

Mitutoyo

Catalog No. US-1002



Measuring Instruments Catalog

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02-214-0101

Grade and Application

Refer to the following table to select the gauge block grade according to usage (specified by DIN861, BS4311, and JIS B 7506).

	Applications	Grade
Workshop use	• Mounting tools and cutters	2
	• Manufacturing gages • Calibrating instruments	1 or 2
Inspection use	• Inspecting mechanical parts, tools, etc.	1 or 2
	• Checking the accuracy of gages • Calibrating instruments	0 or 1
Calibration use	• Checking the accuracy of gauge blocks for workshop • Checking the accuracy of gauge blocks for inspection • Checking the accuracy of instruments	K or 0
Reference use	• Checking the accuracy of gauge blocks for calibration • For academic research	K

Grade 2:

These gauge blocks are intended for shop floor use to set and calibrate fixtures as well as precision instruments.

Grade 1:

This grade is used within an inspection area to verify the accuracy of plug and snap gages as well as for setting electronic measuring devices.

Grade 0:

These higher accuracy gauges are intended for use within a controlled environment by skilled inspection staff. Mainly used as reference standards for setting high precision measuring equipment and for the calibration of lower grade gauge blocks.

Grade K:

Gauge blocks of this accuracy are intended for use within a temperature controlled inspection room or calibration laboratory. They should be used as masters with certificates against other gauge blocks which are calibrated by comparison.

Combination of a Required Length

Multiple combinations of gauge blocks can be used to make a required length. Care should be exercised in the following points.

1. Use as few gauge blocks as possible to obtain the required length. (= Select thick gauge blocks whenever possible.)
2. Select gauge blocks starting with the one that has least significant digit required, and then work up to ones with more significant digits.
3. There are multiple combinations for the integer part of a length. To prevent wear as much as possible, do not always use the same gauge blocks.

Example combination

Required length = 45.6785mm

For the 1mm-based gauge block set (112 pcs.)

$$\begin{array}{r}
 1.0005 \\
 1.008 \\
 1.17 \\
 17.5 \\
 + 25 \\
 \hline
 45.6785\text{mm}
 \end{array}$$

For the 2mm-based gauge block set (112 pcs.)

$$\begin{array}{r}
 2.0005 \\
 2.008 \\
 2.17 \\
 14.5 \\
 + 25 \\
 \hline
 45.6785\text{mm}
 \end{array}$$

Gauge Block

SERIES 516

Accuracies of Mitutoyo Gauge Blocks

All Mitutoyo gauge blocks meet or exceed all known specifications. The flatness, parallelism and surface finish necessary to achieve the required accuracies are the same as or better than government requirements.

ACCURACY SPECIFICATIONS: JIS B 7506-2004 (JAPAN)

(at 20°C)

Nominal length (mm)		Grade K		Grade 0	
		Limit deviation of length at any point	Tolerance for the variation in length	Limit deviation of length at any point	Tolerance for the variation in length
from 0.5	up to 10	±0.20μm	0.05μm	±0.12μm	0.10μm
over 10	up to 25	±0.30μm	0.05μm	±0.14μm	0.10μm
over 25	up to 50	±0.40μm	0.06μm	±0.20μm	0.10μm
over 50	up to 75	±0.50μm	0.06μm	±0.25μm	0.12μm
over 75	up to 100	±0.60μm	0.07μm	±0.30μm	0.12μm
over 100	up to 150	±0.80μm	0.08μm	±0.40μm	0.14μm
over 150	up to 200	±1.00μm	0.09μm	±0.50μm	0.16μm
over 200	up to 250	±1.20μm	0.10μm	±0.60μm	0.16μm
over 250	up to 300	±1.40μm	0.10μm	±0.70μm	0.18μm
over 300	up to 400	±1.80μm	0.12μm	±0.90μm	0.20μm
over 400	up to 500	±2.20μm	0.14μm	±1.10μm	0.25μm
over 500	up to 600	±2.60μm	0.16μm	±1.30μm	0.25μm
over 600	up to 700	±3.00μm	0.18μm	±1.50μm	0.30μm
over 700	up to 800	±3.40μm	0.20μm	±1.70μm	0.30μm
over 800	up to 900	±3.80μm	0.20μm	±1.90μm	0.35μm
over 900	up to 1000	±4.20μm	0.25μm	±2.00μm	0.40μm

Nominal length (mm)		Grade 1		Grade 2	
		Limit deviation of length at any point	Tolerance for the variation in length	Limit deviation of length at any point	Tolerance for the variation in length
from 0.5	up to 10	±0.20μm	0.16μm	±0.45μm	0.30μm
over 10	up to 25	±0.30μm	0.16μm	±0.60μm	0.30μm
over 25	up to 50	±0.40μm	0.18μm	±0.80μm	0.30μm
over 50	up to 75	±0.50μm	0.18μm	±1.00μm	0.35μm
over 75	up to 100	±0.60μm	0.20μm	±1.20μm	0.35μm
over 100	up to 150	±0.80μm	0.20μm	±1.60μm	0.40μm
over 150	up to 200	±1.00μm	0.25μm	±2.00μm	0.40μm
over 200	up to 250	±1.20μm	0.25μm	±2.40μm	0.45μm
over 250	up to 300	±1.40μm	0.25μm	±2.80μm	0.50μm
over 300	up to 400	±1.80μm	0.30μm	±3.60μm	0.50μm
over 400	up to 500	±2.20μm	0.35μm	±4.40μm	0.60μm
over 500	up to 600	±2.60μm	0.40μm	±5.00μm	0.70μm
over 600	up to 700	±3.00μm	0.45μm	±6.00μm	0.70μm
over 700	up to 800	±3.40μm	0.50μm	±6.50μm	0.80μm
over 800	up to 900	±3.80μm	0.50μm	±7.50μm	0.90μm
over 900	up to 1000	±4.20μm	0.60μm	±8.00μm	1.00μm

Mitutoyo Gauge Blocks and Inspection Certificates

A Certificate of Inspection is furnished with all Mitutoyo gauge blocks with a serial number on the case and an identification number on each block. The deviation of each block is registered. For this inspection, each gauge block is measured relative to the upper level master using a gauge block comparator. Grade K gauge blocks are manufactured by absolute measurement using an interferometer. The gauge block set and discrete gauge block are supplied with a Certificate of Calibration. The Certificate of Calibration specifies the deviation from the nominal length. (Comparative measurement, however, is performed for all square gauge blocks.)



ISO/DIN/JIS Metric Rectangular Gauge Block Sets with RvA Certificate

ISO/DIN/JIS gauge block sets that come with an RvA Certificate in addition to a regular one are also available. The certificate would be of use for your ISO9000 registration.

- The configuration of each set is identical with that of the standard set introduced on the previous pages, having the identical 6-digit order number, regardless of the suffix.
- The charge for issue of RvA certificate is not included in the prior set

price (Grade K gauge block sets).

- The charge for calibration and the charge for issue of RvA certificate are not included in the prior set price (Grade 0 and grade 1 gauge block sets).
- Grade K BS gauge block sets come with RvA Certificate as standard.

Metric Rectangular Gauge Block Set

SERIES 516 — 1mm Base Block Set



Steel 112-block set



Steel 103-block set



Steel 47-block set



CERA 112-block set



CERA 56-block set



CERA 32-block set

SPECIFICATIONS

1mm Base Block Set

Blocks per set	Order No.*			Standard / grade available			Blocks included in set		
	Steel	CERA	Steel/CERA	ISO/DIN/JIS	ASME	BS	Size	Step	Qty.
122	—	—	—	—	—	—	1.0005	—	1
	516-596	—	—	Grade K	—	—	1.001 - 1.009	0.001	9
	516-597	—	—	Grade 0	—	—	1.01 - 1.49	0.01	49
	516-598	—	—	Grade 1	—	—	1.6 - 1.9	0.1	4
	516-599	—	—	Grade 2	—	—	0.5 - 24.5	0.5	49
112	516-531	516-541	—	—	Grade K	—	1.0005	—	1
	516-937	516-337	—	Grade K	Grade 00	Grade K	1.001 - 1.009	0.001	9
	516-938	516-338	—	Grade 0	Grade 0	Grade 0	1.01 - 1.49	0.01	49
	516-939	516-339	—	Grade 1	Grade 1	Grade 1	0.5 - 24.5	0.5	49
	516-940	516-340	—	Grade 2	Grade 2	Grade 2	25 - 100	25	4
103	516-533	516-542	—	—	Grade K	—	1.0005	—	1
	516-941	516-341	—	Grade K	Grade 00	Grade K	1.001 - 1.009	0.001	9
	516-942	516-342	—	Grade 0	Grade 0	Grade 0	1.01 - 1.49	0.01	49
	516-943	516-343	—	Grade 1	Grade 1	Grade 1	0.5 - 24.5	0.5	49
	516-944	516-344	—	Grade 2	Grade 2	Grade 2	25 - 100	25	4
88	—	—	—	—	—	—	1.0005	—	1
	516-969	516-369	—	—	—	Grade K	1.001 - 1.009	0.001	9
	516-970	516-370	—	Grade 0	—	Grade 0	1.01 - 1.49	0.01	49
	516-971	516-371	—	Grade 1	—	Grade 1	0.5 - 9.5	0.5	19
	516-972	516-372	—	Grade 2	—	Grade 2	20 - 100	10	9
87	516-535	515-543	—	—	Grade K	—	1.0005	—	1
	516-945	516-345	—	Grade K	Grade 00	Grade K	1.001 - 1.009	0.001	9
	516-946	516-346	—	Grade 0	Grade 0	Grade 0	1.01 - 1.49	0.01	49
	516-947	516-347	—	Grade 1	Grade 1	Grade 1	0.5 - 9.5	0.5	19
	516-948	516-348	—	Grade 2	Grade 2	Grade 2	10 - 100	10	10
76	—	—	—	—	—	—	1.0005	—	1
	516-949	516-349	—	Grade K	—	—	1.01 - 1.49	0.01	49
	516-950	516-350	—	Grade 0	—	—	0.5 - 9.5	0.5	19
	516-951	516-351	—	Grade 1	—	—	10 - 40	10	4
	516-952	516-352	—	Grade 2	—	—	50 - 100	25	3
56	516-536	516-544	—	—	Grade K	—	0.5	—	1
	516-953	516-353	—	Grade K	Grade 00	—	1.001 - 1.009	0.001	9
	516-954	516-354	—	Grade 0	Grade 0	—	1.01 - 1.09	0.01	9
	516-955	516-355	—	Grade 1	Grade 1	—	1.1 - 1.9	0.1	9
	516-956	516-356	—	Grade 2	Grade 2	—	1 - 24	1	24
47	516-537	516-545	—	—	Grade K	—	1.0005	—	1
	516-957	516-357	—	Grade K	Grade 00	—	1.01 - 1.09	0.01	9
	516-958	516-358	516-958N**	Grade 0	Grade 0	—	1.1 - 1.9	0.1	9
	516-959	516-359	516-959N**	Grade 1	Grade 1	—	1 - 24	1	24
	516-960	516-360	516-960N**	Grade 2	Grade 2	—	25 - 100	25	4
47	—	—	—	—	—	—	1.0005	—	1
	516-961	516-361	—	Grade K	—	Grade K	1.01 - 1.19	0.01	19
	516-962	516-362	516-962N**	Grade 0	—	Grade 0	1.2 - 1.9	0.1	8
	516-963	516-363	516-963N**	Grade 1	—	Grade 1	1 - 9	1	9
	516-964	516-364	516-964N**	Grade 2	—	Grade 2	10 - 100	10	10

**CERA blocks are adopted for frequently-used blocks. 47-block set: 1mm, 1.5mm, 2mm, 3mm, 4mm, 5mm, 10mm and 20mm

Mitutoyo

*Suffix Number for Selecting Standard and Certificate Provided

ISO/DIN/JIS	Steel, CERA	Steel/CERA
Grade K	-60 or -70	—
Grade 0	-10, -60 or -70	-13, -63 or -73
Grade 1	-10, -60 or -70	-13, -63 or -73
Grade 2	-10, -60 or -70	-13, -63 or -73

-10, -13: provided with Inspection Certificate
-60, -63: provided with JCSS Calibration Certificate and Inspection Certificate
-70, -73: provided with RvA Calibration Certificate and Inspection Certificate

ASME	Steel, CERA	Steel/CERA
Grade K	-66	—
Grade 00	-16	—
Grade 0	-16	-17
Grade 1	-16	-17
Grade 2	-16	—

-16, -17: provided with Inspection Certificate
-66: provided with JCSS Calibration Certificate and Inspection Certificate

BS	Steel, CERA	Steel/CERA
Grade K	-71	—
Grade 0	-11 or -71	-15
Grade 1	-11 or -71	-15
Grade 2	-11 or -71	-15

-11, -15: provided with Inspection Certificate
-71: provided with RvA Calibration Certificate and Inspection Certificate

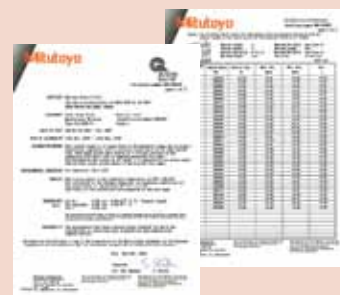


Inspection Certificate

RvA Certificate

ISO/DIN/JIS gauge block sets that come with an RvA Certificate in addition to a regular one are also available. The certificate would be of use for your ISO9000 registration.

*The charge for calibration and the charge for issue of RvA certificate are not included in the prior set price (Grade 0 and grade 1 gauge block sets).



*Suffix Number for Selecting Standard and Certificate Provided

ISO/DIN/JIS		
	Steel, CERA	Steel/CERA
Grade K	-60 or -70	—
Grade 0	-10, -60 or -70	-13, -63 or -73
Grade 1	-10, -60 or -70	-13, -63 or -73
Grade 2	-10, -60 or -70	-13, -63 or -73

-10, -13: provided with Inspection Certificate
 -60, -63: provided with JCSS Calibration Certificate and Inspection Certificate
 -70, -73: provided with RvA Calibration Certificate and Inspection Certificate

ASME		
	Steel, CERA	Steel/CERA
Grade K	-66	—
Grade 00	-16	—
Grade 0	-16	-17
Grade 1	-16	-17
Grade 2	-16	—

-16, -17: provided with Inspection Certificate
 -66: provided with JCSS Calibration Certificate and Inspection Certificate

BS		
	Steel, CERA	Steel/CERA
Grade K	-71	—
Grade 0	-11 or -71	-15
Grade 1	-11 or -71	-15
Grade 2	-11 or -71	-15

-11, -15: provided with Inspection Certificate
 -71: provided with RvA Calibration Certificate and Inspection Certificate

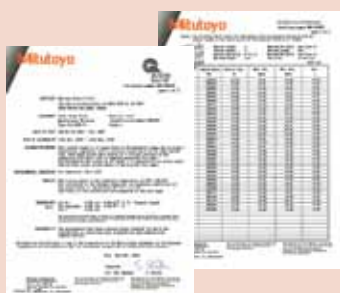


Inspection Certificate

RvA Certificate

ISO/DIN/JIS gauge block sets that come with an RvA Certificate in addition to a regular one are also available. The certificate would be of use for your ISO9000 registration.

*The charge for calibration and the charge for issue of RvA certificate are not included in the prior set price (Grade 0 and grade 1 gauge block sets).



CERA/Steel combination
47-block set



CERA/Steel combination
32-block set



CERA/Steel combination
32-block set



CERA/Steel combination
24-block set



CERA/Steel combination
19-block set



CERA/Steel combination
10-block set

SPECIFICATIONS

1mm Base Block Set

Blocks per set	Order No.*			Standard / grade available			Blocks included in set		
	Steel	CERA	Steel/CERA	ISO/DIN/JIS	ASME	BS	Size	Step	Qty.
46	—	—	—	—	—	—	1.001 - 1.009	0.001	9
	516-994	516-394	—	Grade K	—	—	1.01 - 1.09	0.01	9
	516-995	516-395	—	Grade 0	—	—	1.1 - 1.9	0.1	9
	516-996	516-396	—	Grade 1	—	—	1 - 9	1	9
	516-997	516-397	—	Grade 2	—	—	10 - 100	10	10
34	—	—	—	—	—	—	1.0005	—	1
	516-128	516-178	—	Grade K	—	Grade K	1.001 - 1.009	0.001	9
	516-129	516-179	—	Grade 0	—	Grade 0	1.01 - 1.09	0.01	9
	516-130	516-180	—	Grade 1	—	Grade 1	1.1 - 1.9	0.1	9
	516-131	516-181	—	Grade 2	—	Grade 2	1 - 5	1	5
32	—	—	—	—	—	—	1.005	—	1
	516-956	516-365	—	Grade K	—	Grade K	1.01 - 1.09	0.01	9
	516-966	516-366	516-966N**	Grade 0	—	Grade 0	1.1 - 1.9	0.1	9
	516-967	516-367	516-967N**	Grade 1	—	Grade 1	1 - 9	1	9
	516-968	516-368	516-968N**	Grade 2	—	Grade 2	10 - 30	10	3
24	—	—	—	—	—	—	1.01 - 1.09	0.01	9
	—	—	—	—	—	—	1.1 - 1.9	0.1	9
	—	—	516-488**	Grade 0	Grade 0	Grade 0	1 - 5	1	5
	—	—	516-489**	Grade 1	Grade 1	Grade 1	10	—	1
	—	—	516-490**	Grade 2	—	Grade 2	—	—	—
19	—	—	—	—	—	—	1.1 - 1.9	0.1	9
	—	—	—	—	—	—	1 - 5	1	5
	—	—	516-484**	Grade 0	Grade 0	Grade 0	10 - 20	10	2
	—	—	516-485**	Grade 1	Grade 1	Grade 1	25, 50, 100	—	3
	—	—	516-486**	Grade 2	—	Grade 2	—	—	—
10	—	—	—	—	—	—	1 - 5	1	5
	—	—	—	—	—	—	10 - 20	10	2
	—	—	516-480**	Grade 0	Grade 0	Grade 0	25, 50, 100	—	3
	—	—	516-481**	Grade 1	Grade 1	Grade 1	—	—	—
	—	—	516-482**	Grade 2	—	Grade 2	—	—	—

** CERA blocks are adopted for frequently-used blocks.

32-block set: 1mm, 1.5mm, 2mm, 3mm, 4mm, 5mm, 10mm and 20mm

24-block set: 1mm, 1.5mm, 2mm, 3mm, 5mm and 10mm

19-block set: 1mm, 2mm, 3mm, 5mm and 10mm

10-block set: 1mm, 2mm and 10mm



Metric Rectangular Gauge Block Set

SERIES 516 — 2mm Base Block Set, 0.001mm Step Block Set



Steel 112-block set



Steel 88-block set



Steel 33-block set

SPECIFICATIONS

2mm Base Block Set

Blocks per set	Order No.*		Standard / grade available			Blocks included in set		
	Steel	CERA	ISO/DIN/JIS	ASME	BS	Size	Step	Qty.
112	516-532	—	—	Grade K	—	2.0005	—	1
	516-513	—	Grade K	Grade 00	Grade K	2.001 - 2.009	0.001	9
	516-514	—	Grade 0	Grade 0	Grade 0	2.01 - 2.49	0.01	49
	516-515	—	Grade 1	Grade 1	Grade 1	0.5 - 24.5	0.5	49
	516-516	—	Grade 2	Grade 2	Grade 2	25 - 100	25	4
88	—	—	—	—	—	1.0005	—	1
	516-501	—	Grade K	—	Grade K	2.001 - 2.009	0.001	9
	516-502	—	Grade 0	—	Grade 0	2.01 - 2.49	0.01	49
	516-503	—	Grade 1	—	Grade 1	0.5 - 9.5	0.5	19
	516-504	—	Grade 2	—	Grade 2	10 - 100	10	10
88	516-534	—	—	Grade K	—	2.0005	—	1
	516-517	—	Grade K	Grade 00	—	2.001 - 2.009	0.001	9
	516-518	—	Grade 0	Grade 0	—	2.01 - 2.49	0.01	49
	516-519	—	Grade 1	Grade 1	—	0.5 - 9.5	0.5	19
	516-520	—	Grade 2	Grade 2	—	10 - 100	10	10
47	516-538	—	—	Grade K	—	2.0005	—	1
	516-521	—	Grade K	Grade 00	—	2.001 - 2.009	0.001	9
	516-522	—	Grade 0	Grade 0	—	2.01 - 2.09	0.01	9
	516-523	—	Grade 1	Grade 1	—	2.1 - 2.9	0.1	9
	516-524	—	Grade 2	Grade 2	—	1 - 9	1	9
46	—	—	—	—	—	10 - 100	10	10
	516-505	—	Grade K	—	Grade K	2.001 - 2.009	0.001	9
	516-506	—	Grade 0	—	Grade 0	2.01 - 2.09	0.01	9
	516-507	—	Grade 1	—	Grade 1	2.1 - 2.9	0.1	9
	516-508	—	Grade 2	—	Grade 2	1 - 9	1	9
33	516-539	—	—	Grade K	—	2.005	—	1
	516-509	—	Grade K	Grade 00	Grade K	2.01 - 2.09	0.01	9
	516-510	—	Grade 0	Grade 0	Grade 0	2.1 - 2.9	0.1	9
	516-511	—	Grade 1	Grade 1	Grade 1	1 - 9	1	9
	516-512	—	Grade 2	Grade 2	Grade 2	10 - 30	10	3
						60, 100		2

Mitutoyo

*Suffix Number for Selecting Standard and Certificate Provided

ISO/DIN/JIS

	Steel, CERA
Grade K	-60 or -70
Grade 0	-10, -60 or -70
Grade 1	-10, -60 or -70
Grade 2	-10, -60 or -70

-10: provided with Inspection Certificate
 -60: provided with JCSS Calibration Certificate and Inspection Certificate
 -70: provided with RvA Calibration Certificate and Inspection Certificate

ASME

	Steel, CERA
Grade K	-66
Grade 00	-16
Grade 0	-16
Grade 1	-16
Grade 2	-16

-16: provided with Inspection Certificate
 -66: provided with JCSS Calibration Certificate and Inspection Certificate

BS

	Steel, CERA
Grade K	-71
Grade 0	-11 or -71
Grade 1	-11 or -71
Grade 2	-11 or -71

-11: provided with Inspection Certificate
 -71: provided with RvA Calibration Certificate and Inspection Certificate



Inspection Certificate

RvA Certificate

ISO/DIN/JIS gauge block sets that come with an RvA Certificate in addition to a regular one are also available. The certificate would be of use for your ISO9000 registration.

*The charge for calibration and the charge for issue of RvA certificate are not included in the prior set price (Grade 0 and grade 1 gauge block sets).



*Suffix Number for Selecting Standard and Certificate Provided

ISO/DIN/JIS	
	Steel, CERA
Grade K	-60 or -70
Grade 0	-10, -60 or -70
Grade 1	-10, -60 or -70
Grade 2	-10, -60 or -70

-10: provided with Inspection Certificate
 -60: provided with JCSS Calibration Certificate and Inspection Certificate
 -70: provided with RvA Calibration Certificate and Inspection Certificate

BS	
	Steel, CERA
Grade K	-71
Grade 0	-11 or -71
Grade 1	-11 or -71
Grade 2	-11 or -71

-11: provided with Inspection Certificate
 -71: provided with RvA Calibration Certificate and Inspection Certificate



Inspection Certificate

RvA Certificate

ISO/DIN/JIS gauge block sets that come with an RvA Certificate in addition to a regular one are also available. The certificate would be of use for your ISO9000 registration.

*The charge for calibration and the charge for issue of RvA certificate are not included in the prior set price (Grade 0 and grade 1 gauge block sets).



Metric Rectangular Gauge Block Set

SERIES 516 — Thin Block Set, 0.001mm Step Block Set



Steel 9-block set

SPECIFICATIONS

Thin Block Set

Blocks per set	Order No.*		Standard / grade available			Blocks included in set		
	Steel	CERA	ISO/DIN/JIS	ASME	BS	Size	Step	Qty.
9	516-990	—	Grade 0	—	—	0.10 - 0.50	0.05	9
	516-991	—	Grade 1	—	—			
	516-992	—	Grade 2	—	—			



Steel 18-block set



CERA 18-block set



Steel 9-block set



CERA 9-block

SPECIFICATIONS

0.001mm Step Block Set

Blocks per set	Order No.*		Standard / grade available			Blocks included in set		
	Steel	CERA	ISO/DIN/JIS	ASME	BS	Size	Step	Qty.
18	516-973	516-373	Grade K	—	—	0.991 - 0.999	0.001	9
	516-974	516-374	Grade 0	—	—	1.001 - 1.009	0.001	9
	516-975	516-375	Grade 1	—	—			
	516-976	516-376	Grade 2	—	—			
9	516-981	516-381	Grade K	—	Grade K	1.001 - 1.009	0.001	9
	516-982	516-382	Grade 0	—	Grade 0			
	516-983	516-383	Grade 1	—	Grade 1			
	516-984	516-384	Grade 2	—	Grade 2			
9	516-985	516-385	Grade K	—	—	0.991 - 0.999	0.001	9
	516-986	516-386	Grade 0	—	—			
	516-987	516-387	Grade 1	—	—			
	516-988	516-388	Grade 2	—	—			

Micrometer Inspection Gauge Block Sets

SERIES 516



Steel 10-block set



Steel 16-block set



Steel 8-block set



CERA 10-block set



CERA 16-block set



CERA 8-block set

SPECIFICATIONS

Metric Micro Checker (holder only)	
Order No.	516-607
Applicable gauge block set	516-106, 516-107, 516-108, 516-156, 516-157, 516-158
Applicable gauge block size (mm)	2.5, 5.1, 7.7, 10.3, 12.9, 15, 17.6, 20.2, 22.8, 25
Inch/Metric Micro Checker (holder only)	
Order No.	516-608
Applicable gauge block set	516-921, 516-922, 516-923, 516-321, 516-322, 516-323
Applicable gauge block size (inch)	.105, .210, .315, .420, .5, .605, .815, .920

Micro Checker



- Can be fixed a series of gauge blocks to be used for micrometer inspection.
- Can be measured in both vertical and horizontal posture.
- Parallelism is measured by attaching the optical parallel (optional accessory) to the GB set.

Mitutoyo

* Suffix Number for Selecting Standard and Certificate Provided

ISO/DIN/JIS	
	Steel, CERA
Grade K	-60 or -70
Grade 0	-10, -60 or -70
Grade 1	-10, -60 or -70
Grade 2	-10, -60 or -70
-10: provided with Inspection Certificate	
-60: provided with JCSS Calibration Certificate and Inspection Certificate	
-70: provided with RvA Calibration Certificate and Inspection Certificate	

ASME	
	Steel, CERA
Grade K	-66
Grade 00	-16
Grade 0	-16
Grade 1	-16
Grade 2	-16
-16: provided with Inspection Certificate	
-66: provided with JCSS Calibration Certificate and Inspection Certificate	

BS	
	Steel, CERA
Grade K	—
Grade 0	-11
Grade 1	-11
Grade 2	-11
-11, -15: provided with Inspection Certificate	

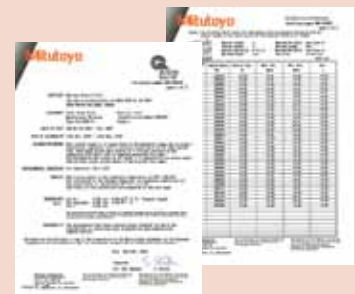


Inspection Certificate

RvA Certificate

ISO/DIN/JIS gauge block sets that come with an RvA Certificate in addition to a regular one are also available. The certificate would be of use for your ISO9000 registration.

*The charge for calibration and the charge for issue of RvA certificate are not included in the prior set price (Grade 0 and grade 1 gauge block sets).



* Suffix Number for Selecting Standard and Certificate Provided

ISO/DIN/JIS

	Steel, CERA
Grade K	-60 or -70
Grade 0	-10, -60 or -70
Grade 1	-10, -60 or -70
Grade 2	-10, -60 or -70

-10: provided with Inspection Certificate
 -60: provided with JCSS Calibration Certificate and Inspection Certificate
 -70: provided with RvA Calibration Certificate and Inspection Certificate

ASME

	Steel, CERA
Grade K	-66
Grade 00	-16
Grade 0	-16
Grade 1	-16
Grade 2	-16

-16: provided with Inspection Certificate
 -66: provided with JCSS Calibration Certificate and Inspection Certificate

BS

	Steel, CERA
Grade K	—
Grade 0	-11
Grade 1	-11
Grade 2	-11

-11, -15: provided with Inspection Certificate



Inspection Certificate

RvA Certificate

ISO/DIN/JIS gauge block sets that come with an RvA Certificate in addition to a regular one are also available. The certificate would be of use for your ISO9000 registration.

*The charge for calibration and the charge for issue of RvA certificate are not included in the prior set price (Grade 0 and grade 1 gauge block sets).



SPECIFICATIONS

Metric Block Set

Blocks per set	Order No.*		Standard / grade available		Blocks included in set
	Steel	CERA	ISO/DIN/JIS	ASME	
16	516-111 516-112 516-113	516-161 516-162 516-163	Grade 0 Grade 1 Grade 2	— — —	1.00, 1.25, 1.5, 2, 3, 5, 10, 15, 20, 25, 25.25, 30, 35, 40, 45, 50mm • Cerastone • Optical parallels (t = 12mm, 25mm)
10	516-977 516-978 516-979 516-980	— 516-378 516-379 516-380	Grade K Grade 0 Grade 1 Grade 2	— — — —	1.00, 1.25, 1.50, 2, 3, 5, 10, 15, 20, 25mm • Optical parallel (t = 12mm)
10	516-103 516-101 —	516-152 516-153 516-154	Grade 0 Grade 1 Grade 2	Grade 0 Grade 1 —	1.00, 1.25, 1.50, 2, 3, 5, 10, 15, 20, 25mm
10	516-106 516-107 516-108	516-156 516-157 516-158	Grade 0 Grade 1 Grade 2	— — —	2.5, 5.1, 7.7, 10.3, 12.9, 15, 17.6, 20.2, 22.8, 25mm • Optical parallel (t = 12mm)
10	516-132 516-133 516-134	516-182 516-183 516-184	Grade 0 Grade 1 Grade 2	— — —	1.25, 1.50, 1, 2, 3, 5, 10, 15, 20, 25mm • Micro Checker • Optical parallel (t = 12mm)
10	516-135 516-136 516-137	516-185 516-186 516-187	Grade 0 Grade 1 Grade 2	— — —	2.5, 5.1, 7.7, 10.3, 12.9, 15, 17.6, 20.2, 22.8, 25mm • Micro Checker • Optical parallel (t = 12mm)
8	— — 516-115 516-116 516-117	516-547 516-164 516-165 516-166 516-167	— Grade K Grade 0 Grade 1 Grade 2	Grade K Grade 00 Grade 0 Grade 1 Grade 2	25, 50, 75, 100, 125, 150, 175, 200

Caliper Inspection Gauge Block Sets

SERIES 516

SPECIFICATIONS

Metric Block Set

Blocks per set	Order No.*		Standard / grade available			Blocks included in set
	Steel	CERA	ISO/DIN/JIS	ASME	BS	
5	— —	— 516-174	— Grade 2	— —	— —	5 pcs.: 10.3, 24.5, 50, 75, 100mm • Ceramic plain jaws • Holder 250mm • Glove
3	516-124 516-125	516-150 516-151	Grade 1 Grade 2	— —	— —	3 pcs.: 30, 41.3, 131.4mm • Setting ring (ø4mm, ø25mm) • Glove
2	516-122 516-123	516-172 516-173	Grade 1 Grade 2	— —	— —	2 pcs.: 41.3, 131.4mm • Setting ring (ø20mm) • Glove

Individual Metric Rectangular Gauge Block

FEATURES

- If using only one length repeatedly, it is a good idea to purchase discrete gauge blocks.
- Each gauge block is supplied with a Certificate of Inspection.
- Each Grade K gauge block of ISO/DIN/JIS, BS and ASME standard is specially supplied with a Certificate of Calibration which certifies that the gauge block was manufactured through interferometry.



SPECIFICATIONS

Metric Block

Length (mm)	Order No.*	
	Steel	CERA
0.1	611821	—
0.11	611860	—
0.12	611861	—
0.13	611862	—
0.14	611863	—
0.15	611822	—
0.16	611864	—
0.17	611865	—
0.18	611866	—
0.19	611867	—
0.2	611823	—
0.21	611868	—
0.22	611869	—
0.23	611870	—
0.24	611871	—
0.25	611824	—
0.26	611872	—
0.27	611873	—
0.28	611874	—
0.29	611875	—
0.3	611825	—
0.31	611876	—
0.32	611877	—
0.33	611878	—
0.34	611879	—
0.35	611826	—
0.36	611880	—
0.37	611881	—
0.38	611882	—
0.39	611883	—
0.4	611827	—
0.41	611884	—
0.42	611885	—
0.43	611886	—
0.44	611887	—
0.45	611828	—
0.46	611888	—
0.47	611889	—
0.48	611890	—
0.49	611891	—
0.5	611506	613506
0.51	611892	—
0.52	611893	—

Length (mm)	Order No.*	
	Steel	CERA
0.53	611894	—
0.54	611895	—
0.55	611896	—
0.56	611897	—
0.57	611898	—
0.58	611899	—
0.59	611900	—
0.6	611901	—
0.61	611902	—
0.62	611903	—
0.63	611904	—
0.64	611905	—
0.65	611906	—
0.66	611907	—
0.67	611908	—
0.68	611909	—
0.69	611910	—
0.7	611911	—
0.71	611912	—
0.72	611913	—
0.73	611914	—
0.74	611915	—
0.75	611916	—
0.76	611917	—
0.77	611918	—
0.78	611919	—
0.79	611920	—
0.8	611921	—
0.81	611922	—
0.82	611923	—
0.83	611924	—
0.84	611925	—
0.85	611926	—
0.86	611927	—
0.87	611928	—
0.88	611929	—
0.89	611930	—
0.9	611931	—
0.91	611932	—
0.92	611933	—
0.93	611934	—
0.94	611935	—
0.95	611936	—

Length (mm)	Order No.*	
	Steel	CERA
0.96	611937	—
0.97	611938	—
0.98	611939	—
0.99	611940	—
0.991	611551	613551
0.992	611552	613552
0.993	611553	613553
0.994	611554	613554
0.995	611555	613555
0.996	611556	613556
0.997	611557	613557
0.998	611558	613558
0.999	611559	613559
1	611611	613611
1.0005	611520	613520
1.001	611521	613521
1.002	611522	613522
1.003	611523	613523
1.004	611524	613524
1.005	611525	613525
1.006	611526	613526
1.007	611527	613527
1.008	611528	613528
1.009	611529	613529
1.01	611561	613561
1.02	611562	613562
1.03	611563	613563
1.04	611564	613564
1.05	611565	613565
1.06	611566	613566
1.07	611567	613567
1.08	611568	613568
1.09	611569	613569
1.1	611570	613570
1.11	611571	613571
1.12	611572	613572
1.13	611573	613573
1.14	611574	613574
1.15	611575	613575
1.16	611576	613576
1.17	611577	613577
1.18	611578	613578
1.19	611579	613579

* Suffix Number for Selecting Standard and Certificate Provided

ISO/DIN/JIS

	Steel, CERA
Grade K	-016** or -017***
Grade 0	-021*, -026** or -027***
Grade 1	-031*, -036** or -037***
Grade 2	-041*, -046** or -047***

ASME

	Steel, CERA
Grade K	-516**
Grade 00	-521*
Grade 0	-531*
Grade 1	-541*
Grade 2	-551*

BS

	Steel, CERA
Grade K	-117***
Grade 0	-121* or -127***
Grade 1	-131* or -137***
Grade 2	-141* or -147***

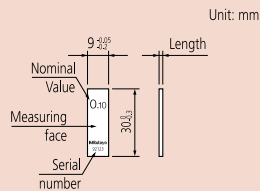
- * provided with Inspection Certificate
 ** provided with Calibration Certificate and Inspection Certificate
 *** provided with RvA Calibration Certificate



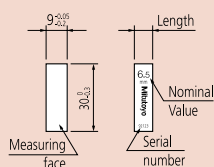
Inspection Certificate

Dimension

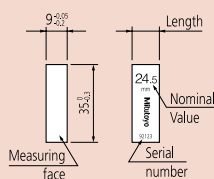
Nominal length:
0.1mm - 5.5mm
(.004" - .25")



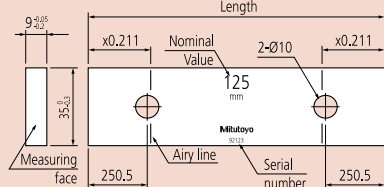
Nominal length:
6mm - 10mm
(.3" - .4")



Nominal length:
10.3mm - 100mm
(.45" - 4")



Nominal length 125mm - 1000mm (5" - 20")



Length (mm)	Order No.*	
	Steel	CERA
1.2	611580	613580
1.21	611581	613581
1.22	611582	613582
1.23	611583	613583
1.24	611584	613584
1.25	611585	613585
1.26	611586	613586
1.27	611587	613587
1.28	611588	613588
1.29	611589	613589
1.3	611590	613590
1.31	611591	613591
1.32	611592	613592
1.33	611593	613593
1.34	611594	613594
1.35	611595	613595
1.36	611596	613596
1.37	611597	613597
1.38	611598	613598
1.39	611599	613599
1.4	611600	613600
1.41	611601	613601
1.42	611602	613602
1.43	611603	613603
1.44	611604	613604
1.45	611605	613605
1.46	611606	613606
1.47	611607	613607
1.48	611608	613608
1.49	611609	613609
1.5	611641	613641
1.6	611516	613516
1.7	611517	613517
1.8	611518	613518
1.9	611519	613519
2	611612	613612
2.0005	611690	—
2.001	611691	—
2.002	611692	—
2.003	611693	—
2.004	611694	—
2.005	611695	—
2.006	611696	—
2.007	611697	—
2.008	611698	—
2.009	611699	—
2.01	611701	—
2.02	611702	—
2.03	611703	—
2.04	611704	—
2.05	611705	—
2.06	611706	—
2.07	611707	—
2.08	611708	—
2.09	611709	—
2.1	611710	—
2.11	611711	—
2.12	611712	—
2.13	611713	—
2.14	611714	—
2.15	611715	—
2.16	611716	—

Length (mm)	Order No.*	
	Steel	CERA
2.17	611717	—
2.18	611718	—
2.19	611719	—
2.2	611720	—
2.21	611721	—
2.22	611722	—
2.23	611723	—
2.24	611724	—
2.25	611725	—
2.26	611726	—
2.27	611727	—
2.28	611728	—
2.29	611729	—
2.3	611730	—
2.31	611731	—
2.32	611732	—
2.33	611733	—
2.34	611734	—
2.35	611735	—
2.36	611736	—
2.37	611737	—
2.38	611738	—
2.39	611739	—
2.4	611740	—
2.41	611741	—
2.42	611742	—
2.43	611743	—
2.44	611744	—
2.45	611745	—
2.46	611746	—
2.47	611747	—
2.48	611748	—
2.49	611749	—
2.5	611642	613642
2.6	611750	—
2.7	611751	—
2.8	611752	—
2.9	611753	—
3	611613	613613
3.5	611643	613643
4	611614	613614
4.5	611644	613644
5	611615	613615
5.1	611850	613850
5.5	611645	613645
6	611616	613616
6.5	611646	613646
7	611617	613617
7.5	611647	613647
7.7	611851	613851
8	611618	613618
8.5	611648	613648
9	611619	613619
9.5	611649	613649
10	611671	613671
10.3	611852	613852
10.5	611650	613650
11	611621	613621
11.5	611651	613651
12	611622	613622
12.5	611652	613652
12.9	611853	613853

Length (mm)	Order No.*	
	Steel	CERA
13	611623	613623
13.5	611653	613653
14	611624	613624
14.5	611654	613654
15	611625	613625
15.5	611655	613655
16	611626	613626
16.5	611656	613656
17	611627	613627
17.5	611657	613657
17.6	611854	613854
18	611628	613628
18.5	611658	613658
19	611629	613629
19.5	611659	613659
20	611672	613672
20.2	611855	613855
20.5	611660	613660
21	611631	613631
21.5	611661	613661
22	611632	613632
22.5	611662	613662
22.8	611856	613856
23	611633	613633
23.5	611663	613663
24	611634	613634
24.5	611664	613664
25	611635	613635
25.25	611754	613754
30	611673	613673
35	611755	613755
40	611674	613674
41.3	611857	613857
45	611756	613756
50	611675	613675
60	611676	613676
70	611677	613677
75	611801	613801
80	611678	613678
90	611679	613679
100	611681	613681
125	611802	613802
131.4	611858	613858
150	611803	613803
175	611804	613804
200	611682	613682
250	611805	613805
300	611683	613683
400	611684	613684
500	611685	613685
600	611840	—
700	611841	—
750	611842	—
800	611843	—
900	611844	—
1000	611845	—

Metric Wear Block

Length (mm)	Order No.* Tungsten carbide
1	612611
2	612612

Rectangular Gauge Block Accessory

SERIES 516

To expand the variety of rectangular gauge block (steel and CERA) applications, Mitutoyo offers the gauge block accessories set. By assembling the items in the set, you can easily and quickly build up a precision measuring instrument.

SPECIFICATIONS

Order No. 516-601	Order No. 516-602	Included in set
—	1 pc.	Holder 15 - 60mm (619002)
1 pc.	1 pc.	Holder 5 - 100mm (619003)
1 pc.	1 pc.	Holder 15 - 160mm (619004)
1 pc.	1 pc.	Holder 20 - 250mm (619005)
1 pc.	1 pc.	Holder base 35mm (619009)
2 pcs.	2 pcs.	Half round jaw 2mm (619010)
2 pcs.	2 pcs.	Half round jaw 5mm (619011)
2 pcs.	2 pcs.	Half round jaw 8mm (619012)
2 pcs.	—	Half round jaw 12mm (619013)
2 pcs.	—	Half round jaw 20mm (619014)
2 pcs.	—	Plain jaw (619018)
1 pc.	1 pc.	Scriber point (619019)
1 pc.	1 pc.	Center point (619020)
2 pcs.	—	Tram point (619021)
1 pc.	1 pc.	Triangular straight edge 100mm (619022)
1 pc.	—	Triangular straight edge 160mm (619023)

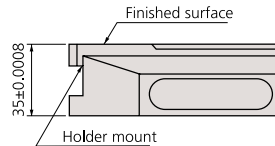


516-601



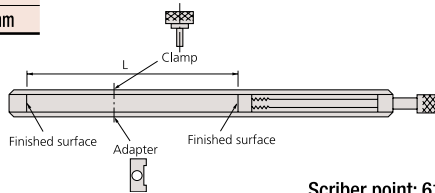
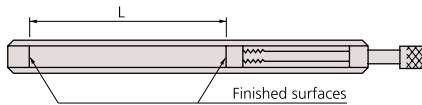
516-602

Holder base 35mm: 619009
Measures a height on the surface plate and scribes a workpiece if used with the holder.

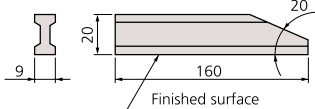


Holder:
Used as a clamp if using plain jaws, scriber point, etc.

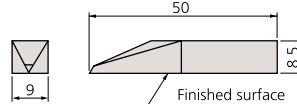
Order No.	L
619002	15 - 60mm
619003	5 - 100mm
619004	15 - 160mm
619005	20 - 250mm



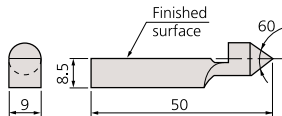
Plain jaw: 619018
Measures an outside or inside diameter if used with a pair of jaws and the holder.



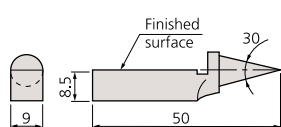
Scriber point: 619019
Scribes a workpiece if used with the holder and holder base.



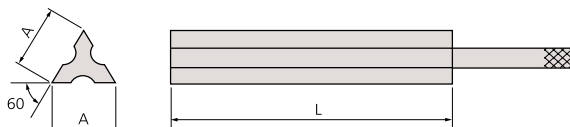
Center point: 619020
Scribes a workpiece if used with the holder and holder base.



Tram point: 619021
Inspects the scale of the height gage, etc., if used with the holder and holder base.



Triangular straight edge: Measures parallelism.

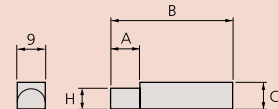
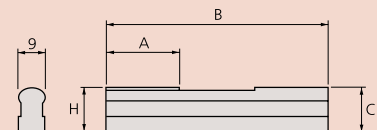


Order No.	L	A
619022	100mm	16mm
619023	160mm	19.5mm

Mitutoyo



Half round jaw:
Measures an outside or inside diameter if used with a pair of jaws and the holder.



Unit: mm

Size	Order No.	H	A	B	C
2	619010	2±0.0005	5.5	40	7.5
5	619011	5±0.0005	14	45	7.5
8	619012	8±0.0005	20	50	8.5
12	619013	12±0.0005	25	75	13
20	619014	20±0.0005	25	125	20

Specially designed for the long gauge blocks over 100mm which have two holes on the body for coupling.



516-605

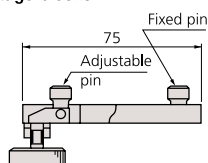
SPECIFICATIONS

Accessories for gauge blocks over 100mm

Order No. 516-605	Included in set
1 pc.	Holder A (619031)
1 pc.	Holder B (619032)
1 pc.	Holder C (619033)
1 pc.	Holder D (619034)
1 pc.	Holder E (619035)
3 pcs.	Adaptor (619036)
1 pc.	Holder base 35mm (619009)
2 pcs.	Half round jaw 12mm (619013)
2 pcs.	Plain jaw (619018)
1 pc.	Scriber point (619019)

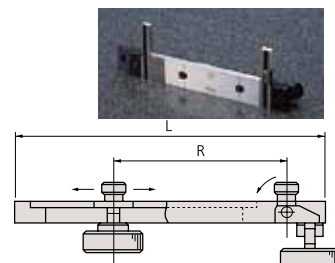
Note: These accessories can be used for inch rectangular gauge blocks.

Holder A: 619031
Used for coupling two long gauge blocks.

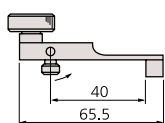


Holder B and C:
Used for coupling two long gauge blocks together with other gauge blocks up to 35mm (Holder B) or 140mm (Holder C). Also used for attaching jaws with two adaptors.

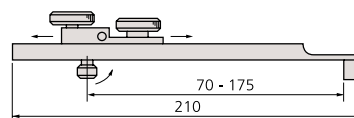
	Order No.	R (max.)	L
Holder B	619032	90mm	126mm
Holder C	619033	200mm	236mm



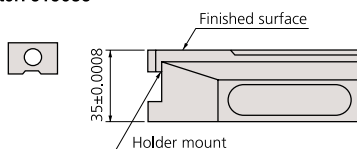
Holder D: 619034
Used for attaching to the holder base.



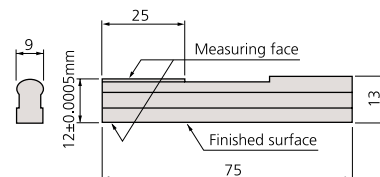
Holder E: 619035
Used for attaching to the holder base together with other gauge blocks up to 125mm. Used for attaching jaws with one adaptor.



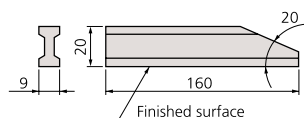
Holder base: 619009
Adaptor: 619036



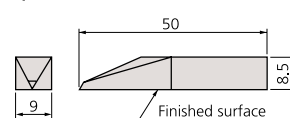
Half round jaw: 619013



Plain jaw: 619018



Scriber point: 619019



Ceraston

Accessory for Gauge Blocks

FEATURES

- Alumina-ceramic grinding stone for removing burrs from hard materials such as ceramics that ordinary grinding stones cannot handle.
- Can be used both for steel gauge blocks and CERA Blocks.



SPECIFICATIONS

Order No.	Dimensions (W x D x H)	Mass
601645	100 x 25 x 12mm	110g
601644	150 x 50 x 20mm	530g

Maintenance Kit for Gauge Block

SERIES 516

FEATURES

- Includes all necessary maintenance tools for daily care and storage of gauge blocks.
- Supplied in a fitted wooden case for portable use.



516-650

SPECIFICATIONS

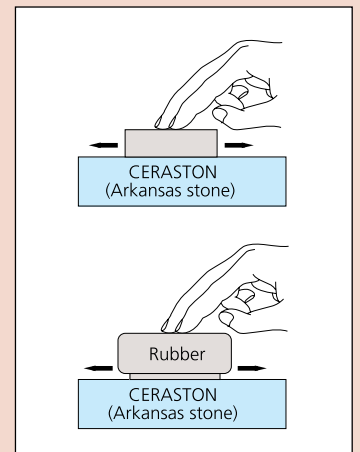
Order No.	Assortment of tools and accessories
516-650	Anti-corrosive oil (600001): Used for both steel and tungsten-carbide gauge blocks.
	Ceraston (601645): Used for removing burrs on the measuring surface
	Optical flat (600003): Used for checking whether burrs exist.
	Tweezers (600004): Used for handling thin gauge blocks.
	Blower brush (600005): Used for blowing out dust on the measuring surface.
	Cleaning paper (600006): Used for wiping off rust preventive oil and contamination.
	Artificial leather mat (600007): Used as a gauge block mat.
	Reagent bottle (600008): Bottle of wiping solution (100mL)
	Gloves

Mitutoyo



Removing burrs

- (1) Wipe any dust and oil films from the gauge block and the Ceraston (or Arkansas stone) using a solvent.
- (2) Place the gauge block on the Ceraston so that the measuring face that has burrs is on the abrasive surface of the stone. While applying light pressure, move the gauge block to and fro about ten times (Fig. 1). Use a block rubber for thin gauge blocks to apply even pressure (Fig. 2).
- (3) Check the measuring face for burrs with an optical flat. If the burrs have not been removed, repeat step (2). If burrs are too large, they may not be removed with a grinding stone. If so, discard the gauge block.



Note: The abrasive surface of a Ceraston must be made flat by lapping it from time to time. After lapping the Ceraston, the lapping powder must be completely removed from the surface to prevent the surface of the gauge block from being scratched. Mitutoyo does not handle the Arkansas stone.

