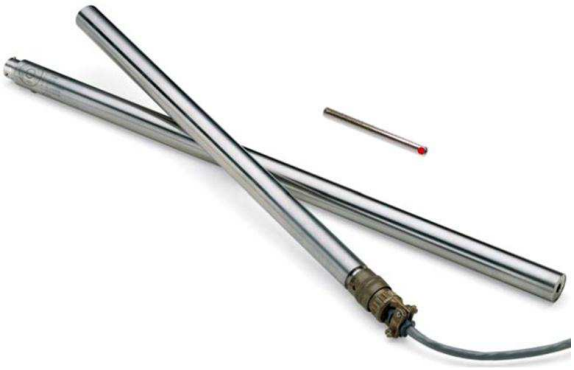


HCD SERIES

Hermetically Sealed DC LVDT

SPECIFICATIONS

- **Hermetically sealed, all welded**
- **Stainless steel housing**
- **High level ±10VDC output**
- **Stroke ranges from ±0.05 to ±10 inches**
- **Shock and vibration tolerant**
- **MS style connector**
- **IEC IP68 rating to 1,000 PSI [70 bars]**
- **Captive core option**

The HCD Series hermetically sealed DC operated LVDTs are the perfect choice for high performance measurements in environments containing moisture, dirt, and fluid contaminants. Operating on a nominal ±15VDC supply, these heavy-duty LVDTs deliver an extremely linear, low noise, yet high frequency response ±10VDC output.

The integral electrical connector (welded, glass-sealed MS type) provides for easy installation and allows replacing a damaged cable without sacrificing the sensor.

The HCD is available in stroke ranges of ±0.05 inch [±1.27mm] up to ±10 inches [±254mm], and with a number of standard options including imperial or metric threaded core, guided core and captive core.

Like in most of our LVDTs, the HCD 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.

Captive core option: The HCD features an optional captive core design (available for most models) that greatly simplifies installation. The core rod and bearing assembly includes a Bronze bearing on the front end for self-alignment, while a PTFE sleeve allows low-friction travel through the stainless steel boreliner (spool tube). The core rod and the bearing assembly are both field serviceable.

FEATURES

- All-welded stainless steel construction
- Shock and vibration tolerant
- Low noise, ±10VDC output
- Double magnetic shielding
- MS type connector (MIL-C-5015)
- Calibration certificate supplied with each unit

APPLICATIONS

- Harsh industrial environments
- Pressurized installations up to 1,000 psi
- Paper processing mills
- Roller gap position feedback
- Automated test systems
- X-Y Positional Feedback

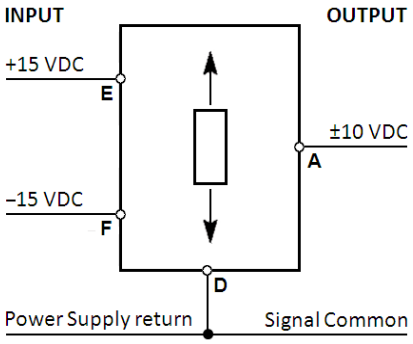
PERFORMANCE SPECIFICATIONS

ELECTRICAL SPECIFICATIONS									
Parameter	**HCD 050**	**HCD 125**	**HCD 250**	**HCD 500**	**HCD 1000**	**HCD 2000**	**HCD 3000**	**HCD 5000**	**HCD 10000**
Stroke range	±0.050 [±1.27]	±0.125 [±3.17]	±0.25 [±6.85]	±0.5 [±12.7]	±1 [±25.4]	±2 [±50.8]	±3 [±76.2]	±5 [±127]	±10 [±254]
Sensitivity, VDC/inch	200	80	40	20	10	5	3.3	2.0	1.0
Sensitivity, VDC/mm	7.87	3.15	1.575	0.787	0.394	0.197	0.130	0.079	0.0394
Frequency response Hertz @ -3db	500	500	500	200	200	200	200	200	200
Input voltage	+/-15VDC								
Input current	±25mA								
Output @ stroke ends	+/-10VDC (Output is positive when the core is displaced from null towards the connector)								
Non-linearity	±0.25% of FR, maximum								
Output ripple	25mVRMS, maximum								
Stability	0.125% of FSO								
Output impedance	1 Ohm								

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
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

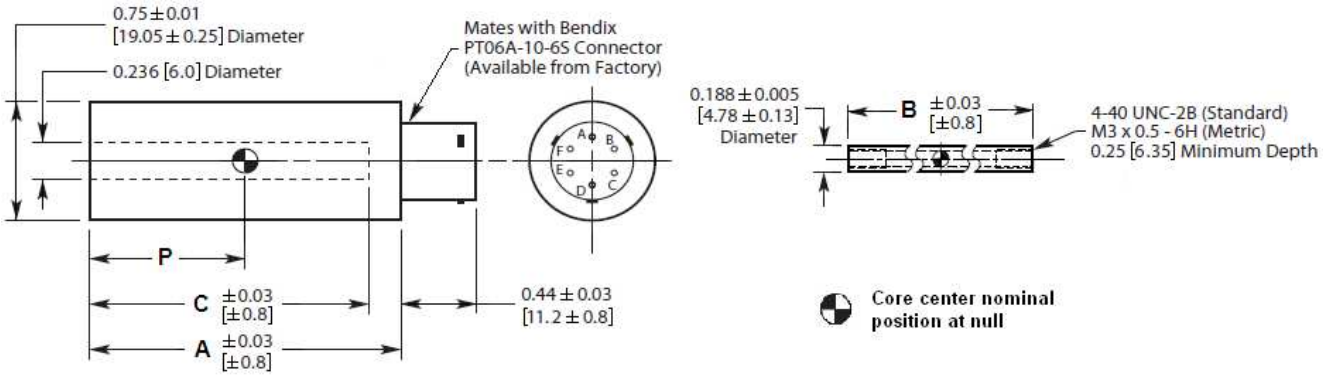
WIRING INFORMATION



A through F: Connector pin assignments

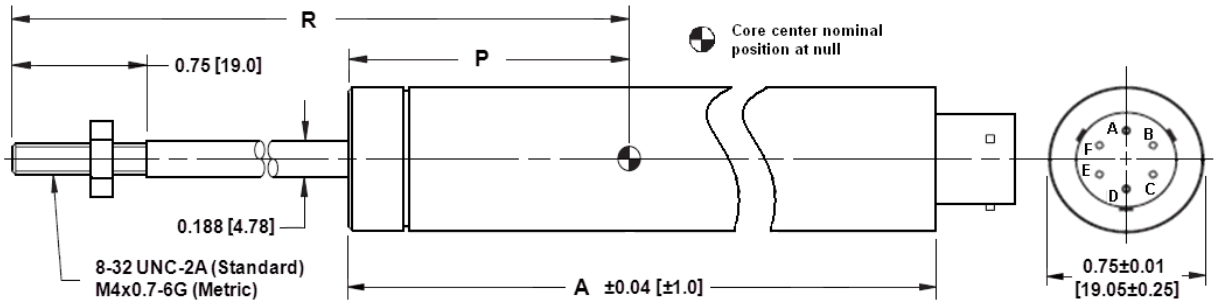
MECHANICAL SPECIFICATIONS – NON CAPTIVE CORE (STANDARD)

Parameter	HCD 050	HCD 125	HCD 250	HCD 500	HCD 1000	HCD 2000	HCD 3000	HCD 5000	HCD 10000
Main body length "A"	2.40 [61.0]	3.23 [82.0]	4.10 [104.1]	5.79 [147.1]	8.05 [204.5]	11.42 [290.1]	16.62 [422.1]	20.45 [519.4]	34.57 [878.1]
Core length "B"	0.75 [19.1]	1.25 [31.8]	2.0 [50.8]	3.0 [76.2]	3.8 [96.5]	5.3 [134.6]	6.2 [157.5]	6.2 [157.5]	12.0 [304.8]
Bore depth "C"	1.90 [48.3]	2.73 [69.3]	3.60 [91.4]	5.29 [134.4]	7.55 [191.8]	10.92 [277.4]	16.10 [408.9]	19.95 [506.7]	34.03 [864.4]
Core center @null "P"	0.55 [14.0]	0.96 [24.4]	1.39 [35.3]	2.23 [56.6]	3.18 [80.8]	4.91 [124.7]	7.59 [192.8]	9.56 [242.8]	16.61 [421.9]
Weight, body oz [gram]	1.41 [40]	1.77 [50]	2.19 [62]	2.93 [83]	4.24 [120]	6.14 [174]	8.33 [236]	10.38 [294]	18.57 [526]
Weight, core oz [gram]	0.07 [2]	0.11 [3]	0.18 [5]	0.28 [8]	0.35 [10]	0.53 [15]	0.64 [18]	0.64 [18]	0.85 [24]



MECHANICAL SPECIFICATIONS – CAPTIVE CORE OPTION

Parameter	HCD 050	HCD 125	HCD 250	HCD 500	HCD 1000	HCD 2000	HCD 3000
Main body length "A"	2.74 [69.6]	3.57 [90.7]	4.44 [112.8]	6.13 [155.7]	8.39 [213.1]	11.76 [298.7]	16.96 [430.8]
Core center at null "P"	0.89 [22.6]	1.30 [33.0]	1.73 [43.9]	2.57 [65.3]	3.52 [89.4]	5.25 [133.4]	7.93 [201.4]
Core rod position at null "R"	3.78 [96.0]	4.36 [110.7]	4.85 [123.2]	6.04 [153.4]	7.90 [200.7]	10.52 [267.2]	15.27 [387.9]
Weight, oz [gram]	2.19 [62]	2.65 [75]	3.14 [89]	4.06 [115]	5.61 [159]	7.87 [223]	10.63 [301]



Dimensions are in inch [mm]

ORDERING INFORMATION

Description	Model	Part Number
±0.050 inch LVDT	HCD 050	02560440-000
±0.125 inch LVDT	HCD 125	02560441-000
±0.25 inch LVDT	HCD 250	02560442-000
±0.5 inch LVDT	HCD 500	02560443-000
±1 inch LVDT	HCD 1000	02560444-000

Description	Model	Part Number
±2 inch LVDT	HCD 2000	02560445-000
±3 inch LVDT	HCD 3000	02560446-000
±5 inch LVDT	HCD 5000	02560447-000
±10 inch LVDT	HCD 10000	02560448-000

OPTIONS		
Metric threaded core (Non-captive) or connecting rod (Captive core)	All	XXXXXXXX-006
Guided core	Available on non-captive core models only	XXXXXXXX-010
Small-diameter/low-mass core *(consult factory for mass & dimensions)*		XXXXXXXX-020
Captive core	HCD 050 thru 3000 only	XXXXXXXX-200

Note: *Add multiple option dash numbers together to determine proper ordering suffix*
Example: HCD 1000, ±1 inch, with captive core and metric threaded connecting rod, P/N 02560444-206

ACCESSORIES		
Dual rail DC power supply (±15VDC)	Model PSD 40-15	02291339-000
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
Mounting block		04560950-000
Mating connector kit	PT06A-10-6S(SR)	62101011-000
Cable with wired mating connector	HCD to Stripped/Tinned	04290583-000

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

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