

Gauge Blocks

Length Standards Brought to You by Mitutoyo

Square Gauge Block Accessories Set SERIES 516

- To expand the application of square gauge blocks, Mitutoyo offers the Gauge Block Accessories Set. Square gauge blocks have a much broader range of application than rectangular gauge blocks due to the central clamping hole. Also, the accessories included in the set are sold individually depending on the application.
- It is recommended to use only Mitutoyo accessory sets with these gauge blocks as the tolerances on the assembly hole countersinks in the blocks and mating screw heads in the sets are 5 times tighter than the applicable standard, and therefore are guaranteed to fit together correctly.



516-611

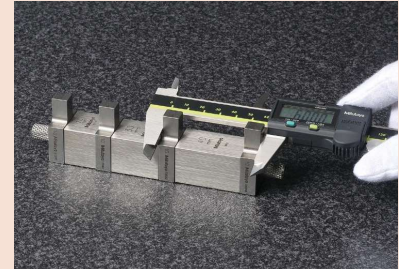
SPECIFICATIONS

Metric			Inch			
Order No. 516-611	Included in set	Quantity Supplied	Order No. 516-612	Included in set	Quantity Supplied	
619070	Half-round jaw 2 mm	2 pcs.	619050	Half-round jaw 2 mm	2 pcs.	
619071	Half-round jaw 5 mm		619051	Half-round jaw 5 mm		
619072	Plain jaw 10 mm		619052	Plain jaw 10 mm		
619073	Center point 2 mm	1 pc.	619053	Center point 2 mm	1 pc.	
619054	Scriber point		619054	Scriber point		
619074	Base 10 mm	2 pcs.	619055	Base 10 mm	2 pcs.	
619056	Stud		619056	Stud		
619057	Flat head screw 1 1/4"		619057	Flat head screw 1 1/4"		
619058	Flat head screw 5/8"		619058	Flat head screw 5/8"		
619059	Slotted head nut		619059	Slotted head nut		
619060	Adjustable tie rod 6"		619060	Adjustable tie rod 6"		
619061	Adjustable tie rod 4 1/2"		619061	Adjustable tie rod 4 1/2"		
619062	Tie rod 3"		1 pc.	619062		Tie rod 3"
619063	Tie rod 2 1/4"			619063		Tie rod 2 1/4"
619064	Tie rod 1 1/2"			619064		Tie rod 1 1/2"
619065	Tie rod 3/4"	619065		Tie rod 3/4"		
619066	Knurled head screw	2 pcs.	619066	Knurled head screw	2 pcs.	

Note: 2 pcs. of half-round jaw, plain jaw, stud, flat head screw, slotted head nut, adjustable tie rod, and knurled head screw are included in each set. Please note that the abovementioned Order No. indicates only 1 set.

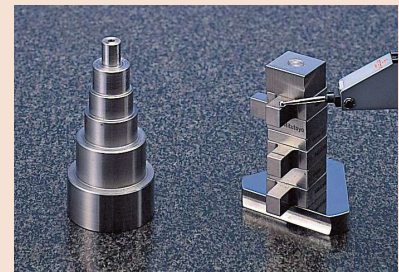
Square gauge block applications

Example of a gage for checking caliper accuracy



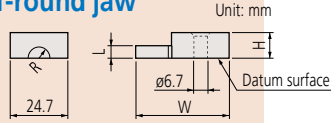
Using plain jaws, gauge blocks, a tie rod and a knurled-head screw a gage was constructed to enable rapid checking of the accuracy of a caliper at selected points.

Example of a gage for comparison measurement of a stepped workpiece



Using plain jaws, gauge blocks, a tie rod and a knurled-head screw a gage was constructed to enable rapid comparison measurement of a stepped workpiece. (Sample workpiece)

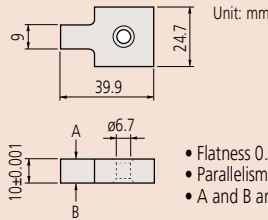
Half-round jaw



Order No.	R (mm)	L (mm)	W (mm)	H (mm)
619070	1.95	2	33.6	5.3
619071	4.95	5	39.9	10.3

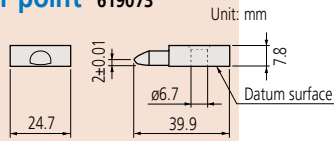
- Flatness 0.5 μm
- Parallelism of L 0.5 μm
- Tolerance of L ±0.5 μm

Plain jaw 619072



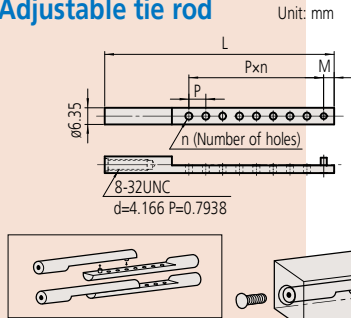
- Flatness 0.12 μm
- Parallelism 0.12 μm
- A and B are datum surfaces

Center point 619073



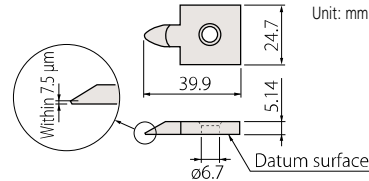
- Flatness 0.5 μm

Adjustable tie rod



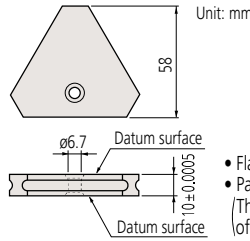
Order No.	L (mm)	M (mm)	P (mm)	n (Number of holes)
619060	124.5	3.85	6.35	14
619061	86.5	3.95	6.35	8

Scriber point 619054



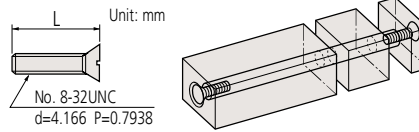
- Flatness of datum surface 0.5 μm

Base 619074



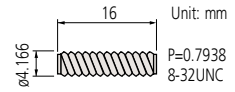
- Flatness 1.5 μm
- Parallelism 1.5 μm (The surface within 1.5 mm of edge is excluded)

Flat head screw

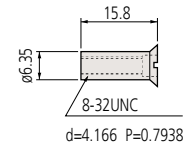


Order No.	L (mm)
619057	31.6
619058	15.8

Stud 619056

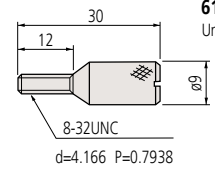


Slotted head nut



619059
Unit: mm

Knurled head screw



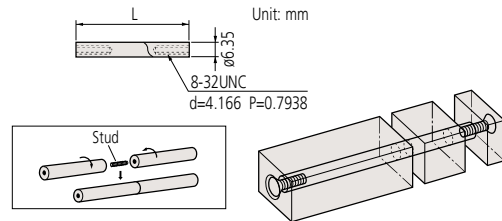
619066
Unit: mm

• Contraction caused by the clamping force

The minimum recommended torque to be applied to the clamping screws is approximately 600 mN·m. The chart below shows the approximate length contraction of a 100 mm gage stack using typical torque values.

Driver	Contraction
Torque Driver 600 mN·m	0.2 μm/100 mm
Ordinary Driver 700 to 800 mN·m	0.3 μm/100 mm

Tie rod



Order No.	L (mm)
619065	19
619064	38
619063	57
619062	76

Accessories used for combining square gauge blocks

Overall length (mm)		Min.	21	36	34	41	45	58	64	72	77	82	91	95	109	117	130	148	121	167	143	160	205	180	223	240	258	295	375			
Order No.	Included in set	Max.	30	43	43	50	60	72	79	88	91	97	107	109	125	135	150	169	180	184	210	255	270	285	288	345	363	445	520			
619059	Slotted head nut		1	1		1																										
619058	Flat head screw		1			2	1	2	1	2		1	2		1	1			2				2		2							
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