GCD-AE SERIES

Air extend DC Operated Gage Heads

SPECIFICATIONS

- **Air actuated**
- **Hermetically sealed housing**
- **25 µ-inch [0.6 µm] repeatability**
- **IEC IP68 rating to 1,000 PSI [70 bars]**
- **Long strokes up to ±1 inch**
- **Hardened tool steel contact tip**
- **High side load resistance**
- **Long cycle life**

The GCD-AE Series heavy-duty DC operated gage heads enable high performance in environments containing moisture, dirt, and fluid contaminants. These Gage heads are air-extend, spring-retract LVDTs (Linear Variable Differential Transformers) with precision linear bearings and internal conditioning electronics. Operating on a nominal ±15VDC supply, the GCD-AE Series delivers an extremely linear, low noise ±10VDC output.

These robust gage heads allow measurements over stroke ranges from ±0.05 inch [±1.27mm] up to ±1 inch [±25.4mm]. A removable black-chromed, hardened tool steel tip is threaded (4-48UNF-2A) to the working end. Internal construction prevents the core and shaft from rotating as they move longitudinally. The integral electrical connector (welded) provides for easy installation and allows replacing a damaged cable without sacrificing the sensor. Installation and adjustment are facilitated by an external ½-20 mounting thread and the two locknuts supplied with each unit.

Like in most of our LVDTs, the GCD-AE windings are vacuum impregnated with a specially formulated, high temperature, flexible resin, and the coil assembly is potted inside its housing with a two-component epoxy. This provides excellent protection against hostile environments such as high vibration and shock.

The ruggedness, long life cycle, and very high reliability of the GCD-AE Series provide a low cost of ownership over the life of the equipment onto which they are installed. The one-piece front end (barrel which contains the bearing assembly), machined from solid stainless steel bar, coupled with a bronze bushing, has far greater resistance to bending forces and side loads compared to other designs. This is particularly important on the longer stroke versions; it reduces the common risk of probe damage/bending during installation or maintenance of industrial equipment. The GCD-AE Series designs also require fewer parts and weld joints, thereby increasing overall structural integrity and reliability.

FEATURES

- Air extend, spring retract
- All-welded stainless steel construction
- Resistant to harsh environments
- MS type connector (MIL-C-5015)
- Long cycle life
- CE compliant
- Calibration certificate supplied with each unit

APPLICATIONS

- Factory automation
- Industrial printing equipment
- Steel mills
- Metal thickness gaging
- Environments requiring hermetically sealed transducers
- In-process measurements (feedback loop with PLC or CNC controller)

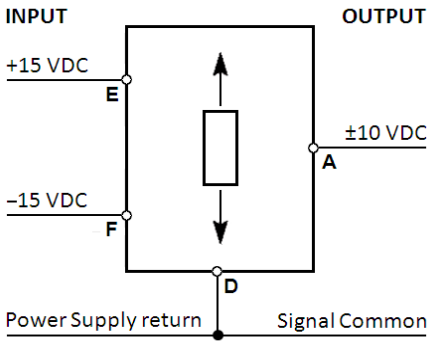
PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS					
Parameter	**GCD-AE 050**	**GCD-AE 125**	**GCD-AE 250**	**GCD-AE 500**	**GCD-AE 1000**
Stroke/gaging range	±0.050 [1.27]	±0.125 [3.17]	±0.25 [6.35]	±0.50 [12.7]	±1.0 [25.4]
Sensitivity, volts/inch	200	80	40	20	10
Input voltage	+/-15VDC				
Input current	30mA, maximum				
Output at stroke ends	+/-10VDC (Output is positive when the core is displaced from null towards the connector)				
Non-linearity	±0.25% of FR, maximum				
Repeatability	25 µ-inch [0.6 µm]				
Stability	0.125% of FSO after warm up				
Frequency response (dynamic)	15Hz, maximum				

ENVIRONMENTAL SPECIFICATIONS & MATERIALS	
Operating temperature	+32°F to +160°F [0°C to 70°C]
Survival temperature	-65°F to +200°F [-55°C to 95°C]
Shock survival	250 g (11ms half-sine)
Vibration tolerance	10 g up to 2kHz
Housing material	AISI 400 Series stainless steel
Air pressure connection	Use 1/16" [1.6mm] ID flexible tubing; pressure 25 to 35 PSI; filtered & dried air; no lubrication
Electrical connector	6-pin MS type connector (MIL-C-5015)
IEC 60529 rating	IP68 to 1,000 PSI [70 bars] with use of proper mating connector plug

Notes:
All values are nominal unless otherwise noted
Dimensions are in inch [mm] unless otherwise noted
FR: Full Range is the stroke range, end to end; FR=2xS for ±S stroke range
FSO (Full Scale Output): Largest absolute value of the outputs measured at the ends of the range

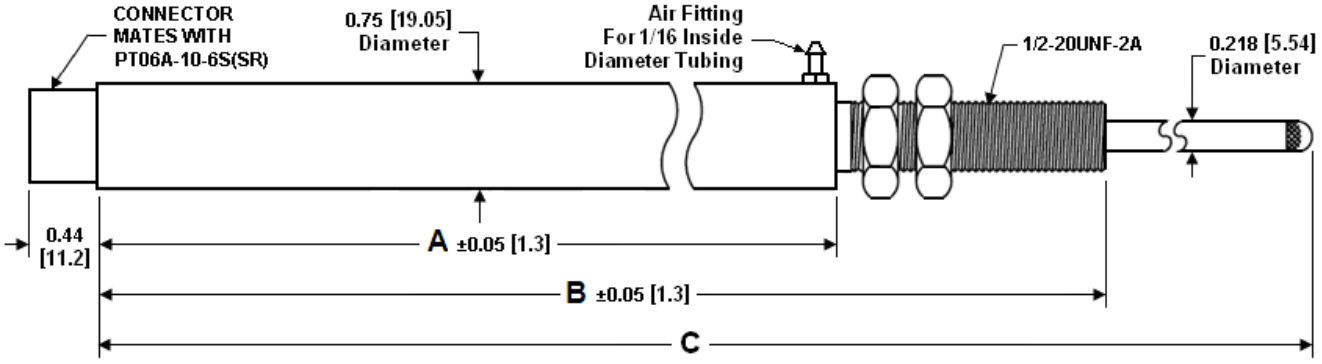
WIRING INFORMATION



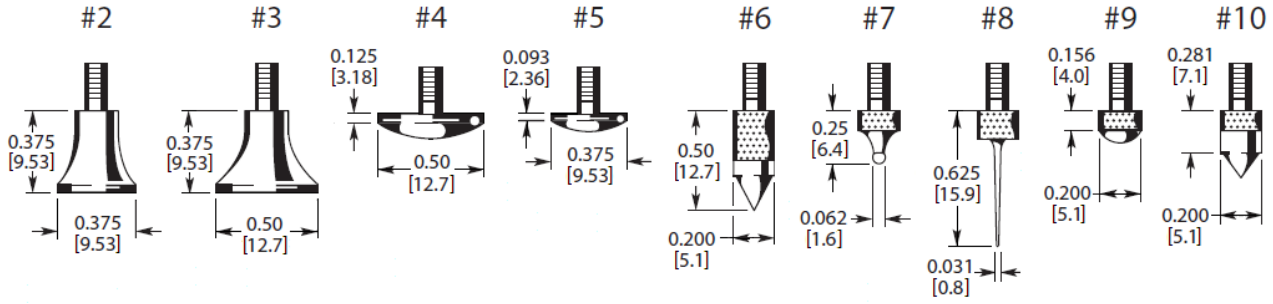
A through F: Connector pin assignments

MECHANICAL SPECIFICATIONS

Parameter	GCD-AE 050	GCD-AE 125	GCD-AE 250	GCD-AE 500	GCD-AE 1000
Stroke/gaging range	±0.050 [1.27]	±0.125 [3.17]	±0.25 [6.35]	±0.5 [12.7]	±1 [25.4]
Pre-travel	0.20 [5.1]	0.23 [5.8]	0.05 [1.3]	0.20 [5.1]	0.14 [3.6]
Over-travel (minimum)	0.39 [9.90]	0.25 [6.4]	0.20 [5.1]	1.0 [25.4]	0.15 [3.81]
Main body length “A”	2.66 [67.6]	3.5 [88.9]	4.37 [111.0]	6.06 [153.9]	8.31 [211.1]
Overall body length “B”	4.02 [102.1]	4.87 [123.7]	5.74 [145.8]	9.05 [229.9]	11.29 [286.8]
Plunger length “C” (fully extended)	4.88 [124.0]	5.73 [145.3]	6.72 [170.7]	11.36 [288.6]	13.75 [349.2]
Weight, Ounce	2.5 oz	3.3oz	3.5 oz	5.5 oz	8.0 oz
Weight, Gram	71 G	93 G	100 G	156 G	227 G



REPLACEMENT/OPTIONAL CONTACT TIPS



Dimensions are in inch [mm]

ORDERING INFORMATION

Description	Model	Part Number
±0.050 inch air-extend gage head	GCD-AE 050	02350509-150
±0.125 inch air-extend gage head	GCD-AE 125	02350510-150
±0.25 inch air-extend gage head	GCD-AE 250	02350511-150
±0.5 inch air-extend gage head	GCD-AE 500	02350512-150
±1 inch air-extend gage head	GCD-AE 1000	02350513-150

ACCESSORIES		
Dual rail DC power supply (±15VDC)	PSD 40-15	02291339-000
Mating connector kit	PT06A-10-6S(SR)	62101011-000
Cable with wired mating connector *(1)*	GCD-AE to Stripped/Tinned	04290583-000
Replacement contact tips	Contact Tip 2	67010005-000
	Contact Tip 3	67010006-000
	Contact Tip 4	67010002-000
	Contact Tip 5	67010007-000
	Contact Tip 6	67010008-000
	Contact Tip 7	67010009-000
	Contact Tip 8	67010010-000
	Contact Tip 9	67010001-000
	Contact Tip 10	67010011-000

(1) Cables are shielded, 10 foot long, and rated 80°C [176°F] operating. Consult factory for other lengths.

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