

# TOOLS & PRECISION INSTRUMENTS



## Hand Tools

555 - 561



## Indicators

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## Measuring Tools

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## Specialty Tools

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## Timers & Counters

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## Tool Holders & Storage

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Digimatic Indicators  
IDC



- Absolute encoder ensures all settings and readings maintained for the life of the battery (even when the power is turned off)
- Preset, zero-set, inch/mm +/- direction and GO/NOGO functions
- Face rotates 330 degrees for use at various angles
- Stem diameter: .375"
- Immune to overspeed error
- SPC output provided
- Average battery life 7,000 hours using SR-44 battery

Item No.	Description	Range (Inch/mm)	Display (Inch/mm)	Pack Qty.
MI-543-402	Lug Back	.500 / 12.5	.0005 / .01	1
MI-543-402B	Flat Back	.500 / 12.5	.0005 / .01	1
MI-543-406	Lug Back, Low Force	.500 / 12.5	.0005 / .01	1
MI-543-406B	Flat Back, Low Force	.500 / 12.5	.0005 / .01	1
MI-543-476B	Flat Back	1 / 25	.0005 / .01	1
MI-543-496B	Flat Back	2 / 50	.0005 / .01	1
MI-543-392	Lug Back	.500 / 12.5	.00005 / .0001 / .0005 / .01 / .001	1
MI-543-392B	Flat Back	.500 / 12.5	.00005 / .0001 / .0005 / .01 / .001	1
MI-543-396	Lug Back, Low Force	.500 / 12.5	.00005 / .0001 / .0005 / .01 / .001	1
MI-543-396B	Flat Back, Low Force	.500 / 12.5	.00005 / .0001 / .0005 / .01 / .001	1
MI-543-472B	Flat Back	1 / 25	.00005 / .0001 / .0005 / .01 / .001	1
MI-543-492B	Flat Back	2 / 50	.00005 / .0001 / .0005 / .01 / .001	1

Digimatic Indicators  
IDU



- Compact size
- Provided with a data output port for connection with an SPC system
- Operating temperature: 0 -40 degree Celsius
- Membrane sealed face helps keep out contaminants

Item No.	Range	Display	Accuracy	Pack Qty.
MI-575-123	0-1	.0005	.0008	1

Digimatic Indicators  
IDN/B



ID-N Slim Type

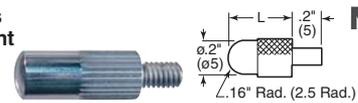


ID-B Back Plunger Type

- Proven ABSOLUTE sensor
- Rated to IP66 water- and dust-proofing standard and oil resistance improved
- Slim body design is advantageous for multi-point measurements
- Improvement in workability with the LCD readout-rotation function
- Back plunger design (ID-B)
- Built-in tolerance judgment function
- Switchable resolution
- Waterproof data output connector
- Built-in hold/preset function

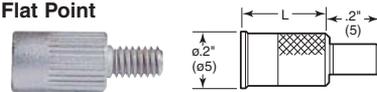
Item No.	Description	Range (Inch/mm)	Display (Inch/mm)	Accuracy	Pack Qty.
MI-543-576	ID-N112E	.5 / 12.7	.0005 / .00005 / .01 / .001	±.00012	1
MI-543-586	ID-B105E	.22 / 5.6	.0005 / .00005 / .01 / .001	±.00012	1

Contact Points  
Shell Type Point



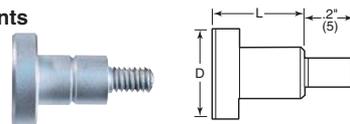
Item No.	L	Pack Qty.	Item No.	L	Pack Qty.
MI-101184	5/32	1	MI-101186	3/4	1
MI-101185	1/2	1	MI-101187	1	1

Contact Points  
.2" (5mm) Flat Point



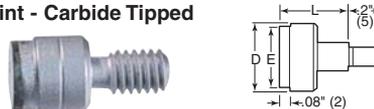
Item No.	L	Pack Qty.
MI-133017	5/16	1

Contact Points  
Flat Point



Item No.	D	L	Pack Qty.
MI-101188	1/2	3/8	1
MI-101189	3/8	3/8	1

Contact Points  
Flat Point - Carbide Tipped



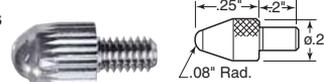
Item No.	D	E	L	Pack Qty.
MI-131259	.20	.17	.2	1
MI-131260	.27	.25	.4	1

Contact Points  
Spherical Point



Item No.	D	L	Pack Qty.
MI-101204	3/8	3/32	1

Contact Points  
.16" Ball Point



Item No.	Pack Qty.
MI-900032	1

Contact Points  
.118" (3mm) Ball Point - Carbide



Item No.	L	Pack Qty.
MI-131262	.3	1
MI-131268	1	1

Contact Points  
Needle Point - Carbide Tipped



Item No.	D	L	Pack Qty.
MI-131279	.35	.50	1

Contact Points  
Extension Rod



Item No.	L	Pack Qty.
MI-139167	1/2	1
MI-301655	1	1



**Dial Indicators**  
3/8" Stem Diameter



Graduations .001", reading .100 with 3/8" stem diameter.

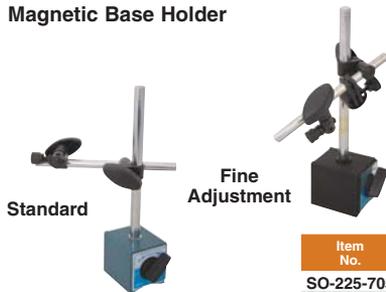
Item No.	Style	Range	Dial Dia.	Pack Qty.
SO-200-718	A	1/2	2 11/64	1
SO-200-720	B	1	2 11/64	1
SO-200-725	C	2	2 11/64	1

**Precision Measuring Tools**  
Dial Test Indicator



Item No.	Graduation	Range	Dia.	Pack Qty.
SO-200-730	.0005	.03	1 1/8	1

**Magnetic Base Holder**



See page 540 - 541 for other magnetic stands.

Item No.	Description	Pack Qty.
SO-225-705	Standard Model	1
SO-225-700	Fine Adjustment	1

**Dial Indicators**



- 0-1" x 0.001 dial indicator
- 0-100 dial reading
- 2.4" diameter outer ring
- Jeweled dial (YPI-7 only)
- Shock proof (YPI-7 only)
- An additional lug back
- Accuracy in accordance with Standard DIN 878
- Includes fitted case



Item No.	Type	Graduation (Inch)	Range (Inch)	Dial Reading	Pack Qty.
YPI-7	Shock Proof	.001	0-1	0-100	1
YPI-8	Standard	.001	0-1	0-100	1

**Pocket Test Indicators**  
Series 513



- Jeweled bearings assure higher sensitivity and accuracy
- Reversible measuring direction
- Complete sets furnished with two holding bars, one for lathe tool posts or height gauges and one for drill chucks



Item No.	Total Range	Dial Face	Graduation	Accuracy	Pack Qty.
MI-513-118	.04	0-20-0	.0010	+/- .001	1

**Dial Indicators**  
Sets



Sets are complete and include three points, clamp with dovetail, holding bar and fitted plastic case.

Item No.	Type	Range	Graduation	Dial Face	Pack Qty.
MI-513-402T	Horizontal	.03	.0005	0-15-0	1
MI-513-403T	Horizontal	.008	.0001	0-4-0	1

**Digimatic Indicators**  
IDS



- Absolute linear encoder
- Easy to read LCD display
- Inch/mm conversions
- Reverse reading
- SPC output
- Initial zero setting is held for entire life of the battery
- Over speed errors are eliminated



Item No.	Description	Range (Inch)	Graduation	Pack Qty.
MI-543-783	Lug on Center Back	0.0005"	.0005	1
MI-543-783B	Flat Back	0.0005"	.0005	1
MI-905338	1 Meter Connecting Cable			1

**Dial Indicators**  
Series 1 and 2



- Inch - ANSI Standard
- 3/8" stem diameter
- Easy to read dial
- Lug back mounting except MI-1411B which is flat back

Item No.	Total Range	Dial Face	Graduation	Accuracy	Range Per Rev.	Description	Pack Qty.
<b>Series 1</b>							
MI-1803-10	.025	0-5-0	.0001	+/- .002	.010	Jeweled	1
MI-1571-10	.075	0-15-0	.0005	+/- .0005	.030	Jeweled	1
MI-1411	.500	0-50-0	.0010	+/- .001	.100	Jeweled	1
MI-1411B	.500	0-50-0	.0010	+/- .001	.100	Jeweled, Flat Back	1
<b>Series 2</b>							
MI-2802F-10	.025	0-10	.0001	+/- .002	.010	Jeweled, Shockproof	1
MI-2414F	.500	0-100	.0010	+/- .001	.100	Revolution Counter, Less Stem Cap	1
MI-2416F-10	1.000	0-100	.0010	+/- .002	.100	Revolution Counter, Jeweled, Less Stem Cap	1
MI-2424-10	2.000	0-100	.0010	+/- .002	.100	Revolution Counter, Jeweled	1

**Digimatic Indicators**  
IDF



- Large backlit LCD which changes color from green to red to indicate measurements out of set tolerance (60/±N6)
- Analog bar display with adjustable range and tolerance indicators
- Preset
- SPC output

Item No.	Range	Display (Inch)	Display (mm)	Accuracy	Pack Qty.
MI-543-552A	0-1	.0005/.0005	.001/.0001	.00012	1

**Test Indicators**  
Series 513



"Quick Set" Jeweled Bearings



Item No.	Type	Range	Graduation	Dial Face	Pack Qty.
MI-513-402	Horizontal	.03	.0005	0-15-0	1
MI-513-403	Horizontal	.008	.0001	0-4-0	1

**Digimatic Accessories**  
Spindle Lifting Cable



Item No.	Description	Pack Qty.
MI-540774	Spindle Lifting Cable	1



**Dial Indicators Series 312**

- For measurements at 12 degrees
- With revolution counter
- Inclined easy to read dial
- Very high sensitivity, very light measuring pressure
- Jeweled mechanism fitted with ball bearings
- Fully reversible, swiveling through 210 degrees without reversing lever
- Tungsten carbide contact points
- Each indicator is fitted with .080 inch contact point
- Includes wrench and plastic case



Vertical Horizontal

Item No.	Series No.	Reading	Range	Bezel Dia.	Marking	Stylus Lgth.	Pack Qty.
BS-74.111957	312 Vertical	.0001	.016	1.5	0-4-0	.687	1
BS-74.111370	312b-1	.0005	.060	1.5	0-15-0	.687	1
BS-74.111371	312b-2	.0005	.060	1.0	0-15-0	.687	1
BS-74.111372	312b-3	.0001	.016	1.5	0-4-0	.687	1

**Full Set with Accessories Horizontal Model Series 312**



Item No.	Description	Pack Qty.
BS-74.111508	Interapid Kit with BS-74.111370	1

**Best Test Indicator - Black Face Series 5**



Easy to read, satin black, "jet console" face. High visibility orange hand. Furnished with a .080" carbide contact point, a .250" diameter extension with dovetail, a point wrench and a certificate of accuracy and traceability. Packed in a durable molded case.



Item No.	Range	Reading	Graduation	Dial Dia.	Point Lgth.	Tip Dia.	Pack Qty.
BS-599-7030-5	.030	0-15-0	.0005	1	½	.080	1

**Dial Indicators Interapid Indicator Accessories**



Contact Point

Axial Support



Universal Clamp

Contact point thread size is M1.7 x 0.35.

Item No.	Description	Pack Qty.
BS-74.105996	.080 x .687 Long Carbide Contact Point	1
BS-74.106361*	.080 x 1.450 Long Carbide Contact Point	1
BS-74.107899	.080 x .687 Long Chrome Contact Point	1
BS-74.108603	Universal Clamp	1
BS-74.106931	Axial Support 3/8" Stem	1

\*When these special purpose contact points are used, the dial reading must be doubled to obtain the correct reading.

**Dial Indicators Series 25**



Item No.	Graduation (Inch)	Range (One Rev.)	Range (Total)	Dial Reading	Pack Qty.
STR-25-131J	.0005	.050	.125	0-25-0	1
STR-25-341J	.001	.100	1.000	0-50-0	1
STR-25-441J	.001	.100	1.000	0-100	1



**Test Indicator Series 196 Universal Back - Plunger**



- Inch reading
  - Shank Diameter: ¼"
  - Includes three contact points and adapter
- Accurate and reliable. Simple, smooth operation. Rugged with few moving parts.

Item No.	Graduation (Inch)	Range	Dial Reading	Pack Qty.
STR-196B1	.001	.200	0-100	1



**Last Word Indicator Series 711**



Ideal for precise measurements in all machining, layout and inspection work. Smooth, jeweled lever action. Swiveling tubular body. Easy reading dials, half shaded yellow for clarity. Inch reading. Comes in a case.

Item No.	Graduation	Range	Carbide Contact Point			
			Dial Reading	Lgth. Inch (mm)	Ball Dia. Inch (mm)	Pack Qty.
STR-711HSZ	.0005	.030	0-15-0	5/32(4)	.120(3)	1



**Individual Contact Point for Series 711**



Item No.	Material	Carbide Contact Point			Pack Qty.
		Lgth. Inch (mm)	Ball Dia. Inch (mm)		
STR-PT07136	Steel	¾(4)	.062(1.6)		1



**Dial Indicators and Accessories Magnetic Stand**



Accepts all AGD-type dial indicators. Comes with a 6" rod and universal clamp. Pull is 132 lbs.

Item No.	Description	Pack Qty.
MI-7010S	Magnetic Stand w/ 6" Rod & Clamp	1



**Universal Indicator Magnetic Base Holder with Triple Jointed Arm and Fine Adjustment**



- Small, powerful, versatile
- Three pivots available for positioning indicator
- One knob tightening control for all pivots
- Base includes articulating arm with dovetail and a ⅜" stem hole clamp
- 72 lbs. of pull
- Holds any indicator with a ⅜" stem and dovetail mount

Item No.	Size (Inch)	Pack Qty.
STR-68621	1.2 x 1.6 x 1.4	1





**Magnetic Base Indicator Holder Round**



Powerful, permanent magnetic base, 1 1/16" diameter x 1 3/8" high. Fine adjustment for indicator applications. Ball swivel, locks at 90 degree at any position in 360 degree. Center post is 1/4" diameter by 5" high. Cross bar is 1/4" diameter by 5" high.

Item No.	Description	Pack Qty.
DI-555FA	Magnetic Base - Less Indicator	1

**Magnetic Base Indicator Holder Rectangular**



Powerful, permanent magnetic base, 1 7/8" x 1 7/8" x 1 3/8". Furnished with dial indicator Model DI-222 with graduations .001", range .030". Center post is 3/8" diameter by 7 1/2" high. Cross bar is 1/4" diameter by 7" high. Easy on/off push button. Four ground surfaces to grip including V-slot for round surfaces.

Item No.	Description	Pack Qty.
DI-500-222	Magnetic Base, Center Post, Cross Bar, Swivel with DI-222 Dial	1
DI-500	Magnetic Base - Less	1

**Dial Gauge Stand**



Commonly used, general purpose stand for comparison measurements. 5" maximum height capacity. It features a wide, fine-adjusting range for zero-setting gauge heads. Designed for AGD type probes with 3/8" diameter stems and accommodates all AGD type dial indicators.

Item No.	Description	Pack Qty.
MI-7004	Flat Anvil	1

**Mighty Mag Magnetic Bases**



Magnetic Base



With Quick Release

For use in a wide number of applications from inspection to machine tool set up. Sturdy zinc die cast housing with a high quality industrial magnet. Measures only 4 1/2" x 1" x 1 1/2" with 45 lbs. of holding power. Allows for many mounting options; three 1/4-20 tapped holes, one 10-32 tapped hole, one 3/8" reamed hole. Also has a V-shaped hole in the back so rods or accessories from 1/8" to 5/16" can be affixed.

Item No.	Description	Pack Qty.
WF-1	Mighty Mag Magnetic Base	1
WF-2	Mighty Mag with Quick Release	1

**Dial Indicators & Accessories Tool and Instrument Oil**



The same extra fine oil used by Starrett to lubricate and protect precision instruments. Provides a strong, long lasting film to provide thorough lubrication and rust prevention. All around use. Great for mechanics, sportsmen and around the home.

Item No.	Description	Pack Qty.
STR-1620	4 oz. Bottle	1

**Dial Indicators & Accessories Contact Point Set**



Fourteen points with #4-48 screw thread to fit AGD dial indicators. Includes: one regular 1/4" long point, nine special form points, one No. 28 shock absorbing anvil and three extra long points (1/2", 3/4" and 1"). All are made of high grade hardened steel. Mounted on an aluminum ring for easy selection and safe keeping.

Item No.	Description	Pack Qty.
STR-25R	Contact Point Set	1

**Dial Indicators & Accessories Roller Contact Point**



The contact is a hardened roller for continuous gauging of moving materials. #4-48 screw thread allows you to substitute it for regular contact points on all AGD dial indicators. Furnished with knurled nut.

Item No.	Description	Pack Qty.
STR-25W	Roller Contact Point	1

**Magnetic Base Indicator Holder**



Complete set includes:

- Magnetic base
- Upright base post
- Snug
- Rod
- Indicator attachment
- Snug complete - 1/4" and 3/8" holes

For use with all Starrett test, AGD, dial and miniature dial indicators. Also accommodates similar indicators from other manufacturers.

Item No.	Description	Pack Qty.
STR-657AA	Complete Magnetic Base Set	1

**Magnetic Base Indicator Holder**



- Magnetic base with 6" adjustable rod and fine adjustment
- Base of 50mm x 58mm
- Millimeters and height of 9 1/4"

Item No.	Description	Pack Qty.
MI-7011-BN	Magnetic Base	1



# SWIVEL JOINTS

Buy One or Buy Bulk & SAVE

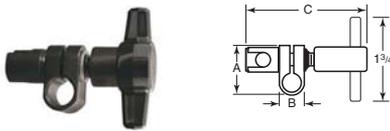
Precision made, column lock feature, will not become loose when adjusting. Universal design, will fit any make magnetic base, surface gauge or indicator. Steel items are made of 12L14 steel. Stainless are Type 303.

### Swivel Joints Knob Style Medium Duty



Steel	Stainless Steel	A	B	C	Hole Sizes	Pack Qty.
SJ-1	—	1	1/2	1 3/16	1/4 x 1/4	1
SJ-3	—	1	1/2	1 3/16	1/4 x 5/16	1
SJ-4	—	1	1/2	1 3/16	5/16 x 5/16	1
SJ-5	—	1	1/2	1 3/16	1/4 x 3/8	1
SJ-6	—	1	1/2	1 3/16	5/16 x 3/8	1
SJ-7	SSJ-7	1 1/16	5/8	1	3/8 x 3/8	1
SJ-8	SSJ-8	1 1/16	5/8	1	3/8 x 1/2	1

### Swivel Joints T-Handle Medium Duty



Item No.	A	B	C	Hole Sizes	Pack Qty.
SJ-3T	3 1/2	1/2	2 1/8	1/4 x 3/8	1
SJ-5T	3 1/2	1/2	2 1/8	5/16 x 5/16	1
SJ-6T	3 1/2	1/2	2 1/8	5/16 x 3/8	1
SJ-7T	1 1/16	5/8	2 1/4	3/8 x 3/8	1
SJ-8T	1 1/16	5/8	2 1/4	3/8 x 1/2	1

### Swivel Joints Single Wing Knob Heavy Duty



Steel	Stainless Steel	A	B	Hole Sizes	Pack Qty.
SJ-9	SSJ-9	1 1/2	3/4	3/8 x 3/8	1
SJ-10	SSJ-10	1 1/2	3/4	3/8 x 1/2	1
SJ-11	SSJ-11	1 1/2	3/4	1/2 x 1/2	1
SJ-12	—	1 1/2	3/4	1/2 x 5/8	1
SJ-13	—	2	1	5/8 x 5/8	1
SJ-14	—	2	1	5/8 x 3/4	1
SJ-15	SSJ-15	2	1	3/4 x 3/4	1
SJ-16	—	2 1/2	1 1/4	3/4 x 1	1
SJ-17	—	2 1/2	1 1/4	1 x 1	1

### Swivel Joints Double Wing Knob Heavy Duty



Item No.	A	B	Hole Sizes	Pack Qty.
SJ-9D	1 1/2	3/4	3/8 x 3/8	1
SJ-10D	1 1/2	3/4	3/8 x 1/2	1
SJ-11D	1 1/2	3/4	1/2 x 1/2	1
SJ-12D	1 1/2	3/4	1/2 x 5/8	1
SJ-13D	2	1	5/8 x 5/8	1
SJ-14D	2	1	5/8 x 3/4	1
SJ-15D	2	1	3/4 x 3/4	1
SJ-16D	2 1/2	1 1/4	3/4 x 1	1
SJ-17D	2 1/2	1 1/4	1 x 1	1

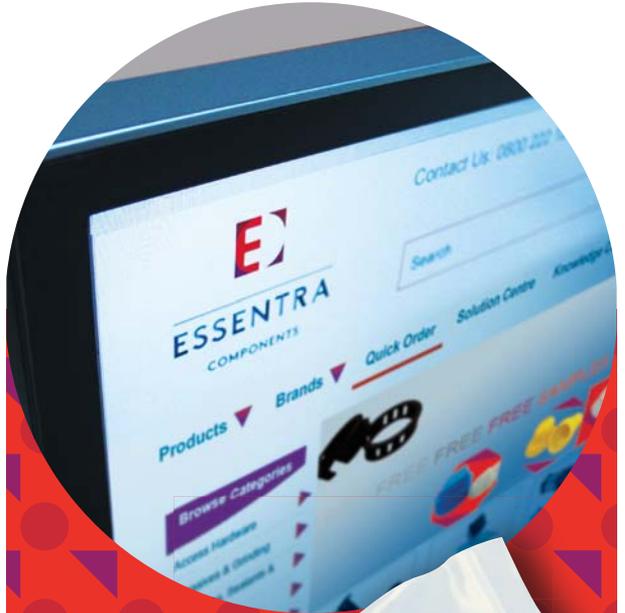
### Swivel Joints Split Style Heavy Duty



Item No.	A	B	Hole Sizes	Pack Qty.
SJ-9S	1 1/2	3/4	3/8 x 3/8	1
SJ-11S	1 1/2	3/4	1/2 x 1/2	1
SJ-12S	1 1/2	3/4	1/2 x 5/8	1
SJ-17S	2 1/2	1 1/4	1 x 1	1

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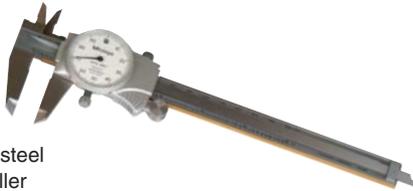
Dial Caliper



- Adjustable zero position
- Double shock proof design
- Premium hardened stainless steel
- Full one year warranty
- Includes fitted case

Item No.	Description	Range	Pack Qty.
YPI-11	6" Dial Caliper in Fitted Case	0-6	1

Dial Calipers 505 Series Inch and Metric



- Stainless steel
- Thumb roller
- Supplied in fitted carrying case

These dial calipers have been designed with a new dial movement to give an ultra smooth feel and to provide extra shock protection for the gear train. To increase tool life a TiN coating has been applied to the beam wear surfaces on the 6" and 8" calipers.

Item No.	Range	Resolution	Range per Rev.	Depth of Jaws	Pack Qty.
MI-505-717	0-6	.001	.200	1 <sup>9</sup> / <sub>16</sub>	1
MI-505-675	0-6	.001	.100	1 <sup>9</sup> / <sub>16</sub>	1
MI-505-712*	0-6	.001	.100	1 <sup>9</sup> / <sub>16</sub>	1
MI-505-676	0-8	.001	.100	1 <sup>9</sup> / <sub>16</sub>	1
MI-505-720	0-12	.001	.200	2 <sup>1</sup> / <sub>2</sub>	1
MI-505-677	0-12	.001	.100	2 <sup>1</sup> / <sub>2</sub>	1

\*OD/ID carbide jaw

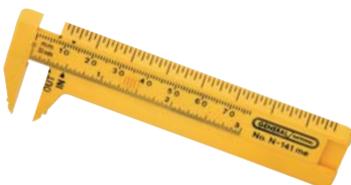
Slide Utility Calipers Stainless Steel



Inside and outside graduations in 32nd's and mm. Available in pocket sizes and larger capacity 10" size.

Item No.	Capacity	Pack Qty.
GEN-132	3	1
GEN-729	4	1

Slide Caliper Fiberglass Reinforced Plastic



A pocket size caliper with 32nd and mm graduations.

Item No.	Capacity	Pack Qty.
GEN-141	3	1

Digimatic Calipers 500 Series with Set and Forget Technology and Optional Output for SPC



- World's first absolute type electronic caliper
- Datum point remains in memory until replacement of battery (approx. 20,000 hrs.), thus eliminating over-speed errors
- Origin setting, zero setting, data output
- Optional data hold unit and SPC cable with data switch
- Warnings for battery replacement and soiled scale
- Resolution to .0005" (0.01mm)
- Accuracy is ±.001 inch/metric

Item No.	Range (Inch)	Range (mm)	SPC	Pack Qty.
MI-500-195	0-4	0-100	No-Output	1
MI-500-170	0-4	0-100	SPC Data-Output	1
MI-500-171	0-6	0-150	SPC Data-Output	1
MI-500-196	0-6	0-150	No-Output	1
MI-500-197	0-8	0-200	No-Output	1
MI-500-172	0-8	0-200	SPC Data-Output	1
MI-500-193	0-12	0-300	No-Output	1
MI-905338	1 Meter Connecting Cable			1

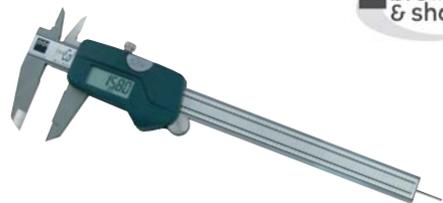
Digimatic Calipers 500 Series Solar Powered



Digimatic calipers with solar cells which gather light energy and convert it to power. Eliminates the need for battery replacement. When ambient illumination is over 125 lux., the surplus power is stored. It can be run for approximately three hours after fully charging.

Item No.	Range (Inch)	Range (mm)	Resolution	Pack Qty.
MI-500-473	0-4	0-100	.0005	1
MI-500-474	0-6	0-150	.0005	1
MI-500-475	0-8	0-200	.0005	1

Shop-Cal Digital Calipers



These calipers provide easy to read accurate measurements of day to day operations. Stainless steel for durable, reliable and accurate measurements. Features a resolution of .00005" (0.01mm) with specifications consistent with DIN 862. Its power supply is a 3V lithium battery and auto shut-off for superior longevity. Instant inch/metric conversion.

Item No.	Range (Inch)	Range (mm)	Pack Qty.
BS-20971	0-6	0-150	1



# CALIPERS

Buy One or Buy Bulk & SAVE

## Fractional Digital Calipers



- Three readouts: fractional inch, decimal inch and mm
- Graduations: 1/128 inch, 0.0005 inch, 0.01 mm
- Zero setting at any position
- Big .5 inch (12 mm) high LCD display
- Enhanced stable display with quick sliding
- Instant SAE/metric conversion
- Premium hardened stainless steel
- Includes fitted case with two batteries
- Full one year warranty

Item No.	Description	Range	Pack Qty.
YPI-9	Caliper in Fitted Case	0-6 inch (0-150 mm)	1
YPI-10	Caliper in Fitted Case	0-8 inch (0-200 mm)	1
YPI-2	Replacement Battery		1

## Fractional Depth Gauge

- Three readouts: fractional inch, decimal inch and mm
- Graduations: 1/128 inch, 0.0005 inch, 0.01 mm
- Zero setting at any position
- Big .5 inch (12 mm) high LCD display
- Enhanced stable display with quick sliding
- Instant SAE/metric conversion
- Premium hardened stainless steel
- Includes fitted case with two batteries
- Full one year warranty



Item No.	Description	Range	Pack Qty.
YPI-6	Depth Gauge in Fitted Case	0-6 inch (0-150 mm)	1
YPI-2	Replacement Battery		1

## Dial Calipers 1202 Series



- Knife-edge contacts
- Thumb-operated fine adjustment roll
- Adjustable bezel
- Hardened stainless steel bar, measuring surfaces, rack, gears and depth rod
- Positive, spring-loaded double pinion anti-backlash control
- Provided with case

Item No.	Range	Description	Pack Qty.
STR-68814	0-4	Caliper in Fitted Case	1
STR-66964	0-6	Caliper in Fitted Case	1
STR-66979	0-8	Caliper in Fitted Case	1
STR-66980	0-12	Caliper in Fitted Case	1

## Electronic Calipers 799 Series



- Lightweight, ergonomic design
- Large easy-to-read LCD, .32" high
- Inch/millimeter conversion reads .0005" or 0.01mm
- Zero at any position
- Automatic shut-off after 5 minutes of nonuse
- Last measuring position retained when shut off
- Easy access to the single long-life battery
- Hardened stainless steel body for long life
- Integrated depth rod on all sizes
- Fine adjustment thumb wheel
- Lock screw to hold the slide in position
- Resolution to .0005" (0.01mm)
- Linear accuracy meets DIN862
- No SPC output
- Provided with case

Item No.	Range (Inch)	Range (mm)	Description	Pack Qty.
STR-67410	0-6	0-150	Caliper w/o Output in Fitted Case	1
STR-67621	0-12	0-300	Caliper w/o Output in Fitted Case	1

## MyCal Lite Digimatic Calipers



MyCal Lite is an innovative new digimatic caliper which is economically priced to allow everyone to benefit from the advantages of modern digital gauges. Large .3" LCD digits ensure error free reading in either inch or millimeter mode. Zero point can be set anywhere to allow comparison measurements. Accuracy ±.005". Response speed 63" per second. One SR44 battery supplied. Battery life is approximately two years under normal use. Over speed and low voltage alarms. Includes a depth bar.

Item No.	Range (Inch)	Range (mm)	Resolution (Inch)	Resolution (mm)	Pack Qty.
MI-700-113	0-6	0-150	.001	0.1	1

## Digimatic Coolant Proof Calipers 500 Series



These digital calipers have a sealed housing and are IP-67 rated, meaning it is nearly immune to the coolants, dirt, grit, and chips found in many manufacturing environments. Features a measuring range from 0 to 6"(0-150mm) with a resolution of .0005"(0.01mm). Accuracy is ±.001" inch/metric with no SPC output.

Item No.	Range (Inch)	Range (mm)	Pack Qty.
MI-500-752-10	0-6	0-150	1
MI-500-653	0-8	0-200	1



**Vernier Calipers**

- Has a depth scale that can be read directly on Verniers
- Micro-fine black graduation on satin chrome finish for easy reading
- All measuring surfaces are ground and lapped for extreme accuracy
- Jaws designed for outside, inside and thread measurement
- Full hardened stainless steel with satin chrome finish throughout
- Graduations  $\frac{1}{4000}$ " on top and 1/20mm on bottom



Item No.	Range (Inch)	Range (mm)	Pack Qty.
SO-200-210	0-6	0-150	1
SO-200-215	0-8	0-200	1

**Vernier Calipers with Fine Adjustments**

- All measurements can be read directly on Verniers
- Extra long vernier to insure accuracy
- Raised sliding surfaces prevent defacement and wear of graduations
- Easy to read, clear, crisp, black engraved graduations
- Jaws designed for outside, inside and thread measurement
- Full hardened stainless steel with satin chrome finish throughout
- Graduations  $\frac{1}{4000}$ " on top and 1/20mm on bottom



Item No.	Range (Inch)	Range (mm)	Pack Qty.
SO-200-600	0-6	0-150	1
SO-200-605	0-8	0-200	1

**Vernier Calipers Heavy Duty - Extra Long**

- Made of hardened stainless steel throughout, ground and lapped for accuracy
- Accuracy meets U.S. federal specifications
- Longer jaws permit greater accessibility
- Easy to read, clear, crisp, black engraved graduations
- Satin chrome finish
- Adjustable Vernier plates
- Graduations  $\frac{1}{4000}$ " on top and 1/50mm on bottom



Item No.	Range (Inch)	Range (mm)	Jaw Depth	Pack Qty.
SO-200-590	0-18	0-450	3½	1
SO-200-592	0-24	0-600	4	1

**Dial Calipers**

- Direct reading to .001" on large, clear dial
- Measuring face is hardened, precision ground, and micro lapped for absolute accuracy
- Accurate to .001" per 6"
- Adjusting slide for fine adjustment
- Crisp engraved graduation
- Inside, outside and depth measurements
- Satin chrome finish
- Covered rack
- Clamp for repetitive setting
- .100 per one revolution continuous dial 0-100
- Made of stainless steel



Item No.	Range	Graduation	Pack Qty.	Item No.	Range	Graduation	Pack Qty.
SO-200-582	0-6	.001	1	SO-200-583	0-150	.02	1
SO-200-584	0-8	.001	1				
SO-200-586	0-12	.001	1				

**Digimatic Coolant Proof Digital Micrometer 293 Series**

Mitutoyo



Certified to IP65 which means they are dust proof, chip proof and coolant proof. Features include an extra large LCD readout, carbide tipped measuring faces with a measuring range from 0 to 1" (0-25.4mm) and resolution of .00005" (0.001mm). Instant inch/mm conversion, measurement hold key, present capabilities and zero set key. Complete with battery, automatic two hour idle shut-off key spanner and carrying case. Ratchet thimble, no SPC data output.

Item No.	Range (Inch)	Accuracy	Pack Qty.
MI-293-344	0-1	+/- .00005	1

**QuantuMike Micrometers 293 Series**

Mitutoyo



- Faster measurement with 2mm per revolution instead of the standard 0.5
- A patented ratchet thimble mechanism helps ensure repeatability
- A function lock helps prevent error IP-65 protection level
- Certificate of inspection is provided 50mm/2" or lower range model
- With a standard bar except for 0-25mm/0-1" model
- Supplied in fitted plastic case

Item No.	Range (Inch)	Resolution (Inch/mm)	Accuracy	Pack Qty.
MI-293-180	0-1	.00005 / .001	±.00005	1
MI-293-185*	0-1	.00005 / .001	±.00005	1

\*No Output

**Uni-Mike Micrometer 117 Series**

Mitutoyo



Interchangeable anvil type with flat and rod anvils.

Item No.	Range (Inch)	Graduation	Accuracy	Type	Pack Qty.
MI-117-107	0-1	.0001	+/- .0002	Interchangeable Anvil	1

**Digimatic Blade Micrometer 422 Series**

Mitutoyo



The anvil and spindle have a blade for measuring the groove diameter of shafts, keyways, and other hard to reach portions. Non-rotating spindle.

Item No.	Range (Inch)	Graduation	Accuracy	Pack Qty.
MI-422-311-30	0-1	.00005	+/- .00015	1

**Inside Micrometers Series 124**

Starrett



- .001" graduations
- Satin chrome finish
- Rods marked for length
- Every thousandths numbered
- Supplied with protective case

Item No.	Range (inch)	Movement of Screw	No. of Measuring Rods	Gages	Pack Qty.
STR-124BZ	2-12	½	10	(1) ½	1



# MICROMETERS

Buy One or Buy Bulk & SAVE

## Micrometers 101 Series



Mitutoyo

- Functional, balanced design
- Carbide-tipped anvil and spindle, micro-lapped for greater flatness, parallelism, accuracy and tool life
- Deep throat design for greater work clearance
- Ratchet stop or friction thimble for consistent repetitive measuring pressure
- Positive and wear adjustable spindle lock
- Fitted carrying case
- Satin chrome finish

Item No.	Range (Inch)	Graduation	Type	Pack Qty.
MI-101-113	0-1	.0001	Ratchet Stop	1
MI-101-117	0-1	.0001	Friction Thimble	1
MI-101-118*	1-2	.0001	Friction Thimble	1

\*Includes standard bar

## Micrometers 103 Series



Mitutoyo

- Carbide face
- Positive locking clamp
- Friction thimble for exact repetitive reading
- Frame has baked enamel finish
- Fitted carrying case
- Accuracy +/- .0001

Item No.	Range (Inch)	Graduation	Type	Pack Qty.
MI-103-260	0-1	.0001	Ratchet Stop	1
MI-103-135	0-1	.0001	Friction Thimble	1
MI-103-113*	0-1	.0001	Ratchet Stop	1
MI-103-114*	1-2	.0001	Ratchet Stop	1
MI-103-262**	1-2	.0001	Ratchet Stop	1

\*Do not have spindle locks

\*\*Includes standard bar

## Digit Reading Micrometer 193 Series



Mitutoyo

- Eliminates reading errors and makes reading easy
- Thimble and sleeve are marked to verify accuracy
- Measuring face is carbide tipped for long life

Item No.	Range (Inch)	Graduation	Pack Qty.
MI-193-211	0-1	.0001	1

## Outside Micrometers 436 Series



Starrett

- 0-6" have solid frames with black enamel finish
- Forged frames, ribbed for strength
- Satin chrome finish on sleeve and thimble
- Thousandths numbered on thimble
- Micro-lapped finish on anvil and spindle face
- All are ratchet stop with lock nut

Item No.	Range (Inch)	Graduation	Type	Pack Qty.
STR-T436XRL-1	0-1	.0001	Carbide Face	1
STR-T436XRL-2	1-2	.0001	Carbide Face	1
STR-T436XRL-3	2-3	.0001	Carbide Face	1
STR-T436XFL-3	2-3	.0001	Friction Thimble - Carbide Face	1
STR-T436XRL-5	4-5	.0001	Carbide Face	1

## Digital Micrometers 293 Series



Mitutoyo

Features include an extra large LCD readout, carbide tipped measuring faces with a measuring range from 0 to 1" (0-25.4mm) and resolution of .00005" (0.001mm). Instant inch/mm conversion, measurement hold key, present capabilities and zero set key. Complete with battery, automatic two hour idle shut-off key spanner and carrying case. Ratchet thimble, no SPC data output.

Item No.	Range (Inch)	LCD Display (Inch/mm)	Type	Pack Qty.
MI-293-761-30	0-1	.00005 / .001	Ratchet - No Output	1
MI-293-721-30	0-1	.00005 / .001	Ratchet - Output	1

## Precision Micrometers



- Swiss style design, balance and quality
- Graduation accuracy .0001"
- Deluxe heat insulated forged steel frame, up to 4"

- Tubular steel frame, 4" and up
- Chrome clad
- Complete with standards, 2" and up
- Carbide face
- Ratchet stop for exact and repetitive reading
- Fitted case

Item No.	Range (Inch)	Pack Qty.	Item No.	Contains	Range (Inch)	Pack Qty.
SO-200-570	0-1	1	SO-200-578	Set of 3	0-1, 1-2, 2-3	1
SO-200-574	2-3	1	SO-200-580	Set of 6	0-1, 1-2, 2-3, 2-4, 4-5, 5-6	1
SO-200-576	3-4	1				
SO-200-579	5-6	1				

## Outside Micrometer



- Graduation: 0.01mm
- Carbide measuring faces
- Chrome-plated frame
- Ratchet stop
- Full one year warranty
- Includes fitted case

Item No.	Range (mm)	Graduation	Pack Qty.
YPI-13	0-25	.01	1

## Digital Micrometers



0-25mm Range



25-50mm Range

- Graduations: 0.0005", 0.01 mm
- Zero setting at any position
- Big .43" (11 mm) high LCD display
- Instant SAE/metric conversion
- Ratchet type, no output
- Includes fitted case with two batteries
- Full one year warranty

Item No.	Description	Range (mm)	Pack Qty.
YPI-4	Digital Micrometer in Fitted Case	0-25	1
YPI-5	Digital Micrometer in Fitted Case	25-50	1
YPI-2	Replacement Battery		1



### Digimatic Thickness Gauge

Mitutoyo

- Easy to read LCD display
- Zero setting at any point
- Instant inch/mm conversion
- SPC output
- Less than 1.5N measuring force
- Flat anvil



Item No.	Range	Resolution	Pack Qty.
MI-547-500	0-.47	.0005 / .01 mm	1

### Digital Thickness Gauge Quick Mini Pocket Size

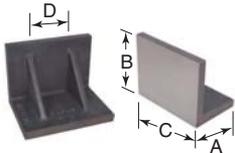
Mitutoyo



- Approximately the size of a business card
- Both inch and metric readings
- Repeatability is .0005" / .01mm
- Instrumental error is +/- .001/+/- .02mm
- SR-44 two year life battery included
- Max response speed is 1,600 mm/sec.
- Overspeed and low voltage alarms

Item No.	Range	Resolution	Pack Qty.
MI-700-118	.5" / 12	.0005 / .01 mm	1

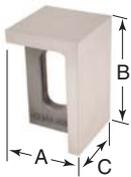
### Precision Angle Plates



Provide a practical and versatile method of clamping and holding work. Made of special analysis semi-steel castings and precision ground. Square to within .0005" in 6".

Item No.	A	B	C	D	No. of Ribs	Weight Lbs.	Pack Qty.
AP-11	6	6	8	4	2	26	1
AP-13	6	8	10	5	2	48	1
AP-17	8	10	12	6	2	85	1

### Universal Right Angle Irons



Used where square reference surfaces are needed. Made of special analysis semi-steel castings. Ends and sides are precision ground, both square and parallel. They are square and true, however, they are not made to exact size.

Item No.	A	B	C	Weight Lbs.	Pack Qty.
RA-2	5	8	5	23	1
RA-4	8	10	6	40	1

### Digimatic Scale Unit Horizontal w/ Absolute Encoder Series 572

Mitutoyo



Special functions allow it to always remember its measuring position even after the gauge has been switched off.

Item No.	Range	Resolution	Accuracy	Pack Qty.
MI-572-210-10	4	.0005	+/- .001	1

### DRO Quill Kit

Mitutoyo



- Fits most vertical knee mills
- LCD with .0005"/0.01mm resolution
- Push button controls for inch/mm, zero set and on/off
- Complete with brackets for Bridgeport type machines
- Easy to install

Item No.	Type	Pack Qty.
MI-053906A	DRO Quill Kit	1

### Dual Column Digit/Dial Height Gauge



- .01" dual reading digit and dial counters
- Digit counter can be zero set at any height within range
- Chrome plated double beams and carbide tipped scriber
- Fine adjusting wheel and lock .0005" graduation

Item No.	Range (Inch)	Pack Qty.
SO-200-707	0-12	1

### Matched V-Block Pair w/Clamps

Mitutoyo



- Clamping capacity is 1"
- Parallelism of under V-surface is .0003"
- Parallelism of side and base of V-surface is .0006"

Item No.	Description	Pack Qty.
MI-181-901	(1) Pair of V-Blocks w/Clamps	1

### 1-2-3 Block Set



Set of two, features cross drilling design, five holes tapped 3/16 for holding down. 18 holes drilled through. Total of 23 holes on all six sides. Parallel to .0001" overall. Square to .0001" length. Case hardened to HRC 55 to 62.

Item No.	Description	Pack Qty.
RE-123	1 x 2 x 3	1



# STEEL RULES

Buy One or Buy Bulk & SAVE

## Steel Rules Inch Graduations



Quick Reading 16ths



Quick Reading 10ths

Item No.	Lgth.	Width x Thickness	Graduations	Pack Qty.
<b>6" Full-Flexible</b>				
STR-C303R-6	6	1/2 x 1/64	Quick Reading 10ths; Aircraft Quick Reading 50ths, 32nds, 64ths	1
STR-C305R-6	6	1/2 x 1/64	Quick Reading 10ths; Aircraft Quick Reading 100ths, 32nds, 64ths	1
STR-C309R-6	6	1/2 x 1/64	16ths; Quick Reading 32nds, 64ths	1
STR-C316R-6	6	1/2 x 1/64	Quick Reading 32nds, 64ths; Aircraft Quick Reading 50ths, 100ths	1
<b>6" Spring-Tempered</b>				
STR-C604R-6	6	3/4 x 3/64	8ths, 16ths; Quick Reading 32nds, 64ths	1
<b>12" Full-Flexible</b>				
STR-C305R-12	12	1/2 x 1/64	Quick Reading 10ths; Aircraft Quick Reading 100ths, 32nds, 64ths	1
STR-C316R-12	12	1/2 x 1/64	Quick Reading 32nds; Aircraft Quick Reading 50ths, 100ths	1
<b>24" Full-Flexible</b>				
STR-C305R-24	24	3/4 x 1/50	Quick Reading 10ths; Aircraft Quick Reading 100ths, 32nds, 64ths	1

## Steel Rules Millimeter and Inch Graduations



150mm Length



300mm Length

Item No.	Lgth. (Inch)	Lgth. (mm)	Graduations	Pack Qty.
STR-C334-150	5 3/4	150	.5mm, 1mm; Quick Reading 10ths (.10); Aircraft Quick Reading 50ths (.02)	1
STR-C334-300	11 3/4	300	.5mm, 1mm; Quick Reading 10ths (.10); Aircraft Quick Reading 50ths (.02)	1

## Dual Dimensioned Rules



Item No.	Lgth.	Width	Thickness	Graduations	Pack Qty.
<b>Flexible</b>					
MSR-3	6", 150 mm	1/2	1/64	1/50, 1/100, .5 mm, 1 mm	1
MSR-4	12", 300 mm	1/2	1/64	1/50, 1/100, .5 mm, 1 mm	1
<b>Rigid</b>					
MI-182-126	12", 300 mm	1	3/64	1/50, 1/100, .5 mm, 1 mm	1
<b>Semi Flexible</b>					
MSR-5*	20", 500 mm	3/8	1/64	1/16, 1/32, 1/64, .5 mm, 1 mm	1
MSR-6*	40", 1000 mm	3/8	1/64	1/16, 1/32, 1/64, .5 mm, 1 mm	1

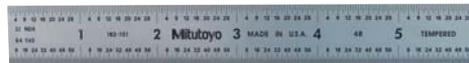
\*Engraved on front side only

## Steel Rule Case



Item No.	Description	Pack Qty.
STR-1612	Fits 1/2" (12.7mm) Wide	1

## Stainless Steel Rules Inch and Metric



Wide-Rigid



Full-Flexible

Item No.	Lgth.	Width	Thickness	Graduations	Pack Qty.
<b>Wide-Rigid Rules</b>					
MI-182-101	6	3/4	3/64	1/8, 1/16, 1/32, 1/64 (4R)	1
MI-182-104	6	3/4	3/64	1/32, 1/64, 1/10, 1/50 (3R)	1
MI-182-123	12	1	3/64	1/32, 1/64, 1/10, 1/100 (5R)	1
MI-182-124	12	1	3/64	1/32, 1/64, 1/10, 1/50 (3R)	1
MI-182-162	24	1 1/4	3/64	1/32, 1/64, 1/50, 1/100 (16R)	1
<b>Full-Flexible Rules</b>					
MI-182-201	6	1/2	1/64	1/8, 1/16, 1/32, 1/64 (4R)	1
MI-182-202	6	1/2	1/64	1/32, 1/64, 1/50, 1/100 (16R)	1
MI-182-203	6	1/2	1/64	1/32, 1/64, 1/10, 1/100 (5R)	1
MI-182-204	6	1/2	1/64	1/32, 1/64, 1/10, 1/50 (3R)	1
MI-182-207	6 x 150mm	1/2	1/64	1/10, 1/100, .5 mm, 1 mm	1
MI-182-221	12	1/2	1/64	1/8, 1/16, 1/32, 1/64 (4R)	1
MI-182-222	12	1/2	1/64	1/32, 1/64, 1/50, 1/100 (16R)	1
MI-182-226	12 x 300mm	1/2	1/64	1/50, 1/100, .5mm, 1mm	1

## Magnetic Light Mine™



The Magnetic Light Mine™ is about the size of a golf ball and packs a one-two punch—an intensely bright, wide-angle LED and pure, raw, magnetic power. Twelve rare earth magnets are positioned around the LED light, allowing it to stick to any steel surface and aim the light in any conceivable direction.

Item No.	Description	Pack Qty.
SBPD-00105	Magnetic Light Mine™	1



Flexible Marking Rules

GENERAL®

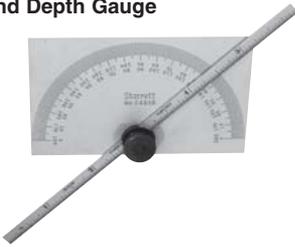


Micro-fine marking holes and slots at every scale position allow you to instantly locate a sharp pencil point or scribe exactly where you want it. Available in 1/8" width.

Item No.	Description	Graduations	Pack Qty.
GEN-641	6" Flexible Marking Rule	32nds, mm	1
GEN-1241	12" Flexible Marking Rule	32nds, mm	1

Protractor and Depth Gauge

Starrett®



The ability to measure angles and depths is combined in these convenient tools. Rectangular protractor head which provides four convenient working edges and has a no-glare satin chrome finish.

Item No.	Blade Lgth.	Blade Graduation	Range Degrees	Pack Qty.
STR-C493B	6	32nds, 64ths	0 - 180	1

Protractors

GENERAL®



Square-Head

Round-Head

For setting bevels, measuring and transferring angles. Head measures 3 3/8" x 2". Adjustable 6" arm locks into place with knurled thumb nut. Permanently etched graduations 0 to 180 degree. Made from ground stainless steel for greater accuracy.

Item No.	Description	Pack Qty.
GEN-17	Square-Head Protractor	1
GEN-18	Round-Head Protractor	1

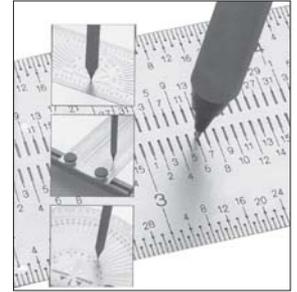
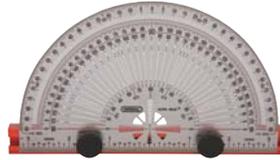
Ultra Pro™



Rayovac batteries are the #1 selling industrial battery based on top industrial distributors. Whether you need shrink packaging (great for contract or bid business) or contractor packaging to help organize and protect batteries from damage and short circuiting, Rayovac has a program to fit your needs.

Precision Protractor

GENERAL®

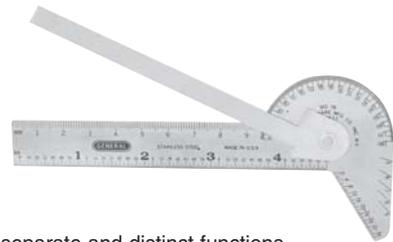


The Ultra Rule® precision protractor has micro-fine guide holes at every 45, 30, 22.5, 5, 1 and 0.5 degree intervals to plot any angle with ease and absolute accuracy. All lines and characters are engraved. A metal T-bar and see through cross hairs provide exact alignment against the edge of your workpiece. Remove the T-bar to work on flat surfaces or to use the 6" centering scale. Four angle scales: 0 degree left to 180 degree right; 180 degree left to 0 degree right; 0 degree top to 90 degree left and right, and 90 degree top to 0 degree left and right.

Item No.	Description	Graduations	Pack Qty.
GEN-30	Ultra Rule Protractor	1, 1/2, 1/32 degrees	1

Multi-Use Rule and Gauge

GENERAL®



Performs five separate and distinct functions.

- **Drill Point Gauge** - used for checking 59 degree angle drill points
- **Bevel Protractor** - used for measuring and laying out angles
- **Center Finder** - locates centers of shafts or circles
- **Circle Divider** - used for dividing circles into sectors, regular polygons and polygrams
- **Tap and Drill Table** - shows popular sizes with correct drill sizes for National form of thread

Item No.	Description	Pack Qty.
GEN-16ME	Combination Rule & Gauge	1

RAYOVAC  
ULTRA PRO

Item No.	Description	Pack Qty.
180381	Alkaline AA Size Reclosable 24 Pack	1
180382	Alkaline AAA Size Reclosable 18 Pack	1
180383	Alkaline C Size Reclosable 12 Pack	1
180384	Alkaline D Size Reclosable 12 Pack	1
180385	Alkaline 9-Volt Reclosable 8 Pack	1



Angle/Level Dial Type



Used for critical projects to accurately set or measure angles. Oil damped, ball bearing movement does not stick, vibrate or bounce. A strong magnetic base allows hands-off use on ferrous metals. Dial is 2.6" diameter with vernier divisions of 1/10". Outside dimensions are 3.6" x 3.1". Includes case.

Item No.	Description	Pack Qty.
AL-2	Dial Angle Indicator	1

Angle Finders



Right angle base and side is V-grooved for easy use on round surfaces. Made of high impact plastic. Measures from 0-90 degree in any quadrant accurate to within 1/2 of 1 degree. Angle and grade chart on back shows angles in degrees and converts them to pitch per foot.

Magnetic Base	Non-Magnetic Base	Description	Pack Qty.
Item No. AF-200	Item No. —	Angle Finder 2 1/4" Dial	1
AF-400	AF-300	Angle Finder 4" Dial	1

Double Square



Blades are adjustable for a wide variety of uses. Faces of head are ground square. Bevel blade has octagon angle at one end and hexagon angle at other end. Ends are clearly marked. Both ends have quick reading graduations in 64ths and graduation is located to measure perpendicularly to axis of the drill. Center point can be easily and accurately located by reading graduations.

Item No.	Lgth. (Inch)	Description	Pack Qty.
STR-13A	4	Double Square w/ Hardened Graduated Blade	1

Protractor Head and Blade Combination Sets Square, Center and Non-Reversible



Item No.	Graduations	Regular	Pack Qty.
<b>Cast Iron with Black Wrinkle Finish</b>			
STR-9-12-4R	8th, 16ths; Quick Reading 32nds, 64ths	Regular	1
STR-9-12-16R	Quick Reading 32nds, 64ths; Aircraft Quick Reading 50ths, 100ths	Regular	1

Blades for Combination Squares, Sets and Bevel Protractors



Item No.	Lgth.	Approx. Width x Thickness	Graduations	Pack Qty.
<b>Satin Chrome Finish</b>				
STR-CB12-4R	12	1 x 3/32	8ths, 16ths; Quick Reading 32nds, 64ths	1

Combination Squares



- Model MI-180-903 includes square and center heads only
- Models MI-180-905 and MI-180-906 include blade, square, center and protractor heads
- Square and center heads are hardened cast iron
- Protractor heads are cast iron (not hardened)

Item No.	Blade Lgth.	Graduations	Description	Pack Qty.
MI-180-903	12	1/8, 1/16, 1/32, 1/64 (4R)	Set	1
MI-180-905	12	1/8, 1/16, 1/32, 1/64 (4R)	Set	1
MI-180-906	12	1/32, 1/64, 1/60, 1/100 (16R)	Set	1
MI-180-501	12	1/8, 1/16, 1/32, 1/64 (4R)	Blade Only	1
MI-180-601	24	1/8, 1/16, 1/32, 1/64 (4R)	Blade Only	1
MI-180-101	Square Head Only for 6" Models			1
MI-180-102	Square Head Only for 12 to 24" Models			1
MI-180-301	Protractor Head Only for 12 to 24" Models			1

Steel Squares Series 916



All edges are hardened and precision ground.

Item No.	Size (Inch)	Outside Dimension (Inch)	Squareness (Inch)	Pack Qty.
<b>Beveled-Edge Steel</b>				
MI-916-103	6	6 x 4	.00014	1
<b>Regular Steel</b>				
MI-916-403	6	5.9 x 3.9	.00032	1

Combination Squares with Square Head



Combination squares with reversible lock bolts, scriber, spirit level, and hardened steel, machine-divided blade with regular finish. Cast iron heads with black wrinkle finish.

Item No.	Blade Lgth. (Inch)	Graduations	Description	Pack Qty.
STR-50051	6	1/8, 1/16, 1/32, 1/64 (4R)	Set	1
STR-50055	12	1/8, 1/16, 1/32, 1/64 (4R)	Set	1



**Angle Gauges  
Stainless Steel**



- Checks primary, 1/2 primary and complimentary angles
- Checks angles and ID or OD chamfers
- Set contains 18 gauges in vinyl pouch

Item No.	Description	Pack Qty.
AG-375-9	Angle Gauge Set	1

**Steel Gear Gauge Set  
14 1/2 degree and 20 degree Pressure Angles**



This handy, steel gear gauge set consists of 16 leaves, 24 gauges, to measure both 14 1/2 degree and 20 degree pressure angle tooth form, in diametral pitch sizes 64, 48, 32, 24, 20, 16, 12, 10, 8, 6, 5 and 4. Pitch sizes 8, 6, 5 and 4 both 14 1/2 degree and 20 degree are cut on individual leaves. Pitch sizes 64 through 10 inclusive, have both 14 1/2 degree and 20 degree pressure angles on a single leaf.

Item No.	Description	Pack Qty.
GE-600	Pressure Angle Gauge Set	1

**Radius Gauge Set  
Series 186**



**Mitutoyo**

Each radius gauge has five measuring locations. Each gauge is identified with its particular radius.

Item No.	Range	Description	Pack Qty.
MI-186-901	1/64 - 1/2	25 Leaves	1

**Pitch Gauge Set  
Series 188**



**Mitutoyo**

Pitch size is stamped on each gauge.

Item No.	Range	Description	Pack Qty.
MI-188-111	4-42 tpi	Unified 60 degree (30 Leaves)	1

**Radius Gauge Set**

**Starrett**



Made of satin finish stainless steel. Rust and stain resistant. Each gauge is clearly marked with its radius. Each has five different gauging surfaces for both convex and concave radii. All have precision finished radii with extra smooth, accurate edges.

Item No.	Radii Range	Graduations	Description	Pack Qty.
STR-S167CHZ	1/64 - 1 1/4, 1/32 - 1/2	32nds, 64ths	25 pc. Radius Gauge Set w/Holder	1

**Telescoping Gauge Set  
Series 155**

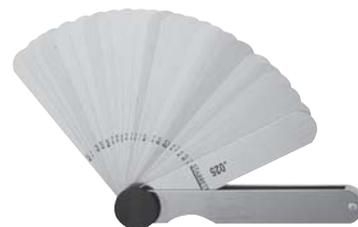
**Mitutoyo**



Item No.	Description	Range (Inch)	Pack Qty.
MI-155-903	Set of Six Gauges	.315 - 5.90	1

**Thickness Gauge**

**Starrett**



Leaves are made of the finest tempered steel, carefully finished to correct thickness. Individually tested and marked with thickness. Locking device. Leaves are easily removed or replaced. Rugged, substantial steel case protects leaves.

Item No.	No. of Leaves	Size of Leaves	Leaf Thickness (Inch)	Pack Qty.
STR-66	26	1/2 x 3 1/2	.0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025	1

**Note:** Inch reading thickness gauges with straight leaves.



**Screw Pitch Gauge International Metric Standard 60 Degree Threads w/ Locking Device**



Item No.	Number of Leaves	Range of Pitches (mm)	Pack Qty.
STR-156M	28	.25, .30, .35, .40, .50, .55, .60, .65, .70, .75, .80, .85, .90, 1, 1.10, 1.20, 1.25, 1.30, 1.35, 1.40, 1.50, 1.60, 1.70, 1.75, 1.80, 1.90, 2, 2.50	1

**Surface Gauge Series 257**



The stable steel base is fully hardened, ground and nicely finished. There are four gauge pins, frictionally held, that add versatility for referencing the tool.

Item No.	Spindle Lgth.	Base L x W (mm)	Pack Qty.
STR-257D	12 x 18 (350 x 450mm)	90 x 80	1

**Drill Gauges**



- Quickly identifies drill bit sizes
- Heavy gauge steel
- Close tolerances
- Hole sizes permanently etched

Item No.	Description	Pack Qty.
GEN-14	Fractions 1/16 in - 1/2 in by 64ths	1
GEN-15	Number Sizes 1 to 60	1

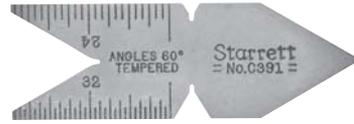
**Quick Check Screw Gauge**



Quick way to identify machine screws, bolts, wood screws, self-tapping screws, standard size rivets and common cotter pin sizes up to 3/16" (8mm). 3" scale to check screw lengths. Checker gives required drill size for corresponding tap size and proper drill size for like hole. Threaded holes indicate threads per inch while unthreaded indicate size by number and fractions of an inch. Durable engineering plastic.

Item No.	Description	Pack Qty.
GEN-714	Quick-Check Screw Gauge	1

**Center Gauge**



Made of spring-tempered steel with satin chrome finish. Gauging surfaces are ground.

Item No.	Description	Pack Qty.
STR-C391	American Unified National Standard 60 Degree	1

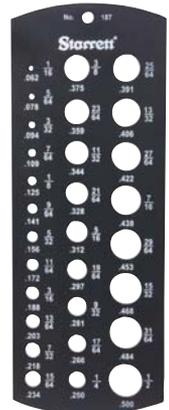
**Drill Gauges**



Tap Gauge



Drill and Steel Wire Gauge



Jobber Drill Gauge

These highly useful gauges show at a glance the correct size for any common machine screw, tap or drill that will leave the right amount of stock for approximately 65% full thread. Gauges will also show the correct body size drill to use.

Item No.	Range	Pack Qty.
STR-50675	Tap Size 2-56 to 1/4-28	1
STR-50676	Drill and Steel Wire 1-60	1
STR-50677	Jobber Drill 1/16 - 1/2	1

**Edge Finders**



Single 1/2" Shank



Double 1/2" Shank



Single 3/8" Shank

Insert in chuck or collet to accurately locate working edges, shoulders, grooves, center points and scribed lines. Hardened and centerless ground. Instructions included.

Item No.	End	Size	Shank	Pack Qty.
GEN-260	Single	.500	1/2	1
GEN-262	Double	.200 & .500	1/2	1
GEN-263	Single	.200	3/8	1



**Screw Pitch Gauges**

**GENERAL**



Used for gauging V, American National or U.S. Standard 60 degree threads. Gauges are notched for measuring inside threads of small holes and nuts as well as external threads.

Item No.	No. of Pitches	Size Range	Pack Qty.
MPG-1	24	.25 to 6.0mm	1

**Contour Gauge**

**GENERAL**



Ideal for woodworking, linoleum installation, or any job or hobby where contour duplication is essential. Inch graduation on body. Stainless steel pins. Component parts are enamel painted and brass plated. Size is 6" x 3½", with an overall travel of 5¼".

Item No.	Description	Pack Qty.
GEN-837	Contour Gauge	1

**Center Finder**

**Starrett**



Item No.	Description	Pack Qty.
STR-828A	Pointed-Shank Center Finder	1

**Edge Finders Series 827**

**Starrett**



Single-End



Double-End

Body and contacts are made of tool steel, hardened, ground and lapped to close tolerance for diameter and concentricity.

Item No.	Description	Body Dia.	Contact Dia.	Pack Qty.
STR-827A	Single-End	.375	.200	1
STR-827B	Double-End	.500	.200 and Pointed Contact	1

**Center Gauge**

**GENERAL**



Speeds up set-ups for lathe thread cutting. Etched in graduations of 14ths, 20ths, 24ths and 32nds. 60 degree angles for U.S. Standard threads and double depth American National thread. Satin chrome finish.

Item No.	Description	Pack Qty.
GEN-778	Center Gauge	1

**Wire Gauge**

**GENERAL**



- Sizes 0 to 36 degree
- For non-ferrous wire
- Decimal equivalents on back

Item No.	Description	Pack Qty.
GEN-20	Wire Gauge	1

**Sheet Metal Gauge**

**GENERAL**



For gauging uncoated sheet metal, plate iron and steel.

Item No.	Description	Pack Qty.
GEN-21	Sheet Metal Gauge	1

**Thickness Gauge**

**GENERAL**



- Quickly identifies drill bit size
- Heavy gauge steel
- Close tolerances
- Leaves are ½" x 3"

Item No.	No. of Leaves	Leaf Thickness (Inch)	Pack Qty.
GEN-226	26	.0015, .002, .0025, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .021, .022, .023, .024, .025	1



**Tubular Levels**



**GBL-2008**



**GBL-2029**



**GBL-2031**



**GBL-4023**



**GBL-2003**



**GBL-2028, 3016**

These levels are used on machines and surfaces that require unidirectional leveling. All levels have a brass case with black finish except the GBL-2003 which has an anodized aluminum case with black finish. Each level has two mounting holes. On some models one of the holes is elongated for adjustment and is noted below. All levels have clear fluid except for the GBL-2029 and GBL-4023 which have yellow-green fluid.

Item No.	Size	Sensitivity	Mounting Holes			Pack Qty.
			Center to Center	One Hole Elongated		
<b>Vertical Surface Mount</b>						
GBL-2008	2.00L x.62W x .50H	150 sec./0.1 inch	.147	1.625	Yes	1
GBL-2029	1.50L x.53W x 1.09H	30-50 min./0.1 inch	.196	1.000	Yes	1
GBL-2031	2.00L x.53W x 1.00H	9-11 min./2mm	.156	1.625	Yes	1
GBL-4023	4.00L x.75W x .50H	10-15 min./0.1 inch	.147	3.625	Yes	1
<b>Horizontal Plate Mount</b>						
GBL-2003	2.93L x.56W x .56H	8-15 min./0.050 inch	.156	2.560	No	1
GBL-2028	2.50L x.50W x .62H	30 sec./2mm	.125	2.187	No	1
GBL-3016	3.36L x.62W x .75H	60 sec./2mm	.125	3.000	No	1

**Cross Check Alignment Level**



Level has two 360 degree vials with their axis 90 degree to one another. Used for defining warp, machinery base set ups, plumbing, fence posts, RV's, shaft alignment, cameras, and appliances. Fast, simple, repeatable. Magnetic for non-permanent use.

Item No.	Description	Pack Qty.
CIC-4	Magnetic Cross-Check Alignment	1

**Cross Test Level and Plumb**

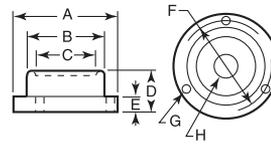


- Made from cast iron with a satin nickel finish, all working surfaces are ground flat and true
- The level has two vials at right angles for cross test leveling without moving the tool and a plumb level at the top for checking squareness
- An accurate, well-made and reliable tool, it is also very light and compact and can be easily carried in the pocket
- For plumbing, approximate squaring, and leveling work

Item No.	Description	Size (Inch)	Pack Qty.
STR-50569	Cross Test Level & Plumb	2 x 3	1



**Circular Levels Surface Mount**



**Single Circle**



**Cross Lines**



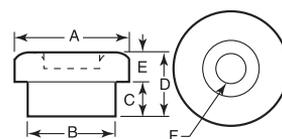
**Concentric Circles**

These levels are used on machines and flat surfaces which require multi-directional leveling. Each unit is completely level to the horizontal plane and no additional adjustment is required. All levels have glass vials filled with clear mineral spirits. Chrome plated brass housing with three mounting holes.

Item No.	A	B	C	D	E	F	G	H	Sensitivity per 0.1 Inch	Pack Qty.
<b>Single Circle</b>										
GBL-10000	1.00	.687	.500	.437	.125	.866	.093	.220	45 min.	1
GBL-16000	1.75	1.172	.812	.625	.156	1.500	.120	.315	10 min.	1
GBL-24000	2.75	2.219	1.812	.688	.188	2.500	.136	.625	10 min.	1
<b>Crosslines</b>										
GBL-10021	1.00	.687	.500	.437	.125	.866	.093	.218	45 min.	1
GBL-16017	1.75	1.172	.812	.625	.156	1.500	.120	.315	10 min.	1
<b>Concentric Circles</b>										
GBL-20011*	2.25	1.688	1.312	.688	.188	2.000	.136	.575	60 min.	1
GBL-24016*	2.75	2.219	1.812	.688	.188	2.500	.136	.500	30 min.	1

\*Sensitivity is per division. Range: 3 degrees

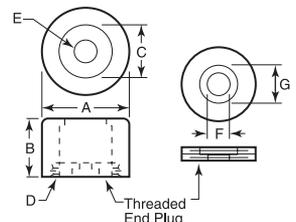
**Recess Mount with Etched Center Circle**



Brass housing with black painted finish. For insertion into a predrilled hole.

Item No.	+/- .005 A	+/- .003 B	+/- .005 c	+0.010 -0.015 D	E	F	Sensitivity per 0.1 Inch	Pack Qty.
GBL-06001	.875	.734	.250	.437	.187	.275	130 min.	1

**Screw Mount with Etched Center Circle**



Clear anodized aluminum housing. Housing is threaded and comes with a mounting disc. Secure the mounting disc in the desired position and thread the level housing into place. One 6-32 x 1/4" machine screw is included.

Item No.	A	B	C	D	E	F	G	Sensitivity per 0.1 Inch	Pack Qty.
GBL-08501	.812	.562	.500	3/64	.220	.170	.300	45 min.	1

**Pocket Levels**

- 2 1/2" x 3/8" thick
- Convex ends
- Satin nickel finish



Item No.	Starrett	Lgth. (Inch)	Pack Qty.
STR-26045	135A	2.5	1
STR-50571	50571	3.5	1

**Bench Level**



3 3/8" long. Sensitive and accurate vial. Black wrinkle finish.

Item No.	Description	Pack Qty.
STR-130	3 3/8" Bench Level	1

SPANNER WRENCHES



Spanner Wrenches Adjustable Pin



For adjustments of collars and locknuts.

Item No.	Williams	Dia. Range Capacity	Hook Thickness	Pin Dia.	Pin Lgth.	Pack Qty.
HT-23	O-471	3/4 to 2	1 1/32	1/8	1/8	1
HT-24	O-471A	3/4 to 2	1 1/32	3/16	5/32	1
HT-25	O-472	1 1/4 to 3	1 3/32	3/16	3/16	1
HT-26	O-472A	1 1/4 to 3	1 3/32	1/4	7/32	1
HT-27	O-474	2 to 4 3/4	1 5/32	1/4	1/4	1
HT-28	O-474A	4 1/2 to 6 1/4	1 5/32	3/8	1/4	1

Spanner Wrenches Adjustable Face Pin



Wrench is used on nuts with two holes. Constructed of a special steel that has been blued.

Item No.	Dia. Range Capacity	Pin Dia.	Pin Lgth.	Wrench Lgth.	Pack Qty.
AMF-257	.28-1.58	.08 (2mm)	.14	4.53	1
AMF-258	.28-1.58	.10 (2.5mm)	.16	4.53	1
AMF-259	.43-2.36	.12 (3mm)	.16	6.30	1
AMF-260	.43-2.36	.16 (4mm)	.20	6.30	1
AMF-261	.55-3.94	.20 (5mm)	.24	8.47	1
AMF-262	.55-3.94	.24 (6mm)	.28	8.47	1

Spanner Wrenches Adjustable Hinged Face Pin



Pins are electrically welded. Constructed of a special steel that has been blued.

Item No.	Dia. Range Capacity	Pin Dia.	Pin Lgth.	Wrench Lgth.	Pack Qty.
AMF-263	.71-1.58	.12 (3mm)	.16	5.91	1
AMF-264	1.58-3.15	.16 (4mm)	.20	8.66	1
AMF-265	1.58-3.15	.20 (5mm)	.24	8.66	1
AMF-266	3.15-4.92	.24 (6mm)	.28	12.60	1

Spanner Wrenches Adjustable Pin



This adjustable pin wrench is used for nuts with radial holes. Wrench is made of a special steel with ground edges, is hardened and has a black oxide finish. This one-piece hook and pin design increases maximum torque by 50-80% compared with versions with replaceable pin.

Item No.	Dia. Range Capacity	Pin Dia.	Wrench Lgth.	Handle Width	Hinge Width	Pack Qty.
AMF-254	1.38-2.36	.16 (4mm)	6.89	.20	.39	1

Spanner Wrenches Adjustable Pin Spanner



Item No.	Dia. Range Capacity	Hook Thickness	Dia.	Height	Lgth.	Pack Qty.
ABT-34-361	1 1/4-3	1 3/32	1/4	7/32	8 1/8	1
ABT-34-363	2 - 4 3/4	1 5/32	1/4	1/4	11 3/8	1

Spanner Wrenches Pin Spanner



Item No.	Dia. (Inch)	Pin Spec. for Circle Dia. (Inch)	Pin Spec. Height (Inch)	Lgth. (Inch)	Pack Qty.
ABT-34-225	3	3/16	5/32	8	1

Spanner Wrenches Fixed Pin



Made of special steel, has ground edges and is hardened and blued.

Item No.	Dia. Range Capacity	Pin Dia.	Pin Lgth.	Wrench Lgth.	Wrench Width	Pack Qty.
AMF-245	.98-1.10	.12 (3mm)	.12	5.35	.16	1
AMF-246	1.18-1.26	.16 (4mm)	.12	5.35	.16	1
AMF-247	1.34-1.42	.16 (4mm)	.14	6.69	.20	1
AMF-248	1.58-1.65	.16 (4mm)	.14	6.69	.20	1
AMF-249	1.77-1.97	.20 (5mm)	.16	8.11	.24	1
AMF-250	2.05-2.17	.20 (5mm)	.16	8.11	.24	1
AMF-251	2.28-2.44	.20 (5mm)	.20	9.45	.28	1
AMF-252	2.68-2.95	.24 (6mm)	.20	9.45	.28	1
AMF-253	3.15-3.54	.24 (6mm)	.24	11.02	.32	1

Spanner Wrenches Adjustable Hook



Has a nose for both grooved nuts and bearing nuts. Made from special steel with the edges ground. Wrench has also been hardened. Black oxide finish.

Item No.	Dia. Range Capacity	Wrench Lgth.	Wrench Width	Hinge Width	Pack Qty.
AMF-242	1.38-2.36	6.89	.20	.39	1
AMF-243	2.36-3.54	9.84	.28	.51	1
AMF-244	3.54-6.10	11.42	.32	.57	1

Spanner Wrenches Adjustable Hook Spanner



Item No.	Dia. Range Capacity	Thickness	Depth	Lgth.	Pack Qty.
ABT-34-305	1 1/4-3	1 3/32	5/32	8 1/8	1

Spanner Wrenches Adjustable Hook



Hook is integral part of the jaw. Designed for service on all types of machine tools. Hook thickness 1 5/32".

Item No.	Williams	Dia. Range Capacity	Hook Depth (Inch)	Pack Qty.
HT-21	474	2 to 4 3/4	3/16	1

Spanner Wrenches Fixed Hook



Wrench has nose for grooved and bearing nuts. Composed of a special steel with a machined nose and ground edges. Wrench is also hardened and blued.

Item No.	Dia. Range Capacity	Wrench Lgth.	Wrench Width	Pack Qty.
AMF-231	.63-.79	4.33	.12	1
AMF-232	.98-1.10	5.35	.16	1
AMF-233	1.18-1.26	5.35	.16	1
AMF-234	1.34-1.42	6.69	.20	1
AMF-235	1.58-1.65	6.69	.20	1
AMF-236	1.77-1.97	8.11	.24	1
AMF-237	2.05-2.17	8.11	.24	1
AMF-238	2.28-2.44	9.45	.28	1
AMF-239	2.68-2.95	9.45	.28	1
AMF-240	3.15-3.54	11.02	.32	1
AMF-241	3.74-3.94	11.02	.32	1



# HEX TOOLS

Buy One or Buy Bulk & SAVE

## GoldGuard™ and BriteGuard™ L-Wrench Hex Set



Lifetime Guarantee

14k gold plated and chrome plated L-wrenches for corrosion resistance. Balldriver® tip for angle entry to 25 degrees. Easy to read size even in small sizes and easy identification inch/metric.



Item No.	Pieces Per Set	Size Range	Pack Qty.
20399	22	9 Pc. (1.5-10 mm), 13 Pc. (.050-3/8)	1

## Long Arm SAE Hex Key Set



- Strong torque performance meets ANSI specifications
- Non-interference hinged caddy provides easy access to each key
- Precision formed to exact dimensional tolerances for precise fit

Item No.	Pieces Per Set	Size Range	Pack Qty.
A-56603G	13	.050 to 3/8 inch	1

## Hand Tools Magnetic Hex Key Sets



- Strongest rare earth permanent magnet
- Magnetic head provides efficiency in holding fasteners in tight work areas
- Strong torque performance meets ANSI specifications
- Non-interference hinged caddy provides easy access to each key
- Precision formed to exact dimensional tolerances for precise fit

Item No.	Pieces Per Set	Size Range	Pack Qty.
A-56600G	9	1.50 to 10 mm	1
A-56601G	13	.050 to 3/8 inch	1
A-56602G	22	.050 to 3/8 inch / 1.50 to 10 mm	1

## Hex Tools Hex Wrench Organizers



Sizes clearly marked alongside storage holes. Patented spring loaded collar holds tools firmly in place. Holder is bright yellow plastic with stainless steel spring for durability. All have flat hex ends.

Item No.	Description	Pack Qty.
RP-102	13 pc. Inch Long Arm Set: .050, 1/16, 3/16, 1/8, 5/32, 3/16, 1/4, 5/16 and 3/8	1
RP-202	11 pc. Metric Long Arm Set: 1.5, 2, 2.5, 3, 4, 5, 6, 7, 8, 9 and 10mm	1
RP-101	Inch Holder Only	1
RP-201	Metric Holder Only	1

## L-Wrench Sets



Lifetime Guarantee



13 Piece Set Inch, 6 Piece Set Metric, 9 Piece Set Metric

22 Piece Set Inch and Metric, 30 Piece Set Inch and Metric

Item No.	Pieces Per Set	Size Range	Pack Qty.	Item No.	Pieces Per Set	Size Range	Pack Qty.
10937	13	0.50 - 3/8	1	<b>Combination</b>			
20199	22	Includes 10937 and 10999	1	14132	30	Includes 10937, 10999 and Fold Up 12632*	1
10946	6	1.5 - 5	1				
10999	9	1.5 - 10	1				

\*GorillaGrip® TORX®

## GoldGuard™ Balldriver® L-Wrench Hex Sets



Lifetime Guarantee

14K gold plated L-wrenches for corrosion resistance. Balldriver® tip on long arm for angle entry to 25 degrees and fast screw removal. Attractive, professional quality, easy to clean. Includes Bondhex™ locking tool case.

Item No.	Pieces Per Set	Size Range	Pack Qty.
38099	9	1.5 - 10mm	1
37937	13	.050 - 3/8	1
20899	22	9 Pc. (1.5-10mm) 13 Pc. (.050-3/8)	1

## Stubby L-Wrench Hex Sets



Lifetime Guarantee

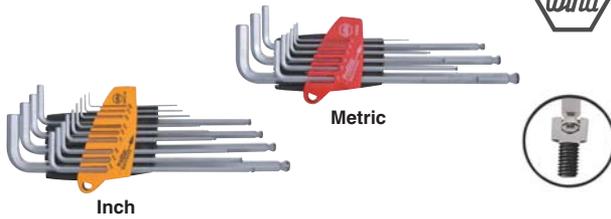
9 Piece Set, 13 Piece Set, 22 Piece Set

Smaller inside radius for tighter spaces. Allows for lower clearance. Balldriver® tip on long arm for angle entry to 25 degrees and fast screw removal. Precision cut tip for full engagement. Includes Bondhex™ locking tool case.

Item No.	Pieces Per Set	Size Range	Pack Qty.
16599	9	1.5	1
16537	13	.050 - 3/8	1
20599	22	9 Pc. (1.5-10mm) 13 Pc. (.050 - 3/8)	1



"Magic Ring" Screw Holding Hex Tool Sets



"Magic Ring" hex keys incorporate a ball end hex key with a hardened spring compression ring which holds the screw securely for real time savings. Keys have a hard chrome corrosion resistant finish. Precision machined for exact fit (no cut off distortions). Made from WIHA exclusive CVM hardened tool steel.

Item No.	Pieces Per Set	Inch/Metric	Size Range	Pack Qty.
WI-66991	13	Inch	.050 to 3/8"	1
WI-66990	9	Metric	1.5 to 10mm	1

L-Wrench Star Set



Balldrive® tip on long arm for angle entry to 25 degrees and fast screw removal. Precise machining of star tip for ease of entry and full engagement in screw. Includes Bondhex™ locking tool case.

Item No.	Pieces Per Set	Size Range	Pack Qty.
31832	8	T6 - T25	1

Hex Tools Gorilla Grip® Fold Up Tool Sets



Lightweight, slip-resistant, resin handle is 40% stronger than steel. Chamfered blades lock at 90 degrees. Tool sizes are molded in handle to make size selection easy.

Item No.	Pieces Per Set	Key Type	Size Range	Pack Qty.
12591	9	Inch	.050-3/16"	1
12589	9	Inch	3/64-1/4"	1
12592	7	Metric	1.5-6mm	1
12587	7	Metric	2-8mm	1
12632	8	Torx	T6-T25	1
12634	8	Torx	T9-T40	1

Hex Key or Torx Key Wrenches Inch and Metric

Handy sets of popular size hex wrenches, ball hex wrenches and torx wrenches. Highest quality 8650 chrome nickel alloy hex steel, heat treated and finished to resist rust. Ergo style has color-coded handles. Classic style has one-piece steel grip handle. Very convenient tool. Folds up like a jack knife when not in use. Made in U.S.A.

Hex Tools L-Style Inch and Metric Sets



Combination Sets



Flat Hex L

Ball Hex L



Hex End



Ball End

- Heat treated alloy steel
- Black finish
- Precision tolerances
- Compact plastic molded holder (Inch = Red, Metric = Blue)
- Metal boxes are color coded (Inch = Red, Metric = Blue)

Item No.	Description	Pack Qty.
<b>Inch</b>		
AHK-10213	13 pc. Long Arm - Sizes .050" thru 3/8" - Flat Hex L	1
AHK-13213	13 pc. - Sizes .050" thru 3/8" - Ball Hex L	1
AHK-10214	14pc. Long Arm in metal case - sizes .050" thru 1/2" - Flat Hex L	1
AHK-13216	16pc. in metal case - sizes .035" thru 3/8" - Ball Hex L	1
<b>Metric</b>		
HKL-10609	9 pc. Long Arm - Sizes 1.5mm thru 10mm - Flat Hex L	1
HKL-13609	9 pc. - Sizes 1.5mm thru 10mm - Ball Hex L	1
HK-10610	10pc. Long Arm in metal case - sizes 1.5mm thru 12mm - Flat Hex L	1
HK-13613	13pc. in metal case - sizes 1.3mm thru 17mm - Ball Hex L	1
<b>Combination Sets</b>		
AHK-10222	22 pc. Long Arm Combination Sets - Flat Hex L Includes Sets AHK-10213 and HKL-10609	1
AHK-13222	22 pc. Combination Sets - Ball Hex L Includes Sets AHK-13213 and HKL-13609	1

Item No.	Description	Pack Qty.
<b>Classic Style</b>		
AHK-20919	Set of 9 ball hex wrenches for screws most commonly used. 3/64, 1/32, 1/64, 1/8, 3/64, 5/32, 3/16, 7/32, 1/4. Holder 4 1/4 long.	1
M-17	Set of 7 hex wrenches for range of popular metric size screws from 1.5mm-6mm. Holder 3 3/8" long.	1
EK-91	Set of 9 hex wrenches for screws most commonly used. 3/64, 1/32, 1/64, 1/8, 3/64, 5/32, 3/16, 7/32, 1/4 across flats. Holder 4 1/4" long.	1
EK-91S	Set of 9 hex wrenches for range of smaller sizes. .050, 1/16, 3/64, 5/32, 1/64, 1/8, 3/64, 5/32, 3/16 across flats. Holder 3 3/8" long.	1
EK-571	Set of 7 torx keys, T-10, T-15, T-20, T-25, T-27, T-30, T-40. Holder 4 1/2" long.	1
<b>Ergo Style</b>		
EK-25519	Set of 5 ball hex wrenches for range of popular, larger, inch size screws from 3/16 - 3/8. Holder 5 1/4 long.	1
EK-25911	Set of 9 hex wrenches for screws most commonly used. 3/64, 1/32, 1/64, 1/8, 3/64, 5/32, 3/16, 7/32, 1/4. Holder 4 1/4 long.	1
EK-25169	Set of 6 ball hex wrenches for range of popular metric size screws from 2mm-8mm. Holder 3 long.	1
EK-25181	Set of 8 hex wrenches for range of popular metric size screws from 2mm-8mm. Holder 4 1/4 long.	1
EK-25582	Set of 8 torx keys, T-6, T-7, T-8, T-9, T-10, T-15, T-20, T-25. Holder 3 long.	1



Classic Style

Ergo Style



# HEX TOOLS

Buy One or Buy Bulk & SAVE

## L-Wrench Individual Hex Sizes - Inch Short Arm & Long Arm



Item No.	Hex Size	Arm Lgth.	Pack Qty.	Item No.	Hex Size	Arm Lgth.	Pack Qty.
<b>Short Arm</b>				<b>Long Arm</b>			
AHK-02	.028	1.22	1	AHK-104	.035	2.67	1
AHK-04	.035	1.22	1	AHK-106	.050	2.84	1
AHK-08	1/16	1.75	1	AHK-108	1/16	3.00	1
AHK-10	5/64	1.88	1	AHK-110	5/64	3.19	1
AHK-12	3/32	2.00	1	AHK-112	3/32	3.38	1
AHK-14	1/8	2.25	1	AHK-114	7/64	3.56	1
AHK-20	5/32	2.50	1	AHK-116	1/8	3.75	1
AHK-22	3/16	2.75	1	AHK-118	9/64	4.12	1
AHK-24	7/32	3.00	1	AHK-120	5/32	4.25	1
AHK-26	1/4	3.25	1	AHK-122	3/16	4.50	1
AHK-28	5/16	3.75	1	AHK-126	1/4	4.25	1
AHK-30	3/8	4.25	1	AHK-128	5/16	6.00	1
AHK-32	1/2	5.25	1	AHK-130	3/8	6.75	1
AHK-36	5/8	6.25	1	AHK-132	1/2	8.25	1
				AHK-134	9/16	9.00	1
				AHK-136	5/8	9.75	1
				AHK-138	3/4	11.25	1
				AHK-140	7/8	12.75	1

## L-Wrench Individual Hex Sizes - Metric Short Arm & Long Arm



Item No.	Hex Size	Arm Lgth.	Pack Qty.	Item No.	Hex Size	Arm Lgth.	Pack Qty.
<b>Short Arm</b>				<b>Long Arm</b>			
HK-2	2.0	1.93	1	HKL-30	3.0	3.88	1
HK-3	2.5	2.15	1	HKL-40	4.0	4.09	1
HK-4	3.0	2.42	1	HKL-50	5.0	4.57	1
HK-5	4.0	2.68	1	HKL-60	6.0	5.43	1
HK-7	6.0	3.46	1	HKL-80	8.0	6.20	1
HK-11	14.0	5.37	1	HKL-100	10.0	6.58	1
				HKL-120	12.0	8.23	1
				HKL-140	14.0	9.15	1
				HKL-170	17.0	9.69	1
				HKL-190	19.0	10.85	1

## L-Wrench Individual Hex Sizes Inch and Metric



Lifetime Guarantee

Item No.	Hex Size	Arm Lgth.	Pack Qty.	Item No.	Hex Size	Arm Lgth.	Pack Qty.
<b>Inch</b>				<b>Metric</b>			
10902	.050	2.8	1	10950	1.5	80	1
10903	1/16	3.0	1	10952	2.0	85	1
10904	5/64	3.2	1	10954	2.5	90	1
10905	3/32	3.4	1	10956	3.0	95	1
10906	7/64	3.6	1	10960	4.0	110	1
10907	1/8	3.7	1	10964	5.0	130	1
10908	5/64	3.9	1	10968	6.0	150	1
10909	3/32	4.1	1	10970	7.0	155	1
10910	3/16	4.5	1	10972	8.0	170	1
10911	7/32	4.9	1	10976	10.0	190	1
10912	1/4	5.2	1	10984	14.0	260	1
10913	5/16	6.0	1	10986	17.0	280	1
10914	3/8	6.7	1				
10915	7/16	7.5	1				
10916	1/2	8.2	1				
10917	9/16	9.0	1				
10919	3/4	11.2	1				

## Hex Key Sets



Lifetime Guarantee

Item No.	Arm Type	Pieces Per Set	Size Range	Pack Qty.
HK-56030	Short	11	.050-.3/8	1
HK-56034	Long	9	5/64-3/8	1
HK-56080	Short	13	.050-3/8	1
HK-56081	Long	13	.050-3/8	1

## Hand Tools Torx For Tooling



Item No.	Description	Pack Qty.	Item No.	Description	Pack Qty.
<b>Powerhandle Torx</b>			<b>Torx Short-Arm L-Keys</b>		
WI-36205	T5 x 50mm	1	WI-36307	T7 x 48 mm	1
WI-36210	T6 x 50mm	1	WI-36308	T8 x 48 mm	1
WI-36212	T7 x 50mm	1	WI-36309	T9 x 48 mm	1
WI-36215	T8 x 60mm	1	WI-36310	T10 x 51 mm	1
WI-36220	T9 x 60mm	1	WI-36315	T15 x 54 mm	1
WI-36225	T10 x 80mm	1	WI-36320	T20 x 57mm	1
				7 pc. set (T6 x 42mm, T7 x 48mm, T8 x 48mm, T9 x 48mm, T10 x 51mm, T15 x 54mm, T20 x 57mm)	1
WI-36230	T15 x 80mm	1	WI-36392	48mm, T8 x 48mm, T9 x 48mm, T10 x 51mm, T15 x 54mm, T20 x 57mm)	1
WI-36235	T20 x 100mm	1			
WI-36240	T25 x 100mm	1			
	8 pc. set (T6 x 50mm, T8 x 60mm, T10 x 80mm, T15 x 80mm, T20 x 100mm, T25 x 100mm, T27 x 115mm, T30 x 115mm)	1			

## ProHold™ Tip Screwdriver Hex Sets



Lifetime Guarantee

Finally, fasteners can be inserted or removed in hard to reach locations without the fastener falling off the tool and without sacrificing strength! Holds screws tight first time - every time. Allows for maximum torque. Balldriver® Tip on long arm for angle entry to 25 degrees and fast screw removal.

Item No.	Pieces Per Set	Size Range	Pack Qty.
74686	6	1.5-5	1
74632	8	.050 - 3/32	1
75534	8	T9-T40	1

## Plastic Handle Hex Sets



Lifetime Guarantee

Item No.	Pieces Per Set	Size Range	Pack Qty.	Item No.	Pieces Per Set	Size Range	Pack Qty.
<b>Inch</b>				<b>Metric</b>			
10645	7	5/64 - 3/16	1	10733*	8	2-10	1
10637	13	.050 - 3/8	1	10699	9	1.5-10	1
10737*	11	5/64 - 3/8	1				

\*Long length blades

## Plastic Handle - Individual Hex Sizes



Lifetime Guarantee

Item No.	Hex Size	Blade Lgth.	Pack Qty.	Item No.	Hex Size	Blade Lgth.	Pack Qty.
<b>Inch</b>				<b>Metric</b>			
10602	.050	3.3	1	10710	3/16	8.0	1
10603	1/16	3.4	1	10711	7/32	8.5	1
10604	5/64	3.6	1	10612	1/4	4.8	1
10704	5/64	5.0	1	10712	1/4	9.0	1
10605	3/32	3.8	1	10613	5/16	5.6	1
10705	3/32	5.5	1	10614	3/8	6.6	1
10606	7/64	3.0	1	10713	5/16	9.5	1
10706	7/64	6.0	1				
10607	1/8	3.2	1	10654	2.5	100	1
10707	1/8	6.5	1	10756	3.0	160	1
10608	5/64	3.3	1	10660	4.0	100	1
10708	5/64	7.0	1	10760	4.0	180	1
10609	3/32	3.6	1	10664	5.0	116	1
10709	3/32	7.5	1	10764	5.0	200	1
10610	3/16	3.8	1	10768	6.0	220	1



Standard Punches



- Round shank with knurled grips
- Hardened both ends
- Specially tempered - won't fracture
- Highly accurate center tips
- Set STR-117PC contains one each of the punches listed below (except STR-117E) and comes in a protective case

Item No.	Starrett	Lgth.	Dia. at Top of Tapered Point	Body Dia.	Pack Qty.
STR-117AA	117AA	3 1/8	1/16	3/16	1
STR-117A	117A	4	3/64	9/32	1
STR-117B	117B	4	3/32	19/64	1
STR-117C	117C	4	1/8	5/16	1
STR-117D	117D	4	3/32	3/8	1
STR-117E	117E	5	1/4	1/2	1
STR-S117PC	50488	Center Punch Set			1

Automatic Punches



For fast and accurate marking of all fine work. A mechanism strikes a blow when downward pressure is applied. **No hammer is required** allowing for more accurate and uniform marking. Force of blow is regulated by the adjustable knurled cap. Tension spring allows for uniform marks. Point can be removed for regrinding.

Item No.	Lgth.	Dia.	Pack Qty.
STR-18AA	3 3/4	7/16	1
STR-18A	4 1/16	9/16	1
STR-18C*	5 3/32	1 1/16	1

\*Heavy Duty

Series 565 Punches



Well proportioned punches, hardened, properly tempered, and nicely finished, with a knurled finger grip. Each punch is four inches long and has the size stamped on the head.

Item No.	Dia. Inch	Dia. mm	Pack Qty.
STR-565A	1/16	1.5	1
STR-565B	3/32	2.5	1
STR-565C	1/8	3	1
STR-S565PC	Set of 8 - 1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4 and 5/16 protective vinyl case		1

Pin Vise Series 162



Useful for securely holding small stock, taps, drills, reamers, scribers, wire, small files, and other tools. The handles of these pin vises are reduced in size so that they can be rapidly rotated between thumb and finger when filing small work.

Item No.	Size Range (Inch)	Size Range (mm)	Pack Qty.
STR-162B	.030 - .062	.8 - 1.6	1

Starrett

Center Punch Set

Starrett

Starrett

Starrett

Drive Pin Punches Round Handles



Made from quality tempered tool steel. Round handles are knurled for gripping. All punches are 8" long overall with a 3/2" pin length. The assortment contains one of each size listed below in a storage tube.

Item No.	Point Size	Pack Qty.	Item No.	Point Size	Pack Qty.
DPP-1	1/8	1	DPP-4	3/16	1
DPP-2	3/16	1	DPP-5	3/8	1
DPP-3	1/4	1	DP-5	5 pc. set (1/8, 3/16, 1/4, 5/16, 3/8)	1

Drive Pin Punches Hex Handles



Hand hot forged from quality steel. The assortment contains one each of 3/32", 1/8", 5/32", 3/16", 1/4", and 5/16" sizes in a fold-up pouch.

Item No.	Point Size	Pin Lgth.	OAL	Pack Qty.	Item No.	Point Size	Pin Lgth.	OAL	Pack Qty.
DPP-10	1/16	3/4	4	1	DPP-30	3/16	1 1/4	5 1/4	1
DPP-15	3/32	7/8	4 1/2	1	DPP-40	1/4	1 1/4	5 3/4	1
DPP-20	1/8	1	4 3/4	1	DPP-45	5/16	1 1/4	6	1
DPP-25	5/32	1	5	1	DPP-100	6 Piece Assortment			1

New TOGGLE CLAMPS





# EXTRACTORS

## Sock It Out™ Screw Extractor Sets



Sock It Out™ screw extractors eliminate drilling out stripped screws. Just drive the extractor with a hammer and use a standard wrench or tap wrench to twist it out. Precision made to

conform with standard fastener depth and dimensional tolerances. Tapered hex design ensures a positive grip. For use with right or left handed screws. Each set removes screw sizes listed below for designated type of screws.

For Socket Head Cap Screws	For Hex Socket Set Screws	For Button Head Cap Screws	For Flat Head Cap Screws	Removes Screw Sizes	Pack Qty.
Item No.	Item No.	Item No.	Item No.		
<b>Machine Screws and Fractional</b>					
SO-1	SO-8	SO-22	—	#6, #8, #10, 1/4	1
SO-2	SO-9	—	SO-16	1/4, 5/16, 3/8, 7/16, 1/2	1
SO-3	—	—	—	5/8, 3/4	1
<b>Metric</b>					
SO-5	—	—	—	M3, M4, M5, M6	1
SO-6	—	—	—	M6, M8, M10, M12, M14	1
SO-7	—	—	—	M16, M18, M20, M24	1

## Power Broken Bolt Extractor Set



This set includes two-piece extractors that use a reversible hand drill to remove broken bolts and studs (up to grade 8) in a fraction of the time of other tools. It is comprised of both a drill and extractor designed to work in one operation. The self-centering point allows the user to find center even when a jagged edge is present. Works with both flush and below surface breaks without damaging original threads. Instructions included. The set contains one each of 1/4" or 6mm, 5/16" or 8mm, 3/8" or 10mm and 1/2" or 12mm sizes in a plastic case.

Item No.	Description	Pack Qty.
BBE-401	Power Broken Bolt Extractor Set	1

## Micro Power Extractors



- Drill bit and extractor in one
- Drills grade 8 bolts
- Left hand cutting edge
- Easy operation

One tool allows you to drill out the pilot hole and extract the bolt. Uses an electric drill in reverse. Instructions included.

Item No.	Size		Pack Qty.
	Inch	Metric	
BBE-125	#5 - #6	M3	1
BBE-164	#8	M4	1
BBE-190	#10	M5	1
BBE-450	4 pc set: No. 5-6 (3mm), No. 8 (4mm), No. 10 (5mm), 1/4 in. (6mm)		1

## Extractors Masterkit



Allows you to remove bolts and studs from 1/8" (M3) to 1/2" (M12). Comes in plastic case with instructions.

Item No.	Description	Pack Qty.
BBE-701	7 pc. set: No. 5-6 (3mm), No. 8 (4mm), 3/16 in (5mm), 1/4 in (6mm), 5/16 in (8mm), 3/8 in (10mm), 1/2 in (12mm)	1

Buy One or Buy Bulk & SAVE

## Screw Extractors Alloy Steel Black Finish



For quick removal of broken screws, bolts or studs. Drill a hole in broken part, drive in the extractor and turn with a tap wrench. Style preferred by industry since straight, tapering flutes grip more securely than spiral styles. They won't bind in the screw or cause it to spread against the hole. Can be used for either right or left-handed screws, bolts or studs. The set ABT-70-970 includes ABT-70-950 through ABT-70-958.

Item No.	For Use On Screw Sz.	For Use On Pipe Sz.	Size of Sm. End	Size of Shank	Use Drill Lgth.	Min. Depth of Hole	Pack Qty.
ABT-70-950	#12 - 5/16	—	1/8	3/16	2 1/16	3/8	1
ABT-70-952	3/16 - 3/8	—	1/64	3/16	2 3/8	1/2	1
ABT-70-954	7/16 - 1/2	1/8	1/64	1/4	2 3/8	1/2	1
ABT-70-956	1/2 - 9/16	3/4	1/64	5/16	3	5/8	1
ABT-70-958	5/8 - 3/4	3/4	1/32	3/8	3 1/4	1 1/8	1
ABT-70-962	3/4 - 1	1/2	1/2	4 1/2	3 1/16	1 1/8	1
ABT-70-964	1 - 1 1/8	1/2	19/32	5/8	4 7/8	3/4	1
ABT-70-970	Set Includes ABT-70-950, -952, -954, -956, -958						

## Bolt Extractors



Hanson Bolt Extractors work when everything else fails. They are ideal for rusted or rounded off nuts and bolts. Left hand spiral flutes will tightly grip the damaged fasteners (metric or standard) for quick and easy removal. They have both a 3/8" square drive and hexagonal flats so these extractors can be used with socket wrenches, flat wrenches or impact wrenches. Made from high carbon steel, tougher than tool steel. All sets come in a tough blow molded case for convenient storage.

Item No.	Pieces Per Set	Description	Sizes	Size Drive	Pack Qty.
ATC-54009	9	Inch	1/4 to 3/4 by 16ths	3/8	1
ATC-54019	9	Metric	8, 10, 11, 12, 13, 14, 16, 17 and 19mm	3/8	1
ATC-54113	13	Mixed	Covers sizes in both ATC-54009 and ATC-54019	3/8	1
ATC-54125	5	Inch	3/4 to 1 by 16ths	1/2	1

## Spiral Thread Extractor Set



Spiral thread design allows quick and easy removal of broken bolts, screws and pipe studs. Simply drill and insert extractor. No hammer is needed. The set includes 5 extractors to remove bolts from 1/8" to 3/4". Tip diameters .095", .140", .185", .243" and .335"

Item No.	Description	Pack Qty.
GTE-202	Spiral Thread Extractor Set	1

# TAP WRENCHES, KNIVES & COUNTERS



## Tap Wrenches Series 91



Item No.	Tap Size		Square Shank		Body Length		Pack Qty.
	Inch	mm	Inch	mm	Inch	mm	
STR-91A	1/16 - 1/4	1.6 - 6.35	5/32 - 5/32	2.4 - 4	150	6	1
STR-91B	3/16 - 1/2	4.7 - 12.7	5/32 - 5/32	4 - 7	225	9	1

## T-Handle Series 93



For holding taps, drills, reamers and other small tools to be turned by hand.

Item No.	Tap Size		Square Shank		Body Lgth.		Pack Qty.
	Inch	mm	Inch	mm	Inch	mm	
STR-93A	1/16 - 3/16	1.6 - 4.7	1/16 - 5/32	1.6 - 4	50	2	1
STR-93B	7/32 - 7/16	5.5 - 11	5/32 - 1/4	4 - 6.4	65	2 1/2	1
STR-93C	1/4 - 1/2	6.4 - 12.7	3/16 - 3/16	4.7 - 8	50	2	1

## T-Handle Tap Wrenches



Plain



Ratchet

Provides good leverage in tight spaces. Holds taps, reamers, screw extractors and hand held tools. Self-centering hardened tool steel and knurled chuck sleeve provide positive grip. Ratchet wrenches can be set for right or left hand operation or locked for non-ratchet use.

Item No.	Type	Capacity		Length	Pack Qty.
		Inch	mm		
GEN-160R	Ratchet	#0 - #8	1.6 - 4	2 3/4	1
GEN-163	Plain	#0 - #8	1.6 - 4	2 1/4	1
GEN-161R	Ratchet	#0 - 1/4	1.6 - 6.3	3 1/2	1
GEN-164	Plain	#0 - 1/4	1.6 - 6.3	2 3/4	1
GEN-162R	Ratchet	#12 - 1/2	6 - 12.5	4 1/4	1
GEN-166	Plain	#12 - 1/2	6 - 12.5	3 3/4	1

## Hook and Picks



Can be used for so many jobs, pays for itself in just one use. Release and install springs, remove stuck parts, retrieve lost parts in tight areas, separate small wires, replace O-Rings. Use it on your car, around the home or in the shop. The hex shaped aluminum handle has a powerful magnet on the end. All are high carbon polished needle steel. They come in a compact zip-lock vinyl pouch that keeps your set organized and fits in your shirt pocket.

Item No.	Description	Pack Qty.
H-4W	4 pc. Hook & Pick Set (Screw-in Tips: Hook, 90 Degree, Straight, Combination)	1

## Box Cutter



Type 1



Type 2



Type 2



This ergonomically designed knife offers increased safety, comfort and usability. With a wide opening, it cuts through 90% of common cardboard thicknesses. Two carbon steel blades insure long life and strength to cut through the toughest of products. With no exposed blades, there is no fear of accidental user cuts or damage to material contained in package being opened. It's dishwasher safe to insure elimination of cross-contamination. Dimensions of 5 3/4" x 1 1/2" insures ease of use and storage.

Item No.	Description	Type	Pack Qty.
KK-6	Yellow w/Dual Carbon Blades	Type 1	1
KK-1	Red w/Dual Carbon Blades	Type 2	1
KK-3	Yellow w/Dual Carbon Blades	Type 2	1

## Ratchet



Backward Action



Forward Action

Counters advance one count for each 45 degree stroke of the lever. Counter lever is returned to its original position by a means of an internal spring. Maximum speed 600 counts per minute. Black case with five digits. White numerals on black background. Corrosion resistant. No lubrication required. Deluxe models have metal internal parts and are available forward or backward acting. Economy model contains plastic internal parts and is available backward acting only.

Item No.	Description	Pack Qty.
CTR-201	Economy Ratchet - Backward Action	1
CTR-202	Deluxe Ratchet - Backward Action	1
CTR-203	Deluxe Ratchet - Forward Action	1

## Revolution



Counters advance one count for each complete revolution of shaft. Maximum speed 1,000 counts per minute. White numerals on black background. No lubrication required. Deluxe model has metal internal parts. Economy model contains plastic internal parts.

Item No.	Description	Pack Qty.
CTR-301	Economy Counter	1
CTR-302	Deluxe Counter	1

## Hand Counters



Hand-Held



Desk Mount

Ideally used in various counting jobs, such as inventory, production or receiving cargo counts. Casing is chrome plated for long term operation. Four digits with a resetting knob. Both styles include a finger ring.

Item No.	Description	Pack Qty.
CTR-101	Hand-Held w/ Finger Ring	1
CTR-102	Hand-Desk Mount w/ Finger Ring	1

## Pneumatic



Counter is self-powered, works off exhaust of cylinder, clamp etc., to measure cycles. Push button reset. Adjustable from 25 psi to 110 psi. eight digit LCD. Ten year battery life. NEMA rated enclosure with two mounting holes.

Item No.	Description	Pack Qty.
PVT-1170	Pneumatic Counter	1



# MAGNETIC TOOLS

Buy One or Buy Bulk & SAVE

Available with thru hole or with stud. Both styles have low profile design and plated cup. Stud style has plated bolt and is furnished with two nuts.

## Magnetic Cup Assemblies With Thru Hole



Item No.	A	B	C	D	Holding Value (Working)	Holding Value (Max)	Pack Qty.
IM-40	1.24	3/16	1/4	1/8	7	14	1
IM-330	1.24	3/16	3/8	1/8	35	70	1
IM-328	1.41	9/32	3/16	3/16	11	22	1
IM-42	2.03	5/16	3/16	3/16	19	38	1
IM-331	2.03	5/16	3/16	3/16	47.5	95	1
IM-333	2.03	5/16	3/16	3/16	74	148	1
IM-44	2.63	3/8	1/4	1/4	41	82	1
IM-335	2.63	3/8	1/4	1/4	100	200	1
IM-427	2.88	3/8	1/4	1/4	42.5	90	1
IM-46	3.18	7/16	9/32	9/32	47.5	95	1
IM-329	4.90	11/32	1/2	1/2	95	190	1

## Magnetic Cup Assemblies With Stud



Item No.	A	B	Stud Thd.	Stud Lgth.	Holding Value (Working)	Holding Value (Max)	Pack Qty.
IM-50	1 15/64	3/16	6-32	1	7	14	1
IM-425	1 15/32	9/32	8-32	1 3/8	11	22	1
IM-52	2 1/32	3/16	10-24	1 3/4	19	38	1
IM-332	2 1/32	3/16	10-24	1 9/16	47.5	95	1
IM-334	2 1/32	3/16	10-24	1 1/16	74	148	1
IM-54	2 1/4	3/16	9/16-18	1	41	10	1
IM-56	2 5/8	3/8	1/4-20	1 3/4	5	82	1
IM-336	2 5/8	3/8	3/8-16	1 1/16	100	200	1
IM-426	2 5/8	3/8	1/4-20	2 1/4	35	70	1
IM-428	4 9/32	11/32	9/16-16	2 1/4	95	190	1

## Cup Magnets with Spring Steel Clamp



- Option 1: Available in nickel plated (NP), stainless steel (SS), or white plastic (WP) coated clamps
- Option 2: Available in black vinyl (VB) coated clamp for holding flashlights, spray cans, etc.
- Option 3: Available in zinc plated (ZP) or black vinyl (VB) coated clamps

Item No.	Option	NP	Dia.	OAH	Opening Range		Holding Value		Pack Qty.
					Minimum	Maximum	Working	Maximum	
IM-400	1	NP	1.24	0.88	0.19	0.38	7	14	1
IM-401	1	NP	1.41	1.53	0.31	0.75	11	22	1
IM-402	1	NP	2.03	2.31	0.63	1.25	19	38	1
IM-403	1	NP	2.63	2.50	1.00	1.88	41	82	1
IM-404	1	SS	1.24	0.81	0.38	0.50	7	14	1
IM-405	1	SS	1.41	1.91	0.63	0.88	11	22	1
IM-406	1	SS	1.41	2.03	0.88	1.13	11	22	1
IM-407	1	WP	1.41	1.66	0.31	0.75	11	22	1
IM-408	1	WP	1.41	1.28	0.56	0.88	11	22	1
IM-409	1	WP	1.41	1.66	0.88	1.25	11	22	1

## Magnetic Retrievers

### Versa Hook, Holder and Magnet



- VH-301** - Versa hook includes hook on magnet. Great for blowguns, hand tools and work lights.
- VH-200** - Versa holder includes magnetic base, hinged bracket with self-adhesive velcro pad. Great for calculators, multimeters, volt meters and hex key sets.
- VH-700** - Versa magnet includes magnet with 5/16-24 threaded insert. All items listed above come with a dial indicator adapter plate.

Item No.	Description	Pack Qty.
VH-301	Versa Hook	1
VH-200	Versa Holder	1
VH-700	Versa Magnet	1

## Magnetic Cup Assemblies With Loop



Plated cup with 3/8" I.D. plated loop. Ideal for hanging signs and lights, retrieving steel items from tanks, vats, bins and lakes, holding tarps in place and more.



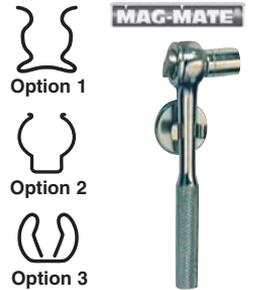
Item No.	Hold (Lbs.)	Dia. (Inch)	Height (Inch)	Weight (Lbs.)	Pack Qty.
IM-481	19	2.03	1.75	.10	1
IM-482	47.5	2.03	2	.10	1
IM-483	74	2.03	2	.12	1
IM-484	41	2.63	3.25	.30	1
IM-485	100	2.63	3.25	.40	1
IM-486	47.5	3.18	—	.53	1

## Economy Magnetic Cup Assemblies With Thru Hole

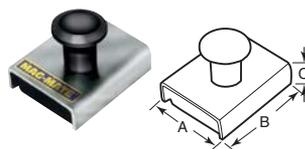
Very strong pull for their size. They are constructed of a steel cup with a magnet epoxied in it. A mounting hole is provided for easy attachment. Chrome plated.



Item No.	Dia.	Thickness	Hole Size	Pull (Lbs)	Pack Qty.
CMA-82	1.200	.187	.125	5	1
CMA-84	1.437	.275	.187	9	1
CMA-86	2.050	.315	.187	35	1
CMA-88	2.625	.375	.250	60	1
CMA-90	3.187	.440	.281	80	1
CMA-92	3.880	.515	.375	130	1
CMA-94	4.910	.530	.500	190	1



## Magnetic Print Holders



Ideal for holding papers, prints, charts and more to steel desks, partitions, machinery and walls. Magnetic strength holds through many layers of prints.

Item No.	A	B	C	Working Pull Lbs.	Pack Qty.
IM-142	1 1/8	2 5/8	3/16	11	1
IM-144	1 5/8	2	3/16	19	1
IM-146	2 1/2	3	3/16	22	1

## Magnetic Print Holders



Holds papers, prints, charts and more to steel desks, partitions, machinery, etc. Strong magnet holds through many layers of prints.

Item No.	Dia.	A	B	Working Pull Lbs.	Pack Qty.
IM-337	1 13/64	3/16	1 1/16	7	1
IM-88	1 7/16	9/32	1 1/2	11	1
IM-89	2 1/32	3/16	1 1/16	19	1



**Electronic Mechanical Timer  
Industrial and Laboratory  
60 Minute**



The 60-Minute timer provides precise timing for industrial and laboratory work with second- and minute-hand settings.

Two grounded outlets allow you to automatically switch external appliances. Control one appliance with a switch which will turn it off or on when time elapses. The other outlet will always turn off when time elapses independent of the switch.

Large numerals on a 6 1/2" face are easy to read. An outer ring tells you elapsed time, while the inner circle can be used as a stop clock. The buzzer alarm sounds at the end of the timing cycle. Rubber base pads, wall mounting keyholes and a recessed hand grip on the sturdy 7 1/2" x 7 1/2" x 2 1/2" plastic case give you multiple placement choices.

Features a permanent plastic boot over the power and outlet control switches to prevent contamination or corrosion.

Item No.	Voltage	Max Time	Pack Qty.
GL-171-10	120V	60-minute	1
GL-171-20	120V	60-minute	1
GL-171-30	240V	60-minute	1

**Electronic Mechanical Timer  
Industrial and Laboratory  
60 Hour**



The 60-Hour timer provides precise timing for industrial and laboratory work with minute- and hour-hand settings.

Two 3-wire receptacles allow you to automatically switch external appliances. Control one appliance with a switch which can either make or break circuit at zero. The other receptacle is independent of the switch and always breaks the circuit at zero.

Large numerals on a 6 1/2" face are easy to read. An outer ring tells you elapsed time, while the inner circle can be used as a stop clock. The buzzer alarm sounds at the end of the timing cycle. Rubber base pads, wall mounting keyholes and a recessed hand grip on the sturdy 7 1/2" x 7 1/2" x 2 1/2" polycarbonate/PET case give you multiple placement choices. Features a permanent plastic boot over the power and outlet control switches to prevent contamination or corrosion.

Item No.	Voltage	Max Time	Pack Qty.
GL-170-10	120V	60-hour	1

**Electronic Digital Timer  
Industrial and Laboratory  
99 Minute**



Foot Switch



The solid state digital timer is an excellent choice for factory, lab or studio use. It has two independent, programmable memories for single cycle switching or continuous cycling. The electronic timer is 100% solid state for digital accuracy and repeatability. It has a simple design with highly visible two-digit LED display that makes time setting easy. The 99 minute time range can be set in minutes, seconds and 1/10 seconds. The timer has dual memory switching, separately programmable memories allowing for operation as a single-cycle switching timer as well as an auto-start feature for continuously cycling. It has easily adjustable controls for display brightness, AC outlet power, audio signal choices and countdown time ranges. The three countdown time ranges are minutes up to 99, seconds up to 99 and tenths of seconds up to 9.9. The three audio signal choices are off, metronome and end-of-cycle tone.

The timer has a durable plastic case with rubber base pads and wall mounting keyholes in the back.

Item No.	Voltage	Max Time	Pack Qty.
GL-451-10	120V	99-minute	1
GL-451-20	240V	99-minute	1
GL-565	Foot Switch for Electronic Digital Timers		1



Electronic Mechanical Timer Industrial and Laboratory 15 Minute



The 15-Minute Timer provides precise timing for industrial and laboratory work with second- and minute-hand settings.

Two 3-wire receptacles allow you to automatically switch external appliances. Control one appliance with a switch which can either make or break circuit at zero. The other receptacle is independent of the switch and always breaks the circuit at zero.

Large numerals on a 6 1/2" face are easy to read. An outer ring tells you elapsed time, while the inner circle can be used as a stop clock. The buzzer alarm sounds at the end of the timing cycle. Rubber base pads, wall mounting keyholes and a recessed hand grip on the sturdy 7 1/2" x 7 1/2" x 2 1/2" polycarbonate/PET case give you multiple placement choices. Features a permanent plastic boot over the power and outlet control switches to prevent contamination or corrosion.

Item No.	Voltage	Max Time	Pack Qty.
GL-172-10	120V	15-minute	1
GL-172-20	120V	15-minute	1
GL-172-30	240V	15-minute	1

Electronic Mechanical Timer Industrial and Laboratory 15 Hour



The 15-Hour Timer provides precise timing for industrial and laboratory work with minute- and hour-hand settings.

Two 3-wire receptacles allow you to automatically switch external appliances. Control one appliance with a switch which can either make or break circuit at zero. The other receptacle is independent of the switch and always breaks the circuit at zero.

Large numerals on a 6 1/2" face are easy to read. An outer ring tells you elapsed time, while the inner circle can be used as a stop clock. The buzzer alarm sounds at the end of the timing cycle. Rubber base pads, wall mounting keyholes and a recessed hand grip on the sturdy 7 1/2" x 7 1/2" x 2 1/2" polycarbonate/PET case give you multiple placement choices. Features a permanent plastic boot over the power and outlet control switches to prevent contamination or corrosion.

Item No.	Voltage	Max Time	Pack Qty.
GL-173-10	120V	15-hour	1
GL-173-20	240V	15-hour	1

Electronic Mechanical Timer Sports 60 Minute



The sports timer is ideal for team sports, one-on-one competition and exam timing plus dozens of other scholastic and sports timing uses.

Turn on the power switch and set the desired time with the large knob. A built-in buzzer automatically signals the end of the period. A push button on top lets you control the built-in buzzer and a horn or light plugged into the accessory outlet to gain the attention of officials and participants during action or time-out.

The 6 1/2", easy-to-read white dial has large black numerals and an inner circle of red numerals that can be read at a glance from a court or playing field. The red numerals let you use the timer as a minutes-and seconds-elapsed time indicator or stopwatch.

The case is made of durable plastic. It's strong, withstands high impact, resists moisture and is electrically non-conductive. A recessed hand grip in the back and rubber base pads provide multiple mounting options.

Input voltage is 100 to 130 VAC, 50 or 60 Hz (U.S. And Canada).

Item No.	Voltage	Max Time	Pack Qty.
GL-165-10	120V	60-minute	1



**Electronic Mechanical Timer  
Food Industry  
15 Minute**



The food service timer has the dependable timing every chef, short-order cook or kitchen manager needs.

The 15 minute timing range which you can set in minutes and seconds. It features a plastic boot over the power switch (which does not have to be removed for operation) to prevent build up of flour and grease.

Never miss the end of a timed cooking cycle again. The buzzer alarm is loud enough to be heard over the din in the busiest kitchen. And, it's big - 7 1/2" x 7 1/2" x 2 1/2" - so you can read them easily across any room or kitchen.

A gray plastic case with rubber base pads and "keyholes" for effortless wall mounting.

Item No.	Voltage	Max Time	Pack Qty.
GL-255-10	120V	15-minute	1

**Electronic Mechanical Timer  
Food Industry  
60 Minute**



The food service interval timer gives you sustained accuracy from 1 minute to 60 minutes. The timer features a plastic boot over the power switch (which does not have to be removed for operation) to prevent build up of flour and grease.

Never miss the end of a timed cooking cycle again with a buzzer alarm loud enough to be heard over the din in the busiest kitchen. Size is 7 1/2" x 7 1/2" x 2 1/2" - so you can read them easily. A gray plastic case with rubber base pads and "keyholes" for effortless wall mounting.

Item No.	Voltage	Max Time	Pack Qty.
GL-254-10	120V	60-minute	1

**Electronic Mechanical Timer  
Dark Room  
60 Minute**



Illuminated face allows minutes and seconds to be read easily across the room in total darkness, making the dark room timer ideal for film processing, especially the precise timing required by color processing. The 60-minute time range can be set in minutes for developing and seconds for enlarger control. Two hands permit quick setting by seconds, minutes or combinations of seconds and minutes.

An exclusive dual-cam mechanism provides extreme accuracy for long time intervals: +/- .015% at maximum dial setting. Two separate outlet receptacles control an enlarger or printer and safelight by a combination time/focus switch. Each outlet has a 600 watts rated capacity for operating most film processing equipment. The timer can be used with a relay for heavier loads.

The case is made of durable plastic and measures 7 1/2" x 7 1/2" x 2 1/2". It is exceptionally strong, withstands high impact, resists chemicals and moisture, and is electrically non-conductive. The case has a recessed handle in the back and keyholes for wall mounting.

Item No.	Voltage	Max Time	Pack Qty.
GL-300-10	120V	60-minute	1
GL-300-20	120V	60-minute	1
GL-300-30	240V	60-minute	1