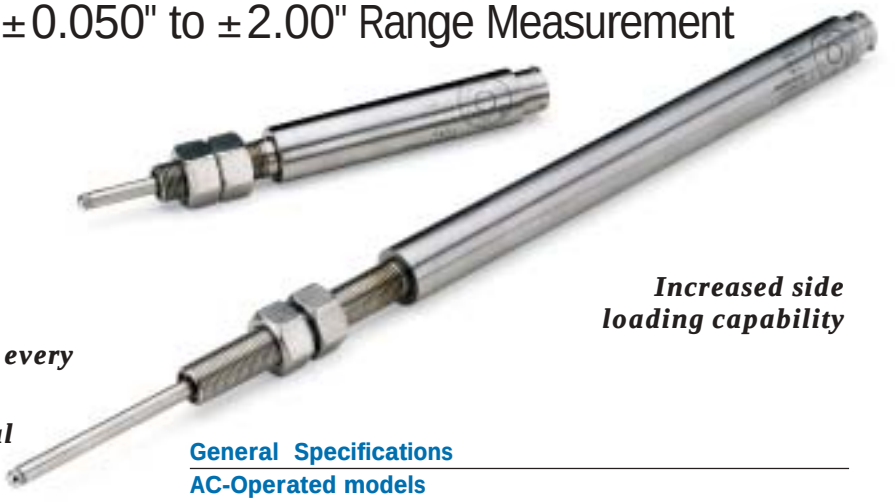
GCA/GCD Series Precision Gage Heads

Spring-Loaded Design for ±0.050" to ±2.00" Range Measurement

Features

- ❑ ***CE compliant (DC models)***
- ❑ ***All-welded construction***
- ❑ ***Resistant to harsh environments***
- ❑ ***MS-type connector***
- ❑ ***Electronics hermetically sealed***
- ❑ ***Calibration certificate supplied with every gage head***
- ❑ ***Compatible with all Schaevitz® signal conditioners***
- ❑ ***Special contact tips (see page 100)***



Increased side loading capability

Applications

- ❑ ***In-process measurements to close loop with PLC or CNC controller***
- ❑ ***Environments requiring hermetically sealed transducers***
- ❑ ***High temperatures (300°F for AC units)***

Stainless steel construction enables the GCA/GCD Series gage head to perform in environments containing moisture, dirt and other contaminants. Electronic components are hermetically sealed for added protection against hostile conditions. These are heavy duty, long stroke units with ranges up to ±2.0" (50mm). Maximum spring force is typically 8 oz (226.8g), dependent upon probe position. The working end or probe has a removable chrome plated, hardened tool steel tip threaded to the probe with a 4-48 UNF-2A threading. Schaevitz® replacement and alternate contact tips are available (see page 100). Tips are also interchangeable with AGD dial indicator tips.

Internal construction prevents the core and shaft from rotating as they move longitudinally. Units terminating into connectors allow for easy cable replacement if damage should occur. Installation and adjustment are facilitated by external threading; locknuts are provided.

GCA/GCD Series gage heads are available in AC and DC versions. AC-operated units utilize external signal conditioning (see the Instrumentation section of this catalog); DC-operated units incorporate the core, LVDT and all necessary electronics in one housing. Use of monolithic, surface mount circuitry eliminates most of the volume, weight and cost of conventional AC excitation, amplification and demodulation equipment.

General Specifications

AC-Operated models

Excitation	3 V rms (nom)
Frequency Range	400 Hz to 10 kHz
Null Voltage	Less than 0.5% full scale output
Linearity	±0.25% of full range output
Repeatability	0.000025" (0.0006 mm)
Operating Temperature Range	-65°F to 300°F (-55°C to 150°C)
Shock Survival	1000 *g* for 11 milliseconds
Vibration Tolerance	20 *g* up to 2 kHz
Housing Material	AISI 400 series stainless steel
Electrical Termination	6-pin connector

DC-Operated models

Excitation	± 15 VDC ±30 mA max
Null Voltage	0 VDC
Linearity	±0.25% of full range output
Repeatability	0.000025" (0.0006 mm)
Operating Temperature Range	32°F to 160°F (-0°C to 70°C)
Shock Survival	250 *g* for 11 milliseconds half sine
Vibration Tolerance	10 *g* up to 2 kHz
Housing Material	AISI 400 series stainless steel
Electrical Termination	6-pin connector

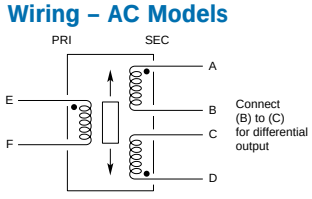
How to Order

Specify the appropriate model number, followed by the desired Gaging Range suffix. For example: GCA-121-050 is AC operated with a ±0.050" range. Special contact tips are also available and can be ordered separately (see page 100).

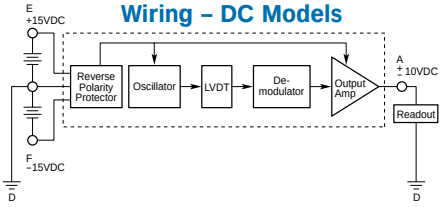
Model Number	Operation
GCA-121	AC
GCD-121	DC

Gaging Range	Description
050	±0.050" (1.27 mm)
125	±0.125" (3.17 mm)
250	±0.250" (6.35 mm)
500	±0.50" (12.7 mm)
1000	±1.00" (25.4 mm)
2000	±2.00" (50.8 mm)

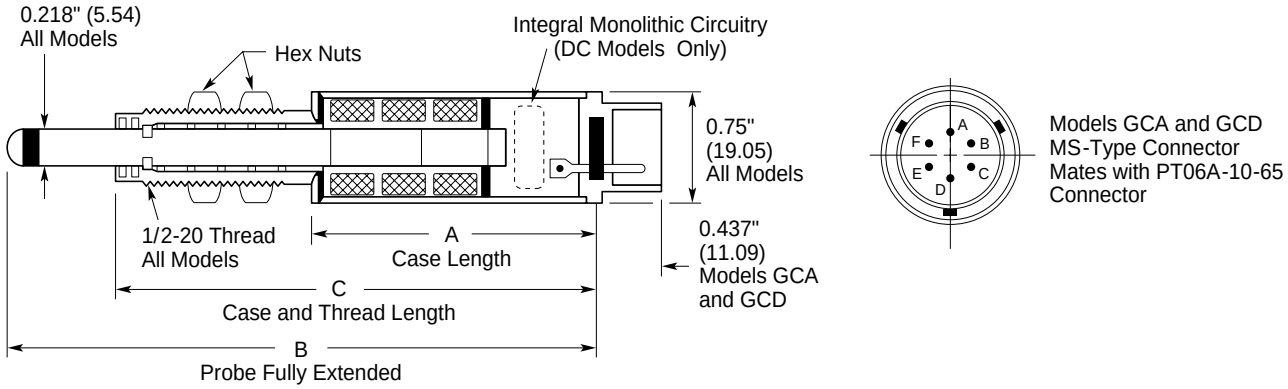
Wiring – AC Models



Wiring – DC Models



Dimensions in (mm)



GCA Specifications @ 2.5 kHz – AC-Operated Models

Model Number	GCA-121-050	GCA-121-125	GCA-121-250	GCA-121-500	GCA-121-1000	GCA-121-2000
Gaging Range	±0.050" (±1.27mm)	±0.125" (±3.17mm)	±0.250" (±6.35mm)	±0.500" (±12.7mm)	±1.000" (±25.4mm)	±2.00" (±50.8mm)
Phase Shift	+6°	+5°	+5°	+2°	+1°	-1°
Sensitivity (mV/V/0.001")	4.2	2.4	1.6	1.1	0.84	0.34
Impedance (Ohms)						
Primary	430	1710	800	900	900	525
Secondary	950	1820	940	1150	2100	535
Pretravel (Nominal)	0.26" (6.6mm)	0.30" (7.6mm)	0.06" (1.5mm)	0.18" (4.5mm)	0.01" (0.3mm)	0.1"
Minimum Overtravel	0.15" (3.8mm)	0.15" (3.8mm)	0.15" (3.8mm)	0.20" (5.1mm)	0.10" (2.5mm)	0
Spring Load Over Gaging Range	3.5 to 5.8 oz. (99 to 164g)	3.5 to 5.8 oz. (99 to 164g)	3.5 to 5.8 oz. (99 to 164g)	3.2 to 8.0 oz. (91 to 227g)	3.2 to 8.0 oz. (91 to 227g)	3.2 to 8.0 oz. (91 to 227g)
Dimensions						
A (±0.01"/0.25mm)	1.90" (48.3mm)	2.75" (69.9mm)	3.61" (91.7mm)	5.29" (134.4mm)	7.55" (191.8mm)	10.89" (276.6mm)
B (±0.03"/0.76mm)	4.33" (110.0mm)	5.14" (130.6mm)	6.10" (154.9mm)	10.75" (273.1mm)	13.01" (330.5mm)	20.94" (531.9mm)
C (±0.02"/0.50mm)	3.27" (8.1mm)	4.12" (104.6mm)	4.99" (126.7mm)	8.27" (210.1mm)	10.53" (267.5mm)	16.37" (415.8mm)
Weight	2.2 oz (64g)	2.9 oz. (82g)	3.17 oz. (90g)	5.0 oz. (142g)	7.5 oz. (213g)	13 oz. (369g)

GCD Specifications – DC-Operated Models

Model Number	GCD-121-050	GCD-121-125	GCD-121-250	GCD-121-500	GCD-121-1000	GCD-121-2000
Gaging Range	±0.050" (±1.27mm)	±0.125" (±3.17mm)	±0.250" (±6.35mm)	±0.500" (±12.7mm)	±1.000" (±25.4mm)	±2.000" (±50.8mm)
Sensitivity (V/1")	200	80	40	20	10	5
Pretravel (Nominal)	0.30" (7.62mm)	0.35" (8.8mm)	0.18" (4.5mm)	0.20" (5.08mm)	0.01" (.25mm)	0.1"
Minimum Overtravel	0.39" (9.4mm)	0.14" (3.5mm)	0.03" (0.76mm)	1.00" (25.4mm)	0.10" (2.5mm)	0
Spring Load Over Gaging Range	3.5 to 5.8 oz. (99 to 164g)	3.5 to 5.8 oz. (99 to 164g)	3.5 to 5.8 oz. (99 to 164g)	3.2 to 8.0 oz. (91 to 227g)	3.2 to 8.0 oz. (91 to 227g)	3.2 to 8.0 oz. (91 to 227g)
Dimensions						
A (±0.01"/0.25mm)	2.66" (67.6mm)	3.50" (88.9mm)	4.37" (111.0mm)	6.06" (153.9mm)	8.31" (211.1mm)	11.48" (291.6mm)
B (±0.03"/0.76mm)	5.08" (129.0mm)	5.90" (149.9mm)	6.77" (172.0mm)	11.53" (292.9mm)	13.76" (349.5mm)	21.52" (546.6mm)
C (±0.02"/0.50mm)	4.02" (102.1mm)	4.87" (123.7mm)	5.74" (145.8mm)	9.05" (229.9mm)	11.29" (286.8mm)	16.96" (430.8mm)
Weight	2.5 oz. (71g)	3.2 oz. (93g)	3.5 oz. (100g)	5.5 oz. (156g)	8.0 oz. (227g)	14 oz. (397g)

Options and Accessories

See individual gage head model specification pages for compatibility

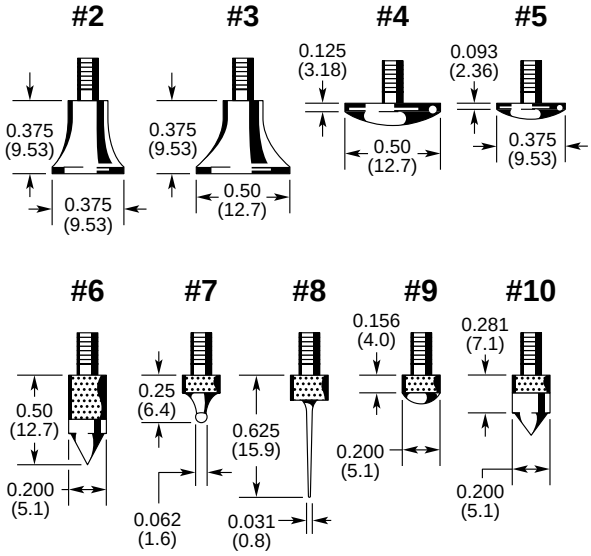
Connectors

Seven different connectors are available to simplify installation of LBB and PCA Series gaging probes, including the PCA Series Bi-directional Lever Probe. To select the proper connector, simply add the appropriate number to the end of the gage head part number. For example, by adding a 2 to a model number such as LBB375PA-020-2 allows the user to specify a standard sensitivity gage head with an Amphenol-type 126-195 connector.

Connector Part Number Suffix	Description
1	Bendix-type PTO6A-10-6P (SR)
2	Amphenol-type 126-195
3	Amphenol-type 165-13
4	DE-9 compatible with Schaevitz® ATA2001
5	Switchcraft-type 12CL5-M compatible with Schaevitz® SYS-96 Dimensional Data Acquisition System
6	LEMO-type CONN. FGG-OB-305-CNAD52
7	Switchcraft-type 05BL5-M compatible with Schaevitz® MP series LVDT readout/ controller

Special Contact Tips

Nine different Schaevitz® contact tips are available for special applications and as replacements for standard tips supplied with most gage heads. All Schaevitz® contact points are 4-48 AGD threaded. To order, select the proper contact tip number.



MS-Type Connector Cables

Consult factory for price and availability of adaptor cables for LVDTs and signal conditioners.