



# THE PG-SERIES BORE-GAGING SYSTEM

*The unique mechanical gaging system that made I.D. gaging simple, reliable, economical*

The Sunnen® PG-Series Bore-Gaging System is number one in thousands of shops . . . on the production line in big plants; in job and contract shops; for receiving inspection; and for laboratory analysis.

Entirely different from any other system, the gages, setting fixtures and accessories were all developed by Sunnen Products Company, the worldwide leader in precision bore sizing and finishing.

With a proven design for the shop floor environment, the Sunnen PG-Series Bore gages are rugged and reliable. And the PG gages give you a combination of accuracy, versatility, simplicity and economy that no other system provides at any price.

*No more ring gages or plug gages to buy or go bad. No more jo blocks or micrometers either. The Sunnen PG-Series Bore-Gaging System covers all diameters from .090" to 4.310" (2,29 to 109.47mm) with .000050" and .0001" increments (0,001mm for metric version).*



## **1. Set bore size here.**

This is the PG Series Size-Setting Fixture for the Sunnen PG-Series Precision Bore gage. It sets sizes over a wide range without requiring master rings.



## **2. Transfer to gage.**

Together, the Sunnen PG Gage and PG Setting Fixture give you the simplest, most reliable bore-gaging system available.



## **3. Read size here.**

The PG Gage (Model PG-800 shown) instantly shows you actual size, taper, out-of-round and bellmouth on the direct reading scale, which is divided into increments of .000050" or .0001" (0,001mm metric version), depending on the model used.

# THE BENEFITS

*All these benefits are the result of advanced design and engineering concepts. See what they mean to you in terms of a simple, practical, usable Bore Gaging System.*

## **No more master rings or plug gages to buy**

You know the cost of buying and maintaining a cabinet full of master rings and air probes or plug gages for a wide range of bore sizes. The Sunnen PG-Series eliminates all these expensive accessories and their upkeep. Your first investment in a Sunnen system gives you everything you'll need to measure any size bore in its range.

## **Instant setup for any size bore**

In less than two minutes you can set the Sunnen PG Gage to measure any size bore in its range. You just dial the desired size on the PG-Series setting fixture and transfer the size to the gage. There are no "missing sizes" in the Sunnen bore-gaging system!

## **No power source needed - completely portable**

No electrical or air connections. No cords, lines or batteries. No warm-up period required. The Sunnen PG-Series Bore-Gaging System operates free of all "outside" factors such as fluctuations in air pressure or line voltage that affect the accuracy of other systems. Just set the size and start measuring bores . . . any place, any time.

## **Stays set — repeats within .000010" (0,00025 mm)**

Linearity and repeatability are built in . . . guaranteed to stay put by the exclusive system of floating reeds. Performance is constant. The size is locked in. No drift. No lag. Accuracy not affected by oil in the bore nor by temperature, moisture, air pressure, vibration or dirt. And it's just as reliable in the shop as in the controlled atmosphere of the lab.

## **Stays reliable - year after year**

The floating reed system eliminates all friction and wear in the Sunnen gage. It's built without bearings, jewels, racks, pivots, gears or pulleys. No critical sliding or rotating parts to loosen, wear or warp. Original repeatability and linearity are maintained no matter how much or how long you use the gage.

## **Checks I.D. accurately right up to the very edge**

The Sunnen PG Gage will explore the entire bore and show variations in diameter, taper, barrel and bellmouth. It is accurate right up to the edge of ports, lands and ends. Measures thinwall parts without distortion. No other gaging system lets you "see it all" like this one.

## **A rugged working tool**

Both gage and setting fixture are robust and built for everyday shop use . . . just like your machine tools. All major adjustments and calibrations are made permanent . . . and locked in at the factory. No upkeep costs. You never have to touch it . . . except to use it.

## **Easy to set - easy to use**

Machine operators and quality control people use the PG-Series gages and setting fixtures with confidence after only a brief demonstration. Setup and operation are fully mechanical and positive. No skill, "feel" or opinion involved. You get the right size every time - no matter who sets or uses the gage.



# THE USES

*If you are processing or buying parts with precision bores where tolerances run from a thousandth or two down to split tenths, and your diameter range is from .090" to 4.310" (2,29 to 109,47mm) . . . The Sunnen PG-Series Gaging System will make your gaging operations more accurate, faster and more economical.*

## ***"In process" inspection***

The Sunnen PG-Series Gaging System makes it practical for you to monitor production, piece by piece. You control scrap and rejects right at the machine. You detect tool wear as it happens and know exactly when tool changes or machine adjustments are needed. For sampling or 100% inspection, the Sunnen PG Gage can take "day-in, day-out" punishment on the production line and still guarantee split-tenth toolroom accuracy.

## ***For honing work***

The Sunnen PG Gage speeds up your honing operation. It eliminates all guesswork and unnecessary gaging. This is the only precision gage that will show hole size when you are still .003" (0,08mm) small. This permits exact control of final bore size by the operator. With air spindles and plug gages you must be almost "to size" before you can even check the bore.



## ***Receiving inspection***

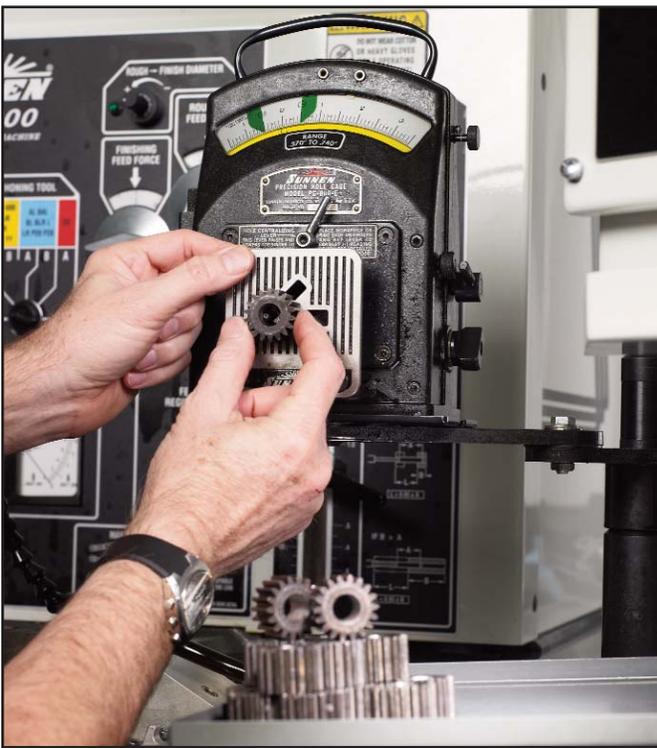
The Sunnen PG System gives you full control over the quality of purchased or semifinished goods. Wide diameter range gives you tenth-reading accuracy in a big variety of bore sizes. Two-minute setup makes inspection practical for a dozen pieces . . . even for two or three. Instant readout makes it ideal for 100% inspection or fast sampling of large lots. You catch faulty vendor parts when they arrive . . . before they can cause production bottlenecks.

## ***Laboratory analysis***

The most versatile measuring instrument for every Quality Control Lab that checks a variety of precision I.D. work. You set up for any size bore in minutes. And this gage reads out in ten thousandths of an inch . . . the bore size and inaccuracies such as out-of-round, taper, barrel, bellmouth instantly.

## ***Job and contract shops***

Now, for the first time, even the smallest shop finds it practical to have a complete I.D. gaging system covering every possible size from .090" to 4.310" (2,29 to 109,47 mm) . . . with very small capital investment. No more costly ring gages, air probes or plug gages to buy. Take on a wider variety of work without investing part of the profits in additional gaging equipment.



# THE GAGES

## PG-700E Gage

**Diameter Range:** .090" to .379" (2,29mm to 9,63mm)

**Weight:** 20.5 lbs. (9,3Kg)

**Dimensions (without fingers):**

10.5" H x 7.75" W x 6.5" D (267mm x 197mm x 165mm)

The PG-700E is similar in design and operation to the larger PG-800E. However, space limitations in bores under .375" (9,63mm)

diameter prevent use of universal fingers as in larger gage. Direct reading scales have a range of .005" (0,13mm)

divided into increments of .000050". Overall range of PG-700E is, therefore, divided into 17 subranges, each covered by a separate pair of gaging fingers. Fingers are quickly interchanged and lock into position without tools. Gage points are diamonds for maximum resistance to wear. Gaging pressure at mid-scale is 1.5 ounces (40 grams).

**NOTE:** Metric Gage PG-800EM is divided into increments of 0,001mm.

**PG-710E Gage**  
Same as PG-700E, except the direct reading scales are .010" (0,24mm) wide and divided into increments of .0001".

**NOTE:** Metric Gage PG-710EM is divided into increments of 0,005mm.

## PG-810-Zo8X

Similar for the PG-810E, this gage is for larger diameters. Diameters of 3.0" to 3.750" (76,2 to 95,25 mm) are measured on one side. Diameters from 3.750" to 4.5" (95,25 to 114,3 mm) are measured on the opposite side.



## PG-800E Gage

**Diameter Range:** .370" to 1.500" (9,4mm to 38,1mm).  
With optional Extension Finger Set: .370" to 3.000" (38,1mm to 74,3mm)

**Weight:** 20.25 lbs. (9,2Kg)

**Dimensions:** 10.25" H x 7.75" W x 8.375" D (267mm x 197mm x 213mm)

Reads out actual size, taper, out-of-round and bellmouth. Overall range is divided into two subranges, one on either side. Direct reading scales have a range of .005" (0,13mm) divided into increments of .00004" (0,001mm). Gage points are round, replaceable carbide "donuts" which can be rotated for long wear life. Gaging pressure at mid-scale is four ounces (115 grams).

Sliding face plate with adjustable stops permits end-to-end examination of bores right up to the edge. These stops can be set to allow examination of any particular section or portion of a bore when necessary.

**NOTE:** Diameters from 2.900" to 3.000" (9,39 to 76,2mm) must be set with setting standard other than PG-500E.

**NOTE:** Metric Gage PG-800EM is divided into increments of 0,001mm.

## PG-810E Gage

Same as PG-800E, except the direct reading scales are .010" (0,25mm) wide and divided into increments of .0001". This wider scale makes the gage even more useful for shops with greater tolerances in their bores, and is especially suited for checking screw machine production.

**NOTE:** Diameters from 2.900" to 3.000" (9,39 to 76,2mm) must be set with setting standard other than PG-500E.

**NOTE:** Metric Gage PG-810EM is divided into increments of 0,005mm.



# THE SETTING FIXTURES

## PG-400E Setting Fixture

**Range:** .090" to 1.500"

**Weight (with carrying case and accessories):** 6.75 lbs. (3Kg)

This setting fixture is used to set the PG-800E, PG-810E, PG-700E and PG-710E Precision Bore Gages. Dimensional accuracy is guaranteed to be within  $\pm .000025"$  ( $\pm 0,0006\text{mm}$ ) of nominal reading over the entire range of the instrument. Comes in a carrying case with a master calibrating ring traceable to the U.S. Bureau of Standards.

*NOTE: Metric Setting Fixture PG-400EM has a range of 2,00mm to 38,00mm.*

## PG-500E Setting Fixture (not illustrated -similar to PG-400E)

**Range:** 1.500" to 2.900"

**Weight (with carrying case and accessories):** 9.5 lbs. (4,3Kg)

Similar to PG-400E, except for higher range. Used to set PG-800E or PG-810E Precision Bore Gage when equipped with optional PG-250E Extension Fingers. Dimensional accuracy is guaranteed to be within  $\pm .000025"$  ( $\pm 0,0006\text{mm}$ ) of nominal reading over the entire range of the instrument. Comes in a carrying case with a detachable large face plate assembly and master calibrating ring traceable to the U.S. Bureau of Standards.



*NOTE: Metric Setting Fixture PG-500M has a range of 37,70 mm to 74,30 mm.*

## APPLICATIONS

### SELECT THE SUNNEN BORE GAGING SYSTEM THAT FITS YOUR APPLICATION

THIS CHART WILL HELP YOU SELECT COMPONENTS FOR YOUR SUNNEN GAGING SYSTEM.

It shows the diameter range covered by Sunnen Precision Gages, Setting Fixtures, and Accessory Gaging Fingers where used.

How to order:

1. Find diameter range in which your bore sizes fall.
2. Read horizontally to the right and ORDER:
  - (1) Setting Fixture
  - (2) Precision Gage
  - (3) Accessory Fingers.

**NOTE:** English Inch Gages and Setting Fixtures for sale or lease. Metric Gages and Setting Fixtures for sale only. (Metric models are graduated in metric units only. Their ranges may vary slightly from the inch models. Metric models denoted by suffix "M".)

	SETTING FIXTURE	PRECISION GAGE	ACCESSORY FINGERS
.090" (2,29mm)			
.370" (9,39mm)	PG-400/ PG-400EM	PG-700/ PG-710	See chart below
1.500" (38,00mm)		PG-800 PG-810	No accessory fingers required on diameters from .375" to 1.500" (9,63mm to 38,3 mm)
2.900" (74,3mm)	PG-500/ PG-500EM		PG-250
3.000" (76,2mm)		2.960"-3.000" (9,39-76,2mm) must be set with setting standard other than PG-500	
<i>Inquire about special gages and setting fixtures for diameters to 4.300" (109 mm)</i>			

# ACCESSORIES

## PG-250E Extension Finger Set



Used with the PG-800E and PG-810E Precision Bore Gages. Extends the

PG-800E/PG-810E measuring range from 1.500" (38,1mm) to over

3.0" (74,3mm) diameter. Consists of two pairs of carbide extension points which mount onto the fingers of the PG-800E/PG-810E. Mounting screws are permanently attached to extension points to avoid their loss. **NOTE:** Diameters from 2.900" to 3.000" (9,39 to 76,2mm) must be set with setting standard other than PG-500E.

**NOTE:** Metric Extension Finger Set PG-250M has a range of 38,0 to 76,0mm for use with metric gages.

**For Sale or Lease**

## GAGE MOUNTING BRACKET

Recommended for mounting Sunnen bore gages on Sunnen honing machines. Bracket reduces lost motion and fatigue and reduces runoff of honing oil. Adjustable for easiest access to gage.



MB-2370 – For Left Side of MBC-1804, MBC-1803, MBC-1802, MBC-1801, MBC-1800, MBB-1800, MBB-1690, MBB-1680,

MBB-1670. For Left or Right Side of MBB-1660, MBB-1650.

## GAGING FINGERS FOR PG-700E OR PG-710E PRECISION GAGE



Each pair of gaging fingers is stamped with its size range and comes nested in an impact-resistant box. To order individual finger pairs, consult the table for size ranges and part numbers.

**For Sale Only**

DIAMETER RANGE		ACCESSORY FINGERS
INCHES	MM	
.090-.099	2,29-2,51	<b>PG-1090</b>
.099-.109	2,51-2,77	<b>PG-1099</b>
.109-.120	2,77-3,05	<b>PG-1109</b>
.120-.132	3,05-3,35	<b>PG-1120</b>
.132-.145	3,35-3,68	<b>PG-1132</b>
.145-.159	3,68-4,04	<b>PG-1145</b>
.159-.174	4,04-4,42	<b>PG-1159</b>
.174-.190	4,42-4,83	<b>PG-1174</b>
.190-.207	4,83-5,26	<b>PG-1190</b>
.207-.225	5,26-5,72	<b>PG-1207</b>
.225-.244	5,72-6,20	<b>PG-1225</b>
.244-.264	6,20-6,71	<b>PG-1244</b>
.264-.285	6,71-7,24	<b>PG-1264</b>
.285-.307	7,24-7,80	<b>PG-1285</b>
.307-.330	7,80-8,38	<b>PG-1307</b>
.330-.354	8,38-9,00	<b>PG-1330</b>
.354-.379	9,00-9,63	<b>PG-1354</b>
Metal Storage Cabinet		<b>PG-1418</b>
Complete Set of all Gaging Finger Pairs, including PG-1418 Metal Storage Cabinet		<b>PG-1401</b>

EC-7170- Non Light Curtain Equipped EC/ML machines

ML-4425- Light Curtain Equipped ML machines

**For Sale only**

## PG-845 TILTING GAGE STAND



For measuring bores in heavier parts. Should be used only with PG-800E or PG-810E Gages. Bolts onto MB-2370 Gage Mounting Bracket.

**For Sale Only**

*You may lease or buy the Sunnen Bore-Gaging System*

*Our unique lease plan puts the gage and setting fixture into your shop for less than you think. Of course, you may buy the Sunnen Bore-Gaging System, if you wish. Your Sunnen Field Engineer will give you complete pricing information and help you select the equipment you'll need for your specific application.*

*Try the Sunnen Bore-Gaging System in your shop*

*We welcome the opportunity to have you compare the Sunnen Gaging System with other systems... and evaluate it for the various gaging applications in your plant. Ask your Sunnen Representative for a demonstration.*



A LEGACY OF EXCELLENCE SINCE 1924

## 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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