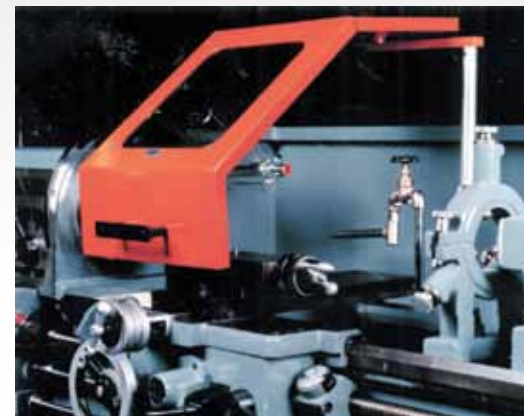
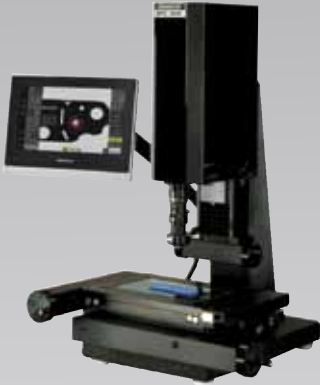


FLEXBAR[®]

CATALOG 217

INSPECTION • MEASUREMENT • PRECISION • SAFETY



**Innovation, Quality and Service
Since 1965**



Innovation, Quality and Service... Since 1965



For more than **Fifty Years** we at Flexbar have led the way in offering unique and innovative products. With this new **Catalog 217**, we are proud to continue to offer a wide array of sophisticated products in the areas of metrology, inspection, and machine tool accessories. Our products range from our world famous metrology grade replica and casting materials, Reprorubber® and Facsimile®, precision gages and testers, industrial borescopes, optical and video inspection/ measurement systems and machine safety guards.

The vast majority of products contained within our catalog are designed and manufactured by Flexbar or are Quality Manufactured in the U.S.A.* In addition, we are proud to represent some of the world's finest manufacturers of precision industrial products.

Above and beyond our extensive product offering, we at Flexbar are committed to working with you, the customer, in providing innovative solutions to your special applications and requirements.

Throughout the U.S. and abroad, our network of trained industrial distributors stand ready to handle sales and service for the complete line of Flexbar products.

Thank You for putting your trust in all of us at Flexbar.

Jon Adler, President/CEO



Our Customer Service team is committed to fast, friendly, and expert Customer Service.



Our technical experts are ready to help solve all of your application questions.

Visit our growing on-line digital catalog at
for our latest products, application information, and more.

flexbar.com



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631-582-8440 • Toll-Free 800-879-7575
Fax 631-582-8487
email: sales@flexbar.com





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FEATURED PRODUCTS

reprorubber and *facsimile* Metrology Casting Materials

ReproRubber® is an exotic metrology-grade rubber that self-cures in minutes. It creates a virtually perfect replica casting of internal and external forms in minutes. Facsimile® is a quick-setting plastic compound which creates highly accurate hard copy replicas of parts and surface roughness. See pages 4-11 for complete information.



Triga-Bore 3 Point Gaging Systems

For accurate and precise measurement of internal diameters utilizing Flexbar® True-Bore™ System Gage Heads (in sizes up to 8"), the system is ideal for solving internal diameter measurement problems on the shop floor and inspection areas. Compatible with all popular digital and analog indicators.

Contact us to quote Custom Head sizes for grooves, threads, splines and many other forms. See pages 98-101.



Video, Optical & Borescope Inspection Systems

Flexbar offers a wide range of video and optical devices to service most any industry. Find everything from borescopes, microscopes and magnifiers to fiberoptic lighting, measurement systems and comparators. See pages 14-38.



Flexbar Wireless Borescope camera Systems
Pages 34-35

Flexbar Machine Safety Guard Products-**Protection with Productivity**



New Electrical Interlocked Guards
Pages 142-143



Helical Lead Screw Covers
Page 127

Featuring a comprehensive line of machine guarding solutions for lathes, milling machines, drill presses, grinders, band saws, lead screws and perimeter guarding. An expanded line of electrical interlock guarding now available.

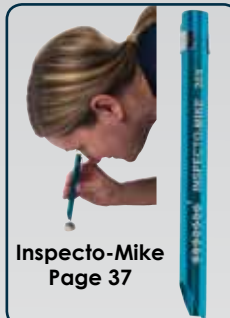
Newest Additions to the Flexbar Product Line



Reprorubber® Single Application System
Page 8



Easy, safe, precise cuts of all Reprorubber castings. Page 9



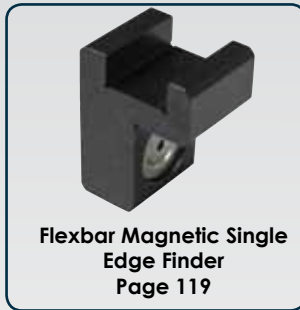
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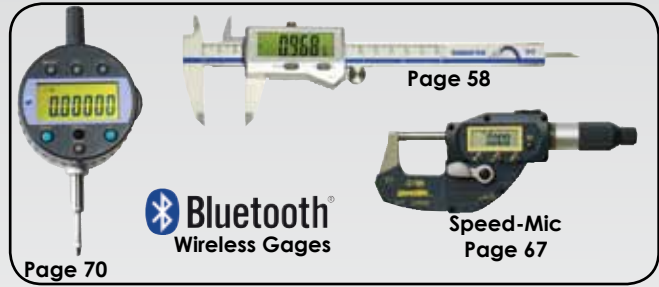
TMX Series Advanced Function Toolmaker's Microscope Systems
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Granite Base Indicator Stands
Page 78



Flexbar Magnetic Single Edge Finder
Page 119



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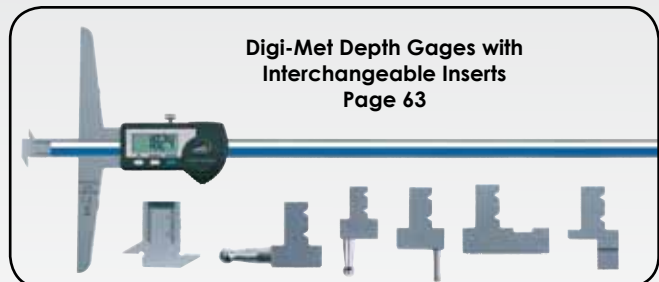
Bluetooth® Wireless Gages

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Digi-Met Lightweight Workshop Calipers up to 79" Long
Page 56



Digi-Met Depth Gages with Interchangeable Inserts
Page 63



QUICK REPLICAS!



ZERO SHRINKAGE!

METROLOGY CASTING MATERIAL

Exotic Metrology-Grade Rubber—Self-Curing in Minutes
Virtually Perfect Replica Casting of Internal and External Forms
Non-Toxic—Easy To Use—100 Times Faster Than RTV Silicones
No Release Agent is Ever Needed.
Excellent For Checking Parts With Optical Comparators!

SUPPLIED IN THREE VISCOSITIES:



1a. REPRORUBBER THIN POUR



Final Color - **LIGHT GREEN**

For internal-shape applications where a thin pour will completely fill the cavity without voids. A complete replica casting is quickly formed.

- Manipulation time is approximately 2 minutes and cure time is approximately 10 minutes.
- Start to finish: Approximately 15 minutes
- Kits include graduated mixing cups, wooden spatulas and instructions.

TRIAL SIZE KIT

MODEL NO.	DESCRIPTION
16116	Thin Pour 130ml Trial Kit

STANDARD SIZE KITS

16135	Thin Pour 380ml Kit
16137	Case of 10 380ml Kits

1b. REPRORUBBER THIN POUR PREFILLED CARTRIDGES



Final Color - **LIGHT GREEN**

Same viscosity and durometer as Reprorubber Thin Pour. Disposable prefilled dual barrel 50 ml cartridges can quickly mix and dispense casting material utilizing the REPRO-MIX II Gun System.

For internal-shape applications where a thin pour will completely fill the cavity without voids. A complete replica casting is quickly formed.

- Cure time is approximately 10 minutes.
- Start to finish: Approximately 15 minutes.

Available in Complete System Kits & Refill Packs. See Pages 6-7 for more information.



2. REPRORUBBER ORANGE- MEDIUM BODY PREFILLED CARTRIDGES



Final Color - **ORANGE**

Medium Body (Medium Viscosity - High Durometer) casting material ideal for both internal and external applications. Disposable prefilled dual barrel 50ml cartridges can quickly dispense casting material utilizing the REPRO-MIX II Gun System.

- Cure time is 5-6 minutes.
- Start to finish: 6-8 minutes.

Available in Complete System Kits & Refill Packs. See Pages 6-7 for more information.





CLONE ANY PART QUICKLY WITH

FLEXBAR **repro rubber**



3. REPRORUBBER QUICK SETTING PUTTY

Final Color - LIGHT BLUE

Roll two equal-sized balls of catalyst putty and base putty and simply knead them together like dough. Excellent for external shapes. Simply spread over master pushing down with fingers and wait for cure 8-10 minutes. You have 3 or 4 minutes of manipulation time. Therefore 14 minutes start to finish. You can also cast internal shapes and cavities but some pressure should be applied such as a weighted object on top.

TRIAL SIZE KIT

MODEL NO.	DESCRIPTION
16129	220ml Trial Quick Setting Putty Kit

OTHER KITS

16130	1 ³ / ₄ lb. (520ml) Introductory Kit
16131	7 lb. (2150ml) Economy Kit



PHYSICAL PROPERTIES AND APPLICATIONS

Mix Time (Stirring in a cup)
 Working Time (Manipulation Time)
 Setting Time (at room temperature)
 Permanent Deformation
 Dimensional Stability
 Tear Strength
 Durometer (Shore A-2)
 Temperature Stability
 Detail Reproduction

REPRORUBBER

THIN POUR

30 - 45 seconds
 2 minutes
 10 - 15 minutes
 0.2%
 less than 0.50%
 44 pounds per sq. inch
 30 (at 15 minutes)
 1 week @ 23°C (72°F)
 EXCELLENT

REPRORUBBER

MEDIUM BODY ORANGE

45 - 60 seconds
 N/A
 5-6 minutes
 0.3%
 less than 0.40%
 300 pounds per sq. inch
 55 (at 10 minutes)
 1 week @ 23°C (72°F)
 EXCELLENT

REPRORUBBER

QUICK SETTING PUTTY

30 - 45 seconds
 2 minutes (from beginning of mix)
 8-10 minutes
 0.3%
 less than -0.25%
 105 pounds per sq. inch
 50 (at 7 minutes)
 1 week @ 23°C (72°F)
 EXCELLENT

APPLICATIONS:

- ALL METALS
- ALL PLASTICS

- NON METALS
- RUBBER

You can take impressions of:

- PAPER OR CARDBOARD ITEMS
- CERAMIC AND GLASS ITEMS

- WOOD, MARBLE, ETC.

Other Uses Include:

- Prototypes of rubber type components such as gaskets, washers, etc.
- As a mask for high temperature plasma spray of metallic coatings.

- Making joints where flexibility is required.
- Fixturing where semi-rigid structure is desired.



PHYSICAL ADVANTAGES OVER THE HARD-COPY REPLICAS

- Replica is easy to remove - even if there are under cuts or grooves.
- Cross-sectioning of replica is easily accomplished with a knife, razor or Reprorubber (see page 9).
- It can then be checked on an optical comparator or microscope.
- Surface finish replication is exact with excellent optical properties.

- Reprorubber copies can be recopied (copy from a "female mould" yields a male-shaped replica). See page 11- EPOXY PARFILM ULTRA.
- Replicas are permanent - will not leach or ooze out nor outgas.
- NO MORE 16 HOUR CURE TIME AS WITH RTV SILICONES
- MORE ACCURATE THAN ALL OTHER RTV COMPOUNDS
- REPRORUBBER PUTTY will withstand up to 600°F (or more).

QUICK DISPENSE CARTRIDGE SYSTEM KITS

Repro rubber Quick Dispense Cartridge System Kits contain everything you need to easily create Highly Accurate, Zero Shrinkage replicas. Each kit includes 1 each Repru-Mix II Reusable Dispensing Gun, 6 each 50ml Prefilled Repru rubber Disposable Cartridges, 15 Disposable Mixing Nozzles, 2 Micro Injector Snap-On Nozzles, and a Deluxe Fitted Carrying Case.



KIT NO. 16300, Repru rubber Thin Pour (Green)



KIT NO. 16305, Repru rubber Orange



KIT NO. 16309, Repru rubber Combo Thin Pour & Orange



ORDERING COMPLETE KITS:

MODEL NO. DESCRIPTION

16300	Repru rubber Thin Pour (Green) Quick Dispense Cartridge System Kit Complete
16305	Repru rubber Orange (Medium Body) Quick Dispense Cartridge System Kit Complete
16309	Repru rubber Combo Quick Dispense Cartridge System Kit, (3 Thin Pour & 3 Orange cartridges)

SYSTEM REFILLS

16301	Repru rubber Thin Pour (Green) 50ml Cartridge, 1 each
16302	Repru rubber Thin Pour (Green) 50ml Cartridges, 6 pack
16306	Repru rubber Orange (Medium Body) 50ml Cartridge, 1 each
16307	Repru rubber Orange (Medium Body) 50ml Cartridges, 6 pack
16311	Repru-Mix II Dispensing Gun (reusable)
16313	Repru-Mix II Helix Mixing Nozzles, 15 Pack
16316	Repru-Mix II Helix Mixing Nozzles, 100 Pack
16315	Quick Dispense Cartridge System Fitted Case (without contents)
16314	Micro Injector Snap-On Nozzle, Pack of 15



REPRORUBBER SINGLE APPLICATION SYSTEM

Convenient - Easy to Use
Quick Replicas with Zero Shrinkage!

- Single Use Cartridges (3.12ml each)
- Prefilled with Reprorubber Orange Medium Body
- Single Use system designed for small, accurate reproductions
- Kits include Applicator, Cartridges, Mix-Tips and Case



Reusable Applicator

Cartridge



Mix-Tip



Micro Injector Nozzle

Designed for small, accurate reproductions. No waste! No mess!

INTRODUCTORY KITS*

MODEL NO.	DESCRIPTION
16170	10 Use Kit. Includes Applicator, 10 Cartridges, 10 Mix-Tips
16171	20 Use Kit. Includes Applicator, 20 Cartridges, 20 Mix-Tips

* Each kit includes 2 Micro Injector Snap-On Nozzles. Order Model No. 16178 below for additional quantities.

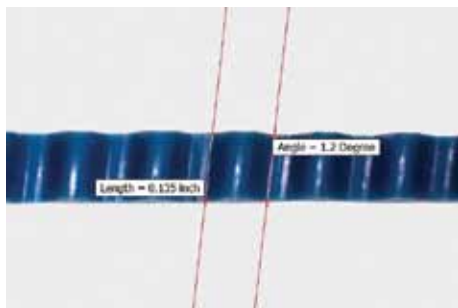
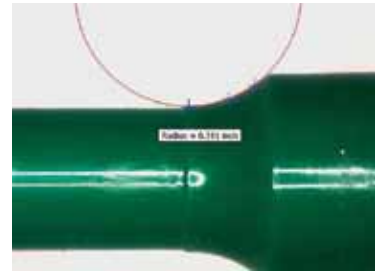
REFILLS AND ACCESSORIES

MODEL NO.	DESCRIPTION
16174-10	10 Piece Cartridge/Mix Tip Package
16174-20	20 Piece Cartridge/Mix Tip Package
16172	Hand Applicator
16173	Case w/adjustable dividers
16178	Micro Injector Nozzles for Single Use System, Pack of 10



REPROCUT™ Cutting Edge Solutions

New Specially Designed Tool
Safely and Easily Cuts all Flexbar Reprorubber® Castings
Produces Sharp and Accurate Cross-Sectioned Replicas for use with
Optical Comparators & Video Measurement



- 2.25" Throat clearance, 2.5" Cutting Blade Width
- Easily trim flash and excess material
- Two sided operation
 - Single blade for variable thickness slicing
 - Dual blade for repeatable putty specimens
- Two handed operation improves accuracy & avoids injury
- Clear window allows direct view of cutting area
- Safety Cover doubles as a specimen removal tool



MODEL NO. DESCRIPTION

16139 ReproCut™ Cutting Tool System

REPLACEMENT BLADES

16139-SB Replacement Thin Cutter Blade

16139-LB Replacement Thick Cutter Blade



CLONE ANY PART QUICKLY WITH

facsimile[®]

QUICK-SETTING COMPOUND



MAKES ACCURATE HARD PLASTIC REPRODUCTIONS IN 6 TO 8 MINUTES

facsimile is a special plastic compound kit which is used for duplicating surface flats, roughness and for dimensional transfer of inaccessible locations. Many other applications are listed below and many more in our free 16 page applications booklet.

- Make duplicates for measuring, such as gages, etc.
- Test surface geometry, flatness, microfinish, etc.
- Make permanent records of surface geometry, etc.
- Make custom holding and nesting fixtures.
- Make quick jigs.
- Make excellent stylus patterns.
- Make instant molds and patterns.

- Cast small run parts and prototypes.
- Mask, fill in and seal.
- Fretting depth of blade dovetails in jet engines.
- Make potting, bonding and repairing easy.
- Closer inspection can be performed by allowing the casting to cure in a pressure vessel (15 p.s.i.).
- *facsimile* will not affect the surface of ferrous or non-ferrous materials to which it is applied.
- When casting in a "CONFINED" area, it is better to cast 1/2 of the internal shape.
- Remember—when casting without releasing agent, an ACETONE soak removes *facsimile*.

TECHNICAL DATA

A test submitted by E.I. Dupont DeNemour & Company to an independent test lab showed the following properties of *facsimile*:
 TEST PIECE APPROXIMATELY 1" BY 1/4" THICKNESS...
 ROCKWELL HARDNESS: M90
 COMPRESSION TEST...Maximum load 6,800 lbs. Compression strength 9,650 PSI.
 MECHANICAL PROPERTIES...Ultimate tensile 3,415 PSI.
 WATER ABSORPTION...(24 hours at 73°) 0.31% by weight.
 The kit contains all material and instructions. The *facsimile* can be diluted from a putty consistency to a watery to best suit your job needs.

AVAILABLE IN LARGER "ECONOMY" KITS



APPLICATIONS AND TECHNICAL INFORMATION

SOME OF FACSIMILE'S MANY USES:



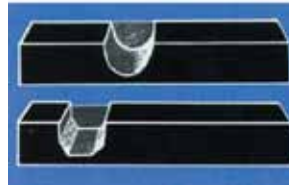
USE #1: To create a master or checking gage, just pour in facsimile and wait 6 to 8 minutes. Parts later can be conventionally ground, machined, etc., if desired. Drawing above shows creation of a thread gage.



USE #2: Shown left is a quick and inexpensive method of creating a drill fixture. Just pour facsimile around drill bushings and wait 6 to 8 minutes. Casting must be a thick section 3/8" or more. USE MAGNETS TO HOLD PLATES.



USE #3: Without removing work from the machine set-up you can create a "facsimile" test sample which can be carried away for testing. Duplicates from 3 to 1,000 Microinches perfectly.



USE #4: Used for checking radii and angular internal and external recesses, often in difficult to measure areas.



USE #5: Optical projections of forms made with "facsimile" are duplicates within millionths!



USE #6: Highly accurate and reliable casted replicas of internal thread forms are not only possible but they are being performed daily by facsimile users the world over.

facsimile is 100% Government approved for ANTI-CONTAMINATION and all ATOMIC and NUCLEAR APPLICATIONS by virtue of not containing (even traces of): All Halogens—Mercury—Sulphur—Lead—Copper—Brass—Phosphorous—Zinc—Arsenic—Antimony—Aluminum—Cadmium—Tin—Bismuth—Boron or any compounds thereof. CERTIFICATES CAN BE PROVIDED.

FLEXBAR[®] facsimile[®] QUICK-SETTING COMPOUND



ORDERING INFORMATION: INTRODUCTORY KIT

One Lb. Kit No. 16000

Complete Kit Contains:

- FACSIMILE POWDER, 1 lb. Troy
- 1 - 120cc FACSIMILE liquid
- 1 - 60cc Flexbar Release Agent
- 1 - Powder scoop
- 1 - Molding clay
- 10 - Disposable cups (graduated)
- 10 - Wooden spatulas
- 1 - 1 oz. polypropylene measuring cup



Introductory Kit - 1 lb kit No. 16000

COMPLETE KITS*

16000 1 lb. Kit FACSIMILE

16003 3 lb. Kit FACSIMILE

16025 25 lb. Kit FACSIMILE

#16000, one pound kit yields 20 cubic inches of solid (cured) material.

#16003, three pound kit yields 62 cubic inches of solid (cured) material.

#16025, twenty five pound kit yields 518 cubic inches of solid (cured) material.

Free 16 page applications
book available on request.
CATALOG F-213



REFILLS FOR FACSIMILE KITS

16200	60cc Release Agent, soap based
16201	Pint Release Agent, soap based
16202	1 lb. Jar Facsimile Powder
16203	3 lb. Jar Facsimile Powder
16204	25 lb. Drum Facsimile Powder
16205	120cc Bottle Facsimile Liquid
16206	Pint Can Facsimile Liquid
16207	Quart Can Facsimile Liquid
16208	Gallon Can Facsimile Liquid
16209	100 ea. 3 oz. Paper Cups Graduated
16210	100 ea. 1 oz. Plastic Cups Graduated
16211	25 ea. 6-1/2 oz. Plastic Cups Graduated
16212	100 ea. Sticks, Mixing, Narrow
16213	1 lb. Bar Molding Clay
16214	100 ea. Sticks, Mixing, Wide
16914	60cc Release Agent, oil based
16915	Pint Release Agent, oil based

For Air Shipments, EXTRA CHARGE for D.O.T. Approved. Containers and Overpacking for Facsimile Liquid only.

SUPER RELEASE AGENT EPOXY PARFILM ULTRA

A Highly Effective Release Agent for users of Facsimile[®]



NON-CFC, NON-VOC Formula

Epoxy ParFilm is the culmination of a search for a suitable release agent for epoxies.

The highly effective, very thin film obtainable from Epoxy ParFilm Release is non-melting and will not carbonize. This makes it suitable for use with exothermic cures, such as Facsimile "measure-image" replication compound.

Epoxy ParFilm offers better release than polyvinyl alcohol and wax with a much thinner film application.

Epoxy ParFilm can be applied quickly with the easily operated directional valve which is standard.

Epoxy ParFilm is non-combustible, non-toxic and non-allergenic. Contains NO CHLORINATED SOLVENTS.

MODEL NO. 16136 Epoxy ParFilm, 18 ounce spray

Important Notice to Users of REPRORUBBER by Flexbar:

SEPARATION OF REPRORUBBER NOW POSSIBLE WHEN CASTING REPRORUBBER FROM REPRORUBBER.

For Reprorubber[®] Thin Pour and Facsimile[®] Users

MONOJECT PRECISION DISPENSING SYRINGES



.060" dia. curved tip for injecting Reprorubber or Facsimile into small holes. Tip can be cut to allow greater flow.

Provides User With An Easy Method Of Injecting Pre-Mixed Reprorubber or Facsimile Into Small Holes, Grooves or Small Spaces.

10cc capacity syringes are easily filled and disposable once used. Sold in low cost packages of 10 each.

MODEL NO. 16190 Monoject 10cc Syringe Pac (10 each)



FLEXBAR FINE PROOFING ALLOY

No. 16117 - Reusable Low-Melting Alloy (finest grade).



MELTING POINT: F 117° / C 47°

For more information,
please visit flexbar.com



USES: PROOFING VIA REPLICATION OF:

Dies—Moulds—Internal and External Thread Forms—Texture Check—Grooves—Slots—O-Ring Grooves—Gear Teeth—Splines—Surface Finish Replication—Extra-Fine Fixturing—Checking—Undercuts

KEYNOTE OF APPLICATIONS

Growth after casting is +.0002" after 6 minutes. However, after 30 minutes the change is .0000 (zero), so that this is the best time for removal and inspection. After 1 hour and up to 21 days, the change is between .0001" and .0002" on the minus side.

OTHER USES:

1. Precision holding of irregular work pieces during machining.
2. Dental-type model making.
3. Drill bushings for drill jigs.
4. Chucks for lens buffing—gem cutting.
5. Transfer templates in contour jigs.
6. Cores for electroforming.
7. Compound wax patterns—lost wax patterns.
8. Duplicating plastic. Facsimile or Plaster patterns.
9. Fusible elements in safety devices and alarms.
10. X-Ray (radio opaquing).

**GOING: Male to Female to Male or
Female to Male to Female**

Fine Proofing Alloy can be used for both in conjunction with our Facsimile Measure - Image Replicating Material. See Pages 10-11

MODEL NO. 16117 Fine Proofing Alloy (price per pound) Each 1 lb. cake may vary slightly in weight.
PRICE SUBJECT TO CHANGE ACCORDING TO MARKET CONDITIONS

FLEXBAR FIXTURING ALLOY



MELTING POINT: F 158° / C 70°



For more information,
please visit flexbar.com

- Reusable low-temperature melting Alloy (158°F) for supporting thin-walled sections which require machining. No. 15158 does not shrink upon solidification rather it exhibits slight "growth" so that it **locks** into the part being machined. After machining you simply melt it out in hot water.
- It melts at 54°F below boiling point of water so that when you go to use it you simply put it in a cast iron, stainless steel or porcelain lined pot and into hot water bath to melt it.
- Reusable many times.
- No drosses created owing to low heat required prior to pouring it.

USES:

**ANCHORING
CHUCKS, JIGS AND FIXTURES
DIES AND PUNCHES
MODELS AND PATTERNS
OTHER USES:**

- Heat Transfer • Tempering • Sheet Plastic Curing • Vulcanizing • Dyeing
- Tube Bending (replaces other materials such as lead, tar, sand and rosin) which have disadvantages such as: Flammability—difficulty of removal—inadequacy to fill void fully, etc. Plated tubes can be bent without flaking of surface. As a tube filler it allows tubes to be bent-swaged-rolled-or drawn.
- Reveals pin holes or cracks owing to liquidity of No. 15158, also thin sections revealed by slight expansion of No. 15158 upon solidification.
- Bending procedures and other data as well as Do's and Don't's included with material.

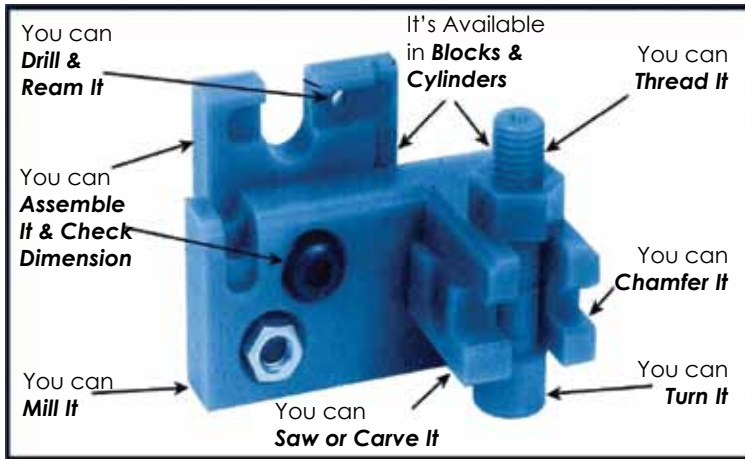
MODEL NO. 15158 Fixturing Alloy (price per pound) Each 1 lb. cake may vary slightly in weight.

FLEXBAR[®] MACHINABLE WAX



Use Flexbar Machinable Wax

To Reduce Your Costs, Time, and Risk Factors Associated with **PROOFING** CNC Tooling Programs, **TRAINING** CNC Programmers or **DEMONSTRATING** CNC Machinery and CAD/CAM Systems



MACHINABLE WAX, unlike metal, plastic and wood, features all the properties necessary to meet the requirements of CNC and CAD/CAM program proofing. It's very machinable, dimensionally stable, safe to work with and very economical because it is reclaimable and remachinable.

From lathe to mill (handled robotically) in only 55 minutes ...that's how short of a cycle time it took for Computervision, Inc., to produce the CAD/CAM generated prototype (shown at left) out of MACHINABLE WAX. Computervision, Inc. estimated that it would have taken at least 8 hours to machine using steel. And the wax prototype provided all the necessary data to verify the CAD/CAM-CNC program.



FLEXBAR MACHINABLE WAX

You can easily machine Flexbar Machinable Wax without the need for costly and messy coolants or lubricants, because MACHINABLE WAX is "self-lubricating", "non-abrasive" and it will not fuse when machined at high-end spindle rpm's and feed rates.

Unlike wood or plastic, MACHINABLE WAX will not "gum up" on tool bits. MACHINABLE WAX is not cellular, grainy, or abrasive so "voids" in machined surfaces (common with plastics and wood) and "tool wear" are negligible. Flexbar Machinable Wax will also machine "within designated tolerances" to provide you with a dimensionally accurate prototype that can be assembled for checking.

MACHINABLE WAX SPECIFICATIONS

Hardness	50-55 (Shore "D" Scale)
Specific Gravity	.92
Flash Point	575°F.
Softening Point	226°F.
Volumetric Shrinkage @ room temperature	7%
Coloring	permanent, oil base, blue dye

SAFE MATERIAL TO WORK WITH

Flexbar Machinable Wax has a very high flash point of 575°F, and is formulated with non-toxic, self-lubricating components. MACHINABLE WAX, unlike most plastics, will not release any offensive or hazardous dust particles or odors during or after machining.



MODEL NO. SIZE

15160	3" x 7" x 1.5"	Rectangular Block
15161	3" x 7" x 3"	Rectangular Block
15162	5" x 10" x 3"	Rectangular Block
15163	6" x 12" x 3"	Rectangular Block
15164	24" x 24" x 2"	Rectangular Block
15170	1.5" dia. x 12"	Cylinder
15165	2" dia. x 12"	Cylinder
15166	3" dia. x 12"	Cylinder
15167	4" dia. x 14"	Cylinder
15168	6" dia. x 18"	Cylinder

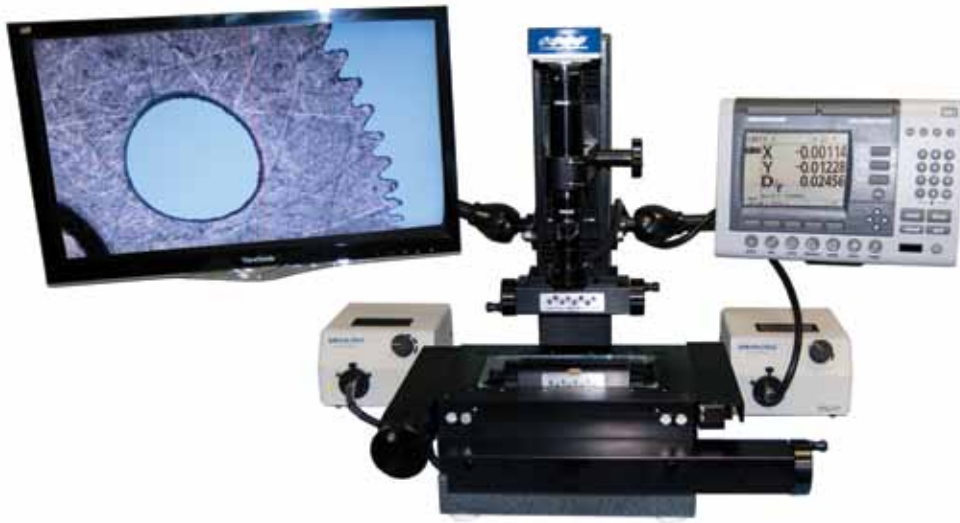
Other Sizes Available In The Following Dimensions:

RECTANGULAR	CYLINDRICAL	
THICKNESS-	DIAMETER	MAX. LENGTH
2" through 8" (1" increments)	1.5" 2" 3" 4"	Up to 12" Up to 12" Up to 18" Up to 24"
WIDTH- 6" through 24 (6" increments)	5" 6"	Up to 30" Up to 30"
LENGTH 6" through 48" (6" increments)	7"	Up to 18"

Contact us at sales@flexbar.com with your specifications and for a Distributor near you.



OPTIFLEX QCZ-2000 SERIES "GRANITE Z" VIDEO INSPECTION & MEASUREMENT SYSTEMS



Offering exceptional value for the money, these systems offer highly flexible and upgrade-able capability. The QCZ-2000 Series are compact and easy to use turnkey systems packed with powerful features including state-of-the-art color video, quality zoom optics and the Heidenhain ND 1200 Series of Geometric Digital Readouts.

SYSTEM FEATURES:

- Solid granite frame guarantees accuracy & stability
- Superb full color hi-resolution 1080p image with zoom optics & LCD monitor
- Image capture allows for snapshots or movie
- Removable SD memory card
- Internal multicolored (4x) crossline generator
- Adjustable lens mount dovetail on Granite Z column
- Tooling holes on stage plate for fixturing
- Precision 4" x 8" or 12" x 12" crossed roller bearing stages are available
- LED lighting available
- Easily upgraded to software-based configurations
- Easily upgraded from manual to motorized or CNC configurations
- Available Z-Axis measurement upgrade

Quadra-Chek 200 Digital Readout

The Industry Standard Worldwide for Measuring and Inspecting Geometric Components

- Bright and crisp LCD with adjustable tilt
- Small footprint with ergonomic design
- Allows operators to accomplish simple to complex measurements quickly and easily
- Print measurement results using serial or parallel printer
- Part programming allows creation, editing, and running of programs in measurement sequence
- Measure guide leads operators through each feature's measurement sequence to assure consistent data
- Measure a part once and operators can repeat the same steps indefinitely
- Measures circles, angles, points and lines
- Feature construction capabilities

SYSTEM VERSION	W/MANUAL STAGE 2 MICRON SCALES	W/MANUAL STAGE 1 MICRON SCALES
Opti-Flex QC200, 8 x 4 Measurement System,	QCZ-2000	QCZ-2010
Opti-Flex QC200, 12 x 12 Measurement System,	QCZ-2000-12	QCZ-2010-12

Contact us today for a free Application Evaluation.

OPTIONAL UPGRADES:

MODEL NO.	DESCRIPTION
18-BLF	Fiberoptic Bottom Light Pad with #18-12720 Litesource (See Page 25)
18-TWINARMUP	Dual Arm Support System for monitor and DRO
18-UP2/3	QCZ-2000 3rd Axis Z Scale upgrade
12360-UP	Upgrade halogen to LED Lighting

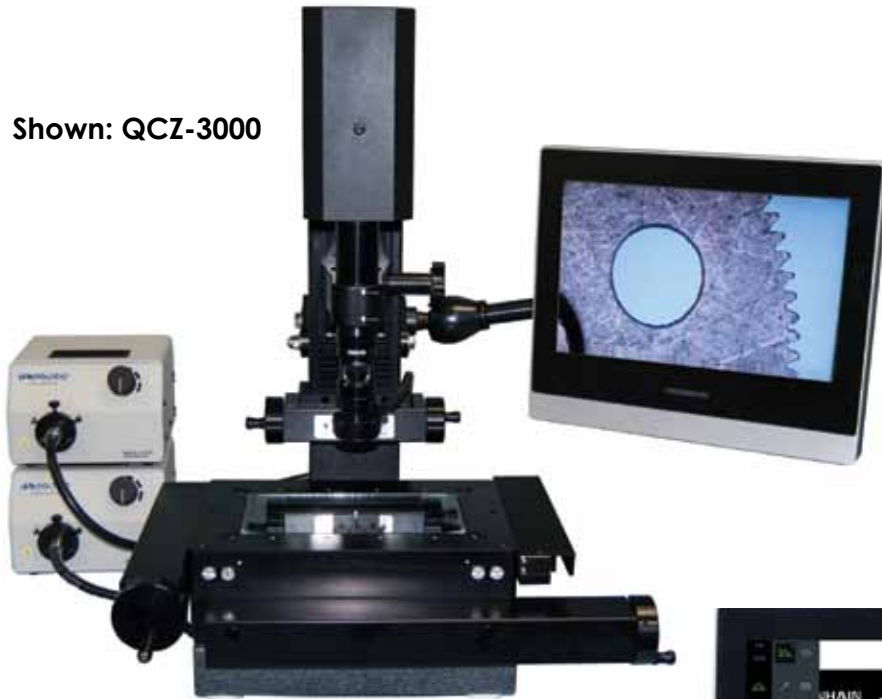


FLEXBAR OPTIFLEX 3000 SERIES VIDEO INSPECTION/MEASUREMENT SYSTEMS

Easy to use turnkey systems featuring the Heidenhain QC-300 Touch-Screen SVGA Video DRO with Automatic Video Edge Detection and Measure Magic® Technology



Shown: QCZ-3000



System Features:

- Solid granite frame and column guarantees strength, accuracy and stability
- Precision 4" x 8" (100mm x 200mm) or 12" x 12" (300mm x 300mm) crossed roller bearing stage open frame design
- Superb full-color high res. image with zoom optics
- High quality micro-zoom detent lens with fine focus
- LED lighting available
- Z-Axis measurement available
- Adjustable lens mount dovetail
- Tooling holes on stage plate for fixturing
- High resolution USB color camera
- Software controlled fiberoptic light source and ringlight
- Ambidextrous Omnidirectional Arm

Quadra Chek 3000 Features:

- 12" LCD Color Touch Screen with Integrated live video display.
- Video edge detection
- Selectable Video measurement
- Report generation and tolerancing
- Records program as you measure
- Image capture
- Output to excel or CSV
- Network and printer capable
- Industrial embedded design
- Hardened glass
- Splash proof face

Available turnkey system options:

SYSTEM VERSION	W/MANUAL STAGE 2 MICRON SCALES	W/MANUAL STAGE 1 MICRON SCALES
Opti-Flex QC300, 8" x 4" Measurement System	QCZ-3000	QCZ-3010
Opti-Flex QC300, 12" x 12" Measurement System	QCZ-3000-12	QCZ-3010-12

OPTIONAL UPGRADES:

MODEL NO.	DESCRIPTION
12360-UP	LED Upgrade - Halogen to LED lighting
18-BLF	Fiberoptic Bottom Light Pad with #18-12720 Litesource (See Page 25)



ULTRAFLEX 5000 SERIES "GRANITE Z" VIDEO INSPECTION & MEASUREMENT SYSTEMS



Flexbar introduces UltraFlex, its most powerful software-based series of video measurement and inspection systems. UltraFlex systems combine high accuracy measurements, repeatable edge detection, video documentation and electronic communications into a powerful inspection tool. System packages available in manual, motorized and CNC controlled formats. All systems available in 8" x 4" (200mm x 100mm) and 12" x 12" (300mm x 300mm) formats.

UFX-5310 with Twin Arm Upgrade

All UltraFlex systems utilize the easy-to-use icon-driven Heidenhain 5000 software. System packages are available in manual, motorized and CNC controlled formats.

SYSTEM FEATURES:

- Solid granite frame guarantees strength, accuracy and stability
- Superb full-color high resolution image with zoom optics
- Precision 4 x 8 crossed roller bearing stage (larger size available in 12 x 12 format)
- Systems supplied with either 2 micron or 1 micron high accuracy scales. Call for .5 or .1 micron specials.
- Motorized and CNC control of X, Y, and Z axes
- Standard magnification of 30X to 200X with optional auxiliary lenses to increase or decrease magnification
- Programmable lighting included
- Z-axis measurement with auto-focus is standard on 5300
- Adjustable lens mount dovetail on granite Z column
- Tooling holes on stage plate for fixturing
- LED lighting available
- Powerful Pentium computer running Windows 7 included
- Easily upgraded from manual to motorized/CNC control

SOFTWARE FEATURES:

- Easy-to-use icon driven Quadra-Chek 5000 software
- Repeatable Video Edge Detection tools which remove operator uncertainty with sub-pixel accuracy
- Powerful feature recall, construction, and skew features
- Combine on-screen measurements with stage-based measurements
- Manual part programming
- Tolerancing with pass/fail results
- Automatic data collection with customized report generation
- Real-time link to SPC
- Image capture and annotation
- E-mail and video print for documentation
- Live image overlay comparison with CAD import/export

SYSTEM VERSION	W/MANUAL STAGE (MODEL NO.)	W/2 AXIS CNC CONTROL (MODEL NO.)	W/3 AXIS CNC CONTROL & AUTOFOCUS (MODEL NO.)
Ultra-Flex QC5000, 8 x 4 Measurement System, 2 micron	UFX-5100	UFX-5200	UFX-5300
Ultra-Flex QC5000, 8 x 4 Measurement System, 1 micron	UFX-5110	UFX-5210	UFX-5310
Ultra-Flex QC5000, 12 x 12 Measurement System, 2 micron	UFX-5100-12	UFX-5200-12	UFX-5300-12
Ultra-Flex QC5000, 12 x 12 Measurement System, 1 micron	UFX-5110-12	UFX-5210-12	UFX-5310-12

OPTIONAL UPGRADES:

MODEL NO.	DESCRIPTION
18-TWINARMUP	Dual Arm Support System for monitor and DRO (as shown above)
18-LEDUP	Tri-Color LED lighting upgrade
18-BENCH-TPX	Custom System Bench setup



FLEXBAR TMX SERIES

Advanced Function Toolmaker's Microscope Systems

Offering enhanced capabilities not found in traditional toolmakers' microscope systems. Utilizing a compact frame with a precision X-Y stage, high resolution readout scales are connected to a multifunction Geometric Readout box allowing for a wide range of measurement parameters not found in standard micrometer head style systems.

AVAILABLE IN BASIC TURNKEY AND VIDEO/SOFTWARE UPGRADE SYSTEM PACKAGES.



Shown Above: TMX-400 System

Shown Left: TMX-300 System

MAJOR SYSTEM COMPONENTS INCLUDE:

- Precision machined aluminum alloy Z-column and base with adjustable Z-Axis microscope F-Holder
- 4" x 2" (100mm x 50mm) (x-y) crossroller based staging, open frame design
- 1 micron X-Y Heidenhain scales
- 2 Axis Digital Readout Box with measurement functions
- DRO positioning arm, ambidextrous
- High Quality Optics Basic or Trinocular Microscope Head with 10X eyepieces and Crosshair reticle
- Adjustable LED Ring Light with controller

MODEL NO. DESCRIPTION

TMX-100	Basic System (no video capability) with 7X to 30X Binocular Microscope Head
TMX-200	Video/Camera Ready System with 8X to 50X Trinocular Microscope Head with C-mount Camera tube. (System does not include camera or monitor)
TMX-300	Tablet Camera System with 8X to 50X Trinocular Microscope Head with 10" Tablet PC and 5MP Camera with Image Capture and Analysis Software
TMX-400	Wide Screen Video System with 8X to 50X Trinocular Microscope Head with 1080P HDMI Advanced Function Camera and 23" Widescreen HDMI monitor

Available System Add-Ons (contact us):

- **Fiberoptic and LED Bottom Lighting (for all systems)**
- **High Resolution Cameras and monitors for TMX-200**



VISION GAUGE VG-500 FIELD OF VIEW MEASUREMENT SYSTEM

VISION GAUGE VG-500...a turnkey video inspection and measurement system featuring the power of VISION GAUGE. Ideal for the inspection and measurement of small parts and features within the field of view.



SYSTEM FEATURES:

- Precision machined aluminum alloy Z-column and open-frame base for optional bottom lighting
- Micro-zoom lens with detents
- Micro-Zoom Detent Lens yields 35x to 220x with auxiliary lenses. Can increase or decrease from 15x to 400x in seconds.
- Adjustable lens mount dovetail with fine adjustor bracket
- Tooling holes on stage plate for fixturing
- High resolution USB camera
- Adjustable fiber optic top lighting (bottom lighting optional) with 150w light source

VISION GAUGE SOFTWARE FEATURES:

- Superb color image
- High accuracy measurements with sub pixel edge detection within the field of view
- Overlay imaging capabilities (Go/NoGo Gaging)
- Image capture-annotation and instant e-mail
- Built-in report generation with statistics
- Supports full screen live video mode
- Built-in Focus Meter
- Supports multiple formats: bmp, jpg, tga
- Easy to use Windows operation
- Integrates with any Pentium-based IBM compatible computer

The VG-500 System comes complete with High Resolution USB real time camera and Vision Gauge VG-200 Software including 1" x .005" setup scale. **PC Computer and Monitor not included**, available upon request.

MODEL NO.	DESCRIPTION
VG-500	VISION GAUGE Inspection/Measurement Package Complete. * Note: PC Computer not included. Available separately upon request per quotation.
18-BLF	Bottom (Substage) Lighting Option. Includes fiberoptic light pad, cable and lightsource (See page 25)



FLEXBAR MACRO-ZOOM BASIC VIDEO INSPECTION SYSTEMS

For Inspection Of Small & Large Parts Requiring Longer Working Distances (2.5" & up)
Using A Wide Field of View Macro-Zoom Lens. Provides Up To 50X Electro-Optical Magnification
COMPLETE SYSTEM PACKAGES NOW AVAILABLE TO MEET A WIDE RANGE OF
INSPECTION AND MEASUREMENT REQUIREMENTS

Granite Base & Table Mount Universal Boom Stand Systems

Macro-Zoom Lens and CCD Camera are mounted on Heavy Duty Boom Stand incorporating a Focus Block Positioner (1.5" travel). System workstations available with either a Granite Base or Table Mount Clamp with a 2.7" capacity.

- Vertical Post: 1.40" dia. x 16" H
- Horizontal Travel: 12"
- Manually adjustable with secure locking



System No. VMZ-1500

MODEL NO.	DESCRIPTION
VMZ-1500	Granite Base (12" x 18") Boom Stand Macro-Zoom Video System Complete
VMZ-1000	Table Mount Boom Stand Macro-Zoom Video System Complete
18-19931	2X Extender Lens. Doubles Magnification of systems up to 100X mag.
ADDITIONAL SYSTEM COMPONENTS INCLUDE:	
19941	½" CCD Color Video HDMI Camera
12370	23" LCD Color Monitor
19930	Macro Zoom Lens (18-108mm)
18-12720	Lite Source (150W)
18-12794	Fiberoptic Ring Lite

FLEXBAR DIGITAL CROSSHAIR GENERATOR

Model Features 5 Built-In Reticle Patterns Plus 5 Built-In Line Types
Fully Adjustable Reticles on a Live Image For Precise Positioning with Optics

Reticle Types:

- Single Crosshair
- Dual Crosshair
- Box
- Crosshair with 2 Sizable Centered Circles
- Fixed in the Center Single Crosshair

Line Types:

- Solid Black Lines
- Dashed Black Lines
- Solid White Lines
- Dashed White Lines
- No Lines

Additional Features:

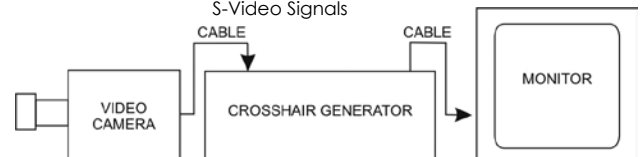
- Convenient "Hold" or Lockout Capability
- Digital Circuitry for Maximum Stability
- Digital Memory of Reticle Position and Line Type When Powered Off
- Accommodates both Composite and S-Video
- Operates in Color and BW
- Phase Locked to Camera

Specifications:

- Signal: .7-1.4vp-p@75 ohms (NTSC, PAL, EIA, CCIR)
- Video Input: RS170, Composite and S-Video
- Video Output: Unity Gain, Loop Through
- Power Input: 12V dc 400ma, 110VAC Standard (UL Approved)
- Dimensions: (w) x (h) x (l) 5.75" x 4.25" x 1.375" (includes rear connectors)
- Weight: 0.5 lbs.
- CE Certified



Above: Rear Panel Video Input/Output Connectors for Composite (BNC) and S-Video Signals



MODEL NO. 18-18842-MX Flexbar Digital Crosshair Generator complete with power supply



FLEXBAR HI-RESOLUTION HDMI MULTI-FUNCTION CAMERA

No PC Necessary. Easy-to-use mouse driven icon controls. Takes the guess work out of your custom selections.

Camera Features:

- 1920 x 1080 Resolution
- X-Y cross hairs, multi-color selectable
- Still image or AVI capture
- Digital zoom
- Live image to still image comparison
- Picture in a picture function

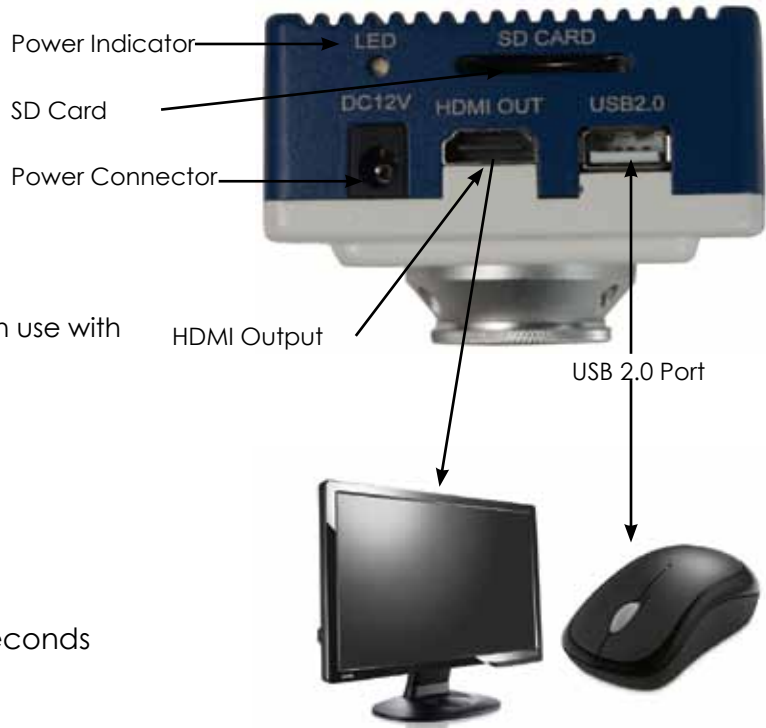


Shown above: Model No. 12367 Camera in use with Flexbar Micro-Zoom Lens.

Model No. 12367 HDMI Camera includes:

- Wireless control mouse
- SD memory card
- HDMI Cable
- Power Supply
- USB cable for PC Image connection or Field-of-View software upgrade.

Camera settings can be adjusted in seconds



- Changes line generator preset and displays current preset.
- Selects line or cross hair to be changed.
- Turns line on or off (Shows or hides selected line).
- Changes thickness of selected line.
- Changes color of selected line.
- Moves selected line Up (horizontal line) or Right (vertical line).
- Moves selected line Down (horizontal line) or Left (vertical line).
- Turns all lines on or off (show or hides all lines).
- Saves changes to current preset.

MODEL NO. DESCRIPTION

12367 Flexbar Hi-Resolution HDMI Camera complete



FLEXBAR REAL TIME HI-RESOLUTION DIGITAL CAMERAS

For use with Microscopes, Borescopes and Video Systems.
These New and Innovative Cameras Feature State of the Art
Performance. Guaranteed No Nonsense Software Installation.

Available in Three Models. Compact Lightweight USB Mini Design.*

* -USB Cable not Included, order separately below

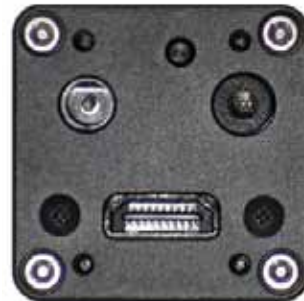


MODEL NO.	DESCRIPTION
18-USB-M1024	1/3" CCD 1024 x 768 Resolution Best performance with a XVGA monitor Lightning fast 60 fps
18-USB-M1280	HD 1/3" CCD 1280 x 960 Resolution Best performance with an SXVGA monitor 30 fps perfect for video borescope applications
18-USB-M1360	WF 1/2" CCD 1360 x 1024 Resolution Best Performance with an SXVGA + monitor 1/2" chip is great for a wider field of view
18-USB-MCABLE	Camera to PC USB Cable, required-order separately

Higher resolution cameras also available from UXGA-QSXGA!
Call for Quotation.

HDMI DIRECT HIGH DEFINITION 1080P CAMERA

Includes Built-In Crosshair Generator



No need for a computer! These DVI 16:9 Aspect Ratio Color Cameras connect right into a HDMI port. Superb Images and an Internal Multi-Color Crosshair Generator. The 1280 x 720 image is the new Standard for Video Inspection.

MODEL NO.	DESCRIPTION
18-HDMI	Flexbar HDMI 1080P Digital Camera (Power supply and HDMI Cable - order separately below)
18-HDMI-PWR	Power Supply for HDMI Digital Camera
18-HDMI-CABLE	Cable for HDMI Digital Camera



FLEXBAR INSPECTION STEREO MICROSCOPES

Full Line of Stereo Zoom Microscopes & Accessories available online at www.flexbar.com

Featuring high performance optics. Ideal for Industrial Inspection, Assembly and Quality Control. Available with binocular or trinocular viewing heads.



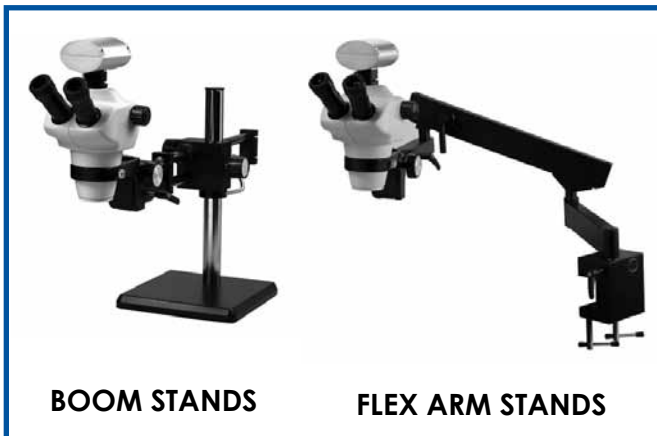
**4.3:1 ZOOM
RATIO SERIES**



**6.3:1 ZOOM
RATIO SERIES**



**FLEX-ZOOM™ 10:1
RATIO SERIES**



Lifesources, Ring Lights and Illuminators.... See Pages 23 - 24 and 26.

For Our Full Line of Microscope Products or For Detailed Descriptions, please visit www.flexbar.com

For Application Questions, please contact our customer service and technical department by email: sales@flexbar.com or by phone at 800-879-7575



FLEXBAR LED POWERED FIBER OPTIC ILLUMINATOR

Designed and manufactured in U.S.A.

Now - A High Output, Long Life, Energy Efficient Light Source

Offering Optimal Performance Similar to Higher Consumption Halogen Illuminators.

Features Precision Engineered Cooling System

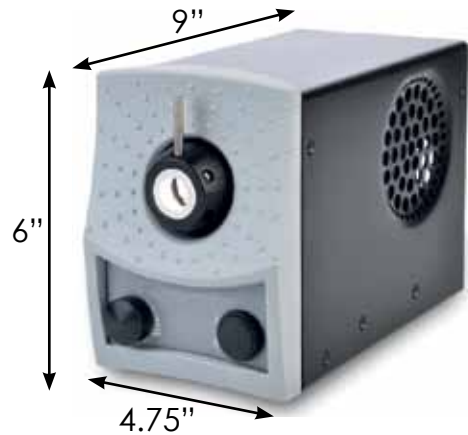


Features:

- 1000 Lumen Light Output
- Small footprint (6"L x 4.75" W x 9"D)
- Heat pipe technology for superior cooling
- Current/voltage limited for long life
- Consistent color temperature
- Linear light intensity control with continuous dimming
- Quick change nose pieces available to accept virtually any light guide
- Stackable housing suitable for mounting in space constrained applications
- Universal power input



Dimensions:



Industrial Applications:

- Microscopes and Video Microscopes
- Borescopes
- Industrial Imaging (Machine Vision)
- Custom process and inspection equipment
- Wire Bonders & Laser Welding

Technical Data:

- Long Life (25,000 hr) eliminates well over 100 lamp replacements
- High Brightness LEDs
- Precision Molded lensing assembly with anti-reflective coatings
- Specifically designed for borosilicate fiber bundles
- Less than 25% the energy consumption of standard 150W halogen
- Lower energy consumption enhances safety & reliability
- 1 Year Warranty
- Over temperature protection and dual fuse protection
- ROHS Compliant
- CE and UL/CSA pending

MODEL NO. DESCRIPTION

12360	Flexbar LED Fiber Optic Illuminator, Daylight Color Temperature, Wide Angle, High Intensity, Optimized for Large Fiber Bundles. Comes with Standard 15mm (.590") Nose-piece, Dimmable, Minimum 65 CRI, Multichip Design, CCT Range 5000-8500
12721	Bushing Adapter - please specify I.D. & O.D. when ordering



FLEXBAR QUARTZ HALOGEN LITESOURCE



Flexbar 150 watt LITESOURCE Model No. 18-12720 - a bright, cool fiber optic light supply using Quartz Halogen lamps, with solid state components, variable intensity, control and carrying handle. Ideal for all industrial and laboratory use. Our **Model 18-12720** is designed for microscope and borescope illumination without creating the dark spot shadow effect. High efficiency cooling fan is whisper quiet and designed to prolong bulb life. At 90% of full intensity, bulb life increases 50 to 100 hours. Color temperature is 3,450°K with a lamp radiance of 4,500 Lumens. USE WITH FLEXBAR FIBER-OPTIC LITE-PIPES or ANNULAR RINGLITES AND FIBEROPTIC LIGHTPAD.

MODEL NO. DESCRIPTION

18-12720	Flexbar Fiber Optic Lightsource
12721	Bushing Adapter for different diameter Lite-Pipes, etc. - please specify I.D. & O.D. when ordering
18-12727	Long Life (200 Hrs. plus) Replacement Bulb

Technical Data:

Lamp:	150W quartz halogen, 21V EKE	Safety Approvals:	115 VAC-UL & C-UL, 230 VAC-CE
Voltages:	115 VAC, 200W, 50/60 Hz or 230 VAC, 200W, 50/60 Hz (Set at factory)	Dimensions:	8 in. L x 7 in. W x 7 in. H
Lamp Life:	200-10,000 hours, depending on intensity	Weight:	7 lbs (3.6 kg.)
Fuse:	115 VAC: 3 Am, 250V, 3A slow blow, 5x20 mm 230 VAC: 2 Am, 250V, 2A slow blow, 5x20 mm	Max. Housing Temp.:	15 degrees above ambient
Color Temperature:	3100-3400 degrees Kelvin depending on lamp used	Fiber Optic Connection:	The Litesource illuminator uses a B-type fiberoptic nosepiece with a 0.585 in. (15mm) ID.

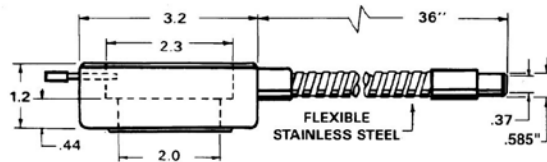
FLEXBAR FIBEROPTIC RINGLITES

360° Ring Illuminators Available in Standard Annular Style



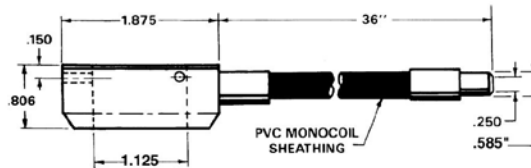
STANDARD ANNULAR RINGLITES:

Available in 1.125" I.D. and 2" I.D. Models. Ringlite Adaptors available for custom I.D. configurations. 2" model has 36" PVC Sheathing on guide with .585" diameter end. 1" model has 36" PVC Sheathing on guide with .585" diameter end.



Model No. 18-12794 (shown above)

FULL 360° ANNULUS MOUNTS DIRECTLY TO MICROSCOPE POD. CONCENTRATES LIGHT INTO A DISC OF BRIGHT WHITE, EVEN ILLUMINATION AT EFFECTIVE WORKING DISTANCES OF 1.5" TO 8".



MODEL NO. DESCRIPTION

18-12794	2" I.D. Annular Ringlite
18-12795	1.125" I.D. Annular Ringlite

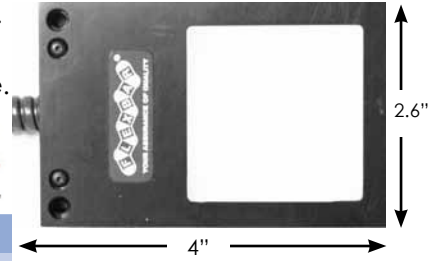


FLEXBAR FIBEROPTIC LIGHT PAD

Ideal for all bottom lighting applications requiring even diffuse illumination.

Use with Flexbar Litesource Model 18-12720 (order separately)

- Large 2" x 2" square illuminating area.
- Flexible 3' PVC coated metal guide.
- Light Pad block: 2.6" x 4" x .610" high, black anodized aluminum.
- Includes 2 corner mounting holes.



MODEL NO.	DESCRIPTION
18-12793	Flexbar Fiberoptic Light Pad
18-BLF	Fiberoptic Light Pad with #18-12720 Lightsource
18-BLF-LED	Fiberoptic Light Pad with #12360 LED Fiberoptic Illuminator

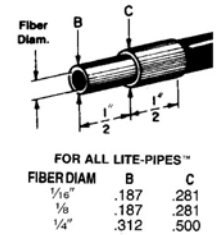
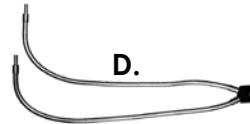
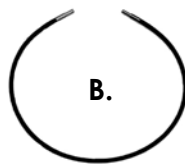
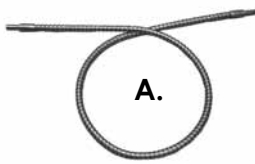
FLEXBAR FIBER-OPTIC LITE-PIPES™



For Use With Flexbar Litesources. AVAILABLE IN 3 DIFFERENT FIBER BUNDLE DIAMETERS

Use fiber-optic LITE-PIPES™ to solve your lighting problems.
Get a BRIGHT beam of COLD light into inaccessible locations.

Flexible or Stayset, Single or Bifurcated, Vinyl or Metal Covered ... Use them in the lab, shop or field ... wherever you need to add a flexible, pencil sized beam of cold, bright light. Used with our variable intensity, quartz-halogen Litesource™, you can light microscopes, machine tools (even under oil), borescopes, and deep bores. You can even use them to light up dark, inaccessible locations on tools, dies or piece parts you want to inspect. All styles have stainless steel end ferrules.



TYPE OF BUNDLE COVERING	FIBER BUNDLE DIA.	2 FT. LONG MODEL NO.	4 FT. LONG MODEL NO.
FLEXIBLE- METAL SINGLE A. Rugged stainless steel flexible armor cover gives you strength and protects the fibers. Good for temperatures up to 600°F.	1/16	12750	12770
	1/8	12751	12771
	1/4	12753	12773
FLEXIBLE- VINYL SINGLE B. Easy to clean vinyl cover is over a crush resistant, fiber protecting, steel monocoil. Must be held firmly in position. Has smallest O.D. for comparable size bundle and can be bent to smallest radius of curvature compared to other types. Good for use in temperatures up to 225°F.	1/16	12754	12774
	1/8	12755	12775
	1/4	12757	12777
STAYSET- METAL SINGLE GOOSENECK C. Strong, chrome plated steel, "goose-neck" cover protects the fibers. Just point the LITE-PIPE™ where you want it and it will stay there without being held. More rigid than stainless steel "goose-neck" LITE-PIPE™.	1/16		12778
	1/8	12759	12779
	7/32	12761	12781
STAYSET-METAL BIFURCATED (GOOSENECK) D. These have two identical arms with a common end.	7/32	12769	12789*

*12789 has 2' vinyl/flexible single pipe leading to 2' bifurcated stayset portion.

LITE-PIPES ALSO AVAILABLE IN OTHER LENGTHS, ie. 3 FT. LONG. PHONE OR FAX.

All Above Models include 15mm dia. Input Ferrule for use with most Lightsources (including Flexbar).



FLEXBAR LED ANNULAR RING LIGHTS



Top View



Bottom View

4-QUADRANT LED RING LIGHT WITH 10-STEP VARIABLE INTENSITY CONTROL

- 72 LED bulbs with 10-step variable intensity light control
- Sectional lighting control; allows users to direct the light from 4 separate quadrants
- 60.5mm inner diameter
- Color temperature: 6400 Kelvin
- Lamp Life: 10,000 hours
- Power Supply: AC90-265v 50/60Hz
- Output: 12v 400mA
- RoHS compliant, ESD safe

MODEL NO. 10585 Flexbar 4-Quadrant LED Ringlight complete with power supply

LED RING LIGHTS WITH VARIABLE LIGHT CONTROL BOX 2 MODELS AVAILABLE

MODEL NO. DESCRIPTION

Standard Model

10586

- 60 LED bulbs with variable light control and external power supply
- 62mm inner diameter
- Color temperature: 6400 Kelvin
- Lamp Life: 10,000 hours
- Power Supply: 110V
- Output: 24v 6w
- External power supply dimensions: 122 x 94 x 44mm
- ESD Safe

Polarizer Model

10587

- Same features as Model No. 10586 above but with:
- Variable LED ring light with removable polarizer attachment
- The polarizer reduces glare from highly reflective surfaces and is easily rotatable
- 70mm inner diameter



FLEXBAR LED DUAL GOOSENECK ILLUMINATOR



- Dual gooseneck variable intensity LED illuminator
- Each gooseneck has a 3 watt LED bulb allowing for pinpoint light control
- Lamp Life: 10,000 hours
- Power Supply: AC 100-240v. 50/60Hz
- ESD safe

MODEL NO. 10588 Flexbar LED Dual Gooseneck Illuminator Complete with power supply

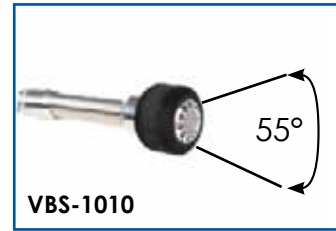


FLEXBAR LONG BORE INSPECTION CAMERA SYSTEM

Features Wide Angle, High Resolution Viewing up to 30 Meters!



VBS-1020 & VBS-1030



VBS-1010

FEATURES- VBS-1020 & VBS-1030 SYSTEMS:

- 1/3" Sony CCD Camera, 135° wide vision angle
- Stainless Steel super short camera head, IP 68 Waterproof level
- Sapphire glass lens cover, 12 white LEDs
- Diameter of camera: 23mm
- 30M fiberglass rod cable with stainless steel
- Cable reel rotatable in the case
- 7" TFT LCD monitor with DVR
- Rechargeable High Capacity Li-Battery (6600mA)
- Waterproof ABS Suitcase with all parts included

New Smaller Head System!

Model No. VBS-1010:

- 14mm diameter camera head
- 1/4" CMOS camera, 720 x 576 resolution
- 55° wide angle
- 6 white LEDs
- Waterproof up to 10 meters
- Remaining features same as VBS-1020 and VBS-1030

CAMERA HEAD

SENSOR:	1/3" Sony CCD
HEAD DIMENSION:	23mm (dia.) x 45mm (length)
CAMERA MATERIAL:	304# Stainless Steel
VIEW ANGLE:	135° Wide Angle
LENS COVER:	Sapphire Glass
LEDs:	12 High Bright White LEDs
WATERPROOF:	IP68

CABLE REEL

MATERIAL:	Fiberglass rod cable
WHEEL:	Stainless Steel Wheel
CABLE LENGTH:	20M & 30M
CONNECTOR:	Gold touch-point connector
ROTATION:	Rotatable in the suitcase
WHEEL DIAMETER:	33cm
CABLE DIAMETER:	5.4mm

LCD DISPLAY AND DVR

LCD RESOLUTION:	800 x 480 Pixels	LCD SIZE:	7"
VIDEO COMPRESS:	MPEG-4	LANGUAGE:	9 Languages
RECORDING:	Video and audio recording	PANEL CONTROL:	Any functions through buttons
PICTURE:	Picture Shot Function	EXTERNAL MEMORY:	SD card (Max. 32GB)

OTHER ACCESSORIES (INCLUDED)

REMOTE CONTROL	Waterproof Heavy Duty Case	CAR CHARGER & AC-DC ADAPTER	Battery box (6600mA rechargeable Li-Battery)
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MODEL NO. DESCRIPTION

VBS-1010	10M Long Bore Inspection System, 14mm dia. head
VBS-1020	20M Long Bore Inspection System, 23mm dia. head
VBS-1030	30M Long Bore Inspection System, 23mm dia. head



FLEX-BORE™ SMALL DIAMETER VIDEOBORESCOPIES

View, Reach & Record Video from Inaccessible Areas Quickly & Easily



COMPLETE SYSTEMS INCLUDE:

- High Resolution Full Color Image
- 4.5mm or 9mm diameter fits many small access applications
- System No. 13295(only) includes SD Card for recording
- Adjustable LED Lighting
- Detachable, wireless monitor 2.4" LCD for remote viewing
- Standard one meter (39") lengths
- Runs on 4 AA batteries
- Includes fitted carrying case
- Optional Dual Viewing 0°/90° camera head accessory (9mm dia.) available for use with 13290 or 13295 Kits.



MODEL NO.	DESCRIPTION
13290	Flex-Bore™ Small Diameter Videoboreoscope-9mm, Complete System*
13293	Replacement 9mm Cable/Camera head w/LED
13295	Flex-Bore™ II Micro Diameter Videoboreoscope, 4.5mm (.177"), Complete System
13296	Replacement 4.5mm Cable/Camera head w/LED
13290-DUAL	0° or 90° View Camera Head - 9mm dia. head
13291	3 Foot Extension Cable. <i>When using extension, must have entrance diameter of .710"</i>
13299	Recordable Replacement Monitor for 13290/13295
13292	RCA Video Adapter Cable

* Does not include SD Card/Recording capability.

WIRELESS USB VIDEO RECEIVER

Compatible with Flex-Bore I (13290) and Flex-Bore II (13295) Videoboreoscopes

FEATURES:

- Stream live video from your borescope to your laptop or desktop PC
- Video can be viewed, transmitted over the internet or saved as a file for future viewing
- Compatible with Windows® XP, Vista, 7 and 10



MODEL NO. 13580 Wireless USB Video Receiver Unit



TWO WAY ARTICULATING BORESCOPE KIT

Reach Inaccessible Areas Quickly and Easily

2-Way Articulation - Take Snapshots or Video - Wireless Monitor IP67



COMPLETE SYSTEM INCLUDES:

- 5.8mm Diameter IP67 waterproof camera
- One-Key on/off and LED Brightness adjustment
- Articulating camera head adjusts up to 300°
- 3.5" TFT-LCD wireless monitor with SD Card recording (Max. SD Card: 32GB)
- Standard one meter (39") length
- Built-in rechargeable Li-Battery in both camera and monitor
- Video recording or .jpg snapshots
- Rugged carry case with power supplies and accessories

APPLICATIONS:

- HVAC
- Automotive Inspection
- Industrial/Bores
- Much More!



MODEL NO. 13289

Two Way Articulating Borescope Kit



FLEXBAR FIBEROPTIC MICROBORESCOPIES

Provide High Resolution Image Of Critical Components Through Very Small Access Holes.



Flexbar Fiberoptic Borescopes are capable of producing high resolution images of critical components through access holes as small as .039" (1mm). With intense fiber optic illumination, crisp images are delivered by high resolution quartz optical fiber. Our Borescopes can handle a host of inspection requirements where limited access is a constraint. **All scopes come complete with a portable light handle and heavy-duty carrying case.**

I. Fiberoptic Microborescope Models:

Available in 1mm (.039") and 2mm (.078") diameters.

SPECIFICATIONS:

- Shaft Outside Dia.: .039" or .078"
- Shaft Deflection: $\pm 15^\circ$ (semi-rigid)
- Field of View: 50° Standard, 70° Available
- Depth of Field: .118"-2.0"
- 10X Mag. Eyepiece
- ACMI Light Guide Connector



6" & 12" Working Length Models. Optional 90° Viewing Mirror Tubes available. Longer lengths available upon request.

Includes LED Light Handle

MODEL NO. DESCRIPTION

18955	1mm (.039") x 6" Fiberoptic Microborescope Kit
18955-RA	.05" Right Angle Mirror Tube for 18955
18956	1mm (.039") x 12" Fiberoptic Microborescope Kit
18956-RA	.05" Right Angle Mirror Tube for 18956
18957	2mm (.078") x 6" Semi-Rigid Microborescope Kit
18957-RA	.095" Right Angle Mirror Tube for 18957
18958	2mm (.078") x 12" Semi-Rigid Microborescope Kit
18958-RA	.095" Right Angle Mirror Tube for 18958

ALL SCOPES AVAILABLE IN CUSTOM LENGTHS & DIAMETERS. PHONE OR EMAIL.

OPTIONAL ILLUMINATION & VIDEO ACCESSORIES AVAILABLE FOR USE WITH ALL MODELS TO THE LEFT; SEE PAGE 32.

II. Flexible Borescopes: Smaller Diameter (3mm) Model: Direct and Right Angle Viewing

Specifications:

- Shaft Outside Diameter: .120 in. - (3mm)
- Bend Radius: 1.5 in. - (38mm)
- Shaft Construction: Braided Stainless Steel
- Shaft Lengths: 36 in. - (91 mm) STD
Custom Lengths Available
- Field of View: 50 Degrees Standard
70 Degrees Available
- Depth of Field: .2 in. to 3.0 in. - (5mm to 75mm)
- Eyepiece: B-Style, Diopter Adjustable and Photo Capability



MODEL NO. DESCRIPTION

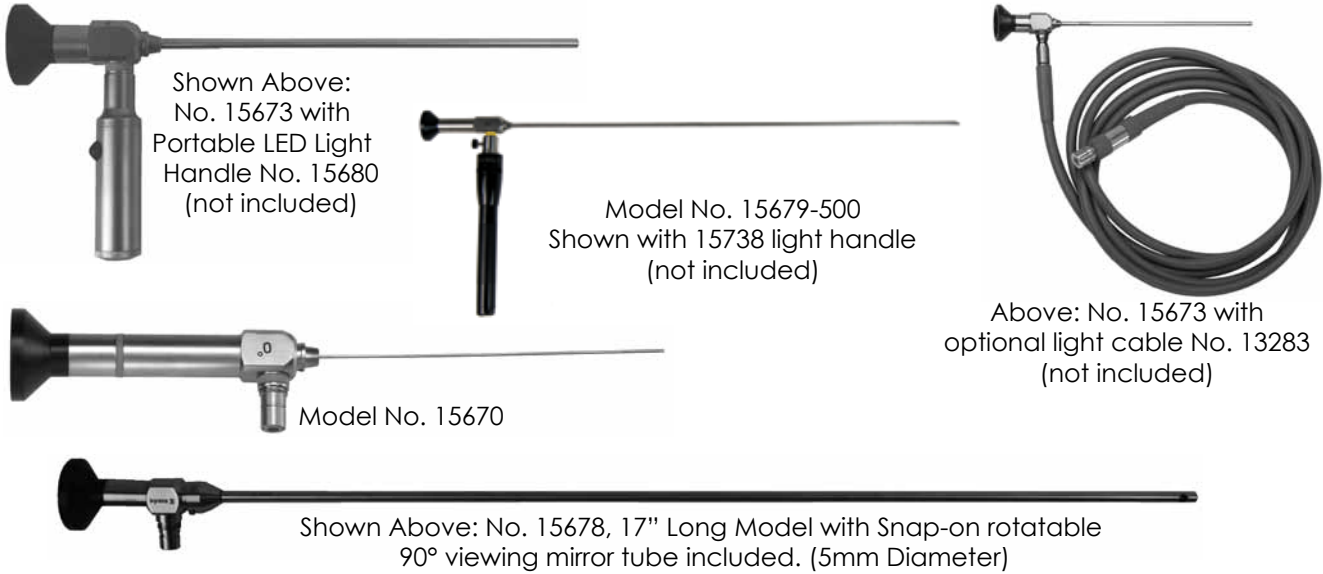
13540	High Resolution, 3mm x 24" Flexible Borescope. Complete with light handle and carrying case
13541	High Resolution, 3mm x 36" Flexible Borescope. Complete with light handle and carrying case
13542	90° Right Angle Viewing Attachment for above models



FLEXBAR SHARP-VIEW™ RIGID BORESCOPIES & MICROBORESCOPIES

Featuring Superb Quality Optics Which Provide Clear, Bright Images For
Any Standard Industrial Application.

IDEAL FOR USE WITH FLEXBAR VIDEO BORESCOPE SYSTEMS



MAIN FEATURES:

- Probe tubing is stainless steel for extra durability.
- Eyepiece is standard 32mm. Use Flexbar C-mount coupler No. 13285 for video system usage.
- Integral cool fiberoptic lighting provides bright and even lighting.

MODEL NO.	DIAMETER	SHAFT LENGTH	VIEWING ANGLE	FIELD OF VIEW
15670	1.2mm (.047")	4.75" (120mm)	0°	Standard (45°)
15671	2.7mm (.106")	7" (175mm)	0°	Standard (45°)
15672	3mm (.118")	7" (175mm)	30°	Standard (45°)
15673	4mm (.160")	7" (175mm)	0°	Standard (45°)
15674	4mm (.160")	7" (175mm)	0°	Wide Angle (70°)
15679	4mm (.160")	7" (175mm)	70°	Standard (45°)
15675	4mm (.160")	7" (175mm)	90°	Standard (45°)
15676	4mm (.160")	12" (300mm)	0°	Standard (45°)
15676-90	4mm (.160")	12" (300mm)	90°	Standard (45°)
15677	4mm (.160")	12" (300mm)	70°	Standard (45°)
*15678	4mm (.160")	17" (425mm)	0° & 90°	Standard (45°)
15679-500	4mm (.160")	19.70" (500mm)	70°	Standard (45°)
15683	8mm (.315")	7" (175mm)	70°	Standard (45°)
15684	8mm (.315")	7" (175mm)	90°	Standard (45°)

* Model No. 15678 includes snap-on rotatable 90° viewing mirror tube accessory (5mm diameter).

See next page for available light handles, light cables, light sources, couplers and video camera systems.



BORESCOPE ACCESSORIES

For Use With Flexbar Rigid and Flexible Borescopes.

I. ILLUMINATION ACCESSORIES:



MODEL NO.	DESCRIPTION
15695	High Intensity LED Portable Light Handle
15738	Economy LED Portable Light Handle
13283	Flexible Fiberoptic Light Guide Cable, 10 foot (3 meters)
18-12720	150 Watt Halogen Lightsource, See Page 24
12360	Flexbar LED Fiberoptic Illuminator, See Page 23

II. VIDEO CAMERA & VIDEO COUPLER ACCESSORIES:

MODEL NO.	DESCRIPTION
18-19940	Flexbar 1/2" CCD Color Video Camera, Compact, S-VHS, includes power supply.
13287	Fixed Focus C-Mount Video Coupler
13285	Focusable C-Mount Video Coupler
18-19946	S-VHS Cable (6 foot)



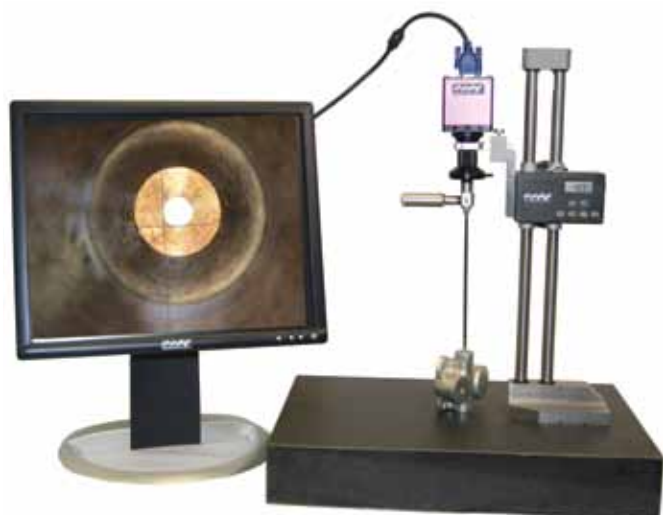
Also Available: Flexbar Real Time High Resolution Digital Cameras - Compact, Lightweight HDMI or USB Mini Design. Choice of models suited to most applications. See Pages 20-21 for more information.

FLEXBAR INTERNAL BORE VIDEO MEASUREMENT/INSPECTION SYSTEM

- Inspects bores with precise vertical control
- P.C. is not required
- Camera connects directly to monitor
- Measures groove heights
- Measures through hole distance
- Inspect for F.O.D.
- 0-7" Range
- 7.5" Part Height
- 2-3" Throat Clearance

System Includes:

- 1080P HDMI camera w/internal crosshair generator
- 2.0GB SD memory Card
- Digital Vertical measurement stand
- 7" 4mm 90° borescope
- Battery Illuminator
- 23" Hi-Resolution monitor



Surface Plate not included

MODEL NO. BVM-100 Flexbar Internal Bore Video Measurement/Inspection System Larger Stands, Scopes and Lighting options available. Please call with your application requirements.



FLEXBAR SMARTPHONE BORESCOPE ADAPTER

Direct Mount - No Expensive Coupler Needed



Attaches to most Smartphones. This innovative solution allows you to utilize all of your hi-tech camera features to display and capture video images from your borescope.

Recommended for use with all 156 Series Flexbar rigid borescopes and works with many B-Style eyepiece borescopes. (See page 31).

Use with Model No.15738 illumination handle (sold separately) - See page 32.

FEATURES:

- No need for large monitors
- Reduce eye fatigue
- Capture Images
- Capture Still shots



MODEL NO. DESCRIPTION

15686 Flexbar Smartphone Borescope Adapter

OPTICAL LOUPES WITH LED AND UV LIGHTING

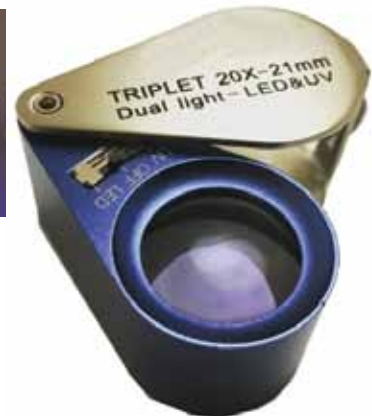
- Distortion Free Lenses
- Built in LED and UV Lighting
- 10X and 20X Lenses
- Leather Case



LED



UV



MODEL NO. DESCRIPTION

16083 Optical Loupe with Lighting: 10X Lens

16084 Optical Loupe with Lighting: 20X Lens



FLEXBAR WIRELESS CAMERA WITH BORESCOPE COUPLER



ACCEPTS ALL "B" STYLE BORESCOPIES.

The Flexbar Wireless Borescope Camera is a special purpose digital video camera combined with a built-in universal focusable coupler, designed for various borescope inspection applications. Powered by a rechargeable lithium ion battery, this innovative device streams high quality live video (at 30fps) to a computer, enabling the user to view and record crystal clear images or videos.

With its many uses and applications, the Flexbar Wireless Borescope Camera is a versatile, easy to use tool at a very affordable price.

SYSTEM INCLUDES:

- Video Camera
- Software CD
- USB Receiver
- AC Charger



TECHNICAL SPECIFICATIONS:

- Resolution: 720 x 480
- Lens Assembly: Multi-Layered Glass, 650nm cutoff
- Video : Format: YUY2, Frame Rate: 30 FPS
- Video Image/Properties: Color: 360 Level Hue, saturation, white balance. Exposure: brightness, contrast. Image: Sharpness Gamma
- Battery: Built-in 850mAh
- Wireless Link: 4 Independent Channels
- Dimensions: 11.5cm x 5.5cm x 5.5cm
- Interface: USB 1.1/2.0 and above
- Software: Scalable Window, Zoom, Freeze, Resolution, Rotate, Flip, Region of Interest (ROI), Capture Snapshot and Video
- Operating System: Windows 10,8,7, and MAC OS 10.4 or higher



MODEL NO.	DESCRIPTION
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12233	Flexbar Wireless Camera with Borescope Coupler
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See Page 31 for a complete list of Borescopes

FLEXBAR WIRELESS TV VIDEO ADAPTER

Using the optional 12232 Wireless TV video adapter kit, a standard LCD/ LED TV can also be used to display images and videos being streamed from the 12233 wireless camera or the 12236 small hole inspection system.

MODEL NO.	DESCRIPTION
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12232	Wireless TV Video Adapter
-------	---------------------------





FLEXBAR WIRELESS SMALL HOLE INSPECTION SYSTEM

Powered by 10 to 50x variable magnification, this innovative device streams high quality live video (at 30fps) to a computer or TV, enabling the user to view and record crystal clear images or videos.

A versatile, easy to use tool at a very affordable price.



FEATURES:

- Wirelessly captures pictures and video
- Variable optical magnification: 10x - 50x
- Working Distance: up to 8" from viewing tip
- Observes and records in real time (30fps)
- Transmits within a range up to 20 feet
- Built-in snapshot button
- Multi-layered glass lenses
- Rugged industrialized construction

TECHNICAL SPECIFICATIONS:

- Sensor Resolution: 720 x 480
- Magnification: Native Optical: 10x - 50x
- Lens Assembly: Dual Lenses. 3-Layer Glass cutoff
- Video - Format: YUY2 Frame Rate: 30 FPS
- Video/Image Properties: Color 360 Level Hue, Saturation, White Balance. Exposure: Brightness, Contrast

Fast & Easy Inspection of small holes, bores and internal features.



SYSTEM INCLUDES:

- Wireless Video Scope with LED lighting
- Small Hole Viewing Attachment (4,5, & 7mm diameter; 4 of each)
- Wireless Receiver
- Software CD
- Power Charging Adapter with USB Cable
- Velvet Carrying Case
- User Manual on CD

12237



Optional 90° Viewing Attachment, 8mm dia.

MODEL NO. DESCRIPTION

12236	Wireless Small Hole Inspection System
12237	Optional 90° Viewing Attachment, 8mm Diameter



FLEXBAR OPTIVIEW™ RIGID BORESCOPIES

Quality Portable Scopes at Affordable Prices
Now Available in 7" and 17" Lengths



New! Optional 90° Viewing Mirror Tube
(4.6mm outer diameter)

Features:

- Portable, rugged design enables user to view critical components in high resolution through access holes as small as .160" (4mm).
- Utilizes a high intensity tungsten halogen light source operated by 2 AA batteries.
- Built-in light source affords user extreme versatility anywhere in the shop.

Specifications:

- | | |
|-------------------|------------------------|
| | Model No. 15735 |
| • Working Length: | 7" (175mm) |
| • Overall Length: | 9" (225mm) |
| • Diameter: | .160" (4mm) |
| • Field of View: | 65° Wide Angle |

Model No. 15733

- | | |
|-------------------|------------------------|
| | Model No. 15733 |
| • Working Length: | 17" (425mm) |
| • Overall Length: | 19" (475mm) |
| • Diameter: | .160" (4mm) |
| • Field of View: | 65° Wide Angle |

MODEL NO. DESCRIPTION

15735	OptiView 7" Rigid Borescope. Complete with battery light handle, 2AA batteries and hard plastic carry case
15736	90° Viewing Mirror Tube Adapter for above
15733	OptiView 17" Rigid Borescope. Complete with battery light handle
15734	90° Viewing Mirror Tube Adapter for above

THE FLEXBAR INSPECTO-SCOPE

Precision German Made

Inspecto-Scope - an economically priced, general inspection scope ideal for magnifying and illuminating hard to see areas. This compact functional instrument reflects the same level of craftsmanship and precision as the most expensive medical instruments on today's market. Includes plastic carrying pouch. Uses convenient "C" batteries. Up to 4x magnification.



IDEAL FOR QUICK INSPECTIONS

MODEL NO. DESCRIPTION

12280	Inspecto-Scope. Complete with 3 specula, and soft plastic carry pouch
12281	Replacement bulb



NOW AVAILABLE AGAIN BY POPULAR DEMAND

FLEXBAR INSPECTO-MIKE

A Powerful Pocket Microscope (about 5" long)



- 4 Lens system gives accurate readings.
- Precise internal scale readings to .001"; scales accurate to within 1%. Permanently mounted scales are optionally superimposed on object being viewed and give quick, accurate and direct measurements of magnified objects.
- Lightweight.
- Precision ground lenses.
- Large clear field - brighter than all others (special beveled opening).

2 POWERS TO CHOOSE FROM

MODEL NO.	POWER	FIELD	SCALE
12216	20X	.190in.	.002in.
12217	40X	.082in.	.001in.



12216 Reticle



12217 Reticle



HI-RES VIDEO MEASURING MICROSCOPE

Dual-Usage: Wi-Fi & Wired USB, up to 200X. Can be used as a hand-held device or with available Microscope Stand. Includes measurement software with calibration ruler.



- Magnification: 5X -200X @ 17" monitor full screen view
- Optical Format: 1/3" CMOS Sensor (4:3)
- Field of View:
 - Min. 2.5mm x 1.9mm @ 17mm working distance (200X) (2.8µm/pixel)
 - Max: 100mm x 75mm @300mm working distance (5X)
- Image Sensor: 1.3 Mega pixels
- Video Capture Resolution 1600 x 1200, 1280 x 960, 640 x 480
- Color 24 bit RGB or YUV or MJPG
- Lens: High Precision Microscope Lens
- Focus Range: Manual from 8mm to 300 mm
- White Balance: Auto
- Exposure Time: Auto
- Light Source: Integrated adjustable LED & UV illumination
- Length: 122mm
- Diameter: 36mm
- Output: USB Streaming Video
- Power Supply: 5V DC from USB port

Features
LED & UV
Illumination



MODEL NO. DESCRIPTION

12203	Hand-Held Video Measuring Microscope System without stand
12204	Hand-Held Video Measuring Microscope System with stand (shown above)



FLEXBAR 10X LED LIGHTED POCKET OPTICAL COMPARATOR

8 LED's Vividly Illuminate the Field of View

Model No. 12505: Includes a photo etched glass reticle #2 scale covering a wide range of measurement applications. Convenient for checking angles, hole sizes, length and more. 10X magnifier produces sharp, undistorted and aberration-free images.



12505



12256-2

MODEL NO. DESCRIPTION

12505	10X LED Lighted Pocket Optical Comparator with Reticle #2 (Model No. 12256-2 shown right) and carry case
12506	10X LED Lighted Optical Comparator Set in Heavy Duty Case. Includes 9 reticles: 1,2,3,7,8,9,10,11,13

Additional Interchangeable Individual Reticles for use with Model No. 12505 and 12506

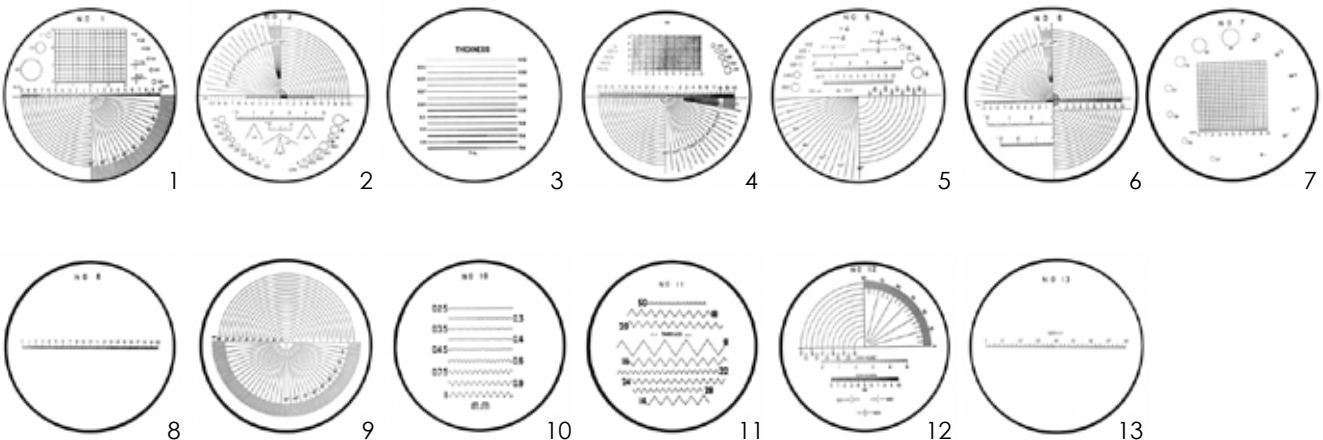
12255-1	10X Reticle No. 1
12256-2	10X Reticle No. 2
12257-3	10X Reticle No. 3
12258-4	10X Reticle No. 4
12259-5	10X Reticle No. 5
12260-6	10X Reticle No. 6
12261-7	10X Reticle No. 7
12262-8	10X Reticle No. 8
12263-9	10X Reticle No. 9
12264-10	10X Reticle No. 10
12265-11	10X Reticle No. 11
12266-12	10X Reticle No. 12
12267-13	10X Reticle No. 13



12506

Common Features (12505 & 12506):

- Crystal clear view of reticle graduations
- Measures angles, diameters, linear metric & inch
- Focusing Ring
- On/Off Switch
- Accepts any Flexbar 1 3/8" diameter 10X Series Reticle
- Additional Reticles (sold separately-see listing left)
- Uses 4x 1.5V Alkaline batteries





PRECISION REFERENCE STANDARD AND STYLUS CHECK



Shows actual patch mean values certified by the National Institute of Standards and Technology (NIST)

CALIBRATE YOUR SURFACE ANALYZING EQUIPMENT TO PEAK EFFICIENCY.

The Precision Reference Standard provides an economical calibration tool which permits the technician to calibrate surface analyzing equipment to its peak efficiency. It is the only calibration block on the market to show the actual patch mean values of low and high microinch surfaces and certified by N.I.S.T.

Since the surface character of the Precision Reference Standard is unlike normally machined surfaces, it is not recommended for use in visual or tactual comparison.

Report of Calibration by N.I.S.T.

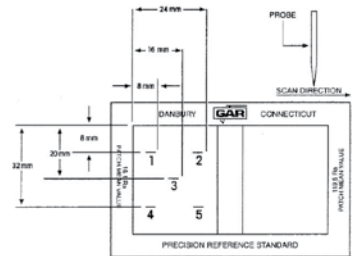
The property of surface roughness in the 125 microinch range and below is maintained by N.I.S.T. by means of master roughness specimens conforming to ANSI-B 46.1. The master specimens were calibrated by measuring their surface profile with a stylus instrument which in turn was calibrated by an interferometrically measured step. The areas under the profile curves were then measured and the roughness average computed. The accuracy of this measurement is 2% for the 119.5 and 1 microinch for the 16.1.

Has actual mean patch values. Each duplicate of master plate tested and certified by N.I.S.T. Conforms to ANSI-B 46.1-1985.

Area No.	PATCH MEAN VALUE	
	18.10 microinches*	119.5 microinches
1	16.20	119.40
2	16.20	119.16
3	15.66	118.10
4	16.00	119.63
5	16.26	119.50



16037
Dimensions: 2 1/2" x 3 3/4"



MODEL NO. DESCRIPTION

16037	Precision Roughness Standard and Stylus Check. Complete with Metric Conversion Chart plus signed Certificate of Traceability to NIST. Made of pure electroformed nickel. Provided with protective case
16037-CAL	Precision Reference Standard and Stylus Check, individually serialized, calibrated and certified to N.I.S.T.

3-PATCH PRECISION REFERENCE STANDARD

This latest addition Precision Reference Standard consists of three specimens formed onto a single gauge. The specimens are identified by surface texture symbols representing nominal Ra (roughness average) in both microinches and micrometers.

The Precision Reference Standard 3-Patch was developed to meet industry's requirements for a versatile standard which would allow the user to perform several important calibration checks on many stylus type surface roughness measurement instruments.

The Precision Reference Standard not only allows the user to check the stylus condition and high-end amplification of his instrument, but provides a specimen which now allows the user to check the low-end amplification of his instrument more accurately than with previously available standards.

Please visit www.flexbar.com for more technical specifications.

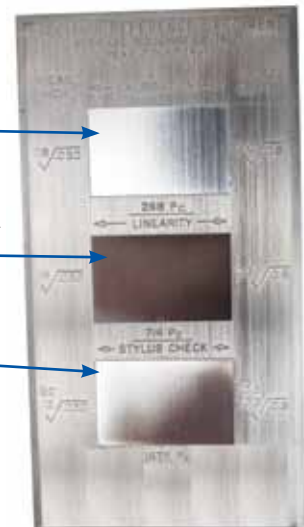


The 3 Specimen Patches Provided Include:

118 microinch (3.0 micrometer) specimen - to check high-end amplification and low-frequency count.

14 microinch (0.35 micrometer) specimen - to check low-end amplification and middle-frequency count.

Stylus Check Specimen - to check relative stylus condition and high-frequency count.



16030
Dimensions: 2 1/2" x 4 3/4"

MODEL NO. DESCRIPTION

16030	3-Patch Precision Reference Standard. Includes signed Certificate of Traceability to NIST. Made of pure electroformed nickel. Provided with protective case
16030-CAL	3-Patch Precision Reference Standard individually serialized, calibrated and certified to N.I.S.T.



COMPOSITE SET OF SURFACE ROUGHNESS STANDARDS

Also Available With Individual Serialized Calibration Report Traceable to N.I.S.T.



SET NO. 16008
INCLUDES SPECIAL WALLET AND INSTRUCTIONS
also
FREE GRAPH WHICH CORRELATES CLA, AA, AND Ra VALUES
PLUS I.S.O. "N" SCALE
OVERALL SIZE OF SCALE IS 6" X 3"

Ideal for use in the Drafting Room, Engineering Department or in the small shop. This set has 30 specimens, each are 7/8" x 3/8" comprising:

3 Specimens Flat Lapping	2, 4 and 8μ" AA
3 Specimens Reaming	16, 32 and 63μ" AA
6 Specimens Grinding	2, 4, 8, 16, 32 and 63μ" AA
6 Specimens Horizontal Milling	16, 32, 63, 125, 250 and 500μ" AA
6 Specimens Vertical Milling	16, 32, 63, 125, 250 and 500μ" AA
6 Specimens Turning	16, 32, 63, 125, 250 and 500μ" AA

The scale conforms to S.A.E. and military specifications for visual and tactile inspection.

FEATURES: Our economy, composite Set No. 16008 as shown here consists of 30 specimens 7/8" x 3/8" of electroformed solid nickel. Each type of surface finish, such as flat lapping, reaming, grinding, horizontal milling, vertical milling, and turning, is truly and consistently reproduced so as to give the operator or designer a realistic idea of the feel, appearance, and texture of the machined components. A set of instructions is included with each set. By means of this set, or one of our individual (larger) standards specimen scale sets, quick and easy comparisons can be made, thus eliminating costly checking methods, saving valuable production time, and stopping the production of scrap caused by poor finishes. Manufactured to ANSI-B-46.1-1985

MADE OF SOLID ELECTROFORMED NICKEL A TRULY INTERNATIONAL SET WITH MARKINGS IN AA (microinches) and METRIC IN Ra (micrometers)

PHONE OR EMAIL FOR SAMPLE CALIBRATION REPORT

MODEL NO. DESCRIPTION

16008	Composite Set - Surface Roughness Standards (Includes Certificate of Compliance)
16008-CAL	Composite Set - Surface Roughness Standards complete with Long Form Calibration Report Traceable to N.I.S.T.



MICROINCH™ COMPARATOR PLATES

SURFACE ROUGHNESS (Texture) COMPARISON STANDARDS MADE OF SOLID ELECTROFORMED NICKEL

The LARGEST VARIETY OF STANDARDS available for assessing and specifying, by Symbol, the DEGREE OF ROUGHNESS of machined parts - including every machining method known.

EVERY OBTAINABLE VALUE

- 15 DIFFERENT SETS AVAILABLE (See Chart Below).
- Each value size is 16mm x 25mm (or 5/8" x 1").
- Overall dimensions of each plate 52mm x 128mm (or 2-1/16" x 5").
- Light in weight - can be carried in pocket.
Supplied in Plastic Wallet.



MARKINGS: Graduated in American values - AA (microinches) as well as I.S.O. standards such as Metric Equivalents RA (μ).



Standard Models supplied with Certificate of Conformance Calibrated Models supplied with Long Form NIST Traceable Certificate

STANDARD MODEL NO.	CALIBRATED MODEL NO.	MACHINING METHOD	NO. OF SPECIMENS	RANGE Ra μ m	RANGE AA μ "	N NUMBERS
16009	16009-CAL	Surface Grinding	8	.025 - 3.2	1,2,4,8,16,32,63,125	1 - 8
16010	16010-CAL	Cylindrical Grinding	8	.025 - 3.2	1,2,4,8,16,32,63,125	1 - 8
16011	16011-CAL	Face Turning	8	0.4 - 50	16,32,63,125,250,500,1000,2000	5 - 12
16012	16012-CAL	Cylindrical Turning	8	0.4 - 50	16,32,63,125,250,500,1000,2000	5 - 12
16013	16013-CAL	End Milling	8	0.4 - 50	16,32,63,125,250,500,1000,2000	5 - 12
16014	16014-CAL	Reaming & Drilling	8	0.4 - 12.5	16,32,63,125 Reaming 63,125,250,500 Drilling	5 - 10
16015	16015-CAL	Horizontal Milling	8	0.4 - 50	16,32,63,125,250,500,1000,2000	5 - 12
16016	16016-CAL	Planing & Shaping	8	0.8 - 100	32,63,125,250,500,1000,2000,4000	6 - 13
16017	16017-CAL	E.D.M.	8	0.4 - 50	16,32,63,125,250,500,1000,2000	5 - 12
16019	16019-CAL	Cylindrical Lapping Superfinishing	8 8	.025 - 0.2 .025 - 0.2	1,2,4,8 Cylindrical Lap 1,2,4,8 Superfinish	1 - 4
16021	16021-CAL	Grit Blasting Shot Blasting	8 8	3.2 - 18 3.2 - 25	128, 420, 720, 1000 128, 320, 520, 720	5 - 10
16022	16022-CAL	Hand Filing	5	0.4 - 6.3	16,32,63,125,250	5 - 9
16023	16023-CAL	Casting	7	0.8 - 50	32,63,125,250,500,1000,2000	6 - 12
16026	16026-CAL	Polishing	5	.0125 - 0.20	0.5,1,2,4,8	0-4
16044	16044-CAL	Belt Sanding	6	0.10 - 3.2	4,8,16,32,63,125	3 - 8

* Manufactured to ANSI-B-46, 1-1985. Each set is supplied in rugged vinyl case which contains a durable instruction card with valuable information in easily understood language This enables the user to obtain best results when assessing roughness or finish by sight and touch. All 15 plates conform to S.A.E. and Mil Specs.



THE EVER POPULAR —
MICROCOMPARATOR



ORIGINAL MADE IN U.S.A. MODEL

Composite Set of 22 Specimens
5 MACHINE FINISHES - MOST USEFUL VALUES
Made of Solid Electroformed Nickel — Premium Quality
INCH AND METRIC MODELS AVAILABLE

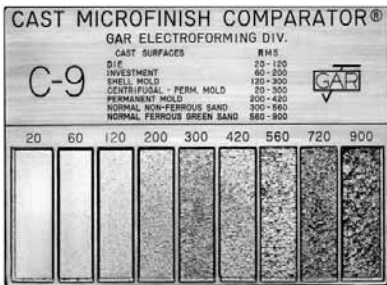
Model No. 16038 (in microinches)

Lapped	2, 4, 8
Ground	8, 16, 32, 63
Blanchard Ground	16, 32
Shape Turned	32, 63, 125, 250, 500
Profiled	63, 125, 250, 500
Milled	63, 125, 250, 500

MODEL NO. DESCRIPTION

16038	(microinches) Made of Solid Electroformed Nickel. Includes case.
16038-M	(micrometers) Made of Solid Electroformed Nickel. Includes case.

CAST MICROFINISH COMPARATORS



9 Specimens provided. Cast surface values for Die Casting, Investment, Shell, Centrifugal, Permanent Mold Ferrous and Non-Ferrous, Sand and Green Sand from 20 to 900 microinches.

MODEL NO. DESCRIPTION

16039	Complete with Instructions, Engineering Data and Case
16039-M (metric)	0.51 to 22.86 micrometers

GRIND AND TURN COMPARATORS

4 MODELS — INCH AND METRIC. MADE OF SOLID NICKEL.

Furnished in attractive vinyl case with instructions. Each model has 10 specimens: 5 each Internal Diameter (concave) and 5 each Outside Diameter (convex)



16041 TURNING



MODEL NO. DESCRIPTION

16041 (in microinches)	Cylindrical Turning Comparator 10 Specimens - (shows I.D. and O.D.) 5 each I.D. (concave) 16, 32, 63, 125 and 250 R _a 5 each O.D. (convex) 16, 32, 63, 125 and 250 R _a
16041-M (in micrometers)	Metric Cylindrical Turning Comparator 10 Specimens - (shows I.D. and O.D.) 5 each I.D. (concave) 0.4, 0.81, 1.6, 3.18, 6.35 5 each O.D. (convex) 0.4, 0.81, 1.6, 3.18, 6.35
16042 (in microinches)	Cylindrical Grinding Comparator 10 Specimens - (shows I.D. and O.D.) 5 each I.D. (concave) 4, 8, 16, 32 and 63 R _a 5 each O.D. (convex) 4, 8, 16, 32 and 63 R _a
16042-M (in micrometers)	Metric Cylindrical Grinding Comparator 10 Specimens - (shows I.D. and O.D.) 5 each I.D. (concave) 0.1, 0.2, 0.4, 0.81, 1.6 5 each O.D. (convex) 0.1, 0.2, 0.4, 0.81, 1.6



SURFACE FINISH COMPARATORS

For Engineers, Inspectors, Purchasing Agents
HANDY, INEXPENSIVE, USE AS A GIVE-AWAY
 For Classes on Drafting, etc.

- ACCURATE - Exact Reproductions.
Range: 16 to 500 Microinch Finish.
- CONVENIENT - Pocket Size (3½" x 5"), Weight: 1 oz.
- Has handy "hang-up hole".
- VERSATILE - Specimens include Mill, End Mill, Grinding, Shape Turning, and Flame Cut.

18 SPECIMENS:

Machining Method	Microinches (AA or Ra)
Grinding	16, 32, 63, 125 and 250
End Milling	63, 125, 250 and 500
Milling	63, 125, 250 and 500
Shape Turning	63, 125, 250 and 500
Flame Cutting	500



MODEL NO. DESCRIPTION

16007	Made of tough, scratch resistant ABS Unbreakable Plastic. Black Color. Complete with plastic wallet.
16045	Durable Nickel-Chrome Metal Plated Finish. Complete with plastic wallet.

FLEXBAR PORTABLE SURFACE-ROUGHNESS TESTER

A Precision, Fully Self-Contained Compact Tester Incorporating An Advanced Microprocessor. Performs data acquisition, data processing and display of all test measurements. The **Model No. 15950** Portable Surface Roughness Tester features an integrated processor, display and sensor, and allows for user selectable readings in Ra and Rz. Measures flat, round and sloping planes, grooves, and recesses greater than 3.1" x 1.2"

• Certified Reference Specimen Included

Other Features include:

- Use in any position, horizontal, vertical or anywhere in between
- Ra, Rz, μm , pinch at touch of a button
- Multi-functional LCD
- 3 cut-off lengths
- Rechargeable
- Easy calibration

Surface Roughness Parameter	Ra (ISO), Rz (DIN), Rms (Rq), Rt
Measuring Range	Ra: 0.05~10 μm /Rz, Rt: 0.1~50mm
Resolution	0.01 μm (1.6minch)
Cut-Off Lengths	0.0009in., 0.03in., 0.09in.
Tracing Lengths	0.23in. (6mm)
Accuracy	$\pm 12\%$ of actual value
Pick-up Stylus	Piezo-electric
Tracer Tip	Diamond, radius 5mm
Power	3.6v/2 x NiMh batteries
Charger	9V DC
Contact Force on Probe	<1.8ozf (<50gf)
Static Measuring Force on Sensor Stylus	<0.06 ozf (<1.6gf)
Dimensions	4.9 x 2.8 x 1.0 in. (125 x 73 x 26mm)
Weight	0.4lbs. (200g)



MODEL NO. DESCRIPTION

15950	Flexbar Portable Surface Roughness Tester, includes certified reference specimen, instructions and compact durable carrying case
15951	Replacement Stylus for No. 15950



FLEXBAR BENCH TOP HARDNESS TESTER ROCKWELL TYPE

This hardness tester comprises the very best in "state of the art" design coupled with dynamic precision. It is easy to operate yet engineered to obtain highly sensitive and accurate readings. A perfect, rugged performer suited for almost any environment including heat treat facilities, tool rooms, workshops, laboratories and inspection labs.



MODEL NO. 16232 shown left

Accessories Included:

- C-scale Diamond Indentor
- 1/16" Ball Indentor
- 3-HRC Test Blocks
- 1-HRB Test Block
- 1-HRA Test Block
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Spot Anvil .38" (10mm)
- Std. Vee Anvil
- H/D Accessory Case
- Dust Cover

SPECIFICATIONS:

Minor Load	10 Kgf
Major Load	60 Kgf, 100 Kgf, 150 Kgf
Test Force Application	Dead Weight
Test Force Control	Hydraulic Dashpot System
Results Display	Analog Dial Gage
Vertical Capacity	6.7 in.
Throat Depth	6.6 in.
Height	30.0 in.
Width	8.50 in.
Depth	20.0 in.
Shipping Weight	22.0 in.

OPTIONAL INDENTERS:

MODEL NO.	DESCRIPTION
16233	120° Diamond Indentor
16234	1/16" Carbide Steel Indentor
16235	1/2" Carbide Ball Indentor
16236	1/4" Carbide Ball Indentor
16237	1/8" Carbide Ball Indentor

MODEL NO. DESCRIPTION

16232	Flexbar Bench Top Hardness Tester Rockwell Type (above)
16232-D	Bench Top Digital Rockwell Hardness Tester (not shown, see flexbar.com for specs.)

ROCKWELL HARDNESS TEST BLOCKS

Manufactured from the highest quality steel with a special heat treat and cold treat process which insures maximum consistency and repeatability.

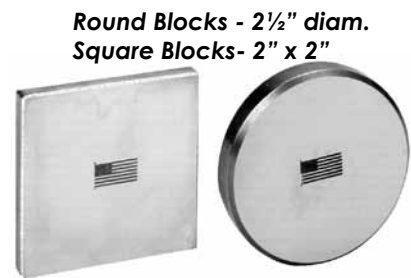
Accuracy exceeds ASTM E10, E18, E92 and E384 standards.

I. ROCKWELL CERTIFIED TEST BLOCKS

"A" Scale MODEL NO.	A-Diamond 60kg (Round)
20520	HRA 28.5
20521	HRA 33
20522	HRA 37.5
20523	HRA 41.5
20524	HRA 46.5
20525	HRA 52.5
20526	HRA 55.5
20527	HRA 63
20528	HRA 68
20529	HRA 73
20530	HRA 78.5
20531	HRA 83

"C" Scale MODEL NO.	C-Diamond 150kg (Round)
20539	HRC 25
20540	HRC 35
20541	HRC 45
20542	HRC 55
20543	HRC 60
20544	HRC 63

"15N" Scale MODEL NO.	N-Diamond 15 kg (Round)
20545	HR15N72
20546	HR15N78
20547	HR15N83
20548	HR15N88
20549	HR15N91.5



"B" Scale MODEL NO.	1/16 Ball 100kg (Square)
20532	HRB 35
20533	HRB 45
20534	HRB 55
20535	HRB 65
20536	HRB 75
20537	HRC 85
20538 (Round)	HRB 95

II. NIST TRACEABLE ROCKWELL TEST BLOCKS

MODEL NO.	Rockwell "C"
20550	HRCN 25
20551	HRCN 35
20552	HRCN 45
20553	HRCN 55
20554	HRCN 60
20555	HRCN 63

The new NIST Traceable Test Blocks for the Rockwell "C" Scale will provide complete traceability to NIST. These test blocks are ground, lapped and polished to a mirror finish of one micron.

A NIST Traceable Certificate is furnished with each block at no charge. Available in Rockwell "C" Scale. Blocks are Round.





FLEXBAR HARDNESS TESTING FILES

Made in Japan

Easy To Use, Portable Rockwell Hardness Testing System- For Use In All Metalworking Facilities.

Files Can Be Ordered Individually

A unique set of six specially shaped files, each with a non-slip grip, color-coded handle. The Rockwell value is printed on each handle and the files range from HRC 40 through HRC 65.

Flexbar precision testing files have specially curved tips which can reach into internal slots, grooves and bores which cannot otherwise be tested using conventional types of fixed or portable hardness testers. They can be taken to out-of-factory sites to test for hardness on large structures or segments of machinery. For example large surface-hardened gears, large printing cylinders or weld zones of heat affected pipe lines which cannot be moved to a stationary tester.

MODEL NO.18750 Flexbar Hardness Testing File Set. Includes deluxe fitted case complete with instructions and conversion chart Rockwell C to Vickers.



INDIVIDUAL HARDNESS TESTING FILES:

MODEL NO.	COLOR	NOMINAL	ACTUAL HARDNESS
18750-RD	Red	HRC40	HRC40-42 V _B 392-412
18750-YE	Yellow	HRC45	HRC45-47 V _B 446-471
18750-LG	Light Green	HRC50	HRC50-52 V _B 513-544
18750-GR	Green	HRC55	HRC55-57 V _B 595-633
18750-BL	Blue	HRC60	HRC60-62 V _B 697-746
18750-BK	Black	HRC65	HRC64-66 V _B 800-865

FLEXBAR PORTABLE DIGITAL HARDNESS TESTER

An advanced integrated hardness tester distinguished by its very compact size, high accuracy, wide measuring range and simplicity of operation. It is suitable for testing the hardness of all metals and widely applied in many areas of industry.

It automatically computes all Vickers, Brinell, Rockwell and Shore hardness values. RS232 output enables this new model to print any of it's memory from up to 2000 locations. The impact direction can be set so that the accurate values can be achieved at any angle, even upside down! Statistical mean value is automatically provided.

MATERIALS AND TESTING RANGE

MATERIAL	HRC	HRB	HB	HV	HS
STEEL & CAST STEEL	20-68	60-100	93-674	83-976	32-100
COLD TOOL STEEL	20-67			80-896	
STAINLESS STEEL	20-62	46-100	85-655	85-802	
GREY CAST IRON			93-334		
NODULAR CAST IRON			131-387		
CAST ALUMINUM ALLOYS			27-159		
COPPER/ZINC ALLOYS (BRASS)		13-95	40-173		
CuAl/CuSn ALLOYS (BRONZE)			60-290		
WRAUGHT COPPER ALLOYS			45-315		

Impact Device	D
Impact Energy	8 Fl.-Lbs. (11nm)
Test Tip	Tungsten Carbide
Max. Hardness of Sample	980hv
Impact Direction	Any Angle
Accuracy	± 0.5% (referred to L=800)
Repeatability accuracy	± 4L units L=Leeb
Measuring Range	200-960 HL
Battery Type	2 AAA alkaline (supplied)
Operating Temperature	5-104 degrees F
Dimensions	108 x 62 x 25mm
Weight	0.51 lbs (230 grams)
Min. Thickness of Sample	0.2in (5mm) (Coupled: 3mm)
Min. Weight of Sample	11lbs / 5kg (less than 5kg to 0.1kg coupled on solid support)
Min. Thickness of Layers	0.8mm
Min. Radius of Curved Surface	1.2in (30mm)
Minimum Thickness	.500in Steel

Note: Material thickness must be 1.5" or more for softer metals and 1" minimum thickness for steel.



External Impact Probes for a variety of applications available. Visit our website or contact our product specialist.

MODEL NO.15970 Complete kit including Standard Integrated Hardness Tester, Impact device D, Calibrated Test Block, Fitted Case, cleaning brush and Instructions.



FLEXBAR DIGITAL SHORE DUROMETERS

These testers are crafted and engineered to perform at the highest level of accuracy. An ergonomic and attractive design combined with lightweight assists in taking precise hardness measurements of rubbers, plastics, waxes, etc.



	18880 - SHORE "A"	18881 - SHORE "D"
Measurement Range	0-100HSA	0-100HSD
Deviation	<1% H	<1%H
Resolution	0.1H	0.1H
Repeatability	20-90 HAS < ± 1H	20-90 HAD < ± 1H
Conforms to Standards	ASTM D-2240 ISO 7619 DIN 53505	ASTM D-2240 ISO 7619 DIN 53505
Peak Value Lock In	Yes	Yes
Statistics	Mean, Min, Max, No. of Measurements and Deviation	Mean, Min, Max, No. of Measurements and Deviation
RS232 Output	Yes	Yes
Power Supply	4 AAA batteries	4 AAA batteries

MODEL NO. 18880 Digital Shore "A" Durometer for Soft Rubber, Elastometers, Waxes, etc.

MODEL NO. 18881 Digital Shore "D" Durometer for Hard Rubber and Plastics



TYPE A & TYPE D CLASSIC STYLE DUROMETERS

Type A for Soft Rubber, Elastometers, Waxes, etc.

Type D for Hard Rubber and Plastics

Ideal for Use as a Hand-Held Tester or with Test Stand*

Features:

- 1" x 1-5/8" base
- Easy to read dial indicator with 240° dial
- Range: 0 to 100 points
- Accuracy of ± 1 point
- All durometers meet or exceed current ASTM D2240 specifications
- Maximum reading pointer standard
- Certification traceable to NIST standards available (optional)
- Test block and carrying case included



20706

MODEL NO. DESCRIPTION

20705	Type A Durometer Tester
20706	Type D Durometer Tester
20707	10 Point Certification for each above tester, traceable to NIST

*Test Stands Available-
Call or fax for quote

FLEXBAR DUROMETER TEST KITS

Hardness Test Block kits designed to help maintain Durometer read-out accuracy.

Shore "A" for Soft Rubber, Soft Metals, Waxes, etc.

Includes:

(7) Color-coded rubber test blocks with various nominal durometer hardness values ranging from 30 to 90 in increments of 10.
Block size: 2" x 2" x 1/4"



MODEL NO. 18882	Shore "A" Kit
MODEL NO. 18883	Shore "A" Kit w/certification

Shore "D" for Plastics and Hard Rubber

Includes:

(3) Color-coded test blocks with nominal durometer hardness values of 20, 40, and 60.
Block size: 2" x 2" x 1/4"



MODEL NO. 18884	Shore "D" Kit
MODEL NO. 18885	Shore "D" Kit w/certification



FLEXBAR PORTABLE QUICK-CHECK ROCKWELL HARDNESS TESTER



A Quick & Easy Checking Gage For Flat Workpieces. Ideal For Spot or Production Checking.

- Pocket Size - Length is 9¼", Weight is 4 oz.
- Precise reading in Rockwell C scale – Pretested for positive release and dependable accuracy. No moving parts to get out of adjustment. Accuracy: ± 2 Rockwell points.
- Covers the entire range of heat treated steel from 20 Rc to 65 Rc of the Rockwell C scale.
- The piece to be checked should have a section size of 1" square or more and at least ½" thick.
- Convenient for hardness testing on your surface plate, your work bench or office desk.
- Will not mar the surface of heat treated parts.
- Includes carrying case.

NOTE: Unit must be used in vertical position only.

MODEL NO. 17295 Quick-Check Portable Hardness Tester

FLEXBAR ULTRASONIC THICKNESS GAGE

This handheld unit has precise touch and read capabilities yet is economically priced. The 15945 is designed to measure the thickness of metallic and non-metallic materials such as aluminum, titanium, plastics, ceramics, glass and any other good ultrasonic wave conductor as long as it has parallel top and bottom surfaces. The 15945 will accurately display readings in either inch or millimeter after a simple calibration to a known thickness or sound velocity.

Display Type	Large 4-digit LCD
Minimum Display Unit	0.001"/0.1mm
Measuring Range	0.040" - 8" (0.1mm - 200mm) in steel w/standard probe (other values depending on material)
Lower Limit Steel Pipes	Min. dia. 0.8" x 0.1" (20mm x 3mm)
Display Accuracy	± 0.1mm
Sound Velocity Range	1640 - 29,527 ft/s (500 - 9000m/s)
Operating Temperature	32-122 degrees F (-5 - 40 degrees C)
Frequency	5MHz
Update Range	4Hz
Power Supply	1.5v AA alkaline batteries (4pc)
Battery Life	Approx. 250 hours/battery set
Dimensions	4.9 x 2.6 x 0.9in. (161 x 69 x 32mm)
Weight	0.7lbs.
Operating Current	<20mA (3V)

NOTE: this unit does not read through coatings.



15945

MODEL NO. DESCRIPTION

15945	Flexbar Ultrasonic Thickness Gage complete with 5MHz probe, Bottle of Ultrasonic Couplant Gel, operations manual and compact durable fitted carrying case - includes NIST certified block
15944	.250" Dia. 90 Degree Probe
15946	Ultrasonic Couplant Gel, 8 oz. bottle
15948	5 Steps Test Block with certificate of conformance



15948



FLEXBAR FORCE & TORQUE GAGES

Full Line of Testers available online at www.flexbar.com



Premium Force Gages



Basic Force Gages



Force Gage Stands & Accessories

Here are Just Some of the Applications:



Tensile Testing



Wire Pull Testing



Peel Testing



Puncture Testing



Pill Crush Testing



Cap Torque Tester

TORQUE TESTERS



Torque Tool Tester



For Our Full Line of Testers or For Detailed Product Descriptions, please visit www.flexbar.com. For Application Questions, please contact our customer service and technical department by email: sales@flexbar.com or by phone at 800-879-7575

FLEXBAR[®] FLEXBAR LANO-LUBE™



Multi-Purpose Pure Lanolin AAA Quality, U.S.P.

MOISTURE FREE • STOPS RUST • ALWAYS CLEAN • NO ODOR • ANTI-SEIZE PROPERTIES

LANO-LUBE protects valuable gage libraries better than any other coating. It is also an excellent lubricant, making gage entry easy. The coating is dimensionally minuscule so that gaging accuracy is never sacrificed.

SIMPLE TO USE:

Coat the gage or component completely, then wipe off the excess using a soft cloth. No matter how hard you wipe, a thin monolithic coating will still cling to the surface resulting in an invisible and impenetrable shield against moisture and against acid from the fingers of the technician's hands.



LANO-LUBE is 100% pure anhydrous lanolin, AAA Grade. There are no additives; no other chemicals or solvents. It does not contain water and does not absorb water. It does not evaporate.

MODEL NO. DESCRIPTION

11152	Lano-Lube, 2oz. Tube
11153	Lano-Lube, Box of Twelve 2 oz. Tubes

USES INCLUDE:

**INSPECTION • GAGING • DRILLING
CENTERS • TURNING • TAPPING**

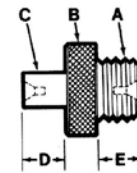
HOLE LOCATION PLUGS

Premium Quality

All diameters concentric within .0001 T.I.R.

Shaft dia. (C) .2500 + .0002, - .0000 on all gages to simplify calculation of hole spread.

Shaft length (D) is 3/8" on all gages.



U.N.C. SIZES

MODEL NO.	THREAD A	DIA. B	E
10317	2-56	5/16	1/4
10318	4-40	5/16	1/4
10319	5-40	5/16	1/4
10320	6-32	5/16	1/4
10322	8-32	5/16	1/4
10301	10-24	5/16	1/4
10302	1/4-20	3/8	3/8
10303	5/16-18	1/2	3/8
10304	3/8-16	1/2	3/8
10305	7/16-14	3/4	3/8
10306	1/2-13	3/4	3/8
10307	5/8-11	3/4	3/8
10330	3/4-10	1	1/2
10331	7/8-9	1 1/8	1/2
10332	1-8	1 1/4	1/2

U.N.F. SIZES

MODEL NO.	THREAD A	DIA. B	E
10321	6-40	5/16	1/4
10309	10-32	5/16	1/4
10310	1/4-28	3/8	3/8
10311	5/16-24	1/2	3/8
10312	3/8-24	1/2	3/8
10313	7/16-20	3/4	3/8
10314	1/2-20	3/4	3/8
10315	5/8-18	3/4	3/8
10336	3/4-16	1	1/2
10337	7/8-14	1 1/8	1/2
10338	1-14	1 1/4	1/2

SPECIALS AVAILABLE:

Left hand thread, helicoil, or other non-standard gages quoted on request.



INSPECTION GAGE BALL SETS



Range: 1/8" to 1"
 Now available in certified Master Set -
 Calibrated Within 15 Millionths

26 pairs of precision balls ranging from 1/8 to 1 inch diameter. Chrome steel hardened to 63RC. Ground and lapped. Grade 25 Accuracy - AFBMA Certified. In a plastic case, with 4 wells provided for odd sizes. Set includes 1 pair of each size: 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 13/32, 7/16, 15/32, 1/2, 17/32, 9/16, 19/32, 5/8, 21/32, 11/16, 23/32, 3/4, 13/16, 7/8, 15/16 and 1".

MODEL NO. 16169

Standard Inspection Gage Ball Set. 26 pairs in fitted plastic case, with Certificate of Conformance.

PRECISION SPHERICAL BALL SET

Range: 1/32" to 1/2"



- Excellent for checking micrometers and other related inspection equipment.
- Checking hole tapers.
- Checking radius.
- Good for ball burnishing.
- GR .25 & .000025 sphericity
- Chrome steel balls.

16 sizes: 1/32, 1/16, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 13/32, 7/16, 15/32, 1/2
 3 each of sizes 1/32" through 3/8", and 2 each of 13/32" through 1/2".



MODEL NO. 16168 Precision Spherical Ball Set complete with case.

INDIVIDUAL PRECISION GRADE GAGE BALLS

Chrome Steel Hardened To 63RC, Ground and Lapped
 Certified to Grade 25 accuracy ±.0001" dia., .000025" sphericity*



INCH GAGE BALLS

SIZE	MODEL NO.	SIZE	MODEL NO.
0.0625 (1/16)	32230	0.6562 (21/32)	32250
0.0833 (1/12)	32231	0.6875 (11/16)	32251
0.0937 (3/32)	32232	0.7817 (23/32)	32252
0.1250 (1/8)	32233	0.7500 (3/4)	32253
0.1562 (5/32)	32234	0.7812 (25/32)	32254
0.1857 (3/16)	32235	0.8125 (13/16)	32255
0.2187 (7/32)	32236	0.8750 (7/8)	32256
0.2500 (1/4)	32237	0.9375 (15/16)	32257
0.2812 (9/32)	32238	1.000 (1)	32258
0.3125 (5/16)	32239	1.0625 (1 1/16)	32259
0.3437 (11/32)	32240	1.1250 (1 1/8)	32260
0.3750 (3/8)	32241	1.1875 (1 3/16)	32261
0.4062 (13/32)	32242	1.2500 (1 1/4)	32262
0.4375 (7/16)	32243	1.3125 (1 5/16)	32263
0.4687 (15/32)	32244	1.3750 (1 3/8)	32264
0.5000 (1/2)	32245	1.4375 (1 7/16)	32265
0.5312 (17/32)	32246	*1.500 (1 1/2)	32266
0.5625 (9/16)	32247	*1.6250 (1 5/8)	32267
0.5937 (19/32)	32248	*1.7500 (1 3/4)	32268
0.6250 (5/8)	32249	*1.8750 (1 7/8)	32269
		*2.000 (2)	32270

INCH AND METRIC SIZES AVAILABLE



* Sizes of 1.5000" to 2.000" are grade 50 accuracy ± .0002" dia., .000050" sphericity

METRIC GAGE BALLS

SIZE	MODEL NO.	SIZE	MODEL NO.
1mm	32335	11mm	32349
1.5mm	32336	12mm	32350
2mm	32337	13mm	32351
2.5mm	32338	14mm	32352
3mm	32339	15mm	32353
3.5mm	32340	16mm	32354
4mm	32341	17mm	32355
4.5mm	32342	18mm	32356
5mm	32343	19mm	32357
6mm	32344	20mm	32358
7mm	32345	21mm	32359
8mm	32346	22mm	32360
9mm	32347	23mm	32361
10mm	32348	24mm	32362

Flexbar specializes in custom Gage Balls - any size, material, or grade. Contact us at sales@flexbar.com with your specifications and for a Distributor near you.



FLEXBAR PRECISION INDICATOR GAGE BALLS™

PRECISION GRADE GAGE BALLS WITH AFFIXED THREADED STEMS FOR USE WITH DIAL GAGES AND CALIPERS.

Enables you to measure critical internal taper angles, taper openings, chamfers, groove locations and hole depths quickly and accurately. With the Precision Indicator Gage Balls you eliminate complicated and costly setups with sine plates (gage block), optical comparators, flush pin gages, plug gages, chamfer, micrometers and similar checking devices for any related taper bore dimensions.

INDIVIDUAL PRECISION INDICATOR GAGE BALLS AND ACCESSORIES:

Inch Indicator Balls with 4-48 Stems

SIZE	MODEL NO.
0.0938	22305
0.1250	22306
0.1562	22307
0.1875	22308
0.2188	22309
0.2500	22310
0.2812	22311
0.3125	22312
0.3438	22313
0.3750	22314
0.4062	22315
0.4375	22316
0.4688	22317
0.5000	22318
0.5312	22319
0.5625	22320
0.5938	22321
0.6250	22322
0.6562	22323
0.6875	22324
0.7188	22325
0.7500	22326
0.7812	22327
0.8125	22328
0.8750	22329
0.9375	22330
1.0000	22331
1.0625	22332
1.1250	22333
1.1875	22334
1.2500	22335



Metric Indicator Balls with 4-48 Stems

SIZE	MODEL NO.
2mm	22340-I
3mm	22341-I
4mm	22342-I
5mm	22343-I
6mm	22344-I
7mm	22345-I
8mm	22346-I
9mm	22347-I
10mm	22348-I
11mm	22349-I
12mm	22350-I
13mm	22351-I
14mm	22352-I
15mm	22353-I
16mm	22354-I
17mm	22355-I
18mm	22356-I
19mm	22357-I
20mm	22358-I
21mm	22359-I
22mm	22360-I
23mm	22361-I

22336 Caliper attachment for use with Flexbar Indicator Balls - see page 60

22337 Right Angle Adapter for 4-48 Stems- see page 60



Dial Indicator not included





FLEXBAR CALIPER & HEIGHT GAGE CHECKER

A Calibration Master for In-House Calibration of Vernier, Dial and Digital Calipers and Height Gages. Includes Certificate of Calibration Traceable To N.I.S.T.



Hardened and ground, permanently wrung, high-grade gage blocks are stacked in the rigid housing. All gage blocks are sub-zero treated for dimensional stability. Selected sizes of measuring slips provides for calibration of main scale as well as vernier scales of the instrument.

Applications:

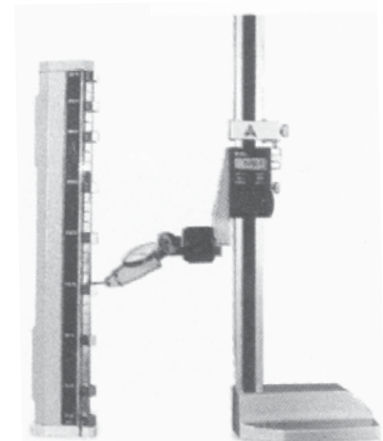


Checking the accuracy of Dial Calipers by external jaw



Checking the accuracy of Calipers by internal jaw

- Accuracy: $\pm 5\mu\text{m}$ ($\pm .0002''$)
- **Available in Two Checking Ranges:**
Lengths to check up to 12" and up to 24"



Calibration of Height Gauge using vertical position

MODEL NO. DESCRIPTION

15930	Caliper/Height Gage Checker, 12" Range
15931	Caliper/Height Gage Checker, 24" Range

Above models supplied with Certificate of Calibration to N.I.S.T.

10 PIECE MEASURING TOOLS SETTING MASTERS



FEATURES:

- Quick easy and extremely accurate.
- Blocks come with a certificate of calibration to NIST.
- Complete with aluminum carry case.

MODEL NO. DESCRIPTION

12594	Set Includes: 9 Piece Gage Blocks(Grade): .0625", .100", .125", .200", .250", .300", .500", 1.000", 2.000" 1 Piece Optical Flat: 1" Dia. x .5125" Thickness, .000004" Flatness, .00002" Parallel
--------------	---

FLEXBAR DIGI-CIRCE MULTI-FUNCTION GAGE

High Precision Double Sliding Gage Accepts A Range of Interchangeable Accessories For Measuring:

- Inside/Outside Dimensions • Center Distances
- Grooves • Offset Dimensions • Diameters and more



Shown above: Model No. 19400 Digi-Circe Double Sliding Gage with No. 19402 Conical Measuring Attachments for direct measurement of hole center distances.

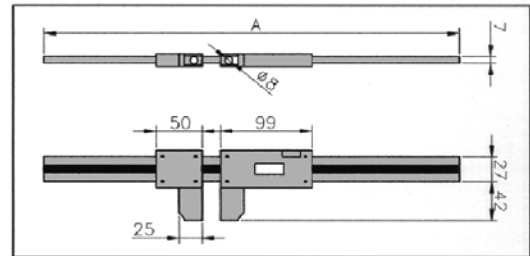
Main Features:

- Heavy-Duty hardened stainless steel and **light weight** carbon fiber beam.
- Mobile double sliding jaws allows balanced weight for taking small measurements
- Swiss Sylvac Electronics, .0005"/.01mm reading, RS232C Output
- Pre-Set functions for zeroing setting at any position

DIGI-CIRCE Base Unit:

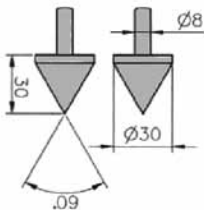
Available in Standard and Extra-Long Measuring Ranges

MODEL NO.	OVERALL LENGTH (A)	GRADUATIONS
19400	24"/600mm	.0005"/.01mm
19401	40"/1000mm	.0005"/.01mm



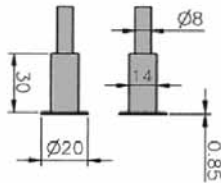
Above models do not include measuring attachments- order separately below.

INTERCHANGEABLE MEASURING ACCESSORIES FOR DIGI-CIRCE:



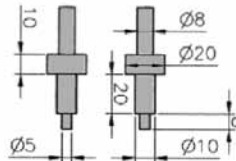
19402

Conical shaped jaw blades for direct measurement of hole center distances (self-centering).



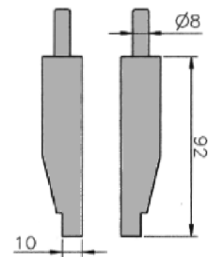
19403

Disc jaw blades for stable measurement of grooves and slots.



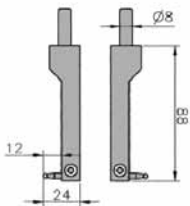
19404

Cylindrical jaw blades for measuring hole and wall center distances. 5, 10 and 20mm diameters can be used as shown by always using an anti-pivot support.



19405

"Femo" model long jaw blades for measuring inside and outside walls and holes.



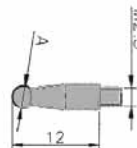
19406

UL Accessory

By inserting this accessory in the special slots on the "Circe" gauge, it is possible to measure inside and outside diameters and grooves.

Interchangeable Ball Contacts

Additional diameters up to 10mm available upon request.



MODEL NO.	A	B
19383	Ø 1.5	12
19384	Ø 2	12
19385	Ø 2.5	12
19386	Ø 3	12
19387	Ø 3.5	12
19388	Ø 4	12
19389	Ø 4.5	12
19390	Ø 5	12
19391	Ø 5.5	12
19392	Ø 6	12

All Calipers come in fitted wooden case. Additional Accessories Available Upon Request.



FLEXBAR DIGITAL MULTI-GAGE™ FEATURING DIGI-MET® TECHNOLOGY

**A Multi-Function, Precision Measuring Instrument
with Virtually Unlimited Application Adaptability
TWO MODELS - MEASURING RANGES UP TO 25" (625mm).**



Left: Flexbar Multi-Gage with various measurement accessories. Multi-Gage will accept any 4-48 threaded mounting hardware. Shown with flip-up & permanent depth stops for accurate alignment.

The FLEXBAR DIGITAL MULTI-GAGE SYSTEM provides a highly effective and economical solution for a myriad of measurement applications including:

- General I.D. & O.D. Measurements.
- Tapers, Chamfers.
- Deep Measurements.
- Center-to-Center.
- Grooves and Recesses.
- Many other applications.

The Flexbar Multi-Gage utilizes a Preisser DIGI-MET electronic scale featuring Sylvac Direct RS-232 Output. Using a high accuracy capacitive sensor, **DIGI-MET PLUS** gages can be connected to any computer, data collector or printer without an interface.

Other features include:

- Large, high contrast LCD display.
- Freeze hold feature.
- Scale accuracy to DIN 862.
- Optoelectronic cable available for direct RS-232 output.
- PRESET function.
- Low drain lithium battery (2-3 yr life).
- ON/OFF feature.

SPECIFICATIONS:

- Resolution: .0005" (.01mm).
- Accuracy: .001" (.02mm).
- Repeatability: 1 digit
- Completely hardened throughout stainless steel construction.
- Direct inch/metric conversion.
- Measuring/tracking speed: 60"/sec.

MODEL NO.	DESCRIPTION
19230	Standard Measuring Range. 0-11½" Outside Measurement. 1 ¹³ / ₁₆ " to 13½" Inside Measurement. Kit Includes: Multi-Gage, pair of extension tips, pair of cone tips, pair of ¼" dia. gage balls, combination tapered/flat tips, floating locator pins, pointed groove measuring tips, durable molded case.
19230-L	Extra-long Measuring Range. 0-23" Outside Measurement. 1 ¹³ / ₁₆ " to 25½" Inside Measurement. Kit Includes: Multi-Gage, pair of extension tips, pair of cone tips, pair of ¼" dia. gage balls, combination tapered/flat tips, floating locator pins, pointed groove measuring tips, durable molded case.
19237	Multi-Gage 2" Calibration Kit. Permits accurate pre-setting of Multi-Gage for hole-to-hole direct measurement and other applications. Comes with 2 floating locator pins.

* Above ranges may vary nominally according to accessories used and applications.

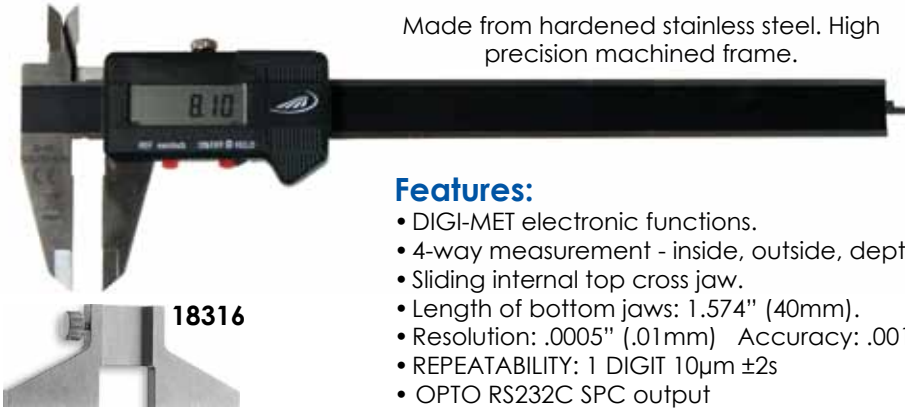


DIGI-MET® UNIVERSAL STYLE CALIPERS

With 4-Way Measurement - .0005"/.01mm Resolution

Made from hardened stainless steel. High precision machined frame.


HELIOS-PREISSER
Made in Germany



18316

Features:

- DIGI-MET electronic functions.
- 4-way measurement - inside, outside, depth and step.
- Sliding internal top cross jaw.
- Length of bottom jaws: 1.574" (40mm).
- Resolution: .0005" (.01mm) Accuracy: .001" (.02mm).
- REPEATABILITY: 1 DIGIT 10µm ±2s
- OPTO RS232C SPC output
- Includes wooden case

FREE
INCLUDES
CERTIFICATE OF CALIBRATION
TRACEABLE TO N.I.S.T.



18315

MODEL NO. DESCRIPTION

18200	6" (150mm) Digi-Met Universal Style Caliper
18314-C	6" (150mm) Digi-Met Caliper with Carbide Coated Top & Bottom Jaws
18315	Opto-Electro Output Cable: 80" connecting cable with 9 pin IBM RS232C connector
18316	Stainless Steel Depth Measuring Base Attachment
18317	Replacement Lithium Battery, 3V

DIGI-MET® 12" (300mm) WORKSHOP CALIPER

Model No. 18202 with cross jaws for direct inside measurement.

- Resolution: .0005"/.01mm
- Fine adjustment and locking screws



Made from hardened stainless steel with ground and lapped measuring surfaces.

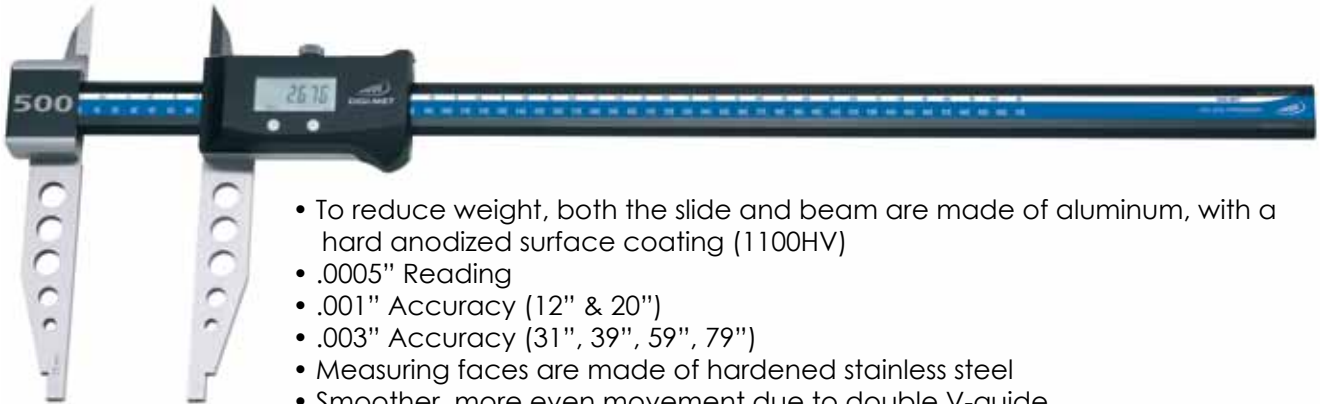
*DIGI-MET Features:

- Non-contacting linear SYLVAC Swiss measuring system.
- OPTO RS232C SPC output.
- One cable fits all DIGI-MET instruments.
- EXTRA-LARGE High Contrast LCD display for easy reading (6mm/.236").
- Direct inch/metric conversion.
- On/Off switch.
- Hold function - freezes display for later viewing.
- Zero setting at any point.
- Easily configured for SPC data output.
- High speed measuring/tracking: 60"/second.
- Includes wooden case.


HELIOS-PREISSER
Made in Germany

MODEL NO.	MEASURING RANGE	TOP JAWS STYLE	OVERALL ACCURACY	LENGTH OF BOTTOM JAWS	LENGTH OF TOP JAWS
18202	0 - 12"(0 - 300mm)	Cross Jaws	.001"	3.5"	1.3"

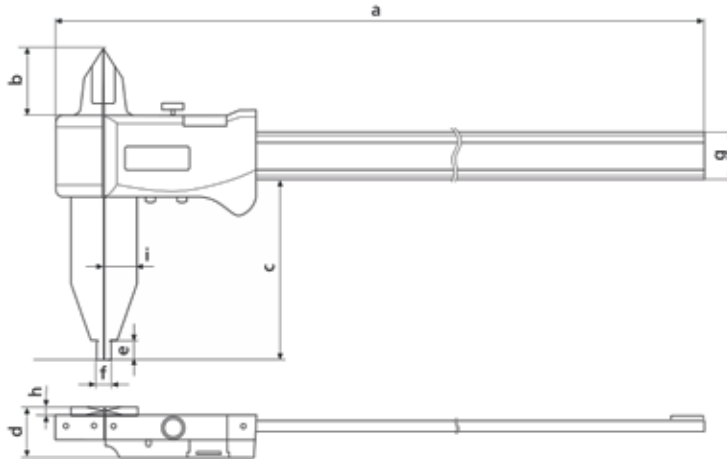
DIGI-MET LIGHT WEIGHT WORKSHOP CALIPERS



- To reduce weight, both the slide and beam are made of aluminum, with a hard anodized surface coating (1100HV)
- .0005" Reading
- .001" Accuracy (12" & 20")
- .003" Accuracy (31", 39", 59", 79")
- Measuring faces are made of hardened stainless steel
- Smoother, more even movement due to double V-guide
- Locking screw
- Knife points
- On/Off switch
- Zero setting at any position
- mm/inch conversion
- PRESET Function (setting a numerical value)



HELIOS-PREISSER
Made in Germany



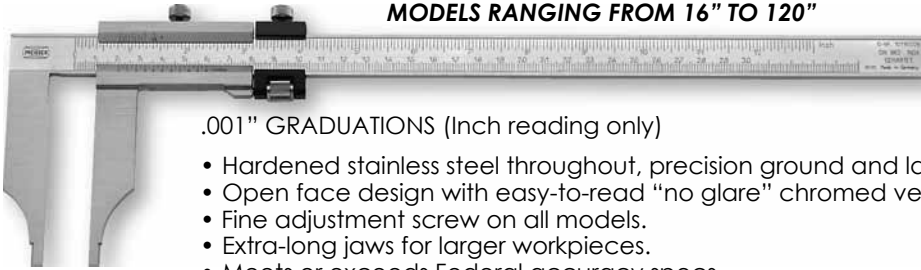
MODEL NO.	MEASURING RANGE	JAW LENGTH	DIMENSIONS (mm)								
			A	B	C	D	E	F	G	H	I
18380	12"/305mm	3.5"/89mm	450	33	90	24.5	10	10	25.0	4.5	17.0
18381	20"/500mm	6"/152mm	726	42	150	33.5	15	20	31.9	6.0	29.0
18382	31"/787mm	6"/152mm	1026	42	150	33.5	15	20	31.9	6.0	29.0
18383	39"/991mm	6"/152mm	1226	42	150	33.5	15	20	31.9	6.0	29.0
18384	59"/1499mm	8"/203mm	1526	42	200	33.5	15	20	31.9	6.0	29.0
18385	79"/2007mm	8"/203mm	2026	42	200	33.5	15	20	31.9	6.0	29.0

All Calipers come in fitted wooden case.



PRECISION WORKSHOP VERNIER CALIPERS

MODELS RANGING FROM 16" TO 120"



.001" GRADUATIONS (Inch reading only)

- Hardened stainless steel throughout, precision ground and lapped for accuracy.
- Open face design with easy-to-read "no glare" chromed vernier.
- Fine adjustment screw on all models.
- Extra-long jaws for larger workpieces.
- Meets or exceeds Federal accuracy specs.
- Case not included.*

*Available upon request. Phone or Fax.

MODEL NO.	MEASURING RANGE	DEPTH OF JAW
18300	0-16"	5"
18301	0-24"	6"
18302	0-40"	6"
18303	0-60"	8"
18304	0-80"	8"
18305	0-100"	8"
18306	0-120"	8"

FLEXBAR COMBI-GAGE

ALL IN ONE TOOL for Automotive Service and a variety of measurement applications.

Quickly and accurately measure both minimum thickness on rotors, and maximum diameter on drums



Model No. 70080



Presets for direct inside (drum) and outside (rotor) readings.

Measuring Ranges (Inch/Metric)

Brake Drums: 2" to 13.9" (50.8mm to 353mm)
 Rotors: 0" to 11.9" (0mm to 302mm)
 Resolution: .0005" (.01mm)
 Accuracy: .001" (.02mm)



Convenient Brake Drum Measurement

Quick & Easy Rotor Measurement

- Rugged heavy duty construction resists flexing
- Large, easy to read LCD display makes it simple to use as a sales tool with your customers
- Push button preset for direct reading of scale with no math conversion necessary



MODEL NO. DESCRIPTION

70080

Complete kit includes Combi-Gage, 2" Calibration Gage, Deluxe Blow Molded Case & Instructions.



ELECTRONIC BLUETOOTH CALIPERS - IP67

Works with most electronic devices through built-in bluetooth connection



- Resolution: 0.0005"/0.01mm
- Accuracy: $\pm 0.001''$ (0-6")
 $\pm 0.0015''$ (0-8", 0-12")
- Protection rating: IP67 water and dust proof
- Data Storage Function*
- Battery: 3V, CR2032

MODEL NO.	DESCRIPTION
15816	6"/150mm Electronic Bluetooth Caliper - IP67
15817	8"/200mm Electronic Bluetooth Caliper - IP67
15818	12"/300mm Electronic Bluetooth Caliper - IP67

* When not connected to a Bluetooth device, the caliper will store up to 99 data readings after pressing Data Button. When connected to a Bluetooth device, press Data Button and all the temporary stored data will be transmitted to the desired program.

ABSOLUTE ORIGIN DIGITAL CALIPERS - IP54

Super High Accuracy Absolute memory technology keeps track of its origin once set.

No need to reset to zero! Unlimited measuring speed.

Large Easy-To-View LCD displays the actual sensor position...Ready to start measuring.



- Resolution: 0.0005"/0.01mm
- Accuracy: $\pm 0.001''$ (0-6")
 $\pm 0.0015''$ (0-8", 0-12")
- Protection rating: IP54 humidity & dust resistant
- Battery: 3V, CR2032
- Includes plastic case & spare battery
- USB Data Output
- Wireless Data Kit available



MODEL NO.	DESCRIPTION
15840	6"/150mm Absolute Digital Caliper - IP54
15841	8"/200mm Absolute Digital Caliper - IP54
15842	12"/300mm Absolute Digital Caliper - IP54
15843	SPC/USB Data Output Cable
15844	Wireless Data Sender to Bluetooth device (shown above)
15845	Wireless Data Sender & Receiver Kit



FLEXBAR EASY-READ DIGITAL CALIPERS

High Speed Digital Accuracy at Economy Pricing



Features Extra-Large LCD Display!

FEATURES:

- 6"/150mm Range
- Stainless Steel Frame
- Large Easy-to-Read display (10mm high)
- Direct inch/metric conversion
- Battery: 3V, type CR2032 Lithium, approx. 1 year life
- 4-way measurement inside, outside, depth, and step
- Absolute/Incremental Measurement
- SPC output
- Resolution: .0005"/.01mm
- Accuracy: .001"/.02mm
- Repeatability: .0005"/.01mm

MODEL NO. DESCRIPTION

15810	Flexbar 6"/150mm High Speed Digital Caliper
15811	Flexbar 8"/200mm High Speed Digital Caliper
15812	Flexbar 12"/300mm High Speed
15814	Replacement Battery, 3V type CR 2032

LEFT HAND ELECTRONIC DIGITAL CALIPERS

AVAILABLE IN 6" & 12" MODELS

- Resolution: 0.0005"/0.01mm
- Repeatability: 0.0005"/0.01mm
- Data Serial Output
- Inch/Metric Conversion
- Includes Hard Plastic Fitted Case
- Max. Measuring Speed 1.5m/s; 60"/s
- Zero Setting function
- On/Off Button
- Uses one 1.55V (SR44W) battery
- Inside, outside, depth & step measuring



MODEL NO. DESCRIPTION

15791-L	6"/150mm Left Hand Electronic Digital Caliper
15792-L	12"/300mm Left Hand Electronic Digital Caliper
15831	Replacement Battery for above models

UNIVERSAL CALIPER ACCESSORY KIT



"MEASURES PLACES OTHERWISE IMPOSSIBLE TO REACH"
CAN BE TURNED 180° FOR GROOVE MEASURING

The square bodies attach to the jaws of any 4", 6", 8" Caliper. Threaded holes are located in the front, both sides, and the bottoms of the bodies, allowing the use of the points on any side. Measures slots, grooves, shoulders, holes, pockets, and takes ID and OD measurements.

MODEL NO. 16999

Universal Caliper Accessory Kit (Does not include caliper). Kit contains: (2) Universal caliper bodies, (4) Pair (8pcs.) Accessory Points: (2) Flat, (2) Conical, (2) Stem, (2) Ball End, Allen wrench included.



GROOVE MEASUREMENT CALIPER JAWS

A complete range of accessory jaws that fit on most 6" Calipers for measuring grooves. Finds many uses including undercuts and grooves of all types.



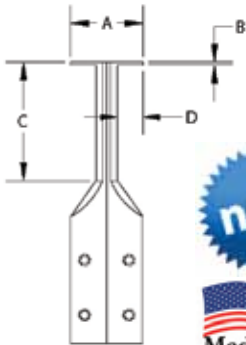
Caliper not included

Works with Dial, Vernier, and Electronic tools with measuring capacity from 0.200" to 6" in diameter. Bodies are self aligning, as they have an alignment pin built into each pair.

Manufactured from cold rolled Steel, Black Oxide finished for protection.

Available individually or in convenient sets. Sets come in plastic fitted cases.

Bodies have .125" wide slot to admit Caliper Jaws



I. Individual Caliper Jaws (pair):

MODEL NO.	SIZE	MINIMUM BORE A	WIDTH OF FLG. B	MAXIMUM DEPTH C	GROOVE DEPTH D
15342	1	.200"	.015"	.400"	.050"
15343	2	.300"	.015"	.625"	.070"
15344	3	.600"	.025"	1.000"	.200"
15345	4	.725"	.040"	1.250"	.255"
15346	5	External	.024"	3.000"	.375"

II. Complete Sets in plastic case:

MODEL NO.	DESCRIPTION
15347	Set of 3 pieces, 1 each size 1, 2, and 3
15348	Set of 5 pieces, 1 each of all sizes

CALIPER ATTACHMENT ACCESSORIES -

For Use with Flexbar Indicator Balls (See Page 51), and Depth Probes (see below)

Jaw Clamp On Accessories



Jaw Clamp-On

- Clamps on to Caliper jaws, allows attachment of Standard gage balls & depth probes with 4-48 threads.
- Available in 3 sizes for different size Calipers.
- Right Angle Adaptor also available, which fits any of the 3 sizes of Jaw Clamp-Ons.
- Steel, Black Oxide plated.

Caliper Jaw Mounting Attachments

Jaw Clamp On & Right Angle Attachment



Right Angle Adaptor

Calipers and gage balls not included



MODEL NO.	DESCRIPTION
22336	Jaw Clamp-On for 6" Calipers (.133 max jaw width)
22338	Jaw Clamp-On for 12" Calipers (.186 max jaw width)
22339	Jaw Clamp-On for 18" Calipers (.245 max jaw width)
22337	Right Angle Adaptor fits any of the above Jaw Clamp-Ons

Depth Probes

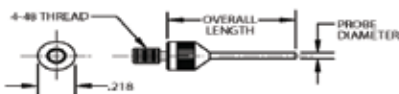
- Attach these Depth probes to 6", 12" or 18" Calipers using our Jaw Clamp-Ons above.
- Available in 5 different lengths.
- Can also be attached to the Right Angle Adaptor.
- Stainless Steel



Caliper and clamp-on not included



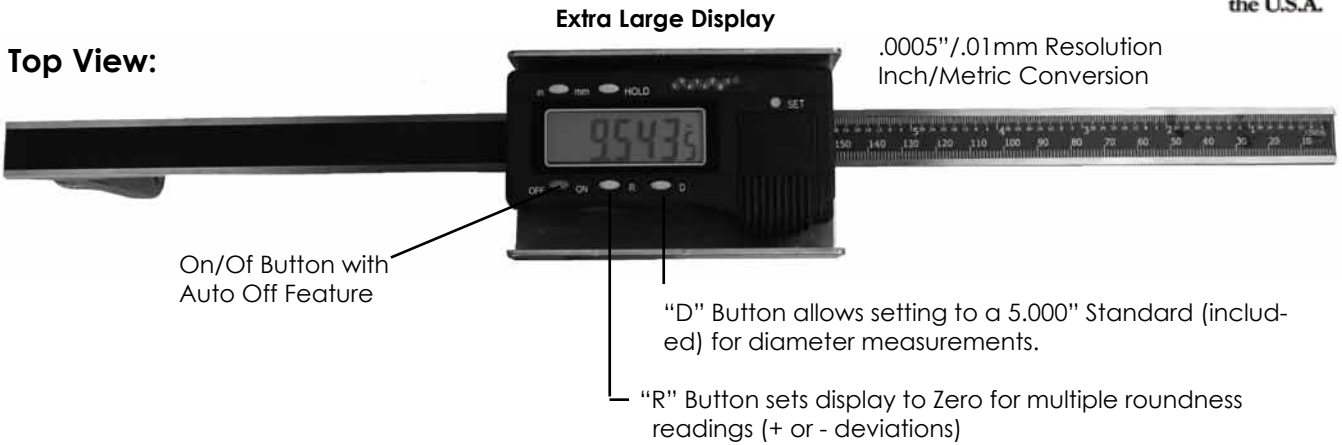
MODEL NO.	OVERALL LENGTH	PROBE DIAMETER
22380	1/2"	0.049"
22381	3/4"	0.049"
22382	1"	0.062"
22383	1 1/2"	0.062"
22384	2"	0.062"



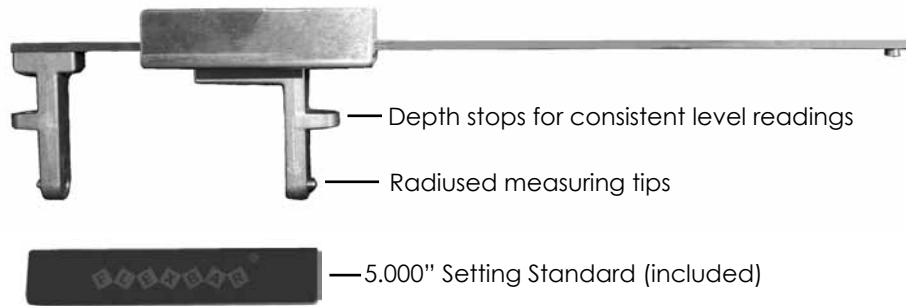


FLEXBAR LARGE I.D. MEASUREMENT CALIPER

A Quick & Easy Tool For Measuring Internal Diameters of Large Pipes, Drums and Other Dimensions Ranging from 5" (125mm) to 15" (375mm)
Ideal for determining Out-of-Round Conditions



Side View:



Shown Above: Internal Drum Diameter Measurement



Shown Above: No.70062 Kit Complete

MODEL NO. DESCRIPTION

70062	Flexbar Large I.D. Measurement Caliper Complete with 5.000" Setting Standard and Molded Hard Plastic Carrying Case
15814	Replacement Battery, 3V type CR2032



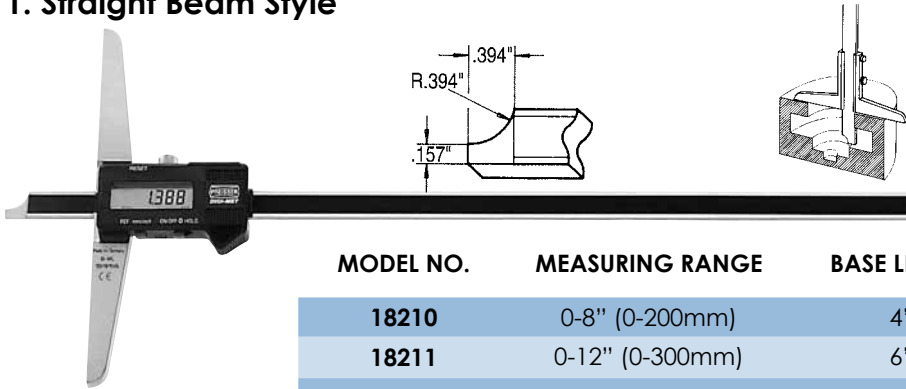
DIGI-MET® DEPTH GAGES



Resolution: .0005"/.01mm.
 Repeatability: 1 digit 10µm/.0005".
 Precision made of stainless steel -
 measuring surfaces hardened and lapped.
 All gages feature DIGI-MET Features; See Page 55.

FREE
 INCLUDES
 CERTIFICATE
 OF CALIBRATION
 TRACEABLE TO N.I.S.T.

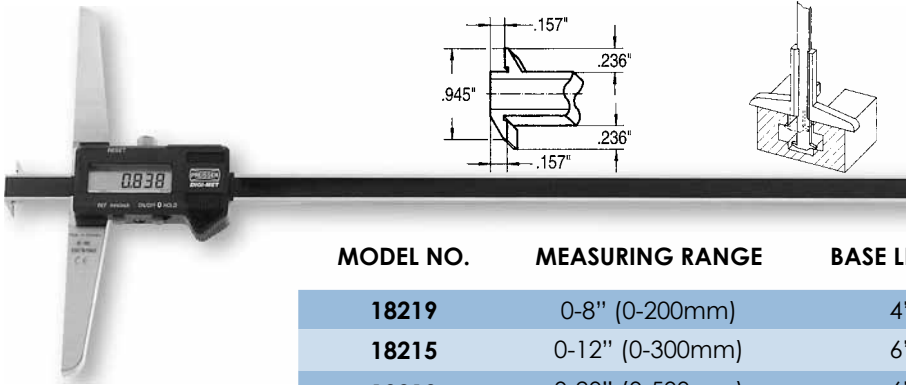
1. Straight Beam Style



MODEL NO.	MEASURING RANGE	BASE LENGTH	CROSS SECTION OF BEAM (mm)
18210	0-8" (0-200mm)	4"	12 x 4
18211	0-12" (0-300mm)	6"	12 x 4
18212	0-20" (0-500mm)	6"	12 x 4

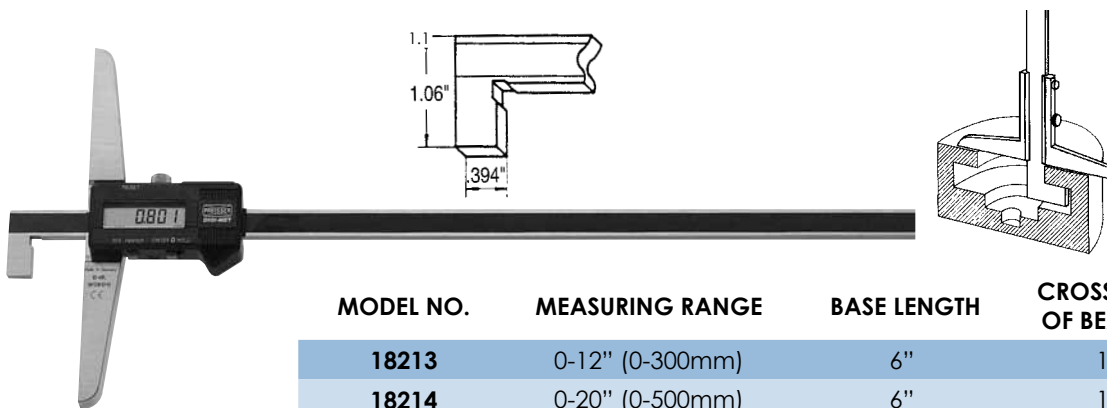
ALL DEPTH GAGE MODELS INCLUDE DELUXE WOODEN CASE
 Digi-Met Accessories: see page 55.

2. Offset Style, for groove measurements



MODEL NO.	MEASURING RANGE	BASE LENGTH	CROSS SECTION OF BEAM (mm)
18219	0-8" (0-200mm)	4"	12 x 4
18215	0-12" (0-300mm)	6"	12 x 4
18218	0-20" (0-500mm)	6"	12 x 4

3. Leg Style, for groove measurements



MODEL NO.	MEASURING RANGE	BASE LENGTH	CROSS SECTION OF BEAM (mm)
18213	0-12" (0-300mm)	6"	12 x 4
18214	0-20" (0-500mm)	6"	12 x 4

LONGER MEASURING RANGE MODELS AVAILABLE UPON REQUEST.
 PHONE OR FAX FOR PRICING AND AVAILABILITY.

DIGI-MET DEPTH GAUGES WITH INTERCHANGEABLE INSERTS



- .0005" Reading
- .001" Accuracy
- 6" Base Length
- Interchangeable inserts available for solving different measuring tasks (order separately below)
- Stainless Steel
- Inductive measuring system, protection class IP67
- All calipers supplied with a wooden case

Electronic Functions

- ON/OFF switch
- QuickStart Electronic
- QuickLock Function
- Zero Setting at any position
- mm/inch conversion
- Variable data output RS232 + Digimatic + USB
- PRESET Function (setting a numerical value)

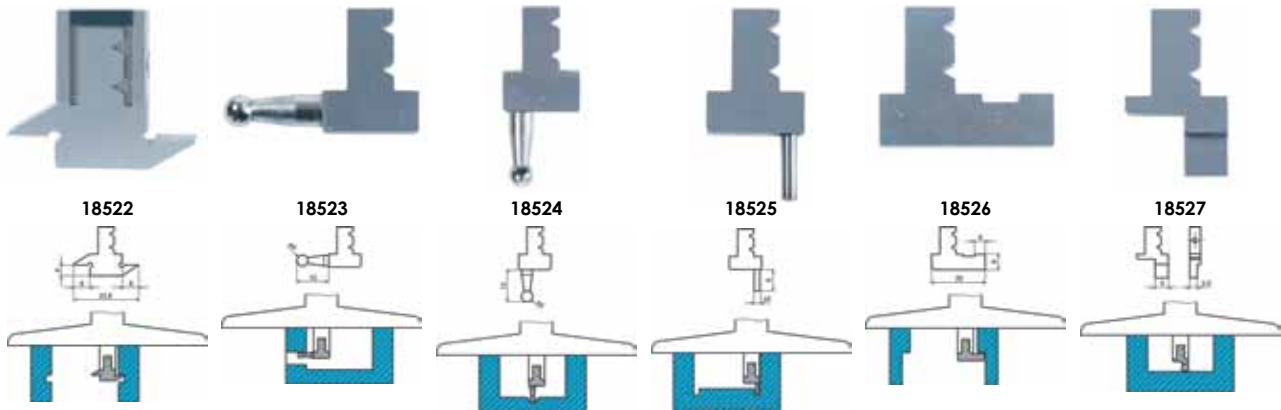
MODEL NO. DESCRIPTION

18520	Digi-Met Depth Gage. Measuring Range: 12"/300mm*
18521	Digi-Met Depth Gage. Measuring Range: 20"/500mm*
18519	Cable for RS232 - 80" Length

* includes 18522 Offset Insert (see below)



INTERCHANGEABLE INSERTS



MODEL NO. DESCRIPTION

18522	Offset insert for groove width and distance measurements. Standard insert included in the delivery of the basic instrument
18523	90° Ball
18524	Straight Ball
18525	Straight Pin
18526	Insert with Hook
18527	Insert with straight measuring rod

SLIDING MEASURING BASES - MADE OF STAINLESS STEEL

Easily attaches to 18520 & 18521 to extend base length.

MODEL NO. DESCRIPTION

18528	Sliding Measuring Base 12" x 5/8"
18529	Sliding Measuring Base 16" x 5/8"





HEAVY DUTY HEIGHT GAGES - 12" AND 24"



FEATURES:

- Absolute encoding sensor
- Can be used with digital indicator (not included) as shown left to increase measuring accuracy
- Inch/Metric
- Large LCD Display
- Carbide Tipped Scriber included
- Smooth Movement
- Data Output port
- Case Included

MODEL NO. DESCRIPTION

15798	Heavy Duty 12"/300mm Electronic Height Gage Res: 0.0005"/0.01mm Accuracy ± 0.0015 "
15799	Heavy Duty 24"/600mm Electronic Height Gage Res: 0.0005"/0.01mm Accuracy ± 0.0015 "
15843	SPC/USB Data Output Cable

6" DIGITAL ELECTRONIC SCALE HEIGHT GAGE WITH MAGNETIC BASE

Heavy Duty Precision Gage Ideal for Quick Measurements on the Shop Floor



FEATURES:

- Travel range: 0-6" (150mm)
- Resolution: 0.0005" (0.01mm)
- Accuracy ± 0.001 " (± 0.03 mm)
- Repeatability: 0.0005" (0.01mm)
- Large LCD Display
- Solid aluminum base with strong magnets embedded
- Stainless steel beam
- Powered by a single battery (CR2032) which lasts about 1 year with normal use (a second spare battery is included)
- Controls: Zero reset, On/Off, inch/mm/fraction conversion, ABS and Hold functions.



MODEL NO. DESCRIPTION

15794	6"/150mm Electronic Height Gage with Magnetic Base
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FLEXBAR SNAP GAGES

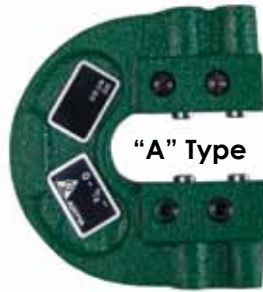


"C" Type

**MODEL CS
TYPE "C"**

(2 ROUND BUTTONS AND ANVIL)

MODEL NO.	FRAME NO.	RANGE
11-1001	1	0 - 1/4
11-1002	2	1/4 - 1/2
11-1003	2X	1/2 - 3/4
11-1004	3	3/4 - 1
11-1005	3X	1 - 1 1/4
11-1006	4	1 1/4 - 1 1/2
11-1007	4X	1 1/2 - 1 3/4
11-1008	5	1 3/4 - 2
11-1009	5X	2 - 2 1/4
11-1010	6	2 1/4 - 2 1/2
11-1011	6X	2 1/2 - 2 3/4
11-1012	7	2 3/4 - 3 1/16
11-1013	7X	3 1/16 - 3 7/16
11-1014	8	3 7/16 - 3 13/16
11-1015	8X	3 13/16 - 4 3/16
11-1016	9	4 3/16 - 4 9/16
11-1017	9X	4 9/16 - 4 15/16
11-1018	10	4 15/16 - 5 5/16
11-1019	10X	5 5/16 - 5 11/16
11-1020	11	5 11/16 - 6 1/8
11-1021	11X	6 1/8 - 6 5/8
11-1022	12	6 5/8 - 7 1/8
11-1023	12X	7 1/8 - 7 5/8



"A" Type

**MODEL AR
TYPE "A"**

(2 ROUND BUTTONS TOP AND BOTTOM)

MODEL NO.	FRAME NO.	RANGE
11-2001	1	0 - 1/2
11-2002	2	1/2 - 1
11-2003	3	1 - 1 1/2
11-2004	4	1 1/2 - 2
11-2005	5	2 - 2 1/2
11-2006	6	2 1/2 - 3
11-2007	7	3 - 3 3/4
11-2008	8	3 3/4 - 4 1/2
11-2009	9	4 1/2 - 5 1/4
11-2010	10	5 1/4 - 6



"U" Type

**TYPE "U" STYLE
FEATURES SPECIAL GROOVED TOP AND
BOTTOM ANVILS FOR GROOVE &
RECESS APPLICATIONS**

MODEL NO.	FRAME NO.	RANGE
11-3001	1	0 - 1/4
11-3002	2	1/4 - 1/2
11-3003	2X	1/2 - 3/4
11-3004	3	3/4 - 1
11-3005	3X	1 - 1 1/4
11-3006	4	1 1/4 - 1 1/2
11-3007	4X	1 1/2 - 1 3/4
11-3008	5	1 3/4 - 2
11-3009	5X	2 - 2 1/4
11-3010	6	2 1/4 - 2 1/2
11-3011	6X	2 1/2 - 2 3/4

OPTIONS: Order No. 11-0000
Setting and Sealing*: Quoted Upon Request
***Includes N.I.S.T. Certification**

Set & Seal Tolerance:
GO: +0 / -.00015"
NO GO: +.00015" / -0

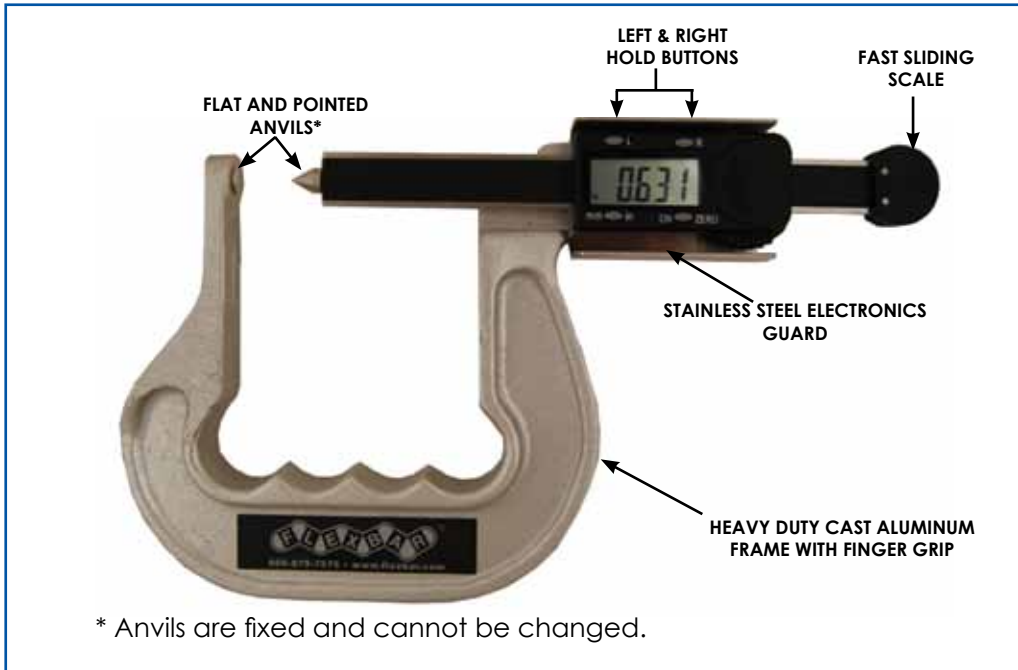
TOLERANCE TABLE	
SIZE RANGE - IN.	GAGE TOLERANCES
0 - 6	+0 -.000015
6 - 12	+0 -.00025



FLEXBAR ELECTRONIC DIGITAL DEEP THROAT MICROMETER



Features Extra Large Digital Display and Stores 2 Readings For Quick Reference.



This rugged, yet lightweight micrometer provides quick and easy measurements for ranges up to 2.400"/61mm and will accommodate depths up to 3.3"/83.8mm. Ideal for shop requirements.

Dual hold/storage function (L&R) useful for taking 2 measurement readings such as left and right brake rotor measurements.

Main Features:

- Fast sliding scale for quick measurements
- Easy to read extra-large digital display
- Easy to hold – ergonomic finger grip
- Cast aluminum frame - rugged and lightweight
- Includes Heavy Duty Molded Plastic Case

Specifications:

- Measurement Range: 0-2.400" (61mm)
- Maximum Measuring Depth: 3.3" (83.8mm)
- Resolution: .0005"/.01mm
- Accuracy: .001"/.02mm
- Inch/Metric conversion
- Auto Shut Off Feature
- Zero setting
- IP54 Water Resistant Protection Against Moisture, Oil & Dust



MODEL NO. DESCRIPTION

15785-DR Flexbar Electronic Deep Throat Micrometer

15814 Replacement Battery, 3V type CR 2032

0-1" BLUETOOTH SPEED-MIC: IP65

Works with most electronic devices through Bluetooth Connection.
Smooth Movement Operating Lever - Push and Release to Make Measurement.



- Absolute encoding sensor
- Inch/Metric
- Resolution: 0.00005"/0.001mm
- Repeatability: 0.00005"/0.001mm
- Accuracy: 0.00015"/0.003mm
- Bluetooth data or SPC/USB data output
- Carbide tipped spindle
- Large LCD Display
- Case included
- Battery: 3V, CR2032



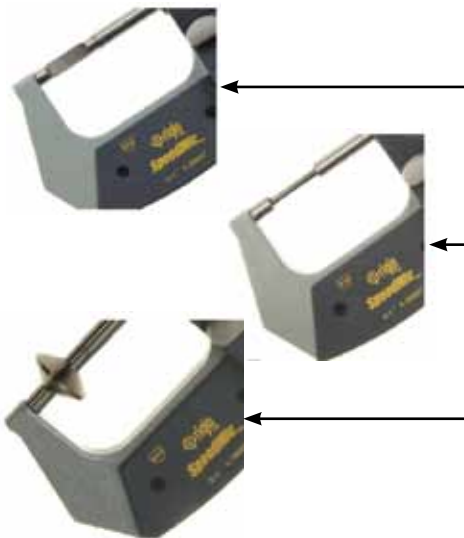
MODEL NO. DESCRIPTION

19266	Bluetooth Speed-Mic, 0-1"/0-25mm Measuring Range
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Additional Specialty Speed-Mic Models

Same features as Model No. 19266 above but without Bluetooth connection.
Versions below include Blade, Spindle and Disc Measuring Anvils.

MODEL NO. DESCRIPTION



19267	Speed-Mic Blade Micrometer, 0-1"/0-25mm measuring range
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19268	Speed-Mic Spindle Micrometer, 0-1"/0-25mm measuring range
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19269	Speed-Mic Disc Micrometer 0-1"/0-25mm measuring range
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DATA OUTPUT ACCESSORIES

15843	SPC/USB Connection Kit for Model Nos. 19267-19269
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FLEXBAR IP54 DIGITAL MICROMETERS

Superior Protection Against Water, Coolants, Dust & Oil



Available in Ranges Up to 4"/100mm

Features:

- Large LCD Display
- Inch-metric and zero setting at any position
- SPC output
- Friction thimble
- Chrome plated frame
- Carbide tips
- Resolution: .00005"/.001mm
- Automatic power off
- Easy single-handed use
- Heat Insulated frame
- Fitted case included

MODEL NO.	RANGE	RESOLUTION	ACCURACY (mm)
19260	0-1"/0-25mm	.00005"/.001mm	±0.004
19261	1-2"/25-50mm	.00005"/.001mm	±0.004
19262	2-3"/50-75mm	.00005"/.001mm	±0.004
19263	3-4"/75-100mm	.00005"/.001mm	±0.004
15831	Replacement Battery		

FLEXBAR IP54 DIGITAL DEPTH MICROMETER SET



0-6"/150mm Range

Resolution: .00005"/.001mm

FEATURES:

- Interchangeable stainless rods, .160" dia.
- Satin Chrome Base, 4"L x .640"W, hardened with micro lapped finish
- Inch/Metric conversion
- Automatic zero-setting
- IP54 Protection Level
- Hold function
- SPC output
- Includes fitted wooden case

MODEL NO. 15777 Electronic Digital Depth Micrometer, 0-6" range

MODEL NO. 15831 Replacement Battery

FLEXBAR DELUXE MICROMETER HOLSTER



Features:

A heavy gage black leatherette holster providing years of use. Designed for all 0-1" micrometers.

- Front flap cover with easy velcro closure.
- Easily attaches to belt or pants using unique strap/velcro closure system.
- Heavy duty stitching.

MODEL NO. 18806



FLEXBAR DELUXE MICROMETER STAND

Adjustable To Any Position

- Modern styled cast iron stand
- Lacquer coating
- Adjustable clamp



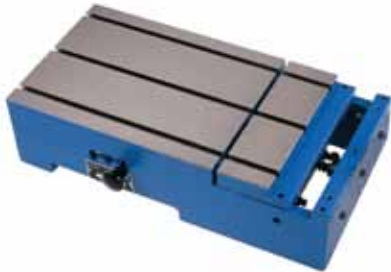
MODEL NO. 15768

THE FLEXBAR CHECKMASTER COMPARATOR

The Ideal Inspection Tool for Both the Metrology Lab or Shop Floor- Where Repeatability, Accuracy & Speed Are Required.

The Checkmaster is a bench gage that gives repeatable gaging results. Readings can be taken from dial indicators or transducers.

- Excellent gage repeatability and reproducibility, (GR and R) capability



Model No. 20910
Above: Checkmaster Basic Unit accommodates up to 3 different inputs.



Above: Checkmaster in use with Universal Tooling Set to create custom measuring applications.



Above: Model No. 20911 Universal Tooling Set

In use with the Universal Tooling Set the Checkmaster can address the following applications and more:

- Diameters, internal and external
- Undercuts, O ring grooves, ball tracks, internal and external
- Gear and spline pitch diameter internal and external
- Rolling gear test, gear to gear or gear to master
- Gear pitch diameter to shaft bore run out
- Holes center to center
- Accepts any 8mm or 5/8" stemmed gage or transducer

- Concentricity bore to O.D.
- Step height, lengths, depths
- Three gage positions

Please visit our website for Applications & Examples.
www.flexbar.com

MODEL NO.	DESCRIPTION
20910	Flexbar Checkmaster Comparator, Basic Unit Only
20911	Universal Tooling Set for Checkmaster Comparator
20912	Checkmaster Comparator & Universal Tooling Set Complete

DIAL & DIGITAL INDICATOR DEPTH GAGE SETS WITH 2-POSITION BASE



- Range: 0 to 22" (with included 6 extension rods 1", 2", 3", 4", 5", 6")
- Indicator can be mounted on center or side of base.
- Base length: 4"
- Super high precision dial indicator - .0005" Res. (Set No. 16835)
- Super high precision electronic indicator (Set No. 16836)
 - Extra large LCD display
 - ABS: absolute & incremental reading
 - Resolution: .0005"/.01mm/ 1/128"
 - Accuracy: ±0.001"
- Sets include 10 attachments (6 extension rods and 4 feeler points)
- Protective case included



MODEL NO.	DESCRIPTION
16835	Dial Indicator Depth Gage Set, 0-22" Range
16836	Digital Indicator Depth Gage Set, 0-22" Range



WIRELESS BLUETOOTH INDICATORS



new

Smart Wireless Connection: connectable to most Bluetooth enabled devices like smart phones, tablets, notebooks or desktop computers. Press the Data button to output measure data to most writeable apps or programs.

- Absolute encoding
- Origin setting
- Preset value
- IP54
- Inch/mm
- High contrast LCD Display
- Face rotation up to 330°
- Carbide tip
- Battery: 3V, CR2032



MODEL NO. DESCRIPTION

MODEL NO.	DESCRIPTION
15835	½" Bluetooth Indicator - 0.00005"/0,001mm Reading, 0.00016" Accuracy
15836	1" Bluetooth Indicator - 0.00005"/0,001mm Reading, 0.00016" Accuracy
15860	½" Bluetooth Indicator - 0.0005"/0,01mm Reading, 0.0005" Accuracy
15861	1" Bluetooth Indicator - 0.0005"/0,01mm Reading, 0.0005" Accuracy

FLEXBAR V-ANGLE DIAL DEPTH GAGE BASE

Features 120° Prismatic Base

Ideal for checking cylindrical parts ranging from 10mm/.394" to 100mm/3.94". This "Keyway" base will accept any dial or digital gage with a .375 stem, or 8mm stem using supplied reducer bushing.

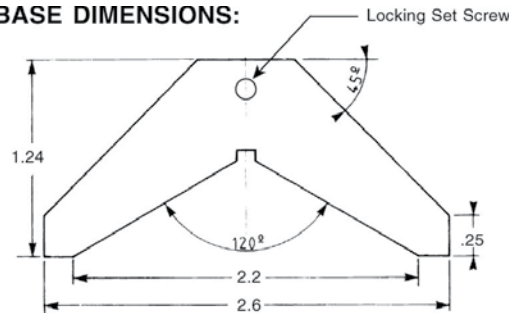


FEATURES:

- Made of tempered stainless steel with ground base.
- Other surfaces are rust-proof treated.
- Thickness: .630".

Left: Flexbar Depth Gage Base (Model No. 16839) in use with No. 12745, .0001" reading dial indicator (not included).

BASE DIMENSIONS:



MODEL 16839	Flexbar V-Angle Depth Gage Base only
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FLEXBAR DIAL INDICATOR DEPTH GAGE BASES



Precision ground and hardened Depth Base accepts any standard AGD Dial Indicator with 3/8" stem. Manufactured from hardened Steel, ground for flatness, and Black Ox plated.

MODEL NO. DESCRIPTION

16837	2½" Long Base
16838	4" Long Base





DIGI-MET® ELECTRONIC INDICATORS

Featuring Direct RS232C Output And Swiss SYLVAC Electronics.
 A sophisticated non-contact linear measuring system... can be connected to any computer or printer with no interface necessary. Featuring .00005" (0,001mm) Resolution with ±.00012" Accuracy; Repeatability: 0,003mm/.00012".

FEATURES:

- AGD Group 2, 8mm stem with 3/8" bushing adaptor.
- Rugged Polyamid housing.
- Stainless shank and spindle.
- Tracking Speed: 60"/second.
- Display rotates 270°.
- Top lifting knob.
- Measuring force: 0.6-1.1N.
- Low Drain Lithium Battery: 4500 continuous on time or 2-3 years with on/off switch.

FREE
INCLUDES
CERTIFICATE OF CALIBRATION
TRACEABLE TO N.I.S.T.



EXTRA-LARGE
DIGITAL DISPLAY
FOR EASY
READING !



FUNCTIONS:

- Direct inch/metric conversion.
- Zero-setting at every point.
- HOLD - function.
- PRESET - function with dual measuring references to ±99.99999.
- Incremental floating zero. If tool is used for SPC, the zero button can automatically be configured as a data I/O switch.
- RS232C Opto Electronic Output.

MODEL NO. DESCRIPTION

18318	DIGI-MET Electronic Indicator with 0-1" (0-25mm range)
18319	DIGI-MET Electronic Indicator with 0-1/2" (0-12.5mm range)

ACCESSORIES

18517	Lugback attachment for DIGI-MET Indicators
18518	Lifting lever for models 18318 & 18319
18317	Replacement Lithium Battery, 3V
18315	Direct RS232C Opto-Electric Output Cable for all DIGI-MET direct output gaging; includes 80" connecting cable with 9 pin IBM RS232 connector

FLEXBAR DIGITAL ELECTRONIC INDICATOR

New Advanced Feature Model Offering Dual Analog and Digital Display



Features:

- **Inch/Metric**
- 0-1"/0-25mm measuring range
- .0005"/.01mm Resolution
- **Zero/on/off**
Zero Setting at any position/manual power on/off
- **Data Hold**
TIR, min and max hold functions
- **TOL**
Set tolerance for pass/fail indication
- **ABS**
Switch between absolute and incremental mode
- 3/8" Diameter stem mount
- Supplied with 3mm diameter steel ball contact
- Large Character Height: 10mm
- Dual analogue and digital display
- RS232 Data Output

MODEL NO. DESCRIPTION

15830	0-1"/25mm Digital Electronic Indicator
15829	Replacement Battery



FLEXBAR PRECISION DIAL INDICATORS- AGD2

Each Face Has Dual Scale Continuous & Balanced.
Inch and Metric Models Available.

New IP65 Coolant Proof Black Face .0005" Resolution Model Now Available

SPECIFICATIONS AND QUALITY FEATURES:

- Tolerance pointers standard
- Bearings made from special brass.
- Bezel clamp standard.
- Lug Back is integral with case.
- Constant measuring pressure return spring lever.
- Hardened and lapped pinions.
- Stainless steel hardened stem.
- Superfinished stainless steel rack spindle.
- Revolution counter on face.
- Rotatable Bezel with positive clamp for zero setting.
- Unbreakable crystal.
- All parts interchangeable.
- Totally enclosed case protects movement from dust and oil.



MEETS OR EXCEEDS AGD SPECIFICATIONS

MODEL NO.	GRADUATIONS	RANGE	DUAL SCALE	DIA. STEM	MOUNTING
11997*	.0005"	1"	0-50	3/8"	Central Lug 1/4" dia. Hole
11998	.0005"	1"	0-100	3/8"	Central Lug 1/4" dia. Hole
12001	.001"	1"	0-100	3/8"	Central Lug 1/4" dia. Hole
12003	.001"	.500"	0-100	3/8"	Central Lug 1/4" dia. Hole
12005	.01mm	20mm	0-100	8mm	Central Lug 1/4" dia. Hole
12038	.001"	2"	0-100	3/8"	Central Lug 1/4" dia. Hole

*Black Face, IP65

0-0.4" WATERPROOF DIAL INDICATOR

- Robust, shockproof design
- Travel: 1"
- Reading: .001"
- Continuous reading: 0-50
- Tolerance markers
- AGD Group 2, 2 1/4" dia.
- Lug back and carbide point
- **.0005 Graduation**

Protection Includes:

- Rubber bellows on stem
- Sealed back plate
- O-ring seal on safety cap
- O-ring protection for bezel and rotating dial



MODEL NO. 12872 0-0.4" Waterproof Dial Indicator



INDIVIDUAL DIAL INDICATOR POINTS

Available from stock with standard inch AGD 4-48 threads. Our Metric-to-English Conversion Point, Model No. 17350 (see bottom of page) allows the use of any of the below points to be used with metric (M2.5 x 0.45 thread) indicators.

	TYPE	LENGTH	INCH MODEL NO.
	FLAT	0.175"	18570
	FLAT	0.250"	18571
	FLAT	0.385"	18572
	FLAT	0.500"	18573
	FLAT	0.625"	18574
	FLAT	0.750"	18575
	FLAT	0.875"	18576
	FLAT	0.895"	18577
	FLAT	1.250"	18578
	BALL	0.225"	18579
	BALL	0.395"	18580
	BALL	0.625"	18581
	BALL	0.875"	18582
	BALL	0.825"	18583

	TYPE	LENGTH	INCH MODEL NO.
	CONICAL	0.875"	18584
	CONICAL	0.750"	18585
	CONICAL	0.625"	18586
	CONICAL	0.500"	18587
	STEM (Bent)	0.312"	18588
	STEM (Measuring Tip - .120" Length)	1.025"	18589
	STEM	1.160"	18591

INDICATOR POINT KITS



17260

Contains a selection of contact points in styles of half round, flat, bent, soft, long stem, taper and ball type, in all popular lengths. A.G.D. Specification 4-48 thread.



TAPERED CONTACTS

Hardened Steel. A.G.D. 4-48 threads.

MODEL NO.	DESCRIPTION
17260	22 Piece Indicator Point Kit
18614	11 Piece Indicator Point Kit
18615	Tapered Contact 13/32"
18616	Tapered Contact 1"
18617	Tapered Contact 1 1/2"
18618	Tapered Contact 2"

SPECIAL INDICATOR CONTACTS

Hardened Steel

MODEL NO.	DESCRIPTION
18566	Radius Contact
18567	Chisel Point Contact
18568	Offset Chisel Point Contact
18592	1/8" Dia. Steel Ball
18593	1/8" Dia. Carbide Ball
18594	1/4" Dia. Steel Ball
18595	5/16" Dia. Cone Point
18596	1/16" Needle Stud Contact
18597	Roller Anvil Contact 3/8" Roller

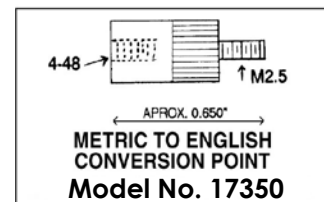


INDICATOR POINT EXTENSIONS

Hardened Steel. A.G.D. 4-48 Thread.

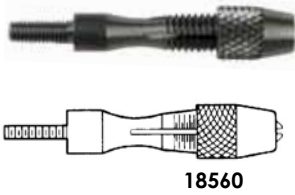


MODEL NO.	LENGTH	MODEL NO.	LENGTH
17262	1/2"	17267	1 1/4"
17263	3/4"	17268	2"
17264	1"	17269	3"
17265	1 1/4"	17825	4"
17266	1 1/2"		





FLEXBAR INDICATOR PIN VISE ACCESSORY



Has
4-48
Thread

Allows any A.G.D. dial indicator to hold any diameter probe, needle, etc. 0 to .040" capacity. Uses standard 4-48 thread for easy mounting to indicator spindle.

MODEL NO.	DESCRIPTION
18560	Pin Vise Accessory for Dial Indicators

CARBIDE AND RUBY BALL PRECISION INDICATOR CONTACT TIPS



Precision contact tips manufactured for use on standard drop style dial indicators. Available with Grade 25 Tungsten Carbide, or Grade 25 Ruby Ball tips. Both Tungsten Carbide and Ruby have extremely hard and smooth measuring surfaces. Fits all AGD standard Groups 1, 2, 3, 4 indicators. **Tungsten Carbide Ball Tips** - Extremely smooth and hard, perfect for use in any repetitive measuring application. Will last much longer than standard steel tips.

Ruby Ball Tips - Ruby tips have the following desirable properties that make it the material of choice for all measuring applications: Hardness, resistance to wear, chemical and thermal stability, extremely low friction coefficient, negligible thermal expansion. Made in U.S.A.

CARBIDE BALL TIPS

MODEL NO.	TIP LENGTH	BALL SIZE	BALL MATERIAL	THREADS
15320	1/4"	3mm	Carbide	4-48
15321	1/4"	3mm	Carbide	M2.5
15322	1/2"	3mm	Carbide	4-48
15323	3/4"	3mm	Carbide	4-48
15324	1/4"	4mm	Carbide	4-48
15325	1/4"	4mm	Carbide	M2.5
15326	1/2"	4mm	Carbide	4-48
15327	3/4"	4mm	Carbide	4-48

RUBY BALL TIPS

MODEL NO.	TIP LENGTH	BALL SIZE	BALL MATERIAL	THREADS
15328	1/4"	3mm	Ruby	4-48
15329	1/4"	3mm	Ruby	M2.5
15330	1/2"	3mm	Ruby	4-48
15331	3/4"	3mm	Ruby	4-48
15332	1/4"	4mm	Ruby	4-48
15333	1/4"	4mm	Ruby	M2.5
15334	1/2"	4mm	Ruby	4-48
15335	3/4"	4mm	Ruby	4-48

FLAT & BUTTON TYPE INDICATOR CONTACTS

Standard contact points for all AGD standard Dial Indicators with 4-48 threads.



FLAT CONTACTS

MODEL NO.	WIDTH	THICKNESS
20690	1/4"	.112"
20691	3/8"	.093"
20692	1/2"	.100"
20693	1/2"	.160"
20694	5/8"	.100"
20695	3/4"	.100"
20696	1"	.125"
20697	1 1/2"	.125"
20698	2"	.125"

2" Contact has ground face

BUTTON CONTACTS

MODEL NO.	WIDTH	THICKNESS
20699	3/8"	.090"
20700	1/2"	.156"
20701	3/4"	.156"

BUTTON CONTACTS



FLAT CONTACTS





PRECISION DIAL TEST INDICATORS

Manufactured and inspected at world class factory that produces the highest quality European brands.

- Three dovetail positioning mounts work with most existing test indicator accessories
- Precision gear-driven design with smooth, jeweled movement
- Contact point reverses automatically, always maintaining clockwise hand rotation
- Frictionally adjustable contacts
- Meets or exceeds ANSI/ASME accuracy specifications
- High contrast, easy-to-read dials with white background
- Satin chrome finish



12870



12871

MODEL NO. DESCRIPTION

12870	Precision Dial Test Indicator 0~0.03" Range Graduation .0005
12871	Precision Dial Test Indicator 0~0.08" Range Graduation .0001

PRECISION QUALITY HORIZONTAL TYPE

TEST INDICATORS

Auto-Reversing • Made in Japan

- Accuracy meets or exceeds Federal Specifications.
- Large, easy reading dial with microfine graduations.
- Fully jeweled movement.
- Independent and interchangeable movement.
- Movement is not influenced by any outside pressures.
- Adjustable bezel and dial are easily set to zero.
- Automatic reversing contact point.
- Contact point adjustable 180°.
- The indicating hand is sensitive and quick to respond because of the jeweled bearings featured with all indicators.
- Rugged, one-piece housing.
- Satin chromed finish.
- Universal - 2 dovetails for back & top mounting plus screw-in mounting of stems for greater versatility.
- Furnished with 2 stems, 3/8" and 5/32" dia., including dovetail adapter, wrench, plus .080" dia. hard chromed contact point.
- Complete in fitted box.

Black Dial Face Model



White Face Model

MODEL NO.	READING	DIAL	RANGE	LENGTH OF POINT
18598	.0005"	1-3/8"	.030"	.750"
18598-B	.0005"	1-3/8"	.030"	.750"
18598-L	.0005"	1-3/8"	.030"	1.52"
18599	.0001"	1-3/8"	.010"	.625"



FLEXBAR ECONOMY DIAL TEST INDICATORS

Fully Jewelled Movement • Auto-Reversing

FEATURES:

- Precision quality
- Adjustable bezel and dial
- $\frac{5}{32}$ " and $\frac{3}{8}$ " diameter mounting shanks
- Contact tip diameter: .080"
- Dovetails top, back and front
- Includes fitted case

MODEL NO.	READING	GRADUATION	TRAVEL	DIAL FACE DIA.
12874	0-15-0	.0005"	.030"	1 1/4"
12875	0-4-0	.0001"	.008"	1 1/4"
12876	0-15-0	.0005"	.030"	1 1/2"



ASSORTED TEST INDICATOR HOLDERS

Holders for fastening at the dovetail or the stem permits use on any test indicator.

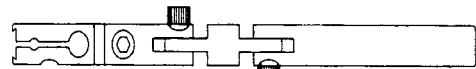


Indicators not included



MODEL NO.	DESCRIPTION
12933	Axial Support Bracket
12936	Holder for lathes, clamp $\frac{1}{2}$ " x $\frac{1}{4}$ " x $2\frac{3}{4}$ " Length
12937	Turning Holder, clamp \varnothing $\frac{1}{4}$ ", 1" Length

Axial Support Bracket



12933

Used for mounting indicators with dovetails $\frac{3}{8}$ " diameter body 5-1/2" overall reach.

Specifications:

- 1 dovetail fits all indicators
- (1) $\frac{1}{8}$ dia. hole at an angle
- (1) $\frac{1}{8}$ hole inside dovetail
- (1) $\frac{1}{4}$ hole
- (3) pivot points

UNIVERSAL DOVETAIL INDICATOR HOLDER

For use with **all** Test Indicators and Probes with Dovetails.



FEATURES:

- 3" Overall Length - $\frac{1}{4}$ " Shank diameter - Locks in four 90 Degree Quadrants - Allows infinitely variable angles - Non scarring Brass Gib will not mark indicators.



MODEL NO.	DESCRIPTION
17490	Universal Dovetail Indicator Holder (indicator not included)

DOUBLE JOINTED TEST INDICATOR HOLDER

- Double jointed holder fits all dovetail equipped indicators. Mount on either front or rear of instrument.
- Indicators may be swiveled to any angular position.
- Because the extended reach allows large diameter centering, this jointed holder is an ideal attachment for jig boring.



MODEL NO.	DESCRIPTION
17271	Double Jointed Holder, $\frac{3}{8}$ " Shank Diameter

QUILL CLAMP TEST INDICATOR HOLDER FOR BRIDGEPORT

- All metal construction (washers are nylon)
- Clamping diameter $1\frac{7}{8}$ "
- Length from clamping bracket to indicator $4\frac{1}{2}$ "
- Reach from 0-12" diameter
- Suitable for all indicators with $\frac{5}{32}$ " shank (stud)
- Adapts immediately for positive and fast indicating
- Mounts with single pressure screw directly on machine quill, bypassing the working tool

Test Indicator:

- Graduation: .0005"
- Travel: .030"
- Reading: 0-15-0
- One carbide tip contact point: .080" dia. x $\frac{3}{8}$ " long
- Includes $\frac{5}{32}$ " & $\frac{3}{8}$ " dia. mounting shanks

MODEL NO.	DESCRIPTION
18140	Quill Clamp Test Indicator holder with Indicator
18141	Quill Clamp Test Indicator holder without Indicator





HEAVY DUTY DIAL GAGE STANDS

Premium Quality Stands Easily Adapted For Thickness Readings and Comparator Work.



19281

MODEL NO. DESCRIPTION

- 19281**
- Measuring Base: Hardened & precision ground special tool steel.
 - Size: 2.36"/60mmØ
 - Vertical Range: 4.72"/120mm
 - Fine Adjustment: 3mm by rack & pinion arrangement
 - Throat Depth: 3"/75mm
 - Pillar Diameter: 1"/25mm
 - Net Weight: 3.25kg
 - Dial Gage Holder: 3/8" dia. with 8mm bushing adapter.
 - Dial Indicator not included.

- 19283**
- Measuring Base: Hardened & Precision ground special tool steel with square grids
 - Size: 2.75" x 2.75"/70x70mm
 - Vertical Range: 6"/150mm
 - Throat Depth: 3.35"/83mm
 - Pillar Depth: .86"/22mm
 - Net Weight: 3.75kg
 - Dial Gage Holder: 3/8" dia. with 8mm bushing adapter.
 - Dial Indicator not included.



19283

FLEXBAR HEAVY DUTY DIAL GAGE STAND

Premium Quality Stand Easily Adapted For Thickness Readings and Comparator Work.

- Measuring Plate: 3 3/4" x 3 3/4".
- Measuring Surface: Hardened, ground and lapped.
- Flatness: 0.002mm/.0001".
- Dial Gage Holder: 3/8" dia. with 8mm bushing adapter.
- Heavy Duty Cast Iron Base, enameled.
- Fine Adjustment Knob for Zero Setting.
- Post Dimensions: 9" Long x 1.18" diameter.
- Measuring plate is removable.
- Weight: 12 lbs



MODEL NO. DESCRIPTION

- 18422** Flexbar Heavy Duty Dial Gage Stand. Dial indicator not included.

FLEXBAR 3D ARTICULATING INDICATOR HOLDER SET

Includes .030" Travel Test Indicator & Case.
Highly useful for centering holes on milling machines.

3D Articulating Arm:

- 3/8" dia. x 40mm long stem
- Overall length: 7"
- Red anodized arms
- Dovetail clamp & 3/8" dia. indicator holder

Test Indicator:

- Graduation: .0005"
- Travel: .030"
- Reading: 0-15-0
- One carbide tip contact point: .080" diameter x 1/2" long
- Includes 5/32" & 3/8" dia. mounting shanks



MODEL NO. DESCRIPTION

- 17279** Flexbar 3D Indicator Holder Set with Test Indicator & case.



GRANITE BASE INDICATOR STANDS

Available in 2 Styles with a choice of 9" x 12" or 12" x 18"
Toolroom Grade B Granite Bases



I. 3D ARTICULATED GAGING ARM MODELS

Features:

- Arms can be positioned and fixed easily and precisely with the central tightening knob.
- Precise microfine adjuster at distal end holds AGD dial indicators with $\frac{3}{8}$ " stems (8mm bushing adaptor included) and test indicators with dovetail fitting.

MODEL NO.	BASE SIZE	3D ARM LENGTH
12032	9" x 12" x 2"	12.5" (315mm)
12033	12" x 18" x 3"	14" (355mm)

Above Models: Indicator not included



II. OFF-THE-POST FLEXBAR® MODELS

Features:

- Off-The-Post Style Flexbar arms with In-Line Fine Adjustor (single axis model).
- Instant Positioning - Instant Locking.
- Flexbar arm is height adjustable on post.
- Use with AGD dial indicators with $\frac{3}{8}$ " stems (8mm bushing adaptor included) and test indicators with dovetail fitting.
- Post diameter is 0.625" ($\frac{5}{8}$ ")
- Post height is 12".

MODEL NO.	BASE SIZE	FLEXBAR LENGTH
12030	9" x 12" x 2"	12" (300mm)
12031	12" x 18" x 3"	15" (375mm)

Above Models: Indicator not included



FLEXBAR GRANITE BASE INDICATOR STANDS

A Wide Range of Sizes and Styles To Fit Most Needs

EXCLUSIVELY FROM FLEXBAR

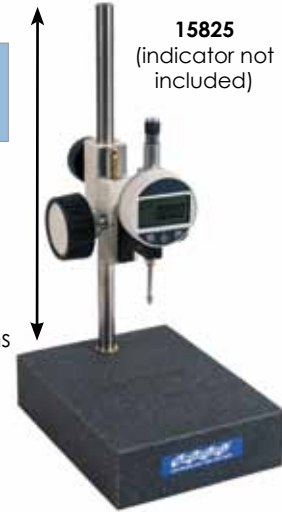
THE GRANITE QUICK CHECK DIAL INDICATOR STAND

**Provides Rapid Height Positioning And Fine Adjustment
With The Turn Of A Knob**

Features:

- Ultra-Smooth Rack & Pinion Indicator Positioner offers 2" of vertical travel
- Rapid adjustment for checking multiple height features on parts
- Twin knobs for left or right hand positioning
- Stem mount indicator holding arm accommodates both 3/8" and 8mm diameter stems
- Granite Base: 8" x 6" x 2" high .00005" flatness
- Stainless Steel Column
- Column Height: 12"
- Column diameter: 9/16"

Can be used with any AGD indicator



15825
(indicator not included)

MODEL NO. DESCRIPTION

15825	Flexbar Granite Check Indicator Stand (Indicator is not included - order separately)
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FLEXBAR PRECISION GRANITE CHECK

Lugmount Style Indicator Stands

**IT'S A BLACK GRANITE SURFACE PLATE!
IT'S A DIAL COMPARATOR STAND!**

2 Models: Standard & Large

- Microscrew Fingertip Control, Fine Adjustor.
- .00005" Flatness.
- Granite Base: 6" x 6" x 2" High or 8" x 6" x 2" H.
- 10" Height.
- Accepts All AGD Indicators.

Comes with or without indicator

Post Diameter: 1 1/4"



MODEL NO. DESCRIPTION

12034	6" x 6" x 2" Standard Base Model
12035	8" x 6" x 2" Large Model Granite Check Base
12036	6" x 6" x 2" Standard Base Model with 1" Dial Indicator (.001" Graduations)
12040	8" x 6" x 2" Large Model Base with 1" Dial Indicator (.001" Graduations)

HEAVY-DUTY LUGMOUNT AND STEM-MOUNT GRANITE BASE INDICATOR STANDS

**Now Available in 2 Sizes:
9" x 12" and 12" x 18"**

- Grade B granite bases are supplied with either lugmount or stem-mount* indicator holder.
- *3/8" diameter stem-mount includes bushing for 8mm stems.
- All models include adjustable indicator holding arm with fine adjustor knob.
- Column diameter is 1.250".
- Column height is 12".
- Distance from column to indicator mount : 4 3/4"



MODEL NO.	BASE SIZE	STYLE	OVERALL HEIGHT
17493	9" x 12" x 2"	Stem-Mount	15"
17552	9" x 12" x 2"	Lugmount	15"
17494	12" x 18" x 3"	Stem-Mount	15"
17553	12" x 18" x 3"	Lugmount	15"

Above Models: Indicator not included



Shown: Model No. 17552

Exclusive North American Agent Precision Swiss Made

STRATO LINE & CLASSIC LINE 3D ARTICULATED GAGING ARMS Universal Positioning - Highest Stability

FISSO articulated arms can be positioned in any way desired both easily and precisely. All three arm sections can be fixed and moved with the central tightening knob.

The quick lock ensures a high degree of comfort for the user. A short twist is all that is required to operate the infinitely adjustable clamping system. As a result, work is speeded up and made more efficient.

Main System Features:

- **Powerful and permanent clamping**

The friction clamp is based on an infinitely adjustable and purely mechanical clamping system. Its precisely fitting ball-and-socket joint produces a high degree of static friction which ensures maximum stability. The pre-tension prevents the arm from collapsing unexpectedly, which protects sensitive measuring instruments from damage.

- **Precise microfne adjustment**

Made of high-quality steel, the zero-play fine adjustment ensures precise positioning of the gauging instrument and a high degree of measuring precision and repeatable accuracy. Combined holder for dial gauges and electronic length probes with shaft diameters of 8mm (or 5/16") and gauges with dovetails.

- **Cleverly designed central tightening system**

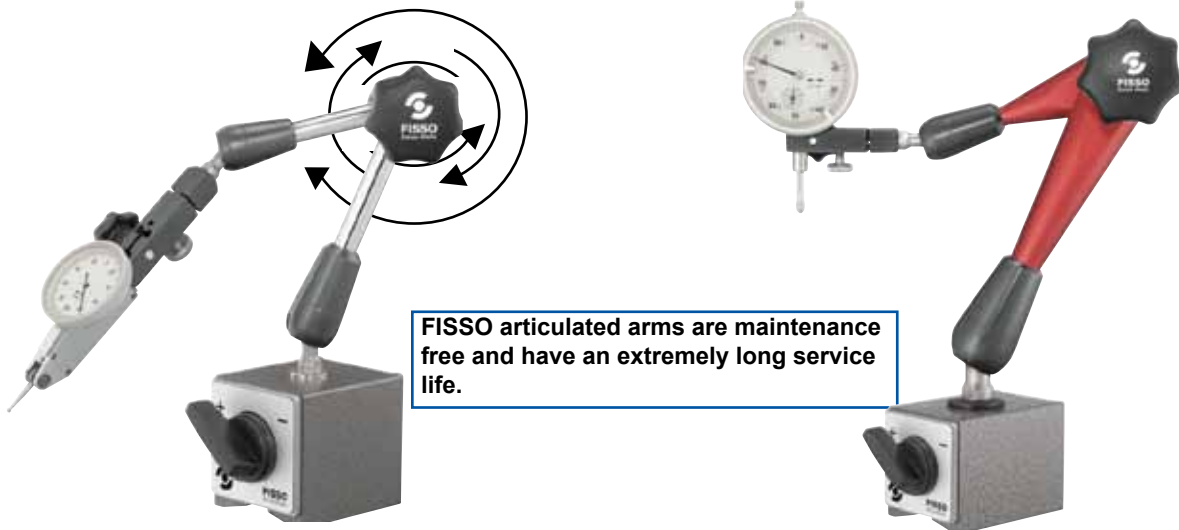
Three joints can be fixed and moved in five different directions with a single touch. The purely mechanical and infinitely adjustable central tightening system with the quick lock offers the greatest possible ease of operation.

- **Stability**

The precisely fitting in the ball-and-socket joint produces a great deal of static friction. Generously dimensioned components provide the desired stability.

- **Secure, stable bases**

A safe, stable base provides the essential foundation for precise measurements. The articulated arms can be mounted as desired, on a strong magnet, vacuum or a granite sliding base.



The Classic line contains proven products with chrome-plated arm sections. The articulated arms themselves are available in four different sizes, with radiuses of movement of 200, 280, 420 or 620mm. As desired, they can be mounted on magnetic or vacuum bases.

The Strato line is a modern series with red anodized arm sections made of a high-quality light metal alloy. The arms are available in three sizes with radiuses of movement of 130, 200 and 280 mm and can be mounted on a magnetic, vacuum or granite sliding base.

STRATO LINE 3D ARTICULATED GAGING ARMS

Strato Line 3D articulated arms for gauges, with fine adjustment and base



TYPE	MODEL NO.	APPROX. TOTAL HEIGHT mm/in	APPROX. RADIUS OF MOVEMENT mm/in	BASE TYPE	BASE SIZE (L x W x H)	SWITCHABLE ON/OFF	APPROX. ADHESIVE POWER, LBS.
XS-13 F + S2	14840	215/8.5"	130/5.15"	Switch magnet S2	34 x 30 x 35	Yes	67
XS-13 F + TMS	14841	210/8.3"	130/5.15"	Pot Magnet TMS	Ø 30 x 25	No	38
XS-13 F	14842	185/7.3"	130/5.15"	None	Thread M6	-	-
S-20 F + M	14845	310/12.3"	200/8"	Switch magnet M	60 x 50 x 55	Yes	168
S-20 F + TM	14846	335/13.25"	200/8"	Pot Magnet TM	Ø 40 x 30	No	67
S-20 F + AM	14847	310/12.3"	200/8"	Anyform magnet AM	77 x 48 x 55	No	134
S-20 F + V	14848	285/11.3"	200/8"	Vacuum Base V	Ø 88 x 27	-	-
S-20 F	14849	255/10"	200/8"	None	Thread M8	-	-
M-28 F + M	18416	390/15.4"	280/11"	Switch Magnet M	60 x 50 x 55	Yes	168
M-28 F + V	18415	365/14.4"	280/11"	Vacuum Base V	Ø 88 x 27	Yes	-
M-28 F	18417	335/13.25"	280/11"	None	Thread M8	-	-
M-28 F + G	14827	385/15.2"	280/11"	Granite Sliding Base G	150 x 120 x 50	No	-
M-28 F + SM	14828	390/15.4"	280/11"	Switch Magnet SM	75 x 50 x 55	Yes	202

US standard; micro adjustment with a seat diameter of 3/8" is supplied unless 8mm is specified

- Classic & Strato models, designed for use with probes, dial and test indicators mounted on machine tools, in measuring devices and when space is at a premium.
- The medium-sized Classic & Strato models, for probes and dial gauges, can be used in all manufacturing areas.
- The largest Classic & Strato models, with infinitely adjustable pre-tension to protect the gauging equipment.



14827



18415

18416

Strato Line Articulated Arms Only (w/o fine adjuster or base)

TYPE	MODEL NO.	APPROX. RADIUS OF MOVEMENT mm/in	APPROX. CARRYING CAPACITY Lbs.
XS-13	14830	130/5.15"	6
S-20	14831	200/8"	9
M-28	14832	280/11"	15

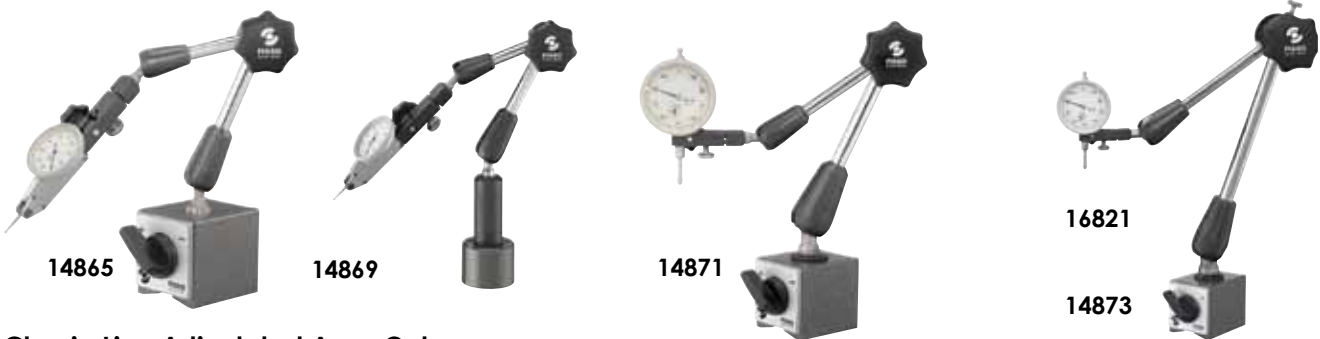


CLASSIC LINE 3D ARTICULATED GAGING ARMS

Classic Line 3D articulated arms for gauges, with fine adjustment and base

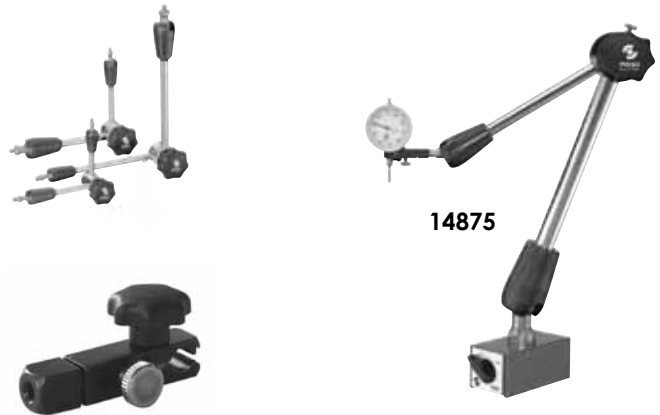
TYPE	MODEL NO.	APPROX. TOTAL HEIGHT mm/in	APPROX. RADIUS OF MOVEMENT mm/in	BASE TYPE	BASE SIZE (L x W x H)	SWITCHABLE ON/OFF	APPROX. ADHESIVE POWER, LBS.
2200-20 F + M	14865	310/12.3"	200/8"	Switch magnet M	60 x 50 x 55	Yes	168
2200-20 F + V	14866	285/11.3"	200/8"	Vacuum Base V	Ø 88 x 27	Yes	-
2200-20 F	14867	255/10"	200/8"	None	Thread M8	-	-
2200-20 F + AM	14868	310/12.3"	200/8"	Anyform magnet AM	77 x 48 x 55	No	134
2200-20 F + TM	14869	335/13.25"	200/8"	Pot Magnet TM	Ø 40 x 30	No	67
3300-28 F + M	16820	390/15.4"	280/11"	Switch magnet M	60 x 50 x 55	Yes	168
3300-28 F + V	14870	365/14.4"	280/11"	Vacuum Base V	Ø 88 x 27	Yes	-
3300-28 F	16822	335/13.25"	280/11"	None	Thread M8	-	-
3300-28 F + SM	14871	390/15.4"	280/11"	Switch Magnet SM	75 x 50 x 55	Yes	202
4900-42 F + SM	16821	530/21"	420/16.6"	Switch Magnet SM	75 x 50 x 55	Yes	202
4900-42 F	16823	475/19"	420/16.6"	None	Thread M8	-	-
4900-42 F + MM	14873	550/22"	420/16.6"	Switch Magnet MM	120 x 60 x 55	Yes	269
5000-62 F + MM	14875	730/28.9"	620/24.5"	Switch Magnet MM	120 x 60 x 55	Yes	269
5000-62 F	14876	675/27"	620/24.5"	None	M10 x 1.25	-	-

US standard; micro adjustment with a seat diameter of 3/8" is supplied unless 8mm is specified



Classic Line Articulated Arms Only (w/o fine adjuster or base)

TYPE	MODEL NO.	APPROX. RADIUS OF MOVEMENT mm/in	APPROX. CARRYING CAPACITY Lbs.
2200-20	14860	200/8"	9
3300-28	14861	280/11"	15
4900-42	14862	420/16.6"	16
5000-62S	14863	620/24.5"	27



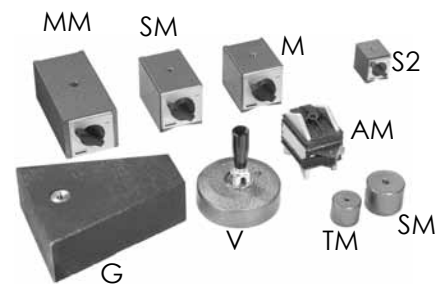
Microfine Adjustment Only

TYPE	MODEL NO.	HOLE DIAMETER	DOVETAIL	CONNECTION THREAD
D8, M6	14834	8mm	Yes	M6
D8, M6	14835	8mm	Yes	M8
D3/8", M6	14836	3/8"	Yes	M6
D3/8", M8	14837	3/8"	Yes	M8



Base Only

TYPE	MODEL NO.	DIMEN. L x W x H mm	APPROX. ADHESIVE POWER, LBS.	CONNECTION THREAD
M	10998	60 x 50 x 55	168	M8
SM	14850	75 x 50 x 55	202	M8
MM	14856	120 x 60 x 55	269	M10 x 1,25
TM	14851	Ø40 x 30	67	M8
AM	11018	77 x 48 x 55	134	M8
S2	14853	34 x 30 x 35	67	M6
TMS	14854	Ø30 x 25	38	M6
V	18418	Ø88 x 27	-	M8
G	14855	150 x 120 x 50	-	M8





SIZE THINGS UP INSTANTLY WITH THE FLEXBAR TOM THUMB



Ideal For Very Tight Work Areas • Precision Engineered
Universal flexible arm locks into an extremely rigid position by turning knob.
Supports up to 2 lb. load when fully tightened.



MODEL DESCRIPTION

18050	6" Tom Thumb arm only. All models accommodate mounting rods or studs up to 1/4" diameter. Turns 1 1/4" diameter circle and locks securely to let you reach "impossible" areas. Mounting clamp fits 5/16" diameter posts.
18009	Mounted Pot Mag. Base - 1 1/8" dia. x 1 3/8" high, 25 lbs. pull with 5" post and fine adjustor.
18052	9" Tom Thumb arm only.
80061-2	Replacement Ball & Thread Cable for Tom Thumb Flexbar Models No. 18009 and 18050
80061-3	Replacement Ball & Thread Cable for Tom Thumb Flexbar Model 18052

18009 (Indicator not included)

PRECISION TRANSFER STAND

- Fast set-ups with dial and electronic probes for accurate transfers.
- Holder for dial indicators with 3/8" diameter stem.
- Rapid coarse adjustment knob and sensitive fine-adjustment.
- Sturdy triangular cast iron base 5" x 5".
- Weight 9.25 lbs.



MODEL NO. 18282 12" Precision Transfer Stand. Indicator not included.

MINI UNIVERSAL MAGNETIC BASE

- 3-D rigid steel arm movement.
- Unique central locking mechanism.
- Accepts all A.G.D. dial indicators and test indicators.
- On/Off magnet power switch.
- Max. Reach: 7.5".
- Base Dimension: 1.2" (width) x 1.5" depth



MODEL NO. 19276 Mini Universal Magnetic Stand

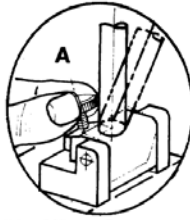
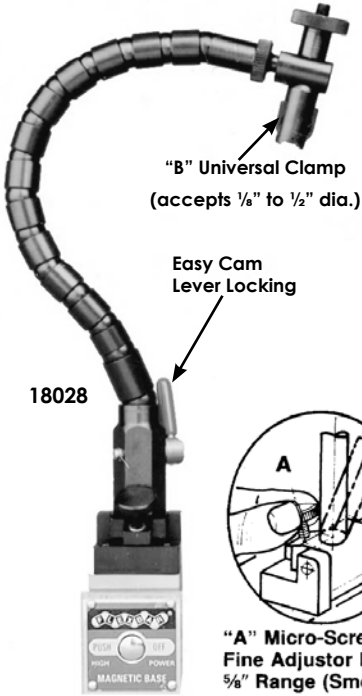


THE ORIGINAL MADE IN U.S.A.

FLEXBAR®

**Instant Positioning—Instant Locking
UNIVERSAL HOLDER/POSITIONERS
FOR ALL AGD INDICATORS AND
ELECTRONIC SENSORS (Lug Backs Too!)**

The heavy duty FLEXBAR is completely flexible; lets you reach over, under, around, instantly and surely. Elimination of the large assortment of rods, swivels, clamps and other hardware necessary to reach and measure in obstructed areas. Cuts set-up time as much as 75% to 90%. FLEXBAR sets and locks with a simple twist of the lever.



"A" Micro-Screw Fine Adjustor Block
5/8" Range (Smooth).

- Top Mounting Clamp ("B"): (Telescopic Action) Grips objects from .125" up to .510" diameter.
- Cable and swagged fittings are stainless aircraft and Mil Spec Grade.
- Locked by Tensioning of Cable, incredible rigidity is achieved by this design. (No Movement once locked).
- Cam Action Locking.



18030
(5/16-18 Thread)
or
18031
(8mm Thread)



Flexible Arm has 14 Balls & Sockets and When Flexed Can turn a 2 1/2" Dia. Circle; Above Units support 3 Lb. Payload. Black Oxide Finish. On/Off Mag Base: 1 5/8" x 1 7/8" x 2" High (approx.). Push-button Type.

VARIETIES OF FLEXBARS

MODEL NO.	HEIGHT	BASE FEATURE	MAGNET PULL (lbs)	NOTES
18026	14"	Fine Adjustor	NONE	Fine Adjustor No Magnet
18027	15"	Mag Base	65 On/Off	No Fine Adjustor
18028	16"	Mag Base with Fine Adjustor	65 On/Off	See Picture
18030	13"	5/16-18 Thread	NONE	See Picture
18031	13"	8mm x 1.25 Thread	NONE	See Picture
18029	16"	Mag Base with Fine Adjustor	65 On/Off	w/1" Dial Indicator .001" Grad.
80060-2	2 Ball Cable for Flexbar Models 18026-18038, 18051, 18058-18063, 11014			

MORE FLEXBARS:



MODEL NO.	DESCRIPTION
18035	Flexbar on V-Bottom Mag Base without universal fine adjustor rod.
18038	Flexbar on V-Bottom Mag Base. Base 2" x 2 1/4" x 2 5/8" with fine adjustor rod as shown.
18032	Flexbar on C-Clamp. All made in U.S.A. Capacity of C-Clamp: 1 3/8" Vertically. Throat to Center of Screw- 3/4"
18034	Flexbar on C-Clamp with 1" Dial Indicator (.001" Graduations)



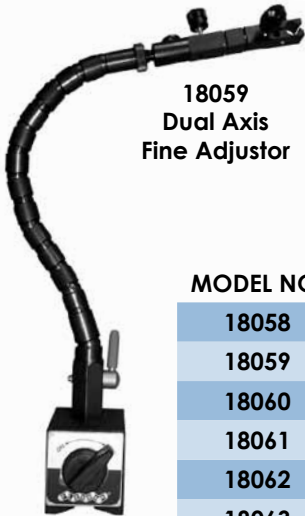
Model No. 18038:
Same Flexbar as on Models 18026 through 18031 but top end has fine adjustor universal rod—5 1/2" long for easy adjustment in any plane. Total reach 22 inches. On/Off Mag Base with V on bottom.



“IN-LINE” FINE ADJUSTOR HOLDERS/POSITIONERS

Flexbar Machine Corporation, innovators for over 40 years of the Flexbar® Instant Positioning-Instant Locking flexible holding arms, has introduced a new top-end, in-line fine adjustor which holds all AGD dial indicators as well as test indicators with dove tail fittings. FLEXBAR models are now available with either single axis or dual axis top end fine adjustors. The fine adjustment assembly is actuated by a very smooth micro-screw thumb adjustor making the FLEXBAR ideal for high precision indicating applications.

- Fine adjustor end holds AGD dial indicators with 3/8" stems (8mm bushing adaptor included) and test indicators with dovetail
- On/Off Mag Base with V on Bottom: 2" x 2 1/4" x 2 5/8", 90lbs. pull.

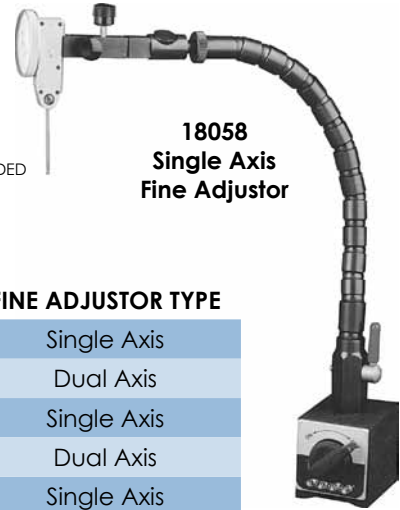


18059
Dual Axis
Fine Adjustor

Available with
Single Axis and Dual Axis Fine
Adjustors



INDICATOR
NOT INCLUDED



18058
Single Axis
Fine Adjustor

FLEXBAR IN-LINE FINE ADJUSTOR MODELS:

MODEL NO.	BASE FEATURE	MAG. PULL	HEIGHT	FINE ADJUSTOR TYPE
18058	V-Mag Base	90	17 1/2"	Single Axis
18059	V-Mag Base	90	18 1/2"	Dual Axis
18060	5/16-18 Thread	None	15 1/4"	Single Axis
18061	5/16-18 Thread	None	16 1/4"	Dual Axis
18062	8mm x 1.25 Thread	None	15 1/4"	Single Axis
18063	8mm x 1.25 Thread	None	16 1/4"	Dual Axis

FLEXBARS ON WEIGHTED & VACUUM BASES

IDEALLY SUITED FOR BENCHTOP, GRANITE SURFACE PLATES OR PRECISION FLAT SURFACES.

Now, Universal and Off-The-Post Style Flexbars
Are Available Mounted On Heavy Duty 6" Dia. Weighted Base.



Universal Clamp
(Accepts 1/8" to 1/2"
Dia.)
18030-WB



18046-WB



Universal Clamp
(Accepts 1/8" to 1/2"
Dia.)
18031-VB

MODEL NO.	DESCRIPTION
18030-WB	Universal Cam Lever Style Flexbar on weighted base. (see page 84 for features)
18046-WB	Off-The-Post Style Flexbar on Weighted Base (see page 88 for features)
18031-VB	Universal Cam Lever Style Flexbar on Vacuum Base (see page 84 for features)



JUMBO FLEXBARS®

Heavy-Duty Flexible Holding Devices

- Cam-lever locking, extra heavy cable.
- Extra heavy ball joints - $1\frac{1}{16}$ " Diameter.
- Holds heavier payload - 5 lbs. or more.

2 MODELS: ON FLANGE OR POWERFUL MAGNETIC BASE

MODEL NO. DESCRIPTION

18039	Cam-lever locking Flexbar on flange mounting base. Height: 18" Net Wt: 1½" lbs. Flange Dimensions: 2¾" x 1¾" x ¾"
18040	Cam-lever locking Flexbar on powerful on/off magnetic base. Dimensions of Mag Base: 2¾" x 2¾" x 3⅜" Total Height: 21"
80060-1	Replacement 2 Ball Cable for 18039 & 18040

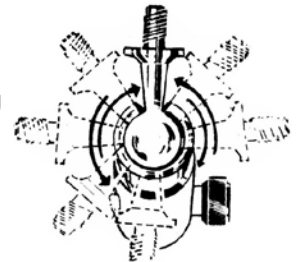


FLOAT 'N LOCK

UNIVERSAL POSITIONERS AND WORK HOLDERS



- It's an excellent Dial Indicator Holder.
- All metal parts used.
- Precision angled bearings interface and lock the ball precisely with a small turn of the locking knob. Excellent rigidity factor.
- Self-compensating - no need to disassemble to re-establish tension (as with other designs).
- Right angle notch (for 90° positioning) can be swung to any point 360° and then locked.



Right angle notch (for 90° positioning) can be swung to any desired point 360° around the clock and then locked in place.



MODEL NO. DESCRIPTION

18001	Basic Unit - Bottom Hole - for mounting is ¾-16 NC-Class 2B
18001-S	Basic Unit - Same as above - Bottom has ¼ - 20 Threaded Post, No Flange.
18002	Basic Unit on 90 lbs. pull Mag. Base - 3¼" dia. x .435" high
18004	Basic Unit complete with 2-posts, lug back & heavy duty magnet (No. 11001) Total Height - 13" Main post - ½" dia. x 8" long. Second post - 7/16" dia. x 3¾" long. 2 each - post clamps. Variable clamping capacity - from .125" up to .510"





FLEXBAR® FLEXARM VISE-GRIP & FLEXARM VISE-GRIP INDICATOR KIT



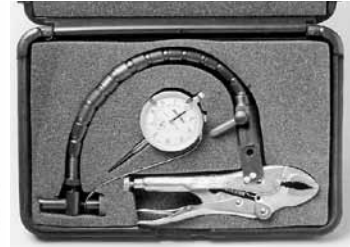
Attaches To Any Convenient Object

FLEXBAR® VISE-GRIP INDICATOR KIT NO. 18051-KIT INCLUDES:

- Flexbar® No. 18030
- Vise-Grip No. 7 CR (curved jaws) with saddle mount block.
- No. 12001, 0-1", .001" reading dial indicator (see page 72).
- Indicator Safety Cable.
- Heavy-Duty Fitted Case.



No. 18051 Flexbar® Vise-Grip shown above with No. 12001, 0-1" travel dial indicator.



Above: No. 18051-KIT

The Flexbar® Vise-Grip Model No. 18051 and 18051-KIT features a Model No. 18030 Flexbar® (see page 84) attached to a No. 7 CR Vise-Grip (Made in U.S.A.). Included on the vise-grip saddle block is a second tapped hole which permits the Flexbar® arm to be mounted horizontally to the vise-grip.

MODEL NO. DESCRIPTION

18051-KIT	Flexbar® Vise-Grip Indicator Kit Complete
18053	Flexbar® Vise-Grip Only (Includes Flexarm and Vise-Grip - indicator not included)

FLEXBAR RIGID ARM VISE-GRIP INDICATOR KIT

Extremely Rigid - Will not Slip

16820-KIT Includes:

- Rigid Arm Assembly
- Vise-Grip No. 7 CR (curved jaws)
- No. 12001, 0-1" reading dial indicator
- Fine Adjustment Mechanism
- Indicator Safety Cable
- Heavy Duty Fitted Case for easy storage



The Flexbar Rigid Arm Vise-Grip Indicator Kit features an extremely rigid holding arm. A single knob locks both the arm and the indicator into position. Included on the vise-grip saddle block is a second tapped hole which permits the arm to be mounted horizontally to the vise-grip.

MODEL NO. DESCRIPTION

16820-KIT	Flexbar Rigid Arm Vise-Grip Kit Complete
16824	Flexbar Rigid Arm Vise-Grip Only (Includes Arm and Vise-Grip Only)



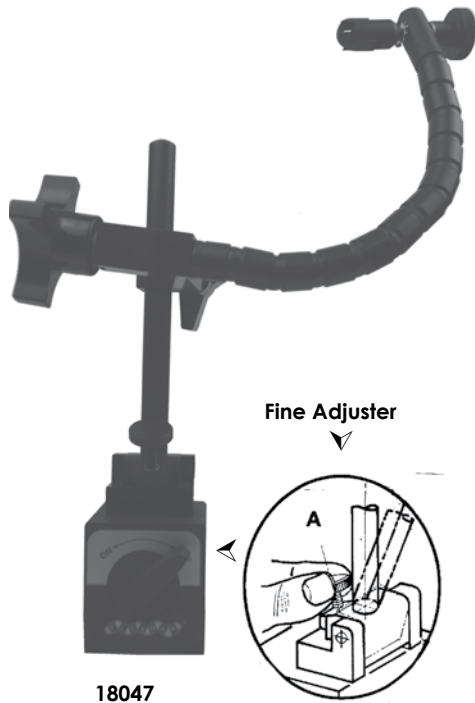
OFF-THE-POST FLEXBARS®

Maximum Rigidity • Excellent Positioning

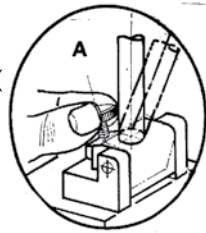


I. ORIGINAL UNIVERSAL CLAMP MODELS:

PRECISION ENGINEERED

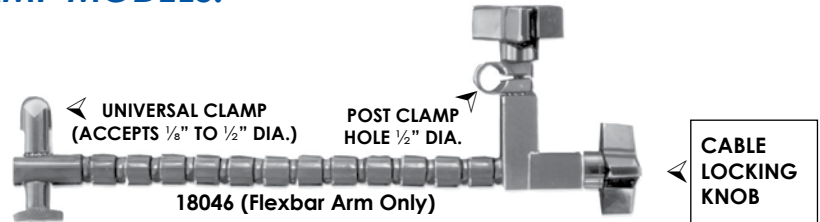


Fine Adjuster



18047

"A" Micro-Screw" Fine Adjustor
Block 5/8" Range (Smooth)



UNIVERSAL CLAMP
(ACCEPTS 1/8" TO 1/2" DIA.)

POST CLAMP
HOLE 1/2" DIA.

18046 (Flexbar Arm Only)

CABLE
LOCKING
KNOB

- Instruments held by Flexbar do not drift.
- Instant Positioning - Instant Locking.
- Post Clamp (Clevis) Fits 1/2" Dia. Post.
- Supports up to 4 lb. Load.
- Accurate tool and instrument positioner.

USE WITH: AGD and Test Indicators, Sensors, Magnifiers, Optic Probes, Wires for Welding, etc.

FLEXBAR DIMENSIONS:

- Bottom of base to top of 1/2" Dia. Post - 9".
- Length of Flexbar itself - 10".
- Cable: 19 strand stainless steel wire has aircraft grade swaged fittings.
- Drawbar & Locking Knob design produces incredibly rigid arm, once locked.
- Top Mounting Clamp grips all shapes .125" to .510" dia.

FLEXBAR MODELS:

MODEL NO. DESCRIPTION

18046	Flexbar without mag. base (as shown above). (Post clamp fits 1/2" dia. Post) Other sized post clamps supplied upon request
18047	Flexbar with mag. base and fine adjustment. On/Off Mag. Base - 2" x 2 1/4" x 2 5/8".
80063-6	Ball & Thread Cable for Flexbar Models 18045-18047 (includes easy instructions for replacing cable).

II. NEW "IN-LINE" FINE ADJUSTOR MODELS:

Now available with either single axis or dual axis top end fine adjustors. The fine adjustment assembly is actuated by a very smooth micro-screw thumb adjustor making the FLEXBAR ideal for high precision indicating applications.

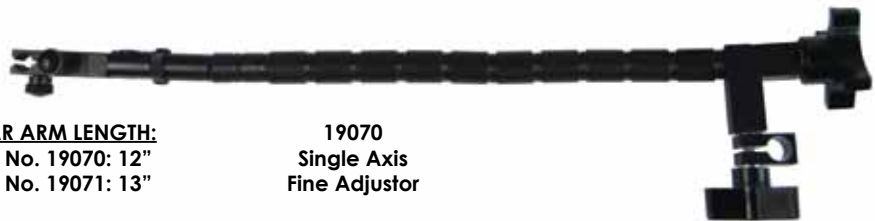
- Similar features to the Original Universal models shown above.
- Fine adjustor end holds AGD dial indicators with 3/8" stems (8mm bushing adaptor included) and test indicators with dovetail fitting.



19075
Dual Axis
Fine Adjustor



FLEXBAR ARM LENGTH:
Model No. 19070: 12"
Model No. 19071: 13"



19070
Single Axis
Fine Adjustor

FLEXBAR MODELS:

MODEL NO. DESCRIPTION

19070	Flexbar without mag. base (as shown above) with Single Axis fine adjustor
19071	Flexbar without mag. base with Dual Axis fine adjustor
19074	Flexbar with mag. base* and Single Axis fine adjustor
19075	Flexbar with mag. base* and Dual Axis fine adjustor

* On/Off Mag. Base with V on Bottom: 2" x 2 1/4" x 2 5/8", 90lbs. pull.



LONG REACH JUMBO FLEXBAR CLAMP WITH 2" KANT-TWIST CLAMP



16380



16381

- 42" Total Reach
- 29" Total Boom Length
- 180lb. Magnetic Base
- 12" x 3/4" main post
- Heavy duty swivel clamp
- 15" x 1/2" Secondary post
- 14" Long Jumbo Flexbar w/ 2" T-Handle Kant-Twist clamp

This clamping device combines some of the strongest components of the Flexbar line. Holds over 3lbs. at full 29" boom extension 12" high.

MODEL NO. DESCRIPTION

16380 Long Reach Jumbo 2" Kant-Twist Clamp Flexbar on Mag Base

16381 Long Reach Jumbo 2" Kant-Twist Clamp Flexbar on Mounting Flange Base

FLEXBAR ADD-A-CLAMP ATTACHMENT

Convert any Flexbar with a "B" Style Clamp into a powerfull holding tool!



1" Kant-Twist



Kit No. 16375



Flexbar has joined forces with the folks who manufacture the famous "Kantwist" clamp. The result is a device which can hold just about any object in position.

This kit comes with a T Handle 0-1" Kant-Twist clamp and a Flexbar adapter. (shown above)

MODEL NO. 16375

Flexbar Add-A-Clamp Attachment Kit, includes 0-1" Kant Twist C-Clamp and bolt connector to connect with Flexbar® distal end "B" Universal Clamp (See Pages 84-86 and 88-89)



FLEXBAR MADE IN AMERICA MAGNETIC BASE AND MAGNETIC BASE STANDS

Flexbar magnetic bases are manufactured, machined, powder coated and assembled in the U.S. from start to finish. Our goal is to produce a superior American-made precision tool. Flexbar bases have 180 pounds of pulling force, all metal part construction, and are made to precision ground tolerances.



10996

- 180 pounds of pulling power - much stronger than the average 100-110 lb. base
- Front handle assembly parts are made from nickel plated zinc die castings
- Back and bottom rails are surface ground square and parallel to within .001"
- Main body has durable blue powder coated finish
- On/off switch
- Base can be mounted vertically as well as horizontally
- V bottom base allows mounting on cylindrical surfaces
- Base without arms is 3½" long (with on/off switch), 2" wide, 2" tall
- Model Nos. 10995 and 10996: The main column is .475 x 7", clamping rod is .390 x 7". Stem hole is 5/32", lug stem is .225".



10995



10998

180 LBS. PULL



10997

MODEL NO. DESCRIPTION

10998	Magnetic Base Only (without stand)
10995	Magnetic Base With Standard Arms
10996	Magnetic Base With Arms With Fine Adjustment Arm
10997	Magnetic Base With Flexbar Arm

ON/OFF MAGNETIC BASES

WITH REMOVABLE FLANGES SO CUSTOM RIGGING CAN BE MADE WITHOUT RUINING MAGNETIC CORES.

FEATURES:

- Heavy-Duty Housing
- Permanent Magnets
- M8 x 1.25mm Mounting Thread Located Under Removable Flange



11003



11001



11004



11000

MODEL NO.	SIZE (INCHES)	BOTTOM SHAPE	MAGNETIC PULL*
11000	2 x 2½ x 3¼	Vee	150 lbs.
11001	4½ x 2½ x 2	Flat	180 lbs.
11003	1½ x 1¾ x 2	Flat	65 lbs.
11004	2 x 2¼ x 2½	Vee	90 lbs.

* Must be on Steel, at least .250" thick

ANYFORM MAGNETIC BASE

Adapts To Any Shape, Any Contour

Designed and Manufactured in U.S.A.

- 70 steel segments independently align and attach themselves firmly to uneven surfaces.
- Powerful magnetic base: 1¾" x 2¼".



11018



11017

MODEL NO. DESCRIPTION

11017	Anyform Mag Base w/fine adjust and stand
11018	Anyform Mag Base only, 8mm x 1.25mm threaded mounting hole



HEAVY-DUTY LONG-REACH™ MAG-BASED INDICATOR STAND



Over 4 Feet Total Reach!

Features Heavy-Duty Swivel Clamps

- Total Reach: 48".
- Main Post: 3/4" diameter x 12" long.
- 2nd Post: 1/2" diameter x 15" long.
- 3rd Post: 1/2" diameter x 15" long.
- 4th Post (includes fine adjustor and indicator holder): 7/16" diameter x 6" long.

HEAVY POWERFUL MAGNETIC BASE

MODEL 18054-MAG Long-Reach™ Indicator Stand on Magnetic Base, 2 3/8" x 2" x 4 11/16"-180lb. pull.

INDICATOR STANDS

QUALITY MADE

Large Size Stands Mounted on On/Off Mag Base.

Available with or without Fine Adjustor Rod

STAND SPECIFICATIONS:

- Lug Back Holder.
- Accepts all AGD Dial Indicators, Stems, etc.
- Accepts Dial-Test indicators 3/8" and 5/32" dia.
- Rugged Locking Knobs.
- Adjusts in both horizontal and vertical planes.
- Main Post: .470 Dia. x 7" Long.
- Secondary Post: .385 Dia. x 6" Long.



18024
SHOWN



18008



18018

MODEL NO. DESCRIPTION

18024	Stand on- On/Off Mag Base with Fine adjustor. Mag Base: 2" x 2 1/4" x 2 5/8", 90lb. pull.
18025	Same as 18024 but without fine adjustor
18018	Lug Back Adapter
18008	Holding rod with fine adjustor (includes Lug Back Adaptor). Post is .385" dia. x 6" long

UNIVERSAL MEASURING STAND WITH FINE ADJUSTMENT



- Heavy base allows any surface set-up.
- Base is made of high grade tool steel hardened and precision ground.
- With Fine Adjustment.
- Max. Extension: 14".
- Base Dimension: 8.90" Length x 2.30" Width x 1.40" Height
- Conforms to most of AGD indicators.
- Weight: 7lbs.



MODEL 18285 Universal Measuring Stand with Fine Adjustment



FLEXBAR ADJUSTABLE SWIVEL CLAMPS ANTI-VIBRATION LOCK

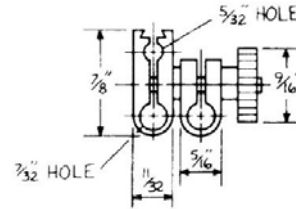
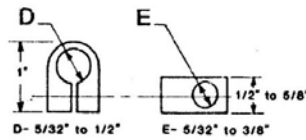
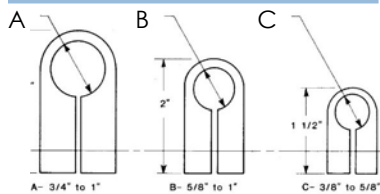
Provides Positive, Rigid Holding Power.

Heavy-duty: from 3/8" x 3/8" to 1" x 1" diameter. Medium duty: from 5/32" x 5/16" to 1/2" x 3/8" diameter.

LARGE MODELS	
MODEL NO.	DESCRIPTION
12571	3/8" x 3/8"
12572	3/8" x 1/2"
12573	1/2" x 1/2"
12574	1/2" x 5/8"
12575	5/8" x 5/8"
12576	5/8" x 3/4"
12577	3/4" x 3/4"
12578	3/4" x 1"
12579	1" x 1"

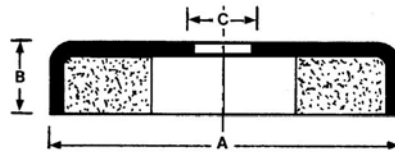
MEDIUM MODELS	
MODEL NO.	DESCRIPTION
12540	7/32" x 7/32"
12541	1/4" x 5/16"
12542	1/4" x 3/8"
12543	1/4" x 1/4"
12544	5/16" x 5/16"
12545	5/16" x 3/8"
12546	3/8" x 3/8"
12547	3/8" x 1/2"

DOVETAIL MODELS:	
MODEL NO.	DESCRIPTION
12517	7/32" x 7/32"
12518	7/32" x 1/4"
12519	1/4" x 1/4"



SUPER POWER MAGNETS

- Round, disc-shaped configuration.
- Zinc plated housing.
- Ceramic core.



MODEL NO.	A	B	C	Magnetic Pull
34800	3.160"	.500"	.400"	100lbs.
34700	2.650"	.425"	.400"	80 lbs.

FLEXBAR MIGHTY MAG

The Versatile Magnetic Base

- Powerful - Accurate 50 lb. Pull
- Zinc Die-Cast Housing has nicely painted finish
- 5 different locations for mounting accessories.
- 3 positions 1/4-20 for lug mounts.
- 1 tapped hole 10-32.
- 1 reamed hole 3/8".
- 1 utility hole with clamping screw.
- Size 4 1/2" x 1" x 1 1/4".



MODEL NO.	DESCRIPTION
11068	Mighty Mag
12026	Mighty Mag with 1" Travel Indicator (No. 12001)



FLEXBAR ROK-IT

Easy to use SPHERICAL PLUG GAGES

GAGES ENTIRE BORE PRECISELY AND EFFORTLESSLY

Supplied from .250" up to 22.00" diameters (or metric equivalents) in hard steel (RC-63).



Gages from .501" diameter and up, blade type fixed onto hex handle.

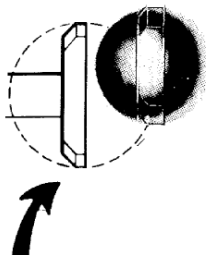
The **ROK-IT** bore gage with its true spherical form eliminates the difficulties and limitations encountered in the use of the conventional type of "plug" or cylindrical gage which has maximum or excess frictional area contact with the work.

It will positively "accept" or "reject" down to the finest limits. It is extremely light and easy to handle. 4" diameter double ended gage weighs 1 lb. It is not possible for the gage to seize or jam in the work. Gages can enter bore at angles as in the case of a component in a machine where quill is in the way. It reveals back taper in blind bores. **ROK-IT** gages work without having to line up gage perpendicular to bore. Hence it is self centering. **ROK-IT** gages are easily and quickly inspected with "Supermike" or any comparator (use flat anvil only).

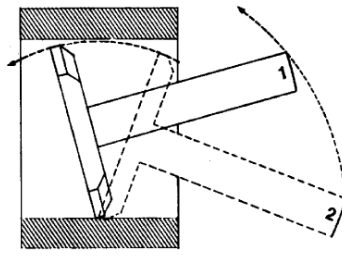
Significant Advantages:

Gages to finer limits: 30 to 50 X greater life: Gages entire bore surface (line contact instead of point contact) :Gage cannot jam in bore: Can be used as an approach gage: Can check recesses: Enters bore from any angle: Gage in 1/5th the time: Checks shallow counterbores and blind holes: Little or no skill required. Checks entire geometry:—BELLMOUTH—HOURLASS BARREL SHAPE—TAPER and BACK TAPER and OVALITY.

EASY TO USE!

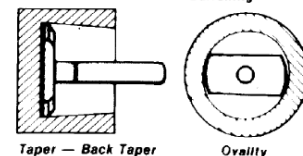
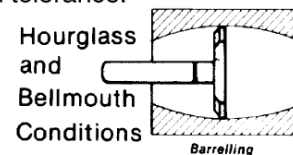


By cutting a section out of a ball we are cutting your gaging time...to a FRACTION!



No Skill Required - The ROK-IT is simple in operation and will considerably cut gaging time and reduce the number of scrapped or defective components.

Enter the ROCK-IT into the bore at an angle (1) and rock upwards through it's own axis (2). If the GO gage meets no resistance and the NOT GO gage meets resistance the bore is within tolerance.

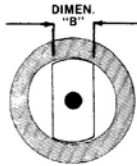




FLEXBAR ROK-IT SPHERICAL DIAMETER BORE GAGES

Ordering Information: Please specify your Rok-It gaging requirements per the following and we will promptly supply pricing and delivery.

GAGE WIDTHS
(Across Flats)
Other Widths Possible, as
Specials.



ROK-IT PLUG GAGES
DIMEN. "B"

DIA. RANGE	STD. GAGE WIDTH	DIA. RANGE	STD. GAGE WIDTH
.250 - .375	.200	1.500 - 1.900	1.000
.375 - .450	.310	1.900 - 2.300	1.125
.450 - .500	.370	2.300 - 2.700	1.250
.500 - .575	.370	2.700 - 3.100	1.375
.575 - .700	.440	3.100 - 3.500	1.500
.700 - .825	.500	3.500 - 4.100	1.750
.825 - .950	.570	4.100 - 4.800	2.000
.950 - 1.075	.630	4.800 - 5.700	2.250
1.075 - 1.250	.700	5.700 - 6.700	2.500
1.250 - 1.500	.875	6.700 - 8.300	2.750
		8.300 - 22.000	3.000

HARDENED STEEL—ROCKWELL C-63 PRICES INCLUDE 4" HANDLE

ORDERING INFORMATION: When ordering, please provide:

1. Tolerances, e.g. GO—3.500"/NO GO 3.501".
2. Class required: e.g. XX, X, Y, Z.
3. Gage design: e.g. Whether single ended or double ended; For deep bore model specify length of parallel rods (allow approx. 3" for handling).
4. Special marking required on gage, e.g. any code which you may wish to imprint, space permitting.
5. Single ended gages—Do you want "GO" or "NO GO".
 - All metric sizes
 - Handles etched with size only
 - Extra charge for additional etchings
 - Gage handles

FOR GAGES from 12" to 22" diameters—ask for SPECIAL QUOTATION. Class XXX on quotation.

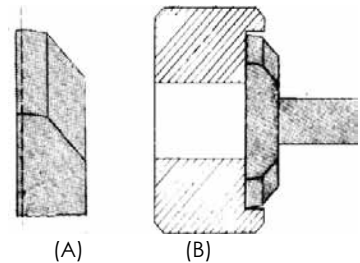
Single-ended gages are recommended over 6" diameter, although double-ended gages will be supplied if specified. Standard handles supplied are 4" long. Handles required over this length are supplied at an additional charge per inch over standard. The above prices apply to both standard and non-standard gage sizes.

CERTIFICATION AVAILABLE: at an additional charge per member.



SHALLOW COUNTERBORES (CHECK DOWN TO VERY BOTTOM OF BORE)

- (A) Center line of sphere on gage is ground forward to a position close to the front face of gage members.
- (B) You can see and feel gage bottoming in the shallow counterbore.



When Ordering: Please Specify "Depth of Counterbore".

DEEP BORE ROK-IT GAGES



ON ARTICULATED HANDLES - SUPPLIED FROM 1" DIA. AND LARGER

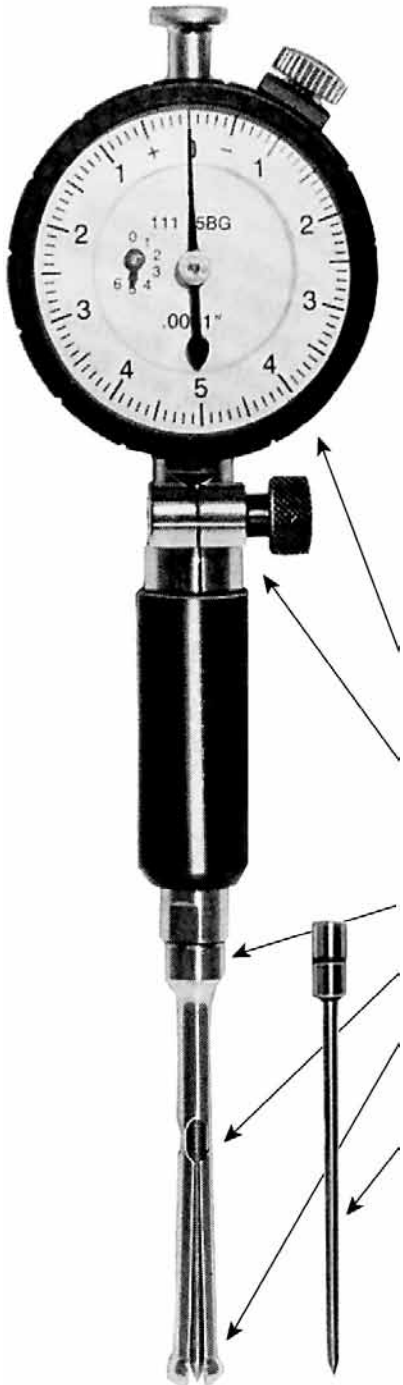
- Ideal for checking extra long bores
- Gaging a recess or chamber within a bore
- Enter bores where entrance bore is smaller than bore being checked
- Handle lengths up to 48 inches

OVERALL LENGTHS: Up to 12", 12" - 24", 24" - 36", 36" - 48".
PRICE ADD-ONS: Phone or Fax for Quote.



FLEXBAR SPLIT BALL TYPE PROBE MEASURING SYSTEM

...a unique, modular design bore gaging system of precisely fitted, quickly interchangeable components providing unmatched versatility and add-on capability.



Buy now only what you need (a single gage or set). Add-on later (other probes, accessories, etc.). You'll never have to duplicate in order to:

1. Inspect other size bores
- *2. Reach greater gaging depths
3. Use higher or lower magnification readout
4. Gage blind or counterbore holes
- *5. Adjust to selected gaging depths
- *6. Readout at right angles to clear obstructions
- *7. Employ bench stand techniques for rapid, high volume bore gaging

No other bore gaging system gives you such versatility or covers such an extensive range of bore sizes...from only .0185" (slightly more than 1/64") to 1.620".

MAIN FEATURES:

Durable, high accuracy Dial Indicator (.0001" grad) with revolution counter and balanced dial. Range selected to span longest range probe.

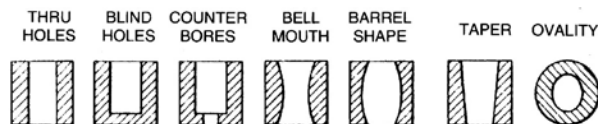
Smooth working, split collet holder with insulated grip. When knurled knob is semi-tight, Indicator can be easily positioned vertically and radially. Once fully tightened, holds securely. Split ball probe, quickly interchangeable with any other. Threads securely to holder.

Precisely relieved section provides closely controlled flex under normal indicator gaging force.

Split ball, hard chrome plated, automatically center in bore, easily passes over annular interruptions. Smooth radius permits easy bore entry.

Precision ground needle, hard chrome plated for durability, high surface smoothness and protection against rust.

USE FLEXBAR PROBES TO INSPECT:



BUY A BASIC GAGE OR A COMPLETE GAGING SET-SEE NEXT PAGES

* Available upon request. Phone or fax for details.



RANGES FROM .0185" - 1.620"

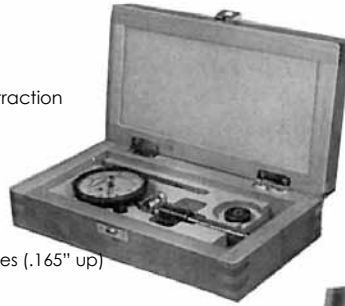
English and Metric models
Self-centering, 2-point gaging
Depths up to 60"

COMPLETE SET INCLUDES:

1. Probes and Needles as listed
2. Dial Indicator (see below) and Retraction Knob
3. Holder with .375" dia. collet
4. Fitted, protective case

OPTIONAL:

1. Depth Extensions
2. Right Angle Attachment
3. Depth Adjuster
4. Carbide inserted probes and needles (.165" up)
5. Holder with 5/16" (8mm) collet
6. Setting Rings



BLIND HOLE



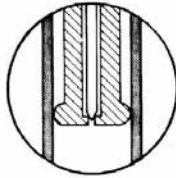
SPLIT BALL

OPTIONAL:

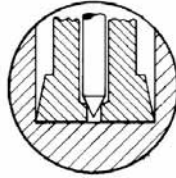
Blind hole probes—available from .057" up. Solid carbide gaging surfaces—available from .165" up. Not available for T series (Slimline) or blind hole probes.

Blind hole contacts have sharp radiused edges, permitting checks close to bottom of hole:

PROBE NOS.	RANGE	FROM BOTTOM
011 THRU 018	.057" - .169"	.012"
021 THRU 029	.165" - .394"	.020"
031 THRU 039	.380" - .830"	.039"
041 THRU 046	.822" - 1.135"	.047"
051 THRU 056	1.130" - 1.620"	.059"



Slim-line (T series) probes and extensions permit high accuracy, deep hole exploration of small bores from .0807" to .388". Ideal for small diameter glass and metal tubing.



PROBE RANGE	PROBE NO.*	NEEDLE NO.*	GAGING DEPTH	SETTING RING	COMPLETE SET NO. THRU HOLE	BLIND HOLE*
.0185 - .210"	0X		.059"	.020"		—
.0205 - .0228"	00	N-1	.071"	.022"	E00	—
.0224 - .0264"	01		.079"	.025"		—
.0256 - .0300"	02	N-2	.099"	.028"	E00	—
.0295 - .0343"	03		.110"	.032"		—
.0335 - .0380"	04		.116"	.036"		—
.0375 - .0450"	05		4"	.040"		—
.043 - .0490"	06		4"	.045"		—
.047 - .0530"	07	N-3	4"	.050"	E0	—
.051 - .0570"	08		4"	.055"		—
.054 - .0610"	09		4"	.060"		—
.057 - .075"	011		.67"	.0625"		—
.067 - .085"	012	N-4	.67"	.0750"	E1	E1B
.081 - .096"	013		.67"	.0875"		—
.091 - .110"	014		.87"	.1000"		—
.105 - .126"	015		.87"	.1150"		—
.120 - .140"	016	N-5	.87"	.1300"	E1	E1B
.134 - .155"	017		.87"	.1450"		—
.149 - .169"	018		.87"	.1600"		—
.165 - .200"	021		1.6"	.1800"		—
.185 - .220"	022		1.6"	.2000"		—
.209 - .244"	023		1.6"	.2250"		—
.235 - .270"	024		1.6"	.2500"		—
.260 - .295"	025	N-6	1.6"	.2750"	E2	E2B
.288 - .323"	026		1.6"	.3000"		—
.313 - .347"	027		1.6"	.3250"		—
.335 - .370"	028		2.0"	.3500"		—
.360 - .394"	029		2.0"	.3750"		—
.380 - .425"	031		2"	.4000"		—
.420 - .480"	032		2"	.4500"		—
.474 - .531"	033		2"	.5000"		—
.524 - .583"	034		2"	.5500"		—
.573 - .634"	035	N-7	2"	.6000"	E3	E3B
.622 - .681"	036		2"	.6500"		—
.672 - 730"	037		2"	.7000"		—
.721 - 780"	038		2"	.7500"		—
.772 - 830"	039		2"	.8000"		—

PROBE RANGE	PROBE NO.*	NEEDLE NO.*	GAGING DEPTH	SETTING RING	COMPLETE SET NO. THRU HOLE	BLIND HOLE*
.822 - .880"	041		2"	.8500"		—
.872 - .930"	042		2"	.9000"		—
.922 - .980"	043	N-7	2"	.9500"	E4	E4B
.972 - 1.036"	044		2"	1.000"		—
1.022 - 1.080"	045		2"	1.050"		—
1.072 - 1.135"	046		2"	1.100"		—
1.130 - 1.220"	051		2"	1.180"		—
1.210 - 1.300"	052		2"	1.260"		—
1.290 - 1.380"	053	N-8	2"	1.340"	E5	E5B
1.370 - 1.460"	054		2"	1.420"		—
1.450 - 1.540"	055		2"	1.500"		—
1.530 - 1.620"	056		2"	1.580"		—

FOR DEEP BORES UNDER .388" (THRU HOLE) AND 337" (BLIND HOLE)

.0807 - .0940"	013/T	N-9	3.5**	.0875"	E1/T†	—
.0920 - .1075"	014/T			.1000"		—
.1071 - .1224"	015/T			.1150"		—
.1220 - .1374"	016/T	N-10	3.5**	.1300"	E1/T†	—
.1370 - .1523"	017/T			.1450"		—
.1519 - .1673"	018/T			.1600"		—
.166 - .187"	021/T			.1800"		—
.186 - .212"	022/T					—
.211 - .237"	023/T					—
.236 - .262"	024/T	N-11	3.6**		E2/T††	E2/TB††
.261 - .287"	025/T					—
.286 - .312"	026/T					—
.311 - .337"	027/T					—
.336 - .362"	028/T					—
.361 - .388"	029/T					—

* To specify blind hole probes and needles, add Suffix B

** Includes length of Extension

† Optional - gaging depths up to 20", Phone or fax for extensions

†† Optional - gaging depths up to 60", Phone or fax for extensions

Also Available Upon Request: Depth Extensions, Depth Adjuster, Right Angle Attachment, Checking Stand and Stand Accessories.

LARGE BORE TYPE SETS, Phone, Fax or Visit www.flexbar.com.

METRIC PROBES AND SETS ALSO AVAILABLE UPON REQUEST.



FLEXBAR TRIGA-BORE™

3-POINT BORE GAGING SYSTEM...

For the accurate and precise measurement of internal diameters.

Triga-Bore is the result of over 30 years of design and manufacture of 3-point bore gaging systems.

Ideal for solving internal diameter measurement problems on the shop floor and inspection areas, the system is available in a large measuring range for specific applications. Mechanical and electronic dial gages as well as linear probes can be used as specified.



Ergonomic, self-centering system provides for easy and accurate measurement of internal diameters.

Main Features:

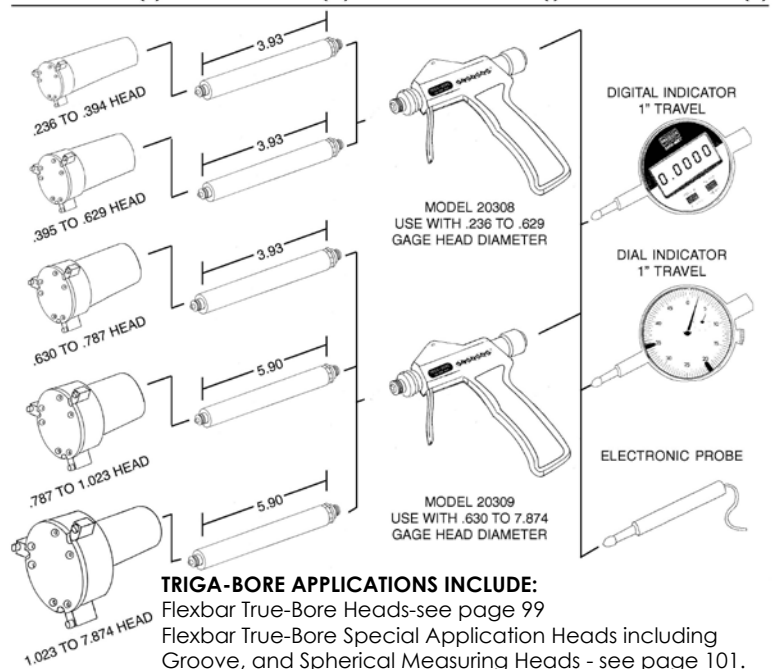
- True-Bore heads have a large measuring range and are supplied with fixed anvils eliminating operator error. 24 heads cover .236" - 7.87" (6-200mm) range.
- Unique System design requires only two handles to accommodate the entire range of 24 heads.
- Extensions available for increased gaging depths.
- Repeatability: .0001"/0.002mm
- High degree of accuracy can be achieved without need for special skills.
- Customer can specify type of output.
- Ideally suited to simple or integrated measurement applications.
- Ergonomically designed handle offers single handed operation.
- Accurate calibration and linearity checks can also be made using Flexbar's Calibrated Ring Gages.

Flexbar offers a range of high resolution, high accuracy Electronic Digital Indicators for use with Triga-Bore Handles and Gaging Heads.



Refer to pages 70 & 71 for more information.

GAGE HEAD (II) EXTENSION (III) TRIGA-BORE™ (I) INDICATORS (V)





FLEXBAR TRIGA-BORE™ SYSTEM

Pistol Grip Style Handle for Flexbar 3 Point Bore Gage Systems

Also available with optional Vertical Lever Style Measuring Handles (see below)

Specifications for Ordering Handles, Gage Heads, Setting Rings, Digital Indicator, and Master Setting Rings and Extensions

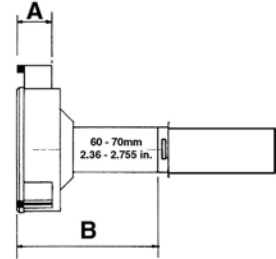
I. TRIGA-BORE™ PISTOL GRIP GAGE HANDLES*

MODEL NO. DESCRIPTION

20308	Pistol Grip Style Handle accepts heads: .236"/6mm - .630"/16mm
20309	Pistol Grip Style Handle accepts heads: .630"/16mm - 7.874"/200mm

IA. LEVER STYLE BORE GAGE HANDLES*

20310	Lever Style Handle accepts heads: .236"/6mm - .630"/16mm
20311	Lever Style Handle accepts heads: .630"/16mm - 7.874"/200mm



*TRIGA-BORE ACCEPTS INDICATOR WITH 3/8" DIAMETER OR 8MM DIAMETER (WITH BUSHING INCLUDED)
OPERATES WITH INDICATORS HAVING 1" TRAVEL OR 1/2" TRAVEL INDICATORS WITH 1/2" EXTENSION (see page 73).

II. TRUE-BORE 3-POINT BORE GAGE HEADS AND MASTER SETTING RINGS



Triga-Bore Handle shown with True-Bore Head, Digital Indicator, and Master Setting Ring.

MODEL NO.	HEAD SIZE		CONTACT LINE A	LENGTH B	HEAD ACCURACY	MASTER SETTING RING BILATERAL CLASS Z STEEL	
	MM	INCH	INCH	INCH	INCH	MODEL NO.	INCH
20312	6-8	.236 - .315	.109	2.36	.0001	21162	.2912
20313	8-10	.315 - .394	.118	2.36	.0001	21164	.3437
20314	10-13	.394 - .511	.157	2.36	.00015	21167	.4375
20315	13-16	.511 - .630	.157	2.36	.00015	21172	.5625
20316	16-20	.630 - .787	.280	2.36	.00015	21177	.7187
20317	20-26	.787 - 1.023	.390	2.36	.00015	21185	.9062
20318	26-32	1.023 - 1.260	.390	2.36	.00015	21191	1.0312
20319	32-40	1.260 - 1.575	.433	2.75	.00015	21205	1.4062
20320	40-50	1.575 - 1.968	.591	2.75	.00015	21450	1.7500
20321	50-60	1.968 - 2.362	.591	2.75	.00015	21451	2.1875
20322	60-70	2.362 - 2.756	.591	2.75	.00015	21452	2.5625
20323	70-80	2.756 - 3.150	.591	2.75	.00015	21453	2.9375
20324	80-90	3.150 - 3.543	.591	2.75	.00015	21454	3.3437
20325	90-100	3.543 - 3.937	.591	2.75	.00015	21455	3.7500
20326	100-110	3.937 - 4.330	.767	2.75	.00015	21456	4.1250
20327	110-120	4.330 - 4.724	.767	2.75	.00015	21457	4.5625
20328	120-130	4.724 - 5.118	.767	2.75	.00015	21458	4.9062
20329	130-140	5.118 - 5.512	.767	2.75	.00015	21459	5.3125
20330	140-150	5.512 - 5.906	.767	2.75	.00015	21460	5.7187
20331	150-160	5.906 - 6.299	.767	2.75	.00015	21461	6.1093
20332	160-170	6.299 - 6.693	.866	2.75	.0002	21462	6.5000
20333	170-180	6.693 - 7.087	.866	2.75	.0002	21463	6.9062
20334	180-190	7.087 - 7.480	.866	2.75	.0002	21464	7.2912
20335	190-200	7.480 - 7.874	.866	2.75	.0002	21465	7.6875



Flexbar Lever Style Bore Gage Handles can be used with entire range of True-Bore 3-Point Bore Gage Heads. Ideal for use in vertical gaging applications and light access situations.



Available in Complete Sets...with or without indicator, See Page 100.

III. OPTIONAL EXTENSIONS (FOR LONGER MEASURING DEPTH)



Extensions may be combined for longer gaging depths. Special length extensions available upon request.

MODEL NO.	FOR USE WITH GAGE HEAD SIZES	LENGTH (mm)	LENGTH (inch)
20345	20312 - 20313	100mm	3.937
20346	20314 - 20315	100mm	3.937
20347	20316	100mm	3.937
20348	20317	150mm	5.905
20349	20318 - 20335	150mm	5.905



Triga-Bore Stand, Model No. 20336 supports Triga-Bore handle/head when not in use.



FLEXBAR TRIGA-BORE™ SYSTEM SETS

Sets available covering a measuring range: .236"/6mm to 3.937"/100mm

Flexbar Triga-Bore System Sets Available with or without indicators



Set Features:

- Appropriate range of True-Bore 3-Point Bore Gage Heads
- Triga-Bore Pistol Grip Handle – accepts indicators with 3/8" dia. stem or 8mm dia. (with included bushing).
- Appropriate setting rings with Certificate of Calibration to N.I.S.T.
- Special stand for holding Pistol Grip.
- Fitted hard plastic carrying case.

COMPLETE TRIGA-BORE/TRUE-BORE SETS INCLUDE

MEASURING RANGES		CONTENTS OF SET	SET WITHOUT INDICATOR	SETS W/STANDARD DIGI-MET INDICATOR
INCH	MM			
.236 - .630	6-16	Triga-Bore Pistol Grip, 4 Heads, 2 Rings	20435	20442
.630 - 1.575	16-40	Triga-Bore Pistol Grip, 4 Heads, 2 Rings	20436	20443
1.575 - 2.362	40-60	Triga-Bore Pistol Grip, 2 Heads, 1 Ring	20437	20444
2.362 - 3.150	60-80	Triga-Bore Pistol Grip, 2 Heads, 1 Ring	20438	20445
3.150 - 3.937	80-100	Triga-Bore Pistol Grip, 2 Heads, 1 Ring	20439	20446



DIGI-MET Indicator No. 18319 Features:

- Resolution: .00005"/0.001mm
- Accuracy: .00015"/0.002mm
- Inch/metric
- Preset Capability
- Preset Recall
- RS232 Output

TRIGA-BORE™ STARTER SYSTEM SETS new

Economical Basic Sets Include Pistol Grip Handle, 3-Point Bore Gage Head, Triga-Bore Stand (No. 20336), Fitted Hard Plastic Case (with extra empty spaces for rings & additional gage heads). Sets available with or without Flexbar Model No. 15835 Bluetooth Electronic Indicator, 0-.5"/12.5mm range (includes 1/2" extension for use with Triga-Bore).

TRIGA-BORE STARTER SYSTEM SETS

MEASURING RANGES		CONTENTS OF SET	SET WITHOUT INDICATOR	SETS W/15835 BLUETOOTH INDICATOR
INCH	MM			
.236 - .315	6-8	Pistol Grip, 1 Head, Stand and Case	20471	20482
.315 - .394	8-10	Pistol Grip, 1 Head, Stand and Case	20472	20483
.394 - .511	10-13	Pistol Grip, 1 Head, Stand and Case	20473	20484
.511 - .630	13-16	Pistol Grip, 1 Head, Stand and Case	20474	20485
.630 - .787	16-20	Pistol Grip, 1 Head, Stand and Case	20475	20486
.787 - 1.023	20-26	Pistol Grip, 1 Head, Stand and Case	20476	20487
1.023 - 1.260	26-32	Pistol Grip, 1 Head, Stand and Case	20477	20488
1.260 - 1.575	32-40	Pistol Grip, 1 Head, Stand and Case	20478	20489
1.575 - 1.968	40-50	Pistol Grip, 1 Head, Stand and Case	20479	20490
1.968 - 2.362	50-60	Pistol Grip, 1 Head, Stand and Case	20480	20491
2.362 - 2.756	60-70	Pistol Grip, 1 Head, Stand and Case	20481	20492

Wireless Bluetooth Indicators with Preset. Model No.15835

- Absolute encoding
- Origin setting
- Preset value
- IP54
- inch/mm
- High contrast LCD display
- Face rotation up to 330°



Optional System Additions Include (Order separately): True-Bore Gage Heads, Master Setting Rings, Depth Extensions - See page 99. Special Application Heads - See Page 101.



FLEXBAR TRIGA-BORE™

SPECIAL APPLICATION GAGE HEADS

For Use With Flexbar Triga-Bore & True-Bore Gage Handles

Quickly & accurately measure most internal threads, grooves, splines, slots and taper bores. Available in measuring ranges: diameters from 10mm up to 200mm.



SPECIAL APPLICATION MEASURING HEADS PRODUCED BY FLEXBAR PER CUSTOMER'S REQUIREMENTS:

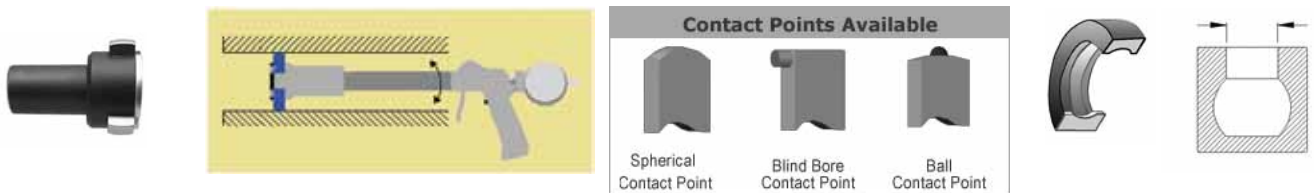
I. Groove /"O" Ring Groove Measurement

Precise groove measurements are made easily and accurately. Application groove requirements for groove width minimum is .060" (1.5mm). Groove depth may not exceed half the travel range of the True-Bore head.



II. Spherical or Deep Bore Measurement

Spherical shaped heads are useful in deep bores where holding the bore gage straight in the bore is difficult, the spherical shape allows only a single contact point per anvil on the bore wall. All special shaped head applications can be reviewed upon request.



III. Thread & Ball Screw Thread Measurement

Available in two or three point thread measurement heads according to application.

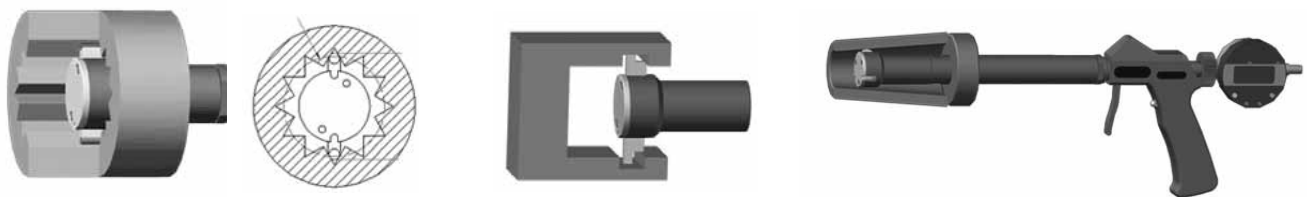


IV. Additional Special Applications include:

Spline Measurement

Slot Measurement

Taper Measurement



Complete information and On-Line Special Applications Quotation Requests available at www.flexbar.com or by phone.



FLEXBAR DIGITAL ELECTRONIC 3-POINT INTERNAL MICROMETERS

Self-Centering 3-Point Bore Micrometers for the Accurate Measurement of Internal Diameters



Each 3-Point Bore Micrometer comes in its own fitted hard case complete with setting ring and depth extension. Ring gage certificate to NIST available upon request.

Individual Bore Micrometer Sets Available as Follows:

MODEL NO	MEASURING RANGE	ACCURACY	EXTENSION ROD LENGTH	SETTING RING DIA.
20850	.275-.350"/6-8mm	.00016	4"	.35"
20851	.350-.425"/8-10mm	.00016	4"	.35"
20852	.425-.500"/10-12mm	.00016	4"	.5"
20853	.500-.650"/12-16mm	.00016	6"	.5"
20854	.650-.800"/16-20mm	.00016	6"	.65"
20855	.800-1.000"/20-25mm	.00016	6"	1.0"
20856	1.000-1.200"/25-30mm	.00016	6"	1.0"
20857	1.200-1.600"/30-40mm	.00016	6"	1.6"
20858	1.600-2.000"/40-50mm	.0002	6"	1.6"
20865	RS232 SPC Output Cable			
15831	Replacement Battery			

- Self-aligning and self-centering
- Carbide tipped measuring contact points suitable for blind bore measurements
- Ratchet stop provides uniform measuring
- Setting ring accuracy: $\pm .000020$ "
- Resolution: $.00005$ "/0.0001mm (Inch/Metric Conversion)
- Thimble Graduation: 0.0001"
- Easy to read electronic digital display with the following measurement functions:
 - Absolute and incremental Measurement
 - Tolerance Settings
 - Preset (+ and -)
 - Hold Key
 - SPC Data Output Capability (RS232C)



IP54 Water Resistant

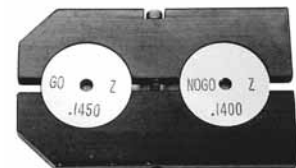
FLEXBAR STEEL CYLINDRICAL RING GAGES

All gages comply with AGD Standards and include Certificate of Conformance to N.I.S.T.
Long Form Certificate Traceable To N.I.S.T. Available - Additional Charge.

Size Range	Class	Tolerance	Size Range	Class	Tolerance
.050" - .070" 1.27mm - 1.78mm Blank #00	Z Y X XX	.0001" .000070" .000040" .000020"	.825" - 1.135" 20.96mm - 28.83mm Blank #4	Z Y X XX	.000120" .000090" .000060" .000030"
.070" - .150" 1.78mm - 3.61mm Blank #00	Z Y X XX	.0001" .000070" .000040" .000020"	1.135" - 1.510" 28.83mm - 38.35mm Blank #5	Z Y X XX	.000120" .000090" .000060" .000030"
.150" - .240" 3.61mm - 6.10mm Blank #0	Z Y X XX	.0001" .000070" .000040" .000020"	1.510" - 2.010" 38.35mm - 51.05mm Blank #6	Z Y X XX	.000160" .000120" .000080" .000040"
.240" - .365" 6.10mm - 9.27mm Blank #1	Z Y X XX	.0001" .000070" .000040" .000020"	2.010" - 2.510" 51.05mm - 63.75mm Blank #7	Z Y X XX	.000160" .000120" .000080" .000040"
.365" - .510" 9.27mm - 12.95mm Blank #2	Z Y X XX	.0001" .000070" .000040" .000020"	2.510" - 3.010" 63.75mm - 76.45mm Blank #8	Z Y X XX	.000200" .000150" .000100" .000050"
.510" - .825" 12.95mm - 20.95mm Blank #3	Z Y X0. XX	.0001" .000070" .000040" .000020"			



Made in U.S.A.



QUANTITY DISCOUNTS: 2 OR MORE OF SAME SIZE

Ring Gage Holders are available in Black.

PHONE or FAX FOR PRICE & AVAILABILITY.



FLEXBAR IPD GAGING SYSTEM

A versatile measurement system for internal pitch diameters, as well as internal bores, grooves, recesses and internal gears.



Major Features:

- With this new concept, accurate measurements of internal threads and compensation calculations for ball diameter variations or lead angles are made extremely simple.
- The software diskettes supplied with the IPD Gage can be used in any compatible PC to obtain all data required for accurate inspection of any specific internal thread without the necessity of a master gage.
- Easy to set IPD Gage with Micrometer or Gage Blocks, etc.
- Universal, can be used as general purpose internal gage for measuring bores, grooves and pitch diameters of screw threads and internal gears, etc.
- Indicator alone, with the included adapter, extensions and contact points, make it possible to measure internal threads and bores from 7½" to 18".
- Rigid construction plus special high precision pivot bearings assure repeatability of .0002" or less.
- Adjustable contact pressure.
- Carbide ball contact points are optional, not included.
- System includes internal gage, 1" travel indicator, indicator-adapter, 8 extensions (¼", ⅜", ½", ¾", 1", 2", 3" and 4" long), measuring tip organizer, 2 standard contact points ¼" long, allen wrench, fitted case plus software cassette for internal pitch diameter threads and instruction manual.

SPECIFICATIONS:

Measuring Range: Bores	.93" to 8"
Nominal Size	
Threads	1 1/8" to 8"
Extended range with included indicator adapter	7 1/2" to 18"
Gage arm travel	.625"
Maximum reach in 1-1/4" dia. bore	4.8"
1" Travel indicator graduation	.0005"

Includes PC compatible software package!



INCLUDES SOFTWARE CD

The IPD software complies with ANSI standards; fully compensates for the effects of lead angle.

USER FRIENDLY

On screen explanation, no commands to remember. Error free data entry, will detect invalid input data.

UNIVERSAL

Supports UN series and Metric threads as well as threads with user defined thread angle and number of starts for Acme, Whitworth and multiple start threads.

- Software calculates the correct diameter for any chosen ball contact point within the specified range per table below.
- Diameter setting with micrometer or gage blocks, no master thread setting ring required.

MODEL NO. DESCRIPTION

15870	IPD Gage & Software Complete System. Supplied with one set of standard points for ID Measurement only
15880	4 Pairs Carbide Ball Contact Points, Package #1 1/32, 3/64, 1/16, 3/32" Dia. covering U Series threads from 24 to 4 pitch
15881	7 Pairs Carbide Ball Contact Points, Package #2 1/32, 3/64, 1/16, 5/64, 3/32, 7/64, 1/8" Dia. covering UN Series 24 to 3 pitch single and multiple starts
15870-3.0	3.0 Software CD Only

OPTIONAL CARBIDE BALL CONTACT POINTS. ¼" LENGTH, A.G.D. #4-48 THREAD. SOLD IN PAIRS

MODEL NO.	BALL DIAMETER Tolerance ±.0001"	UN SERIES Threads Per Inch	ACME Threads Per Inch	METRIC Threads Pitch (mm)
15871	.03125" (1/32)	24 - 14		1.25 - 1.75
15872	.046875" (3/64)	16 - 8		1.75 - 3
15873	.0625" (1/16)	11 - 6		2.5 - 4
15874	.07813" (5/64)	9 - 5		3 - 5
15875	.09375" (3/32)	6 - 4		4 - 6
15876	.10939" (7/64)	6 - 3.5	5	4 - 7
15877	.125" (1/8)	5 - 3	4	5 - 8
15878	.1875" (3/16)	3.5 - 2	3	7 - 13
15879	.250" (1/4)	3 - 1.5	2	8 - 17



Contact points with special ball diameter quoted on request



FLEXBAR DIGITAL ELECTRONIC INTERNAL & EXTERNAL CALIPER GAGES

For the Precision Measurement of Diameters, Grooves, Recesses, etc.



Internal Model 12680



External Model 12685

COMMON FEATURES:

- New Analog/Digital Display
- Easy to hold
- RS232 output
- Rugged housing
- Large LCD display
- Resolution: .0005"/.01mm
- Accuracy: $\pm .0008"/\pm .02\text{mm}$
- Preset capability
- Direct inch/metric conversion
- Absolute/incremental measurements
- Supplied with rugged hard aluminum case

INTERNAL CALIPER GAGES:

MODEL NO.	MEASURING RANGE	L
12680	.200" - .590"/5-15mm	30mm
12681	.400" - 1.2"/10-30mm	50mm
12682	.790"-1.6"/20-40mm	80mm
12683	1.2"-2"/30-50mm	80mm

EXTERNAL CALIPER GAGES:

12685	0" - .400"/0-10mm	40mm
12686	0" - .790"/0-20mm	80mm
12687	.4" - 1.2"/10-30mm	80mm

ACCESSORIES

20865	Computer connection cable/kit for internal and external caliper gages
-------	---

0-6" BORE GAGE SETTING MASTER KIT



Bore Gage Setting Master Kit is used for accurately setting any bore gage up to 6".

Each Set Includes:

- **1- Setting Device**
 - Base Anvil: 2.750" x .80"
 - Adjustable anvil 2.375" x .375" (two each)
 - Internal Capacity: 6"
 - Depth Capacity: 1"
 - Centralizer capacity width: 2.625"
 - Quick-release holder for fast adjustment
- **1- Economy Gage Block Set**
 - 36 Pieces
 - Tolerances to .00005"
 - Certificate of Calibration to N.I.S.T.
 - High quality wooden case



MODEL NO. 12592 0-6" Bore Gage Setting Master Kit



FLEXBAR CHAMFER GAGES



- Instant measuring of chamfers and tapered hole diameters.
- Direct diameter reading to .001" - Metric units for reading to 0.01mm.
- Hardened and precision ground 3-blade steel plunger assures high accuracy and repeatability.
- No setting masters required - zero on surface plate - to reading on gage.



MODEL NO.	CAPACITY	ANGLE RANGE
16340	0-1"	0-90°
16341	1-2"	0-90°
16345	0-25mm	0-90°
16346	25-50mm	0-90°
16350	0-1"	90-127°
16351	1-2"	90-127°
16355	0-25mm	90-127°
16356	25-50mm	90-127°

ELECTRONIC CHAMFER GAGES

Also Available Upon Request

ORDERING: Add **-D** to any of our model numbers above.
(Example: Model No. 16340-D)
Call for Information and Pricing.

FLEXBAR COUNTERSINK GAGES

Instantly Measures Countersink Diameters



- Direct reading gage designed to measure the top (major) countersink diameter.
- Guaranteed accuracy: $\pm .0005"$ ($\pm .015mm$).
- Full-round conically ground exact (dedicated) angle Gaging Plunger instantly alerts operator of incorrect countersink angle.
- Base Plate designed for use on any flat, concave or convex surface.
- Peak Hold mechanism for one hand operation.
- FURNISHED WITH CALIBRATED SETTING RING, FOAM CASE AND OPERATING INSTRUCTION.



MODEL NO.	C'SINK ANGLE	CAPACITY		MODEL NO.	C'SINK ANGLE	CAPACITY	
18442	82°	.020"	to .170"	18457	100°	.560"	to .780"
18443	82°	.160"	to .360"	18458	100°	.780"	to .980"
18444	82°	.360"	to .560"	18459	100°	.980"	to 1.180"
18445	82°	.560"	to .780"	18460	110°	.020"	to .170"
18446	82°	.780"	to .980"	18461	110°	.160"	to .360"
18447	82°	.980"	to 1.180"	18462	110°	.360"	to .560"
18448	90°	.020"	to .170"	18463	110°	.560"	to .780"
18449	90°	.160"	to .360"	18464	110°	.780"	to .980"
18450	90°	.360"	to .560"	18465	110°	.980"	to 1.180"
18451	90°	.560"	to .780"	18466	120°	.020"	to .170"
18452	90°	.780"	to .980"	18467	120°	.160"	to .360"
18453	90°	.980"	to 1.180"	18468	120°	.360"	to .560"
18454	100°	.020"	to .170"	18469	120°	.560"	to .780"
18455	100°	.160"	to .360"	18470	120°	.780"	to .980"
18456	100°	.360"	to .560"	18471	120°	.980"	to 1.180"

For Exact equivalent Metric Models, add **-M** to Model No.

Sizes larger than 2" available in Digital only. Call for information and pricing.



FLEXBAR SHALLOW-TEST™ GAGE

Ideal for accurate measurement of shallow bores, outside diameters, slots and more.



Features:

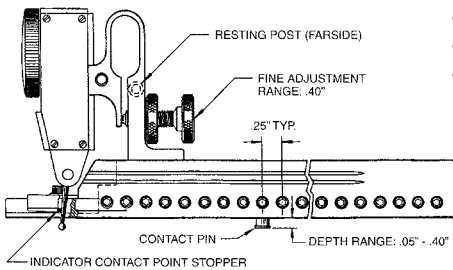
- Made of hardened tool steel, black-ox finish*, precision made in U.S.A.
- Works with most brands of horizontal, vertical or side-mounted test indicators (see specifications below for size and fit). (Indicator not included).
- Lightweight, handy and highly sensitive.
- Good visibility to measuring area.
- Easy set up with fine adjustment using gage blocks, ring gage or qualified part.
- Indicator contact point stopper ensures smooth entry to measuring area.
- Includes a hardened tool steel contact pin, two allen wrenches and storage box.

*Models 13420 and 13421 only.

3 MODELS AVAILABLE:

Specifications common to all models:

- Contact pin hole distances: .25"
- Fine adjustment range: .40"
- Depth range: .05" - .40"



MODEL NO.	INTERNAL RANGE	EXTERNAL RANGE
13420	.55" - 5.20"	.24" - 4.92"
13421	.55" - 7.20"	.24" - 6.92"
13422	2.00" - 12.1"	1.95" - 12.05"

Extensions available for Model 13422 to extend measuring range-phone or fax.

INDI-CAL INTERNAL GROOVE GAGE

Excellent for gaging "O" Ring grooves, blind bores, thread reliefs, undercuts, out of round and tapered bores.



FEATURES:

- Satin chrome finish.
- .625" to 6" range.
- 4 pair of points and 8 extensions included.
- Supplied in fitted plastic case.
- Can be used with any Test Indicator (with Dovetail).



For I.D. work in small range use contact point No. 3 and grind to proper size.

MODEL NO. DESCRIPTION

13270	INDI-CAL Internal Groove Gage (does not include indicator)
13271	Stand for easy set-up



PRECISION DIAL BORE GAGE SET

.0005" Resolution, 1.4 - 6" Range

FEATURES:

- Complete Set with measuring range from 1.4 - 6"
- For close tolerance measurements of holes, taper and roundness
- Self centering
- Gage set supplied with .0005" dial indicator
- Measurable depth: 6"
- Easy Setting with micrometers or ring gages
- Fitted case with anvils index

MODEL NO. DESCRIPTION

13330	Dial Bore Gage Set, 1.4 - 6" Range, .0005" Res.
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LEITECH THREAD DEPTH GAGING SYSTEM

HIGH RESOLUTION COMBI MODELS NOW AVAILABLE

Built-in micrometer eliminates calculation errors. Quicker and more accurate than previous methods.



Above: Standard Combi Thread Gage (.025"/0.5mm Resolution)

COMBI HI-RESOLUTION THREAD GAGE

- Features vernier scale built right into the gage body. This scale is accurate to a resolution of .005" (inch models) or 0,1mm (metric models).
- Locking device allows user to insert gage into the part being examined, tighten the thumb screw, remove gage and read at users convenience.

LOCKING DEVICE FOR REMOTE READINGS OR PRESETTING



Above: Hi-Resolution Combi: Direct Reading Vernier - .005"/0,1mm Increments

APPLICATION:

The gage can be used wherever a thread gage with depth steps is currently being utilized. It also eliminates the time consuming method of "counting turns" or using a vernier caliper depth scale - neither of which provide even a close indication of functional depth. The gage can also be provided with plain cylindrical members to check depths of drilled holes.

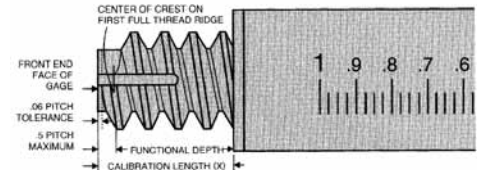
Pipe threads, both NPT and NPTF, do not require members with the costly basic step ground in. In addition, 1 pitch lines on the NPT and the 4 step lines for the NPTF are incorporated on the sleeves as a standard feature giving the user total flexibility in usage, and reducing costs. A 6 step plain gage is also available.

GAGING PROCEDURE:

Gage use is similar to any good quality double ended gage. As the GO member is inserted into the hole, the spring-loaded telescoping sleeve recedes. This provides user with an accurate DEPTH READING GAGE. (NO GO member is used in conventional way.)

INCH READING MODELS
SPECIFY - CLASS 2B OR 3B
STANDARD COMBI-.025" GRAD
HIGH RESOLUTION COMBI-.005" GRAD.

SIZE	THREADS PER INCH			MEASURING DEPTH
	UNC	UNF	UNEF	
2 (.086)	56	64		0,35
3 (.099)	48	56		0,40
4 (.112)	40	48		0,40
5 (.125)	40	44		0,40
6 (.138)	32	40		0,40
8 (.164)	32	36		0,78
10 (.190)	24	32		0,78
12 (.216)	24	28		0,90
12 (.216)			32	0,90
1/4 (.250)	20	28		0,90
1/4 (.250)			32	0,90
5/16 (.3125)	18	24		1,50
5/16 (.3125)			32	1,50
3/8 (.375)	16	24		1,55
3/8 (.375)			32	1,55
7/16 (.4375)	14	20		1,55
7/16 (.4375)			28	1,55
1/2 (.500)	13	20		2,0
1/2 (.500)			28	2,0
9/16 (.5625)	12	18		2,0
9/16 (.5625)			24	2,0
5/8 (.625)	11	18		2,0
5/8 (.625)			24	2,0
11/16 (.6875)			24	3,0
3/4 (.750)	10	16		3,0
3/4 (.750)			20	3,0
13/16 (.8125)			20	3,0
7/8 (.875)	9	14		3,0
7/8 (.875)			20	3,0



METRIC MODELS
6H TOLERANCE
STANDARD COMBI-0,5mm GRAD
HIGH RESOLUTION COMBI-0-1mm GRAD.

METRIC SIZE AND PITCH	MEASURING DEPTH
M2 x 0,4	9,0
M2,5 x 0,45	10,0
M3 x 0,5	10,0
M3,5 x 0,6	10,0
M4 x 0,7	19,0
M5 x 0,8	19,0
M6 x 1,0	20,0
M7 x 1,0	37,0
M8 X 1,25	38,0
M8 x 1,0	38,0
M9 x 1,25	38,0
M10 x 1,5	41,0
M10 x 1,25	41,0
M10 x 1,0	41,0
M10 x 0,75	41,0
M11 x 1,5	41,0
M12 x 1,75	41,0
M12 X 1,5	41,0
M12 X 1,25	41,0
M14 x 2,0	51,0
M14 x 1,5	51,0
M15 x 1,5	51,0
M15 x 1,0	51,0
M16 x 2,0	51,0
M16 x 1,5	51,0
M16 x 1,0	51,0
M17 x 1,5	75,0
M17 x 1,0	75,0
M18 x 2,5	75,0
M18 x 1,5	75,0
M20 x 2,5	75,0
M20 x 1,5	75,0
M20 x 2,5	75,0
M22 x 1,5	75,0

PHONE, EMAIL OR FAX FOR PRICING & ORDER NUMBERS.

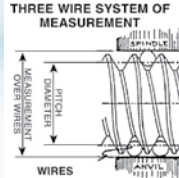


FLEXBAR P.D. CHECK™ Thread Wire Attachment System



The first new breakthrough in measuring threads using the three wire method in 35 years!

Invented by a U.S. machinist looking for an accurate and inexpensive way to check threads! Makes thread triangles, thread MIC's and all other current methods obsolete!



Instructions:

1. Select the Proper Size wires.
2. Match the Wire Size with the Proper P.D. Check™
3. Slip Two Wires in the Holder.
4. Now Place the Holder on the MIC's Anvil.
5. Hold the Micrometer in one Hand and the Third Wire in the other.
6. Check the Threads.

IT'S THAT EASY!

Above set does not include thread wires or micrometer.

- Fits all MIC's with .245 to .312 Anvils.
- No More Lost Thread Wires in the Chip Pans.
- Specifically designed for Rapid and Accurate Measurement.
- Each Part fits 2 sizes of Wires.

MODEL NO. DESCRIPTION

16707	Set of 5 Color-Coded Holders				
Includes:	.018 - .022" Purple	.024 - .32" Blue	.040 - .045" Yellow	.055 - .063" Green	.072 - .081" Red



THREAD MEASURING WIRES

- Thread Measuring Wires accuracy is .00008".
- Includes 48 Wires in 16 different sizes.
- Measures all U.S. 60° threads.
- Laminated conversion chart for 60°.



MODEL NO. DESCRIPTION

16047	Thread Measuring Wire Set, Made in U.S.A.
16048	Thread Measuring Wire Set, Quality Import



ULTRA PRECISION FEELER GAGE SET

26 Blades 0.0015" - 0.025"

Measure Gap Widths Quickly & Easily



Features:

- 26 blades with 3 - 1/4" length one-piece handle
- Decimal sizes laser etched on each blade
- Blade constructed of hardened, tempered steel
- Blade protector with thumb notch for easy blade removal

MODEL NO. DESCRIPTION

16334	26 Blade Feeler Gage Set
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RADIUS GAGE SETS

- Made of rust-proof steel, satin chrome finish.
- Each gage is marked with its radius size.
- Each gage has 5 measuring surfaces for convex and concave radii.
- All sets furnished in vinyl case.

MODEL NO.	DESCRIPTION
16027	25 Piece Set. With holder, $\frac{1}{64}$ " to $\frac{17}{64}$ " in increments of 64ths and $\frac{9}{32}$ " to $\frac{1}{2}$ " by 32nds
16028	8 Piece Set. With holder, $\frac{9}{16}$ " to 1" in fractions of 16ths
16029	8 Piece Set. Without holder, $1\frac{1}{16}$ " to $1\frac{1}{2}$ " in fractions of 16ths

METRIC AND DECIMAL SETS:

Same features as above. New models include metric and decimal sets.

17390	(Metric) 26 Piece Set with holder, 0.5mm to 13mm in 0.5mm increments (Decimal) 26 Piece Set with holder, .010", .015", .020", .025", .030", to .100" in increments of .010", .120", to .220" in increments of .020", .240", .280", and .300" to .500" in increments of .050"
17391	

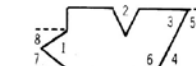


Set No. 16027

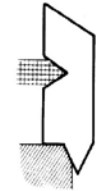
ANGLE GAGE SET



- Manufactured from stainless steel, satin finished.
- 18 individual gages for easy use.
- Eight gaging surfaces per gage.
- Precision finished edges for accurate checking.
- Each gage checks primary, $\frac{1}{2}$ primary and complementary angles.
- Sharp cornered workpieces can be checked at all 8 angles except below 50° on primary angle 2.
- Quick and accurate inspection of angles and I.D. or O.D. chamfers - in or out of the machine.
- Positioning of lathe tools for chamfers.
- Inspecting angles on ground form tools & cutters.
- Fast set-ups and fixturing of workpieces.
- Indispensable for every inspector, tool maker, machinist, layout - and draftsman.



Angles 1, 2, 3, 4 are primary.
Angles 5, 6 are complementary.
Angles 7, 8 are $1/2$ primary.



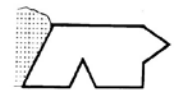
Gaging of I.D. and O.D. chamfers. Included angles are easily verified.



Gaging of angles of adjoining inside/outside diameters or flat surfaces.



Gaging of the countersink angles of drilled and tapped holes.



Gaging of primary and complementary angles from a surface plate.

MODEL NO.	DESCRIPTION
18187	18 Gages. Supplied in a vinyl pouch.

ANGLE GAGE

Handy 20 Leaf Set

- The Angle Gage is an innovative tool which saves time in checking angles.
- Widely used by inspectors, toolmakers and diemakers.
- The gage has 20 leaves, each with a different angle.
- Leaves are made of the finest spring tempered steel.
- Angle edge as well as the two sides are ground.
- Gages are approximately .025" thick, $\frac{7}{8}$ " wide and $4\frac{3}{16}$ " long.



MODEL NO.	DESCRIPTION
16335	Angle Gage: 20 leaves with Lock Nut. Range: 1-45° (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18, 20, 25, 30, 35, 40, 45)



12" DIGITAL PROTRACTOR



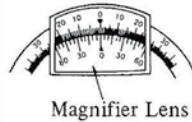
- Setting preset value
- Zero setting at any position
- Accuracy 0.008° or 30"
- 3 measurement patterns (1 x 360°, 2 x 180°, 4 x 90°)

MODEL NO. DESCRIPTION

15590	0-360° Range 12" Digital Protractor
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ECONOMY UNIVERSAL BEVEL PROTRACTOR

With 6" and 12" Blades



Magnifier Lens

FEATURES:

- Minimum reading is 5 minutes.
- Main scale and vernier scale are on the same plane to eliminate reading parallax.
- Fine adjustment of the blade insures precision measuring and laying out of angle.
- Main parts are of hardened stainless steel to prevent rust.

ACCESSORIES (included):

- 6" Blade. • 12" Blade • Acute Angle Attachment

MODEL NO. DESCRIPTION

16330	Universal Bevel Protractor. Complete with 6" and 12" blades and acute angle attachment.
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7" DIGITAL PROTRACTOR & RULE



- Stainless Steel rule blades with mm, 1/16", 1/32" and 1/64" scales
- Strong lock, hold function, reversible reading
- Inside & Outside angle measuring
- Measuring range: 0-360°
- Resolution: 0.05°
- Accuracy: ±0.3°
- Repeatability: 0.1°
- Battery: 3V CR2032 included
- Battery Life: Approximately 1 year



Easy to use! Quick and accurate!

MODEL NO. DESCRIPTION

16338	7" Digital Protractor & Rule
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ECONOMY PRECISION BEVEL PROTRACTOR



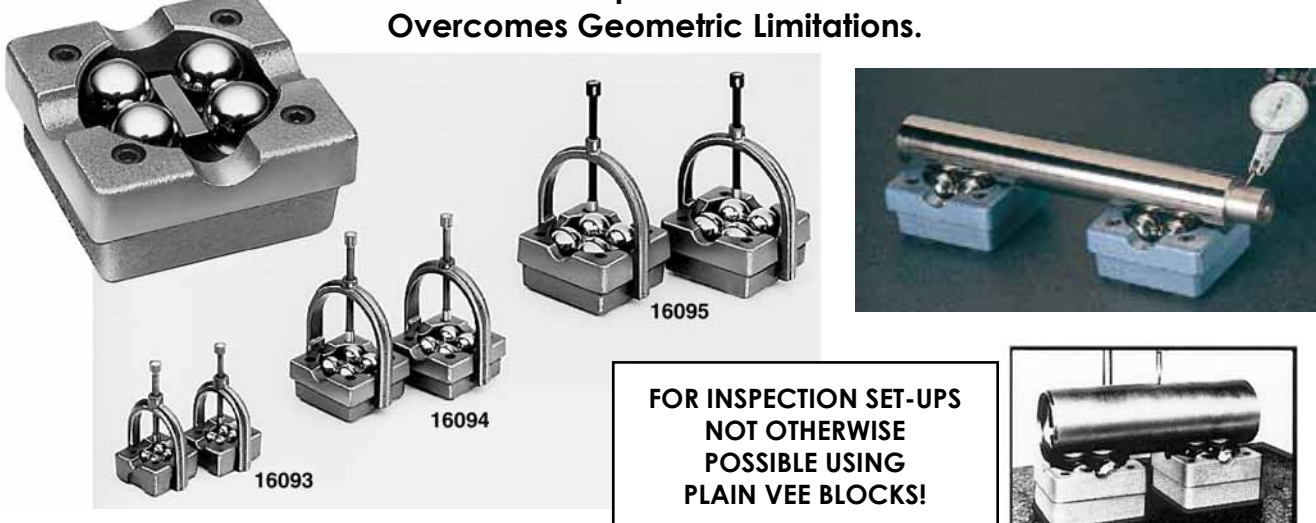
- Measures angles from 0° to 170°.
- 6" Protractor with 12" Blade.
- Satin Chrome with Easy-to-Read Vernier Scale.
- Features a lock nut.
- Includes protective vinyl pouch.

MODEL NO. DESCRIPTION

16331	Economy Precision Bevel Protractor
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FLEXBAR BALL BEARING "V" BLOCKS

...Overcomes Production or Set-Up Difficulties Inherent in Plain V-Blocks.
Overcomes Geometric Limitations.



**FOR INSPECTION SET-UPS
NOT OTHERWISE
POSSIBLE USING
PLAIN VEE BLOCKS!**

ENABLES YOU TO INSPECT AND DETECT OUT-OF-ROUND CONDITIONS AND LOBES WITH NO DAMAGE TO PARTS AND NO DAMAGE TO BLOCKS

SPECIAL FEATURES:

- Accuracy of Balls: 25 millionth of an inch sphericity on small and medium set. 50 millionths of an inch on large set.
- Overall accuracy of matched pairs ± 5 microns.
- Balls Rockwell C-62 — Surface finish 0.2 microinches.
- Class 40 cast iron, used on base and housing, is heat stabilized and seasoned.
- Spacers are hardened through and precision ground by pairs.
- Pair of blocks assembled using metrology equipment.

SPECIAL FUNCTIONS:

- Balls undergo slight elastic deformation when parts are loaded on. Hence parts will not be damaged while being inspected.
- Detection of lobes and superimposed lobes made easy.
- Easy readjustment of balls which provide new bearing points.
- Handles diameters up to 15 inches.
- Increased contact area due to special geometric spacing of balls in blocks.
- 8 contact points per pair of blocks share load distribution.
- Balls are self-aligning and hard wearing.
- 1 each precision spacer per block provides 2 different angles per pair.
- Simply turn each block 90° and inspect component using both angles.



IMPORTANT NOTE: BALLS ARE FIXED IN BLOCKS AND ARE NOT DESIGNED TO ROTATE IN USE.

SIZE	INSPECTION CAPACITY	DIAMETER OF BALLS	WT. CAPACITY OF PAIR	WORK CAPACITY W/CLAMPS
SMALL PAIR	$\frac{3}{64}$ " TO $2\frac{1}{2}$ "	$\frac{1}{2}$ "	220 lbs.	$1\frac{1}{4}$ "
MEDIUM PAIR	$\frac{3}{22}$ " TO 5"	$\frac{15}{16}$ "	1,100 lbs.	$2\frac{1}{2}$ "
LARGE PAIR	$\frac{3}{16}$ " TO 15"	$1\frac{1}{2}$ "	2,000 lbs.	3"

MODEL NO.	ORDER - DESCRIPTION - BALL-BEARING "V" BLOCKS
16097	Small Pair Blocks, 2" x 2" x 1" (without clamps) & Test Ball
16098	Medium Pair Blocks, $3\frac{3}{8}$ " x $3\frac{3}{8}$ " x $2\frac{3}{8}$ " (without clamps) & Test Ball
16099	Large Pair Blocks, $4\frac{3}{4}$ " x $4\frac{3}{4}$ " x $2\frac{3}{8}$ " (without clamps) & Test Ball
16123	Pair Clamps for Model No. 16097
16124	Pair Clamps for Model No. 16098
16125	Pair Clamps for Model No. 16099
16067	Spare Balls, Set of 4, for Model No. 16097 or 16093
16068	Spare Balls, Set of 4, for Model No. 16098 or 16094
16069	Spare Balls, Set of 4, for Model No. 16099 or 16095
16093	Small Pair Blocks, 2" x 2" x 1" (Complete with clamps & Test Ball)
16094	Medium Pair Blocks, $3\frac{3}{8}$ " x $3\frac{3}{8}$ " x $2\frac{3}{8}$ " (Complete with clamps & Test Ball)
16095	Large Pair Blocks, $4\frac{3}{4}$ " x $4\frac{3}{4}$ " x $2\frac{3}{8}$ " (Complete with clamps & Test Ball)



MICRO-RISE

High Precision Adjustable V-Blocks
Patent No. 3,325,162



Use for inspection, production milling, work staging, spin grinding, or any operation requiring precision adjustable support.

FEATURES:

- Hardened and ground anvils support up to 1,000 lbs.
- Wide angle "V" accepts $\frac{3}{16}$ " to 5" diameters.
- Top flats ground parallel to base. Can hold wide, flat parts. Narrow flats may be held on a parallel across top.
- Vibration lock, (position lock), prevents creeping.
- Insures solid support without deflection.
- $\frac{1}{2}$ " total rise of "V", .050 per revolution. Dial graduated in increments of .001".

DIMENSIONS

Base	1 $\frac{3}{4}$ " x 4"
"V Section"	1 $\frac{3}{16}$ " wide
Height Closed	3"
Height Opened	3 $\frac{1}{2}$ "
Standard "V" Angle	120°

MODEL NO. DESCRIPTION

16505	Standard 2 Piece Set
16507	Standard 2 Piece Set w/clamps

EXTRA-LARGE MICRO-RISE

High Precision Adjustable V-Blocks
FOR LARGE DIAMETER APPLICATIONS
5" to 10" Capacity



Same rugged features as MICRO-RISE models listed above. $\frac{1}{2}$ " total rise of "V", .050" per revolution, .001" graduations.

DIMENSIONS

Base	2 $\frac{1}{2}$ " x 6"
"V" Anvil Thickness	$\frac{3}{4}$ "
Height Closed	4"
Height Opened	4 $\frac{1}{2}$ "
"V" Angle	120°

MODEL NO. DESCRIPTION

16513*	Extra-Large Micro-Rise Standard 2 Piece set * Not supplied with clamps
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FLEXBAR PRECISION V-BLOCKS AND CLAMPS



- Dimensions 1 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ " x 1 $\frac{5}{8}$ " long.
- Capacity: Large Vee—1 inch diameter.
Small Vee— $\frac{1}{2}$ inch diameter.
- Hardened and Ground Steel.
- Accuracy: Square within .0002" per inch.
Parallel within .0002 inch.
- Serial Numbered in Matched Pairs.
- Two Vee Blocks and Two Clamps.



MODEL NO. DESCRIPTION

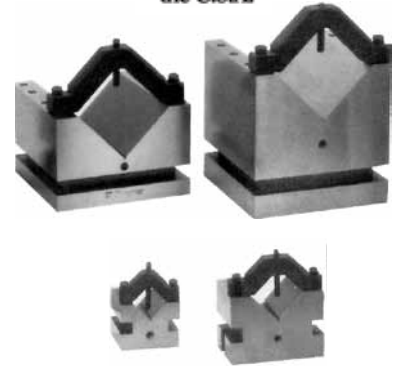
18235	Precision V-Blocks and Clamps (matched pair)
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ULTRA PRECISION V-BLOCKS= 60°+90° MODELS

All vee blocks are parallel, square and central within .0002. Each block comes with one clamp and blocks are available in matched pairs. All models are made of hardened steel. Sizes other than those listed are available by special order.

SINGLE BLOCKS	MATCHED PAIRS	90° V-BLOCK DIMENSIONS	VEE CAPACITY	INDIVIDUAL WEIGHT
11132	11139	2½ x 2½ x 2	1⅜"	3 lbs.
11133	11140	3 x 4 x 3	2¼"	9 lbs.
11134	11141	6 x 6 x 4	4⅜"	33 lbs.
11135	11142	6 x 6 x 6	4⅜"	50 lbs.
60° V-BLOCKS				
11136	11143	2½ x 2½ x 2	1⅜"	3 lbs.
11137	11144	3 x 4 x 2	2¼"	8 lbs.



PRECISION V-BLOCKS AND CLAMPS

- All sides are ground square and parallel to each other.
- Matched accuracy .0002" and numbered in pairs.
- Sturdy enough to be used in matching operation.
- Supplied with two clamps.

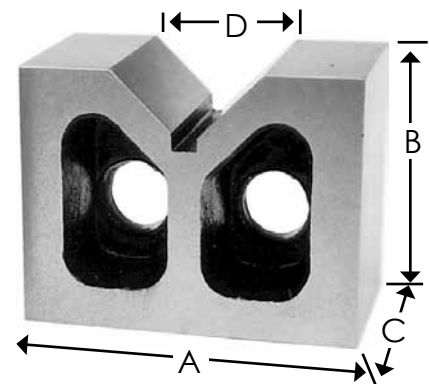
MODEL NO.	CAPACITY	HEIGHT	SIZE WIDTH	LENGTH
11086	1" diameter	1 - ⅜"	1 - ⅝"	1 - ¾"
11087	1 - ½" diameter	1 - ⅝"	1 - ¾"	2 - ¾"
11088	1 - ½" diameter	1 - ¾"	2 - ½"	2 - ¾"
11089	2 - ⅛" diameter	2 - ¾"	3 - ½"	4 - ⅞"



V-BLOCKS Matched Pairs

- Made of high quality fine grained cast iron, stress relieved.
- Ideal for holding round and irregular shape parts in drilling, machining, inspection, etc.
- Accurately machined with 90° Vee in center.
- Machined square and parallel to base within .001".
- Supplied and priced in matched pairs.

MODEL NO.	A	B	C	D
11077	3"	2 - ⅜"	1 - ¾"	1 - ¼"
11078	4"	2 - ⅝"	2"	2 - ⅝"
11079	5"	3 - ⅛"	2 - ⅝"	2"
11080	6"	3 - ½"	3 - ¾"	2 - ⅝"
11081	7"	4 - ½"	3 - ¾"	3"
11082	8"	5 - ½"	4 - ½"	4"





CHUCK PARALLELS & UNIVERSAL V-BLOCKS

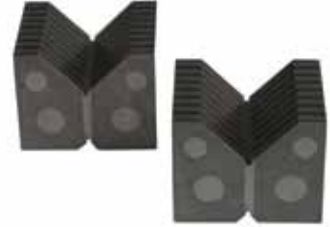
Ideal for Use on Magnetic Chucks
INTEGRALLY CAST INTO ONE SOLID PIECE!

Ground all over and serial numbered in pairs. These fine V-Blocks are now made UNIVERSAL (holds in any direction on the Magnetic Chuck).

1 x 2 x 4. Micro Parallels
 ground all over & serial
 numbered in pairs
ORDER SET NO. 18240



1 7/8 x 2 5/8 x 2. Large V Cap. 2" Rnd.
 Small V Cap. 1/2" Rnd.
ORDER SET NO. 18241
 2 (two) V's per block



MODEL 18240 One Pair Chuck Parallels

MODEL 18241 One Pair Chuck V-Blocks

All pairs are matched and serial numbered.

MAGNETIC V-SHAPE HOLDER

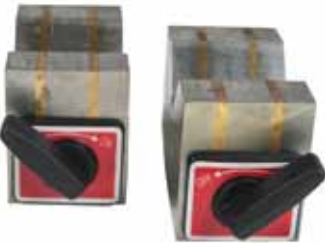


- Ideal for holding round or irregular shapes for grinding, machining, scribing or measuring.
- 150 lbs. of holding force.
- 90° Vee on top.
- Magnetic attraction on 5 sides.
- Turn it over and it has slots and vees topside.
- Fine precision ground finish.
- Fixed On/Off Switch.
- Height 3 3/4", Width 2 3/4", Length 4".

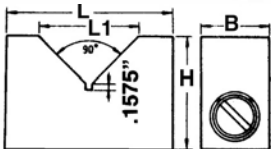
MODEL 11049 Magnetic V-Holder

MAGNETIC V-BLOCKS

(Matched Pair)



- Ideal for holding round and irregular shapes for grinding, measuring, and machining.
- Powerful magnetic force on all three surfaces: top, side, and V (90°).
- Includes two precisely identical blocks for use as a set.
- Has fixed On/Off switch.



Set No.	H	B	L	L1
11025	2"	1.6"	2.8"	1.44"
11026	3.2"	2"	4"	2.4"

SQUARE SHAPED MAGNETIC V-BLOCK (SOLD SINGLY)



- Ideal for holding round or irregular shapes for scribing or measuring.
- Needs no conventional clamp down screws.
- Magnetic force on top, sides, and Vees.
- Fixed On/Off switch.
- .001" Overall Accuracy.

THREE SURFACE ATTRACTION

MODEL 11029 Square Shaped Magnetic V-Block, 1 each.
 Dimensions: 6" H x 6" W x 6" L



SUPER VEE BLOCKS

Smallest Vee Blocks in the World



- Precision hardened and ground, Vee Blocks are within .0002" in both squareness and parallelism.
- Clamps are reversible.
- Blocks and clamping bars are hardened.
- Bridges - clamping screw from the regular Vee Block will contact this part, securely mounting the Mini Vee Block in the V, and not interfering with the part being clamped in the Mini V System.
- Clamping bars lay on top of the cylinder being fixtured in the Mini Vee system. The clamp contacts the finger to hold the workpiece in place.

Ideal for: holding and indexing pins and punches while grinding, drilling, milling, EDM work (electrodes, etc). Inspecting parts on optical comparators. Used in conjunction with large V-Blocks or Magnetic V-Blocks. Provides maximum bearing surface.

Complete in Fitted Case, set includes:

- 1 each Super Vee Block "A" - capacity .030" - ⁵/₃₂"
- 1 each Bridge A (for above)
- 1 each Super Vee Block "B" - capacity .050" - ⁹/₃₂"
- 1 each Bridge B (for above)
- 1 each Ring Clamp with thumb screw for Block "A"
- 1 each Ring Clamp with thumb screw for Block "B"
- 2 each Top Clamping Bar - ¹/₈"
- 2 each Top Clamping Bar - ⁵/₃₂"
- 1 each Top Clamping Bar - ³/₁₆"

MODEL NO. 16096 Super Vee Block Set

FLEXBAR BENCH BLOCK

- Very handy for holding work when driving pins, drilling, etc.
- V-groove across face accommodates round & odd shaped stock.
- Smooth finish on the face preserves the work being held.
- Hardened and ground.
- Block is approximately 3" diameter and 1 1/2" high.
- 9 Holes range in sizes from .140 to .628"



MODEL NO. 14169 Flexbar Bench Block

4-WAY STEEL PARALLELS - MATCHED PAIRS

- Made of tool steel hardened to Rc 58-62 and ground in matched pairs on four sides for use where extra precision is required.
- Pairs are matched in size on the width and height to a tolerance of ±0.0002" on 6, 8 and 12" lengths and 0.0003" for longer lengths.
- Total parallelism, straightness over the full length and size tolerance between pieces of a matched pair is 0.0001" on 6 and 8" lengths, 0.0002 on 12" lengths and 0.0003" on longer lengths.
- Adjacent ground sides are square with each other within 0.0004", except the 6 x 1/4 x 3/8, 6 x 1/4 x 5/8 and 6 x 1/4 x 1/2 sizes, which are square within 0.0005".



MODEL NO.	SIZE	WT. (#)	MODEL NO.	SIZE	WT. (#)
21032	6 x 1/4 x 3/8	1	21044	8 x 1/2 x 1	3
21033	6 x 1/4 x 1/2	1	21045	8 x 5/8 x 1 1/2	5
21034	6 x 1/4 x 5/8	1	21046	8 x 3/4 x 1	4
21035	6 x 1/4 x 3/4	1	21047	8 x 3/4 x 1 1/4	5
21036	6 x 3/8 x 1/2	1	21048	8 x 3/4 x 1 5/8	6
21037	6 x 3/8 x 3/4	2	21049	12 x 3/4 x 1	6
21038	6 x 1/2 x 5/8	2	21050	12 x 1 x 1 1/2	11
21039	6 x 1/2 x 3/4	2	21051	12 x 1 x 2	14
21040	6 x 1/2 x 1	2	21052	12 x 1 1/2 x 2	21
21041	6 x 5/8 x 1	3	21053	12 x 1 1/2 x 3	32
21042	6 x 3/4 x 1	3	21054	18 x 1 x 2	22
21043	6 x 3/4 x 1 1/2	5	21055	24 x 1 x 2	29
			21056	36 x 1 x 2	53



1-2-3 UNIVERSAL BLOCKS MATCHED PAIR



- Made of hardened steel, precision ground on all six sides to $\pm .0001''$ squareness per inch.
- To size within $\pm .0002''$.
- The $\frac{5}{16}$ -18 tapped holes are arranged for screw mounting and conversion into angle plates and various other inspection or production set-ups.

MODEL NO. DESCRIPTION

16916	Matched Pair, complete with case
16918	Matched set of 3
16919	Velvet case for set of 3

PRECISION 1-2-3 BLOCKS MATCHED PAIR - Quality Import



- Measuring 1" x 2" x 3".
- Precision Ground on all 6 sides to .0001" tolerance. Any two blocks used together would yield a tolerance of .0002" maximum.

23 HOLES ON EACH BLOCK

MODEL NO. 16166 Pair of 2 Precision 1-2-3 Blocks

PRECISION 2-3-4 BLOCKS MATCHED PAIR-IMPORT

- Hardened and precision ground on all 6 sides of each block
- Accuracy with Squareness on all sides within .0001" per inch
- 23 holes consist of 5 ($\frac{3}{8}$ " -16) tapped holes for clamping and 18 untapped holes drilled

MODEL NO. 16162 2-3-4 Blocks, Matched Pair

PRECISION 2-4-6 BLOCKS MATCHED PAIR- IMPORT

- Precision ground and hardened on all sides
- Blocks are matched within .0002" and measure 2" x 4" x 6"
- Squareness: .0001"
- Parallelism: .0003"
- Hardness: 55-60 HRC
- Flatness: .0001"
- $\frac{5}{8}$ "—11 tapped holes
- 23 Holes on each block

MODEL NO. 16164 2-4-6 Blocks, Matched Pair

1-2-3 BLOCKS WITH NO HOLE Supplied in Matched Pair



- Hardened to RC 58-60
- Precision Ground Surface Finish to 6-10 microinches
- Dimensions: 1" x 2" x 3"
- Squareness: +/- .0002"

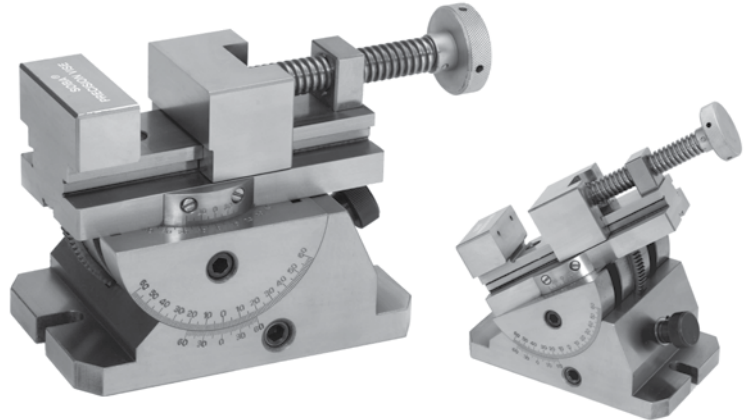
MODEL NO. 18965 1-2-3 Blocks without Holes, Matched Pair



PRECISION TILT & SWIVEL GRINDING & INSPECTION VISE

TECHNICAL DATA

JAW WIDTH	2 3/4"
JAW OPENING	3 3/16"
JAW DEPTH	1 3/16"
NET WEIGHT	27.80 lbs.



High Quality Durability at an Affordable Price

Made of high precision ground and hardened (55-60 HRC) tool steel. The base is manufactured from close grained high tensile cast iron. The unit has 360° horizontal rotation and a ± 55° angular setting with precise minute scale. Easy to use adjustment knob for upward and downward swing. This vise is suitable for Inspection, Grinding, Boring, Milling, and EDM.

MODEL NO. 14678

Precision Tilt & Swivel Grinding & Inspection Vise

FLEXBAR ANGLE CUBE® - Latest Generation

Digital Sensor Level + Bevel + Tilt Gage



Specifications:

- Tilt Range: 0-90° x 4
- Resolution: 0.05"
- Accuracy: 0.2°
- Repeatability: 0.1°
- Size: 2.13" x 2.13" x 0.91"
- Weight: 2.7 oz.
- Includes Backlighting
- Micro USB port for charging
- Micro USB charging cable included
- Large Crystal LCD Display
- Precision Digital Lever Sensor
- 3 - Side Rare-Earth Magnets
- IP54 dust & moisture protection
- Military grade anodized alloy body
- Rechargeable battery
- Auto shut off



MODEL NO. DESCRIPTION

15598	Flexbar Angle Cube with USB charging Cable
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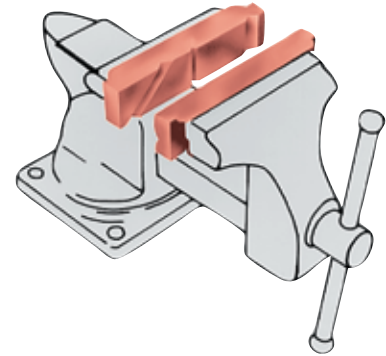


FLEXBAR-MADE MAGNETIC "SOFT-JAW" VISE LINERS

UNIQUE DESIGN • QUALITY FABRICATION



45° VEE



- One jaw has Vee Groove in Horizontal Plane.
- Second Jaw has 2 Vee's in Vertical Plane. Plus 1 Vee, 45°.
- Accepts all shapes.
- 5 inches (one size) fits all vises.
- Made of nylon.
- Overlap configuration for easy positioning assuring parallel set up.

MODEL NO. DESCRIPTION

14001 Magnetic "Soft Jaw" Vise Liners

MAGNETIC VISE JAWS

Aluminum & Brass- sold by pair



- Soft jaws with magnetic inserts for easy mounting and holding on your vises
- Protect your work piece against scratching and nicking
- Grooves ensure tight holding of different shapes of work piece

MODEL NO. DESCRIPTION MATERIAL

13560	4"	Aluminum
13561	5"	Aluminum
13562	6"	Aluminum
13563	4"	Brass
13564	5"	Brass
13565	6"	Brass

UNIVERSAL VISE JAW

W/WORK STOP

- Multi-function V-shape jaw can hold workpiece at horizontal and vertical position
- Made of high grade tool steel hardened and precision ground
- Squareness and Parallelism: 0.0002"
- Will fit vise jaw with 6 to 6½" width
- Two set screws for attached to vise and one long set screw used as work stop
- Jaw Width: 7.50"
- Jaw Height: 2.10"
- Jaw Thickness: 1.57"



MODEL NO. DESCRIPTION

13566 Universal Vise Jaw w/work stop

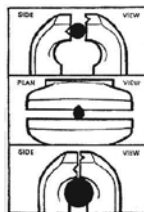
FLEXBAR FLEXI-VISE™

Universal 3-Way Angle Twin Vise



Two infinitely adjustable vises can be independently locked in any position relative to one another. Achieves any compound angle. Ideal for assembly, soldering, welding, glueing, etc.

- Positive locking of all parts in any position.
- Jaws hold flat, round or hexagonal components.
- Quickly reset to new angles.
- Vises adjust 360° in every plane.
- Aluminum jaws give positive gripping without damaging parts held.
- Jaw width: 1½".
- Jaw capacity: 11/16" (17.5mm).
- Cast Base includes mounting screw holes.



Jaw Configuration



MODEL NO. DESCRIPTION

14006	Twin Flexi-Vise
14007	Single-Head Flexi-Vise

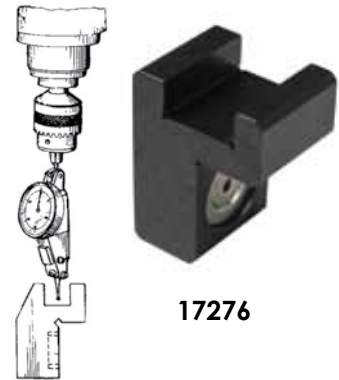


FLEXBAR MAGNETIC EDGE FINDER

- Conveniently attaches itself to workpiece with built-in permanent magnet.
- Precision ground, allows workpieces to be indicated within accuracy of $\pm .0001''$.
- If hole or slot is indicated to centerline of spindle, the edge of workpiece will automatically be on center line.
- Avoids calculation errors by eliminating additions or subtractions.
- Slotted model to pick up single edges.

MODEL NO. DESCRIPTION

17276	Magnetic Single Edge Finder
-------	-----------------------------



17276

BREAK-AWAY STYLUS ELECTRONIC EDGE FINDERS

- All electronic edge finders will locate work surfaces quickly and easily at almost any angle.
- *Model No. 19336 also "beeps" when stylus meets conductive metal surface. Great for blind and deep applications. Model No. 19335 does not beep.
- No bulbs, all models have 5 LED lights that light on contact with conductive metal surfaces - last for years without replacement.
- Easy change 12 volt batteries included.
- Repeatability +/- .0002.
- All work surfaces precision ground.



Shown Above: Model No. 19336



MODEL NO. DESCRIPTION

19335	.200" Stylus Break-Away Electronic Edge Finder
19336	.400" Stylus Break-Away Electronic Edge Finder



19335



19336

FLEXBAR SUPER JUMP EDGE FINDER

The Finest Edge Finder Made

- Hand Lapped
- Ultra-Precision

MODEL NO. DESCRIPTION

18508	Super Jump Edge Finder, $\frac{3}{8}''$, .200"
-------	---



ELECTRONIC TOOL SETTER

- Ideal to preset tools and to reference tool positions in CNC Machines, Machining & Turning Centers.
- Heat treated, precision ground tool steel.
- Parallel within .0002" to inside of groove.
- Repeatability .0002".
- Height bottom to inside of groove $2.0000 \pm .0001''$.
- Built-in magnet for convenient use on horizontal and vertical faces.
- .196" (5mm) compression stroke for over-run protection.
- 3V lithium battery included. —Lasts approx. 1 year.

MODEL NO. DESCRIPTION

15175	Electronic Tool Setter
15174	Replacement Battery





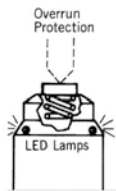
ELECTRONIC LOCATING GAGE



HEIGHT OFFSET MODEL



- Precision made in U.S.A.
- Ultra sensitive solid state circuit for fast and accurate positioning.
- Models for specific applications in conventional milling & turning and CNC machine set-ups.
- Ready for instant use.
- LED indicator lamps light up at the slightest touch of the workpiece with 360° visibility.
- Spring loaded to safeguard against damage from overrun.
- Hardened and precision ground.
- 2 long life batteries (Varta V-13 Hm or equivalent) included.



MODEL NO. DESCRIPTION

18511	Height Offset Presetting Gage, probe 5/16" dia.
13271	Replacement Battery (2 required)

FLEXBAR CO-AX CENTERING INDICATOR SET

Provides Quick & Accurate Centering in Boring and Milling Set-Ups



- Operates at any angle from horizontal to vertical without any change, and from internal to external by simply changing the feeler.
- Indicator dial remains stationary while the machine spindle rotates (dial always faces operator).

Restraining Arm



- Capacity: Internal 5/32" x 4 1/2"
External 0" x 4 1/2"
- Includes: 3 internal feelers, 3 external feelers,
1 spring loaded feeler,
1 restraining arm, fitted case.
- Replacement parts available upon request.

MODEL NO. 15920 Flexbar Co-Ax Indicator Set

Z-AXIS SETTING INDICATORS

Features:

- Efficient for setting "0" point with built in indicator
- Positioning accuracy and repeatability: 0.0005"
- Dimension: 2" (square) x 2" (height)
- Comes in fitted case



18505



18506

MODEL NO. DESCRIPTION

18505	Z-Axis Setting Indicator
18506	Z-Axis Setting Indicator with Magnet



OPTICAL CENTER PUNCH

Layout and Drill Hole Patterns Easily & Accurately

Set Contains:

- Precision Guide Base with scratch protection.
- Two Spotting Lens': one with center dot and circle, and one with cross-hair for easily lining up the punch as close as $\pm 0.01"$.
- 60° and 120° Center Punches made of hardened tool steel.
- Comes complete in a fitted plastic case.

Directions:

The operator scribes lines in the usual manner. He then takes the Optical Center Punch and locates it over the work, adjusts it until optically centered and then removes the optical pilot. He then inserts the punch in the previous position of the optical head, and taps the punch with a hammer. The punch mark is then drilled, etc.



MODEL NO. DESCRIPTION

14517	Optical Center Punch Set Complete
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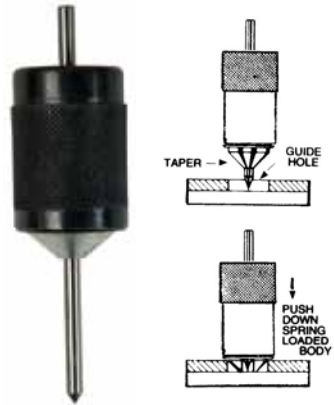
ECONO-PIC HOLE TRANSFER CENTER PUNCH & ALIGNER

Automatically Transfers Hole Centers

- Unlike conventional slip-fit Transfer Punches, the true diameter of the hole is picked up and the center will be punched in the true position.
- Perfect centering—precision hardened punch.
- Light strike of hammer on punch will mark workpiece.
- All parts made of Hardened Steel for long life.
- Fits metric sizes too.

MODEL NO. DESCRIPTION

14130	$\frac{3}{16}" - \frac{5}{8}"$ (small body)
14131	$\frac{3}{16}" - 1 \frac{1}{16}"$ (large body)



TRANSFER PUNCH SETS

Precision Matched For Tool Makers and Machinists

- Made of finest tool steel.
- Black oxide finish.
- Heat treated.
- Diameters are .0025" undersized to facilitate slipfit use.
- 28 punches— $4\frac{7}{8}"$ long with indexed stand.
- $\frac{3}{32}"$ to $\frac{1}{2}"$ in increments of $\frac{1}{64}"$, plus handy $\frac{17}{32}"$ size punch.

MODEL NO. DESCRIPTION

11074	Transfer Punch Set in metal stand
-------	-----------------------------------



11074

CENTER MASTER EXPANDING TRANSFER PUNCHES

- Compact set of 3 takes the place of numerous individual solid punches.
- Each punch expands within its range to pick up the true center holes from $\frac{1}{4}"$ to $1\frac{1}{16}"$ dia.
- By turning the knurled head, the punch body expands to the perfect fit in the bottom of the hole.
- A light hammer stroke on the top of the center pin provides the desired "Tru-Center" mark.

MODEL NO. DESCRIPTION

11090	Tru-Center Expanding Transfer Punch Set, range $\frac{1}{4}"$ to $1\frac{1}{16}"$. In case.
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ORIGINAL FLEXBAR HAND TAPPER & REAMER

CLOSE TOLERANCE & PERPENDICULARITY BETWEEN HARDENED SLEEVE OF TAPPER AND INSIDE OF TAPPING GUIDE MAKES FOR PERFECT ALIGNMENT. STOPS TAP BREAKAGE.



TAPS HOLES FROM 0 - 80 UP TO 1/2 - 13 OR 1/2 - 20. SIMPLY CHANGE TAP JAWS.

- Jaws are carbonitrided for long life.
- Center drill on stem for floating center.
- Sliding T-Wrench Handle.
- Base of aligner body has 120° Vees hence accepts round parts.
- For changing jaws, slots in body serve as wrench for tightening.



MODEL NO. DESCRIPTION

14013	Complete Set with Guide/Holder Plus 2 sets of jaws
14011	Extra Spare Jaws, Small Jaws (0-80 up to 1/4")
14012	Extra Spare Jaws, Large Jaws (#12 up to 1/2")

FLEXBAR DIE HOLDERS



3 MODELS:

2 for Range .080 - 3/8" Thread Sizes,

1 for up to 3/4" Threads

- Ideal for short or medium-run threading of shafts, etc.
- Can be used safely on lathes, milling machines, tapping heads, etc.
- One piece body.
- Main body 1 1/2" dia. x 1" length, counterbored for chip clearance.
- Set screw 10-32 (2 each).
- 1/2" dia. shank 2" long, I.D. ²⁵/₆₄".

MODEL NO. DESCRIPTION

14004	Electroless Nickel Plated for 1" O.D. Threading Dies
14005	Electroless Nickel Plated for 1 3/16" O.D. Threading Dies

EXTRA-LARGE DIE HOLDER

For 1 1/2" Threaded Dies • CAPACITY: 1/4 - 20 up to 3/4 - 16

- Main Body Diameter — 2" • O.D. of Shank — 3/4" diameter • I.D. of Shank — .570"
- Length of Shank — 1 7/8" • Overall Length — 3 1/8" • Black Oxide Finish

MODEL NO. DESCRIPTION

14065	Extra Large Die Holder
-------	------------------------

FLEXBAR PRECISION TAP GUIDE



Precision hardened Tap Guide Block for quick and accurate alignment of hand taps ranging from #0 through 5/8". Actual size: 2-1/8" diameter x 3/4" high.



MODEL NO. DESCRIPTION

14010	Precision Tap Guide
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THE SIMUL-CUT™ FLY CUTTING SYSTEM

Large Capacity Combination Roughing & Finishing Fly Cutting Tool System for CNC and Conventional Milling Machines.

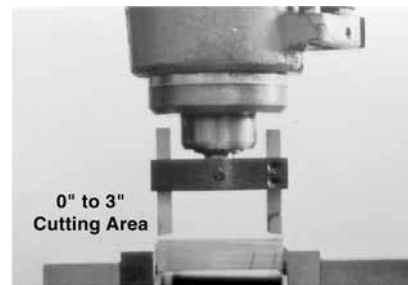
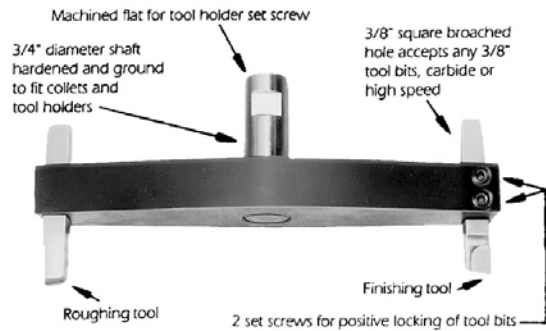
With Flexbar's new **SIMUL-CUT** Fly Cutters you can now expect **Better Surface Finish** and **Increased Productivity** over conventional fly cutting methods.

HOW DOES IT WORK?

By setting the finishing tool bit lower than the roughing tool bit, roughing and finishing operations are achieved **simultaneously!**

FEATURES:

- Made of Carbon Steel and black oxide treatment to prevent corrosion.
- Precision machined and tapered for perfect balance to reduce vibration.



MODEL NO.

SIZE

19003	3" Fly Cutting Tool
19004	4" Fly Cutting Tool
19005	5" Fly Cutting Tool
19006	6" Fly Cutting Tool
19007	7" Fly Cutting Tool
19008	8" Fly Cutting Tool
19009	9" Fly Cutting Tool
19010	10" Fly Cutting Tool

Above sizes each include 2 Tool bits and 1 hex wrench

DISPOSABLE METAL ETCHING PEN



- Indispensable anyplace where metals, hardened as well as thin walled, have to be marked or identified.
- Strong effect on heavy metals, stainless steel, iron, copper, brass, nickel, tin, lead.
- No electrical flux is necessary. A special acid solution flows like ink in a felt-tip pen and a permanent etch is produced on the metal.
- Leaves distinctive, smudge-proof, black markings.
- Ideal for toolroom use and marking in the machine shop.
- Apply on clean surface. After application wipe dry with oily cloth.

MODEL NO.

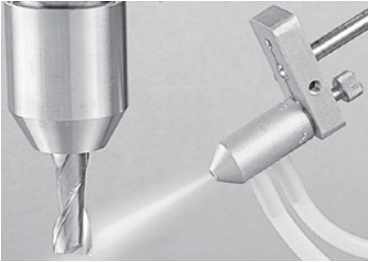
DESCRIPTION

11098D	Metal Etching Pen
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UNIQUE

FLEXBAR AQUAFLO® COOLANT DISPENSERS



Deluxe water-soluble oil dispensers enable you to take even heavy cuts such as in "flycutting". Compact in size, one-knob control instantly starts up and shuts down the nozzle. Spray settles on cutting tool and workpiece; will not clog or fog up your plant. Minimum Air Pressure 25 PSI with Maximum 80 PSI. Built to Last.

SINGLE AQUAFLO®

Single coolant nozzle comes with bracket for fast attachment on to any 1/4" dia. fitting on your machine tool. Supplied with 2 each 4 foot length lines; one NPT fitting air line and one suction hose line. Works with any coolant container (not included).

14014



14015

MODEL NO. DESCRIPTION

14014	Single Aquaflo
14015	Aquaflo with Aquastand
14059	Aquastand Only

UNIVERSAL SPRING WINDER



14009



Make Your Own Perfect Springs

Tension or compression springs, electrical coils, etc., of any length or inside diameter made quickly and simply without the expense of setting up special machinery.

SPECIAL FEATURES OF THE UNIVERSAL SPRING WINDER:

- Wire being fed through the handle ensures absolute safety in operation.
- The tension of the wire can be easily adjusted both before and, if required, during actual operation.
- Any thickness of wire can be used up to 3/16" dia.
- Distance between the separate turns of the spring can be preselected and fixed in a reliable manner.
- Compact in design and easy in operation.

MODEL NO. 14009 Universal Spring Winder, Instructions Included

WATERPROOF LED WORKLIGHTS



Mag. Base

Bolt On Base



- LED lights provide an excellent solution for heat intensive environment
- High Brightness with 330 Lumens
- Magnetic Base: 2" x 2" with 110lbs. power pull
- 50,000 hours LED lifetime
- Arm Length: 20"
- Power Supply: 110V AC/1 phase
- Bolt-On Mounting Plate: 2" x 2"



MODEL NO. DESCRIPTION

19360	Bolt On WorkLight
19361	WorkLight On Mag. Base



HIGH TEMPERATURE

ROCKSETT™

THE ALL-PURPOSE ENGINEERING ADHESIVE CERAMIC CEMENT ...ONE GRADE DOES IT ALL!

Locks, Seals & Bonds—Nuts, Screws, Shafts, Keys, Splines, Pipes, Flanges, etc.

INCREDIBLE TEMPERATURE RESISTANCE

(-350°F) up to 2,015°F

- Electrical insulation - for both A.C. and D.C. up to 20 Radio MHz (Mega/Hertz).
- Non-toxic - odorless - non-flammable.
- Rocksett with stands oil, fuels, acids, alkalis.
- Long shelf life.
- No mixing or priming required.
- Can only be removed by a hot water soak



BONDS CERAMIC, GLASS, METALS...EVEN KEYLESS SURFACES.

MODEL NO.	CODE (ROCKSETT)	SIZE	DROPPER BOTTLE
15014	R-2	2 oz.	YES
15015	R-4	4 oz.	YES
15016	R-6	1 Gallon	NO



AUTOCRETE™

HI-TEMP CERAMIC ADHESIVE



- It's easy to use and it's Sodium free!
- Superior electrical insulation properties.
- Self-Curing Ceramic Adhesive, Coating and Filler.
- Conducts heat. (High heat conductivity).
- Resists thermal shock and ultra-high temperatures.
- High temperature strength and stability.
- Provides optimum dielectric strength, is moldable.

GOOD TO UP TO 3000°F

FOR USE IN:

Lamps, appliances, heater, furnaces, resistors, and elements. AUTOCRETE is a white, odorless powder that, when mixed with water, delivers outstanding bonding characteristics ideally suited to applications that demand superior electrical insulation properties.

MIXING:

Mixing is quick and easy: simply combine 12 to 16 parts of water (depending on your application requirements) to 100 parts of AUTOCRETE (by weight), and stir vigorously to a creamy, consistent texture. Mix all the water and all the AUTOCRETE together at once: do not add water gradually. And do not add more water as the mixture thickens; if you do, you will weaken the cement.

Physical Properties:

Color	White
Screen Analysis	90% ≤ 325 Mesh
Coefficient of Thermal Expansion	5.6 x 10 ⁻⁶ in/in/°F
Compression Strength	5000 psi ± 500 psi
Thermal Conductivity	10 BTU/ft ² /hr/°F/IN
Maximum Service Temperatures	3000°F
Volume Resistivity	
@ 70°F	10 ¹¹ ohm-cm
@ 750°F	10 ¹⁰ ohm-cm
@ 1475°F	10 ⁹ ohm-cm
Dielectric Strength	
@ 70°F (21°C)	77 to 103.5 volts/mil
@ 750°F (300°C)	24 to 39.5 volts/mil
@ 1475° (800°C)	13.5 to 24 volts/mil
Chemical Resistance	Does not exhibit resistance to acids or alkalis. Very oil resistant
Tensile Strength	900 psi (stronger than our competitors' product)

MODEL NO.	DESCRIPTION
15030	1 lb. Jar
15032	60 lb. Pail



AUTOSTIC

Hi-Temp Industrial Grade Adhesive Cement



AUTOSTIC® — A ceramic Inorganic Compound is a major advance over the 2-part epoxy resin type adhesives. Almost limitless applications in a wide range of industries. Adheres to Keyless Surfaces, e.g. Polished Glass to Polished Silver. Withstands reverse stresses at all temperature variations.

- IT BONDS • ITS FILLS • IT COATS
- IT'S A HEAT AND ABRASION BARRIER

Impervious to oil, gasoline, acids and alkalis including concentrated sulfuric acid - has low thermal conductivity. Excellent electrical insulation for all voltages whether AC or DC and up to 20 radio MHz. • Water will cause cement to break down.

APPLICATIONS: Coats Glass to Withstand Higher Temperatures — Glass to Metal — Glass to Ceramics — Metal to Metal — Asbestos to Glass — Ferrite to Ferrite — Glass to Ferrite — Carbon to Metal — Sealing Castings — Gas joint sealing — coal — solder mask-fuse coatings — masks for heat treating furnace kilns — coats brick and mortar — burning appliances. Instrument Assemblies — Fill in cracks in stoves: thermocouples — Quartz to Metal — Induction coils — Thermocouples Coating — Magnets — Potting — Insulators — Thermocouples — Repair tube furnaces — high temperature caulking — coat wooden patterns — WILL NOT ATTACK ANY METALS.

Once cured, it can be machined - milled - drilled - tapped and sawcut.

INDEPENDENT TESTS PROVE THE STRENGTH OF AUTOSTIC

Tensile Strength: 250 lbf/in² (1.75 Nmm²)
Shear Strength: 450 lbf/in² (3.15 Nmm²)

DAMPENS NOISE & VIBRATION TO LESS THAN 80 DECIBLES—
AUTOSTIC HAS DEGREE OF FLEXIBILITY.

ABSOLUTELY SAFE • NO HEALTH HAZARDS

LOW SHRINKING...LESS THAN 1%

Electrical—Domestic Appliances—Electronics—Coal Mines—
Manufacturers of Stoves,
Furnace & Boilers—Glass Manufacturers—R & D—
Gas Appliances—Ceramics to Metal

MANUFACTURING FIREPROOF BULKHEAD PANELS ON SHIPS
FIREPROOFING BUILDING MATERIALS
PANELS, CEILING TILE, ETC.
ACID TANKS—KILNS—CHEMICAL SEWERS

TESTING OF AUTOSTIC

Compressive Strength	28.4 N/mm ²	(4100 psi)
Tensile Strength (between steel plates)	1.7 N/mm ²	(250 psi)
Maximum Tensile Stress (bending test)	7.1 N/mm ²	(1030 psi)
Shrinkage	1.5%	
Density	2.08 g/cm ²	(130 pcf)
Hardness	VPN6	(1 kg load)
Volume Resistivity	2.9 x 10 ⁹ chm/cm	
Dielectric Constant	41.2	
Electrical Capacitance	3.75 x 10 ⁹ Farads	
Coefficient of thermal expansion (linear expansion)	18.1 x 10 ⁻⁶ 1/K	(or 18.1 x 10 ⁻⁶ mm/mm/°C or 10.1 x 10 ⁻⁶ in/in/°F)

MODEL NO.	CODE	SIZE	VISCOSITY
15001	FC-4	1 lb. Can (500g)	Thin (Spray On)
15002	FC-6	1 lb. Can (500g)	Standard (Brush On)
15003	FC-8	1 lb. Can (500g)	Thick (Trowel On)
15006	FC-8	7 lb. Can (3kg)	Thick (Trowel On)

*For greater electrical insulating properties add Mica Dust



FLEXBAR HELICAL LEAD SCREW COVERS

Increase operator safety by covering lead screws, rods, and die posts.

Flexbar Lead Screw Covers serve two very important functions. First, as a safety barrier to seal off pinch points and other hazards to prevent operator injury. Second, as maximum protection of your Lead Screws, rods, and shafts from chips and other destructive elements.

These covers surround and protect critical cylindrical mechanisms: their overlapping coils seal out the contaminants while wiping away dirt and debris with each thrust. The spring action holds the unit in place as it expands and compresses between two parallel surfaces. Simple flanges may be used to position the cover, which is normally installed over the end of a rod, shaft or screw assembly. However, "open wound" models are available to be wound onto the rod, shaft or screw without the necessity of partially disassembling the host machine.

X = ID min., shaft diameter + 8mm
or 4mm if no mounting flanges
(pilot and retainer) are used.

W = Extended Length

V = Compressed Length

Y = Stroke, (extended length
minus compressed length)

Z = OD (Outside Diameter),
maximum allowable area.

Flanges

(required for use over non-vertical shafts)

A = X - 4mm

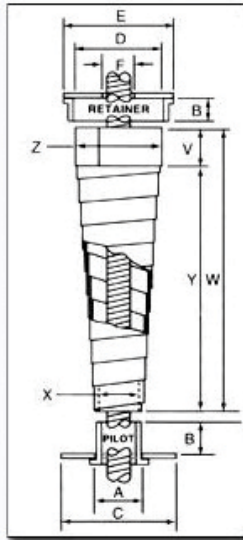
B = V x .75

C = Z

D = Z + 5mm

E = Z + 12mm

F = X - 5mm



Above diagram for informational purposes.
Actual covers may vary.



Lead Screw Covers are custom manufactured and require a specific quotation for each unit. You can request a **Lead Screw Cover Requirements Form** from our Customer Service department or download it from our website. It's easy to fill out and we'll reply as soon as possible with a quotation. If you have any questions or need assistance in filling out the form, please contact us and we'll be happy to assist.

Please visit our website for a Quote Form or contact Flexbar Customer Service for assistance.



GET ON THE TRACK WITH

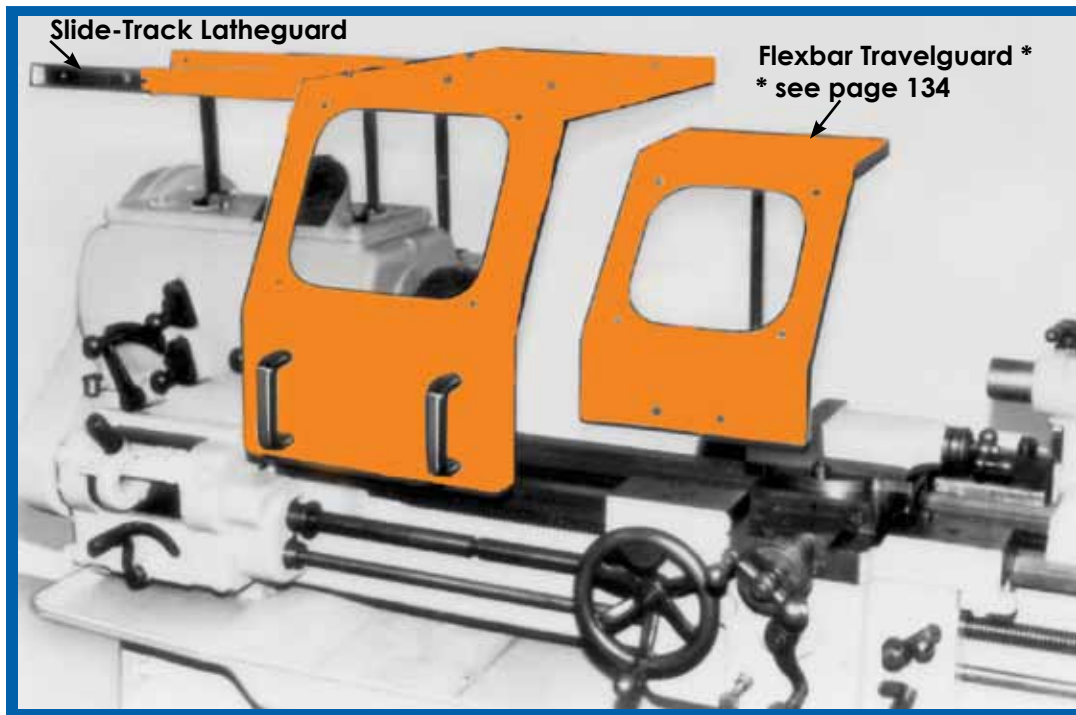
SLIDE-TRACK LATHEGUARD™

(Sliding Lathe Shields)



HEAVY-DUTY 14 GAUGE STEEL SHIELDS WITH LEXAN® WINDOWS MOUNT OVER HEADSTOCK AND SLIDE OVER CHUCK FOR MAXIMUM PROTECTION! ALLOWS EASY ACCESS TO THE POINT OF OPERATION WHEN POWER IS OFF.

FITS CONVENTIONAL LATHES AND CNC MACHINES
TWO STYLES AVAILABLE: "MINOR" AND "MAJOR"



Above: "MAJOR" SLIDE-TRACK LATHEGUARD (left)
with FLEXBAR TRAVELGUARD (right - See Page 134)

- The "Minor" Slide-Track Latheguard features two (2) $\frac{3}{16}$ " thick LEXAN® windows. Being situated on the top and front inclined panels, these windows provide excellent visibility for the operator. The front panel hinges up to allow access to the controls and settings of the machine - The "Minor" is designed to guard lathes having chucks ranging from 10" diameter up to 24" diameters. **(Model No. 13079 & 13080)**
- The "Major" Slide-Track Latheguard provides maximum operator protection on standard machines or large CNC lathes with chucks ranging up to 48" diameter. These guards incorporate one LEXAN® front panel window and do not require a top window. **(Model No. 13081-13084)**

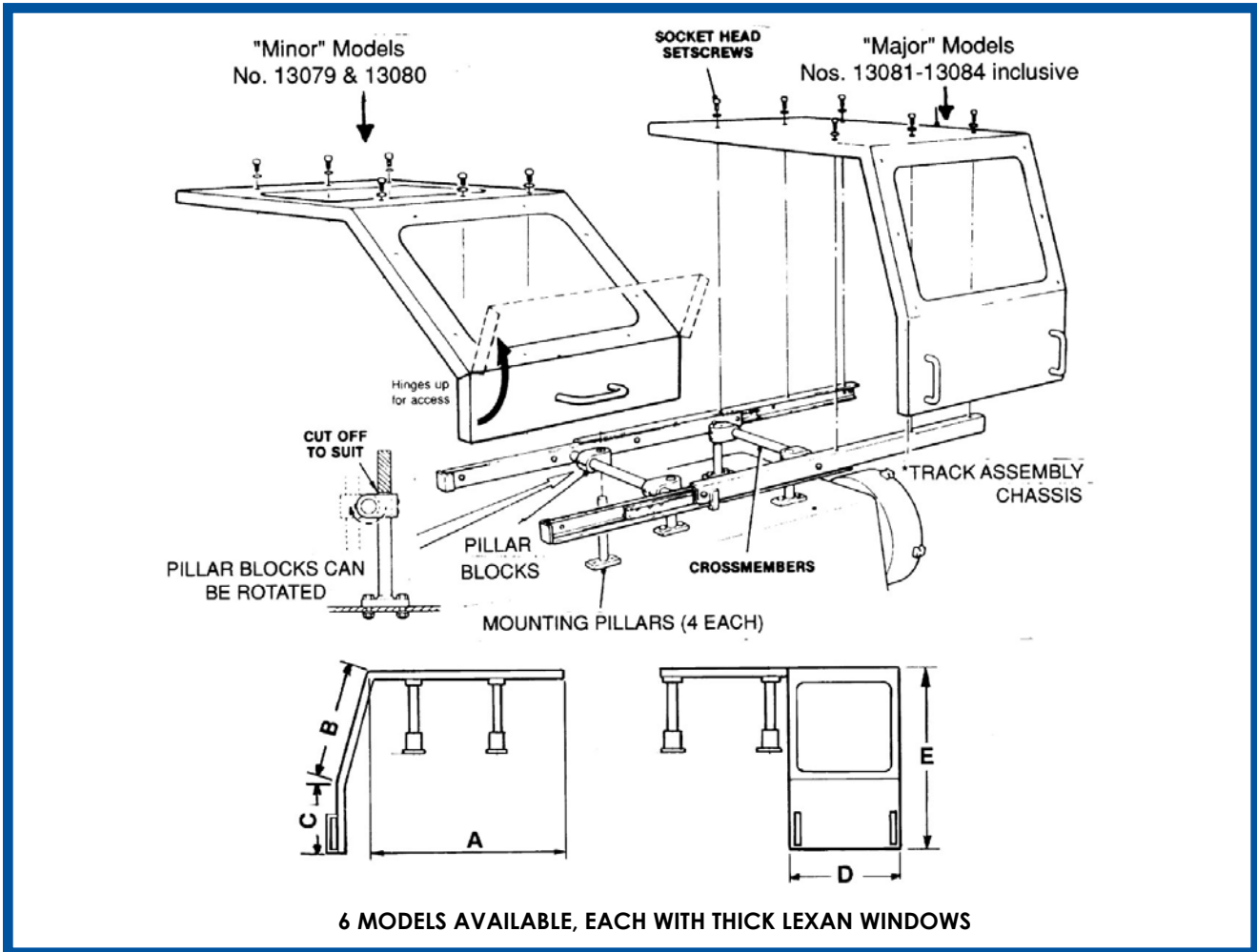
**SHIELDS SUPPLIED WITH OSHA ORANGE BAKED ENAMEL PAINTED
FINISH FOR LONG WEAR**



SLIDE-TRACK LATHEGUARD™

SPECIFICATIONS AND ORDERING:

You can now install a professional heavy-duty guard on any size lathe. Simply screw the 4 pillar posts supplied at 4 sites around the headstock and then slip on the track assembly chassis. Now mount the shield. Pillar posts, in relation to cross-members are adjustable vertically hence easily positioned around the headstock without interference. All hardware is included with easy-to-follow instructions.



MODEL NO.	CHUCK CAPACITY	DIMENSIONS				
		A	B	C	D	E
13079	24"	17"	19"	6"	14"	17.75"
13080	24"	17"	19"	6"	24"	17.75"
13081	28"	26"	14.88"	8.24"	19.75"	21.10"
13082	32"	27.19"	16.50"	8.71"	19.75"	23.00"
13083	40"	29.56"	19.75"	9.81"	19.75"	26.90"
13084	48"	33.88"	23.00"	10.85"	19.75"	30.75"

(*SUPPLIED COMPLETELY ASSEMBLED) REPLACEMENT WINDOWS AND PARTS SUPPLIED UPON REQUEST

FLEXBAR

Prevent Accidents With
LATHEGUARD™

MADE OF LEXAN®*

Clear LEXAN, Semi-Circular Wrap-a-round Guards

- Heavy Duty Cast Mounting bracket supplied.
- Heavy Duty Chrome-plated extension tube and hardware.
- Ready to mount; all you do is affix mounting bracket with two screws.
- Back of shield is reinforced with plated wire-form housing.
- Locks in swing away or functional positions.
- Accepts 3 or 4-Jaw Chucks.

EXCEEDS O.S.H.A. REQUIREMENTS



**NEITHER RAZOR-SHARP CHIPS NOR BROKEN TOOL BITS
WILL PENETRATE THE LEXAN® SHIELD**

- Rib reinforced
- Robust construction
- Light in weight
- Swings away easily

MODEL NO.	SUGGESTED LATHE SIZE	CENTER HEIGHT (A) (SHIELD HEIGHT)	USE WITH CHUCKS	SHIELD WIDTH (F)	SHIELD LENGTH (B)	TUBE LENGTH (E)
12999	Very Small Lathes	3.9"	Up to 6" Dia.	6¼"	7.8"	10"
13060	6 to 12	6"	Up to 8" Dia.	6¼"	11.8"	10"
13061	12 to 16	8"	Up to 12" Dia.	8"	15.8"	11½"
13062	16 to 20	10"	Up to 16" Dia.	8"	19.70"	13"
13064	20 to 24	13"	Up to 20" Dia.	8"	23.6"	13"
13059	Extra Long Tube (E) for lathes where chuck sticks out a long way from headstock					16"

REPLACEMENT SHIELDS AVAILABLE. SEE NEXT PAGE.

ALL LATHEGUARDS SUPPLIED WITH MOUNTING BRACKET NO. 13070

Order from below if your Lathe needs either #13068 or #13069 Bracket, or No. 13071 Double Bracket

MODEL NO.	DESCRIPTION
13068	For mounting to top or back of headstock
13069	Extension or telescoping type for top or back mounting. Range: 3.25" to 5"
13070	If you want an extra mounting bracket.
13071	Double bracket: this enables you to mount the next larger shield when changing from a 3 jaw chuck to a 4 jaw chuck
13075	Long Reach Latheguard Mounting Kit for easy mounting of Latheguard on large machines or difficult applications. Mount can be positioned up to 27" from Latheguard.



*REG. TRADEMARK OF GENERAL ELECTRIC CO.

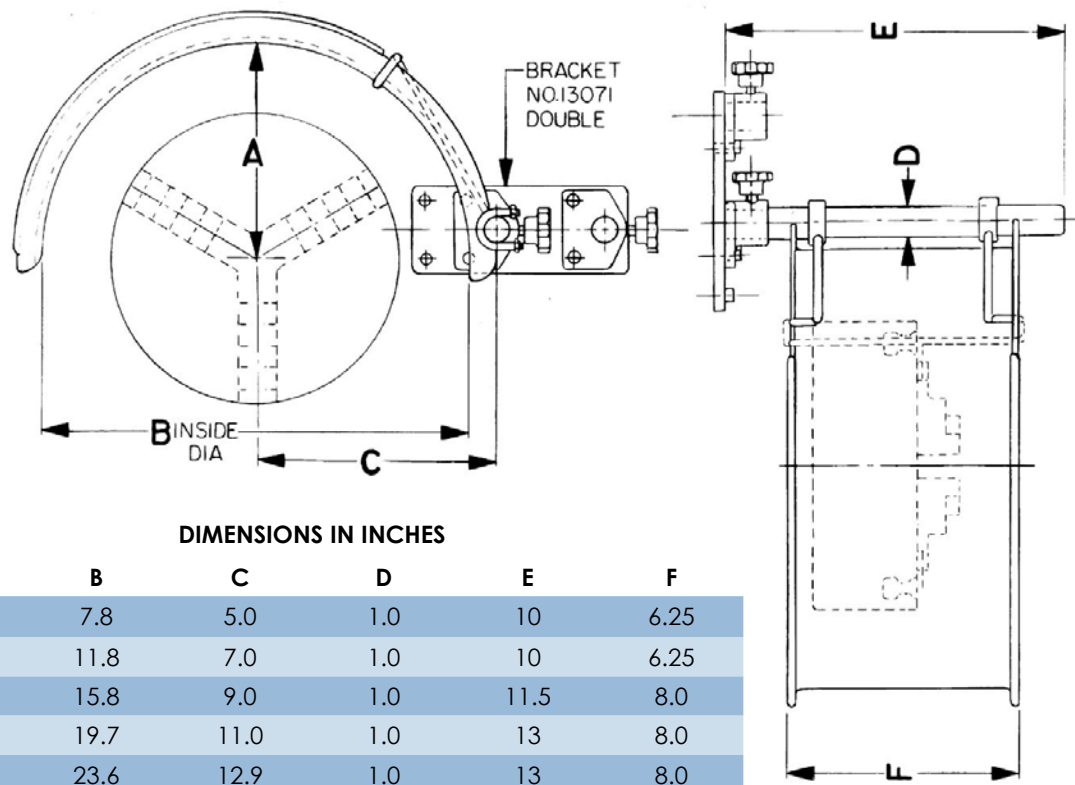


THE FLEXBAR LEXAN LATHEGUARD™

Information and Specifications HINTS, FOR SELECTING THE CORRECT LATHEGUARD!

- 1 - The Chuck Diameter being used on your Lathe makes for a good formula.
- 2 - Utilize Dimension "A" and other dimensions given in chart shown below.
- 3 - On Lathes with center heights of 7 inches or more there is a significant variation in the diameter of a 3-Jaw as against a Jaw Chuck. It may be necessary to install the next larger Latheguard to accommodate for the 4-Jaw Chuck. Keeping a double bracket (No. 13071) on the Lathe makes it possible to switch your latheguard from small to larger size and vice versa, in one minute.
- 4 - When calculating Dimensions "A", always allow ample clearance for largest machined part or furthest jaw extension.

NEITHER RAZOR-SHARP CHIPS NOR BROKEN TOOLS BITS WILL PENETRATE THE LEXAN SHIELD



MODEL NO.	DIMENSIONS IN INCHES					
	A	B	C	D	E	F
12999	3.9	7.8	5.0	1.0	10	6.25
13060	6.0	11.8	7.0	1.0	10	6.25
13061	8.0	15.8	9.0	1.0	11.5	8.0
13062	10.0	19.7	11.0	1.0	13	8.0
13064	13.0	23.6	12.9	1.0	13	8.0

REPLACEMENT SHIELDS (only) for LATHEGUARD

MODEL NO.	SHIELD WIDTH (F)	SHIELD LENGTH (B)	SHIELD HEIGHT (A)	REPLACEMENT FOR LATHEGUARD MODEL NO.
13072	6¼"	7.8"	3.9"	12999
13065	6¼"	12"	6"	13060
13066	8"	16"	8"	13061
13063	8"	19.70"	10.25"	13062
13067	8"	24"	12"	13064

FLEXBAR E.I.M.B.™

Electrical Interlocking Mounting Brackets

For use with all Flexbar Latheguards and Small Chuckguards (see p. 130 & 133)

4 MODELS AVAILABLE TO SUIT INDIVIDUAL LATHE DESIGNS

Functioning: Once wired to motor-control circuit (motor starter), the cam-operated limit switch opens the contacts when the safety shield is tilted up . . . and the machine stops running (see fig. 1 and fig. 2).

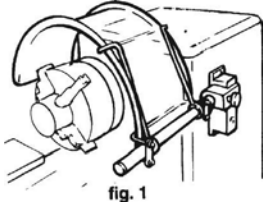


fig. 1

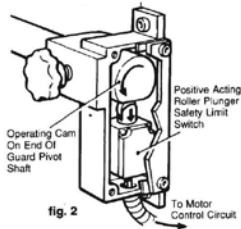


fig. 2



SPECIFICATIONS

Limit Switch:

- Roller-type
- Roller and head are metal in sealed plastic housing
- Electrical life - 1 million cycles
- Mechanical life - 30 million cycles
- NEMA 4 rated
- Approvals: UL A300, UL E140497, CSA A 300 & CSA LR26716 M20
- Snap acting SPDT INO-INC with double break ensures switch will open in event of minor contact welding
- Contact block & roller head are modular hence replaceable without discarding entire device

Electrical Conduit:

- Extremely flexible and withstands repeated flexing
- recognized - exceeds industry standards
- Liquid tight vs. oil, water and most chemicals
- * and certified and recognized

*Fittings:

Inside is nylon with BUNA-N gland which seals the two each (2) 18 gage wires, plus a grounding wire.

AVAILABLE IN 4 DIFFERENT MOUNTING STYLES:

- Bright Yellow Painted Finish



17001

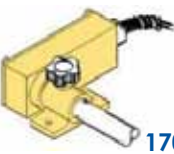


17002



17003

Flange
(Reversible)



17004

Included with each E.I.M.B. model:

- Electrical Interlock Box with safety limit switch, wiring and mounting bracket with locking knob
- Special Latheguard tube
- Wiring diagram.

Dimensions of rectangular box portion of E.I.M.B.:

Approx. 6% x 2% x 1% inches (168mm x 60mm x 41.3mm)

MODEL NO.	DESCRIPTION
17001	Style 1 - Mount at back of lathe (see figure 1). For all shield sizes.
17002	Style 2 - Telescoping & Swiveling Style. For lathes with irregular or dome-shaped headstock, E.G. -Hardinge. For all shield sizes.
17003	Style 3 - Mounts on face of headstock. Backplate can be reversed 180° on housing thus flange portion can be on right (as shown) or on left side, if reversed. All shield sizes.
17004	Style 4 - Top mounting for flat top of headstock. All shield sizes. Note: Observing the lathe structure and taking a few measurements makes proper selection easy.

ABOVE E.I.M.B. MODELS DO NOT INCLUDE LATHEGUARD SHIELDS/ASSEMBLIES.
REFER TO PAGES 130 & 133 TO ORDER LATHEGUARDS OR SMALL CHUCKGUARDS.



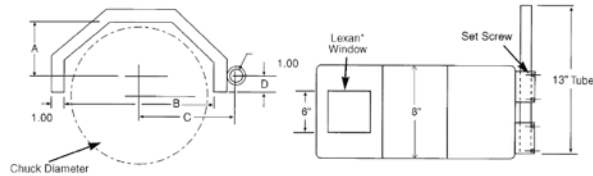
THE FLEXBAR SMALL CHUCKGUARD™

Designed For Heavy Duty Applications Where A Steel Shield Is Recommended On Lathes Up To 20" Diameter



Special Features:

- Heavy-Duty Cast Mounting Bracket supplied (Model No. 13070).
- Optional Mounting Brackets for various applications are available (see page 130).
- Heavy-Duty Chrome-plated Extension Tube and Hardware.
- Ready to mount; All you do is affix mounting bracket with two screws.
- Locks in swing away or functional positions.
- Replacement windows available upon request.



Available with Flexbar Electrical Interlocking-Mounting Brackets (see page 132).

MODEL NO.	CENTER HEIGHT (SHIELD SIZE)	USE WITH CHUCKS	C	B SHIELD LENGTH
13250	9.5"	Up to 16" dia.	10.25"	19"
13251	10.5"	Up to 20" dia.	12.25"	21"
13059	Extra Long Tube (16") for Lathes where Chuck extends past width of guard			

* Reg. Trademark of General Electric Co.

FLEXBAR CHUCKGUARD™ SUPER HEAVY DUTY STEEL GUARDS

Made of 14 Gauge Steel for Chucks up to 49" Diameter

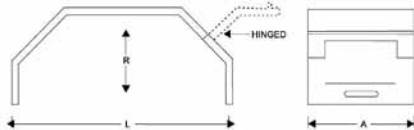


Large Diameter Chucks are, by themselves DANGEROUS! (Even more so at high speed settings.) Chuckguard protects the operator and the "passer-by" from serious injuries.

Each Chuckguard is supplied complete with mounting hinge, plate and support bar for mounting on headstock of lathe.

Features:

- Hinged front panel allows easy access to the chuck
- Lexan window for easy viewing
- Comes complete with mounting bracket and support bar for mounting on headstock
- Bright safety painted finish
- Exceeds O.S.H.A. requirements
- Replacement windows available upon request



Reference Guide for Selecting Correct Flexbar Steel **CHUCKGUARD**

DIMENSIONS

MODEL NO.	A	R	L	CHUCK DIAMETERS
13056	14"	17½"	35"	20", 24", 25", 26", 28", 30", 30½"
13057	14"	20"	40"	30½", 32", 36"
13058	14"	25½"	51"	39½", 47, 49

ALSO AVAILABLE.... EXTRA LARGE CAPACITY CHUCKGUARD

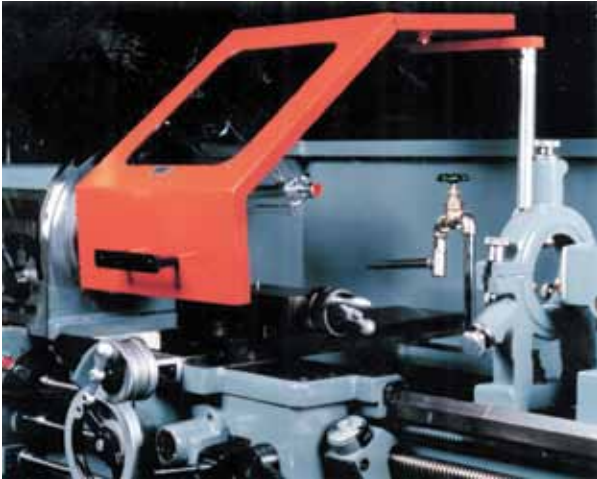
Custom Built heavy gauge steel chuck shield available for very large diameter chucks up to 74". Phone or email for more information!



TRAVELGUARD™

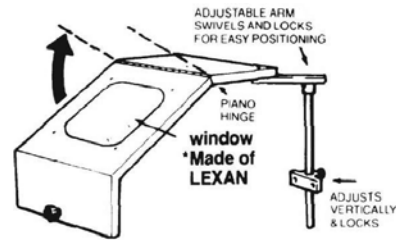
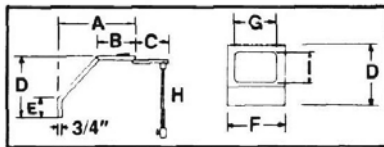


CROSS SLIDE TYPE



EXTRA-HEAVY DUTY FOR LATHES, GRINDING MACHINES, ETC.
OPERATOR PROTECTION WHEREVER TOOL IS CUTTING

- Easy to mount on cross slide (tool compound).
- Fully adjustable in all directions—forwards & backwards.
- Heavy steel construction with thick lexan window.
- Frame is 3/4" construction made of heavy gauge steel with high quality painted finish.
- Front panel is hinged and can be lifted for quick access to machine.
- Replacement windows available upon request.



*REG. TRADEMARK OF GENERAL ELECTRIC CO.

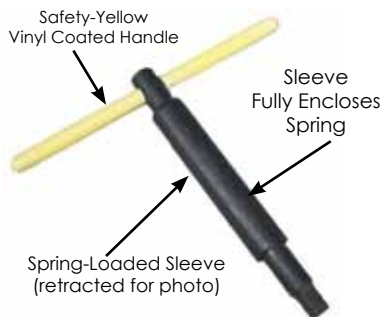
MODEL NO.	DESCRIPTION	A	B	C	D	E	F	G	H	I
13086	20" Chuck Max	16	8	7 ³ / ₄	13	4	11 ⁷ / ₈	8 ¹ / ₂	20 ¹ / ₂	8 ¹ / ₂
13087	28" Chuck Max	22 ³ / ₄	10 ¹ / ₂	9 ³ / ₄	14 ¹ / ₂	5 ⁵ / ₈	14	9 ³ / ₄	20 ¹ / ₂	10 ³ / ₄

FLEXBAR LATHE CHUCK SAFETY WRENCHES

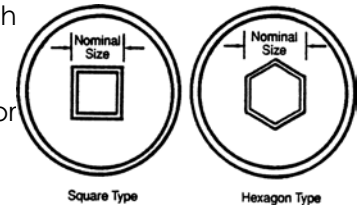
Spring-loaded, self-ejecting chuck wrenches designed for use with lathes and other machines equipped with manually adjusted chucks.



Adjusting the chuck using a spring-load chuck wrench



- Spring-load sleeve ejects the wrench from the chuck after each use
- Chamfered end for easy entry
- Designed to provide proper loads for self-removal of the wrench weight
- **Helps prevent accidents**



MODEL NO.	NOMINAL SIZE	ACTUAL SIZE	BAR DIA.	OVERALL DIA.	ENGAGEMENT LENGTH
15470	9/32" SQ	.271"	1"	1.050"	3/4"
15471	5/16" SQ	.303"	1"	1.050"	3/4"
15472	3/8" SQ	.365"	1"	1.050"	3/4"
15473	7/16" SQ	.427"	1"	1.050"	3/4"
15474	1/2" SQ	.490"	1"	1.050"	3/4"
15475	1/2" HEX	.490"	1"	1.050"	3/4"
15476	5/8" HEX	.615"	1"	1.050"	3/4"
15477	9/16" SQ	.552"	1.3"	1.315"	3/4"
15478	5/8" SQ	.615"	1.3"	1.315"	3/4"
15479	11/16" SQ	.678"	1.3"	1.315"	3/4"
15480	3/4" SQ	.740"	1.3"	1.315"	3/4"
15481	3/4" HEX	.740"	1.3"	1.315"	3/4"



UNIVERSAL MOUNT MILL & GRINDER GUARD

Heavy Duty Steel Frame With Lexan Guards
For Milling Machines and Unguarded Machines Including
C.N.C.'s, Multi-spindles and Grinders
FULLY ADJUSTABLE WITH LONG REACH OPTION AVAILABLE



In use: Guard down



Flip up to change workpiece or tool...no loss in productivity!

Unique universal positioning design is fully adjustable. Frame/shield is mounted and supported by a heavy duty arm and swivel clamp thus allowing the operator to "custom fit" each guard as to overall length, angle and position of shield. Wing-shaped frame/shield protects workers at adjacent machines. Long Reach Extension Kit Model No. 13262 permits positioning of guard up to 40" from mounting point.

- Easy to mount (brackets supplied for most mountings).
- Frame is heavy steel construction with thick Lexan windows.
- High quality painted finish - Bright OSHA ORANGE.

Two Sizes Available: **Model No. 13258, 19" W x 16" H**
 Model No. 13260, 26½" W x 16" H

MODEL NO. DESCRIPTION

13258	Universal Mount Mill/Grinder Guard with 19" W x 16" H heavy duty shield
13259	Replacement Lexan window for 13258
13260	Universal Mount Mill/Grinder Guard with 26½" W x 16" H heavy duty shield
13261	Replacement Lexan window for 13260
13262	Long Reach Extension Kit for Model Nos. 13258 and 13260

Includes adjustable extension arm and all connection and mounting hardware

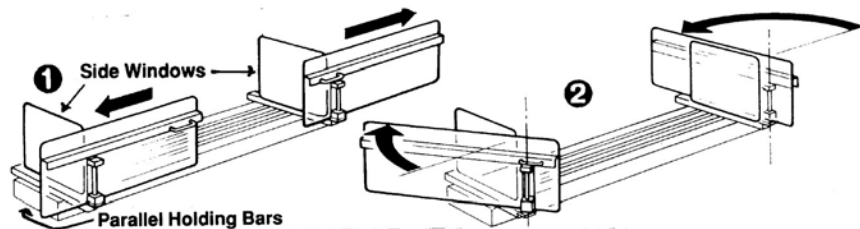
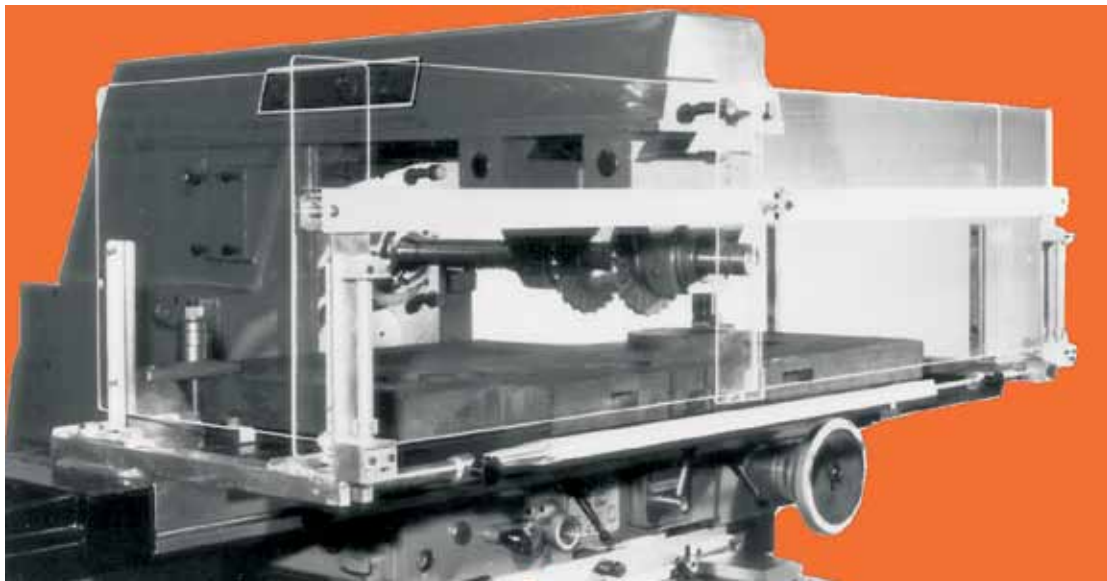


FLEXBAR TOTALGUARD™

SLIDE AND SWING ASIDE MILLING MACHINE GUARDS
FULLY ADJUSTABLE FOR
VERTICAL, HORIZONTAL AND C.N.C. MILLS

Available in three sizes to fit table lengths from 32" to 76". Heavy-duty construction with high impact resistant transparent **Lexan®** panels ($\frac{3}{16}$ " thick).

ALL PANEL HEIGHTS NOW $23 \frac{5}{8}$ " TALL
ACCEPTS LARGER PARTS SAFELY



Unique construction allows the front panels to slide and swing aside revealing the whole of the table bed

The Flexbar Totalguard® is supplied in two separate assemblies which are mounted at either end of the table in just minutes. Model Nos. 13089 and 13090 consist of two fixed side panels and two front sliding panels which allow the operator quick and easy access for loading and unloading large parts and castings. Model No. 13088 utilizes one front sliding panel and one hinged front panel as well as two fixed side panels. Fully adjustable, the parallel holding bars (see above) enable the guard to move backwards and forwards to cater for vises or parts that overhang the table.



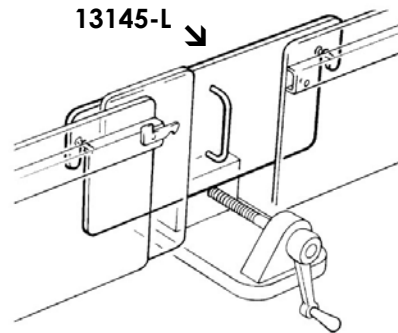
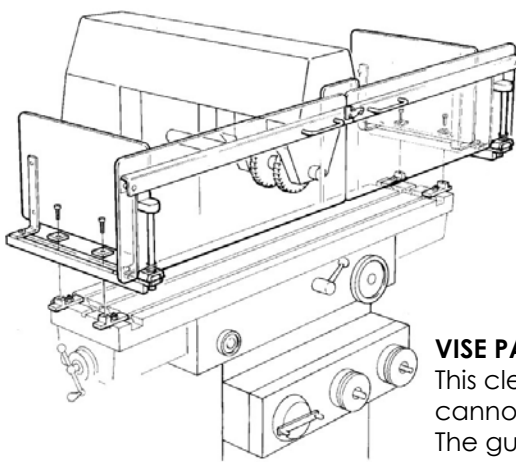
FLEXBAR TOTALGUARD™



FEATURES:

- Fits all milling machines, horizontal or vertical and C.N.C. mills as well.
- Takes up no more than exact width of table.
- Lexan® panels are crystal clear — good and thick and 25 times stronger than safety glass.
- Panels slide and swing aside quickly and smoothly for making setups; loading and unloading.
- Unlike patch quilt-type mill guards, still on the market, Totalguard does not have slots or apertures for hot chips to sneak through.
- Universal Mounting: Special tee-slot slugs fit all sizes of tee-slots so that Totalguard is installed in less than 5 minutes.
- All Lexan® panels butt together like a perfect window when closed yet reveals the entire table bed when opened.

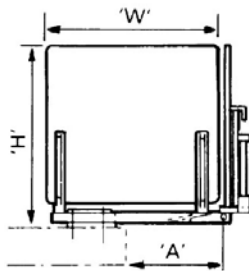
Special C.N.C. Utility Feature
 New parallel holding bars permit bringing Totalguard forward to accommodate 2, 3 or 4 vises which protrude on the lead edge of the table.



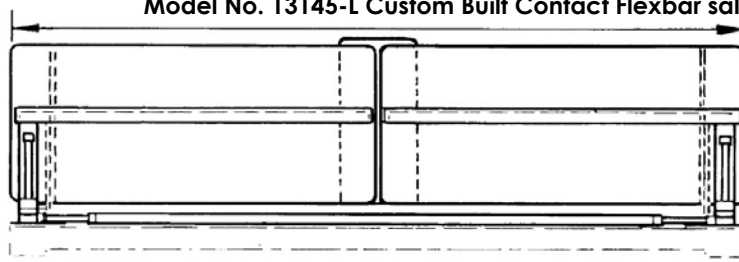
WISE PANEL (optional for 13089 & 13090)

This clear panel covers the gap left when the two front panels cannot be closed completely due to a protruding vise as shown. The guard simply hooks over locating pin (supplied) so it can be fitted or removed in seconds.

Model No. 13145-L Custom Built Contact Flexbar sales for ordering info.



End elevation showing guard in maximum forward position.
 A=2" (min.) up to 11" (max.)



Front view with sliding guards closed

MODEL NO.	FOR TABLE LENGTH	SIDE PANEL HEIGHT	SIDE PANEL WIDTH	FRONT PANEL HEIGHT
*13088-H	32" - 44"	23 ⁵ / ₈ "	19 ¹ / ₂ "	23 ⁵ / ₈ "
**13089-H	44" - 56"	23 ⁵ / ₈ "	19 ¹ / ₂ "	23 ⁵ / ₈ "
**13090-H	56" - 76"	23 ⁵ / ₈ "	19 ¹ / ₂ "	23 ⁵ / ₈ "

* Has ONE Sliding front door and one hinged front panel.

** Has TWO Sliding front doors of equal size.



FLEXBAR VISORGUARD



Provides Complete Protection Between Cutting Tool and Operator's Eyes



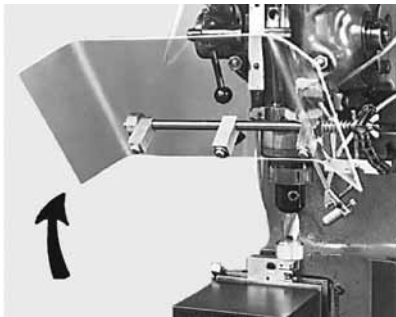
IN USE: VISORGUARD DOWN

DOWN-TO-EARTH FEATURES!

1. Flexbar arm permits setting of Visorguard at the correct height and angle for each setup.
2. Flip shield up to load part and down for machining.
3. Special spring-loaded shaft makes shield stay put - no springback.
4. Wing-shaped shield protects workers at adjacent machines.
5. Flexbar locks rigid; has stainless air-craft-grade tension cable.
6. Can be installed in minutes on CNC mills, conventional milling machines and others.

DIMENSIONS:

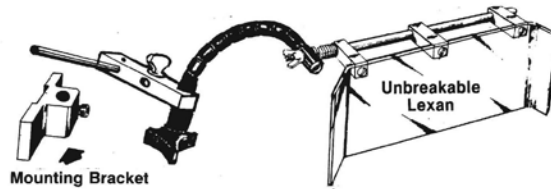
- Shield Size - 16" wide x 8" high
- Flexbar Arm - 10" long
- Mounting Bracket - 1.62" Center to Center hole pattern



Flip up to change workpiece or tool . . . no loss in productivity!

MODEL NO. DESCRIPTION

13055	Visorguard. Complete with mounting bracket, Flexbar and all hardware including mounting hole and thumbscrew for attaching coolant system.
13054	Replacement Shield, 16" wide x 8" high



LONG REACH VISORGUARD™ For Large Milling Machines (vertical and horizontal) and Unguarded Machines Including CNC's.

We took a standard Visorguard and made a new body which attaches to a 1" diameter tube 30 inches long. The tube slip fits into our No. 13068 mounting bracket which is included in the device. The 30 inch tube plus the Flexbar Flexarm length provides 40 inches of reach. The extension tube is retractable in the socket of the mounting bracket so that it can be set up for smaller distances from point of attachment to the ideal setting of the Visorguard shield.



MODEL NO. DESCRIPTION

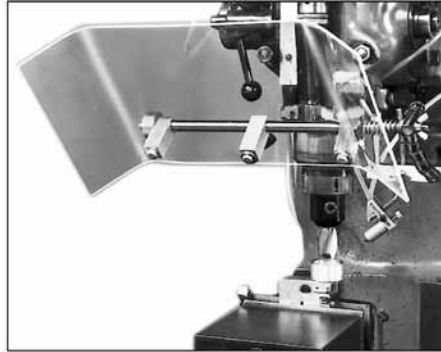
13050	Long Reach Visorguard™. Complete with hardware, tube and mounting bracket.
13054	Replacement Shield, 16" wide x 8" high.
80063-6	Ball & Thread Replacement Cable for all Visorguard Models.

OPTIONAL SIZES OF VISORGUARD SHIELDS NOW AVAILABLE: See bottom of next page.

VISORGUARD UNIVERSAL



**Fully Adjustable Long Reach Guard (Lexan®)
For Milling Machines and Unguarded Machines
Including C.N.C.'s, Multi-spindles, Bandsaws, etc.**



Flip up to change workpiece or tool...no loss in productivity!

Unique universal positioning design is fully adjustable. Visorguard shield is mounted and supported by a series of heavy duty arms and swivel clamps thus allowing the operator to "custom fit" each guard as to overall length, angle and position of shield. Wing-shaped Visorguard shield protects workers at adjacent machines.

**LONG REACH FROM HEADSTOCK MOUNTING PLATE/POST
IS ADJUSTABLE TO 36"**

Visorguard Universal consists of:

- Mounting plate with 4" x 1/2" post — just drill and tap into headstock ... supplied with four cap screws
- 2 each 15" x 1/2" arms (24" arms available upon request - phone or fax)
- 3 each 1/2" x 1/2" heavy duty swivel clamps with extra-large wing style locking knob
- 16" x 8" high Lexan® Visorguard shield assembly with 6" attachment post & coupling

MODEL NO. DESCRIPTION

13047	Visorguard Universal
13048	Extra-Wide Visorguard Universal - same as 13047 but with 24" wide by 8" high Lexan® shield (3/16" thick) for larger machines such as multi-spindles
13054	16" x 8" Replacement Shield
13046	24" x 8" Replacement Shield

Other size shields available for Visorguard Universal - see bottom of page.

EXTRA-LARGE VISORGUARD™ LEXAN SHIELDS*

Now available for use with all Visorguard™ Models (except 13032). These shields can be used in place of standard 16"W x 8"H shield and attach in seconds.

MODEL NO.	WIDTH	HEIGHT
13046	24"	8"
13073	14½"	12"
13074	15"	16"

* Above models - shield only



New Easy-Mount Visorguard Products- Ideal for Tech-Ed Applications!

MILLING MACHINE VISORGUARD KIT

Provides Complete Protection Between Cutting Tool and Operator's Eyes



Down-To-Earth Features!



- Easy Grab Handle
- Flexbar Arm permits setting of Visorguard at the correct height and angle for each setup
- Mounts on most machines, even with digital readouts, in minutes
- All mounting brackets included
- Shield size 16" wide x 8" high

MODEL NO. DESCRIPTION

13460	Milling Machine Visorguard Kit
13054	Replacement Shield
13461	Extra Long 24" Vertical Angle
80063-1138	Replacement Flexarm Cable

DRILL PRESS VISORGUARD KIT

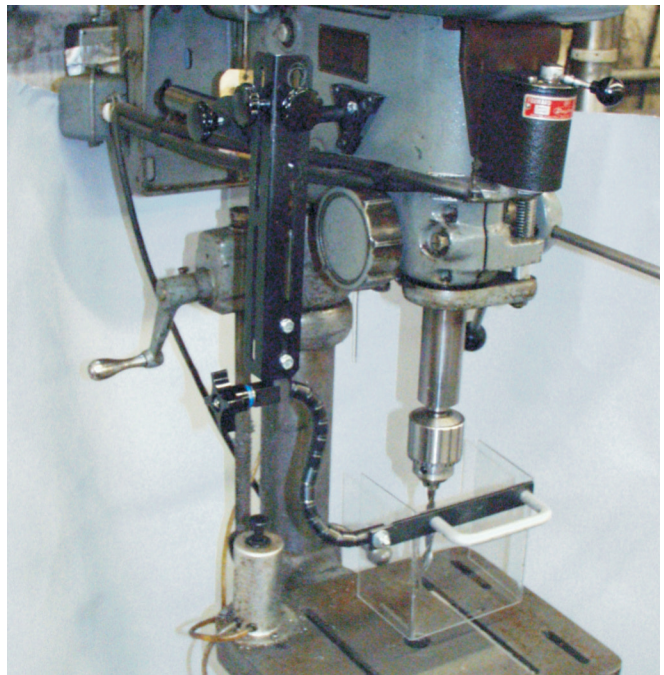
Provides Operator Protection from Chips and Broken Drills on Drill Presses and Drilling Equipment



- Easy Grab Handle
- Flexbar Arm permits setting of Visorguard at the correct height and angle for each setup
- Mounts on most machines in minutes
- All mounting brackets included
- Shield Size 6" wide x 6" high with 4" sides

MODEL NO. DESCRIPTION

13462	Drill Press Visorguard Kit
13033	Replacement Shield
13461	Extra Long 24" Vertical Angle
13463	Extra Long 28" Horizontal Tube
80063-1138	Replacement Flexarm Cable





DRILL/CHUCK VISORGUARD

Standard and Long Reach Mounts

Provides Operator Protection From Chips And Broken Drills On Drill Presses, Milling Machines And Other Drilling Equipment.

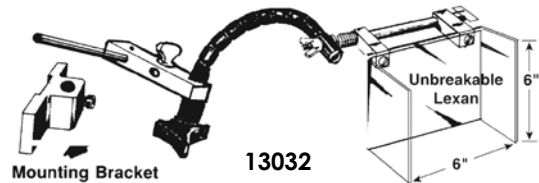
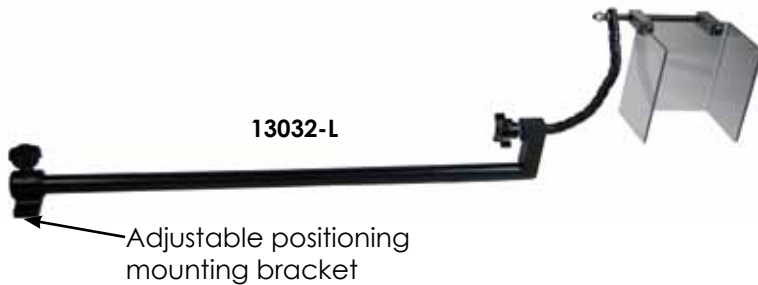
Similar features to Flexbar Visorguard Model No. 13055

SAFETY FEATURES INCLUDE:

1. Flexbar arm permits setting of guard at the correct height and angle for each setup.
2. Flip shield up to load part and down for drilling.
3. Special spring-loaded shaft makes shield stay put - no springback.
4. Box-shaped shield (90° angled) protects workers at adjacent machines.
5. Flexbar locks rigid; has stainless aircraft-grade tension cable.
6. Can be installed in minutes on drill presses, mills, milling machines and others.

DIMENSIONS:

- Shield Size - 6" wide x 6" high
- Flexbar Arm - 10" long
- Mounting Bracket - 1.62" Center to Center hole pattern



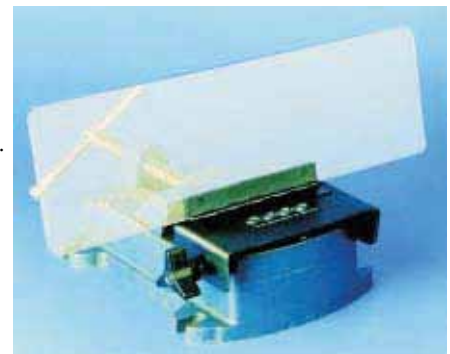
MODEL NO.	DESCRIPTION
13032	Drill/Chuck Visorguard. Complete with mounting bracket, Flexbar Arm and all hardware including mounting hole and thumbscrew for attaching coolant system.
13032-L	Long Reach Drill/Chuck Visorguard.
13033	Replacement Shield
80063-6	Replacement Ball & Thread Cable for Visorguard.

THE FLEXBAR VISEGUARD™

Quick and easy vise mount Lexan® shield helps to protect machine operators from hot chips and coolant spray at the spindle of your machine

Advantages:

- Easy to use - the Viseguard fits over the end of most standard vises. Clamps on in seconds
- Flexible - when access to the workpiece is needed, the shield flips down easily (using heavy-duty hinge)
- Shatter resistant - chips are deflected down and away from the machine operator. Made of high strength polycarbonate
- See-through - allows the operator to view the work piece while the machining is being performed
- Easy mounting - clamps in place with the twist of a knob



Shield dimensions (both Models):
.25" x 5" x 17"

MODEL NO.	DESCRIPTION
13147	for use on standard 6" vise systems
13148	for use on standard 8" vise systems



FLEXBAR 3-AXIS UNIVERSAL MOUNT INTERLOCKED GUARDS



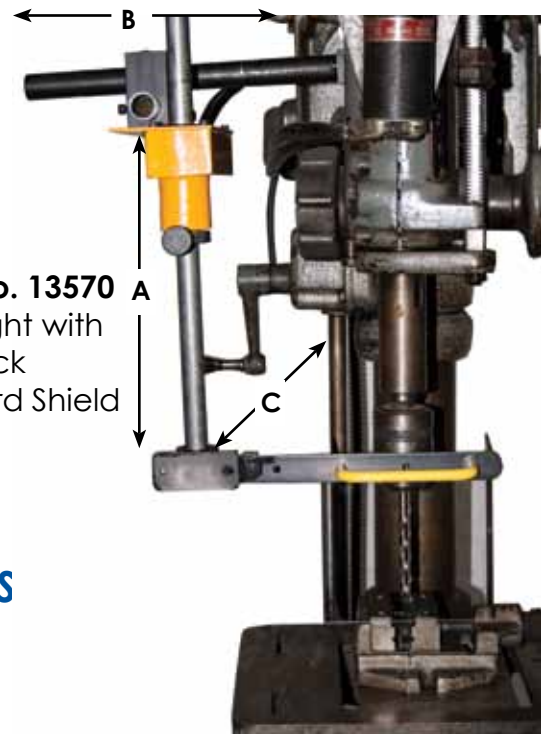
Featuring a newly designed universal positioning system incorporating a range of Electrical Interlocked Shields for a wide variety of machine guarding applications including mills, drill presses and band saws.

COMMON FEATURES FOR ALL SYSTEMS:

- 3-Axis Universal Positioning System allows all shields to be optimally employed in the hazardous machining area. The shield can be positioned vertically, horizontally and "In and out" as follows:
A- Vertical: 12", **B-** Horizontal: 9", **C-** In & Out: 9"
 (Optional 30" Extension Tube No. 13264 available. Order Information below)
- Horizontal Post has a mounting bracket allowing attachment to the machine headstock.
- All shield versions are permanently attached to the adjustable vertical post which is mounted through a Flexbar Electrical Interlocking Device.
- When the shield is swung out of position, the cam-operated limit switch opens the contacts and stops the machine. See page 132 for E.I.M.B. information.
- Includes attached electrical wiring with flexible conduit to allow connection to the safety circuit of the machine that switches off the control to the movement of the spindle.
- Unit is protected beyond IPG rating



Shown Above: Model No. 13490



Model No. 13570 shown right with Drill/Chuck Visorguard Shield

I. FLEXBAR VISORGUARD STYLE SYSTEMS

(Uses Lexan® Shields)

3-Axis Universal Mount Interlocked Guards- Complete Systems available as follows:

MODEL NO.	DESCRIPTION	VISORGUARD SHIELD SIZE
13490	With Extra-Wide Visorguard Shield	24" W x 8" H
13491	With Standard Size Visorguard Shield	16" W x 8" H
13492	With Tall Visorguard Shield	14" W x 12" H
13570	With Drill/Chuck Visorguard Shield	6" W x 6" H x 4" D
13264	Optional 30" Horizontal Extension Tube - can be cut to desired length.	

Model Nos. 13490 -13492 have wing-shaped shields.

Model No. 13570 has box shaped (90° angle) shield with 4" deep side wings.



FLEXBAR 3-AXIS UNIVERSAL MOUNT INTERLOCKED GUARDS (CONTINUED)



II. FLEXBAR SEMI-CIRCULAR WRAP-AROUND STYLE SYSTEMS:

Incorporating the same heavy-duty LEXAN® shields used on Flexbar Latheguards (see page 130-131). Permanently mounted laterally on the 3-Axis Universal Mount Interlocked System (see page 142), these guards provide optimal protection on many types of milling machines & drill presses.



Model No. 13591 shown above mounted on Bridgeport Milling Machine

3-Axis Universal Mount Interlocked Guards- Complete Systems available as follows:

MODEL NO.	DESCRIPTION
13590	With Wrap-Around style shield, 4" radius x 6¼" height*
13591	With Wrap-Around style shield, 6" radius x 6¼" height*
13264	Optional 30" Horizontal Extension Tube- can be cut to desired length

REPLACEMENT LEXAN SHIELDS*

13072	8" x 6¼" Shield for 13590
13065	12" x 6¼" Shield for 13591

*Same shield used on Flexbar Latheguards - See pages 130-131 for more details.



Model No. 13590 shown on drill press



BAND SAW VISORGUARD™



Provides Complete Protection Between Cutting Blade and Operator's Hands and Eyes.



Features Include:

- L" Shaped Lexan Shield, 6" H x 6" W x 4" D
- Easy Position Handle
- Adjustable Tension 9" Long Flexbar Arm Permits Correct Setting of Guard for Each Setup
- Includes Vertical Angle Mounting Bracket with 11" of Height Adjustment
- Kit Includes Mounting Screws and Self Locking Nuts. Simply Drill and Tap 2 Holes and Install

Installs on most band saws with 18" maximum throat height.

Optional extra-long vertical angle bracket assembly available for larger throat height machines. Phone or fax for details.

MODEL NO.	DESCRIPTION
13464	Band Saw Visorguard Kit. Complete with mounting bracket, Flexbar arm, shield and all hardware
13465	Replacement Shield with handle
80063-1138	Replacement Flexbar arm cable

SCROLL SAW VISORGUARD KIT

Provides Complete Protection Between Saw Blade and Operator's Eyes



- Easy Grab Handle
- Flexbar Arm permits setting of Visorguard at the correct height and angle for each setup
- Mounts on most machines in minutes
- All mounting brackets included
- Shield size 6" wide X 8" high



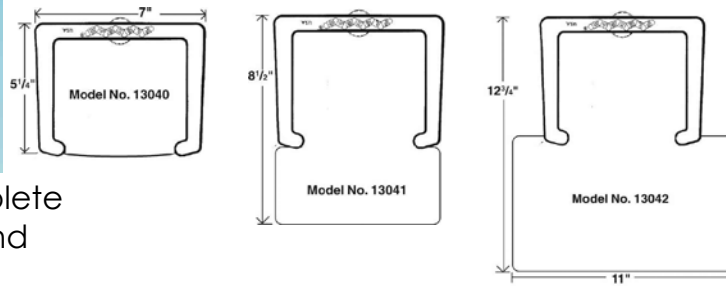
MODEL NO.	DESCRIPTION
13466	Scroll Saw Visorguard Kit
13467	Replacement Shield
80063-1138	Replacement Flexbar arm cable



PIVOT MOUNT GRINDER GUARD AND UNIVERSAL SHIELD



Heavy-duty swivel-lock positioning shield protects operator from flying grit and debris. Cast frame with virtually unbreakable $\frac{3}{16}$ " thick Lexan® shield will contain and deflect any wheel breakage. One standard frame with a choice of three sizes of interchangeable Lexan® shields will provide protection for grinding and buffing wheels up to 14". An extra heavy-duty steel pivot with locking knob connects the frame to the curved adjustable mounting bracket.



Each model supplied complete with frame, Lexan® shield and pivot mount hardware.

MODEL NO.	FOR BENCH GRINDERS	SHIELD SIZE
13040	6", 7", 8"	5½" x 5¾"
13041	8", 10"	6½" x 8½"
13042	10" and up	12¾" x 11"
13043	Lexan® Replacement shield for 13040	
13044	Lexan® Replacement shield for 13041	
13045	Lexan® Replacement shield for 13042	



All models sold individually. Shown above, 2 each Model no. 13040

FLEXBAR GRINDER GUARD DELUXE™

Heavy-Duty Lexan® Shield ($\frac{3}{16}$ " thick) Guards Against Wheel Explosions!
Designed to fit virtually all pedestal and bench grinders as well as buffers and speed lathes.

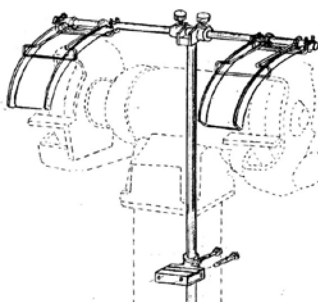
Fits Grinder/Buffer wheel diameter from 6" to 14"

ALL DOUBLE SHIELD MODELS INCLUDE:

- A) 2 Curved Shield Assemblies
- B) Vertical Post Assembled With 2 Mounting Brackets
- C) 2 Each, 1 inch wide standoffs with hex head bolts and washers
- D) 1 Vertical Mounting Bracket

ALL SINGLE SHIELD MODELS INCLUDE*:

- A) 1 Each Curved Shield
- B) Vertical Post Has One Mounting Bracket
- C) Same as above
- D) Same as above



PEDESTAL MOUNT MODELS- GRINDER/BUFFER WHEEL DIAMETER	ORDERING: WITH SINGLE SHIELD* MODEL NO.	WITH DOUBLE SHIELDS MODEL NO.
6" or 7"	13390-S	13390-D
8"	13391-S	13391-D
10" & 12"	13392-S	13392-D
14"	13393-S	13393-D

* Please specify "Left Mount" or "Right Mount" on Single-Shield Models.
 Single Shield Models are listed for Single-Wheel Buffers, etc. which are in existence.

Shown Above: Pedestal Mount Grinder Guard Deluxe with adjustable mounting hardware.

BENCH MOUNT MODELS AVAILABLE - PHONE OR FAX.



FLEXBAR DRILLGUARD™

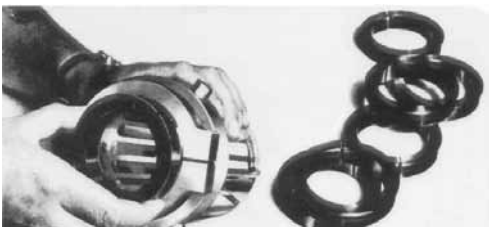
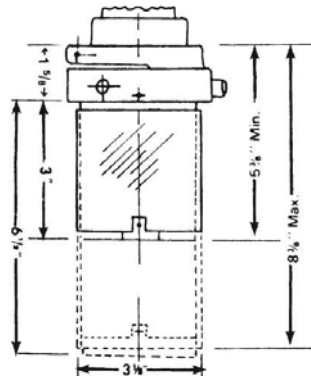
Provides Complete Operator Protection!

Interchangeable bushings available to accommodate most drill press quill sizes.

FEATURES:

- Complete operator vision and protection assured.
- Smooth telescopic action via patented spiral guide grooves-window caged housing moves up while drill comes down; hence cutting tool is totally guarded.
- For drill changes - simply pull down on housing. Three spring loaded ball catches disengage and the housing drops out. Conversely, it quickly snaps back in place.
- Inner cage moving down protects window hence the operator from metal slivers.

Quality made of heavy duty material, Drillguard comes complete with installation and operation instruction. The Quill Ring (which holds cage housing) is made of heavy die-cast aluminum, with smooth finish.



MODEL NO.	DESCRIPTION	Fits Quill Dia. (inches)	
		UP TO	FROM
13125	Drillguard	2.75" to	2.626"
13127	Bushing	2.625" to	2.563"
13128	Bushing	2.562" to	2.501"
13129	Bushing	2.500" to	2.438"
13130	Bushing	2.437" to	2.376"
13131	Bushing	2.375" to	2.313"
13132	Bushing	2.312" to	2.251"
13133	Bushing	2.250" to	2.188"
13134	Bushing	2.187" to	2.126"
13135	Bushing	2.125" to	2.063"
13136	Bushing	2.062" to	2.000"
(or Metric Equivalent)			
13126	Acrylic Replacement window for 13125		

While maximum diameter shown is 2 3/4" the mounting collar can be chucked and bored out to 2 7/8" diameter or slightly more.

See next page for 3-Stage Drillguard



FLEXBAR DRILLGUARD™-XL 3-TIER TELESCOPIC PROTECTION



Our new Drillguard-XL offers 3-tier telescopic operator protection.

Interchangeable bushings available to accommodate drill press quill sizes down to 2". See Page 146

FEATURES:

- Complete operator vision and protection assured.
- Smooth, 3-tier telescopic action via spiral guide grooves -window caged housing moves up while drill comes down; hence cutting tool is totally guarded.
- For drill changes - simply pull down on housing. Three spring loaded ball catches disengage and the housing drops out. Conversely, it quickly snaps back into place.
- Inner cage moving down protects window hence the operator from metal slivers.
- Mounting collar is made from aircraft grade aluminum and can be bored out to approximately 3".
- **Guards can be set at 3 positions: 7.5", 9.0" and 10.5"**
- **Maximum Drill Chuck size is 2.5"**



MODEL NO. DESCRIPTION

13335	Drillguard-XL. Fits Quill Diameter from 2.70" up to 2.75"
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UNIVERSAL POLE MOUNT ADAPTER KIT

Ideal For Use With Flexbar Visorguard Safety Guards

(Shown on Pages 138-141)



Take any Flexbar Visorguard and Pole mount it.

No Drilling and Tapping.

Mounts in Minutes.

Image shows Model No. 13396 Universal Pole Mount Adapter used with a 13032 Drill Chuck Visorguard.



Kit No. 13396

This Universal Pole Mount Adapter Kit comes with a multiple hole pattern mounting plate, 2 clamps and all the hardware to mount whichever style bracket you have. Fits round poles/posts from 1.75" to 4.25" diameter.

MODEL NO. DESCRIPTION

13396	Universal Pole Mount Adapter Kit Complete
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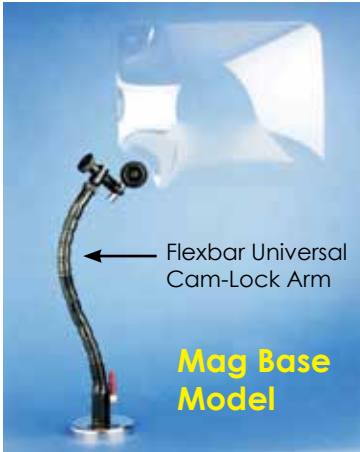


THE LEXAN® FLEX-SHIELD™

Protects Your Eyes Against Chip & Liquid Burns.

Safety Shield on Flexbar® Universal Positioning Arm. Quick Cam Action Locking (Shield swivels 360° and locks positively where placed).

Now Available in Mag Base, "C" Clamp and Base Mount Models.



- Overall height of Flexbar Stand: 14"
- Super Power Disc Mag Base: 3.16" dia.
- C-Clamp Capacity: 1 3/8", Throat to center of screw 1 1/16"
- Base Mount for permanent mounting on machine
- Shields made of durable clear view Lexan - 1/8" thick
- Choice of concave or flat



CONCAVE SHIELD MODELS- COMPLETE

SHIELD SIZE	MAG BASE MODEL	C-CLAMP MODEL	BASE MOUNT MODEL
6" x 8"	13313	13313-C	13313-B
8" x 10"	13314	13314-C	13314-B
10" x 12"	13315	13315-C	13315-B

FLAT SHIELD MODELS - COMPLETE

SHIELD SIZE	MAG BASE MODEL	C-CLAMP MODEL	BASE MOUNT MODEL
6" x 8"	13316	13316-C	13316-B
8" x 10"	13317	13317-C	13317-B
10" x 12"	13318	13318-C	13318-B



C-Clamp Mount

Base Mount

80060-2 Replacement 2 Ball Cable for Flexbar

LEXAN® REPLACEMENT SHIELDS- CARTON OF 3

CONCAVE		FLAT	
13093-L	6" x 8"	13120-L	6" x 8"
13094-L	8" x 10"	13121-L	8" x 10"
13095-L	10" x 12"	13122-L	10" x 12"

CHIPGUARD™ DEFLECTORS

with Polycarbonate Shields Made of Lexan® (3/16" thick)



- Swivel Base Positioner affords incredible variety of shield positioning instantly. Shield swivels 360° in two planes and 180° in 3rd plane. A small twist on locking knob positively locks all.
- Cantilever Design - leaves room for shield to cover work area.



ON MAGNETIC BASE

MODEL NO.	A	B	C
13010	4"	6"	2 5/8"
13011	6"	8"	2 5/8"
13012	8"	12"	2 5/8"

REPLACEMENT SHIELDS

13022	Replacement shield for 13010
13023	Replacement shield for 13011
13024	Replacement shield for 13012



EYEGUARD

“Protects Your Eyes Against Chips”

Available in Lexan® or Acrylic

Safety Shield on Universal Positioning Magnetic Stand with On/Off Lever

- Overall Height of Stand:
 - Base to top of post is 10" long
 - Extension rod - 7" long
- Magnetic base is powerful - 90lb. Pull
- Shields made of durable, clear view acrylic or Lexan®: 1/8" thick
- Concave and flat shields interchangeable on all models

CONCAVE SHIELD MODELS (ACRYLIC)

MODEL NO.	SHIELD SIZE
13098	6" x 8"
13099	8" x 10"
13100	10" x 12"
13101	12" x 16"
13102	16" x 20"

FLAT SHIELD MODELS (ACRYLIC)

MODEL NO.	SHIELD SIZE
13103	6" x 8"
13104	8" x 10"
13105	10" x 12"
13106	12" x 16"
13107	16" x 20"

LEXAN® SHIELD EYEGUARD MODELS

13098-L	6" x 8"	13103-L	6" x 8"
13099-L	8" x 10"	13104-L	8" x 10"
13100-L	10" x 12"	13105-L	10" x 12"
13101-L	12" x 16"	13106-L	12" x 16"
13102-L	16" x 20"	13107-L	16" x 20"

CONCAVE REPLACEMENT SHIELDS (ACRYLIC) CARTON OF 3

MODEL NO.	SHIELD SIZE
13093	6" x 8"
13094	8" x 10"
13095	10" x 12"
13096	12" x 16"
13097	16" x 20"

FLAT REPLACEMENT SHIELDS (ACRYLIC) CARTON OF 3

MODEL NO.	SHIELD SIZE
13120	6" x 8"
13121	8" x 10"
13122	10" x 12"
13123	12" x 16"
13124	16" x 20"

LEXAN® REPLACEMENT SHIELD

13093-L	6" x 8"	13120-L	6" x 8"
13094-L	8" x 10"	13121-L	8" x 10"
13095-L	10" x 12"	13122-L	10" x 12"
13096-L	12" x 16"	13123-L	12" x 16"
13097-L	16" x 20"	13124-L	16" x 20"

MODEL NO. 13092 Eyeguard Magnetic On/Off Stand Only



THE LEXAN VERSA-SHIELD



PROTECTS YOUR EYES AGAINST CHIP & LIQUID BURNS



The tough 1/8" thick polycarbonate Versa-Shield offers clarity from its front or from its side plus resistance to impact, hot chips, oil, grease and splashing coolants. The uniquely curved shape directs chips away from the user and helps recycle coolants. The shield measures 12" wide by 11" high and is ideal for bench grinders, buffers, lathers, planers, spot welders and more. Versa-Shield is available on a rugged, flexible gooseneck arm or on a Flexbar® Universal Positioning Arm with Quick Cam Action Locking.

The Flexbar Universal Positioning Arm locks the shield positively where placed. A variety of mounting options are offered below:



13448



13450



13451



13452



13453

MODEL NO. DESCRIPTION

Flexible Gooseneck Arm Models (on 3.16" diameter disc type magnetic base)

13448 Versa-Shield on 12" long gooseneck arm

13449 Versa-Shield on 24" long gooseneck arm

Flexbar® Universal Positioning Arm Models (Flexarm is 14" Long)

13450 Versa-Shield on Flexbar with 3.16" diameter disc magnet

13451 Versa-Shield on Flexbar with c-clamp. Clamp capacity 1 3/8" throat to center of screw

13452 Versa-Shield on Flexbar heavy duty 6" diameter weighted base

Flexbar with No. 7 CR Vise Grip

13453 Versa-Shield on Flexbar with No. 7 CR Vise Grip

Replacement Shield

13455 Replacement Shield 12" wide x 11" high. Fits all models

Call or email for permanent mounting bracket options.



FLEXIGUARD

Curved Plastic Shields On Rugged Flexible Goosenecks 2 Models Available

- Positively deflects chips and coolant.
- Permits clear & closer visual inspection of work.



1. ON C-CLAMP: Permits clamping of safety shield on hard-to-affix locations whether flat, round, etc. Made of malleable iron with 120° vee. Clamp capacity - 1 3/4". Throat to center of screw - 1 1/16". Length of flex arm with C-Clamp - 13 1/2".



2. ON MAGNETIC BASE: Disc-type magnet - 85 lbs. pull. Length of flex arm with magnet - 10". Shield swivels and locks 360°.

MODEL NO. DESCRIPTION

13001	C-Clamp Flexiguard. Shield Size 7 1/2" x 10"
13002	C-Clamp Flexiguard. Shield Size 10" x 12"
13003	C-Clamp Flexiguard. Shield Size 12" x 16"
13004	Mag. Base Flexiguard. Shield Size 7 1/2" x 10". Size of Magnet: 2.65" dia.
13005	Mag. Base Flexiguard. Shield Size 10" x 12". Size of Magnet: 2.65" dia.
13006	Mag. Base Flexiguard. Shield Size 12" x 16". Size of Magnet: 3.16" dia.

REPLACEMENT SHIELDS

MODEL NO.	DESCRIPTION
13007	Carton of 3. Size 7 1/2" x 10"
13008	Carton of 3. Size 10" x 12"
13009	Carton of 3. Size 12" x 16"
13140	1 Shield. Size 7 1/2" x 10"
13141	1 Shield. Size 10" x 12"
13142	1 Shield. Size 12" x 16"

REPLACEMENT PARTS (SHIELD NOT INCLUDED)

MODEL NO.	DESCRIPTION
13137	Flexiguard Arm on C-Clamp
13138	Flexiguard Arm on 2.65" Dia. Magnet
13139	Flexiguard Arm of 3.16" Dia. Magnet

OTHER AVAILABLE GUARDING PRODUCTS

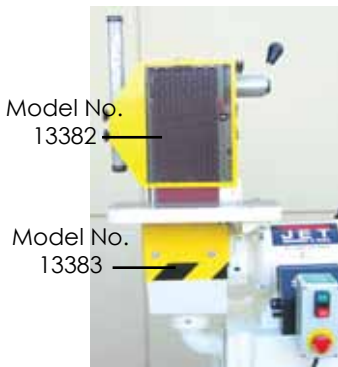


Belt/Disc Sander Guards Protects User from Unused Portion of Belt/Disc

- Easily Adjustable
- Upper & Lower Guards Available

MODEL NO. DESCRIPTION

13382	Upper Belt Sander Guard
13383	Lower Belt Sander Guard
13391	9" Disc Sander Guard
13384	12" Disc Sander Guard
13385	16" Disc Sander Guard



Spindle Sander Guards



MODEL NO. DESCRIPTION

13386	6" x 11" Floor Mount Spindle Sander Guard
13387	6" x 11" Base Mount Spindle Sander Guard
13388	6" x 11" Bench Mount Spindle Sander Guard
13389	4" x 7" Bench Mount Spindle Sander Guard
13378*	Top Cover Guard
13379*	Lower Motor Guard

* Contact Flexbar Sales Dept. for quote - need make & model of machine

Many styles Available for Top Covers & Lower Motor Guards

Drill Press Belt/Pulley Guard





FLEXBAR MOTOR CONTROLS



With One Easy-to-Install unit you can provide:

- Standardized machine controls
- Power Outage protection
- E-Stop actuator with mushroom shape
- Built with only the finest solid-state components
- No contacts to burn out - fail-safe design
- Measures 4" x 5" x 12"

Easy to Install:

1. Mount the 13380/13370 on your machine.
2. Plug the machine into the 13380/13370.
3. Plug the 13380/13370 into your outlet.



13370



13381

MODEL NO. DESCRIPTION

13380	Motor Control 120 Volt (15 amps)
13370	Motor Control 120 Volt (20 amp)
13381	Motor Control High Voltage. This control requires installation by a qualified electrician



EMERGENCY STOP BUTTON CONTROLLER

PLASTIC OR METAL ENCLOSURE



Model No. 13371

Current NFPA/NEC standards require that every machine be equipped with a compliant emergency stop control. The red, latching, mushroom shaped control button has a permanent, yellow background.



Model No. 13372

This device must be hardwired into your machine's power supply by a qualified electrician. For machines with greater than 120 VAC motors, motor magnetics are required to reduce the control circuit voltage to 115-VAC in order to comply with NFPA 79.

MODEL NO. DESCRIPTION

13371	Emergency Stop Button, Heavy Plastic Enclosure -NEMA 4
13372	Emergency Stop Button, Heavy Metal Enclosure - NEMA 12



FLEXBAR SENSING-SAF-START®

The Inexpensive Solution to OSHA. Anti-automatic Restart Protection Without the High Cost of Magnetic Motor Starters



THIS IS A MANDATORY OSHA SAFETY REQUIREMENT

OPERATING CHARACTERISTICS

When a **SENSING-SAF-START®** is installed on any equipment and there is an electrical power interruption to the equipment, the SENSING-SAF-START® will open the circuit so when the power source is restored, the SENSING-SAF-START® will prevent the equipment from restarting. The SENSING-SAF-START® will not reset until the equipment switch has been turned "off". There is a sensing circuit within the new SENSING-SAF-START® that sends a signal up to the equipment switch to see if it is in the "on" position. If the switch is still "on", the SENSING-SAF-START® sounds a warning buzz when the reset button is depressed, and it will not close the circuit until the equipment switch is turned "off". Only then, the SENSING-SAF-START® will close the circuit, so the equipment will operate again.



17025

The following standards apply to machines driven by 120 volt and 240 volt motors:

- **OSHA** (29 DFR #1910.213 (b) (3)*)
- **NFPA** (Electrical Standard for Industrial Machinery, 1997 Edition, Section 8, Protection)

Sensing-Saf-Start® Installs In Minutes On:

- Drill Presses
- Tool Grinders
- Cut-Off Machines
- Band Saws
- Small Milling Machines
- Disc Sanders
- Table Saws
- Power Hacksaws
- Belt Sanders
- Radial Arm Saws

Now available in extension cord style or hard wire versions:

MODEL NO.	DESCRIPTION
17025	Short extension cord style. 14" cord on male plug end, 12" cord on female receptacle end. Rated 120 Volts, A.C., 15-amp maximum, 50/60 Hz
17023	20" cord on equipment switch end. 8' cord on power end (no plug). Wire directly into disconnect box or install TwistLock Plug. Rated 120-volt, A.C., 18-amp maximum, 50/60 Hz
17024	20" cord on equipment switch end. 8' cord on power end (no plug). You must install matching plugs. Rated 200 to 240-volt A.C., 15-amp (single phase) maximum, 50/60 Hz

7" BRIDGEPORT DRAWBAR GUARD

Turning Shafts on Milling Machines (below 7 feet from the working surface) must be covered. A powerful ring magnet in the base of the shield secures it to the top of the mill covering the turning drawbar. A chain keeps the guard secured to the mill so it doesn't get lost during tool and draw bar changes. This simple shield features welded steel construction and is powder coated safety yellow.



MODEL NO.	DESCRIPTION
13469	7" Bridgeport Drawbar Guard



FLEXBAR PANELGUARD™



Flexible, Modular Machine Guarding System

The FLEXBAR PANELGUARD™ Movable, Multiple Function Machine Guard's 4 panel system provides complete flexibility and can be used for a variety of applications, which include:

- Creating Machine Safety Areas.
- Perimeter Guarding.
- Temporary Guarding.
- Machines having large parts or cutting tools.
- Reducing machine noise.
- Blocking off out of service machines or areas undergoing maintenance.



Model No. 13035
Basic 4-Panel System



Shown above: Panelguards used to separate in-line machines. Protects operators from chips and noise from neighboring machines.

The FLEXBAR PANELGUARD™ system has four modular panels 16"W x 71"H and opens 66" across. Its simple construction conforms to fit different configurations. The upper half of each panel has crystal clear high impact resistant Lexan®, which gives operator protection and a full view of guarded machines or areas.

The FLEXBAR PANELGUARD™ may be used free-standing or can be more permanently affixed to the shop floor.



FLEXBAR PANELGUARD™

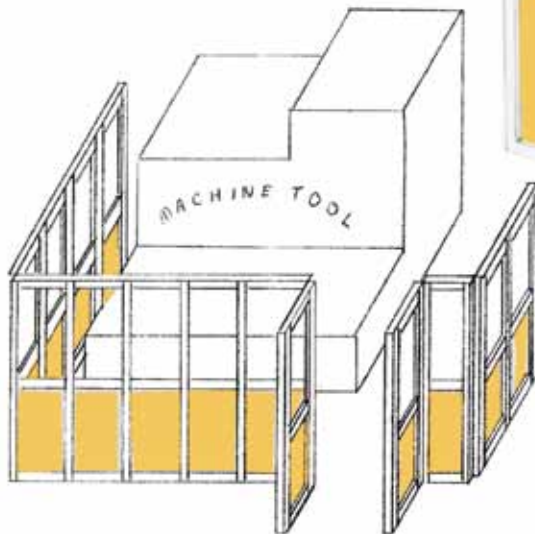
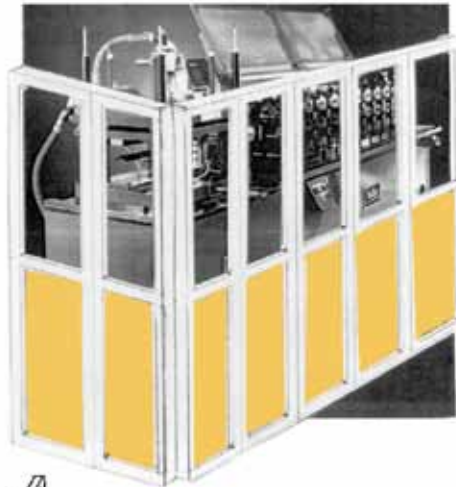


CREATE A CUSTOM MACHINE GUARDING SYSTEM OR SAFETY AREA BY ADDING MODULAR EXPANSION PANELS.

Sliding together optional panels and accessories creates a complete machine enclosure with access doors and interlocks. Easy to handle, the **FLEXBAR PANELGUARD™** folds to 18"W x 71"L x 4"H and weighs under 50 pounds.

APPLICATION:

Temporarily enclose equipment using 1 or more Flexbar PanelGuards during maintenance, repair or to comply with lockout - tagout situations.



APPLICATION:

Create a machine tool enclosure by connecting Flexbar PanelGuards together leaving 2 panels as access doors. Doors can be fitted with optional user supplied interlocks.

MODEL NO. DESCRIPTION

13035	Flexbar PanelGuard™ Basic 4-Panel Set Complete
13036	Flexbar PanelGuard™ 2-Panel Expansion Set. Complete with extra slide-in flexible hinge.
13035-L	Basic 4-Panel Set with All Lexan Panels
13036-L	2-Panel Expansion Set with all Lexan Panels
13037	Extra slide-in flexible hinge (1 each). Used to connect two or more PanelGuard sets together.
13038	Top Cap (1 each per panel)

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