are not eligible for exchange. If your return does not qualify under these guidelines, you are contacted and disposition of your return is mutually agreed upon.

Discontinued products' exchange boards may have limited availability.

Circuit Board Inspection/Analysis

All incoming boards are subject to an inspection to determine if they are eligible for our exchange program. A returned board is considered eligible for the exchange board program provided it:

- has all its traces intact.
- does not contain corrosion, burn marks, or lightning damage.

- has not been field-repaired using incorrect soldering or service techniques.
- has not been painted or coated with a foreign substance.
- If sense traces are cut, no core credit.

Upon passing inspection, a credit for your returned board is immediately applied to your account.

Warranty

We offer a 120-day limited warranty on exchange circuit boards. The replacement board exchange list price is 80% of the new board list price. All level 1, 2, 3, and 4 authorized resellers receive a 25% discount off of the board exchange list price.

Note: An \$85.00 exchange board credit is given when a usable board is returned

REPAIR BOARD EXCHANGE EXAMPLE:

IQ plus® 355

Exchange Board List	\$332.00
LESS 25% Authorized Reseller Discount	\$249.00
Exchange Board Credit	\$85.00
Final Net Price	\$164.00
COMPARE AND SAVE:	
IQ plus [®] 355	
New Board List	\$425.00
LESS Max Discount	\$269.75
You Save	\$105.75

Authorized

EXCHANGE CIRCUIT BOARDS

Part #	Model	Board Type	Exchange List Price	Authorized Reseller Net	FINAL NET Price*
Indicato	rs				
99345	120 reconditioned, external connector	CPU	\$188.00	\$141.00	\$100.00**
99346	120 reconditioned, internal connector	CPU	188.00	141.00	100.00**
64736	UMC222 reconditioned	DISP/CPU	396.00	297.00	212.00
31436	IQ plus® 310A reconditioned	DISP/CPU	516.00	387.00	302.00
31438	IQ 310A reconditioned	P/S	300.00	225.00	140.00
68442	IQ plus® 355 reconditioned	DISP/CPU	332.00	249.00	164.00
68439	IQ plus® 390 reconditioned	DISP/CPU	356.00	267.00	182.00
23033	UMC555 reconditioned, RFI	CPU	396.00	312.00	227.00
85930	420 reconditioned	CPU	376.00	282.00	197.00
94559	420 HE reconditioned	CPU	400.00	300.00	215.00
88811	IQ plus® 510 reconditioned	CPU	500.00	375.00	289.00
83132	520 reconditioned				
88810	IQ plus® 590 reconditioned	CPU	356.00	267.00	182.00
19278	UMC 600/IQ 700 reconditioned, RFI				
68440	IQ plus® 710 reconditioned, ver. 2.0	DISP/CPU	500.00	375.00	290.00
105923	720i reconditioned	CPU	600.00	450.00	365.00
40645	IQ plus® 800/810 recond., single channel, SMT				
22775	IQ plus® 810 reconditioned	P/S	488.00	366.00	281.00
101399	820i dual chn. reconditioned	CPU	796.00	597.00	512.00
97267	820i signal chn. reconditioned	CPU	680.00	510.00	425.00
83133	920i® reconditioned	CPU	660.00	495.00	410.00
100345	320IS CPU board reconditioned	CPU	396.00	297.00	212.00
114529	DWM IV motherboard reconditioned	CPU	450.00	175.00	N/A**
114530	DWM IV A/D board reconditioned				
114531	DWM IV display board reconditioned	DISP	190.00	135.00	N/A**
Remote	Displays				
71629	F Series reconditioned				
85932	LaserLight® reconditioned	CPU	292.00	219.00	134.00
Bench S					
36782	CW-80 reconditioned	CPU	408.00	306.00	221.00
71628	IQ plus® 2100 reconditioned	CPU	284.00	213.00	128.00
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^{*} After the \$85.00 exchange board credit has been issued to your account. Board exchange list prices are subject to change without notice based on 80% ratio to new board pricing.

^{**}The 80% exchange list price or the \$85.00 exchange credit may not to these boards

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Equipoise Series2 Compact Balance	0
TC Series 2	2
Tuning Fork Compact Balance TP Series2	4
Tuning Fork Precision Balance TS Series2	
Tuning Fork Stainless Steel Balance	
TA Series2 Tuning Fork Analytical Balance	8
MC Series 3 Mass Comparator	0
Ion BM Series 3	2
Micro, Semi-Micro Analytical Balances Phoenix GH Series	4
Analytical/Semi-Micro Balances Gemini GR Series	
Analytical/Semi-Micro	
HR-AZ/A Series3 Analytical Balance	8
Orion HR Series	0
AD-4212A Series 4	2
Analytical Balances GX Series4	5
Toploader Balances GF Series4	R
Toploader Balances	
GF-P Series 5 Toploader Balances	
FXi Series5 Toploader Balances	2
FXi-WP Series5 Toploader Balances	4
AD-16835	6
Static Eliminator EJ Newton Series5	7
Compact Balances EK-i Series	
Compact Balances	
EW-i Series 6 Compact Balances	2
GX-K Series 6 Industrial Balances	4
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Discovery [™] Semi-Micro and Analytical Balances	/3
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Explorer®Precision	
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High Canacity	
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MB Series	85
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Scout Pro®	87
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CL Series	90
Compact Scale	
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YA Series	00
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Triple Beam	03
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Mechanical Balances Field Test Scale	
Mechanical Balances Field Test Scale Mechanical Balance	97
Mechanical Balances Field Test Scale Mechanical Balance Heavy Duty Solution	97 98
Mechanical Balances Field Test Scale Mechanical Balance	97 98
Mechanical Balances Field Test Scale Mechanical Balance Heavy Duty Solution FD Series Food Portioning Scale Navigator™ XT	97 98 99
Mechanical Balances Field Test Scale Mechanical Balance Heavy Duty Solution FD Series Food Portioning Scale Navigator™ XT Battery-Operated Compact Scale	97 98 99
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Mechanical Balances Field Test Scale Mechanical Balance Heavy Duty Solution FD Series Food Portioning Scale Navigator™ XT Battery-Operated Compact Scale Valor® 7000 Compact Bench Scales Valor® 3000 Xtreme Compact Precision Scales Valor® 3000 Xtreme Compact Washdown Scales	97 98 99 99 101 102 103
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Product names, logos, brands, and other trademarks featured or referred to within this publication are the property of their respective trademark holders.

Balances

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Notes

www.ricelake.com | Phone: 800-472-6703

Standard Features

- Capacities between 300 g and 6000 g
- Internal resolution: 1/600,000
- LCD display
- · Quick response
- Accumulation, counting and percentage modes
- 13 different units of measure
- Detachable enclosed weighing chamber (in capacities ≤1 kg)
- Battery operation for up to 40 hours of continuous use (without backlight)
- Standard RS-232 interface for connecting to printer or PC
- Plastic enclosure
- · AC adapter



Capacity: 300 g-6000 g Readability: 0.01 g-0.2 g

Approvals



Specifications

	EQ-300^	EQ-600^	EQ-1500	EQ-3000	EQ-6000
Part#	129410	129411	129412	129413	132435
List Price	\$285.00	\$285.00	\$285.00	\$285.00	\$295.00
Capacity	300 g	600 g	1500 g	3000 g	6000 g
Resolution	0.01 g	0.02 g	0.05 g	0.1 g	0.2 g
Weighing Units	Gram, Carat, Ounc	e, Ounce Troy, Pound, Penny	weight, Grain, Momme, Hor	ng Kong Tael, Singapore Tae	l, Taiwan, Tael, tola
Operating Modes		Weighing, Perce	ent Weighing, Parts Counting	g, Accumulation	
Repeatability(+/-)	0.01 g	0.02 g	0.05 g	0.1 g	0.2 g
Linearity(+/-)	0.02 g	0.04 g	0.1 g	0.2 g	0.4 g
Stabilization Time			2 seconds		
Operating Temperature		3	2° F to 104° F (0° C to 40° 0	C)	
Weighing Chamber	6.7 x 5.7 (170 x 145		N/A	N/A	N/A
Pan Size	Ø 4.7 in (Ø	120 mm)	4.8	in x 5.6 in (122 mm x 142 n	nm)
Dimensions			7.1 x 8.7 x 3.3 in (180 x 220 x 85 mm)		
Est. Ship Weight			6.6 lb (3 kg)		
Calibration Weight	300 g	600 g	1500 g	3000 g	6000 g
Power		AC adapter (12V/50	0 mA); internal rechargeable	battery (6V/1.2Ah)	
Warranty	One-year limited warranty				
Return Policy			Rice Lake Standard Policy		

[^]Weighing Chamber

Equipoise SeriesCompact Balance

Part Number/Price

PART#	MODEL#	CAPACITY	EST SHIP WEIGHT	PRICE
129410	EQ-300	300 g x 0.01 g	6 lb	\$285.00
129411	EQ-600	600 g x 0.02 g	6 lb	285.00
129412	EQ-1500	1500 g x 0.05 g	6 lb	285.00
129413	EQ-3000	3000 g x 0.1 g	6 lb	285.00
132435	EQ-6000	6000 g x 0.2 g	6 lb	295.00

Options/Accessories

PART#	DESCRIPTION	PRICE
41279	Printer cable, DB9M to 25-Pin M	\$65.00
103141	SP712 dot matrix printer, tear bar	350.00
130789	Null modem adapter DBF/M	12.00
158056	Prove statistical printer	715.00
129425	AC Adapter, 110-240 VAC	35.00
119919	AbleCable RS-232/USB cable (requires 130789)	185.00
130789	Slim line null modem adapter	12.00
131135	Aluminum case	100.00
165183	AC adapter, 110-240VAC, interchangeable plugs	45.00

Tuning Fork Compact Balance

Standard Features

- Large 16.5 mm high Liquid Crystal Backlit Display (LCD)
- Selectable modes: weight, unit count and percentage
- 12 units of measurement
- Mono-Metal Tuning Fork Sensor (MMTS) provides quick response and stability
- 20-step bar graph display
- 115VAC adapter included (230VAC optional)
- · Semi-automatic calibration, external weight
- Plastic housing on models < 1000 g, plastic top and die cast bottom on models > 1000 g

Optional Features

- RS-232
- · Rechargeable battery



Readability: 0.01 g-0.1 g

Capacity: 620g-6200g

Specifications

Jecincanons					
	TC-620	TC-1200	TC-4200	TC-6200	
Part#	107232	107233	107234	107235	
List Price	\$700.00	\$640.00	\$700.00	\$755.00	
Capacity	620 g	1200 g	4200 g	6200 g	
Resolution	0.01 g	0.1 g	0.1 g	0.1 g	
Operating Modes		Count, Percentage, Limit	Function (Checkweighing)		
Repeatability		1 div	rision		
Linearity		1 div	rision		
Operating Temperature		41° F to 95° F	(5° C to 35° C)		
Pan Size	Ø 5.5 in (139.7 mm)	6.7 in x 5.6 in (170.2 x 142.2 mm)	7 in x (177.8 x 1		
Dimensions	9.2 x 7.1 x 2.9 in (234 x 180 x 74 mm)	10.	10.4 x 7.5 x 3.4 in (264 x 191 x 86 mm)		
Weight (Approx.)	2.9 lb (1.3 kg)	5.9lb (2.7 kg)	
Calibration Weight	600 g	1200 g	4000 g	6200 g	
Power		120 VAC	adapter		
Warranty		Five-year lim	ited warranty		
Return Policy		Rice Lake Sta	andard Policy		
Decimal Ounce	21 x 0.0005 oz	42 x 0.005 oz	140 x 0.005 oz	210 x 0.005 oz	
Decimal Pound	1.3 x 0.00005 lb	2.6 x 0.0005 lb	9.2 x 0.0005 lb	13 x 0.0005 lb	
Troy Ounce	19 x 0.0005 ozt	38 x 0.005 ozt	130 x 0.005 ozt	190 x 0.005 ozt	
Pennyweight	390 x 0.01 dwt	770 x 0.1 dwt	2700 x 0.1 dwt	3900 x 0.1 dwt	
Carat	3100 x 0.05 ct	6000 x 0.5 ct	21000 x 0.5 ct	31000 x 0.5 ct	
Momme	160 x 0.005 mom	320 x 0.05 mom	1100 x 0.05 mom	1600 x 0.05 mom	
Grain Unit	9500 x 0.2 GN	18000 x 2 GN	64000 x 2 GN	95000 x 2 GN	
ti (Hong Kong)	16 x 0.0005	32 x 0.005	110 x 0.005	160 x 0.005	
ti (Singapore, Malaysia, Taiwan)	16 x 0.0005	31 x 0.005	110 x 0.005	160 x 0.005	
to	53 x 0.001	100 x 0.01	360 x 0.01	530 x 0.01	

Rice Lake TC Series

Tuning Fork Compact Balance

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
107232	TC-620	620 g x 0.01 g	\$700.00
107233	TC-1200	1200 g x 0.1 g	640.00
107234	TC-4200	4200 g x 0.1 g	700.00
107235	TC-6200	6200 g x 0.1 g	755.00

Options/Accessories

PART#	DESCRIPTION	PRICE
107236	Rechargeable battery-TC-620, TC-1200, 32 hr	\$100.00
107237	Rechargeable battery-TC-4200, TC-6200, 32 hr	100.00
107238	RS-232 option with DIN-5-Pin connector (not compatible with battery option) (TC-620, TC-1200)	125.00
107239	RS-232 option with DIN-5-Pin connection (not compatible with battery option, (TC-4200,TC-6200)	125.00
107240	In-use dust cover, 220 to 1200 g	25.00
107250	In-use dust cover, 2200 to 12 kg	25.00
109236	Underweigh hook TC-620, TC-1200	25.00
109292	Underweigh hook TC-4200, TC-6200	25.00
42566	120VAC adapter	50.00
42168	230 VAC adapter	70.00
107243	Additional operating manual	15.00
75351	WinWedge software	325.00
115303	5-Pin to 9-Pin RS-232 cable	95.00
115148	RS-232 manual	5.00

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Standard Features

- · External weight calibration
- Large 16.5 mm high LCD (Liquid Crystal Backlit Display)
- Selectable modes: weight, unit, count and percentage
- 12 units of measurement
- . Mono-Metal Tuning Fork Sensor (MMTS) provides quick response and stability
- 20-step bar graph display
- 115VAC adapter included (230VAC optional)
- One part in 620,000 resolution
- RS-232 bidirectional
- Plastic housing on models < 1000 g, plastic top and die cast bottom on models > 1000 g

Optional Features

- · Rechargeable battery
- NTEP Certified models

Specifications



Capacity: 220g-12,000g Readability: 0.001g-0.1g





	TP-220^	TP-420NT^	TP-820	TP-1200NT	TP-3200	TP-4200NT	TP-6200NT	TP-8200	TP-12K
Part#	107244	-	107245		107246	-		107247	107248
List Price	\$1,000.00	-	\$1,000.00		\$1,130.00	-		\$1,000.00	\$1,150.00
Part#	-	108155	-	163604	-	108154	163606	-	-
List Price	-	\$1,100.00	-	\$950.00	-	\$1,100.00	\$1,425.00	-	-
Capacity	220 g	420 g	820 g	1200 g	3200 g	4200 g	6200 g	8200 g	12000 g
Resolution	0.001 g	0.001 g	0.01 g	0.01 g	0.01 g	0.01 g	0.01 g	0.1 g	0.1 g
Operating Modes			Co	unting, Percenta	ge, Limit Function	ı (checkweighing)			
Repeatability					1 division				
Linearity					1 division				
Operating Temperature				41° F t	o 95° F (5° C to 3	5° C)			
Pan Size		1.6 in .8 mm)		x 5.5 in 139.7 mm)		(17	7 in x 6.2 in 7.8 x 157.5 mr	n)	
Dimensions	(including	.1 x 6.6 in windshield) 2 x 170 mm)		7.1 x 2.9 in 32 x 75 mm)			.1 x 7.5 x 3.4 ii 5 x 192 x 87 mi		
RS-232 Specifications			Baud rate -	1200/2400/280	0/9600; Data bits	- 8, Connector - I	DIN 5-Pin		
Est. Ship Weight		2.9 lb (1.3 kg)					6.2 lb (2.8 kg)		
Calibration Weight	200 g	400 g	800 g	1000 g	3000 g	4000 g	6000 g	8000 g	12000 g
Power					120VAC adapter				
Battery Option			Nickel (, 12-hour run time	, ,			
Approvals		NTEP Class II		NTEP Class II		NTEP C	lass II		
Warranty					year limited warra				
Return Policy		I		Rice	Lake Standard Po	licy		I	
Decimal Ounce	7.7 x 0.00005 oz	14 x 0.001 oz	28 x 0.0005 oz	42 x 0.0005	110. x 0.0005 oz	140 x 0.01 oz	210 x 0.001	280 x 0.005 oz	420 X 0.005 oz
Decimal Pound	0.48 x 0.00001 lb	0.92 x 0.00001 lb	1.8 x 0.00005 lb	2.6 x 0.00005	7.0 x 0.00005 lb	9.2 x 0.0001 lb	13 x 0.0001	18 x 0.0005 lb	26 x 0.000
Troy Ounce	7 x 0.00005 ozt	16 x 0.0001 ozt	26 x 0.0005 ozt	38 x 0.0005	100 x 0.0005 ozt	130 x 0.001 ozt	190 x 0.001	260 x 0.005 ozt	380 x 0.005 oz
*Pennyweight	140 x 0.001 dwt		520 x 0.01 dwt	770 x 0.01	2000 x 0.01 dwt	2700 x 0.01	3900 x 0.01	5200 x 0.1 dwt	7700 x 0.1 dwt
*Pennyweight Carat	1100 x 0.01 ct	2100 x 0.01 ct	4100 x 0.05 ct	6000 x 0.05	160000 x 0.05 ct	21000 x 0.1 ct	31000 x 0.1	41000 x 0.5 ct	60000 x 0.5 ct
Momme	58 x 0.0005 mom		210 x 0.005 mom	320 x 0.005	850 x 0.01 mom	1100	1600 x 0.01	2100 x .05 mom	3200 x 0.05 moi
Grain Unit	3300 x 0.02 GN	6400 x 0.02 GN	12000 x 0.2 GN	1200 x 0.01	48000 x 0.2 GN	64000 x 0.2 GN	95000 x 0.2	120000 x 2 GN	180000 2 GN
ti	5.8 x 0.00005		21 x 0.0005		85 x 0.001			210 x 0.005	320 x 0.0
to	18 x 0.0001		70 x 0.001	100 x 0.001	270 x 0.001		530 x 0.001	700 x 0.01	1000 x 0.
Measurable Unit Weight	0.03 g	0.03 g	0.03 g	0.01 g	0.3 g	0.3 g	0.01 g	3 g	3 g

[^]Weighing Chamber

^{*}Pennyweight is not an NTEP supported unit of measurement

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Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
107244	TP-220	220 g x 0.001 g	\$1,000.00
108155	TP-420NT	420 g x 0.001 g	1,100.00
107245	TP-820	820 g x 0.01 g	1,000.00
163604	TP-1200NT	1200 g x 0.01 g	950.00
107246	TP-3200	3200 g x 0.01 g	1,130.00
108154	TP-4200NT	4200 g x 0.01 g	1,100.00
163606	TP-6200NT	6200 g x 0.01 g	1,425.00
107247	TP-8200	8200 g x 0.1 g	1,000.00
107248	TP-12K	12000 g x 0.1 g	1,150.00

Options/Accessories

PART#	DESCRIPTION	PRICE
107249	Rechargeable battery ≤ TP1200	\$100.00
107237	Rechargeable battery ≥ TP-3200	100.00
107250	In-use dust cover ≥ TP-3200	25.00
107240	In-use dust cover ≤ TP-1200	25.00
42566	115VAC adapter	50.00
42168	230 VAC adapter	70.00
107251	Additional operating manual	15.00
75351	WinWedge Tal software	325.00
115303	5-Pin to 9-Pin DB female RS-232 cable	95.00
109236	Underweigh hook ≤ TP-1200	25.00
109292	Underweigh hook ≥ TP-3200	25.00
158056	Prove statistical printer (requires cable)	715.00
158583	Cable, RJ11 to 5-Pin DIN	65.00

TS Series

Tuning Fork Stainless Steel Balance

Standard Features

- · Stainless steel, IP65 top housing
- Large 18 mm Liquid Crystal Display (LCD) with blacklight
- Selectable modes
- 13 units of measurement
- MMTS (Mono-Metal Tuning Fork Sensor) provides quick response and stability
- IP65
- 115 VAC adapter included (230 VAC optional)
- · Semi-automatic calibration, external weight
- RS-232 bidirectional

Optional Features

- Battery
- Underweigh hook
- Waterproof RS-232 cable



Capacity: 620g-8200g Readability: 0.01g-0.1g

Specifications

pecilications	TS-620	TS-6200	TS-8200
Part#	108156	108157	112182
		100.00	
List Price	\$1,300.00	\$1,400.00	\$1,475.00
Capacity	620 g	6200 g	8200 g
Resolution	0.01 g	0.1 g	0.1 g
Operating Modes	Counting, Percentage, Limit Function (Cl	heckweighing), Weighing multiplied by coe adding multiple measurements	fficient, specific gravity, animal weighing,
Repeatability		1 division	
Linearity		1 division	
Operating Temperature		0° C to 40° C 80% RH or less	
Pan Size	Ø 140 mm (5.51 in)	190 x 190 mm	(7.48 X 7.48 in)
RS-232 Specifications	Baud rate - 1200/2400/4800/9600/1920	O, Data bits 8/7; Connector - 9-Pin D-Sub N	M (not IP65 unless using PN 109238 cable)
Dimensions		12.2 x 8.2 x 3.4 in (310 x 208 x 87 mm)	
Weight (Approx.)		10 lb (4.5 kg)	
Calibration Weight*	600 g	6000 g	8000 g
Power		120 V AC adapter	
Battery Option		Field installable, uses 4AA dry cell batterie	S
Warranty		Five-year limited warranty	
Return Policy		Rice Lake Standard Policy	
Decimal Ounce	21 x 0.0005 oz	210 x 0.005 oz	280 x 0.005 oz
Decimal Pound	1.3 x 0.00005 lb	13 x 0.0005 lb	18 x 0.0005 lb
Decimal Pound Troy Ounce Pennyweight	19 x 0.0005 ozt	190 x 0.005 ozt	260 x 0.005 ozt
Pennyweight	390 x 0.01 dwt	3900 x 0.1 dwt	5200 x 0.1 dwt
Carat	3100 x 0.05 ct	31000 x 0.5 ct	41000 x 0.5 ct
Momme	160 x 0.005 mom	1600 x 0.05 mom	2100 x 0.05 mom
Grain Unit	9500 x 0.2 GN	95000 x 2 GN	120000 x 2 GN

^{*} Calibration of balance does not require weight of full capacity (adjustable)

Tuning Fork Stainless Steel Balance

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
108156	TS-620	620 g x 0.01 g	\$1,300.00
108157	TS-6200	6200 g x 0.1 g	1,400.00
112182	TS-8200	8200 g x 0.1 g	1,475.00

Options/Accessories

PART#	DESCRIPTION	PRICE
108498	AC adapter, 6VDC/120VAC	\$50.00
108499	AC adapter, 6VDC/230VAC	70.00
72440	9-Pin D-sub F-25-Pin D-sub connector	65.00
22436	9-Pin D-sub F to blunt end	55.00
66535	Null modem cable	45.00
119064	Slimline adapter, null modem gender changer	10.50
109236	Under weigh hook	25.00
109238	Waterproof RS-232 cable	350.00
109050	Additional operating manual	15.00
112611	Battery operator manual	5.00
112516	Battery option	100.00
119919	Able Cable, requires Null modem adapter	185.00

TA Series

Tuning Fork Analytical Balance

Standard Features

- Anti-electric 360° transparent windshield
- Eight digit 16.5 mm high Liquid Crystal Display (LCD) with blacklight
- Single-touch response setting for environment
- 40-step bar graph display
- RS-232C interface
- ISO/GLP/GMP compliant printing record
- Underweigh hook included
- · Internal calibration
- · Plastic housing



Specifications

pecinicanoris				
	TA-120^	TA-220^		
Part# 107396		107397		
List Price	\$1,935.00	\$1,955.00		
Capacity	120 g	220 g		
Resolution	0.0001 g	0.0001 g		
Operating Modes	Counting, Percentage, Limit Function (checkweighing), Specific gravity,			
Repeatability	1 division			
Linearity		rision		
Operating Temperature	50° F to 86° F (10° C to	50° F to 86° F (10° C to 30° C) 80% RH or lower		
RS232 Specifications	Baud rate - 1200/2400/4800/9600/19200 bps, 8/7 data bits, Parity bit-None/Odd/Even			
Pan Size	Ø 3.15 in (80 mm)			
Dimensions	11 x 7.9 x 12 in (290 x 200 x 306 mm)			
Weight (Approx.)	6.4 lb (2.9 kg)			
Calibration Weight	100 g 200 g			
Power	120VAC adapter			
Warranty	Five-year limited warranty			
Return Policy	Rice Lake Standard Policy			
Decimal Ounce	4.2 x 0.000005 oz	7.7 x 0.000005 oz		
Decimal Pound	0.26 x 0.000001 lb	.48 x 0.000001 lb		
Troy Ounce	3.8 x 0.000005 ozt	7 x 0.000005 ozt		
Pennyweight	77 x 0.0001 dwt	140 x 0.0001 dwt		
Troy Ounce Pennyweight Carat	600 x 0.0005 ct	1100 x 0.001 ct		
Momme Grain Unit	32 x 0.00005 mom	58 x 0.00005 mom		
Grain Unit	1800 x 0.002 GN	3300 x 0.002 GN		
TI	3.2 x 0.000005	5.8 x 0.00005		
Tola	10 x 0.00001 to	18 x 0.00001 to		

[^] Weighing Chamber

Rice Lake **TA Series**

Tuning Fork Compact Balance

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
107396	TA-120	120 g x 0.0001 g	\$1,935.00
107397	TA-220	220 g x 0.0001 g	1,955.00

Options/Accessories

PART#	DESCRIPTION	PRICE
108255	115VAC adapter	\$50.00
108256	230 VAC adapter	75.00
108257	In-use cover	50.00
107398	Additional operating manual	15.00
75351	WinWedge® Tal software	325.00
66535	Null modem RS-232 cable	45.00
119919	Able Cable, requires null modem adapter	185.00
158056	Prove statistical printer	715.00

A & D Weighing **MC Series** Mass Comparator

Standard Features

- Super hybrid sensor technology
- Bright VFD display
- Manage ASTM & OIML weights
- Auto-centering pan options
- · Standard underhook
- Built-in calibration weight
- GLP/LIM/ISO compliant
- RS-232C standard



Specifications

•	MC-1000^	MC-6100^	MC-10K^	MC-30K^	
D 1//					
Part#	151262	151263	151264	151265	
List Price	\$5,495.00	\$5,495.00	\$6,495.00	\$6,495.00	
Capacity	1100 g	6100 g	10.1 kg	31 kg	
Resolution	0.1 mg	0.001 g	0.001 g	0.01 g	
Operating Modes	Weighing, Percentage, Comparator				
Weighing Units	g, oz, lb, lb-oz, troy oz, ct, dwt, grain, momme				
Repeatability**	0.0005 g/1 kg/0.0004 g/500 g	0.004 g/5 kg/0.0015 g/2 kg	0.005 g/10 kg/0.004 g/5 kg	0.015 g/20 kg	
Linearity	±0.002 g	±0.02g	±0.03 g	±0.2g	
Stabilization Time	5 seconds				
Sensitivity Drift (10° C-30° C)	±2ppm/° C			±3ppm/0° C	
Operating Temperature	41° F to 104° F (5° C to 40° C) 85% RH or less (no condensation)				
Pan Size	128 x 128 mm	165 x 165 mm	270 x 21	210 mm	
Physical Dimensions	210 x 317 x 86 mm		300 x 355 x 111 mm		
Weight	4.6 kg	5.1 kg	9.3 kg		
Ext. Cal. Mass (optional)	1000 g	6000 g	10 kg	30 kg	
Power	Power 120/240 AC a				
Warranty	Five-year limited warranty				
Return Policy	A&D Weighing Standard Policy - restock fee may apply				

[^] Weighing Chamber
*** Repeatability when auto-centering is used under good ambient conditions



Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
151262	MC-1000	1100 g x 0.1 mg, Glass Breeze Break	\$5,495.00
151263	MC-6100	6100 g x 0.001 g, Glass Breeze Break	5,495.00
151264	MC-10K	10.1 kg x 0.001 g, Breeze Break	6,495.00
151265	MC-30K	31 kg x 0.01 g, Breeze Break	6,495.00

PART#	MODEL#	DESCRIPTION	PRICE
151266	AX-MC1000PAN	Auto center pan, MC-1000	\$1,117.00
151267	AX-MC6100PAN	Auto center pan, MC-6100	1,117.00
151268	AX-MC10K-30KPAN	Auto center pan, MC-10/30K	1,425.00
151247	AD-1688	Data logger	295.00
97649	TB-248	AC adapter, 120/240V	41.00
97695	GX-04*	Comparator output, factory installed	255.00
97696	GX-06*	Analog output, factory installed	815.00
97699	GX-12	Animal weigh pan	180.00
97700	GX-13	Density determination for MC-1000	623.00
97607	AD-1682	External rechargeable battery pack	658.00
97612	SW-128	Foot switch	72.00
158785	AD-8121B	Impact dot-matrix printer, statistical function, includes 25-Pin cable	865.00

^{*} Only one option may be installed

Standard Features

- Built-in fanless static eliminator
- Standard underhook
- · Anti-static glass
- Built-in motorized calibration weight
- One touch environmental filters
- GLP/LIM/ISO compliant
- RS-232C and WinCT software standard
- AD-1688 Weighing Data Logger included



Capacity: 520 g Readability: 0.000001 g

	BM-20^	BM-22^	BM-252^	BM-200^	BM-300^	BM-500^		
Part#	150762	150763	150765	150766	150767	150768		
List Price	\$13,995.00	\$12,995.00	\$7,995.00	\$6,295.00	\$6,595.00	\$6,995.00		
Capacity (g)	22	22/5.1	250	220	320	520		
Resolution (g)	0.000001	0.00001/0.000001	0.00001	0.0001	0.0001	0.0001		
Operating Modes			Percentage	e, Counting				
Repeatability	0.0025 mg	0.004 mg/0.01 mg	0.03 mg	0.1 mg	0.2	mg		
Linearity	±0.010 mg	±0.010/0.02 mg	±0.010 mg	±0.2 mg	±0.3 mg	±0.5 mg		
Stabilization Time	10 seconds (typically)	8 to 10 seconds	8 seconds		Approx. 3.5 seconds			
Sensitivity Drift (10° C-30° C)		±2pp	m/° C (when automation	self calibration is not	used)			
Operating Temperature		41° F to 104° F (5° C to 40° C), 85% RH or less (no condensation)						
Pan Size	Ø 0.98 inch	inches (25 mm) Ø 3.6 inches (90 mm)						
Physical Dimensions			10.2 x 18.3 x 12.8 in	(259 x 466 x 326 mm)				
Weight			10 kg (ships by	/ motor freight)				
Ext. Cal. Mass (optional)	20	20 g 200 g 200 g 300 g			500 g			
Power		120/240 AC Adapter						
Warranty	Five-year limited warranty							
Return Policy	A&D Weighing Standard Policy - restock fee may apply							
Decimal Ounce	0.776 x 0.00000001	0.18/0.776 x 0.0000001/0.000001	8.82 x 0.000001	7.76 x 0.00001	11.29 x 0.00001	18.34 x 0.000001		
Troy Ounce	0.707 x 0.0000001	0.164/0.707	8.03 x 0.0000001	7.07 x 0.000001	10.29 x 0.000001	16.72 x 0.000001		
Pennyweight Carat	14.15 x 0.00001	3.28/14.15 x 0.00001 x 0.0001	160.7 x 0.00001	141.5 x 0.0001	20.58 x 0.0001	334.4 x 0.0001		
Carat	110 x 0.00001	25.5/110 x 0.00001/0.0001	1250 x 0.0001	1100 x 0.001	1600 x 0.001	2600 x 0.001		
Momme	5.87 x 0.000001	1.37/5.87 x 0.000001/0.00001	66.67 x 0.00001	58.7 x 0.0001	85.3 x 0.0001	138.7 x 0.0001		
Grain Unit	339.5 x 0.00002	78.71/339. 5x 0.00002/0.0002	3858x0.0002	3395x0.002	4938x0.002	8024x 0.002		

[^] Weighing Chamber

Micro, Semi-Micro Analytical Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
150762	BM-20	22 g x 0.001 mg	\$13,995.00
150763	BM-22	5.1 g/22 g x 0.001 mg/0.01 mg	12,995.00
150765	BM-252	250 g x 0.01 mg	7,995.00
150766	BM-200	220 g x 0.1 mg	6,295.00
150767	BM-300	320 g x 0.1 mg	6.595.00
150768	BM-500	520 g x 0.1 mg	6,995.00

PART#	MODEL#	DESCRIPTION	PRICE
150769	BM-08	Balance OPT, Ethernet BM	\$810.00
97606	AD-1653	Density determination kit (BM-252/200/300/500 only)	535.00
97609	AD-8922A	Remote controller	615.00
97608	AD-8920A	Universal remote display	260.00
97612	SW:128	Foot switch	72.00
97649	TB:248	AC adapter 120V/220V	41.00
158785	AD-8121B	Dot-matrix statistical printer, includes 25-Pin cable	865.00

A & D Weighing Phoenix GH Series

Analytical/Semi-Micro Balances

Standard Features

- Simple and easy to operate, adapts to your environment
- GLP/GMP/GCP/ISO compliant which outputs the calibration data and ID number of the balance for calibration confirmation to the AD-8121B printer
- · Internal calibration mass; full digital calibration
- System diagnostic to alert operator of abnormal weighing conditions
- Underhook capability for density determination and weighing magnetic substances
- RS-232C bidirectional interface
- Data memory function
- Time and date function
- WinCT® communication tools software
- Liquid Crystal Display (LCD)



Readability: 0.00001 g

Capacity: 120g-250g

	GH-120^	GH-200^	GH-300^	GH-202^	GH-252^			
Part#	97597	97599	97600	97601	97602			
List Price	\$3,435.00	\$3,895.00	\$4,625.00	\$5,195.00	\$5,725.00			
Capacity	120 g	220 g	320 g	220/51 g	250/101 g			
Resolution	0.0001 g	0.0001 g	0.0001 g	0.0001/ 0.00001 g	0.0001/ 0.00001 g			
Operating Modes			Percentage, Counting					
Repeatability	±0.2 mg	±0.2 mg	±0.3 mg	±0.2 mg/±0.03 mg	±0.2 mg/±0.10 mg			
Linearity	0.1 mg	0.1 mg	0.2 mg	0.1 mg/0.02 mg	0.1 mg/0.03 mg			
Stabilization Time		Appro	ox. 3.5 sec (0.1 mg)/8 sec	(0.01 mg)				
Sensitivity Drift (10° C-30° C)		±2 ppm/° C (when automatic self calibr	ation is not used)				
Operating Temperature		41° F to 104° F	(5° C to 40 C) 85% RH or le	ess (no condensation)				
Pan Size Ø 3.6 in (90 mm)								
Physical Dimensions 8.54 W x 17.4 D x 12.24 in H (217 x 442 x 316 mm)								
Weighing Chamber	6.45 W x 4.87 D x 9.88 in H (164 x 148.5 x 251 mm)							
Weight		Approx. 18 lb (8.2 kg)						
Ext. Cal. Mass (optional)	50 g/100 g	100 g/200 g	100 g/200 g/300 g	20 g/50 g/100 g/200 g				
Power	120V AC (AC Adapter) 50 Hz/60 Hz, 11 VA (110, 220, 240 available by special order)							
Warranty	Five-year limited warranty							
Return Policy	A&D Weighing Standard Policy - restock fee may apply							
Decimal Ounce	4.23 x 0.00001 oz	7.76 x 0.00001 oz	11.29 x 0.00001 oz	7.76 x 0.00001/1.80 x 0.000001 oz	8.82 x 0.00001/3.56 x 0.000001 oz			
Troy Ounce	3.86 x 0.00001 ozt	7.07 x 0.00001 ozt	10.29 x 0.00001 ozt	7.07 x 0.00001/1.64 x 0.000001 ozt	8.04 x 0.00001/3.25 x 0.000001 ozt			
Pennyweight	77.2 x 0.0001 dwt	141.5 x 0.0001 dwt	205.8 x 0.0001 dwt	141.5 x 0.0001/32.8 x 0.00001 dwt	160.8 x 0.0001/64.9 x 0.00001 dwt			
Carat Momme	600 x 0.001 ct	1100 x 0.001 ct	1600 x 0.001 ct	1100 x 0.001/255 x 0.0001 ct	1250 x 0.001/505 x 0.0001 ct			
Momme	32.0 x 0.0001 mom	58.7 x 0.0001 mom	85.3 x 0.0001 mom	58.7 x 0.0001/13.6 x 0.00001 mom	66.7 x 0.0001/26.9 x 0.00001 mom			
Grain Unit	1852 x 0.002 GN	3395 x 0.002 GN	4938 x 0.002 GN	3395 x 0.002/787 x 0.0002 GN	3858 x 0.002/1559 x 0.0002 GN			
Tola	10.29 x 0.00001 to	18.86 x 0.00001 to	27.44 x 0.00001 to	18.86 x 0.00001/4.37 x 0.000001 to	21.43 x 0.00001/8.66 x 0.000001 to			
Tael	3.20 x 0.00001 TL	5.87 x 0.00001 TL	8.53 x 0.00001 TL	5.87 x 0.00001/1.36 x 0.000001 TL	6.67 x 0.00001/2.69 x 0.000001 TL			

[^] Weighing Chamber

A & D Weighing

Phoenix GH Series Analytical/Semi-Micro Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97597	GH-120	120 g x 0.0001 g	\$3,435.00
97599	GH-200	220 g x 0.0001 g	3,895.00
97600	GH-300	320 g x 0.0001 g	4,625.00
97601	GH-202	220/51 g x 0.0001/0.00001 g	5,195.00
97602	GH-252	250/101 g x 0.0001/0.00001 g	5,725.00

PART#	MODEL#	DESCRIPTION	PRICE
97604	GH-08	Ethernet option for GH	\$664.00
97605	AD-100-2	Anti theft device	70.00
97606	AD-1653	Density determination kit	535.00
97607	AD-1682	Rechargeable battery pack, external	658.00
97608	AD-8920	Universal remote display	260.00
97609	AD-8922	Remote controller	615.00
97610	AD-1683	Static eliminator	1,219.00
151247	AD-1688	Data logger	295.00
97612	SW:128	Foot switch	72.00
97649	TB:248	AC adapter (120V/220V)	41.00

Analytical/Semi-Micro

Standard Features

- GLP/GMP/GCP/ISO compliant software outputs the calibration data and ID number of the balance for calibration confirmation to the AD-8121B printer
- · Easy access door system
- · Automatic self-calibration
- Data memory function
- · Underhook capability for density measurement and weighing magnetic material
- · Internal calibration standard
- Liquid Crystal Display (LCD)
- RS-232 bidirectional interface
- WinCT® communication tools software



Capacity: 120g-310g Readability: 0.00001g-0.0001g

-	GR-120^	GR-200^	GR-300^	GR-202^
Part#	97625	97626	97627	97628
List Price	\$2,925.00	\$3,395.00	\$4,195.00	\$4,785.00
Capacity	120 g	210 g	310g	210/42 g
Resolution	0.0001 g	0.0001 g	0.0001 g	0.0001/ 0.00001 g
Operating Modes			Percentage, Counting	
Repeatability	0.0001 g	0.0001 g	0.0001 g	0.0001/0.00002 g
Linearity	±0.0002 g	±0.0002 g	±0.0002 g	±0.0002/±0.00003 g
Stabilization Time		Approx. 3.	5 sec (0.1 mg)/8 sec (0.01 r	mg)
Sensitivity Drift (10° C to 30° C)		±2ppm/° C	50° F to 86° F (10° C to 30)° C)
Operating Temperature		41° F to 104° F (5° C	to 40° C) 85% RH or less (ne	o condensation)
Pan Size			Ø 3.3 in (85 mm)	
Physical Dimensions		9.8 W x 12.99 [x 12.87 in H (249 x 330 x	327 mm)
Weighing Chamber		7.01 W x 6.5 [0 x 9.17 in H (178 x 160 x 2	33 mm)
Weight		Д	pprox. 13.2 lb (6.0 kg)	
Ext. Cal. Mass (optional)	50 g/100 g	100 g/200 g	200 g/300 g	100 g/200 g
Power	120V	AC (AC Adapter) 50Hz/60 H	lz, 11VA (110, 220, 240VAC	adapter by special order)
Warranty		Fiv	e-year limited warranty	
Return Policy		A&D Weighing St	andard Policy - restock fee	may apply
Decimal Ounce	4.2 x 0.00001 oz	7.4 x 0.00001 oz	10 x 0.00001 oz	7.4 x 0.00001/1.4 x 0.000001 oz
Troy Ounce	3.8 x 0.00001 ozt	6.7 x 0.00001 ozt	9.9 x 0.00001 ozt	6.7 x 0.00001/1.3 x 0.000001 ozt
Pennyweight Carat	77 x 0.0001 dwt	135 x 0.0001 dwt	199 x 0.0001 dwt	135 x 0.0001/27 x 0.00001 dwt
Carat	600 x 0.001 ct	1050 x 0.001 ct	1550 x 0.001 ct	1050 x 0.001/210 x 0.0001 ct
Momme	32 x 0.0001 mom	56 x 0.0001 mom	82 x 0.0001 mom	56 x 0.0001/11 x 0.00001 mom
Grain Unit	1851 x 0.002 GN	3240 x 0.002 GN	4784 x 0.002 GN	3240 x 0.002/648 x 0.0002 GN
Tola	10 x 0.00001 to	18 x 0.00001 to	26 x 0.00001 to	18 x 0.00001/3.6 x 0.000001 to
Tael	3.1 x 0.00001 TL	5.5 x 0.00001 TL	8.2 x 0.00001 TL	5.5 x 0.00001/1.1 x 0.000001 TL

[^] Weighing Chamber

A & D Weighing

Gemini GR Series

Analytical/Semi-Micro Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97625	GR-120	120 g x 0.0001 g	\$2,925.00
97626	GR-200	210 g x 0.0001 g	3,395.00
97627	GR-300	310 g x 0.0001 g	4,195.00
97628	GR-202	210/42 g x 0.0001/0.00001 g	4,785.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97605	AD-100-2	Anti-theft device	\$70.00
97606	AD-1653	Density determination kit	535.00
97607	AD-1682	Rechargeable battery pack	658.00
97608	AD-8920	Universal remote display	260.00
97609	AD-8922	Remote controller	615.00
97610	AD-1683	Static eliminator	1,219.00
97612	SW:128	Foot switch	72.00
97649	TB:248	AC adapter (120 V/220 V AC)	41.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Impact Dot Matrix, statistical printer, includes cable	865.00



Analytical Balance

Standard Features

- Fast stabilization time
- One touch calibration in HR-AZ models
- · Compact footprint size
- Rotary sliding doors
- Removable Breeze break with anti-static coating.
- GLP/GMP/GCP/ISO compliant



	HR-100A^	HR-100AZ^	HR-150A^	HR-150AZ^	HR-250A^	HR-250AZ^	
Part#	150777	150779	150780	150781	150782	150783	
List Price	\$1,756.00	\$2,173.00	\$1,863.00	\$2,279.00	\$2,025.00	\$2,482.00	
Capacity (g)	1	02	15	52	2	52	
Resolution (g)	esolution (g) 0.0001						
Operating Modes		We	eighing, Percent Weighir	ng, Parts Counting, Der	sity		
Repeatability		0.1	l mg		<200 mg 0.1 mg	/>200 mg 0.2 mg	
Linearity		+/- ().2 mg		+/- 0	.3 mg	
Stabilization Time			3 sec	conds			
Operating Temperature		41° F to 1	104° F (5° C to 40° C), 8	35% RH or less (no con	densation)		
Pan Size			Ø 3.6 inch	es (90 mm)			
Physical Dimensions		7.8 x 11.6 x 12.3 in (198 x 294 x 313 mm)					
Weight			8.6 lb ((3.9 kg)			
Calibration Weight (g)	2	200 150 100			00		
Power			120/240 A	AC adapter			
Warranty			Five-year lim	ited warranty			
Return Policy		A&D Weighing Standard Policy - restock fee may apply					
Decimal Ounce	3.59 x 0.00001	3.59 x 0.00001	5.36 x 0.00001	5.36 x 0.00001	8.88 x 0.00001	8.88 x 0.00001	
Troy Ounce	3.27 x 0.00001	3.27 x 0.00001	4.88 x 0.00001	4.88 x 0.00001	8.10 x 0.00001	8.10 x 0.00001	
Pennyweight	65.5 x 0.0001	65.5 x 0.0001	97.7 x 0.0001	97.7 x 0.0001	162 x 0.0001	162 x 0.0001	
Pennyweight Carat	510 x 0.001	510 x 0.001	760 x 0.001	760 x 0.001	1260 x 0.001	1260 x 0.001	
Momme	27.2 x 0.0001	27.2 x 0.0001	40.5 x 0.0001	40.5 x 0.0001	67.2 x 0.0001	67.2 x 0.0001	
Grain Unit	1574 x 0.002	1574 x 0.002	2346 x 0.002	2346 x 0.002	3889 x 0.002	3889 x 0.002	
Tola	8.74 x 0.00001	8.74 x 0.00001	13.0 x 0.00001	13.0 x 0.00001	21.6 x 0.00001	21.6 x 0.00001	
Tael (T)	2.72 x 0.00001	2.72 x 0.00001	4.02 x 0.00001	4.02 x 0.00001	6.66 x 0.00001	6.66 x 0.0001	

[^] Weighing Chamber

A & D Weighing **HR-AZ/A Series**Analytical Balance

Part Number/Price

PART#	MODEL #	DESCRIPTION	PRICE
150777	HR-100A	102 g x 0.0001 g	\$1,756.00
150779	HR-100AZ	102 g x 0.0001 g	2,173.00
150780	HR-150A	152 g x 0.0001 g	1,863.00
150781	HR-150AZ	152 g x 0.0001 g	2,279.00
150782	HR-250A	252 g x 0.0001 g	2,025.00
150783	HR-250AZ	252 g x 0.0001 g	2,482.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
151247	AD-1688	Data logger	\$295.00
98027*	FXi-02	Quick USB interface with cable	84.00
98028*	FXi-08	Ethernet interface with WIN-CT Plus	465.00
98029*	FXi-09	Rechargeable battery	310.00
97649	TB:248	AC adapter	41.00

^{*}Only one option may be installed

A & D Weighing Orion HR Series

Analytical/Semi-Micro

Standard Features

- GLP/GMP/GCP/ISO compliant software outputs the calibration data and ID number of the balance for calibration confirmation to the AD-8121B printer
- Optional battery pack (HR-60, HR-120 and HR-200)
- · System diagnostics to alert operator of abnormal weighing conditions
- RS-232C bidirectional interface (HR-60C, HR-120C and HR-200C. Standard for HR-300i and HR-202i)
- Underhook capability for density measurement and weighing magnetic materials
- Liquid Crystal Display (LCD)
- · WinCT® communication tools software

Note: Orion HR series does have internal calibration



Readability: 0.00001 g-0.0001 g

Capacity: 60g-320g

Specifications

	HR-60^	HR-60C^	HR-120^	HR-120C^	HR-200^	HR-200/C^	HR-3001^	HR-2021^
Part#	-	-	97637	97638	97639	97640	97642	97641
List Price	-	-	\$2,350.00	\$2,435.00	\$2,500.00	\$2,600.00	\$4,065.00	\$4,510.00
Part#	97635	97636	-	-	-	-	-	-
Part# List Price	\$1,895.00	\$1,995.00	-	-	-	-	-	-
Capacity	60	g	12	20 g	21	10 g	320 g	220/51 g
Resolution	0.0001 g (NT	EP 0.001 g)	0.00	001 g	0.00	001 g	0.0001 g	0.0001/ 0.00001 g
Operating Modes					Percentage,	Counting		
Repeatability			0.0	001 g			±0.0003 mg	±0.0002/±0.00003 g
Linearity			±0.0	0002 g			0.0002 mg	0.0001/0.00002 g
Stabilization Time			3 second	ls (typically)			Approx. 3.5 seconds	Approx. 3.5/8 seconds
Sensitivity Drift (10° C-30° C)			±ź	2 ppm/° C (whe	en automatic s	self calibration	is not used)	
Operating Temperature			41° F 1	to 104° F (5° C	to 40° C) 85°	% RH or less (r	no condensation)	
Pan Size			Ø 3.3 in	(85 mm)			Ø 3	.6 in (90 mm)
Dimensions				8 D x 11.9 in H 9 x 301 mm)			8.54 W x 17.4 D x 12.24 in H (217 x 442 x 316 mm)	
Weighing Chamber				5 D x 7.9 in H 2 x 200 mm)			6.45 W x 5.84 D x 9.88 in H (164 x 148.5 x 251 mm)	
Weight			Approx. 12	2.5 lb (5.7 kg)			Approx. 17.6 lb (8.0 kg)	
Ext. Cal. Mass (optional)	50	g	10)0 g	20)0 g	300 g/200 g/100 g	200 g/100 g/50 g/20 g
Power		120\	/ AC (AC Adap	ter) 50 Hz/60 H	Iz (110, 220, 2	240V AC adapt	er available by speci	al order
Approvals					NTEP CC 9	97-084		
Warranty				F	ive-year limite	ed warranty		
Return Policy			Α	&D Weighing S	Standard Polic	y - restock fee	may apply	
Decimal Ounce	2.1 x 0.00	00005 oz	4.2 x 0.0	000005 oz	7.4 x 0.0	000005 oz	11.29 x 0.00001 oz	7.76 x 0.00001/1.8 x 0.000001 oz
Troy Ounce	1.9 x 0.00	00005 ozt	3.8 x 0.0	00005 ozt	6.7 x 0.0	00005 ozt	10.3 x 0.00001 ozt	7.07 x 0.00001/1.64 x 0.000001 ozt
Pennyweight	38 x 0.0	001 dwt	77 x 0.0	0001 dwt	135 x 0.	0001 dwt	199 x 0.0001 dwt	141.5 x 0.0001/32.8 x 0.00001 dwt
Carat	300 x 0	.001 ct	600 x	0.001 ct	1050 x	0.001 ct	1550 x 0.001 ct	1100 x 0.001/255 x 0.0001 ct
Momme	16 x 0.00	005 mom	32 x 0.00	0005 mom	56 x 0.00	0005 mom	82 x 0.0001 mom	58.7 x 0.0001/13.6 x 0.00001 mom
Grain Unit	925 x 0.	002 GN	1851 x	0.002 GN	3240 x	0.002 GN	4784 x 0.002 GN	3395 x 0.002/787 x 0.0002 GN
Tola	5 x 0.00	0001 to	10 x 0.0	00001 to	18 x 0.	00001 to	26 x 0.00001 to	18.8 x 0.00001/4.37 x 0.000001 to
Tael	1.5 x 0.00	00005TL	3.1 x 0.0	000005TL	5.5 x 0.0	00005TL	8.2 x 0.00001 TL	5.87 x 0.00001/1.36 x 0.00001 TL

^ Weighing Chamber

A & D Weighing Orion HR Series

Analytical/Semi-Micro Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97635	HR-60	60 g x 0.0001 g (NTEP 0.001 g)	\$1,895.00
97636	HR-60C	60 g x 0.0001 g (NTEP 0.001 g)	1,995.00
97637	HR-120	120 g x 0.0001 g	2,350.00
97638	HR-120C	120 g x 0.0001 g	2,435.00
97639	HR-200	210 g x 0.0001 g	2,500.00
97640	HR-200/C	210 g x 0.0001 g	2,600.00
97642	HR-300i	320 g x 0.0001 g	4,065.00
97641	HR-202i	220/51 g x 0.0001/0.00001 g	4,510.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97646	HR-03	Serial interface (RS-232C) for HR-60/120/200	\$175.00
97647	HR-05	20mA current loop interface for HR-60/120/200	122.00
97648	HR-09	NiCAd battery pack for HR-60, HR-60-C, HR-120, HR-120-C, HR-200, HR-200-C only	465.00
97605	AD-100-2	Anti-theft device	70.00
97606	AD-1653	Density determination kit	535.00
97607	AD-1682	Rechargeable battery pack, external	658.00
97608	AD-8920	Universal remote display	260.00
97610	AD-1683	Static eliminator	1,219.00
97609	AD-8922	Remote controller	615.00
97649	TB:248	HR AC adapter (120V/220V)	41.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Impact dot matrix statistical printer, includes cable	865.00

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Analytical Balances

Standard Features

- Comparator output (Hi/OK/Lo) feature for manual or automatic operation as well as buzzer function
- GLP/GMP compliant software output
- · Breeze break for maximum accuracy and fastest response
- · Standard calibration weight
- · Simple operator reference card provided
- Multi-weighing units
- Time and date clock function
- Data memory function for weighing, calibration, counting and Hi/OK/Lo values
- · Counting and percent mode
- Super Hybrid Sensor Technology (SHS)
- WinCT® communication tools software
- RS-232C bidirectional interface



Capacity: 110g-1100g Readability: 0.00001g-0.001g

Specifications

		AD-4212A-100	AD-4212B-102	AD-4212A-200	AD-4212B-201				
	Part#	97654	102925	97655	102926				
L	ist Price	\$5,495.00	\$8,495.00	\$4,825.00	\$6,695.00				
-	Capacity	110 g	110g	210 g	210 g				
R	esolution	0.0001 g	0.00001 g	0.001 g	0.0001 g				
Oper	rating Modes		Counting, F	Percentage					
Repeata	ability (Std. Dev.)	0.00015 g	0.00015 g	0.0	D1 g				
	Linearity	±0.0003 g	±0.0003 g	±0.002 g	±0.002 g				
Ctab:I:-ad	hian Time (huniasi)	0-30 g Approx. 1.1 sec	0-30 g Approx. 1.1 sec	0-30 g Approx. 0.8 sec	0-30 g Approx. 0.8 sec				
Stabilizat	tion Time (typical)	30-110 g Approx. 1.3 sec	30-110 g Approx. 1.3 sec	30- 210 g Approx. 1.0 sec	30-210 g Approx. 1.0 sec				
Ser	nsitivity Drift		±2 ppm / °C 10°C to	30°C (50°F to 86°F)					
Operati	ng Temperature		41°F to 104°F (5°C to 40°C) 85°C	% RH or less (no condensation)					
	RS-232C		Bidirectional	600-19,200					
I/O Interface	Comparator Output		3 level outpu	t with buzzer					
illellace	External Contact Input		Re-zero	and print					
	Dimensions		3.2 x 9.1 x 3.5 in (80 V	W x 230 D x 90 H mm)					
Weighing Unit	Weighing Pan	2 x 2 in (50 x 50 mm)							
	Weight	Approx. 2 kg							
Display Unit	Dimensions	9.3 W x 6.0 D x 6.1 in H (237 W x 150 D x 155 mm H)							
Display Utili	Weight	Approx. 2 kg							
	Connection Cable	Approx. 2 m (between weighing unit and display unit)							
Ship	pping Weight	8.5 lb (4 kg)							
Calibration W	Veight (OIML F1 (OPT)	50 g	50 g	100 g	100 g				
Po	wer Supply	120V AC Adapter, 11VA							
١	Warranty	Five-year limited warranty							
Re	eturn Policy	A&D Weighing Standard Policy - restock fee may apply							
	Milligram	110000.0 x 0.1 mg	110000.0 x 0.01 mg	2100000 x 1 mg	210000 x 0.1 mg				
	Ounce	3.880135 x 0.000005 oz	3.880135 x 0.000005 oz	7.40755 x 0.00005 oz	7.40755 x 0.00005 oz				
	Troy Ounce	3.536580 x 0.000005 ozt	3.536580 x 0.000005 ozt	6.75165 x 0.00005 ozt	6.75165 x 0.00005 ozt				
	Carat	550.0 x 0.0005 ct	550.0 x 0.0005 ct	1050.0 x 0.005 ct	1050.0 x 0.005 ct				
뿥	Momme	29.33335 x 0.00005 mom	29.33335 x 0.00005 mom	56.0 x 0.0005 mom	56.0 x 0.0005 mom				
OF MEASURE Tael (H	Pennyweight	70.7316 x 0.0001 dwt	70.7316 x 0.0001 dwt	135.033 x 0.001 dwt	135.033 x 0.001 dwt				
×	Grain	1697.56. x 0.002 GN	1697.56. x 0.002 GN	3240.80 x 0.02 GN	3240.80 x 0.02 GN				
Tael (H	HK Gen, Singapore)	2.910100 x 0.000005	2.910100 x 0.000005	5.55565 x 0.00005	5.55565 x 0.00005				
	el (HK jewelry)	2.938900 x 0.000005	2.938900 x 0.000005	5.61060 x 0.00005	5.61060 x 0.00005				
	Tael (Taiwan)	2.933335 x 0.000005	2.933335 x 0.000005	5.600 x 0.00005	5.600 x 0.00005				
	Tael (China)	3.520 x 0.00005	3.520 x 0.00005	6.7200 x 0.00005	6.7200 x 0.00005				
	Tola (India)	9.43089 x 0.00001	9.43089 x 0.00001	18.0044 x 0.0001	18.0044 x 0.0001				
	Messaghal	23.46665 x 0.00005	23.46665 x 0.00005	44.80 x 0.0005	44.80 x 0.0005				

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		AD-4	212B-301	AD-42	12A-600	AD-4:	212A-1000	
	Part#	1	02927	97656			97657	
Li	ist Price	\$7,225.00		\$5,325.00		\$5,525.00		
C	apacity	310g		6	i10 g		1100 g	
Resolution		0	.0001 g		0.0	01 g		
Opera	ating Modes			Counting	g, Percentage			
Repeatal	bility (Std. Dev.)			0	.001 g			
L	inearity	±	0.002 g		±0.0	0003 g		
Ctabilizati	on Time (typical)	0–30 g	Approx. 0.8 seconds	0–30 g	Approx. 0.9 seconds	0–30 g	Approx. 0.9 sec	
Stabilizati	on Time (typical)	30- 210 g	Approx. 1.0 second	30-610 g	Approx. 1.1 seconds	30-1100 g	Approx. 1.1 sec	
Sens	sitivity Drift			±2 ppm/°C 50°F	to 86°F (10°C to 30°C)			
Operatin	g Temperature		41°F to 10	04°F (5°C to 40°C) 8	35% RH or less (no cor	ndensation)		
	RS-232C			Bidirection	nal 600-19,200			
I/O Interface	Comparator Output			3 level out	put with buzzer			
IIILEITACE	External Contact Input			Re-ze	ro and print			
	Dimensions		3	3.2 W x 9.1 D x 3.5	in H (80 x 230 x 90 mr	n)		
Weighing Unit	Weighing Pan	2 x 2 in	(50 x 50 mm)	2.8 x 2.8 in(70 x 70 mm)				
	Weight			Approx. 2 kg				
Diamles Huit	Dimensions	237 W x 150 D x 155 mm H						
Display Unit	Weight	Approx. 2 kg						
	Connection Cable	Approx. 2 m (between weighing unit and display unit)						
Shipp	ping Weight	8.5 lb (4 kg)						
Calibration We	eight (OIML F1)(OPT)	100 g		200 g				
Pow	ver Supply	120 V AC Adapter, 11 VA						
W	Varranty	Five-year limited warranty						
Ret	urn Policy	A&D Weighing Standard Policy - restock fee may apply						
	Milligram	2100	000 x 1 mg	660000 x	660000 x 0.00005 mg		1210000 x 0.00005 mg	
	Ounce	7.40755	5 x 0.00005 oz	23.28081 x 0.00005 oz		42.681485 x 0.00005 oz		
1	Troy Ounce	6.75165	x 0.00005 ozt	21.21948 x 0.0005 ozt		38.90238 x 0.0005 ozt		
	Carat	1050.	0 x 0.005 ct	3300 x 0.005 ct		6050 x 0.005 ct		
	Momme	56.0 x	0.0005 mom	176.0001 x 0.0005 mom		322.6668	5 x 0.0005 mom	
Р	ennyweight	135.03	3 x 0.001 dwt	424.3896 x 0.001 dwt		778.047	76 x 0.001 dwt	
	Grain	3240.8	30 x 0.02 GN	10185.36 x 0.02 GN 18673.16 x 0.0		.16 x 0.02 GN		
Tael (Hi	K Gen, Singapore)	5.5556	65 x 0.00005	17.4606 x 0.00005 32.0111 x 0.0		11 x 0.00005		
Momme Pennyweight Grain Tael (HK Gen, Singapore) Tael (HK jewelry)		5.61060 x 0.00005		17.6334 x 0.00005		32.3279 x 0.00005		
Ta	ael (Taiwan)	5.600	0 x 0.00005	17.60001 x 0.00005		32.266	885 x 0.00005	
1	Tael (China)	6.720	0 x 0.00005	21.12 x 0.00005		38.72	2 x 0.00005	
	Tola (India)	18.00	44 x 0.0001	56.58534 x 0.0001		103.73	979 x 0.0001	
Messaghal		44.80 x 0.0005		140.7999 x 0.0005		258.13315 x 0.0005		

A & D Weighing AD-4212A Series

Analytical Balances

Part Number/Price

PART#	A&D MODEL#	DESCRIPTION	PRICE
97654	AD-4212A-100	110 g x 0.0001 g	\$5,495.00
102925	AD-4212B-102	110 g x 0.00001 g	8,495.00
97655	AD-4212A-200	210 g x 0.001 g	4,825.00
102926	AD-4212B-201	210 g x 0.0001 g	6,695.00
102927	AD-4212B-301	210 g x 0.0001 g	7,225.00
97656	AD-4212A-600	610 g x 0.001 g	5,325.00
97657	AD-4212A-1000	1100 g x 0.001 g	5,525.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97672	AD-4212A-01	BCD output (factory installed, four month lead time)	\$560.00
97674	AD-4212A-07	Extension cable, 3 m	159.00
97675	AD-4212A-08	Ethernet Interface with WinCT	765.00
97676	AD-4212A-19	Stainless steel breeze break (200 g only)	102.00



Toploader Balances

Standard Features

- · Internal calibration weight
- Auto environmental compensation
- IP54 splash-proof operator keyboard
- RS-232C bidirectional interface
- WinCT® communication tools software
- GLP/GMP/ISO compliant to either AD-8121 printer or computer.
- Transmits date, time, ID number, serial number and calibration data
- · Auto re-zero function
- Interval time setting; built-in time and date
- Rechargeable battery option for portable needs
- · Data memory function
- Multiple weighing modes: Counting, Percentage and Comparator Modes
- Super Hybrid Sensor Technology (SHS)
- Vacuum Fluorescent Display (VFD)
- Optional glass breeze break
- Underhook weighing



Readability: 0.001 g-0.1 g

Capacity: 210g-8100g

	GX-200^	GX-400^	GX-600^	GX-800^	GX-1000^
Part#	97685	97686	97687	97688	97689
List Price	\$1,893.00	\$2,360.00	\$2,795.00	\$2,960.00	\$3,145.00
Capacity	210 g	410 g	610 g	810 g	1100 g
Resolution	0.001 g	0.001 g	0.001 g	0.001 g	0.001 g
Modes	Animal weigh	ing, comparator function, A	ACAI counting function, per	centage function, density	determination
Repeatability			0.001 g		
Linearity	±0.0	02 g		±0.003 g	
Stabilization Time	Approx	1 second (typical in FAST	mode)	Approx. 1.	5 seconds
Display Refresh		5 times per seco	nd (stable) / 10 times per s	second (unstable)	
Operating temperature		41° F to 104° F (5° C	C to 40° C) RH less than 85	% (No condensation)	
Pan Size		5.0	04 x 5.04 in (128 x 128 m	m)	
Physical Dimension		8.26 W x 12	2.48 D x 3.38 in H (210 x 3	17 x 86 mm)	
Weighing Chamber			3.6 in H (91.3 mm H)		
Weight (Approx.)			2.15 lb (4.6 kg)		
Power		120/	/240 VAC adapter Approx 1	1 VA	
Warranty			Five-year limited warranty		
Return Policy		A&D Weighing	Standard Policy - restock	fee may apply	
Decimal Ounce	7.40755 x 0.00005 oz	14.46230 x 0.00005 oz	21.51710 x 0.00005 oz	28.57190 x 0.00005 oz	38.80135 x 0.00005 oz
Decimal Pound	0.462970 x 0.000005 lb	0.903895 x 0.000005 lb	1.344820 x 0.000005 lb	1.785744 x 0.000005 lb	2.425084 x 0.000005 lb
Troy Ounce Pennyweight Carat	6.75165 x 0.00005 ozt	13.18180 x 0.00005 ozt	19.61195 x 0.00005 ozt	26.04210 x 0.00005 ozt	35.36582 x 0.00005 ozt
Pennyweight	135.033 x 0.001 dwt	263.636 x 0.001 dwt	392.239 x 0.001 dwt	520.842 x 0.001 dwt	707.316 x 0.001 dwt
Carat Carat	1050.000 x 0.00 5 ct	2050.000x 0.005 ct	3050.000 x 0.005 ct	4050.000 x 0.005 ct	5500.000 x 0.005 ct
Momme Grain Unit	56.0000 x 0.0005 mom	109.3335 x 0.0005 mom	162.6665 x 0.0005 mom	215 x 0.0005 mom	270 x 0.0005 mom
Grain Unit	3240.80 x 0.02 GN	6327.26 x 0.02 GN	9413.74 x 0.02 GN	12500.21 x 0.02 GN	16975.6 x 0.02 GN
Pound x Ounce 4 lb 10.08 oz	7.4 1 oz	14.46 oz	1 lb 5.52 oz	1 lb 12.80 oz	2 lb 4 oz

[^] Weighing Chamber



	GX-2000	GX-4000	GX-6100	GX-6000	GX-8000
Part#	97690	97691	97692	97693	97694
List Price	\$1,895.00	\$2,540.00	\$2,840.00	\$2,185.00	\$2,385.00
Capacity	2100 g	4100 g	6100 g	6100 g	8100 g
Resolution	0.01 g	0.01 g	0.01 g	0.1 g	0.1 g
Modes	Animal weigl	ning, comparator function,	ACAI counting function, per	centage function, density d	letermination
Repeatability		0.01 g		0.	1 g
Linearity	±0.	02 g	±0.03 g	±0.	.1 g
Stabilization Time	Approx. 1 sec (typ	ical in FAST mode)	Approx. 1.5 seconds	Approx.	1 second
Display Refresh		5 times per seco	nd (stable) / 10 times per s	econd (unstable)	
Operating temperature		41°F to 104°F (5°C	to 40°C) RH less than 85°C	% (No condensation)	
Pan Size		6.5	0 in x 6.50 in (165 x 165 m	ım)	
Physical Dimension		8.26 W x 12	2.48 D x 3.38 H in (210 x 31	7 x 86 mm)	
Weighing Chamber			3.6 in H (91.4 mm H)		
Weight (Approx.)			Approx 2.05 lb (5.1 kg)		
Power		120/2	240V by AC adapter Approx	11 VA	
Warranty			Five-year limited warranty		
Return Policy		A&D Weighing	Standard Policy - restock	fee may apply	
Decimal Ounce	74.0755 x 0.0005 oz	144.6230 x 0.0005 oz	215.1710 x 0.0005 oz	215.170 x 0.005 oz	285.720 x 0.005 oz
Decimal Pound	4.62970 x 0.00005 lb	9.03895 x 0.00005 lb	13.44820 x 0.00005 lb	13.4480 x 0.0005 lb	17.8575 x 0.0005 lb
Troy Ounce Pennyweight Carat	67.5165 x 0.0005 ozt	131.8180 x 0.0005 ozt	196.1195 x 0.0005 ozt	196.120 x 0.005 ozt	260.420 x 0.0005 ozt
Pennyweight	1350.33 x 0.01 dwt	2636.36 x 0.01 dwt	3922.39 x 0.01 dwt	3922.4 x 0.1 dwt	5208.4 x 0.1 dwt
Carat	10500.00 x 0.05 ct	20500.00 x 0.05 ct	30500.00 x 0.05 ct	30500.0 x 0.5 ct	40500.0 x 0.5 ct
Momme	560.000 x 0.005 mom	1093.335 x 0.005 mom	1626.665 x 0.005 mom	1626.65 x 0.05 mom	2160.00 x 0.05 mom
Grain Unit	32408.0 x 0.2 GN	63272.6 x 0.2 GN	94137.4 x 0.2 GN	94136 x 2 GN	125002 x 2 GN
Pound x Ounce 4 lb 10.08 oz	9 lb 0.62 oz	13 lb 7.17 oz	13 lb 7.17 oz	17 lb 13.72 oz	



Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97685	GX-200	210 g x 0.001 g	\$1,893.00
97686	GX-400	410 g x 0.001 g	2,360.00
97687	GX-600	610 g x 0.001 g	2,795.00
97688	GX-800	810 g x 0.001 g	2,960.00
97689	GX-1000	1100 g x 0.001 g	3,145.00
97690	GX-2000	2100 g x 0.01 g	1,895.00
97691	GX-4000	4100 g x 0.01 g	2,540.00
97692	GX-6100	6100 g x 0.01 g	2,840.00
97693	GX-6000	6100 g x 0.1 g	2,185.00
97694	GX-8000	8100 g x 0.1 g	2,385.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97695	GX-04	Comparator output; factory installed only	\$255.00
97696	GX-06	Analog output; factory installed only	815.00
97697	GX-10	Glass breeze break for GX-200/400/600/800/1000	265.00
97698	GX-11	Glass breeze break for GX-2000/4000/6000/6100/8000	292.00
97699	GX-12	Animal weighing pan for GX-400/600/2000/4000/6100/6000/8000	180.00
97700	GX-13	Density determination kit for GX-200/400/600	623.00
97607	AD-1682	Rechargeable battery pack (external)	658.00
97608	AD-8920	Universal remote display	260.00
97605	AD-100-2	Anti-theft device	70.00
97612	SW:128	Foot switch	72.00
97703	AX:073003691-S	Protective in-use cover for GX-200/400/600	18.00
97704	AX:073003692-S	Protective in-use cover for GX-2000/4000/6100/6000/8000	18.00
97649	TB:248	AC adapter (120V/220V)	41.00
102891	GX-02	USB option	144.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Impact dot matrix statistical printer, cable included	865.00

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Standard Features

- IP54 splash proof operator keyboard
- RS-232C bidirectional communication
- GLP/ISO/LIMS compliant to either AD-8121 printer or computer. Transmits date, time, ID number, serial number and calibration data
- Auto re-zero function
- Data collection software compatible
- WinCT® communication tools software
- Interval time setting
- · Data memory function
- · Multiple weighing units
- · Rechargeable battery option for portable needs
- Vacuum fluorescent display (VFD)
- · Optional glass breeze break
- Underhook weighing
- Super Hybrid Sensor Technology (SHS)
- External calibration



Readability: 0.001 g-0.1 g

Capacity: 210g-8100g

Specifications

	GF-200^	GF-300^	GF-400^	GF-600^	GF-800^	GF-1000^	GF-1200	
Part#	97707	97709	97711	97712	97713	97714	97715	
List Price	\$1,345.00	\$1,510.00	\$1,785.00	\$2,400.00	\$2,640.00	\$2,750.00	\$1,300.00	
Part# Class II List Price	97708	97710	-	-	-	-	97716	
List Price	\$1,395.00	\$1,550.00	-	-	-	-	\$1,455.00	
Capacity	210 g	310 g	410 g	610 g	810 g	1100 g	1210 g	
Resolution	0.001 g (NTEP 0.01 g)	0.001 g (NTEP 0.01 g)	0.001 g	0.001 g	0.001 g	0.001 g	0.01 g (NTEP 0.1 g)	
Operating Modes	Ani	mal weighing, comp	arator function, ACA	Al counting function,	percentage function	n, density determin	ation	
Repeatability			0.0	01 g			0.01 g	
Linearity	±0.0)02g		±0.0)03 g		±0.02g	
Stabilization Time		Approx 1 second (ty	pical in FAST mode)	Approx. 1.	.5 seconds	Approx. 1 sec (typical in FAS mode)	
Operating Temperature			41° F	to 104° F (5° C to 4	10° C)			
Weighing Chamber			3.6 in H (9	1.4 mm H)				
Pan Size		5.04 x 5.04 in (128 x 128 mm)						
Dimensions		8.27 x 12.48 x 3.39 in (2100 x 317 x 86 mm) Approx 2						
Weight (Approx.)	2.15 lb (4.6 kg)							
Est. Ship Weight	11.2lb (5.2kg)							
Power			120/24	OVAC adapter, Appro	x. 11 VA			
Approvals	NTEP CO	03-005	-	-	-	-	NTEP CC 03-0	
Warranty	Five-year limited warranty							
Return Policy	A&D Weighing Standard Policy - restock fee may apply							
Decimal Ounce	7.40755 x 0.00005 oz	10.93493 x 0.00005 oz	14.46230 x 0.00005 oz	21.51710 x 0.00005 oz	28.57190 x 0.00005 oz	38.80135 x 0.00005 oz	42.68149 x 0.0005 oz	
Decimal Pound	0.462970 x 0.0000051b	0.68343 x 0.000005 lb	0.903895 x 0.000005 lb	1.344820 x 0.000005 lb	1.785744 x 0.000005 lb	2.425084 x 0.000005 lb	2.66759 x 0.00005 lb	
Troy Ounce	6.75165 x 0.00005 ozt	9.96673 x 0.00005 ozt	13.18180 x 0.00005 ozt	19.61195 x 0.00005 ozt	26.04210 x 0.00005 ozt	35.36582 x 0.00005 ozt	38.90240 x 0.0005 ozt	
Pennyweight Carat	135.033 x 0.001 dwt	199.33463 x 0.001 dwt	263.636 x 0.001 dwt	392.239 x 0.001 dwt	520.842 x 0.001 dwt	707.316 x 0.001 dwt	778.04807 2 0.01 dwt	
Carat	1050.000 x 0.005 ct	1550.000 x 0.005 ct	2050.000x 0.005 ct	3050.000 x 0.005 ct	4050.000 x 0.005 ct	5500.000 x 0.005 ct	6050 x 0.05	
Momme	56.0000 x 0.0005 mom	81.3332 x 0.0005 mom	109.3335 x 0.0005 mom	162.6665 x 0.0005 mom	215 x 0.0005 mom	270 x 0.0005 mom	270.000 x 0.005 mom	
Grain Unit	3240.80 x 0.02 GN	4784.03 x 0.02 GN	6327.26 x 0.02 GN	9413.74 x 0.02 GN	12500.21 x 0.02 GN	16975.6 x 0.02 GN	18673.15 x 0.2 GN	
Pound x Ounce (x 0.01oz)	7.41 oz	10.93 oz	14.46 oz	5.52 oz	1 lb 12.8 oz	2 lb 4 oz	2 lb, 11 oz	

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		GF-2000	GF-3000	GF-4000	GF-6100	GF-6000	GF-8000	
	Part#	97717	97719	97721	97722	97723	97725	
	List Price	\$1,350.00	\$1,515.00	\$1,925.00	\$2,435.00	\$1,795.00	\$2,105.00	
NTEP	Part# Class II	97718	97720	-		97724	-	
뒫	List Price	\$1,495.00	\$1,625.00	-		\$1,895.00	-	
	Capacity	2100 g	3100 g	4100 g	6100 g	6100 g	8100 g	
	Resolution	0.01 g (NTEP 0.1 g)	0.01 g (NTEP 0.1 g)	0.01 g	0.01 g (NTEP 0.1 g)	0.1 g	0.1 g	
	Operating Modes	Animal w	eighing, comparator fo	unction, ACAI counting	function, percentage	function, density dete	rmination	
	Repeatability		0.0	11 g		0.	1 g	
	Linearity		±0.02 g		±0.03 g	±0	.1 g	
	Stabilization Time	Approx. 1 sec (typi	cal in FAST mode)	Approx. 1.	5 seconds	Approx.	1 second	
	Operating Temperature	ature 41° F to 104° F (5° C to 40° C)						
	Pan Size 6.5 x 6.5 in (165 x 165 mm)							
	Dimensions	Dimensions 8.27 x 12.48 x 3.39 in (2100 x 317 x 86 mm)						
	Weight (Approx.)	ht (Approx.) Approx 2.05 lb (5.1 kg)						
	Est. Ship Weight			11.2 lb	· 0/			
	Power			120/240 VAC adap	oter, Approx. 11 VA			
	Approvals	NTEP CC	03-005	-	- NTEP CC - 03-005			
	Warranty	Five-year limited warranty						
	Return Policy		A&D \	Weighing Standard Pol	icy - restock fee may	apply		
	Decimal Ounce	74.0755 x 0.0005 oz	109.34928 x 0.0005 oz	144.6230 x 0.0005 oz	215.1710 x 0.0005 oz	215.170 x 0.005 oz	285.720 x 0.005 oz	
ш	Decimal Pound	4.62970 x 0.00005 lb	6.83433 x 0.00005 lb	9.03895 x 0.00005 lb	13.44820 x 0.00005 lb	13.4480 x 0.0005 lb	17.8575 x 0.0005 lb	
JNIT OF MEASURE	Troy Ounce	67.5165 x 0.0005 ozt	99.66731 x 0.0005 ozt	131.8180 x 0.0005 ozt	196.1195 x 0.0005 ozt	196.120 x 0.005 ozt	260.420 x 0.0005 ozt	
≥	Pennyweight	1350.33 x 0.01 dwt	1993.35 x 0.01 dwt	2636.36 x 0.01 dwt	3922.39 x 0.01 dwt	3922.4 x 0.1 dwt	5208.4 x 0.1 dwt	
0 <u>⊨</u>	Carat	10500.00 x 0.05 ct	15500.00 x 0.05 ct	20500.00 x 0.05 ct	30500.00 x 0.05 ct	30500.0 x 0.5 ct	40500.0 x 0.5 ct	
S	Momme	560.000 x 0.005 mom	813.325 x 0.005 mom	1093.335 x 0.005 mom	1626.665 x 0.005 mom	1626.65 x 0.05 mom	2160.00 x 0.05 mom	
	Grain Unit	32408.0 x 0.2 GN	47840.31 GN	63272.6 x 0.2 GN	94137.4 x 0.2 GN	94136 x 2 GN	125002 x 2 GN	
	Pound x Ounce (x 0.01oz)	4 lb 10.08 oz	7 lb 1 oz	9 lb 0.62 oz	13 lb 7.17 oz	13 lb 7.17 oz	17 lb 13.72 oz	

[^] Weighing Chamber

A & D Weighing **GF Series**Toploader Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97707	GF-200	210 g x 0.001 g	\$1,345.00
97708	GF-200 (Class II)	210 g x 0.001 g (NTEP 310 g x 0.01 g)	1,395.00
97709	GF-300	310 g x 0.001 g	1,510.00
97710	GF-300 (Class II)	310 g x 0.001 g (NTEP 310 g x 0.01 g)	1,550.00
97711	GF-400	410 g x 0.001 g	1,785.00
97712	GF-600	610 g x 0.001 g	2,405.00
97713	GF-800	810 g x 0.001 g	2,640.00
97714	GF-1000	1100 g x 0.001 g	2,750.00
97715	GF-1200	1210 g x 0.01 g	1,300.00
97716	GF-1200 (Class II)	1210 g x 0.01 g (NTEP 1210 g x 0.1 g)	1,455.00
97717	GF-2000	2100 g x 0.01 g	1,350.00
97718	GF-2000 (Class II)	2100 g x 0.01 g (NTEP 2100 g x 0.1 g)	1,495.00
97719	GF-3000	3100 g x 0.01 g	1,515.00
97720	GF-3000 (Class II)	3100 g x 0.01 g (NTEP 3100 g x 0.1 g)	1,625.00
97721	GF-4000	4100 g x 0.01 g	1,925.00
97722	GF-6100	6100 g x 0.01 g	2,435.00
97723	GF-6000	6100 g x 0.1 g	1,795.00
97724	GF-6000N (Class II)	6100 g x 0.1 g (NTEP 6100 g x 0.1 g)	1,895.00
97725	GF-8000	8100 g x 0.1 g	2,105.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97695	GX-04	Comparator output	\$255.00
97696	GX-06	Analog output; factory installed only	815.00
97697	GX-10	Glass breeze break for GF-200/300/400/600	265.00
97698	GX-11	Glass breeze break for GF-1200/2000/3000/6000	292.00
97699	GX-12	Animal weighing pan for GF-1200/2000/3000/6000	180.00
97700	GX-13	Density determination kit for GF-200/300	623.00
97607	AD-1682	Rechargeable battery pack, external	658.00
97608	AD-8920	Universal remote display	260.00
97605	AD-100-2	Anti-theft device	70.00
97612	SW:128	Foot switch	72.00
97703	AX:073003691-S	Protective in-use cover for GF-200/300/400/600	18.00
97704	AX:073003692-S	Protective in-use cover for GF-1200/2000/3000/4000/6100/6000/8000	18.00
97649	TB:248	AC adapter (120 V/220 V)	41.00
102891	GX-02	USB option	144.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Dot matrix statistical printer, includes cable	865.00



Toploader Balances

Standard Features

- Pill-counting feature also complies with Handbook 44 requirements
- Fast, Super Hybrid Sensor (SHS) gives you the ultimate in response speed; just one second
- · Nine weighing modes
- GLP/GMP/ISO compliance
- WinCT® communication tools software included free
- · Tough die-cast aluminum housing
- Removable stainless steel pan 5 in x 5 in (127 mm x 127 mm)
- NTEP and Pharmacopoeia approved
- IP54 splash proof operator keyboard protects against dust and spills, stainless steel weigh pan
- Data memory function
- Vacuum Fluorescent Display (VFD)
- RS-232



Capacity: 210g-310g Readability: 0.001 g

Specifications

	GF-200P^	GF-300P^				
Part#	97799	97800				
List Price	\$1,345.00	\$1,495.00				
Capacity	210 g	310 g				
Resolution	0.001 g	0.001 g				
Decimal Ounce	7.40755 x 0.00005 oz	10.93493 x 0.00005 oz				
Repeatability	0.00	01 g				
Linearity	±0.002 g					
Stabilization Time	Approx 1 second (typical in FAST mode)					
Operating Temperature	41° F to 104° F	(5° C to 40° C)				
Weighing Chamber	3.6 in H (91.4 mm)				
Pan Size	5 x 5 in (127 mm)				
Dimensions	8.27 x 12.48 x 3.39 in	(210 x 317 x 86 mm)				
Weight (Approx.)	2.15lb	(4.6 kg)				
Est. Ship Weight	11 lb (5.2 kg)				
Power	110/220V V	/AC adapter				
Approvals	NTEP CC 04-077					
Warranty	Five-year limited warranty					
Return Policy	A&D Weighing Standard Pol	licy - restock fee may apply				

[^] Weighing Chamber

Part Number/ Price

PART#	MODEL#	DESCRIPTION (CAPACITY X RESOLUTION)	PRICE
97799	GF-200P	210 g x 0.001 g	\$1,345.00
97800	GF-300P	310 g x 0.001 g	1,495.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97697	GX-10	Glass breeze break for GF-200 and 300	\$265.00
97703	AX:073003691-S	Protective in-use cover for GF-200/300 (each)	18.00
97649	TB:248	AC adapter (120V/220V) standard with unit	41.00
102891	GX-02	USB option	144.00

FXi Series

Toploader Balances

Standard Features

- Compact Super Hybrid Sensor Technology (SHS)
- Vacuum Fluorescent Display (VFD)
- GLP/GMP/ISO compliant to either AD-8121 printer or computer. Transmits date, time, ID number, serial number and calibration data
- Quick USB interface (FXi-02) Option
- RS-232C bidirectional communication
- Data memory functions: data memory, comparator, buzzer, animal weigh, statistics
- Optional built-in rechargeable battery
- Multiple units of measurement
- · Response indicator function
- LAN-Ethernet interface
- WinCT® communication tools software
- · Underhook weighing

Note: FXi NTEP and FXi models available by special order (internal calibration)



Readability: 0.001 g-0.01 g

Capacity: 120g-3200g

	FX-120i^	FX-200i^	FX-300i^	FX-1200i	FX-2000i	FX-3000i	
Part#	98021	98022	98023	98024	98025	98026	
List Price	\$980.00	\$1,030.00	\$1,060.00	\$980.00	\$1,030.00	\$1,060.00	
<u>e.</u>	_	_	_	163641	_	_	
N TEE	_	_	_	\$1,035.00	_	_	
Capacity	122 g	220 g	320 g	1220 g	2200 g	3200 g	
Resolution	0.001 g	0.001 g	0.001 g	0.01 g	0.01 g	0.01 g	
Repeatability	_	0.001 g	_		0.01 g	_	
Linearity		±0.002 g			±0.02 g		
Stabilization Time			Approx. 1	second			
Sensitivity Drift			±2pp	m/° C			
Display Refresh Rate		5 times	s / second, 10 times /	second or 20 times /	second		
Operating Temperature	41° F to 104° F (5° C to 40° C) 85% RH or less (No condensation)						
Pan Size		130 mm (5.12 in)		150 mm (5.90 in)			
Dimensions		7.6	W x 10.3 D x 3.3 in H	(193 x 262.5 x 84.5 n	nm)		
Weight			Approx	. 2.5 kg			
Est Ship Weight			8 lb (3	.5 kg)			
External Calibration (weight optional)	100 g	200 g	300 g	1000 g	2000 g	3000 g	
Power Consumption		120/240V AC adapter, approx. 11VA					
Approvals				NTEP 08-45A2			
Warranty	Five-year limited warranty						
Return Policy		A&D \	Weighing Standard Pol	icy - restock fee may	apply		
Decimal Ounce	4.30 x 0.00005 oz	7.76 x 0.00005 oz	11.28 x 0.00005 oz	43.0 x 0.0005 oz	77.6 x 0.0005 oz	112.8 x 0.0005 oz	
<mark>닕</mark> Pound	0.268 x 0.000005 lb	$0.485 \ x \ 0.000005 lb$	0.705 x 0.000005 lb	2.68 x 0.00005 lb	4.85 x 0.00005 lb	7.05 x 0.00005 lb	
Pound x Ounce Troy Ounce	0 lb, 4.30 oz x 0.01 oz	0 lb, 7.76 oz x 0.01 oz	0 lb, 11.29 oz x 0.01 oz	2 lb, 11.03 oz x 0.01 oz	4 lb, 13.60 oz x 0.01 oz	7 lb, 0.88 oz x 0.01 oz	
Troy Ounce	3.92 x 0.00005 ozt	7.07 x 0.00005 ozt	10.28 x 0.00005 ozt	39.2 x 0.0005 ozt	70.7 x 0.0005 ozt	102.8 x 0.0005 ozt	
Carat	610 x 0.005 ct	1100 x 0.005 ct	1600 x 0.005 ct	6100 x 0.05 ct	11000 x 0.05 ct	16000 x 0.05 ct	
Pennyweight	78.6 x 0.001 dwt	141.7 x 0.001 dwt	206.2 x 0.001 dwt	786 x 0.01 dwt	1417 x 0.01 dwt	2062 x 0.01 dwt	
Grain Unit	1882 x 0.02 GN	3395 x 0.02 GN	4938 x 0.02 GN	18827 x 0.2 GN	33951 x 0.2 GN	49383 x 0.2 GN	

[^]Weighing Chamber

A & D Weighing **FXi Series**

Toploader Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
98021	FX-120i	122 g x 0.001 g	\$980.00
98022	FX-200i	220 g x 0.001 g	1,030.00
98023	FX-300i	320 g x 0.001 g	1,060.00
168077	FX-300iNC	320 g x 0.001 g	1,105.00
98024	FX-1200i	1220 g x 0.01 g	980.00
163641	FX-1200iN	1220 g x 0.01 g	1,035.00
168076	FX-1200iNC	1220 g x 0.01 g, grams only	1,030.00
98025	FX-2000i	2200 g x 0.01 g	1,030.00
98026	FX-3000i	3200 g x 0.01 g	1,060.00

	-		
PART#	A&D MODEL#	DESCRIPTION	PRICE
98027*	FXi-02	Quick USB interface	\$84.00
98028*	FXi-08	Ethernet interface with WinCT® Plus software	465.00
98029*	FXi-09	Built-in rechargeable battery	310.00
98030	FXi-10	Small breeze break	74.00
98031	FXi-11	Large breeze break	124.00
97649	TB:248	AC adapter (120V/220V)	4.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Statistical Printer	Consult

^{*}Options FXi-02/FXi-08 and FXi-09 cannot be combined and are factory installed only.

A & D Weighing **FXi-WP Series**

Toploader Balances

Standard Features

- Compact Super Hybrid Sensor Technology (SHS)
- Vacuum Fluorescent Display (VFD)
- GLP/GMP/ISO compliant to either AD-8121 printer or computer.
 Transmits date, time, ID number, serial number and calibration data
- Statistical calculation function
- RS-232C bidirectional communication
- Data memory function
- Comparator function
- Buzzer function
- · Digital calibration function
- · Optional built-in rechargeable battery
- · Multiple units of measurement
- Response indicator function
- LAN-Ethernet interface
- WinCT® communication tools software
- · Underhook weighing
- IP65 rating



Readability: 0.001 g-0.01 g

Capacity: 122g-3200g

opeemeanoris	EV 400'IVP4	EV 000'11/P4	EV 000:11/D4	EV 4000'U/B	EV 0000'U/P	EV 0000'IND	
	FX-120iWP^	FX-200iWP^	FX-300iWP^	FX-1200iWP	FX-2000iWP	FX-3000iWP	
Part#	102905	102906	102907	102908	102909	102910	
List Price	\$1,440.00	\$1,518.00	\$1,621.00	\$1,435.00	\$1,518.00	\$1,616.00	
Capacity	122 g	220 g	320 g	1220 g	2200 g	3200 g	
Resolution	0.001 g	0.001 g	0.001 g	0.01 g	0.01 g	0.01 g	
Repeatability		0.001 g			0.01 g		
Linearity		±0.002 g			±0.02 g		
Stabilization Time			Approx.	1 second			
Sensitivity Drift			±2 pp	m/° C			
Display Refresh Rate		5 times	s / second, 10 times /	second or 20 times /	second		
Operating Temperature		41° F to 10	4° F (5° C to 40° C) 8	5% RH or less (No co	ndensation)		
Pan Size		Ø 5.12 in (130 mm)		Ø 5.90 in (150 mm)			
Dimensions		6 V	W x 10.3 D x 3.3 in H (193 x 262.5 x 84.5 m	m)		
Weight			Approx	. 2.5 kg			
Est Ship Weight			8 lb (3	.5 kg)			
External Calibration (weight optional)	100 g	200 g	300 g	1000 g	2000 g	3000 g	
Power Consumption	120/240 VAC adapter, approx. 11 VA						
Warranty		Five-year limited warranty					
Return Policy		A&D V	Weighing Standard Pol	icy - restock fee may	apply		
Decimal Ounce	4.30 x 0.00005 oz	7.76 x 0.00005 oz	11.28 x 0.00005 oz	43.0 x 0.0005 oz	77.6 x 0.0005 oz	112.8 x 0.0005 oz	
<mark>닕</mark> Pound	0.268 x 0.000005 lb	0.485 x 0.000005 lb	0.705 x 0.000005 lb	2.68 x 0.00005 lb	4.85 x 0.00005 lb	7.05 x 0.00005 lb	
Pound x Ounce Troy Ounce	0 lb, 4.30 oz x 0.01 oz	0 lb, 7.76 oz x 0.01 oz	0 lb, 11.29 oz x 0.01 oz	2 lb, 11.03 oz x 0.01 oz	4 lb, 13.60 oz x 0.01 oz	7 lb, 0.88 oz x 0.01 oz	
Troy Ounce	3.92 x 0.00005 ozt	7.07 x 0.00005 ozt	10.28 x 0.00005 ozt	39.2 x 0.0005 ozt	70.7 x 0.0005 ozt	102.8 x 0.0005 ozt	
Carat	610 x 0.005 ct	1100 x 0.005 ct	1600 x 0.005 ct	6100 x 0.05 ct	11000 x 0.05 ct	16000 x 0.05 ct	
Pennyweight	78.6 x 0.001 dwt	141.7 x 0.001 dwt	206.2 x 0.001 dwt	786 x 0.01 dwt	1417 x 0.01 dwt	2062 x 0.01 dwt	
Grain Unit	1882 x 0.02 GN	3395 x 0.02 GN	4938 x 0.02 GN	18827 x 0.2 GN	33951 x 0.2 GN	49383 x 0.2 GN	

[^]Weighing Chamber

A & D Weighing **FXi-WP Series**

Toploader Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
102905	FXi-120iWP	122 g x 0.001 g	\$1,440.00
102906	FXi-200iWP	220 g x 0.001 g	1,518.00
102907	FXi-300iWP	320 g x 0.001 g	1,621.00
102908	FXi-1200iWP	1220 g x 0.01 g	1,435.00
102909	FXi-2000iWP	2200 g x 0.01 g	1,518.00
102910	FXi-3000iWP	3200 g x 0.01 g	1,616.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
98027*	FXi-02	Quick USB interface	\$84.00
98028*	FXi-08	Ethernet interface with WinCT® Plus software	465.00
98029*	FXi-09	Built-in rechargeable battery	310.00
98030	FXi-10	Small breeze break	74.00
98031	FXi-11	Large breeze break	124.00
97649	TB:248	AC adapter (120V/220V)	41.00

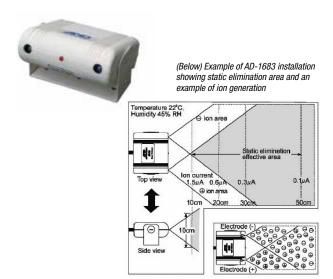
^{*}Options FXi-02/FXi-08 and FXi-09 can not be combined and are factory installed only.

A & D Weighing AD-1683

Static Eliminator

Standard Features

- Can be easily and safely installed; requires no high-voltage wiring
- Eliminates static charges from quickly running or highly electrified work pieces
- Little or no reverse charge is induced by irradiated ions because of its
 excellent ion polarity or the potential of the charged object
- Achieves static elimination with a huge degree of efficiency regardless of the polarity or the potential of the charged object
- Suited for static elimination in narrow and remote places because of its lengthy ion irradiation distance
- Produces only a little amount of ozone thanks to its high ion generation efficiency
- A current limiting circuit is incorporated in the ion generating electrode to reduce the possibility of electric shock
- · No swing in surface potential of the charged object



Specifications

	AD-1683
Part#	97610
List Price	\$1,219.00
Elimination Range	Distance: 10 to 30 cm from the electrode AREA: 30 x 30 cm
Static Elimination Method	DC corona discharge DUAL-DC
Static Eliminating Electrode	Tungsten emitter
Environmental Conditions	-5° C to 40° C, 35% to 85%RH (non-condensing)
Weight	300 g
Power	100-240V AC, 50/60 Hz, 1.5 V AC
Warranty	One-year limited
Return Policy	A&D Weighing Standard Policy - restock fee may apply

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97610	AD-1683	Static eliminator, balance accessory	\$1,219.00

A & D Weighing **EJ Newton Series**

Compact Balances

Standard Features

- Easy-to-read seven segment LCD display with backlight
- 10 units of measurement
- Battery operated (4 AA not included)
- · Selectable modes: weight, count, percentage and specific gravity
- 115VAC adapter included (230VAC optional)



Capacity: 120g-6100g Readability: 0.001g

	EJ-123^	EJ-120	EJ-200	EJ-300	EJ-410	EJ-610	
Part#	163274	112410	112411	112412	112413	112414	
List Price	\$515.00	\$270.00	\$300.00	\$370.00	\$420.00	\$520.00	
Capacity	120 g	120 g	210 g	310 g	410 g	610 g	
Resolution	0.001 g	0.01 g	0.01 g	0.01 g	0.01 g	0.01 g	
Operating Modes		Specific G	ravity function, Count	ing. Percentage, Chec	kweighing		
Repeatability	0.003 g			0.01 g			
Linearity	0.003 g	±0.	01 g		±0.02 g		
Sensitivity Drift		20 ppm/° C 50° F to 86° F (10° C to 30° C)					
Display Type		7 segi	ment LCD with backlig	ht (character height 1	6 mm)		
Operating Temperature		14° F to 104°	F (-10° C to 40° C) le	ess than 85% R.H. (noi	n-condensing)		
Pan Size W x D				Ø 4.3 in (110 mm)			
Physical Dimensions 7.5 W x 8.6 D x 2.2 in H (190 x 218 x 55 mm))			
Weight (approx.)			85	0 g			
Calibration Mass (default setting)	100 g	100 g	200 g	300 g	400 g	600 g	
Power	120 VAC adapter (4 "AA" size dry-cell batteries - 70 hours operation)						
Warranty			Five-year lim	ited warranty			
Return Policy		A&D	Weighing Standard Po	licy - restock fee may	apply		
Decimal Ounce	4.233 x 0.0001 oz	4.233 x 0.001 oz	7.408 x 0.001 oz	10.935 x 0.001 oz	14.462 x 0.001 oz	21.517 x 0.001 oz	
Decimal Pound	N/A	N/A	N/A	N/A	0.9039 x 0.0001 lb	1.3448 x 0.0001 lb	
Troy Ounce	3.858 x 0.0001 ozt	3.858 x 0.001 ozt	6.752 x 0.001 ozt	9.967 x 0.001 ozt	13.182 x 0.001 ozt	19.612 x 0.001 ozt	
Pennyweight	77.16 x 0.001 dwt	77.16 x 0.01 dwt	135.03 x 0.01 dwt	199.33 x 0.01 dwt	263.64 x 0.01 dwt	392.24 x 0.01 dwt	
Carat	600.00 x 0.005 ct	600.00 x 0.05 ct	1050.00 x 0.05 ct	1550.00 x 0.05 ct	2050.0 x 0.05 ct	3050.0 x 0.05 ct	
Pennyweight Carat Momme	N/A	32.000 x 0.005 mom	56.000 x 0.005 mom	82.665 x 0.005 mom	109.335 x 0.005 mom	162.665 x 0.05 mom	
Grain Unit	1851.8 x 0.2 GN	1851.8 x 0.2 GN	3240.8 x 0.2 GN	4784.0 x 0.2 GN	6327.2 x 0.2 GN	9413.8 x 0.2 GN	
Tael (H.K General)	N/A	3.1745 x 0.0005TL	5.5555 x 0.0005TL	8.2010 x 0.0005TL	10.8465 x 0.0005TL	16.1380 x 0.0005TL	
Tola	N/A	10.288 x 0.001 to	18.004 x 0.001 to	26.578 x 0.001 to	35.151 x 0.001 to	52.299 x 0.001 to	

A & D Weighing **EJ Newton Series**Compact Balances

Specifications

	EJ-1500	EJ-2000	EJ-3000	EJ-4100	EJ-6100	
Part#	112415	112416	112417	112418	112419	
List Price	\$265.00	\$320.00	\$385.00	\$445.00	\$475.00	
Capacity	1500 g	2100 g	3100 g	4100 g	6100 g	
Resolution	0.1 g	0.1 g	0.1 g	0.1 g	0.1 g	
Operating Modes		Specific Gravity fur	nction, Counting. Percenta	ge, Checkweighing		
Repeatability			0.1 g			
Linearity	±0.	.1 g		±0.2 g		
Sensitivity Drift		20 ppm.	/C 50° F to 86° F (10° C to	o 30° C)		
Display Type		7 segment LCD	with backlight (character	height 16 mm)		
Operating Temperature		14° F to 104° F (-10°	C to 40° C) less than 85%	R.H. (non-condensing)		
Pan Size W x D 5 x 5.5 in (1						
Physical Dimensions		7.5 W x 8	.6 D x 2.2 in H (190 x 218	x 55 mm)		
Weight (approx.)			1100 g			
Calibration Mass (default setting)	1500 g	2000 g	3000 g	4000 g	6000 g	
Power	120 VAC adapter (4 "AA" size dry-cell batteries-70 hours operation)					
Warranty	Five-year limited warranty					
Return Policy	A&D Weighing Standard Policy - restock fee may apply					
Decimal Ounce	52.91 x 0.01 oz	74.08 x 0.01 oz	109.35 x 0.01 oz	144.62 x 0.01 oz	215.17 x 0.01 oz	
Decimal Pound	3.307 x 0.001 lb	4.630 x 0.001 lb	6.834 x 0.001 lb	9.039 x 0.001 lb	13.4488 x 0.001 lb	
풀 Troy Ounce	48.23 x 0.01 ozt	67.52 x 0.01 ozt	99.67 x 0.01 ozt	131.82 x 0.01 ozt	196.12 x 0.01 ozt	
Pennyweight	964.5 x 0.1 dwt	1350.3 x 0.1 dwt	1993.3 x 0.1 dwt	2636.4 x 0.1 dwt	3922.4 x 0.1 dwt	
Troy Ounce Pennyweight Carat Mommo	-	-	-	-	-	
	4000.00 x 0.05 mom	560.00 x 0.05 mom	826.65 x 0.05 mom	1093.35 x 0.05 mom	1626.65 x 0.05 mom	
Grain Unit	23148 x 2 GN	32408 x 2 GN	47840 x 2 GN	63272 x 2 GN	94138 x 2 GN	
Tael (H.K General)	39.685 x 0.005TL	55.555 x 0.005TL	82.01 x 0.005TL	108.465 x 0.005 TL	161.380 x 0.005TL	
tola	128.6 x 0.01 to	180.04 x 0.01 to	265.78 x 0.01 to	351.51 x 0.01 to	522.99 x 0.01 to	

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
163274	EJ-123	120 g X 0.001 g	\$515.00
112410	EJ-120	120 g x 0.01 g	270.00
112411	EJ-200	210 g x 0.01 g	300.00
112412	EJ-300	310 g x 0.01 g	370.00
112413	EJ-410	410 g x 0.01 g	420.00
112414	EJ-610	610 g x 0.01 g	520.00
112415	EJ-1500	1500 g x 0.1 g	265.00
112416	EJ-2000	2100 g x 0.1 g	320.00
112417	EJ-3000	3100 g x 0.1 g	385.00
112418	EJ-4100	4100 g x 0.1 g	445.00
112419	EJ-6100	6100 g x 0.1 g	475.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
112426	EJ-02	USB interface with cable	\$81.00
112427	EJ-03	RS-232 interface with cable	71.00
112428	EJ-07	Underhook for EJ-3000, EJ-4100 and EJ-6100	62.00
112429	EJ-08	Underhook for EJ-1500 and EJ-2000	62.00
112430	EJ-11	Breeze break	62.00
112431	EJ-12	Carrying case	62.00
112432	EJ-13	Density determination kit	73.00
97766	TB:163C	AC Adapter, 120V	41.00
97767	TB:164	AC Adapter, 220V	50.00
151247	AD-1688	Data logger	295.00



Compact Balances

Standard Features

- · Backlit weight display
- Remote zeroing
- Easy to install NiCAd battery option
- · Nine weighing modes
- RS-232C bidirectional interface



Capacity: 120g-12,000g Readability: 0.01g-1g



	EK-120i	EK-200i	EK-300i	EK-410i	EK-610i	EK-600i	EK-1200i		
Part#	97747	97748	97749	97750	97751	-	-		
List Price	\$505.00	\$535.00	\$560.00	\$625.00	\$730.00	-	-		
Part#	-	-	-	-	-	97752	97753		
Part# List Price	-	-	-	-	-	\$505.00	\$520.00		
Capacity	120 g	200 g	300 g	400 g	600 g	600 g	1200 g		
Resolution	0.01 g	0.01 g	0.01 g	0.01 g	0.01 g	0.1 g	0.1 g		
Operating Modes			C	ounting, Percentag	е				
Repeatability			0.01 g			0.	1 g		
Linearity	±0.	01 g		±0.02 g		±0	.1 g		
Sensitivity Drift			20 ppm/C	50°F to 86°F (10°	C to 30°C)				
Display Type			7 segment LCD wi	th backlight (chara	cter height 16 mm)				
Operating Temperature		14°F t	o 104°F (-10°C to	40°C) less than 85	5% R.H. (non-cond	ensing)			
Pan Size W x D			Ø 4.3 in (110 mm)			5.2 in x 6.7 in (133 x 170 mm)		
Physical Dimensions		7.5 W x 8.6 D x 2.2 in H (190 x 218 x 55 mm)							
Weight (approx.)		2.4lb (1.1 kg)					3.5 lb (1.5 kg)		
Calibration Mass (default setting)	120 g	200 g	300 g	400 g	600 g	600 g	1200 g		
Power		120VAC adapter (Optional Ni-MH battery pack)							
Approvals		- NTEP CC 04-0					04-019		
Warranty	Five-year limited warranty								
Return Policy			A&D Weighing Sta	ndard Policy - rest	ock fee may apply				
Decimal Ounce	4.2330 x 0.0005 oz	7.0550 x 0.0005 oz	10.5820 x 0.0005 oz	14.110 x 0.001 oz	21.164 x 0.001 oz	21.165 x 0.005 oz	42.330 x 0.005 oz		
Decimal Pound	-	-	-	0.8818 x 0.0001 lb	1.3228 x 0.0001 lb	1.3230 x 0.0005 lb	2.6455 x 0.0005 lb		
Troy Ounce	3.8580 x 0.0005 ozt	6.4300 x 0.0005 ozt	9.6450 x 0.0005 ozt	12.860 x 0.001 ozt	19.290 x 0.001 ozt	19.290 x 0.005 ozt	38.580 x 0.005 ozt		
Pennyweight	77.16 x 0.01 dwt	128.60 x 0.01 dwt	192.90 x 0.01 dwt	257.21 x 0.01 dwt	385.81 x 0.01 dwt	385.8 x 0.1 dwt	771.6 x 0.1 dw		
Pennyweight Carat	600.00 x 0.05 ct	1000.00 x 0.05 ct	1500.00 x 0.05 ct	2000.0 x 0.1 ct	3000.0 x 0.1 ct	3000.0 x 0.5 ct	6000.0 x 0.5 ct		
Momme	32.000 x 0.005 mom	53.335 x 0.005 mom	80.000 x 0.005 mom	106.665 x 0.005 mom	160.000 x 0.005 mom	160.00 x 0.05 mom	320.00 x 0.05 mom		
Grain Unit	1851.8 x 0.2 GN	3086.4 x 0.2 GN	4629.8 x 0.2 GN	6173.0 x 0.2 GN	9259.4 x 0.2 GN	92594 x 2 GN	18518 x 2 GN		
Tael (H.K General)	3.1745 x 0.0005 TL	5.2910 x 0.0005 TL	7.9365 x 0.0005 TL	10.5820 x 0.0005TL	15.8735 x 0.0005 TL	15.875 x 0.005 TL	31.745 x 0.005 TL		

A & D Weighing **EK-i Series**Compact Balances

	EK-2000i	EK-3000i	EK-4100i	EK-6100i	EK-6000i	EK-12Ki	
Part#	97754	97755	97756	97757	-	-	
List Price	\$550.00	\$585.00	\$705.00	\$860.00	-	-	
Part# List Price	-	-	-	-	97758	97759	
List Price	-	-	-	-	\$550.00	\$700.00	
Capacity	2000 g	3000 g	4000 g	6000g	6000 g	12000 g	
Resolution	0.1 g	0.1 g	0.1 g	0.1 g	1 g	1 g	
Operating Modes			Counting, F	Percentage			
Repeatability		0	1 g		1	g	
Linearity	±0.1 g		±0.2 g		±1	g	
Sensitivity Drift			20 ppm/° C 50° F to 8	86° F (10° C to 30° C)			
Display Type		7 segn	nent LCD with backlig	ht (character height 1	6 mm)		
Operating Temperature	ture 14° F to 104° F (-10° C to 40° C) less than 85% R.H. (non-condensing)						
Pan Size W x D			5.2 x 6.7 in (1	33 x 170 mm)			
Physical Dimensions		•	7.5 W x 8.6 D x 2.2 in	H 190 x 218 x 55 mm	1		
Weight (approx.)			3.5 lb (1.5 kg)			
Calibration Mass (default setting)	2000 g	3000 g	4000 g	600)0 g	12 kg	
Power		12	20 VAC adapter (Option	nal Ni-MH battery pac	k)		
Approvals		-	-		NTEP CC	04-019	
Warranty	Five-year limited warranty						
Return Policy		A&D V	Veighing Standard Pol	icy - restock fee may	apply		
Decimal Ounce	70.550 x 0.005 oz	105.820 x 0.005 oz	141.10 x 0.01 oz	211.64 x 0.01 oz	211.65 x 0.05 oz	423.30 x 0.05 oz	
Decimal Pound	4.4090 x 0.0005 lb	6.6140 x 0.0005 lb	8.818 x 0.001 lb	13.228 x 0.001 lb	13.230 x 0.005 lb	26.455 x 0.005 lb	
Froy Ounce	64.300 x 0.005 ozt	96.450 x 0.005 ozt	128.60 x 0.01 ozt	192.90 x 0.01 ozt	192.90 x 0.05 ozt	385.80 x 0.05 ozt	
Pennyweight	1286.0 x 0.1 dwt	1929.0 x 0.1 dwt	2572.1 x 0.1 dwt	3858.1 x 0.1 dwt	3858 x 1 dwt	7716 x 1 dwt	
Carat	10000.0 x 0.5 ct	15000.0 x 0.5 ct	20000 x 1 ct	30000 x 1 ct	-	-	
Troy Ounce Pennyweight Carat Momme	533.35 x 0.05 mom	800.00 x 0.05 mom	1066.65 x 0.05 mom	1600.00 x 0.05 mom	1600.0 x 0.5 mom	3200.0 x 0.5 mom	
Grain Unit	30864 x 2 GN	46298 x 2 GN	61730 x 2 GN	92594 x 2 GN	-	-	
Tael (H.K General)	52.910 x 0.005TL	79.365 x 0.005TL	105.820 x 0.005TL	158.735 x 0.005TL	158.75 x 0.05TL	317.45 x 0.05TL	



Compact Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97747	EK-120i	120 g x 0.01 g	\$505.00
97748	EK-200i	200 g x 0.01 g	535.00
97749	EK-300i	300 g x 0.01 g	560.00
97750	EK-410i	400 g x 0.01 g	625.00
97751	EK-610i	600 g x 0.01 g	730.00
97752	EK-600i (NTEP)	600 g x 0.1 g	505.00
97753	EK-1200i (NTEP)	1200 g x 0.1 g	520.00
97754	EK-2000i	2000 g x 0.1 g	550.00
97755	EK-3000i	3000 g x 0.1 g	585.00
97756	EK-4100i	4000 g x 0.1 g	705.00
97757	EK-6100i	6000 g x 0.1 g	860.00
97758	EK-6000i (NTEP)	6000 g x 1 g	550.00
97759	EK-12Ki (NTEP)	12000 g x 1 g	700.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97760	EKW-04i	Comparator/relay outputs/buzzer	\$152.00
97761	EKW-07i	Underhook for EK-4100i/6100i/6000i/12Ki/EW-12Ki	50.00
97762	EKW-09i	NiCAd battery pack	202.00
97764	AX:3005824-5S	Dust cover	12.00
97605	AD-100-2	Anti-theft device	70.00
97766	TB:163C	AC adapter (120V)	41.00
97767	TB:164	AC adapter (240V)	50.00
151247	AD-1688	Data logger	295.00

A & D Weighing **EW-i Series** Compact Balances

Standard Features

- · Backlit weight display
- Remote zeroing
- Easy to install NiCAd battery option
- RS-232C bidirectional interface
- Counting/Percentage/Comparator Modes
- Triple Range



Approvals



가	Decinculons												
			EW-150i			EW-1500i			EW-12Ki				
	Part#	97768		-		-							
	List Price \$410.00				-		-						
品	Part#	-		97769		97771							
NTEP	List Price		-			\$410.00			\$410.00				
	Capacity	30 g	60 g	150 g	300 g	600 g	1500 g	3000 g	6000 g	12000 g			
	Resolution	0.01 g	0.02 g	0.05 g	0.1 g	0.2 g	0.5 g	1 g	2g	5 g			
	Operating Mode				Counting, Percentage								
	Repeatability	0.01 g	0.02 g	0.05 g	0.1 g	0.2 g	0.5 g	1 g	2 g	5 g			
	Linearity	±0.01 g	±0.02 g	±0.05g	±0.1 g	±0.2g	±0.5g	±1 g	±2g	±5g			
	Sensitivity Drift	20 ppm/° C (10° C to 30° C/50° F to 86° F)											
	Operating temperature			14° F to 104°	F (-10° C to 4	0° C) less than	85% R.H. (nor	n-condensing)					
	Pan Size	Ø	4.3 in (110 m	m)			5.2 x 6.7 in (1	33 x 170 mm)					
	Dimensions			7	7.5 W x 8.6 D x	2.2 in H (190	x 218 x 55 mm)					
	Weight		2.4 lb (1.1 kg)				3.5 lb (1.5 kg)	.5 kg)				
	Calibration Mass (default setting)		150 g			1500 g		12 kg					
	Power				AC adapter or	Ni-MH battery	pack (option)	·					
	Approvals		-		N	ITEP CC 04-01	9	NTEP CC 04-019					
	Warranty				Five-y	ear limited wa	rranty						
	Return Policy		A&D Weighing Standard Policy - restock fee may apply										
	Decimal Ounce	1.0580 x 0.0005 oz	2.116 x 0.001 oz	5.292 x 0.002 oz	10.580 x 0.005 oz	21.16 x 0.01 oz	52.92 x 0.02 oz	105.80 x 0.05 oz	211.6 x 0.1 oz	423.2 x 0.2 oz			
	Decimal Pound				0.6615 x 0.0005 lb	1.323 x 0.001 lb	3.306 x 0.002 lb	6.615 x 0.005 lb	13.23 x 0.01 lb	26.46 x 0.02 lb			
분	Troy Ounce	0.9645 x 0.0005 ozt	1.929 x 0.001 ozt	4.822 x 0.002 ozt	9.645 x 0.005 ozt	19.29 x 0.01 ozt	48.22 x 0.02 ozt	96.45 x 0.05 ozt	192.9 x 0.1 ozt	385.8 x 0.2 ozt			
MEASU	Pennyweight	19.29 x 0.01 dwt	38.58 x 0.02 dwt	96.45 x 0.05 dwt	192.9 x 0.1 dwt	385.8 x 0.2 dwt	964.5 x 0.5 dwt	1929 x 1 dwt	3858 x 2 dwt	7715 x 5 dwt			
UNIT OF MEASURE	Carat	150.00 x 0.05 ct	300.0 x 0.1 ct	750.0 x 0.2 ct	1500.0 x 0.5 ct	3000 x 1 ct	7500 x 2 ct	-	-	-			
S	Momme	8.000 x 0.005 mom	16.00 x 0.01 mom	40.00 x 0.02 mom	80.00 x 0.05 mom	160.0 x 0.1 mom	400 x 0.2 mom	800 x 0.5 mom	1600 x 1 mom	3200 x 2 mom			
	Grain Unit	463.0 x 0.2 GN	926.0 x 0.5 GN	2315 x 1 GN	4630 x 2 GN	9260 x 5 GN	23150 x 10 GN	-	-	-			
	Tael (H.K General)	0.7935 x 0.0005TL	1.587 x 0.001 TL	3.968 x 0.002 TL	7.935 x 0.005 TL	15.87 x 0.01 TL	39.68 x 0.02TL	79.35 x 0.05TL	158.7 x 0.1 TL	317.4 x 0.2TL			

A & D Weighing **EW-i Series**

Compact Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97768	EW-150i	30 g x 0.01 g / 60 g x 0.02 g / 150 g x 0.05 g	\$410.00
97769 (NTEP)	EW-1500i	300 g x 0.1 g / 600 g x 0.2 g / 1500 g x 0.5 g	410.00
97771 (NTEP)	EW-12Ki	3000 g x 1 g / 6000 x 2 g / 12000 g x 5 g	410.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97760	EKW-04i	Comparator/relay outputs/buzzer	\$152.00
97761	EKW-07i	Underhook for EK-4100i/6100i/6000i/12Ki/EW-12Ki	50.00
97762	EKW-09i	NiCAd battery pack	202.00
97764	AX:3005824-5S	Protective dust cover (not in use)	12.00
97765	EJ-12	Carrying case	61.00
97605	AD-100-2	Anti-theft device	70.00
97766	TB:163C	AC adapter (120V)	41.00
97767	TB:164	AC adapter (240V)	50.00
151247	AD-1688	Data logger	295.00



Standard Features

- Internal calibration
- Auto environmental compensation
- IP65/NEMA4
- RS-232C bidirectional interface
- Data memory function
- Multiple weighing modes
- Quick reference operation card
- · Time and date
- Vacuum Fluorescent Display (VFD)
- · Underhook weighing



pecilications	GX-8K	GX-8K2	GX-10K	GX-12K		
Part#	97776	97775	97777	97778		
List Price	\$3,465.00	\$2,995.00	\$3,695.00	\$3,145.00		
Capacity	8.1 kg	8.1 kg/2.1 kg	10.1 kg	12 kg		
Resolution	0.01 g	0.1 g / 0.01 g	0.01 g	0.1 g		
Operating Modes		Counting, p	ercentage			
Repeatability	0.01 g	0.05 g/0.01 g	0.01 g	0.1 g		
Linearity	±0.02 g	±0.1 g/±0.02 g	±0.03 g	±0.2g		
Sensitivity drift	±2 ppm/° C	±3 ppm/° C	±2ppm/° C	±3 ppm/° C		
(-10° C to +30° C)		Annua 1 f				
Stabilization time		Approx 1.5				
Operating temperature Pan Size		41° F to 104° F	,			
1		10.62 x 8.26 in (•			
Dimensions Weight		11.81 x 13.98 x 4.37 in	,			
External cal mass	2.2.4.5		8.3 lb (8.3 kg)			
Power	2, 3, 4, 3	2, 3, 4, 5, 6, 7, 8 kg 10 kg 5, 10 kg 120/240 V AC adapter				
Warranty	Five-year limited warranty					
Return Policy	A&D Weighing Standard Policy - restock fee may apply					
		285.720 x 0.005/74.0755 x				
Decimal Ounces	285.7190 x 0.0005 oz	0.0005 oz	370.4 x 0.0005 oz	423.290 x 0.005 oz		
Troy Ounce	260.4210 x 0.0005 ozt	260.420 x 0.005/67.5165 x 0.0005 ozt	337.6 x 0.0005 ozt	385.810 x 0.005 ozt		
Pennyweight	5208.42 x 0.01 dwt	5208.4 x 0.1/1350.33 x 0.01 dwt	6751 x 0.01 dwt	7716.2 x 0.1 dwt		
Carat	40500.00 x 0.05 ct	40500.0 x 0.5/10500.00 x 0.05 ct	50500 x 0.05 ct	60000 x 0.5 ct		
Pennyweight Carat Momme	2160.000 x 0.005 mom	2160.00 x 0.05/560.000 x 0.005 mom	2800.000 x 0.005 mom	3200.00 x 0.05 mom		
Grain	125002.2 x 0.2 GN	125002 x 2/32408.0 x 0.2 GN	162040 x 0.2 GN	185188 x 2 GN		
Pound	17.85745 x 0.00005 lb	17.8575 x 0.0005/4.62970 x 0.00005 lb	23.15 x 0.00005 lb	26.4555 x 0.0005 lb		
Pound/Ounce	17 13.719 x 0.001 lb	17 13.72 x 0.01/ 4 10.075 x 0.001 lb	23 2.4 x 0.001 lb	26 7.29 x 0.01 lb		



Specifications

	GX-20K	GX-30K	GX-32K	
Part#	97779	97780	97781	
List Price	\$3,395.00	\$3,925.00	\$3,045.00	
Capacity	20 kg	30 kg	30 kg/6.1 kg	
Resolution	0.1 g	0.1 g	1/0.1 g	
Operating Modes	Counting, percentage			
Repeatability	0.1 g	0.1 g	0.5 g / 0.1 g	
Linearity	±0.2 g	±0.2 g	±1 g / ±0.2 g	
Sensitivity drift (-10 to 30° C)	±3pp	m/° C	±5ppm/° C	
Stabilization Time		Approx 1.5 seconds		
Operating Temperature		41°F - 104°F (-5°C - 40°C)		
Pan Size		10.62 x 8.26 in (270 x 210 mm)		
Dimensions	11.81 x 13.98 x 4.37 in (300 x 355 x 111 mm)			
Weight		18.3 lb (8.3 kg)		
External Cal Mass	10, 20 kg	20, 30 kg	20, 30 kg	
Power	120/240 VAC adapter			
Warranty	Five-year limited warranty			
Return Policy	A&D Weighing Standard Policy - restock fee may apply			
Decimal Ounces	740.755 x 0.005 oz	1093.495 x 0.005 oz	1093.50 x 0.05/ 215.170 x 0.005 oz	
Troy Ounce	675.165 x 0.005 ozt	996.675 x 0.005 ozt	996.65 x 0.05/ 196.120 x 0.005 ozt	
Pennyweight	13503.3 x 0.1 dwt	19933.5 x 0.1 dwt	19933 x 1/ 3922.4 x 0.1 dwt	
Carat	105000.0 x 0.5 ct	155000.0 x 0.5 ct	155000 x 5/ 30500.0 x 0.5 ct	
Momme	5600.00 x 0.05 mom	8266.65 x 0.05 mom	8266.5 x 0.5/ 1626.65 x 0.05 mom	
Pennyweight Carat Momme Grain	324080 x 2 GN	478404 x 2 GN	-	
Pound	46.2970 x 0.0005 lb	68.3435 x 0.0005 lb	68.345 x 0.005/ 13.4480 x 0.0005 lb	
Pound/Ounce	46 4.75 x 0.010 lb	68 5.49 x 0.01 lb	68 5.5 x 0.1/ 13 7.17 x 0.01 lb	

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97776	GX-8K	8.1 kg x 0.01 g	\$3,465.00
97775	GX-8K2	8.1/2.1 kg x 0.1/0.01 g	2,995.00
97777	GX-10K	10.0 kg x 0.01 g	3,695.00
97778	GX-12K	12 kg x 0.1 g	3,145.00
97779	GX-20K	20 kg x 0.1 g	3,395.00
97780	GX-30K	30 kg x 0.1 g	3,925.00
97781	GX-32K	30/6.1 kg x 1/0.1 g	3,045.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97782	GX-04K*	Comparator/output and RS-232C/20 mA interface	\$355.00
97783	GX-06K*	Analog output/20 mA interface	815.00
97784	GX-07K**	Waterproof cable for standard RS-232C	302.00
97605	AD-100-2	Anti-theft device	67.00
97785	AX-073007197A	Protective in-use cover	18.00
97649	TB:248	AC adapter (120/240V)	41.00
102898	GXK-31	Draft shield	112.00
102899	GXK-12	Animal weighing pan	811.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Dot matrix statistical printer, includes cable	865.00

^{*}GX-04K, GX-06K, replace standard RS-232C and cannot be used at the same time. IP65 rating does not apply when the GX-04K or the GX-06K is installed.

 $[\]hbox{**Use the GX-07K optional waterproof RS-232C cable, in order to use the standard RS-232 interface for water and dust proof (IP65)}\\$



Standard Features

- IP65/NEMA4
- RS-232C bidirectional interface
- Multiple weighing modes
- Quick reference operation card
- · Time and date
- Vacuum fluorescent display (VFD)
- Interval time setting
- · Underhook weighing



	GF-8K	GF-8K2	GF-10K	GF-12K		
Part#	97793	97792	97794	97795		
List Price	\$3,275.00	\$2,775.00	\$3,495.00	\$2,945.00		
Capacity	8.1 kg	2.1/8.1 kg	10.1 kg	12 kg		
Resolution	0.01 g	0.01/0.1 g	0.01 g	0.1 g		
Operating Modes	Counting, Percentage					
Linearity	±0.02g	±0.1 g/±0.02 g	±0.03 g	±0.2g		
Stabilization Time		Approx. 1.5 seconds (typical in FAST mode)				
Repeatability	0.01 g	0.05 g/0.01 g	0.01 g	0.1 g		
Sensitivity Drift (10° C to 30° C)	±2 ppm/° C	±3 ppm/° C	±2 ppm/° C	±3 ppm/° C		
Display Refresh		5 times per second/	10 times per second			
Operating Temperature		41°F to 104°F (5°C to 40°C) RH	less than 85% (No condensation	1)		
Pan Size		Stainless steel 10.62 W x	8.26 in D (270 x 210 mm)			
Dimensions		11.81 W x 13.98 D x 4.37 i	in H (300 x 355 x 111 mm)			
Weight	18.3 lb (8.3 kg)					
External Cal. Mass	2, 3, 4, 5	2, 3, 4, 5, 6, 7, 8 kg 10 kg				
Power	120/240 V AC adapter					
Warranty	Five-year limited warranty					
Return Policy	A&D Weighing Standard Policy - restock fee may apply					
Decimal Ounces	285.7190 x 0.0005 oz	285.720 x 0.005/74.0755 x 0.0005 oz	370.4 x 0.0005 oz	423.290 x 0.005 oz		
Troy Ounce	260.4210 x 0.0005 ozt	260.420 x 0.005/67.5165 x 0.0005 ozt	337.6 x 0.0005 ozt	385.810 x 0.005 ozt		
Pennyweight	5208.42 x 0.01 dwt	5208.4 x 0.1/1350.33 x 0.01 dwt	6751 x 0.01 dwt	7716.2 x 0.1 dwt		
Carat	40500.00 x 0.05 ct	40500.0 x 0.5/10500.00 x 0.05 ct	50500 x 0.05 ct	60000 x 0.5 ct		
Pennyweight Carat Momme	2160.000 x 0.005 mom	2160.00 x 0.05/560.000 x 0.005 mom	2800.000 x 0.005 mom	3200.00 x 0.05 mom		
Grain	125002.2 x 0.2 GN	125002 x 2/32408.0 x 0.2 GN	162040 x 0.2 GN	185188 x 2 GN		
Pound	17.85745 x 0.00005 lb	17.8575 x 0.0005/4.62970 x 0.00005 lb	23.15 x 0.00005 lb	26.4555 x 0.0005 lb		
Pound/Ounce	17 13.719 x 0.001 lb	17 13.72 x 0.01/4 10.075 x 0.001 lb	23 2.4 x 0.001 lb	26 7.29 x 0.01 lb		



Specifications

	GF-20K	GF-30K	GF-32K		
Part#	97796	97797	97798		
List Price	\$3,145.00	\$3,695.00	\$2,795.00		
Capacity	21 kg	31 kg	6.1/31 kg		
Resolution	0.1 g	0.1 g	0.1/1 g		
Operating Modes		Counting, Percentage			
Linearity	±0	.2g	±1 g/0.2 g		
Stabilization time	ı	Approx. 1.5 seconds (typical in FAST mode))		
Repeatability	0.	1 g	0.5 g/0.1 g		
Sensitivity Drift (10° C to 30° C)	±3 pp	m/° C	±5 ppm/° C		
Display refresh		$5\ times\ per\ second\ /\ 10\ times\ per\ second$			
Operating Temperature	41° F to 104° F (5° C to 40° C) RH less than 85% (No condensation)				
Pan Size	Stainless steel 10.62 W x 8.26 in D (270 x 210 mm)				
Dimensions	11.8	1 W x 13.98 D x 4.37 in H (300 x 355 x 111	mm)		
Weight		18.3 lb (8.3 kg)			
External Cal. Mass	10, 20 kg	20, 3	30 kg		
Power		120/240 VAC adapter			
Warranty		Five-year limited warranty			
Return Policy	A&D V	Veighing Standard Policy - restock fee may	apply		
Decimal Ounces	740.755 x 0.005 oz	1093.495 x 0.005 oz	1093.50 x 0.05/215.170 x 0.005 oz		
Troy Ounce	675.165 x 0.005 ozt	996.675 x 0.005 ozt	996.65 x 0.05/196.120 x 0.005 ozt		
Pennyweight	13503.3 x 0.1 dwt	19933.5 x 0.1 dwt	19933 x 1/3922.4 x 0.1 dwt		
≦ Carat	105000.0 x 0.5 ct	155000.0 x 0.5 ct	155000 x 5/30500.0 x 0.5 ct		
Pennyweight Carat Momme	5600.00 x 0.05 mom	8266.65 x 0.05 mom	8266.5 x 0.5/1626.65 x 0.05 mom		
Grain	324080 x 2 GN	478404 x 2 GN	N/A		
Pound	46.2970 x 0.0005 lb	68.3435 x 0.0005 lb	68.345 x 0.005/13.4480 x 0.0005 lb		
Pound/Ounce	46 4.75 x 0.010 lb	68 5.49 x 0.01 lb	68 5.5 x 0.1/13 7.17 x 0.01 lb		

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97792	GF-8K2	2.1/8.1 kg x 0.01/0.1 g	\$2,775.00
97793	GF-8K	8.1 kg x 0.01 g	3,275.00
97794	GF-10K	10.1 kg x 0.01 g	3,495.00
97795	GF-12K	12 kg x 0.1 g	2,945.00
97796	GF-20K	21 kg x 0.1 g	3,145.00
97797	GF-30K	31 kg x 0.1 g	3,695.00
97798	GF-32K	31/6.1 kg x 1/0.1 g	2,795.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97782	GX-04K*	Comparator/output and RS-232C/20 mA interface	\$355.00
97783	GX-06K*	Analog output/20 mA interface	815.00
97784	GX-07K**	Waterproof cable for standard RS-232C	302.00
97605	AD-100-2	Anti-theft device	67.00
97785	AX:073007197A	Protective in-use cover	18.00
97649	TB:237	AC adapter (120V/220V)	41.00
102898	GXK-31	Draft shield	112.00
102899	GXK-12	Animal weighing pan	811.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Impact dot matrix statistical printer, includes cable	865.00

^{*}GX-04K, GX-06K, replace standard RS-232C and cannot be used at the same time. IP65 rating does not apply when the GX-04K or the GX-06K is installed.

^{**}Use the GX-07K optional waterproof RS-232C cable, in order to use the standard RS-232 interface for water and dust proof (IP65)

A & D Weighing **GP Series**

Industrial Balances

Standard Features

- IP65/NEMA4
- Internal calibration weight with manual, interval or auto-environmental compensation
- RS-232C bidirectional interface
- · Data-collection software
- Auto re-zero function
- Multiple weighing modes
- · Time and date
- Bright blue fluorescent display
- · Adjustable swing arm display
- Die cast aluminum body with stainless weighing pan
- Detached digital weight indicator (KS models only)



Capacity: 12,000g-101,000g Readability: 0.1g-10g

	GP-12K	GP-20K	GP-30K	GP-30KS*	GP-32K	GP-32KS*	GP-40K	
Part#	97802	97803	97805	97810	97804	102901	97806	
List Price	\$3,395.00	\$3,725.00	\$4,445.00	\$4,685.00	\$3,025.00	\$3,375.00	\$4,025.00	
Capacity	12 kg	21 kg	31	kg	31 kg	g/6 kg	41 kg	
Resolution	0.1 g	0.1 g	0.1 g 1/0.1 g		0.5 g			
Operating Modes				Counting, percentag	je			
Repeatability	0.1 g	0.1 g	0.1 g	-	0.5/ 0.1 g	-	0.5 g	
Linearity	±0.2g	±0.2 g	±0.2g	-	±1 / ±2g	-	±1 g	
Sensitivity Drift (-10° C to +30 ° C)		±3 ppi	m/° C			±5 ppm/° C		
Stabilization Time			Approx. 1.5	seconds (typical in	FAST mode)			
Operating Temperature		41° F	to 104° F (5° C to	40° C) RH less tha	han 85% (No condensation)			
Pan Size			Stainless s	teel 15 x 13 in (38	5 x 13 in (384 x 344 mm)			
Dimensions	14.6 W x 24.2 D x 5.1 in H 372 x 615 x 130 mm		13.5 W x 17.4 D x 5.5 in H (344 x 442 x 139 mm)		14.6 W x 24.2 D x 5.1 in H (372 x 615 x 130 mm)			
Height with Column		652 mm						
Weight			,	Approx 37.4 lb (17 k	g)			
External Cal Mass	5 kg/10 kg	10 kg/20 kg		20 kg	j/30 kg		20/30/40 kg	
Warranty			Fiv	e-year limited warr	anty			
Return Policy			A&D Weighing St	andard Policy - rest	ock fee may apply			
Decimal Ounces	423.290 x 0.005 oz	740.755 x 0.005 oz	1093.495	x 0.005 oz	1093.50 x 0.05/2	15.170 x 0.005 oz	1446.24 x 0.02 oz	
Troy Ounce	385.810 x 0.005 ozt	675.165 x 0.005 ozt	996.675	x 0.005 ozt	996.65 x 0.05/19	96.120 x 0.005 ozt	1318.18 x 0.02 ozt	
Pennyweight Carat Momme	7716.2 x 0.1 dwt	13503.3 x 0.1 dwt	19933.5	x 0.1 dwt	19933 x 1/39	22.4 x 0.1 dwt	26363.5 x 0.5 dwt	
Carat	60000 x 0.5 ct	105000.0 x 0.5 ct	155000.	0 x 0.5 ct	155000 x 5/3	0500.0 x 0.5 ct	205000 x 5 ct	
Momme	3200.00 x 0.05 mom	5600.00 x 0.05 mom	8266.65 x	0.05 mom	8266.5 x 0.5/162	26.65 x 0.05 mom	10933.4 x 0.2 mom	
Grain	185188 x 2 GN	324080 x 2 GN	47840	4 x 2 GN		-	-	
Pound	26.4555 x 0.0005 lb	46.2970 x 0.0005 lb	68.3435	c 0.0005 lb	68.345 x 0.005/1	3.4480 x 0.0005 lb	90.390 x 0.002 lb	
Pound/Ounce	26 7.29 x 0.01 lb	46 4.75 x 0.010 lb	68 5.49	x 0.01 lb	68 5.5 x 0.1/1	3 7.17 x 0.01 lb	90 6.24 x 0.02 lb	

^{*}S designates remote indicator



	GP-60K	GP-60KS*	GP-61K	GP-61KS	GP-100K	GP-100KS*	GP-102K
Part#	97807	102902	102900	102903	97808	97811	97809
List Price	\$4,955.00	\$5,195.00	\$5,395.00	\$5,525.00	\$5,345.00	\$5,655.00	\$4,795.00
Capacity	61	kg	61	kg	100 kg	101 kg	101 kg/61 kg
Resolution	1	g	0.	1 g	1	g	10/1 g
Operating Modes		counting, percentage			е		
Repeatability	0.7 g	-	0.2 g	-	1 g	-	(5/1) g
Linearity	±1 g	-	±0.5 g	-	±2g	-	±10/±2g
Sensitivity Drift (-10 to +30 ° C)			±6 pp	m/° C			±10 ppm/° C
Stabilization Time			Approx. 1.5	seconds (typical in	FAST mode)		
Operating Temperature		41° I	F to 104°F (5°C to	40°C) RH less than	85% (No condens	ation)	
Pan Size	e Stainless steel 15 x 13 in (384 x 344 mm) - Stainless steel 15 x				teel 15 x 13 in (38	6 x 346 mm)	
Dimensions	14.6 W x 24.2 D x 5.1 in H (372 x 615 x 130 mm)						
Height with Column				25.7 in (652 mm)			
Weight		Approx 37	.4 lb (17 kg)		ļ A	Approx 39.7 lb (18 k	g)
External Cal Mass	30/40/	50/60 kg	20/30/40	/50/60 kg		60/80/100 kg	
Warranty			Five	e-year limited warra	anty		
Return Policy			A&D Weighing Sta	andard Policy - rest	ock fee may apply		
Decimal Ounces	2151.7	x 0.05 oz	2151.7 x	0.005 oz	3562.65	x 0.05 oz	3562.5/2151.7 x 0.5/0.05 oz
Troy Ounce	1961.2	x 0.05 ozt	1961.2 x	0.005 ozt	3247.25	x 0.05 ozt	3247/1961.2 x 0.5/0.05 ozt
Pennyweight	39224	x 1 dwt	39224 x	0.1 dwt		-	-
Pennyweight Carat Mommo	30500	00 x 5 ct	305000	x 0.5 ct		-	-
Momme Momme	16266.5	x 0.5 mom	16266.5 x	0.05 mom	26933.5	x 0.5 mom	26935/16266.5 x 5/0.5 mom
Pound	134.480	x 0.005 lb	134.480 x	0.0005 lb	222.665	x 0.005 lb	222.65/134.48 x 0.05/0.005 lb
Pound/Ounce	134 7.7	7 x .01 lb	134 7.7	x .001 lb	222 10.	7 x 0.1 lb	222 11/134 7.7 x 0/0.1 lb

^{*}S designates remote indicator

A & D Weighing **GP Series**Industrial Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97802	GP-12K	12 kg x 0.1 g	\$3,395.00
97803	GP-20K	21 kg x 0.1 g	3,725.00
97805	GP-30K	31 kg x 0.1 g	4,445.00
97810	GP-30KS	31 kg x 0.1 g	4,685.00
97804	GP-32K	31/6 kg x 1/0.1 g	3,025.00
102901	GP-32KS	31/6 kg x 1/0.1 g	3,375.00
97806	GP-40K	41 kg x 0.5 g	4,025.00
97807	GP-60K	61 kg x 1 g	4,955.00
102902	GP-60KS	61 kg x 1 g	5,195.00
102900	GP-61K	61 kg x 0.1 g	5,395.00
102903	GP-61KS	61 kg x 0.1 g	5,525.00
97808	GP-100K	100 kg x 1 g	5,345.00
97811	GP-100KS	101 kg x 1 g	5,655.00
97809	GP-102K	101/61 kg x 10/1 g	4,795.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97607	AD-1682	Rechargeable battery pack	\$658.00
97608	AD-8920	Universal remote display	260.00
97813	GP-04	Comparator output with buzzer	245.00
97814	GP-06	Analog output (replaces standard RS-232C)	811.00
97815	GP-07	GP extension cable (factory installed 120 day lead time)	302.00
97816	GP-20	Underhook GP-12kg thru 40kg	173.00
97817	GP-21	Underhook GP-60 kg thru 102 kg	173.00
97818	GP-22	AD-8121B printer support	152.00
97605	AD-100-2	Anti-theft device	70.00
97820	07:3004753	Protective in-use cover	18.00
97613	TB:136	AC adapter (120V) standard with unit	41.00
97614	TB:137	AC adapter (220V)	50.00
97609	AD-8922	Remote controller	615.00
102904	GP-12	Animal weighing pan	1,627.00
151247	AD-1688	Data logger	295.00
97612	SW:128	Foot switch	72.00
158785	AD-8121B	Dot matrix statistical printer	865.00

Moisture Analyzers

Standard Features

- Fast and uniform heating with halogen lamp and uniquely designed (secondary radiation assist) SRA filter
- WinCT® communication tools software
- Sodium tartrate dihydrate is provided as a stable moisture content for accuracy checks of the analyzer
- Five measurement programs: standard, automatic, timer, manual and quick
- Vacuum fluorescent display (VFD)
- · Glass window for heating check and easy cleaning
- Self-check function
- · Quick reference card
- Standard bidirectional RS-232C
- . GLP/ GMP/GCP/ISO compliant with time and date, ID, calibration data and check record outputs



Capacity: 51 g-71 g Readability: 0.001 g-0.0001 g

	MS-70	MX-50	MF-50	ML-50
Part#	97821	97822	97823	112408
List Price	\$5,645.00	\$3,525.00	\$2,850.00	\$2,400.00
Capacity	71 g	51 g	51 g	51 g
Resolution	0.0001 g	0.001 g	0.002 g	0.005 g
Moisture Content Display	0.001%/0.01% 0.1%	0.01%/0.1%	0.05%/0.1%/1%	0.1%/1%
Moisture Content Accuracy over 1g	0.05%	0.10%	0.20%	0.50%
Over 5 g	0.01%	0.02%	0.05%	0.10%
Heating Technology	Halogen lamp (straight type, 400 Watt max, 5000 hours)			
Drying Temperature	30° C to 200° C 50° C to 200° C (1° increment)			
Measurement Program Memories	20 9	sets	10 sets	5 sets
Data Memory	10	00	50	30
Measurement Programs		Standard/Automa	tic/Timer/Manual	
Measurement Modes		Wet base/Dry base/	/Solid content/Ratio	
Operating Temperature		40°F to 104°F	(5° C to 40° C)	
Sample Pan Size		Ø 2.16 in	(85 mm)	
Dimensions		8.46 W x 12.6 D x 6.8 H	in (215 x 320 x 173 mm)	
Weight		13 lb (5.9 kg)	
Power		120	VAC	
Warranty		Five-year lim	ited warranty	
Return Policy		A&D Weighing Standard Pol	licy - restock fee may apply	

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Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
97821	MS-70	71 g x 0.0001 g	\$5,645.00
97822	MX-50	51 g x 0.001 g	3,525.00
97823	MF-50	51 g x 0.002 g	2,850.00
112408	ML-50	51 g x 0.005 g	2,400.00

PART#	A&D MODEL#	DESCRIPTION	PRICE
97824	AX-31	Sample pans (washable, 100 each)	\$92.00
97825	AX-32-2	Glass fiber sheets (100 each)	50.00
97826	AX-33	Sodium tartrate dehydrate test samples (30 x 12 g)	80.00
97827	AX-34	Halogen lamp (replacement)	61.00
97828	AX-35	Pan handles (2 each)	26.00
97829	AX-36	Tweezers (2 each)	16.00
97830	AX-37	Spoons (2 each)	20.00
97831	AX-38	Protective in-use covers (5 each)	40.00
97832	AX-39	Dust cover	16.00
97833	AX-42	WinCT® Moisture (standard for MS-70 and MX-50, option for MF-50)	230.00
97834	AD-1700-20G	Calibration mass (20 g)	140.00
97837	AX-43	Temperature calibrator (MS-70 and MX-50 only)	435.00
151247	AD-1688	Data logger	295.00
158785	AD-8121B	Dot matrix statistical printer, includes cable	845.00



Semi-Micro and Analytical Balances

Standard Features

- · Selectable environmental filters
- RS-232 interface with full GLP/GMP protocol
- Easy to clean stainless steel platform
- Windring and glass and steel construction
- · Protective in-use cover
- Integral underweigh hook
- · Easy to use keypad
- · Up-front level indicator
- · Stability indicator
- · Mechanical and software overload/underload protection
- User selectable span calibration points
- · Auto tare, auto shutoffs
- User selectable printing options
- User selectable communications settings
- · User definable project and user IDs
- Software reset menu
- Software lockout menu



Capacity: 81 g-210 g Readability: 0.01 g-0.1 mg

Approvals









	DV114C^	DV214C^	DV314C^	DV215CD^	
Part Number	96945	96947	96949	96950	
List Price	\$4,321.00	\$4,744.00	\$5,365.00	\$6,111.00	
Capacity	110 g	210 g	310 g	210/81 g	
Resolution	0.1 mg	0.1 mg	0.1 mg	0.1/ 0.01 mg	
Weighing Modes	Milligram, Gram, Carat, Ounce	, Troy Ounce, Grain, Pennyweight	, Momme, Hong Kong Tael, Singa	oore Tael, Taiwan Tael, Custom	
Operating Modes		Weighing, Counting with automatic sample recalculation, Percent weighing, Checkweighing, animal/dynamic weighing, gross/net/tare weighing, totalization, high point density, statistics, pipette calibration			
Repeatability	0.1	mg	0.2 mg	0.1/0.02 mg	
Linearity	0.2 mg	0.5 mg	0.2/0.03 mg		
Stabilization Time	4 sec	conds	8 seconds	15/5 seconds	
Operating Temperature		50° F to 104° F	(10° C to 40° C)		
Pan Size		Ø 3.8 in	(9 cm)		
Dimensions		7.9 x 11.8 x 18 in (20 x 30 x 45.7 cm)		
Weight (Approx.)		10.2 kg	(22.5 lb)		
Calibration		Automatic internal, Push-but	ton Internal, Manual external		
Power	1	120 V AC adapter (220-240 V AC adapter by special order), 50/60 Hz			
Warranty		Two-year limited warranty			
Return Policy		Ohaus Standard Policy	restock fee may apply		

[^]Weighing Chamber



Discovery™ Semi-Micro and Analytical Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
96945	DV114C	110 g x 0.1 mg	\$4,321.00
96947	DV214C	210 g x 0.1 mg	4,744.00
96949	DV314C	310 g x 0.1 mg	5,365.00
96950	DV215CD	210/81 g x .0.1/0.01 mg	6,111.00

PART#	MODEL#	DESCRIPTION	PRICE
71960	80500571	RS-232 cable, printer	\$132.00
67413	SW12W	TAL software WinWedge	425.00
70406	80500525	RS-232 cable, IBM 9-Pin	132.00
77712	80500524	RS-232 cable, IBM 25-Pin	132.00
67408	77402-00	Density determination kit	1,350.00
67409	77401-00	Security device	165.00
13064	_	100 g calibration mass, ASTM Class 1	85.00
13066	_	200 g calibration mass, ASTM Class 1	105.00
104767	80252042	Dot matrix printer	682.00
104770	80251932	Paper	12.00
104771	80251933	Ink ribbon	35.00
67669	21202537	Power adapter, 220-240	55.00
67667	80500006	UK line cord	25.00



Analytical/Precision Balances

Standard Features

- Easy-to-clean analytical draft shield
- · Up-front level indicator
- Selectable environment settings
- · Flexibility of available options
- Removable doors for easy cleaning and access
- Up-front level bubble for easy reference
- · Selectable environmental settings
- Integral underweigh hook
- · Standard security bracket
- Standard RS-232C
- · Security menu lock
- Multiple application modes and units of measure



Capacity: 65g-4100g Readability: 0.0001g-0.1g

Approvals



	PA64^	PA114^	PA214^	PA153^	PA313^	PA512	PA1502	PA3102	PA4101
Part#	102788	102789	102790	103509	103510	103511	103512	103513	103514
List Price	\$2,086.00	\$2,384.00	\$2,645.00	\$1,241.00	\$1,410.00	\$1,051.00	\$1,241.00	\$1,415.00	\$923.00
Capacity	65 g	110 g	210 g	150 g	310 g	510 g	1510 g	3100 g	4100 g
Resolution	0.1 mg	0.1 mg	0.1 mg	0.001 g	0.001 g	0.01 g	0.01 g	0.01 g	0.1 g
Weighing Modes	N	Milligram, Gram, Carat, Ounce, Troy Ounce, Grain, Pennyweight, Momme, Taels, tical, tola, baht, mesghal, Newton					n		
Operating Modes		Weighing, Parts Counting, Percent							
Repeatability	0.1 1			10			100		
Linearity	0.2 mg 0.3 mg 0.002 mg 0.02 mg				0.1 mg				
Stabilization Time					Three seconds				
Operating Temperature				14° F to	104°F (10° C t	to 40°C)			
Pan Size	Q	3.54 in (90 mn	1)	Ø 4.72 in	(120 mm)		Ø 7.1 in (180 mm)	
Dimensions	-	-	-		7.7 x	11.3 x 12.6 in (19.6 x 28.7 x 32	2 cm)	
Weight (Approx.)					15.2 lb (6.9 kg)				
Calibration Weight	-	-	-	100/150 g 200/300 g 200/500 g 1000/1500 g 2000/3000 g 2			2000/4000 g		
Power	120V AC adapter (220-240 AC adapter by special order) , 50/60 Hz								
Warranty	Two-year limited warranty								
Return Policy				Ohaus Standard	l Policy - restocl	k fee may apply			

[^]Weighing Chamber

Ohaus

Pioneer™ Analytical/Precision Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
102788	PA64	65 g x 0.1 mg	\$2,086.00
102789	PA114	110 g x 0.1 mg	2,384.00
102790	PA214	210 g x 0.1 mg	2,645.00
103509	PA153	150 g x 0.001 g	1,241.00
103510	PA313	310 g x 0.001 g	1,410.00
103511	PA512	510 g x 0.01 g	1,051.00
103512	PA1502	1510 g x 0.01 g	1,241.00
103513	PA3102	3100 g x 0.01 g	1,415.00
103514	PA4101	4100 g x 0.1 g	923.00

PART#	MODEL#	DESCRIPTION	PRICE
104767	80252042	Compact impact printer, 42 column	\$682.00
67413	SW12W	TAL software WinWedge®	425.00
104770	80251932	Paper for printer	12.00
104771	80251933	Ribbon for printer	35.00
71960	80500571	RS-232 cable, printer to Pioneer	132.00
70406	80500525	RS-232 cable, PC 9-Pin to Pioneer	132.00
77712	80500524	RS-232 cable, PC 25-Pin to Pioneer	132.00
102798	80850045	Density determination kit for Pioneer analytical balances (0.1 mg and 1 mg)	533.00
35263	76288-01	Security device for Pioneer	158.00
102799	128-00	Forceps, 2.75 in (70 mm)	17.00
102800	129-00	Forceps, 3.5 in (89 mm)	17.00
33455	5076-00	Aluminum scoop, 1.5 in x 2 in (3.8 cm x 5.1 cm), weight 4 g	25.00
33456	5077-00	Gold scoop, 2.25 in x 3 in (5.7 cm x 7.6 cm), weight 10 g	25.00
33454	4590-30	Black scoop, aluminum 4 in x 3.5ft (10.2 cm x 8.9 cm), weight 24 g	26.00
33451	3369-10	Polypropylene Maxi-Scoop™ 10 in dia. x 2.5 in deep (25.4 cm dia. x 6.4 cm deep) with pouring spout, weight 145 g	35.00
102801	71147059	Plastic scoop, 1.3 in x 1.5 in x 0.4 in (33 mm x 38 mm x 10 mm) deep with pouring spout, weight 1.2 g	19.00
97250	80250400	Stainless steel scoop 11.9 in x 7.38 in x 1.69 in	50.00
100292	80250954	Stainless steel scoop 17.2 in x 11 in x 3.4 in (44 cm x 28 cm x 8.5 cm)	62.00



Analytical Balances

Standard Features

- Automatic calibration via AutoCal[™]
- Communication RS-232C
- On screen prompts
- · Spill channel
- · Applications library to store and quickly recall past procedures
- Brilliant backlit high resolution dot matrix display with simple navigation windows and menus to guide you through balance functions
- User selectable GLP outputs via RS-232 to meet traceability requirements
- User selectable filter, stability indicator and auto-zero tracking for use in difficult environments
- · Five-language operation display text
- Standard underweigh capability
- · Protective in-use cover and security bracket
- · Optional Features
- Autocal[™] automatic calibration
- NTEP Certified, Legal for Trade models by special order



Capacity: 120g-320g Readability: 0.0001g

MODEL	EX124^	EX224^*	EX324^*			
Part Number	121192	121193	121194			
List Price	\$3,967.00	\$4,505.00	\$5,120.00			
Capacity	120 g	220 g	320 g			
Resolution						
Weighing Units	Gram, Milligram, Kilogram, Carat, Ounce, Ounce Troy, Pound, Pennyweight, Grain, Newton, Momme, Mesghal, Ho Tael, Singapore Tael, Taiwan Tael, Tical, Tola, Baht, 3 Custom Units					
Operating Modes	Weighing, Percent Weighing, Parts Counting, Check Weighing, Dynamic/Animal Weighing, Filling, Totalization, For Differential Weighing, Density Determination, Peak Hold, Ingredient Costing, Pipette Adjustment, SQC					
Repeatability	±0.0001 g					
Linearity	±0.0002 g					
Stabilization Time	≤2 se	conds	≤3 seconds			
Operating Temperature Range		50° F to 86° F (10° C to 30° C)				
Weighing Chamber	9.	5 x 7.5 x 6.5 in (241.3 x 190.5 x 165.1 mi	n)			
Pan Size		Ø 3.5 in (90 mm)				
Display Housing Dimensions		7.7 x 3.5 x 6.0 in (195 x 90 x 154 mm)				
Dimensions Base		9.1 x 13.8 x 15.5 in (230 x 350 x 393 mm)				
Shipping Weight		21.1 lb (9.6 kg)				
Calibration	AutoCal™ on Δ1.5° C temperature change, 11 hours, and external calibration					
Power Requirements	AC adapter input: 100-240 VAC 0.6A 50-60 Hz					
Warranty		Two-year limited warranty				
Return Policy	Oh	aus Standard Policy - restock fee may ap	ply			

[^]Weighing Chamber

^{*} NTEP and Measurement Canada models available by special order



Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
121192	EX124	120 g x 0.0001 g	\$3,967.00
121193	EX224	220 g x 0.0001 g	4,505.00
121194	EX324	320 g x 0.0001 g	5,120.00

PART#	MODEL#	DESCRIPTION	PRICE
67422	80253384	Density determination kit	\$533.00
35263	76288-01	Security device for EX	158.00
104767	80252042	Compact dot matrix impact printer	682.00
77712	80500524	RS-232 cable, PC 25-Pin to EX	132.00
70406	80500525	RS-232 Cable, PC 9-Pin to EX	132.00



Standard Features

- Capacities from 220 g to 10.2 kg with Readability to 0.001 g
- Large 5.7 in full-color touchscreen display with intuitive set-up and application software
- AutoCal[™] automatic internal calibration for optimized weighing performance
- 14 application modes, 11 weighing units and 5 display languages for a wide variety of applications
- 4 programmable touchless sensors for hands-free operation
- 0.001 g models feature frameless draftshield with anti-static glass, flip-top and large side entry doors on top-mounted bearings

Optional Features

• External calibration models



MODEL	EX223^	EX423^*	EX623^	EX1103^*	EX2202	EX4202*	EX6202	EX10202*	EX6201	EX10201*
Part Number	121195	121196	121197	121198	121199	121200	121201	121202	121203	121204
List Price	\$3,116.00	\$3,393.00	\$3,706.00	\$4,485.00	\$3,127.00	\$3,393.00	\$3,711.00	\$4,505.00	\$3,178.00	\$3,414.00
Capacity	220 g	420 g	620 g	1100 g	2200 g	4200 g	6200 g	10200 g	6200 g	10200 g
Resolution		0.0	01 g			0.0)1 g		0.	1 g
Weighing Units	Gram, Milligr	am, Milligram, Kilogram, Carat, Ounce, Ounce Troy, Pound, Pennyweight, Grain, Newton, Momme, Mesghal, Hong Kong Tael, Singa Tael, Taiwan Tael, Tical, Tola, Baht, 3 Custom Units					el, Singapore			
Operating Modes	Weighing, F	/eighing, Percent Weighing, Parts Counting, Check Weighing, Dynamic/Animal Weighing, Filling, Totalization, Formulation, Differential Weighing, Density Determination, Peak Hold, Ingredient Costing, Pipette Adjustment, SQC								
Repeatability		±0.001 g		±0.01 g				±0.1 g		
Linearity		±0.002 g			±0.02 g				±0.1 g	
Stabilization Time		≤1.5 s	econds				≤1 se	conds		
Operating Temperature Range				50	0° F to 86° F	(10° C to 30°	C)			
Weighing Chamber	9.5 x 7.5	x 6.5 in				N	/A			
Pan Size		Ø 5.1 in ((130 mm)			7	7.5 x 7.9 in (1	90 x 200 mm)	
Display Housing Dimensions				7.7 x	3.5 x 6.0 in (1	95 x 90 x 154	1 mm)			
Dimensions Base	9.1 x 1:	3.8 x 15.5 in (230 x 350 x 3	93 mm)		9.1 x	3.9 x 15.5 in (230 x 98 x 39	3 mm)	
Shipping Weight		21.1 lb	(9.6 kg)		15 lb (6.8 kg) 16.3 lb (7.4 kg)					
Calibration		AutoCal™ on ∆1.5° C temperature change, 11 hours, and external calibration								
Power Requirements		AC adapter input: 100-240 VAC 0.6A 50-60 Hz								
Warranty					Two-year lim	ited warranty				
Return Policy				Ohaus Sta	andard Policy	- restock fee ı	may apply			

[^]Weighing Chamber

^{*}NTEP models available by special request



Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
121195	EX223^	220 g x 0.001 g	\$3,116.00
121196	EX423^	420 g x 0.001 g	3,393.00
121197	EX623^	620 g x 0.001 g	3,706.00
121198	EX1103^	1100 g x 0.001 g	4,485.00
121199	EX2202	2200 g x 0.01 g	3,127.00
121200	EX4202	4200 g x 0.01 g	3,393.00
121201	EX6202	6200 g x 0.01 g	3,711.00
121202	EX10202	10200 g x 0.01 g	4,505.00
121203	EX6201	6200 g x 0.1 g	3,178.00
121204	EX10201	10200 g x 0.1 g	3,414.00

[^]Weighing Chamber

PART#	MODEL#	DESCRIPTION	PRICE
67422	80253384	Density Determination Kit (for 410 g capacity and below)	\$533.00
35263	76288-01	Security Device for EX	158.00
104767	80252042	Compact Dot Matrix Impact Printer	682.00
77712	80500524	RS-232 Cable, PC 25-Pin to EX	132.00
70406	80500525	RS-232 Cable, PC 9-Pin to EX	132.00
67669	21202537	Power adapter, 220-240	55.00
67667	80500006	UK line cord	25.00



Standard Features

- Touchless IR (infrared) sensors minimize keypad use
- Program IR sensor to control operations including print, tare, and other selectable functions
- Color VGA 5.7 in display with icons for simple menu navigation
- · Multiple application modes designed for versatility
- AutoCal Calibration
- Robust IP 54 die-cast metal bottom housing with stainless steel pan
- · Integral weigh below hook
- ENERGY STAR qualified adapter



	EX12001	EX22001	EX32001				
Part#	157235	157236	157237				
List Price	\$3,625.00	\$4,453.00	\$5,280.00				
Capacity	12000 g	24000 g	35000 g				
Resolution		0.1 g					
Weighing Modes	Gram, Kilogram, Carat, Ounce, Troy Ounce	, Pound,, Pennyweight, Mommes, Grain, Tical,	Tola, Newton, Mesghal, 3 Custom Units				
Operating Modes		Weighing, Counting, Animal/Dynamic weighing, Checkweighing, Percent weighing, Filling, Parts Counting, Totalization, Formulation, Differential Weighing, Density Determination, Peak Hold, Ingredient Costing, SQC					
Repeatability		±0.1 g					
Linearity		±0.2 g					
Stabilization Time		≤1					
Operating Temperature		14° F to 140° F (-10° C to 60° C)					
Pan Size		14.84 x 12.24in (377 x 311 mm)					
Display Housing Dimensions	7.7	<i>W</i> x 3.5 H x 6.0 in D (195 W x 90 H x 154 mm	D)				
Dimensions Base	1	4.84 x 4.72 x 17.44 in (377 x 120 x 443 mm)					
Weight (Approx.)		25 lb12.5 kg					
Calibration	Auto Cal internal calibration						
Power	AC adapter input: 100-240VAC 0.6A 50-60 Hz						
Warranty		Two-year limited warranty					
Return Policy	0	haus Standard Policy - restock fee may apply					



Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
157235	EX12001	12000 g x 0.1 g	\$3,625.00
157236	EX24001	24000 g x 0.1 g	4,453.00
157237	EX35001	35000 g x 0.1 g	5,280.00

PART#	MODEL#	DESCRIPTION	PRICE
157238	30078082	Tower mount display	\$104.00
104767	80252042	Compact dot matrix impact printer	682.00
77712	80500524	RS-232 cable, PC 25-Pin to EX	132.00
70406	80500525	RS-232 cable, PC 9-Pin to EX	132.00

Precision Balances

Standard Features

- Stability, Accuracy and Fast operation ensuring optimal weighing results
- Color touchscreen with 4.3 in (109 mm) display size
- Dual USB ports and RS232 provide connectivity options
- Space-saving top-mounted draft shield on analytical models
- Real time clock with GLP/GMP data
- Below minimum sample weight indication with minimum weight feature



Capacity: 120g-8200g Readability: 0.0001g-0.1g

	AX124 ^	AX224 ^	AX324^	AX223^	AX423^	AX523^	AX622	AX1502
Part Number	164622	164623	164625	164626	164628	164630	164633	164635
List Price	Consult	Consult	Consult	Consult	Consult	Consult	Consult	Consult
Part Number List Price	N/A	164624	N/A	164627	164629	164632	164634	164636
List Price	N/A	Consult	N/A	Consult	Consult	Consult	Consult	Consult
Capacity (g)	120 g	220 g	320 g	220 g	420 g	520 g	620 g	1520 g
Resolution (g)	0.0001 g	0.0001 g	0.0001 g	0.001 g	0.001 g	0.001 g	0.01 g	0.01 g
NTEP Class		I (0.001 g)		II (0.01 g)	II (0.01 g)	II (0.01g)	II (0	.1g)
Weighing Modes	Milligram, Gram, Kilogram, Ounce, Pound, Carat, Pennyweight, Troy Ounce, Grain, Newton, Hong Kong tael, Singapore tael, Taiwan tael, Momme, tical, baht, mesgal, tola, custom							
Operating Modes	Counting, Weigh	ing, Dynamic wei	ghing, Checkweig	hing, Percent We	ighing, Totalization	n, Display hold, D	ensity Determinat	ion, Formulation
Repeatability		1 mg				0.001 g		
Linearity		0.2	mg			0.0	002	
Operating Temperature				10 to 30° C	(50 to 86° F)			
Pan Size		90 mm (3.5in)			130 mm (5.1 in)		175 x 195 mm	n(6.9 x 7.7 in)
Dimensions Base Housing	13.93 x 13.39 x 9.05 in (354 x 340 x 230 mm) 13.93 x 3.94 x 9.05 in (354 x 100 x 230 mm)							
Weight (Approx.)	17.2 lb (7.8 kg) 12.8 lb (5.8 kg)			14.4 lb	(6.5 kg)			
Calibration Weight (g)	100	200	300	200	400	500	600	1500
Power	100 - 240 VAC, 0.3A, 50-60 HZ AC adapter							
Warranty				Two-year lim	ited warranty			

^{*} NTEP models have reduced resolution

[^]Weighing Chamber



Specifications

	AX2202	AX4202	AX5202	AX4201	AX8201	
Part Number	164637	164639	164641	164642	164643	
List Price	Consult	Consult	Consult	Consult	Consult	
Part Number List Price	164638	164640	N/A	N/A	164644	
List Price	Consult	Consult	N/A	N/A	Consult	
Capacity (g)	2200 g	4200 g	5200 g	4200 g	8200 g	
Resolution (g)	0.01 g	0.01 g	0.01 g	0.1 g	0.1 g	
NTEP Class	II (0.1 g)	II (0.1g)			II (1 g)	
Weighing Modes	gram, Gram, Kilogram,	gram, Gram, Kilogram, Ounce, Pound, Carat, Pennyweight, Troy Ounce, Grain, Newton, Hong Kong tael, Singapore tael, Taiwan tael, Momme, tical, baht, mesgal, tola, custom				
Operating Modes	ing, Weighing, Dynamic	weighing, Checkweighing, I	Percent Weighing, Totalization	n, Display hold, Density Det	ermination, Formulation	
Repeatability		0.01 g				
Linearity		0.002				
Operating Temperature		10	0° C to 30° C (50° F to 86°	F)		
Pan Size		1	175 x 195 mm (6.9 x 7.7 in)		
Dimensions Base Housing		13.93 x 3	3.94 x 9.05 in (354 x 100 x 2	230 mm)		
Weight (Approx.)	14.4 lb (6.5 kg) 12.6 lb (5.				12.6 lb (5.7 kg)	
Calibration Weight (g)	2000	4000	5000	4000	8000	
Power	100-240 VAC, 0.3A, 50-60 HZ AC adapter					
Warranty			Two-year limited warranty			

^{*} NTEP models have reduced resolution

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
164622	AX124	120 g x 0.0001 g	Consult
164623	AX224	220 g x 0.0001 g	Consult
164624	AX224 N	220 g x 0.001 g	Consult
164625	AX324	320 g x 0.0001 g	Consult
164626	AX223	320 g x 0.001 g	Consult
164627	AX223 N/E	220 g x 0.001 g	Consult
164628	AX423	420 g x 0.001 g	Consult
164629	AX423 N/E	420 g x 0.01 g	Consult
164630	AX523	520 g x 0.001 g	Consult
164632	AX523 N/E	520 g x 0.01 g	Consult
164633	AX622	620 g 0.001 g	Consult
164634	AX622 N/E	620 g x 0.01 g	Consult
164635	AX1502	1520 g x 0.01 g	Consult
164636	AX1502 N/E	1520 g x 0.1 g	Consult
164637	AX2202	2200 g x 0.01 g	Consult
164638	AX2202 N/E	2200 g x 0.1 g	Consult
164639	AX4202	4200 g 0.01 g	Consult
164640	AX4202 N/E	4200 g x 0.1 g	Consult
164641	AX5202	5200 g x 0.01 g	Consult
164642	AX4201	4200 g x 0.1 g	Consult
164643	AX8201	8200 g x 0.1 g	Consult
164644	AX8201 N/E	8200 g x 1 g	Consult

	- p					
PART#	MODEL#	DESCRIPTION	PRICE			
67422	80253384	Density Determination Kit	Consult			
156809		USB cable, Type A to B	Consult			
67423	80850043	Security Device (Laptop Lock)	Consult			
77712	80500524	25-Pin RS232 cable (PC)	Consult			
70406	80500525	9-Pin RS232 cable (PC)	Consult			

[^]Weighing Chamber

Ohaus MB Series

Moisture Analyzer

Standard Features

- Fast halogen heating element provides uniform infrared heating and durability for extended use
- Superior weighing performance with readability up to 0.001 g, 0.01% moisture
- Powerful software for simple operation
- Large backlit 128 x 64 pixel Liquid Crystal Display (LCD) for easy viewing
- GLP/GMP compliant format when printed results are required
- RS-232 port for easy communication with printer or computer
- Multi-language display text (English, Spanish, French)



Capacity: 23g-45g Readability: 0.005g-0.01g

Approvals



	MB23	MB25	MB35	MB45	
Part#	109522	109521	70858	70390	
List Price	\$2,754.00	\$3,284.00	\$3,824.00	\$4,365.00	
Capacity	110g	110g	35 g	45 g	
Resolution	0.01 g	0.005 g	0.002 g	0.001 g	
Repeatability	3 g sample-0.3%; 10 g sample-0.1%	3 g sample-0.2%; 10 g sample-0.05%	3 g sample-0.18%; 10 g sample-0.05%	3 g sample-0.05%; 10 g sample-0.015%	
Moisture Range	0.1 - 100%	0.05 - 100%	0.05 to 100%	0.01 to 100% (0.01% to 100% for regain mode)	
Heater Type	Infrared (no glass)	Halogen			
Timer	1-99 minutes, 30 secor	d increments to 60 min increments, 1 min increments from 60-120 min		1-120 min in 10 second increments	
Temperature Settings	;	50° C to 160° C x 5° C (increments	;)	50° C-200° C x 1° C (increments)	
Operating Temperature	41° F to 104° F	(5° C to 40° C)	50° F to 104° F	(10° C to 40° C)	
Pan Size		Ø 9 cm	(3.5in)		
Dimensions	7.5 x 6.0 x 14 in (16	65 x 127 x 279 mm)	7.5 x 6 x 14 in (190.5	x 152.4 x 355.6 mm)	
Est. Ship Weight	14 lb (6.3 kg)				
Power	120V AC Adapter				
Warranty	Two-year limited warranty				
Return Policy		Ohaus Standard Policy - restock fee may apply			

Ohaus MB Series Moisture Balance

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
109522	MB23	110 g x 0.01 g (0.1% IR)	\$2,754.00
109521	MB25	100 g x 0.005 g (0.05% Halogen Heat)	3,284.00
70858	MB35	35 g x 0.002 g (0.05% Halogen Heat)	3,824.00
70390	MB45	45 g x 0.001 g (0.01% Halogen Heat)	4,365.00

PART#	MODEL#	DESCRIPTION	PRICE
70401	11113857	Temperature calibration kit	\$387.80
70402	80850087	Pads, glass fiber, 200/box	70.00
70403	80850086	Sample pans, 50/box, 90 mm diameter	42.00
70404	80850088	Reusable sample pans, 3/box	141.00
70405	80850085	In-use cover	54.00
70406	80500525	Cable, 9-Pin serial extension	132.00
67423	470004-010	Security device	158.00
67413	SW12W	WinWedge® TAL Software	425.00
70860	11113873	Sample pan handler (MB-35 only)	95.00
104767	_	Impact printer	682.00
71960	80500571	Cable for PN 104767	132.00
104770	_	Paper for PN 104767	12.00
104771	_	Ribbon for PN 104767	35.00



Portable Electronic Balances

Standard Features

- Large stainless steel weighing surface
- Large 0.6 in (15.24 mm) high contrast Liquid Crystal Display (LCD)
- · Integral security bracket
- Underweigh function (includes hook)
- Sealed front panel and molded spill ring
- · Stability indicator
- · Overload and underload indicators
- Auto shut-off (user enabled/disabled)
- · Low-battery indicator
- Battery or AC operation (AC adapter included)
- Span calibration mass (included on SP202, SP402, SP401, SP601 models)
- Integral shipping lock
- · Parameter lock switch



Capacity: 200 g-6000 g Readability: 0.01 g-1 g

Concanons	CD000	CD400	CDC00	CD404	CDC04
	SP202	SP402	SP602	SP401	SP601
Part#	77654	77655	103099	77656	77657
List Price	\$428.00	\$600.00	\$702.00	\$236.00	\$349.00
Capacity	200 g	400 g	600 g	400 g	600 g
Resolution	0.01 g	0.01 g	0.01 g	0.1 g	0.1 g
Operating Modes	Parts Cour	ting with Average Piece We	eigh Recalculation, Percenta	ge Weighing, Totalization, D	isplay Hold
Repeatability		0.01 g		0.	.1 g
Linearity	±0	.01	±0.02	±	0.1
Stabilization Time			3 seconds		
Operating Temperature		50	0° F to 104° F (10° C to 40°	C)	
Pan Size	Ø 4.7 in (12 cm) 6.5 x 5.5 in (16.5 x 5.7 in (16.5				6.5 x 5.5 in (16.5) 14.2 cm)
Dimensions	7.56 x 2.13 x 8.27 in (19.2 x 5.4 x 21.0 cm)				
Weight (Approx.)	1.5 lb (0.7 kt)		1.8 lb (0.8 kg)	
Est. Ship Weight			4 lb (1.8 kg)		
Calibration Weight	200 g	400 g	600 g	400 g	600 g
Power		120 V AC Adapte	r (included) or 4 "AA" Batter	ies (not included)	
Warranty			Two-year limited warranty		
Return Policy		Ohaus St	andard Policy - restock fee r	nay apply	
Ounces	7.0550 x 0.0005 oz	14.1095 x 0.0005 oz	21.645 x 0.0005 oz	14.110 x 0.005 oz	21.165 x 0.005 oz
Pounds Pound, Ounce	-	-	1.32280 x 0.00005 lb	-	1.3230 x 0.0005 lb
Pound, Ounce	-	-	1 lb:5.165 oz x 0.001 oz	-	1 lb:5.165 oz x 0.01
Troy Ounces	6.4300 x 0.0005 ozt	12.8605 x 0.0005 ozt	19.2905 x 0.0005 ozt	12.860 x 0.005 ozt	19.290 x 0.005 oz
Pennyweight	128.60 x 0.01 dwt	257.21 x 0.01 dwt	385.81 x 0.01 dwt	257.2 x 0.1 dwt	385.8 x 0.1 dwt

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Specifications

	SP2001	SP4001	SP6001	SP6000
Part#	77658	77660	103100	77661
List Price	\$441.00	\$646.00	\$728.00	\$366.00
Capacity	2000 g	4000 g	6000 g	6000 g
Resolution	0.1 g	0.1 g	0.1 g	1 g
Operating Modes	Parts Counting w	ith Average Piece Weigh Recalcula	tion, Percentage Weighing, Totaliza	tion, Display Hold
Repeatability		0.1 g		1 g
Linearity	±0).1	±0.2	±0.1
Stabilization Time		3 sec	conds	
Operating Temperature		50° F to 104° F	(10° C to 40° C)	
Pan Size		6.5 x 5.5 in (1	6.5 x 14.2 cm)	
Dimensions		7.56 x 2.13 x 8.27 in	(19.2 x 5.4 x 21.0 cm)	
Weight (Approx.)		1.8 lb ((0.8 kg)	
Est. Ship Weight		4 lb (1	1.8 kg)	
Calibration Weight	2000 g	4000 g	6000 g	6000 g
Power		120 V AC Adapter (included) of	or 4 AA Batteries (not included)	
Warranty		Two-year lim	ited warranty	
Return Policy		Ohaus Standard Policy	- restock fee may apply	
Kilogram	2.0000 x 0.0001 kg	4.0000 x 0.0001 kg	6.0000 x 0.0001 kg	6.000 x 0.001 kg
9 Ounces	70.550 x 0.005 oz	141.095 x 0.005 oz	211.645 x 0.005 oz	211.65 x 0.05 oz
Ounces Pounds Pound, Ounce	4.4090 x 0.0005 lb	8.8185 x 0.0005 lb	13.2280 x 0.0005 lb	13.230 x 0.005 lb
Bound, Ounce	4 lb:6.550 oz x 0.01 oz	8 lb:13.095 oz x 0.01 oz	13 lb:3.65 oz x 0.01 oz	13 lb:3.65 oz x 0.05 oz
Troy Ounces	64.300 x 0.005 ozt	128.605 x 0.005 ozt	192.905 x 0.005 ozt	192.90 x 0.05 ozt
Pennyweight	1286 x 0.1 dwt	2572.1 x 0.1 dwt	3858.1 x 0.1 dwt	3858 x 1 dwt

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
77654	SP202	200 g x 0.01 g	\$428.00
77655	SP402	400 g x 0.01 g	600.00
103099	SP602	600 g x 0.01 g	702.00
77656	SP401	400 g x 0.1 g	236.00
77657	SP601	600 g x 0.1 g	349.00
77658	SP2001	2000 g x 0.1 g	441.00
77660	SP4001	4000 g x 0.1 g	646.00
103100	SP6001	6000 g x 0.1 g	728.00
77661	SP6000	6000 g x 1 g	366.00

PART#	MODEL#	DESCRIPTION	PRICE
70422	77256-01	Hard shell carrying case	\$100.00
77710	71147376	RS-232 interface with integrated cable, DB9	132.00
118780	71147377	USB interface with integrated cable	132.00
35263	76288-01	Security device	158.00
67413	SW12W	WinWedge® TAL Software	425.00
104767	_	Impact printer	682.00
104770	_	Paper for PN 104767	12.00
104771	_	Ribbon for PN 104767	35.00
92804	71168909	In-use cover, set of three	37.00
156234	46001724	110/220V AC power supply (requires PN 156235)	37.00
156235	46001780	Plug set	15.00

Readability: 0.1 g-1 g



Compact Scale

Standard Features

- Superior RF protection
- · Reliable, stable results
- CE listed and FCC Class B Part 15 operation
- Large removable stainless steel weighing platform
- Low profile design
- Standard AC adapter
- Easy operation
- · Low-battery indicator
- · Auto shut-off feature
- Overload protection
- Push-button calibration



Capacity: 200g-5000g

Specifications

	CS200	CS2000	CS5000	CS2000P*	CS5000P*	CS200P*
Part#	53493	53494	53495	53496	53497	83225
List Price	\$132.00	\$132.00	\$155.00	\$142.00	\$169.00	\$142.00
Capacity	200 g	2000 g	5000 g	2000 g	5000 g	200 g
Resolution	0.1 g	1 g	1 g	1 g	1 g	0.1 g
Weighing Modes		g, lb:oz, Newton		4 lb:6.55 oz x 0.05 oz	11 lb:0.4 oz x 0.1 oz	0 lb:7 oz x 0.01 oz
Repeatability	0.1 g	1 g	1 g	1 g	1 g	0.1 g
Linearity	±0.1 g	±1 g	±1 g	±1 g	±1 g	±0.1 g
Stabilization Time			3 sec	conds		
Operating Temperature			64° to 77° F	(18° to 25° C)		
Pan Size			5.75 x 5.25 in (14.5 x 13.3 cm)		
Dimensions			8.0 x 5.5 x 1.5 in (2	0.3 x 14.0 x 3.8 cm)		
Weight (Approx.)			0.91 lb	(.47 kg)		
Power	3 "AA" alkaline batteries (included) or AC adapter (included)					
Battery Life	300 hours					
Warranty	One-year limited warranty					
Return Policy			Ohaus Standard Policy	- restock fee may apply		

^{*}Includes US postal chart

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
53493	CS200	200 g x 0.1 g	\$132.00
53494	CS2000	2000 g x 1 g	132.00
53495	CS5000	5000 g x 1 g	155.00
53496	CS2000P*	2000 g x 1 g	142.00
53497	CS5000P*	5000 g x 1 g	169.00
83225	CS200P*	200 g x 0.1 g	142.00

PART#	MODEL#	DESCRIPTION	PRICE
33423	90524-66	AC adapter for CS models (current-version 2)	\$45.00
70430	80500457	AC adapter for CS models (older-version 1)	50.00
70434	80850075	Bowl, 1050 mL	36.00
70435	80850076	Stainless steel weighing pan cover	39.00

CL Series Compact Scale

Standard Features

- Basic weighing with simple 2-button keypad
- Superior RF protection
- · Large weighing platform
- Stackable design with integrated shipping lock
- · Low battery indicator
- Auto shut-off feature
- · Mechanical and software overload protection
- External push-button calibration
- Battery (standard) or AC adapter (optional) operation



Specifications

	CL201	CL2000	CL5000		
Part#	103101	103102	103103		
List Price	\$83.00	\$83.00	\$113.00		
Capacity	200 g	2000 g	5000 g		
Resolution	0.1 g	1 g	1 g		
Weighing Modes		g, lb:oz, ozt, dwt			
Repeatability	0.1 g	1 g	1 g		
Linearity	± 0.1 g	± 1 g	± 1 g		
Stabilization Time	3 seconds				
Operating Temperature	65° to 77° F (18° to 25° C)				
Pan Size		Ø 4.75 in (12.0 cm)			
Dimensions		5.5 x 1.6 x 7.9 in (14 x 4.0 x 20 cm)			
Weight (Approx.)	0.875 lb (0.4 kg)				
Power	3 "AA" batteries (included) (AC adapter is optional)				
Battery Life	300 hours				
Warranty	One-year limited warranty				
Return Policy	C	haus Standard Policy - restock fee may appl	у		

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
103101	CL201	200 g x 0.1 g	\$83.00
103102	CL2000	2000 g x 1 g	83.00
103103	CL5000	5000 g x 1 g	113.00

PART#	MODEL#	DESCRIPTION	PRICE
70434	80850075	Bowl for CS compact scales (1050 ml)	\$36.00
33423	90524-66	AC adapter for CL	45.00
103521	80010624	Carrying case for CS and CL scales	45.00
33455	5076-00	Aluminum scoop, 1.5 x 2 in (3.8 x 5.1 cm), weight 4 g	25.00
33456	5077-00	Gold scoop, 2.25 x 3 in (5.7 x 7.6 cm), weight 10 g	25.00
33454	4590-30	Black scoop, aluminum 4 x 3.5 in (10.2 x 8.9 cm), weight 24 g	26.00

Readability: 0.1 g-0.2 g

Ohaus HH Series

Handheld Compact Scale

Standard Features

- Weighing modes: g (HH120D); g, oz, dwt, ozt (HH120, HH320)
- Large 0.4in (10.16 mm) high-contrast backlit Liquid Crystal Display (LCD)
- · Low-battery indicator
- · Overload and underload indicators
- · Auto shut-off
- · Protective snap-on cover
- · Rugged plastic construction

HH120/320 Additional Features

 Push-button luminescent display and soft tactile feedback keypad with protective cover



Capacity: 60g-320g

Specifications

	HH120D	HH120	HH320			
Part#	52541	64055	52540			
List Price	\$139.00	\$166.00	\$207.00			
Capacity	60/120 g	120 g	320 g			
Resolution	0.1/0.2 g	0.1 g	0.1 g			
Weighing Modes	-	Grams, Ounces, Penn	yweight, Troy Ounces			
Maximum overload		150% of capacity				
Linearity	±0.1/±0.2	±0.1	±0.2			
Stabilization Time		3 seconds				
Pan Size		3.25 x 3.2 in (82.55 x 76.2 mm)				
Dimensions		5.35 x 3.25 x 0.8 in (13.6 x 8.5 x 2 cm)				
Weight (Approx.)		0.34 lb (0.16 kg)				
Calibration	Factory set	Factory set Calibration with keypad				
Auto Shutoff		Two minutes no activity				
Power	Battery operated					
Warranty	One-year limited warranty					
Return Policy		Dhaus Standard Policy - restock fee may appl	ly			

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
52541	HH120D	60/120 g x 0.1/0.2 g	\$139.00
64055	HH120	120 g x 0.1 g	166.00
52540	HH320	320 g x 0.1 g	207.00



Standard Features

- Smaller size than most pocket scales allows a comfortable fit in your pocket
- Clamshell case designs protects scale during transport
- Weighs in g, oz, ct and grain
- Bright blue backlit LCD display



Specifications

	YA102	YA302			
Part#	103106	103107			
List Price	\$84.00	\$72.00			
Capacity	100 g	300 g			
Resolution	0.01 g	0.05 g			
Weighing Modes	Grams, Ounces, O	Grams, Ounces, Carats and Grains			
Calibration	Exte	External			
Auto Shutoff	10 to 30	10 to 30 seconds			
Power	2 AAA Batteries				
Warranty	One-year limited warranty				
Return Policy	Ohaus Standard Policy	Ohaus Standard Policy - restock fee may apply			

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
103106	YA102	100 g x 0.01 g	\$84.00
103107	YA302	300 g x 0.05 g	72.00

PART#	MODEL#	DESCRIPTION	PRICE
33455	5076-00	Aluminum scoop, 1.5 x 2 in (3.8 x 5.1 cm), weight 4 g	\$25.00
33456	5077-00	Gold scoop, 2.25 x 3 in (5.7 x 7.6 cm), weight 10 g	25.00
33454	4590-30	Black scoop, aluminum 4 x 3.5 in (10.2 x 8.9 cm), weight 24 g	26.00

Mechanical Balance

Standard Features

- · Notched and tiered beams for easy reading
- Positive poise positioning for repeatability
- · Magnetically damped
- · Zero adjust compensator
- Choice of five weighing platforms: stainless steel pan, polypropylene scoop, stainless steel scoop, aluminum animal box, stainless steel plate
- · Optional tare beam vernier dial



TP26II

Capacity: 610g-2610g



Readability: 0.1 g

	710-00	710-T0	720-00	750-S0	760-00	720-S0
Part#	33350	33351	33352	33355	33357	33353
List Price	\$223.00	\$273.00	\$264.00	\$163.00	\$231.00	\$306.00
Capacity	610g	610 g	610g	610 g	610 g	610 g
Resolution	0.1 g	0.1 g	0.1 g	0.1 g	0.1 g	0.1 g
Tare Range	-	225 g	-	-	225 g	-
Pan Design	Stainless steel pan	Stainless steel pan with Tare	Polypropylene scoop	Stainless steel plate	Stainless steel plate with tare	Stainless steel scoop
Pan Size	Ø 6 in (19	52.4 mm)	-	Ø 6 in (1	52.4 mm)	-
Dimensions			18 x 12 x 9 in (457.2	x 304.8 x 228.6 mm)		
Weight (Approx.)			8	lb		
Calibration	Front beam 10 x 0.1 g, Middle beam 500 x 100 g, Rear beam 100 x 10 g					
Warranty	Five-year limited warranty					
Return Policy			Ohaus Standard Policy	restock fee may apply		

	730-00	1650-00*	1650-W0*	1610-00*	TP2611
Part#	33354	33361	33362	33360	103109
List Price	\$330.00	\$294.00	\$338.00	\$338.00	\$227.00
Capacity	610 g	610 g	2610 g	610 g	2610 g
Resolution	0.1 g	0.1 g	0.1 g	0.1 g	0.1 g
Tare Range	-	225 g	225 g	225 g	-
Pan Design	Aluminum weight boat		Stainless steel plate with tare	9	Stainless steel pan with rod and clamp
Pan Size	-		6 in (152.4 mm)		5.8 x 5.8 in (147.3 x 147.3 mm)
Dimensions		18 x ⁻	12 x 9 in (457.2 x 304.8 x 22	3.6 mm)	
Weight (Approx.)			8 lb (3.6 kg)		
Calibration	Front beam 10 x 0.1 g, Middle beam 500 x 100 g, Rear beam 100 x 10 g				
Warranty		Five-year limited warranty			
Return Policy	Ohaus Standard Policy - restock fee may apply				

^{*}Dial-O-Gram models

Ohaus **Triple Beam**Mechanical Balance

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
33350	710-00	610g x 0.1g	\$223.00
33351	710-T0	610 g x 0.1 g	273.00
33352	720-00	610 g x 0.1 g	264.00
33355	750-S0	610g x 0.1g	163.00
33357	760-00	610g x 0.1g	231.00
33353	720-S0	610 g x 0.1 g	306.00
33354	730-00	610/2610 g x 0.1 g	330.00
33361	1650-00	610 g x 0.1 g	294.00
33362	1650-W0	2610 g x 0.1 g	338.00
33360	1610-00	610g x 0.1g	338.00
103109	TP2611	2610 g x 0.1 g	227.00

-		
MODEL#	DESCRIPTION	PRICE
183-00	Rod and clamp assembly	\$50.00
703-00	Polypropylene scoop, 12 x 6 x 2.75 in (304 x 152 x 70 mm) footed and counterweighted for balance with out tare	37.00
703-S0	Stainless steel scoop, 12 x 6 x 2.75 in (304 x 152 x 70 mm) footed and counterweighted for balance with out tare	88.00
704-00	Polypropylene Maxi-Scoop®, 10 in (254 mm) dia. x 2.5 in (70 mm) Deep with pouring spout and counterweight	40.00
706-00	Vinyl dust cover	26.00
707-00	Attachment weight set, metric	52.00
	183-00 703-00 703-S0 704-00 706-00	Rod and clamp assembly 703-00 Polypropylene scoop, 12 x 6 x 2.75 in (304 x 152 x 70 mm) footed and counterweighted for balance with out tare 703-S0 Stainless steel scoop, 12 x 6 x 2.75 in (304 x 152 x 70 mm) footed and counterweighted for balance with out tare 704-00 Polypropylene Maxi-Scoop®, 10 in (254 mm) dia. x 2.5 in (70 mm) Deep with pouring spout and counterweight 706-00 Vinyl dust cover

Harvard Trip Balance

Mechanical Beam

Standard Features

- Highly versatile, rugged and accurate
- Two-pan design ideal for comparative weighing
- · Built-in sliding masses
- Roberval principle
- Magnetic damping
- · Comparative weighing
- Five-year limited warranty



Specifications

	1450-SD	1550-SD	1560-SD
Part#	33364	33367	33368
List Price	\$304.00	\$326.00	\$340.00
Capacity	2000 g	2000 g	2000 g
Resolution	0.1 g	0.1 g	0.1 g
Pan Design	Two pan design; stainless steel plate		
Pan Size	6 in (152.4 mm)		
Dimensions	25 x 18 x 22 in (63.5 x 45.8 x 55.9 cm)		
Calibration	Top Beam 10 x 0.1 lb; Bottom beam 200 x 10 g		
Warranty	Five-year limited warranty		
Return Policy	Ohaus Standard Policy - restock fee may apply		

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
33364	1450-SD	2000 g x 0.1 g, single beam	\$304.00
33367	15550-SD	2000 g x 0.1 g, two beam	326.00
33368	1560-SD	2000 g x 0.1 g, two beam with tare	340.00

- P			
PART#	MODEL#	DESCRIPTION	PRICE
33461	106-00	Vinyl dust cover for Harvard Trip Balances	\$28.00
33417	183-00	Rod and clamp assembly for Triple Beam or Harvard Trip	50.00

www.ricelake.com | Phone: 800-472-6703

Standard Features

- 0.01 g or 0.1 g sensitivity
- Equipped for specific gravity weighing
- · Four-tiered notched beams
- Easy-to-read vernier dial on model 310
- See-through poise on model 311
- High precision and remarkable value
- Three-point beam eliminates need for level adjustment
- · Quick-zeroing with zero adjust knob
- · Five-year limited warranty



Capacity: 310g-311g Readability: 0.01g

Specifications

	310-00	311-00
Part#	33371	33370
List Price	\$325.00	\$268.00
Capacity	310 g	311 g
Resolution	0.01 g	0.01 g
Operating Mode	Dial	Poise
Pan Size	6 in (152.4 mm)	
Platform	Stainless steel (removable) 3.5 x 0.5 in (88.9 x 12.7 mm)	
Calibrations	Front beam-225 g tare Middle beam-500 g x 10	00 g, Ream beam-100 g x 10 g; Dial-10 g x 0.1 g
Weight (Approx.)	5 lb (2.3 kg)	
Warranty	Five-year limited warranty	
Return Policy	Ohaus Standard Policy - restock fee may apply	

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
33371	310-00	310 g x 0.01 g	\$325.00
33370	311-00	311 g x 0.01 g	268.00

PART#	MODEL#	DESCRIPTION	PRICE
33420	76912-01	Test tube kit	\$50.00
33462	110-00	Vinyl dust cover	26.00
Additional O	HAUS Mechanical Balance Accessories		
33414	707-00	Metric attachment mass set	52.00
33450	1101-20	Polypropylene scoop, 12 x 6 in 2.75 in (304 x 152 x 70 mm) footed, tare 125 g	26.00
33451	3369-10	Polypropylene Maxi-Scoop®, 10 in (254 mm) dia. x 2.5 in (63 mm) D w/pouring spout	35.00
33454	4590-30	Black scoop, aluminum, 4 x 3.5 in (102 x 89 mm)	26.00
33455	5076-00	Aluminum scoop, 1.5 x 2 in (38 x 51 mm)	25.00
33456	5077-00	Gold scoop, 2.25 x 3 in (57 x 76 mm)	25.00

Readability: 5g-0.01 lb

Ohaus Field Test Scale

Mechanical Balance

Standard Features

- Affordable compact industrial scale
- Large, stabilized pan can hold oversized samples without tipping
- Readings up to 500 g are taken from a single sliding-weight beam, while a set
 of slotted weights, stored in the base, can extend the capacity up to 36 lb
- Five-year limited warranty



Capacity: 16kg, 36lb

Specifications

	2400-11	2400-12
Part#	33379	33380
List Price	\$1,133.00	\$1,174.00
Capacity	16 kg	36 lb
Resolution	5 g	0.01 lb
Operating Mode	Poise	Poise
Platform	11 in (27.9 cm)	
Calibrations	Bottom beam-500 x 5 g; Top beam-1 x 0.01 lb	
Weight (Approximate)	12 lb (5.4 kg)	
Warranty	Five-year limited warranty	
Return Policy	Ohaus Standard Policy	- restock fee may apply

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
33379	2400-11	16kg x 5g	\$1,133.00
33380	2400-12	36 lb x 0.01 lb	1,174.00

www.ricelake.com | Phone: 800-472-6703

Standard Features

- Sets an industry standard for precision in high-capacity weighing
- Durable enough to resist corrosion
- · Sensitive enough to weigh with a feather's touch
- Large stainless steel platform
- Lockable tare for containers up to 2270 g
- Self-aligning bearings assure a long, maintenance-free life
- · Five-year limited warranty



Specifications

	1119-D0	
Part#	33378	
List Price	\$1,842.00	
Capacity	20 kg	
Resolution	1g	
Operating Mode	Poise	
Pan Size	-	
Platform	11 in (27.9 cm)	
Calibrations	Front beam-100 x 1 g; Rear beam-1000 x 100 g	
Weight (Approx.)	12 lb	
Warranty	Five-year limited warranty	
Return Policy	Ohaus Standard Policy - restock fee may apply	

PART#	MODEL#	DESCRIPTION	PRICE
33378	1119-D0	20 kg x 1 g	\$1,842.00



Food Portioning Scale

Standard Features

- Designed for food service and other industrial applications with a focus on speed, durability and cleanliness
- All stainless steel, high-quality formed construction for sanitary cleaning and durability
- Checkweighing function for food packaging and preparation
- Internal rechargeable battery assures excellent portability
- Stainless steel housing and pan with non-slip rubber feet
- Checkweighing mode with 3-LED indicator and audible alarm
- · Bright backlit LCD display
- · Stable weight display within 2 seconds
- Multiple weighing units: lb, decimal/fractional oz, kg, g and lb
- · AC power or internal rechargeable lead acid battery
- NSF-certified, USDA-AMS accepted, supports HACCP compliance
- EC/OIML type approved

Note: NTEP and Measurement Canada 3000e approved resolution is specific only to model without the "H" suffix. Units ship in non-NTEP resolution



Readability: 0.0002 lb-0.01 lb

Approvals





Capacity: 6lb-30lb

Measurement Canada Approved

	FD3H	FD3	FD6H	FD6	FD15H	FD15
Part#	102774	-	102775	-	102776	-
List Price	\$722.00	-	\$722.00	-	\$722.00	-
Part#	-	87824	-	87825	-	87826
List Price	-	\$656.00	-	\$656.00	-	\$656.00
Capacity	6 lb	6 lb	15 lb	15 lb	30 lb	30 lb
Resolution	0.0002 lb	0.002 lb	0.001 lb	0.005 lb	0.001 lb	0.01 lb
Overload capacity			150	0%		
Operating Modes			Weighing, Ch	eckweighing		
Repeatability	0.2	2g	0.4	4 g	.2	g
Linearity	±0.	2 g	±0.	.4 g	±0.	2 g
Stabilization Time			< 2 se	econds		
Operating Temperature		14° F to 104° F	(-10° C to 40° C) 10 to	85% relative humidity,	non-condensing	
Environmental			IP ₄	43		
Pan Size			8.2 x 8.2 in (2	09 x 209 mm)		
Dimensions			9 x 12 x 2.8 in (30	00 x 223 x 71 mm)		
Weight (Approx.)			8 lb (3	3.6 kg)		
Est. Ship Weight			11 lb (5 kg)			
Power		120V AC adapter, 9	OV DC 0.5A 50/60Hz (0	ther adapters available	by special request)	
Battery life			***************************************	120 hours		
Approvals		NSF listed/Certified	I to NSF C-2, UL C-US Ii	sted, NTEP Class III, Me	easurement Canada	
Warranty			One-year lim	ited warranty		
Return Policy			Ohaus Standard Policy	restock fee may apply	!	
Kilogram	3 x 0.0001 kg	3 x 0.001 kg	6 x 0.0002 kg	6 x 0.002 kg	15 x 0.005 kg	15 x 0.005 kg
Grams	3000 x .1 g	3000 x 1 g	6000 x 0.2 g	6000 x 2 g	-	15000 x 5 g
Ounce	96 oz x 0.005 oz; 96 oz x 1/4 oz	96 oz x 0.05 oz or 1/4 oz	240 oz x 0.01 oz; 240 oz x 1/4 oz	240 oz x 0.1 oz or 1/4 oz	480 oz x 0.02 oz or 1/4 oz	480 oz x 0.2 oz 1/4 oz
Pound x Ounce	6 lb 0 oz x 1/4 oz; 6 lb 0 oz x 0.1 oz	N/A	15 lb 0 oz x 0.1 oz; 15 lb 0 oz x 1/4 oz	N/A	30 lb 0 oz x 0.1 oz or 1/4 oz	N/A

Ohaus

FD Series
Food Portioning Scale

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
102774	FD3H	6 lb x 0.0002 lb	\$722.00
87824	FD3 (NTEP)	6 lb x 0.002 lb	656.00
102775	FD6H	15 lb x 0.001 lb	722.00
87825	FD6 (NTEP)	15 lb x 0.005 lb	656.00
102776	FD15H	30 lb x 0.001 lb	722.00
87826	FD15 (NTEP)	30 lb x 0.01 lb	656.00

PART#	MODEL#	DESCRIPTION	PRICE
103118	80251394	Hard shell carrying case for FD	\$88.00
87827	71169633	Foot tare switch for FD	122.00
103116	80251141	Flat pan for FD or Valor 5000	45.00
103117	80251140	In-use cover for FD or Valor 5000	26.00
33451	3369-10	Polypropylene Maxi-Scoop™ 10 dia x 2.5 in deep (25.4 dia x 6.4 cm deep) with pouring spout, weight 145 g	35.00
97250	80250400	Stainless steel scoop 11.9 x 7.4 x 1.7 in (30 x 18.7 x 4.3 cm)	50.00
100292	80250954	Stainless steel scoop 17.2 x 11 x 3.4 in (44 x 28 x 8.5 cm)	62.00
98020	80500435	AC Adapter	50.00

Ohaus **Navigator™ XT**

Battery-Operated Compact Scale

Standard Features

- Touchless IR (infared) sensors minimize keypad use
- Program IR sensor to control zero, print tare, backlight and power functions
- Backlit 0.8 in LCD display for high visibility
- Illuminated level indicator at start-up
- Integrated transportation and calibration lock switch
- Hygienic design for easy cleanup in food, laboratory and industrial applications
- IP43 rating
- Impact-resistant ABS plastic housing with polished stainless steel spill-resistant pan
- · Non-skid leveling feet
- Internal rechargeable battery



Capacity: 1600g - 16,000g Readability: 0.1g - 1g

Specifications

	NVT1601/1	NVT3201/1	NVT6401/1	NVT10001/1	NVT16000/1
Part Number	117909	117910	117911	117912	117913
List Price	\$444.00	\$444.00	\$428.00	\$444.00	\$444.00
Capacity	1600 g	3200 g	6400 g	10000 g	16000 g
Resolution	0.1 g	0.2 g	0.5 g	0.5 g	1 g
Weighing Modes	Pound, Ounce, Pound: Ounce, Kilogram, Gram, Troy Ounce, Grain, Newton, Carat, Pennyweight, Tael (Hong Kong, Taiwan, Sin Tical, Tola			Kong, Taiwan, Singapore),	
Operating Modes	Modes Weighing, Percent, Parts counting, Checkweighing, Display Hold, Accumu			Hold, Accumulation/Totaliz	ation
Linearity	0.1g/+/-0.2g	0.2g/+/-0.4g	0.5g/+/-1g	0.5g/+/-1g	1g/+/-2g
Stabilization Time	1 second				
Operating Temperature	50° F to 104° F (10° C to 40° C) at 20-85% RH				
Pan Size	9 x 6.9in (230 x 174 mm)				
Dimensions	9.5 x 9.8 x 2.8 in (240 x 250 x 70 mm)				
Weight (Approx.)	4.3 lb (2.0 kg)				
Est. Shipping Weight			6.1 lb (2.8 kg)		
Ext. Cal. Mass (optional)	2 lb (1 kg)	5 lb (2 kg)	10 lb (5 kg)	10 lb (5 kg)	20 lb (10 kg)
Power	Power 12 VDC 0.42A AC adapter, 100-240V, Internal Rechargeable Battery 100-hr o			100-hr operation with 12-	hr full charge
Warranty		One-year limited warranty			
Return Policy		Ohaus Sta	andard Policy - restock fee	may apply	

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
117909	NVT1601/1	1600 g x 0.1 g	\$444.00
117910	NVT3201/1	3200 g x 0.2 g	444.00
117911	NVT6401/1	6400 g x 0.5 g	428.00
117912	NVT10001/1	10,000 g x 0.5 g	444.00
117913	NVT16000/1	16,000 g x 1 g	444.00

PART#	MODEL#	DESCRIPTION	PRICE
118779	83032107	RS-232 interface kit, Navigator series	\$132.00
118780	83032108	USB interface kit	132.00
118781	83032109	Ethernet interface kit	132.00
118782	83032221	In-use cover	21.00
118783	83032224	Carrying case	79.00
156236	46001802	Universal AC adapter	40.00
156235	46001780	Plug set	15.00

Standard Features

- Touchless sensors
- Backlit dual LCD display
- Illuminated up-front level indicator
- Internal rechargeable battery
- · ABS plastic housing
- · Skid-resistant leveling feet
- · Menu lock switch
- Multiple application modes
- RS-232, standard
- · Fast stabilizing time



Approvals

Capacity: 1.5kg-30kg









Readability: 0.00005 kg-0.001 kg

Specifications

	V71P1502T	V71P3T	V71P6T	V71P15T	V71P30T	
Part#	157316	157317	157318	157319	157320	
List Price	\$524.00	\$524.00	\$524.00	\$524.00	\$524.00	
Capacity	1.5 kg	3 kg	6 kg	15 kg	30 kg	
Resolution	0.00005 kg	0.0001 kg	0.0002 kg	0.0005 kg	0.001 kg	
Weighing modes		Weighing,	Percent, Checkweighing, Ac	cumulation		
Units of Measures		Р	ound, Ounce, Kilogram, Grai	m		
Pounds	3 x 0.0001	6 x 0.0002	15 x 0.0005	30 x 0.001	60 x 0.002	
Grams	1500 x 0.05	3000 x 0.1	6000 x 0.2	15000 x 0.5	30000 x 1	
Ounces	48 x 0.002	96 x 0.005	240 0.01	480 x 0.02	960 x 0.05	
Operating Temperature	14 to 104 F/-10 to 40 C					
Pan Size		11.8 x 8.9 in (300 x 225 mm)				
Dimensions		12.2 x	12.9 x 4.6 in (311 x 327 x 1	17 mm)		
Weight (Approx.)		9.2 lb. (4.2 kg)				
Power	Power 1		00-240V, Internal Rechargeable Battery 210-hr operation with 12-hr full charge			
Warranty	One-year limited warranty					
Return Policy		Ohaus Sta	andard Policy - restock fee r	may apply		

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
157316	V71P15025	1.5 kg x 0.00005 kg	\$524.00
157317	V71P3T	3 kg x 0.0001 kg	524.00
157318	V71P6T	6 kg X 0.0002 kg	524.00
157319	V71P15T	15 kg X 0.0005 kg	524.00
157320	V71P30T	30 kg X 0.001kg	524.00

PART#	MODEL#	DESCRIPTION	PRICE
154638	30037447	Ethernet Kit	\$104.00

Valor® 3000 Xtreme

Compact Precision Scales

Standard Features

- Full 304 stainless steel housing with chemical resistant keypad
- Removable stainless steel weighing pan
- USDA approved
- Supports HACCP
- Resolutions up to 20,000d
- SmarText user interface
- Standard AC Power adapter
- Bright backlit LCD display
- Convenient up-front level device
- NSF Listed
- NTEP models available by special order



Specifications

	V31XH202	V31XH402	V31X501	V31XH2	V31X3	V31XH4	V31X6
Part#	100283	117790	117789	100284	100285	117792	100286
List Price	\$592.00	\$766.00	\$446.00	\$592.00	\$405.00	\$813.00	\$405.00
Capacity	200 g	400 g	500 g	2 g	3 kg	4 kg	6 kg
Resolution	0.01 g	0.01 g	0.1 g	0.1 kg	1 g	0.1 g	1 g
Weighing Modes		Pounds, I	Decimal or fractional	Ounces, lb:oz, fluid	oz (of water); Kilogra	am, Gram	
Operating Modes		W	eighing, Percent wei	ghing, Combined zei	o/tare, Specific grav	ity	
Protection rating		Non-Washdown models					
Stabilization Time		< 3 seconds					
Operating Temperature			32° F	to 104° F (0° C to 4	10° C)		
Pan Size		4.7 in (120 mm) 5.8 x 6.2 in (146 x 158 mm)					
Dimensions		8.5 x 7.3 x 3 in (218 x 186 x 72 mm)					
Weight (Approx.)		2.6 lb (1.2 kg)			2.9 lb ((1.3 kg)	
Est. Ship Weight				10 lb (4.8 kg)			
Calibration			Diç	gital external calibrat	ion		
Power	120 V AC adapter (9 V DC, 0.5A), Four 1.5 Volt C batteries (not included)						
Battery life	50	hours with alkaline o	ells		120 hours with	n alkaline cells	
Warranty	One-year limited warranty						
Return Policy			Ohaus Standa	ard Policy - restock f	ee may apply		

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
100283	V31XH202	200 g x 0.01 g	\$592.00
117790	V31XH402	400 g x 0.01 g	766.00
117789	V31X501	500 g x 0.1 g	446.00
100284	V31XH2	2 kg x 0.1 g	592.00
100285	V31X3	3 kg x 1 g	405.00
117792	V31XH4	4kg x 0.1 g	813.00
100286	V31X6	6kg x 1 g	405.00

PART#	MODEL#	DESCRIPTION	PRICE
103119	80251216	Hard shell carrying case for FD and Valor	\$88.00
102756	80251147	Sandwich pan, 11 x 5.9 in (280 x 150 mm) for Valor Xtreme	55.00
102757	80251148	French fries holder pan for Valor 3000 Xtreme	55.00
102758	80251149	Ice cream cone holder for Valor 3000 Xtreme	55.00
33451	3369-10	Polypropylene Maxi-Scoop™ 10 dia x 2.5 in deep (25.4 dia x 6.4 cm deep) with pouring spout, weight 145 g	35.00
100292	80250954	Stainless steel scoop 17.2 x 11 x 3.4 in (44 x 28 x 8.5 cm)	62.00
97250	80250400	Stainless steel scoop 11.9 x 7.4 x 1.7 in (30 x 18.7 x 4.3 cm)	50.00

Valor® 3000 Xtreme Compact Washdown Scales

Standard Features

- Full 304 stainless steel housing with chemical resistant keypad
- Removable stainless steel weighing pan
- USDA approved
- Supports HACCP
- IP65
- · NTEP models available



Capacity: 300 g-6 kg Readability: 0.01 g-1 g

Specifications

	V31XW301	V31XW3	V31XW6	
Part#	100287	-	-	
List Price	\$479.00	-	-	
Part#	-	100288	100289	
List Price	-	\$479.00	\$479.00	
Capacity	300 g	3 kg	6kg	
Resolution	0.1 g	1 g	2 g	
Weighing Modes	Pounds, Decimal	or fractional Ounces, lb:oz, fluid oz (of water)	; Kilogram, Gram	
Operating Modes	Weighing,	Percent weighing, Combined zero/tare, Speci	fic gravity	
Protection Rating	IP65			
Stabilization Time	< 3 seconds			
Operating Temperature		32° F to 104° F (0° C to 40° C)		
Pan Size		5.8 x 6.2 in (146 x 158 mm)		
Dimensions		8.5 x 7.3 x 3 in (218 x 186 x 72 mm)		
Weight (Approx.)		2.9 lb (1.3 kg)		
Est. Ship Weight		10 lb (4.8 kg)		
Calibration		Digital external calibration		
Power	120V AC ada	120 V AC adapter (9 V DC, 0.5A), Four 1.5 Volt C batteries (not included)		
Battery Life	50 hours with	alkaline cells	120 hours with alkaline cells	
Warranty		One-year limited warranty		
Return Policy		Dhaus Standard Policy - restock fee may apply	У	

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
100287	V31XW301	300 g x 0.1g	\$479.00
100288	V31XW3	3 kg x 1 g	479.00
100289	V31XW6	6kg x 2g	479.00

PART#	MODEL#	DESCRIPTION	PRICE
103119	80251216	Hard shell carrying case for FD and Valor	\$88.00
102756	80251147	Sandwich pan, 11 in x 5.9 in (280 x 150 mm) for Valor Xtreme	55.00
102757	80251148	French fries holder pan for Valor 3000 Xtreme	55.00
102758	80251149	Ice cream cone holder for Valor 3000 Xtreme	55.00
33451	3369-10	Polypropylene Maxi-Scoop™ 10 dia x 2.5 in deep (25.4 cm dia x 6.4 cm deep) with pouring spout, weight 145 g	35.00
100292	80250954	Stainless steel scoop 17.2 x 11 x 3.4 in (44 x 28 x 8.5 cm)	62.00
97250	80250400	Stainless steel scoop 11.9 x 7.4 x 1.7 in (30 x 18.7 x 4.3 cm)	50.00



Compact Washdown Scales

Standard Features

- IPX8 protection rating
- Front and rear dual display, 0.8 in/20.5 mm
- Removable stainless steel platform cover
- Fast 0.5s stabilization time
- SmarText interface
- Knife proof keypad
- · AC adapter and battery included



Capacity: 3kg-15kg Readability: 0.5g-2g

Approvals







Specifications

	V22XWE3T	V22XWE6T	V22XWE15T
Part#	102771	102772	102773
List Price	\$429.00	\$429.00	\$429.00
Capacity	3 kg	6 kg	15 kg
Resolution	0.5 g	1 g	2 g
Weigh Units	Kilo	grams, Pounds, Grams, Ounces, Pound and Ou	nce
Operating Modes		Weigh, Checkweigh	
Construction		ABS plastic housing, stainless steel pan	
Protection Rating	IPX8		
Safe Overload	150% of capacity		
Stabilization Time	< 1 second		
Operating Temperature		14° F to 104° F (-10° C to 40° C)	
Pan Size		7.5x 9.5 in (242 x 190 mm)	
Dimensions		10.1 x 11.3 x 4.9 in (256 x 288 x 124 mm)	
Weight (Approx.)		8.6 lb (3.9 kg)	
Calibration		Digital external calibration	
Power	Universal AC adapter, 12V DC 0.7A internal rechargeable lead acid battery		
Battery Life	50 hours with 1 hour recharge time		
Warranty		One-year limited warranty	
Return Policy	(Dhaus Standard Policy - restock fee may apply	

[^]Weighing Chamber

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
102771	V22XWE3T	3 kg x 0.5 g	\$429.00
102772	V22XWE6T	6 kg x 1 g	429.00
102773	V22XWE15T	15 kg x 2 g	429.00

PART#	MODEL#	DESCRIPTION	PRICE
33451	3369-10	Polypropylene Maxi-Scoop™ 10 dia x 2.5 in deep (25.4 dia x 6.4 cm deep) with pouring spout, weight 145 g	\$35.00
97250	80250400	Stainless steel scoop 11.9 x 7.4 x 1.7 in (30 x 18.7 x 4.3 cm)	50.00
100292	80250954	Stainless steel scoop 17.2 x 11 x 3.4 in (44 x 28 x 8.5 cm)	62.00
156237	46001812	Universal AC adapter	40.00
156235	46001780	Plug set, US, EU, GB and AU	15.00

Ohaus Valor® 1000

Compact Precision Scales

Standard Features

- Removable stainless steel platform cover
- Mid-profile ABS plastic housing
- Front-mounted leveling device
- Long lasting internal rechargeable battery (standard)
- · Compact footprint
- Fast response time
- Easy-to-clean



Readability: 0.001 g-0.005 g

Approvals





Capacity: 3 kg-30 kg

Specifications

	V11P3	V11P6	V11P15	V11P30	
Part#	102767	102768	102769	102770	
List Price	\$220.00	\$220.00	\$220.00	\$220.00	
Capacity	3 kg	6 kg	15 kg	30 kg	
Resolution	0.5 g	1 g	2 g	5 g	
Decimal Ounce	105 oz x 0.02 oz	210 oz x 0.05 oz	520 oz x 0.1 oz	1058 oz x 0.5 oz	
Decimal Pound	6.6 lb x 0.001 lb	13 lb x 0.002 lb	33 lb x 0.01 lb	66 lb x 0.02 lb	
Grams	3000 g x 0.5 g	6000 g x 1 g	15000 g x 2 g	30000 g x 5 g	
Operating Modes		Weigh, accumul	ate, checkweigh		
Construction	ABS plastic housing, stainless steel pan				
Stabilization Time	<=3 seconds				
Operating Temperature	32° F to 104° F (0° C to 40° C) at 10% to 95% relative humidity Non-condensing, up to 2.5 miles/4000 m above sea level				
Scale Overload		120% of capacity			
Pan Size		9.9 W x 7.1 in D	(250 x 180 mm)		
Dimensions		10 W x 12 D x 4.3 in H	(250 x 307 x 110 mm)		
Weight (Approx.)		7 lb (3	3.2 kg)		
Est. Ship Weight		8.8 lb ((4.0 kg)		
Power	Universal AC adapter included (9V DC 500 mA) Internal rechargeable sealed lead acid battery (included)				
Battery life		80/100 hours (with/without backlig	ght on) with 12-hour recharge time	9	
Warranty	One-year limited warranty				
Return Policy	Ohaus Standard Policy - restock fee may apply				

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
102767	V11P3	3 kg x 0.5 g	\$220.00
102768	V11P6	6 kg x 1 g	220.00
102769	V11P15	15 kg x 2 g	220.00
102770	V11P30	30 kg x 5 g	220.00
^Weighing Chan	nber		

PART#	MODEL#	DESCRIPTION	PRICE
33451	3369-10	Polypropylene Maxi-Scoop™ 10 dia x 2.5 in deep (25.4 dia x 6.4 cm deep) with pouring spout, weight 145 g	\$35.00
97250	80250400	Stainless steel scoop 11.9 x 7.4 x 1.7 in (30 x 18.7 x 4.3 cm)	50.00
100292	80250954	Stainless steel scoop 17.2 x 11 x 3.4 in (44 x 28 x 8.5 cm)	62.00
156237	46001812	Universal AC adapter	40.00
156235	46001780	Plug set, US, EU, GB and AU	15.00



Standard Features

- Module Design
- User configurable and custom designed to meet changing applications
- Meets advanced Pharma compliance including user/password management for security, audit trail function logs, and integrated alibi memory
- · Q-guide enables tasks and work
- · Electrically conductive coating on glass panels of draft shield
- RS-232 and USB communication

Choice of Display

- MSE-Large 19 mm LCD display segments and easy menu system
- MSU-Monochrome graphic display, positive click on keys to activate functions, Ethernet, and SD Card Reader
- MSA-TFT Color touch screen, Ethernet, and SD Card Reader



Specifications

	2.7S-000-DM^	2.7S-000-DF^	6.6S-000-DM^	6.6S-000-DF^	3.6P-000-DM^	
Part#	126044	126046	126048	126049	126052	
List Price	\$30,545.00	\$31,365.00	\$23,895.00	\$24,715.00	\$18,235.00	
Part#	126043	126045	126047	126050	126051	
Part# List Price	\$31,575.00	\$32,395.00	\$24,925.00	\$25,745.00	\$19,265.00	
Part#	126034	126039	126040	126041	126042	
Part# List Price	\$32,090.00	\$32,910.00	\$25,440.00	\$26,260.00	\$19,780.00	
Capacity	2.1 g	2.1 g	5.1 g	5.1 g	1.1/2.1/3.1 g	
Resolution	0.0001 mg	0.0001 mg	0.001 mg	0.001 mg	0.001/0.002/0.005 mg	
Weighing Modes	Grams, Kilograms, Carats,	Pounds, Ounces, Troy Ounce Pound, Chinese tae	ces, Hong Kong Taels, Singar Is, Momme, Austrian carats,	oore taels, Grains, Pennywei Tola, Baht, Mesghal	ghts, Milligrams, Parts per	
Operating Modes (*)	Counting, Checkweighing		ggle, Animal weighing, Net to ermination, Memory (300), D		Calculation, Timer, Back-	
Repeatability	0.2	5 μg	0.00	1 mg	0.003/0.004/0.005 mg	
Linearity	0.9	μg	41	μg	4 μg	
Stabilization Time	7 sec	conds	5 sec	conds	5 seconds	
Operating Temperature		41	° F to 104° F (+5° C to 40°	C)		
Weighing Chamber (DE)	2.75 in (70 mm) H	0.6 in (15 mm) H	2.75 in (70 mm) H	0.6 in (15 mm) H	2.75 in (70 mm) H	
Pan Size	Ø 0.8 in (20 mm)	Ø 1.9 in (50 mm) dia	Ø 1.2 in (30 mm)	Ø 1.9 in (50 mm)	Ø 1.2 in (30 mm)	
Dimensions						
Weight (Approx.)		17	7 lb		17 lb	
Est. Ship Weight	28 lb 40 lb					
Calibration Weight	2	3 g				
Power	100 - 240V Power Supply					
Warranty	Two-year limited warranty					
Return Policy		Sartorius S	Standard Policy - restock fee	may apply		

[^]Weighing Chamber

DF-SS manual draft shield for weighing filters

^{*} MSE Large LCD display and easy to use menu system

^{**}MSU Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}MSA TFT color touchscreen, Ethernet and SD card reader



Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
126044*	MSE2.7S-000-DM	2.1 g x 0.0001 mg	\$30,545.00
126043**	MSU2.7S-000-DM	2.1 g x 0.0001 mg	31,575.00
126034***	MSA2.7S-000-DM	2.1 g x 0.0001 mg	32,090.00
126046*	MSE2.7S-000-DF	2.1 g x 0.0001 mg	31,365.00
126045**	MSU2.7S-000-DF	2.1 g x 0.0001 mg	32,395.00
126039***	MSA2.7S-000-DF	2.1 g x 0.0001 mg	23,895.00
126048*	MSE6.6S-000-DM	6.1 g x 0.001 mg	24,925.00
126047**	MSU6.6S-000-DM	6.1 g x 0.001 mg	25,440.00
126040***	MSA6.6S-000-DM	6.1 g x 0.001 mg	24,715.00
126049*	MSE6.6S-000-DF	6.1 g x 0.001 mg	25,745.00
126050**	MSU6.6S-000-DF	6.1 g x 0.001 mg	26,260.00
126041***	MSA6.6S-000-DF	6.1 g x 0.001 mg	18,235.00
126052*	MSE3.6P-000-DM	1.1/2.1/3.1 g x 0.001/0.002/0.005 mg	19,265.00
126051**	MSU3.6P-000-DM	1.1/2.1/3.1 g x 0.001/0.002/0.005 mg	19,780.00
126042***	MSA3.6P-000-DM	1.1/2.1/3.1 g x 0.001/0.002/0.005 mg	

PART#	MODEL#	DESCRIPTION	PRICE
112261	YDP20-0CE	Data printer with statistics and time/date functions (included cable fits RS-232)	\$985.00
50232	6971413	AC Power supply, printer	108.00
50232	6971413	AC power supply, printer	105.00
31103	6906937	Paper for data printer, 5 pack	38.00
31106	6906918	Replacement ribbon for data printer	44.00
31071	YRB05Z	Battery pack, rechargeable, external	625.00
156906	6971987	Power supply, 120-240 V	140.00
156908	6900900	Power cord, 220V (EU)	30.00

^{*}Large LCD display and easy to use menu system

^{**}Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}TFT color touchscreen, Ethernet and SD card reader



Semi-Micro and Analytical Balances

Standard Features

- Module design
- User configurable and custom designed to meet changing applications
- Meets advanced Pharma compliance including user/password management for security, audit trail function logs and integrated alibi memory
- Q-guide enables tasks and work (MSA display)
- · Electrically conductive coating on glass panels of draft shield
- RS-232 and USB communication
- Easy cleaning by removing glass doors
- · Underweigh hook included
- · Draft shield

Choice of display

- · MSE-large LCD display and easy menu system
- MSU-monochrome graphic display, positive click on keys to activate functions, Ethernet and SD Card Reader, Auto Leveling feature
- MSA-TFT color touchscreen, Ethernet and SD Card Reader, Auto Leveling feature



Readability: 0.01 mg-0.1 mg

Capacity: 60 g-320 g

The modular system offers you a choice of display and control units, weighing modules and draft shields

Optional Features

- DA motor-driven draft shield
- · DI draft shield eliminates electrostatic charges

	225S	225P	125P	324S	224\$	324P	124S	524S	524P
Part# List Price	109776	109777	109778	109779	109780	109781	109782	156269	156270
List Price	\$10,815.00	\$9,295.00	\$6,695.00	\$6,805.00	\$6,075.00	\$6,025.00	\$4,995.00	\$8,245.00	\$6,695.00
Part# List Price	109783	109786	109788	109794	109790	109791	109792	156267	156268
List Price	\$11,845.00	\$10,325.00	\$7,725.00	\$7,835.00	\$7,105.00	\$7,055.00	\$6,025.00	\$9,275.00	\$7,725.00
Part#	109795	109796	109797	109798	109799	109800	109801	156265	156266
Part# List Price	\$12,360.00	\$10,840.00	\$8,240.00	\$8,350.00	\$7,620.00	\$7,570.00	\$6,540.00	\$9,790.00	\$8,240.00
Capacity	220 g	60/120/220 g	60/120 g	320 g	220 g	80/160/320 g	120 g	520 g	120/240/520 g
Resolution	0.01 mg	0.01/0.02/0.05 mg	0.01/0.1 mg	0.1 mg	0.1 mg	0.1/0.2/0.5 mg	0.1 mg	0.1 mg	0.1/0.2/0.5 mg
Weighing Modes	Grams, Kilogr	ams, Carat, Pounds, C Pound, Tael China							ligram, Parts per
Operating Modes		onversion, SQ min fun Percent weighing, To		g, Customized		n, Stàtistics, Time o			
Repeatability	0.025 mg	0.015/0.04 mg	0.015/0.06 mg	0.1 mg	0.07 mg	0.1/0.2/0.4 mg	0.1 mg	0.1 mg	0.1/0.2/0.5 mg
Linearity	0.1 mg	0.15 mg	0.15 mg	0.3 mg	0.2 mg	0.5 mg	0.2 mg	0.4 mg	0.5 mg
Stabilization Time (sec.)	2	2	2	1	1	1	1	1	1
Operating Temperature				41° F to 10	4° F (+5° C	to 40° C)			
Weighing Chamber				8 x 8 x 10.2 i	n (205 x 205	x 261 mm)			
Pan Size				3.3 x 3.	3 in (85 x 85	imm)			
Dimensions			16 x 9.8 x 14.6	in (410 x 249	x 370.4 mm) (with manual dra	ft shield)		
Weight (Approx.)					18 lb				
Est. Ship Weight		31.9lb				29.7 lb			
Calibration Weight	200g 200g 100g 300g 200g 300g 100g 500g						500 g		
Power				120V AC	adapter auto	ranging			
Warranty				Two-yea	ar limited wa	rranty			
Return Policy			Sartor	rius Standard	Policy - resto	ck fee may apply			

^{*}MSE Large LCD display and easy to use menu system

^{**}MSU Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}MSA TFT color touchscreen, Ethernet and SD card reader



Semi-Micro and Analytical Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
109776*	MSE225S-100-DU	220 g x 0.01 mg	\$10,815.00
109777*	MSE225P-100-DU	60/120/220 g x 0.01/0.02/0.05 mg	9,295.00
109778*	MSE125P-100-DU	60/120 g x 0.01/0.1 mg	6,695.00
109779*	MSE324S-100-DU	320 g x 0.1 mg	6,805.00
156269	MSE524S-100-DU	520 g x 0.1 mg	8,245.00
156270	MSE524P-100-DU	520/240/120 g x 0.5/0.2/0.1 mg	6,695.00
109780*	MSE224S-100-DU	220 g x 0.1 mg	6,075.00
109781*	MSE324P-100-DU	80/160/320 g x 0.1/0.2/0.5 mg	6,025.00
109782*	MSE124S-100-DU	120 g x 0.1 mg	4,995.00
109783**	MSU225S-100-DU	220 g x 0.01 mg	11,845.00
109786**	MSU225P-100-DU	60/120/220 g x 0.01/0.02/0.05 mg	10,325.00
109788**	MSU125P-100-DU	60/120 g x 0.01/0.1 mg	7,725.00
156267	MSU524S-100-DU	520 g x 0.1 mg	9,275.00
156268	MSU524P-100-DU	520/240/120 g x 0.5/0.2/0.1 mg	7,725.00
109794**	MSU324S-100-DU	320 g x 0.1 mg	7,835.00
109790**	MSU224S-100-DU	220 g x 0.1 mg	7,105.00
109791**	MSU324P-100-DU	80/160/320 g x 0.1/0.2/0.5 mg	7,055.00
109792**	MSU124S-100-DU	120 g x 0.1 mg	6,025.00
109795***	MSA225S-100-DU	220 g x 0.01 mg	12,360.00
109796***	MSA225P-100-DU	60/120/220 g x 0.01/0.02/0.05 mg	10,840.00
109797***	MSA125P-100-DU	60/120 g x 0.01/0.1 mg	8,240.00
156265	MSA524S-100-DU	520 g x 0.1 mg	9,790.00
156266	MSA524P-100-DU	520/240/120 g x 0.5/0.2/0.1 mg	8,240.00
109798***	MSA324S-100-DU	320 g x 0.1 mg	8,350.00
109799***	MSA224S-100-DU	220 g x 0.1 mg	7,620.00
109800***	MSA324P-100-DU	80/160/320 g x 0.1/0.2/0.5 mg	7,570.00
109801***	MSA124S-100-DU	120g x 0.1 mg	6,540.00

^{*}Large LCD display and easy to use menu system

PART#	MODEL#	DESCRIPTION	PRICE
Consult	DA	Automatic motorized draft shield for analytical balances (factory installed)	Consult
Consult	DI	Automatic motorized draft shield for analytical balances, with integrated ionizer (factory installed)	Consult
Consult	TR	Certificate of compliance and full factory test report	Consult
Consult	IR	Additional RS-232, 25-Pin connection	Consult
156906	6971987	Power supply, 100-240V	140.00
156908	6900900	Cord, power 220 V EU	30.00
Consult	IB	Bluetooth® wireless interface	Consult
Consult	IP	Additional RS-232, 9-Pin connection with PS2 port	Consult

^{**}Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}TFT color touchscreen, Ethernet and SD card reader



Milligram Balances

Standard Features

- Module design
- User configurable and custom designed to meet changing applications
- Meets advanced Pharma compliance including user/password management for security, audit trail function logs and integrated alibi memory
- Q-guide enables tasks and work (MSA display)
- · Electrically conductive coating on glass panels of draft shield
- RS-232 and USB communication
- · Easy cleaning by removing glass doors
- · Underweigh hook included
- · Draft shield

Choice of display

- MSE-large 19 mm LCD display segments and easy menu system
- MSU-monochrome graphic display, positive click on keys to activate functions, Ethernet and SD Card Reader
- MSA-TFT color touchscreen, Ethernet and SD Card Reader options



Readability: 0.0001g-0.01g

Capacity: 320g-3200g

The modular system offers you a choice of display and control units, weighing modules and draft shields

Optional Features

Bluetooth® Wireless technology

	3203S	2203S	2203P	1203S	5203S	5203P	623S	623P	323S
Part# List Price	109803	109804	109805	109806	156315	156316	109807	109808	109809
List Price	\$7,385.00	\$7,135.00	\$6,885.00	\$6,235.00	\$8,535.00	\$8,135.00	\$4,835.00	\$4,235.00	\$4,135.00
Part# List Price	109810	109811	109812	109813	156313	156314	109814	109815	109816
List Price	\$8,415.00	\$8,165.00	\$7,915.00	\$7,265.00	\$9,565.00	\$9,165.00	\$5,865.00	\$5,265.00	\$5,165.00
Part#	109817	109818	109819	109820	156310	156312	109821	109822	109823
List Price	\$8,930.00	\$8,680.00	\$8,430.00	\$7,780.00	\$10,980.00	\$9,680.00	\$6,380.00	\$5,780.00	\$5,680.00
Capacity	3200 g	2200 g	1010/2200 g	1200 g	5200 g	5200/2400/1200 g	620 g	150/300/620 g	320 g
Resolution	1 mg	1 mg	1/10 mg	1 mg	1 mg	5/2/1 mg	1 mg	1, 2, 5 mg	1 mg
Weighing Modes						ael Singapore, Tael 1 Mesghal, Ton, Pound			
Operating Modes (*)			tion, Percent wei	ighing, Totalizing	g, Ćounting, C	termination (Buoyan ustomized identificat nder Checkweighing	tion, Statistics,		
Repeatability	1/6 mg	1 mg	1/6 mg	0.7 mg	1 mg	1 mg	0.7 mg	1/2/4 mg	0.7 mg
Linearity	5 mg	3 mg	5 mg	2 mg	5 mg	5 mg	2 mg	5 mg	2 mg
Stabilization Time	1 second	1 second	1 second	1 second	1	1	0.8 seconds	0.8 seconds	0.8 seconds
Operating Temperature				41° F t	o 104° F (+5°	° C to 40° C)			
Weighing Chamber (DE)				8 x 8 x 7 in (f	rom pan) (200) x 200 x 179 mm)			
Pan Size				5.5 x	5.5 in (140 x	140 mm)			
Dimensions			16 x 9.8	x 11 in (410 x 2	249 x 281.4 m	m) (with manual dra	ft shield)		
Weight (Approx.)					17 lb				
Est. Ship Weight				27 lb				25 lb	
Calibration Weight	2000 g	2000 g	1000 g	1000 g	500 g	500 g	500 g	500 g	200 g
Power	120 V AC adapter (auto ranging)								
Warranty		Two-year limited warranty							
Return Policy				Sartorius Stand	ard Policy - re	stock fee may apply	1		

^{*} MSE Large LCD display and easy to use menu system

^{**}MSU Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}MSA TFT color touchscreen, Ethernet and SD card reader



Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
156315	MSE5203S-100-DE	5200 g x 0.001 g	\$8,535.00
156316	MSE5203P-100-DE	5200/2400/1200 g x 0.005/0.002/0.001 g	8,135.00
109803*	MSE3203S-100-DE	3200 g x 1 mg	7,385.00
109804*	MSE2203S-100-DE	2200 g x 1 mg	7,135.00
109805*	MSE2203P-100-DE	1010/2200 g x 1/10 mg	6,885.00
109806*	MSE1203S-100-DE	1200 g x 1 mg	6,235.00
109807*	MSE623S-100-DE	620 g x 1 mg	4,835.00
109808*	MSE623P-100-DE	150/300/620 g x 1/2/5 mg	4,235.00
109809*	MSE323S-100-DE	320 g x 1 mg	4,135.00
156313	MSU5203S-100-DE	5200 g x 0.001 g	9,565.00
156314	MSU5203P-100-DE	5200/2400/1200 g x 0.005/0.002/0.001 g	9,165.00
109810**	MSU3203S-100-DE	3200 g x 1 mg	8,415.00
109811**	MSU2203S-100-DE	2200 g x 1 mg	8,165.00
109812**	MSU2203P-100-DE	1010/2200 g x 1/10 mg	7,915.00
109813**	MSU1203S-100-DE	1200 g x 1 mg	7,265.00
109814**	MSU623S-100-DE	620 g x 1 mg	5,865.00
109815**	MSU623P-100-DE	150/300/620 g x 1/2/5 mg	5,265.00
156310	MSA5203S-100-DE	5200 g x 0.001 g	10,800.00
156312	MSA5203P-100-DE	5200/2400/1200 g x 0.005/0.002/0.001 g	9,680.00
109816**	MSU323S-100-DE	320 g x 1 mg	5,165.00
109817***	MSA3203S-100-DE	3200 g x 1 mg	8,930.00
109818 ***	MSA2203S-100-DE	2200 g x 1 mg	8,680.00
109819 ***	MSA2203P-100-DE	1010/2200 g x 1/10 mg	8,430.00
109820 ***	MSA1203S-100-DE	1200 g x 1 mg	7,780.0
109821 ***	MSA623S-100-DE	620 g x 1 mg	6,380.00
109822 ***	MSA623P-100-DE	150/300/620 g x 1/2/5 mg	5,780.00
109823 ***	MSA323S-100-DE	320 g x 1 mg	5,680.00

^{*}Large LCD display and easy to use menu system

PART#	MODEL#	DESCRIPTION	PRICE
Consult	100	Fully automatic motorized leveling, one key touch, MSA MSU only (factory installed)	Consult
Consult	TR	Certificate of compliance and full factory test report	Consult
Consult	IR	Additional RS-232, 25-Pin connection	Consult
156906	6971987	Power supply, 100-240V	140.00
156908	6900900	Cord, power 220 V EU	30.00
Consult	IB	Bluetooth® wireless interface	Consult
Consult	IP	Additional RS-232, 9-Pin connection with PS2 port	Consult

^{**}Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}TFT color touchscreen, Ethernet and SD card reader



Toploading Balances

Standard Features

- Fast stabilization time
- Module design
- · User configurable and custom designed to meet changing applications
- Meets advanced Pharma compliance including user/password management for security, audit trail function logs and integrated alibi memory
- · Q-guide enables tasks and work
- · Electrically conductive coating on glass panels of draft shield
- RS-232 and USB communication
- · Easy cleaning by removing glass doors
- · Weigh underweigh included

Choice of display

- · MSE-large LCD display and easy menu system
- MSU-monochrome graphic display, positive click on keys to activate functions, Ethernet and SD Card Reader
- MSA-TFT color touchscreen, Ethernet and SD Card Reader options



Capacity: 1200g-12,200g Readability: 0.01g-0.1g

The modular system offers you a choice of display and control units, weighing modules and draft shields

Optional Features

Bluetooth® Wireless technology

-	1202S	2202S	4202S	6202P	6202S	8202S	10202S
Part#	109832	109831	109830	109829	109828	109827	109826
Part# List Price	\$3,095.00	\$3,455.00	\$3,815.00	\$3,965.00	\$4,435.00	\$5,045.00	\$5,875.00
Part#	109842	109841	109840	109839	109838	109837	109836
Part# List Price	\$4,125.00	\$4,485.00	\$4,845.00	\$4,995.00	\$5,465.00	\$6,075.00	\$6,905.00
Part#	109852	109851	109850	109849	109848	109847	109846
Part# List Price	\$4,640.00	\$5,000.00	\$5,360.00	\$5,510.00	\$5,980.00	\$6,590.00	\$7,420.00
Capacity	1200 g	2200 g	4200 g	1500/3000/6200 g	6200 g	8200 g	10200 g
Resolution	10 mg	10 mg	10 mg	10/20/50 mg	10 mg	10 mg	10mg
Weighing Modes				ael Hong Kong, Tael Sing Carat, Tola, Baht, Mesghal			
Operating Modes (*)			ng, Totalizing, Co	on, Density determinatior unting, Customized ident tare memory, /Under Checkweighing			
Repeatability	7 mg	7 mg	7 mg	7/20/1940 mg	7 mg	7 mg	7 mg
Linearity	20 mg	20 mg	20 mg	20 mg	20 mg	20 mg	20 mg
Stabilization Time	0.8 seconds	0.8 seconds	0.8 seconds	1 second	1 second	1 second	1 second
Operating Temperature			41° F to	o 104° F (+5° C to 40° C	3)		
Pan Size			8.1 x	8.1 in (206 x 206 mm)			
Dimensions			16 x 9.8 x	3.5 in (410 x 249 x 87.7 i	mm)		
Weight (Approx.)				16 lb			
Est. Shipping Weight				21 lb			
Calibration Weight	1 kg	2 kg	2 kg	5 kg	5 kg	5 kg	10 kg
Power			120V A	AC adapter (auto ranging)			
Warranty			Two	-year limited warranty			
Return Policy			Sartorius Standa	ard Policy - restock fee n	nay apply		

^{*}MSE Large LCD display and easy to use menu system

^{**}MSU Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}MSA TFT color touchscreen, Ethernet and SD card reader



	5201S	5202S	8201S	12201S	14202S	14202P	
Part# List Price	109835	156322****	109834	109833	156324	156327	
List Price	\$2,525.00	\$4,750.00	\$3,505.00	\$3,915.00	\$7,265.00	\$6,235.00	
Part# List Price	109845	156321****	109844	109843	156323	156329	
List Price	\$3,555.00	\$5,925.00	\$4,535.00	\$4,945.00	\$8,295.00	\$7,265.00	
Part#	109855	156318****	109854	109853	156319	156320	
Part# List Price	\$4,070.00	\$6,440.00	\$5,050.00	\$5,460.00	\$8,810.00	\$7,780.00	
Capacity	5200 g	5200 g	8200 g	12200 g	14,200 g	14,200/7000/3500 g	
Resolution	100 mg	0.01 g	100 mg	100 mg	0.01 g	0.05/0.02/0.01 g	
Weighing Modes	Grams, Kilograms Parts per F	, Carat, Pounds, Ounces Yound, Tael China, Momr	, Troy Ounce, Tael Hong nes, Austrian Carat, Tola	Kong, Tael Singapore, Ta a, Baht, Mesghal, Ton, Po	ael Taiwan, Grain, Penny ound:Ounces, Newton, N	/weight, Milligram, /licrograms	
Operating Modes				ermination (Buoyancy m entification, Statistics, T heckweighing			
Repeatability	50 mg	0.006 g	50 mg	50 mg	0.01 g	0.01/0.02/0.01 g	
Linearity	100 mg	0.01 g	100 mg	200 mg	0.03 g	0.05 g	
Stabilization Time	0.8 seconds	1 second	0.8 seconds	0.8 seconds	1 second	1 second	
Operating Temperature			41° F to 104° F	(+5° C to 40° C)			
Pan Size			8.1 x 8.1 in (2	06 x 206 mm)			
Dimensions			16 x 9.8 x 3.5 in (41	0 x 249 x 87.7 mm)			
Weight (Approx.)			16	Blb			
Est. Shipping Weight			21	lb			
Calibration Weight	5 kg	5kg 5000g 5kg 10kg 10kg 10kg					
Power	120 V AC adapter auto ranging						
Warranty			Two-year lim	ited warranty			
Return Policy		S	Sartorius Standard Policy	restock fee may appl	у		

^{*}MSE Large LCD display and easy to use menu system

^{**}MSU Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader

^{***}MSA TFT color touchscreen, Ethernet and SD card reader

^{****}DR - Draft stainless steel shield



Toploading Balances

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
156324	MSE14202S-100-DU	14,200 g x 0.01 g	\$7,265.00
156327	MSE14202P-100-DU	14,200/7000/3500 g x 0.05/0.02/0.01 g	6,235.00
109826*	MSE10202S-100-D0	10200 g x 10 mg	5,875.00
109827*	MSE8202S-100-D0	8200 g x 10 mg	5,045.00
109828*	MSE6202S-100-D0	6200 g x 10 mg	4,435.00
109829*	MSE6202P-100-D0	1500/3000/6200 g x 10/20/50 mg	3,965.00
156322	MSE5202S-100DR	5200 g x 0.01 g	4,750.00
109830*	MSE4202S-100-D0	4200 g x 10 mg	3,815.00
109831*	MSE2202S-100-D0	2200 g x 10 mg	3,455.00
109832*	MSE1202S-100-D0	1200 g x 10 mg	3,095.00
109833*	MSE12201S-100-D0	12200 g x 100 mg	3,915.00
109834*	MSE8201S-100-D0	8200 g x 100 mg	3,505.00
109835*	MSE5201S-100-D0	5200 g x 100 mg	2,525.00
156323	MSU14202S-100-D4	14,200 g x 0.01 g	8,295.00
156329	MSU14202P-100-DU	14,200/7000/3500 g x 0.05/0.02/0.01 g	7,265.00
109836**	MSU10202S-100-D0	10200 g x 10 mg	6,905.00
109837**	MSU8202S-100-D0	8200 g x 10 mg	6,075.00
109838**	MSU6202S-100-D0	6200 g x 10 mg	5,465.00
109839**	MSU6202P-100-D0	1500/3000/6200 g x 10/20/50 mg	4,995.00
156321	MSU5202S-100-DR	5200 g x 0.01 g	5,925.00
109840**	MSU4202S-100-D0	4200 g x 10 mg	4,845.00
109841**	MSU2202S-100-D0	2200 g x 10 mg	4,485.00
109842**	MSU1202S-100-D0	1200 g x 10 mg	4,125.00
109843**	MSU12201S-100-D0	12200 g x 100 mg	4,945.00
109844**	MSU8201S-100-D0	8200 g x 100 mg	4,535.00
109845**	MSU5201S-100-D0	5200 g x 100 mg	3,555.00
156319	MSA14202S-000-D0	14,200 g x 0.01 g	8,810.00
156320	MSA14202P-000-D0	14,200/7000/3500 g x 0.05/0.02/0.01 g	7,780.00
109846***	MSA10202S-00-D0	10200 g x 10 mg	7,420.00
109847***	MSA8202S-100-D0	8200 g x 10 mg	6,590.00
109848***	MSA6202S-100-D0	6200 g x 10 mg	5,980.00
109849***	MSA6202P-100-D0	1500/3000/6200 g x 10/20/50 mg	5,510.00
156318	MSA5202S-100-DR	5200 g x 0.01 g	6,440.00
109850***	MSA4202S-100-D0	4200 g x 10 mg	5,360.00
109851***	MSA2202S-100-D0	2200 g x 10 mg	5,000.00
109852***	MSA1202S-100-D0	1200 g x 10 mg	4,640.00
109853***	MSA12201S-100-D0	12200 g x 100 mg	5,460.00
109854***	MSA8201S-100-D0	8200 g x 100 mg	5,050.00
109855***	MSA5201S-100-D0	5200 g x 100 mg	4,070.00

^{*}Large LCD display and easy to use menu system

PART#	MODEL#	DESCRIPTION	PRICE
Consult	TR	Certificate of compliance and full factory test report	Consult
Consult	IR	Additional RS-232, 25-Pin connection	Consult
156906	6971987	Power supply, 100-240V	140.00
156908	6900900	Cord, power 220V EU	30.00
Consult	IB	Bluetooth® wireless interface	Consult
Consult	IP	Additional RS-232, 9-Pin connection with PS2 port	Consult

 $^{{}^{**}\!\}textit{Monochrome graphic display, positive click on keys to activate functions, Ethernet and SD card reader}$

^{***}TFT color touchscreen, Ethernet and SD card reader

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Standard Features

- All models have built-in internal calibration weights
- Automatic calibration at present time or temperature intervals
- RS-232C bidirectional interface port on all models
- High-contrast, blue backlit display
- Monolithic weigh cell provides stability and fast response



Capacity: 5g-220g Readability: 0.000002g-0.0001g

Specifications

	CPA26P^	CPA225D^			
Part#	105570	105571			
List Price	\$15,685.00	\$6,200.00			
Capacity	5/21 g	100/200 g			
Resolution	2/10 µg	0.01/0.1 mg			
Weighing Modes	Grams, Kilograms, Carats, Pounds, Ounces, Troy Ounces, Hong Kong ligrams, Parts per Pound, Chinese taels, Mo	taels, Singapore taels, Taiwanese taels, Grains, Pennyweights, Milmes, Austrian carats, Tola, Baht, Menghal			
Operating Modes	Counting, Percent weighing, Anim	Counting, Percent weighing, Animal weighing, Unit Toggle, Net total			
Repeatability	+/-4 g	+/-0.02/0.5/0.1 mg			
Linearity	+/-8 g	+/-0.03/0.1/0.2 mg			
Stabilization Time	10 seconds	6/3 seconds			
Operating Temperature	50° F to 86° F (10° C to 30° C)			
Weighing Chamber	8 x 9.5 x 7 in (206 x 242 x 178 mm)	6.8 x 7.1 x 9.4in (174 x 181 x 240 mm)			
Pan Size	Ø 2 in (50 mm)	Ø 3.1 in (80 mm)			
Dimensions	8.3 x 13.5 x 10.6 in (213 x 342 x 270 mm)	8.4 x 13.5 x 9.4 in (213 x 342 x 240 mm)			
Weight (Approx.)	16.7 lb	16.7 lb			
Est. Ship Weight	22 lb	23 lb			
Calibration Weight	20 g	200 g			
Power	120V AC adapter (Other adapt	ers available by special order)			
Warranty	Two-year limited warranty				
Return Policy	Sartorius Standard Policy	r - restock fee may apply			

[^] Weighing Chamber

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
105570	CPA26P	5/21 g x 2/10 μg	\$15,685.00
105571	CPA225D	100/200 g x 0.01/0.1 mg	6,200.00

•			
PART#	MODEL#	DESCRIPTION	PRICE
112261	YDP20-0CE	Data printers	\$995.00
50232	6971413	AC power	109.000
50232	6971413	AC power supply, printer	130.00
98038	YCC01-USBM2	Printer cable, 25-Pin to USB	263.00
31103	6906937	Paper, printer 5 rls/pk	38.00
31082	_	Density kit, Analytical (0.1 mg) software not included	890.00
152036	6971991	Power supply, no cord	72.00

Readability: 0.1 mg-0.001 g

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Practum/Quintix/Secura

Analytical

Standard Features

- Simple, color capacitive touch with swipe technology
- Monolithic and Strain Gauge Technology
- Aluminum Die-cast base, ABS housing
- Front level bubble
- Mini-USB
- · Weigh Below hook

Quintix & Secura Additional Features

- isoCAL / fully automatic, external calibration
- GLP conformance with built-in Time and Date

Secura Additional Features

- Internal Calibration
- Opto-electronic leveling system
- Sqmin safety program
- · Analytical draft support ring



Capacity: 120g-510g

specifications	1					
PRACTUM	124-1S	224-1S	213-1S	313-1S	-	
Part Number	153983	153984	153985	153986	-	
List Price	\$2,100.00	\$2,500.00	\$1,150.00	\$1,300.00	-	
QUINTIX	124-1S	224-1S	213-1S	313-1S	513-1S	
Part Number	153992	153993	153994	153995	153996	
List Price	\$3,000.00	\$3,450.00	\$1,700.00	\$1,900.00	\$2,500.00	
SECURA	124-1S	224-1S	213-1S	313-1S	513-1S	
Part Number	154005	154006	154007	154008	154009	
List Price	\$3500.00	\$3,950.00	\$2,200.00	\$2,400.00	\$3,000.00	
Capacity	120g	220g	210g	310g	510 g	
Resolution	1mg	1mg	0.001 g	001	0.001 g	
Repeatability	+(-) 0.1mg	+(-) 0.1mg	0.001 g	0.001 g	0.001 g	
Linearity (+/-)	+(-) 0.3mg (0.2 mg Secura Quintix)	+(-) 0.3mg (0.2 mg Secura & Quintix)	2 mg			
External Calibration Weight	100g	200g 500 g				
Weighing Modes	Gram, kilogram, carat, po	und, ounce, troy ounce, Honç pound, China Teal, moi	g Kong, tael, Singqpore Tael, mmes, Autria carat, tola baht	Taiwan Tael, grain, pennywei t, mesghal and Newton	ghts, milligram, parts per	
Applications		Mass unit conve	rsion, Counting, Percent weig	ghing, Averaging,		
Display Type			LCD			
Operating Humidity			Less than 95% RH			
Operating Temperature			50°F to 86°F (10°C to 30°C)			
Stabilization Time (typical)			3 seconds			
Net Weight (kg/lb)			4.5 kg (11 lb)			
Pan Size/ Type	90 mm (3.5") stainles		120 mm (4	4.75 in) diameter pan, stain	less steel	
Weighing Chamber Height	209 mm (7.9 in)					
Dimensions (WxDxH)						
Power Requirements	10-20V					
AC Power Requirements	AC adapter, 115V-240V,					
Frequency	50-60 Hz					
Optional Accessories	Calibration weights, RS232 Interface Cable					
Warranty		3	Year Manufacture Warrant	ty		

Part Number/Price

PART NUMBER	MODEL	DESCRIPTION	PRICE
153983	Practum 124-1S	120 g x 0.1 mg	\$2,100.00
153992	Quintix 124-1S	120 g x 0.1 mg	3,090.00
154005	Secura 124-1S	120 g x 0.1 mg	3,600.00
153984	Practum 224-1S	220 g x 0.1 mg	2,500.00
153993	Quintix 224-1S	220 g x 0.1 mg	3,520.00
154006	Secura 224-1S	220 g x 0.1 mg	3,995.00
153985	Practum 213-1S	210 g x 0.001 g	1,300.00
153994	Quintix 213-1S	210 g x 0.001 g	1,830.00
154007	Secura 213-1S	210 g x 0.001 g	2,200.00
153986	Practum 313-1S	310 g x 0.001 g	1,500.00
153995	Quintix 313-1S	310 g x 0.001 g	1,955.00
154008	Secura 313-1S	310 g x 0.001 g	2,400.00
153996	Quintix 513-1S	510 g x 0.001 g	2,650.00
154009	Secura 513-1S	510 g x 0.001 g	3,000.00

Options/Accessories

PART#	MODEL#	DESCRIPTION	PRICE
154749	6971790	AC adapter, 110-240V, six power plugs	\$100.00
155847	YCC04-D09	Adapter cable, USB to RS-232	46.00

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Standard Features

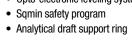
- Simple, color capacitive touch with swipe technology
- Monolithic and Strain Gauge Technology
- Aluminum Die-cast base, ABS housing
- Front level bubble
- Mini-USB
- Weigh Below hook

Quintix & Secura Additional Features

- isoCAL / fully automatic, external calibration
- GLP conformance with built-in Time & Date
- Time & Date

Secura Additional Features

- Internal Calibration
- Opto-electronic leveling system





Capacity: 610g-5100g

PRACTUM	612-1S	1102-1S	2102-1S	N/A	N/A	5101-1S	5100-1S
Part Number	153987	153988	153989	N/A	N/A	153991	153990
List Price	\$995.00	\$1,100.00	\$1,295.00	N/A	N/A	\$1,095.00	\$900.00
QUINTIX	612-1S	1102-1S	2102-1S	3102-1S	5102-1S	5101-1S	5100-1S
Part Number	153998	153999	154000	154001	154003	154004	154002
List Price	\$1,545.00	\$1,750.00	\$1,955.00	\$2,165.00	\$2,680.00	\$1,545.00	\$1,235.00
SECURA	N/A	1102-1S	2102-1S	3102-1S	5102-1S	N/A	N/A
Part Number	N/A	154010	154011	154012	154013	N/A	N/A
List Price	N/A	\$2,100.00	\$2,500.00	\$2,700.00	\$3,100.00	N/A	N/A
Capacity	610 g	1100 g	2100 g	3100 g	5100 g	5100 g	5100 g
Resolution	0.01 g	0.01 g	0.01 g	0.01 g	0.01 g	0.1 g	1.0 g
Repeatability	+(-) 10 mg	+(-) 10 mg	+(-) 10 mg	+(-) 10 mg	+(-) 10 mg	0.1 g	1.0 g
Linearity (+/-)	30 mg (20 mg Quintix & Secura)	30 mg (20 mg Quintix & Secura)	30 mg (20 mg Quintix & Secura)	20 mg	20 mg	0.3 g (0.2 g Quintix)	3.0 g (2.0 g Quintix)
External Calibration Weight	500 g	1000 g	200)0g		5000 g	
Weighing Modes	Gram, kilogram,		troy Ounce, Hong Ko d, China Teal, momme			ain, pennyweights, mi Iewton	lligram, parts per
Applications			Mass unit conversion	, Counting, Percent	weighing, Averaging	l,	
Display Type				LCD			
Operating Humidity				Less than 95% RH			
Operating Temperature			50° F	to 86° F (10° C to 3	30° C)		
Operating Temperature			41° F	to 104° F (5° C to 4	10° C)		
Stabilization Time (typical)		3 seconds					
Net Weight (kg/lb)		9 lb (4.5 kg)					
Pan Size/ Type	7 in (180 mm) diameter pan, stainless steel						
Dimensions (WxDxH)		14.1 x 8.5 x 12.6 in (360 x 216 x 320 mm)					
AC Power Requirements		AC adapter, 115V-240V					
Frequency				50-60 Hz			
Warranty		Two-year limited warranty					

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Practum/Quintix/Secura Precision

Part Number/Price

PART NUMBER	MODEL	DESCRIPTION	PRICE
153987	Practum 612-1S	610 g x 0.01 g	\$995.00
153998	Quintix 612-1S	610 g x 0.01 g	1,545.00
153988	Practum 1102-1S	1100 g x 0.01 g	1,100.00
153999	Quintix 1102-1S	1100 g x 0.01 g	1,750.00
154010	Secura 1102-1S	1100 g x 0.01 g	2,100.00
153989	Practum 2102-1S	2110 g x 0.01 g	1,295.00
154000	Quintix 2102-1S	2110 g x 0.01 g	1,955.00
154011	Secura 2102-1S	2110 g x 0.01 g	2,500.00
154001	Quintix 3102-1S	3100 g x 0.01 g	2,165.00
154012	Secura 3102-1S	3100 g x 0.01 g	2,700.00
154003	Quintix 5102-1S	5100 g x 0.01 g	2,680.00
154013	Secura 5102-1S	5100 g x 0.01 g	3,100.00
153991	Practum 5101-1S	5100 g x 0.1 g	1,095.00
154004	Quintix 5101-1S	5100 g x 0.1 g	1,545.00
153990	Practum 5100-1S	5100 g x 1.0 g	900.00
154002	Quintix 5100-1S	5100 g x 1.0 g	1,235.00

PART#	MODEL#	DESCRIPTION	PRICE
154749	6971790	AC adapter, 110-240V, six power plugs	\$100.00
155847	YCC04-D09	Adapter cable, USB to RS-232	46.00



Standard Features

- User-friendly operation
- Basic applications
- Monolithic weighing systems
- Aluminum Die-cast base, ABS housing
- Front level bubble
- RS-232 standard
- · Below balance weighing



Readability: 0.0001-0.1 g

Capacity: 60 g-8000 g

	ENTRIS64-1S^	ENTRIS124-1S^	ENTRIS224-1S^	ENTRIS153-1S^	ENTRIS323-1S^	ENTRIS423-1S^
Part#	160679	160680	160681	160682	160683	160684
List Price	\$1,575.00	\$1,890.00	\$2,100.00	\$945.00	\$1,105.00	\$1,315.00
Capacity	60 g	120 g	220 g	150 g	320 g	420 g
Readability	0.0001 g	0.0001 g	0.0001 g	0.001 g	0.001 g	0.001 g
Repeatability	+(-) 0.0001 g	+(-) 0.0001 g	+(-) 0.0001 g	+(-) 0.001 g	+(-) 0.001 g	+(-) 0.001 g
Linearity (+/-)	+(-) 0.0002 g	+(-) 0.0002 g	+(-) 0.0002 g	+(-) 0.002 g	+(-) 0.002 g	+(-) 0.00 g
External Calibration Weight	50 g	100 g	200 g	100 g	200 g	200 g
Weighing Modes	Gram, kilogram, cara P	at, Pound, Ounce, troy Ounce, troy Ound, China Teal, momn	unce, Hong Kong, tael, S nes, Austrian carat, tola	ingapore Tael, Taiwan Ta baht, mesghal, tons, Pou	ael, grain, pennyweights unds:Ounces, and Newto	, milligram, parts per on
Applications		Weighi	ng, Density, Percentage,	Counting, Mass unit cor	nversion	
Display Type			Backlit LCD Whi	te, 15 mm digits		
Operating Humidity			15% to 80% for temp	peratures up to 31° C		
Operating Temperature			50° F to 86° F ((10° C to 30° C)		
Stabilization Time (typical)		2.5 seconds		1.3 seconds	1.1 seconds	1.0 seconds
Net Weight (kg/lbs)	5.4 kg (12 lb)	5.4 kg (12 lb)	5.4 kg (12 lb)	5 kg (11 lb)	5.4 kg (12 lb)	5.4 kg (12 lb)
Pan Size/ Type	90 mm (3.5 in) diameter pan, stainless steel			150 mm (4.5 in) diameter pan, stainless steel		
Dimensions (W x D x H)	230 x 303 x 330 mm (9.1 x 11.9 x 13 in)			230 x 303 x 136 mm (9.1 x 11.9 x 5.4 in)		
AC Power Requirements			AC adapter, 115	V-240 V, US plug		
Warranty			Two-year lim	ited warranty		

[^]Weighing Chamber

Specifications

ENTRIS623-1S^	ENTRIS822-1S	ENTRIS2202-1S	ENTRIS3202-1S	ENTRIS4202-1S	ENTRIS-6202-1S	
160685	160686	160687	160688	160689	160690	
\$1,525.00	\$840.00	\$1,000.00	\$1,210.00	\$1,365.00	\$1,575.00	
620 g	820 g	2200 g	3200 g	4200 g	6200 g	
0.001 g	0.01 g	0.01 g	0.01 g	0.01 g	0.01 g	
+(-) 0.001 g	+(-) 0.01 g	+(-) 0.01 g	+(-) 0.01 g	+(-) 0.01 g	+(-) 0.01 g	
+(-) 0.002 g	+(-) 0.03 g	+(-) 0.03 g	+(-) 0.03 g	+(-) 0.03 g	+(-) 0.03 g	
500 g	500 g	2000 g	2000 g	2000 g	5000 g	
	m, kilogram, carat, Pound, Ounce, troy Ounce, Hong Kong, tael, Singapore Tael, Taiwan Tael, grain, pennyweights, milligram, parts per Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pounds:Ounces, and Newton					
	Weighir	ng, Density, Percentage,	Counting, Mass unit cor	nversion		
		Backlit LCD Whi	te, 15 mm digits			
		15% to 80% for temp	peratures up to 31° C			
		50° F to 86° F (10° C to 30° C)			
1.0 seconds			1.5 seconds			
5.4 kg (12 lb)	4.5 kg (9 lb)	5.4 kg (12 lb)	5.4 kg (12 lb)	5.4 kg (12 lb)	5.4 kg (12 lb)	
90 mm (3.5 in) diameter pan, stainless steel	150 mm (5.9 in) pan, stainless steel	n, 230 x 303 x 91 mm (9.1 x 11.9 x 3.6 in)				
230 x 303 x 330 mm (9.1 x 11.9 x 13 in)	230 x 303 x 87 mm (9.1 x 11.9 x 3.4 in)	230 x 303 x 136 mm (9.1 x 11.9 x 5.4 in)				
AC adapter, 115V-240V, US plug						
		Two-year lim	ited warranty			
	160685 \$1,525.00 620 g 0.001 g +(-) 0.001 g +(-) 0.002 g 500 g Gram, kilogram, cara P	1.0 seconds 5.4 kg (12 lb) 90 mm (3.5 in) diameter pan, stainless steel 230 x 303 x 330 mm 1.620 g 820 g 84(-) 0.01 g 90 mm (3.01 g 84(-) 0.03 g 8500 g 86(9 lb) 97(150 mm (5.9 in) pan, stainless steel) 87(150 mm (5.9 in) pan, stainless steel) 87(150 mm (5.9 in) pan, stainless steel)	160685 160686 160687 \$1,525.00 \$840.00 \$1,000.00 620g 820 g 2200 g 0.001g 0.01 g 0.01 g +(-) 0.001 g +(-) 0.01 g +(-) 0.03 g +(-) 0.002 g +(-) 0.03 g +(-) 0.03 g Gram, kilogram, carat, Pound, Ounce, troy Ounce, Hong Kong, tael, S Pound, China Teal, mommes, Austrian carat, tolal Weighing, Density, Percentage, Backlit LCD Whit 15% to 80% for temp 50° F to 86° F (1.0 seconds 5.4 kg (12 lb) 5.0 kg (9 lb) 5.4 kg (12 lb) 90 mm (3.5 in) diameter pan, stainless steel 150 mm (5.9 in) pan, stainless steel 230 x 303 x 330 mm (9.1 x 11.9 x 13 in) 230 x 303 x 87 mm (9.1 x 11.9 x 3.4 in) AC adapter, 115	160685 160686 160687 160688 \$1,525.00 \$840.00 \$1,000.00 \$1,210.00 620g 820g 2200g 3200g 0.001g 0.01g 0.01g -(-) 0.01g +(-) 0.001g +(-) 0.01g +(-) 0.01g +(-) 0.03g +(-) 0.002g +(-) 0.03g +(-) 0.03g +(-) 0.03g 500g 500g 2000g 2000g Gram, kilogram, carat, Pound, Ounce, troy Ounce, Hong Kong, tael, Singapore Tael, Taiwan Ta Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, Mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, Mommes, Austrian carat, tola baht, mesghal, tons, Pound, China Teal, Mommes, Austrian carat, tola baht, mes	160685	

[^]Weighing Chamber

	ENTRIS2201-1S	ENTRIS5201-1S	ENTRIS8201-1S
Part#	160691	160692	160693
List Price	\$850.00	\$1,000.00	\$1,100.00
Capacity	2200 g	5200 g	8200 g
Readability	0.1 g	0.1 g	0.1 g
Repeatability	+(-) 0.1 g	+(-) 0.1 g	+(-) 0.1 g
Linearity (+/-)	+(-) 0.3 g	+(-) 0.3 g	+(-) 0.3 g
External Calibration Weight	2000 g	5000 g	5000 g
Weighing Modes	Gram, kilogram, carat, Pound, Ounce, troy O Pound, China Teal, momn	Pound, Ounce, troy Ounce, Hong Kong, tael, Singapore Tael, Taiwan Tael, grain, pennyweights, milligram, parts per und, China Teal, mommes, Austrian carat, tola baht, mesghal, tons, Pounds:Ounces, and Newton	
Applications	Weighi	ng, Density, Percentage, Counting, Mass unit co	nversion
Display Type		Backlit LCD White, 15 mm digits	
Operating Humidity		15% to 80% for temperatures up to 31° C	
Operating Temperature		50° F to 86° F (10° C to 30° C)	
Stabilization Time (typical)	1.0 seconds	1.5 se	econds
Net Weight (kg/lbs)	5.4 kg (12 lb)	5.4 kg (12 lb)	5.4 kg (12 lb)
Pan Size/ Type		230 x 303 x 91 mm (9.1 x 11.9 x 3.6 in)	
Dimensions (WxDxH)	230 x 303 x 330 mm (9.1 x 11.9 x 13 in)	230 x 303 x 87 mm (9.1 x 11.9 x 3.4 in)	230 x 303 x 136 mm (9.1 x 11.9 x 5.4 in)
AC Power Requirements		AC adapter, 115V-240V, US plug	
Warranty		Two-year limited warranty	

[^]Weighing Chamber

Part Number/Price

PART#	MODEL#	DESCRIPTION	PRICE
160679	ENTRIS64-1S	60 g x 0.1 mg	\$1,575.00
160680	ENTRIS124-1S	120 g x 0.1 mg	1,890.00
160681	ENTRIS224-1S	220 g x 0.1 mg	2,100.00
160682	ENTRIS153-1S	150 g x 0.001 g	945.00
160683	ENTRIS323-1S	320 g x 0.001 g	1,105.00
160684	ENTRIS423-1S	420 g x 0.001 g	1,315.00
160685	ENTRIS623-1S	620 g x 0.001 g	1,525.00
160686	ENTRIS823-1S	820 g x 0.001 g	840.00
160687	ENTRIS2202-1S	2200 g x 0.01 g	1,000.00
160688	ENTRIS3202-1S	3200 g x 0.01 g	1,210.00
160689	ENTRIS4202-1S	4200 g x 0.01 g	1,365.00
160690	ENTRIS6200-1S	6200 g x 0.01 g	1,575.00
160691	ENTRIS2201-1S	2200 g x 0.1 g	895.00
160692	ENTRIS5201-1S	5200 g x 0.1 g	1,050.00
160693	ENTRIS8201-1S	8200 g x 0.1 g	1,155.00

PART#	MODEL#	DESCRIPTION	PRICE
112261	YDP20-0CE	Data Printer	\$995.00
31103	6906937	Paper rolls, one roll	38.00
31106	6906918	Ink ribbon cassette	44.00
31071	YRB05Z	Battery Pack, external rechargeable	625.00
155805	YCC01-USBM2	Data Cable RS-232/USB	130.00
154749	6971790	AC Adapter with interchangeable plugs	100.00

RS 232/USB Serial Smart Cable Direct, Keyboard Input Direct

Standard Features

- Converts serial data such as barcode reader or scale into keyboard input to software program
- . Works with PC and MAC
- Requires no driver installation (identifies itself as additional HID keyboard)
- Cable draws power from USB port (no external power supply needed)
- Test cable to be connected with adapter scale cable or connector
- Bluetooth version allows Bluetooth connection to devices like iPad, Playbook, Android tablets and smart cell phones

Specifications

Baud Rate:

9600

Color:

Black

Cable Length:

74 in (1880 mm)

Bluetooth Cable Length:

16 in (406 mm)

Power:

USB power, no external power supply

Host:

PC and MAC compliant

Connection:

DB9 male connector, Pin 2 RX, Pin 3 TX and Pin 5 Ground USBA connector





Part Number/Price

PART #	DESCRIPTION	WEIGHT	PRICE
119919	RS-232/USB Serial Cable	1 lb	\$185.00
132452	RS-232/USB Serial Cable plus Bluetooth	1 lb	260.00

PART #	DESCRIPTION	PRICE
119064	Slimline Null Modem, gender changer DB9 female to female	\$10.50
22436	Blunt-end to DB9 female, straight cable	55.00
50749	DB9 female to DB9 female	55.00
130789	Null Model DB9 adapter female to male	12.00

Accessories

go-between

Data Capture and Storage

Standard Features

- LED on board for testing data transmission
- Captures data and stores it on a USB flash drive up to 8GB (not included)
- Transfer data to your PC using the USB flash drive

Specifications

Baud Rate:

9600

Data Bits:

8

Parity:

None

Power:

Requires 5VDC

Customer Supplied:

Power and USB flash drive

Industrial Enclosure Option:

7.5 x 7.5 x 4.5 in (19 x 19 x 12 mm) Latch for lock

Desktop Model:

DB 9-Pin Male

Warranty:

One-year limited warranty

Text file example	Text file examples (actual text will be dependent on transmitted file)		
02:50PM 11/13/2012 GROSS	58 lb		
02:50PM 11/13/2012 GROSS	68 lb		



Part Number/Price

PART #	DESCRIPTION	PRICE
153265	go-between board, requires 5 Volts	\$410.00
153266	go-between industrial enclosure, requires 5 Volts	500.00
153267	go-between desk enclosure, power supply included	500.00

PART #	DESCRIPTION	PRICE
154797	Adapter, power 5VDC 2A 90-264VAC, U.S. plug, UL/CUL	\$35.00
125077	USB flash drive, 1 GB	20.00
130789	Null Model DB9 adapter female to male	12.00
119064	Null modem adapter, DB9 F/F	10.50
50764	Straight cable, DB9 F/F	48.00
66535	Null modem DB9 F/F	45.00
22436	DB9 cable to blunt end	55.00
15493	Cable four-conductor	1.25/ft

Kasota Stone 83779

Reduces vibration and shock, ideal where tables will not fit

Part Number/Price

PART #	DESCRIPTION	PRICE		
Standard Ba	Standard Balance Slab, Kasota Stone			
83779	15 in x 20 in x 3 in 100 lb	\$450.00		
Clean Room	Table			
83780	24 in x 35 in x 32 in 600 lb	2,700.00		
Standard Ba	lance Table, Kasota Stone			
83778	24 in x 35 in x 32 in 700 lb	1,200.00		
Anti-Vibration Pad				
75263	Anti-vibration pad 4 x 4 1/2 in. thick	15.00		

Clean Room Table Standard Balance Table Anti-Vibration

75263





Mass, Density and Vibration damping properties for most applications. (Four damping pads included)



Provides the most stable surface possible for precision instruments. Legs are reinforced with support pipe.

Scoops







Part Number/Price

PART #	DESCRIPTION	PRICE
33455	Aluminum, 1.5 x 2.0 in (3.8 x 5.1 cm)	\$25.00
33446	Polypropylene, 12 x 6 x 2.75 in (304 x 152 x 70 mm)	37.00
33447	Stainless steel, 12 x 6 x 2.75 in (304 x 152 x 70 mm)	88.00
33448	Polypropylene Maxi-scoop, 10 in (254 mm) diameter x 2.5 in (70 mm) deep with pouring spout	40.00
33456	Gold, 2.25 x 3.0 in (5.7 x 7.6 cm)	25.00
33454	Black, aluminum 4.0 x 3.5 in (10.2 x 8.9 cm)	26.00
33451	Polypropylene Maxi-scoop	35.00
97250	Stainless steel scoop 11.9 x 7.4 x 1.7 in	50.00
100292	Stainless steel scoop 17.2 x 11 x 3.4 in	62.00

Specifications

Printing System:

Direct thermal line head

Max. Characters (per line):

48, 32, (24 default)

Character Matrix:

24 x 8, 24 x 12 or 24 x 16

Character Size:

0.1 x 0.08 in, 0.1 x 0.06 in, or 0.1 x 0.04 in (approx. 13, 17 or 25 cpi) horizontal dot pitch 3 x 2 mm, 3 x 1.5 mm, or 3 x 1 mm (approx. 13, 17 or 25 cpi) horizontal dot pitch:

Horizontal Dot Pitch:

0.005 in (0.125 mm) approximately 200 dpi

Vertical Dot Pitch:

0.005 in (0.125 mm)

Text Line Composition:

24 x 384 dots

Printing Width:

1.9 in (48 mm)

Average Print Speed:

10 lines per second, max.

Dimensions:

3.4 x 5.9 x 2.2 in (85.5 x 150 x 55 mm)

Weight:

400 g approx. (includes batteries and paper)

Paper Width:

2.3 in (58 mm)

Paper Capacity:

1.8 in diameter, 1 in standard printer 45 mm diameter, 25 m standard printer

Character Set:

ASCI

Country Codes: USA

Data Format:

RS-232C (8 Data, 1 Stop, No Parity).

Connector

6-way RJ12 socket

Baud Rate:

9600

Handshaking Hardware:

(CTS line) or Software (XON/XOFF)

Buffer Size:

5 Kbytes

Environmental Changes:

Operating Range: 32° F to 120° F (0° C to 50° C) Storage Range: -4° F to 140° F (-20° C to 60° C) Charging Range: 32° F to 113° F (10° C to 45° C)

Charge Life:

Approximately 6000 lines (18 m) of continuous printing

Warranty:

One-year limited warranty



Standard Features

- Statistical Printer Rice Lake Balances TA, TP, Equipoise, , A&D GF balance, CW90 Checkweigher
- Statistical information provided: MAX, MIN, AVERAGE, Standard deviation, and Coefficient of Variable
- · Easy-Load paper feature
- RS-232 interface
- Maintenance-free
- · Ultra-Compact and light weight
- · High reliability line head mechanism
- · Low power mode
- · Range of configurable options
- Low Profile paper lid and range of mounting options available
- Rechargeable NiMH batteries
- · Multi-ranging AC with changeable plugs

Part Number/Price

PART # DESCRIPTION		PRICE
158056	Prove statistical printer, 110-240VAC with universal AC adapter	\$715.00

PART #	DESCRIPTION	PRICE
130789	Null modem adapter, DBF/M (required for Equipoise)	\$12.00
158583	RJ11 to 5-Pin DIN (required for TP balance)	65.00
41279	RS-232 cable, 25-Pin 9-Pin	65.00

Notes			
-			_

Static Solutions

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Product names, logos, brands, and other trademarks featured or referred to within this publication are the property of their respective trademark holders.

Static Brushes/Ionizing Strips and Accessories

- NRD is the industry leader for providing advanced ionization products to eliminate electrostatic discharge and static attraction. The success of NRD devices is based on unique and extremely effective ionization sources that use alpha-energy to neutralize static electricity. Unlike electrical ionization systems, NRD ion sources don't just control static, they eliminate it by providing a constant balance of ±zero volts.
- The ion sources are entirely self-powered and never require any calibration or adjustment. Therefore, there are no operating costs associated with them throughout their lifetime.
- Because NRD ion sources do not require electricity and are completely safe, they are ideal for use in any application, including highly-volatile environments.
- Static charge buildup is the cause of many production problems including downtime, reduced product quality, and ultimately increased costs
- and reduced profits. Although the static charges can not be seen, they are quite noticeable. Thousands of volts of electricity can easily accumulate on the surfaces of in-process materials. This buildup can ignite combustibles, shock personnel, destroy sensitive electronic components, and cause many types of production problems. In addition, static attraction of dirt, dust and other foreign matter contaminates products and process equipment, which intensifies processing problems.

 NRD alpha-energy devices rapidly neutralize charged materials. This is
- NRD alpha-energy devices rapidly neutralize charged materials. This is
 accomplished by emitting a flood of both positively and negatively charged
 ions in the vicinity of the affected material. The charged material then attracts
 a sufficient quantity of oppositely charged ions to completely eliminate its
 static charge.
- NRD alpha-energy ion sources totally eliminate static buildup, not just reduce
 it, as with other methods of static control. As with all types of ion sources,
 ionized air has absolutely no adverse effects on personnel.



1 in Static Brush



3 in Static Brush



1 in x 1 in Ionizing Strip



1 in x 3 in Ionizing Strip





Stand lonizer

lonizers

PART #	STATICMASTER PART #	DESCRIPTION	PRICE
164648	4068	Mini-fan Ionizer	\$130.00
164649	6105	I-beam Stand Ionizer	1,015.00

Static Brushes - 1 inch

PART #	STATICMASTER PART #	DESCRIPTION	PRICE
76669	1C200	Static Brush 1 in	\$131.00
76670	1C200R	Replacement cartridge	85.00

Static Brushes - 3 inch

PART #	STATICMASTER PART #	DESCRIPTION	PRICE
76671	3C500	Static Brush 3 in	\$199.00
76672	3C500R	Replacement cartridge	134.00

Ionizing Strips - 1 inch

PART #	STATICMASTER PART #	DESCRIPTION	PRICE
76677	1U400	lonizing unit 1 in	\$134.00
76678	1U200	lonizing unit 1 in	85.00

Ionizing Strips - 3 inch

PART #	STATICMASTER PART #	DESCRIPTION	PRICE
76676	2U500	lonizing unit 1 x 3 in	\$134.00

Ionizing Strip Accessories

	•		
PART #	STATICMASTER PART #	DESCRIPTION	PRICE
76679	BF1	Ionizer Positioner	\$69.00
76680	BF2	Ionizer Positioner only - C bracket	98.00
163601	BF3	EZ-Mount, 2U500 BF3 option mounts 2U500 to balance chamber	15.00
163602	5060	Grounding Kit, 2U500 5060 Enhances static eliminating power Staticmaster 2U500	30.00

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Product names, logos, brands, and other trademarks featured or referred to within this publication are the property of their respective trademark holders.

Weight and Calibration Specifications

Weight and Calibration Specifications

Rice Lake Weighing Systems metrology staff has participated in basic, intermediate and advanced NIST/OWM training seminars, regional metrology groups such as MidMap, and round-robin metrology programs with state labs.

Rice Lake's calibration lab has direct traceability to NIST.

Weights:

Rice Lake offers cast iron weights and three designs of stainless steel weights. Due to varying configurations, the actual appearance of your product may be slightly different than shown on the catalog page. Serial numbers are available for an additional charge. Individual leaf weights should be ordered with protective vial (individual leaf weights are for custom-designed kits)

Weight Sets:

Rice Lake offers many configurations for their weight sets. Class F weights have many set configurations to assist in calibration of scales; higher accuracy sets are available in 5-2-2-1 and 5-3-2-1. A standard set would be as follows:

5-2-2-1 - (1) 50g, (2) 20g, and (1) 10g

5-3-2-1 - (1) 50g, (1) 30g, (1) 20g, and (1) 10g

Custom sets are available as build-to-order to meet your specific requirements.

Each weight set consists of the weights, case and/or small weight case (as appropriate), and appropriate lifting design consisting of one or more lifter, tweezer and white cotton gloves.

OIML and ASTM weights sets larger than 500 g or 1 lb include a hardwood case with velvet-lined pockets. Cases are available to replace wooden cases if portability is required. Weight sets with the largest weight of 500 g include a precision-machined polyvinyl, crush resistant case.

Serial numbers are not stamped on polished weights or milligram weights.

The correct class weight is dependent on the use. Weights should be more accurate than the precision of the weighing device and it is recommended that a weight has an accuracy of one-third (1/3) of the weighing device readability.

Weights Kits:

All cylindrical ASTM kits (excluding grip handle weights) include their own protective case and glove set for safe handling.

Calibration Certificates

Rice Lake offers several different calibration certificates including the Total Measure Assurance Program (TMAP) certification.

Calibration Certification for weight classes ASTM 0-3, OIML E1, E2, Fl and F2.

The calibration is performed per NIST Mass Dissemination. Meets ISO/IEC 17025 certification. For ASTM Class 0-3 and OIML E1, E2, F1 and F2 SOP 5, 3 in 1 weighing design and SOP 28 Advanced weighing designs.

Traceable Calibration Certificate meets requirements of ISO/IEC 17025 for ASTM 4-7, NIST F, OIML M1, M2, and M3. The calibration is performed per SOP 8 (following Rice Lake Work Instruction WI05-0023)

Rice Lake's Mass Value Certificate is not an accredited certificate, as found, as left data with environmental conditions reported. Uncertainty to Tolerance of 3:1 is not guaranteed for weight classes ASTM 1-3, OIML F1, and F2. SOP 8 (following Rice Lake Work Instruction WI05-0023). Additional time may be required for ASTM Class 0 weight certification.

Serial numbers are included in the cost of all certificates with the exception of the Statement of Accuracy. Certificates are included in the box with the weights at time of shipment. Replacement documentation is a fee of \$50 plus shipping.

Weight and Calibration Specifications

Weight and Calibration Specifications

Total Measurement Assurance Program (TMAP)

TMAP has been part of the Rice Lake Metrology brand almost since its inception. TMAP covers all phases of our weight manufacturing and metrology groups to ensure that Metrology services meet all requirements.

Metrology Staff

Metrology staff has participated in basic, intermediate and advanced NIST/OWM training seminars, regional metrology groups such as MidMap, and round-robin metrology programs with state labs.

Sales Staff

Weights sales group receives continuous training to be of assistance in weight selection, configuration, tolerance recommendations and consultative.

Traceability

Rice Lake's calibration lab has direct traceability to NIST.

Weight Design and Manufacturing

Rice Lake offers cast iron weights and three (3) different designs of stainless steel weights.

Stainless Steel Weights are available as Electronic Balance, Grip-Handle, Precision (screw-knob design) or OIML Precision (One-piece design).

Calibration Services

Calibration Certification for weight classes ASTM 0-3, OIML E1, E2, FI and F2. The calibration is performed per NIST Mass Dissemination. Meets ISO/IEC 17025 certification.

Traceable Calibration Certificate weight classes ASTM 4-7, NIST F, OIML M1, M2, and M3.

www.ricelake.com | Phone: 800-472-6703

CAST IRON - NIST, ASTM and OIML

Painted weights with adjusting cavity for sealing

Applications

- Field standards for testing industrial devices Class III, Class IIIL or IIII
- Testing for non-marked scales without Class designation
- Verifying scales are within specified accuracy and tolerances

Styles Available:

- Grip-handle design for easy handling
- Nesting slab weights for heavy capacity
- Slotted weights and hangers for suspended weighing
- Counterpoise weights for ratio weighing

Features:

- Nominal value marked on weight
- Weight capacities of 10kg/20lb and up meet NIST Handbook 105-1 and Handbook 44 specifications
- Metric weights designated by gold paint
- Avoirdupois (pound) weights designated by silver paint
- Serial numbers may be stamped on weights (option)

Classes Available:

- NIST Class F
- ASTM Class 6 and 7
- OIML Class M1 and M2











OPTIONAL

Cast Iron - NIST, ASTM and OIML

Cast Iron

Grip-handle and Nesting Slab Weights

NIST CLASS F OPTIONAL

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
3,000 lb	12872	20 3/4in (527.1 mm)	20 3/4in (527.1 mm)	29in (736.6 mm)	3 1/2in (88.9 mm)	2 3/4 in (69.9 mm)	\$8,700.00	\$300.00
2,500 lb	12854	20 3/4in (527.1 mm)	20 3/4 in (527.1 mm)	24 3/4 in (628.65 mm)			7,800.00	225.00
2,000lb	12868	20 3/4in (527.05mm)	20 3/4in (527.05 mm)	19 1/2 in (495.3 mm)	19 1/2in 3 1/2in 2 3/4in		6,900.00	225.00
1,500 lb	12864	15 1/8in (384.2mm)	15 1/8in (384.2mm)	26 7/8 in (682.6 mm)	2 1/2in (63.5 mm)	2 1/4in (57.2 mm)	6,250.00	225.00
1,250lb	12858	15in (381.0 mm)	15in 23 3/4in 2 1/2in 2 1/4in (381.0mm) (603.3 mm) (63.5 mm) (57.2 mm)		5,220.00	225.00		
1,000lb	12850	15in (381.0 mm)	15 1/2in (393.7 mm)	18 11/16in (474.7 mm)	2 3/4 in (69.9 mm)	2 29/32 in (73.8 mm)	2,500.00	225.00
500 lb	12844	11 1/2in (292.1 mm)	12in (304.8mm)	15 3/4 in (400.1 mm)			1,570.00	225.00
250 lb	12892	9 3/4 in (247.65 mm)	9 3/4 in (247.65 mm)	12in (304.8 mm)	2 1/2in (63.5 mm)	2in (50.8 mm)	1,435.00	225.00
200 lb	12890	9 3/4 in (247.65 mm)	9 3/4 in (247.65 mm)	10 in (254 mm)	2 1/2in (63.5 mm)	2in (50.8 mm)	1,250.00	225.00
100 lb	12862	9 1/8in (231.8mm)	7 in (177.8 mm)	7 7/8 in (200.0 mm)	4 1/2in (114.3 mm)	1 1/2in (38.1 mm)	550.00	100.00
50lb	12839	7 29/32in (200.8mm)	5 1/2in (139.7 mm)	6 9/16 in (166.7 mm)	0/16in 4 1/2in 1 21/32in		130.00	75.00
30 lb	12878	8 1/4in (209.6 mm)	8 1/4in 4 29/32in 4 1/2in		4 15/32in (113.5 mm)	31/32 in (24.6 mm)	170.00	75.00
25 lb	12833	6 1/2 in (165.1 mm)	4 1/2in (114.3mm)	4 15/16in (125.4mm)	3 5/8 in (92.1 mm)	31/32 in (24.6 mm)	115.00	75.00
20 lb	12870	5 3/4in (146.1 mm)	4 15/32in (113.5mm)	5 3/32 in (129.4 mm)	3 31/32in (100.8 mm)	1 5/32 in (29.4 mm)	92.00	75.00

ASTM CLASS 7 OPTIONAL

Weight	Part #	Width	Length	Height	Price	Traceable Certificate
10 lb	10 lb 12828 5 in (127.0 mm) 3 1/4 in (82		3 1/4 in (82.6 mm)	4 1/32in (102.4 mm)	\$72.00	\$75.00
5lb	12823	4in (101.6 mm)	2 9/16 in (65.1 mm)	3 7/32in (81.8 mm)	55.00	75.00
2lb	12874	3in (76.2mm)	2 1/8in (54.0 mm)	1 3/4in (44.5 mm)	52.00	60.00
1 lb	12876	2 1/2in (63.5 mm)	1 11/16in (42.9mm)	1 13/32in (35.7 mm)	48.00	60.00

NESTING SLAB NIST CLASS F

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
2,500 lb	12860	42 in (1066.8 mm)	30 in (762 mm)	8 1/4 in (209.5 mm)	2 in (50.8 mm)	2 1/4 in (57.15 mm)	\$7,800.00	\$225.00
1,000 lb	34563	29 1/2in (749.3 mm)	19 1/2 in (495.3 mm)	7 1/4 in (184.15 mm)	2 in (50.8 mm)	2 1/4 in (57.15 mm)	3,945.00	225.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00

^{*} Slot depth refers to distance between lifting bars and castings



Nesting Slab



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Cast Iron - NIST, ASTM and OIML

Cast Iron

Grip-handle Weights

NIST CLASS F OPTIONAL

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
1,000 kg	12801	20 1/2 in (520.7 mm)	20 1/2 in (520.7 mm)	22 in (558.8 mm)	3 1/2 in (88.9 mm)	2 3/4 in (69.85 mm)	\$6,900.00	\$300.00
500 kg	12797	15 1/8 in (384.2 mm)	15 1/8 in (384.2 mm)	20 3/4 in (527 mm)	2 1/2 in (63.5 mm)	2in (50.8 mm)	2,550.00	225.00
250 kg	12782	11 1/2 in (292.1 mm)	12 1/2 in (317.5 mm)	17 1/2 in (444.5 mm)	2 1/2 in (63.5 mm)	1 7/8 in (47.6 mm)	1,600.00	225.00
200 kg	12793	11 1/2 in (292.1 mm)	12 in (304.8 mm)	14 1/4 in (362 mm)	2 1/2 in (63.5 mm)	1 7/8 in (47.6 mm)	1,375.00	225.00
100 kg	12817	9 7/8 in (250.8 mm)	9 7/8 in (250.8 mm)	11 in (279.4 mm)	2 1/2 in (63.5 mm)	2 in (50.8 mm)	1,265.00	225.00
50kg	12803	9 7/32 in (234.2 mm)	7 in (177.8 mm)	8 13/16 in (223.8 mm)	4 15/32in (113.5 mm)	1 29/32 in (48.4 mm)	550.00	125.00
35 kg	12805	7 7/8 in (200.0 mm)	5 1/2 in (139.7 mm)	9 15/32 in (252.4 mm)	4 15/32 in (113.5 mm)	1 1/16 in (27.0 mm)	390.00	125.00
25 kg	12775	7 21/32 in (194.5 mm)	5 1/2 in (139.7 mm)	7 3/32in (180.2mm)	4 7/16 in (112.7 mm)	1 13/16 in (46.0 mm)	150.00	70.00
20 kg	12771	7 5/8 in (193.7 mm)	5 19/32 in (142.1 mm)	5 29/32 in (150.0 mm)	4 5/8 in (117.5 mm)	1 19/32in (40.5 mm)	125.00	70.00
10kg	12767	6 in (152.4 mm)	4 1/2 in (114.3 mm)	5 in (127.0 mm)	3 3/4 in (95.3 mm)	1 1/16 in (27.0 mm)	120.00	70.00

ASTM CLASS 7 OPTIONAL

Weight	Part #	Width	Length	Height	Price	Traceable Certificate
5kg	12786	5 15/32in (138.9 mm)	3 13/32 in (86.5 mm)	4 1/8 in (104.8 mm)	\$72.00	\$70.00
2kg	12809	3 31/32in (100.8 mm)	2 9/16 in (65.1 mm)	2 13/16 in (71.4 mm)	60.00	70.00
1 kg	12813	3 in (76.2 mm)	2 1/8 in (54.0 mm)	1 27/32 in (46.8 mm)	52.00	70.00
500g	12815	2 1/2 in (63.5 mm)	1 5/8 in (41.3 mm)	1 17/32 in (38.9 mm)	48.00	70.00

OIML CLASS M1 OPTIONAL

Weight	Part #	Width	Length	Height	Slot Width	Slot Depth*	Price	Traceable Certificate
500 kg	156304	151/8 in (384.2 mm)	151/8 in (384.2 mm)	20 3/4 in (527 mm)	21/2 in (63.5 mm)	2 in (50.8 mm)	\$2,800.00	\$225.00
250 kg	156305	151/8 in (384.2 mm)	151/8 in (384.2 mm)	20 3/4 in (527 mm)	21/2 in (63.5 mm)	1 7/8 in (47.6 mm)	1,600.00	225.00
100 kg	156306	151/8 in (384.2 mm)	151/8 in (384.2 mm)	20 3/4 in (527 mm)	21/2 in (63.5 mm)	2 in (50.8 mm)	1,300.00	225.00
50kg	105417	9 7/32 in (234.2 mm)	7 in (177.8 mm)	8 13/16 in (223.8 mm)	4 15/32 in (113.5 mm)	1 29/32 in (48.4 mm)	585.00	125.00
20 kg	105416	7 5/8 in (193.7 mm)	5 19/32 in (142.1 mm)	5 29/32 in (150.0 mm)	4 5/8 in (117.5 mm)	1 19/32 in (40.5 mm)	155.00	70.00
10 kg	105415	6 in (152.4 mm)	4 1/2 in (114.3 mm)	5 in (127.0 mm)	3 3/4 in (95.3 mm)	1 1/16 in (27.0 mm)	120.00	70.00
5kg	105414	5 15/32 in (138.9 mm)	3 13/32 in (86.5 mm)	4 1/8 in (104.8 mm)	-	-	90.00	70.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00

^{*} Slot depth refers to distance between lifting bars and castings



Grip-handle

Cast Iron - NIST, ASTM and OIML

Cast Iron

Slotted Interlocking and Hanger Weights

SLOTTED ASTM CLASS 6 OPTIONAL

Weight	Part #	Slot Width	Diameter	Height	Price	Traceable Certificate
100 lb	40828	1 in (25.4 mm)	17 in (431.8 mm)	1 15/16 in (49.2 mm)	\$565.00	\$100.00
50 lb	12856	3/4 in (9 mm)	10 5/8 in (269.9 mm)	2 11/16 in (68.3 mm)	195.00	75.00
20 lb	12831	13/16 in (20.6 mm)	8 1/8 in (206.4 mm)	1 31/32 in (50.0 mm)	95.00	75.00

SLOTTED ASTM CLASS 7 OPTIONAL

Weight	Part #	Slot Width	Diameter	Height	Price	Traceable Certificate
10 lb	12826	13/16 in (20.6 mm)	6 1/8 in (155.6 mm)	1 11/16 in (42.9 mm)	\$80.00	\$75.00
5 lb	12852	11/16 in (17.5 mm)	5 1/8 in (130.2 mm)	1 5/16 in (33.3 mm)	65.00	75.00
2 lb	12848	9/16 in (14.3 mm)	5 in (127.0 mm)	23/32 in (18.3 mm)	55.00	60.00
1 lb	12842	9/16 in (14.3 mm)	5 in (127.0 mm)	15/32 in (11.9 mm)	55.00	60.00
1/2 lb	12837	9/16 in (14.3 mm)	3 3/4 in (95.3 mm)	7/16 in (11.1 mm)	44.00	35.00

HANGER ASTM CLASS 7 OPTIONAL

Weight	Capacity	Part #	Total Length	Operational Length	Diameter	Price	Traceable Certificate
5 lb*	500 lb	12846	37 1/4 in (946.2 mm)	35 in (889.0 mm)	4 in (101.6 mm)	\$260.00	\$75.00
2 lb	200 lb	12841	21 13/32 in (543.7 mm)	19 in (482.6 mm)	3 3/4 in (95.3 mm)	130.00	60.00
2 lb	200 lb	12835	10 1/4 in (260.4 mm)	8 in (203.2 mm)	3 3/4 in (95.3 mm)	124.00	60.00
1 lb	200 lb	12830	21 29/32 in (556.4 mm)	20 7/32 in (513.6 mm)	3 3/4 in (95.3 mm)	110.00	60.00
1 lb	200 lb	12825	9 5/16 in (236.5 mm)	7 9/16 in (192.1 mm)	3 3/4 in (95.3 mm)	90.00	60.00

^{*} Stainless

SLOTTED ASTM CLASS 6 OPTIONAL

Weight	Part #	Slot Width	Diameter	Height	Price	Traceable Certificate
20 kg	12819	21/32 in (16.7 mm)	10 5/16 in (261.9 mm)	2 11/32 in (59.5 mm)	\$220.00	\$70.00
10 kg	12811	3/4 in (19.1 mm)	8 3/16 in (208.0 mm)	2 1/16 in (52.4 mm)	122.00	70.00

SLOTTED ASTM CLASS 7 OPTIONAL

Weight	Part #	Slot Width	Diameter	Height	Price	Traceable Certificate
5 kg	12807	13/16 in (20.6 mm)	6 3/16 in (157.2 mm)	1 13/16 in (46.0 mm)	\$90.00	\$70.00
2 kg	12799	9/16 in (14.3 mm)	5 1/8 in (130.2 mm)	1 3/16 in (30.2 mm)	65.00	70.00
1 kg	12795	9/16 in (14.3 mm)	5 1/16 in (128.6 mm)	3/4 in (19.1 mm)	57.00	50.00
500 g	12791	9/16 in (14.3 mm)	5 in (127.0 mm)	15/32 in (11.9 mm)	55.00	50.00
200 g	12780	5/8 in (15.9 mm)	3 21/32 in (92.9 mm)	7/16 in (11.1 mm)	45.00	50.00

HANGER ASTM CLASS 7 OPTIONAL

Weight	Capacity	Part #	Total Length	Operational Length	Diameter	Price	Traceable Certificate
2 kg	250 kg	12788	37 1/4 in (946.2 mm)	35 in (889.0 mm)	4 in (101.6 mm)	\$260.00	\$70.00
1 kg	100 kg	12784	21 13/32 in (543.7 mm)	19 in (482.6 mm)	3 3/4 in (95.3 mm)	125.00	50.00
1 kg	100 kg	12777	10 1/4 in (260.4 mm)	8 in (203.2 mm)	3 3/4 in (95.3 mm)	124.00	50.00
500 g	100 kg	12773	21 29/32 in (556.4 mm)	20 7/32 in (513.6 mm)	3 3/4 in (95.3 mm)	110.00	50.00
500 g	100 kg	12769	9 5/16 in (236.5 mm)	7 9/16 in (192.1 mm)	3 3/4 in (95.3 mm)	100.00	50.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00



Cast Iron - NIST, ASTM and OIML

Cast Iron

Counterpoise and Hanger Weights

ROUND ASTM CLASS 7

Ratio	Weight	Part #	Diameter	Fairbanks Part #	Price
1 lb - 100 lb	50 lb x 1/2 lb	10154	2 7/8 in (73.0 mm)	PA48	\$35.00
1 lb - 100 lb	100 lb x 1 lb	10156	4 1/16 in (103.2 mm)	PA32	40.00
1 lb - 100 lb	200 lb x 2 lb	10158	4 1/16 in (103.2 mm)	PA21	35.00
1 lb - 100 lb	500 lb x 5 lb	10160	3 3/4 in (95.3 mm)	PB52	40.00
1/2lb - 100lb	100 lb x 1/2 lb	10152	2 7/8 in (73.0 mm)	PBC32	35.00
1/2lb - 100lb	200 lb x 1 lb	10168	3 17/32 in (89.7 mm)	PBC21	45.00
1/2lb - 100lb	300 lb x 1 1/2 lb	10189	3 1/2 in (88.9 mm)	-	35.00
1/2lb - 100lb	500 lb x 2 1/2 lb	10170	3 1/2 in (88.9 mm)	PBC52	50.00
1/2lb - 100lb	1000 lb x 5 lb	10196	3 7/8 in (98.4 mm)	-	60.00

HANGERS - ROUND AND SQUARE ASTM CLASS 7

Approx. Weight	Part #	Total Length	Operational Length	Diameter	Price	
Round						
7 oz	10188	7 1/16 in (179.4 mm)	5 1/8 in (130.2 mm)	3 31/32 in (100.8 mm)	\$65.00	
10 oz (Fairbanks only)	10184	7 1/16 in (179.4 mm)	5 1/8 in (130.2 mm)	3 31/32 in (100.8 mm)	65.00	
12 oz	10185	7 1/16 in (179.4 mm)	5 1/8 in (130.2 mm)	3 31/32 in (100.8 mm)	65.00	
17 oz	10186	7 1/16 in (179.4 mm)	5 1/8 in (130.2 mm)	4 in (101.6 mm)	65.00	
21 oz	10187	7 1/16 in (179.4 mm)	5 1/8 in (130.2 mm)	4 in (101.6 mm)	65.00	
Square						
21 oz	10193	8 7/16 in (214.3 mm)	6 5/16 in (160.3 mm)	-	65.00	

HEXAGON ASTM CLASS 7

Weight	Part #	Diameter	Price
10 kg x 100 g	10266	2 in (50.8 mm)	\$40.00
25 kg x 250 g	10268	2 13/16 in (71.4 mm)	40.00
50 kg x 500 g	10270	4in (101.6 mm)	44.00
100 kg x 1 kg	10272	4in (101.6mm)	47.00
200 kg x 2 kg	10274	4 in (101.6 mm)	52.00

SQUARE ASTM CLASS 7

Ratio	Weight	Part #	Diameter	Fairbanks Part #	Price
1 lb - 100 lb	50 lb x 1/2 lb	10191	2 5/16 in (58.7 mm)	1A2349	\$40.00
1 lb - 100 lb	100 lb x 1 lb	10162	3 1/2 in (88.9 mm)	1A1469	40.00
1 lb - 100 lb	200 lb x 2 lb	10164	3 1/2 in (88.9 mm)	1A1470	45.00
1 lb - 100 lb	500 lb x 5 lb	10166	3 1/2 in (88.9 mm)	1A1471	75.00



and Hanger



Fairbanks Square Individual and Hanger

Cast Iron - NIST, ASTM and OIML

Avoirdupois

Counterpoise and Hanger Weights

ROUND ASTM CLASS 7

Ratio	Weight	Part #	Diameter	Howe Part #	Price
-	50 lb x 1/2 lb	10367	3 in (76.2 mm)	42071831	\$45.00
-	100 lb x 1 lb	10369	2 7/8 in (73.0 mm)	42076188	45.00
-	200 lb x 2 lb	10371	2 31/32 in (75.4 mm)	42076189	45.00
-	300 lb x 3 lb	10373	2 31/32 in (75.4 mm)	42076190	45.00
-	500 lb x 5 lb	10385	3 1/8 in (79.4 mm)	42078947	45.00
		For Counting	Scales		
99 - 1	100 lb x 1 1/99 lb	10387	3 in (76.2 mm)	40810545	50.00
99 - 1	200 lb x 2 2/99 lb	10389	2 7/8 in (73.0 mm)	40810546	50.00
99 - 1	500 lb x 5 5/99 lb	10391	3 3/32 in (78.6 mm)	42111567	50.00
8 - 1	10 lb x 1 1/4 lb	10427	2 15/16 in (74.6 mm)	-	50.00
8 -1	5 lb x 5/8 lb	10425	2 15/16 in (74.6 mm)	-	50.00
8 - 1	2 lb x 1/4 lb	10411	2 7/32 in (56.4 mm)	-	45.00
50 - 1	80 lb x 1 3/5 lb	10421	3 in (76.2 mm)	-	45.00
50 - 1	40 lb x 4/5 lb	10419	2 13/16 in (71.4 mm)	=	45.00
50 - 1	20 lb x 2/5 lb	10417	2 31/32 in (75.4 mm)	-	50.00
50 - 1	10 lb x 1/5 lb	10415	2 in (50.8 mm)	-	45.00
50 - 1	5 lb x 1/10 lb	10413	1 1/2 in (38.1 mm)	-	45.00
64 - 1	100 lb x 1 9/16 lb or 25 oz	10409	3 in (76.2 mm)	42111417	45.00
61 - 1	50 lb x 28/32 lb or 12 1/2 oz	10407	2 15/16 in (74.6 mm)	40807082	45.00
64 - 1	25 lb x 25/64 lb or 6 1/4 oz	10405	2 31/32 in (75.4 mm)	40807092	45.00
64 -1	10 lb x 5/32 lb or 2 1/2 oz	10404	1 1/2 in (38.1 mm)	42111454	45.00

ROUND HANGER ASTM CLASS 7

Approx. Weight	Part #	Total Length	Operational Length	Diameter	Price
7 oz	10382	8 1/4 in (209.6 mm)	6 3/16 in (157.2 mm)	2 31/32 in (75.4)	\$60.00
10 oz	10379	8 1/4 in (209.6 mm)	6 3/16 in (157.2 mm)	2 31/32 in (75.4)	60.00
12 oz	10380	8 1/4 in (209.6 mm)	6 3/16 in (157.2 mm)	2 31/32 in (75.4)	100.00
16 oz	10381	8 1/4 in (209.6 mm)	6 3/16 in (157.2 mm)	2 31/32 in (75.4)	100.00

TRIANGLE ASTM CLASS 7

Approx. Weight	Part #	Toledo Part #	Price
100 lb x 1 lb	11417	49868	\$35.00
200 lb x 2 lb	11419	49869	40.00
500 lb x 5 lb	11421	49870	60.00

TRIANGLE HANGER ASTM CLASS 7

Approx. Weight	Part #	Total Length	Operational Length	Toledo Part #	Price
14 oz	11423	8 1/4 in (209.6 mm)	6 3/16 in (157.2 mm)	49857	\$60.00





STAINLESS STEEL - NIST

Applications:

- Field standards for Class III scales or balances
- Testing non-classified scale equipment
- Tolerance checking

Styles Available:

- Cylindrical
- Grip-handle
- Dish weights

Product Configuration:

- Individual weight
- Weight sets

Weight Set Configuration:

- Weights (typical configuration is 5-2-2-1 or 5-3-2-1)
 Example: 50, (2) 20 or 10 or 50, 30, 20, 10
- Glove
- Lifting device or tweezer if applicable

Features:

- Stainless steel weights designed to meet NIST Handbook 44 and 105-1
- Class F tolerances
- Sealing cavity for adjustment for most weights
- Serial numbers may be stamped on weights (option)
- Nominal value marked on weights





Metric Individual Weights

GRIP-HANDLE CLASS F OPTIONAL

Weight	Part #	Height	Diameter	Price	Traceable Certificate
30 kg	12572	9 3/16 in (233.3 mm)	6 in (152.4 mm)	\$1,055.00	\$75.00
25 kg	12571	7 3/16 in (182.5 mm)	6 in (152.4 mm)	835.00	70.00
20 kg	12569	6 7/16 in (163.5 mm)	6 in (152.4 mm)	720.00	70.00
10 kg	12567	5 3/16 in (131.7 mm)	5 in (127.0 mm)	510.00	70.00
8 kg	12565	4 13/32 in (111.9 mm)	5 in (127.0 mm)	475.00	70.00
5 kg	12564	3 7/32 in (81.8 mm)	5 in (127.0 mm)	275.00	70.00

OPTIONAL OPTIONAL CASES CYLINDRICAL CLASS F

Weight	Part #	Height	Diameter	Price	Traceable Certificate	Part #	Price
5kg	12521	4 13/32 in (111.9 mm)	3 1/2 in (88.9 mm)	\$200.00	\$70.00	11462	\$42.00
4 kg	12519	3 3/16 in (96.7 mm)	3 3/8 in (85.0 mm)	185.00	70.00	11463	42.00
3 kg	12517	3 23/32 in (94.5 mm)	3 in (76.2 mm)	165.00	70.00	11464	42.00
2kg	12515	3 5/16 in (83.7 mm)	2 5/8 in (66.2 mm)	120.00	70.00	11465	42.00
1 kg	12513	2 11/16 in (68.2 mm)	2 in (50.4 mm)	70.00	50.00	11468	42.00
500 g	12511	2 1/8 in (53.8 mm)	1 5/8 in (40.9 mm)	65.00	50.00	11470	42.00
400 g	12531	2 1/32 in (51.6 mm)	1 1/2 in (38.1 mm)	60.00	50.00	11471	42.00
300 g	12529	1 13/16 in (45.9 mm)	1 3/8 in (34.5 mm)	60.00	50.00	11472	42.00
200 g	12509	1 21/32 in (42.1 mm)	1 3/16 in (30.2 mm)	50.00	50.00	11473	42.00
150 g	12549	1 9/32 in (32.5 mm)	1 3/16 in (30.2 mm)	45.00	50.00	11475	42.00
100 g	12507	1 3/16 in (30.2 mm)	1 in (25.4 mm)	42.00	35.00	11476	42.00
50 g	12527	31/32 in (24.6 mm)	3/4 in (19.1 mm)	38.00	35.00	11480	42.00
30 g	12525	11/16 in (16.7 mm)	11/16 in (17.4 mm)	35.00	35.00	11481	42.00
20 g	12523	5/8 in (15.9 mm)	19/32 in (15.1 mm)	35.00	35.00	11482	42.00
10 g	12505	19/32 in (15.1 mm)	7/16 in (11.1 mm)	35.00	35.00	11483	42.00
5 g	12503	13/32 in (10.3 mm)	3/8 in (9.5 mm)	30.00	35.00	-	-
3g	12533	3/8 in (9.3 mm)	5/16 in (7.5 mm)	30.00	35.00	-	-
2g	12501	5/16 in (7.9 mm)	9/32 in (7.1 mm)	30.00	35.00	-	-
1 g	12499	1/4 in (6.4 mm)	7/32 in (5.6 mm)	30.00	35.00	-	-

OPTIONAL MILLIGRAM CLASS F

Weight	Part #	Price	Traceable Certificate
500 mg	12913	\$18.00	\$35.00
300 mg	12914	18.00	35.00
200 mg	12915	18.00	35.00
100 mg	12916	18.00	35.00
50 mg	12917	18.00	35.00
30 mg	12918	18.00	35.00
20 mg	12919	18.00	35.00
10 mg	12920	18.00	35.00
5 mg	12921	18.00	35.00
3 mg	12922	18.00	35.00
2 mg	12923	18.00	35.00
1 mg	12924	18.00	35.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00







GRIP-HANDLE CLASS F OPTIONAL

Weight	Part#	Height	Diameter	Price	Traceable Certificate
50lb	12677	6 21/32 in (169.1 mm)	6 in (127.0 mm)	\$785.00	\$75.00
30 lb	12676	6 11/16 in (169.0 mm)	5 in (126.4 mm)	595.00	75.00
25 lb	12675	5 3/4 in (145.9 mm)	5 in (126.4 mm)	500.00	75.00
20 lb	12674	4 27/32 in (123.0 mm)	5 in (127.0 mm)	460.00	75.00
10 lb	12673	3 1/32 in (77.0 mm)	5 in (127.0 mm)	275.00	75.00

CYLINDRICAL CLASS F	OPTIONAL	OPTIONAL CASES
GTLINDRIGAL GLASS F	UPTIONAL	UPTIUNAL GASES

	G I LINDRIGA	IL ULASS F				UPTIONAL	UPTION	AL CASES
5lb 12604 3 11/16 in (93.2 mm) 2 5/8 in (66.2 mm) 120.00 75.00 11496 42.00 4lb 12602 3 1/16 in (77.0 mm) 2 5/8 in (66.2 mm) 115.00 75.00 11465 42.00 3lb 12600 2 15/16 in (74.4 mm) 2 1/4 in (56.8 mm) 110.00 75.00 11465 42.00 2lb 12598 2 15/32 in (62.7 mm) 2 1/4 in (56.8 mm) 65.00 60.00 11468 42.00 1lb 12596 2 9/32 in (67.9 mm) 1 1/2 in (38.1 mm) 55.00 60.00 82983 42.00 12oz 12626 2 1/16 in (51.6 mm) 1 3/8 in (34.5 mm) 55.00 60.00 82983 42.00 4oz 12592 1 11/32 in (34.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 11491 42.00 4oz 12592 1 11/32 in (34.1 mm) 1 3/6 in (20.6 mm) 38.00 35.00 11491 42.00 1oz 12587 13/16 in (20.2 mm) 5/8 in (15.5 mm) 35.00 35.00 11493 42.00 </th <th>Weight</th> <th>Part #</th> <th>Height</th> <th>Diameter</th> <th>Price</th> <th></th> <th>Part #</th> <th>Price</th>	Weight	Part #	Height	Diameter	Price		Part #	Price
4lb 12602 3 1/16 in (77.0 mm) 2 5/8 in (66.2 mm) 115.00 75.00 11465 42.00 3lb 12600 2 15/16 in (74.4 mm) 2 1/4 in (56.8 mm) 110.00 75.00 11495 42.00 2lb 12598 2 15/32 in (62.7 mm) 2 1/5(50.8 mm) 65.00 60.00 11468 42.00 1 lb 12596 2 9/32 in (57.9 mm) 1 1/2 in (38.1 mm) 55.00 60.00 82983 42.00 1202 12626 2 1/16 in (51.6 mm) 1 3/8 in (34.5 mm) 50.00 35.00 - - 80z 12594 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 11491 42.00 40z 12592 1 11/32 in (34.1 mm) 1 1/4 in (31.8 mm) 40.00 35.00 11494 42.00 10z 12587 13/16 in (20.2 mm) 5/8 in (15.5 mm) 38.00 35.00 11479 42.00 1/2 to 2 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 <td>10 lb</td> <td>12606</td> <td>4 1/16 in (103.0 mm)</td> <td>3 1/2 in (88.1 mm)</td> <td>\$190.00</td> <td>\$75.00</td> <td>152299</td> <td>\$42.00</td>	10 lb	12606	4 1/16 in (103.0 mm)	3 1/2 in (88.1 mm)	\$190.00	\$75.00	152299	\$42.00
31b 12600 2 15/16 in (74.4 mm) 2 1/4 in (56.8 mm) 110.00 75.00 11495 42.00 21b 12598 2 15/32 in (62.7 mm) 2 in (50.8 mm) 65.00 60.00 11468 42.00 11b 12596 2 9/32 in (57.9 mm) 1 1/2 in (38.1 mm) 55.00 60.00 82983 42.00 120z 12626 2 1/16 in (51.6 mm) 1 3/8 in (34.5 mm) 55.00 35.00 -	5lb	12604	3 11/16 in (93.2 mm)	2 5/8 in (66.2 mm)	120.00	75.00	11496	42.00
2lb 12598 2 15/32 in (62.7 mm) 2 in (50.8 mm) 65.00 60.00 11468 42.00 1lb 12596 2 9/32 in (57.9 mm) 1 1/2 in (38.1 mm) 55.00 60.00 82983 42.00 12oz 12626 2 1/16 in (51.6 mm) 1 3/8 in (34.5 mm) 50.00 35.00 - - 8oz 12594 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 11491 42.00 4oz 12592 1 11/32 in (34.1 mm) 1 in (25.4 mm) 40.00 35.00 11494 42.00 1oz 12587 13/16 in (20.2 mm) 5/8 in (15.5 mm) 38.00 35.00 11493 42.00 1/2oz 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 1/8oz 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 11492 42.00 1/8oz 12578 7/16 in (m.8 mm) 3/6 in (9.6 mm) 30.00 35.00 - - 1/1	4lb	12602	3 1/16 in (77.0 mm)	2 5/8 in (66.2 mm)	115.00	75.00	11465	42.00
1lb 12996 2 9/32 in (57.9 mm) 1 1/2 in (38.1 mm) 55.00 60.00 82983 42.00 12oz 12626 2 1/16 in (51.6 mm) 1 3/8 in (34.5 mm) 50.00 35.00 - - - 8oz 12594 1 21/32 in (34.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 11491 42.00 4oz 12592 1 11/32 in (34.1 mm) 1 in (25.4 mm) 40.00 35.00 11494 42.00 2oz 12590 15/16 in (23.8 mm) 13/16 in (20.6 mm) 38.00 35.00 11479 42.00 1/2 oz 12587 13/16 in (20.2 mm) 5/8 in (15.5 mm) 35.00 35.00 11493 42.00 1/2 oz 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 1/4 oz 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 - - - 1/8 oz 12578 7/16 in (10.8 mm) 5/16 in (7.5 mm) 30.00 35.00 - -	3lb	12600	2 15/16 in (74.4 mm)	2 1/4 in (56.8 mm)	110.00	75.00	11495	42.00
120z 12626 2 1/16in (51.6 mm) 1 3/8 in (34.5 mm) 50.00 35.00 - - -	2lb	12598	2 15/32 in (62.7 mm)	2 in (50.8 mm)	65.00	60.00	11468	42.00
80z 12594 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 11491 42.00 4 0z 12592 1 11/32 in (34.1 mm) 1 in (25.4 mm) 40.00 35.00 11494 42.00 2 0z 12590 15/16 in (23.8 mm) 13/16 in (20.6 mm) 38.00 35.00 11479 42.00 1 0z 12587 13/16 in (20.2 mm) 5/8 in (15.5 mm) 35.00 35.00 11493 42.00 1/2 0z 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 1/4 0z 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 - - - 1/8 0z 12578 7/16 in (10.8 mm) 5/16 in (7.5 mm) 30.00 35.00 - - - 1/30 0z 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - - 1/32 0z 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 -	1 lb	12596	2 9/32 in (57.9 mm)	1 1/2 in (38.1 mm)	55.00	60.00	82983	42.00
4 oz 12592 1 11/32 in (34.1 mm) 1 in (25.4 mm) 40.00 35.00 11494 42.00 2 oz 12590 15/16 in (23.8 mm) 13/16 in (20.6 mm) 38.00 35.00 11479 42.00 1 oz 12587 13/16 in (20.2 mm) 5/8 in (15.5 mm) 35.00 35.00 11493 42.00 1/2 oz 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 1/4 oz 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 - - - 1/8 oz 12578 7/16 in (10.8 mm) 5/16 in (7.5 mm) 30.00 35.00 - - - 1/16 oz 12575 3/8 in (9.6 mm) 5/16 in (7.5 mm) 30.00 35.00 - - - 1/32 oz 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - - 0.5 oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 -<	12 oz	12626	2 1/16 in (51.6 mm)	1 3/8 in (34.5 mm)	50.00	35.00	-	-
20z 12590 15/16 in (23.8 mm) 13/16 in (20.6 mm) 38.00 35.00 11479 42.00 1 0z 12587 13/16 in (20.2 mm) 5/8 in (15.5 mm) 35.00 35.00 11493 42.00 1/2 oz 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 1/4 oz 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 - - - 1/8 oz 12578 7/16 in (10.8 mm) 5/16 in (7.5 mm) 30.00 35.00 - - - 1/16 oz 12575 3/8 in (9.6 mm) 1/4 in (6.4 mm) 30.00 35.00 - - - 1/32 oz 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - - 0.5 oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 - - - 0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00	8 oz	12594	1 21/32 in (42.1 mm)	1 1/4 in (31.8 mm)	45.00	35.00	11491	42.00
1 0z 12587 13/16in (20.2 mm) 5/8 in (15.5 mm) 35.00 35.00 11493 42.00 1/2 0z 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 1/4 0z 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 - - 1/8 0z 12578 7/16 in (10.8 mm) 5/16 in (7.5 mm) 30.00 35.00 - - 1/16 0z 12575 3/8 in (9.6 mm) 1/4 in (6.4 mm) 30.00 35.00 - - 1/32 0z 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - 0.5 0z 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 - - 0.3 0z 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - 0.1 0z 12643 1/2 in (12.8 mm) 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 - - 0.05 lb 126	4 oz	12592	1 11/32 in (34.1 mm)	1 in (25.4 mm)	40.00	35.00	11494	42.00
1/2 oz 12584 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 11492 42.00 1/4 oz 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 - - 1/8 oz 12578 7/16 in (10.8 mm) 5/16 in (7.5 mm) 30.00 35.00 - - 1/16 oz 12575 3/8 in (9.6 mm) 1/4 in (6.4 mm) 30.00 35.00 - - 1/32 oz 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - 0.5 oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 - - 0.3 oz 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - - 0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - -	2 oz	12590	15/16 in (23.8 mm)	13/16 in (20.6 mm)	38.00	35.00	11479	42.00
1/4 oz 12581 5/8 in (15.9 mm) 3/8 in (9.6 mm) 30.00 35.00 - - 1/8 oz 12578 7/16 in (10.8 mm) 5/16 in (7.5 mm) 30.00 35.00 - - 1/16 oz 12575 3/8 in (9.6 mm) 1/4 in (6.4 mm) 30.00 35.00 - - 1/32 oz 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - 0.5 oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 - - 0.3 oz 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - 0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - 0.5 lb 12624 1 21/32 in (42.1 mm)	1 oz	12587	13/16 in (20.2 mm)	5/8 in (15.5 mm)	35.00	35.00	11493	42.00
1/8oz 12578 7/16in (10.8 mm) 5/16in (7.5 mm) 30.00 35.00 - - 1/16oz 12575 3/8 in (9.6 mm) 1/4 in (6.4 mm) 30.00 35.00 - - 1/32oz 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - 0.5oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 - - - 0.3oz 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - - 0.2oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - - <td>1/2 oz</td> <td>12584</td> <td>21/32 in (16.7 mm)</td> <td>1/2 in (12.7 mm)</td> <td>35.00</td> <td>35.00</td> <td>11492</td> <td>42.00</td>	1/2 oz	12584	21/32 in (16.7 mm)	1/2 in (12.7 mm)	35.00	35.00	11492	42.00
1/16 oz 12575 3/8 in (9.6 mm) 1/4 in (6.4 mm) 30.00 35.00 - - 1/32 oz 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - 0.5 oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 - - 0.3 oz 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - 0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - 0.1 lb 12610 <th< td=""><td>1/4 oz</td><td>12581</td><td>5/8 in (15.9 mm)</td><td>3/8 in (9.6 mm)</td><td>30.00</td><td>35.00</td><td>-</td><td>-</td></th<>	1/4 oz	12581	5/8 in (15.9 mm)	3/8 in (9.6 mm)	30.00	35.00	-	-
1/32 oz 12608 11/32 in (8.7 mm) 3/16 in (4.8 mm) 30.00 35.00 - - - 0.5 oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 - - 0.3 oz 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - 0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - - 0.	1/8 oz	12578	7/16 in (10.8 mm)	5/16 in (7.5 mm)	30.00	35.00	-	-
0.5 oz 12647 21/32 in (16.7 mm) 1/2 in (12.7 mm) 35.00 35.00 - - - 0.3 oz 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - - 0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm)	1/16 oz	12575	3/8 in (9.6 mm)	1/4 in (6.4 mm)	30.00	35.00	-	-
0.3 oz 12645 17/32 in (13.5 mm) 7/16 in (11.1 mm) 35.00 35.00 - - - 0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm)	1/32 oz	12608	11/32 in (8.7 mm)	3/16 in (4.8 mm)	30.00	35.00	-	-
0.2 oz 12643 1/2 in (12.8 mm) 3/8 in (9.1 mm) 35.00 35.00 - - - 0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm)	0.5 oz	12647	21/32 in (16.7 mm)	1/2 in (12.7 mm)	35.00	35.00	-	-
0.1 oz 12641 3/8 in (9.0 mm) 5/16 in (7.5 mm) 35.00 35.00 - - - 0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm)	0.3oz	12645	17/32 in (13.5 mm)	7/16 in (11.1 mm)	35.00	35.00	-	-
0.05 oz 12639 5/16 in (7.4 mm) 1/4 in (6.0 mm) 35.00 35.00 - - - 0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00 35.00 - -	0.2oz	12643	1/2 in (12.8 mm)	3/8 in (9.1 mm)	35.00	35.00	-	-
0.5 lb 12624 1 21/32 in (42.1 mm) 1 1/4 in (31.8 mm) 45.00 35.00 - - 0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00 35.00 - -	0.1 oz	12641	3/8 in (9.0 mm)	5/16 in (7.5 mm)	35.00	35.00	-	-
0.3 lb 12622 1 3/16 in (30.2 mm) 1 1/8 in (28.2 mm) 45.00 35.00 - - 0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00 35.00 - -	0.05 oz	12639	5/16 in (7.4 mm)	1/4 in (6.0 mm)	35.00	35.00	-	-
0.2 lb 12610 1 7/32 in (31.0 mm) 15/16 in (23.8 mm) 38.00 35.00 - - - 0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00 35.00 - - -	0.5 lb	12624	1 21/32 in (42.1 mm)	1 1/4 in (31.8 mm)	45.00	35.00	-	-
0.1 lb 12612 7/8 in (21.8 mm) 3/4 in (18.7 mm) 38.00 35.00 - - 0.05 lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00 35.00 - -	0.3lb	12622	1 3/16 in (30.2 mm)	1 1/8 in (28.2 mm)	45.00	35.00	-	-
0.05lb 12614 23/32 in (18.3 mm) 19/32 in (15.1 mm) 38.00 35.00 - - 0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00 35.00 - -	0.2lb	12610	, ,	15/16 in (23.8 mm)	38.00	35.00	-	-
0.03 lb 12620 5/8 in (15.7 mm) 1/2 in (12.3 mm) 38.00 35.00 - - 0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00 35.00 - -	0.1 lb	12612	7/8 in (21.8 mm)	3/4 in (18.7 mm)	38.00	35.00	-	-
0.02 lb 12616 9/16 in (13.7 mm) 7/16 in (10.7 mm) 38.00	0.05 lb	12614	23/32 in (18.3 mm)	19/32 in (15.1 mm)	38.00	35.00	-	-
	0.03 lb	12620	5/8 in (15.7 mm)	1/2 in (12.3 mm)	38.00	35.00	-	-
0.01 lb 12618 17/32 in (13.5 mm) 5/16 in (7.9 mm) 38.00 35.00	0.02 lb	12616	9/16 in (13.7 mm)	7/16 in (10.7 mm)		35.00	-	-
	0.01 lb	12618	17/32 in (13.5 mm)	5/16 in (7.9 mm)	38.00	35.00	-	-

DISH WEIGHTS

OPTIONAL

Weight	Part #	Price	Traceable Certificate
0.005lb	12909	\$35.00	\$35.00
0.003lb	12912	35.00	35.00
0.002lb	12910	35.00	35.00
0.001 lb	12911	35.00	35.00



Dish Weights 0.005 lb - 0.001 lb



Grip-handle



Cylindrical

Stainless Steel - NIST Metric Sets Range: 5 and 50 g

CLASS F

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
5g - 1 mg	12548	\$160.00	\$230.00	11510	\$30.00
50 g - 1 mg	12504	200.00	455.00	11512	30.00
50 g - 10 mg	12502	185.00	365.00	11512	30.00
50g - 1g	12500	150.00	180.00	11512	30.00
(2) 50 g - 1 mg	12550	295.00	455.00	11512	30.00

WEIGHT SET CONTENTS

5g - 1 mg	50 g - 1 mg	(2) 50 g - 1 mg	50g - 10mg	50g - 1g
1 - 5 g	1 - 50g	2 - 50g	1 - 50g	1 - 50 g
1 - 3g	2 - 20g	1 - 30 g	2 - 20g	2 - 20 g
1 - 2g	1 - 10g	1 - 20 g	1 - 10g	1 - 10g
1 - 1 g	1 - 5g	1 - 10g	1 - 5 g	1 - 5g
1 - 500 mg	2 - 2g	1 - 5g	2 - 2 g	2 - 2g
1 - 300 mg	1 - 1g	1 - 3g	1 - 1 g	1 - 1 g
1 - 200 mg	1 - 500 mg	1 - 2g	1 - 500 mg	
1 - 100 mg	2 - 200 mg	1 - 1g	2 - 200 mg	
1 - 50 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg	
1 - 30 mg	1 - 50 mg	1 - 300 mg	1 - 50 mg	
1 -20 mg	2 - 20 mg	1 - 200 mg	2 - 20 mg	
1 - 10 mg	1 - 10 mg	1 - 100 mg	1 - 10 mg	
1 - 5 mg	1 - 5 mg	1 - 50 mg		
1 - 3 mg	2 - 2 mg	1 - 30 mg		
1 - 2 mg	1 - 1 mg	1 -20 mg		
1 - 1 mg		1 - 10 mg		
		1 - 5 mg		
		1 - 3 mg		
		1 - 2 mg		
		1 - 1 mg		
		Piece	Count	

	i iece count					
16	20	21	16	8		
		Total W	leight .			

12.221 g	111.11 g	172.221 g	111.1 g	110.000 g
Part #	Part #	Part #	Part #	Part #
12548	12504	12550	12502	12500

CASE INSERT

Size	Part #	Price
50 g - 1 mg	11517	\$30.00
50 g - 10 mg	11517	30.00
50g - 1g	11516	30.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11758	Leaf weight cover	35.00
65640	Tweezer	15.00
25836	Serial number	15.00
152414	Premium tweezer	35.00



Stainless Steel - NIST **Metric Sets**

Range: 100g

CLASS F

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
100g - 1 mg	12510	\$215.00	\$485.00	11512	\$30.00
100g - 10mg	12508	205.00	380.00	11512	30.00
100g - 1g	12506	185.00	205.00	11512	30.00

WEIGHT SET CONTENTS

100 g - 1 mg	100g - 10mg	100g - 1g
1 - 100 g	1 - 100g	1 - 100 g
1 - 50 g	1 - 50 g	1 - 50 g
2 - 20g	2 - 20 g	2 - 20 g
1 - 10 g	1 - 10g	1 - 10g
1 - 5g	1 - 5g	1 - 5 g
2 - 2g	2 - 2g	2 - 2 g
1 - 1g	1 - 1g	1 - 1 g
1 - 500 mg	1 - 500 mg	
2 - 200 mg	2 - 200 mg	
1 - 100 mg	1 - 100 mg	
1 - 50 mg	1 - 50 mg	
2 - 20 mg	2 - 20 mg	
1 - 10 mg	1 - 10 mg	
1 - 5 mg		
2 - 2 mg		
1 - 1 mg		

Piece Count				
21	17	9		
Total Weight				

211.11 g	211.19g	210.000 g
Part #	Part #	Part #
12510	12508	12506

CASE INSERT

Size	Part #	Price
100g - 1 mg	11519	\$30.00
100g - 10mg	11519	30.00
100g - 1g	11518	30.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11758	Leaf weight cover	35.00
65640	Tweezer	15.00
25836	Serial number	15.00
152414	Premium tweezer	35.00



Stainless Steel - NIST **Metric Sets**

Range: 500 g

CLASS F OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
500g - 1 mg	12516	\$395.00	\$575.00	11520	\$60.00
500g - 10 mg	12514	355.00	485.00	11520	60.00
500g - 1g	12512	315.00	300.00	11520	60.00

WEIGHT SET CONTENTS

500 g - 1 mg	500 g - 10 mg	500 g - 1 g		
1 - 500g	1 - 500g	1 - 500 g		
2 - 200 g	2 - 200 g	2 - 200 g		
1 - 100 g	1 - 100g	1 - 100 g		
1 - 50g	1 - 50 g	1 - 50g		
2 - 20 g	2 - 20 g	2 - 20g		
1 - 10 g	1 - 10g	1 - 10 g		
1 - 5g	1 - 5g	1 - 5g		
2 - 2g	2 - 2g	2 - 2g		
1 - 1 g	1 - 1g	1 - 1 g		
1 - 500 mg	1 - 500 mg			
2 - 200 mg	2 - 200 mg			
1 - 100 mg	1 - 100 mg			
1 - 50 mg	1 - 50 mg			
2 - 20 mg	2 - 20 mg			
1 - 10 mg	1 - 10 mg			
1 - 5 mg				
2 - 2 mg				
1 - 1 mg				
Piece Count				
0.4	00	10		

REPLACEMENT CASES

Piece count					
24 20 12					
Total Weight					

1.11111 kg	1.1111 kg	1.110 kg
Part #	Part #	Part #
12516	12514	12512

SECONDARY CASE

Size	Part #	Price
100g - 1 mg	11512	\$30.00
100g - 10mg	11512	30.00
100g - 1g	11512	30.00

CASE INSERT

Size	Part #	Price
100g - 1 mg	11519	\$30.00
100g - 10mg	11519	30.00
100g - 1g	11518	30.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11758	Leaf weight cover	35.00
65640	Tweezer	15.00
25836	Serial number	15.00
152414	Premium tweezer	35.00



Stainless Steel - NIST **Metric Sets**

Range: 1 kg

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
1 kg - 1 mg	12522	\$440.00	\$600.00	11521	\$60.00
1 kg - 10 mg	12520	435.00	520.00	11521	60.00
1 kg - 1 g	12518	405.00	335.00	11521	60.00

WEIGHT SET CONTENTS

1 kg - 1 mg	1 kg - 10 mg	1kg - 1g
1 - 1 kg	1 - 1 kg	1 - 1 kg
1 - 500 g	1 - 500g	1 - 500 g
2 - 200 g	2 - 200 g	2 - 200 g
1 - 100g	1 - 100g	1 - 100 g
1 - 50g	1 - 50 g	1 - 50g
2 - 20 g	2 - 20 g	2 - 20g
1 - 10 g	1 - 10g	1 - 10 g
1 - 5g	1 - 5g	1 - 5 g
2 - 2g	2 - 2g	2 - 2g
1 - 1g	1 - 1g	1 - 1 g
1 - 500 mg	1 - 500 mg	
2 - 200 mg	2 - 200 mg	
1 - 100 mg	1 - 100 mg	
1 - 50 mg	1 - 50 mg	
2 - 20 mg	2 - 20 mg	
1 - 10 mg	1 - 10 mg	
1 - 5 mg		
2 - 2 mg		
1 - 1 mg		
2 - 2 mg	Piece Count	

Piece Count				
25	21	13		
Total Weight				

Total Weight						
2.11111 kg	2.1111 kg	2.11 kg				
Part #	Part #	Part #				
12522	12520	12518				

SECONDARY CASE

Size	Part #	Price
100g - 1 mg	11512	\$30.00
100g - 10mg	11512	30.00
100g - 1g	11512	30.00

CASE INSERT

Size	Part #	Price
100g - 1 mg	11519	\$30.00
100g - 10mg	11519	30.00
100g - 1g	11518	30.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11758	Leaf weight cover	35.00
65640	Tweezer	15.00
25836	Serial number	15.00
152414	Premium tweezer	35.00

Stainless Steel - NIST **Metric Sets**

Range: 2kg

CLASS F

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
2 kg - 1 mg	12528	\$540.00	\$610.00	11522	\$145.00
(5) 2 kg - 1 mg	12534	850.00	778.00	11523	200.00
2kg - 10 mg	12526	510.00	560.00	11522	145.00
(5) 2 kg - 10 mg	12532	845.00	700.00	11523	200.00
2 kg -1 g	12524	470.00	380.00	11522	145.00
(5) 2 kg - 1 g	12530	785.00	545.00	11523	200.00

WEIGHT SET CONTENTS

2kg - 1 mg	(5) 2 kg - 1 mg	2kg - 10mg	(5) 2kg - 10mg	2kg - 1g	(5) 2kg - 1g
1 - 2 kg	5 - 2kg	1 - 2 kg	5 - 2kg	1 - 2kg	5 - 2 kg
1 - 1 kg		1 - 1 kg		1 - 1 kg	
1 - 500 g	5 - 500g	1 - 500g	5 - 500 g	1 - 500 g	5 - 500 g
2 - 200g	2 - 200 g	2 - 200 g	2 - 200g	2 - 200 g	2 - 200g
1 - 100 g	1 - 100 g	1 - 100g	1 - 100g	1 - 100 g	1 - 100 g
1 - 50g	1 - 50g	1 - 50 g	1 - 50g	1 - 50g	1 - 50 g
2 - 20 g	2 - 20g	2 - 20 g	2 - 20 g	2 - 20 g	2 - 20 g
1 - 10g	1 - 10 g	1 - 10g	1 - 10g	1 - 10 g	1 - 10 g
1 - 5g	1 - 5g	1 - 5g	1 - 5g	1 - 5g	1 - 5 g
2 - 2g	2 - 2g	2 - 2g	2 - 2g	2 - 2g	2 - 2 g
1 - 1 g	1 - 1g	1 - 1g	1 - 1 g	1 - 1g	1 - 1 g
1 - 500 mg	1 - 500 mg	1 - 500 mg	1 - 500 mg		
2 - 200 mg	2 - 200 mg	2 - 200 mg	2 - 200 mg		
1 - 100 mg	1 - 100 mg	1 - 100 mg	1 - 100 mg		
1 - 50 mg	1 - 50 mg	1 - 50 mg	1 - 50 mg		
2 - 20 mg	2 - 20 mg	2 - 20 mg	2 - 20 mg		
1 - 10 mg	1 - 10 mg	1 - 10 mg	1 - 10 mg		
1 - 5 mg	1 - 5 mg				
2 - 2 mg	2 - 2 mg			·	
1 - 1 mg	1 - 1 mg				
		Piece	Count		
26	33	22	29	14	21
		Total V	Weight		
4 4 4 4 4 4 1	40 44444 1	4 4444 1	40 44441	4 4401	40.441

4.11111 kg	13.11111 kg	4.1111 kg	13.1111 kg	4.110 kg	13.11kg
Part #	Part #	Part #	Part #	Part #	Part #
12528	12534	12526	12532	12524	12530

SECONDARY CASE

Size	Part #	Price
100g - 1 mg	11512	\$30.00
100g - 10mg	11512	30.00
100g - 1g	11512	30.00



Stainless Steel - NIST **Metric Sets**

Range: 5kg

CLASS F

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
5 kg - 1 mg	12537	\$725.00	\$740.00	11524	\$200.00
(2) 5 kg - 1 mg	12542	985.00	760.00	11525	200.00
5 kg - 10 mg	12536	670.00	650.00	11524	200.00
(2) 5 kg - 10 mg	12539	935.00	680.00	11525	200.00
5kg - 1 g	12535	635.00	470.00	11524	200.00
(2) 5 kg - 1 g	12538	915.00	500.00	11525	200.00
5 kg (3)	12562	810.00	135.00	11558	200.00

WEIGHT SET CONTENTS

5kg - 1 mg	(2) 5 kg - 1 mg	5 kg - 10 mg	(2) 5 kg - 10 mg	5kg - 1g	(2) 5 kg - 1 g	(3) 5 kg
1 - 5kg	2 - 5kg	1 - 5 kg	2 - 5kg	1 - 5 kg	2 - 5kg	3 - 5 kg
2 - 2kg	2 - 2kg	2 - 2 kg	2 - 2kg	2 - 2 kg	2 - 2kg	
1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	
1 - 500 g	5 - 500g	1 - 500 g	5 - 500g	1 - 500g	5 - 500 g	
2 - 200 g	2 - 200 g	2 - 200 g	2 - 200 g	2 - 200g	2 - 200 g	
1 - 100 g	1 - 100g	1 - 100 g	1 - 100g	1 - 100 g	1 - 100g	
1 - 50 g	1 - 50g	1 - 50g	1 - 50 g	1 - 50g	1 - 50 g	
2 - 20 g	2 - 20 g	2 - 20 g	2 - 20 g	2 - 20 g	2 - 20 g	
1 - 10 g	1 - 10g	1 - 10 g	1 - 10g	1 - 10 g	1 - 10g	
1 - 5g	1 - 5g	1 - 5 g	1 - 5g	1 - 5 g	1 - 5g	
2 - 2g	2 - 2g	2 - 2g	2 - 2g	2 - 2g	2 - 2g	
1 - 1g	1 - 1g	1 - 1 g	1 - 1g	1 - 1 g	1 - 1g	
1 - 500 mg	1 - 500 mg	1 - 500 mg	1 - 500 mg			
2 - 200 mg	2 - 200 mg	2 - 200 mg	2 - 200 mg			
1 - 100 mg	1 - 100 mg	1 - 100 mg	1 - 100 mg			
1 - 50 mg	1 - 50 mg	1 - 50 mg	1 - 50 mg			
2 - 20 mg	2 - 20 mg	2 - 20 mg	2 - 20 mg			
1 - 10 mg	1 - 10 mg	1 - 10 mg	1 - 10 mg			
1 - 5 mg	1 - 5 mg					
2 - 2 mg	2 - 2 mg			·		
1 - 1 mg	1 - 1 mg					
			Piece Count	-		-
28	33	24	29	16	21	3
			Total Weight			
11.11 kg	18.11 kg	11.1111 kg	18.1111 kg	11.11 kg	18.110 kg	15 kg
Part #	Part #	Part #	Part #	Part #	Part #	Part #
12537	12542	12536	12539	12535	12538	12562

11.11 kg	18.11 kg	11.1111 kg	18.1111 kg	11.11 kg	18.110 kg	15 kg
Part #	Part #	Part #	Part #	Part #	Part #	Part #
12537	12542	12536	12539	12535	12538	12562

SECONDARY CASE

Size	Part #	Price
100g - 1 mg	11512	\$30.00
100g - 10mg	11512	30.00
100g - 1g	11512	30.00

CASE INSERT

Size	Part #	Price
100g - 1 mg	11519	\$30.00
100g - 10mg	11519	30.00
100g - 1g	11518	30.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11758	Leaf weight cover	35.00
65640	Tweezer	15.00
25836	Serial number	15.00
152414	Premium tweezer	35.00



Stainless Steel - NIST

Avoirdupois Set Range: 4oz

CLASS F

OPTIONAL	REPLACEMENT CASES
OI HOUNE	ILLI LAULIVILITI UAGLG

Set Size	Part #	Price	Traceable Certificate	Part #	Price
4 oz - 1/32 oz	12623	\$170.00	\$205.00	11510	\$30.00
4 oz - 0.05 oz	12625	190.00	185.00	11510	30.00
0.2lb - 0.001lb	12576	180.00	250.00	11512	30.00
0.3 lb - 0.001 lb	12654	315.00	250.00	11565	170.00

WEIGHT SET CONTENTS

4 oz - 1/32 oz	4 oz-0.05 oz	0.2 lb-0.001 lb	0.3 lb-0.001 lb
1 - 4oz	1 - 4oz	2 - 0.2 lb	1 - 0.3lb
1 - 2oz	1 - 2oz	1 - 0.1 lb	1 - 0.2lb
1 - 1 oz	1 - 1 oz	1 - 0.05 lb	1 - 0.1 lb
1 - 1/2 oz	1 - 0.5 oz	2 - 0.02 lb	1 - 0.05lb
1 - 1/4 oz	2 - 0.2oz	1 - 0.01 lb	1 - 0.03 lb
1 - 1/8 oz	1 - 0.1 oz	1 - 0.005 lb	1 - 0.02lb
1 - 1/16 oz	1 - 0.05 oz	2 - 0.002 lb	1 - 0.01 lb
2 - 1/32 oz		1 - 0.001 lb	1 - 0.005 lb
			1 - 0.003 lb
			1 - 0.002 lb
			2 - 0.001 lb
	Diaca	Count	

Piece Count					
9	8	11	12		
Total Weight					

		9	
1/2 lb	1 lb 0.05 oz	0.61 lb	0.722 lb
Part #	Part #	Part #	Part #
12623	12625	12576	12654

CASE INSERT

Size	Part #	Price
4 oz - 1/32 oz	11552	\$20.00
4 oz - 0.05 oz	11553	20.00
0.2 lb - 0.001 lb	11541	20.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00



Stainless Steel - NIST **Avoirdupois Set** Range: 1 lb

CLASS F

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
1 lb - 1/32 oz (Fractional)	12591	\$285.00	\$270.00	11544	\$65.00
1 lb - 0.001 lb (Decimal)	12593	330.00	315.00	11544	65.00
1 lb - 0.05 oz (Combination)	12595	300.00	245.00	11544	65.00

WEIGHT SET CONTENTS

1 lb - 1/32 oz	1 lb - 0.001 lb	1 lb - 0.05 oz		
1 - 1 lb	1 - 1 lb	1 - 1 lb		
1 - 8 oz	1 - 0.5 lb	1 - 8oz		
1 - 4oz	2 - 0.2lb	1 - 4oz		
1 - 2 oz	1 - 0.1 lb	1 - 20z		
1 - 1 oz	1 - 0.05lb	1 - 1 oz		
1 - 1/2 oz	2 - 0.02lb	1 - 0.5 oz		
1 - 1/4 oz	1 - 0.01 lb	2 - 0.2 oz		
1 - 1/8 oz	1 - 0.005lb	1 - 0.1 oz		
1 - 1/16 oz	2 - 0.002 lb	1 - 0.05 oz		
2 - 1/32oz	1 - 0.001 lb			
Piece Count				

Total Weight

2lb	2.1110 lb	1.990625 lb
Part #	Part #	Part #
12591	12593	12595

SECONDARY CASE

Size	Part #	Price
1 lb - 1/32 oz	11510	\$30.00
1 lb - 0.001 lb	11512	30.00
1 lb - 0.05 oz	11510	30.00

CASE INSERT

Size	Part #	Price
1 lb - 1/32 oz	11552	\$20.00
1 lb - 0.001 lb	11553	20.00
1 lb - 0.05 oz	11541	20.00



Stainless Steel - NIST

Avoirdupois Set Range: 2lb

CLASS F

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
2lb - 1/32 oz (Fractional)	12597	\$370.00	\$310.00	11547	\$65.00
(2) 2 lb - 1/32 oz (Fractional)	12603	480.00	350.00	11548	65.00
2 lb - 0.001 lb (Decimal)	12599	380.00	350.00	11547	65.00
(2) 2 lb - 0.001 lb (Decimal)	12605	480.00	400.00	11548	65.00
2 lb - 0.05 oz (Decimal)	12601	405.00	260.00	11547	65.00
(2) 2 lb - 0.05 oz (Combination)	12607	480.00	300.00	11548	65.00

WEIGHT SET CONTENTS

2 lb-1/32 oz	(2) 2 lb - 1/32 oz	2 lb-0.001 lb	(2) 2 lb - 0.001 lb	2 lb-0.05 oz	(2) 2 lb-0.05 oz
1 - 2lb	2 - 2 lb	1 - 2lb	2 - 2 lb	1 - 2 lb	2 - 2lb
1 - 1 lb	1 - 1 lb	1 - 1 lb	1 - 1 lb	1 - 1 lb	1 - 1 lb
1 - 8oz	1 - 8 oz	1 - 0.5lb	1 - 0.5 lb	1 - 8 oz	1 - 8 oz
1 - 4oz	1 - 4 oz	2 - 0.2lb	2 - 0.2 lb	1 - 4 oz	1 - 4 oz
1 - 2oz	1 - 2 oz	1 - 0.1 lb	1 - 0.1 lb	1 - 2 oz	1 - 2 oz
1 - 1 oz	1 - 1 oz	1 - 0.05 lb	1 - 0.05lb	1 - 1 oz	1 - 1 oz
1 - 1/2 oz	1 - 1/2 oz	2 - 0.02 lb	2 - 0.02lb	1 - 0.5 oz	1 - 0.5 oz
1 - 1/4 oz	1 - 1/4 oz	1 - 0.01 lb	1 - 0.01 lb	2 - 0.2 oz	2 - 0.2oz
1 - 1/8 oz	1 - 1/8 oz	1 - 0.005 lb	1 - 0.005lb	1 - 0.1 oz	1 - 0.1 oz
1 - 1/16 oz	1 - 1/16 oz	2 - 0.002 lb	2 - 0.002lb	1 - 0.05 oz	1 - 0.05 oz
2 - 1/32 oz	2 - 1/32 oz	1 - 0.001 lb	1 - 0.001 lb		

		Piece C	Count		
12	14	14	15	11	11

		iotai vi	eigiii		
4lb	6lb	4.108lb	6.1100 lb	4.7875 lb	6 lb 0.05 oz
Part #	Part #	Part #	Part #	Part #	Part #
12597	12603	12599	12605	12601	12607

SECONDARY CASE

Size	Part #	Price
4 oz - 1/32 oz	11510	\$30.00
0.2lb - 0.001lb	11512	30.00
4 oz - 0.05 oz	11510	30.00

CASE INSERT

Size	Part #	Price
2lb - 1/32oz	11552	\$20.00
2lb - 0.001lb	11553	20.00
2lb - 0.05 oz	11541	20.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00



Stainless Steel - NIST **Avoirdupois Set** Range: 5lb

CLASS F

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
5 lb - 1/32 oz	12615	\$470.00	\$395.00	11550	\$195.00
5 lb - 1/32 oz	12579	965.00	670.00	11542	195.00
5 lb - 0.001 lb	12617	475.00	440.00	11550	195.00
5 lb - 0.001 lb (Combination)	12582	990.00	715.00	11542	195.00
5 lb - 0.001 lb	12634	990.00	715.00	11542	195.00
5 lb - 0.05 oz (Combination)	12619	485.00	370.00	11550	195.00
(5) 5 lb - 0.05 oz (Combination)	12636	930.00	620.00	11542	195.00
5 lb - 1 GN (21 lb Fractional US Postal Service)	12627	985.00	750.00	11554	195.00
5 lb - 1 GN (31 lb 55 GN)	12661	1,125.00	870.00	11570	195.00
5 lb x 6 (30 lb)	12640	870.00	340.00	11559	195.00

SECONDARY CASE

Size	Part #	Price
5 lb - 1/32 oz	11510	\$30.00
(5) 5 lb - 1/32 oz	11510	30.00
5 lb - 0.001 lb	11512	30.00
(5) 5 lb - 0.001 lb (combination)	11510 and 11512	30.00
(5) 5 lb - 0.001 lb	11512	30.00
5lb - 0.05oz	11510	30.00
(5) 5lb - 0.05oz	11510	30.00
5 lb - 1 GN	11510	30.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836*	Serial number	15.00



Stainless Steel - NIST

Avoirdupois Set
Range: 51b

WEIGHT SET CONTENTS

5 lb - 1/32 oz	5 lb - 1/32 oz	5 lb - 0.001 lb	5lb - 0.001lb	5 lb - 0.001 lb	5 lb - 0.05 oz	(5) 5 lb - 0.05 oz	5 lb - 1 GN	5 lb - 1GN	(6) 5 lb
1 - 5lb	5 - 5lb	1 - 5lb	5 - 5lb	5 - 5lb	1 - 5lb	5 - 5lb	3 - 5lb	5 - 5lb	6 - 5lb
2 - 2lb	5 - 1lb	2 - 2lb	5 - 1lb	5 - 1lb	2 - 2lb	5 - 1lb	5 - 1lb	5 - 1lb	
1 - 1lb	1 - 8oz	1 - 1lb	1 - 8oz	1 - 0.5lb	1 - 1lb	1 - 8oz	1 - 8oz	1 - 8oz	
1 - 8oz	1 - 40z	1 - 0.5lb	1 - 4oz	2 - 0.2lb	1 - 8oz	1 - 40z	1 - 4oz	1 - 4oz	
1 - 4oz	1 - 2oz	2 - 0.2lb	2 - 0.2lb	1 - 0.1lb	1 - 4oz	1 - 20z	1 - 2oz	1 - 2oz	
1 - 2oz	1 - 1oz	1 - 0.1lb	1 - 2oz	1 - 0.05lb	1 - 2oz	1 - 1oz	1 - 1oz	1 - 1oz	
1 - 1oz	1 - 1/2oz	1 - 0.05lb	1 - 0.1lb	2 - 0.02lb	1 - 1oz	1 - 0.5oz	1 - 1/2oz	1 - 1/2oz	
1 - 1/2oz	1 - 1/4oz	2 - 0.02lb	1 - 1oz	1 - 0.01lb	1 - 0.5oz	2 - 0.20oz	1 - 1/4oz	1 - 1/4oz	
1 - 1/4oz	1 - 1/8oz	1 - 0.01lb	1 - 0.05lb	1 - 0.005lb	2 - 0.20oz	1-0.05oz	1 - 1/8oz	1 - 1/8oz	
1 - 1/8oz	1 - 1/16oz	1 - 0.005lb	1 - 1/2oz	2 - 0.002lb	1 - 0.1oz		1 - 1/16oz	1 - 1/16oz	
1 - 1/16oz	2 - 1/32oz	2 - 0.002lb	2 - 0.02lb	1-0.001lb	1-0.05oz		2 - 1/32oz	2 - 1/32oz	
2 - 1/32oz		1-0.001lb	1 - 1/4oz				2 - 10GN	1 - 20GN	
			1 - 0.01lb				2 - 5GN	2 - 10GN	
			1 - 1/8oz				2 - 2GN	2 - 5GN	
			1 - 0.005lb				1 - 1GN	2 - 2GN	
			1 - 1/16oz					1 - 1GN	
			2 - 0.002lb						
			2 - 1/32oz						
			1-0.001lb						
				Piece (,		
14	20	16	31	22	13	18	26	28	6
	1	,	,	Total W		<u> </u>	T		1
11 lb	31 lb	11.11 lb	31.61 lb	31.11 lb	11 lb 0.05 oz	31 lb 0.05 oz	21 lb 55 GN	31 lb 55 GN	30 lb
Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
12615	12579	12617	12582	12634	12619	12636	12627	12661	12640

Stainless Steel - NIST **Avoirdupois Set** Range: 10lb

CLASS F	OPTIONAL	REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
(3) 10 lb	12638	\$750.00	\$200.00	11558	\$200.00
10 lb - 1/32 oz	12609	690.00	445.00	11549	195.00
10 lb - 0.001 lb	12611	675.00	490.00	11549	195.00
10 lb - 0.05 oz (21 lb x 0.05 oz Combination)	12613	730.00	400.00	11549	195.00
10 lb - 1/4 oz	12573	1,070.00	455.00	11540	195.00
10 lb - 1/32 oz	12642	980.00	445.00	11562	195.00
10 lb - 0.001 lb	12588	1,175.00	740.00	11543	195.00
10 lb - 0.001 lb	12644	930.00	490.00	11562	195.00
10 lb - 0.001 lb (Combination)	12648	1,110.00	535.00	11562	195.00
10 lb - 0.05 oz (Combination)	12646	1,065.00	400.00	11562	195.00
10 lb - 1/32 oz	12628	1,275.00	715.00	11555	195.00
10 lb - 0.001 lb	12621	1,395.00	760.00	11555	195.00
10 lb - 0.05 oz (Combination)	12632	1,420.00	695.00	11555	195.00
10 lb - 0.001 lb (51.61 lb Combination)	12650	1,435.00	760.00	11563	195.00

SECONDARY CASE

Size	Part #	Price
10 lb - 0.001 lb	11512	\$30.00
10 lb - 1/32 oz	11510	30.00

CASE INSERT

Size	Part #	Price
10 lb - 0.001 lb	11541	\$20.00
10 lb - 1/32 oz	11552	20.00
10lb - 0.05 oz	11553	20.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11758	Leaf Weight Cover	35.00
65640	Tweezer	15.00
25836	Serial number	15.00
152414	Premium tweezer	35.00



Stainless Steel - NIST Avoirdupois Set Range: 10lb

WEIGHT SET CONTENTS

(3) 10 lb	10lb - 1/32 oz	10 lb - 0.001 lb	10 lb - 0.05 oz	10lb - 1/4oz	10lb - 1/32oz	10 lb - 0.001 lb	10 lb - 0.001 lb	10lb - 0.001lb	10 lb - 0.05 oz (Combination)	10lb - 1/32oz	10 lb - 0.001 lb	10lb - 0.05 oz	10lb - 0.001lb
3-10 lb	1 - 10lb	1 - 10lb	1 - 10lb	2 - 10lb	2 - 10 lb	2 - 10lb	2 - 10lb	2 - 10lb	2 - 10 lb	3 - 10 lb	3 - 10 lb	3 - 10lb	3 - 10lb
	1 - 5 lb	1 - 5lb	1 - 5lb	1 - 5 lb	1 - 5lb	1 - 5lb	1 - 5lb	1 - 5lb	1 - 5 lb	3 - 5 lb	3 - 5 lb	3 - 5lb	3 - 5lb
	2 - 2 lb	2 - 2lb	2 - 2lb	5 - 1 lb	2 - 2lb	5 - 1 lb	2 - 2lb	2 - 2lb	2 - 2 lb	5 - 1 lb	5 - 1lb	5 - 1 lb	5 - 1 lb
	1 - 1 lb	1 - 1 lb	1 - 1 lb	3 - 4 oz	1 - 1 lb	3 - 4 oz	1 - 1 lb	1 - 1 lb	1 - 1 lb	1 - 8 oz	1 - 0.5 lb	1 - 8oz	1 - 8 oz
	1 - 8oz	1 - 0.5lb	1 - 8 oz	3 - 1 oz	1 - 8 oz	2 - 0.2lb	1 - 0.5lb	1 - 8oz	1 - 8oz	1 - 4 oz	2 - 0.2lb	1 - 4 oz	1 - 40z
	1 - 4 oz	2 - 0.2lb	1 - 4 oz	2 - 1/2 oz	1 - 4 oz	1 - 0.1 lb	2 - 0.2lb	1 - 4 oz	1 - 4 oz	1 - 2oz	1 - 0.1 lb	1 - 2oz	2 - 0.2lb
	1 - 2oz	1 - 0.1 lb	1 - 2 oz	2 - 1/4 oz	1 - 2 oz	3 - 1 oz	1 - 0.1 lb	1 - 2oz	1 - 2oz	1 - 1 oz	1 - 0.05lb	1 - 1 oz	1 - 2oz
	1 - 1 oz	1 - 0.05 lb	1 - 1 oz		1 - 1 oz	1 - 0.05 lb	1 - 0.05 lb	1 - 1 oz	1 - 1 oz	1 - 1/2 oz	2 - 0.02lb	1 - 0.5 oz	1 - 0.1 lb
	1 - 1/2 oz	2 - 0.02 lb	1 - 0.5 oz		1 - 1/2 oz	2 - 1/2 oz	2 - 0.02lb	1 - 1/2 oz	1 - 0.5 oz	1 - 1/4 oz	1 - 0.01 lb	2 - 0.20 oz	1 - 1 oz
	1 - 1/4 oz	1 - 0.01 lb	1 - 0.2 oz		1 - 1/4 oz	2 - 0.02lb	1 - 0.01 lb	1 - 1/4 oz	2 - 0.2oz	1 - 1/8 oz	1 - 0.005lb	1 - 0.1 oz	1 - 0.05 lb
	1 - 1/8 oz	1 - 0.005 lb	1 - 0.1 oz		1 - 1/8 oz	2 - 1/4 oz	1 - 0.005lb	1 - 1/8 oz	1 - 0.1 oz	1 - 1/16 oz	2 - 0.002lb	1 - 0.05 oz	1 - 1/2 oz
	1 - 1/16 oz	2 - 0.002 lb	1 - 0.05 oz		1 - 1/16 oz	1 - 0.01 lb	2 - 0.002lb	1 - 1/16 oz	1 - 0.05 oz	2 - 1/32 oz	1 - 0.001 lb		2 - 0.02 lb
	2 - 1/32oz	1 - 0.001 lb			2 - 1/32 oz	1 - 0.005 lb	1 - 0.001 lb	2 - 1/32 oz					1 - 1/4 oz
						2 - 0.002 lb		2 - 0.2 lb					1 - 0.01 lb
						1 - 0.001 lb		1 - 0.1 lb					1 - 1/8 oz
								1 - 0.05 lb					1 - 0.005 lb
								2 - 0.02 lb					1 - 1/16 oz
								1 - 0.01 lb					2 - 0.002 lb
								1 - 0.005 lb					2 - 1/32 oz
								2 - 0.002lb					1 - 0.001 lb
								1 - 0.001 lb					
							e Count						
3	15	17	13	18	16	29	18	27	15	21	23	20	32
	r	,			r		l Weight				1		,
30 lb	21 lb	21.11 lb	21 lb 0.05 oz	31 lb 1/2 oz	31 lb	31 lb 1/2 oz	31.1100lb	31 lb	31 lb 0.05 oz	51 lb	51.11 lb	51 lb 0.05 oz	51.6100lb
Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
12638	12609	12611	12613	12573	12642	12588	12644	12648	12646	12628	12621	12632	12650

SPECIALTY WEIGHTS - NIST

Unique weights designed or built for custom applications or tolerances

Applications:

- Tolerance test or checking
- Equipment verification in unique unit of measurement
- Slotted weights for suspending verification of weight
- Fork lift weights for accuracy checking of fork lift scale

Styles Available:

- Cube
- Ring
- Lift truck weights
- Hook weights
- Stainless Steel slotted weights

Unique Units of Measures:

- Penny weight
- Grain
- Troy ounce

Features:

- Nominal value marked on weights
- Cavity for adjustment
- Cube weight sets designed as sealer's kits for calibration adjustments



CUBE CLASS F OPTIONAL

Weight	Part #	Width	Length	Height	Price	Traceable Certificate
2lb	12649	2.4	1 in (25.4 mm)	3 in	\$130.00	\$60.00
1 lb	12651	1.2	1 in (25.4 mm)	3 in	120.00	60.00
8 oz	12653	1 9/10 in (48.3 mm)	1 in (25.4 mm)	1 in (25.4 mm)	105.00	50.00
2 oz	12658	0.70	0.60	1 in (25.4 mm)	75.00	50.00
4 oz	12655	73/100 in (18.5 mm)	1 in (25.4 mm)	309/1000 in (33.3 mm)	85.00	50.00
1 kg	12557	1 in (25.4 mm)	3 3/8 in (85.6 mm)	2 1/2 in (62.8 mm)	130.00	50.00
500g	12552	1 in (25.4 mm)	3 13/32 in (86.5 mm)	1 1/4 in (31.8 mm)	105.00	50.00
300g	12547	2 1/32 in (51.6 mm)	1 1/4 in (31.8 mm)	1 in (25.4 mm)	95.00	50.00
200 g	12544	1 1/4 in (31.0 mm)	1 3/8 in (34.8 mm)	1 in (25.4 mm)	85.00	50.00
100 g	12541	3/4 in (19.1 mm)	1 7/32 in (31.0 mm)	1 in (25.4 mm)	75.00	35.00

OPTIONAL RING CLASS F

Weight	Part #	Outside Dia.	Height	Inside Dia.	Price	Traceable Certificate
500 g	12566	3 in (76.2 mm)	37/64 in (14.7 mm)	25/64 in (9.9 mm)	\$115.00	\$50.00
200 g	12563	2 in (50.8 mm)	17/32 in (13.5 mm)	25/64 in (9.9 mm)	90.00	50.00
100 g	12561	1 1/2 in (38.1 mm)	1/2 in (12.7 mm)	25/64 in (9.9 mm)	75.00	35.00
50 g	12560	1 1/2 in (38.1 mm)	1/4 in (6.4 mm)	25/64 in (9.9 mm)	65.00	35.00
25 g	12559	1 in (25.4 mm)	5/16 in (7.9 mm)	25/64 in (9.9 mm)	50.00	35.00

RING CLASS F OPTIONAL

Weight	Part #	Outside Dia.	Height	Inside Dia.	Price	Traceable Certificate
5 lb	12672	4 in (101.6 mm)	1 7/16 in (36.5 mm)	25/64 in (9.9 mm)	\$100.00	\$75.00
3 lb	12671	3 in (76.2 mm)	1 35/64 in (36.3 mm)	25/64 in (9.9 mm)	80.00	75.00
2 lb	12670	3 in (76.2 mm)	1 1/32 in (26.2 mm)	25/64 in (9.9 mm)	65.00	60.00
1 lb	12669	3 in (76.2 mm)	33/64 in (13.1 mm)	25/64 in (9.9 mm)	65.00	60.00
8 oz	12668	2 in (50.8 mm)	39/64 in (15.5 mm)	25/64 in (9.9 mm)	31.00	35.00
4 oz	12667	1 1/2 in (38.1 mm)	9/16 in (14.3 mm)	25/64 in (9.9 mm)	31.00	35.00
2 oz	12666	1 1/2 in (38.1 mm)	9/32 in (7.1 mm)	25/64 in (9.9 mm)	31.00	35.00
1 oz	12665	1 in (25.4 mm)	11/32 in (8.7 mm)	25/64 in (9.9 mm)	31.00	35.00
1/2 oz	12664	1 in (25.4 mm)	11/64 in (4.4 mm)	25/64 in (9.9 mm)	31.00	35.00
1/4 oz	12663	1 in (25.4 mm)	3/32 in (2.4 mm)	25/64 in (9.9 mm)	31.00	35.00

Part #	Description	Price	
36092	Statement of Accuracy	\$45.00	
25836	Serial number	15.00	
		Avoirdupois Cube	

Specialty - NIST **Avoirdupois Slotted Weights and Troy Cylindrical/Leaf Weights**

TROY OUNCE CLASS F **OPTIONAL**

Weight	Part #	Height	Diameter	Price	Traceable Certificate
500 oz t	12719	6 5/16 in (160.3 mm)	5 in (127.0 mm)	\$975.00	\$75.00
200 oz t	12718	3 3/4 in (95.3 mm)	4 25/32 in (121.4 mm)	425.00	75.00
100 oz t	12717	3 13/16 in (96.1 mm)	3 in (75.4 mm)	255.00	75.00
50 oz t	12716	2 5/8 in (66.7 mm)	2 21/32 in (67.5 mm)	145.00	75.00
20 oz t	12715	2 1/4 in (56.6 mm)	1 3/4 in (44.1 mm)	75.00	60.00
10 oz t	12714	1 3/8 in (34.9 mm)	1 29/32 in (48.4 mm)	60.00	35.00
5 oz t	12713	1 3/16 in (30.2 mm)	1 13/32 in (35.7 mm)	60.00	35.00
2 oz t	12712	7/8 in (22.2 mm)	31/32 in (24.6 mm)	35.00	35.00
1 oz t	12711	7/8 in (21.2 mm)	5/8 in (15.9 mm)	32.00	35.00
1/4 oz t	12709	11/16 in (16.8 mm)	3/8 in (9.1 mm)	40.00	35.00
1/8 oz t	12708	5/16 in (7.9 mm)	15/32 in (11.9 mm)	40.00	35.00
1/16 oz t	12707	3/8 in (9.1 mm)	1/4 in (6.2 mm)	40.00	35.00
1/32 oz t	12706	5/16 in (7.7 mm)	3/16 in (4.7 mm)	40.00	35.00
0.5 oz t	12705	1/2 in (12.7 mm)	23/32 in (18.3 mm)	40.00	35.00
0.2 oz t	12704	1/2 in (12.6 mm)	3/8 in (9.3 mm)	40.00	35.00
0.1 oz t	12703	5/16 in (7.9 mm)	13/32 in (10.3 mm)	40.00	35.00
0.05 oz t*	12702	1/4 in (6.4 mm)	11/32 in (8.7 mm)	40.00	35.00
0.02 oz t*	12701	=	-	22.00	35.00
0.01 oz t*	12700	-	-	22.00	35.00
0.005 oz t*	12699	-	-	22.00	35.00

^{*} Leaf weights



Leaf weights not pictured

PENNY WEIGHT CLASS F

Weight	Part #	Price	Traceable Certificate
20 dwt	12698	\$30.00	\$35.00
10 dwt	12697	30.00	35.00
5 dwt	12696	30.00	35.00
2 dwt	12695	30.00	35.00
1 dwt	12694	30.00	35.00

PENNY WEIGHT LEAF CLASS F

OPTIONAL

OPTIONAL

Weight	Part #	Price	Traceable Certificate
0.5 dwt	12693	\$22.00	\$35.00
0.2 dwt	12692	22.00	35.00
0.1 dwt	12691	22.00	35.00

GRAIN CLASS F

OPTIONAL

Weight	Part #	Price	Traceable Certificate
1 GN	12726	\$20.00	\$35.00
2 GN	12727	23.00	35.00
10 GN	12733	23.00	35.00
20 GN	12736	30.00	35.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00



Penny and Grain

LIFT TRUCK WEIGHTS - MEETS TOLERANCE OF CLASS 6

Part #	Description	Price
120160	1,000 lb	\$2,150.00
120162	2.000 lb	6,400.00



www.ricelake.com | Phone: 800-472-6703

Specialty - NIST Specialty Weights/Cube Weights Sets

CUBE WEIGHT SETS AVOIRDUPOIS CLASS F

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
8 oz - 1/16 oz	12630	\$275.00	\$220.00	11510	30.00
(3) 2 lb - 1/16 oz	12652	815.00	364.00	11569	180.00
(3) 2 lb001 lb	12659	915.00	437.00	11569	180.00
(14) 2lb - 1/16oz	12585	1,335.00	868.00	12630	275.00

CUBE WEIGHT SETS METRIC

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
300g - 10g	12545	\$280.00	270.00	11510	\$30.00
1 kg - 1 mg	12553*	1,350.00	949.00	12545	280.00
1 kg - 1 mg	12555*	1,155.00	613.00	11569	180.00

^{*} Glass Bead Finish

WEIGHT SET CONTENTS

300g - 10g	8 oz and 1/16 oz	2 lb x 1/16 oz	2 lb x .001 lb	2 lb x 1/16 oz	1 kg -1 mg	1 kg -1 mg
1 - 300g*	1 - 8 oz*	3 - 2 lb*	3 - 2 lb*	14 - 2 lb*	1 - 1 kg*	3 - 1 kg*
1 - 200g*	1 - 4oz*	1 - 1 lb*	1 - 1 lb*	2 - 1 lb*	1 - 500g+	1 - 500g+
1 - 100g*	1 - 2oz*	1 - 8 oz*	1 - 0.3lb	1 - 8 oz*	1 - 300g*	1 - 300g*
1 - 50 g	1 - 1 oz	1 - 4 oz*	1 - 0.2lb	1 - 4 oz*	1 - 200g*	1 - 200g*
1 - 30 g	1 - 1/2 oz	1 - 2 oz*	1 - 0.1 lb	1 - 2 oz*	1 - 100g*	1 - 100g*
1 - 20 g	1 - 1/4 oz	1 - 1 oz	1 - 0.05lb	1 - 1 oz	1 - 50g	1 - 50 g
1 - 10g	1 - 1/8 oz	1 - 1/2 oz	1 - 0.03lb	1 - 1/2 oz	1 - 30 g	1 - 30g
	2 - 1/16 oz	1 - 1/4 oz	1 - 0.02lb	1 - 1/4 oz	1 20g	1 20g
		1 - 1/8 oz	1 - 0.01 lb	1 - 1/8 oz	1 - 10g	1 - 10g
		2 - 1/16 oz	1 - 0.005lb	2 - 1/16 oz	1 - 5g	1 - 5g
			1 - 0.003lb		1 - 3g	1 - 3g
			1 - 0.002lb		1 - 2g	1 - 2g
			2 - 001 lb		1 - 1 g	1 - 1g
					1 - 500 mg	1 - 500 mg
					1 - 300 mg	1 - 300 mg
					1 - 200 mg	1 - 200 mg
					1 - 100 mg	1 - 100 mg
					1 - 50 mg	1 - 50 mg
					1 - 30 mg	1 - 30 mg
					1 - 20 mg	1 - 20 mg
					1 - 10 mg	1 - 10 mg
					1 - 5 mg	1 - 5 mg
					1 - 3 mg	1 - 3 mg
					1 - 2 mg	1 - 2 mg
					1 - 1 mg	1 - 1 mg
			Piece Count			
7	9	13	16	25	25	27
	T		Total Weight			Γ
710g	1 lb	8 lb	7.72 lb	31 lb	2222.221 g	4222.221 g

Part #

12659

12545 *Cube Weight

CASE INSERT

Part #

Size	Part #	Price
300g - 10g	11526	\$32.00
5g - 1 mg	11527	30.00
(2) 50 g - 1 mg	11528	32.00
1 kg - 1 mg	11526	32.00
(3) 1 kg - 1 mg	11526	32.00

Part #

12630

Part #

12652

ADDITIONAL ACCESSORIES

Part #

12585

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11758	Leaf weight cover	35.00
65640	Tweezer	15.00
25836	Serial number	15.00
152414	Premium tweezer	35.00

Part #

12553

Part #

12555

HOOK WEIGHTS METRIC CLASS 6 OPTIONAL

Weight	Part #	Diameter	Hanging Height	Opening Diameter	Price	Traceable Certificate
25 kg	12720	5 31/32 in (151.6 mm)	9 3/16 in (233.4 mm)	1/4 in (6.4 mm)	\$765.00	\$70.00
20 kg	12725	5 31/32 in (151.6 mm)	8 3/8 in (212.7 mm)	1/4 in (6.4 mm)	750.00	70.00
10 kg	12732	4 in (101.6 mm)	9 1/16 in (230.2 mm)	1/4 in (6.4 mm)	520.00	70.00
5 kg	12735	3 3/4 in (95.3 mm)	6 11/32 in (161.1 mm)	1/4 in (6.4 mm)	255.00	70.00
4 kg	161608	3 1/2 in (89 mm)	6.12 in (155 mm)	1/4 in (6.4 mm)	250.00	70.00
3kg	96403	2 5/8 in (66.7 mm)	5 1/16 in (128.6 mm)	1/4 in (6.4 mm)	240.00	70.00
2kg	12739	2 5/8 in (66.8 mm)	5 17/32 in (135.7 mm)	1/4 in (6.4 mm)	180.00	70.00
1 kg	12744	2 in (50.8 mm)	5 3/8 in (136.5 mm)	1/4 in (6.4 mm)	100.00	50.00
500 g	12747	1 5/8 in (41.3 mm)	4 1/2 in (114.3 mm)	5/32 in (4.0 mm)	85.00	50.00
300 g	96404	1 1/4 in (31.8 mm)	4 1/2 in (114.3 mm)	5/32 in (4.0 mm)	85.00	50.00
200 g	12748	1 1/8 in (28.6 mm)	3 in (76.2 mm)	3/32 in (2.4 mm)	85.00	50.00
100 g	12749	1 in (25.4 mm)	2 3/8 in (60.3 mm)	3/32 in (2.4 mm)	75.00	35.00
50 g	12750	3/4 in (19.1 mm)	2 1/4 in (57.2 mm)	3/32 in (2.4 mm)	75.00	35.00
30 g	96405	5/8 in (15.9 mm)	2 1/8 in (54.0 mm)	3/32 in (2.4 mm)	75.00	35.00
20 g	12751	5/8 in (15.9 mm)	2 1/8 in (54.0 mm)	3/32 in (2.4 mm)	75.00	35.00
10 g	12754	1/2 in (12.7 mm)	2 in (50.8 mm)	3/32 in (2.4 mm)	55.00	35.00
5 g	12757	1/8 in (3.2 mm)	2 5/32 in (54.8 mm)	3/16 in (4.7 mm)	50.00	35.00
3 g	96406	3/32 in (2.4 mm)	2.32 in (58.9 mm)	3/16 in (4.7 mm)	50.00	35.00
2 g	12762	3/32 in (2.4 mm)	1 7/32 in (31.0 mm)	3/16 in (4.7 mm)	45.00	35.00
1 g	12766	1/16 in (1.6 mm)	1 21/32 in (42.1 mm)	3/16 in (4.7 mm)	45.00	35.00

HOOK WEIGHTS AVOIRDUPOIS CLASS 6

OPTIONAL

50 lb	12894	5 31/32 in (151.6 mm)	9 1/4 in (235.0 mm)	1/4 in (6.4 mm)	\$765.00	\$75.00
25 lb	96408	4 19/32 in (116.7 mm)	5 3/4 in (146.1 mm)	1/4 in (6.4 mm)	695.00	75.00
20 lb	12895	4 in (101.6 mm)	9 3/16 in (233.3 mm)	1/4 in (6.4 mm)	500.00	75.00
10 lb	12896	3 1/2 in (88.9 mm)	6 1/4 in (158.8 mm)	1/4 in (6.4 mm)	250.00	75.00
5lb	12897	2 5/8 in (66.6 mm)	6 1/2 in (165.1 mm)	1/4 in (6.4 mm)	170.00	75.00
3 lb	96409	2 1/4 in (57.2 mm)	4 1/32 in (102.4 mm)	1/4 in (6.4 mm)	160.00	75.00
2lb	12898	2 in (50.8 mm)	5 in (127.0 mm)	1/4 in (6.4 mm)	100.00	60.00
1 lb	12899	1 5/8 in (41.3 mm)	4 1/2 in (114.3 mm)	5/32 in (4.0 mm)	75.00	60.00
0.2lb	96410	1 in (25.4 mm)	2 5/16 in (58.7 mm)	3/32 in (2.4 mm)	65.00	35.00
0.1 lb	96411	3/4 in (19.1 mm)	2 5/32 in (54.8 mm)	3/32 in (2.4 mm)	65.00	35.00
8 oz	12900	1 1/4 in (31.8 mm)	4 in (101.6 mm)	5/32 in (4.0 mm)	65.00	35.00
4 oz	12901	1 in (25.4 mm)	2 1/4 in (57.2 mm)	3/32 in (2.4 mm)	65.00	35.00
2 oz	12902	13/16in (20.6mm)	2 1/4 in (57.2 mm)	3/32 in (2.4 mm)	65.00	35.00
1 oz	12903	5/8 in (15.9 mm)	2 1/4 in (57.2 mm)	3/32 in (2.4 mm)	65.00	35.00
1/2 oz	12904	17/32 in (13.5 mm)	2 29/32 in (73.8 mm)	3/32 in (2.4 mm)	60.00	35.00
1/4 oz	12905	5/32 in (4.0 mm)	1 13/16 in (46.0 mm)	3/16 in (4.7 mm)	45.00	35.00
1/8 oz	12906	1/8 in (3.2 mm)	1 1/8 in (28.6 mm)	3/16 in (4.7 mm)	45.00	35.00
1/16 oz	12907	3/32 in (2.4 mm)	1 1/4 in (31.8 mm)	3/16 in (4.7 mm)	45.00	35.00
1/32 oz	12908	1/16 in (1.6 mm)	1 13/32 in (35.7 mm)	3/16 in (4.7 mm)	45.00	35.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00





Hook Weight

Avoirdupois and Metric Individual Hangers and Slotted Weights

CLASS 7 STAINLESS STEEL WEIGHT HANGER

OPTIONAL

Weight	Part #	Diameter	Length	Total Cap	Price	Traceable Certificate
5lb	12846	4 in (101.6 mm)	37 1/4 in	500lb	\$260.00	\$75.00
3 kg	156937	4 in (101.6 mm)	38 3/16 in	250 kg	270.00	70.00

AVOIRDUPOIS SLOTTED CLASS F

OPTIONAL

Weight	Part #	Diameter	Height	Slot Width	Price	Traceable Certificate
10 lb	12589	4 in (101.6 mm)	3 1/8 in (79.4 mm)	1/2 in (12.7 mm)	\$485.00	\$75.00
5lb	12586	4in (101.6 mm)	1 9/16 in (39.7 mm)	1/2 in (12.7 mm)	305.00	75.00
2lb	12577	3 in (76.2 mm)	1 9/64 in (29.0 mm)	1/2 in (12.7 mm)	190.00	60.00
1 lb	12574	3 in (76.2 mm)	19/32 in (15.1 mm)	1/2 in (12.7 mm)	160.00	60.00
8 oz	12583	2 in (50.8 mm)	45/64 in (17.9 mm)	1/2 in (12.7 mm)	140.00	35.00
4 oz	12580	1 1/2 in (38.1 mm)	11/16 in (17.5 mm)	1/2 in (12.7 mm)	110.00	35.00

AVOIRDUPOIS SLOTTED CLASS F

OPTIONAL

Weight	Part #	Diameter	Height	Slot Width	Price	Traceable Certificate
5 kg	156931	4 in (101.6 mm)	3 1/8 in (79.4 mm)	1/2 in (12.7 mm)	\$485.00	\$70.00
2 kg	156932	4 in (101.6 mm)	1 9/16 in (39.7 mm)	1/2 in (12.7 mm)	340.00	70.00
1 kg	156933	3 in (76.2 mm)	1.27 in (32.3 mm)	1/2 in (12.7 mm)	195.00	50.00
500g	156934	3 in (76.2 mm)	0.836 in (21.2 mm)	1/2 in (12.7 mm)	175.00	50.00
200g	156935	1.5 in (38.1 mm)	0.801 in (20.4 mm)	1/2 in (12.7 mm)	145.00	35.00
100 g	156936	1.5 in (38.1 mm)	0.601 in (15.3 mm)	1/2 in (12.7 mm)	95.00	35.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
25836	Serial number	15.00



Slotted

STAINLESS STEEL - ASTM

Applications

- Calibrating Class I & II balances
- ASTM Class 4, 5 and 6 weights
- Tolerance checking or verification of balances

Styles Available:

- Grip-handle
- Cylindrical
- Leaf weight

Features:

- Nominal value marked on weights
- Serial numbers may be stamped on weights (Class 2 to 4)
- Sealing cavity for adjusting material in 100 g or larger weights
- Density 7.84g/cm3

Classes Available:

- ASTM Class 1 polished finish
- ASTM Class 2 to 4 satin finish
- ASTM Class 0-7 manufactured in accordance with ASTM E 617-13 specification and tolerances

Product Configuration:

• Kits and sets - case or vial, weight and glove or appropriate lifting device





CLASS 1*			CLASS 2		CLASS 3		OPTIONAL	OPTIONAL	CAS	SES
Weight	Kit Part #	Kit Price	Kit Part #	Kit Price	Kit Part #	Kit Price	Calibration Report	Mass Value Certificate	Part #	Price
5 kg	12958	\$610.00	13076	\$490.00	13179	\$465.00	\$140.00	\$75.00	11462	\$42.00
4 kg	12956	540.00	13074	485.00	13177	445.00	140.00	75.00	11463	42.00
3 kg	12954	325.00	13072	260.00	13175	250.00	140.00	75.00	11464	42.00
2 kg	12952	190.00	13070	170.00	13173	170.00	140.00	75.00	11465	42.00
1,500 g	12985	170.00	13103	170.00	13206	165.00	140.00	75.00	11467	42.00
1,000 g	12971	155.00	13089	140.00	13192	140.00	120.00	55.00	11468	42.00
600 g	12983	150.00	13101	140.00	13204	140.00	120.00	55.00	11469	42.00
500g	12950	130.00	13068	130.00	13171	115.00	120.00	55.00	11470	42.00
400 g	12968	130.00	13086	125.00	13189	120.00	120.00	55.00	11471	42.00
300g	12966	120.00	13084	120.00	13187	105.00	120.00	55.00	11472	42.00
200 g	12948	105.00	13066	105.00	13169	105.00	120.00	55.00	11473	42.00
160 g	12981	105.00	13099	105.00	13202	100.00	120.00	55.00	11474	42.00
150 g	12979	100.00	13097	95.00	13200	90.00	120.00	55.00	11475	42.00
100 g	12946	90.00	13064	85.00	13167	85.00	50.00	40.00	11476	42.00
50 g	12964	80.00	13082	75.00	13185	75.00	50.00	40.00	11480	42.00
30 g	12962	80.00	13080	75.00	13183	75.00	50.00	40.00	11481	42.00
20 g	12960	80.00	13078	75.00	13181	75.00	50.00	40.00	11482	42.00
10 q	12944	80.00	13062	75.00	13165	75.00	50.00	40.00	11483	42.00

*Polished finish

CLASS 4

Weight	Kit Part #	Kit Price
5kg	13282	\$450.00
4 kg	13280	425.00
3 kg	13278	245.00
2kg	13276	160.00
1,500g	13309	155.00
1,000g	13295	140.00
600 g	13307	138.00
500 g	13274	115.00
400 g	13292	110.00
300 g	13290	100.00
200 g	13272	95.00
160 g	13305	95.00
150 g	13303	85.00
100g	13270	75.00
50 g	13288	75.00
30 g	13286	70.00
20 g	13284	70.00
10 g	13268	70.00

OPTIONAL Traceable Certificate

\$70.00 70.00 70.00 70.00

70.00 70.00 50.00 50.00 50.00 50.00 50.00 35.00 35.00 35.00 35.00 35.00

REPLACEMENT CASES

Part #	Price
11462	\$42.00
11463	42.00
11464	42.00
11465	42.00
11467	42.00
11468	42.00
11469	42.00
11470	42.00
11471	42.00
11472	42.00
11473	42.00
11474	42.00
11475	42.00
11476	42.00
11480	42.00
11481	42.00
11482	42.00
11483	42.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11773	Vinyl glove	1.50
25836	Serial number	15.00



REPLACEMENT

Kits

Metric Individual Weights

	CLASS 1 ³	*Polish	ed finish	CLASS 2	2	CLASS	3	OPTIONAL	OPTIONAL	REPLAC CAS	
	Weight	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
	30 kg	12996	\$1,760.00	13114	\$1,555.00	13217	\$1,395.00	\$375.00	\$80.00	-	-
-	25kg	12995	1,520.00	13113	1,300.00	13216	1,210.00	140.00	75.00	-	-
de	24 kg	12994	1,470.00	13112	1,280.00	13215	1,175.00	140.00	75.00	-	-
Handle	20 kg	12993	1,335.00	13111	1,140.00	13214	1,035.00	140.00	75.00	-	-
ᄑ	16kg	12992	1,175.00	13110	1,100.00	13213	885.00	140.00	75.00	-	-
Grip	10kg	12991	850.00	13109	770.00	13212	700.00	140.00	75.00	-	-
	8kg	12990	830.00	13108	755.00	13211	650.00	140.00	75.00	-	-
	5kg	12989	620.00	13107	500.00	13210	485.00	140.00	75.00	-	-
	5 kg	12959	585.00	13077	470.00	13180	445.00	140.00	75.00	11462	\$42.00
	4 kg	12957	515.00	13075	460.00	13178	420.00	140.00	75.00	11463	42.00
	3kg	12955	305.00	13073	240.00	13176	230.00	140.00	75.00	11464	42.00
	2kg	12953	170.00	13071	155.00	13174	145.00	140.00	75.00	11465	42.00
	1,500g	12986	150.00	13104	150.00	13207	145.00	140.00	75.00	11467	42.00
	1,000g	12972	130.00	13090	125.00	13193	120.00	120.00	55.00	11468	42.00
	600 g	12984	125.00	13102	120.00	13205	120.00	120.00	55.00	11469	42.00
ä	500 g	12951	110.00	13069	105.00	13172	95.00	120.00	55.00	11470	42.00
Cylindrical	400 g	12969	105.00	13087	100.00	13190	95.00	120.00	55.00	11471	42.00
Ē	300 g	12967	100.00	13085	90.00	13188	85.00	120.00	55.00	11472	42.00
ં	200g	12949	90.00	13067	90.00	13170	80.00	120.00	55.00	11473	42.00
	160 g	12982	90.00	13100	90.00	13203	80.00	120.00	55.00	11474	42.00
	150g	12980	75.00	13098	70.00	13201	65.00	120.00	55.00	11475	42.00
	100 g	12947	70.00	13065	65.00	13168	60.00	50.00	40.00	11476	42.00
	50g	12965	65.00	13083	60.00	13186	55.00	50.00	40.00	11480	42.00
	30 g	12963	65.00	13081	60.00	13184	55.00	50.00	40.00	11481	42.00
	20 g	12961	65.00	13079	60.00	13182	55.00	50.00	40.00	11482	42.00
	10g	12945	65.00	13063	60.00	13166	55.00	50.00	40.00	11483	42.00

CLASS 4 OPTIONAL REPLACEMENT CASES

	ULAUU T			OI HOWAL	ILLI LAULIV	ILITI UAGES
	Weight	Part #	Price	Traceable Certificate	Part #	Price
	30 kg	13320	\$1,295.00	\$75.00	-	-
	25 kg	13319	1,090.00	70.00	-	-
dle	24 kg	13318	1,040.00	70.00	-	-
an	20 kg	13317	890.00	70.00	-	-
I	16 kg	13316	790.00	70.00	-	-
Grip Handle	10 kg	13315	615.00	70.00	-	-
	8 kg	13314	610.00	70.00	-	-
	5 kg	13313	385.00	70.00	-	-
	5 kg	13283	430.00	70.00	11462	\$42.00
	4 kg	13281	405.00	70.00	11463	42.00
	3 kg	13279	225.00	70.00	11464	42.00
	2 kg	13277	140.00	70.00	11465	42.00
	1,500g	13310	135.00	70.00	11467	42.00
	1,000 g	13296	120.00	70.00	11468	42.00
	600 g	13308	120.00	50.00	11469	42.00
Ä	500 g	13275	90.00	50.00	11470	42.00
Cylindrical	400 g	13293	90.00	50.00	11471	42.00
<u><u>ĕ</u></u>	300 g	13291	80.00	50.00	11472	42.00
Ç	200 g	13273	75.00	50.00	11473	42.00
	160 g	13306	75.00	50.00	11474	42.00
	150 g	13304	60.00	35.00	11475	42.00
	100 g	13271	55.00	35.00	11476	42.00
	50 g	13289	55.00	35.00	11480	42.00
	30 g	13287	55.00	35.00	11481	42.00
	20 g	13285	55.00	35.00	11482	42.00
	10 q	13269	55.00	35.00	11483	42.00



Individual

REPLACEMENT

OLAGO I OLAGO Z OLAGO O OLAGO O OLAGO I IIONAL INLI LAOLINLINI OA	CLASS 1*	CLASS 2	CLASS 3	OPTIONAL	OPTIONAL	REPLACEMENT CAS
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Weight	Kit Part #	Kit Price	Kit Part #	Kit Price	Kit Part #	Kit Price	Calibration Report	Mass Value Certificate	Part #	Price
10 lb	13021	\$610.00	13138	\$490.00	13241	\$440.00	\$125.00	\$80.00	152299	\$42.00
5lb	13019	325.00	13136	260.00	13239	260.00	125.00	80.00	11496	42.00
4lb	13017	190.00	13134	185.00	13237	185.00	125.00	80.00	11465	42.00
3lb	13015	170.00	13132	170.00	13235	170.00	125.00	80.00	11495	42.00
2lb	13013	155.00	13130	140.00	13233	140.00	100.00	65.00	11468	42.00
1 lb	13011	130.00	13128	130.00	13231	120.00	100.00	65.00	82983	42.00
8 oz	13009	110.00	13126	105.00	13229	105.00	50.00	40.00	11491	42.00
4 oz	13007	105.00	13124	85.00	13227	85.00	50.00	40.00	11494	42.00
2 oz	13005	100.00	13122	85.00	13225	85.00	50.00	40.00	11479	42.00
1 oz	13003	100.00	13120	85.00	13223	85.00	50.00	40.00	11493	42.00
1/2 oz	13001	100.00	13118	85.00	13221	85.00	50.00	40.00	11492	42.00
0.5 lb	13032	110.00	13149	105.00	13252	105.00	50.00	40.00	11491	42.00
0.2lb	13024	105.00	13141	85.00	13244	80.00	50.00	40.00	11479	42.00
0.1 lb	13026	100.00	13143	85.00	13246	80.00	50.00	40.00	11478	42.00
0.05 lb	13028	100.00	13145	85.00	13248	80.00	50.00	40.00	82982	42.00

^{*} Polished finish

CLASS 4

ODTION				

REPLACEMENT CASES

Kit Part #	Kit Price
13344	\$425.00
13342	250.00
13340	175.00
13338	160.00
13336	140.00
13334	115.00
13332	95.00
13330	85.00
13328	85.00
13326	80.00
13324	80.00
13355	100.00
13347	75.00
13349	75.00
13351	75.00
	13344 13342 13340 13338 13336 13334 13332 13330 13328 13326 13324 13355 13347 13349

Traceable Certificate	Pa
\$75.00	11
75.00	11
75.00	11
75.00	11
60.00	11
60.00	82
35.00	11
35.00	11
35.00	11
35.00	11
35.00	11
35.00	11
35.00	11
35.00	11
35.00	82

Part #	Price
11462	\$42.00
11496	42.00
11465	42.00
11495	42.00
11468	42.00
82983	42.00
11491	42.00
11494	42.00
11479	42.00
11493	42.00
11492	42.00
11491	42.00
11479	42.00
11478	42.00
82982	42.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11773	Vinyl glove	1.50
25836	Serial number	15.00



Part #

13038

13037

13036

13035

13034

13022

13020

13018

13016

13014

13012

13010

13008

13006

13004

13002

13033

13025

13027

13029

Avoirdupois Individual Weights

Price

\$1,520.00

1,180.00

850.00

845.00

620.00

590.00

305.00

170.00

150.00

135.00

110.00

90.00

85.00

80.00

80.00

75.00

90.00

85.00

80.00

75.00

CLASS 1	*
Weight	

50 lb

30 lb

25 lb

20 lb 10 lb

10 lb

5lb

4lb

3lb

2lb

1lb

8 oz

4 oz

2 oz

1 oz

1/2 oz

0.5 lb 0.2lb

0.1 lb

Grip Handle

CLASS 2

Price

\$1,300.00

960.00

745.00

720.00

500.00

465.00

250.00

160.00

145.00

125.00

105.00

85.00

70.00

65.00

65.00

65.00

80.00

65.00

65.00

65.00

Part #

13155

13154

13153

13152

13151

13139

13137

13135

13133

13131

13129

13127

13125

13123

13121

13119

13150

13142

13144

13146

CLASS 3

Price

\$1,215.00

850.00

645.00

625.00

490.00

420.00

240.00

155.00

145.00

120.00

100.00

80.00

70.00

65.00

60.00

60.00

80.00

55.00

55.00

55.00

Part #

13258

13257

13256

13255

13254

13242

13240

13238

13236

13234

13232

13230

13228

13226

13224

13222

13253

13245

13247

13249

OPTIONAL Calibration

Report

\$275.00

125.00

125.00

125.00

125.00

125.00

125.00

125.00

125.00

100.00

100.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

50.00

OPTIONAL Mass Valu

Certificate

\$80.00

80.00

80.00

80.00

80.00

80.00

80.00

80.00

80.00

65.00

65.00

40.00

40.00

40.00

40.00

40.00

40.00

40.00

40.00

40.00

REPLACEMENT CASES				
Part #	Price			
-	-			
-	-			
-	-			
-	-			
-	-			
11462	\$42.00			
11496	42.00			
11465	42.00			
11495	42.00			
11468	42.00			
82983	42.00			
11491	42.00			
11494	42.00			
11479	42.00			
11493	42.00			
11492	42.00			
11491	42.00			
11479	42.00			
11478	42.00			
82982	42.00			
	Part #			

$0.05 \, lb$ **CLASS 4**

OPTIONAL

REPLACEMENT CASES

	ULASS 4			OFTIONAL	REFLACEIV	ENT CASES
	Weight	Part #	Price	Traceable Certificate	Part #	Price
0	50 lb	13361	\$1205.00	\$75.00	-	-
Handle	30 lb	13360	800.00	75.00	-	-
	25 lb	13359	585.00	75.00	-	-
Grip	20 lb	13358	525.00	75.00	-	-
Ō	10 lb	13357	400.00	75.00	-	-
	10 lb	13345	400.00	75.00	11462	\$42.00
	5 lb	13343	230.00	75.00	11496	42.00
	4 lb	13341	150.00	75.00	11465	42.00
	3 lb	13339	140.00	75.00	11495	42.00
	2lb	13337	120.00	60.00	11468	42.00
=	1 lb	13335	95.00	60.00	82983	42.00
Cylindrical	8 oz	13333	75.00	35.00	11491	42.00
힏	4 oz	13331	65.00	35.00	11494	42.00
Ž	2 o z	13329	60.00	35.00	11479	42.00
O	1 oz	13327	55.00	35.00	11493	42.00
	1/2 oz	13325	55.00	35.00	11492	42.00
	0.5 lb	13356	75.00	35.00	11491	42.00
_	0.2 lb	13348	55.00	35.00	11479	42.00
	0.1 lb	13350	55.00	35.00	11478	42.00
	0.05lb	13352	55.00	35.00	82982	42.00
*Polis	shed finish			<u> </u>		

*Polished finish



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PRECISION LABORATORY - ASTM

Applications

- Calibrating Class I & II balances
- ASTM Class 4, 5 and 6 weights
- Student laboratory use
- Rough weighing operations: i.e., force
- Tolerance testing
- Verification checks

Styles Available:

- Type II design (screw knob) with sealing cavity for adjusting material (Classes 1-4)
- Type I design (one piece) for Class 0

Features:

- Stainless steel polished finish
- Designed to meet ASTM E617-13 specifications
- ASTM Class 0 weight sets and individual weights are not individually marked with their weight value or individually serialized per ASTM E 617-13
- Nominal value marked on weights
- Serial numbers applied to case (weights may be marked with symbol)
- Density 7.95 g/cm3

Product Configuration:

- Kits case or vial, weight and glove
- Individual weights for custom sets
- Weight sets configurations: 5-2-2-1 and 5-3-2-1 Example: 50, (2) 20, 10 or 50, 30, 20, 10

Custom Configuration:

- Custom sets are available as build to order to meet your specific requirements.
- ASTM weights sets larger than 500 g or 1 lb include a hardwood case with velvetlined pockets
- Weight sets with the largest weight of 500 g include a precision-machined polyvinyl, crush resistant case

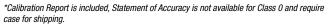




CLASS 0* ONE PIECE DESIGN

REPLACEMENT CASES

CLASS 0* ONE PIECE DESIGN			REPLACEMENT CASES		
Weight	Kit Part #	Kit Price	Part #	Price	
50 kg	Consult	Consult	Consult	Consult	
25 kg	Consult	Consult	Consult	Consult	
20 kg	45856	\$3,615.00	Consult	Consult	
10 kg	45857	2,370.00	Consult	Consult	
5kg	45858	1,700.00	Consult	Consult	
3kg	45859	1,500.00	Consult	Consult	
2kg	45860	1,230.00	Consult	Consult	
1 kg	45861	910.00	Consult	Consult	
500g	45862	555.00	Consult	Consult	
300 g	45863	525.00	Consult	Consult	
200 g	45864	485.00	Consult	Consult	
100 g	45865	405.00	Consult	Consult	
50 g	45866	380.00	Consult	Consult	
30 g	45867	370.00	Consult	Consult	
20 g	45868	370.00	Consult	Consult	
10 g	45869	370.00	Consult	Consult	
5 g	45870	320.00	Consult	Consult	
3 g	45871	320.00	Consult	Consult	
2g	45872	320.00	Consult	Consult	
1 g	45873	320.00	Consult	Consult	
500 mg	45874	246.00	-	-	
300 mg	45875	246.00	-	-	
200 mg	45876	246.00	-	-	
100 mg	45877	246.00	-	-	
50 mg	45878	246.00	-	-	
30 mg	45879	246.00	-	-	
20 mg	45880	246.00	-	-	
10 mg	45881	246.00	-	-	
5 mg	45882	246.00	-	-	
3 mg	45883	246.00	-	-	
2 mg	45884	246.00	-	-	
1 mg	45885	246.00	-	-	
	Weight 50 kg 25 kg 20 kg 10 kg 5 kg 3 kg 2 kg 1 kg 500 g 300 g 200 g 100 g 5 g 3 g 2 g 1 g 500 mg 300 mg 200 mg 10 mg 5 mg 3 mg 2 mg	Weight Kit Part # 50kg Consult 25kg Consult 20kg 45856 10kg 45857 5kg 45858 3kg 45859 2kg 45860 1kg 45861 500g 45862 300g 45863 200g 45865 50g 45866 30g 45869 5g 45870 3g 45871 2g 45872 1g 45873 500mg 45874 300mg 45875 200mg 45876 100mg 45877 50mg 45878 30mg 45879 20mg 45880 10mg 45881 5mg 45882 3mg 45883 2mg 45884	Weight Kit Part # Consult Consult 50 kg Consult Consult 20 kg 45856 \$3,615.00 10 kg 45857 2,370.00 5 kg 45858 1,700.00 3 kg 45859 1,500.00 2 kg 45860 1,230.00 1 kg 45861 910.00 500g 45862 555.00 300g 45863 525.00 200g 45864 485.00 100g 45865 405.00 50g 45866 380.00 30g 45867 370.00 20g 45868 370.00 5g 45870 320.00 5g 45871 320.00 2g 45872 320.00 1g 45873 320.00 500mg 45874 246.00 300mg 45875 246.00 200mg 45876 246.00 100mg 45876 246.00	Weight Kit Part # Part # Consult Consult Consult 25 kg Consult Consult Consult 20 kg 45856 \$3,615.00 Consult 10 kg 45857 2,370.00 Consult 5 kg 45858 1,700.00 Consult 3 kg 45859 1,500.00 Consult 2 kg 45860 1,230.00 Consult 500g 45861 910.00 Consult 500g 45862 555.00 Consult 300g 45863 525.00 Consult 200g 45864 485.00 Consult 100g 45865 405.00 Consult 30g 45866 380.00 Consult 20g 45868 370.00 Consult 20g 45869 370.00 Consult 2g 45870 320.00 Consult 2g 45872 320.00 Consult 2g 45873 320.00 Co	



Part #	Description	Price
11711	Weight tweezer (plastic) for polished weights 100 g and below	\$3.00
152414	Premium tweezer	35.00
11714	Weight gloves, white, cotton	5.00
11755	Leaf weight lid	35.00
11747	Weight lifter bar, plexiglas, for weights 200 g - 3 kg and 8 oz - 5 lb (screw knob weights only)	15.00
11712	Lifter with larger handle (Class 1-4/4 kg - 25 kg) (10 lb/50 lb)	60.00
50035	Weight forceps, plastic, Class 0, 100 g - 1 mg	35.00
50000	Tong assembly, Class 0, 1 kg x 200 g	60.00



One-piece and Milligram Kits



One Piece Kit

Precision Laboratory - ASTM Metric Individual Weights

CLASS 0* ONE PIECE DESIGN

REPLACEMENT CASES

	CLASS 0* ONE PIECE DESIGN			REPLACEMENT CASES		
	Weight	Part #	Price	Part #	Price	
	50 kg	Consult	Consult	Consult	Consult	
	25 kg	Consult	Consult	Consult	Consult	
	20 kg	46097	\$3,555.00	Consult	Consult	
	10 kg	46096	2,320.00	Consult	Consult	
	5 kg	46095	1,650.00	Consult	Consult	
	3 kg	46094	1,480.00	Consult	Consult	
	2 kg	46093	1,210.00	Consult	Consult	
	1 kg	46092	890.00	Consult	Consult	
Sal	500g	46091	540.00	Consult	Consult	
dri	300g	46090	510.00	Consult	Consult	
Cylindrical	200g	46089	470.00	Consult	Consult	
Ç	100 g	46088	390.00	Consult	Consult	
	50 g	46087	365.00	Consult	Consult	
	30 g	46086	355.00	Consult	Consult	
	20 g	46085	355.00	Consult	Consult	
	10 g	46084	355.00	Consult	Consult	
	5 g	46083	305.00	Consult	Consult	
	3g	46082	305.00	Consult	Consult	
	2g	46081	305.00	Consult	Consult	
	1 g	46080	305.00	Consult	Consult	
	500 mg	46079	245.00	-	-	
	300 mg	46078	245.00	-	-	
	200 mg	46077	245.00	-	-	
	100 mg	46076	245.00	-	-	
Ε	50 mg	46075	245.00	-	-	
Milligram	30 mg	46074	245.00	-	-	
	20 mg	46073	245.00	-	-	
Σ	10 mg	46072	245.00	-	-	
	5 mg	46071	245.00	-	-	
	3 mg	46070	245.00	-	-	
	2 mg	46069	245.00	-	-	
	1 mg	46068	245.00	-	-	

*Calibration Report is included, Statement of Accuracy is not available for Class 0 and require case for shipping. For special kits, individual weights must ship in a case.



One Piece



LASS 1	CLASS 2

	CLASS 1			CLASS 2	2	CLASS :	3
	Weight	Kit Part #	Kit Price	Kit Part #	Kit Price	Kit Part #	Kit F
	50 kg	Consult	Consult	Consult	Consult	Consult	Cor
	25 kg	Consult	Consult	Consult	Consult	Consult	Con
	20 kg	82590	\$3,220.00	82632	\$2,165.00	82674	\$2,14
	10 kg	82591	1,830.00	82633	1,755.00	82675	1,61
	5kg	82592	1,055.00	82634	1,020.00	82676	1,01
	3kg	82593	835.00	82635	800.00	82677	775
	2kg	82594	660.00	82636	620.00	82678	610
	1 kg	82595	475.00	82637	410.00	82679	400
op	500 g	82596	200.00	82638	195.00	82680	190
¥	300 g	82597	155.00	82639	145.00	82681	140
ew	200 g	82598	145.00	82640	140.00	82682	135
Screw Knob	100 g	82599	105.00	82641	105.00	82683	100
•	50 g	82600	100.00	82642	95.00	82684	90
	30 g	82601	95.00	82643	85.00	82685	85
	20 g	82602	90.00	82644	80.00	82686	80
	10 g	82603	90.00	82645	80.00	82687	80
	5 g	82604	90.00	82646	70.00	82688	60
	3 g	82605	80.00	82647	70.00	82689	60
	2 g	82606	80.00	82648	70.00	82690	60
	1 g	82607	70.00	82649	70.00	82691	60
	500 mg	80458	60.00	80470	40.00	80482	35
	300 mg	80459	60.00	80471	40.00	80483	35
	200 mg	80460	60.00	80472	40.00	80484	35
	100 mg	80461	60.00	80473	40.00	80485	35
	50 mg	80462	60.00	80474	40.00	80486	35
am	30 mg	80463	60.00	80475	40.00	80487	35
igr	20 mg	80464	60.00	80476	40.00	80488	35
Milligram	10 mg	80465	60.00	80477	40.00	80489	35
	5 mg	80466	60.00	80478	40.00	80490	35
	3 mg	80467	60.00	80479	40.00	80491	35
	2 mg	80468	60.00	80480	40.00	80492	35
	1 mg	80469	60.00	80481	40.00	80493	35
	0.5 mg	36076*	60.00	36077	40.00	36078	35

OPTIONAL

OPTIONAL

REPLACEMENT CASES

Kit Part #	Kit Price	Calibration Report	Mass Value Certificate	Part #	Price
Consult	Consult	Consult	Consult	Consult	Consult
Consult	Consult	Consult	Consult	Consult	Consult
82674	\$2,140.00	\$140.00	\$75.00	80703	\$200.00
82675	1,610.00	140.00	75.00	80704	200.00
82676	1,015.00	140.00	75.00	80705	145.00
82677	775.00	140.00	75.00	80706	42.00
82678	610.00	140.00	75.00	80707	42.00
82679	400.00	120.00	55.00	80708	42.00
82680	190.00	120.00	55.00	80709	30.00
82681	140.00	120.00	55.00	80710	30.00
82682	135.00	120.00	55.00	80711	30.00
82683	100.00	50.00	40.00	80712	30.00
82684	90.00	50.00	40.00	80713	30.00
82685	85.00	50.00	40.00	80714	30.00
82686	80.00	50.00	40.00	80715	30.00
82687	80.00	50.00	40.00	80716	30.00
82688	60.00	50.00	40.00	80717	30.00
82689	60.00	50.00	40.00	80718	30.00
82690	60.00	50.00	40.00	80719	30.00
82691	60.00	50.00	40.00	80720	30.00
80482	35.00	50.00	40.00	-	-
80483	35.00	50.00	40.00	-	•
80484	35.00	50.00	40.00	-	•
80485	35.00	50.00	40.00	-	-
80486	35.00	50.00	40.00	-	-
80487	35.00	50.00	40.00	-	-
80488	35.00	50.00	40.00	-	-
80489	35.00	50.00	40.00	-	-
80490	35.00	50.00	40.00	-	-
80491	35.00	50.00	40.00	-	-
80492	35.00	50.00	40.00	-	-
80493	35.00	50.00	40.00	-	-
36078	35.00	50.00	40.00	-	-

Part #	Description	Price
11711	Weight tweezer, plastic, for polished weights 100 g and below	\$3.00
152414	Premium tweezer	35.00
11714	Weight gloves, white, cotton	5.00
11755	Leaf weight lid	35.00
11747	Weight lifter bar, plexiglass, for weights 200 g - 3 kg and 8 oz - 5 lb (screw knob weights only)	15.00
11712	Lifter with larger handle (Class 1-4/4kg - 25kg) (10lb/50lb)	60.00
36092	Statement of Accuracy	45.00
25836	Serial number	15.00



^{*} Wire weight

Precision Laboratory - ASTM Metric Individual Weights

CLASS 1

CLASS 2

CLASS 3

OPTIONAL

OPTIONAL

REPLACEMENT CASES

	ULASS I			ULASS A	-	ULASS .	J	UPTIONAL	UPTIONAL	REFLACEIVI	ENI CASES
	Weight	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
	50 kg	Consult	Consult	Consult	Consult	12274	Consult	Consult	Consult	Consult	Consult
	25 kg	11876	\$3,800.00	12131	\$3,555.00	12272	\$3,495.00	Consult	Consult	Consult	Consult
	20 kg	11875	3,110.00	12130	2,055.00	12271	2,025.00	\$140.00	\$75.00	80703	\$200.00
	10 kg	11874	1,725.00	12129	1,610.00	12270	1,500.00	140.00	75.00	80704	200.00
	5 kg	11872	945.00	12127	940.00	12269	935.00	140.00	75.00	80705	145.00
	3 kg	11871	810.00	12126	780.00	12268	750.00	140.00	75.00	80706	40.00
	2 kg	11870	640.00	12125	600.00	12267	590.00	140.00	75.00	80707	42.00
	1 kg	11869	445.00	12124	400.00	12266	385.00	120.00	55.00	80708	42.00
힏	500 g	11867	185.00	12122	180.00	12265	175.00	120.00	55.00	80709	30.00
Ž	300g	11866	140.00	12121	130.00	12264	125.00	120.00	55.00	80710	30.00
Screw Knob	200 g	11865	130.00	12120	125.00	12263	120.00	120.00	55.00	80711	30.00
Scr	100g	11864	95.00	12119	90.00	12262	85.00	50.00	40.00	80712	30.00
.,	50 g	11862	90.00	12117	75.00	12261	75.00	50.00	40.00	80713	30.00
	30 g	11861	85.00	12116	70.00	12260	70.00	50.00	40.00	80714	30.00
	20 g	11860	85.00	12115	70.00	12259	70.00	50.00	40.00	80715	30.00
	10 g	11859	80.00	12114	70.00	12258	70.00	50.00	40.00	80716	30.00
	5g	11857	75.00	12112	55.00	12257	52.00	50.00	40.00	80717	30.00
	3g	11856	65.00	12111	55.00	12256	52.00	50.00	40.00	80718	30.00
	2g	11855	65.00	12110	55.00	12255	52.00	50.00	40.00	80719	30.00
	1 g	11854	60.00	12109	55.00	12254	52.00	50.00	40.00	80720	30.00
	500 mg	11852	55.00	12107	35.00	12253	32.00	50.00	40.00	-	-
	300 mg	11851	55.00	12106	35.00	12252	32.00	50.00	40.00	-	-
	200 mg	11850	55.00	12105	35.00	12251	32.00	50.00	40.00	-	-
	100 mg	11849	55.00	12104	35.00	12250	32.00	50.00	40.00	-	-
	50 mg	11847	55.00	12102	35.00	12248	32.00	50.00	40.00	-	-
Milligram	30 mg	11846	55.00	12101	35.00	12247	32.00	50.00	40.00	-	-
<u> </u>	20 mg	11845	55.00	12100	35.00	12246	32.00	50.00	40.00	-	-
Ē	10 mg	11844	55.00	12099	35.00	12245	32.00	50.00	40.00	-	-
	5 mg	11842	55.00	12097	35.00	12244	32.00	50.00	40.00	-	-
	3 mg	11841	55.00	12096	35.00	12243	32.00	50.00	40.00	-	-
	2 mg	11840	55.00	12095	35.00	12242	32.00	50.00	40.00	-	-
	1 mg	11839	55.00	12094	35.00	12241	32.00	50.00	40.00	-	-
	0.5 mg*	N/A	N/A	-	-	-	-	50.00	40.00	-	-

For special kits, individual weights must ship in a case



Screw-knob Design



Milligram

CLASS 4 OPTIONAL REPLACEM	ENT CASES
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Weight Kit Part # Kit Price Solve Consult Cons		ULASS 4		OF HOMAL			LIVI UAGES
25kg Consult Consult Consult Consult 20kg 82716 \$2,000.00 \$70.00 80703 \$200.00 10kg 82717 1,445.00 70.00 80704 200.00 80705 145.00 20kg 82718 1,000.00 70.00 80705 145.00 80706 40.00 20kg 82720 585.00 70.00 80706 40.00 80706 40.00 40.00 1kg 82721 385.00 50.00 80708 42.00 80708 42.00 80708 42.00 80708 42.00 80708 42.00 80708 42.00 80709 30.00 80710 30.00 80710 30.00 80710 30.00 80711 30.00 80712 30.00 80712 30.00 80712 30.00 80713 30.00 80713 30.00 80714 30.00 80715 30.00 80716 30.00 80716 30.00 80716 30.00 80716 30.00 80716 30.00 80716 30.00 80716 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80718 30.00 80719 30.00 80719 30.00 80719 30.00 80719 30.00 80719 30.00 80719 30.00 80719 30.00 80719 30.00 80719 30.00 80719 30.00 3		Weight	Kit Part #	Kit Price	Traceable Certificate	Part #	Price
20kg 82716 \$2,000.00 \$70.00 80703 \$200.00 80704 200.00 80705 145.00 70.00 80705 145.00 80706 40.00 80706 40.00 80707 42.00 80708 42.00 80708 42.00 80709 30.00 80709 30.00 35.00 80711 30.00 80711 30.00 80712 30.00 80712 30.00 80713 30.00 80714 30.00 80715 30.00 80716 30.00 80716 30.00 80716 30.00 80716 30.00 80716 30.00 80718 30.00 30.00 35.00 50.00 35.00 50.00 35.00 50.00 35.00 50.00 35.00 50.00 35.00 50.00 35.00 50.00 35.00 50.00 35.00 50.00 50.00 35.00 50.00 35.00 50.00 50.00 35.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 35.00 50.00 50.00 50.00 35.00 50.00 50.00 50.00 35.00 50.00 50.00 50.00 35.00 50.00 50.00 50.00 35.00 50.00 50.00 50.00 35.00 50.		50 kg	Consult	Consult	Consult	Consult	Consult
10kg 82717		25 kg	Consult	Consult	Consult	Consult	Consult
Skg 82718 1,000.00 70.00 80705 145.00 80706 40.00 80707 42.00 80707 42.00 80708 42.00 80708 42.00 80708 42.00 80708 42.00 80709 30.00 80709 30.00 80709 30.00 80710 30.00 80711 30.00 80712 30.00 80712 30.00 80713 30.00 30.00 80714 30.00 30.00 80714 30.00 30.00 80715 30.00 30		20 kg	82716	\$2,000.00	\$70.00	80703	\$200.00
Skg 82719 725.00 70.00 80706 40.00		10 kg	82717	1,445.00	70.00	80704	200.00
Page		5 kg	82718	1,000.00	70.00	80705	145.00
Tkg 82721 385.00 50.00 80708 42.00 80709 30.00 80709 30.00 80709 30.00 80709 30.00 80709 30.00 80709 30.00 80710 30.00 80711 30.00 80711 30.00 80712 30.00 80712 30.00 80713 30.00 80714 30.00 80714 30.00 80715 30.00 80716 30.00 80716 30.00 80717 30.00 80718 30.00 80718 30.00 80719 30.00		3kg	82719	725.00	70.00	80706	40.00
Solid Soli		2kg	82720	585.00	70.00	80707	42.00
Sog 82726 80.00 35.00 80713 30.00		1 kg	82721	385.00	50.00	80708	42.00
Sog 82726 80.00 35.00 80713 30.00	do.	500g	82722	185.00	50.00	80709	30.00
Sog 82726 80.00 35.00 80713 30.00	Ā	300g	82723	135.00	50.00	80710	30.00
Sog 82726 80.00 35.00 80713 30.00	e.	200 g	82724	115.00	50.00	80711	30.00
Sog 82726 80.00 35.00 80713 30.00	Scr	100g	82725	80.00	35.00	80712	30.00
20g 82728 70.00 35.00 35.00 80715 30.00 5g 82730 50.00 35.00 35.00 80717 30.00 2g 82732 50.00 35.00 80718 30.00 1g 82733 50.00 35.00 80719 30.00 500mg 80494 30.00 35.00 35.00 80720 30.00 200mg 80495 30.00 35.00 200mg 80496 30.00 35.00 100mg 80497 30.00 35.00 50mg 80498 30.00 35.00 20mg 80500 30.00 35.00 10mg 80501 30.00 35.00 3mg 80502 30.00 35.00 3mg 80503 30.00 35.00 1mg 80505 30.00 35.00 3mg 80506 30.00 35.00 1mg 80505 30.00 35.00 1mg 80505 30.00 35.00 3mg 80506 30.00 35.00 1mg 80505 30.00 35.00 1mg 80505 30.00 35.00 3mg	•	50 g	82726	80.00	35.00	80713	30.00
10g 82729 65.00 35.00 80716 30.00 3g 82731 50.00 35.00 80718 30.00 2g 82732 50.00 35.00 80719 30.00 1g 82733 50.00 35.00 80720 30.00 500mg 80494 30.00 35.00 200mg 80496 30.00 35.00 50mg 80498 30.00 35.00 50mg 80498 30.00 35.00 10mg 80501 30.00 35.00 10mg 80502 30.00 35.00 3mg 80503 30.00 35.00 2mg 80504 30.00 35.00 1mg 80505 30.00 35.00 30mg		30 g	82727	70.00	35.00	80714	30.00
5g 82730 50.00 3g 82731 50.00 2g 82732 50.00 1g 82733 50.00 500mg 80494 30.00 300mg 80495 30.00 200mg 80496 30.00 100mg 80497 30.00 50mg 80498 30.00 30mg 80499 30.00 20mg 80500 30.00 35.00 - - - - - 10mg 80501 30.00 35.00 - - - - - 10mg 80501 30.00 35.00 - - - - - 20mg 80502 30.00 35.00 - - - - - - - - - - - 5mg 80502		20 g	82728	70.00	35.00	80715	30.00
Section Sect		10 g	82729	65.00	35.00	80716	30.00
EBUTY 2g 82732 50.00 35.00 80719 30.00 1g 82733 50.00 35.00 80720 30.00 500mg 80494 30.00 35.00 - - - 300mg 80495 30.00 35.00 - - - - 200mg 80496 30.00 35.00 -		5g	82730	50.00	35.00	80717	30.00
Tebilive 1 g 82733 50.00 35.00 80720 30.00 500 mg 80494 30.00 35.00		3g	82731	50.00	35.00	80718	30.00
Solid		2g	82732	50.00	35.00	80719	30.00
300mg 80495 30.00 35.00 - - 200mg 80496 30.00 35.00 - - 100mg 80497 30.00 35.00 - - 50mg 80498 30.00 35.00 - - 30mg 80499 30.00 35.00 - - 20mg 80500 30.00 35.00 - - 5mg 80501 30.00 35.00 - - 3mg 80502 30.00 35.00 - - 3mg 80503 30.00 35.00 - - 1mg 80505 30.00 35.00 - -		1 g	82733	50.00	35.00	80720	30.00
The first color of the first c		500 mg	80494	30.00	35.00	-	-
Tooling Tool		300 mg	80495	30.00	35.00	-	-
Somg		200 mg	80496	30.00	35.00	-	-
30 mg 80499 30.00 35.00 - - 20 mg 80500 30.00 35.00 - - 10 mg 80501 30.00 35.00 - - 5 mg 80502 30.00 35.00 - - 2 mg 80504 30.00 35.00 - - 1 mg 80505 30.00 35.00 - -		100 mg	80497	30.00	35.00	-	-
5 mg 80502 30.00 35.00 - - 3 mg 80503 30.00 35.00 - - 2 mg 80504 30.00 35.00 - - 1 mg 80505 30.00 35.00 - -)	80498	30.00	35.00	-	-
5 mg 80502 30.00 35.00 - - 3 mg 80503 30.00 35.00 - - 2 mg 80504 30.00 35.00 - - 1 mg 80505 30.00 35.00 - -	am	30 mg	80499	30.00	35.00	-	-
5 mg 80502 30.00 35.00 - - 3 mg 80503 30.00 35.00 - - 2 mg 80504 30.00 35.00 - - 1 mg 80505 30.00 35.00 - -	ligi	20 mg	80500	30.00	35.00	-	-
5 mg 80502 30.00 35.00 - - 3 mg 80503 30.00 35.00 - - 2 mg 80504 30.00 35.00 - - 1 mg 80505 30.00 35.00 - -	Ξ	10 mg	80501	30.00	35.00	-	-
2 mg 80504 30.00 35.00 - - 1 mg 80505 30.00 35.00 - -		5 mg	80502	30.00	35.00	-	-
1 mg 80505 30.00 35.00		3 mg	80503	30.00	35.00	-	-
		2 mg	80504	30.00	35.00	-	-
0.5mg 36079 35.00		1 mg	80505	30.00	35.00	-	-
		0.5 mg	36079	35.00	35.00	-	-

Part #	Description	Price
11711	Weight tweezer (plastic) for polished weights 100 g and below	\$3.00
152414	Premium tweezer	35.00
11714	Weight gloves, white, cotton	5.00
11755	Leaf weight lid	35.00
11747	Weight lifter bar, plexiglas, for weights 200 g - 3 kg and 8 oz - 5 lb (screw knob weights only)	15.00
11712	Lifter with larger handle (Class 1-4/4kg - 25kg) (10lb/50lb)	60.00
36092	Statement of Accuracy	45.00
25836	Serial number	15.00



CLASS 4

OPTIONAL

REPLACEMENT CASES

	ULASS 4		UPTIONAL		REPLACEIVIENT CASES		
	Weight	Part #	Price	Traceable Certificate	Part #	Price	
	50 kg	Consult	Consult	Consult	Consult	Consult	
	25 kg	12375	\$3,425.00	Consult	Consult	Consult	
	20 kg	12374	1,890.00	\$70.00	80703	\$200.00	
	10 kg	12373	1,335.00	70.00	80704	200.00	
	5 kg	12372	890.00	70.00	80705	145.00	
	3 kg	12371	700.00	70.00	80706	42.00	
	2 kg	12370	565.00	70.00	80707	42.00	
	1 kg	12369	370.00	50.00	80708	42.00	
힏	500g	12368	170.00	50.00	80709	30.00	
Ŧ	300g	12367	120.00	50.00	80710	30.00	
Screw Knob	200 g	12366	105.00	50.00	80711	30.00	
Sci	100 g	12365	75.00	35.00	80712	30.00	
	50 g	12364	62.00	35.00	80713	30.00	
	30 g	12363	55.00	35.00	80714	30.00	
	20 g	12362	55.00	35.00	80715	30.00	
	10 g	12361	55.00	35.00	80716	30.00	
	5 g	12360	40.00	35.00	80717	30.00	
	3g	12359	40.00	35.00	80718	30.00	
	2g	12358	40.00	35.00	80719	30.00	
	1 g	12357	40.00	35.00	80720	30.00	
	500 mg	12356	30.00	35.00	-	-	
	300 mg	12355	30.00	35.00	-	-	
	200 mg	12354	30.00	35.00	-	-	
	100 mg	12353	30.00	35.00	-	-	
Ē	50 mg	12352	30.00	35.00	-	-	
Milligram	30 mg	12351	30.00	35.00	-	-	
	20 mg	12350	30.00	35.00	-	-	
Σ	10 mg	22198	30.00	35.00	-	-	
	5 mg	22197	30.00	35.00	-	-	
	3 mg	22196	30.00	35.00	-	-	
	2 mg	22195	30.00	35.00	-	-	
	1 mg	22194	30.00	35.00	_	-	

For special kits, individual weights must ship in a case



Screw-knob Design



Milligram

CLASS 1	CLASS 2	CLASS 3	OPTIONAL	OPTIONAL	REPLACEMENT CASES
Weight Kit Kit Price	Kit Part # Kit Price	Kit Part # Kit Price	Calibration Report	Mass Value Certificate	Part # Price

	Weight	Kit Part #	Kit Price	Kit Part #	Kit Price	Kit Part #	Kit Price	Calibration Report	Mass Value Certificate	Part #	Price
	30lb	82581	\$3,345.00	82625	\$3,260.00	82667	\$3,140.00	\$125.00	\$80.00	80743	\$200.00
	25 lb	82580	2,325.00	82624	2,770.00	82666	2,665.00	125.00	80.00	80742	200.00
	20lb	82579	2,300.00	82623	2,240.00	82665	2,100.00	125.00	80.00	80741	200.00
	10 lb	82578	1,350.00	82622	1,320.00	82664	1,250.00	125.00	80.00	80740	200.00
	5lb	82589	970.00	82631	930.00	82673	910.00	125.00	80.00	80739	55.00
	4lb	82588	825.00	82630	785.00	82672	755.00	125.00	80.00	80738	55.00
	3lb	82587	620.00	82629	565.00	82671	550.00	125.00	80.00	80737	55.00
	2lb	82586	545.00	82628	515.00	82670	495.00	100.00	65.00	80736	55.00
	1 lb	82585	275.00	82627	260.00	82669	245.00	100.00	65.00	80735	55.00
	8 oz	82584	225.00	82626	215.00	82668	215.00	50.00	40.00	80734	30.00
	0.5 lb	82570	230.00	82614	215.00	82656	215.00	50.00	40.00	80724	30.00
<u>a</u>	0.3lb	118518	170.00	118519	165.00	118520	135.00	50.00	40.00	118551	30.00
Screw Knob	0.2lb	82569	145.00	82613	145.00	82655	115.00	50.00	40.00	80726	30.00
3	0.1 lb	82568	110.00	82612	100.00	82654	100.00	50.00	40.00	80725	30.00
Sre	0.05 lb	82567	95.00	82611	90.00	82653	85.00	50.00	40.00	80724	30.00
ŭ	0.03 lb	118805	95.00	118806	85.00	118807	85.00	50.00	40.00	80730	30.00
	0.02 lb	82566	95.00	82610	85.00	82652	85.00	50.00	40.00	80723	30.00
	0.01 lb	82565	95.00	82609	85.00	82651	85.00	50.00	40.00	80722	30.00
	0.005lb	82564	95.00	82608	85.00	82650	85.00	50.00	40.00	80721	30.00
	0.003lb	118801	95.00	118802	85.00	118803	85.00	50.00	40.00	118550	30.00
	4 oz	82577	125.00	82621	120.00	82663	120.00	50.00	40.00	80733	30.00
	2 oz	82576	110.00	82620	100.00	82662	100.00	50.00	40.00	80732	30.00
	1 oz	82575	90.00	82619	90.00	82661	85.00	50.00	40.00	80731	30.00
	1/2 oz	82574	85.00	82618	85.00	82660	85.00	50.00	40.00	80730	30.00
	1/4 oz	82573	85.00	82617	85.00	82659	85.00	50.00	40.00	80729	30.00
	1/8 oz	82572	85.00	82616	85.00	82658	85.00	50.00	40.00	80728	30.00
	1/16 oz	82571	85.00	82615	85.00	82657	85.00	50.00	40.00	80719	30.00
am	0.001 lb	80428	85.00	80443	85.00	80448	85.00	50.00	40.00	-	-
Milligram	0.002 lb	80439	85.00	80445	85.00	80449	85.00	50.00	40.00	-	-
Ē	1/32 oz	80442	85.00	80446	85.00	80451	85.00	50.00	40.00	-	-

Part #	Description	Price
11714	Weight gloves, white, cotton	\$5.00
11747	Lifting bar	15.00
11711	Weight tweezer	3.00
152414	Premium tweezer	35.00
36092	Statement of Accuracy	45.00
50038	Vial	3.00
25836	Serial number	15.00



Precision Laboratory - ASTM **Avoirdupois Individual Weights**

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CLASS 2

CLASS 3

OPTIONAL

OPTIONAL

REPLACEMENT CASES

		ULAGO I		ULAGO Z	-	ULAGO	U	OI HORAL	OI HOMAL	IILI LAULIVI	LITT OMOLO
	Weight	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
	50 lb	12056	\$4,390.00	12202	\$4,325.00	12335	\$4,260.00	-	-	-	-
	30 lb	12055	3,235.00	12201	3,150.00	12334	3,025.00	\$125.00	\$80.00	80743	\$200.00
	25 lb	12054	2,710.00	12200	2,655.00	12333	2,555.00	125.00	80.00	80742	200.00
	20 lb	12053	2,190.00	12199	2,125.00	12332	1,990.00	125.00	80.00	80741	200.00
	10lb	12052	1,240.00	12198	1,205.00	12331	1,145.00	125.00	80.00	80740	200.00
	5lb	12050	925.00	12196	885.00	12330	865.00	125.00	80.00	80739	55.00
	4lb	12049	780.00	12195	725.00	12329	715.00	125.00	80.00	80738	55.00
	3lb	12048	590.00	12194	540.00	12328	520.00	125.00	80.00	80737	55.00
	2lb	12047	520.00	12193	490.00	12327	470.00	100.00	65.00	80736	55.00
	1 lb	12046	245.00	12192	245.00	12326	235.00	100.00	65.00	80735	55.00
	8 oz	12044	215.00	12190	210.00	12325	200.00	50.00	40.00	80734	30.00
	0.5 lb	12034	220.00	12180	210.00	12316	205.00	50.00	40.00	80734	30.00
Se Se	0.3 lb	118518	170.00	118519	165.00	118520	135.00	50.00	40.00	118551	30.00
Screw Knob	0.2lb	12033	135.00	12179	135.00	12315	105.00	50.00	40.00	80726	30.00
e.	0.1 lb	12032	100.00	12178	95.00	12314	90.00	50.00	40.00	80725	30.00
Scr	0.05 lb	12027	80.00	12173	80.00	12310	75.00	50.00	40.00	80724	30.00
٠,	0.03 lb	118514	85.00	118515	85.00	118516	85.00	50.00	40.00	80730	30.00
	0.02 lb	12022	85.00	12168	85.00	22185	85.00	50.00	40.00	80723	30.00
	0.01 lb	12020	85.00	12166	85.00	22183	85.00	50.00	40.00	80722	30.00
	0.005 lb	12013	85.00	12159	85.00	12297	85.00	50.00	40.00	80721	30.00
	0.003 lb	118510	85.00	118511	85.00	118512	85.00	50.00	40.00	118550	30.00
	4 oz	12043	115.00	12189	115.00	12324	115.00	50.00	40.00	80733	30.00
	2 oz	12042	100.00	12188	95.00	12323	95.00	50.00	40.00	80732	30.00
	1 oz	12041	80.00	12187	80.00	12322	75.00	50.00	40.00	80731	30.00
	1/2 oz	12040	85.00	12186	85.00	12321	85.00	50.00	40.00	80730	30.00
	1/4 oz	12039	85.00	12185	85.00	12320	85.00	50.00	40.00	80729	30.00
	1/8 oz	12038	85.00	12184	85.00	12319	85.00	50.00	40.00	80728	30.00
	1/16 oz	12037	85.00	12183	85.00	12318	85.00	50.00	40.00	80719	30.00
am	0.001 lb	12007	85.00	12153	85.00	12291	85.00	50.00	40.00	-	-
Milligram	0.002lb	12009	85.00	12155	85.00	12293	85.00	50.00	40.00	-	-
Ξ	1/32 oz	12036	85.00	12182	85.00	12317	85.00	50.00	40.00	-	-
For o	nacial kita in		te muet chin in a								

For special kits, individual weights must ship in a case.



Screw-knob Design



Milligram

CLASS 4

OPTIONAL REPLACEMENT CASES

		14.1		Trescoble			
	Weight	Kit Part #	Kit Price	Traceable Certificate	Part #	Price	
	50 lb	-	-	-	-	-	
	30 lb	82709	\$3,110.00	\$75.00	80743	\$200.00	
	25 lb	82708	2,625.00	75.00	80742	200.00	
	20 lb	82707	2,065.00	75.00	80741	200.00	
	10lb	82706	1,215.00	75.00	80740	200.00	
	5lb	82715	895.00	75.00	80739	55.00	
	4lb	82714	690.00	75.00	80738	55.00	
	3lb	82713	530.00	75.00	80737	55.00	
	2lb	82712	480.00	60.00	80736	55.00	
	1 lb	82711	225.00	60.00	80735	55.00	
	8 oz	82710	205.00	35.00	80734	30.00	
	0.5 lb	82698	215.00	35.00	80734	30.00	
lob	0.3 lb	118812	145.00	35.00	118551	30.00	
Kr	0.2lb	82697	110.00	35.00	80723	30.00	
ew	0.1 lb	82696	90.00	35.00	80725	30.00	
Screw Knob	0.05 lb	82695	75.00	35.00	80724	30.00	
•	0.03 lb	118808	75.00	35.00	80730	30.00	
	0.02 lb	82694	85.00	35.00	80723	30.00	
	0.01 lb	82693	85.00	35.00	80722	30.00	
	0.005 lb	82692	85.00	35.00	80721	30.00	
	0.003 lb	118804	85.00	35.00	118550	30.00	
	4 oz	82705	110.00	35.00	80733	30.00	
	2 oz	82704	100.00	35.00	80732	30.00	
	1 oz	82703	90.00	35.00	80731	30.00	
	1/2 oz	82702	85.00	35.00	80730	30.00	
	1/4 oz	82701	85.00	35.00	80729	30.00	
	1/8 oz	82700	85.00	35.00	80728	30.00	
	1/16 oz	82699	85.00	35.00	80719	30.00	
am	0.001 lb	80452	80.00	35.00	_	-	
lligram	0.002lb	80453	80.00	35.00	-	-	
Z	1/32 oz	80454	80.00	35.00	-	-	

Part #	Description	Price
11714	Weight gloves, white, cotton	\$5.00
11747	Lifting bar	15.00
11711	Weight tweezer	3.00
152414	Premium tweezer	35.00
36092	Statement of Accuracy	45.00
50038	Vial	3.00
80420	Capsule	3.00
25836	Serial number	15.00



Precision Laboratory - ASTM **Avoirdupois Individual Weights**

CLASS 4

OPTIONAL

REPLACEMENT CASES

	CLASS 4				OPTIONAL	REPLACEMENT CASES		
	Weight	Part #	Price		Traceable Certificate	Part #	Price	
	50 lb	12438	\$4,210.00		-	-	-	
	30 lb	12437	3,000.00		\$75.00	80743	\$200.00	
	25lb	12436	2,520.00		75.00	80742	200.00	
	20 lb	12435	1,955.00		75.00	80741	200.00	
	10 lb	12434	1,105.00		75.00	80740	200.00	
	5 lb	12433	850.00		75.00	80739	55.00	
	4 lb	12432	655.00		75.00	80738	55.00	
	3 lb	12431	500.00		75.00	80737	55.00	
	2lb	12430	460.00		60.00	80736	55.00	
	1 lb	12429	215.00		60.00	80735	55.00	
	8 oz	12428	195.00		35.00	80734	30.00	
	0.5 lb	12419	205.00		35.00	80734	30.00	
Screw Knob	0.3 lb	118521	130.00		35.00	118551	30.00	
X	0.2lb	12418	100.00		35.00	80723	30.00	
e.	0.1 lb	12417	80.00		35.00	80725	30.00	
Sci	0.05 lb	12413	70.00		35.00	80724	30.00	
	0.03 lb	118517	85.00		35.00	80730	30.00	
	0.02 lb	12408	85.00		35.00	80723	30.00	
	0.01 lb	12406	80.00		35.00	80722	30.00	
	0.005 lb	12400	80.00		35.00	80721	30.00	
	0.003 lb	118513	80.00		35.00	118550	30.00	
	4 oz	12427	95.00		35.00	80733	30.00	
	2 oz	12426	90.00		35.00	80732	30.00	
	1 oz	12425	80.00		35.00	80731	30.00	
	1/2 oz	12424	85.00		35.00	80730	30.00	
	1/4 oz	12423	85.00		35.00	80729	30.00	
	1/8 oz	12422	85.00		35.00	80728	30.00	
	1/16 oz	12421	85.00		35.00	80719	30.00	
ligram	0.001 lb	12394	75.00		35.00	-	-	
IIIgr	0.002lb	12396	75.00		35.00	-	-	
Ξ	1/32 oz	12420	75.00		35.00	-	-	
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For special kits-Individual weights must ship in a case.



Screw-knob Design



Milligram

Precision Laboratory - ASTM **Essential Weights**

Standard Features

- ASTM Class 1 weights
- Polished stainless steel Type II design
- · Sealing cavity
- Density is approximately 7.95 g/cm3
- Special PVC weight cases or ABS case
- Precision tweezers included
- Configurations available ideal for calibration, shift test and sensitivity tests
- · Other configurations available by special order



CLASS 1*

REPLACEMENT CASES

Weight	Part #	Kit Price	Calibration Certificate	Mass Value Certificate	Part #	Price
5 kg, 2 kg, 500 g, 2 g	161713*	\$1,200.00	\$450.00	\$245.00	162364*	\$200.00
2kg, 1kg, 500 mg	161712	935.00	310.00	170.00	161717	435.00
500g, 200g, 50g, 100mg	161711	560.00	340.00	190.00	161716	210.00
200 g, 100 g, 20 mg	161710	490.00	220.00	135.00	161715	210.00
100 g, 50 g, 10 mg	161709	385.00	150.00	120.00	161714	165.00

^{*}ABS plastic case

PART #	DESCRIPTION	PRICE
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
25836	Serial number	15.00

Metric Sets

Range: 500 mg

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
500 mg - 1 mg	45933	\$1,735.00	34699	\$100.00
500 mg - 1 mg*	96359*	1,735.00	34699	100.00
500 mg - 10 mg	84141	1,285.00	34699	100.00
500 mg - 10 mg*	98191*	1,285.00	34699	100.00
500 mg - 100 mg	45934	885.00	34699	100.00
500 mg - 100 mg*	96360*	885.00	34699	100.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

CLASS 1	CLASS 2	CLASS 3	OPTIONAL	OPTIONAL	REPLACEMENT CASES*
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Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
500 mg - 1 mg	12445	\$535.00	11838	\$460.00	11946	\$445.00	\$450.00	\$360.00	11763	\$70.00
500 mg - 1 mg*	11910*	535.00	12176*	460.00	12313*	445.00	450.00	360.00	11763	70.00
500 mg - 10 mg	12447	395.00	11848	370.00	11956	325.00	300.00	240.00	11763	70.00
500 mg - 10 mg*	11909*	395.00	12175*	370.00	12312*	325.00	300.00	240.00	11763	70.00
500 mg - 100 mg	45952	375.00	45953	325.00	45954	260.00	150.00	120.00	11763	70.00
500 mg - 100 mg*	45944*	375.00	45945*	325.00	45946*	260.00	150.00	120.00	11763	70.00

*Includes milligram lid and tweezer

CLASS 4 OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
500 mg - 1 mg	12093	\$280.00	\$270.00	11763	\$70.00
500 mg - 1 mg*	12416*	280.00	270.00	11763	70.00
500 mg - 10 mg	12103	210.00	180.00	11763	70.00
500 mg -10 mg*	12415*	210.00	180.00	11763	70.00
500 mg - 100 mg	45955	165.00	90.00	11763	70.00
500 mg - 100 mg*	45947*	165.00	90.00	11763	70.00

^{* 5-2-2-1} Configuration



Set includes lifting device and glove

Range: 500 mg

WEIGHT SET CONTENTS

500 mg - 1 mg	500 mg - 1 mg*	500 mg - 10 mg	500 mg - 10 mg*	500 mg - 100 mg	500 mg - 100 mg*
1 - 500 mg	1 - 500 mg	1 - 500 mg	1 - 500 mg 1 - 500 mg		1 - 500 mg
1 - 300 mg	2 - 200 mg	1 - 300 mg	2 - 200 mg	1 - 300 mg	2 - 200 mg
1 - 200 mg	1 - 100 mg	1 - 200 mg	1 - 100 mg	1 - 200 mg	1 - 100 mg
1 - 100 mg	1 - 50 mg	1 - 100 mg	1 - 50 mg	1 - 100 mg	
1 - 50 mg	2 - 20 mg	1 - 50 mg	2 - 20 mg		
1 - 30 mg	1 - 10 mg	1 - 30 mg	1 - 10 mg		
1 - 20 mg	1 - 5 mg	1 - 20 mg			
1 - 10 mg	2 - 2 mg	1 - 10 mg			
1 - 5 mg	1 - 1 mg				
1 - 3 mg					
1 - 2 mg					
1 - 1 mg					
		Piece	Count		
12	12	8	8	4	4
		Total V	Veight		
1.221 g	1.11 g	1.21 g	1.11 g	1.1 g	.8g

		IULAI W	reigiit		
1.221 g	1.11 g	1.21 g	1.11 g	1.1 g	.8g
Part #					
45933-Class 0	96359-Class 0	84141-Class 0	98191-Class 0	45934-Class 0	96360-Class 0
12445-Class 1	11910-Class 1	12447-Class 1	11909-Class 1	45952-Class 1	45944-Class 1
11838-Class 2	12176-Class 2	11848-Class 2	12175-Class 2	45953-Class 2	45945-Class 2
11946-Class 3	12313-Class 3	11956-Class 3	12312-Class 3	45954-Class 3	45946-Class 3
12093-Class 4	12416-Class 4	12103-Class 4	12415-Class 4	45955-Class 4	45947-Class 4

^{* 5-2-2-1} Configuration

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00

Range: 20g

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
20 g - 1 mg	84154	\$2,370.00	49503	\$200.00
20g - 5mg	84149	2,535.00	49503	200.00
20g - 10mg	84148	2,360.00	49503	200.00
20g - 100mg	84146	1,775.00	49503	200.00
20 g - 1 g	84155	1,280.00	49503	200.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

CLASS 1	CLASS 2	CLASS 3	OPTIONAL	OPTIONAL	REPLACEMENT CASES
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Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
20g - 1 mg	12448	\$925.00	11853	\$770.00	11961	\$700.00	\$675.00	\$540.00	11596	\$145.00
20g - 1 mg	11908*	925.00	12174*	770.00	12311*	700.00	675.00	540.00	11588	145.00
20g - 5 mg	12450	795.00	11858	685.00	11966	625.00	565.00	450.00	11596	145.00
20g - 5 mg	11907*	795.00	12172*	685.00	12309*	625.00	565.00	450.00	11588	145.00
20 g - 10 mg	12451	760.00	11863	620.00	11971	565.00	525.00	420.00	11596	145.00
20g - 10mg	11906*	760.00	12171*	620.00	22188*	565.00	525.00	420.00	11588	145.00
20g - 100mg	84145	645.00	84144	545.00	84143	510.00	375.00	300.00	11596	145.00
20g - 100mg	11905*	645.00	12170*	545.00	22187*	510.00	375.00	300.00	11588	145.00
20g - 1g	12452	535.00	11868	460.00	11976	400.00	225.00	180.00	11596	145.00
20g - 1g	11904*	535.00	12169*	460.00	22186*	400.00	225.00	180.00	11588	145.00

CLASS 4 **OPTIONAL** REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
20 g - 1 mg	12108	\$540.00	\$410.00	11596	\$145.00
20 g - 1 mg	12414*	540.00	410.00	11588	145.00
20 g - 5 mg	12113	500.00	340.00	11596	145.00
20 g - 5 mg	12412*	500.00	340.00	11588	145.00
20 g - 10 mg	12118	480.00	310.00	11596	145.00
20g - 10mg	12411*	480.00	310.00	11588	145.00
20g - 100 mg	84142	400.00	225.00	11596	145.00
20g - 100 mg	12410*	400.00	225.00	11588	145.00
20 g - 1 g	12123	325.00	135.00	11596	145.00
20g - 1g	12409*	325.00	135.00	11588	145.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Range: 20g

WEIGHT SET CONTENTS

20g - 1 mg	20g - 1 mg*	20g - 5mg	20g - 5mg*	20g - 10mg	20g - 10mg*	20 g - 100 mg	20 g - 100 mg*	20g - 1g	20g - 1g*
1 - 20 g	1 - 20g	1 - 20 g	1 - 20 g	1 - 20g	1 - 20g	1 - 20g	1 - 20 g	1 - 20 g	1 - 20 g
1 - 10 g	1 - 10 g	1 - 10g	1 - 10g	1 - 10g	1 - 10 g	1 - 10 g	1 - 10g	1 - 10g	1 - 10g
1 - 5 g	1 - 5 g	1 - 5g	1 - 5g	1 - 5g	1 - 5 g	1 - 5 g	1 - 5g	1 - 5g	1 - 5g
1 - 3g	2 - 2g	1 - 3g	2 - 2g	1 - 3g	2 - 2g	1 - 3g	2 - 2g	1 - 3g	2 - 2g
1 - 2g	1 - 1g	1 - 2g	1 - 1g	1 - 2g	1 - 1g	1 - 2g	1 - 1 g	1 - 2g	1 - 1 g
1 - 1g	1 - 500 mg	1 - 1g	1 - 500 mg	1 - 1 g	1 - 500 mg	1 - 1 g	1 - 500 mg	1 - 1g	1 - 1 g
1 - 500 mg	2 - 200 mg	1 - 500 mg	2 - 200 mg	1 - 500 mg	2 - 200 mg	1 - 500 mg	2 - 200 mg		
1 - 300 mg	1 - 100 mg	1 - 300 mg	1 - 100 mg	1 - 300 mg	1 - 100 mg	1 - 300 mg	1 - 100 mg		
1 - 200 mg	1 - 50 mg	1 - 200 mg	1 - 50 mg	1 - 200 mg	1 - 50 mg	1 - 200 mg			
1 - 100 mg	2 - 20 mg	1 - 100 mg	2 - 20 mg	1 - 100 mg	2 - 20 mg	1 - 100 mg			
1 - 50 mg	1 - 10 mg	1 - 50 mg	1 - 10 mg	1 - 50 mg	1 - 10 mg				
1 - 30 mg	1 - 5 mg	1 - 30 mg	1 - 5 mg	1 - 30 mg					
1 - 20 mg	2 - 2 mg	1 - 20 mg		1 - 20 mg					
1 - 10 mg	1 - 1 mg	1 - 10 mg		1 - 10 mg					
1 - 5 mg		1 - 5 mg							
1 - 3 mg									
1 - 2 mg									
1 - 1 mg									
				Piece	Count				
18	18	15	15	14	14	10	10	6	6
				Total \	Weight				
42.221 g	42.221 g	42.215 g	42.215g	42.421 g	41.1 g	41 g	41 g	42.105 g	40 g

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42.221 g	42.221 g	42.215 g	42.215g	42.421 g	41.1 g	41 g	41 g	42.105 g	40 g
Part #									
84154-Class 0	-	84149-Class 0	-	84148-Class 0	-	84146-Class 0	-	84155-Class 0	-
12448-Class 1	11908-Class 1	12450-Class 1	11907-Class 1	12451-Class 1	11906-Class 1	84145-Class 1	11905-Class 1	12452-Class 1	11904-Class 1
11853-Class 2	12174-Class 2	11858-Class 2	12172-Class 2	11863-Class 2	12171-Class 2	84144-Class 2	12170-Class 2	11868-Class 2	12169-Class 2
11961-Class 3	12311-Class 3	11966-Class 3	12309-Class 3	11971-Class 3	22188-Class 3	84143-Class 3	22187-Class 3	11976-Class 3	22186-Class 3
12108-Class 4	12414-Class 4	12113-Class 4	12412-Class 4	12118-Class 4	12411-Class 4	84142-Class 4	12410-Class 4	12123-Class 4	12409-Class 4

^{* 5-2-2-1} Configuration

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00

Range: 50g

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
50g - 1 mg	84177	\$3,065.00	49503	\$200.00
50g - 5 mg	84176	2,850.00	49503	200.00
50g - 10mg	84164	2,580.00	49503	200.00
50g - 100mg	84163	1,965.00	49503	200.00
50g - 1g	84178	1,540.00	49503	200.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

CLASS 1	CLASS 2	CLASS 3	OPTIONAL	OPTIONAL	REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
50g - 1 mg	12453	\$910.00	11873	\$800.00	11982	\$750.00	\$750.00	\$600.00	11596	\$145.00
50g - 1 mg*	11903	910.00	12167*	800.00	22288*	750.00	750.00	600.00	11588	145.00
50g - 5mg	12454	850.00	11879	730.00	11988	660.00	640.00	510.00	11596	145.00
50g - 5mg*	11902	850.00	12165*	730.00	22182*	660.00	640.00	510.00	11588	145.00
50g - 10mg	12455	800.00	11880	695.00	11989	635.00	600.00	480.00	11596	145.00
50g - 10mg *	11900	800.00	12163*	695.00	22181*	635.00	600.00	480.00	11588	145.00
50g - 100mg	84159	695.00	84160	555.00	84161	530.00	450.00	360.00	11596	145.00
50g - 100mg *	11899	695.00	12162*	555.00	12300*	530.00	450.00	360.00	11588	145.00
50g - 1g	12456	575.00	11890	500.00	12004	455.00	300.00	240.00	11596	145.00
50g - 1g*	11898	575.00	12161*	500.00	12299*	455.00	300.00	240.00	11588	145.00

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
50g - 1 mg	12128	\$635.00	\$455.00	11596	\$145.00
50g - 1 mg*	12407	635.00	455.00	11588	145.00
50g - 5mg	12134	580.00	385.00	11596	145.00
50g - 5mg*	12405	580.00	385.00	11588	145.00
50g - 10mg	12135	560.00	365.00	11596	145.00
50 g - 10 mg *	12404	560.00	365.00	11588	145.00
50g - 100 mg	84162	480.00	270.00	11596	145.00
50 g - 100 mg *	12403	480.00	270.00	11588	145.00
50g - 1g	12150	400.00	180.00	11596	145.00
50g - 1g*	12402	400.00	180.00	11588	145.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Range: 50g

WEIGHT SET CONTENTS

50 g - 1 mg	50g - 1 mg*	50g - 5 mg	50g - 5mg*	50g - 10mg	50g - 10mg*	50 g - 100 mg	50g - 100mg*	50g - 1g	50g - 1g*
1 - 50g	1 - 50g	1 - 50 g	1 - 50 g	1 - 50g	1 - 50g	1 - 50 g	1 - 50g	1 - 50 g	1 - 50 g
1 - 30 g	2 - 20 g	1 - 30g	2 - 20 g	1 - 30g	2 - 20 g	1 - 30 g	2 - 20 g	1 - 30g	2 - 20 g
1 - 20 g	1 - 10g	1 - 20 g	1 - 10 g	1 - 20g	1 - 10 g	1 - 20 g	1 - 10g	1 - 20 g	1 - 10 g
1 - 10 g	1 - 5g	1 - 10g	1 - 5g	1 - 10g	1 - 5 g	1 - 10 g	1 - 5g	1 - 10 g	1 - 5g
1 - 5g	2 - 2g	1 - 5g	2 - 2g	1 - 5g	2 - 2g	1 - 5g	2 - 2g	1 - 5g	2 - 2g
1 - 3g	1 - 1g	1 - 3g	1 - 1g	1 - 3g	1 - 1 g	1 - 3g	1 - 1g	1 - 3g	1 - 1 g
1 - 2g	1 - 500 mg	1 - 2g	1 - 500 mg	1 - 2g	1 - 500 mg	1 - 2g	1 - 500 mg	1 - 2g	
1 - 1 g	2 - 200 mg	1 - 1g	2 - 200 mg	1 - 1g	2 - 200 mg	1 - 1g	2 - 200 mg	1 - 1 g	
1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg		
1 - 300 mg	1 - 50 mg	1 - 300 mg	1 - 50 mg	1 - 300 mg	1 - 50 mg	1 - 300 mg			
1 - 200 mg	2 - 20 mg	1 - 200 mg	2 - 20 mg	1 - 200 mg	2 - 20 mg	1 - 200 mg			
1 - 100 mg	1 - 10 mg	1 - 100 mg	1 - 10 mg	1 - 100 mg	1 - 10 mg	1 - 100 mg			
1 - 50 mg	1 - 5 mg	1 - 50 mg	1 - 5 mg	1 - 50 mg					
1 - 30 mg	2 - 2 mg	1 - 30 mg		1 - 30 mg					
1 - 20 mg	1 - 1 mg	1 - 20 mg		1 - 20 mg					
1 - 10 mg		1 - 10 mg		1 - 10 mg					
1 - 5 mg		1 - 5 mg							
1 - 3 mg									
1 - 2 mg									
1 - 1 mg									
				Piece	Count				
20	20	17	17	16	16	12	12	8	8
				Total \	Neight				
122.221 g	111.11 g	122.215g	111.105 g	122.21 g	111.1 g	122.1 g	111 g	121 g	110 g
Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #

122.221 g	111.11 g	122.215g	111.105 g	122.21 g	111.1 g	122.1 g	111 g	121 g	110 g
Part #									
84177-Class 0	-	84176-Class 0	-	84164-Class 0	-	84163-Class 0	-	84178-Class 0	-
12453-Class 1	11903-Class 1	12454-Class 1	11902-Class 1	12455-Class 1	11900-Class 1	84159-Class 1	11899-Class 1	12456-Class 1	11898-Class 1
11873-Class 2	12167-Class 2	11879-Class 2	12165-Class 2	11880-Class 2	12163-Class 2	84160-Class 2	12162-Class 2	11890-Class 2	12161-Class 2
11982-Class 3	22288-Class 3	11988-Class 3	22182-Class 3	11989-Class 3	22181-Class 3	84161-Class 3	12300-Class 3	12004-Class 3	12299-Class 3
12128-Class 4	12407-Class 4	12134-Class 4	12405-Class 4	12135-Class 4	12404-Class 4	84162-Class 4	12403-Class 4	12150-Class 4	12402-Class 4

^{* 5-2-2-1} Configuration

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00

Metric Sets

Range: 100g

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
100 g - 1 mg	45930	\$3,365.00	49503	\$200.00
100 g - 5 mg	84211	2,935.00	49503	200.00
100g - 10 mg	84212	2,720.00	49503	200.00
100 g - 100 mg	45931	2,255.00	49503	200.00
100g - 1g	45932	1,635.00	49503	200.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

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CLASS 2 CLASS 3

OPTIONAL

OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
100 g - 1 mg	12457	\$985.00	11901	\$860.00	12018	\$815.00	\$790.00	\$590.00	11596	\$145.00
100g - 1 mg *	11897	985.00	12160	860.00	12298	815.00	790.00	590.00	11588	145.00
100 g - 5 mg	11911	875.00	12158	765.00	12031	720.00	675.00	520.00	11596	145.00
100g - 5mg*	11896	875.00	-	-	12296	720.00	675.00	520.00	11588	145.00
100g - 10 mg	12460	860.00	11912	750.00	12035	715.00	640.00	510.00	11596	145.00
100g - 10mg*	11895	860.00	12157	750.00	12295	715.00	640.00	510.00	11588	145.00
100g - 100 mg	45956	700.00	45957	730.00	45958	680.00	490.00	390.00	11596	145.00
100g - 100mg*	45948	700.00	45949	730.00	45950	680.00	490.00	390.00	11588	145.00
100g - 1g	12461	625.00	11913	615.00	12045	600.00	340.00	270.00	11596	145.00
100g - 1g*	11894	625.00	12156	615.00	12294	600.00	340.00	270.00	11588	145.00

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
100g - 1 mg	12164	\$735.00	\$485.00	11596	\$145.00
100g - 1 mg *	12401	735.00	485.00	11588	145.00
100g - 5mg	12177	720.00	410.00	11596	145.00
100g - 5 mg*	12399	720.00	410.00	11588	145.00
100g - 10mg	12181	715.00	380.00	11596	145.00
100g - 10mg*	12398	715.00	380.00	11588	145.00
100g - 100mg	45959	595.00	295.00	11596	145.00
100g - 100mg*	45951	595.00	295.00	11588	145.00
100g - 1g	12191	525.00	205.00	11596	145.00
100g - 1g*	12397	525.00	205.00	11588	145.00
* F 2 2 1 Configuration	0.0				

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Range: 100g

WEIGHT SET CONTENTS

100 g - 1 mg	100 g - 1 mg*	100g - 5mg	100 g - 5 mg*	100 g - 10 mg	100 g -10 mg*	100 g - 100 mg	100g - 100mg*	100 g - 1 g	100 g - 1 g*
1 - 100 g	1 - 100 g	1 - 100 g	1 - 100g	1 - 100g	1 - 100g	1 - 100g	1 - 100g	1 - 100g	1 - 100g
1 - 50g	1 - 50g	1 - 50 g	1 - 50 g	1 - 50 g	1 - 50 g	1 - 50 g	1 - 50 g	1 - 50 g	1 - 50 g
1 - 30 g	2 - 20 g	1 - 30g	2 - 20g	1 - 30g	2 - 20g	1 - 30 g	2 - 20 g	1 - 30 g	2 - 20 g
1 - 20 g	1 - 10g	1 - 20g	1 - 10 g	1 - 20 g	1 - 10g	1 - 20 g	1 - 10g	1 - 20g	1 - 10g
1 - 10 g	1 - 5g	1 - 10g	1 - 5g	1 - 10g	1 - 5g	1 - 10 g	1 - 5g	1 - 10 g	1 - 5g
1 - 5g	2 - 2g	1 - 5g	2 - 2g	1 - 5g	2 - 2g	1 - 5 g	2 - 2g	1 - 5 g	2 - 2g
1 - 3g	1 - 1g	1 - 3g	1 - 1 g	1 - 3g	1 - 1 g	1 - 3g	1 - 1g	1 - 3g	1 - 1g
1 - 2g	1 - 500 mg	1 - 2g	1 - 500 mg	1 - 2g	1 - 500 mg	1 - 2g	1 - 500 mg	1 - 2g	
1 - 1g	2 - 200 mg	1 - 1g	2 - 200 mg	1 - 1g	2 - 200 mg	1 - 1 g	2 - 200 mg	1 - 1 g	
1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg		
1 - 300 mg	1 - 50 mg	1 - 300 mg	1 - 50 mg	1 - 300 mg	1 - 50 mg	1 - 300 mg			
1 - 200 mg	2 - 20 mg	1 - 200 mg	2 - 20 mg	1 - 200 mg	2 - 20 mg	1 - 200 mg			
1 - 100 mg	1 - 10 mg	1 - 100 mg	1 - 10 mg	1 - 100 mg	1 - 10 mg	1 - 100 mg			
1 - 50 mg	1 - 5 mg	1 - 50 mg	1 - 5 mg	1 - 50 mg					
1 - 30 mg	2 - 2 mg	1 - 30 mg		1 - 30 mg					
1 - 20 mg	1 - 1 mg	1 - 20 mg		1 - 20 mg					
1 - 10 mg		1 - 10 mg		1 - 10 mg					
1 - 5 mg		1 - 5 mg							
1 - 3 mg									
1 - 2 mg									
1 - 1 mg									
				Piece	Count				
21	21	18	18	17	17	13	13	9	9
				Total \	Veight				
222.221 g	211.11 g	222.215g	211.085 g	222.21 g	211.1 g	222.1 g	211 g	221 g	210 g
Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #

222.221 g	211.11 g	222.215g	211.085 g	222.21 g	211.1 g	222.1 g	211 g	221 g	210 g
Part #									
45930-Class 0	-	84211-Class 0	-	84212-Class 0	-	45931-Class 0	-	45932-Class 0	-
12457-Class 1	11897-Class 1	11911-Class 1	11896-Class 1	12460-Class 1	11895-Class 1	45956-Class 1	45948-Class 1	12461-Class 1	11894-Class 1
11901-Class 2	12160-Class 2	12158-Class 2	-	11912-Class 2	12157-Class 2	45957-Class 2	45949-Class 2	11913-Class 2	12156-Class 2
12018-Class 3	12298-Class 3	12031-Class 3	12296-Class 3	12035-Class 3	12295-Class 3	45958-Class 3	45950-Class 3	12045-Class 3	12294-Class 3
12164-Class 4	12401-Class 4	12177-Class 4	12399-Class 4	12181-Class 4	12398-Class 4	45959-Class 4	45951-Class 4	12191-Class 4	12397-Class 4

\$45.00
5.00
3.00
35.00
15.00
35.00

Metric Sets

Range: 200 g

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
200g - 1 mg	45927	\$3,720.00	34645	\$270.00
200g - 1 mg*	156298	3,720.00	34645	270.00
(2) 200 g x 1 mg*	87039	4,145.00	34645	270.00
200g - 10 mg	84213	3,345.00	34645	270.00
(2) 200g x 10 mg*	87038	3,600.00	34645	270.00
200g - 100 mg	45928	2,905.00	34645	270.00
(2) 200 g x 100 mg*	87037	3,110.00	34645	270.00
200g - 1g	45929	1,945.00	34645	270.00
(2) 200 g x 1 g*	87040	2,310.00	34645	270.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

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CLASS 2

CLASS 3

OPTIONAL

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
200 g - 1 mg	12462	\$1,050.00	11914	\$1,005.00	12051	\$995.00	\$880.00	\$630.00	34645	\$270.00
200g - 1 mg*	156299	1,050.00	156300	1,005.00	156301	995.00	880.00	630.00	34645	270.00
(2) 200 g x 1 mg*	87053	1,110.00	87054	1,055.00	87055	1,050.00	970.00	645.00	34645	270.00
200g - 10mg	12467	960.00	11916	825.00	12064	800.00	730.00	515.00	34645	270.00
(2) 200 g x 10 mg*	87049	1,100.00	87050	1,025.00	87051	1,000.00	820.00	595.00	34645	270.00
200 g - 100 mg	45960	920.00	45961	790.00	45962	730.00	580.00	430.00	34645	270.00
(2) 200 g x 100 mg*	87045	1,070.00	87046	1,000.00	87047	995.00	670.00	475.00	34645	270.00
200g - 1g	12468	780.00	11917	730.00	12065	725.00	430.00	310.00	34645	270.00
200g - 1g*	11893	780.00	12154	730.00	12292	725.00	430.00	310.00	34645	270.00
(2) 200 g x 1 g*	87057	885.00	87058	755.00	87059	750.00	520.00	355.00	34645	270.00

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
200g - 1 mg	12197	\$780.00	\$510.00	34645	\$270.00
200g - 1 mg*	156302	780.00	510.00	34645	270.00
(2) 200 g x 1 mg*	87056	850.00	540.00	34645	270.00
200g - 10 mg	12210	740.00	420.00	34645	270.00
(2) 200g x 10 mg*	87052	815.00	450.00	34645	270.00
200 g - 100 mg	45963	665.00	325.00	34645	270.00
(2) 200 g x 100 mg*	87048	780.00	360.00	34645	270.00
200g - 1g	12211	560.00	235.00	34645	270.00
200g - 1g*	12395	560.00	235.00	34645	270.00
(2) 200 g x 1 g*	87060	660.00	270.00	34645	270.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Range: 200 g

WEIGHT SET CONTENTS

200 g - 1 mg	200 g - 1 mg*	(2) 200 g - 1 mg*	200g - 10mg	(2) 200 g - 10 mg*	200 g - 100 mg	(2) 200 g - 100 mg*	200 g - 1 g	200 g - 1 g*	(2) 200 g - 1 g*
1 - 200g	1 - 200g	2 - 200 g	1 - 200 g	2 - 200g	1 - 200g	2 - 200 g	1 - 200 g	1 - 200 g	2 - 200 g
1 - 100 g	1 - 100g	1 - 100g	1 - 100g	1 - 100 g	1 - 100 g	1 - 100g	1 - 100g	1 - 100g	1 - 100 g
1 - 50g	1 - 50g	1 - 50 g	1 - 50 g	1 - 50 g	1 - 50g	1 - 50g	1 - 50 g	1 - 50 g	1 - 50g
1 - 30g	2 - 20 g		1 - 30 g	2 - 20 g	1 - 30g	2 - 20 g	1 - 30 g	2 - 20 g	2 - 20g
1 - 20 g	1 - 10g	2 - 20 g	1 - 20 g	1 - 10 g	1 - 20 g	1 - 10g	1 - 20 g	1 - 10g	1 - 10g
1 - 10 g	1 - 5g	1 - 10g	1 - 10g	1 - 5g	1 - 10 g	1 - 5g	1 - 10g	1 - 5g	1 - 5g
1 - 5g	2 - 2g	1 - 5g	1 - 5g	2 - 2g	1 - 5g	2 - 2g	1 - 5g	2 - 2g	2 - 2g
1 - 3g	1 - 1g		1 - 3g	1 - 1 g	1 - 3g	1 - 1g	1 - 3g	1 - 1 g	1 - 1 g
1 - 2g	1 - 500 mg	2 - 2g	1 - 2g	1 - 500 mg	1 - 2g	1 - 500 mg	1 - 2g		
1 - 1 g	2 - 200 mg	1 - 1 g	1 - 1 g	2 - 200 mg	1 - 1g	2 - 200 mg	1 - 1 g		
1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 500 mg	1 - 100 mg	1 - 500 mg	1 - 100 mg			
1 - 300 mg	1 - 50 mg		1 - 300 mg	1 - 50 mg	1 - 300 mg				
1 - 200 mg	2 - 20 mg	2 - 200 mg	1 - 200 mg	2 - 20 mg	1 - 200 mg				
1 - 100 mg	1 - 10 mg	1 - 100 mg	1 - 100 mg	1 - 10 mg	1 - 100 mg				
1 - 50 mg	1 - 5 mg	1 - 50 mg	1 - 50 mg						
1 - 30 mg	2 - 2 mg		1 - 30 mg						
1 - 20 mg	1 - 1 mg	2 - 20 mg	1 - 20 mg						
1 - 10 mg		1 - 10 mg	1 - 10 mg						
1 - 5 mg		1 - 5 mg							
1 - 3 mg									
1 - 2 mg		2 - 2 mg							
1 - 1 mg		1 - 1 mg							
				Piece	Count				
22	22	23	18	19	14	15	10	10	11
		Y	1		Neight	Y			T
422.221 g	422.221 g	622.221 g	422.210 g	611.1 g	422.19g	611 g	421 g	410 g	610g
Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
45927-Class 0	156298-Class 0	87039-Class 0	84213-Class 0	87038-Class 0	45928-Class 0	87037-Class 0	45929-Class 0		87040-Class 0
12462-Class 1	156299-Class 1	87053-Class 1	12467-Class 1	87049-Class 1	45960-Class 1	87045-Class 1	12468-Class 1	11893-Class 1	87057-Class 1

422.221 g	422.221 g	622.221 g	422.210 g	611.1 g	422.19g	611 g	421 g	410 g	610 g
Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
45927-Class 0	156298-Class 0	87039-Class 0	84213-Class 0	87038-Class 0	45928-Class 0	87037-Class 0	45929-Class 0		87040-Class 0
12462-Class 1	156299-Class 1	87053-Class 1	12467-Class 1	87049-Class 1	45960-Class 1	87045-Class 1	12468-Class 1	11893-Class 1	87057-Class 1
11914-Class 2	156300-Class 2	87054-Class 2	11916-Class 2	87050-Class 2	45961-Class 2	87046-Class 2	11917-Class 2	12154-Class 2	87058-Class 2
12051-class 3	156301-Class 3	87055-Class 3	12064-Class 3	87051-Class 3	45962-Class 3	87047-Class 3	12065-Class 3	12292-Class 3	87059-Class 3
12197-Class 4	156302-Class 4	87056-Class 4	12210-Class 4	87052-Class 4	45963-Class 4	87048-Class 4	12211-Class 4	12395-Class 4	87060-Class 4

^{* 5-2-2-1} Configuration

CASE INSERT CLASS 0

Size	Part #	Price
200g - 1 mg	50431	\$100.00
(2) 200 g x 1 mg*	84473	325.00
(2) 200 g x 10 mg*	84473	325.00
(2) 200 g x 100 mg*	84473	325.00
20 - 1 g	50430	100.00
(2) 200 x 1 g*	84472	325.00

CASE INSERT CLASS 1 - 4

Size	Part #	Price
200g - 1 mg	11601	\$160.00
(2) 200 x 1 g*	84465	160.00
(2) 200 g x 1 mg*	84464	160.00
200 - 1 g	11587	160.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00
50035	Weight forceps, plastic	35.00
11747	Lifter bar	15.00

Metric Sets

Range: 300 g and 500 g

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
500g - 1 mg	45923	\$4,660.00	34645	\$270.00
500g - 100mg	45924	3,670.00	34645	270.00
500g - 1g	45925	3,040.00	34645	270.00
500g - 100g	45926	1,905.00	34645	270.00

^{**} Calibration Report included, Statement of Accuracy not available Class 0

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RFPI ACEMENT CASES

CLASS 1			ULASS 2		ULASS 3	<u> </u>	UPTIONAL	UPTIONAL	REPLACEIV	ENT CASES
Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
300g - 1g	11892	\$1,310.00	12152	\$1,205.00	12290	\$1,175.00	\$520.00	\$355.00	34645	\$270.00
500g - 1 mg	12469	2,110.00	11918	1,675.00	12066	1,635.00	1,060.00	685.00	34645	270.00
500 g - 100 mg	45964	2,170.00	45965	1,575.00	45966	1,495.00	760.00	515.00	34645	270.00
500g - 1g	12472	1,425.00	11921	1,310.00	12069	1,275.00	610.00	395.00	34645	270.00
500g - 1g*	11891	1,425.00	12151	1,310.00	12289	1,275.00	610.00	395.00	34645	270.00
500g - 100g	45968	1,010.00	45969	925.00	45970	905.00	310.00	155.00	34645	270.00

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
300g - 1g	12393	\$1,075.00	\$270.00	34645	\$270.00
500g - 1 mg	12212	1,500.00	575.00	34645	270.00
500g - 100mg	45967	1,335.00	360.00	34645	270.00
500g - 1g	12215	1,175.00	300.00	34645	270.00
500g - 1g*	12392	1,175.00	300.00	34645	270.00
500g - 100g	45971	775.00	120.00	34645	270.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Range: 300 g and 500 g

WEIGHT SET CONTENTS

300g - 1g	500 g - 1 mg	500 g - 100 mg	500g - 1g	500 g - 1 g*	500g - 100g		
1 - 300g	1 - 500g	1 - 500g	1 - 500g	1 - 500g	1 - 500g		
1 - 200 g	1 - 300g	1 - 300g	1 - 300g	2 - 200 g	1 - 300g		
1 - 100g	1 - 200 g	1 - 200 g	1 - 200 g	1 - 100g	1 - 200 g		
1 - 50 g	1 - 100g	1 - 100g	1 - 100g	1 - 50 g	1 - 100g		
1 - 30 g	1 - 50 g	1 - 50 g	1 - 50g	2 - 20 g			
1 - 20 g	1 - 30 g	1 - 30g	1 - 30 g	1 - 10 g			
1 - 10 g	1 - 20g	1 - 20g	1 - 20g	1 - 5g			
1 - 5g	1 - 10 g	1 - 10 g	1 - 10 g	2 - 2g			
1 - 3g	1 - 5g	1 - 5g	1 - 5g	1 - 1g			
1 - 2g	1 - 3g	1 - 3g	1 - 3g				
1 - 1 g	1 - 2g	1 - 2g	1 - 2g				
	1 - 1g	1 - 1g	1 - 1 g				
	1 - 500 mg	1 - 500 mg					
	1 - 300 mg	1 - 300 mg					
	1 - 200 mg	1 - 200 mg					
	1 - 100 mg	1 - 100 mg					
	1 - 50 mg						
	1 - 30 mg						
	1 - 20 mg						
	1 - 10 mg						
	1 - 5 mg						
	1 - 3 mg						
	1 - 2 mg						
	1 - 1 mg						
Piece Count							
11	24	16	12	12	4		
		Total	Weight				
721 g	1.222221 kg	1.2221 kg	1.221 kg	1.10 kg	1.1 kg		

721 g	1.222221 kg	1.2221 kg	1.221 kg	1.10 kg	1.1 kg
Part #					
-	45923-Class 0	45924-class 0	45925-Class 0	-	45926-Class 0
11892-Class 1	12469-Class 1	45964-Class 1	12472-Class 1	11891-Class 1	45968-Class 1
12152-Class 2	11918-Class 2	45965-Class 2	11921-Class 2	12151-Class 2	45969-Class 2
12290-Class 3	12066-Class 3	45966-Class 3	12069-Class 3	12289-Class 3	45970-Class 3
12393-Class 4	12212-Class 4	45967-Class 4	12215-Class 4	12392-Class 4	45971-Class 4

^{* 5-2-2-1} Configuration

CASE INSERT CLASS 0

Size	Part #	Price
500 g - 1 mg	49500	\$210.00
500g - 100g	49501	165.00

CASE INSERT CLASS 1 - 4

Size	Part #	Price
300g - 1g	11586	\$160.00
500 g - 1 mg	11602	160.00
500g - 1g*	11585	160.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00
50035	Weight forceps, plastic	35.00
11747	Lifter bar	15.00

Metric Sets

Range: 1 kg

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
1 kg - 1 mg	45919	\$5,385.00	50437	\$1,480.00
1 kg - 100 mg	45920	4,445.00	50437	1,480.00
1 kg - 1 g	45921	3,740.00	50437	1,480.00
1 kg - 100 g	45922	2,725.00	50437	1,480.00

^{**} Calibration Report included, Statement of Accuracy not available Class 0

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CLASS 2

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OPTIONAL

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
1 kg - 1 mg	12473	\$2,570.00	11922	\$2,360.00	12070	\$2,345.00	\$1,150.00	\$725.00	11603	\$1,480.00
1 kg - 100 mg	45972	2,525.00	45973	2,345.00	45974	2,300.00	850.00	505.00	11603	1,480.00
1 kg - 1 g	12476	2,300.00	11925	2,200.00	12073	2,100.00	700.00	435.00	11603	1,480.00
1 kg - 1 g*	11889*	2,300.00	12149*	2,200.00	12288*	2,100.00	700.00	435.00	11584	1,285.00
1 kg - 100 g	45976	2,070.00	45977	2,030.00	45978	1,990.00	400.00	195.00	11603	1,480.00

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
1 kg - 1 mg	12216	\$2,135.00	\$600.00	11603	\$1,480.00
1 kg - 100 mg	45975	2,100.00	425.00	11603	1,480.00
1 kg - 1 g	12219	2,055.00	335.00	11603	1,480.00
1 kg - 1 g*	12391*	1,990.00	335.00	11605	1,285.00
1 kg - 100 g	45979	1,765.00	150.00	11603	1,480.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Metric Sets

Range: 1 kg

WEIGHT SET CONTENTS

1 kg - 1 mg	1 kg - 100 mg	1 kg - 1 g	1kg - 1g*	1 kg - 100 g
1 - 1kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg
1 - 500 g	1 - 500g	1 - 500g	1 - 500g	1 - 500 g
1 - 300 g	1 - 300g	1 - 300g	2 - 200 g	1 - 300 g
1 - 200 g	1 - 200 g	1 - 200g	1 - 100 g	1 - 200 g
1 - 100g	1 - 100g	1 - 100g	1 - 50g	1 - 100 g
1 - 50 g	1 - 50 g	1 - 50g	2 - 20g	
1 - 30 g	1 - 30 g	1 - 30g	1 - 10g	
1 - 20g	1 - 20 g	1 - 20 g	1 - 5g	
1 - 10g	1 - 10g	1 - 10g	2 - 2g	
1 - 5g	1 - 5g	1 - 5g	1 - 1g	
1 - 3g	1 - 3g	1 - 3g		
1 - 2g	1 - 2g	1 - 2g		
1 - 1g	1 - 1 g	1 - 1g		
1 - 500 mg	1 - 500 mg			
1 - 300 mg	1 - 300 mg			
1 - 200 mg	1 - 200 mg			
1 - 100 mg	1 - 100 mg			
1 - 50 mg				
1 - 30 mg				
1 - 20 mg				
1 - 10 mg				
1 - 5 mg				
1 - 3 mg				
1 - 2 mg				
1 - 1 mg				
		Piece Count		
25	17	13	13	5

25	17	13	13	5			
Total Weight							

2.22221 kg	2.2221 kg	2.221 kg	2.11 kg	2.1 kg
Part #				
45919-Class 0	45920-Class 0	45921-Class 0	-	45922-Class 0
12473-Class 1	45972-Class 1	12476-Class 1	11889-Class 1	45976-Class 1
11922-Class 2	45973-Class 2	11925-Class 2	12149-Class 2	45977-Class 2
12070-Class 3	45974-Class 3	12073-Class 3	12288-Class 3	45978-Class 3
12216-Class 4	45975-Class 4	12219-Class 4	12391-Class 4	45979-Class 4

^{* 5-2-2-1} Configuration

SECONDARY CASE CLASS 1, 2, 3 AND 4

Size	Part #	Price
100g - 1 mg	11596	\$145.00
100g - 1 mg*	11588	145.00

SECONDARY CASE CLASS 0

Size	Part #	Price
100g - 1 mg	49503	\$200.00

CASE INSERT CLASSES 1-4

Size	Part #	Price
100g	46380	\$95.00

Price
\$45.00
5.00
3.00
35.00
15.00
35.00
35.00
15.00
60.00

Metric Sets

Range: 2kg

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
2 kg - 1 mg	45915	\$6,890.00	50439	\$1,505.00
(2) 2 kg - 1 mg*	87043	8,255.00	84474	1,595.00
(2) 2 kg - 10 mg*	87042	7,820.00	84474	1,595.00
2kg - 100 mg	45916	6,615.00	50439	1,505.00
(2)2 kg - 100 mg	87041	7,300.00	84474	1,595.00
2 kg - 1 g	45917	4,960.00	50439	1,505.00
(2)2 kg x 1 g	87044	6,400.00	84474	1,595.00
2kg - 100g	45918	4,000.00	50438	1,505.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

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OPTIONAL

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
2kg - 1 mg	12477	\$3,305.00	11926	\$2,945.00	12074	\$2,895.00	\$1,250.00	\$850.00	11604	\$1,285.00
(2) 2 kg x 1 mg*	87069	3,685.00	87070	3,550.00	87071	3,425.00	1,360.00	910.00	84463	1,295.00
(2) 2 kg x 10 mg*	87065	3,625.00	87066	3,300.00	87067	3,160.00	1,210.00	790.00	84463	1,295.00
2 kg - 100 mg	45980	3,520.00	45981	3,090.00	45982	3,020.00	950.00	610.00	11604	1,285.00
(2) 2 kg - 100 mg*	87061	3,595.00	87062	3,220.00	87063	3,085.00	1,060.00	670.00	84463	1,295.00
2kg - 1g	12480	2,795.00	11929	2,630.00	12077	2,575.00	800.00	490.00	11604	1,285.00
2 kg - 1 g*	11888	2,795.00	12148	2,630.00	12287	2,575.00	800.00	490.00	11583	1,480.00
(2) 2 kg - 1 g*	87073	3,435.00	87074	3,145.00	87075	3,075.00	910.00	550.00	84463	1,295.00
2 kg - 100 g	45984	2,700.00	45985	2,580.00	45986	2,420.00	500.00	250.00	11604	1,285.00

CLASS 4

OPTIONAL

Set Size Part # Price		Traceable Certificate	Part #	Price	
2 kg - 1 mg	12220	\$2,580.00	\$610.00	11604	\$1,285.00
(2) 2 kg x 1 mg*	87072	3,160.00	700.00	84463	1,295.00
(2) 2 kg x 10 mg*	87068	2,885.00	610.00	84463	1,295.00
2 kg - 100 mg	45983	3,000.00	470.00	11604	1,285.00
(2) 2 kg - 100 mg*	87064	2,855.00	520.00	84463	1,295.00
2 kg - 1 g	12223	2,475.00	380.00	11604	1,285.00
2 kg - 1 g*	12390	2,475.00	380.00	11583	1,480.00
(2) 2 kg - 1 g*	87076	2,680.00	430.00	84463	1,295.00
2 kg - 100 g	45987	2,310.00	200.00	11604	1,285.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Metric Sets

Range: 2kg

WEIGHT SET CONTENTS

2kg - 1 mg	(2) 2 kg - 1 mg*	(2) 2 kg - 10 mg*	2kg - 100mg	(2) 2 kg - 100 mg*	2kg - 1 g	2kg - 1g*	(2) 2 kg - 1 g*	2kg - 100g
1 - 2 kg	2 - 2kg	2 - 2 kg	1 - 2kg	2 - 2kg	1 - 2 kg	1 - 2kg	2 - 2kg	1 - 2 kg
1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg
1 - 500 g	1 - 500g	1 - 500 g	1 - 500 g	1 - 500g	1 - 500 g	1 - 500g	1 - 500g	1 - 500 g
1 - 300 g	2 - 200g	2 - 200g	1 - 300 g	2 - 200g	1 - 300 g	2 - 200 g	2 - 200g	1 - 300g
1 - 200 g	1 - 100g	1 - 100 g	1 - 200g	1 - 100g	1 - 200g	1 - 100 g	1 - 100g	1 - 200g
1 - 100 g	1 - 50 g	1 - 50g	1 - 100 g	1 - 50 g	1 - 100g	1 - 50g	1 - 50 g	1 - 100g
1 - 50g	2 - 20g	2 - 20 g	1 - 50g	2 - 20 g	1 - 50g	2 - 20g	2 - 20 g	
1 - 30g	1 - 10g	1 - 10g	1 - 30g	1 - 10g	1 - 30g	1 - 10 g	1 - 10g	
1 - 20g	1 - 5g	1 - 5g	1 - 20g	1 - 5g	1 - 20 g	1 - 5g	1 - 5g	
1 - 10g	2 - 2g	2 - 2g	1 - 10 g	2 - 2g	1 - 10g	2 - 2g	2 - 2g	
1 - 5g	1 - 1g	1 - 1g	1 - 5g	1 - 1g	1 - 5g	1 - 1 g	1 - 1g	
1 - 3g	1 - 500 mg	1 - 500 mg	1 - 3g	1 - 500 mg	1 - 3g			
1 - 2g	2 - 200 mg	2 - 200 mg	1 - 2g	2 - 200 mg	1 - 2g			
1 - 1 g	1 - 100 mg	1 - 100 mg	1 - 1g	1 - 100 mg	1 - 1g			
1 - 500 mg	1 - 50 mg	1 - 50 mg	1 - 500 mg					
1 - 300 mg	2 - 20 mg	2 - 20 mg	1 - 300 mg					
1 - 200 mg	1 - 10 mg	1 - 10 mg	1 - 200 mg					
1 - 100 mg	1 - 5 mg		1 - 100 mg					
1 - 50 mg	2 - 2 mg							
1 - 30 mg	1 - 1 mg							
1 - 20 mg								
1 - 10 mg								
1 - 5 mg								
1 - 3 mg								
1 - 2 mg								
1 - 1 mg								
				Piece Count			,	
26	27	23	18	19	14	14	18	6

26	27	23	18	19	14	14	18	6
				Total Weight				

4.222221 kg	6.222221 kg	6.22 kg	4.2221 kg	6.2221 kg	4.11 kg	4.11 kg	6.221 kg	4.1 kg
Part #								
45915-Class 0	87043-Class 0	87042-Class 0	45916-Class 0	87041-Class 0	45917-Class 0	-	87044-Class 0	45918-Class 0
12477-Class 1	87069-Class 1	87065-Class 1	45980-Class 1	87061-Class 1	12480-Class 1	11888-Class 1	87073-Class 1	45984-Class 1
11926-Class 2	87070-Class 2	87066-Class 2	45981-Class 2	87062-Class 2	11929-Class 2	12148-Class 2	87074-Class 2	45985-Class 2
12074-Class 3	87071-Class 3	87067-Class 3	45982-Class 3	87063-Class 3	12077-Class 3	12287-Class 3	87075-Class 3	45986-Class 3
12220-Class 4	87072-Class 4	87068-Class 4	45983-Class 4	87064-Class 4	12223-Class 4	12390-Class 4	87076-Class 4	45987-Class 4

^{* 5-2-2-1} Configuration

SECONDARY CASE CLASS 0

Size	Part #	Price
100g - 1 mg*	34697	\$180.00
100g - 1 mg	49503	200.00

SECONDARY CASE CLASSES 1 - 4

Size	Part #	Price
100g - 1 mg*	11588	\$145.00
100g - 1 mg	11596	145.00

CASE INSERT (WOODEN)

Size	Part #	Price
100 g	46380	\$95.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00
50035	Weight forceps, plastic	35.00
11747	Lifter bar	15.00
11712	Lifter bar, large handle	60.00
50000	Tong Assembly, Class 0	60.00
50037	Lifter (Class 0 and 0IML 2kg and 5kg)	45.00

Metric Sets

Range: 3kg and 5kg

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
5 kg - 1 mg	45910	\$9,345.00	49495	\$1,505.00
5kg - 100 mg	45911	8,745.00	49495	1,505.00
5kg - 1 g	45912	7,655.00	49495	1,505.00
5kg - 100 g	45913	6,435.00	50440	1,445.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

0		А	0	c	
L	L	н	2	5	

CLASS 2 CLASS 3

OPTIONAL

OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
3kg - 1g	11887	\$3,660.00	12147	\$3,120.00	12286	\$3,110.00	\$910.00	\$550.00	11582	\$1,285.00
5 kg - 1 mg	12481	4,880.00	11930	4,315.00	12078	4,250.00	1,330.00	800.00	11605	1,285.00
5 kg - 1 mg*	114050	4,880.00	114051	4,315.00	114052	4,250.00	1,330.00	800.00	11581	1,285.00
5kg - 100mg	45988	4,610.00	45989	4,290.00	45990	4,120.00	1,165.00	725.00	11605	1,285.00
5kg - 1g	12484	4,330.00	11933	3,965.00	12081	3,935.00	1,015.00	605.00	11605	1,285.00
5kg - 1g *	11886	4,330.00	12146	3,965.00	12285	3,935.00	1,015.00	605.00	11581	1,285.00
5kg - 100g	45992	4,000.00	45993	3,630.00	45994	3,605.00	715.00	365.00	11605	1,285.00

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
3 kg - 1 g	12389	\$2,785.00	\$425.00	11582	\$1,285.00
5kg - 1 mg	12224	3,840.00	740.00	11605	1,285.00
5 kg - 1 mg*	114053	3,840.00	740.00	11581	1,285.00
5 kg - 100 mg	45991	3,735.00	560.00	11605	1,285.00
5 kg - 1 g	12227	3,405.00	470.00	11605	1,285.00
5 kg - 1 g*	12388	3,405.00	470.00	11581	1,285.00
5 kg - 100 g	45995	3,115.00	290.00	11605	1,285.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Metric Sets

Range: 3kg and 5kg

WEIGHT SET CONTENTS

1 - 3kg 1 - 2kg 1 - 1kg 1 - 500g 1 - 300g 1 - 200g 1 - 100g 1 - 50g 1 - 30g 1 - 20g 1 - 10g 1 - 20g 1 - 10g 1 - 5g 1 - 3g 1 - 2g 1 - 1g	1 - 5kg 1 - 3kg 1 - 2kg 1 - 1kg 1 - 500g 1 - 300g 1 - 200g 1 - 100g 1 - 50g	1 - 5 kg 2 - 2 kg 1 - 1 kg 1 - 500 g 2 - 200 g 1 - 100 g 1 - 50 g 2 - 20 q	1 - 5 kg 1 - 3 kg 1 - 2 kg 1 - 1 kg 1 - 500 g 1 - 300 g 1 - 200 g	1 - 5 kg 1 - 3 kg 1 - 2 kg 1 - 1 kg 1 - 500 g 1 - 300 g	1 - 5kg 2 - 2kg 1 - 1kg 1 - 500g 2 - 200g	1 - 5kg 1 - 3kg 1 - 2kg 1 - 1kg 1 - 500g
1 - 1 kg 1 - 500 g 1 - 300 g 1 - 200 g 1 - 100 g 1 - 50 g 1 - 30 g 1 - 20 g 1 - 10 g 1 - 20 g 1 - 10 g 1 - 5 g 1 - 3 g 1 - 2 g	1 - 2kg 1 - 1kg 1 - 500g 1 - 300g 1 - 200g 1 - 100g	1 - 1 kg 1 - 500 g 2 - 200 g 1 - 100 g 1 - 50 g	1 - 2kg 1 - 1kg 1 - 500g 1 - 300g	1 - 2 kg 1 - 1 kg 1 - 500 g	1 - 1 kg 1 - 500 g 2 - 200 g	1 - 2 kg 1 - 1 kg
1 - 500g 1 - 300g 1 - 200g 1 - 100g 1 - 50g 1 - 30g 1 - 20g 1 - 10g 1 - 5g 1 - 3g 1 - 2g	1 - 1 kg 1 - 500 g 1 - 300 g 1 - 200 g 1 - 100 g	1 - 500g 2 - 200g 1 - 100g 1 - 50g	1 - 1 kg 1 - 500 g 1 - 300 g	1 - 1 kg 1 - 500 g	1 - 500 g 2 - 200 g	1 - 1 kg
1 - 300 g 1 - 200 g 1 - 100 g 1 - 50 g 1 - 30 g 1 - 20 g 1 - 10 g 1 - 5 g 1 - 3 g 1 - 2 g	1 - 500 g 1 - 300 g 1 - 200 g 1 - 100 g	2 - 200g 1 - 100g 1 - 50g	1 - 500 g 1 - 300 g	1 - 500g	2 - 200 g	-
1 - 200 g 1 - 100 g 1 - 50 g 1 - 30 g 1 - 20 g 1 - 10 g 1 - 5 g 1 - 3 g 1 - 2 g	1 - 300 g 1 - 200 g 1 - 100 g	1 - 100g 1 - 50g	1 - 300g			1 - 500 g
1 - 100g 1 - 50g 1 - 30g 1 - 20g 1 - 10g 1 - 5g 1 - 3g 1 - 2g	1 - 200g 1 - 100g	1 - 50 g		1 - 300 g	1 100-	
1 - 50g 1 - 30g 1 - 20g 1 - 10g 1 - 5g 1 - 3g 1 - 2g	1 - 100g	_	1 - 200 a		1 - 100 g	1 - 300 g
1 - 30g 1 - 20g 1 - 10g 1 - 5g 1 - 3g 1 - 2g		2 - 20 a	1 - 200g	1 - 200 g	1 - 50g	1 - 200g
1 - 20g 1 - 10g 1 - 5g 1 - 3g 1 - 2g	1 - 50g	2 - 20 y	1 - 100 g	1 - 100g	2 - 20g	1 - 100 g
1 - 10g 1 - 5g 1 - 3g 1 - 2g	•	1 - 10g	1 - 50g	1 - 50 g	1 - 10g	
1 - 5g 1 - 3g 1 - 2g	1 - 30 g	1 - 5g	1 - 30g	1 - 30 g	1 - 5g	
1 - 3g 1 - 2g	1 - 20 g	2 - 2g	1 - 20g	1 - 20 g	2 - 2g	
1 - 2g	1 - 10 g	1 - 1g	1 - 10 g	1 - 10g	1 - 1g	
	1 - 5 g	1 - 500 mg	1 - 5g	1 - 5 g		
1 - 1g	1 - 3g	2 - 200 mg	1 - 3g	1 - 3g		
	1 - 2g	1 - 100 mg	1 - 2g	1 - 2g		
	1 - 1g	1 - 50 mg	1 - 1 g	1 - 1 g		
	1 - 500 mg	2 - 20 mg	1 - 500 mg			
	1 - 300 mg	1 - 10 mg	1 - 300 mg			
	1 - 200 mg	1 - 5 mg	1 - 200 mg			
	1 - 100 mg	2 - 2 mg	1 - 100 mg			
	1 - 50 mg	1 - 1 mg				
	1 - 30 mg					
	1 - 20 mg					
	1 - 10 mg					
	1 - 5 mg					
	1 - 3 mg					
	1 - 2 mg					
	1 - 1 mg	-				
			Piece Count			

			Piece Count			
15 28 28 20 16 16 8						
			Total Weight			

7.221 kg	12.22221 kg	12.23 kg	12.22 kg	12.221 kg	11.110 kg	12.1 kg
Part #	Part #	Part #	Part #	Part #	Part #	Part #
-	45910-Class 0	-	45911-Class 0	45912-Class 0	-	45913-Class 0
11887-Class 1	12481-Class 1	114050-Class 1	45988-Class 1	12484-Class 1	11886-Class 1	45992-Class 1
12147-Class 2	11930-Class 2	114051-Class 2	45989-Class 2	11933-Class 2	12146-Class 2	45993-Class 2
12286-Class 3	12078-Class 3	114052-Class 3	45990-Class 3	12081-Class 3	12285-Class 3	45994-Class 3
12389-Class 4	12224-Class 4	114053-Class 4	45991-Class 4	12227-Class 4	12388-Class 4	45995-Class 4

^{* 5-2-2-1} Configuration

SECONDARY CASE CLASS 0

Size	Part #	Price
100g - 1 mg	49503	\$200.00

SECONDARY CASE CLASSES 1 - 4

	,	
Size	Part #	Price
100g - 1 mg*	11588	\$145.00
100 a - 1 ma	11596	145.00

CASE INSERT (WOODEN)

Size	Part #	Price
100 g	46380	\$95.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00
50035	Weight forceps, plastic	35.00
11747	Lifter bar	15.00
11712	Lifter bar, large handle	60.00
50000	Tong Assembly, Class 0	60.00
50037	Lifter (Class 0 and OIML 2 kg and 5 kg)	45.00

Metric Sets

Range: 10kg

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
10 kg - 1 mg	45905	\$12,165.00	50442	\$1,755.00
10 kg - 100 mg	45906	11,545.00	50442	1,755.00
10 kg - 1 g	45907	9,855.00	50442	1,755.00
10 kg - 100 g	45908	9,765.00	50442	1,755.00
10 kg - 1 kg	45909	7,695.00	50441	1,480.00

 $^{^{\}star\star}$ Calibration Report included, Statement of Accuracy not available for Class 0

CLASS 1

CLASS 2

CLASS 3

OPTIONAL

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
10 kg - 1 mg	12485	\$6,920.00	11934	\$6,625.00	12082	\$6,570.00	\$1,420.00	\$850.00	11606	\$1,725.00
10 kg - 100 mg	45996	6,815.00	45997	6,510.00	45998	6,415.00	1,265.00	780.00	11606	1,725.00
10 kg - 1 g	12488	6,470.00	11937	6,405.00	12085	6,325.00	1,120.00	660.00	11606	1,725.00
10 kg - 1 g*	11885	6,470.00	12144	6,405.00	12283	6,325.00	1,120.00	660.00	11580	1,725.00
10 kg - 100 g	46000	6,400.00	46001	6,005.00	46002	5,930.00	820.00	420.00	11606	1,725.00
10 kg - 1 kg	46004	5,955.00	46005	5,370.00	46006	5,310.00	510.00	270.00	11606	1,725.00

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
10 kg - 1 mg	12228	\$5,890.00	\$790.00	11606	\$1,725.00
10 kg - 100 mg	45999	5,785.00	610.00	11606	1,725.00
10 kg - 1 g	12231	5,705.00	515.00	11606	1,725.00
10 kg - 1 g*	12386	5,705.00	515.00	11580	1,725.00
10 kg - 100 g	46003	5,345.00	335.00	11606	1,725.00
10 kg - 1 kg	46007	4,780.00	240.00	11606	1,725.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Range: 10kg

WEIGHT SET CONTENTS

10kg - 1 mg	10kg - 100mg	10kg - 1 g	10kg - 1g*	10kg - 100g	10kg - 1kg
1 - 10 kg	1 - 10 kg	1 - 10kg	1 - 10kg	1 - 10 kg	1 - 10 kg
1 - 5 kg	1 - 5 kg	1 - 5kg	1 - 5kg	1 - 5kg	1 - 5 kg
1 - 3 kg	1 - 3 kg	1 - 3kg	2 - 2kg	1 - 3kg	1 - 3 kg
1 - 2kg	1 - 2 kg	1 - 2 kg	1 - 1 kg	1 - 2kg	1 - 2 kg
1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 500 g	1 - 1 kg	1 - 1 kg
1 - 500g	1 - 500g	1 - 500 g	2 - 200 g	1 - 500g	
1 - 300g	1 - 300g	1 - 300 g	1 - 100g	1 - 300 g	
1 - 200 g	1 - 200g	1 - 200 g	1 - 50 g	1 - 200 g	
1 - 100g	1 - 100g	1 - 100 g	2 - 20 g	1 - 100g	
1 - 50 g	1 - 50g	1 - 50g	1 - 10 g		
1 - 30 g	1 - 30 g	1 - 30g	1 - 5g		
1 - 20 g	1 - 20 g	1 - 20g	2 - 2g		
1 - 10g	1 - 10g	1 - 10 g	1 - 1g		
1 - 5g	1 - 5g	1 - 5g			
1 - 3g	1 - 3g	1 - 3g			
1 - 2g	1 - 2g	1 - 2g			
1 - 1g	1 - 1g	1 - 1g			
1 - 500 mg	1 - 500 mg				
1 - 300 mg	1 - 300 mg				
1 - 200 mg	1 - 200 mg				
1 - 100 mg	1 - 100 mg				
1 - 50 mg					
1 - 30 mg					
1 - 20 mg					
1 - 10 mg					
1 - 5 mg					
1 - 3 mg					
1 - 2 mg					
1 - 1 mg					
		Piece	Count		•

29	21	17	17	9	5				
Total Weight									

22.22221 kg	22.2221 kg	22.221 kg	21.11 kg	22.1 kg	21 kg
Part #					
45905-Class 0	45906-Class 0	45907-Class 0	-	45908-Class 0	45909-Class 0
12485-Class 1	45996-Class 1	12488-Class 1	11885-Class 1	46000-Class 1	46004-Class 1
11934-Class 2	45997-Class 2	11937-Class 2	12144-Class 2	46001-Class 2	46005-Class 2
12082-Class 3	45998-Class 3	12085-Class 3	12283-Class 3	46002-Class 3	46006-Class 3
12278-Class 4	45999-Class 4	12231-Class 4	12386-Class 4	46003-Class 4	46007-Class 4

^{* 5-2-2-1} Configuration

SECONDARY CASE CLASS 0

Size	Part #	Price
100g - 1 mg*	11588	\$145.00
100g - 1 mg	49503	200.00
Insert, 100 g	49489	130.00

SECONDARY CASE CLASSES 1 - 4

Size	Part #	Price
100g - 1 mg*	11588	\$145.00
100g - 1 mg	11596	145.00
Insert, 100 g	46380	95.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00
50035	Weight forceps, plastic	35.00
11747	Lifter bar	15.00
11712	Lifter bar, large handle	60.00
50000	Tong Assembly, Class 0	60.00
50037	Lifter (Class 0 and OIML 2kg and 5kg)	45.00

199

Range: 20kg and 25kg

CLASS 0**

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
20 kg - 1 mg	45900	\$15,420.00	50670	\$1,755.00
20 kg - 100 mg	45901	14,810.00	50670	1,755.00
20kg - 1g	45902	13,115.00	50670	1,755.00
20 kg - 100 g	45903	13,020.00	50670	1,755.00
20 kg - 1 kg	45904	11,325.00	50670	1,755.00

^{**} Calibration Report included, Statement of Accuracy not available for Class 0

SS		

OPTIONAL

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
25 kg - 1 g*	11883	\$12,960.00	12140	\$11,680.00	12279	\$11,235.00	\$1,325.00	\$775.00	11578	\$1,725.00
20 kg - 1 mg	12489	9,520.00	11938	8,630.00	12086	8,550.00	1,600.00	975.00	11608	1,725.00
20 kg - 100 mg	46008	9,410.00	46009	8,505.00	46010	8,405.00	1,375.00	835.00	11608	1,725.00
20 kg - 1 g	12492	8,830.00	11941	8,410.00	12089	8,310.00	1,225.00	720.00	11579	1,725.00
20 kg - 1 g*	11884	8,830.00	12142	8,410.00	12281	8,310.00	1,225.00	720.00	11608	1,725.00
20kg - 100g	46012	8,415.00	46013	8,010.00	46014	7,910.00	925.00	480.00	11608	1,725.00
20 kg - 1 kg	46016	8,180.00	46017	7,380.00	46018	7,285.00	615.00	325.00	11608	1,725.00

CLASS 3

CLASS 4

OPTIONAL

Set Size	Part #	Price	Traceable Certificate	Part #	Price
25 kg - 1 g*	12382	\$10,510.00	\$560.00	11578	\$1,725.00
20 kg - 1 mg	12232	7,700.00	750.00	11608	1,725.00
20kg - 100mg	46011	7,570.00	650.00	11608	1,725.00
20 kg - 1 g	12235	7,485.00	580.00	11579	1,725.00
20 kg - 1 g*	12384	7,485.00	580.00	11608	1,725.00
20kg - 100g	46015	7,135.00	380.00	11608	1,725.00
20 kg - 1 kg	46019	6,560.00	260.00	11608	1,725.00

^{* 5-2-2-1} Configuration



Set includes lifting device and gloves

Metric Sets

Range: 20kg and 25kg

WEIGHT SET CONTENTS

25kg - 1 g*	20 kg - 1 mg	20 kg - 100 mg	20kg - 1 g	20 kg - 1 g*	20 kg - 100 g	20 kg - 1 kg
1 - 25kg	1 - 20 kg	1 - 20 kg	1 - 20kg	1 - 20 kg	1 - 20 kg	1 - 20 kg
1 - 10kg	1 - 10 kg	1 - 10 kg	1 - 10kg	1 - 10 kg	1 - 10 kg	1 - 10kg
1 - 5kg	1 - 5 kg	1 - 5kg	1 - 5kg	1 - 5 kg	1 - 5kg	1 - 5kg
2 - 2kg	1 - 3 kg	1 - 3kg	1 - 3kg	2 - 2 kg	1 - 3kg	1 - 3kg
1 - 1 kg	1 - 2 kg	1 - 2kg	1 - 2kg	1 - 1 kg	1 - 2kg	1 - 2kg
1 - 500 g	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 500g	1 - 1 kg	1 - 1 kg
2 - 200 g	1 - 500g	1 - 500g	1 - 500 g	2 - 200 g	1 - 500 g	
1 - 100 g	1 - 300g	1 - 300 g	1 - 300g	1 - 100g	1 - 300 g	
1 - 50g	1 - 200 g	1 - 200 g	1 - 200g	1 - 50g	1 - 200g	
2 - 20g	1 - 100g	1 - 100g	1 - 100 g	2 - 20 g	1 - 100g	
1 - 10 g	1 - 50g	1 - 50 g	1 - 50g	1 - 10g		
1 - 5g	1 - 30g	1 - 30 g	1 - 30g	1 - 5g		
2 - 2g	1 - 20g	1 - 20 g	1 - 20g	2 - 2g		
1 - 1g	1 - 10 g	1 - 10g	1 - 10 g	1 - 1g		
	1 - 5g	1 - 5g	1 - 5g			
	1 - 3g	1 - 3g	1 - 3g			
	1 - 2g	1 - 2g	1 - 2g			
	1 - 1g	1 - 1g	1 - 1 g			
	1 - 500 mg	1 - 500 mg				
	1 - 300 mg	1 - 300 mg				
	1 - 200 mg	1 - 200 mg				
	1 - 100 mg	1 - 100 mg				
	1 - 50 mg					
	1 - 30 mg					
	1 - 20 mg					
	1 - 10 mg					
	1 - 5 mg					
	1 - 3 mg					
	1 - 2 mg					
	1 - 1 mg					
	•	•	Piece Count	•	•	•

FIECE COUIIL

18	30	22	18	18	10	6		
Total Weight								

46.11 kg	42.22221 kg	42.22kg	42.22 kg	41.11 kg	42.1 kg	41 kg
Part #						
-	45900-Class 0	45901-Class 0	45902-Class 0	-	45903-Class 0	45904-Class 0
11883-Class 1	12489-Class 1	46008-Class 1	12492-Class 1	11884-Class 1	46012-Class 1	46016-Class 1
12140-Class 2	11938-Class 2	46009-Class 2	11941-Class 2	12142-Class 2	46013-Class 2	46017-Class 2
12279-Class 3	12086-Class 3	46010-Class 3	12089-Class 3	12281-Class 3	46014-Class 3	46018-Class 3
12382-Class 4	12232-Class 4	46011-Class 4	12235-Class 4	12384-Class 4	46015-Class 4	46019-Class 4

^{* 5-2-2-1} Configuration

SECONDARY CASE CLASS 0

Size	Part #	Price
100g - 1 mg*	11588	\$145.00
100g - 1 mg	49503	200.00
Insert, 100 g	49489	130.00

SECONDARY CASE CLASSES 1 - 4

Size	Part #	Price
100 g - 1 mg*	11588	\$145.00
100g - 1 mg	11596	145.00
Insert. 100 a	46380	95.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00
50035	Weight forceps, plastic	35.00
11747	Lifter bar	15.00
11712	Lifter bar, large handle	60.00
50000	Tong assembly, Class 0	60.00
50037	Lifter (Class 0 and OIML 2 kg and 5 kg)	45.00

201

Precision Laboratory - ASTM **Avoirdupois Sets**Range: 501b through 21b

CLASS 1			CLASS	2	CLASS	3	OPTIONAL	OPTIONAL	REPLACEM	IENT CASES
Set Size	Part #	Price	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
50 lb - 1/32 oz	11999	\$16,940.00	12145	\$16,760.00	12284	\$16,535.00	\$1,200.00	\$760.00	11589	\$1,725.00
50lb - 0.001lb	119043	16,940.00	119044	16,760.00	119045	16,535.00	1,200.00	760.00	11589	1,725.00
20 lb - 1/32 oz	11997	8,105.00	12143	8,100.00	12282	8,090.00	900.00	640.00	11590	1,850.00
20 lb - 0.001 lb	119047	8,105.00	119048	8,100.00	119049	8,090.00	900.00	640.00	11590	1,850.00
10lb - 1/32oz	11995	5,665.00	12141	5,500.00	12280	5,430.00	790.00	570.00	11591	1,480.00
10 lb - 0.001 lb	119051	5,665.00	119052	5,500.00	119053	5,430.00	790.00	570.00	11591	1,480.00
5lb - 1/32oz	11993	4,315.00	12139	4,165.00	12278	4,110.00	695.00	510.00	11592	1,145.00
5 lb - 0.001 lb	119055	4,315.00	119056	4,165.00	119057	4,110.00	695.00	510.00	11592	1,145.00
2lb - 1/32oz	11991	2,885.00	12137	2,760.00	12276	2,610.00	525.00	400.00	11593	1,495.00
2 lb - 0.001 lb	119059	2,885.00	119060	2,760.00	119061	2,610.00	525.00	400.00	11593	1,495.00

CLASS 4 OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
50 lb - 1/32 oz	12387	\$16,125.00	\$575.00	11589	\$1,725.00
50lb - 0.001lb	119046	16,125.00	575.00	11589	1,725.00
20 lb - 1/32 oz	12385	7,440.00	480.00	11590	1,850.00
20lb - 0.001lb	119050	7,440.00	480.00	11590	1,850.00
10 lb - 1/32 oz	12383	5,330.00	445.00	11591	1,480.00
10 lb - 0.001 lb	119054	5,330.00	445.00	11591	1,480.00
5lb - 1/32oz	12381	3,720.00	395.00	11592	1,145.00
5lb - 0.001lb	119058	3,720.00	395.00	11592	1,145.00
2lb - 1/32oz	12379	2,415.00	310.00	11593	1,495.00
2lb - 0.001lb	119062	2,415.00	310.00	11593	1,495.00

SECONDARY CASE

Size	Part #	Price
40z - 1/320z	11610	\$250.00

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11758	Leaf weight cover	35.00
50035	Weight forceps, plastic	35.00
11747	Lifter bar	15.00
11712	Lifter bar, large handle	60.00
50000	Tong assembly, Class 0	60.00
50037	Lifter (Class 0 and OIML 2kg and 5kg)	45.00



Set includes lifting device and gloves

Precision Laboratory - ASTM **Avoirdupois Sets**Range: 50lb through 2lb

WEIGHT SET CONTENTS

WEIGHT SET									
50 lb - 1/32 oz	50 lb - 0.001 lb	20 lb - 1/32 oz	20 lb - 0.001 lb	10lb - 1/32oz	10 lb - 0.001 lb	5 lb - 1/32 oz	5 lb - 0.001 lb	2 lb - 1/32 oz	2 lb - 0.001 lb
1 - 50 lb	1 - 50lb	1 - 20lb	1- 20lb	1 - 10lb	1 - 10 lb	1 - 5lb	1 - 5lb	1 - 2lb	1 - 2 lb
1 - 30 lb	1 - 30lb	1 - 10 lb	1 - 10lb	1 - 5lb	1 - 5 lb	1 - 3lb	1 - 3lb	1 - 1 lb	1 - 1 lb
1- 20 lb	1- 20 lb	1 - 5lb	1 - 5 lb	1 - 3lb	1 - 3 lb	1 - 2 lb	1 - 2lb	1 - 8 oz	15 lb
1 - 10lb	1 - 10lb	1 - 3 lb	1 - 3 lb	1 - 2lb	1 - 2 lb	1 - 1 lb	1 - 1 lb	1 - 4oz	1 - 0.3 lb
1 - 5 lb	1 - 5lb	1 - 2lb	1 - 2lb	1 - 1 lb	1 - 1 lb	1 - 8 oz	15 lb	1 -2 oz	1 - 0.2lb
1 - 3 lb	1 - 3lb	1 - 1 lb	1 - 1 lb	1 - 8 oz	15lb	1 - 4 oz	1 - 0.3lb	1 - 1 oz	1 - 0.1 lb
1 - 2 lb	1 - 2lb	1 - 8oz	15lb	1 - 4 oz	1 - 0.3 lb	1 -2oz	1 - 0.2lb	1 - 1/2 oz	1 - 0.05lb
1 - 1 lb	1 - 1 lb	1 - 4oz	1 - 0.3 lb	1 - 2 oz	1 - 0.2 lb	1 - 1 oz	1 - 0.1 lb	1 - 1/4 oz	1 - 0.03 lb
1 - 8 oz	15lb	1 -2oz	1 - 0.2lb	1 - 1 oz	1 - 0.1 lb	1 - 1/2 oz	1 - 0.05 lb	1 - 1/8 oz	1 - 0.02 lb
1 - 4 oz	1 - 0.3 lb	1 - 1 oz	1 - 0.1 lb	1 - 1/2 oz	1 - 0.05lb	1 - 1/4 oz	1 - 0.03lb	1 - 1/16 oz	1 - 0.01 lb
1 - 2 oz	1 - 0.2 lb	1 - 1/2 oz	1 - 0.05 lb	1 - 1/4 oz	1 - 0.03 lb	1 - 1/8 oz	1 - 0.02lb	2 - 1/32 oz	1 - 0.005 lb
1 - 1 oz	1 - 0.1 lb	1 - 1/4 oz	1 - 0.03lb	1 - 1/8 oz	1 - 0.02 lb	1 - 1/16 oz	1 - 0.01 lb		1 - 0.003 lb
1 - 1/2 oz	1 - 0.05lb	1 - 1/8 oz	1 - 0.02 lb	1 - 1/16oz	1 - 0.01 lb	2 - 1/32 oz	1 - 0.005lb		1 - 0.002 lb
1 - 1/4 oz	1 - 0.03lb	1 - 1/16 oz	1 - 0.01 lb	2 - 1/32 oz	1 - 0.005 lb		1 - 0.003lb		1 - 0.001 lb
1 - 1/8 oz	1 - 0.02lb	2 - 1/32 oz	1 - 0.005lb		1 - 0.003 lb		1 - 0.002lb		
1 - 1/16 oz	1 - 0.01 lb		1 - 0.003lb		1 - 0.002 lb		1 - 0.001 lb		
2 - 1/32 oz	1 - 0.005lb		1 - 0.002lb		1 - 0.001 lb				
	1 - 0.003 lb		1 - 0.001 lb						
	1 - 0.002 lb								
	1 - 0.001 lb								
				Piece	Count				
18	20	16	18	15	17	14	16	12	14
					Weight				
122lb	122 lb	42 lb	42lb	22 lb	22 lb	12 lb	12 lb	4lb	4 lb
Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #	Part #
11999-Class 1	119043-Class 1	11997-Class 1	119047-Class 1	11995-Class 1	119051-Class 1	11993-Class 1	119055-Class 1	11991-Class 1	119059-Class 1
12145-Class 2	119044-Class 2	12143-Class 2	119048-Class 2	12141-Class 2	119052-Class 2	12139-Class 2	119056-Class 2	12137-Class 2	119060-Class 2
12284-Class 3	11111111111111111	12282-Class 3	119049-Class 3	12280-Class 3	119053-Class 3	12278-Class 3	110957-Class 3	12276-Class 3	119061-Class 3
12387-Class 4	119046-Class 4	12385-Class 4	119050-Class 4	12383-Class 4	119054-Class 4	12381-Class 4	119058-Class 4	12379-Class 4	119062-Class 4

STAINLESS STEEL - OIML

Applications:

- Density measurement
- Tolerance checking
- Mass standards
- OIML guidelines for balance and scale verification

Styles Avaialble:

• Type 1, one-piece construction, no added adjusting material

Product Configuration:

- Individual weight kits
- Weight sets

Weight Set Configuration:

- Weight kits case (or vial), glove and weight
- Weight sets case (additional small case or vial if required), handling equipment and weights
- Set configuration 5-2-2-1 (1) 50g, (2) 20g, and (1) 10g
- Appropriate lifter, tweezer and/or glove
- OIML weights sets larger than 500g include a hardwood case with velvet-lined pockets
- Weight sets with the largest weight of 500g include a precision-machined polyvinyl, crush resistant case

Features:

- Nominal value marked on weights
- Serial numbers applied to case (Weights may be marked with symbol)
- Density is approximately 7.95g/cm3
- OIML E1, E2, F1, F2 polish finish
- OIML M1 and M2 satin finish
- E1, E2, F1, F2 and M1 weights include protective case
- Weights manufactured International Recommendation, OIML R 111 specifications
- E1 and E2 supplied with calibration report per OIML R111

CLASS E1* CLASS E2*

	Weight	Kit Part #	Kit Price	Weight	Kit Part #	Kit Price
	-	-	-	20 kg	53850	\$2,640.00
	10 kg	36872	\$2,950.00	10 kg	36871	2,160.00
	5 kg	29785	1,900.00	5 kg	29775	1,215.00
	2 kg	29784	1,395.00	2 kg	29774	765.00
	1 kg	29783	940.00	1 kg	29773	570.00
g	500 g	29782	700.00	500g	29772	395.00
Cylindrical	200 g	29781	600.00	200 g	29771	312.00
<u>Ii</u>	100 g	29780	560.00	100 g	29770	155.00
Ç	50g	29779	500.00	50 g	29769	150.00
	20 g	29778	495.00	20 g	29768	147.00
	10 g	29777	490.00	10 g	29767	140.00
	5 g	29776	440.00	5g	29766	123.00
	2g	29745	440.00	2g	29743	123.00
	1 g	29744	420.00	1 g	29742	123.00
	500 mg	29737	240.00	500 mg	29731	120.00
	200 mg	29736	240.00	200 mg	29730	120.00
	100 mg	29735	240.00	100 mg	29729	120.00
am	50 mg	29734	240.00	50 mg	29728	120.00
igi	20 mg	29733	240.00	20 mg	29727	120.00
Milligram	10 mg	29732	240.00	10 mg	29726	120.00
	5 mg	29713	240.00	5 mg	29710	120.00
	2 mg	29712	240.00	2 mg	29709	120.00
	1 mg	29711	240.00	1 mg	29708	120.00
*Calil	nration Reno	rt included. State	ment of Accurac	v not availahl	e Class F1 and	F2



One-piece and Milligram Kits

Kit Price

\$1,950.00

1,580.00

945.00

555.00

390.00

200.00

140.00

100.00

95.00

95.00

95.00

95.00

85.00

75.00

45.00

45.00

45.00 45.00

45.00 45.00

45.00

45.00

45.00

CLASS F1

Kit Part #

53654

36870

29765

29764

29763

29762

29761

29760

29759

29758

29757

29756

29741

29740

29725

29724

29723

29722

29721

29720

29707

29706

29705

Weight

20kg

10 kg

5 kg

 $2\,kg$

1 kg 500 g

200g

100g

50 g

20 g

10 g

5g

2g

1 g 500 mg

200 mg

100 mg

50 mg 20 mg

10 mg

 $5\,mg$

2 mg

1 mg

CLASS F2

Kit Part #	Kit Price	
53655	\$1,860.00	
36869	1,215.00	
29755	660.00	
29754	525.00	
29753	340.00	
29752	185.00	
29751	135.00	
29750	95.00	
29749	85.00	
29748	75.00	
29747	75.00	
29746	75.00	
29739	70.00	L
29738	70.00	
29719	40.00	
29718	40.00	
29717	40.00	
29716	40.00	L
29715	40.00	
29714	40.00	
29704	40.00	
29703	40.00	
29702	40.00	

OPTIONAL OPTIONAL

Calibration Report	Mass Value Certificate
\$140.00	\$75.00
140.00	75.00
140.00	75.00
140.00	75.00
120.00	55.00
120.00	55.00
120.00	55.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00
50.00	40.00

^{*}Calibration Report included, Statement of Accuracy not available Class E1 and E2

Precision Laboratory - OIML Metric Kits and Weights

M1

OPTIONAL

REPLACEMENT CASES

Weight	Kit Part #	Kit Price	Traceable Certificate	Part #	Price
20 kg	156292	\$1,175.00	\$70.00	156290	\$450.00
10 kg	156291	1,010.00	70.00	156289	450.00
5 kg	116207	455.00	70.00	116202	200.00
2kg	116206	260.00	70.00	116201	60.00
1 kg	116205	150.00	50.00	116200	60.00
500g	116204	125.00	50.00	116199	40.00
200 g	116203	95.00	50.00	116198	40.00
100g	111927	70.00	35.00	112850	30.00
50 g	111928	65.00	35.00	112849	30.00
20 g	111929	55.00	35.00	112848	30.00
10 g	111930	55.00	35.00	112847	30.00
5 g	111931	55.00	35.00	112846	30.00
2 g	111932	55.00	35.00	112845	30.00
1 g	111933	55.00	35.00	112844	30.00

M2*

OPTIONAL

REPLACEMENT CASES

Weight	Part #	Price	Traceable Certificate	Part #	Price
5 kg	115926	\$220.00	\$70.00	116202	\$200.00
2 kg	115925	195.00	70.00	116201	60.00
1 kg	115924	95.00	50.00	116200	60.00
500g	115923	85.00	50.00	116199	40.00
200 g	115922	75.00	50.00	116198	40.00
100 g	111934	60.00	35.00	112850	30.00
50 g	111935	55.00	35.00	112849	30.00
20 g	111936	55.00	35.00	112848	30.00
10 g	111937	55.00	35.00	112847	30.00
5 g	111938	55.00	35.00	112846	30.00
2g	111939	55.00	35.00	112845	30.00
1 g	111940	55.00	35.00	112844	30.00

^{*}M2 is sold as individual weight, accessory cases are available.

ADDITION	TAL AUGEOCOTTIES	
Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
152414	Premium tweezer	35.00



M1 and M2 One-piece Design

Precision Laboratory - OIML

Metric Sets

Range: 500 mg-50 g

CLASS E1*

CLASS E2*

REPLACEMENT CASES

Set Size	Part #	Price	Set Size	Part #	Price	Part #	Price
500 mg - 1 mg	30850	\$1,760.00	500 mg - 1 mg	30851	\$1,200.00	34699	\$100.00
500 mg - 100 mg	30854	885.00	500 mg - 100 mg	30855	760.00	34699	100.00
*Calibration Report inclued, Statement of Accuracy not available, Class E1 or E2		50 g - 1 mg	96477	1,800.00	34697	180.00	
			50g - 1g	96478	980.00	34697	180.00

CLASS F1 CLASS F2 OPTIONAL OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
500 mg - 1 mg	30852	\$500.00	30853	\$385.00	\$450.00	\$360.00	34699	\$100.00
500 mg - 100 mg	30856	365.00	30857	230.00	150.00	120.00	34699	100.00
50g - 1 mg	96479	800.00	96481	750.00	750.00	600.00	34697	180.00
50 q - 1 q	96480	475.00	96482	460.00	300.00	240.00	34697	180.00

CLASS M1*

TRACEABLE REPORT

Set Size	Part #	Price
500 mg - 1 mg	161537	\$365.00

Price	
\$270.00	

WEIGHT SET CONTENTS

500 mg - 1 mg	500mg - 100mg	50 g - 1 mg	50 g - 1 g
1 - 500 mg	1 - 500 mg	1 - 50g	1 - 50g
2 - 200 mg	2 - 200 mg	2 - 20 g	2 - 20 g
1 - 100 mg	1 - 100 mg	1 - 10g	1 - 10g
1 - 50 mg		1 - 5g	1 - 5g
2 - 20 mg		2 - 2g	2 - 2g
1 - 10 mg		1 - 1g	1 - 1g
1 - 5 mg		1 - 500 mg	
2 - 2 mg		2 - 200 mg	
1 - 1 mg		1 - 100 mg	
		1 - 50 mg	
		2 - 20 mg	
		1 - 10 mg	
		1 - 5 mg	
		2 - 2 mg	
		1 - 1 mg	

Piece Count 12 4 20 8 **Total Weight**

1.11 g	1 a	111.11 g	108 q
Part #	Part #	Part #	Part #
30850-Class E1	30854-Class E1	-Class E1	-Class E1
30851-Class E2	30855-Class E2	96477-Class E2	96478-Class E2
30852-Class F1	30856-Class F1	96479-Class F1	96480-Class F1
30853-Class F2	30857-Class F2	96481-Class F2	96482-Class F2
161537-Class M1	-	-	-

Part #	Description	Price
36092	Statement of Accuracy*	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
11755	Leaf weight cover	35.00
50035	Weight forceps, plastic, 200 g - 500 g	35.00
50000	Tong Assembly, Class 0	60.00
50037	Lifter (Class 0 and OIML 2 kg and 5 kg)	45.00



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www.ricelake.com | Phone: 800-472-6703

CLASS E1*	CLASS E2*	REPLACEMENT CASES
ULA55 F1"	GLASS FZ"	KEPLAGEWENT GASES

Set Size	Part #	Price	Set Size	Part #	Price	Part #	Price
100g - 1 mg	30838	\$4,320.00	100 g - 1 mg	30839	\$1,985.00	34697	\$180.00
100 g - 100 mg	30842	3,380.00	100 g - 100 mg	30843	1,420.00	34697	180.00
100g - 1g	30846	2,810.00	100g - 1g	30847	1,065.00	34697	180.00

*Calibration Report included, Statement of Accuracy not available Class E1 or E2

CLASS F1 CLASS F2 OPTIONAL OPTIONAL REPL	LACEMENT CAS	ES
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Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
100 g - 1 mg	30840	\$865.00	30841	\$815.00	\$790.00	\$560.00	34697	\$180.00
100g - 100mg	30844	770.00	30845	680.00	490.00	390.00	34697	180.00
100g - 1g	30848	680.00	30849	620.00	340.00	270.00	34697	180.00

M1	OPTIONAL	REPLACEMENT CASES

Set Size	Part #	Price	Traceable Certificate	Part #	Price
100 g - 1 mg	119561	\$770.00	\$485.00	34697	\$180.00
100g - 1g	119560	550.00	205.00	34697	180.00

WEIGHT SET CONTENTS

100g - 100mg	100 g - 1 g
1 - 100 g	1 - 100 g
1 - 50g	1 - 50 g
2 - 20 g	2 - 20 g
1 - 10 g	1 - 10 g
1 - 5g	1 - 5g
2 - 2g	2 - 2g
1 - 1g	1 - 1 g
1 - 500 mg	
2 - 200 mg	
1 - 100 mg	
	1 - 100g 1 - 50g 2 - 20g 1 - 10g 1 - 5g 2 - 2g 1 - 1g 1 - 500mg 2 - 200mg

Piece Count 21 **Total Weight**

211.11 g	211 g	210 g
Part #	Part #	Part #
30838-Class E1	30842-Class E1	30846-Class E1
30839-Class E2	30843-Class E2	30847-Class E2
30840-Class F1	30844-Class F1	30848-Class F1
30841-Class F2	30845-Class F2	30849-Class F2
119561-Class M1	-	119560-Class M1

Part #	Description	Price
36092	Statement of Accuracy*	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
50035	Weight forceps, plastic, 200 g - 500 g	35.00
11755	Leaf weight cover	35.00
7		



Precision Laboratory - OIML

Metric Sets

Range: 200 g

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CLASS E2*

REPLACEMENT CASES

Set Size	Part #	Price	Set Size	Part #	Price	Part #	Price
200g - 1 mg	40546	\$4,630.00	200 g - 1 mg	40550	\$2,255.00	34645	\$270.00
200g - 100mg	40547	3,940.00	(2) 200g - 1 mg	96468	2,545.00	34645	270.00
200g - 1g	40548	3,370.00	200g - 100 mg	40551	1,775.00	34645	270.00
200g - 100g	40549	2,000.00	200g - 1g	40552	1,395.00	34645	270.00
*Calibration Report included, Statement of Accuracy		(2) 200g - 1g	96469	1,685.00	34645	270.00	
not available Class	E1 or E2		(2) 200g - 100g	40553	1,085.00	34645	270.00

CLASS F1 CLASS F2 OPTIONAL OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
200g - 1 mg	40554	\$1,050.00	40558	\$995.00	\$880.00	\$630.00	34645	\$270.00
(2) 200 g - 1 mg	96470	1,190.00	96472	1,050.00	970.00	645.00	34645	270.00
200 g - 100 mg	40555	1,110.00	40559	995.00	580.00	430.00	34645	270.00
(2) 200 g - 1 g	96471	815.00	96473	750.00	430.00	310.00	34645	270.00
200g - 1g	40556	795.00	40560	725.00	520.00	355.00	34645	270.00
(2) 200 g - 100 g	40557	630.00	40561	600.00	290.00	150.00	34645	270.00

Range: 200 g

WEIGHT SET CONTENTS

200 g - 1 mg	(2) 200 g - 1 mg	200 g - 100 mg	200 g - 1 g	(2) 200 g - 1 g	(2) 200 g - 100 g			
1 - 200 g	2 - 200 g	1 - 200 g	1 - 200g	2 - 200g	2 - 200 g			
1 - 100g	1 - 100g	1 - 100 g	1 - 100 g	1 - 100 g	1 - 100 g			
1 - 50 g	1 - 50g	1 - 50 g	1 - 50 g	1 - 50 g				
2 - 20 g	2 - 20 g	2 - 20 g	2 - 20 g	2 - 20 g				
1 - 10g	1 - 10g	1 - 10 g	1 - 10 g	1 - 10 g				
1 - 5g	1 - 5g	1 - 5 g	1 - 5g	1 - 5 g				
2 - 2g	2 - 2g	2 - 2 g	2 - 2 g	2 - 2 g				
1 - 1 g	1 - 1g	1 - 1 g	1 - 1 g	1 - 1 g				
1 - 500 mg	1 - 500 mg	1 - 500 mg						
2 - 200 mg	2 - 200 mg	2 - 200 mg						
1 - 100 mg	1 - 100 mg	1 - 100 mg						
1 - 50 mg	1 - 50 mg							
2 - 20 mg	2 - 20 mg							
1 - 10 mg	1 - 10 mg							
1 - 5 mg	1 - 5 mg							
2 - 2 mg	2 - 2 mg							
1 - 1 mg	1 - 1 mg							
Piece Count								
22	23	15	10	11	3			
	I	Total V		T				
411.11 g	611.11 g	611 g	410 g	610 g	500 g			

411.11 g	611.11 g	611 g	410 g	610 g	500 g
Part #					
40546-Class E1		40547-Class E1	40548-Class E1		40549-Class E1
40550-Class E2	96468-Class E2	40551-Class E2	40552-Class E2	96469-Class E2	40553-Class E2
40554-Class F1	96470-Class F1	40555-Class F1	40556-Class F1	96471-Class F1	40557-Class F1
40558-Class F2	96472-Class F2	40559-Class F2	40560-Class F2	96473-Class F2	40561-Class F2

ADDITIONAL ACCESSORIES

Part #	Description	Price		
36092	Statement of Accuracy*	\$45.00		
11714	Weight gloves, white cotton	5.00		
11711	Tweezer	3.00		
152414	Premium tweezer	35.00		
25836	Serial number	15.00		
50035	Weight forceps, plastic, 200 g - 500 g	35.00		
11755	Leaf weight cover	35.00		
*** ** ** ** ** ** **				

*Not available for Class E1 or E2

CASE INSERTS

Size	Part #	Price
200 g - 1 mg	30607	\$170.00
(2) 200 g - 1 mg	84473	325.00
(2) 200 g - 1 g	84472	325.00
(2) 200 g - 100 g	30608	325.00

Precision Laboratory - OIML **Metric Sets**

Range: 500 g

CLASS E1*

CLASS E2*

REPLACEMENT CASES

Set Size	Part #	Price	Set Size	Part #	Price	Part #	Price
500 g - 1 mg	30822	\$5,560.00	500 g - 1 mg	30823	\$2,960.00	34645	\$270.00
500 g - 100 mg	30826	4,920.00	500 g - 100 mg	30827	2,555.00	34645	270.00
500g - 1g	30830	4,450.00	500g - 1g	30831	2,055.00	34645	270.00
500g - 100g	30834	2,745.00	500g - 100g	30835	1,500.00	34645	270.00

NOTE: Calibration Report is included with Class E1 and Class E2 kits, Statement of Accuracy not available

CLASS F1 CLASS F2 **OPTIONAL OPTIONAL REPLACEMENT CASES**

Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
500 g - 1 mg	30824	\$1,760.00	30825	\$1,500.00	\$1,060.00	\$685.00	34645	\$270.00
500 g - 100 mg	30828	1,575.00	30829	1,385.00	760.00	515.00	34645	270.00
500g - 1g	30832	1,310.00	30833	1,160.00	610.00	395.00	34645	270.00
500g - 100g	30836	1,140.00	30837	850.00	310.00	155.00	34645	270.00



Set includes lifting device and gloves

Precision Laboratory - OIML **Metric Sets**

Range: 500g

WEIGHT SET CONTENTS

500 g - 1 mg	500 g - 100 mg	500 g - 1 g	500 g - 100 g
1 - 500 g	1 - 500 g	1 - 500 g	1 - 500 g
2 - 200 g	2 - 200 g	2 - 200 g	2 - 200 g
1 - 100 g	1 - 100 g	1 - 100 g	1 - 100 g
1 - 50 g	1 - 50 g	1 - 50 g	
2 - 20 g	2 - 20 g	2 - 20 g	
1 - 10 g	1 - 10 g	1 - 10 g	
1 - 5 g	1 - 5 g	1 - 5 g	
2 - 2 g	2 - 2 g	2 - 2g	
1 - 1 g	1 - 1 g	1 - 1 g	
1 - 500 mg	1 - 500 mg		
2 - 200 mg	2 - 200 mg		
1 - 100 mg	1 - 100 mg		
1 - 50 mg			
2 - 20 mg			
1 - 10 mg			
1 - 5 mg			
2 - 2 mg			
1 - 1 mg			

Piece	.,()()

24	16	12	4			
Total Woight						

	iotai weign
1 111 ka	

1.11111 kg	1.111 kg	1.11 kg	1 kg
Part #	Part #	Part #	Part #
30822-Class E1	30826-Class E1	30830-Class E1	30834-Class E1
30823-Class E2	30827-Class E2	30831-Class E2	30835-Class E2
30824-Class F1	30828-Class F1	30832-Class F1	30836-Class F1
30825-Class F2	30829-Class F2	30833-Class F2	30837-Class F2

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy*	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
50035	Weight forceps, plastic, 200 g - 500 g	35.00
11755	Leaf weight cover	35.00
50000	Tong assembly 1 kg - 200 g	60.00
*Not availah	le for Class F1 or F2	

CASE INSERTS

Size	Part #	Price
500 g - 1 mg	30607	\$170.00
500g - 100g	30608	270.00

Precision Laboratory - OIML

Metric Sets

Range: 1 kg

CLASS E1*

Set Size

1 kg - 1 mg 1 kg - 100 mg

1 kg - 1 g 1 kg - 100 g

CLASS E2*

REPLACEMENT CASES

OPTIONAL

Mass Value

Certificate

\$725.00

505.00

435.00

Set Size	Part #	Price	Set Size	Part #	Price	Part #	Price
1 kg - 1 mg	30806	\$6,355.00	1 kg - 1 mg	30807	\$3,465.00	30605	\$1,595.00
1 kg - 100 mg	30810	5,370.00	1 kg - 100 mg	30811	3,165.00	30605	1,595.00
1 kg - 1 g	30814	4,840.00	1 kg - 1 g	30815	3,005.00	30605	1,595.00
1 kg - 100 g	30818	3,280.00	1 kg - 100 g	30819	2,400.00	30606	1,435.00

*Calibration Report inclued, Statement of Accuracy not available Class E1 or E2

Price

\$2,390.00

2,335.00

2,315.00

2,030.00

CLASS F1 CLASS F2

Part #

30808

30812

30816

30820

Part #	Price	Calibration Report	
30809	\$2,155.00	\$1,150.00	
30813	2,130.00	850.00	
30817	2,200.00	700.00	
30821	1,775.00	400.00	

OPTIONAL



\$1,595.00

1,595.00

1,595.00

30605

30605

30605



Set includes lifting device and gloves

Precision Laboratory - OIML **Metric Sets**

Range: 1 kg

WEIGHT SET CONTENTS

1 kg - 1 mg	1 kg - 100 mg	1 kg - 1 g	1 kg - 100 g
1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg
1 - 500 g	1 - 500 g	1 - 500 g	1 - 500 g
2 - 200 g	2 - 200 g	2 - 200 g	2 - 200 g
1 - 100 g	1 - 100 g	1 - 100 g	1 - 100 g
1 - 50 g	1 - 50 g	1 - 50 g	
2 - 20 g	2 - 20 g	2 - 20 g	
1 - 10 g	1 - 10 g	1 - 10 g	
1 - 5 g	1 - 5 g	1 - 5 g	
2 - 2 g	2 - 2 g	2 - 2g	
1 - 1 g	1 - 1 g	1 - 1 g	
1 - 500 mg	1 - 500 mg		
2 - 200 mg	2 - 200 mg		
1 - 100 mg	1 - 100 mg		
1 - 50 mg			
2 - 20 mg			
1 - 10 mg			
1 - 5 mg			
2 - 2 mg			
1 - 1 mg			
	Piece	Count	

Piece Count

Total Weight

2.11111 kg	2.111 kg	2.11 kg	2 kg
Part #	Part #	Part #	Part #
30806-Class E1	30810-Class E1	30814-Class E1	30818-Class E1
30807-Class E2	30811-Class E2	30815-Class E2	30819-Class E2
30808-Class F1	30812-Class F1	30816-Class F1	30820-Class F1
30809-Class F2	30813-Class F2	30817-Class F2	30821-Class F2

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
50035	Weight forceps, plastic, 200 g - 500 g	35.00
11755	Leaf weight cover	35.00
50000	Tong assembly 1 kg - 200 g	60.00

SECONDARY CASE

Size	Part #	Price
100 g - 1 mg	34697	\$180.00

Precision Laboratory - OIML **Metric Sets**

Range: 2kg

CLASS E1* CLASS E2* **REPLACEMENT CASES**

Set Size	Part 3	Price	Set Size	Part #	Price	Part #	Price
2 kg - 1 mg	40518	\$8,380.00	2 kg - 1 mg	40523	\$4,325.00	84474	\$1,595.00
2kg - 100 mg	40519	7,140.00	(2) 2 kg -1 mg	96455	4,760.00	96308	1,595.00
2kg - 1 g	40520	6,105.00	2 kg - 1 g	40525	3,415.00	84474	1,595.00
2kg - 100g	40521	4,475.00	(2) 2 kg - 1 g	96457	4,300.00	96308	1,595.00

*Calibration Report included Statement of Accuracy not available Class E1 or E2

CLASS F1 CLASS F2 OPTIONAL OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
2 kg - 1 mg	40528	\$3,400.00	40533	\$2,950.00	\$1,250.00	\$850.00	96308	\$1,595.00
(2) 2 kg -1 mg	96459	3,555.00	96463	2,800.00	1,360.00	910.00	84474	1,595.00
2 kg - 1 g	40530	2,630.00	40535	2,450.00	800.00	490.00	96308	1,595.00
(2) 2 kg - 1 g	96461	3,110.00	96465	2,680.00	1,100.00	550.00	84474	1,595.00



Set includes lifting device and gloves

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WEIGHT SET CONTENTS

2kg - 1 mg	2 kg - 100 mg	(2) 2 kg -1 mg	2 kg - 1 g	(2) 2 kg -1 g	2kg - 100g				
1 - 2 kg	1	2 - 2 kg	1 - 2 kg	2 - 2 kg	1				
1 - 1 kg	1	1 - 1 kg	1 - 1 kg	1 - 1 kg	1				
1 - 500 g	1	1 - 500 g	1 - 500 g	1 - 500 g	1				
2 - 200 g	2	2 - 200 g	2 - 200 g	2 - 200 g	2				
1 - 100 g	1	1 - 100 g	1 - 100 g	1 - 100 g	1				
1 - 50 g	1	1 - 50 g	1 - 50 g	1 - 50 g					
2 - 20 g	2	2 - 20 g	2 - 20 g	2 - 20 g					
1 - 10 g	1	1 - 10 g	1 - 10 g	1 - 10 g					
1 - 5 g	1	1 - 5 g	1 - 5 g	1 - 5 g					
2 - 2 g	2	2 - 2 g	2 - 2 g	2 - 2 g					
1 - 1 g	1	1 - 1 g	1 - 1 g	1 - 1 g					
1 - 500 mg	1	1 - 500 mg							
2 - 200 mg	2	2 - 200 mg							
1 - 100 mg	1	1 - 100 mg							
1 - 50 mg		1 - 50 mg							
2 - 20 mg		2 - 20 mg							
1 - 10 mg		1 - 10 mg							
1 - 5 mg		1 - 5 mg							
2 - 2 mg		2 - 2 mg							
1 - 1 mg		1 - 1 mg							
	Piece Count								
26	18	27	14	15	6				
		Total V	Veight						

4.11111 kg		6.11111 kg	4.11 kg	6.11 kg	
Part #					
40518-Class E1	40519-Class E1	96455-Class E2	40520-Class E1	96457-Class E2	40521- Class E1
40523-Class E2		96459-Class F1	40525-Class E2	96461-Class F1	
40528-Class F1		96463-Class F2	40530-Class F1	96465-Class F2	
40533-Class F2			40535-Class F2		

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy*	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
50035	Weight forceps, plastic, 200 g - 500 g	35.00
11755	Leaf weight cover	35.00
50000	Tong assembly 1 kg - 200 g	60.00
50037	Lifter, 5 kg and 2 kg	45.00

SECONDARY CASE

Size	Part #	Price
100 g - 1 mg	34697	\$180.00

Precision Laboratory - OIML

Metric Sets

Range: 5kg

CLASS E1*

CLASS E2*

REPLACEMENT CASES

Set Size	Part #	Price	Set Size	Part #	Price	Part #	Price
5 kg - 1 mg	30785	\$9,885.00	5 kg - 1 mg	30786	\$5,630.00	30602	\$1,565.00
5 kg - 100 mg	30789	9,505.00	5 kg - 100 mg	30790	5,410.00	30602	1,565.00
5 kg - 1 g	30793	9,125.00	5 kg - 1 g	30794	4,875.00	30602	1,565.00
5 kg - 100 g	30797	6,440.00	5 kg - 100 g	30798	4,270.00	30603	1,565.00
5 kg - 1 kg	30802	5,445.00	5 kg - 1 kg	30803	3,630.00	30604	1,435.00

*Calibration Report included, Statement of Accuracy not available Class E1 or E2

CLASS F1

CLASS F2

OPTIONAL

OPTIONAL

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
5 kg - 1 mg	30787	\$4,210.00	30788	\$3,850.00	\$1,330.00	\$800.00	30602	\$1,565.00
5 kg - 100 mg	30791	4,285.00	30792	3,740.00	1,165.00	725.00	30602	1,565.00
5 kg - 1 g	30795	3,965.00	30796	3,400.00	1,015.00	605.00	30602	1,565.00
5 kg - 100 g	30800	3,635.00	30801	3,120.00	715.00	365.00	30603	1,565.00
5 kg - 1 kg	30804	3,420.00	30805	2,875.00	370.00	210.00	30604	1,435.00

CLASS M1 Set Size

5 kg - 1 mg

5 kg - 1 g

Part # 126169

126168

OPTIONAL

REPLACEMENT CASES

Price	Traceable Certificate	Part #	Price	
\$2,220.00	\$740.00	126164	\$200.00	
1,920.00	470.00	126164	200.00	



Set includes lifting device and gloves

Metric Sets

Range: 5kg

WEIGHT SET CONTENTS

5 kg - 1 mg 5 kg - 100 mg		5 kg - 1 g	5 kg - 100 g	5 kg - 1 kg
1 - 5 kg	1 - 5 kg	1 - 5 kg	1 - 5 kg	1 - 5 kg
2 - 2 kg	2 - 2 kg	2 - 2 kg	2 - 2 kg	2 - 2 kg
1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg
1 - 500 g	1 - 500 g	1 - 500 g	1 - 500 g	
2 - 200 g	2 - 200 g	2 - 200 g	2 - 200 g	
1 - 100 g	1 - 100 g	1 - 100 g	1 - 100 g	
1 - 50 g	1 - 50 g	1 - 50 g		
2 - 20 g	2 - 20 g	2 - 20 g		
1 - 10 g	1 - 10 g	1 - 10 g		
1 - 5 g	1 - 5 g	1 - 5 g		
2 - 2 g	2 - 2 g	2 - 2g		
1 - 1 g	1 - 1 g	1 - 1 g		
1 - 500 mg	1 - 500 mg			
2 - 200 mg	2 - 200 mg			
1 - 100 mg	1 - 100 mg			
1 - 50 mg				
2 - 20 mg				
1 - 10 mg				
1 - 5 mg				
2 - 2 mg				
1 - 1 mg				

Piece Count

30796-Class F2

126168-Class M1

27	19	15	8	4	
Total Weight					

11.11 kg	11 kg	10 kg
Part #	Part #	Part #
30793-Class E1	30797-Class E1	30802-Class E1
30794-Class E2	30798-Class E2	30803-Class E2
30795_Class F1	30800_Class F1	30804-Class F1

30801-Class F2

126169-Class M1 ADDITIONAL ACCESSORIES

11.11111 kg

Part #

30785-Class E1

30786-Class E2

30787-Class F1

30788-Class F2

ADDITIONAL ACCESSORIES				
Part #	Price			
36092	Statement of Accuracy*	\$45.00		
11714	Weight gloves, white cotton	5.00		
11711	Tweezer	3.00		
152414	Premium tweezer	35.00		
25836	Serial number	15.00		
50035	Weight forceps, plastic, 200 g - 500 g	35.00		
11755	Leaf weight cover	35.00		
50000	Tong assembly 1 kg - 200 g	60.00		
50037	Lifter, 5 kg and 2 kg	45.00		

11.111 kg

Part #

30789-Class E1

30790-Class E2

30791-Class F1

30792-Class F2

SECONDARY CASE

Size	Part #	Price
100g - 1 mg	34697	\$180.00

30805-Class F2

Precision Laboratory - OIML

Metric Sets

Range: 10kg

CLASS E2*

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
10 kg - 1 mg	65213	\$8,000.00	65218	\$1,995.00
10 kg - 100 mg	96419	7,740.00	65218	1,995.00
10 kg - 1 g	96415	7,515.00	65218	1,995.00
10 kg - 100 g	96420	6,575.00	65218	1,995.00
10 kg - 1 kg	96421	5,870.00	65218	1,995.00

^{*}Calibration Report included, Statement of Accuracy not available Class E2

CLASS F1 CLASS F2 OPTIONAL OPTIONAL REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
10 kg - 1 mg	65214	\$6,625.00	65215	\$5,890.00	\$1,420.00	\$850.00	65218	\$1,995.00
10 kg - 100 mg	96429	6,510.00	96445	5,790.00	1,265.00	780.00	65218	1,995.00
10 kg - 1 g	96430	6,405.00	96446	5,705.00	1,120.00	660.00	65218	1,995.00
10 kg - 100 g	96467	6,005.00	96444	5,350.00	820.00	420.00	65218	1,995.00
10 kg - 1 kg	96432	5,370.00	96448	4,785.00	510.00	270.00	65218	1,995.00

ADDITIONAL ACCESSORIES

Part #	Description	Price
11714	Weight gloves, white cotton	5.00
152414	Premium tweezer	35.00



Set includes lifting device and gloves

Precision Laboratory - OIML **Metric Sets**

Range: 10kg

WEIGHT SET CONTENTS

10 kg - 1 mg	10 kg - 100 mg	10kg - 1 g	10 kg - 100 g	10 kg - 1 kg
1 - 10 kg	1 - 10 kg	1 - 10 kg	1 - 10 kg	1 - 10 kg
1 - 5 kg	1 - 5 kg	1 - 5 kg	1 - 5 kg	1 - 5 kg
2 - 2 kg	2 - 2 kg	2 - 2 kg	2 - 2 kg	2 - 2 kg
1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg
1 - 500 g	1 - 500 g	1 - 500 g	1 - 500 g	
2 - 200 g	2 - 200 g	2 - 200 g	2 - 200 g	
1 - 100 g	1 - 100 g	1 - 100 g	1 - 100 g	
1 - 50 g	1 - 50 g	1 - 50 g		
2 - 20 g	2 - 20 g	2 - 20 g		
1 - 10 g	1 - 10 g	1 - 10 g		
1 - 5 g	1 - 5 g	1 - 5 g		
2 - 2 g	2 - 2g	2 - 2 g		
1 - 1 g	1 - 1 g	1 - 1 g		
1 - 500 mg	1 - 500 mg			
2 - 200 mg	2 - 200 mg			
1 - 100 mg	1 - 100 mg			
1 - 50 mg				
2 - 20 mg				
1 - 10 mg				
1 - 5 mg				
2 - 2 mg				
1 - 1 mg				
	•	Piece Count		
28	20	16	9	5

28	20	16	9	5		
Total Weight						

21.11111 kg	21.11105 kg	21.111 kg	21 kg	20 kg
Part #				
65213-Class E2	96419-Class E2	96415-Class E2	96420-Class E2	96421-Class E2
65214-Class F1	96429-Class F1	96430-Class F1	96467-Class F1	96432-Class F1
65215-Class F2	96445-Class F2	96446-Class F2	96444-Class F2	96448-Class F2

ADDITIONAL ACCESSORIES

Part #	Description	Price
36092	Statement of Accuracy*	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
50035	Weight forceps, plastic, 200 g - 500 g	35.00
11755	Leaf weight cover	35.00
50000	Tong assembly 1 kg - 200 g	60.00
50037	Lifter, 5 kg and 2 kg	45.00

^{*}Not available for Class E2

SECONDARY CASE

Size	Part #	Price
100 g - 1 mg	34697	\$180.00

REPLACEMENT CASES

Precision Laboratory - OIML

Metric

Range: 20kg

CLASS E2*

CLASS F1

REPLACEMENT CASES

Set Size	Part #	Price	Part #	Price
20 kg - 1 mg	65210	\$10,200.00	65219	\$1,890.00
20 kg - 100 mg	96416	9,815.00	65219	1,890.00
20 kg - 1 g	96414	9,615.00	65219	1,890.00
20 kg - 100 g	96417	8,920.00	65219	1,890.00
20 kg - 1 kg	96418	7,980.00	65219	1,890.00

CLASS F2

*Calibration Report included, Statement of

Accuracy not available Class E2

Set Size	Part #	Price	Part #	Price	Calibration Report	Mass Value Certificate	Part #	Price
20 kg - 1 mg	65211	\$8,660.00	65212	\$7,700.00	\$1,600.00	\$975.00	65219	\$1,890.00
001 400	00400	0.505.00	00447	7 575 00	4.075.00	005.00	05040	1 000 00

OPTIONAL

OPTIONAL

20 kg - 100 mg 96428 8,505.00 96447 7,575.00 1,375.00 835.00 65219 1,890.00 1,890.00 20 kg - 1 g 96425 8,410.00 96441 7,490.00 1,225.00 720.00 65219 8,010.00 96442 925.00 480.00 65219 1,890.00 20 kg - 100 g 96426 7,135.00 20 kg - 1 kg 96427 7,380.00 96443 6,570.00 615.00 325.00 65219 1,890.00 Precision Laboratory - OIML

Metric

Range: 20kg

WEIGHT SET CONTENTS

20 kg - 1 mg	20 kg - 100 mg	20 kg - 1 g	20 kg - 100 g	20 kg - 1 kg
1 - 20 kg	1 - 20 kg	1 - 20 kg	1 - 20 kg	1 - 20 kg
1 - 10 kg	1 - 10 kg	1 - 10 kg	1 - 10 kg	1 - 10 kg
1 - 5 kg	1 - 5 kg	1 - 5 kg	1 - 5 kg	1 - 5 kg
2 - 2 kg	2 - 2 kg	2 - 2 kg	2 - 2 kg	2 - 2 kg
1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg	1 - 1 kg
1 - 500 g	1 - 500 g	1 - 500 g	1 - 500 g	
2 - 200 g	2 - 200 g	2 - 200 g	2 - 200 g	
1 - 100 g	1 - 100 g	1 - 100 g	1 - 100 g	
1 - 50 g	1 - 50 g	1 - 50 g		
2 - 20 g	2 - 20 g	2 - 20 g		
1 - 10 g	1 - 10 g	1 - 10 g		
1 - 5 g	1 - 5 g	1 - 5 g		
2 - 2 g	2 - 2 g	2 - 2 g		
1 - 1 g	1 - 1 g	1 - 1 g		
1 - 500 mg	1 - 500 mg			
2 - 200 mg	2 - 200 mg			
1 - 100 mg	1 - 100 mg			
1 - 50 mg				
2 - 20 mg				
1 - 10 mg				
1 - 5 mg				
2 - 2 mg				
1 - 1 mg				
		Piece Count		
29	21	17	10	6
	T	Total Weight		Τ
41.11111 kg	41.11105 kg	41.111 kg	41 kg	40 kg
Part #	Part #	Part #	Part #	Part #

96414-Class E2

96425-Class F1

96441-Class F2

ADDITIONAL ACCESSORIES

65210-Class E2

65211-Class F1

65212-Class F2

AUUITIUI	VAL AUGESSUNIES	
Part #	Description	Price
36092	Statement of Accuracy	\$45.00
11714	Weight gloves, white cotton	5.00
11711	Tweezer	3.00
152414	Premium tweezer	35.00
25836	Serial number	15.00
50035	Weight forceps, plastic, 200 - 500 g	35.00
11755	Leaf weight cover	35.00
50000	Tong assembly 1 kg - 200 g	60.00
50037	Lifter, 5 and 2 kg	45.00

96416-Class E2

96428-Class F1

96447-Class F2

SECONDARY CASE

Size	Part #	Price
100g - 1 mg	34697	\$180.00

96418-Class E2

96427-Class F1

96443-Class F2

96417-Class E2

96426-Class F1

96442-Class F2

Accessories Sealing Plugs



SEALING PLUGS

11750	2 3/4 in (69.8 mm) 1 7/8 in (47.6 mm) 1 in (25.4 mm) 1/2 in (12.7 mm)	\$3.50 2.75 2.50
11750	1 7/8 in (47.6 mm) 1 in (25.4 mm) 1/2 in (12.7 mm)	2.75 2.50
	1 in (25.4 mm) 1/2 in (12.7 mm)	2.50
11751	1/2 in (12.7 mm)	
		0.50
11752		2.50
11753	1 1/4 in (31.7 mm)	2.50
11760	9/16 in (14.3 mm)	2.50
11761	5/8 in (15.9 mm)	2.50
11765	3/4 in (19.1 mm)	2.50
11785	7/8 in (22.2 mm)	2.50
Aluminum Plu	gs	
11744	3/8 in (9.5 mm)	1.20
11745	1/2 in (12.7 mm)	1.20
11746	5/8 in (15.9 mm)	1.20
11762	1 in (25.4 mm)	1.20
11767	9/16 in (14.3 mm)	2.50
11775	7/8 in (22.2 mm)	2.00
11776	3/4 in (19.1 mm)	1.20
Back-up Plugs	3	
11748	2 3/4 in (69.8 mm)	3.95
11766	3/4 in (19.1 mm)	3.35
11710	1 in (25.4 mm)	1.40
11699	1 7/8 in (47.6 mm)	1.40
Back-up Plugs	Stainless Steel	
44992	1 in (25.4 mm)	1.20
44993	5/8 in (15.9 mm)	3.00
	3/8 in (9.5 mm)	3.50
Stainless Stee	l Plugs	
11709	15/16 in (23.0 mm)	2.50



Gloves

Cotton 11714

- · Essential tool for proper weight-handling
- Proper protection for preventing hand residue
- Residue can throw off a weight's calibration and certification for accuracy
- Rice Lake recommends using cotton gloves to handle all precision weights

Plastic 11773

Plastic gloves are an acceptable handling tool to keep dirt and residue off your weights. Better than handling precision weights barehanded, plastic gloves are economical, disposable, convenient, and help maintain the integrity of your weights.

GLOVES

Part #	Description	Price
11714	White Cloth (pair)	\$5.00
11773	Vinyl glove	1.50

TRANSFER EQUIPMENT

Part #	Description	Price
11711	Forceps, 3 5/8 in 100 g - 1 mg	\$3.00
50035	Forceps, 4 3/4 in	35.00
11747	Plastic bar 200 g - 4 kg	15.00
11712	Metal handle 5 kg +	60.00
65640*	Metal forceps	15.00
50037	Weight lifter, OIML 2 kg and 5 kg	45.00
50000	Tong assembly, 24 cm x 7.5 cm	60.00
152414	Tweezers, premium, 140 mm	35.00
157109	Tweezers, premium, 220 mm	40.00

^{*} Not recommended for use with polished weights.





Guidelines for Selecting a Case

- Find the diameter, height and total mass of the weights that will need a case
- Review case dimensions to determine best fit
- Note weight limits of the case and choose accordingly

Things to keep in mind:

- Foam needs 0.5 inches between weights and edge of case
- Always select the smallest case best fitting your need
- Weights should always be stored and transported in the upright position
- The shoulder edge of the weight should be level with the foam insert
- Some cases are recommended for storage only and should not be used for shipping

Medium-Duty Cases

Medium-duty Cases are primarily used for manually transporting test weights as they effectively absorb shock and resist changes in environment.

ABS Plastic 11531, 11534 and 11572

- · ABS plastic is considered superior for its strength, gloss, and electrical insulation properties—an excellent choice for encasing weights
- All metal hardware establishes the security of your weights
- Top-mounted handle makes transporting the weights effortless
- · Custom-cut foam inserts are used for insulating between the weights
- · Three sizes available

Wooden Cases 34645

- Walnut-constructed and felt-lined
- · Built-to-order and designed specifically for our weight sets
- Available in 5 20 kg capacities
- Secured by hinged latches
- · Case keeps weights free of dust and contaminants
- Protects your weights in storage and during transportation
- · Cases should be packed in an external box during shipping to protect them

PVC Cases 11596

- Available in capacities from 100 g 1 mg for Precision Laboratory SST weight sets
- Also available for ASTM Class 0 weights in 100 g 1 mg capacities

Industrial-Quality Cases

These heavy-duty cases are designed to be used in place of large wooden cases when portability is desired. The recessed latches provide protection insurance for your weights.

Black Thermoformed Cases 156989, 156285 and 156284

- · Excellent for transporting weights
- · Recessed, heavy-duty latches confidently secure contents
- Ergonomic handles retain preferred treatment of weights
- · Metal hardware resists natural wear and tear
- · Special case cuttings are required for heavy duty cases at an additional charge

Black Injection-Molded Watertight Case 158121

- · Designed for custom weight sets
- Ergonomic top-mounted handle provides ideal weight positioning
- Interior is custom-molded to the weights to be stored

Light-Duty/Single Weight Cases

Light-duty/Single Weight Cases can be used for storage and shipping smaller capacity weights within additional materials.

Plastic 153860 and 87982

- Light-duty plastic cases are used for shipping lighter capacity weights-typically single weights not exceeding 5 lb
- · Plastic hinges, latches, and side mounted handle keep this case extremely lightweight and portable
- · Uncut foam is included while custom-cut is available for an extra charge
- · Custom-cut foam insert protects each weight from impact during transport

Leatherette 69229, 69228 and 69429

- Secure storage of single weights with snap lid
- · Considered light duty and used for storage and shipping
- · Leatherette in a non-porous material—ideal weight protection
- · Three sizes of leatherette cases available

Acrylic: Clean Room 89179 and 89180

- · Ideal for all clean room environments
- · Tough, clear acrylic protects your valuable investment
- · Provide compliance for stringent clean room requirements
- · Not recommended for shipping, developed exclusively for storage
- Available as an accessory only
- · Rice Lake recommends shipping weights using wooden or plastic weight cases



Shown with optional insert



158121









Part #	Width	Length	Closed Height	Price
21230	22 in	17 in	8 in	\$345.00
21229	17 in	11 3/4 in	6 in	230.00

REPLACEMENT CASES

Part #	Width **	Length **	Closed Height **	Price
	ean Room Case			
89180	4.7in	8.7 in	2.8in	\$185.00
89179			1.8 in	100.00
89181	5 1/4 in	12 in	4 in	295.00
89182	8 1/2 in	13 1/4 in	5 3/4 in	465.00
Leatheret	te			
69429	3 3/4 in	1 7/8 in	1 1/16 in	30.00
69229	3 7/16 in	2 1/2 in	7/8 in	30.00
69228	4 in	4 in	4 1/2 in	42.00
Plastic				
87982	9 1/2 in	6 in	3 1/2 in	65.00
ABS Plast	tic			
11531	13 1/2 in	7 5/8 in	6 in	200.00
11534	14 3/8 in	9 3/8 in	7 5/8 in	210.00
11572	8 3/8 in	6 1/2 in	7 1/8 in	150.00
Sealers C	ube Wt - with p	recut foam inse	rt*	
40783	14 3/8 in	9 3/8 in	7 5/8 in	290.00
Heavy Du	ty Industrial Ca	ses		
156989	16.3 in	22.4 in	10.5 in	690.00
156285	11.4 in	16.4 in	9.0 in	462.00
158121	9.5 in	12.63 in	4.75 in	265.00
156284	9.9 in	9.9 in	11.0 in	372.00
Protection	n Containers			
80420	Capsule			3.00
50038	Vial			3.00

 $^{{}^*\}mathit{Metric}\;\mathit{or}\;\mathit{Avoirdupois},\,\mathit{no}\;\mathit{storage}\;\mathit{pocket}$













69229

69228

^{**} Inside case dimensions



Touch-up/Repair Paint



Canvas Dust Covers

TRANSFER CART

Part #	Width	Handle Width	Height	Price	
11700	36 1/2 in (927.1 mm)	74 1/2 in (1892.3 mm)	29 in (736.6 mm)	\$1,395.00	
For use on smooth, level surfaces— especially for moving 500 or 1000 lb heavy-capacity weights.					
11702	24 in (609 mm)	35 in (889 mm)	14 in (355 mm)	1,600.00	

For use on smooth, level surfaces—for holding up to fifteen 50 lb grip-handle weights.

TOUCH-UP/REPAIR PAINT

Part #	Color	Price
88561	Aerosol spray (gold)	\$25.00
88562	Aerosol spray (silver)	25.00
88563	Aerosol spray (primer)	25.00

Spray paint ships UPS Ground ONLY

CANVAS DUST COVERS

Capacity	Weight Part #	Cover Part #	Price
200 lb	(12890)	11720	\$175.00
500 lb	(12844)	11722	175.00
750 lb	(12880)	11723	175.00
1000 lb	(12850)	11724	175.00
1250 lb	(12858)	11727	175.00
2000 lb	(12866)	11729	175.00
5000 lb	(12888)	11735	175.00
100 kg	(12817)	11738	175.00
250 kg	(12782)	11740	175.00
500 kg	(12797)	11741	175.00
1000 kg	(12801)	11742	175.00
2000 kg	(12821)	11743	175.00

Availability limited to existing stock, contact Sales for pricing; additional specifications available upon request.

PART NUMBER

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Ordering Weights and Weight Sets

- 1. Please describe your application and tell us what you need to accomplish with the weight(s) or weight set.
- 2. What is the maximum amount of weight you will need at any one time?
- 3. What is the minimum amount of weight you will need at any one time?
- 4. What tolerance are you looking for?
- 5. Is your tolerance driven by the equipment under test; the application; an internal specification document; or another source?
- 6. What "style" (ASTM, OIML, NIST) is required or preferred?
- 7. What configuration do you need (5-3-2-1 or 5-2-2-1)?
- 8. Do you need something that is custom manufactured?
- 9. What is your budget for this project?
- 10. Tell us about the environment. Is it:
 - a. indoor/outdoor?
 - b. wet/dry?
 - c. windy/still?
 - d. corrosive, hazardous, or explosive?
 - e. a clean room?
 - f. an environment with biohazard, electrostatic, or magnetic conditions to consider?
 - g. an environment with other noteworthy conditions? if so, what are they?
- 11. Are you replacing an existing weight or weight set?
- 12. If the answer to question number 11 is yes, then:
 - a. What do you like/dislike about the existing weights?
 - b. What configuration is the existing set?
 - c. What style is the existing set?
 - d. What laboratory documentation is needed for the existing set?

- 13. Does this weight set need to be Legal for Trade?
- 14. Do you need ISO/IEC 17025 and ISO 9000 laboratory documentation?
- 15. If you do not need ISO/IEC 17025 and ISO 9000 laboratory documentation, do you need traceability to NIST?
- 16. Do you need true mass value?
- 17. Do you need a book version of the Calibration Report?
- 18. If you do not need any documentation, you still have the option of an RLWS Statement of Accuracy (see page 239).
- 19. If you are getting any of the laboratory documentation above, do you need a recall date?
 - Your existing weights and weight sets should be recertified on a managed periodic basis. The recertification period is determined by a number of factors, including but not necessarily limited to, the environment, frequency of use, demands of the process, quality of the weighing devices in question, age of the weights in question and handling during use.
- 20. What other precision services/equipment (recalibration, balances, accessories, static electricity) do you use?



Ordering Laboratory Documentation

New Weights

Traceable and Weight Calibration Certificates can be purchased with every weight we sell. To order either document with your purchase of a new weight or weight set, you should:

- 1. Note on your purchase order to add these services.
- 2. Call or fax the order and we will quote you the additional price immediately.

Existing Weights

Your existing weights and weight sets should be recertified on a managed periodic basis determined by a number of factors, including but not necessarily limited to: the environment, frequency of use, demands of the process, quality of the weighing devices in question, age of the weights in question, and handling during use.

When calibrating existing weights there are many factors that affect the cost: age, design, abuse, required finish, tolerance and class needed. To accurately estimate the cost of our calibration service, we offer the following four-hour response options:

- Complete the Weight Recalibration Request form available online at www.ricelake.com/recalibration or on page 253.
- Return the Weight Recalibration Request form with the weights and we will evaluate the weights and phone you with a quote.
- Call and tell us what weights you have and what service you need and we will give you a quote over the phone.

Lost Document Fees

Replacement documentation is provided free of charge if reported lost within 60 days of the date of the original document.

If reported lost after 60 days from the date of the original document, a fee of \$55.00 plus shipping will charged.

A faxed copy is available no charge on certificates ordered after 7/1/2011.



4-Day Turnaround for Weights and Calibration Services

Please call **1-800-472-6703** or visit our website at **ricelake.com** to receive a copy of the Weight Recalibration

Weight Recalibration Request form must be received at RLWS during the hours of 6:30 a.m. to 6:30 p.m. Monday through Friday and on Saturday from 8:00 a.m. to Noon Central Standard Time.



How Will an NVLAP-Accredited Calibration Lab Benefit Me?

Certification of Accreditation available for download at www.ricelake.com/accreditation.



While the present benefits of using a NVLAP-accredited lab for your weight calibration services are readily apparent, the future benefits—both in the U.S. and abroad—when the NVLAP program gains widespread approval, will be truly exciting.

Rice Lake Weighing Systems' metrology staff has participated in basic, intermediate and advanced NIST/OWM training seminars, regional metrology groups such as MidMAP, and round robin measurement programs with state labs since regional groups were established in the early 1980s. Now, with the NVLAP program in place, Rice Lake Weighing Systems has demonstrated its ability to meet accreditation requirements equal to the state calibration labs.

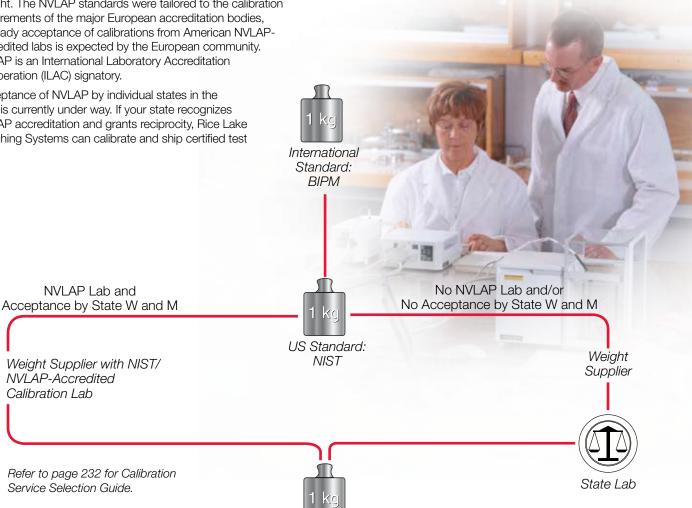
For international customers, NVLAP-accredited calibration validates the traceable link to the BIPM international standard so often required by ISO 9000 registered companies. The NVLAP program brings a measure of reciprocity and universal standardization that the weights and measures industry has long sought. The NVLAP standards were tailored to the calibration requirements of the major European accreditation bodies, so ready acceptance of calibrations from American NVLAPaccredited labs is expected by the European community. NVLAP is an International Laboratory Accreditation Cooperation (ILAC) signatory.

Acceptance of NVLAP by individual states in the U.S. is currently under way. If your state recognizes NVLAP accreditation and grants reciprocity, Rice Lake Weighing Systems can calibrate and ship certified test weights to any location in your state.

If your state has not granted reciprocity for NVLAP-accredited calibrations, we will continue to send commercial test weights and mass standards to your local state lab for certification (or to another state lab with a reciprocity agreement). You may place your Legal for Trade test weights into service only after that official lab performs its tests.

Check with your state or local Weights and Measures officials to determine the approval status of Legal for Trade weights in your state before ordering certification by Rice Lake Weighing Systems.

Rice Lake Weighing Systems' NVLAP-accredited lab can certify weights to accuracy echelon I. II and III, and ship them directly to customers. See page 242 for typical uses of these accuracy classes.



Traceability

What is Traceability?

Traceability is documentation—essentially a pedigree—showing a direct link to the official U.S. 1 kg weight standards housed at the National Institute of Standards and Technology (NIST) in Gaithersburg, MD. These NIST standards are in turn calibrated to the international 1 kg standard maintained at the BIPM lab in Sevres, France.

Traceability not only means that a weight or mass standard has links to the NIST 1 kg standard, but also that the measurements were appropriate for the accuracy class required for the application. Traceability also requires proof that all environmental factors affecting accuracy were considered at the lab doing the measurement.

There are two types of traceability: direct and indirect.

Direct Traceability

Direct traceability means a weight or mass standard has been tested by NIST. NIST then issues a report number to the organization for whom they have performed measurements. Because the certificate is valid only for the items tested by NIST, a calibration lab such as Rice Lake Weighing Systems must submit its set of mass standards to NIST for testing. This certificate provides direct traceability for the lab's mass standards, which can then be used in calibrating weights for clients.

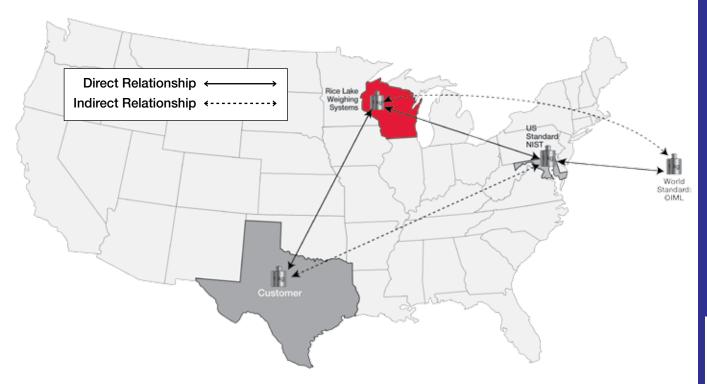
Indirect Traceability

Indirect traceability exists when a client's weight or mass standard is tested by a metrology lab that has direct traceability and has the necessary measurement control program in place. An important aspect of this measurement control and testing program is the participation in a NIST-certified measurement assurance program, which reduces the possibility of errors.

To clarify the two types of traceability, remember that direct traceability comes directly from NIST. For example, Rice Lake Weighing Systems' Calibration Lab has direct traceability, as shown in the diagram below. The calibrations we perform for our customers provide indirect traceability. Likewise, when that customer uses its Rice Lake Weighing Systems calibrated test weights to calibrate a balance or scale, it is providing indirect traceability.

When is Traceability Necessary?

- Federal agencies require measurement traceability to national standards for contract work.
- Military contracts invariably require traceability.
- Pharmaceutical, scientific and medical products manufacturers usually specify traceability.
- ISO 9000 registered companies nearly always require proof of traceability to the international standard.



Calibration Service Selection Guide

Certification of Accreditation available for download at www.ricelake.com/accreditation.

Answer 2 Questions

to determine the calibration service you need



Need accredited* laboratory certificate to meet ISO/IEC 17025 and ANSI/NCSC Z540-1 requirements?

YES

Traceability to NIST?

YES NO

What Weight Class?

ASTM 0, 1, 2, 3; OIML E1, E2, F1, or F2 ASTM 4, 5, 6, 7; NIST F; OIML M1, M2, M3



Calibration Certificate

- Weight classes: ASTM 0–3, OIML E1, E2, F1, F2
- Meets all the requirements of the National Voluntary Laboratory Accreditation Program (NVLAP)
- Provides traceability to NIST
- Meets requirements for ISO/IEC 17025 and ANSI/NCSL Z540-1
- Lists the environmental conditions present at time of calibration
- Certificate cites that the test was done by RLWS, an accredited laboratory
- Certificate states that RLWS is ISO 9001 registered



Traceable Certificate

- Weight classes: ASTM 4–7, NIST F, OIML M1, M2, M3
- Meets all the requirements of the National Voluntary Laboratory Accreditation Program (NVLAP)
- Provides traceability to NIST
- Meets requirements for ISO/IEC 17025 and ANS/ NCSL 2540-1
- Lists the environmental conditions present at time of calibration
- Certificate cites that the test was done by RLWS, an accredited laboratory
- Certificate states that RLWS is ISO 9001 registered



NO

Mass Value Certificate

RLWS

- Weight classes: ASTM 1–3, OIML, F1, F2
- Uncertainty to tolerance ratios are not guaranteed to be met
- Lists actual weight values, uncertainties, and tolerances
- Measurements are traceable to NIST
- Not an accredited certificate



Statement of Accuracy

(Only applicable to new weights)

- This is not a Legal for Trade or traceable document
- Does not give traceability to NIST
- · All weight classes
- Tolerance statement of the weight
- Nominal value of the weight is listed
- Tolerance for the specific weight class is noted
- Before, after or uncertainties values are not listed

* Accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for the specific scope of accreditation under Lab Code 105001-0.

Documentation

Traceable Certificate vs. Calibration Certificate

The major difference between the two is the method in which the weights are compared to the known standard. They both give the actual values and uncertainties. The Calibration Certificate will, however, give a smaller uncertainty and a more precise value of the actual mass due to the multiple measurements that are made during the calibrating process.

Both the Traceable Certificate and Calibration Certificate will include the following information:

- Actual mass values or the corrections to the nominal mass of the weight being calibrated vs. 8 grams/cm3.
- The uncertainty of the measurement process as it relates to the item being calibrated.
- The environmental conditions present during the test.
- The assumed density of the weight being tested so that atmospheric buoyancy corrections can be applied.

Which Document Do I Need?

This is one of the most frequently asked questions we hear at our Mass Metrology Laboratory and often times, the decision has already been made for you depending on the class of weight being evaluated.

Sometimes the answer is obvious, as when a company has legal or contractual requirements that mandate a specific document. Government contracts may dictate a document to meet certain Military Standard specifications. Often the need for quality control requirements for ISO-9000 guidelines specify that certain standards be met in their weight documentation.

In the absence of any programs or guidelines within your company, the Accuracy Classes for Mass Standards and Test Weights chart on page 242 can be used as a guide to define whether a Calibration Certificate or Traceable Certificate is required.

A Statement of Accuracy is adequate if the actual values and stated uncertainties of the weights are not necessary, and only the tolerances of the specific class are needed. These documents are normally adequate for weights used to calibrate industrial balances and scales more than 6 kg in capacity. The mass standards used by Rice Lake Weighing Systems are used to verify that those weights are within the necessary tolerances. Weights with this document do not meet the requirements needed in Legal for Trade scale applications.

Legal for Trade Weight Applications

NIST Class F weights are required for all Legal for Trade applications which include any product that is sold by weight. This would include all retail scales and floor and truck scales. For these applications we recommend a traceable certificate, which will give actual values and uncertainties of the weights. Most State Weights and Measures Departments require this information as a minimum to allow weights to be put into field service.

This is usually the same information that the state gives when they certify weights. Check with your state and local Weights and Measures Department for acceptance of our documentation.

Calibration Certificate

A customer requesting a Calibration Certificate needing traceability to NIST is looking for actual weight readings, corrections and uncertainty values. To produce this document, a calibration laboratory must maintain a statistical measurement process acceptable by NIST. Also, depending on the weight class and the accuracy required, different standards and procedures need to be incorporated to make sure the level of uncertainty is appropriate for the item being tested. The Weight Calibration Certificate is in compliance with ISO International Standard 17025 and ANSI/NCSL Z540-1 requirements.

The special software used to produce the Calibration Certificate was developed specifically for Rice Lake Weighing Systems.

These programs and procedures allow Rice Lake Weighing Systems to achieve and help maintain lower uncertainties.

The Calibration Certificate includes the following information:

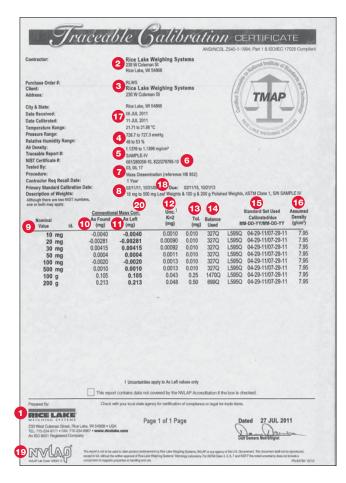
- Name and address of the calibration laboratory
- Contractor name and address
- Client name and address
- Environmental condition at time of test
- 5 Your Traceable Certificate number
- 6 NIST Certificate number

Procedure Used:

- Mass Dissemination
- 8 Identification of the calibrated item and serial number, if applicable
- 9 Nominal mass value
- As found condition of the weight before adjustment
- 11 As left condition of the weight
- A statement of the estimated value of uncertainty¹
- 13 Tolerance for the specific class
- 14 Record of the weighing equipment
- Calibration and due date of RLWS standards. This represents the date that RLWS standard is due for recalibration. This RLWS standard was used to check the performance of your weight. This date in no way reflects an expiration date of the certificate, nor does it infer or specify a recall date. The expiration of the certificate and the specification of a recall date are user assigned responsibilities under NIST H150-1.
- 6 Assumed density of the weight being tested
- 17 Date Calibrated
- 18 Recall Date
- 19 The NVLAP official logo will be displayed when the documentation meets the scope of accreditation under Lab Code 105001
- Conventional Mass mass that weight weighs at 20° C in air of density of 1.2 mg/cm³ against a standared density of 8.0 g/cm³.

Refer to page 234 for Calibration Service Selection Guide.

A reported value without all required parameters cannot be used in any link of traceability. Therefore, a calibration certificate without an uncertainty statement is useless.



Procedure Used:

Mass Dissemination using NIST SOP 5, NIST SOP 28

Traceable Certificate

A customer requesting a Traceable Certificate needs proof of traceability to NIST, actual mass values and uncertainties. Comparisons must be made between the item being tested and a known standard being used. The laboratory performing the testing must verify that the proper procedures and standards are being used so that the uncertainties are suitable for the test that is required. The known standard and procedure used for the tolerance test is essential to the traceable document. The Traceable Certificate is in compliance with ISO International Standard 17025 and ANSI/NCSL 2540-1 requirements.

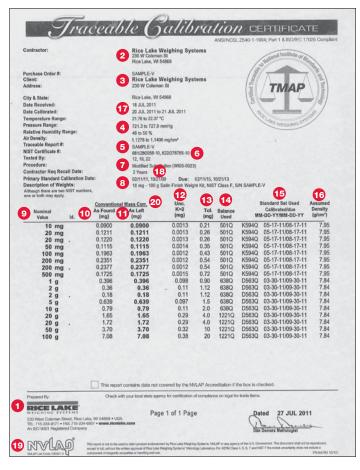
Prior to the comparison between the known standard and the item(s) submitted for test, the known standard must be sufficiently tested over time to produce predictable measurements. Also, the procedure used to do the comparison must be accurate enough so the uncertainty of the measurement is small enough to generate a valid certificate.

This certificate should contain all of the data related to the tolerance test. After testing, a Traceable Certificate is issued and will include:

- Name and address of the calibration laboratory
- Contractor name and address
- Client name and address
- Environmental condition at time of test
- 5 Your Traceable Certificate number
- 6 NIST Certificate number

Procedure Used:

- Modified Substitution
- 8 Identification of the calibrated item and serial number, if applicable
- Nominal mass value
- O As found condition of the weight before adjustment
- 11 As left condition of the weight
- A statement of the estimated value of uncertainty¹
- 13 Tolerance for the specific class
- Record of the weighing equipment
- **15** Calibration and due date of RLWS standards. This represents the date that RLWS standard is due for recalibration. This RLWS standard was used to check the performance of your weight. This date in no way reflects an expiration date of the certificate, nor does it infer or specify a recall date. The expiration of the certificate and the specification of a recall date are user assigned responsibilities under NIST H150-1.
- Assumed density of the weight being tested
- Date Calibrated
- Recall Date
- 19 The NVLAP official logo will be displayed when the documentation meets the scope of accreditation under Lab Code 105001
- 20 Conventional Mass mass that weight weighs at 20°C in air of density of 1.2 mg/cm³ against a standared density of 8.0 a/cm³.
- 1 A reported value without all required parameters cannot be used in any link of traceability. Therefore, a traceable certificate without an uncertainty statement is useless.



Procedure Used:

Modified Substitution using NIST SOP 8, RLWS Work Instruction W105-0023

RLWS Traceable Mass Value Certificate

A customer requesting a RLWS Traceable Mass Value Certificate, needs proof of traceability to NIST and actual values and uncertainties. Comparisons must be made between the item being tested and the standard being used. The known standard used for the tolerance test is essential to the traceable document.

Prior to comparison between the known standard and the item submitted for testing, the known standard must be sufficiently tested over time to produce predictable measurements.

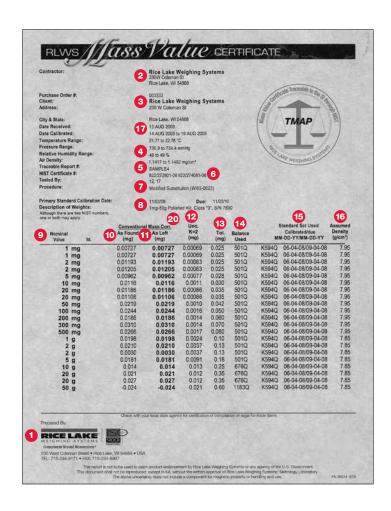
This certificate should contain all of the data related to the test. After testing, a RLWS Traceable Mass Value Certificate is issued. Although the RLWS Traceable Mass Value Certificate provides traceability to NIST, it is not a NVLAP accredited document. If an accredited document is required, please refer to the TMAP Traceable Certificate and/or TMAP Calibration Certificate.

The RLWS Traceable Mass Value Certificate includes the following information:

- Name and address of the calibration laboratory
- Contractor name and address
- 3 Client name and address
- Environmental condition at time of test
- 5 Your Traceable Certificate number
- 6 NIST Certificate number

Procedure Used:

- Modified Substitution
- 8 Identification of the calibrated item and serial number, if applicable
- 9 Nominal mass value
- As found condition of the weight before adjustment
- As left condition of the weight
- 2 A statement of the estimated value of uncertainty
- 13 Tolerance for the specific class
- Record of the weighing equipment
- Calibration and due date of RLWS standards. This represents the date that RLWS standard is due for recalibration. This RLWS standard was used to check the performance of your weight. This date in no way reflects an expiration date of the certificate, nor does it infer or specify a recall date. The expiration of the certificate and the specification of a recall date are user assigned responsibilities under NIST H150-1.
- 16 Assumed density of the weight being tested
- Date Calibrated
- Conventional Mass mass that weight weighs at 20°C in air of density of 1.2 mg/cm³ against a standard density of 8.0 g/cm³.



Procedure Used:

Modified Substitution using NIST SOP 8, RLWS Work Instruction W105-0023

¹ A reported value without all required parameters cannot be used in any link of traceability. Therefore, a traceable certificate without an uncertainty statement is useless.

Statement of Accuracy*

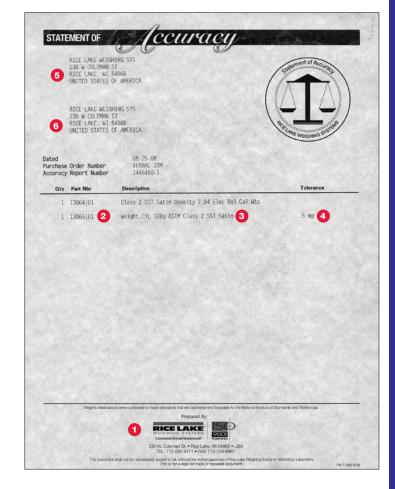
A customer requesting a Statement of Accuracy, needs proof that the nominal values represented by the mass in question have been designed and manufactured to within exact specifications.

The Statement of Accuracy provides just such a document when and where traceability to NIST, and/or the need for a NVLAP accredited document is not a concern. The Statement of Accuracy is the lowest level of documentation offered by Rice Lake Weighing Systems. Check with your internal procedures and policies to determine what type of documentation you require and thoroughly review the RLWS Traceable Mass Value Certificate, Traceable Certificate, and Calibration Certificate options prior to selecting this laboratory documentation.

The Statement of Accuracy includes the following information:

- 1 Name and address of the company that adjusted the weights
- 2 Part number
- 3 Description/Serial number
- 4 Tolerance for the specific class
- 5 Name and address of company that items were sold to
- 6 Name and address of company that items are shipped to

*Only applicable to new weights. Not a Legal for Trade or traceable document.



Rice Lake Certificate Selection Guide

NVLAP Calibration	RIC	CE LAKE CERTIFICATE SELECTION GUI	DE			
S40-1 Accordized Certificate YES		Item on Certificate				
Contractor (sold to) name and address * YES YES YES YES YES YES YES NO Client (ship to) name and address * YES YES YES YES YES NO The Traceable Report number of the Certificate for the item under test YES YES YES NO Environmental conditions at time of test YES YES YES NO Environmental conditions at time of test YES YES YES NO Environmental conditions at time of test YES YES YES NO Report of the item under test YES YES YES NO Procedure used YES YES YES YES NO Procedure used YES YES YES YES NO As found value of item) and serial number YES YES YES YES NO As found value of item under test YES YES YES NO As found value of item under test YES YES YES NO As left value of item under test YES YES YES NO 11 As left value of item under test YES YES YES NO 12 Estimated uncertainty of the measurement 1 YES YES YES YES NO 13 The tolerance for the specified class YES YES YES YES NO 14 Equipment number for the mass comparator/ Balance used to perform the test YES YES YES YES NO 15 The standards used to calibrate the item under test YES YES YES YES YES NO 16 Assumed density of the litem(s) YES YES YES YES NO 17 Legal For Trade document NO			YES	YES	NO	NO
Client (ship to) name and address * YES YES YES YES NO The Traceable Report number of the Certificate for the item under test YES YES YES YES NO Environmental conditions at time of test YES YES YES NO Environmental conditions at time of test YES YES YES NO NO Environmental conditions at time of test YES YES YES NO	1	Name and address of calibration laboratory	YES	YES	YES	YES
The Traceable Report number of the Certificate for the item under test YES YES YES YES YES NO 5 Environmental conditions at time of test YES YES YES YES NO 6 NIST Certificate number YES YES YES YES NO 7 Procedure used YES YES YES YES NO 8 Identification of the lem(s) and serial number YES YES YES YES YES YES NO 10 As found value of item under test YES YES YES YES YES NO 11 As left value of item under test YES YES YES YES YES NO 12 Estimated uncertainty of the measurement ' YES YES YES YES YES YES NO 13 The tolerance for the specified class YES YES YES YES YES YES NO 14 Equipment number for the mass comparator/ Balance used to perform the lest YES YES YES YES YES YES NO 15 Calairers Required for satin finish weights certified to ASTM Class is Salaired to ASTM Class is Required for satin finish weights smaller than Sky to ASTM Class is NO NO NO NO NO NO NO NO NO N	2	Contractor (sold to) name and address *	YES	YES	YES	YES
Environmental conditions at time of test Fes	3	Client (ship to) name and address *	YES	YES	YES	YES
Tes Tres No	4		YES	YES	YES	NO
7 Procedure used YES YES YES NO 8 Identification of the Item(s) and serial number (if applicable) 9 Nominal mass value YES YES YES NO 10 As found value of item under test YES YES YES NO 11 As left value of item under test YES YES YES NO 12 Estimated uncertainty of the measurement 1 YES YES YES NO 13 The tolerance for the specified class YES YES YES NO 14 Equipment number for the mass comparator/ Balance used to perform the test YES YES YES NO 15 The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration of the item(s) YES YES YES YES YES NO 16 Assumed density of the item(s) YES	5	Environmental conditions at time of test	YES	YES	YES	NO
Identification of the Item(s) and serial number (in applicable) YES YES YES YES NO	6	NIST Certificate number	YES	YES	YES	NO
(if applicable) TES	7	Procedure used	YES	YES	YES	NO
As found value of item under test YES YES YES YES NO As left value of item under test YES YES YES NO 12 Estimated uncertainty of the measurement ' YES YES YES YES NO 13 The tolerance for the specified class YES YES YES YES YES YES NO 14 Equipment number for the mass comparator/ Balance used to perform the test YES YES YES NO 15 The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration YES YES YES YES NO 16 Assumed density of the item(s) YES YES YES YES YES NO 17 Legal For Trade document NO	8		YES	YES	YES	YES
As left value of item under test YES YES YES YES NO 11 As left value of item under test YES YES YES YES NO 12 Estimated uncertainty of the measurement ' YES YES YES YES NO 13 The tolerance for the specified class YES YES YES YES YES YES YES NO 14 Equipment number for the mass comparator/ Balance used to perform the test YES YES YES NO 15 The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration YES YES YES YES YES NO 16 Assumed density of the item(s) YES	9	Nominal mass value	YES	YES	YES	NO
Estimated uncertainty of the measurement 1 YES YES YES NO 12 Estimated uncertainty of the measurement 1 YES YES YES NO 13 The tolerance for the specified class YES YES YES YES YES 14 Equipment number for the mass comparator/ Balance used to perform the test 15 The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration 16 Assumed density of the item(s) YES YES YES YES YES YES YES 17 Legal For Trade document NIST Class F NO NO 18 True mass values Available upon request NO NO NO 19 Book form certificate (long form certificate) Available upon request NO NO NO 20 Disclaimers Required for satin finish weights certified to ASTM Class 1 * Can be specified by customer or client	10	As found value of item under test	YES	YES	YES	NO
The tolerance for the specified class YES YES YES YES YES YES YES Y	11	As left value of item under test	YES	YES	YES	NO
Equipment number for the mass comparator/ Balance used to perform the test YES YES YES NO The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration YES YES YES YES NO Assumed density of the item(s) YES YES YES YES YES YES YES YE	12	Estimated uncertainty of the measurement ¹	YES	YES	YES	NO
The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration The standards used to calibrate the item under testand the date the standard was calibrated by RLWS and date due for recalibration The standards used to calibrate the item under testand the date the standard was calibrated to STES STESS ST	13	The tolerance for the specified class	YES	YES	YES	YES
under testand the date the standard was calibrated by RLWS and date due for recalibration YES YES YES YES YES NO 16 Assumed density of the item(s) YES YES YES YES YES YES YES YE	14		YES	YES	YES	NO
17 Legal For Trade document 18 True mass values Available upon request NO NO NO NO NO NO NO NO NO N	15	under testand the date the standard was calibrated by RLWS and date	YES	YES	YES	NO
18 True mass values Available upon request NO NO NO NO 19 Book form certificate (long form certificate) Available upon request NO NO NO 20 Disclaimers Required for satin finish weights certified to ASTM Class 1 Required for cast iron grip handle and slotted weights smaller than 5kg to ASTM Class 6 * Can be specified by customer or client	16	Assumed density of the item(s)	YES	YES	YES	YES
19 Book form certificate (long form certificate) Available upon request NO	17	Legal For Trade document		NIST Class F	NO	NO
Available upon request NO NO NO NO Available upon request NO NO NO Required for satin finish weights certified to ASTM Class 1 * Can be specified by customer or client Available upon request NO NO NO Required for cast iron grip handle and slotted weights smaller than 5kg to ASTM Class 6 * Can be specified by customer or client	18	1 -	Available upon request	NO	NO	NO
20 Disclaimers Required for satin finish weights certified to ASTM Class 1 Place of the property of the prop	19	Book form certificate (long form certificate)	Available upon request	NO	NO	NO
' '	20	Disclaimers	finish weights certified	iron grip handle and slotted weights smaller than 5kg to	finish weights certified to ASTM	NO
A reported value with a stated uncertainty is required for Traceability.	*	Can be specified by customer or client				
	1	A reported value with a stated uncertainty is re	quired for Traceability.			

Rice Lake Certificate Selection Guide (continued)

Weight Class	Accredited to 17025:2005 and ANSI/NCSL Z540-1 NVLAP Calibration Certificate	Accredited to 17025:2005 and ANSI/NCSL Z540-1 NVLAP Traceable Certificate	Non-Accredited Certificate RLWS Mass Value Certificate ³	Non Accredited and NOT LEGAL FOR TRADE Certificate of Accuracy
ASTM 0	YES	-	-	YES ²
ASTM 1	YES **	-	YES ** 3	YES ²
ASTM 2	YES	-	YES ³	YES ²
ASTM 3	YES	-	YES ³	YES ²
ASTM 4	-	YES	=	YES ²
ASTM 5	-	YES	=	YES ²
ASTM 6	-	YES **	-	YES ²
ASTM 7	-	YES	-	YES ²
OIML E2	YES	-	-	YES ²
OIML F1	YES	-	YES ³	YES ²
OIML F2	YES	-	YES ³	YES ²
OIML M1	-	YES	-	YES ²
OIML M2	-	YES	-	YES ²
OIML M3	-	YES	-	YES ²
NIST F	-	YES	-	YES ²
NIST M - obs	-	-	YES ³	-
NIST S - obs	YES*	-	YES ** 3	-
NIST S-1 - obs	YES **	-	YES ³	-
NIST P - obs	-	-	YES ³	-
NIST T - obs	-	YES	=	-
NIST C - obs	_	YES	-	-

^{**} Satin finish weights require a disclaimer because the surface finish of satin finish weights do not meet the requirements of 5.7.1 and Table 6 of the ASTM E 617-13 standard

^{***} Cast iron weights 5kg or Less require a disclaimer because they do not meet the requirement for density listed in 5.6 and Table 5 of the ASTM E 617-13 standard

² Only applicable to new weights

³ Uncertainty to tolerance ratios are not guaranteed to be met

Selecting Mass Standards and Test Weights

The following pages of this catalog contain all the information you'll need to place your mass standard or test weight order. If you're new to the specialized field of metrological weights, the selection process can be broken into five simple steps:

- Determine the regulatory standard that applies to your application. The international standard (OIML) is summarized on pages 244-245; the U.S. standard (ASTM E 617) is summarized on page 248-249; the U.S. commercial standard for Legal for Trade applications (NIST Handbook 105-1) is summarized on page 249.
- Determine the accuracy class appropriate for your application by reviewing the accuracy and tolerance information below and on pages 250-257, as well as your internal ISO documentation and any applicable manufacturer's instructions.

- 3. Determine the type of laboratory documentation you require using the information on page 235.
- 4. Using the information from steps 1–3, select the weight or weight set and appropriate laboratory documentation for your application.
- 5. If your weights will require Legal for Trade certification prior to placing them in service, decide if you would like the certification to be handled by Rice Lake Weighing Systems' metrology lab, accredited by the National Voluntary Laboratory Accreditation Program (NVLAP), or sent to your state lab. For information on the certification process of NVLAP-accredited labs, see page 232.

Accuracy Classes

CURRENT STANDARD AND TEST WEIGHT ACCURACY CLASSES					
Typical Use	OIML ¹	ASTM E617 ²	NIST 105-1 ³	NBS CIR. 547 ⁴	
Weight Calibration Certificate Essential					
Primary Laboratory Reference Standard	E1				
High precision standards for calibration of weights and special precision analytical balances accuracy Classes I and II (class number depending	E2				
on precision).		0,1		M,S	
Weight Calibration Certificate Recommended					
High Accuracy Balances	F1	2		1	
Working standard for precision analytical work, built-in weights and		3		S1	
external weights used to calibrate moderate precision balances	F2				
Traceable Certificate Acceptable					
Industrial Scales and Balance		4		Р	
Accuracy Class III industrial scales, dial scales, trip balances, platform	M1	5		Q	
scales. Also used for accuracy Class IIIL and IIII, and weights used to	M2	6	F	Т	
calibrate scales in Legal for Trade applications.	M3	7			

- ¹ See pages 244-245 for more information on OIML weight classifications
- ² See pages 246-247 for more information on ASTM E617 weight classifications
- ³ See page 249 for more information on NIST 105-1 Class F weight classification
- ⁴ Listed for reference only. NBS Cir. 547 has been superseded by ASTM E 617 classifications

Selecting Mass Standards and Test Weights (continued)

Accuracy Classes, NIST Handbook 44



Class	Value of the verification scale	Number of sca	le ⁴ divisions (n)
Class	division (d or e¹)	Minimum	Maximum
	SI Units		
I	Equal to or greater than 1 mg	50,000	-
II	1 to 50 mg, inclusive	100	100,000
	Equal to or greater than 100 mg	5000	100,000
III ²	0.1 to 4g, inclusive	100	10,000
	Equal to or greater than 5g	500	10,000
III L³	Equal to or greater than 2kg	2000	10,000
IIII	Equal to or greater than 5 kg	100	1,200
	Inch-Pound Units	3	
	0.0002 to 0.005 lb, inclusive	100	
III	0.005 to 0.125 oz inclusive	100	10,000
	Equal to or greater than 0.01 lb	500	10,000
	Equal to or greater than 0.25 oz	500	
III L³	Equal to or greater than 5lb	2000	10,000
IIII	Greater than 0.01 lb	100	1 200
1111	Greater than 0.25lb	100	1,200

¹ For Class I and II devices equipped with auxiliary reading means (i.e., a rider, a vernier, or a least significant decimal differentiated by size, shape, or color), the value of the verification scale division "e" is the value of the scale division immediately preceding the auxiliary means.

Table 3 - Parameters for Accuracy Classes - Handbook 44

 $^{^{2}\,}$ A scale marked "For prescription weighing only" may have a scale division not less than 0.01 g.

³ The value of a scale division for crane and hopper (other than grain hopper) scales shall be not less than 0.2 kg (0.5 lb). The minimum number of scale divisions shall be not less than 1,000.

On a multiple range or multi-interval scale, the number of divisions for each range independently shall not exceed the maximum specified for the accuracy class. The number of scale divisions, n, for each range is determined by dividing the scale capacity for each range by the verification scale division e, for each range. On a scale system with multiple load receiving elements and multiple indications, each element considered shall not independently exceed the maximum specified for the accuracy class. If the system has a summing indicator, the n_{max} for the summed indication shall not exceed the maximum specified for the accuracy class.

Weight Classification, International Laboratory Weights and Precision Mass Standards



OIML Weight Classification and Selection

OIML is a worldwide, intergovernmental organization whose primary aim is to harmonize the regulations and metrological controls applied by national metrological services, or related organizations of member states.

The two main categories of OIML publications are:

- International Recommendations (OIML R), which are model regulations that establish the metrological characteristics required of certain measuring instruments and which specify methods and equipment for checking their conformity; the OIML Member States shall implement these Recommendations to the greatest possible extent.
- International Documents (OIML D), which are informative in nature and intended to improve the work of metrological services.

International Recommendations and International Documents are published in French (F) and English (E), and are subject to revision.

OIML publications may be obtained from the organization's headquarters:

Bureau International de Metrologie Legale 11 Rue Turgot - 75009 Paris

France Telephone: 33 (1) 48 78 12 82 and 42 85 27 11

Fax: 33 (1) 42 82 17 27

Telex: 234 444 SVP SERV F ATTN. OIML www.OIML.org

General Information on Weight Classes: E1, E2, F1, F2, M1, M2

This Recommendation contains the principle physical characteristics and metrological requirements for weights which are used:

- For the verification of weighing instruments.
- For the verification of weights of a lower class of accuracy.

The nominal values of mass of the weights covered by this recommendation range from 1 milligram (mg) to 50 kilograms (kg).

This recommendation applies to weights in classes of accuracy as follows: E1, E2, F1, F2, M1, M2 and M3.

Weights used for the verification of weighing instruments

The classes of accuracy of the weights used for the verification of weighing instruments shall be specified in the appropriate International Recommendations relating to these instruments.

Weights used for the verification of weights of a lower class of accuracy

- E1 Weights intended to ensure traceability (see OIML R 33, paragraph A.3) between national mass standards (with values derived from the International Prototype of the kilogram) and weights of class E2 and lower.

 Class E1 weights or sets of weights shall always be accompanied by a calibration certificate.
- E2 Weights intended to be used for the initial verification of weights of class F1. They may be used as class E1 weights if they comply with the requirements for surface roughness and magnetic susceptibility of class E1 weights and if their calibration certificate gives the appropriate data.
- F1 Weights intended to be used for the initial verification of weights of class F2.
- F2 Weights intended to be used for the initial verification of weights of class M1 and possibly M2.

 M1 weights intended to be used for the initial verification of weights of class M2.
- F1, F2 Weights used with instruments of accuracy class I.
- F2 Weights intended to be used for important commercial transactions (e.g. gold and precious stones) on weighing instruments of accuracy class II.
- M1 Weights intended to be used with weighing instruments of accuracy class II.
- M2 Weights intended to be used in normal commercial transactions and on weighing instruments of accuracy class III
- M3 Weights intended to be used on weighing instruments of accuracy classes III and IV.

The accuracy of weights used with weighing instruments shall be chosen in accordance with the requirements of OIML R 76 "Nonautomatic weighing instruments."

Excerpts from the Standard Specification for Laboratory Weights and Precision Mass Standards as Regulated by the Organization Internationale De Metrologie Legale (OIML): 2004 Edition (E) Publication OIML R 111-1

This specification covers various classes of weights and mass standards used in laboratories, and weights used for field standards and commercial measurement.

Weight Classification, International Laboratory Weights and Precision Mass Standards



INTERNATIONAL ORGANIZATION OF LEGAL METROLOGY RECOMMENDATIONS OIML R111

Construction Class E1 and E2 Weights

Class E1 and E2 weights shall be solid and have no cavity open to the atmosphere. They shall have an integral construction, i.e., consist of a single piece of material.

Class F1 and F2 Weights

Class F1 and F2 weights from 1g to 50 kg may be one or more pieces from the same material. Class F1 and F2 weights may contain an adjusting cavity; however, the volume of this cavity shall not exceed one-twentieth of the total volume of the weight, and the cavity shall be closed either by means of the lifting knob or by any other suitable device.

Calibration or Initial Verification

Certain categories of new weights may either be calibrated individually or be subject to initial verification, depending on their intended use and the national legislation of the country.

Calibration weights shall be accompanied by a certificate which gives at least the conventional mass of each weight, its expanded uncertainty and the value of the coverage factor k (see coverage factor k).

Class E1 weights shall always be accompanied by certificates.

The certificate for class E1 weights shall mention at least the values of conventional mass, the expanded uncertainty and the coverage factor k, and the density or volume for each weight.

The optional certificate for class E2 weights shall mention at least:

- The values of conventional mass of each weight and the extended uncertainty and the coverage factor k, or
- The information required for class E1 weights certificates (under the conditions of the above paragraph).

Recalibration or Periodic Verification

The categories of weights which are subject to calibration or initial verification should either be recalibrated or have a periodic verification. This makes it possible to verify that the weights maintain their metrological properties. Any weights found defective at the time of the periodic verification shall be discarded or readjusted.

Uncertainty of Measurement Standard Uncertainty

Uncertainty of the result of a measurement expressed as an estimated standard deviation.

Combined Standard Uncertainty

Standard uncertainty of a measurement result. When that result is obtained from the values of a number of quantities, it is equal to the positive square root of the appropriate sum of the variances and covariances of these quantities. The variance of quantity is the square of its standard deviation.

Expanded Uncertainty

The expanded uncertainty U is obtained by multiplying the combined standard uncertainty by the coverage factor k, U=k, uc

Coverage factor k — level of confidence

In most cases, it is appropriate to use the factor k = 2.

For the normal distribution, the factor k=2 signifies that the limits of expanded uncertainty apply when the confidence level is approximately 95%.

Uncertainties for Weights

 $u2 = u2 \div u2$ with uA, uB: standard uncertainties of category A and B, respectively.

Excerpts from the Standard Specification for Laboratory Weights and Precision Mass Standards as Regulated by the Organization Internationale De Metrologie Legale (OIML): 2004 Edition (E) Publication OIML R 111-1

This specification covers various classes of weights and mass standards used in laboratories, and weights used for field standards and commercial measurement.

Weight Classification, U.S. Laboratory Weights and Precision Mass Standards

ASTM

Weight Classification and Selection

Selection of type and class depends upon the application of the weights. For primary standards, stability and information about the values of the weights is more important than the closeness of the values to nominal. Weights to be used with balances of low precision do not require small tolerances nor need the choice of materials to be limited to those of high stability. The suggested application table should serve as a guide in selecting weights for specific applications.

Type

Weights are divided into two types based upon the design:

Type I

These weights are of one-piece construction and contain no added adjusting material. They should be specified when weights are to be used as standards of the highest order and where maximum stability is required. A precise measurement of density can be made only for one-piece weights.

Type II

Weights of this type can be of any appropriate design such as screw knob, ring, or sealed plug. Adjusting material can be used as long as it is of a material at least as stable as the base material and is contained in such a way that it will not become separated from the weight.

Physical Characteristics

Class 0 must be Type I, one-piece construction, and classes 1–7 can be either Type I or II depending on the application. All weights must meet other design requirements for density, hardness, permitted surface area, surface finish, magnetic properties, corrosion resistance, surface protection and markings. Class selection depends upon the degree of stability required. Density limitations are important in minimizing the effects of air buoyancy in high precision measurements. Class 0 weights shall not bear any indication of nominal value.

Class

Tolerance limitations are described in Classes 0, 1, 2, 3, 4, 5, 6 and 7 as shown in the weight tolerance tables. Classes with small numerical designations represent smaller tolerances. Classes 0, 1 and 2 are used primarily in metric but are also available in avoirdupois denominations. Classes 3, 4, 5, 6 and 7 include tolerances for metric, avoirdupois pound, avoirdupois ounce, troy ounce, pennyweight, and grain weights. Class 1 through 7 tolerances are comparable to those in the obsolete NIST Circular 547, Section 1, with the following exception: Class 1 replaces the smaller tolerances of Classes M and S, while Class 2 replaces the larger tolerances of Classes M and S.

Excerpts from the Standard Specification for Laboratory Weights and Precision Mass Standards: ASTM E 617-13

This specification covers various classes of weights and mass standards used in laboratories, and weights used for field standards and commercial measurement are excluded, as NIST Handbook 105-1 and NIST Handbook 44 cover those classes of weights.



Weight Classification, U.S. Laboratory Weights and Precision Mass Standards



Application Table

Class	Туре	Application
0	I	Primary laboratory reference standards
0	I	Reference standards used for calibrating Class 1 weights
0	I	Reference standards used for calibrating Class 2 weights
1	I	Reference standards used for calibrating Class 3 weights
1	II	Calibration weights used with calibration Class I balances
1	I or II	Built in weights for high quality analytical balances
1,2	I or II	Calibration weights used with calibration Class II balances, laboratory weights for routine analytical work
2	I or II	Standards used for calibrating Class 4 weights
3	I or II	Standards used for calibrating Class 5 weights
4	I or II	Standards used for calibrating Class 6 weights
4,5,6	I or II	Student laboratory use
5,6	I or II	Student laboratory use
7	I or II	Rough weighing operations in physical and chemical laboratories such as force measuring apparatus

Term Abbreviations

Name of Unit	Accepted Abbreviation	Conversion Factor (g/unit of measure)
Assay Ton	AT	29.1667 g
Carat	С	0.2g
Dram, apothecaries'	dr ap	3.8879346g
Grain, Troy	GN	0.06479891 g
Gram	g	1g
Kilogram	kg	1000g
Milligram	mg	0.001 g
Ounce, apothecaries' (480 grains)	oz ap	31.1034768 g
Ounce, avoirdupois (437.5 grains)	OZ	28.349523125g
Ounce, troy (480 grains)	oz t	31.1034768g
Pennyweight	dwt	1.55517384g
Pound avoirdupois	lb	453.59237 g
Scruple, apothecaries'	s ap	1.2959782g

Metric Weight Tolerances





Tolerance for weights of denominations between those listed can be determined as follows:

- If the unit of measure is non-metric, convert the nominal value to a metric unit.
- For weights that are between those listed, the tolerance for the next lower weight shall be applied.

OIML RIII-I 2004

	Class E1	Class E2	Class F1	Class F2	Class M1	Class M2	Class M3
Nominal Size	mg						
5000 kg			25,0000	80,000	250,000	800,000	2,500,000
3000 kg							
2000 kg			10,000	30,000	100,000	300,000	1,000,000
1000 kg		1,600	5,000	16,000	50,000	100,000	500,000
500 kg		800	2,500	8,000	25,000	80,000	250,000
300 kg							
200 kg		300	1,000	3,000	10,000	30,000	100,000
100 kg		160	500	1,600	5,000	16,000	50,000
50 kg	25	80	250	800	2500	8000	25,000
30 kg		<u>'</u>	<u>'</u>	<u>'</u>		'	
25 kg							
20 kg	10	30	100	300	1000	3000	10,000
10 kg	5	16	50	160	500	1600	5000
5 kg	2.5	8.0	25	80	250	800	2500
3 kg							
2 kg	1.0	3.0	10	30	100	300	1000
1 kg	0.5	1.6	5	16	50	160	500
500 g	0.25	0.8	2.5	8.0	25	80	250
300 g							
200 g	0.1	0.30	1.0	3.0	10	30	100
100 g	0.05	0.16	0.5	1.6	5	16	50
50 g	0.03	0.10	0.30	1.0	3.0	10	30
30 g							
20 g	0.025	0.080	0.25	0.8	2.5	8	25
10 g	0.020	0.060	0.20	0.6	2.0	6	20
5 g	0.016	0.050	0.16	0.5	1.6	5	16
3 g							
2 g	0.012	0.040	0.12	0.4	1.2	4	12
1 g	0.010	0.030	0.10	0.3	1.0	3	10
500 mg	0.008	0.025	0.08	0.25	0.8	2.5	
300 mg							
200 mg	0.006	0.020	0.06	0.20	0.6	2	
100 mg	0.005	0.016	0.05	0.16	0.5	1.6	
50 mg	0.004	0.012	0.04	0.12	0.4		
30 mg							
20 mg	0.003	0.010	0.03	0.10	0.3		
10 mg	0.003	0.008	0.025	0.08	0.25		
5 mg	0.003	0.006	0.020	0.06	0.20		
3 mg							
2 mg	0.003	0.006	0.020	0.06	0.20		
1 mg	0.003	0.006	0.020	0.06	0.20		

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Weight Classification, U.S. Field Standard

Specification and tolerances for Field Standard Weights (NIST Handbook 105-1, Class F, Revised 1990)

These specifications and tolerances are minimum requirements for standards used primarily to test weighing devices.

Introduction

A Class F field standard weight (after this, called "weight") is intended to be used primarily to test commercial weighing devices for compliance with the requirements of NIST Handbook 441. Class F weights may be used to test most accuracy Class 2 III scales, all scales of Class IIIL or IV, and scales not marked with a class designation.

A weight shall be verified to be within-tolerance prior to use. The within-tolerance status of a weight shall be rechecked as often as regulations or circumstances require, especially when damage to it is known or suspected.

General

These specifications apply to new weights placed in service after the publication of this standard; the tolerances apply to all weights in service.

A weight in service prior to the publication of this standard that has maintained Class F tolerances between verification tests shall continue to be acceptable.

The specifications permit the use of a weight at its nominal value in normal testing operations, where the tolerance on the item under test is at least three times as great as the tolerance of the weight3.

A partial list of specifications from Handbook 105-1

1. Material

- A weight made of brass or a fabricated weight (such 1.1 as a laminated weight or a weight of nonuniform density) shall not be placed in service after the publication date of this standard (1990).
- 1.2 A weight smaller than 5 g/0.01 lb shall be constructed of stainless steel, tantalum, nickel-chromium alloy, aluminum allov, or other material sufficiently resistant to corrosion and oxidation that the surface need not be protected or coated.
- 1.3 A weight of 5 g/0.01 lb up to and including 5 kg/10 lb shall be constructed of material having a hardness of Rockwell B 80 or greater (such as 300-series stainless steel), and be resistant to abrasion, corrosion, denting, and chipping.

1.4 A weight larger than 5 kg/10 lb shall be constructed of materials such as iron, steel, or stainless steel, have a hardness of Rockwell B 80 or greater, and be resistant to abrasion, corrosion, denting, and chipping. Cast iron may be used for weights 10kg/20lb and larger. Body filler (e.g., fiberglass, putty, or plaster) shall not be used to correct a poor casting or finish.

2. **Finish**

- The surface finish of a new weight machined from round bar stock shall have a roughness average of 0.80 micrometers (32 microinches) or better, determined by use of a hand-held surface roughness indicator (available from several manufacturers) or more accurate method, and be free of scratches, dents, and chipped corners or edges, determined by visual examination. A beaded or blasted finish (with roughness average 1.25 micrometers (50 microinches) or better) is acceptable on a cube weight to facilitate gripping.
- 2.2 A weight 5 kg/10 lb or less shall not have a surface coating.
- 2.3 A weight larger than 5 kg/10 lb constructed of materials susceptible to corrosion or tarnishing shall have a protective surface coating. A light coat of sprayed-on flat aluminum paint is recommended. Lacquer is also acceptable. Epoxy paint or plated surfaces are not acceptable. A coating is recommended for the bottom of a weight, particularly if the bottom is recessed. If paint or lacquer is used, it shall be hard and resistant to chipping. Cast metric and avoirdupois field standards shall be color coded (i.e. gold for metric and silver for avoirdupois) to differentiate the weights.
- ¹ NIST Handbook 44, Specifications Tolerances, and Other Technical Requirements for Weighing and Measuring Devices. (See current edition.)
- ² See Handbook 44, Section 2, Scales Code.
- ³ See Handbook 44, Appendix A, par. 3.2.

Weight Tolerance, Metric

ASTM E617-13

Nominal Size	Class 000	Class 00	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
	mg	mg	mg	mg	g and mg	g and mg	g and mg	g and mg	g and mg	g and mg
5000 kg					25g	50g	100 g	250 g	500 g	750 g
3000 kg					15	30	60 g	150	300	450
2000 kg					10	20	40 g	100	200	300
1000 kg					5	10	20 g	50	100	150
500 kg					2.5	5	10 g	25	50	75
300 kg					1.5	3	6.0 g	15	30	45
200 kg					1	2	4.0 g	10	20	30
100 kg					500mg	1	2.0 g	5	10	15
50 kg	13mg	25mg	63 mg	125 mg	250	500 mg	1.0 g	2.5	5	7.5
30 kg	7.5	15	38	75	150	300	600 mg	1.5	3	4.5
25 kg	6.25	12.5	31	62	125	250	500	1.2	2.5	4.5
20 kg	5.0	10	25	50	100	200	400	1.0	2	3.8
10 kg	2.5	5.0	13	25	50	100	200	500 mg	1	2.2
5 kg	1.3	2.5	6.0	12	25	50	100	250	500 mg	1.4
3 kg	0.75	1.5	3.8	7.5	15	30	60	150	300	1.0
2 kg	0.5	1.0	2.5	5.0	10	20	40	100	200	750 mg
1 kg	0.25	0.5	1.3	2.5	5.0	10	20	50	100	470
500 g	0.13	0.25	0.60	1.2	2.5	5.0	10	30	50	300
300 g	0.075	0.15	0.38	0.75	1.5	3.0	6.0	20	30	210
200 g	0.05	0.10	0.25	0.50	1.0	2.0	4.0	15	20	160
100 g	0.025	0.05	0.13	0.25	0.50	1.0	2.0	9	10	100
50 g	0.015	0.030	0.060	0.12	0.25	0.60	1.2	5.6	7	62
30 g	0.014	0.026	0.037	0.074	0.15	0.45	0.90	4.0	5	44
20 g	0.013	0.025	0.037	0.074	0.10	0.35	0.7	3.0	3	33
10 g	0.010	0.020	0.025	0.050	0.074	0.25	0.5	2.0	2	21
5 g	0.005	0.010	0.017	0.034	0.054	0.18	0.36	1.3	2	13
3 g	0.005	0.010	0.017	0.034	0.054	0.15	0.30	0.95	2	9.4
2g	0.005	0.010	0.017	0.034	0.054	0.13	0.26	0.75	2	7.0
1 g	0.005	0.010	0.017	0.034	0.054	0.10	0.20	0.50	2	4.5
500 mg	0.002	0.003	0.005	0.010	0.025	0.080	0.16	0.38	1	3.0
300 mg	0.002	0.003	0.005	0.010	0.025	0.070	0.14	0.30	1	2.2
200 mg	0.002	0.003	0.005	0.010	0.025	0.060	0.12	0.26	1	1.8
100 mg	0.002	0.003	0.005	0.010	0.025	0.050	0.10	0.20	1	1.2
50 mg	0.002	0.003	0.005	0.010	0.014	0.042	0.085	0.16	0.5	0.88
30 mg	0.002	0.003	0.005	0.010	0.014	0.038	0.075	0.14	0.5	0.68
20 mg	0.002	0.003	0.005	0.010	0.014	0.035	0.070	0.12	0.5	0.56
10 mg	0.002	0.003	0.005	0.010	0.014	0.030	0.060	0.10	0.5	0.4
5 mg	0.002	0.003	0.005	0.010	0.014	0.028	0.055	0.080	0.2	
3 mg	0.002	0.003	0.005	0.010	0.014	0.026	0.052	0.070	0.2	
2 mg	0.002	0.003	0.005	0.010	0.014	0.025	0.05	0.06	0.2	
1 mg	0.002	0.003	0.005	0.010	0.014	0.025	0.05	0.05	0.1	
0.5 mg	0.002	0.003	0.005	0.010	0.014	0.025	0.05	0.05	0.1	
0.3mg	0.002	0.003	0.005	0.010	0.014	0.025				
0.2mg	0.002	0.003	0.005	0.010	0.014					
0.1 mg	0.002	0.003	0.005	0.010	_		_			
0.05 mg	0.002	0.003	0.005							

Weight Tolerance, Avoirdupois

ASTM E617-13

Nominal Size	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
	mg	mg	g and mg	g and mg	g and mg	g and mg	g and mg	g and mg
10000 lb			23 g	45 g	90 g	227 g	454 g	680 g
5000 lb			11	22	44	113	227	340
3000 lb			7	14	28	68	136	204
2500 lb			6	12	24	57	113	170
2000 lb			4.5	9	18	45	91	136
1000 lb			2.3	4.5	9	23	45	68
500 lb			1.7	2.3	4.6	11	23	34
100 lb	57	110	230 mg	460 mg	920 mg	2.3	4.5	6.8
50 lb	29	57	110	220	440	1.1	2.3	4.1
30 lb	17	34	68	140	260	680 mg	1.4	3
25 lb	14	28	56	110	220	570	1.1	2.5
20 lb	12	23	46	92	180	450	910 mg	2
10 lb	5.5	11	22	44	88	230	450	1.3
5 lb	2.7	5.4	11	22	43	110	230	760 mg
3 lb	1.7	3.4	6.8	14	27	68	140	510
2 lb	1.2	2.3	4.6	9.2	18	45	91	430
1 lb	0.55	1.1	2.2	4.4	8.8	27	45	270
0.5 lb	0.27	0.54	1.1	2.2	4.3	15	23	160
0.3 lb	0.17	0.34	0.68	1.4	2.7	10	14	110
0.2 lb	0.12	0.23	0.46	0.92	1.8	8.1	9.7	91
0.1 lb	0.055	0.11	0.22	0.44	1.1	5.1	6.8	56
0.05 lb	0.027	0.054	0.11	0.36	0.77	3.0	4.5	33
0.03 lb	0.017	0.034	0.068	0.32	0.59	2.0	3.2	19
0.02 lb	0.017	0.034	0.046	0.23	0.45	1.8	2.3	19
0.01 lb	0.012	0.023	0.034	0.16	0.34	1.2	1.4	12
0.005 lb	0.0075	0.015	0.024	0.14	0.27	0.86	0.91	7
0.003 lb	0.0075	0.015	0.024	0.11	0.22	0.64	0.91	5
0.002 lb	0.0075	0.015	0.024	0.091	0.19	0.50	0.91	4
0.001 lb	0.0075	0.015	0.024	0.068	0.15	0.36	0.91	3
0.0005lb	0.009	0.023	0.07	0.15	0.3	0.9	3	
0.0003lb	0.009	0.023	0.07	0.15	0.3	0.9	3	
0.0002lb	0.009	0.023	0.07	0.15	0.3	0.9	3	
0.0001lb	0.009	0.023	0.07	0.15	0.3	0.9	3	
0.00005 lb	0.009	0.023	0.07	0.15	0.3	0.9	3	
0.00003lb	0.009	0.023	0.07	0.15	0.3	0.9	3	
0.00002 lb	0.009	0.023	0.07	0.15	0.3	0.9	3	
0.00001 lb	0.009	0.023	0.07	0.15	0.3	0.9	3	

Weight Tolerance, Ounces

ASTM E617-13

Nominal Size	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
	mg							
10 oz	0.4	0.7	1.4	2.8	5.4	19	45	320
8 oz	0.3	0.6	1.2	2.3	4.5	16	23	180
5 oz	0.18	0.35	0.70	1.4	2.8	12	16	160
4 oz	0.14	0.28	0.55	1.1	2.3	9.5	11	110
3 oz	0.12	0.23	0.45	0.91	1.8	8.2	8.1	73
2 oz	0.07	0.13	0.26	0.64	1.3	5.9	5.4	48
1 oz	0.04	0.07	0.14	0.42	0.86	3.9	3.2	28
1/2 oz	0.02	0.04	0.08	0.3	0.59	2.5	2.3	25
1/4 oz	0.015	0.03	0.06	0.2	0.43	1.5	1.4	9.1
1/8 oz	0.015	0.029	0.058	0.16	0.31	1.1	0.91	4.3
1/16 oz	0.013	0.025	0.050	0.12	0.24	0.73	0.91	4.3
1/32 oz	0.008	0.015	0.030	0.095	0.19	0.5	0.91	4.3
1/64 oz	0.006	0.012	0.024	0.077	0.15	0.36	0.91	4.3
0.50 oz			0.080	0.3	0.59	2.5	2.3	25
0.3 oz			0.068	0.23	0.45	1.8	1.4	9.1
0.2 oz			0.057	0.19	0.38	1.4	0.91	5.9
0.1 oz			0.050	0.14	0.29	0.91	0.91	4.3
0.05 oz			0.050	0.11	0.23	0.64	0.91	2.0
0.03 oz			0.030	0.095	0.19	0.45	0.91	2.0
0.02 oz			0.023	0.077	0.18	0.4	0.91	2.0
0.01 oz			0.023	0.064	0.14	0.3	0.91	2.0
0.005 oz			0.023	0.054	0.11	0.23		
0.003 oz			0.023	0.05	0.095	0.19		
0.002 oz			0.023	0.044	0.086	0.16		
0.001 oz			0.023	0.038	0.077	0.13		
0.0005 oz			0.023	0.031	0.064	0.11		
0.0003 oz			0.023	0.029	0.059	0.095		
0.0002 oz			0.023	0.027	0.054	0.086		
0.0002 02 0.0001 oz			0.023	0.026	0.05	0.073		

Weight Tolerance, Troy Ounces

ASTM E617-13

Nominal Size	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
			mg	mg	mg	g and mg	g and mg	
1000 oz t			160 mg	310 mg	620 mg	1.6g	3.2 g	
500 oz t			80	160	310	770 mg	1.5	
300 oz t			45	90	190	470	940 mg	
200 oz t			31	62	120	310	620	
100 oz t			16	31	62	160	320	
50 oz t			8	16	31	77	150	
30 oz t			4.6	9.1	19	47	94	
20 oz t			3.1	6.2	12	35	58	
10 oz t			1.6	3.1	6.2	21	32	
5 oz t			0.8	1.6	3.1	12	16	
3 oz t			0.46	0.91	1.9	8.4	9.3	
2 oz t				0.71	1.4	6.4	8.0	
1 oz t				0.45	0.91	4.2	4.2	
0.5 oz t				0.31	0.62	2.6	2.6	
0.3 oz t				0.24	0.49	1.9	1.9	
0.2 oz t				0.20	0.40	1.5	2.3	
0.1 oz t				0.15	0.30	0.97	2.0	
0.05 oz t				0.12	0.23	0.65	2.0	
0.03 oz t				0.097	0.19	0.49	2.0	
0.02 oz t				0.084	0.17	0.41	1.1	
0.01 oz t				0.071	0.14	0.31	1.0	
0.005 oz t				0.056	0.11	0.23	1.0	
0.003 oz t				0.049	0.097	0.19	1.0	
0.002 oz t				0.044	0.091	0.17	0.50	
0.001 oz t				0.038	0.078	0.14	0.50	
0.0005 oz t				0.033	0.065	0.11	0.50	
0.0003 oz t				0.030	0.060	0.097	0.50	
				0.030	0.056	0.097	0.50	
0.0002 oz t								
0.0001 oz t				0.026	0.052	0.071	0.50	

Weight Tolerance, Pennyweight and Grain

ASTM E617-13

Nominal Size	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
					g and mg	g and mg	g and mg	
10000 dwt					0.31 g	0.78g	1.5g	
5000 dwt					0.16	0.39	0.78	
3000 dwt					91 mg	0.23	0.46	
2000 dwt					62	0.16	0.32	
1000 dwt					31	78 mg	0.16	
500 dwt					16	41	82 mg	
300 dwt					9.1	28	56	
200 dwt					6.2	21	42	
100 dwt					3.1	12	24	
50 dwt					1.6	7.8	16	
30 dwt					1.2	5.3	11	
20 dwt					0.91	4.2	8.4	
10 dwt					0.62	2.6	5.2	
5 dwt					0.44	1.7	3.4	
3 dwt					0.34	1.3	2.6	
2 dwt					0.3	0.97	1.9	
1 dwt					0.23	0.65	1.3	

Nominal Size	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
					mg	mg	mg	
10000 gr					13	36	36	
5000 gr					6.5	22	22	
3000 gr					3.9	15	15	
2000 gr					2.6	11	11	
1000 gr					1.4	6.3	6.3	
500 gr					0.91	3.2	3.2	
300 gr					0.65	2.3	2.3	
200 gr					0.57	1.4	1.4	
100 gr					0.4	0.91	0.91	
50 gr					0.3	0.91	0.91	
30 gr					0.25	0.71	0.71	
20 gr					0.21	0.58	0.58	
10 gr					0.17	0.42	0.42	
5 gr					0.14	0.31	0.31	
3 gr					0.12	0.25	0.25	
2 gr					0.11	0.22	0.22	
1 gr					0.091	0.17	0.17	
0.5 gr					0.078	0.14	0.14	
0.3 gr					0.071	0.12	0.12	
0.2 gr					0.064	0.11	0.11	
0.1 gr					0.056	0.091	0.091	
0.05 gr					0.052	0.071	0.071	
0.03 gr					0.051	0.071	0.071	
0.02 gr					0.05	0.071	0.071	
0.01 gr					0.05	0.070	0.071	

Weight Tolerance, Carats, Apothecary Scruples

ASTM E617-13

Nominal Size	Class 0	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
				mg	mg	mg	mg	mg
5000 c				10	20	50	100	470
3000 c				6.0	12	36	60	334
2000 c				4.0	8.0	27	44	287
1000 c				2.0	4.0	15	20	160
500 c				1.0	2.0	9	10	100
300 c				0.69	1.3	6	8	70
200 c				0.52	1.0	4.4	5	44
100 c				0.35	0.7	3	3	33
50 c				0.25	0.50	2	2	21
30 c				0.19	0.40	1.4	2	13
20 c				0.16	0.33	1	2	13
10 c				0.13	0.26	0.75	2	13
5 c				0.10	0.20	0.5	2	13
3 c				0.086	0.17	0.39	1	3
2 c				0.075	0.15	0.32	1	3
1 c				0.060	0.12	0.26	1	3
0.5 c				0.050	0.10	0.2	1	3
0.3 c				0.044	0.089	0.18	0.5	0.88
0.2 c				0.040	0.080	0.15	0.5	0.88
0.1 c				0.035	0.070	0.12	0.5	0.88
0.05 c				0.030	0.060	0.1	0.5	0.88
0.03c				0.028	0.056	0.08	0.2	
0.02 c				0.027	0.053	0.07	0.2	
0.01 c				0.025	0.050	0.06	0.2	
Apothecary Ounce								
12 oz ap					7.5	15	45	290
10 oz ap					4.5	9	36	280
6 oz ap					3.5	7	23	184
5 oz ap					3.0	6	18	144
4 oz ap					2.5	5	16	128
3 oz ap					1.50	3	11	110
2 oz ap					1.00	2	9.1	91
1 oz ap					0.60	1.2	4.5	40
Apothecary Dram								
6 dr ap					0.40	0.8	3.6	36
5 dr ap					0.30	0.6	2.7	27
4 dr ap					0.27	0.55	2.3	23
3 dr ap					0.20	0.4	1.8	18
2 dr ap					0.20	0.4	1.8	18
1 dr ap					0.17	0.35	1.4	14
Apothecary Scruple								
2s ap					0.17	0.35	1.4	14
1 s ap					0.15	0.30	0.91	9.1

Weight Tolerances

NIST 105-1 Class F

Tolerances are based on the 1975 revised tolerance structure used by State Weights and Measures.



Metric

Metric	
	105-1
Denomination Metric	F g and mg
5000 kg	500 g
3000 kg	300 g
2000 kg	200 g
1000 kg	100 g
500 kg	50 g
300 kg	30 g
200 kg	20 g
100 kg	10 g
50 kg	5.0 g
30 kg	3.0 g
25 kg	2.5 g
20 kg	2.0 g
10 kg	1.0 g
5 kg	500 mg
3 kg	300 mg
2 kg	200 mg
1 kg	100 mg
500 g	70 mg
300 g	60 mg
200 g	40 mg
100 g	20 mg
50 g	10 mg
30 g	6.0 mg
20 g	4.0 mg
10 g	2.0 mg
5 g	1.5 mg
3 g	1.3 mg
2 g	1.1 mg
1 g	0.90 mg
500 mg	0.72 mg
300 mg	0.61 mg
200 mg	0.54 mg
100 mg	0.43 mg
50 mg	0.35 mg
30 mg	0.30 mg
20 mg	0.26 mg
10 mg	0.21 mg
5 mg	0.17 mg
3 mg	0.14 mg
2 mg	0.12 mg
1 mg	0.10 mg

Avoirdupois Pounds

	105-1
Denomination Metric	F g and mg
10,000 lb	450 g
5000 lb	230
3000 lb	140
2500 lb	110
2000 lb	91
1000 lb	45
500 lb	23
100 lb	4.5
50 lb	2.3
40 lb	
30 lb	1.4
25 lb	1.1
20 lb	910 mg
15 lb	
10 lb	450
9 lb	
8 lb	
7 lb	
6 lb	
5 lb	230
4 lb	
3 lb	140
2 lb	91
1 lb	70
0.5 lb	45
0.3 lb	27
0.2 lb	18
0.1 lb	9.1
0.05 lb	4.5
0.03 lb	2.7
0.02 lb	1.8
0.01 lb	1.5
0.005 lb	1.2
0.003 lb	0.99
0.002 lb	0.87
0.001 lb	0.70
0.0005 lb	
0.0003 lb	
0.0002 lb	
0.0001 lb	
0.00005 lb	
0.00003 lb	
0.00002 lb	

0.00001 lb

Avoirdupois Ounces

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1/32 oz	1/8 oz	1.3
1/64 oz	1/16 oz	1.1
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0.005 oz 0.003 oz 0.002 oz 0.001 oz 0.0005 oz 0.0003 oz	0.02 oz	0.75
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0.0003 oz 0.0002 oz	0.001 oz	
0.0002 oz	0.0005 oz	
	0.0003 oz	
0.0001 oz	0.0002 oz	
	0.0001 oz	

Metric Weight Tolerances

Conversion Factors for Units of Measure

To convert one unit of measure to another, use our online conversion calculator at www.ricelake.com/precision

Units of Mass Not Greater Than Pounds and Kilograms

UNITS	GRAINS	APOTHECARIES SCRUPLES	PENNYWEIGHTS	AVOIRDUPOIS DRAMS	APOTHECARIES DRAMS	AVOIRDUPOIS OUNCES
1 grain =	1	0.05	0.041 666 67	0.036 571 43	0.016 666 67	0.002 285 714
1 apoth. scruple =	20	1	0.833 333 3	0.731 428 6	0.333 333 3	0.045 714 29
1 pennyweight=	24	1.2	1	0.877 714 3	0.4	0.054 857 14
1 avdp. dram =	27.343 75	1.367 187 5	1.139 323	1	0.455 729 2	0.062 5
1 apoth. dram =	60	3	2.5	2.194 286	1	0.137 142 9
1 avdp. oz =	437.5	21.875	18.229 17	16	7.291 667	1
1 apoth. or troy ounce =	480	24	20	17.554 29	8	1.097 143
1 apoth. or troy pound =	5760	288	240	210.651 4	96	13.165 71
1 avdp. lb =	7000	350	291.666 7	256	116.666 7	16
1 milligram =	0.015 432 36	0.000 771 617 9	0.000 643 014 9	0.000 564 383 4	0.000 257 206 0	0.000 035 273 96
1 gram =	15.432 36	0.771 617 9	0.643 014 9	0.564 383 4	0.257 206 0	0.035 273 96
1 kilogram =	15432.36	771.617 9	643.014 9	564.383 4	257.206 0	35.273 96

Units of Mass Not Greater Than Pounds and Kilograms

UNITS	APOTHECARIES OR TROY OUNCES	APOTHECARIES OR TROY POUNDS	AVOIRDUPOIS POUNDS	MILLIGRAMS	GRAMS	KILOGRAMS
1 grain =	0.002 083 333	0.00 173 611 1	0.000 142 857 1	64.798 91	0.064 798 91	0.000 064 798 91
1 apoth. scruple=	0.041 666 67	0.003 472 22	0.002 857 143	1295.978 2	1.295 978 2	0.001 295 978 2
1 pennyweight =	0.05	0.004 166 667	0.003 428 571	1555.173 84	1.555 173 84	0.001 555 173 84
1 avdp. dram =	0.056 966 15	0.004 747 179	0.003 906 25	1771.845 195 312 5	1.771 845 195 312 5	0.001 771 845 195 312 5
1 apoth. dram =	0.125	0.010 416 67	0.008 571 429	3887.934 6	3.887 934 6	0.003 887 934 6
1 avdp. oz =	0.911 458 3	0.075 954 86	0.062 5	28 349.523 125	28.349 523 125	0.028 349 523 125
1 apoth. or troy ounce =	1	0.083 333 333	0.068 571 43	31 103.476 8	31.103 476 8	0.031 103 476 8
1 apoth. or troy pound =	12	1	0.822 857 1	373 241.721 6	373.241 721 6	0.373 241 721 6
1 avdp. lb =	14.583 33	1.215 278	1	453 592.37	453.592 37	0.453 592 37
1 milligram =	0.000 032 150 75	0.000 002 679 229	0.000 002 204 623	1	0.001	0.000 0001
1 gram =	0.032 150 75	0.002 679 229	0.002 204 623	1000	1	0.001
1 kilogram =	32.150 75	2.679 229	2.204 623	1,000,000	1000	1

Units of Mass Not Greater Than Avoirdupois Ounces

UNIT	rs	AVOIRDUPOIS OUNCES	AVOIRDUPOIS POUNDS	SHORT HUNDRED- WEIGHTS	SHORT TONS	LONG TONS	KILOGRAMS	METRIC TONS
1 avdp. oz	=	1	0.0625	0.000 625	0.000 031 25	0.000 027 901 79	0.028 349 523 125	0.000 028 349 523 125
1 avdp. lb	=	16	1	0.01	0.000 5	0.000 446 428 6	0.453 592 37	0.000 453 592 37
1 short hundred	dweight =	1600	100	1	0.05	0.044 642 86	45.359 237	0.045 359 237
1 short ton	=	32,000	2000	20	1	0.892 857 1	907.184 74	0.907 184 74
1 long ton	=	35,840	2240	22.4	1.12	1	1016.046 908 8	1.016 046 908 8
1 kilogram	=	35.273 96	2.204 623	0.022 046 23	0.001 102 311	0.000 984 206 5	1	0.001
1 metric ton	=	35 273.96	2204.623	22.046 23	1.102 311	0.984 206 5	1000	1

Based on NIST Handbook 44, Appendix C - General Tables of Measurement

Factors in the Environment

To be able to conduct more precise measurements, it is necessary to minimize the factors that contribute to measurement errors. There are a great variety of such error-inducing factors, which can be linked to machine error and performance of the balance itself, as well as the properties and condition of sample being measured, and the measuring environment (e.g., vibration, temperature/humidity). These factors can readily affect the results of measurement on a balance.

This material includes some precautionary notes that the user should bear in mind to eliminate error factors and ensure accurate measurement results.

1. Precautions in the Measuring Room

1.1 Temperature/Humidity

- Try to maintain constant room temperature as much as possible to prevent condensation and unstable indications due to fluctuations in temperature.
- Low relative humidity tends to induce static electricity.
 (Relative humidity of about 60% is considered ideal).

1.2 Vibration/Shaking

 The measuring room should preferably be located on the ground floor or in the basement. Higher floors are more susceptible to heavy vibration and shaking, which make such locations less suitable for measurement. A room facing a railway or road with heavy traffic should also be avoided as much as possible.

1.3 Drafts

- Avoid choosing a location subject to a direct draft of airflow from an air-conditioning unit or exposed to direct sunlight, which may cause abrupt fluctuation in temperature.
- Avoid a room subject to a heavy flow of people, since fluctuations in drafts and temperature are likely to occur in such a location.

1.4 Gravity

 The gravity acting on a sample varies depending on the latitude or height of the location where measurement is being conducted. For this reason, the same sample may show different weight indications from one place to another. Therefore, make it a rule to calibrate the balance every time it is relocated.

1.5 Electromagnetic Waves

 When the balance is located near an object that generates intense electromagnetic waves, it may be hindered from showing accurate weight due to the effects of such waves.

2. Precautions on the Measuring Bench

2.1 Vibration/Shaking

- If the balance is subjected to vibration during measurement, its indications will become unstable, thus preventing accurate measurement from being conducted. To avoid this situation, select a solid measuring bench that is less susceptible to vibration.
 (A bench in vibration-proof structure or one made of concrete or stonework will be suitable). Moreover, do not conduct measurement with a soft cloth or paper placed under the balance, since the balance my be rocked out of precise level positioning.
- Place the measuring bench in a location free from vibration as much as possible. It is a good idea to install the measuring bench in a corner of the measuring room, where less vibration is likely to occur than in the center of the room.

2.2 Magnetism/Static Electricity

 Avoid operating the balance on a bench that is susceptible to the effects of magnetism or static electricity.

3. Precautions on the Samples

3.1 Static Electricity

 Generally speaking, objects made of synthetic resin and glass have high electric insulating properties and, therefore, are apt to be electrically charged. Measuring a charged sample may cause unstable indications. With this in mind, be sure to discharge samples before measurement.

3.2 Magnetism

 A sample affected by magnetism indicates different weight values depending on where it is located on the measuring pan, along with poor reproducibility of the results.

When a magnetized sample must be measured, first demagnetize it or place an appropriate pedestal on the measuring pan to adequately separate the mechanism part of the balance from the magnetized sample to avoid the effects of magnetism.

3.3 Absorption/Evaporation of Moisture

 Measuring a sample with moisture absorbed or evaporated (volatilized) continuously increases or decreases the values indicated. In such case, measure the sample in a container with a small opening and sealed airtight with a cap.

3.4 Sample Temperature

• A difference in temperature between a sample and the interior of a windshield may cause convection to occur inside the windshield, resulting in erroneous measurement.

Factors in the Environment (continued)

Therefore, measure a very hot or cold sample only after allowing time for its temperature to acclimatize to room temperature. Moreover, to prevent convection inside the windshield, allow time for the interior of the windshield to acclimatize to room temperature.

 The body heat of a person conducting measurement can also affect measurement results. Avoid holding the sample with bare hands, and use long tweezers or a similar tool instead. Also refrain from putting your hands inside the windshields while measurement is in progress.

4. Precautions on the Main Unit of the Balance

4.1 Precautions on Use

- The balance is protected with a transparent dust cover. The dust cover may be statically charged immediately after removal from the packing box or under low humidity conditions. Unstable indications by the balance may be due to a statically charge dust cover. Wipe the dust cover with a damp cloth or use a commercial antistatic agent. Simply operate the balance with the dust cover removed to assist with this problem.
- To achieve more accurate weighing, wait at least 30 minutes after switching on the balance, then use the balance only after loading it several times with an object of weight equal to the weighing capacity.

4.2 Calibration

 Periodically calibrate the balance to ensure accurate measurement at all times.

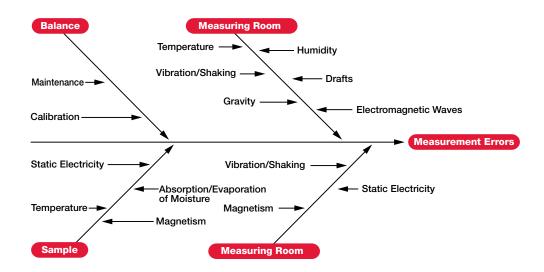
- For more precise calibration, use an external calibration weight that approximates the weighing capacity.
 Moreover, calibrate the balance only after allowing time for proper acclimation to ambient temperature following power-up.
- Wait at least 30 minutes after switching on the balance, then perform calibration only after loading the balance several times with an object of weight equal to the weighing capacity.

Calibration is also required in the following cases:

- When operating the balance for the first time
- When the balance has not been used for a long time
- When relocating the balance
- When there is wide fluctuation in temperature, humidity or atmospheric pressure

4.3 Maintenance

 When the measuring pan or pan base is contaminated with powder or liquid, erroneous weight values may result or indications may remain unstable. Therefore, be sure to frequently clean the balance. When cleaning the balance, be very careful not to allow dirt or liquid to penetrate inside the mechanism.



Weights, Balances and Uncertainty

The factors that can influence which balance is appropriate for your application are:

- 1. Capability the need for multiple balances
- 2. Readability
- 3. Capacity
- 4. "Accuracy" vs. "readability"
- 5. Repeatability and linearity
- 6. Units of measure
- 7. Platform dimensions
- 8. Environmental consideration
- 9. Communications interface
- 10. 21 CFR Part 11 compliance
- 11. Data reporting
- 12. Legal for Trade requirements

As with any other testing device or sensor in the laboratory, a complete understanding of the factors that can influence proper weighing/test results is very important.

For proper installation and maintenance of a balance, it is important to limit uncertainty. Uncertainty can be defined as a statistical estimated amount or percentage by which an observed or calculated value may differ from the true value.

Determining Uncertainty

For this exercise, presume that the balance indication, the sensitivity of the weighing device, the application of the load, and the proper zero setting of the device are all operating without question and those elements under the original control of the device manufacturer (i.e., overall design, accuracy readability, sensitivity, drift, and off-center loading characteristics) are within the device's design specifications. What needs to be determined is the impact of other influences on the uncertainty of test results.

Examining the design of the balance's installation is a critical step in the use of a precision weighing device and is often overlooked. The installation is the most imperative step in preparing for reliable results. If this area of use is understood and secure, reliable test results are more likely to be achieved.

Electromagnetic Force Restoration

In an electromagnetic force restoration balance, a current is regulated by a servo amplifier in a way that the electromagnetically generated force and the weight force applied to the platform by the object being weighed are in equilibrium (balanced). Maintenance of the equilibrium is controlled by a small sensor known as a position sensor. If weight is added to the weighing pan, this destabilizes the state of equilibrium and the overweight load causes the forcetransmitting lever to move upward into the range of the position sensor. This in turn generates an input signal at the servo amplifier, causing a greater amount of current to flow through the coil and therefore increase the counter force until equilibrium is restored. The current simultaneously flows through a resistor where it causes a drop in voltage proportional to the change in weight on the platform. This voltage drop is digitized in an analog/digital converter so that the result is processed in a

digital signal-processing unit (microprocessor), which can then in turn be indicated on a digital display with the appropriate mass indicator.

Leveling the Balance

Most balances available today include a "bubble level" or "bull's-eye-level" on the device. Along with this feature, two or more of the legs on the balance are adjustable, allowing for adjustment of the horizontal plane of the device to compensate for an out-of-level working surface. Use the bubble level and adjusting legs to insure the balance is properly leveled. An out-of-level balance will add uncertainty to test results.

Room Conditions

Ideally, the laboratory should have the following characteristics at a minimum:

- 1. Only one door to prevent air drafting.
- Limited personnel access to prevent drafting and other changes to the environment in the areas of temperature, relative humidity, and atmospheric pressure.
- 3. A limited number of windows, if any at all. If there are windows, a northern exposure is ideal so that exposure to direct sunlight is limited.
- 4. The work surface that is dedicated to the balance should be located at a corner of the room, immediately opposite to the wall containing the door. Also, the door should swing inward into the laboratory with a balance table positioned so that the door can act as a shield against drafting from sources external to the laboratory.

Working Surface

Insure that the working surface is clean, firm, and stable. Make sure that it does not feature dual or tandem connection to the floor and a wall. If at all possible, the working surface should be used only for work involving test measurements with the balance.

Ergonomics

Insure that the balance does not need to be moved to meet the various requirements induced by testing and user parameters. Balances are not designed to be relocated between applications, technicians, and laboratories. If a balance is moved after installation, the results of your installation and calibration work are no longer valid. Reinstallation should be performed before the balance is used again.

Weights, Balances and Uncertainty (continued)

Wind Currents

Inherent with the sensitivity of most balances is the ability to be affected by even the slightest of air movements. There are two simple ways to evaluate the impact of air currents surrounding the balance.

Option 1: A simple device known as a smoke tube will generate a harmless trail of smoke that will follow an ambient air current. Although this is a good visual indication, this method is sufficient only for the time that the test is being conducted.

Option 2: Use the balance as a "breeze sensor." To conduct this test, complete the balance installation and set-up following the manufacturer's instructions. Connect the balance to a computer (according to manufacturer's instructions). Configure the balance to interval print every 10 seconds. Configure the computer so that the information from the balance is imported into a spreadsheet, such as Microsoft Excel. Begin the test by activating the print sequence on the balance. Interval printing will continue at 10-second intervals for a set period of time to secure an evaluation of the environment surrounding the balance. Once the test has been completed, turn off the interval testing. Chart the results of the data now resident in your spreadsheet. Evaluate the results to determine if there are factors in the environment that you wish to avoid. An optional breeze-break will modify the unwanted behavior. If you are using an analytical-style balance (those devices with an integral breeze-break), this observation should not be overlooked.

Vibration

This contaminant can result from something as subtle as a person walking by or a constant low-frequency hum of a large piece of manufacturing equipment located several work-areas away from where the balance is located. Anti-vibration pads placed under the feet of the balance can be a low-cost solution.

Magnetism

Magnetic fields within close proximity to the balance may cause weighment errors. Sources of magnetic fields range from small motors, computer displays, and test weights and mass standards. Magnetism in mass standards and test weights cannot be completely eliminated once the device is in the field. The proper care and handling of test weights and mass standards is equally important to minimizing uncertainties as the proper installation and use of a balance.

Powerline Noise

If possible, insure that the balance is connected to a dedicated power circuit. At a minimum, use a conditioned powerstrip to insure against errors in repeatability.

RFI/EMI

Common devices used in work environments can interfere with the proper operation of a weighing system. These include two-way radios, wireless telephones, cordless phones, and wireless LAN communications. With the balance operating and presenting a stable zero reading, use a two-way radio, cell phone, or any other electronic device within close and various proximity to the balance. Any sudden change in reading may indicate some level of interference and corrective action should be considered. Another option is to contract a professional experienced with detecting, measuring, and compensating for RFI and EMI.

Fluctuations in Temperature

Ideally, lab temperature does not change over the course of a normal 24-hour period more than one to two degrees Celsius. Realistically, however, many factors prevent this ideal except in the most controlled environments. To compensate for this, many balances have an internal automatic temperature-sensitive calibration. It is important to purchase and use devices with this feature. When a change in temperature that could affect the outcome of a weighment is detected, the operator is notified that recalibration is required, or, on some units, the device's own internal calibration routine automatically compensates for the temperature change.

The laboratory should be as free from windows and direct sunlight as possible. If such a consideration is impossible, keep weighing areas away from windows, direct sunlight, and heat and refrigeration sources. The ideal humidity range for most balances is between 45% and 60% non-condensing RH.

To maintain the balance's optimal internal thermal equilibrium, the balance should not ever be turned off. When using a balance with an enclosed weighing chamber, always use a tweezers or other mechanical gripping device to place things in or remove things from the weighing chamber. When choosing a container to hold a weighing sample, select one with a small surface area.

NOTE: If using a device with an integral breeze-break, note the difference between the environment inside and outside the weighing chamber. If unsure about the weight vs. temperature properties of the commodities being tested, prepare two "identical" samples of the commodity. These "identical" samples should have the same weight value. Leave one sample outside the weighing chamber next to the balance. Place the other sample inside the weighing chamber, but not on the weighing platform. Add the second sample inside the chamber to equalize to the weighing chamber's temperature. Weigh the sample inside the weighing chamber once it has equalized to the chamber temperature. Immediately weigh the sample that was outside of the weighing chamber. If there is any difference in weight, you will need to achieve temperature equilibrium between the sample and the weighing chamber before making future weighing transactions.

Weights, Balances and Uncertainty (continued)

Sample Conditions

The weight of a sample will increase or decrease depending on its exposure to volatile substances. Similarly, the sample will behave differently dependent on the evaporation of water or the absorption of moisture by the sample itself. Always use clean and dry weighing containers to hold the sample(s) under test. Keep the weighing platform and/or weighing chamber clean and free from foreign substances that may interfere with the testing results. Use weighing containers with as narrow an opening as possible and keep these containers covered unless direct and specific work is being done with the samples.

Condition of Electrostatic Discharges

ESD usually demonstrates itself in one of two ways:

- Repeated weighments of the same sample return dissimilar results.
- The reading on the weight display is unusually unstable even though all other environmental concerns seem to be accounted for.

The following procedures can help counteract ESD. In some instances, following more than one of these procedures may be necessary:

- Avoid weighing vessels made of plastic. Glass is preferable.
- Ground the device. This can be achieved by running a wire from the chassis of the device to a direct ground connection.
- Ground the technician. These solutions include ESD wrist straps, ESD-proof laboratory coats, anti-static hand soap, etc.
- d. Use anti-static brushes to discharge ESD within the weighing chamber.
- e. Discharge ESD in the balance's immediate environment.
- f. There are a number of solutions that provide a constant stream of neutralized ion air that eliminates anti-static build-up.
- g. If the above procedures fail to correct the ESD problem, consider using only metal sample containers.

Installation

Who is doing the installation? There are basically three types of "installers" for precision weighing equipment: laboratory technicians, maintenance staff, or a dealer technician. If you have purchased your balance directly from one of the major catalog suppliers, your options for installation and maintenance are limited to either a laboratory technician or the in-house maintenance staff. Find the individual with the most experience and insure they thoroughly follow the instructions that come with the device. If you have purchased your balance from a local scale or balance dealer, you have the benefit of requesting installation by a dealer technician. This is the preferable option. A scale or balance dealer's technician is a trained professional, who, by definition, is sensitive to all of the factors that we have discussed in this article. Additionally, you have the benefit of

being able to call them back and troubleshoot either the device or the environment if you have difficulty.

Operator Training and Certification

Who is going to use the balance? Operator training and certification on a weighing device cannot be overstated. Operator errors are not only a result of individuals being inadequately trained, they also add untold degrees of uncertainty to valuable test results. Every operator should have at least a background in weighing technology, even if it is limited only to the device in question. Additionally, they should have a thorough understanding of the test process and the necessity to correctly record data thus preventing an erroneous influence in the significant process evaluation.

In summary, careful planning and/or suitable corrective action will minimize and possibly even eliminate many sources of uncertainty within your weighing process. It is possible that you will determine the need to test the balance at its planned location, and perhaps other alternative working sites in order to arrive at the best performance parameters. This will exclude influences of the surroundings or the operating personnel. By controlling the optimum performance of the balance based on its location and proper installation, you can significantly reduce uncertainties in your weighing processes.

With all of these factors under control, you should be able to proceed now using good laboratory weighing practices to determine the standard deviation of your device, as well as the uncertainty of your process.

Properties of Magnetism in Mass Standards

Editor's Note

Since this article was first published, the concern over magnetism in test weights has evolved to a new level. Unfortunately, a number of issues surrounding the measurement of magnetism in mass measurement has created frustration for mass calibration laboratories and for accreditation bodies. NCSLI recently met to bring together interested parties to discuss issues with the intent of coming to some resolutions on how to handle the various issues. As a result of these discussions a number of resolutions was adopted.

- Laboratories should not include an uncertainty component for magnetism measurements in mass calibrations.
- NVLAP's position is that for Echelon I and II measurements (corresponding to OIML R 111 classes E1, E2, F1, and F2) laboratories should:
 - 1) State on their certificates whether or not they are screening for magnetism.
 - 2) State that no component is included in their uncertainty statement for magnetism effects.
 - Include a discussion/written agreement as to the laboratory's practice regarding magnetism screening (or lack of screening) as a part of normal contract review with laboratory customers.

So then, why does RLWS screen test weights for magnetic influences? Our dedication to provide you with the utmost value for your dollar. Should we fail to test for magnetism, we could inadvertently provide you with erroneous calibration data. This data would not be repeatable in your facility. Therefore the assurance and traceability of your own work could be jeopardized.

Our philosophy always has been and will always be to take care of the customer first.

By testing for magnetic influences prior to executing a test weight calibration, we continue to provide you with a quality of work unparalleled within the industry, keeping your needs first.

What problems can Magnetic Balances cause?

When working with balances, magnetic field strength can be increased in a standard that has high susceptibility, even if the standard previously had a low or insignificant magnetic field strength. The solution seems obvious: don't expose the standard to a balance with magnetic properties. This is easier said than done. A balance with magnetic properties will reproduce its measurements as long as there are no other magnetic fields intersecting the balance's own field; thus, the magnetic field of the balance goes undetected. Introducing a standard into the balance's magnetic field, even one with very low field strength, has the potential to increase the magnetism of the standard. In this manner, a standard that formerly had no problems could potentially accumulate serious problems. To avoid this situation, the magnetic field of the balance and the magnetic susceptibility of the standard must be measured.

In 1994, a magnetic round robin was performed by several

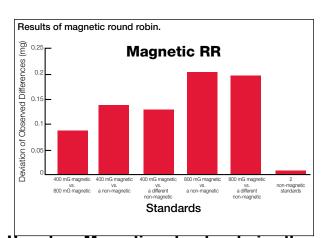
metrology laboratories to test the effect magnetism has on weight measurements. This round robin was designed to show how close the laboratories' results would be after performing a calibration on 1 kg standards with known magnetic properties.

The balances compared and the approximate standard deviation of observed differences for these tests are shown below.

BALANCE COMPARISON	STANDARD DEVIATION
400 mG magnetic vs. 800 m non-magnetic	0.09 mg
400 mG magnetic vs. a non-magnetic	0.14 mg
400 mG magnetic vs. a different non-magnetic	0.14 mg
800 mG magnetic vs. a non-magnetic	0.2 mg
800 mG magnetic vs. a different non-magnetic	0.2 mg
Non-magnetic vs. another non-magnetic	0.3 mg

These tests show that a balance responds to magnetic properties of a mass regardless of the type of force the magnetic properties are exerting. However, the magnetic fields which are present in one balance are not necessarily reproduced in a different balance. Because of this phenomenon, it is difficult to reproduce the measurements from one facility to another. If this theory is true, the link of traceability for standards with magnetic properties is obviously broken because the magnetism causes an inability to reproduce consistent measurement results.

The graph below shows the results of the magnetic round robin, clearly showing the inconsistencies that can occur.



How does Magnetism develop during the manufacturing of Mass Standards?

The existence of magnetic properties during the manufacturing of mass standards warrants careful consideration. Due to the numerous possibilities of creating magnetic properties, it is difficult to produce a mass standard from austenitic (virtually non-magnetic, highly corrosion resistant) stainless steel completely free of magnetic properties.

Properties of Magnetism in Mass Standards (continued)

On April 11, 1946, F. A. Gould from the National Physical Laboratory wrote in the *Journal of Scientific Instrumentation*: "Analytical weights of stainless steel have been on the market for several years. The kind of stainless steel used for their construction is one which purports to be reasonably non-magnetic, being of the austenitic variety; and up to the present time the 18/8 type of austenitic steel, that containing 18% chromium and 8% nickel, has been employed for this purpose in this country. The quality of the finished weights, however, has not been very satisfactory in regard to their magnetic properties, and some have been found permanently magnetized to an appreciable extent."

Mass standards are manufactured through a variety of methods, including turning, milling, and casting. Before beginning the manufacturing process, it is imperative to choose the proper materials. When choosing materials, the most important factors to consider are machinability, corrosion resistance, porosity, and magnetic properties. The magnetic properties generally develop when austenitic stainless steel is cold worked. Although cold working adds tensile strength, mass standards do not normally require added tensile strength.

Which Materials Are Best for Manufacturing Mass Standards?

Three hundred (300) series stainless steels are often used to manufacture mass standards because their chemical composition is highly resistant to corrosion. Certain materials found within 300 series stainless steels such as iron, cobalt, and nickel may possess ferromagnetism. Ferromagnetism occurs when a small external magnetic field produces an alignment of atomic magnetic dipole moments, which in some cases can persist even when there is no external magnetic field. This occurs because the magnetism of these substances exerts such a strong force over a small region of space that the magnetism is found on surrounding materials, even when no external magnetic field exists. In addition, cold working these materials often changes the austenite to ferrite in the material.

Several tests were conducted by the National Physical Laboratory, United Kingdom, to evaluate the materials used for manufacturing weights. In one of these tests, finished weights of 18/8 steel obtained from several sources of supply were tested. About half of the weights in these tests exhibited a magnetic permeability of 1.02 or less, but the remainder of the

weights showed higher magnetism. Several weights showed a permeability value of 1.1, and one showed a high permeability value of 2.6. Some of this material was found to have become permanently magnetized to an elevated extent.

Because of the variety of austenitic steel which is available, additional tests were performed to help in the selection of a material with non-magnetic properties. These tests found that 18/8 materials were not satisfactory with respect to magnetic properties. Figure 3 depicts the magnetic permeability of different stainless steel compositions.

When comparing the processes required to manufacture mass standards or to manufacture the stainless steel to produce the standards, this chart provides a general idea of the magnetism problems which may occur. Most purchasing personnel are not aware of the problems of magnetism, so when the purchase of materials takes place, materials are requested by their manufacturing names, such as 310, 304, and 316.

These names are like recipes in that they give a process for heat treating the material and a range for the chemical composition. Most of these materials have a heat treating process that returns the materials to an austenite state after any cold working process. However, sometimes this heat treating process may leave the materials bent or twisted. So in order to supply vendors with the proper materials, a secondary process to straighten the materials must be performed. This process is still within the requirements for the materials, but the cold working during the straightening process leaves the materials with magnetic properties. This is most common in smaller size diameters.

Aside from the risk of the materials having magnetic properties from the start, weight manufacturers add to the possibility of elevating magnetism during the series of cold working processes necessary to produce the mass standard. Manufacturers must use either a saw or lathe operation to start the process. The removal of any metal in this fashion is considered a cold working process. Polishing and stamping are also cold working processes. These operations can and do produce magnetic properties in the standards.

CHEMICAL COMPOSITION							MAGNETIC PERMEABILITY	MAGNETIC PERMEABILITY AFTER COLD ROLLED TO GIVE A 33% REDUCTION IN AREA		
С	Si	Mn	S	Р	Cr	Ni	W	Cu		
0.03	0.57	0.55			17.45	11.9			1.003	1.10
0.14	0.6	0.58			19.8	12.96			1.003	1.005
0.07	0.24	0.44			10.33	20.7	1.73	2.14	1.015	1.04
0.09	0.23	0.44			10.3	20.26	1.79	2.20	1.013	1.021
0.13	0.19	0.36			9.72	20.28	1.55	2.39	1.021	1.045
0.10	0.26	0.42			10.85	20.71	1.83	2.13	1.016	1.043
0.10	0.26	0.48			10.42	20.77	1.57	2.32	1.012	1.021
0.09	0.22	0.39			10.41	20.17	1.67	2.19	1.014	1.024
0.10	1.71	0.78	0.017	0.011	24.27	20.40			1.002	1.003

Properties of Magnetism in Mass Standards (continued)

What Are the Requirements for Magnetic Properties in Mass Standards?

The United States uses the American Society for Testing Materials (ASTM) specification E 617-13 for specifying the requirements of magnetic properties in laboratory weights and precision mass standards. This specification was replaced by the National Bureau of Standards (NBS) Circular 547, Section 1 in 1978 and recognizes the international recommendations of the Organization Internationale De Metrologie Legale (OIML) R111, edition 1994.

According to the ASTM E 617 specification, magnetic properties must be measured in magnetic field gradients because unshielded devices in the vicinity of the measurement can affect the accuracy of measurements. Higher grades of weights have lower magnetic susceptibility. Grades S, S', O, and P should not be more magnetic than 300 stainless steel.

The OIML international recommendations include requirements for magnitude of magnetic susceptibility. They state that the metal or alloy used for weights of classes E1 and E2 shall be practically non-magnetic (magnetic susceptibility K not to exceed K=0.01 for class E1, K=0.03 for class E2, and K=0.05 for classes F1 and F2).

How Can Magnetism Be avoided?

Although magnetism cannot be completely avoided, steps can be taken to control the effects of magnetism on the accuracy of weight measurements. The area where the weighing occurs should be tested with a gaussmeter for magnetism created by electrical wiring, motors, and any other components in the area. If the testing shows magnetism is present in the area, another location should be chosen for the measuring process.

A gaussmeter should also be used to test the balances for magnetism. Even if the standards have very low magnetic strength, the internal components of a balance may cause varying results. For example, if the components of the balance have a magnetic charge, the standard introduced to the balance will change the force exerted on the load device, causing inconsistent results from one device to another. Balances should be tested whenever there is any suspicion of magnetic problems, such as erratic weight measurements. The gaussmeter shows which part or parts of the balance are magnetized and need to be replaced.

The elimination of magnetism in mass standards is not likely to happen. However, if the proper steps are taken, the magnetism in mass standards can be significantly reduced. Starting with the manufacturing process, the proper methods and materials must be chosen. Then, the mass standards should be tested for magnetic properties. Finally, remember that the magnetism inherent in the environment, balances, and standards will cause some degree of inconsistency in mass measurements, no matter what preventive steps are taken.

How Are the Magnetic Properties of Mass Standards Measured?

Although specific requirements for magnetic susceptibility are a good start, magnetic field strength is also a very important factor that needs to be measured. Susceptibility adds to the potential of an item becoming magnetized or further charged. Measuring the magnetic field strength of the standard shows whether or not the magnetism is significant enough to cause mass measurement errors.

Richard Davis of Bureau International des Poids et Mesures (BIPM) wrote an article entitled, "New Method to Measure Magnetic Susceptibility," in which he describes a process he developed for measuring magnetic susceptibility. The following pieces of equipment are used to perform the measurements:

Balance

The balance must have a 5 g capacity (to leave enough range in the balance to place the column and magnet on it and perform the measurement) and a resolution of ≥ 1 micrograms. The weighing chamber is a glass tube with a removable glass top. The original top is replaced with one made of an aluminum alloy because aluminum contains very little magnetism.

Magnets

Two high quality cylindrical magnets (constructed of neodymium-iron-boron) are used in this measuring process. Each magnet has a height of 2.5 mm and a diameter of 5 mm. The axis of magnetization coincides with the geometric axis of the cylinder. Two such magnets are combined to produce a cylinder of height equal to diameter.

Pedestal

The magnet sits on a tubular pedestal that is centered on the balance pan. Holes drilled through the wall of the tube ensure that the total mass of the magnet and pedestal is well within the capacity of the balance.

Bridge

Samples are centered on an aluminum alloy bridge that straddles the weighing chamber of the balance. The bridge must be designed so the span can be made level with respect to the balance pan. The span should be as thin as possible, with adequate mechanical rigidity. If the span sags in the middle, samples with a large diameter will be farther from the magnet than samples with a small diameter.

Gauge Blocks

It is convenient to place the bridge on non-magnetic gauge blocks so that it may be raised or lowered in precise 5 mm increments

Magnetic Susceptibility Standard

The magnetic susceptibility standard can be the identical shape of the item being tested or a cylindrical shape that has been calibrated by known standards.

Once all of the equipment has been assembled, the distance from the center of the magnets to the top of the bridge must be calculated to determine the magnetic force. This can be done by using the known magnetic standard. After the distance is calculated, the samples that need to be tested may be introduced. The samples are calculated based on the distance from the magnets and the response of the balance. If the samples have different geometrical values, additional calculations must be performed to solve for the volume of magnetic susceptibility.

Weight Cleaning Procedures

The following GMP No. 5 is an excerpt from NBS Handbook 145, Handbook for the Quality Assurance of Metrological Measurements, November, 1986 and is provided for informational and reference use only.

It is essential that weights being calibrated as well as the standards used be clean if the calibration is to be accurate and meaningful. Therefore, a cleaning procedure should be considered as a part of every calibration.

Categories of Weights

For cleaning purposes, weights may be divided into four categories:

- One-piece weights: This category will include all one-piece weights except lacquered weights, sheet metal weights, and small wire weights.
- 2. Screw-knob weights: This category will include all weights with adjusting cavities except lacquered weights.
- Lacquered weights: This category includes all lacquered or painted weights.
- 4. Sheet metal weights and wire weights.

Cleaning Procedures One-piece Weights

One-piece weights, one gram and larger, are steam cleaned. The weights are either held or placed in a jet of steam and manipulated so that the entire surface of the weight is subjected to the cleaning action of the steam long enough to clean it. A superficial steaming is not enough. The weight is then dried, either by evaporation or careful wiping with a soft non-abrasive material such as high grade cheesecloth, free from oil and other substances that could leave a residue on the weights. Care must be exercised that no water spots are left on the weights as they dry. Visible particles on the weights should be brushed or wiped off before steam cleaning them. If a steam generator is not available, one-piece weights may be cleaned either by immersing them in a hot or boiling distilled water bath in a non-metallic container, or according to the procedures for screw-knob weights. Occasionally, a weight will have foreign material adhering to it that requires the use of solvents. Ethyl alcohol is a good general solvent. If alcohol does not remove the material, other solvents may be used. Alcohol is then used to remove any film left by the other solvents. The weights are then steam cleaned as outlined above.

Screw-knob Weights

Weights in this category are usually cleaned by wiping with a soft non-abrasive material such as high-grade cheesecloth, free from oils or other substances that would leave a residue of any kind on the surface. Occasionally, a weight will have foreign matter adhering to it that requires cleaning by using solvents, applied with a cloth. Ethyl alcohol is a good general solvent. If alcohol does not remove the foreign material, other solvents may be used. Alcohol is then used to remove any film left by the other solvents.

Lacquered Weights

The cleaning of lacquered weights requires special care because their protective lacquer coating is soluble in most solvents. Lacquered weights are cleaned by wiping with a soft non-abrasive material, free from oils and other substances that would contaminate the weights, or by brushing with a soft brush such as a camel hair brush, or both. A rubber bulb type syringe may be used to blow off lint or other small particles, however, be careful not to touch the weights with the nozzle. An electrostatic charge may be placed on the surfaces of the weights during the cleaning process or while handling them. This could be especially troublesome in a very dry atmosphere. If reliable mass values are to be obtained, the charge must be bled off the weights before calibration.

Sheet Metal Weights

Either of the following two procedures may be used in cleaning sheet metal and other small one-piece weights.

Two-step Method

First, the weights are placed in an acetone bath agitated to help loosen any foreign material. A soft brush, such as a camel hair brush, may be used to agitate the weights. The weights are removed from the acetone, allowed to dry and then steam cleaned. For steam cleaning, the weights are held in front of a jet of steam with forceps until the entire surface has been covered with steam. (See note on the next page). In order that the portion of the surface under the forceps may be steamed, the weight is set down and picked up again with the forceps holding the weight at a different spot than the first time; the weight is again steamed. Do not allow the weights to touch the steam nozzle. A low ash filter paper should be used for drying the sheet metal weights. A circular disk is folded unsymmetrically. The main body of the weight is placed between the folds of the paper with the turned up edge of the weight protruding. The main body of the weight is dried by pressing lightly on the top of the paper. The turned up edge is brushed lightly with a piece of filter paper. In some cases, it may be necessary to brush the body of the weight with filter paper to remove drops of water. Care must be exercised that no water spots are left on the weights as they dry.

Three-step Method

First, the weights are placed in an acetone bath and agitated with a soft brush to help loosen any foreign material adhering to the weights. The weights are removed from the acetone, allowed to dry, then placed in an ethyl alcohol bath and agitated. The weights are removed from the alcohol bath, allowed to dry, and then steam cleaned and dried as outlined in the two step procedure.

Note: The smaller fractional weights, say smaller than 1 g, may be placed in a hot or boiling distilled water bath for the final cleaning instead of steam cleaning them. A hot or boiling distilled water bath also may be used for the final cleaning of all sheet metal weights when a steam generator is not available.

Cleaning Interval Weights Under Test

The weights under test are cleaned before calibration.

Standards

Standards need not be cleaned every time they are used. If the standards are handled carefully, and kept under a reasonable dust tight cover, when not in use, in a clean atmosphere, the interval between cleanings may be several months, or until the calibration procedure checks indicate that the standards are changing and may need cleaning. Under less favorable conditions the interval may be only a few weeks.

Weight Cleaning Procedures (continued)

The following GMP No. 5 is an excerpt from NBS Handbook 145, Handbook for the Quality Assurance of Metrological Measurements, November, 1986 and is provided for informational and reference use only.

It is essential that weights being calibrated as well as the standards used be clean if the calibration is to be accurate and meaningful. Therefore, a cleaning procedure should be considered as a part of every calibration.

Temperature Equilibrium

Newly cleaned weights should be allowed to come to temperature equilibrium before they are calibrated. This may take several hours for the larger weights that have been steam

Generally, laboratory weights will come to temperature equilibrium over night.

Storage

Usually, weights are not placed in the balance immediately after cleaning, but are stored for varying periods. The weights should be stored under cover so that they will stay clean. Weights, one gram and larger, may be stored on a tray lined with filter paper and covered with an inverted glass dish. The smaller weights may be stored in a small glass dish covered with a watch glass. In both cases, the container should be labeled with the weight identification. When the weights are to be moved, carry the tray or dish in a level position so that the weights do not slide around.

When the weights are placed in the balance, they should be carefully brushed to remove any particles that may be on them. A small bulb type rubber syringe is useful in removing lint and other small particles from weights. The particles are blown off the weights. Therefore, neither the nozzle nor any other part of the syringe need touch the weights, and care must be taken that they do not.

Brushes

All of the equipment used in cleaning and handling weights should, of course, be clean. But, brushes require special attention because they are easily contaminated and often are the last cleaning device used before the weights are calibrated. Only soft brushes, such as camel hair brushes, should be used on weights.

The brushes are cleaned by washing with soap and water, then rinsing in ethyl alcohol and allowed to dry in air. When drying the brushes, place them so that the bristles do not touch anything. New brushes are cleaned before using to remove any oil or other matter that might contaminate the weights. Used brushes are cleaned as often as necessary to be sure that the brushes themselves do not contaminate the weights. Store cleaned brushes in containers that will keep them clean until needed. When handling the brushes, do not touch the bristles, as oil from the skin will contaminate them. When the brushes are laid down, place them so that the bristles do not touch anything.

Steam Generator

A steam generator may be purchased from a laboratory supply house or one can be constructed.

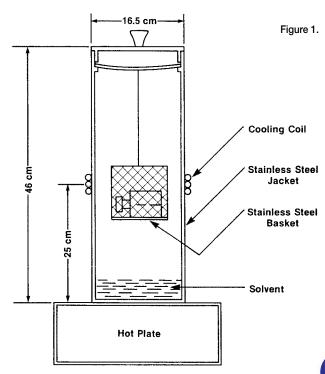
A simple steam generator may be constructed from a 500 mL wash-bottle, a two hole stopper, some glass tubing, a hot plate for the heat source, a large graduate, and some flexible tubing.

Vapor Degreaser

Weights may be cleaned by vapor degreasing, using an apparatus such as shown in Figure 1 below.

The apparatus consists of a stainless steel cylinder placed on a hot plate. The cylinder has several loops of copper tubing coiled around the outside center of the cylinder as cooling coils. The cylinder also has a cover to minimize the escape of vapors of the solvents used in the cleaning process. A basket is suspended from the cover inside the cylinder. A single weight or several small weights are placed in the basket. Solvent (e.g. ACS grade trichloro-ethylene) is placed in the cylinder to a depth of about 2.5 cm. The solvent is heated to boiling. Cold water is circulated through the cooling coils. The solvent condenses on the weight, thereby cleaning the weight, and drops off into the liquid at the bottom of the cylinder. The cleaning process is run for 15-20 minutes. The standards are then air dried and allowed to return to room temperature. The weights, when removed from the degreaser, are hot so that residual solvent evaporates in a few seconds.

(Caution: Weights should be removed from the degreaser immediately after cleaning to prevent possible electrolytic corrosion.)



Balance Verification Using Calibrated Weights

The following is an example of how to use test weights with the appropriate pedigree to calibrate and verify an electronic weighing device such as an electromagnetic force restoration balance. Manufacturer's operating and maintenance instructions should always be referenced prior to performing a test or making adjustments. Pay exceptional attention to the manufacturer's discussion on the environment suitable for the device. At the end of these procedures, refer to page 245 for information regarding weighing influence factors. Failure to consider these specifications and conditions will invalidate this procedure. Please contact us if you cannot locate the operating instructions for your device. We may be able to provide a duplicate.

Equipment Required:

- Balance
- Accessory printer (to document calibration changes and results*)
- Cotton gloves
- Tweezers
- Tongs (as appropriate to handle the test weights)
- Test weight calibration certificate or traceable certificate.
- Using the manufacturer's operating instructions, set up the balance in the environment in which it is intended for use. Allow the balance to "soak" in the environment for a minimum of 24 hours prior to any testing. This is a critical step. Many of the mechanical structures in a balance are affected by the changes in environment. To ensure a proper test with definable results, the device must be allowed to equalize within its environment.
- If the balance is equipped with an internal calibration feature, activate that feature and allow the printer, if so equipped, to document the results.
- 3. If the balance is not equipped with an internal calibration feature, use an external electronic balance calibration weight and, following the manufacturer's recommendations, calibrate the balance. Many electronic balances deployed in the field allow you to select the size of calibration weight you wish to use. To minimize the impact of hysteresis on linearity, it is strongly recommended that you use a weight that represents 100% of the rated capacity of the device.
- Weight Selection Criteria. Selecting the appropriate size and class of an electronic balance calibration weight is not a difficult process.

Option 1: Refer to the instructions provided by the manufacturer of the balance or other weighing device. Generally, the size (capacity) and class of the recommended test weight will be included for your reference.

Option 2: Manually calculate the test weight needed based on the best performance from a device with a specific capacity and readability.

- a. Record the capacity of the balance
- b. Record the minimum increment (readability) of the balance
- c. Divide the result from step 2. above by a factor of four. This number results in the appropriate tolerance for the test weight required. For example, if the balance in question has a capacity of 120 g and a displayed resolution of 1 mg (0.001 g), the result of the calculation would be 0.25 mg (0.00025 g).
- d. Refer to the ASTM Weight Tolerance Table on page 242.
- e. In the column titled "Metric Denomination" find the weight value closest to the capacity of the balance. If the exact number is not available, select the next smallest value. For

- example, a balance has a capacity of 120 g. The closest value but smaller than the rated capacity of the balance is 100 g.
- f. Read across the table to the right to locate the tolerance that is closest to, but smaller than the value of 0.25 mg calculated in step three. The first value that meets this criteria is 0.13 mg, Class 0
- g. To assure the most error-free results, an ASTM Class 0 test weight should be used for this calibration exercise. However, because the value in the next column is .025 mg exactly, an ASTM Class 1 device could be selected with satisfactory results.
- h. Now we know that every test weight we purchase for this device must be a minimum of ASTM Class 1.

Option 3: Manually calculate the test weight based on the tolerance of the procedure or methodology.

- a. Given your balance has a capacity of 120 g
- b. Given your balance has a readability of 0.0001 g (0.1 mg)
- Given you wish to check your balance at weighing capacities of 5g, 10g, and 15g.
- d. To get the proper results, weights with the following capacities are required: 1 ea 5 g, 1 ea 10 g

You will be able to use the 5g test weight alone to test the device at 5g; the 10g weight alone to test the device at 10g; and the 5g and 10g test weights together to test the device at 15g.

- e. Given \sim the tolerance you are looking for in your procedure is 0.5 mg
- f. Divide your tolerance of 0.5 mg by a factor of 4. This results in a tolerance of 0.125 mg
- g. Refer to the ASTM Weight Tolerance Table on page 248.
- h. Because more than one weight is being used to accomplish this test, cumulative tolerance will need to be applied considering the tolerances of both a 5g and 10g test weight together to insure that they do not exceed 0.125 mg.
- i. Find the first 10 g weight value in the column titled "Metric Denomination". Read across the chart to find the value that is closest to but smaller than the calculated tolerance of 0.25 mg from step 4c above. This would be the value of 0.074 under ASTM Class 2. ASTM Class 3 cannot be used since that value 0.25 mg is larger than the calculated tolerance of 0.125 mg.
- j. Follow the ASTM Class 2 column until you are across from the 5 g test weight, which is the next test weight being used. As listed on the chart, the tolerance for a 5 g ASTM Class 2 test weight is 0.054 mg.
- k. Add this to the tolerance of the 10 g ASTM Class 2 test weight from step 4 above. The result is 0.74 mg + 0.054 mg = 0.128 mg. This value is larger than the stated tolerance of 0.125 mg. Because of this, tolerances for ASTM Class 1 need to be used to improve performance.
- I. The tolerance for an ASTM Class 1 10g test weight is 0.050 mg. The tolerance for an ASTM Class 1 5g test weight is 0.034 mg. When combined, the total accumulated tolerance of 0.084 mg of is well within the stated tolerance of 0.125 mg. Therefore, for this procedure, ASTM Class 1 test weights should be used.

Balance Verification Using Calibrated Weights (continued)

- 5. When external (preferred) or internal calibration has been successfully accomplished, select a verification weight that is representative of a typical sample used on a daily basis. If the weighing device is used for samples of exceptionally different values, consider the number of transactions with each typical sample. Develop a representative sample size for this test. The test weights you use for this test should not only be representative of the sample size, but also have the appropriate laboratory documentation and traceability to ensure test validity.
- 6. Tare or zero the balance and verify that the display reads a stable zero value.
- 7. With the device reading zero, apply the sample test weight to the
- 8. Wait until the balance indicates that it is no longer "in-motion."
- 9. Write down the reading on the display.
- 10. Remove the test weight from the balance.
- 11. Wait until the balance is no longer "in motion" and the display has returned to a stable 0 value.
- 12. Repeat steps 5-10 20 times.
- 13. Using the results from step 11, calculate a standard deviation
- 14. Multiply the answer in step 13 by 3. This is the random error that is expected for the balance with a 99% confidence level. This number now becomes the upper and lower limits for the performance verification. In other words, the balance is performing satisfactorily when the results of a balance reading compared to the practical test weight (PTW) are no more than PTW + STDV and no less than PTW - STDV.
- 15. It is important to now verify the results of the standard deviation against the repeatability specification for the weighing device under test. If the standard deviation value is greater than the repeatability factor of the balance under test consider the following.
 - Recheck the installation parameter of the balance. Be acutely aware of environmental influences on the balance under test as these can have a significant impact on the device's performance. If you are confident that all preventative measures have been taken to insure optimal balance performance, contact the manufacturer of the device for additional recommendations.
- 16. Determine the correction value from the laboratory documentation that accompanies the test weight used to calibrate the balance at 100% from step 3. The correction value is the error that was introduced into the balance mechanism and algorithms when the balance was calibrated in step 3. The calibration function in most electronic balances of recent manufacture compensates and sets the linearity of the device from the point in the weighing range representing the calibration load down through and including zero. It is critical that the calibration be performed as close as possible to 100% of the balance's rated capacity. Perform balance calibration with an external calibration test weight since the linear error cannot be deduced by using an internal calibration weight. If the balance

was calibrated at 100% of its rated load, 100% of the error in the calibration weight was also introduced at that point. This error is reduced to half its original value at the 50% load point. It is further reduced to 75% at the 25% load point. It is possible to make an estimation of the linear error of the calibration by the equation in

A. LE = Linear Error

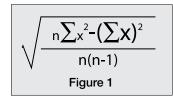
B. ECW = Rated Error of the Calibration Weight

C. L = Load

D. CL = Calibration Load

- 17. A study of the points presented so far explains the fallacy of attempting to calibrate a balance at less than 100% of its rated capacity. Failure to do so can make the device's performance completely theoretical and destroy the intent of uncertainty budgets.
- 18. Using all of this information, it is now possible to determine the anticipated result for the verification process.
- 19. Using the laboratory documentation for the test weight that represents the typical sample weight, determine the error or correction of the weight. Also, check the uncertainty of the weight that you will use for this process. The uncertainty must be no greater than 25% of the random error of the balance being examined from step 15. If the uncertainty of the weight is greater than 25% of the random error of the balance, select a test weight of equivalent value but with a higher accuracy class. In the event that the correction on your laboratory documentation is a negative number, the weight in question is below nominal value by that amount. A positive value means the weight is heavier than nominal by that amount.
- 20. Calculate the anticipated value for performance verification using the following formula where:
 - EV = Expected Value;
 - AMV = Actual Mass Value and
 - LE = Linear Error (from step 14)

$$AMV = (NV + AM)$$



$$LE = \frac{(-1)x(ECWxL)}{CL}$$
Figure 2

Balance Verification Using Calibrated Weights (continued)

Where AMV = Actual Mass Value; NV = Nominal Value and AM = Apparent Mass vs. 8.0 correction in the following formula:

$$EV = (AMV + LE)$$

21. Verification: Zero the balance and place the verification weight on the balance. If the actual reading is within the random error range established in the calculation of the anticipated value, the verification passes.

Example:

- Balance specification 100 g x 0.1 mg
- Calibration load 100 g (100% of rated capacity)
- Test weight specifications
 - 100 g Class 1 electronic balance calibration weight with a correction of + 0.10 mg
 - 10g Class 1 electronic balance calibration weight with a correction of + 0.010 mg
- Typical sample value 10 g

Following the instructions above (step 14), 20 measurements are taken and the standard deviation is found to be $0.3\,\mathrm{mg}$. Applying a factor of $3\,(3\times0.3\,\mathrm{mg})$, the value calculates to $0.9\,\mathrm{mg}$.

To calculate the Linear error =

$$LE = \frac{(-1)x(ECWxL)}{CL}$$
 OR $0.01mg = \frac{(-1)x(1mgx10g)}{100g}$

Expected value =

$$EV = (AMV + LE)$$
 or $9.99999 = 10 + (-0.01 \text{ mg})$

Verification range = 9.99999g +/-(-0.9 mg)

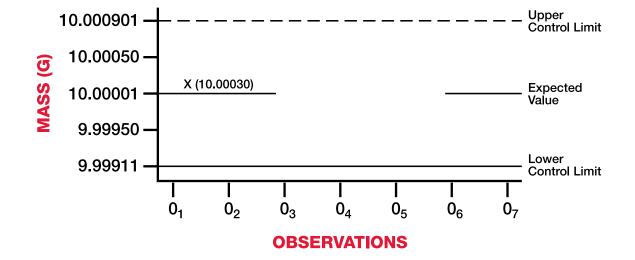
The actual verification is performed and the reading on the balance results in a value of 10.0003 grams. Since this value is within the control limit, the results of the test is a "pass," as relative to a "pass/fail" rating system.

Refer to the chart below.

22. In the chart below, the methodology explained in this section has been followed. A weight of 10 g is applied to the balance. The reading on the balance is 10.00010. This value has been plotted on the chart as X. It falls within the upper and lower limits and therefore, this verification observation passes.

Further suggestions

- Perform verifications at different times of the day. If you
 notice that the results are significantly different at these
 different times, it may suggest that the environmental
 conditions within the work space are changing and may
 have unforeseen impact on the work being conducted.
- Constantly monitor the condition and weight value of your test weights. Under the auspices of NIST H-150, laboratories providing recalibration services are prohibited from recommending or establishing scheduled recall dates without your explicit instructions. To learn more about how to determine when and if a weight is due for recalibration, please contact us. We will be happy to discuss the process with you.
- Keep a constant running record of your test results and chart these results using a program such as Microsoft[®]
 Excel. This record can help you understand the data being recorded as well as help you gain additional insight into your laboratory conditions.
- From time to time, recalculate the random error to see if your balance is performing consistently.
- Have your balance serviced according to the manufacturer's instructions or recommendations by your dealer to ensure it maintains optimum operational parameters.



Glossary of Terms

Standard Specification for Laboratory Weights and Precision Mass Standards

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Accuracy Class of Weights

A class of weights that meets certain metrological requirements intended to keep the errors within specified limits (definition from OIML R 111). Weight designated with "S" Prime are higher class weights.

Adjustment

The process of changing the mass either by polishing or adding and subtracting material, to bring the mass within the tolerance of a specified class.

As Found

The value of the mass recorded by Rice Lake Weighing Systems after cleaning and before any adjustment based on a density of 8 g/c m3 at 20° C.

As Left

The value of the mass after any necessary adjustments are made based on a density of 8g/cm3 at 20°C.

Buoyancy Correction

The calculation needed to compensate for the varying air density in order to ascertain the true mass value.

Calibration

The acts of determining the mass difference between a standard of known mass value and an "unknown" test weight or set of weights, establishing the mass value and conventional mass value of the "unknown," and of determining a quantitative estimate of the uncertainty to be assigned to the stated mass or conventional mass value of the "unknown," or both. Set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards (definition from International Vocabulary of Basic and General Terms in Metrology).

Certificate of Tolerance Test

Document that certifies that the subject weights are within specified tolerances. Referred to as an RLWS Statement of Accuracy or RLWS Traceable Mass Value Certificate.

Certificate of Calibration

Document that presents calibration results and other information relevant to a calibration (definition from NCSL Z-540-1-1994). Referred to as an RLWS Calibration Certificate or RLWS Traceable Certificate.

Conventional Mass

Conventional value of the result of weighing in air, in accordance to International Recommendation OIM D28. For a weight taken at 20°C, the conventional mass is the mass of a reference weight of a density of 8000 kg/m3 which it balances in air of density of 1.2 kg/m3 (definition from OIM D28.

Correction

Mass values are traditionally expressed by two numbers, one being the nominal mass of the weight, and the second being a correction. The mass of the weight is the assigned nominal value plus the assigned correction. Positive corrections indicate that the weight embodies more mass than is indicated by the assigned nominal value.

Density

The unit of mass divided by its volume. For a precision calibration, density testing is required to calculate buoyancy correction. International Prototype Kilogram The platinum iridium cylinder maintained at the International Bureau of Weights and Measures (BIPM), at Sevres, France with an internationally accepted defined mass of 1 kg. Reference Standard A standard, generally of the highest metrological quality available at a given location, from which measurements made at that location are derived (definition from NIST/NVLAP Handbook 150).

Metrological traceability

Property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty.

Metrological traceability chain

Traceability chain sequence of measurement standards and calibrations that is used to relate a measurement result to a reference

Metrological traceability to a measurement unit

Unit metrological traceability where the references is the definition of a measurement unit through its practical realization.

Set of Weights

A series of weights, usually presented in a case so arranged to make possible any weighing of all loads between the mass of the weight with the smallest nominal value and the sum of the masses of all weights of the series with a progression in which the mass of the smallest nominal value weight constitutes the smallest step of the series (definition from OIML R 111). Tolerance (adjustment tolerance or maximum permissible errors) The maximum amount by which the conventional mass of the weight is allowed to deviate from the assigned nominal value. Tolerance test Verification that the conventional mass of the weights and their corresponding uncertainties as tested are correct within the maximum permissible errors of the respective weight class.

Traceability

Property of the result of a measurement or the value of a standard whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons all having stated uncertainties (definition from International Vocabulary of Basic and general Terms in Metrology).

Uncertainty

Parameter associated with the result of a measurement that characterizes the dispersion of the values that could reasonably be attributed to the measured (definition from NCSL Z-540-1-1994). The range of values within which the true value is estimated to lie. U.S. National prototype standard Platinum iridium kilogram identified as K20, maintained at the National Institute of Standards and Technology, with value assigned relative to the International Prototype Kilogram provides the United States access to the mass unit. Weight (mass standard) A material measure of mass, regulated in regard to its physical and metrological characteristics: shape, dimension, material, surface quality, nominal value, and maximum permissible error (definition from OIML R 111).

Returns and Warranties

Equipment Return Information Standard Catalog Equipment

At Rice Lake Weighing Systems, we want you to be completely satisfied with any product purchased from us. If it does not work, or is not right, return it for full credit or replacement within 30 days of shipment.

We may, at our option, assess a restocking charge if the equipment was:

- 1. Not correctly specified for the application intended, and/or
- 2. Damaged beyond reasonable recovery.

The restocking charge is directly proportional to the amount of time and material expense required by us to return the item to resaleable condition. If an item was held or in use in excess of 30 days, a restocking charge, not to exceed 10%, will be assessed.

Special Order, Modified, Non-Catalog, Unusual or Non-Stock Items

We will repair or replace, at our option, equipment which is defective by nature of poor quality materials or substandard workmanship, within the specified warranty period. No returns will be accepted for any special order equipment, or for equipment physically modified or altered in the field. Additionally, no returns will be accepted for items that are specifically modified for the customer's requirements. For example, test weights that have been specifically built to the customer's specifications or standard product so modified, or standard weights that have been engraved with the serial numbers at the customer's request, as well as laboratory procedure charges, documentation fees, etc.

Items that were quoted with the following statement affixed to the quotation, sales order and/or invoice cannot be considered for return — "This quote contains special products that would be uniquely designed for this order. Because these would be NON STANDARD products, we would not accept returns."

Return Procedure:

When returning equipment for repairs or warranty reimbursement, these simple steps will help expedite your request:

- Call (715) 234-9171, extension 5348, and ask for a return coordinator. You will then be issued a return authorization number.
- 2. When preparing equipment for return shipment, complete a Return Authorization (RA) form and provide a description of the problem you are experiencing. Be sure to include the Return Authorization number we provided and enclose the form with the shipment. For additional forms, ask the return coordinator to send you a supply.
- Please write the Return Authorization number on the outside of the package to help us speed your package through our receiving process.

Limited Warranty

Seller warrants that the products contained in this catalog will conform to written specifications, drawings, and other descriptions made by the manufacturer, including any modification thereof. The Seller warrants the goods against faulty workmanship and defective materials. If any goods fail to conform to these warranties, Seller will, as its sole and exclusive liability hereunder, repair or replace such goods if they are returned within the following warranty period: Twelve (12) months from date of shipment from manufacturer for test weight products.

These warranties are made upon the express condition that:

- Rice Lake Weighing Systems is given prompt written notice upon discovery by Buyer of such nonconformity, with a detailed explanation of the alleged deficiencies;
- 2. Such goods are returned to the Seller at the expense of the Buyer;
- Examination of such goods by Seller discloses that the nonconformity actually exists and was not caused by accident, misuse, neglect, alteration, improper installation, improper or unauthorized repair, or improper testing; and
- Such goods have not been modified, altered, or changed by any person other than the Seller or its duly authorized repair agents.

Rice Lake Weighing Systems will have a reasonable time to repair or replace such goods.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ORAL OR WRITTEN, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE. SELLER WILL NOT, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

IN ACCEPTING THIS WARRANTY, THE PURCHASER OR BUYER AGREES TO WAIVE ANY AND ALL OTHER CLAIM OR RIGHT TO WARRANTY, OR IF SUCH BE THE CASE, ANY CLAIM OF WARRANTY FROM RICE LAKE WEIGHING SYSTEMS, INCORPORATED. SHOULD THE SELLER BE OTHER THAN RICE LAKE WEIGHING SYSTEMS, INCORPORATED, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR ITS WARRANTY CLAIM OR CLAIMS.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of the Seller.

Weight Re-Calibration Request

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*Number for Weights	Number of Reports	6	OIML	□E1	□E2	□F1	□F2	□M1	□ M2	□М3			
	☐ Individual repo	ort for each weight	NIST	□Clas	s F	□Other:							
	☐ All weights on	one report											
Range	Density	Serial Number(s)	*Class	of wei	ght(s)	describ	ed in t	able to	left:				
			ASTM	□ 0	□ 1	□ 2	□3	□4	□5	□ 6	□ 7		
*Number for Weights	Number of Reports	5	OIML	□E1	□E2	□F1	□F2	□M1	□ M2	□М3			
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Have these weights b	•			*Yes		□ No							
Signature:			Title: _										
Print Name:			_ Date:								_		

To receive a quote for re-calibration, return this form with purchase order

Mail along with weights to Metrology Lab

Fax to 715-234-6967

via one of the following methods:

For questions, please contact our weights specialists at 800-472-6703 ext. 6655.

#0048 Rev 14, 9/13



230 W. Coleman St. • Rice Lake, WI 54868 • USA TEL: 800-472-6703 • FAX: 715-234-6967

www.ricelake.com/recalibration

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Test Weight Best Practices

Rice Lake's Metrology department has retained its world class reputation through its highly trained staff and adherence to stringent handling procedures--from receiving, to calibrating, to shipping. This document highlights the standard procedure we use upon receipt of your test weights. Here you'll also find the best practices that Rice Lake recommends for handling weights and standards to help you maintain the best quality and integrity of your weights.

Recommended shipping procedures for weights

- Ship weights in cases and materials designed to withstand and repel the abuses of shipping.
- Packaging peanuts should not be used with weights, as this type of packaging clings to the weights creating static electricity which can compromise the lab environment.
- Alternative packing material is recommended as follows:
 - ☐ Styrofoam (not peanuts or smaller pieces)
 - ☐ Paper (not shredded as this also conducts static electricity)
 - Bubble wrap
- Loose small weights should have crumpled paper (not shredded) packed soundly in between all weights and box.
- Clean room cases should only be used for weight storage and are not recommended for the shipment of weights.
- Shipping of heavy weights (10 lb or larger) in cardboard boxes is not recommended.
- Larger weights should be individually wrapped or protected, supported with stiff packing material and double boxed for structural durability.
- Small weight kits should be held shut with secure latches, rubber bands, or tape, and placed in side boxes or bags.

Rice Lake Weight Handling Procedure

- All weights and cases are inspected for damage and scheduled for calibration upon arrival to the lab
- All stickers and marker are removed from the weights
- Precision weights receiving NVLAP Calibration are checked for magnetism
- A tolerance test is conducted
- Any follow up with the client is completed

Required Standards Conditions

All delivered standards to this laboratory are required to arrive with the following conditions:

- All weights should be clean and in good repair.
- Any cleaning, repair, or painting of standards in the metrology lab will incur an extra charge.

Mass Standards

- Weights should be clean and in good repair.
- Weights shall be identified with a permanent serial number or mark into the surface of the weight.
- Stickers and marker are not allowed and will be removed. The added mass of the sticker may change the mass of the weight, possibly causing the weight to be out of tolerance which will invalidate the reported value on the certificate.
- Individual weight kits shall also be identified with unique serial numbers.
- Cast iron weights should have no evidence of rust, loose paint or adhering debris.
- Analytical weights should be handled carefully. Tolerances are small, so dirt or abuse can throw them out of tolerance.

Cases

- Interior of cases for weight kits should also be wiped out or vacuumed.
- Cases should be sound with secure latches.

Statement of Decontamination

All weights exposed to hazardous materials that are returned to Rice Lake Weighing Systems are required to have a completed decontamination form. By accepting authorization to return this product, the customer assumes all responsibility and liability for biological, chemical and radioactive decontamination and cleaning. Rice Lake Weighing Systems will not accept any delivery which does not include a completed decontamination form.

Customer Information				
Company:		Address:		
Cust No:				
Name:		City:		
Phone:		State/Zip:		
Email:		Country:		
Product				
Manufacturer:	Type:	Serial #		Qty:
Manufacturer:	Type:	Serial #		Qty:
Manufacturer:	Type:	Serial #		Qty:
Manufacturer:	Type:	Serial #		Qty:
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RICE LAKE
WEIGHING SYSTEMS

230 W. Coleman St. • Rice Lake, WI 54868 • USA TEL: 800-472-6703 • FAX: 715-234-6967

www.ricelake.com/precision

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be performed without a completed Decontamination Form.

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Worldwide Service



India
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Alabama, USA
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To meet worldwide demand for products, Rice Lake Weighing Systems operates numerous manufacturing facilities across North America, as well as offices across the globe.

Providing the highest quality products and outstanding customer service is the foundation we're built upon. It's the driving force behind everything we do.

Rest assured that no matter where you are, our mission remains the same—to put the customer first, always.



1-800-472-6703 www.ricelake.com



The best by every measure

An industry leader for over 60 years, Rice Lake Weighing Systems offers an extensive product offering—providing the best scale quality and service across the world.

