



STARRETT-WEBBER GAGE BLOCKS

# GAGE BLOCK TOLERANCES

## GAGE BLOCK TOLERANCES: B89.1.9

Inch System: Tolerances expressed in microinches (.000001") 1 millionth of an inch									
Order Webber Grade LM				Order Webber Grade AA B89.1.9 Grade 00			Order Webber Grade A1 B89.1.9 Grade 0		
	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance
Thru .050"	+1.2/-1.2	1.2	1.2	+4/-4	2	2	+6/-6	4	4
Thru .400"	+1.2/-1.2	1.2	1.2	+3/-3	2	2	+5/-5	4	4
Thru 1"	+1.2/-1.2	1.2	1.2	+3/-3	2	2	+6/-6	4	4
Thru 2"	+2.0/-2.0	1.2	1.2	+4/-4	2	2	+8/-8	4	4
Thru 3"	+3.0/-3.0	1.2	1.2	+5/-5	3	Rect.: 2, Sq.: 3	+10/-10	4	4
Thru 4"	+4.0/-4.0	1.2	1.2	+6/-6	3	Rect.: 2, Sq.: 3	+12/-12	5	4
Thru 5"				+8/-8	3	Rect.: 2, Sq.: 3	+16/-16	5	4
Thru 6"				+8/-8	3	Rect.: 2, Sq.: 3	+16/-16	5	4
Thru 7"				+10/-10	4	4	+20/-20	6	6
Thru 8"				+10/-10	4	4	+20/-20	6	6
Thru 10"				+12/-12	4	4	+24/-24	6	6
Thru 12"				+14/-14	4	4	+28/-28	7	6
Thru 16"				+18/-18	5	4	+36/-36	8	6
Thru 28"				+20/-20	6	4	+44/-44	10	6

Not Available from Webber B89.1.9 Grade AS1				Not Available from Webber B89.1.9 Grade AS2		
	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance
Thru .050"	+12/-12	6	6	+24/-24	12	10
Thru .400"	+8/-8	6	6	+18/-18	12	10
Thru 1"	+12/-12	6	6	+24/-24	12	10
Thru 2"	+16/-16	6	6	+32/-32	12	10
Thru 3"	+20/-20	6	6	+40/-40	14	10
Thru 4"	+24/-24	8	6	+48/-48	14	10
Thru 5"	+32/-32	8	6	+64/-64	16	10
Thru 6"	+32/-32	8	6	+64/-64	16	10
Thru 7"	+40/-40	10	7	+80/-80	16	10
Thru 8"	+40/-40	10	7	+80/-80	16	10
Thru 10"	+48/-48	10	7	+104/-104	18	10
Thru 12"	+56/-56	10	7	+112/-112	20	10
Thru 16"	+72/-72	12	7	+144/-144	20	10
Thru 20"	+88/-88	14	7	+176/-176	24	10

B89.1.9 Grade 00 exceeds DIN, ISO, BS Grades K

Material Coefficients of Thermal Expansion are:

Chromium Carbide  $4.7 \times 10^{-6}$  inch/°F per inch

SAE 52100 Steel  $6.4 \times 10^{-6}$  inch/°F per inch

Ceramic  $5.5 \times 10^{-6}$  inch/°F per inch

Suggested Replacement Grades for GGG-G-15C		
GGG-G-15C Grade	Webber Grade	B89.1.9 Grade
0.5	LM	—
1	AA	00
2	A1	0
3	A	AS1

The above replacement grades are suggested in B89.1.9. However, the tolerances specified in GGG-G-15C and B89.1.9 are not exactly the same. Gage blocks meeting B89.1.9 specifications may not meet GGG-G-15C requirements and vice versa.



**Metric System: Tolerances expressed in micrometers (0.001mm)**

	Order Webber Grade LM			Order Webber Grade AA B89.1.9 Grade 00			Order Webber Grade A1 B89.1.9 Grade 0		
	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance
Thru 0.5mm	+ .03/- .03	.03	.03	+ .10/- .10	.05	.05	+ .14/- .14	.10	.10
Thru 10mm	+ .03/- .03	.03	.03	+ .07/- .07	.05	.05	+ .12/- .12	.10	.10
Thru 25mm	+ .04/- .04	.03	.03	+ .07/- .07	.05	.05	+ .14/- .14	.10	.10
Thru 50mm	+ .05/- .05	.03	.03	+ .10/- .10	.06	.05	+ .20/- .20	.10	.10
Thru 75mm	+ .08/- .08	.03	.03	+ .12/- .12	.07	Rect (.05), Sq. (.07)	+ .25/- .25	.12	.10
Thru 100mm	+ .10/- .10	.03	.03	+ .15/- .15	.07	Rect (.05), Sq. (.07)	+ .30/- .30	.12	.10
Thru 125mm				+ .20/- .20	.08	Rect (.05), Sq. (.07)	+ .40/- .40	.14	.10
Thru 150mm				+ .20/- .20	.08	Rect (.05), Sq. (.07)	+ .40/- .40	.14	.10
Thru 175mm				+ .25/- .25	.09	.10	+ .50/- .50	.16	.15
Thru 200mm				+ .25/- .25	.09	.10	+ .50/- .50	.16	.15
Thru 250mm				+ .30/- .30	.10	.10	+ .60/- .60	.16	.15
Thru 300mm				+ .35/- .35	.10	.10	+ .70/- .70	.18	.15
Thru 400mm				+ .45/- .45	.12	.10	+ .90/- .90	.20	.15
Thru 500mm				+ .50/- .50	.14	.10	+ 1.1/- 1.1	.25	.15

**Not Available from Webber  
B89.1.9 Grade AS1**

**Not Available from Webber  
B89.1.9 Grade AS2**

**Suggested Replacement Grades for  
GGG-G-15C**

	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance	Size Tolerance	Variation in Length Tolerance	Flatness Tolerance
Thru 0.5mm	+ .30/- .30	.16	.15	+ .60/- .60	.30	.25
Thru 10mm	+ .20/- .20	.16	.15	+ .45/- .45	.30	.25
Thru 25mm	+ .30/- .30	.16	.15	+ .60/- .60	.30	.25
Thru 50mm	+ .40/- .40	.18	.15	+ .80/- .80	.30	.25
Thru 75mm	+ .50/- .50	.18	.15	+ 1.0/- 1.0	.35	.25
Thru 100mm	+ .60/- .60	.20	.15	+ 1.2/- 1.2	.35	.25
Thru 125mm	+ .80/- .80	.20	.15	+ 1.6/- 1.6	.40	.25
Thru 150mm	+ .80/- .80	.20	.15	+ 1.6/- 1.6	.40	.25
Thru 175mm	+ 1.0/- 1.0	.25	.18	+ 2.0/- 2.0	.40	.25
Thru 200mm	+ 1.0/- 1.0	.25	.18	+ 2.0/- 2.0	.40	.25
Thru 250mm	+ 1.2/- 1.2	.25	.18	+ 2.4/- 2.4	.45	.25
Thru 300mm	+ 1.4/- 1.4	.25	.18	+ 2.8/- 2.8	.50	.25
Thru 400mm	+ 1.8/- 1.8	.30	.18	+ 3.6/- 3.6	.50	.25
Thru 500mm	+ 2.2/- 2.2	.35	.18	+ 4.4/- 4.4	.60	.25

GGG-G-15C Grade	Webber Grade	B89.1.9 Grade
0.5	LM	—
1	AA	00
2	A1	0
3	A	AS1

The above replacement grades are suggested in B89.1.9. However, the tolerances specified in GGG-G-15C and B89.1.9 are not exactly the same. Gage blocks meeting B89.1.9 specifications may not meet GGG-G-15C requirements and vice versa.

B89.1.9 Grade 00 exceeds DIN, ISO, BS Grades K

**Material Coefficients of Thermal Expansion are:**

**Chromium Carbide**  $8.5 \times 10^{-6}$  m/°C per m

**SAE 52100 Steel**  $11.5 \times 10^{-6}$  m/°C per m

**Ceramic**  $9.9 \times 10^{-6}$  m/°C per m





# GAGE BLOCK SETS



## RECTANGULAR INCH SYSTEM GAGE BLOCK SETS, INDIVIDUAL BLOCKS AND ACCESSORIES

All sets are furnished in a handsome, rugged wood case for lasting protection

INCH

Rectangular croblox® Gage Block Sets in Case				
Accuracy Grade*	Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
B89.1.9 0	.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001	81	9 Blocks .1001 Through .1009 (Steps of .0001)	RC 81.A1
B89.1.9 00			49 Blocks .101 Through .149 (Steps of .001)	RC 81.AA
Webber LM			19 Blocks .050 Through .950 (Steps of .050) 4 Blocks 1.000 Through 4.000 (Steps of 1")	RC 81.LM**
B89.1.9 0	.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001 .300-12.000 in Steps of .000025 1/16-12.000 in Steps of 1/64	88	Same as in RC 81. Set, Plus	RC 88.A1
B89.1.9 00			3 Blocks .100025, .10005, .100075	RC 88.AA
Webber LM			4 Blocks 1/16, 5/64, 3/32, 7/64	RC 88.LM**
B89.1.9 0	.200-8.000 in Steps of .001 .300-8.000 in Steps of .0001	34	9 Blocks .1001 Through .1009 (Steps of .0001)	RC 34.A1
B89.1.9 00			9 Blocks .101 Through .109 (Steps of .001)	RC 34.AA
Webber LM			9 Blocks .110 Through .190 (Steps of .010) 3 Blocks .100 Through .300 (Steps of .100) 1 Block .500 3 Blocks 1.000, 2.000 and 4.000	RC 34.LM**
B89.1.9 0	.020-.240 in Steps of .001 .040-.240 in Steps of .0001 .060-.240 in Steps of .00005	28	1 Block .02005	RC 28.A1
B89.1.9 00			9 Blocks .0201 Through .0209 (Steps of .0001)	RC 28.AA
			9 Blocks .021 Through .029 (Steps of .001) 9 Blocks .010 Through .090 (Steps of .010)	

For gage block accessories, order AC 11.A Accessory Set in Case. Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

\* For complete accuracy specifications, see the beginning of this section.

\*\* Available by special order only.



# GAGE BLOCK SETS

## RECTANGULAR INCH SYSTEM GAGE BLOCK SETS, INDIVIDUAL BLOCKS AND ACCESSORIES

Our Ceramic Gage Blocks, offered in rectangular, inch and metric, fill the gap between steel and the universally accepted croblox®. While not as stable as croblox®, ceramic is an excellent alternative to steel because of its superior hardness, thermal expansion and wear characteristics.

INCH

Rectangular Ceramic Gage Block Sets in Case				
Accuracy Grade*	Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
B89.1.9 0	.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001	81	9 Blocks .1001 Through .1009 (Steps of .0001)	RY 81.A1
B89.1.9 00			49 Blocks .101 Through .149 (Steps of .001) 19 Blocks .050 Through .950 (Steps of .050) 4 Blocks 1.000 Through 4.000 (Steps of 1")	RY 81.AA
B89.1.9 0	.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001 .300-12.000 in Steps of .000025 1/16-12.000 in Steps of 1/64	88	Same as in RY 81. Set, Plus	RY 88.A1
B89.1.9 00			3 Blocks .100025, .10005, .100075 4 Blocks 1/16, 5/64, 3/32, 7/64	RY 88.AA
B89.1.9 0	.200-8.000 in Steps of .001 .300-8.000 in Steps of .0001	34	9 Blocks .1001 Through .1009 (Steps of .0001)	RY 34.A1
B89.1.9 00			9 Blocks .101 Through .109 (Steps of .001) 9 Blocks .110 Through .190 (Steps of .010) 3 Blocks .100 Through .300 (Steps of .100) 1 Block .500 3 Blocks 1.000, 2.000 and 4.000	RY 34.AA

Sets include etched serial number and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

\* For complete accuracy specifications, see the beginning of this section.

INCH

Rectangular Steel Gage Block Sets in Case		B89.1.9 Accuracy Grade 0*	
Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001	81	9 Blocks .1001 Through .1009 (Steps of .0001) 49 Blocks .101 Through .149 (Steps of .001) 19 Blocks .050 Through .950 (Steps of .050) 4 Blocks 1.000 Through 4.000 (Steps of 1")	RS 81.A1
.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001 .300-12.000 in Steps of .000025 1/16-12.000 in Steps of 1/64	88	Same as in RS 81.A1 Set, Plus 3 Blocks .100025, .10005, .100075 4 Blocks 1/16, 5/64, 3/32, 7/64	RS 88.A1
.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001 .300-12.000 in Steps of .000025 1/16-12.000 in Steps of 1/64	92	Same as in RS 88.A1 Set, Plus 2 Blocks .100" (croblox® Wear Blocks) 2 Blocks .050 (croblox® Wear Blocks)	RS 92.A1
.100-4.000 in Steps of .001 .150-4.000 in Steps of .0001 .200-4.000 in Steps of .00005	38	2 Blocks .050 (croblox® Wear Blocks) 1 Block .05005 9 Blocks .0501 Through .0509 (Steps of .0001) 9 Blocks .051 Through .059 (Steps of .001) 11 Blocks .050 Through .150 (Steps of .010) 4 Blocks .200 Through .500 (Steps of .100) 2 Blocks 1.000 and 2.000	RS 38.A1
.200-8.000 in Steps of .001 .300-8.000 in Steps of .0001	34	9 Blocks .1001 Through .1009 (Steps of .0001) 9 Blocks .101 Through .109 (Steps of .001) 9 Blocks .110 Through .190 (Steps of .010) 4 Blocks .100, .200, .300, .500 3 Blocks 1.000, 2.000, 4.000	RS 34.A1
.020-.240 in Steps of .001 .040-.240 in Steps of .0001 .060-.240 in Steps of .00005	28	1 Block .02005 9 Blocks .0201 Through .0209 (Steps of .0001) 9 Blocks .021 Through .029 (Steps of .001) 9 Blocks .010 Through .090 (Steps of .010)	RS 28.A1
.0625-4.000 in Steps of .0625 .100-4.000 in Steps of .100	9	1 Block .0625, .100, .125, .200, .250, .300, .500, 1.000, 2.000	RS 9.A1
Micrometer Checking Set		B89.1.9 Accuracy Grade AS1*	
	10	10 blocks .105, .210, .315, .420, .500, .605, .710, .815, .920, 1.000	RS 10.A

For gage block accessories, order AC 11.A Accessory Set in Case. See rectangular block accessories on the next page. Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

\* For complete accuracy specifications, see the beginning of this section.



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## GAGE BLOCK SETS

### MICROACCURATE® B-GRADE RECTANGULAR STEEL GAGE BLOCK SETS IN CASE

These B-Grade gage block sets are Starrett Global products. Their very affordable price makes them ideal for general shop floor use.

- Etched, unique serial numbers are included on each block. Custom numbers are not available.
- Sets available with a choice of two types of certificates of calibration as described below
- Inch System sets have a tolerance of  $\pm 50 \mu\text{in}$ .
- Metric System sets have a tolerance of  $\pm 1.25 \mu\text{m}$ .



RS 81.B

INCH AND METRIC

MicroAccurate Inch System Sets			
Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001	81	9 Blocks .1001 Through .1009 (Steps of .0001)	RS 81.B
		49 Blocks .101 Through .149 (Steps of .001) 19 Blocks .050 Through .950 (Steps of .050) 4 Blocks 1.000 Through 4.000 (Steps of 1)	RS 81.W
MicroAccurate Metric System Sets			
3.0 Through 450 in .0005 Steps 2.0 Through 450 in .001 Steps 1.0 Through 450 in .01 Steps 1.0 Through 450 in .1 Steps	88	1 block .5 1 block 1.0005 9 blocks 1.001 Through 1.009 (Steps of .001)	RS 88.MB
		49 blocks 1.01 Through 1.49mm (Steps of .01) 18 blocks 1 Through 9.5 (Steps of .5) 10 blocks 10 Through 100 (Steps of 10)	RS 88.MW
MicroAccurate Metric System Sets			
3.0 Through 250 in .0005 Steps 2.0 Through 250 in .001 Steps 1.0 Through 250 in .01 Steps 1.0 Through 250 in .1 Steps	112	1 block .5 1 block 1.0005 9 blocks 1.001 Through 1.009 (Steps of .001)	RS 112.MB
		49 blocks 1.01 Through 1.49 (Steps of .01) 48 blocks 1 Through 24.5 (Steps of .5) 4 blocks 25 Through 100 (Steps of 25)	RS 112.MW

Specifications	
Cat. No.	Features
RS 81.B RS 88.MB RS 112.MB	Calibration performed at Webber Gage in Cleveland, OH. Certificate of Calibration with NVLAP® accreditation. Calibration in accordance with ISO 17025 with dated calibration certificate and NIST traceability number. The name and address of the user may be added to the calibration certificate. <b>Inch System (RS 81.B)</b> uncertainty of measurement ( $k=2$ ): $U = 6 + L$ where L is in inches, but U not less than 7 min. <b>Metric Systems (RS 88.MB &amp; RS 112.MB)</b> uncertainty of measurement ( $k=2$ ): $U = 0.15 + .001L$ where L is in millimeters, but U not less than 0.18 $\mu\text{m}$ .
RS 81.W RS 88.MW RS 112.MW	Calibration performed in China in partnership with Webber Gage. Webber Gage samples the measurements to monitor the calibration results. Calibrations are traceable to NIST, but no NIST traceability number or dates will be given. The name and address of the user will be left blank on the calibration certificate. <b>Inch System (RS 81.W)</b> uncertainty of measurement ( $k=2$ ): 10 $\mu\text{in}$ . <b>Metric Systems (RS 88.MW &amp; RS 112.MW)</b> uncertainty of measurement ( $k=2$ ): $U = 0.25 \mu\text{m}$ .

INCH



## Rectangular Inch System Steel and croblox Accessories Individually or Sets as Stated Below

Individual Accessories			Steel Accessories Included
Description	Cat. No. Steel	croblox®	Set AC 11.A
Half-Round Jaw* .250 Radius	RA 1.		2
Straight Jaw* .250" Thick	RA 4.	RA 24.	2**
Clamps			
0" – 1-1/2" Capacity	RA 5.		1
1-1/2" – 4" Capacity	RA 6.		1
4" – 6-1/2" Capacity	RA 7.		1
0" – 12" Capacity	RA 8.		1
Scriber Point	RA 11.		1
Center Point, 100 C/L	RA 12.		1
Base Block 1" Thick	RA 13.		1
Case (CS 9111.)			1

## Additional Accessories

Clamps	
0-18" Capacity	RA 9.
0-24" Capacity	RA 10.
0-36" Capacity	RA 14.
Half-Round Jaws	
.200 Radius	RA 2.
.100 Radius	RA 3.

\* croblox jaws available as an option at extra cost. Please specify.

\*\* Jaws are normally used in pairs, but are ordered individually. Please order accordingly.

## Rectangular croblox® Wear Blocks

Size	Cat. No.
.020	RC .020 WA1
.050	RC .050 WA1
.100	RC .100 WA1

INCH

## Square croblox® – Inch System Gage Block Sets in Case

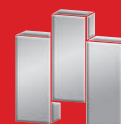
Accuracy Grade*	Measuring Range	Blocks Per Set	Blocks Included in Sets	Cat. No.
B89.1.9 0	.100-12.000 in Steps of .001	81	9 Blocks .1001 Through .1009 (Steps of .0001)	SC 81.A1
B89.1.9 00	.200-12.000 in Steps of .0001		49 Blocks .101 Through .149 (Steps of .001) 19 Blocks .050 Through .950 (Steps of .050) 4 Blocks 1.000 Through 4.000 (Steps of 1)	SC 81.AA
B89.1.9 0	.100-12.000 in Steps of .001	88	Same as in SC 81. Set, Plus	SC 88.A1
B89.1.9 00	.200-12.000 in Steps of .0001 .300-12.000 in Steps of .000025 1/16-12.000 in Steps of 1/64		3 Blocks .100025, .10005, .100075 4 Blocks 1/16, 5/64, 3/32, 7/64	SC 88.AA
B89.1.9 0	.200-8.000 in Steps of .001	36	1 Block .050 9 Blocks .1001 Through .1009 (Steps of .0001)	SC 36.A1
B89.1.9 00	.300-8.000 in Steps of .0001		9 Blocks .101 Through .109 (Steps of .001) 9 Blocks .110 Through .190 (Steps of .010) 5 Blocks .100 Through .500 (Steps of .100) 3 Blocks 1.000, 2.000, 4.000	SC 36.AA

All Square croblox® sets above are available with accessories at extra cost. To order, add "X" to catalog number. Accessories are furnished in steel (see following pages). Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

\* For complete accuracy specifications, see the beginning of this section.



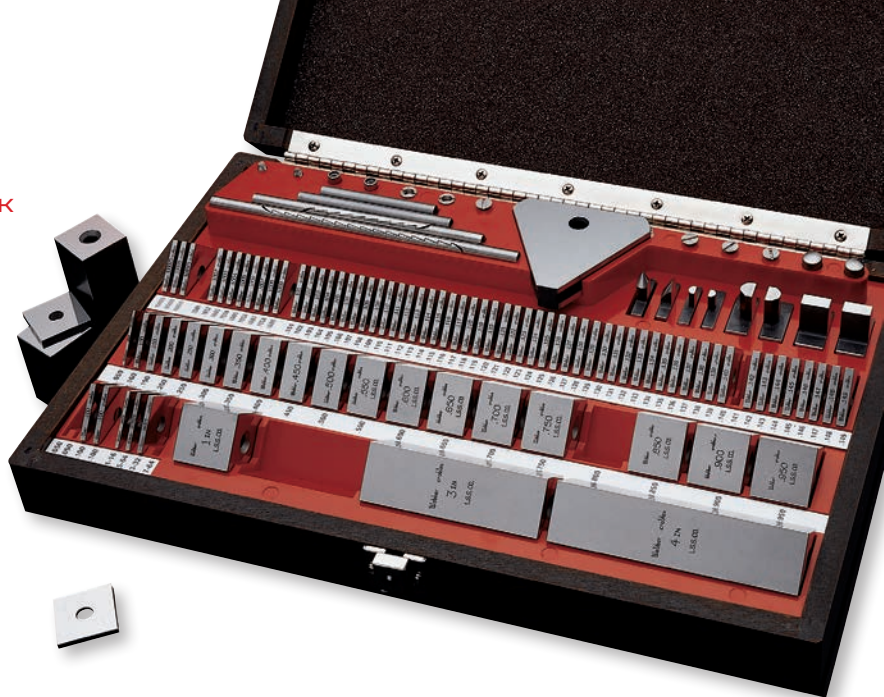
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# GAGE BLOCK SETS

## INCH SYSTEM INDIVIDUAL GAGE BLOCK SETS IN CASE



INCH



Square Steel Gage Block Sets in Case		B89.1.9 Accuracy Grade 0*	
Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001	81	9 Blocks .1001 Through .1009 (Steps of .0001) 49 Blocks .101 Through .149 (Steps of .001) 19 Blocks .050 Through .950 (Steps of .050) 4 Blocks 1.000 Through 4.000 (Steps of 1") Above Set also Available with Accessories** (Extra)	SS 81.A1
.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001 .300-12.000 in Steps of .000025 1/16-12.000 in Steps of 1/64	88	Same as in SS 81.A1 Set, Plus 3 Blocks .100025, .10005, .100075 4 Blocks 1/16, 5/64, 3/32, 7/64 Above Set also Available with Accessories** (Extra)	SS 88.A1
.200-8.000 in Steps of .001 .300-8.000 in Steps of .0001	36	1 Block .050 9 Blocks .1001 Through .1009 (Steps of .0001) 9 Blocks .101 Through .109 (Steps of .001) 9 Blocks .110 Through .190 (Steps of .010) 5 Blocks .100 Through .500 (Steps of .100) 3 Blocks 1.000, 2.000 and 4.000 Above Set Also Available with Accessories** (Extra)	SS 36.A1
.020-.240 in Steps of .001 .040-.240 in Steps of .0001 .060-.240 in Steps of .00005	28	1 Block .02005 9 Blocks .0201 Through .0209 (Steps of .0001) 9 Blocks .021 Through .029 (Steps of .001) 9 Blocks .010 Through .090 (Steps of .010)	SS 28.A1
5.000-84 in Steps of 1.000	8	8 Blocks 5, 6, 7, 8, 10, 12, 16, 20 Accessories Included: 6 Each SA 8. Studs 2 Each SA 9. Flat Head Screws (long) 2 Each SA 10. Flat Head Screws (short) 1 Each SA 16. 4-1/2 - 6" Tie Rod (adjustable) 1 Each SA 17. 6-9" Tie Rod (adjustable) 1 Each SA 18. 11-3/4" Tie Rod 1 Each SA 19. 15-3/4" Tie Rod 2 Each SA 20. 19-3/4" Tie Rods	SS 8.A1X
Square Steel Gage Block Sets in Case		B89.1.9 Accuracy Grade 00*	
5.000-84 in Steps of 1.000	8	Same as above SS 8.A1X	SS 8.AAX

\* For complete accuracy specifications, see page at the beginning of this section.

\*\* All square steel sets 34 through 88 are available with Accessories at extra cost. To order, add "X" to catalog number. Accessories are steel. See square block Accessories on the next page. Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.







## GAGE BLOCK ACCESSORIES

### SA 707. STEEL INTERNAL MEASURING MACHINE JAWS

Jaws are double-ended, self-proving, assuring parallelism and squareness. Designed for use with square style gage blocks. Jaws are made of hardened steel material, 2.000" long, 1.000" wide and .500" thick. Both side edges are lapped 90° square to the gaging faces within 30 seconds of arc and extend beyond the gage blocks in the combination, thus forming a square master.

Jaw and gage combination parallelism is quickly checked merely by turning the combination to the opposite side and rechecking the reading. Furnished in pairs.

#### Additional Accessories

Description	Cat. No.
Tie Rods	
11-3/4" Solid	SA 18.
15-3/4" Solid	SA 19.
19-3/4" Solid	SA 20.

### SQUARE GAGE BLOCK ACCESSORIES STEEL AND CROBLOX®

INCH



#### Square Steel Accessories Individually or Sets as Stated Below

Individual Accessories		Steel Accessories Included Set SA 25.A and 81 thru 88 Block Sets when Ordered with Accessories		34 and 36 Block Sets when Ordered with Accessories
Description	Cat. No.			
Half-Round Jaw*				
.125 Radius	SA 1.	2		
.250 Radius	SA 2.	2		2
Straight Jaw*				
.500" Thick	SA 3.	2		
Scriber Point	SA 4.	1		1
Center Point, .100 C/L	SA 5.	1		
Base Block .500 Thick	SA 6.	1		
Knurled Screw	SA 7.	2		2
Stud	SA 8.	2		2
Flat Head Screw				
Long	SA 9.	2		2
Short	SA 10.	2		2
Slotted Nut	SA 11.	2		2
Tie Rods				
3/4" Solid	SA 12.	1		1
1-1/2" Solid	SA 13.	1		1
2-1/4" Solid	SA 14.	1		1
3" Solid	SA 15.	1		1
4-1/2-6" Adjust	SA 16.	1		1
6-9" Adjust	SA 17.	1		
Case (CS9168)		(For SA 25.A Only)		

\*Jaws are normally used in pairs, but are ordered individually. Please order accordingly.



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## GAGE BLOCKS

## INDIVIDUAL RECTANGULAR GAGE BLOCKS

INCH

Specify in this Sequence: Shape, Material, Size and Accuracy Grade			
Shape	Material	Size	Accuracy
R=Rectangular S=Square	S=Steel C=croblock Y=Ceramic	(listed in table)	

Example: RS .250A1 = Rectangular Steel block, size .250, Grade A1 Accuracy

## HOW TO ORDER

## RECTANGULAR BLOCK SIZES

- Width: all blocks are .352" wide
- Length: for blocks under .050", length is 1.115"
- For blocks with .050" through .190", length is 1.180"
- For blocks .200" and above, length is 1.380"

## EXCEPTIONS

- 28 block sets with blocks to .090" are all 1.115" long.  
.050, .060, .070, .080, .090" blocks in this set are listed with the suffix "ss".
- .050, .100, .150" blocks contained in the 81–92-piece sets are 1.380" long. Specify "long length".
- .100" blocks contained in the 36, 38, and 43-block sets are 1.380" long. Specify "long length".

croblock®, Ceramic and Steel Gage Blocks	croblock		Ceramic		Steel
	A1 0	AA 00	A1 0	AA 00	A1 0
Grade					
.010	•	•			•
.01005					•
.0101 Through .0109 in Steps of .0001					•
.011 Through .019 in Steps of .001					•
.020 (Wear Blocks)	•				
.020 or .02005	•	•			•
.0201 Through .0209 in Steps of .0001	•	•			•
.021 Through .029 in Steps of .001	•	•			•
.030	•	•			•
.040	•	•			•
.050 long*	•	•	•	•	•
.050 (Wear Blocks)	•				
.050S or .050SS	•	•			•
.05005					•
.0501 Through .0509 in Steps of .0001					•
.051 Through .059 in Steps of .001					•
.060 or .060SS	•	•			•
.0625 (1/16)	•	•	•	•	•
.070 or .070SS	•	•			•
.078125 (5/64)	•	•	•	•	•
.080 or .080SS	•	•			•
.090 or .090SS	•	•			•
.09375 (3/32)	•	•	•	•	•
.100 long*	•	•	•	•	•
.100 (Wear Blocks)	•				
.100S	•	•	•	•	•
.100025	•	•	•	•	•
.10005	•	•	•	•	•
.100075	•	•	•	•	•
.1001 Through .1009 in Steps of .0001	•	•	•	•	•
.101 Through .109 in Steps of .001	•	•	•	•	•
.109375 (7/64)	•	•	•	•	•
.110 Through .119 in Steps of .001	•	•	•	•	•
.120 Through .129 in Steps of .001	•	•	•	•	•
.130 Through .139 in Steps of .001	•	•	•	•	•
.140 Through .149 in Steps of .001	•	•	•	•	•
.150 Long*	•	•	•	•	•
.150	•	•	•	•	•
.160 Through .190 in Steps of .010	•	•	•	•	•
.200, .250, .300, .350	•	•	•	•	•
.400, .450, .500, .550, .600	•	•	•	•	•
.650, .700, .750	•	•	•	•	•
.800, .850, .900, .950	•	•	•	•	•
1.000	•	•	•	•	•
2.000	•	•	•	•	•
3.000	•	•	•	•	•
4.000	•	•	•	•	•
5.000					•
6.000					•

\* Order long length for Webber set replacements.



# GAGE BLOCKS

## INDIVIDUAL SQUARE GAGE BLOCKS

INCH



Specify in this sequence:  
Shape, Material, Size and Accuracy Grade

Shape	Material	Size	Accuracy
R=Rectangular S=Square	S=Steel C=croblock	(listed in table)	

Example: SS .125A1 = Square Steel block, size .125 with a Grade A1 accuracy

### HOW TO ORDER

#### SQUARE BLOCK SIZE

- All square blocks are .950" x .950"
- Blocks have a .265" hole in the center
- On blocks .200" thick and over, the hole is countersunk on both faces (croblock Wear Blocks are countersunk on one face only)

croblock® and Steel Gage Blocks	croblock		Steel	
	A1 0	AA 00	A1 0	AA 00
.010			•	
.020			•	
.02005			•	
.0201 Through .0209 in Steps of .0001			•	
.021 Through .029 in Steps of .001			•	
.030			•	
.040			•	
.050	•	•	•	
.060			•	
.0625 (1/16)	•	•	•	
.070			•	
.078125 (5/64)	•	•	•	
.080			•	
.090			•	
.09375 (3/32)	•	•	•	
.100	•	•	•	
.100 (Wear with Chamfered Hole)	•			
.100025	•	•	•	
.10005	•	•	•	
.100075	•	•	•	
.1001 Through .1009 in Steps of .0001	•	•	•	
.101 Through .149 in Steps of .001	•	•	•	
.109375 (7/64)	•	•	•	
.150 Through .190 in Steps of .010	•	•	•	
.200	•	•	•	
.250	•	•	•	
.300	•	•	•	
.350	•	•	•	
.400, .450, .500, .550	•	•	•	
.600, .650, .700, .750	•	•	•	
.800, .850, .900, .950	•	•	•	
1.000	•	•	•	
2.000	•	•	•	
3.000	•	•	•	
4.000	•	•	•	
5.000			•	•
6.000			•	•
7.000			•	•
8.000			•	•
10.000			•	•
12.000			•	•
16.000			•	•
20.000			•	•





## Accessory Sets

### Indicator Accessory Set

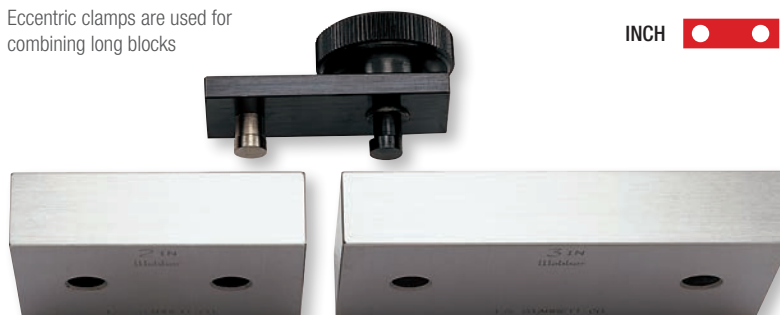
This heavy-duty accessory mounts on any build-up of heavy-duty blocks and measures the deviation of the work from nominal or desired size. (Indicator is set and checked for zero by placing blocks on any known flat surface.)

HDA 10 and HDA 12 Indicator Accessory Sets consist of a holding block, extension jaw and a precision Starrett indicator. See catalog description below for indicator ranges and graduations.

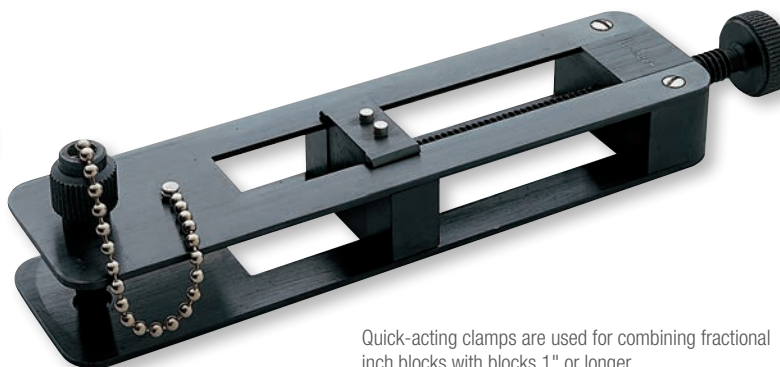


Indicator Accessory Set

Eccentric clamps are used for combining long blocks



INCH  



Quick-acting clamps are used for combining fractional inch blocks with blocks 1" or longer

### WEAR BLOCKS

crobox® Wear Blocks in .050" and .100" sizes are available for use with heavy-duty blocks.



#### Heavy-Duty Steel Accessories Individually or Sets as stated below

Individual Accessories		Steel Accessories Included in all 42 thru 46 Piece Sets or 84 Piece Set when ordered with Accessories
Description	Cat. No.	
Half-Round Jaw* .500 Radius	HDA 1.	2
Scriber Point	HDA 2.	1
Center Point .500 C/L	HDA 3.	1
Eccentric Clamp	HDA 4.	(See set description next page for qty.)
Quick-Acting Clamp	HDA 5.	1
Base Block 1.500" Thick	HDA 6.	1
Additional Accessories		
Straight Jaw* 1.000 Thick	HDA 820.	
Indicator Set Consisting of: Indicator Holding Block Extension Jaw (1.000" Thick) Indicator with $\pm .010$ " Range, .0005" Graduations Case	HDA 10.	
Indicator Set As Above Except: Indicator with $\pm .0015$ " Range, .00005" Graduations	HDA 12.	

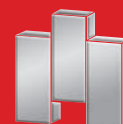
\* Jaws are normally used in pairs, but are ordered individually. Please order accordingly.

#### crobox Wear Blocks

Size	Cat. No.
.050"	HDC .050 WA1
.100"	HDC .100 WA1



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# GAGE BLOCK SETS AND ACCESSORIES

## HEAVY-DUTY STEEL

INCH  

Gage Block Sets and Accessories		B89.1.9 Accuracy Grade 0*	
Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
.100-12.000 in Steps of .001 .200-12.000 in Steps of .0001 .300-12.000 in Steps of .00005	84	2 Blocks .100 Wear croblox® 1 Block .10005 9 Blocks .1001 Through .1009 (Steps of .0001) 49 Blocks .101 Through .149 (Steps of .001) 19 Blocks .050 Through .950 (Steps of .050) 4 Blocks 1.000 Through 4.000 (Steps of 1) 3 Eccentric Clamps Above Set Also Available With 2 Additional Eccentric Clamps and Accessories** (Extra)	HD 84.A1
.200-48.000 in Steps of .001 .300-48.000 in Steps of .0001	46	9 Blocks .1001 Through .1009 (Steps of .0001) 9 Blocks .101 Through .109 (Steps of .001) 9 Blocks .110 Through .190 (Steps of .010) 9 Blocks .100 Through .900 (Steps of .100) 4 Blocks 1.000 Through 4.000 (Steps of 1) 6 Blocks 6.000 10 Eccentric Clamps and Accessories** (Included)	HD 46.A1X
.200-36.000 in Steps of .001 .300-36.000 in Steps of .0001	44	9 Blocks .1001 Through .1009 (Steps of .0001) 9 Blocks .101 Through .109 (Steps of .001) 9 Blocks .110 Through .190 (Steps of .010) 9 Blocks .100 Through .900 (Steps of .100) 4 Blocks 1.000 Through 4.000 (Steps of 1) 4 Blocks 6.000 8 Eccentric Clamps and Accessories** (Included)	HD 44.A1X
.200-24.000 in Steps of .001 .300-24.000 in Steps of .0001	42	9 Blocks .1001 Through .1009 (Steps of .0001) 9 Blocks .101 Through .109 (Steps of .001) 9 Blocks .110 Through .190 (Steps of .010) 9 Blocks .100 Through .900 (Steps of .100) 4 Blocks 1.000 Through 4.000 (Steps of 1) 2 Blocks 6.000 6 Eccentric Clamps and Accessories** (Included)	HD 42.A1X

Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

Case for HD 84.A1 has space for accessories and six 6.000" heavy-duty blocks. To order with accessories, add "X" to catalog number.

\* For complete accuracy specifications, see page at the beginning of this section.

\*\* See previous page for accessories.

### Individual Heavy-Duty Gage Blocks – Steel Only

Block Size
.050
.100, .100025, .10005, .100075
.1001 Through .1009 In Steps of .0001
.101 Through .149 In Steps of .001
.150 Through .190 In Steps of .010
.200 Through .950 In Steps of .050
1.000
2.000
3.000
4.000
6.000
10.000
20.000

To order individual blocks, specify HD followed by size and accuracy grade.  
Example: HD .050 A1



# GAGE BLOCK SETS

## RECTANGULAR CROBLOX® GAGE BLOCK SETS IN CASE

METRIC

Rectangular croblox Gage Block Sets in Case, One Millimeter Base				
Accuracy Grade*	Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
B89.1.9 0	3.0 Through 450 (Steps of .001)	45	9 Blocks 1.001mm Through 1.009mm (Steps of .001)	RC 45.MA1
B89.1.9 00	2.0 Through 450 (Steps of .01)		9 Blocks 1.01mm Through 1.09mm (Steps of .01)	RC 45.MAA
	1.0 Through 450 (Steps of .1)		9 Blocks 1.1mm Through 1.9mm (Steps of .1)	
B89.1.9 0	3.0 Through 450 (Steps of .0005)	88	9 Blocks 1mm Through 9mm (Steps of 1)	RC 88.MA1
B89.1.9 00	2.0 Through 450 (Steps of .001)		9 Blocks 10mm Through 90mm (Steps of 10)	
	1.0 Through 450 (Steps of .01)		1 Block .5	
B89.1.9 0	3.0 Through 450 (Steps of .001)	112	1 Block 1.0005	RC 88.MAA
B89.1.9 00	2.0 Through 450 (Steps of .01)		9 Blocks 1.001mm Through 1.009 (Steps of .001)	RC 112.MA1
	1.0 Through 450 (Steps of .1)		49 Blocks 1.01mm Through 1.49 (Steps of .01)	
B89.1.9 0	3.0 Through 250 (Steps of .0005)	112	18 Blocks 1mm Through 9.5mm (Steps of .5)	RC 112.MAA
B89.1.9 00	2.0 Through 250 (Steps of .001)		10 Blocks 10mm Through 100mm (Steps of 10)	
	1.0 Through 250 (Steps of .01)		1 Block .5	
B89.1.9 0	3.0 Through 250 (Steps of .0005)	112	1 Block 1.0005	RC 112.MA1
B89.1.9 00	2.0 Through 250 (Steps of .001)		9 Blocks 1.001 Through 1.009 (Steps of .001)	RC 112.MAA
	1.0 Through 250 (Steps of .01)		49 Blocks 1.01 Through 1.49 (Steps of .01)	
B89.1.9 0	3.0 Through 250 (Steps of .0005)	112	48 Blocks 1mm Through 24.5mm (Steps of .5)	RC 112.MAA
B89.1.9 00	2.0 Through 250 (Steps of .001)		4 Blocks 25mm Through 100mm (Steps of 25)	
	1.0 Through 250 (Steps of .01)			

Sets include etched serial numbers and Commercial Calibration Certificate. Metric croblox® Wear Blocks and/or Master Calibration Certificate are available at extra cost. For gage block accessories, order AC 11.MA Metric Accessory Set in Case.

\* For complete accuracy specifications, see page at the beginning of this section.



### RECTANGULAR CERAMIC

Now there's another addition to the famous Starrett-Webber line of precision gage blocks. Ceramic, offered in rectangular, inch and metric, fills the gap between steel and the universally accepted croblox®. While not as stable as croblox®, ceramic is an excellent alternative to steel because of its superior hardness, thermal expansion and wear characteristics.

Set RY 88.MA1

METRIC

Gage Block Sets in Case				
Accuracy Grade*	Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
B89.1.9 0	3.0 Through 450 in .001 Steps	45	9 blocks 1.001 Through 1.009 (Steps of .001)	RY 45.MA1
B89.1.9 00	2.0 Through 450 in .01 Steps		9 blocks 1.01 Through 1.09 (Steps of .01)	RY 45.MAA
	1.0 Through 450 in .1 Steps		9 blocks 1.1 Through 1.9 (Steps of .1)	
B89.1.9 0	3.0 Through 450 in .0005 Steps	88	9 blocks 1 Through 9 (Steps of 1)	RY 88.MA1
B89.1.9 00	2.0 Through 450 in .001 Steps		9 blocks 10 Through 90 (Steps of 10)	
	1.0 Through 450 in .01 Steps		1 block .5	
B89.1.9 0	3.0 Through 450 in .0005 Steps	88	1 block 1.0005	RY 88.MA1
B89.1.9 00	2.0 Through 450 in .001 Steps		9 blocks 1.001 Through 1.009 (Steps of .001)	RY 88.MAA
	1.0 Through 450 in .01 Steps		49 blocks 1.01 Through 1.49 (Steps of .01)	
B89.1.9 0	3.0 Through 450 in .0005 Steps	88	18 blocks 1 Through 9.5 (Steps of .5)	RY 88.MAA
B89.1.9 00	2.0 Through 450 in .001 Steps		10 blocks 10 Through 100 (Steps of 10)	
	1.0 Through 450 in .01 Steps			

Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

\* For complete accuracy specifications, see page at the beginning of this section.



# GAGE BLOCK SETS

## RECTANGULAR STEEL - METRIC SYSTEM

METRIC

### One Millimeter Base

Gage Block Sets in Case		B89.1.9 Accuracy Grade 0*	
Measuring Range	Blocks Per Set	Blocks Included In Sets	Cat. No.
1.0 Through 61.0 in 1.0 Steps 2.0 Through 61.0 in .5 Steps 4.0 Through 61.0 in .25 Steps	9	3 blocks 1.0, 2.0, 2.25 4 blocks 2.5, 3.0, 5.0, 10.0 2 blocks 15.0, 25.0	RS 9.MA1
3.0 Through 450 in .001 Steps 2.0 Through 450 in .01 Steps 1.0 Through 450 in .1 Steps	45	9 blocks 1.001 Through 1.009 (Steps of .001) 9 blocks 1.01 Through 1.09 (Steps of .01) 9 blocks 1.1 Through 1.9 (Steps of .1) 9 blocks 1 Through 9 (Steps of 1) 9 blocks 10 Through 90 (Steps of 10)	RS 45.MA1
3.0 Through 450 in .0005 Steps 2.0 Through 450 in .001 Steps 1.0 Through 450 in .01 Steps 1.0 Through 450 in .1 Steps	88	1 block .5 1 block 1.0005 9 blocks 1.001 Through 1.009 (Steps of .001) 49 blocks 1.01 Through 1.49 (Steps of .01) 18 blocks 1 Through 9.5 (Steps of .5) 10 blocks 10 Through 100 (Steps of 10)	RS 88.MA1
3.0 Through 250 in .0005 Steps 2.0 Through 250 in .001 Steps 1.0 Through 250 in .01 Steps 1.0 Through 250 in .1 Steps	112	1 block .5 1 block 1.0005 9 blocks 1.001 Through 1.009 (Steps of .001) 49 blocks 1.01 Through 1.49 (Steps of .01) 48 blocks 1 Through 24.5 (Steps of .5) 4 blocks 25 Through 100 (Steps of 25)	RS 112.MA1
Micrometer Checking Set		B89.1.9 Accuracy Grade AS1*	
	10	10 blocks 2.5, 5.1, 7.7, 10.3, 12.9, 15.0, 17.6, 20.2, 22.8, 25.0	RS 10.MA

Sets include etched serial numbers and Commercial Calibration Certificate. Metric croblox® Wear Blocks and/or Master Calibration Certificate are available at extra cost.

For gage block accessories, order AC 11.MA Metric Accessory Set in Case.

See rectangular metric block accessories on the next page.

\* For complete accuracy specifications, see page at the beginning of this section.



## RECTANGULAR GAGE BLOCK ACCESSORIES STEEL AND CROBLOX®

### Rectangular Steel and croblox Accessories Individually or Sets as Stated Below

Individual Accessories			Steel Accessories Included
Description	Cat. No.		Set AC 11.MA
Half-Round Jaw* 5mm Radius	RA 101.		2
Straight Jaw* 5mm Thick	RA 104.	RA 204.	2**
Clamps 0-38mm Capacity	RA 5.		1
38-100mm Capacity	RA 6.		1
100-165mm Capacity	RA 7.		1
0-300mm Capacity	RA 8.		1
Scriber Point	RA 11.		1
Center Point, 2mm C/L	RA 112.		1
Base Block, 25mm Thick	RA 113.		1
Case (CS 9111.)			1
Additional Accessories			
Clamps 0-450mm Capacity	RA 9.		
0-600mm Capacity	RA 10.		
0-900mm Capacity	RA 14.		

\* croblox jaws available as an option at extra cost. Please specify.

\*\* Jaws are normally used in pairs, but are ordered individually. Please order accordingly.

### Rectangular croblox Wear Blocks

Size	Cat. No.
1.0	RCM 1.0 WA1
2.0	RCM 2.0 WA1



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## GAGE BLOCK SETS

### SQUARE COMBINATION CROBLOX® AND STEEL METRIC SYSTEM GAGE BLOCK SETS IN CASE

An ideal combination of value, price and convenience, these sets include a popular selection of croblox® and steel as listed.

METRIC



Gage Block Sets in Case, Two Millimeter Base		B89.1.9 Accuracy Grade 0*	
Measuring Range	Blocks Per Set	Blocks** Included in Sets	Cat. No.
6.0 Through 450 in .001 Steps 4.0 Through 450 in .01 Steps 2.0 Through 450 in .1 Steps	45	1 Block 1.0 - Steel 9 Blocks 2.001 Through 2.009 (Steps of .001) 9 Blocks 2.01 Through 2.09 (Steps of .01) 9 Blocks 2.1 Through 2.9 (Steps of .1mm) 9 Blocks 1.0 Through 9.0 (Steps of 1.0mm) 8 Blocks 10 Through 90 (Steps of 10mm) - Steel	S2CS 45.MA1
6.0 Through 450 in .0005 Steps 4.0 Through 450 in .001 Steps 2.0 Through 450 in .01 Steps 2.0 Through 450 in .1 Steps	88	2 Blocks .5 and 1.0 - Steel 1 Block 2.0005 9 Blocks 2.001 Through 2.009 (Steps of .001) 49 Blocks 2.01 Through 2.49 (Steps of .01) 18 Blocks 1.5 Through 10.0 (Steps of .5) 9 Blocks 20 Through 100 (Steps of 10) - Steel	S2CS 88.MA1
6.0 Through 250 in .0005 Steps 4.0 Through 250 in .001 Steps 2.0 Through 250 in .01 Steps 2.0 Through 250 in .1 Steps	112	2 Blocks .5 and 1.0 - Steel 1 Block 2.0005 9 Blocks 2.001 Through 2.009 (Steps of .001) 49 Blocks 2.01 Through 2.49 (Steps of .01) 18 Blocks 1.5 Through 10.0 (Steps of .5) 29 Blocks 10.5 Through 24.5 (Steps of .5) - Steel 4 Blocks 25m Through 100 (Steps of 25) - Steel	S2CS 112.MA1
6.0 Through 300 in .0005 Steps 4.0 Through 300 in .001 Steps 2.0 Through 300 in .01 Steps 2.0 Through 300 in .1 Steps	77	5 Blocks .5, 1.0, 1.5, 2.0, 2.0005 9 Blocks 2.001 Through 2.009 (Steps of .001) 50 Blocks 2.01 Through 2.50 (Steps of .01) 5 Blocks 3.0, 3.5, 4.0, 4.5, 5.0 5 Blocks 10, 15, 20, 25, 30 3 Blocks 50, 75, 100	S2C 77.MA1
		B89.1.9 Accuracy Grade 00*	
6.0 Through 300 in .0005 Steps 4.0 Through 300 in .001 Steps 2.0 Through 300 in .01 Steps 2.0 Through 300 in .1 Steps	77	Same as Above S2C 77.MA1	S2C 77.MAA

Metric croblox Wear Blocks are available as option. Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

\* For complete accuracy specifications, see page at the beginning of this section.

\*\* All blocks are croblox, except as noted.

### STEEL SA 711. INTERNAL MEASURING MACHINE JAWS

Double ended, self proving - assures parallelism and squareness. Designed for use with square style gage blocks, jaws are made of hardened steel 50.8mm long, 25.4mm wide and 12mm thick. Both side edges are lapped 90° square to the gaging faces within 30 seconds of arc and extend beyond the gage blocks in the combination, thus forming a square master.

Jaw and gage combination parallelism is checked merely by turning the combination to the opposite side and rechecking the reading. Furnished in pairs.



# GAGE BLOCK SETS

## SQUARE STEEL - METRIC SYSTEM GAGE BLOCK SETS IN CASE

METRIC



Gage Block Sets in Case, Two Millimeter Base		B89.1.9 Accuracy Grade 0*	
Measuring Range	Blocks Per Set	Blocks Included in Sets	Cat. No.
6.0 Through 450 in .001 Steps 4.0 Through 450 in .01 Steps 2.0 Through 450 in .1 Steps	45	1 Block 1.0 9 Blocks 2.001 Through 2.009 (Steps of .001) 9 Blocks 2.01 Through 2.09 (Steps of .01) 9 Blocks 2.1 Through 2.9 (Steps of .1) 9 Blocks 2.0 Through 10.0 (Steps of 1.0) 8 Blocks 20 Through 90 (Steps of 10)	S2S 45.MA1
6.0 Through 300 in .0005 Steps 4.0 Through 300 in .001 Steps 2.0 Through 300 in .01 Steps 2.0 Through 300 in .1 Steps	77	5 Blocks .5, 1.0, 1.5, 2.0, 2.0005 9 Blocks 2.001 Through 2.009 (Steps of .001) 50 Blocks 2.01 Through 2.50 (Steps of .01) 5 Blocks 3.0, 3.5, 4.0, 4.5, 5.0 5 Blocks 10, 15, 20, 25, 30 3 Blocks 50, 75, 100	S2S 77.MA1
6.0 Through 450 in .0005 Steps 4.0 Through 450 in .001 Steps 2.0 Through 450 in .01 Steps 2.0 Through 450 in .1 Steps	88	2 Blocks .5, 1.0 1 Block 2.0005 9 Blocks 2.001 Through 2.009 (Steps of .001) 49 Blocks 2.01 Through 2.49 (Steps of .01) 18 Blocks 1.5 Through 10.0 (Steps of .5) 9 Blocks 20 Through 100 (Steps of 10)	S2S 88.MA1
6.0 Through 250 in .0005 Steps 4.0 Through 250 in .001 Steps 2.0 Through 250 in .01 Steps 2.0 Through 250 in .1 Steps	112	1 Block .5 1 Block 2.0005 9 Blocks 2.001 Through 2.009 (Steps of .001) 49 Blocks 2.01 Through 2.49 (Steps of .01) 48 Blocks 1.0 Through 24.5 (Steps of .5) 4 Blocks 25 Through 100 (Steps of 25)	S2S 112.MA1
125 to 2100	8	8 Blocks 125, 150, 175, 200, 250, 300, 400, 500 Accessories Included: 6 Each SA 8. Studs 2 Each SA 9. Flat Head Screws (long) 2 Each SA 10. Flat Head Screws (short) 1 Each SA 16. 114-152 Tie Rod (adjustable) 1 Each SA 17. 152-228 Tie Rod (adjustable) 1 Each SA 18. 298 Tie Rod 1 Each SA 19. 400 Tie Rod 2 Each SA 20. 502 Tie Rods	SS 8.MA1X
		<b>B89.1.9 Accuracy Grade 00*</b>	
125 to 2100	8	Same as Above SS 8.MA1X	SS 8.MAAX

Sets include etched serial numbers and Commercial Calibration Certificate. A Master Calibration Certificate is available at extra cost.

\* For complete accuracy specifications, see page at the beginning of this section.





# GAGE BLOCK SETS

## SQUARE STEEL OR CROBLOX® - METRIC SYSTEM GAGE BLOCK ACCESSORIES

METRIC



### Square Steel Accessories Individually or Sets as Stated Below

Individual Accessories		
	Cat. No.	Steel Accessories Included
Half-Round Jaw**		
3mm Radius	SA 101.	2
6mm Radius	SA 102.	2
Straight Jaw**		
12mm Thick	SA 103.	2
Scriber Point	SA 4.	1
Center Point 2mm C/L	SA 105.	1
Base Block 12mm Thick	SA 106.	1
Knurled Screw	SA 7.	2
Stud	SA 8.	2
Flat Head Screw		
Long	SA 9.	2
Short	SA 10.	2
Slotted Nut	SA 11.	2
Tie Rods		
19mm Solid	SA 12.	1
38mm Solid	SA 13.	1
57mm Solid	SA 14.	1
76mm Solid	SA 15.	1
114-152mm Adjustable	SA 16.	1
152-228mm Adjustable	SA 17.	1
Case (CS 9168.)		1

### Additional Accessories

Tie Rods		
298mm	SA 18.	
400mm	SA 19.	
502mm	SA 20.	

\*\* croblox jaws available as an option at extra cost. Please specify.

\*\* Jaws are normally used in pairs, but are ordered individually. Please order accordingly.

### Square croblox® Wear Blocks

Size	Cat. No.
2.0mm with 1 Side Countersunk	SCM 2.0 WA1



# GAGE BLOCK SETS

## INDIVIDUAL RECTANGULAR AND SQUARE GAGE BLOCKS - METRIC SYSTEM

croblox®, CERAMIC AND STEEL

Individual Rectangular Gage Blocks		croblox®		Ceramic		Steel
Size/Millimeters	Grade	A1 0	AA 00	A1 0	AA 00	A1 0
0.3, 0.4*						•
0.5**		•	•	•	•	•
0.6 Through 0.9 in .1 Steps*						•
1.0 or 1.0005		•	•	•	•	•
1.0 Wear Blocks		•				
1.001 Through 1.009 in Steps of .001		•	•	•	•	•
1.01 Through 1.14 in Steps of .01		•	•	•	•	•
1.15 Through 1.49 in Steps of .01		•	•	•	•	•
1.5 Through 1.9 in Steps of .1		•	•	•	•	•
2.0		•	•	•	•	•
2.0 Wear Blocks		•				
2.25						•
2.5		•	•	•	•	•
3.0 Through 4.5 in Steps of .5		•	•	•	•	•
5.0 Through 6.5 in Steps of .5		•	•	•	•	•
7.0 Through 10.0 in Steps of .5		•	•	•	•	•
10.5 Through 14.5 in Steps of .5		•	•			•
15.0		•	•	•	•	•
15.5 Through 19.5 in Steps of .5		•	•			•
20.0		•	•	•	•	•
20.5 Through 24.5 in Steps of .5		•	•			•
25.0 and 30.0		•	•	•	•	•
40.0		•	•	•	•	•
50.0		•	•	•	•	•
60.0		•	•	•	•	•
70.0		•	•	•	•	•
75.0 and 80.0		•	•	•	•	•
90.0		•	•	•	•	•
100.0		•	•	•	•	•

### RECTANGULAR BLOCK SIZES

- Width: all blocks are 9mm wide
- Length: For blocks 10mm thick and under, length is 30mm  
For blocks 10.5mm thick and above, length is 35mm

### Exceptions:

\*Blocks are 28.3mm long

\*\* When ordering 0.5mm block, specify length (28.3 or 30mm)

### HOW TO ORDER

Specify in this sequence: Shape, Material, "M" for Metric, Size and Accuracy Grade			
Shape	Material	Size	Accuracy
R=Rectangular S=Square	S=Steel C=croblox® Y = Ceramic	(listed in table)	

Example: RSM 2.0.A1 = Rectangular Steel block, Metric size 2.0, Grade A1 Accuracy

Individual Square Gage Blocks		croblox		Steel
Size/Millimeters	Grade	A1 0	AA 00	A1 0
0.5 mm		•	•	•
1.0		•	•	•
1.5		•	•	•
2.0 Wear Blocks with 1 Side Countersunk		•		
2.0 or 2.0005		•	•	•
2.001 Through 2.009 in .001 Steps		•	•	•
2.01 Through 2.49 in .01 Steps		•	•	•
2.5 Through 2.9 in .1 Steps		•	•	•
3.0 Through 10.0 in .5 Steps		•	•	•
10.5 Through 14.5 in .5 Steps				•
15mm		•	•	•
15.5 Through 19.5 in .5 Steps				•
20.0mm		•	•	•
20.5 Through 24.5 in .5 Steps				•
25.0		•	•	•
30.0		•	•	•
40.0				•
50.0		•	•	•
60.0				•
70.0				•
75.0		•	•	•
80.0				•
90.0				•
100.0		•	•	•
Individual Square Gage Blocks			Steel Only	
Size/Millimeters	Grade	A1 0	AA 00	
125.0		•	•	
150.0		•	•	
175.0		•	•	
200.0		•	•	
250.0		•	•	
300.0		•	•	
400.0		•	•	
500.0		•	•	

### SQUARE BLOCK SIZES

- All blocks are 24.1mm x 24.1mm
- Blocks have a 6.7mm hole in the center
- On blocks 5.0mm thick and over, the hole is countersunk on both faces. (croblox Wear Blocks are countersunk on one face only)



## REFERENCE BARS

### STANDARD REFERENCE BARS

12", 19", 25", 37", 49"/300, 500, 650, 950, 1250MM

These Standard Reference Bars are invaluable for use in checking table movement of machine tools, accuracy of vernier height gages, surface plate transfer measurement, and for final inspection of precision machine tools and coordinate measuring machines.

The "channel design" places additional measuring pads at appropriate points over the length of the bar as reference points for x, y or z axis measurements. Channel design permits use of the bar on its base (vertical), or on its back, or either side (horizontal). The alternating gage block jaws and spacer blocks are permanently wrung and fastened together to form 1" increments for inch bars and 25mm increments for metric bars.

A special bushing arrangement allows the master stack to conform to thermal conditions prevailing during use, thus providing a true master even under less than perfect laboratory conditions. Mating surfaces are treated during assembly to prevent corrosion.

Non-standard lengths and measuring increments are available on special order. A Certificate of Calibration is included. All models are furnished with storage case.



### Specifications

Description	Inch System	Millimeter System
Tolerance (Stack)	expressed in $\mu\text{in.}$ 2.5L + 10L in inches	expressed in $\mu\text{m}$ .0025L + .25L in millimeters
Maximum:		
Minimum:	- 10	- .25
Parallelism: Gage Surfaces to Base and Each Other	15 $\mu\text{in.}$	0.4 $\mu\text{m}$
Uncertainty of Calibration	10 + 2.0L in inches expressed in $\mu\text{in.}$	.25 + .002L in millimeters expressed in $\mu\text{m.}$

The accuracy of the surface that supports the gage must be taken into account when determining the accuracy of any measurements.

### With Channel Design

Inch System			Millimeter System		
Size	Cat. No.	EDP	Size	Cat. No.	EDP
12"	RBC 12.	92626	300mm	RBCM 300.	93642
19"	RBC 19.	92627	500mm	RBCM 500.	92617
25"	RBC 25.	92628	650mm	RBCM 650.	93053
37"	RBC 37.	92629	950mm	RBCM 950.	92619
49"	RBC 49.	92630	1250mm	RBCM 1250.	92620

### Free Standing Stack Without Channel Design – Vertical Position Only

Inch System			Millimeter System		
Size	Cat. No.	EDP	Size	Cat. No.	EDP
8"	RB 8.	92616	200mm	RBM 200.	93261
10"	RB 10.	92623	250mm	RBM 250.	93262
12"	RB 12.	92624	300mm	RBM 300.	93263
18"	RB 18.	92625	450mm	RBM 450.	93264

Standard Sizes are 12", 19", 25", 37" and 49" in the inch system and 300mm, 500mm, 650mm, 950mm and 1250mm in the millimeter system







AG 18.W



AG 16.R

## GAGE BLOCK SETS

### ANGLE GAGE BLOCK SETS

Angle Gage Blocks permit fast, simple and accurate measurements of any angle. They are far superior to sine bar measuring methods, that involve trigonometric formulae and complex stacks of gage blocks.

Angle gage blocks come in three accuracies: croblox® Reference Angle Blocks with a 1-second accuracy, steel Calibration Grade Angle Blocks with 2-second accuracy, and steel Working Grade Angle Blocks with 5-second accuracy. Each grade can be purchased in sets that will measure in steps of one-second, one-minute or one-degree to suit any need. (See angle block specification information on next two pages.)

- **Reference Angle Blocks croblox: 1-second accuracy.** Designed for optical or as reference standards for autocollimators, spectrometers, etc. They are unsurpassed for use in aerospace, optical, and precision instrument fields.
- **Calibration Angle Blocks Steel: 2-second accuracy.** The same high quality as the Reference Grade Angle Blocks.
- **Working Angle Blocks Steel: 5-second accuracy.** These angles are designed for shop or tool room. The longer gaging surfaces are made for use with an indicator. These blocks reduce set-up time and minimize error in grinding both simple and compound angles.

#### Angle Gage Block Sets in Case

Cat. No.	Description/ Accuracy Grade	Blocks Per Set	Measuring Range	Blocks Included In Sets
AG 6.R	Reference Grade ±1.0 Second	6	0-99° in 1° Steps	6 Blocks: 1°, 3°, 5°, 15°, 30°, 45°
AG 6.C	Calibration Grade ±2.0 Seconds			
AG 8.W	Working Grade ±5.0 Seconds	8*	0-99° in 1° Steps	6 Blocks: 1°, 3°, 5°, 15°, 30°, 45°
AG 11.R	Reference Grade ±1.0 Second	11	0-99° in 1' Steps	6 Blocks: 1°, 3°, 5°, 15°, 30°, 45° 5 Blocks: 1', 3', 5', 20', 30'
AG 11.C	Calibration Grade ±2.0 Seconds			
AG 13.W	Working Grade ±5.0 Seconds	13*	0-99° in 1' Steps	6 Blocks: 1°, 3°, 5°, 15°, 30°, 45° 5 Blocks: 1', 3', 5', 20', 30'
AG 16.R	Reference Grade ±1.0 Second	16	0-99° in 1" Steps	6 Blocks: 1°, 3°, 5°, 15°, 30°, 45° 5 Blocks: 1", 3", 5", 20", 30"
AG 16.C	Calibration Grade ±2.0 Seconds			
AG 18.W	Working Grade ±5.0 Seconds	18*	0-99° in 1" Steps	6 Blocks: 1°, 3°, 5°, 15°, 30°, 45° 5 Blocks: 1", 3", 5", 20", 30"

#### Cases for Angle Gage Block Sets

CS 9135	Calibration Set and Reference Case
CS 9134	Working Case

\* One 6" (150mm) parallel and one 6" (150mm) knife edge are included with Working Grade Sets in addition to the listed sizes.

#### To Order Individually, Specify in the Following Key Sequence:

AngleGage Prefix	Numeric Size of Angle	Angle Units (Degree, Min., Sec.)	Accuracy Grade R, C, or W
AG	45	D	R

Example: AG 45.DR = a Reference 45° Angle Block  
AG 30.MW = a Working 30' Angle Block

**NOTE:** The catalog numbers and specifications of our angle gage blocks have been changed in response to updated requirements concerning the application of the uncertainty of measurement. See the next two pages for information regarding the specifications of our angle blocks.

