



## HCA-T SERIES

Hermetically Sealed, High Temperature AC LVDT

### SPECIFICATIONS

- ◆ Operating temperature 392°F [200°C]
- ◆ Hermetically sealed, all welded
- ◆ Stainless steel housing
- ◆ MS type connector, glass sealed
- ◆ IEC IP68 rating to 1,000 PSI [70 bars]
- ◆ Stroke ranges from  $\pm 0.05$  to  $\pm 10$  inches
- ◆ AC operation from 400Hz to 10kHz
- ◆ Double magnetic shielding

The **HCA-T Series** hermetically sealed, high-temperature LVDTs provide premium performance in harsh industrial environments. Impervious to dirt, water, steam, and corrosive liquids/vapors compatible with its materials, the HCA-T all-welded stainless steel construction withstands external pressures up to 1,000 PSI [70 bars] and operates up to 392°F [200°C] continuously. Double magnetic shielding offers excellent protection from external electromagnetic fields.

### FEATURES

- ◆ 392°F [200°C] continuous operation
- ◆ All-welded stainless steel construction
- ◆ Glass sealed, MS type connector (MIL-C-5015)
- ◆ Shock and vibration tolerant
- ◆  $\pm 0.25\%$  of Full Range linearity (100% of stroke)
- ◆ Calibration certificate supplied with each unit

### APPLICATIONS

- ◆ High temperature applications
- ◆ Harsh industrial environments
- ◆ Submersible (with appropriate connector)
- ◆ Pressure vessels
- ◆ Corrosive liquid and vapor areas (check materials)
- ◆ Turbine valve

The HCA-T is compatible with the full line of Measurement Specialties LVDT signal conditioners.

Like in most of our LVDTs, the HCA-T 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.

Also see our other hermetic LVDT models with built-in signal conditioning: **HCD** (DC voltage), **HCT** (4-20mA, 2-wire loop) and **HC-485** (RS-485 Digital Series).

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### PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS									
Parameter	HCA-T 050	HCA-T 125	HCA-T 250	HCA-T 500	HCA-T 1000	HCA-T 2000	HCA-T 3000	HCA-T 5000	HCA-T 10000
Stroke range	±0.050 [±1.27]	±0.125 [±3.17]	±0.25 [±6.35]	±0.5 [±12.7]	±1 [±25.4]	±2 [±50.8]	±3 [±76.2]	±5 [±127]	±10 [±254]
Sensitivity V/V/inch mV/V/mm	4.2 [165]	2.4 [94.5]	1.6 [63.0]	1.1 [43.3]	0.84 [33.1]	0.32 [12.6]	0.20 [7.9]	0.16 [6.3]	0.13 [5.1]
Output at stroke ends, mV/V (*)	210	300	400	550	840	640	600	800	1,300
Phase shift	+6°	+5°	+5°	+2°	+1°	-1°	+1°	-5°	-6°
Input impedance (PRIMARY)	430Ω	1710Ω	800Ω	900Ω	900Ω	525Ω	930Ω	1200Ω	930Ω
Output impedance (SECONDARY)	950Ω	1820Ω	940Ω	1150Ω	2100Ω	535Ω	1040Ω	1640Ω	3000Ω
Non-linearity	±% of FR								
@100% stroke (maximum)	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
@125% stroke	0.25	0.25	0.30	0.30	0.35	0.40 (**)	0.50	0.80	0.90 (**)
@150% stroke	0.50	0.50	0.50	0.55 (**)	0.55 (**)	0.70 (**)	1.00 (**)	/	/
Input voltage	3 VRMS sine wave								
Input frequency	400Hz to 10kHz								
Test frequency	2.5kHz								
Null voltage	0.5% of FRO, maximum								

ENVIRONMENTAL SPECIFICATIONS & MATERIALS	
Operating temperature	-4°F to +392°F [-20°C to 200°C]
Shock survival	1,000 g (11ms half-sine)
Vibration tolerance	20 g up to 2kHz
Housing material	AISI 400 Series stainless steel
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

Electrical specifications are for the test frequency indicated in the table

Dimensions are in inch [mm] unless otherwise noted

FR: Full Range is the stroke range, end to end; FR=2xS for ±S stroke range

FRO (Full Range Output): Algebraic difference in outputs measured at the ends of the range

(\*) Unit for output at stroke ends is millivolt per volt of excitation (input voltage)

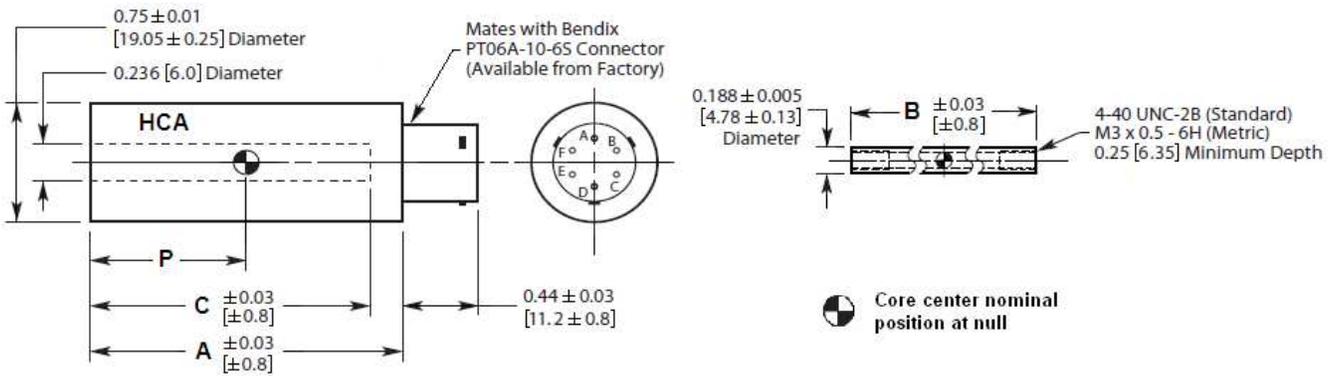
(\*\*) Requires special reduced core length

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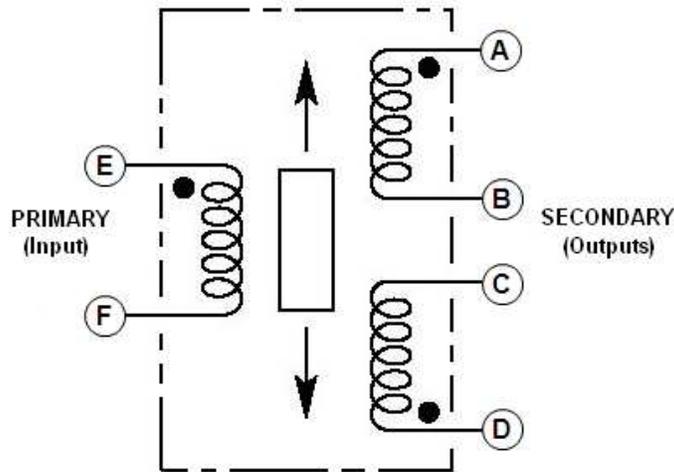
## MECHANICAL SPECIFICATIONS – NON CAPTIVE CORE (STANDARD)

Parameter	HCA-T 050	HCA-T 125	HCA-T 250	HCA-T 500	HCA-T 1000	HCA-T 2000	HCA-T 3000	HCA-T 5000	HCA-T 10000	
Body length "A"	1.66 [42.2]	2.50 [63.5]	3.36 [85.3]	5.05 [128.3]	7.29 [185.2]	10.68 [271.3]	15.76 [400.3]	19.70 [500.4]	33.82 [859.0]	
Core length "B"	0.59 [15.0]	1.10 [27.9]	1.80 [45.7]	3.00 [76.2]	3.80 [96.5]	5.30 [134.6]	6.20 [157.5]	6.20 [157.5]	12.00 [304.8]	
Bore depth "C"	1.07 [27.2]	1.91 [48.5]	2.77 [70.4]	4.46 [113.3]	6.72 [170.7]	10.20 [259.1]	15.17 [385.3]	19.12 [485.6]	33.23 [844.0]	
Core center at null "P"	0.55 [14.0]	0.96 [24.4]	1.39 [35.3]	2.23 [56.6]	3.32 [84.3]	4.91 [124.7]	7.59 [192.8]	9.56 [242.8]	16.61 [421.9]	
HCA body weight	oz [g]	1.20 [34]	1.73 [49]	2.22 [63]	2.93 [83]	5.22 [148]	5.65 [160]	8.33 [236]	10.31 [292]	18.57 [526]
Core weight	oz [g]	0.07 [2]	0.11 [3]	0.14 [4]	0.28 [8]	0.39 [11]	0.46 [13]	0.60 [17]	0.85 [24]	



Dimensions are in inch [mm]

## WIRING INFORMATION



A through F: Connector pin assignments  
Connect B to C for differential output

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### ORDERING INFORMATION

Description	Model	Part Number
±0.050 inch LVDT	HCA-T 050	02562413-000
±0.125 inch LVDT	HCA-T 125	02562414-000
±0.25 inch LVDT	HCA-T 250	02562415-000
±0.5 inch LVDT	HCA-T 500	02562416-000
±1 inch LVDT	HCA-T 1000	02562417-000

Description	Model	Part Number
±2 inch LVDT	HCA-T 2000	02562418-000
±3 inch LVDT	HCA-T 3000	02562419-000
±5 inch LVDT	HCA-T 5000	02562420-000
±10 inch LVDT	HCA-T 10000	02562421-000

OPTIONS		
Description	Comments	Part Number
Metric threaded core (Non-captive) or connecting rod (Captive core)	All	XXXXXXXX-006

ACCESSORIES FOR HCA AND HCA-RA		
Description	Comments	Part Number
Core connecting rod, 6 inches long, 4-40 threads		05282946-006
Core connecting rod, 12 inches long, 4-40 threads		05282946-012
Core connecting rod, 24 inches long, 4-40 threads		05282946-024
Core connecting rod, 36 inches long, 4-40 threads		05282946-036
Core connecting rod, 6 inches long, M3x0.5 metric threads		05282977-006
Core connecting rod, 12 inches long, M3x0.5 metric threads		05282977-012
Mating connector kit	PT06A-10-6S(SR)	62101011-000
Interconnect cable for LDM/PML-1000 Signal Conditioners, 200°C (1)	HCA/HCA-RA to Stripped/Tinned	04290595-000

(1) Interconnect cable is shielded, 10 foot long, and rated 392°F [200°C]. Consult factory for other lengths.

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