MICROMETERS

205 STEEL MILL MICROMETER

0-1"

This micrometer is specially designed for gaging hot metal sheet in steel mills and has many features for safer, faster, and more accurate measurements. Micrometer has rugged construction throughout, and is attached to a convenient wooden handle, correctly shaped for a firm grip. Allows measurements to be made while the micrometer can be comfortably held at a safe distance from the hot metal.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools
- Convenient decimal equivalents on inch tools
- Extra long bevel on thimble with heavy cut graduations

EASE-OF-HANDLING FEATURES

- Both spindle and anvil are beveled to easily slide onto the work
- Large, reversible wing lock nut is easy to lock or release, even when wearing heavy gloves
- Rugged frame construction and heavy duty spindle of .270" diameter

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment by either the anvil or by a simple sleeve adjustment

247 Micrometer Ball Attachments, .200" Diameter Balls		
Cat. No.	**EDP**	**Description**
247A	51174	For 2, 226 (old style), 230 and 577 Micrometers and 263 Micrometer Heads, .235" diameter Anvil and Spindle
247B	51175	For 224A, 224AA and 436 Micrometers, .270" diameter anvil and spindle
247C	51176	For 232 Micrometers and 463 Micrometer Heads, .200" diameter anvil and spindle
247D	51177	For 216, 226 (new style), 231, 436.1, 733, 795, 796, 3732, 1212 and 1230 Micrometers, .250" diameter anvil and spindle
247E	51178	For 224B through J, 238, 239, 436 Micrometers and 663 Micrometer Heads, .300" diameter anvil and spindle
247M Micrometer Ball Attachments, 5mm Diameter Balls		
247MA	51179	For 2M and 230M Micrometers and 263M Micrometer Heads, 6mm diameter anvil and spindle
247MB	51180	For 436M Micrometers, 6.8mm diameter anvil and spindle
247MD	56691	For 216M and 436.1M Micrometers, 6.35mm diameter anvil and spindle
247ME	56692	For 224MB through J, 238M, 436M Micrometers and 663M Micrometer Heads, 7.6mm diameter anvil and spindle

247, 247M MICROMETER BALL ATTACHMENTS

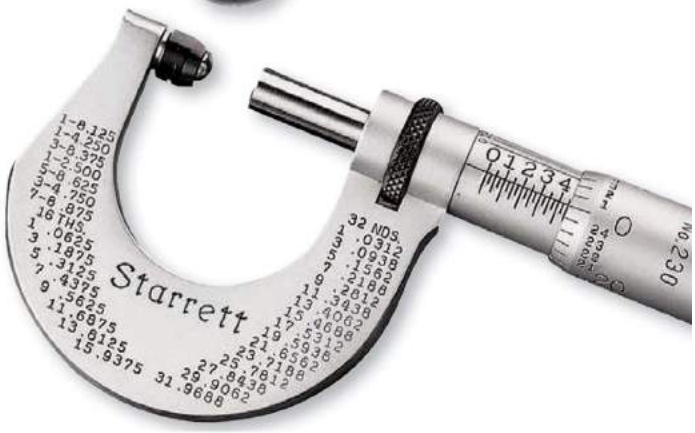
INCH/MM

Outside micrometers and micrometer heads having spindle sizes listed below can be instantly converted for measuring wall thickness of tubing, split and full bearings, sleeves and other parts with rounded surfaces by means of the 247 Ball Attachment.

FEATURES

- Easily applied by snapping on to end of either anvil or spindle, thus permitting two attachments to be used together
- Balls are hardened, measure .200" and 5mm in diameter, and move freely in the retainer, insuring positive contact with anvil and spindle
- The diameters, .200" or 5mm, of each ball used must be subtracted from the micrometer reading
- All metal construction

205 Steel Mill Micrometer				
Cat. No.	**EDP**	**Range**	**Graduation**	**Description**
205HL	50730	0-1"	.001"	Lock nut, with handle



MICROMETERS

575, 575M, 585, 585M SCREW THREAD MICROMETERS FOR MEASURING PITCH DIAMETER

0-1"/0-25MM; 1-2"/25-50MM

These micrometers have a pointed spindle and a double V-anvil, both shaped to contact the screw thread as shown in the drawing. The micrometer reading therefore gives the pitch diameter.*

575 and 585 Screw Thread Micrometers (.001" Graduation)			
Range, Threads Per inch	**Capacity, Pitch Diameter**	**Cat. No.**	**EDP**
7-9	0-1"	575AP	56159
10-13		575BP	56160
14-18		575CP	56161
20-24		575DP	56162
28-30		575EP	56163
32-40		575FP	56164
4 1/2 - 6	1-2"	585AP	56165
7-9		585BP	56166
10-13		585CP	56167
14-18		585DP	56168
20-24		585EP	56169
28-30		585FP	56170
575M and 585M Screw Thread Micrometers (0.01mm Graduation)			
Range, Pitch in mm	**Capacity, Pitch Diameter**	**Cat. No.**	**EDP**
3-4	0-25mm	575MAP	56321
2-2.5		575MBP	56322
1.25-1.75		575MCP	56323
0.75-1		575MDP	56324
0.5-0.7		575MEP	56325
0.35-0.45		575MFP	56326
4.5-6	25-50mm	585MAP	56327
3-4		585MBP	56328
2-2.5		585MCP	56329
1.25-1.75		585MDP	56330
Cases			
Description		**Cat. No.**	**EDP**
Attractive protective case for 575		910	55397
Attractive protective case for 585		912	55399

Swivel anvil available on special order – also in capacities over 2" (50mm).
575 sent in fitted case.
585 packed one in a box without case.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Decimal equivalents on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design for easy handling and better readability
- Gracefully designed tapered frame for use in narrow slots and tight places
- Furnished with fixed (non-rotating) anvil, but swivel anvils available on special order
- Available in capacity over 2" or 50mm (special order)

ACCURACY AND LONG-LIFE FEATURES

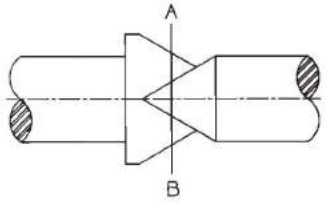
- One-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment
- Design allows 50% to 75% contact with the thread to be measured, thereby insuring contact with the pitch diameter at all times
- Design also ensures against contact with the root area of the thread
- Tools are accurate to ±.0002" or 0.004mm

575 AND 585 – INCH

For measuring American Unified National series and Unified J series screw threads. 585 micrometers come with a one-inch standard at no extra cost.

575M AND 585M – METRIC

For measuring I.S.O. metric and MJ screw threads. 585M micrometers come with a 25mm standard at no extra cost.



With the 575AP 0-1", pitch diameter is read directly in inches, since the line AB corresponds to the 0 reading.

* **MEASURING TIP**: These tools are accurate for general purposes, especially if set to a thread plug gage of the size to be measured.

THREAD COMPARATOR MICROMETERS

210, 210M SCREW THREAD COMPARATOR MICROMETERS

0-7/8"/0-22MM

This micrometer is ideal for quick comparisons of thread accuracy in screw cutting operations, measuring in small grooves or recesses where regular micrometers cannot be used, and for many other applications.

NOTE: Does not measure pitch diameter. For such measurements, 575 or 585 Thread Micrometers are recommended.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Convenient decimal equivalents on inch reading tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Gracefully designed tapered frame for narrow slots and tight places

ACCURACY AND LONG-LIFE FEATURES

- Rigid steel frame
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- The 210 has 60° conical anvil and spindle faces with 1/64" (0.4mm) flats on the ends of the points
- Quick and easy adjustment

210 and 210M Screw Thread Comparator Micrometers (0-7/8" Range)			
Cat. No.	**EDP**	**Range**	**Graduation**
210AP	50731	0-7/8"	.001"
210MAP	64334	0-22mm	0.01mm
Case for 210 and 210M Screw Thread Comparator Micrometers			
Cat. No.	**EDP**	**Description**	
910	55397	Attractive protective case	

760 ELECTRONIC SCREW THREAD COMPARATOR MICROMETER (WITH OUTPUT)

0-1"/0-25MM

Same features as our 210 with electronic readout and the following additional features and benefits:

READABILITY FEATURES

- Large LCD digital readout is easy to read and reduces errors
- Resolution: .00005" and 0.001mm
- Conventional inch or millimeter graduations standard
- Attractive no-glare black wrinkle finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve

ACCURACY AND LONG-LIFE FEATURES

- One 3-volt battery furnished for over a year of normal usage
- Automatic OFF after 30 minutes of nonuse

FULL-FUNCTION ACTION FEATURES

- Instant inch/millimeter conversion
- "ME" millimeter model turns on in millimeter mode after battery installation
- Measurement HOLD button
- Zero tool at any position and return to true zero reading
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- RS232 data output port
- Works well with Starrett DataSure® Wireless Data Collection Systems

760 and 760M Electronic Screw Thread Comparator Micrometer		
Cat. No.	**EDP**	**Description**
760FL	64051	0-1"/0-25mm range, standard inch graduations on shell and thimble
760MEFL	66135	0-25mm/0-1" range, standard millimeter graduations on shell and thimble
Case for 760 and 760M Electronic Screw Thread Comparator Micrometers		
731ZZ-2	65163	Attractive protective case
Cable Information for 760 and 760M Electronic Screw Thread Comparator Micrometers		
Part No.	**EDP**	**Description**
733SCKB	69888	Computer cable to PC
733SCU	69898	Cable to computer running SPC Data Collection Software
733SCM	69893	Connection to 7612 or 7613 Multiplexier
PT61120	65446	One 3-Volt battery CR2450

MICROMETERS

483, 483M, 485 V-ANVIL MICROMETERS

.093-2"/2-25MM I .078-1"

Used to check out-of-roundness from centerless grinding or other machining operations. Also used for measuring odd fluted taps, milling cutters, and reamers.

READABILITY FEATURES

- Direct measuring of three and five-fluted tools
- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quick adjustment

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Carbide facing on spindle and anvils for extra long wear
- Quick and easy adjustment

483, 483M and 485 V-Anvil Micrometers				
Cat. No.	**EDP**	**Range**	**Graduation**	**No. of Flutes it will Measure**
T483XRL-1	52491	.093-1"	.0001"	3
T483XRL-2	52494	1-2"	.0001"	3
T485XRL	52497	.078-1"	.0001"	5
483MXRL-25	56046	2-25mm	0.01mm	3
485MXRL	56047			5
Cases for 483, 483M and 485 V-Anvil Micrometers				
Cat. No.	**EDP**	**Description**		
939	55331	Attractive protective case for 1" and 25mm sizes		
483ZZ-2	55332	Attractive protective case for 2" size		

225, 225M WIRE MICROMETERS

0-.400"/0-10MM

This is another regularly offered special function Starrett micrometer designed to measure diameter of wire up to .400" (10mm).

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Smooth friction thimble for uniform pressure
- Hex body which stops the micrometer from rolling over when placed on a flat surface
- The throat is flat to support the wire when measuring
- The anvil and spindle extend below the flat surface

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

225 Wire Micrometers (0-.400" Range)		
Cat. No.	**EDP**	**Graduation**
T225F	50814	.0001"
225M Wire Micrometers (0-10mm Range)		
V225MF	64255	0.001mm

MICROMETERS

207, 207M, 208, 208M STAINLESS STEEL CAN SEAM MICROMETERS

207 and 208 Can Seam Micrometers are made of stainless steel and designed to measure the thickness and depth of can seams.

The 207 Micrometer is used to measure the seam at outside bottom edge of dome on top of aerosol cans. The 208 Micrometer is used to measure thickness of seam at top and bottom of flat-topped cans. The 208D Micrometer is used to measure thickness and depth of all standard can seams.

READABILITY FEATURES

- Satin finish stainless steel – no glare – rust and stain resistant
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- The 207 has a snub nose which permits measuring aerosol type cans

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

207 and 208 Stainless Steel Can Seam Micrometers (0-.375" Range)			
Cat. No.	**EDP**	**Graduation**	**Description**
207Z	56173		Snub nose for aerosol cans
208Z	56175	.001"	Without depth gage
208DZ	56176		With depth gage (.200" range)
207M and 208M Stainless Steel Can Seam Micrometers (0-9.5mm Range)			
207MZ	64337		Snub nose for aerosol cans
208MZ	64338	0.01mm	Without depth gage
208MDZ	63191		With depth fage (5mm range)

Depth range on 208D is .200". Depth range on 208MD is 5mm.

209, 209M CAN CURL MICROMETERS

0-.500"/0-12.5MM

The 209 features a special rest foot and finger ring for consistent measurement of the curl thickness on aerosol cans with 1" (25mm) diameter domed tops.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools
- Convenient decimal equivalents on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quicker adjustment
- Finger ring for ease of measuring

ACCURACY AND LONG-LIFE FEATURES

- Special rest foot to locate the tool for good accuracy
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

209 Can Curl Micrometers (0-.500" Range)		
Cat. No.	**EDP**	**Graduation**
209RL	56473	.001"
209M Can Curl Micrometers (0-12.5mm Range)		
209MRL	64364	0.01mm

MICROMETERS

228 HUB MICROMETER

0-1"

The 228 Hub Micrometer is an ideal tool for precision measuring of hub thickness, for insertion through small holes to measure thickness, and for many other related uses. Micrometer has a specially designed shallow frame which makes it possible to easily pass through a 3/4" (19mm) hole.

228 Hub Micrometer (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
228XRL	50921	.001"
Case		
Cat. No.	**EDP**	**Description**
228ZZ	55228	Deluxe case for 228 Hub Micrometer

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quicker adjustment

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

MICROMETER HEADS

261L, 261ML MICROMETER HEADS WITH NON-ROTATING SPINDLES

0-1/2"/0-13MM

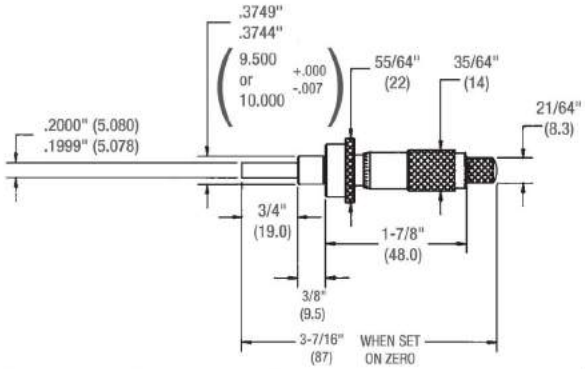
Because the spindle does not rotate, these tools are useful in driving positioning tables directly without an intermediate connecting device. They are also useful in gaging jobs where scratches on the work surface cannot be tolerated or where there is risk of distortion when spindle meets work – as in measuring soft or elastic materials. Spindle wear is also reduced since there is no rotational friction as its face contacts the work.

- Ring-type lock nut for quick and sure locking at any setting
- A speeder for quicker adjustment – this is not a ratchet stop. The tool is dependent on your own "feel"

261L Micrometer Heads (0-1/2" Range)			
Cat. No.	**EDP**	**Graduation**	**Description**
261L	55944	.001"	Speeder, lock nut
261ML Micrometer Heads (0-13mm Range)			
261ML*	64346	0.01mm	Specify clamping diameter (9.5mm or 10mm)

* 9.5mm clamping diameter sent unless otherwise specified.

261L



261L, 0-1/2" and 261ML (0-13mm) dimensions

MICROMETER HEADS

The following pages show the full line of Starrett standard micrometer heads that have been designed and developed over the years working with the needs of our customers. The micrometer heads are invaluable for use on electronic equipment, machine tools, fixtures, special gaging and other equipment where precise movement and adjustment are required.

Dimensional specifications are available upon request.

Special features are described with each tool, but all of these tools have these features that benefit the user:

- Starrett satin chrome finish – no glare – resists rust on all reading surfaces
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures on all inch reading tools
- Extremely hard and stable one-piece spindle (the heart of our accuracy and long life)
- Micro-lapped measuring face for flatness and squareness
- Quick and easy adjustment

SPECIAL HEADS

In addition to standard micrometer heads, Starrett has also designed and manufactured many special types of micrometer heads for widely diversified applications requiring micrometer accuracy in settings and adjustments. These special heads are designed to exact specifications for specialized usage with wavemeters and other equipment in the electronics industry, machine tools, fixtures, special gages, tools, and all special mountings. They can be furnished to suit your particular requirements in a wide choice of sizes, range and graduations.

We design and build to your special need, so if you don't see what you want, please ask for it.

For quotations or recommendations, write:
The L.S. Starrett Co.
Special Order Department
121 Crescent Street
Athol, MA 01331

MICROMETER HEADS

464P MICROMETER HEADS

0-1/4"

460A, 460MA MICROMETER HEADS

0-1/4"/0-6.5MM

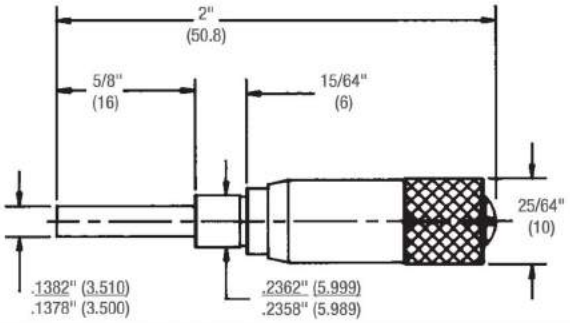
460B, 460MB MICROMETER HEADS

0-1/2"/0-13MM

These are plain micrometer heads with no lock nut or ratchet.

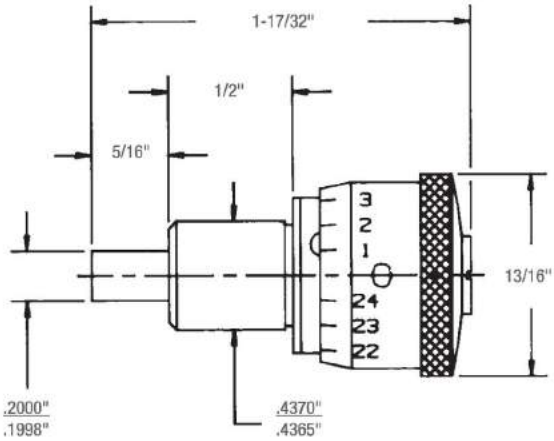
464P, 460A, 460MA, 460B and 460MB Micrometer Heads			
Range	Graduation	Cat. No.	EDP
0-1/4"	.001"	464P	56657
0-1/4"	.001"	460A	64444
0-6.5mm	0.01mm	460MA	64445
0-1/2"	.001"	460B	64446
0-13mm	0.01mm	460MB	64447

460B



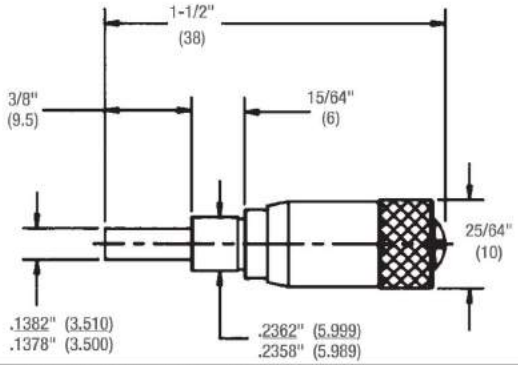
460B, 0-1/2" and 460MB (0-13mm) dimensions

464P



464P, 0-1/4" dimensions

460A



460A, 0-1/4"and 460MA (0-6.5mm) dimensions

MICROMETER HEADS

463 MICROMETER HEADS

0-1/2"/0-13MM

1463 STAINLESS STEEL MICROMETER HEADS

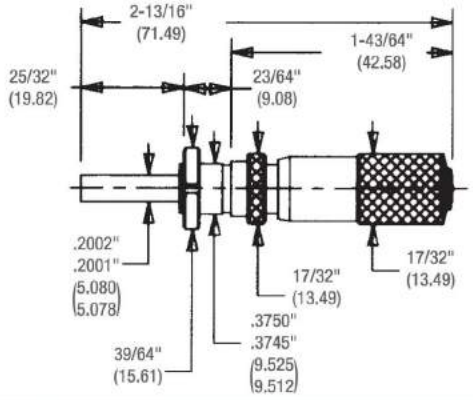
0-1/2"/0-13MM

The 463 and 1463 Micrometer head are exactly the same, except that the 1463 is made from rust-resistant stainless steel. The reading surfaces are satin finished stainless steel for easy readability. Heads are available with the features below:

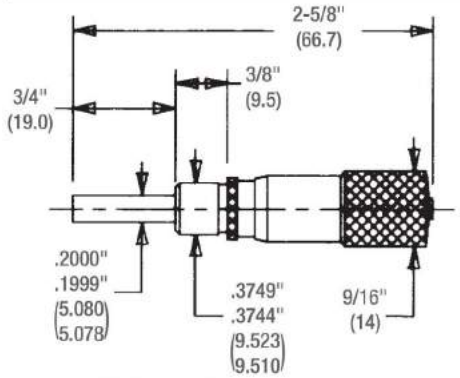
- Either combination ratchet and speeder for uniform pressure and quicker adjustment, or plain micrometer heads that depend on your own feel
- Ring-type lock nut for quick and sure locking at any setting
- Reverse reading, if needed
- Plain or carbide spindle faces

463 and 1463 Micrometer Heads

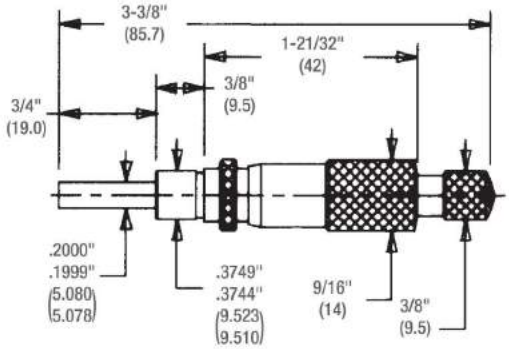
Range	Graduation	Cat. No.	EDP
0-1/2"	.001"	463P	52440
		463P-38TN	67112
		463L	52442
		463XL	52451
		463L-38TN	67113
		463RL	52443
		463XRL	64687
		RV463RL	57073
		RV463XRL	64688
0-1/2"	.0001"	T463P	52446
		T463L	52448
		T463XL	64689
		T463RL	52449
		T463XRL	65052
0-13mm	0.01mm	463MP	52444
		463MRL	52452
		463MXRL	64691
0-13mm	0.002mm	V463MRL	65053
		RV463MRL	60845
0-1/2"	.001"	1463RL	53207
	.0001"	T1463RL	53209
0-13mm	0.002mm	V1463MRL	64344



463L-38TN, 0-1/2" dimensions



463P, 0-1/2" and 463MP (0-13mm) dimensions



463RL, 0-1/2" and 463MRL (0-13mm) dimensions

MICROMETER HEADS

762 ELECTRONIC MICROMETER HEADS WITH ROTATING OR NON-ROTATING SPINDLES (WITH OUTPUT)

0-2"/0-50MM

READABILITY FEATURES

- Large digital readout is easy to read, reducing errors
- Conventional inch or millimeter graduations standard
- Attractive black wrinkle finish on frame
- Starrett no-glare satin chrome finish on thimble and sleeve

EASE-OF-HANDLING FEATURES

- Ring-type knurled lock nut
- Smooth friction thimble for uniform pressure on regular heads and combination ratchet and speeder on non-rotating heads

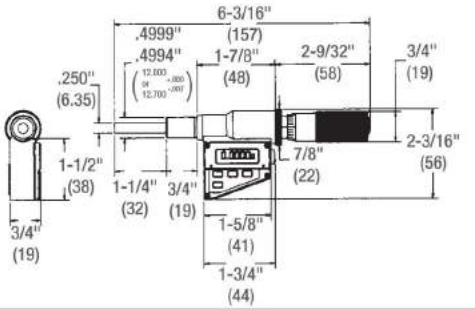
ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- One 3-volt battery furnished for over a year of normal usage
- Auto OFF after 30 minutes of nonuse

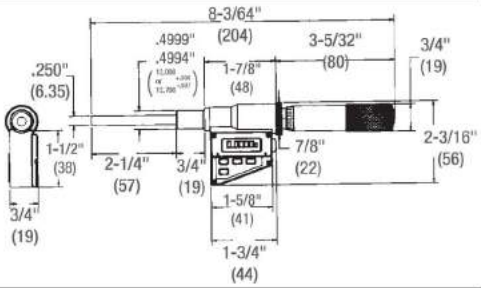
FULL-FUNCTION ACTION FEATURES

- Inch/millimeter conversion
- "ME" millimeter models turn on in millimeter mode after battery installation
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- RS232 data output port
- Works well with Starrett DataSure® Wireless Data Collection Systems

762 Micrometer Specifications		
	Inch	mm
Resolution	.00005"	0.001mm
Accuracy	±.0001" per Inch	±0.003mm per 25mm



0-1" (0-25mm) dimensions



0-2" (0-50mm) dimensions

762 Electronic Micrometer Heads with Standard Inch Graduations on Shell and Thimble			
Range	Description*	Cat. No.	EDP
0-1"/0-25mm	Friction thimble, lock nut, carbide face	762XFL	65058
	Ratchet stop, lock nut, carbide face, non-rotating spindle	762NXRL	65060
0-2"/0-50mm	Friction thimble, lock nut, carbide face	762XFL-2	65062
762M Electronic Micrometer Heads with Standard Millimeter Graduations on Shell and Thimble			
0-25mm/0-1"	Friction thimble, lock nut, carbide face	762MEXFL-25	66077
0-50mm/0-2"	Friction thimble, lock nut, carbide face	762MEXFL-50	66137

Cable Information for 762 and 762M Electronic Micrometer Heads		
Description	Part No.	EDP
Computer cable to PC	733SCKB	69888
Cable to computer running SPC Data Collection Software	733SCU	69898
Connection to 7612 or 7613 Multiplexier	733SCM	69893
One 3-Volt Battery CR2450	PT61120	65446

*1/2" (12.7mm) clamping diameter sent unless otherwise specified.

MICROMETER HEADS

363, 363M DIGITAL MICROMETER HEADS

0-1"/0-25MM

READABILITY FEATURES

- Clear, easily read numbers reduce errors
- No-glare black finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve
- .001" or 0.01mm is read directly from the counter
- Reverse reading, if needed

EASE-OF-HANDLING FEATURES

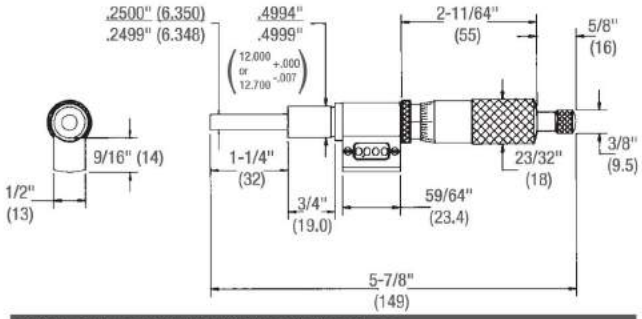
- Ring-type knurled lock nut for quick and sure locking
- Choice of smooth friction thimble for uniform pressure or combination ratchet and speeder for uniform pressure and quicker adjustment

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)

363 Digital Micrometer Heads (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
363L	56297	.001"
363RL	56298	
363FL	56299	
RV363RL	57072	
363M Digital Micrometer Heads (0-25mm Range)		
363ML*	56302	0.01mm
363MRL*	56303	
363MFL*	56304	

* Specify clamping diameter (12 or 12.7mm). 12.7mm sent unless otherwise ordered.



363RL, 0-1" and 363MRL (0-25mm) dimensions

63, 63M LONG RANGE MICROMETER HEADS

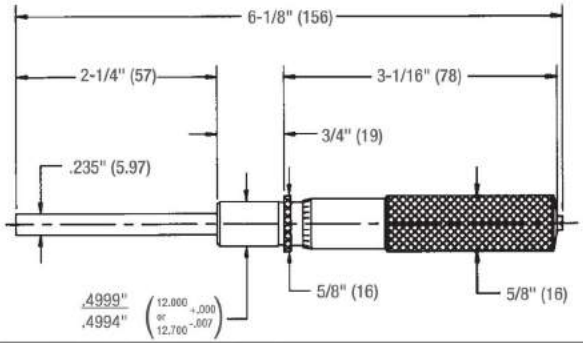
0-2"/0-50MM

When long spindle travel is required, the 63 Micrometer heads provide a range that will handle most applications, such as in electronic equipment, machine tools, special gages, tooling, etc.

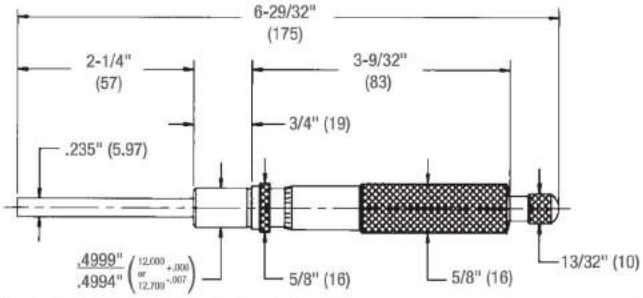
- With or without ring-type lock nut for quick and sure locking
- With or without the combination ratchet and speeder for uniform pressure and quicker adjustment

63 Micrometer Heads (0-2" Range)		
Cat. No.	**EDP**	**Graduation**
63P	50305	.001"
63L	50306	.001"
63RL	50307	.001"
T63P	50308	.0001"
T63RL	50309	.0001"
63M Micrometer Heads (0-50mm Range)		
63MRL*	55939	0.01mm
V63MRL*	64343	0.002mm

* 0-25mm models specify clamping diameter 12mm or 12.7mm. 12.7mm sent unless otherwise ordered.



63P, 0-2" and 63MP (0-50mm) dimensions



63RL, 0-2" and 63MRL (0-50 mm) dimensions

MICROMETER HEADS

263 AND 1263 MICROMETER HEADS

0-1"/0-25MM

- Reading surfaces satin-finished for easy readability
- No-glare, satin chrome finish on the 263, rust-resistant, stainless steel on the 1263
- Available with reverse reading, if needed
- Ring-type knurled lock nut for quick and sure locking
- Choice of smooth friction thimble for uniform pressure, combination ratchet and speeder for uniform pressure and quicker adjustment, or a plain micrometer head that depends on your own "feel"
- Spindle face available plain or with carbide
- Furnished with 1/2" (12.7mm) or 3/8" (9.5mm) diameter clamping surface

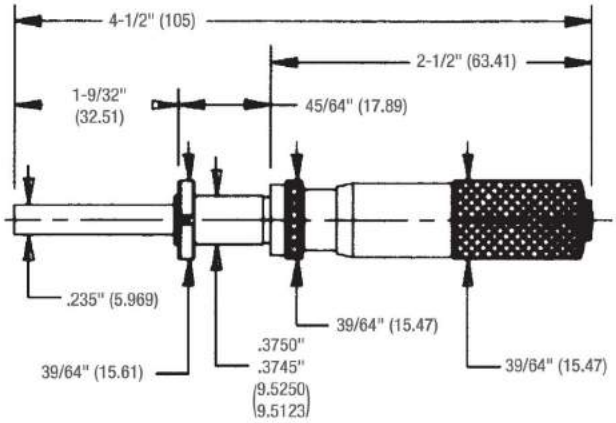
263 and 263M Micrometer Heads

Range	Graduation	Cat. No.	EDP
0-1"	.001"	263P	51251
		263P-38	67108
		263P-38TN	67110
		263L	51253
		263XL	51265
		263L-38	67109
		263L-38TN	67111
		263RL	51254
		263FL	51256
		RV263RL	57071
0-1"	.0001"	T263P	51258
		T263L	51260
		T263XL	65054
		T263RL	51261
0-25mm	0.01mm	263MP*	51275
		263ML*	51276
		263MRL*	51257
		263MXL*	65055
0-25mm	0.001mm	V263MRL*	55962
		RV263MRL*	64948
		V263MXRL*	65056

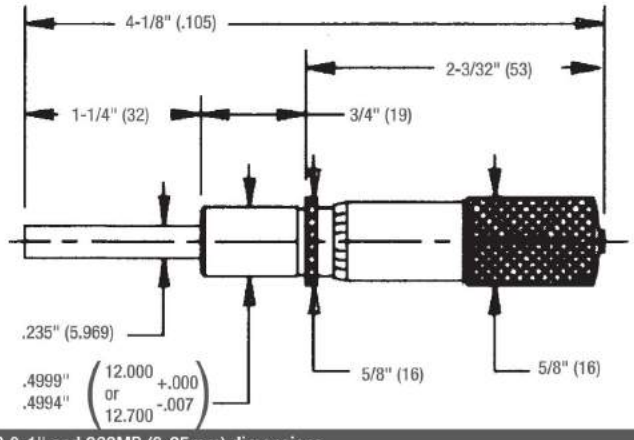
1263 and 1263M Stainless Steel Micrometer Heads

Range	Graduation	Cat. No.	EDP
0-1"	.001"	1263L	53200
		1263RL	53201
0-1"	.0001"	T1263RL	53203
0-25mm	0.001mm	V1263MRL*	64345

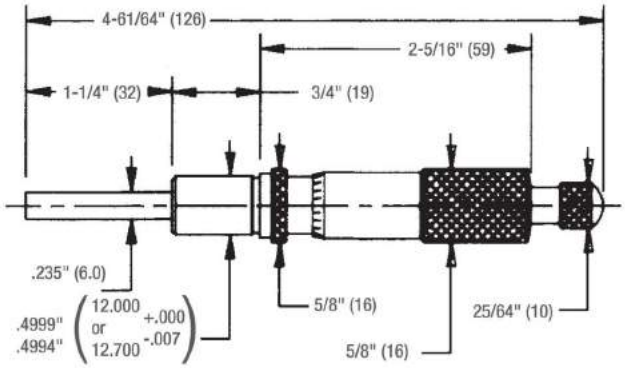
* 0-25mm models specify clamping diameter 12 or 12.7mm. 12.7mm sent unless otherwise ordered.



263L-38TN, 0-1" dimensions



263P, 0-1" and 263MP (0-25mm) dimensions



263RL, 0-1" and 263MRL (0-25mm) dimensions

MICROMETER HEADS

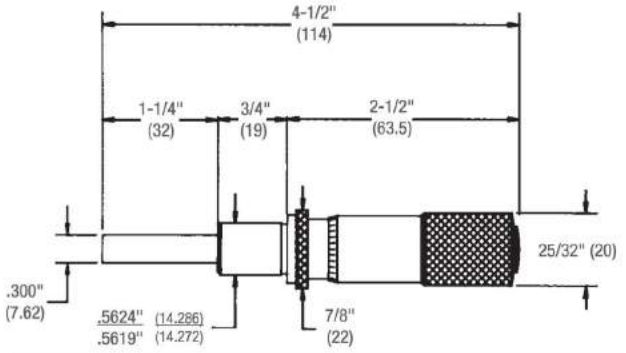
663, 663M HEAVY DUTY MICROMETER HEADS

0-1"/0-25MM

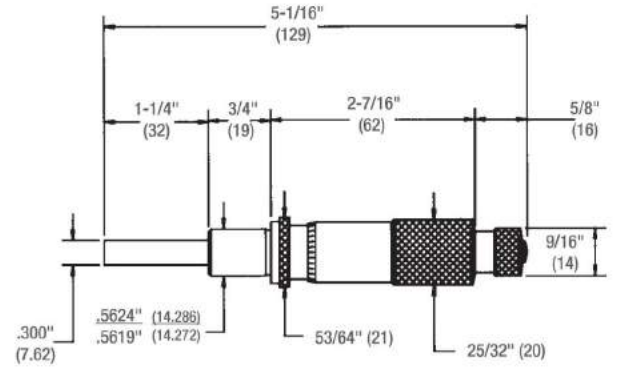
The 663 is similar to the 263 but features heavy duty construction with a larger diameter spindle, clamping surface and thimble.

- Available with lock nut and the combination ratchet and speeder for uniform pressure and quicker adjustment, or a plain micrometer head with lock nut only
- Ring-type lock nut for quick and sure locking

663 Heavy Duty Micrometer Heads (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
663L	52772	.001"
663RL	52773	
T663L	52777	.0001"
T663RL	52778	
663M Heavy Duty Micrometer Heads (0-25mm Range)		
663MRL	52774	0.01mm
V663MRL	64342	0.001mm



663L, 0-1" and 663ML (0-25mm) dimensions



663RL, 0-1" and 663MRL (0-25mm) dimensions

262, 262M MICROMETER HEADS WITH NON-ROTATING SPINDLES

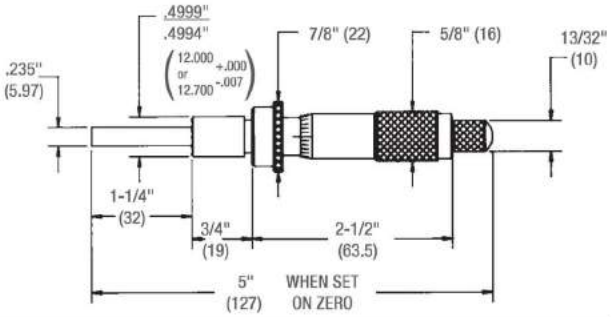
0-1"/0-25MM

Because the spindle does not rotate, this tool is useful in driving positioning tables directly without an intermediate connecting device. It is also useful in gaging jobs where scratches on the work surface cannot be tolerated, or where there is risk of distortion when spindle meets work – as in measuring soft or elastic materials. Spindle wear is also reduced, since there is no rotational friction when its face contacts the work.

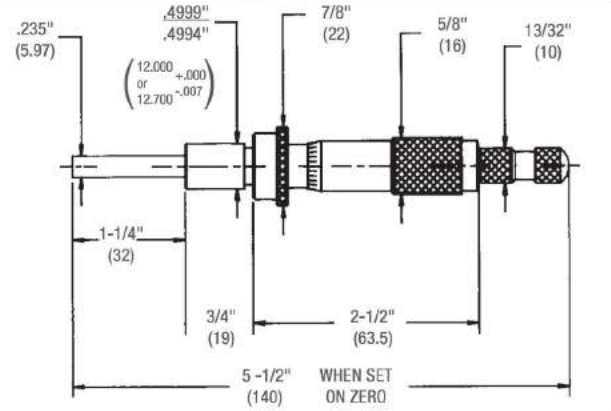
- Ring-type lock nut for quick and sure locking at any setting
- Available with or without the combination ratchet and speeder for uniform pressure and quicker adjustment

262 Micrometer Heads (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
262L	55945	.001"
262RL	55946	
262M Micrometer Heads (0-25mm Range)		
262ML*	64347	0.01mm
262MRL*	65051	

0-25mm models specify clamping diameter 12mm or 12.7mm. 12.7mm sent unless otherwise ordered.



262L, 0-1" and 262ML (0-25mm) dimensions



262RL, 0-1" and 262MRL (0-25mm) dimensions

MICROMETER HEADS

465, 465M, 468, 468M DIRECT-READING, LARGE MICROMETER HEADS

0-2"/0-50MM

These large micrometer heads are designed for use with electronic equipment requiring ultra-fine adjustment for machine tools, fixtures, special gages and tools, special mountings, or wherever micrometer accuracy in setting and adjustment is required.

Another highly useful feature is the spindle adjustment, which permits adjusting the spindle length approximately ±1/16" (1.5mm). If the spindle is to be located against a definite stop and a different zero position is required, first loosen the cap screw in the end of the thimble, position the spindle to the desired location, then holding the spindle in position, rotate the thimble to zero and retighten the cap screw. In achieving this adjustable feature, we have still retained our positive taper-lock large thimble bearing.

The 468 Micrometer heads are exactly the same as the 465, except that they have double figures in red and black on the sleeve and thimble, permitting reading both ways with the spindle moving in either direction. This feature is invaluable on many instruments and microwave applications.

T465XSP-1

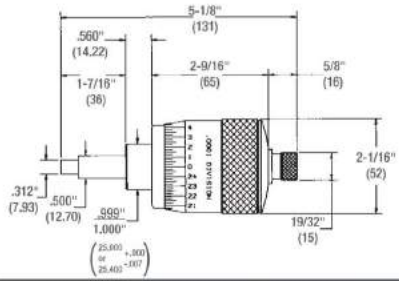
T468XSP-1 with double figures in red and black on sleeve and thimble for reading both ways.

READABILITY, ACCURACY AND LONG-LIFE FEATURES:

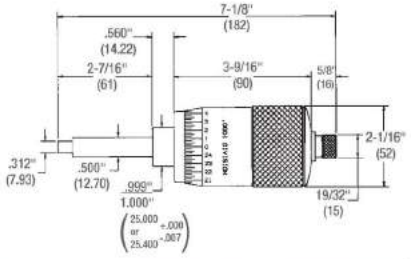
- 2-1/16" (52mm) thimble diameter with widely spaced .0001" or 0.002mm graduations for direct reading
- All graduations are direct reading – no vernier lines to match
- All reading surfaces have Starrett satin chrome finish as the no-glare background for the sharp lines and figures
- All graduations on sleeves and thimbles have advanced styling with staggered graduations for easy reading
- The spindle is carbide faced for long life
- Thimble and sleeve are made of aluminum to reduce weight
- Furnished with a speeder (not a ratchet) for quicker adjustment
- Extremely hard and stable one-piece spindle for accuracy and long-life
- Micro-lapped measuring face for flatness and squareness
- Quick and easy adjustment

465 Mircometer Heads			
Cat. No.	**EDP**	**Range**	**Graduation**
T465XSP-1	67121	0-1"	.0001"
T465XSP-2	67122	0-2"	
465MXSP-25*	67123	0-25mm	0.002mm
465MXSP-50*	67124	0-50mm	
468 Micrometer Heads			
T468XSP-1	67125	0-1"	.0001"
T468XSP-2	67126	0-2"	
468MXSP-25*	67127	0-25mm	0.002mm
468MXSP-50*	67128	0-50mm	

* Metric models specify clamping diameter 25 or 25.4mm. 25.4mm sent unless otherwise ordered.



465, 468 Models 0-1" (0-25mm) dimensions



465, 468 Models 0-2" (0-50mm) dimensions

MICROMETER HEADS

469, 469M LARGE, SUPER-PRECISION MICROMETER HEADS

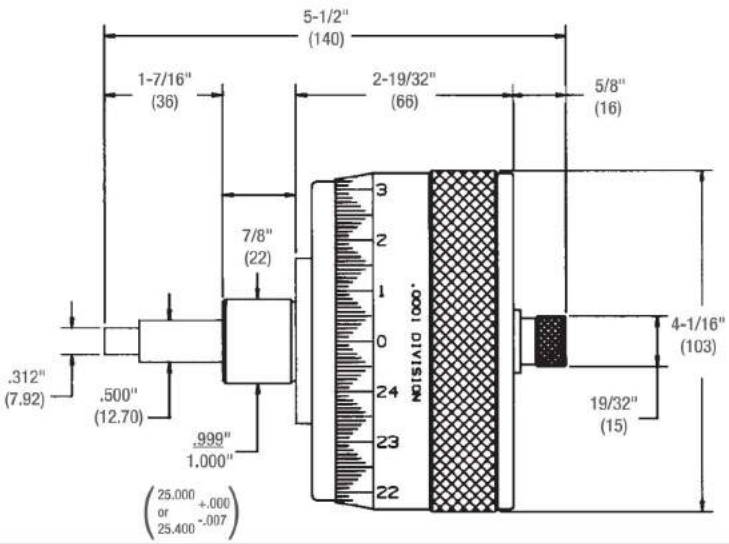
0-1"/0-25MM

These are our most accurate micrometer heads. They are also available on special order with double graduations in red and black on the sleeve and thimble, permitting readings both ways with the spindle moving in either direction.

These micrometer heads have a 4-1/16" (103mm) thimble diameter and are graduated to .0001", .000050", 0.001mm, or 0.002mm for direct reading. They also have staggered graduations for easy counting and reading of lines. Spindle is carbide faced for long life.

469 Large, Super-Precision Micrometer Heads (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
T469HXSP	67129	.000050"
T469XSP	67130	.0001"
469M Large, Super-Precision Micrometer Heads (0-25mm Range)		
469MHXSP*	67131	0.001mm
469MXSP*	67132	0.002mm

* Metric models specify clamping diameter 25 or 25.4mm. 25.4mm sent unless otherwise ordered.
Also available on special order with double graduations for reading both ways with spindle moving in either direction.



469, 0-1" and 469m (0-25mm) dimensions

BENCH MICROMETERS

777 ELECTRONIC BENCH MICROMETERS (WITH OUTPUT)

0-1"/0-25MM

The 777 Electronic Bench Micrometer is especially suited for precision measurements where the work must be brought to the gage.

Work is staged between the anvil and spindle on an adjustable table, which can be raised to a selected height and locked in position by turning a knurled thumb screw on back of the base. Made of cast iron with black wrinkle finish, the base is heavily proportioned to sustain gage accuracy and assure stability in use. It stands on three machined pads.

With Standard Inch Graduations on Shell and Thimble		
Cat. No.	**EDP**	**Description**
777XFLZ	67135	0-1"/0-25mm Range
With Standard Millimeter Graduations on Shell and Thimble		
777MEXFLZ	67136	0-25mm/0-1" Range
Cable Information		
Part No.	**EDP**	**Description**
733SCKB	69888	Computer cable to PC
733SCU	69898	Cable to computer running SPC Data Collection Software
733SCM	69893	Connection to 7612 or 7613 Multiplexier
PT61120	65446	One 3-Volt Battery CR2450

READABILITY FEATURES

- Large, right-sized, high-contrast LCD digital readout is easy to read and reduces errors
- Conventional inch or millimeter graduations standard
- Attractive no-glare black wrinkle finish on the frame

EASE-OF-HANDLING FEATURES

- Ring-type knurled lock nut for quick and sure locking
- Smooth friction thimble for uniform pressure

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle
- The spindle and anvil are carbide faced for long life
- One 3-volt battery furnished for dependable power and over one year's normal usage
- Automatic OFF after 30 minutes of nonuse
- Starrett workmanship

FULL-FUNCTION ACTION FEATURES

- Instant inch/millimeter conversion
- "ME" millimeter model will turn on in the millimeter mode after installation of a new battery
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- RS232 data output port
- Works well with DataSure® Wireless Data Collection Systems

BENCH MICROMETERS

673, 673M DIRECT-READING BENCH MICROMETERS

0-2"/0-50MM

The 673 Bench Micrometer is a high precision instrument, ideal for bench use either in a shop environment or inspection laboratory. It can be used as a comparator measuring to fifty-millionths of an inch (.000050") or two-thousandths of a mm (0.002mm) or for direct measuring to .0001" or 0.002mm. Work lengths up to 2" or 50mm can be measured.

- The base is a heavy, rigid casting, incorporating at the left end a movable anvil which actuates a linear, friction-free motion transfer mechanism between the anvil and the indicator. This assures high accuracy.
- The large thimble diameter, approximately 3" (77mm), makes possible widely spaced graduations that are easy to read without a vernier scale reference
- Advanced, staggered design and quick reading graduations in combination with Starrett no-glare satin chrome finish on both thimble and sleeve also contribute to easier, faster readings
- The head is furnished with a speeder and has a special ring-type lock nut which firmly holds the spindle at any setting without distortion
- Another useful feature is the adjustable work table centered beneath the anvil and spindle. Work can be accurately aligned between the anvil and spindle by adjusting the table to the proper height and locking it in position.
- The spindle and anvil are carbide faced for long life
- This bench micrometer can also be used with the 776 Electronic Gage Amplifier by using the 673A Adaptor for the 715-2 Cartridge-Type Electronic Gaging Head to read to ten-millionths of an inch (.000010") or 0.0001mm

673 and 673M Direct-Reading Bench Micrometers

		Range		Graduation		
Cat. No.	EDP	Micrometer Head	Dial Indicator	Micrometer Head	Dial Indicator	Work Table
673XZ	67191	0-2"	.006" (0-3-0)	.0001"	.000050"	2-1/4" dia. and 7/8" vertical adjustment
673MXZ	67192	0-50mm	0.2mm (0-10-0)	0.002mm	0.002mm	57mm dia. and 22mm vertical adjustment
673A	52891	Adaptor for 715-2 Cartridge Type Electronic Gaging Head				

Anvil Pressure Adjustment – 8 oz. to 3 lb (0.23 to 1.36kg)

673M with 717 amplifier

HOW TO USE FOR DIRECT MEASURE AND AS A COMPARATOR

For direct measuring, the micrometer head is set to zero and the dial indicator is set to zero by the bezel adjustment. Any workpiece within the 2" (50mm) range can then be measured by the micrometer head in ten-thousandths of an inch (.0001" or 0.002mm). The indicator must read zero for each measurement.

If used as a comparator, first set the head and the indicator to zero as previously explained. Then adjust the micrometer head to the desired dimension to be checked. After retracting the anvil, work is placed on the table between anvil and spindle and the anvil is then released so anvil and spindle contact the work. Plus or minus deviation from the nominal work size is then read from the dial indicator in fifty-millionths of an inch (.000050") or 0.002mm.

End Measuring Rods

Precision End Measuring Rods and Inside Micrometers

The following pages show our varied line of precision end measuring rods and inside micrometers. The variations are fixed-range or adjustable-range micrometers and solid or tubular measuring rods.

Unless otherwise noted under the individual tools, all have these features:

- Balanced design for better feel and accurate measurement
- All contact points are hardened and ground for better accuracy and long life
- Satin chrome finish on all micrometer heads and reading surfaces that resist rust and also make for easy reading by providing a no-glare background for the sharp lines and figures
- Hardened and stabilized spindle for accuracy and long life
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick and easy adjustment
- Starrett workmanship
- Inside Micrometers 121, 124, 823 and 824 by design have a firmer rotation than regular micrometers. This is to limit the tendency of the micrometer head to rotate when withdrawn from the workpiece.

Measuring Tips for Inside Measurements

Whether to use a two-point or three-point contact measuring tool is usually a matter of preference, but there are some differences.

A two-point contact rod-type inside micrometer shown in this section is usually lighter, easier to handle, and more versatile over long ranges from approximately 6-107" (150-2700mm). Any two-point contact micrometer, regardless of range, can probe a hole better to find the geometry of that hole than a three-point contact.

Most three-point contact tools have setting rings to ensure accuracy. If you desire very close tolerance work with two-point contact inside micrometers, it is recommended that they be set to a ring gage or to an outside micrometer.

A three-point contact micrometer shown in the Bore Gages section has an advantage in that it can be seated in position more quickly than a two-point contact tool. Usually these tools can also be read to a finer accuracy. The three-point tool will tell the maximum true diameter that can enter the hole a little faster than a two-point contact tool.

Micrometer heads used in these tools are accurate to ±.0001" or 0.002mm, but overall accuracy on tools that add rods is dependent on good practice and technique.

To ensure accuracy, these practices should be followed:

- Always make sure that there are no specks of dirt between the clamping surfaces of the rods and micrometer heads
- Tighten all rods uniformly, not too tight, not too loose, but a fairly firm assembly
- Assemble long sections vertically or, with support, horizontally
- Because temperature can affect long rods used in these tools, they should be assembled in the same environment in which they will be used

For additional information, refer to the Bore Gage Section.

END MEASURING RODS

234, 234M END MEASURING RODS WITH SPHERICAL ENDS

1-24"/25-600MM

These rods or "standards" are for checking and setting micrometers of 2" capacity and larger, and are also used on machine tools for comparing gages, checking precision measuring tools, for measuring parallel surfaces, and many other types of work.

They are made of special tool steel in rod form with ends hardened and accurately lapped to a spherical radius.

Available plain or with insulated handles to minimize expansion by heat when held in the hand. 1-6" (25-150mm) sizes are 1/4" (6.3mm) diameter; 7-11" (175-275mm) sizes, 3/8" (9.5mm) diameter; 12-24" (300-600mm) sizes are 7/16" (11mm) diameter.

NOTE: These standards are the ones used for all micrometers furnished with standards. Larger sizes available on special order.

Standards for S436.1 & S436 Micrometer Sets			With SLC	
Cat. No.	EDP	Description	Cat. No.	EDP
S234C	50852	Set of two standards only		
S234D	51897	Set of three standards only		
S234E	50860	Set of five standards only	S234E W/SLC	66878
S234G	51929	Set of eleven standards only	S234G W/SLC	66877
S234F	51917	Set of six standards only	S234F W/SLC	66879
S234J	64146	Set of twelve standards only		

Standards for S436.1M & S436M Micrometer Sets		
Cat. No.	EDP	Description
S234MC	51893	Set of two standards only
S234MD	51901	Set of three standards only
S234ME	51913	Set of five standards only
S234MF	51925	Set of six standards only
S234MG	51937	Set of eleven standards only
S234MJ	64467	Set of twelve standards only

234 End Measuring Rods				
	With Insulating Handle		Without Insulating Handle	
Length	Cat. No.	EDP	Cat. No.	EDP
1"	234A-1	50969	234B-1	51017
2"	234A-2	50971	234B-2	51019
3"	234A-3	50973	234B-3	51021
4"	234A-4	50975	234B-4	51023
5"	234A-5	50977	234B-5	51025
6"	234A-6	50979	234B-6	51027
7"	234A-7	50981	234B-7	51029
8"	234A-8	50983	234B-8	51031
9"	234A-9	50985	234B-9	51033
10"	234A-10	50987	234B-10	51035
11"	234A-11	50989	234B-11	51037
12"	234A-12	50991	234B-12	51039
13"	234A-13	50993		
14"	234A-14	50995		
15"	234A-15	50997		
16"	234A-16	50999		
17"	234A-17	51001		
18"	234A-18	51003		
19"	234A-19	51005		
20"	234A-20	51007		
21"	234A-21	51009		
22"	234A-22	51011		
23"	234A-23	51013		
24"	234A-24	51015		

234M End Measuring Rods				
	With Insulating Handle		Without Insulating Handle	
Length	Cat. No.	EDP	Cat. No.	EDP
25mm	234MA-25	50970	234MB-25	51018
50mm	234MA-50	50972	234MB-50	51020
75mm	234MA-75	50974	234MB-75	51022
100mm	234MA-100	50976	234MB-100	51024
125mm	234MA-125	50978	234MB-125	51026
150mm	234MA-150	50980	234MB-150	51028
175mm	234MA-175	50982	234MB-175	51030
200mm	234MA-200	50984	234MB-200	51032
225mm	234MA-225	50986	234MB-225	51034
250mm	234MA-250	50988	234MB-250	51036
275mm	234MA-275	50990	234MB-275	51038
300mm	234MA-300	50992	234MB-300	51040
325mm	234MA-325	50994		
350mm	234MA-350	50996		
375mm	234MA-375	50998		
400mm	234MA-400	51000		
425mm	234MA-425	51002		
450mm	234MA-450	51004		
475mm	234MA-475	51006		
500mm	234MA-500	51008		
525mm	234MA-525	51010		
550mm	234MA-550	51012		
575mm	234MA-575	51014		
600mm	234MA-600	51016		

INSIDE MICROMETERS

128, 128M COMBINATION HEAD WITH INSIDE MICROMETER

The combination head for inside micrometers combines the precision of a dial indicator sensor and the linear accuracy of a micrometer. This combination of indicator and micrometer reduces the need for operator "feel" and provides faster readings with increased reliability.

This head is interchangeable with the 128 End Rods and extension combinations.

For direct measurements, the dial indicator hand and the telltale hand must both register zero before reading the micrometer. As a comparator, the micrometer is first set to the nominal dimension and ± deviation from zero is read from the dial indicator. The gage should be rocked to obtain a minimum reading on the indicator. Out-of-roundness can also be checked – any variation being shown by the indicator.

For inch-reading tools, the head can be adjusted within a range of 2". It extends the overall range by an additional 5". The special 81-138J Jeweled Non-Shock Indicator is graduated .0005", range ±.040" and reads 0-40 on both the plus and minus dials.

For millimeter-reading tools, the head can be adjusted within a range of 50mm. This extends the overall range an additional 125mm. The special 81-181J Jeweled Non-Shock Indicator is graduated 0.01mm, range ±1mm and reads 0-100mm on both the plus and minus dials.

The 10" (250mm) master should be used vertically with the shoulder on the indicator end of the head, seated squarely, as shown in photo.

128 and 128M Combination Head with Inside Micrometer Sets

Cat. No.	EDP	Description
128	64381	Inch-reading combination head with setting master
128M	68117	Millimeter-reading combination head with setting master

128, 128M SETS

6-294"/150-7350MM

Each set consists of a satin-chrome micrometer head which can be used in combination with any one or more of a series of rigid, tubular steel measuring rods to obtain the required length.

The micrometer head is a modification of our 63, which has a 2" (50mm) range. The head has a basic length of 4" (100mm) which can be lengthened to 6" (150mm) by means of its measuring range. Besides those listed on the lead page of this section, the 128 Sets have these additional features:

- For inside measurements from 6-294" (150-7350mm) (longer sizes are also available on special order)
- Interchangeable tubular steel measuring rods and extension rods are lightweight with extreme rigidity. Rods screw into each other and seat against hardened ground and lapped surfaces necessary for high accuracy. Rod diameter 5/8" (16mm).
- Rods are provided with insulated handles to minimize expansion from hand heat. All rods marked with length
- All rod anvil contacts are hardened and ground
- All measuring rod anvil contacts are adjustable (plain extension rods are not adjustable)
- Adjustable, ground steel supporting collars (placed in "V" grooves when used in the horizontal position)

128 and 128M Micrometer Head Sets

Range with Micrometer Head	Movement of Screw	Grad.	Description	Range with Combination Head	Cat. No.	EDP
6-78"	2"	.001"	With (1) 4-6" head, (1) each 2", 4", 6", 8", 10", 12" rods, (1) 12" ext., (2) 24" ext.	11-83"	128AZ	64375
6-150"	2"	.001"	With (1) 4-6" head, (1) each 2", 4", 6", 8", 10", 12" rods, (1) 12" ext., (5) 24" ext.	11-155"	128BZ	64376
6-294"	2"	.001"	With (1) 4-6" Head, (1) each 2", 4", 6", 8", 10", 12" rods, (1) 12" ext., (11) 24" ext.	11-299"	128CZ	64377
150-1950mm	50mm	0.01mm	With (1) 100-150mm head, (1) ea. 50, 100, 150, 200, 250, 300mm rods, (1) 300mm ext., (2) 600mm ext.	300-2100mm	128MAZ	64378
150-3750mm	50mm	0.01mm	With (1) 100-150mm head, (1) ea. 50, 100, 150, 200, 250, 300mm rods, (1) 300mm ext., (5) 600mm ext.	300-3900mm	128MBZ	64379
150-7350mm	50mm	0.01mm	With (1) 100-150mm head, (1) ea. 50, 100, 150, 200, 250, 300mm rods, (1) 300mm ext., (11) 600mm ext.	300–7500mm	128MCZ	64380

MICROMETERS

205 STEEL MILL MICROMETER

0-1"

This micrometer is specially designed for gaging hot metal sheet in steel mills and has many features for safer, faster, and more accurate measurements. Micrometer has rugged construction throughout, and is attached to a convenient wooden handle, correctly shaped for a firm grip. Allows measurements to be made while the micrometer can be comfortably held at a safe distance from the hot metal.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools
- Convenient decimal equivalents on inch tools
- Extra long bevel on thimble with heavy cut graduations

EASE-OF-HANDLING FEATURES

- Both spindle and anvil are beveled to easily slide onto the work
- Large, reversible wing lock nut is easy to lock or release, even when wearing heavy gloves
- Rugged frame construction and heavy duty spindle of .270" diameter

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment by either the anvil or by a simple sleeve adjustment

247 Micrometer Ball Attachments, .200" Diameter Balls		
Cat. No.	**EDP**	**Description**
247A	51174	For 2, 226 (old style), 230 and 577 Micrometers and 263 Micrometer Heads, .235" diameter Anvil and Spindle
247B	51175	For 224A, 224AA and 436 Micrometers, .270" diameter anvil and spindle
247C	51176	For 232 Micrometers and 463 Micrometer Heads, .200" diameter anvil and spindle
247D	51177	For 216, 226 (new style), 231, 436.1, 733, 795, 796, 3732, 1212 and 1230 Micrometers, .250" diameter anvil and spindle
247E	51178	For 224B through J, 238, 239, 436 Micrometers and 663 Micrometer Heads, .300" diameter anvil and spindle
247M Micrometer Ball Attachments, 5mm Diameter Balls		
247MA	51179	For 2M and 230M Micrometers and 263M Micrometer Heads, 6mm diameter anvil and spindle
247MB	51180	For 436M Micrometers, 6.8mm diameter anvil and spindle
247MD	56691	For 216M and 436.1M Micrometers, 6.35mm diameter anvil and spindle
247ME	56692	For 224MB through J, 238M, 436M Micrometers and 663M Micrometer Heads, 7.6mm diameter anvil and spindle

247, 247M MICROMETER BALL ATTACHMENTS

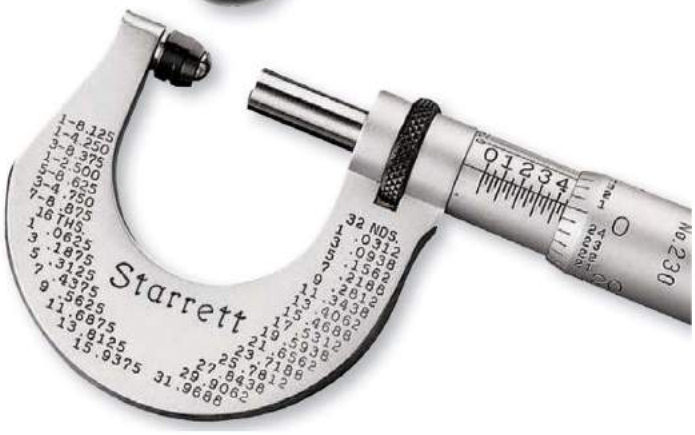
INCH/MM

Outside micrometers and micrometer heads having spindle sizes listed below can be instantly converted for measuring wall thickness of tubing, split and full bearings, sleeves and other parts with rounded surfaces by means of the 247 Ball Attachment.

FEATURES

- Easily applied by snapping on to end of either anvil or spindle, thus permitting two attachments to be used together
- Balls are hardened, measure .200" and 5mm in diameter, and move freely in the retainer, insuring positive contact with anvil and spindle
- The diameters, .200" or 5mm, of each ball used must be subtracted from the micrometer reading
- All metal construction

205 Steel Mill Micrometer				
Cat. No.	**EDP**	**Range**	**Graduation**	**Description**
205HL	50730	0-1"	.001"	Lock nut, with handle



MICROMETERS

575, 575M, 585, 585M SCREW THREAD MICROMETERS FOR MEASURING PITCH DIAMETER

0-1"/0-25MM; 1-2"/25-50MM

These micrometers have a pointed spindle and a double V-anvil, both shaped to contact the screw thread as shown in the drawing. The micrometer reading therefore gives the pitch diameter.*

575 and 585 Screw Thread Micrometers (.001" Graduation)			
Range, Threads Per inch	**Capacity, Pitch Diameter**	**Cat. No.**	**EDP**
7-9	0-1"	575AP	56159
10-13		575BP	56160
14-18		575CP	56161
20-24		575DP	56162
28-30		575EP	56163
32-40		575FP	56164
4 1/2 - 6	1-2"	585AP	56165
7-9		585BP	56166
10-13		585CP	56167
14-18		585DP	56168
20-24		585EP	56169
28-30		585FP	56170
575M and 585M Screw Thread Micrometers (0.01mm Graduation)			
Range, Pitch in mm	**Capacity, Pitch Diameter**	**Cat. No.**	**EDP**
3-4	0-25mm	575MAP	56321
2-2.5		575MBP	56322
1.25-1.75		575MCP	56323
0.75-1		575MDP	56324
0.5-0.7		575MEP	56325
0.35-0.45		575MFP	56326
4.5-6	25-50mm	585MAP	56327
3-4		585MBP	56328
2-2.5		585MCP	56329
1.25-1.75		585MDP	56330
Cases			
Description		**Cat. No.**	**EDP**
Attractive protective case for 575		910	55397
Attractive protective case for 585		912	55399

Swivel anvil available on special order – also in capacities over 2" (50mm).
575 sent in fitted case.
585 packed one in a box without case.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Decimal equivalents on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design for easy handling and better readability
- Gracefully designed tapered frame for use in narrow slots and tight places
- Furnished with fixed (non-rotating) anvil, but swivel anvils available on special order
- Available in capacity over 2" or 50mm (special order)

ACCURACY AND LONG-LIFE FEATURES

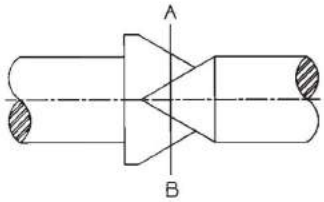
- One-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment
- Design allows 50% to 75% contact with the thread to be measured, thereby insuring contact with the pitch diameter at all times
- Design also ensures against contact with the root area of the thread
- Tools are accurate to ±.0002" or 0.004mm

575 AND 585 – INCH

For measuring American Unified National series and Unified J series screw threads. 585 micrometers come with a one-inch standard at no extra cost.

575M AND 585M – METRIC

For measuring I.S.O. metric and MJ screw threads. 585M micrometers come with a 25mm standard at no extra cost.



With the 575AP 0-1", pitch diameter is read directly in inches, since the line AB corresponds to the 0 reading.

* **MEASURING TIP**: These tools are accurate for general purposes, especially if set to a thread plug gage of the size to be measured.

THREAD COMPARATOR MICROMETERS

210, 210M SCREW THREAD COMPARATOR MICROMETERS

0-7/8"/0-22MM

This micrometer is ideal for quick comparisons of thread accuracy in screw cutting operations, measuring in small grooves or recesses where regular micrometers cannot be used, and for many other applications.

NOTE: Does not measure pitch diameter. For such measurements, 575 or 585 Thread Micrometers are recommended.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Convenient decimal equivalents on inch reading tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Gracefully designed tapered frame for narrow slots and tight places

ACCURACY AND LONG-LIFE FEATURES

- Rigid steel frame
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- The 210 has 60° conical anvil and spindle faces with 1/64" (0.4mm) flats on the ends of the points
- Quick and easy adjustment

210 and 210M Screw Thread Comparator Micrometers (0-7/8" Range)			
Cat. No.	**EDP**	**Range**	**Graduation**
210AP	50731	0-7/8"	.001"
210MAP	64334	0-22mm	0.01mm
Case for 210 and 210M Screw Thread Comparator Micrometers			
Cat. No.	**EDP**	**Description**	
910	55397	Attractive protective case	

760 ELECTRONIC SCREW THREAD COMPARATOR MICROMETER (WITH OUTPUT)

0-1"/0-25MM

Same features as our 210 with electronic readout and the following additional features and benefits:

READABILITY FEATURES

- Large LCD digital readout is easy to read and reduces errors
- Resolution: .00005" and 0.001mm
- Conventional inch or millimeter graduations standard
- Attractive no-glare black wrinkle finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve

ACCURACY AND LONG-LIFE FEATURES

- One 3-volt battery furnished for over a year of normal usage
- Automatic OFF after 30 minutes of nonuse

FULL-FUNCTION ACTION FEATURES

- Instant inch/millimeter conversion
- "ME" millimeter model turns on in millimeter mode after battery installation
- Measurement HOLD button
- Zero tool at any position and return to true zero reading
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- RS232 data output port
- Works well with Starrett DataSure® Wireless Data Collection Systems

760 and 760M Electronic Screw Thread Comparator Micrometer		
Cat. No.	**EDP**	**Description**
760FL	64051	0-1"/0-25mm range, standard inch graduations on shell and thimble
760MEFL	66135	0-25mm/0-1" range, standard millimeter graduations on shell and thimble
Case for 760 and 760M Electronic Screw Thread Comparator Micrometers		
731ZZ-2	65163	Attractive protective case
Cable Information for 760 and 760M Electronic Screw Thread Comparator Micrometers		
Part No.	**EDP**	**Description**
733SCKB	69888	Computer cable to PC
733SCU	69898	Cable to computer running SPC Data Collection Software
733SCM	69893	Connection to 7612 or 7613 Multiplexer
PT61120	65446	One 3-Volt battery CR2450

MICROMETERS

483, 483M, 485 V-ANVIL MICROMETERS

.093-2"/2-25MM | .078-1"

Used to check out-of-roundness from centerless grinding or other machining operations. Also used for measuring odd fluted taps, milling cutters, and reamers.

READABILITY FEATURES

- Direct measuring of three and five-fluted tools
- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quick adjustment

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Carbide facing on spindle and anvils for extra long wear
- Quick and easy adjustment

483, 483M and 485 V-Anvil Micrometers				
Cat. No.	**EDP**	**Range**	**Graduation**	**No. of Flutes it will Measure**
T483XRL-1	52491	.093-1"	.0001"	3
T483XRL-2	52494	1-2"	.0001"	3
T485XRL	52497	.078-1"	.0001"	5
483MXRL-25	56046	2-25mm	0.01mm	3
485MXRL	56047			5

Cases for 483, 483M and 485 V-Anvil Micrometers		
Cat. No.	**EDP**	**Description**
939	55331	Attractive protective case for 1" and 25mm sizes
483ZZ-2	55332	Attractive protective case for 2" size

225, 225M WIRE MICROMETERS

0-.400"/0-10MM

This is another regularly offered special function Starrett micrometer designed to measure diameter of wire up to .400" (10mm).

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Smooth friction thimble for uniform pressure
- Hex body which stops the micrometer from rolling over when placed on a flat surface
- The throat is flat to support the wire when measuring
- The anvil and spindle extend below the flat surface

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

225 Wire Micrometers (0-.400" Range)		
Cat. No.	**EDP**	**Graduation**
T225F	50814	.0001"
225M Wire Micrometers (0-10mm Range)		
V225MF	64255	0.001mm

MICROMETERS

207, 207M, 208, 208M STAINLESS STEEL CAN SEAM MICROMETERS

207 and 208 Can Seam Micrometers are made of stainless steel and designed to measure the thickness and depth of can seams.

The 207 Micrometer is used to measure the seam at outside bottom edge of dome on top of aerosol cans. The 208 Micrometer is used to measure thickness of seam at top and bottom of flat-topped cans. The 208D Micrometer is used to measure thickness and depth of all standard can seams.

READABILITY FEATURES

- Satin finish stainless steel – no glare – rust and stain resistant
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- The 207 has a snub nose which permits measuring aerosol type cans

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

207 and 208 Stainless Steel Can Seam Micrometers (0-.375" Range)			
Cat. No.	**EDP**	**Graduation**	**Description**
207Z	56173	.001"	Snub nose for aerosol cans
208Z	56175		Without depth gage
208DZ	56176		With depth gage (.200" range)
207M and 208M Stainless Steel Can Seam Micrometers (0-9.5mm Range)			
207MZ	64337	0.01mm	Snub nose for aerosol cans
208MZ	64338		Without depth gage
208MDZ	63191		With depth fage (5mm range)

Depth range on 208D is .200". Depth range on 208MD is 5mm.

209, 209M CAN CURL MICROMETERS

0-.500"/0-12.5MM

The 209 features a special rest foot and finger ring for consistent measurement of the curl thickness on aerosol cans with 1" (25mm) diameter domed tops.

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools
- Convenient decimal equivalents on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quicker adjustment
- Finger ring for ease of measuring

ACCURACY AND LONG-LIFE FEATURES

- Special rest foot to locate the tool for good accuracy
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

209 Can Curl Micrometers (0-.500" Range)		
Cat. No.	**EDP**	**Graduation**
209RL	56473	.001"
209M Can Curl Micrometers (0-12.5mm Range)		
209MRL	64364	0.01mm

MICROMETERS

228 HUB MICROMETER

0-1"

The 228 Hub Micrometer is an ideal tool for precision measuring of hub thickness, for insertion through small holes to measure thickness, and for many other related uses. Micrometer has a specially designed shallow frame which makes it possible to easily pass through a 3/4" (19mm) hole.

228 Hub Micrometer (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
228XRL	50921	.001"
Case		
Cat. No.	**EDP**	**Description**
228ZZ	55228	Deluxe case for 228 Hub Micrometer

READABILITY FEATURES

- Starrett satin chrome finish – no glare – resists rust
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures – every thousandth numbered on inch tools

EASE-OF-HANDLING FEATURES

- Balanced frame and thimble design ensure easy handling and better readability
- Ring-type knurled lock nut for quick and sure locking
- Combination ratchet and speeder for uniform pressure and quicker adjustment

ACCURACY AND LONG-LIFE FEATURES

- Rigid one-piece frame of drop forged steel
- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- Quick and easy adjustment

MICROMETER HEADS

261L, 261ML MICROMETER HEADS WITH NON-ROTATING SPINDLES

0-1/2"/0-13MM

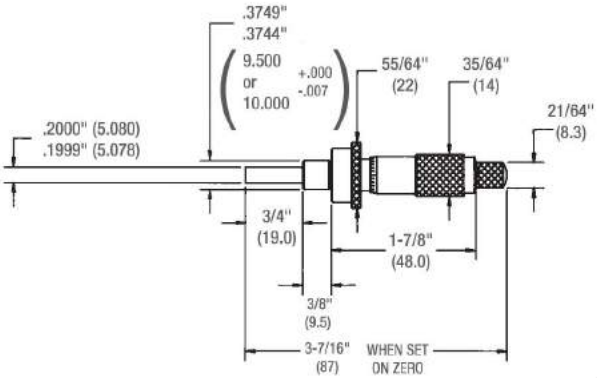
Because the spindle does not rotate, these tools are useful in driving positioning tables directly without an intermediate connecting device. They are also useful in gaging jobs where scratches on the work surface cannot be tolerated or where there is risk of distortion when spindle meets work – as in measuring soft or elastic materials. Spindle wear is also reduced since there is no rotational friction as its face contacts the work.

- Ring-type lock nut for quick and sure locking at any setting
- A speeder for quicker adjustment – this is not a ratchet stop. The tool is dependent on your own "feel"

261L Micrometer Heads (0-1/2" Range)			
Cat. No.	EDP	Graduation	Description
261L	55944	.001"	Speeder, lock nut
261ML Micrometer Heads (0-13mm Range)			
261ML*	64346	0.01mm	Specify clamping diameter (9.5mm or 10mm)

* 9.5mm clamping diameter sent unless otherwise specified.

261L



261L, 0-1/2" and 261ML (0-13mm) dimensions

MICROMETER HEADS

The following pages show the full line of Starrett standard micrometer heads that have been designed and developed over the years working with the needs of our customers. The micrometer heads are invaluable for use on electronic equipment, machine tools, fixtures, special gaging and other equipment where precise movement and adjustment are required.

Dimensional specifications are available upon request.

Special features are described with each tool, but all of these tools have these features that benefit the user:

- Starrett satin chrome finish – no glare – resists rust on all reading surfaces
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick-reading figures on all inch reading tools
- Extremely hard and stable one-piece spindle (the heart of our accuracy and long life)
- Micro-lapped measuring face for flatness and squareness
- Quick and easy adjustment

SPECIAL HEADS

In addition to standard micrometer heads, Starrett has also designed and manufactured many special types of micrometer heads for widely diversified applications requiring micrometer accuracy in settings and adjustments. These special heads are designed to exact specifications for specialized usage with wavemeters and other equipment in the electronics industry, machine tools, fixtures, special gages, tools, and all special mountings. They can be furnished to suit your particular requirements in a wide choice of sizes, range and graduations.

We design and build to your special need, so if you don't see what you want, please ask for it.

For quotations or recommendations, write:
The L.S. Starrett Co.
Special Order Department
121 Crescent Street
Athol, MA 01331

MICROMETER HEADS

464P MICROMETER HEADS

0-1/4"

460A, 460MA MICROMETER HEADS

0-1/4"/0-6.5MM

460B, 460MB MICROMETER HEADS

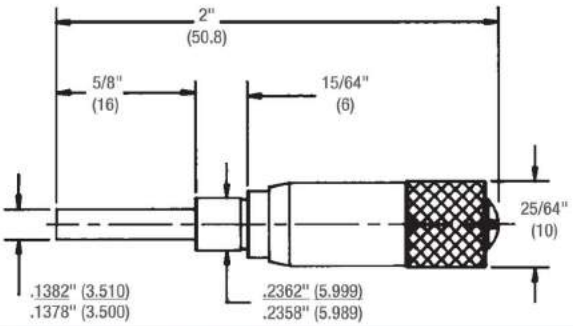
0-1/2"/0-13MM

These are plain micrometer heads with no lock nut or ratchet.

464P, 460A, 460MA, 460B and 460MB Micrometer Heads

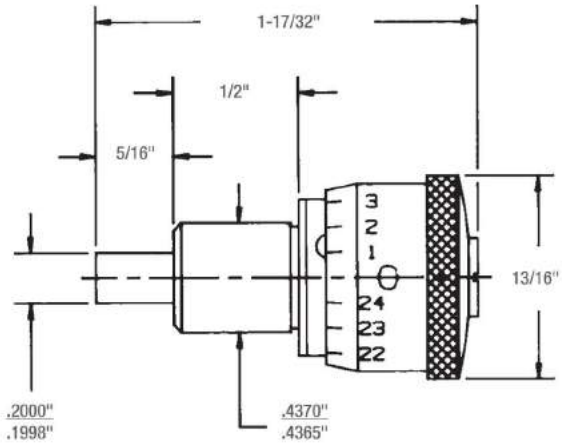
Range	Graduation	Cat. No.	EDP
0-1/4"	.001"	464P	56657
0-1/4"	.001"	460A	64444
0-6.5mm	0.01mm	460MA	64445
0-1/2"	.001"	460B	64446
0-13mm	0.01mm	460MB	64447

460B



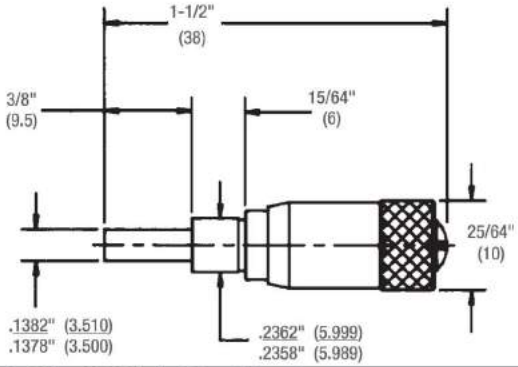
460B, 0-1/2" and 460MB (0-13mm) dimensions

464P



464P, 0-1/4" dimensions

460A



460A, 0-1/4"and 460MA (0-6.5mm) dimensions

MICROMETER HEADS

463 MICROMETER HEADS

0-1/2"/0-13MM

1463 STAINLESS STEEL MICROMETER HEADS

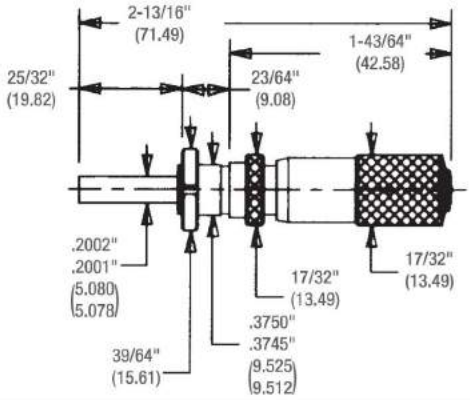
0-1/2"/0-13MM

The 463 and 1463 Micrometer head are exactly the same, except that the 1463 is made from rust-resistant stainless steel. The reading surfaces are satin finished stainless steel for easy readability. Heads are available with the features below:

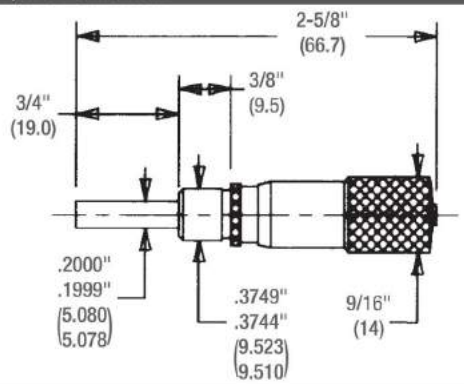
- Either combination ratchet and speeder for uniform pressure and quicker adjustment, or plain micrometer heads that depend on your own feel
- Ring-type lock nut for quick and sure locking at any setting
- Reverse reading, if needed
- Plain or carbide spindle faces

463 and 1463 Micrometer Heads

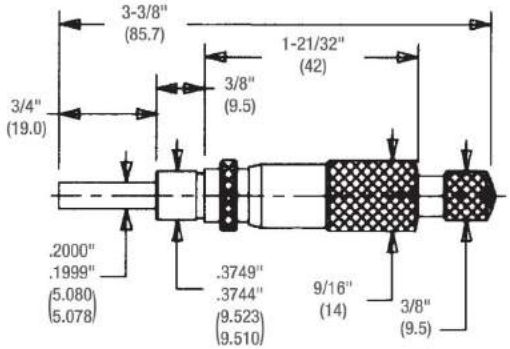
Range	Graduation	Cat. No.	EDP
0-1/2"	.001"	463P	52440
		463P-38TN	67112
		463L	52442
		463XL	52451
		463L-38TN	67113
		463RL	52443
		463XRL	64687
		RV463RL	57073
		RV463XRL	64688
0-1/2"	.0001"	T463P	52446
		T463L	52448
		T463XL	64689
		T463RL	52449
		T463XRL	65052
0-13mm	0.01mm	463MP	52444
		463MRL	52452
		463MXRL	64691
0-13mm	0.002mm	V463MRL	65053
		RV463MRL	60845
0-1/2"	.001"	1463RL	53207
	.0001"	T1463RL	53209
0-13mm	0.002mm	V1463MRL	64344



463L-38TN, 0-1/2" dimensions



463P, 0-1/2" and 463MP (0-13mm) dimensions



463RL, 0-1/2" and 463MRL (0-13mm) dimensions

MICROMETER HEADS

762 ELECTRONIC MICROMETER HEADS WITH ROTATING OR NON-ROTATING SPINDLES (WITH OUTPUT)

0-2"/0-50MM

READABILITY FEATURES

- Large digital readout is easy to read, reducing errors
- Conventional inch or millimeter graduations standard
- Attractive black wrinkle finish on frame
- Starrett no-glare satin chrome finish on thimble and sleeve

EASE-OF-HANDLING FEATURES

- Ring-type knurled lock nut
- Smooth friction thimble for uniform pressure on regular heads and combination ratchet and speeder on non-rotating heads

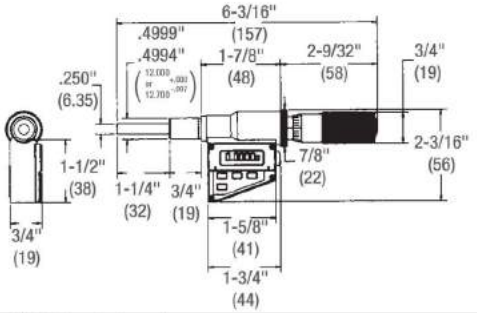
ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)
- One 3-volt battery furnished for over a year of normal usage
- Auto OFF after 30 minutes of nonuse

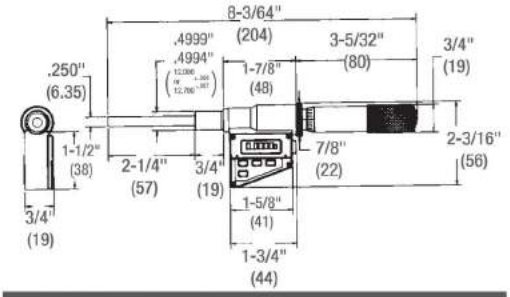
FULL-FUNCTION ACTION FEATURES

- Inch/millimeter conversion
- "ME" millimeter models turn on in millimeter mode after battery installation
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- RS232 data output port
- Works well with Starrett DataSure® Wireless Data Collection Systems

	762 Micrometer Specifications	
	Inch	mm
Resolution	.00005"	0.001mm
Accuracy	±.0001" per Inch	±0.003mm per 25mm



0-1" (0-25mm) dimensions



0-2" (0-50mm) dimensions

762 Electronic Micrometer Heads with Standard Inch Graduations on Shell and Thimble			
Range	Description*	Cat. No.	EDP
0-1"/0-25mm	Friction thimble, lock nut, carbide face	762XFL	65058
	Ratchet stop, lock nut, carbide face, non-rotating spindle	762NXRL	65060
0-2"/0-50mm	Friction thimble, lock nut, carbide face	762XFL-2	65062
762M Electronic Micrometer Heads with Standard Millimeter Graduations on Shell and Thimble			
0-25mm/0-1"	Friction thimble, lock nut, carbide face	762MEXFL-25	66077
0-50mm/0-2"	Friction thimble, lock nut, carbide face	762MEXFL-50	66137

Cable Information for 762 and 762M Electronic Micrometer Heads		
Description	Part No.	EDP
Computer cable to PC	733SCKB	69888
Cable to computer running SPC Data Collection Software	733SCU	69898
Connection to 7612 or 7613 Multiplexer	733SCM	69893
One 3-Volt Battery CR2450	PT61120	65446

*1/2" (12.7mm) clamping diameter sent unless otherwise specified.

MICROMETER HEADS

363, 363M DIGITAL MICROMETER HEADS

0-1"/0-25MM

READABILITY FEATURES

- Clear, easily read numbers reduce errors
- No-glare black finish on the frame
- Starrett no-glare satin chrome finish on thimble and sleeve
- .001" or 0.01mm is read directly from the counter
- Reverse reading, if needed

EASE-OF-HANDLING FEATURES

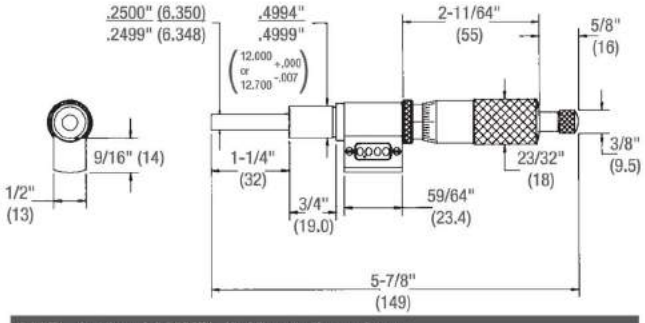
- Ring-type knurled lock nut for quick and sure locking
- Choice of smooth friction thimble for uniform pressure or combination ratchet and speeder for uniform pressure and quicker adjustment

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle (the heart of our accuracy)

363 Digital Micrometer Heads (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
363L	56297	.001"
363RL	56298	
363FL	56299	
RV363RL	57072	
363M Digital Micrometer Heads (0-25mm Range)		
363ML*	56302	0.01mm
363MRL*	56303	
363MFL*	56304	

* Specify clamping diameter (12 or 12.7mm). 12.7mm sent unless otherwise ordered.



363RL, 0-1" and 363MRL (0-25mm) dimensions

63, 63M LONG RANGE MICROMETER HEADS

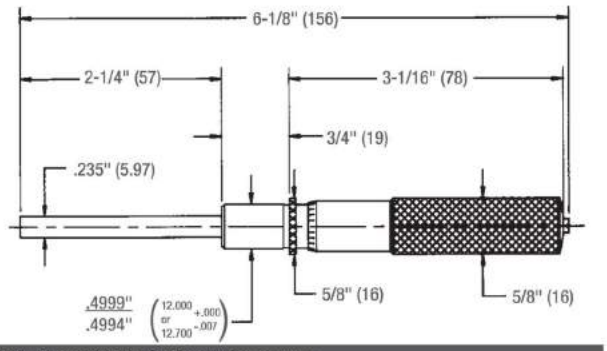
0-2"/0-50MM

When long spindle travel is required, the 63 Micrometer heads provide a range that will handle most applications, such as in electronic equipment, machine tools, special gages, tooling, etc.

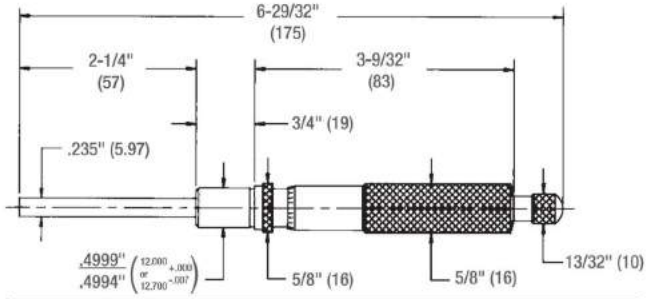
- With or without ring-type lock nut for quick and sure locking
- With or without the combination ratchet and speeder for uniform pressure and quicker adjustment

63 Micrometer Heads (0-2" Range)		
Cat. No.	**EDP**	**Graduation**
63P	50305	.001"
63L	50306	.001"
63RL	50307	.001"
T63P	50308	.0001"
T63RL	50309	.0001"
63M Micrometer Heads (0-50mm Range)		
63MRL*	55939	0.01mm
V63MRL*	64343	0.002mm

* 0-25mm models specify clamping diameter 12mm or 12.7mm. 12.7mm sent unless otherwise ordered.



63P, 0-2" and 63MP (0-50mm) dimensions



63RL, 0-2" and 63MRL (0-50 mm) dimensions

MICROMETER HEADS

263 AND 1263 MICROMETER HEADS

0-1"/0-25MM

- Reading surfaces satin-finished for easy readability
- No-glare, satin chrome finish on the 263, rust-resistant, stainless steel on the 1263
- Available with reverse reading, if needed
- Ring-type knurled lock nut for quick and sure locking
- Choice of smooth friction thimble for uniform pressure, combination ratchet and speeder for uniform pressure and quicker adjustment, or a plain micrometer head that depends on your own "feel"
- Spindle face available plain or with carbide
- Furnished with 1/2" (12.7mm) or 3/8" (9.5mm) diameter clamping surface

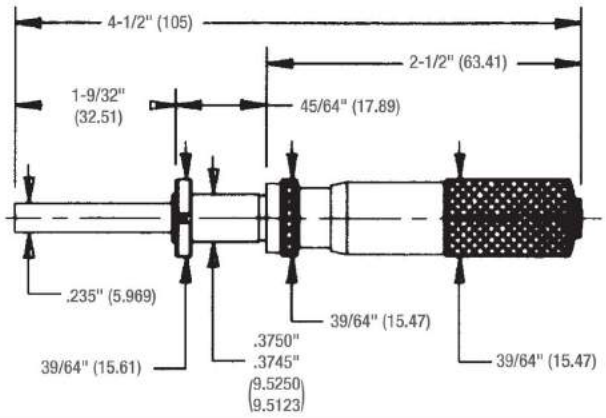
263 and 263M Micrometer Heads

Range	Graduation	Cat. No.	EDP
0-1"	.001"	263P	51251
		263P-38	67108
		263P-38TN	67110
		263L	51253
		263XL	51265
		263L-38	67109
		263L-38TN	67111
		263RL	51254
		263FL	51256
		RV263RL	57071
0-1"	.0001"	T263P	51258
		T263L	51260
		T263XL	65054
		T263RL	51261
0-25mm	0.01mm	263MP*	51275
		263ML*	51276
		263MRL*	51257
		263MXL*	65055
0-25mm	0.001mm	V263MRL*	55962
		RV263MRL*	64948
		V263MXRL*	65056

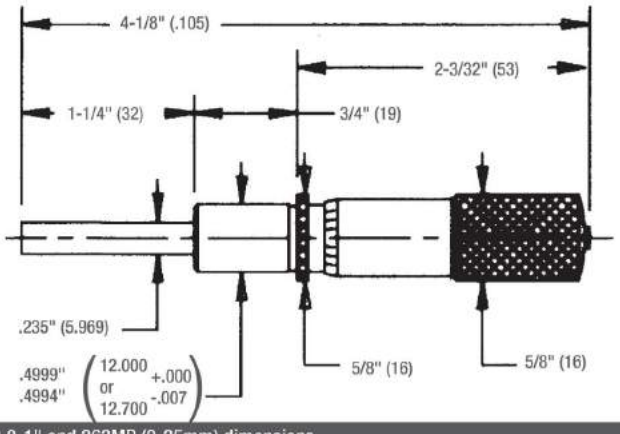
1263 and 1263M Stainless Steel Micrometer Heads

Range	Graduation	Cat. No.	EDP
0-1"	.001"	1263L	53200
		1263RL	53201
0-1"	.0001"	T1263RL	53203
0-25mm	0.001mm	V1263MRL*	64345

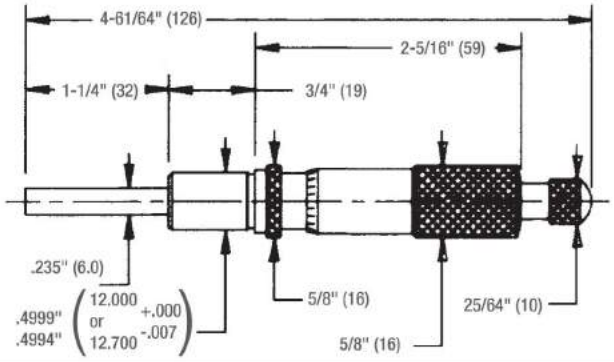
* 0-25mm models specify clamping diameter 12 or 12.7mm. 12.7mm sent unless otherwise ordered.



263L-38TN, 0-1" dimensions



263P, 0-1" and 263MP (0-25mm) dimensions



263RL, 0-1" and 263MRL (0-25mm) dimensions

MICROMETER HEADS

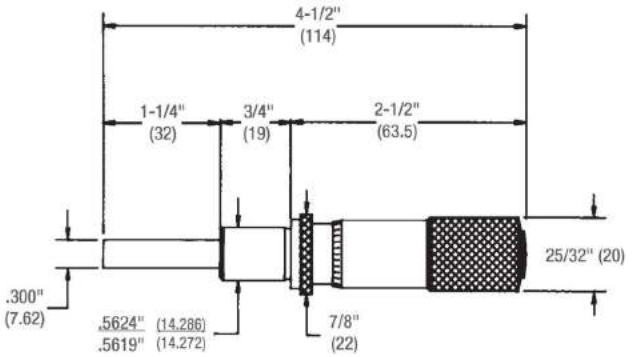
663, 663M HEAVY DUTY MICROMETER HEADS

0-1"/0-25MM

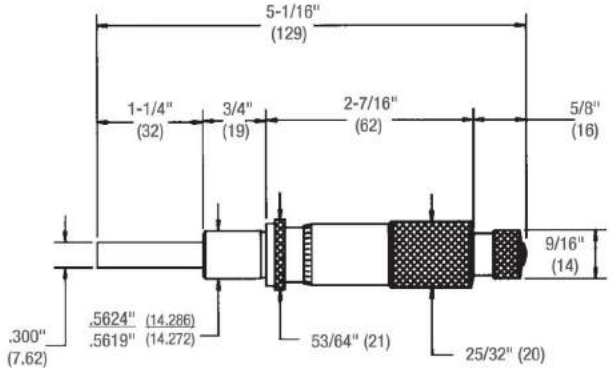
The 663 is similar to the 263 but features heavy duty construction with a larger diameter spindle, clamping surface and thimble.

- Available with lock nut and the combination ratchet and speeder for uniform pressure and quicker adjustment, or a plain micrometer head with lock nut only
- Ring-type lock nut for quick and sure locking

663 Heavy Duty Micrometer Heads (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
663L	52772	.001"
663RL	52773	
T663L	52777	.0001"
T663RL	52778	
663M Heavy Duty Micrometer Heads (0-25mm Range)		
663MRL	52774	0.01mm
V663MRL	64342	0.001mm



663L, 0-1" and 663ML (0-25mm) dimensions



663RL, 0-1" and 663MRL (0-25mm) dimensions

262, 262M MICROMETER HEADS WITH NON-ROTATING SPINDLES

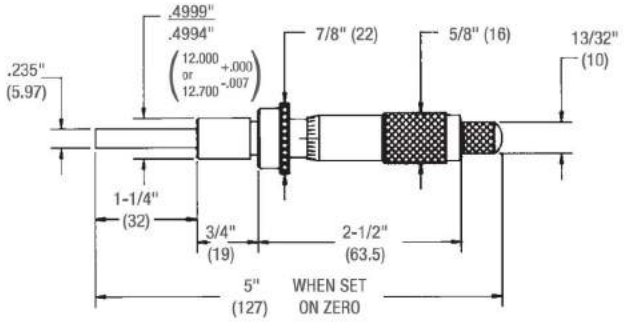
0-1"/0-25MM

Because the spindle does not rotate, this tool is useful in driving positioning tables directly without an intermediate connecting device. It is also useful in gaging jobs where scratches on the work surface cannot be tolerated, or where there is risk of distortion when spindle meets work – as in measuring soft or elastic materials. Spindle wear is also reduced, since there is no rotational friction when its face contacts the work.

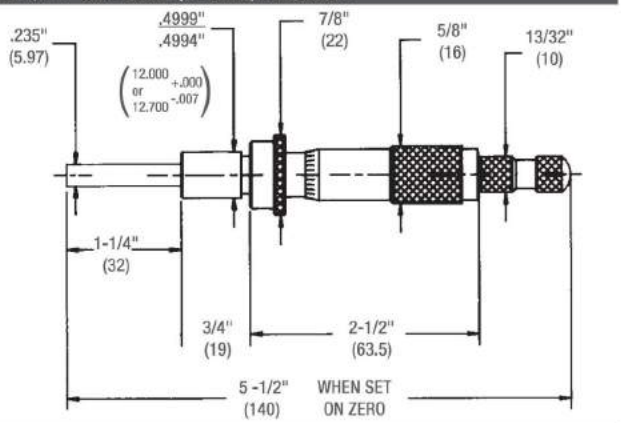
- Ring-type lock nut for quick and sure locking at any setting
- Available with or without the combination ratchet and speeder for uniform pressure and quicker adjustment

262 Micrometer Heads (0-1" Range)		
Cat. No.	**EDP**	**Graduation**
262L	55945	.001"
262RL	55946	
262M Micrometer Heads (0-25mm Range)		
262ML*	64347	0.01mm
262MRL*	65051	

0-25mm models specify clamping diameter 12mm or 12.7mm. 12.7mm sent unless otherwise ordered.



262L, 0-1" and 262ML (0-25mm) dimensions



262RL, 0-1" and 262MRL (0-25mm) dimensions

MICROMETER HEADS

465, 465M, 468, 468M DIRECT-READING, LARGE MICROMETER HEADS

0-2"/0-50MM

These large micrometer heads are designed for use with electronic equipment requiring ultra-fine adjustment for machine tools, fixtures, special gages and tools, special mountings, or wherever micrometer accuracy in setting and adjustment is required.

Another highly useful feature is the spindle adjustment, which permits adjusting the spindle length approximately ±1/16" (1.5mm). If the spindle is to be located against a definite stop and a different zero position is required, first loosen the cap screw in the end of the thimble, position the spindle to the desired location, then holding the spindle in position, rotate the thimble to zero and retighten the cap screw. In achieving this adjustable feature, we have still retained our positive taper-lock large thimble bearing.

The 468 Micrometer heads are exactly the same as the 465, except that they have double figures in red and black on the sleeve and thimble, permitting reading both ways with the spindle moving in either direction. This feature is invaluable on many instruments and microwave applications.

T465XSP-1

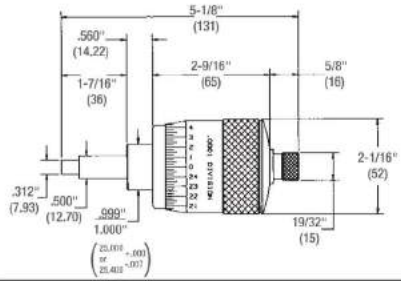
T468XSP-1 with double figures in red and black on sleeve and thimble for reading both ways.

READABILITY, ACCURACY AND LONG-LIFE FEATURES:

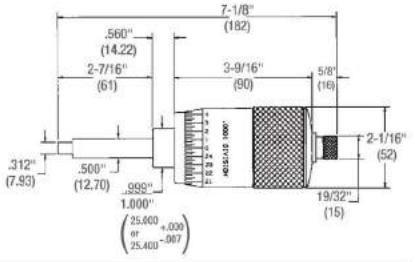
- 2-1/16" (52mm) thimble diameter with widely spaced .0001" or 0.002mm graduations for direct reading
- All graduations are direct reading – no vernier lines to match
- All reading surfaces have Starrett satin chrome finish as the no-glare background for the sharp lines and figures
- All graduations on sleeves and thimbles have advanced styling with staggered graduations for easy reading
- The spindle is carbide faced for long life
- Thimble and sleeve are made of aluminum to reduce weight
- Furnished with a speeder (not a ratchet) for quicker adjustment
- Extremely hard and stable one-piece spindle for accuracy and long-life
- Micro-lapped measuring face for flatness and squareness
- Quick and easy adjustment

465 Mircometer Heads			
Cat. No.	**EDP**	**Range**	**Graduation**
T465XSP-1	67121	0-1"	.0001"
T465XSP-2	67122	0-2"	
465MXSP-25*	67123	0-25mm	0.002mm
465MXSP-50*	67124	0-50mm	
468 Micrometer Heads			
T468XSP-1	67125	0-1"	.0001"
T468XSP-2	67126	0-2"	
468MXSP-25*	67127	0-25mm	0.002mm
468MXSP-50*	67128	0-50mm	

* Metric models specify clamping diameter 25 or 25.4mm. 25.4mm sent unless otherwise ordered.



465, 468 Models 0-1" (0-25mm) dimensions



465, 468 Models 0-2" (0-50mm) dimensions

MICROMETER HEADS

469, 469M LARGE, SUPER-PRECISION MICROMETER HEADS

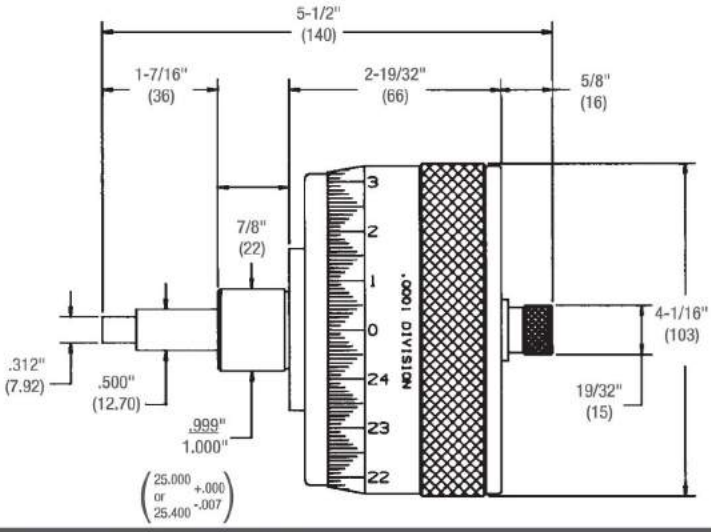
0-1"/0-25MM

These are our most accurate micrometer heads. They are also available on special order with double graduations in red and black on the sleeve and thimble, permitting readings both ways with the spindle moving in either direction.

These micrometer heads have a 4-1/16" (103mm) thimble diameter and are graduated to .0001", .000050", 0.001mm, or 0.002mm for direct reading. They also have staggered graduations for easy counting and reading of lines. Spindle is carbide faced for long life.

469 Large, Super-Precision Micrometer Heads (0-1" Range)		
Cat. No.	EDP	Graduation
T469HXSP	67129	.000050"
T469XSP	67130	.0001"
469M Large, Super-Precision Micrometer Heads (0-25mm Range)		
469MHXSP*	67131	0.001mm
469MXSP*	67132	0.002mm

* Metric models specify clamping diameter 25 or 25.4mm. 25.4mm sent unless otherwise ordered.
Also available on special order with double graduations for reading both ways with spindle moving in either direction.



469, 0-1" and 469m (0-25mm) dimensions

BENCH MICROMETERS

777 ELECTRONIC BENCH MICROMETERS (WITH OUTPUT)

0-1"/0-25MM

The 777 Electronic Bench Micrometer is especially suited for precision measurements where the work must be brought to the gage.

Work is staged between the anvil and spindle on an adjustable table, which can be raised to a selected height and locked in position by turning a knurled thumb screw on back of the base. Made of cast iron with black wrinkle finish, the base is heavily proportioned to sustain gage accuracy and assure stability in use. It stands on three machined pads.

With Standard Inch Graduations on Shell and Thimble		
Cat. No.	**EDP**	**Description**
777XFLZ	67135	0-1"/0-25mm Range
With Standard Millimeter Graduations on Shell and Thimble		
777MEXFLZ	67136	0-25mm/0-1" Range
Cable Information		
Part No.	**EDP**	**Description**
733SCKB	69888	Computer cable to PC
733SCU	69898	Cable to computer running SPC Data Collection Software
733SCM	69893	Connection to 7612 or 7613 Multiplexer
PT61120	65446	One 3-Volt Battery CR2450

READABILITY FEATURES

- Large, right-sized, high-contrast LCD digital readout is easy to read and reduces errors
- Conventional inch or millimeter graduations standard
- Attractive no-glare black wrinkle finish on the frame

EASE-OF-HANDLING FEATURES

- Ring-type knurled lock nut for quick and sure locking
- Smooth friction thimble for uniform pressure

ACCURACY AND LONG-LIFE FEATURES

- Extremely hard and stable one-piece spindle
- The spindle and anvil are carbide faced for long life
- One 3-volt battery furnished for dependable power and over one year's normal usage
- Automatic OFF after 30 minutes of nonuse
- Starrett workmanship

FULL-FUNCTION ACTION FEATURES

- Instant inch/millimeter conversion
- "ME" millimeter model will turn on in the millimeter mode after installation of a new battery
- Measurement HOLD button
- Ability to zero tool at any position
- Ability to retain and return to the true zero reading of the micrometer
- PRESET button to install any reading at any position
- Ability to install minimum and maximum limits
- RS232 data output port
- Works well with DataSure® Wireless Data Collection Systems

BENCH MICROMETERS

673, 673M DIRECT-READING BENCH MICROMETERS

0-2"/0-50MM

The 673 Bench Micrometer is a high precision instrument, ideal for bench use either in a shop environment or inspection laboratory. It can be used as a comparator measuring to fifty-millionths of an inch (.000050") or two-thousandths of a mm (0.002mm) or for direct measuring to .0001" or 0.002mm. Work lengths up to 2" or 50mm can be measured.

- The base is a heavy, rigid casting, incorporating at the left end a movable anvil which actuates a linear, friction-free motion transfer mechanism between the anvil and the indicator. This assures high accuracy.
- The large thimble diameter, approximately 3" (77mm), makes possible widely spaced graduations that are easy to read without a vernier scale reference
- Advanced, staggered design and quick reading graduations in combination with Starrett no-glare satin chrome finish on both thimble and sleeve also contribute to easier, faster readings
- The head is furnished with a speeder and has a special ring-type lock nut which firmly holds the spindle at any setting without distortion
- Another useful feature is the adjustable work table centered beneath the anvil and spindle. Work can be accurately aligned between the anvil and spindle by adjusting the table to the proper height and locking it in position.
- The spindle and anvil are carbide faced for long life
- This bench micrometer can also be used with the 776 Electronic Gage Amplifier by using the 673A Adaptor for the 715-2 Cartridge-Type Electronic Gaging Head to read to ten-millionths of an inch (.000010") or 0.0001mm

673 and 673M Direct-Reading Bench Micrometers

Cat. No.	EDP	Range		Graduation		Work Table
		Micrometer Head	Dial Indicator	Micrometer Head	Dial Indicator	
673XZ	67191	0-2"	.006" (0-3-0)	.0001"	.000050"	2-1/4" dia. and 7/8" vertical adjustment
673MXZ	67192	0-50mm	0.2mm (0-10-0)	0.002mm	0.002mm	57mm dia. and 22mm vertical adjustment
673A	52891	Adaptor for 715-2 Cartridge Type Electronic Gaging Head				

Anvil Pressure Adjustment – 8 oz. to 3 lb (0.23 to 1.36kg)

673M with 717 amplifier

HOW TO USE FOR DIRECT MEASURE AND AS A COMPARATOR

For direct measuring, the micrometer head is set to zero and the dial indicator is set to zero by the bezel adjustment. Any workpiece within the 2" (50mm) range can then be measured by the micrometer head in ten-thousandths of an inch (.0001" or 0.002mm). The indicator must read zero for each measurement.

If used as a comparator, first set the head and the indicator to zero as previously explained. Then adjust the micrometer head to the desired dimension to be checked. After retracting the anvil, work is placed on the table between anvil and spindle and the anvil is then released so anvil and spindle contact the work. Plus or minus deviation from the nominal work size is then read from the dial indicator in fifty-millionths of an inch (.000050") or 0.002mm.

End Measuring Rods

Precision End Measuring Rods and Inside Micrometers

The following pages show our varied line of precision end measuring rods and inside micrometers. The variations are fixed-range or adjustable-range micrometers and solid or tubular measuring rods.

Unless otherwise noted under the individual tools, all have these features:

- Balanced design for better feel and accurate measurement
- All contact points are hardened and ground for better accuracy and long life
- Satin chrome finish on all micrometer heads and reading surfaces that resist rust and also make for easy reading by providing a no-glare background for the sharp lines and figures
- Hardened and stabilized spindle for accuracy and long life
- Advanced sleeve design with staggered lines and distinct figures for precise and easy readability
- Quick and easy adjustment
- Starrett workmanship
- Inside Micrometers 121, 124, 823 and 824 by design have a firmer rotation than regular micrometers. This is to limit the tendency of the micrometer head to rotate when withdrawn from the workpiece.

Measuring Tips for Inside Measurements

Whether to use a two-point or three-point contact measuring tool is usually a matter of preference, but there are some differences.

A two-point contact rod-type inside micrometer shown in this section is usually lighter, easier to handle, and more versatile over long ranges from approximately 6-107" (150-2700mm). Any two-point contact micrometer, regardless of range, can probe a hole better to find the geometry of that hole than a three-point contact.

Most three-point contact tools have setting rings to ensure accuracy. If you desire very close tolerance work with two-point contact inside micrometers, it is recommended that they be set to a ring gage or to an outside micrometer.

A three-point contact micrometer shown in the Bore Gages section has an advantage in that it can be seated in position more quickly than a two-point contact tool. Usually these tools can also be read to a finer accuracy. The three-point tool will tell the maximum true diameter that can enter the hole a little faster than a two-point contact tool.

Micrometer heads used in these tools are accurate to ±.0001" or 0.002mm, but overall accuracy on tools that add rods is dependent on good practice and technique.

To ensure accuracy, these practices should be followed:

- Always make sure that there are no specks of dirt between the clamping surfaces of the rods and micrometer heads
- Tighten all rods uniformly, not too tight, not too loose, but a fairly firm assembly
- Assemble long sections vertically or, with support, horizontally
- Because temperature can affect long rods used in these tools, they should be assembled in the same environment in which they will be used

For additional information, refer to the Bore Gage Section.

END MEASURING RODS

234, 234M END MEASURING RODS WITH SPHERICAL ENDS

1-24"/25-600MM

These rods or "standards" are for checking and setting micrometers of 2" capacity and larger, and are also used on machine tools for comparing gages, checking precision measuring tools, for measuring parallel surfaces, and many other types of work.

They are made of special tool steel in rod form with ends hardened and accurately lapped to a spherical radius.

Available plain or with insulated handles to minimize expansion by heat when held in the hand. 1-6" (25-150mm) sizes are 1/4" (6.3mm) diameter; 7-11" (175-275mm) sizes, 3/8" (9.5mm) diameter; 12-24" (300-600mm) sizes are 7/16" (11mm) diameter.

NOTE: These standards are the ones used for all micrometers furnished with standards. Larger sizes available on special order.

Standards for S436.1 & S436 Micrometer Sets			With SLC	
Cat. No.	EDP	Description	Cat. No.	EDP
S234C	50852	Set of two standards only		
S234D	51897	Set of three standards only		
S234E	50860	Set of five standards only	S234E W/SLC	66878
S234G	51929	Set of eleven standards only	S234G W/SLC	66877
S234F	51917	Set of six standards only	S234F W/SLC	66879
S234J	64146	Set of twelve standards only		

Standards for S436.1M & S436M Micrometer Sets		
Cat. No.	EDP	Description
S234MC	51893	Set of two standards only
S234MD	51901	Set of three standards only
S234ME	51913	Set of five standards only
S234MF	51925	Set of six standards only
S234MG	51937	Set of eleven standards only
S234MJ	64467	Set of twelve standards only

234 End Measuring Rods				
	With Insulating Handle		Without Insulating Handle	
Length	Cat. No.	EDP	Cat. No.	EDP
1"	234A-1	50969	234B-1	51017
2"	234A-2	50971	234B-2	51019
3"	234A-3	50973	234B-3	51021
4"	234A-4	50975	234B-4	51023
5"	234A-5	50977	234B-5	51025
6"	234A-6	50979	234B-6	51027
7"	234A-7	50981	234B-7	51029
8"	234A-8	50983	234B-8	51031
9"	234A-9	50985	234B-9	51033
10"	234A-10	50987	234B-10	51035
11"	234A-11	50989	234B-11	51037
12"	234A-12	50991	234B-12	51039
13"	234A-13	50993		
14"	234A-14	50995		
15"	234A-15	50997		
16"	234A-16	50999		
17"	234A-17	51001		
18"	234A-18	51003		
19"	234A-19	51005		
20"	234A-20	51007		
21"	234A-21	51009		
22"	234A-22	51011		
23"	234A-23	51013		
24"	234A-24	51015		

234M End Measuring Rods				
	With Insulating Handle		Without Insulating Handle	
Length	Cat. No.	EDP	Cat. No.	EDP
25mm	234MA-25	50970	234MB-25	51018
50mm	234MA-50	50972	234MB-50	51020
75mm	234MA-75	50974	234MB-75	51022
100mm	234MA-100	50976	234MB-100	51024
125mm	234MA-125	50978	234MB-125	51026
150mm	234MA-150	50980	234MB-150	51028
175mm	234MA-175	50982	234MB-175	51030
200mm	234MA-200	50984	234MB-200	51032
225mm	234MA-225	50986	234MB-225	51034
250mm	234MA-250	50988	234MB-250	51036
275mm	234MA-275	50990	234MB-275	51038
300mm	234MA-300	50992	234MB-300	51040
325mm	234MA-325	50994		
350mm	234MA-350	50996		
375mm	234MA-375	50998		
400mm	234MA-400	51000		
425mm	234MA-425	51002		
450mm	234MA-450	51004		
475mm	234MA-475	51006		
500mm	234MA-500	51008		
525mm	234MA-525	51010		
550mm	234MA-550	51012		
575mm	234MA-575	51014		
600mm	234MA-600	51016		

INSIDE MICROMETERS

128, 128M COMBINATION HEAD WITH INSIDE MICROMETER

The combination head for inside micrometers combines the precision of a dial indicator sensor and the linear accuracy of a micrometer. This combination of indicator and micrometer reduces the need for operator "feel" and provides faster readings with increased reliability.

This head is interchangeable with the 128 End Rods and extension combinations.

For direct measurements, the dial indicator hand and the telltale hand must both register zero before reading the micrometer. As a comparator, the micrometer is first set to the nominal dimension and ± deviation from zero is read from the dial indicator. The gage should be rocked to obtain a minimum reading on the indicator. Out-of-roundness can also be checked – any variation being shown by the indicator.

For inch-reading tools, the head can be adjusted within a range of 2". It extends the overall range by an additional 5". The special 81-138J Jeweled Non-Shock Indicator is graduated .0005", range ±.040" and reads 0-40 on both the plus and minus dials.

For millimeter-reading tools, the head can be adjusted within a range of 50mm. This extends the overall range an additional 125mm. The special 81-181J Jeweled Non-Shock Indicator is graduated 0.01mm, range ±1mm and reads 0-100mm on both the plus and minus dials.

The 10" (250mm) master should be used vertically with the shoulder on the indicator end of the head, seated squarely, as shown in photo.

128 and 128M Combination Head with Inside Micrometer Sets		
Cat. No.	**EDP**	**Description**
128	64381	Inch-reading combination head with setting master
128M	68117	Millimeter-reading combination head with setting master

128, 128M SETS

6-294"/150-7350MM

Each set consists of a satin-chrome micrometer head which can be used in combination with any one or more of a series of rigid, tubular steel measuring rods to obtain the required length.

The micrometer head is a modification of our 63, which has a 2" (50mm) range. The head has a basic length of 4" (100mm) which can be lengthened to 6" (150mm) by means of its measuring range. Besides those listed on the lead page of this section, the 128 Sets have these additional features:

- For inside measurements from 6-294" (150-7350mm) (longer sizes are also available on special order)
- Interchangeable tubular steel measuring rods and extension rods are lightweight with extreme rigidity. Rods screw into each other and seat against hardened ground and lapped surfaces necessary for high accuracy. Rod diameter 5/8" (16mm).
- Rods are provided with insulated handles to minimize expansion from hand heat. All rods marked with length
- All rod anvil contacts are hardened and ground
- All measuring rod anvil contacts are adjustable (plain extension rods are not adjustable)
- Adjustable, ground steel supporting collars (placed in "V" grooves when used in the horizontal position)

128 and 128M Micrometer Head Sets						
Range with Micrometer Head	**Movement of Screw**	**Grad.**	**Description**	**Range with Combination Head**	**Cat. No.**	**EDP**
6-78"	2"	.001"	With (1) 4-6" head, (1) each 2", 4", 6", 8", 10", 12" rods, (1) 12" ext., (2) 24" ext.	11-83"	128AZ	64375
6-150"	2"	.001"	With (1) 4-6" head, (1) each 2", 4", 6", 8", 10", 12" rods, (1) 12" ext., (5) 24" ext.	11-155"	128BZ	64376
6-294"	2"	.001"	With (1) 4-6" Head, (1) each 2", 4", 6", 8", 10", 12" rods, (1) 12" ext., (11) 24" ext.	11-299"	128CZ	64377
150-1950mm	50mm	0.01mm	With (1) 100-150mm head, (1) ea. 50, 100, 150, 200, 250, 300mm rods, (1) 300mm ext., (2) 600mm ext.	300-2100mm	128MAZ	64378
150-3750mm	50mm	0.01mm	With (1) 100-150mm head, (1) ea. 50, 100, 150, 200, 250, 300mm rods, (1) 300mm ext., (5) 600mm ext.	300-3900mm	128MBZ	64379
150-7350mm	50mm	0.01mm	With (1) 100-150mm head, (1) ea. 50, 100, 150, 200, 250, 300mm rods, (1) 300mm ext., (11) 600mm ext.	300–7500mm	128MCZ	64380