

Gauge Blocks

Length Standards Brought to You by Mitutoyo

Square Gauge Block Accessories Set

- 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.
- Mitutoyo accessory sets are available for expanding the range of square gauge block applications, especially for rapid assembly of precision gages.



516-611

SPECIFICATIONS

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

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



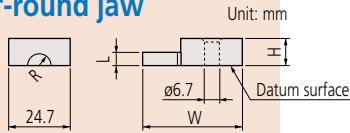
Using plain jaws, gauge blocks, a tie rod and a knurled-head screw a gage was constructed to enable rapid checking of the accuracy of a caliper at selected points.

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)

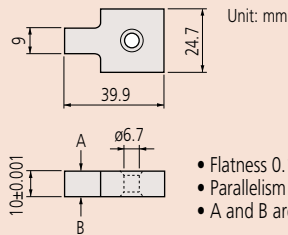
Half-round jaw



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

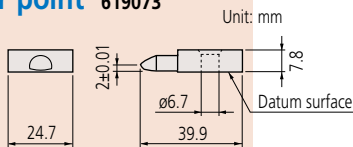
- Flatness 0.5 μm
- Parallelism of L 0.5 μm
- Tolerance of L $\pm 0.5 \mu\text{m}$

Plain jaw 619072



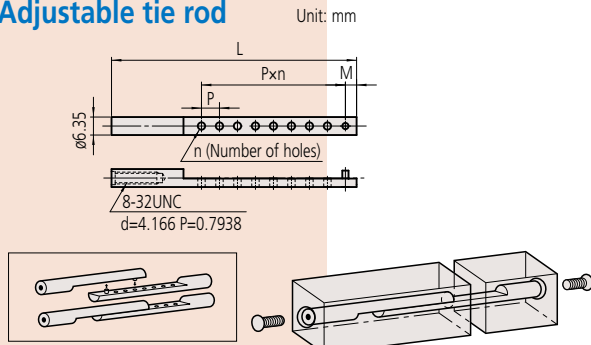
- Flatness 0.12 μm
- Parallelism 0.12 μm
- A and B are datum surfaces

Center point 619073



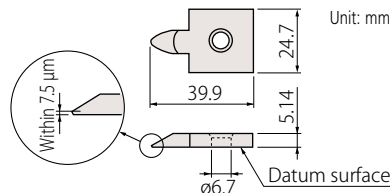
- Flatness 0.5 μm

Adjustable tie rod



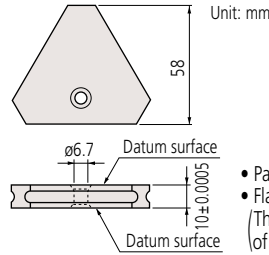
Order No.	L (mm)	M (mm)	P (mm)	n
619060	124.5	3.85	6.35	14
619061	86.5	3.95	6.35	8

Scriber point 619054



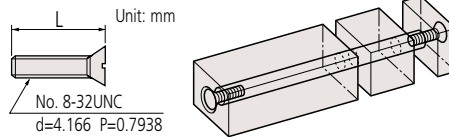
- Flatness of datum surface 0.5 μm

Base 619074



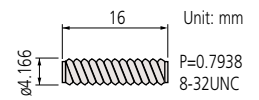
- Parallelism 1.5 μm
- Flatness 1.5 μm
(The surface within 1.5 mm of edge is excluded)

Flat head screw

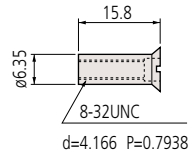


Order No.	L (mm)
619057	31.6
619058	15.8

Stud 619056

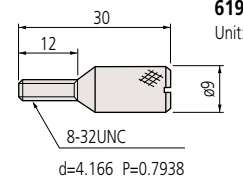


Slotted head nut



619059
Unit: mm

Knurled head screw



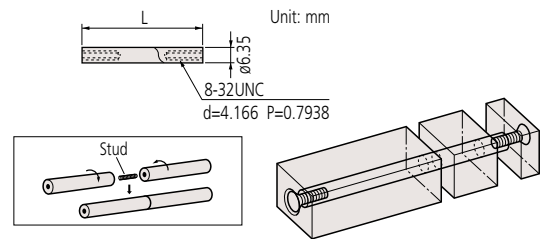
619066
Unit: mm

• 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 $\mu\text{m}/100 \text{ mm}$
Ordinary Driver 700 - 800 mN·m	0.3 $\mu\text{m}/100 \text{ mm}$

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							2			2								
619057				1				1		2	1		2	1	2	1	2	2		2	2		2	2	2	2	2	2	2	
619056	Stud					1																	1		1	1	1	1	2	
619065	Tie rod				1	1																								
619064							1	1		1																				
619063										1		1		1								1								
619062													1		1	1	1	1					1							
619061	Adjustable tie rod																					2		2					2	2
619060																							2		2		2	2	2	2