



ABOVE AND BEYOND HONING



PRECISION HONING SUPPLIES

ABRASIVES TOOLING GAGING FIXTURING LUBRICANTS ACCESSORIES

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CATALOG X-SP-5500J

PG Bore Gaging System

Diameter Range:
2,29 mm – 109,47 mm
.090" – 4.310"

The Sunnen "PG" Bore Gaging System is a unique mechanical gaging system that makes I.D. Gaging simple, reliable, and economical. Eliminates buying and maintaining costly master rings and air gage probes. Both gage and setting fixture are built for everyday use making them ideal for "in-process" inspection. Available in .001 mm or .0025 mm (.00005" or .0001") reading scales.



PG-710E Small Bore Precision Gage with PG-400E Setting Fixture

PG-700E Small Bore Precision Gage

Diameter Range:
2,29 mm-9,63 mm
(.090"-3.79")*

Direct reading scale with, 13 mm (.005") range divided into increments of .001 mm (.00005").

Order PG-700EM for metric applications.

Dimensions (without fingers):
267 mm x 197 mm x 165mm
(10.5" H x 7.75" W x 6.5" D)

*Covered with complete set of gaging fingers. Individual finger sets can be ordered for specific sizes. Order individual finger sets from the complete list at right.

PG-710E Small Bore Precision Gage

Identical to PG-700 except direct reading scale is .24 mm (.010") wide and divided into increments of .0025 mm (.0001"). Order PG-710EM for metric applications.



Gaging Fingers for PG-700 or PG-710 Precision Gage

To order individual finger pairs, consult the table below for size ranges and part numbers.

Each pair of gaging fingers is stamped with its size range and comes nested in an impact-resistant box. Available for sale only.

*If bore can be measured from both ends, bore length can be double the gaging

Diameter Range		Gaging Depth*		Accessory Fingers
mm	inches	mm	inches	
2,29-2,51	.090-.099	7,14	.281	PG-1090
2,51-2,77	.099-.109	7,14	.281	PG-1099
2,77-3,05	.109-.120	7,14	.281	PG-1109
3,05-3,35	.120-.132	12,70	.500	PG-1120
3,35-3,68	.132-.145	12,70	.500	PG-1132
3,68-4,04	.145-.159	15,87	.625	PG-1145
4,04-4,42	.159-.174	15,87	.625	PG-1159
4,42-4,83	.174-.190	19,05	.750	PG-1174
4,83-5,26	.190-.207	19,05	.750	PG-1190
5,26-5,72	.207-.225	22,22	.875	PG-1207
5,72-6,20	.225-.244	22,22	.875	PG-1225
6,20-6,71	.244-.264	25,40	1.000	PG-1244
6,71-7,24	.264-.285	25,40	1.000	PG-1264
7,24-7,80	.285-.307	31,75	1.250	PG-1285
7,80-8,38	.307-.330	31,75	1.250	PG-1307
8,38-9,00	.330-.354	38,10	1.500	PG-1330
9,00-9,63	.354-.379	38,10	1.500	PG-1354
COMPLETE SET of all Gaging Finger Pairs. Each finger set comes in an individual plastic case.				PG-1401

depth shown.

Blind Hole Gaging Fingers for PG-700/PG-710 Gages

Special Blind Hole Gaging Fingers are available on special order basis. These fingers are non-adjustable and can only be used for a specific diameter size. These altered blind hole fingers can measure to within 1,02 mm (.040") of the bottom of the blind end of the bore. Recommend customer use a ring gage to set size on the gage.

How to order blind hole gaging fingers:

PG-____ - ____ - HMOX The first ____ is the four-digit number of the standard gaging fingers for the diameter needed to be measured. The second ____ is the finished diameter of the bore to be measured, either in English or Metric units.

Examples: 2,89 mm diameter. Order: PG-1109-2,890-HMOX
.2092" diameter. Order: PG-1202-2092-HMOX

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PG-800E Precision Bore Gage

Diameter Range: 9,4 mm – 38,1 mm {.370" – 1.500"}

Direct reading scale with .13 mm (.005") range divided into increments of .001 mm (.00005"). Overall size range is divided into two subranges 9,4 mm-19,05 mm (.370"-.750") and 19,05 mm-38,1 mm (.750"-1.500"). Replaceable carbide gage points which can be rotated for long life. Size range can be increased to 74,3 mm (2.9") by ordering PG-250 Extension Finger Set.



PG-800E

Order PG-800EM

for metric applications.

Dimensions: 267 x 197 x 213 mm (10-1/2" H x 7-3/4" W x 8-3/8" D)

Gaging Depth:

Small Side - 24,6 mm (.968")

Large Side - 42,06 mm (1.656")

With PG-250 - 41,27 mm (1.625")

PG-810E Precision Bore Gage

Identical to PG-800 except direct reading scale is .24 mm (.010") wide and divided into increments of .0025 mm (.0001"). Order PG-810EM for metric applications.

PG-250E Extension Finger Set

Used with the PG-800 and PG-810 Precision Bore Gages. Extends the PG-800/PG-810 measuring range from 38,1 mm (1.500") to over 76.2 mm (3.000") diameter. Consists of two pairs of carbide extension points which mount onto the fingers of the PG-800/PG-810. Mounting screws are permanently attached to extension points to avoid their loss.



GAGE LEASING PROGRAM

Sunnen PG-700, PG-800 Series Gages, Setting Fixtures, and PG-250 Extension Fingers are also available on a unique lease plan. Leasing the Sunnen bore gaging system includes maintenance and updating by Sunnen. Contact KS & C Industries 1-800-247-7098 for complete leasing information.

Note: This program is not available outside of the United States.

CERTIFIED GAGE OPTION

Sunnen PG and Dial Bore Gages and setting fixtures (with the exception of the 3000 series and special length dial bore gages) may be ordered with an optional certification which provides a certificate of calibration listing linearity and hysteresis measurements taken over the range of the gage (for dial bore gages the measurements are taken over the first 1 and 1/3 indicator revolutions). To order this option add "LFC" to the part number.

Diameter Range: 2,29 mm – 38,3 mm {.090" – 1.500"}



PG-400E Setting Fixture

This Setting Fixture is used to set the PGE-3000, PG-800, PG-810, PG-700 and PG-710 Precision Bore Gages. Dimensional accuracy is guaranteed to be within ± .0006 mm (.000025") of nominal reading over the entire range of the instrument. Comes in a carrying case with a master calibrating ring traceable to the Bureau of Standards.

Order PG-400EM for metric applications.

PG-500E Setting Fixture

(Not pictured-similar to PG-400)

Diameter Range: 37,7 mm – 74,3 mm {1.500" – 2.900"}

Similar to PG-400, except for higher range. Used to set PG-800 or PG-810 Precision Bore Gage when equipped with PG-250 Extension Fingers. Comes in a carrying case with a master calibrating ring traceable to the Bureau of Standards. Includes PG-2090 Auxiliary Faceplate.

Order PG-500EM for metric applications.

PG-810-Z08X Precision Bore Gage

Available for purchase only.PG-810-Z08X is similar

Diameter Range: 76,2 mm – 114,3 mm {3.0" – 4.5"}

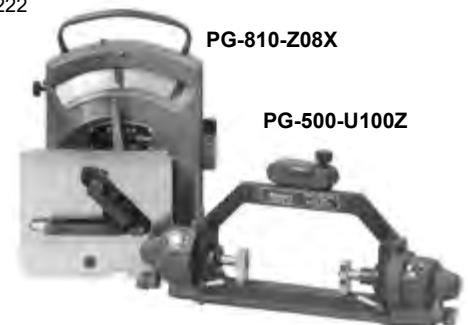
to the PG-810 Precision Bore Gage.

Diameters 76,2 mm-95,25 mm (3.0"-3.750") are measured on one side.

Diameters 95,25 mm-114,3 mm (3.750"-4.5") are measured on the opposite side.

Dimensions: 267 x 197 x 222 mm (10-1/2" H x 7-3/4"W x 8 -3/4" D)

Order PG-810M-Z08X for metric applications.



PG Bore Gaging System

PG-500-U100X Setting Fixture for PG-810-Z08X

(Similar to PG-500 Setting Gage.)

Diameter Range: 73,40 mm – 109,47 mm {2.890" – 4.310"}

Used to set 76,2 mm-109,47 mm (3.0"-4.310") diameter range on PG-810-Z08X.

Also used with PG-800 Series Gage with PG-250 Extension Fingers and PG-2090-AM1X Auxiliary Face Plate to set diameters 73,4 mm-76,2 mm (2.890"-3.0"). Setting size on PG-810-Z08X from 109,47 mm-114,3 mm (4.310"-4.5") must be done utilizing ring gages or gage blocks. Order PG-500M-U100X for metric applications.

PG-845 Tilting Gage Stand

A recommended accessory for the PG-810-Z08X Precision Gage. Lets the gage faceplate support the majority of the part weight. Used also with PG-800/PG-810. Attaches to MB-2370 Gage Mounting Bracket.



PG Bore Gaging Accessories

Replacement Gage Points for PG-800 and PG-250

- PG-712A Point Set** Consists of Three Carbide Gaging and Three Mounting Screws for 18,8 mm-38,1 mm (.740"-1.500") diameter gaging fingers. Also used on non-centralizer gaging fingers on PG-250 Extension Finger Set.
- PG-714A** Consists of Three Carbide Gaging and Three Point Set Mounting Screws for 9,4-mm-18,8 mm (.370"-.740") diameter gaging fingers.
- PG-1007** Eccentric Centralizer with carbide ring used on both centralizer extension fingers of the PG-250 Extension Finger Set.
- PG-110A** Gage Point Removal and Installation Tool 9,4 mm-18,8 mm (.370"-.740").
- PG-90A** Gage Point Removal and Installation Tool 18,8 mm-38,1 mm (.740"-1.500").
- PG-120A** Tolerance Flag Adjusting Wrench.

Blind Hole Gaging Points for PG-800 and PG-250

- PG-702A Blind Hole Point Set** Consists of Three Points and Screws 18,8 mm-38,1 mm (.740"-1.500"). Also used on non-centralizer gaging fingers on PG-250 Extension Finger Set.
- PG-704A Blind Hole Point Set** Consists of Three Points and Screws 9,4 mm-18,8 mm (.370"-.740") diameter gaging fingers.
- PG-LR6X Blind Hole Point Set** For PG-250 Extension Finger Set 38,1 mm-74,3 mm (1.5"-2.9")

Note: Blind hole point sets measure to within 0,25 mm (.010") of the bottom of the blind hole.

PG-2130 Flexible Hex Wrench

Use to dampen vibration when centralizing PG-400 on the PG-700/710 Precision Gage.

PG-2110 Clip-On Auxiliary Faceplate

For PG-700/710 Precision Gage.



PG-4A



PG-5



PG-6

Additional PG Gage Faceplates.

PG-4A Auxiliary Faceplate for PG-700/PG-710. A flat plate with ten holes designed to slip over the gaging fingers of a PG-700/PG-710. Reduces the opening size of the PG-2110 faceplate making it easier to measure thin walled parts. Hole sizes on PG-4 vary from 2,77 mm-8,71 mm (.109"-.343").



PG-10A Auxiliary Faceplate set for PG-800/PG-810 Precision Gage. Consists of one PG-5 and PG-6 Faceplate similar to PG-4. PG-5 hole size 18,3 mm (.720"), 20,8 mm (.820"), and 23,4 mm (.920"). PG-6 hole size 9,7 mm (.380"), 10,9 mm (.430"), 12,2 mm (.480"), 13,5 mm (.530"), 14,7 mm (.580"), 16,0 mm (.630"), and 17,3 mm (.680").

Gage Mounting Brackets

Recommended when any Sunnen Precision Bore Gage is used on a Sunnen Honing Machine. Mounting brackets reduce lost motion and fatigue and reduce runoff of honing oil.

Available for either right or left side mounting. All models adjustable for easiest access to gage.

To order, specify from chart.

Model No.	Description	
MB-2370	For Left or Right Side of MBB-1650 or MBB-1660; Left Side of MBB-1670, MBB-1680, MBB-1690, MBB-1800, MBC-1800, MBC-1801, MBC-1802, MBC-1803, MBC-1804, MBC-1805.	
MB-1250	For Left Side of MB-1290, MBB-1290, MBB-1600.	
SH-6680	For ML and SH Series, replaces EC-7170	

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Dial Bore Gages

GR-3000 Dial Bore Gage Accessories

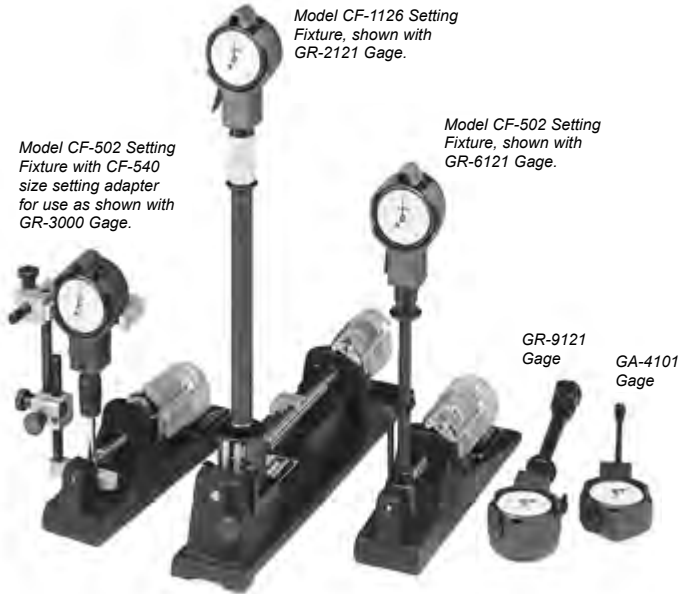
Diameter Range:
 1,37 mm – 304,8 mm
 .054" – 12.0"



FAST • EASY • ACCURATE-gages and setting fixtures.

All Sunnen Dial Bore Gages read out in .002 mm (or .0001")* and feature all-carbide gaging points, wear-proof ball crank, and adjustable centralizers. Each gage comes packed in its own sturdy box with all tools and wrenches required for setup and adjustment.

*(.010 mm [.0005"] reading gages are also available. Contact Customer Service for price and availability.)



Model CF-1126 Setting Fixture, shown with GR-2121 Gage.

Model CF-502 Setting Fixture, shown with GR-6121 Gage.

Model CF-502 Setting Fixture with CF-540 size setting adapter for use as shown with GR-3000 Gage.

GR-9121 Gage
 GA-4101 Gage

Diameter Range: 1,37 mm – 13,6 mm { .054" – .535" }

GRM/GR-3000 Dial Bore Gage

Assembly consists of a .002 mm reading indicator, probe retractor and probe retainer bushing in a reinforced nylon insulating shroud.

Order GR-3000 for .0001" reading.



Gage Probes and Transfer Pins



Probes and pins must be ordered separately. Diameter ranges, gaging depths and part numbers are listed below.

Probe and Matching Transfer Pins

For GRM/GR-3000 (order separately)

G-3005A Probe and Transfer Pin Storage Case

Diameter Range		Probe No.	Transfer Pin No.	Max. Gaging Depth		Overall Length		
mm	in			mm	in	mm	in	
1,37 - 1,55	.054 - .061	G-1055	G-2037	11	.43	167	6.6	
1,50 - 1,90	.059 - .075	G-1070	G-2059	16	.63	174	6.9	
1,80 - 2,20	.071 - .087	G-1080		16	.63	174	6.9	
2,05 - 2,45	.081 - .096	G-1090	G-2089	16	.63	174	6.9	
2,25 - 2,75	.089 - .108	G-1100		21	.82	179	7.1	
2,50 - 3,00	.098 - .118	G-1110		21	.82	179	7.1	
2,75 - 3,25	.108 - .128	G-1120		21	.82	179	7.1	
3,00 - 3,50	.118 - .138	G-1130		21	.82	179	7.1	
3,25 - 3,75	.128 - .148	G-1140		21	.82	179	7.1	
3,50 - 4,00	.138 - .157	G-1150		21	.82	179	7.1	
3,75 - 4,25	.148 - .167	G-1160		21	.82	179	7.1	
4,20 - 4,80	.165 - .189	G-1180		G-2264	39	1.53	195	7.7
4,70 - 5,30	.185 - .209	G-1200			39	1.53	195	7.7
5,20 - 5,80	.205 - .228	G-1220	39		1.53	195	7.7	
5,70 - 6,30	.224 - .248	G-1240	39		1.53	195	7.7	
6,20 - 6,80	.244 - .268	G-1260	39		1.53	195	7.7	
6,70 - 7,30	.264 - .287	G-1280	39		1.53	195	7.7	
7,20 - 7,80	.283 - .307	G-1300	39		1.53	195	7.7	
7,70 - 8,30	.303 - .327	G-1320	39		1.53	195	7.7	
8,20 - 8,80	.323 - .346	G-1340	39		1.53	195	7.7	
8,70 - 9,30	.343 - .366	G-1360	39		1.53	195	7.7	
9,20 - 9,80	.362 - .386	G-1380	39	1.53	195	7.7		
9,40 - 10,60	.370 - .417	G-1400	G-2370	46	1.81	195	7.7	
10,40 - 11,60	.409 - .457	G-1440		46	1.81	195	7.7	
11,40 - 12,60	.449 - .496	G-1480		46	1.81	195	7.7	
12,40 - 13,60	.488 - .535	G-1520		46	1.81	195	7.7	

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Dial Bore Gages

GR-3000 Dial Bore Gage Accessories

Probe Extension*

Available for probes 8,2 mm (.323") or larger. Probe extensions are 63,5 mm (2 1/2") long, and up to three can be assembled together.

Part Number: **KZ1X-3500**.

Blind Hole Probes and Transfer Pins

Order standard probe and transfer pin number and add **-KZ0X** to number. Example: **G-1240-KZ0X**.

NOTE: G-1055 probe and G-2037 transfer pin not available in blind hole configuration. Available 4 weeks after receipt of order.

Carbide Inserted Gage Probes and Transfer Pins

For applications where gage points are exposed to extreme wear conditions such as heavy production, rough workpieces or abrasive materials. Not available in sizes smaller than 4,2 mm (.165").

Order standard probe and transfer pin number and add **-KY5X** to number. Example: **G-1240-KY5X**.

G-3025 Probe Kit

Consists of 15 probes and 2 transfer pins. Covers a continuous diameter range from 4,2 mm-13,6 mm (.165"-.535").



G-3050 Probe Kit

Consists of 6 probes and 2 matching transfer pins which cover a 4,2 mm-13,6 mm (.165"-.535") diameter range on even 1/16" increments.



Probe No.	Diameter Range		Transfer Pin No.
	mm	in	
G-1180	4,20/4,80	.165/.189	G-2264
G-1200	4,70/5,30	.185/.209	
G-1220	5,20/5,80	.205/.228	
G-1240	5,70/6,30	.224/.248	
G-1260	6,20/6,80	.244/.268	
G-1280	6,70/7,30	.264/.287	
G-1300	7,20/7,80	.283/.307	
G-1320	7,70/8,30	.303/.327	
G-1340	8,20/8,80	.323/.346	
G-1360	8,70/9,30	.343/.366	
G-1380	9,20/9,80	.362/.386	G-2370
G-1400	9,40/10,60	.370/.417	
G-1440	10,40/11,60	.409/.457	
G-1480	11,40/12,60	.449/.496	
G-1520	12,40/13,60	.488/.535	

Probe No.	Diameter Range		Transfer Pin No.
	mm	in	
G-1180	4,20/4,80	.165/.189	G-2264
G-1260	6,20/6,80	.244/.268	
G-1320	7,70/8,30	.303/.327	
G-1380	9,20/9,80	.362/.386	
G-1440	10,40/11,60	.409/.457	G-2370
G-1520	12,40/13,60	.488/.535	

CF-540 Size Setting Adapter

Centers gage probes between parallel reference surfaces on CF-502 Setting Fixture. Serves as an "extra pair of hands" to help in nulling the gage on both the horizontal and vertical axis. Assures fast, accurate setup of the gage.



Shown with CF-502 Setting Fixture.

Setting Fixtures

CF-502M (metric) 1,37 mm-50,8 mm
CF-502 (inch) .054"-2.00"

For use with 3000, 4000, 6000, and 9000 Series Dial Bore Gages.

CF-502M comes with 0-51 mm micrometer head marked in .002 mm increments with precision lapped carbide anvils. Includes a ring gage checking standard and three interchangeable nests. (Use of CF-502M/CF-502 with 3000 series gage requires the purchase of CF-540 Size Setting Adapter.) Setting Master has a rugged, stress-relieved cast-iron base and may be used without removing it from its protective case. CF-502 is equipped with a 0"-2" micrometer head marked in .0001" increments. CF-502M/CF-502



Replacement Gage Nests For CF-502M Metric & CF502:

CF-502M	12,6 mm-19,1 mm
	18,8 mm-30,2 mm
	30,0 mm-50,0 mm
CF-502	CF-550A .495"-.750"
	CF-560A .740"-1.19"
	CF-570A 1.18"-2.00"

CF-137A	Micrometer Adjusting Wrench
CF-138	Spindle Lock Knob
CF-544A	Magnifier
CF-576A	Calibration Ring

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Dial Bore Gages

GAM/GA-4000 Series Gages

Diameter Range:

12,6 mm – 19,0 mm { .495" – .750" }

Non-retractable gage with .002 mm metric or (.0001") reading indicator. Capable of measuring to within 5,0 mm (.200") of the bottom of a blind hole. Indicators reading in .010 mm or .0005" are available on special order.



Part Number		Max. Gaging Depth		Overall Length		Shipping Weight	
Metric	Inches	mm	in	mm	in	kg	lbs
GAM-4051	GA-4051	62	2 1/2	187	7 5/16	,7	1.5
GAM-4101	GA-4101	125	5	251	9 13/16	,7	1.5
GAM-4141	GA-4141	175	7	302	11 13/16	,7	1.5

Replacement Parts For GAM/GA-4000 Series Gages:

- G-275MA** Quick Setting Wrench (Metric reading)
- G-275A** Quick Setting Wrench (Inch reading)
- G-285A** Indicating Ball Removal Tool
- G-289A** Indicating Finger Clamp
- PBR-505A** Indicating Ball (1/16" Diameter Carbide)
- G-222A** Centralizer Points (Package of 2)
- G-261MA** #1 Point Assembly (metric) 12,6 mm-14,7 mm diameter
- G-261A** #1 Point Assembly (inch) .495"-.580" diameter
- G-262MA** #2 Point Assembly (metric) 14,7 mm-16,9 mm diameter
- G-262A** #2 Point Assembly (inch) .580"-.665" diameter
- G-263MA** #3 Point Assembly (metric) 16,9 mm-19,0 mm diameter
- G-263A** #3 Point Assembly (inch) .665"-.750" diameter
- G-249A** Nuts for Point Assembly (Package of 3)
- G-249MA** Metric Nuts for Point Assembly (Package of 3)

Special Length Dial Bore Gages are available on a special order basis. GA/GAM-4000 Indicator cannot be peaked at lengths longer than 175 mm (7") therefore gage accuracy is compromised.

To order special length dial bore gages, specify as follows: GA/GAM-4_1X.

The _ is the desired gaging length multiplied by 2 (in inches).



CF-502 Setting Fixture
Metric version CF-502M has a 0 to 51 mm

Micrometer head marked in .002 mm increments. Supplied in a sturdy, nested box.

CF-502 for .054" to 2.000" diameters is equipped with a large micrometer head with range of 0" to 2" marked in .0001" increments.

Shown with GR-6121 Gage.

GRM/GR-6000 Series Gages

Diameter Range:

18,8 mm – 30,2 mm { .740" – 1.190" }

Retractable gage with .002 mm metric or (.0001") reading indicator. Capable of measuring to within 6,8 mm (.270") of the bottom of a blind hole. Indicators reading in .010 mm or .0005" are available on special order.



Part Number		Max. Gaging Depth		Overall Length		Shipping Weight	
Metric	Inches	mm	in	mm	in	kg	lbs
GRM-6071	GR-6071	88	3 1/2	235	9 3/16	1	2
GRM-6121	GR-6121	150	6	298	11 11/16	1	2
GRM-6241	GR-6241	300	12	451	17 11/16	1	2

Replacement Parts For GRM/GR-6000 Series Gages

- G-375MA** Quick Setting Wrench (Metric reading)
- G-375A** Quick Setting Wrench (Inch reading)
- G-385A** Indicating Ball Removal Tool
- G-389A** Indicating Finger Clamp
- PBR-506A** Indicating Ball (3/32" Diameter Carbide)
- G-327A** Centralizer Points (Package of 2)
- G-361MA** #1 Point Assembly (metric) 18,8 mm-22,6 mm diameter
- G-361A** #1 Point Assembly (inch) .740"-.890" diameter
- G-362MA** #2 Point Assembly (metric) 22,6 mm-26,4 mm diameter
- G-362A** #2 Point Assembly (inch) .890"-1.04" diameter
- G-363MA** #3 Point Assembly (metric) 26,4 mm-30,2 mm diameter
- G-363A** #3 Point Assembly (inch) 1.04"-1.19" diameter
- G-349A** Nuts for Point Assembly (Package of 3)
- G-349MA** Metric Nuts for Point Assembly (Package of 3)

Special Length Dial Bore Gages are available on a special order basis. GR/GRM-6000 Indicator cannot be peaked at lengths longer than 305 mm (12") therefore gage accuracy is compromised.

To order special length dial bore gages, specify as follows: GR/GRM-6_1X. The _ is the desired gaging length multiplied by 2 (in inches).

Gage Point No.	Diameter Range	
	mm	in
1	50-60	2.000-2.375
2	60-70	2.375-2.750
3	70-79	2.750-3.125
4	79-89	3.125-3.500
5	89-98	3.500-3.875
6	98-108	3.875-4.250
7 + 2	108-117	4.250-4.625
7 + 3	117-127	4.625-5.000
7 + 4	127-137	5.000-5.375
7 + 5	137-146	5.375-5.750
7 + 6	146-150	5.750-6.000

Dial Bore Gages

GRM/GR-9000 Series Gages

Diameter Range:
30,0 mm – 50,8 mm {1.18" – 2.0"}

Retractable gage with .002 mm metric or (.0001") reading indicator. Capable of measuring to within 8,5 mm (.335") of the bottom of a blind hole. Indicators reading in .010 mm or .0005" are available on special order.



Part Number		Max. Gaging Depth		Overall Length		Shipping Weight	
Metric	Inches	mm	in	mm	in	kg	lbs
GRM-9071	GR-9071	88	3½	237	9¼	1,8	4
GRM-9121	GR-9121	150	6	300	11¾	1,8	4
GRM-9241	GR-9241	300	12	452	17¾	1,8	4

Replacement Parts For GRM/GR-9000 Series Gages:

- G-475MA** Quick Setting Wrench (Metric reading)
- G-475A** Quick Setting Wrench (Inch reading)
- G-485A** Indicating Ball Removal Tool
- G-489A** Indicating Finger Clamp
- PBR-503A** Indicating Ball (1/8" Diameter Carbide)
- G-427A** Centralizer Points (Package of 2)
- G-461MA** #1 Point Assembly (metric) 30,0 mm-35,2 mm diameter
- G-461A** #1 Point Assembly (inch) 1.18"-1.385" diameter
- G-462MA** #2 Point Assembly (metric) 35,2 mm-40,4 mm diameter
- G-462A** #2 Point Assembly (inch) 1.385"-1.59" diameter
- G-463MA** #3 Point Assembly (metric) 40,4 mm-45,6 mm diameter
- G-463A** #3 Point Assembly (inch) 1.59"-1.795" diameter
- G-464MA** #4 Point Assembly (metric) 45,6 mm-50,8 mm diameter
- G-464A** #4 Point Assembly (inch) 1.795"-2.0" diameter
- G-449A** Nuts for Point Assembly (Package of 4)
- G-449MA** Nuts for Point Assembly (Metric) (Package of 4)

Special Length Dial Bore Gages are available on a special order basis. GR/GRM-9000 Indicator cannot be peaked at lengths longer than 635 mm (25") therefore gage accuracy is compromised.

To order special length dial bore gages, specify as follows: GR/GRM-9_1X. The _ is the desired gaging length multiplied by 2 (in inches).

Note: Sunnen 2000 Series Dial Bore Gages can be extended to 304,8 mm (12") by adding oversize centralizer points and additional gage point extensions.

For gaging diameters in the range of 152,4 mm-304,8 mm (6"-12") order: **G-822A** Gage Extension Kit. Consists of: Two Oversize Centralizer Points, G-632A #7 Gage Point Extension, G-634A #8 Gage Point Extension.

2000 Series Gages assembled with G-822A Gage extension set cannot be used with CF-1126 setting fixture when set for diameters above 203,2 mm (8"). Alternative methods of setting gage must be used.

G-822C Centralizer Point Only.

GAM/GA-2000 Series Gages (Non-Retractable) GRM/GR-2000 Series Gages (Retractable)

Diameter Range:
50 mm – 150 mm {2.0" – 6.0"}

Non-retractable gage with .002 mm metric or (.0001") reading indicator. Capable of measuring to within 13 mm (.500") of the bottom of a blind hole. Indicators reading in .010 mm or .0005" available on special order.



Part Number		Max. Gaging Depth		Overall Length		Shipping Weight	
Metric	Inches	mm	in	mm	in	kg	lbs
GAM-2031	GA-2031	75	3	203	8	2,7	6
GAM-2061	GA-2061	150	6	280	11	2,7	6
GAM-2121	GA-2121	300	12	432	17	2,7	6
GAM-2241*	GA-2241*	600	24	737	29	2,7	6

Extension sleeves are available for converting GAM/GA-2000 Series Gages to different lengths. The following extension sleeves are available:

- GA-203** Accessory Extension Sleeves 75 mm (3")
- GA-206** Accessory Extension Sleeves 150 mm (6")
- GA-212** Accessory Extension Sleeves 300 mm (12")
- GA-224** Accessory Extension Sleeves 600 mm (24")

Retractable gage with .002 mm metric or (.0001") reading indicator. Capable of measuring to within 13 mm (.500") of the bottom of a blind hole. Indicators reading in .010 mm or .0005" available on special order.



Part Number		Max. Gaging Depth		Overall Length		Shipping Weight	
Metric	Inches	mm	in	mm	in	kg	lbs
GRM-2061	GR-2061	150	6	280	11	2,7	6
GRM-2121	GR-2121	300	12	432	17	2,7	6
GRM-2241*	GR-2241*	600	24	737	29	2,7	6

*Furnished with metal case for accessories only.

Replacement Parts For 2000 Series Gages:

- PBR-503A** Indicating Ball (1/8" Diameter Carbide)
- G-522A** Centralizer Points (Package of 2)
- G-532MA** Nut (Package of 6, metric)
- G-532A** Nut (Package of 6)
- G-640A** Indicating Ball Removal Tool
- G-610A** #1 Point Assembly 50,8 mm-60,3 mm (2.0"-2.375")
- G-611A** #2 Point Assembly 60,3 mm-69,8 mm (2.375"-2.750")
- G-612A** #3 Point Assembly 69,8 mm-79,4 mm (2.750"-3.125")
- G-613A** #4 Point Assembly 79,4 mm-88,9 mm (3.125"-3.500")
- G-614A** #5 Point Assembly 88,9 mm-98,4 mm (3.500"-3.750")
- G-615A** #6 Point Assembly 95,3 mm-107,9 mm (3.750"-4.250")
- G-632A** #7 Point Extension
- G-634A** #8 Point Extension
- G-645A** Gage Point Assembly Ball Removal Tool
- G-638A** Gage Point Assembly Wrench

Special Length Dial Bore Gages are available on a special order basis. 2000 Series Indicators cannot be peaked at lengths longer than 1650 mm (65") therefore gage accuracy is compromised. To order special length dial bore gages, specify as follows: G_-2_1X. The second _ is the desired gaging length (in inches).

ADAPTERS & OTHER
ABRASIVES & TOOLING

MACHINE
ACCESSORIES

GAGING

FILTERS

HONING FLUIDS
& COOLANTS

TECHNICAL DATA

Dial Bore Gages

ADAPTERS & OTHER ABRASIVES & TOOLING

MACHINE ACCESSORIES

GAGING

FILTERS

HONING FLUIDS & COOLANTS

TECHNICAL DATA

Setting Fixtures CF-1126M (metric) CF-1126 (inch)

Diameter Range:
51 mm - 203 mm {2.0" - 8.0"}



For use with 2000 Series Dial Bore Gages. Makes gage setting fast and easy. Micrometer adjustment allows "dialing in" sizes. A precision tool, shipped with convenient storage case.

Eliminates micrometers and ring gages. Eliminates errors and "feel" in setting gages. Sets 2000 Series gages in seconds.

Includes .002 mm (.0001") micrometer head with precision lapped carbide anvils.

Comes with a ring gage checking standard and precision setting standards in 25.4 mm (1") increments. Setting Master has a rugged, stress-relieved, cast iron base. May be used without removing from its protective case.

Setting Fixtures are shipped complete with setting standards to cover 50 mm-152.4 mm (2"-6") range. A setting standard is not required to measure in the 178 mm-203 mm (7"-8") range. When measuring in the 152 mm-178 mm (6"-7") range order:

CF-360A 152-178 mm (metric) **CF-260A** 6"-7" (inch)

CF-1126M Replacement Setting Standards:

CF-320A* 50-75 mm **CF-340A*** 100-125 mm
CF-330A* 75-100 mm **CF-350A*** 125-150 mm
CF-360A 152-178 mm

*Included with CF-1126M

CF-1126 Replacement Setting Standards:

CF-220A* 2"-3" **CF-240A*** 4"-5"
CF-230A* 3"-4" **CF-250A*** 5"-6"
CF-260A 6"-7"

*Included with CF-1126

CF-544A Magnifier **CF-215A** Calibrating Ring
CF-137A Spanner Wrench

Replacement Indicators for Sunnen Dial Bore Gages

Part No.	Qty.	Description
---	Ref.	Dial Indicator Assembly includes
G595A	1	Indicator (.0005 in. Reading)
G595MA	1	Indicator (0,01 mm Reading)
G795A	1	Indicator (.0001 in. Reading)
G795MA	1	Indicator (0,002 mm Reading)
G596A	1	Screw
G597	1	Nut
G59513A	1	Bezel Clamp and Screw - Flat Style Lens
G595-5A	1	Bezel and Crystal Assembly - Round Style Lens
G595-3A	1	Bezel Clamp and Screw - Round Style Lens
G795-1	1	Bezel and Crystal Assembly - Flat Style Lens with Blue Bezel
G795-2	1	Bezel Clamp and Screw - Flat Style Lens with Blue Bezel

E Series Electronic Dial Bore Gages Features

- 16 Standard Models + Special Lengths. All 3000, 4000, 6000, 2000 Series Available - Add "E" Suffix on Part Number
- Peak Reading Feature
- Metric/Inch Conversion .001 mm or .0001" Divisions
- Display Swivels 330° for any Gaging Position
- SPC Capability
- Preset, zero set, +/- direction and Go/No Go functions.
- Communicates with Computers.
- Wireless Communication Options.



Accessories/Repair Parts

- LU2X1** Connecting Cable 2 Meter Length
LU2X2 E Series Parameter Setup Kit
LU2X31 E Series Wireless Receiver
LU2X32 E Series Wireless Transmitter IP67
LU2X33 E Series Connecting Cable

Gage Point Selection Table

Use Gage Point Number	For Diameter Range	
	in	mm
1	2.000 - 2.375	50 - 60
2	2.375 - 2.750	60 - 70
3	2.750 - 3.125	70 - 79
4	3.125 - 3.500	79 - 89
5	3.500 - 3.875	89 - 98
6	3.875 - 4.250	98 - 108
7 + 2	4.250 - 4.625	108 - 117
7 + 3	4.625 - 5.000	117 - 127
7 + 4	5.000 - 5.375	127 - 137
7 + 5	5.375 - 5.750	137 - 146
7 + 6	5.750 - 6.125	146 - 156

1-G-101





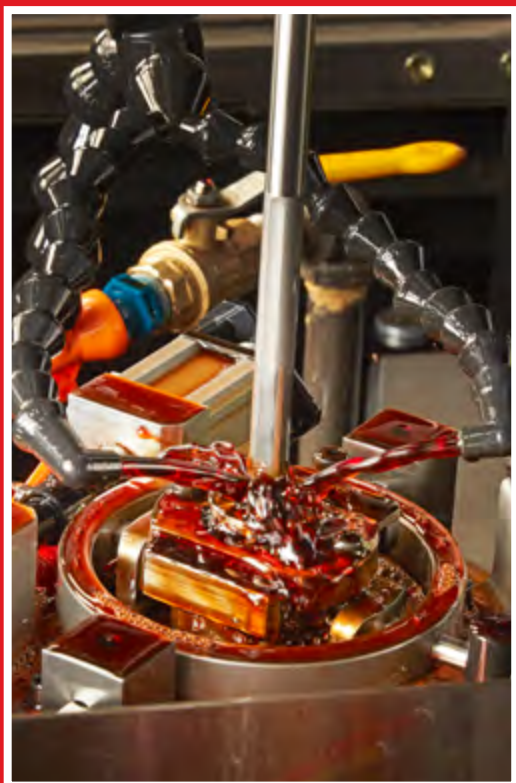
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WORLDWIDE

Our global manufacturing, distribution, and sales and service network allows us to deliver quality Sunnen solutions worldwide.

And our state-of-the-art Technical Services Centers allow our technical experts to develop innovative solutions to customer application challenges.

The Centers also provide answers for customer questions and training for Sunnen representatives around the world.



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