

HCA | HCA-RA

Schaevitz™-LVDT

- Measurement ranges from ± 1.27 mm to ± 254 mm
- LVDT
- Linearity 0.25 % at 100 % stroke
- Output 5 ... 165 mV/V per mm
- Supply voltage 3 V_{eff}



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

The HCA/HCA-RA Series can be configured with a number of standard options including but not limited to high temperature operation (+220 °C) and mild radiation resistance (10^{12} NVT total integrated flux; 10^7 rads Gamma).

The HCA-RA version adds the convenience of a radial connector termination. This feature decreases the required installation space, while also allowing debris to harmlessly pass through the „open-ended“ bore.

Captive core option: The HCA/HCA-RA features an optional captive core design that greatly simplifies installation. The core rod and bearing assembly includes a Bronze bearing on the front end for self-alignment, while a Teflon 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
- Glass sealed, MS type connector (MIL-C-5015)
- Shock and vibration tolerant
- Captive core eases installation (optional)
- Mild radiation resistance (optional)
- Calibration certificate supplied with each unit
- Right angle (HCA-RA) version available

■ Application

- Harsh industrial environments
- Submersible (with appropriate connector)
- Pressure vessels
- Corrosive liquid and vapor areas (check materials)
- Mild radiation areas
- Turbine valve

Specifications

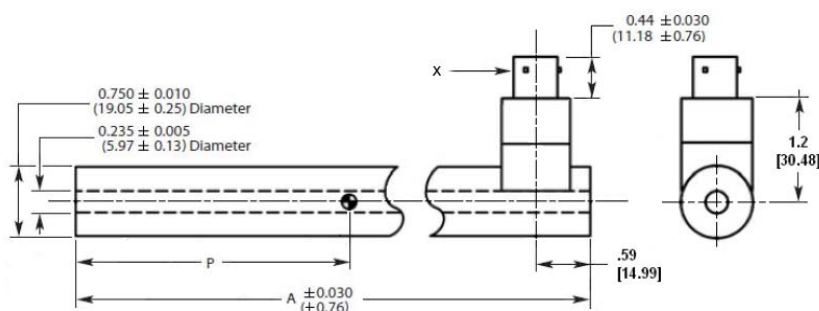
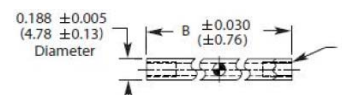
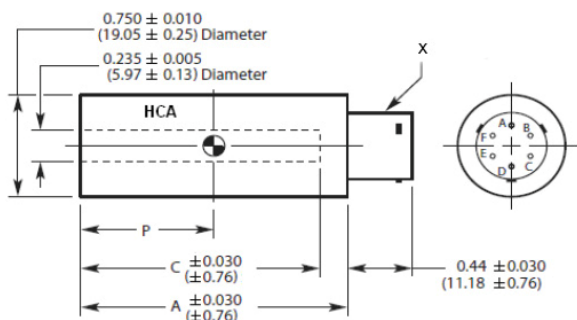
Supply voltage	3 V _{rms}
Frequency range	400 Hz ... 10 kHz
Operating temperature range	-55 ... +150 °C (-65 ... +300 °F)
Null voltage	<0.5 % of FSO
Shock survival	1000 g (11 ms half-sine)
Vibration tolerance	20 g up to 2 kHz
Housing material	AISI 400 stainless steel
Electrical termination	6-pin connector
Test frequency	2,5 kHz

Notes

All values are nominal unless otherwise noted
 Electrical specifications are for the test frequency indicated in the table
 FS: Full Scale is 2X for ±X stroke
 FSO: Full Scale Output is the output at X position for ±X stroke
 * Requires special reduced core length

Model	Stroke		Sensitivity		Output at stroke ends mV/V	Linearity at stroke				Impedance		Phase shift °
	inch	mm	0.001 in	mm		50%	100%	125%	150%	Pri Ohm	Sec Ohm	
050 HCA / HCA-RA	±0.050	±1.27	4.2	165	210	0.20	0.25	0.25	0.50	430	950	+6
125 HCA / HCA-RA	±0.125	±3.17	2.4	95	300	0.20	0.25	0.25	0.50	1710	1820	+5
250 HCA / HCA-RA	±0.25	±6.35	1.6	63	400	0.20	0.25	0.30	0.50	800	940	+5
500 HCA / HCA-RA	±0.5	±12.7	1.1	44	550	0.20	0.25	0.30	0.55	900	1150	+2
1000 HCA / HCA-RA	±10	±25.4	0.84	34	840	0.20	0.25	0.35	0.55*	900	2100	+1
2000 HCA / HCA-RA	±2	±50.8	0.32	12.6	640	0.20	0.25	0.40*	0.70*	525	535	-1
3000 HCA / HCA-RA	±3	±76.2	0.20	8.0	600	0.20	0.25	0.50*	1.00*	930	1040	+1
5000 HCA / HCA-RA	±5	±127	0.16	6.4	800	0.20	0.25	0.80*	n/r	1200	1640	-5
10000 HCA / HCA-RA	±10	±254	0.13	5.0	1300	0.20	0.25	0.90*	n/r	930	3000	-6

Mechanical Specifications



X: mates with Bendix PT06A-10-6S connector (not included)

Y: 4-40 UNC-2B (Standard)
 M3 x 0.5 -6H (metric thread core)
 0.25 (6.35) minimum depth X

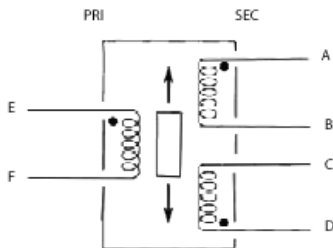
Dimensions are in inch [mm] unless otherwise noted

These drawings are for information only and not intended for construction purpose.
 Please ask for detailed drawings.

Model	Dimensions							
	A (Body)		B (Core)		C		P	
	inch	mm	inch	mm	inch	mm	inch	mm
050 HCA / HCA-RA	1.66	42.2	0.59	15.0	1.07	27.2	0.55	14.0
125 HCA / HCA-RA	2.50	63.5	1.10	27.9	1.91	48.5	0.96	24.4
250 HCA / HCA-RA	3.36	85.3	1.80	45.7	2.77	70.4	1.39	35.3
500 HCA / HCA-RA	5.05	128.3	3.00	76.2	4.46	113.3	2.23	56.6
1000 HCA / HCA-RA	7.29	185.2	3.80	96.5	6.72	170.7	3.32	84.3
2000 HCA / HCA-RA	10.68	271.3	5.30	134.6	10.20	259.1	5.05	128.3
3000 HCA / HCA-RA	15.76	400.3	6.20	157.5	15.17	385.3	7.59	192.8
5000 HCA / HCA-RA	19.70	500.4	6.20	157.5	19.12	485.6	9.56	242.8
10000 HCA / HCA-RA	33.82	859.0	12.00	304.8	33.23	844.0	16.61	421.9

Model	Weight					
	Body type HCA		Body type HCA-RA		Core	
	oz	g	oz	g	oz	g
050 HCA / HCA-RA	1.20	34	2.26	64	0.07	2
125 HCA / HCA-RA	1.73	49	2.79	79	0.11	3
250 HCA / HCA-RA	2.22	63	3.28	93	0.14	4
500 HCA / HCA-RA	2.93	83	3.98	113	0.28	8
1000 HCA / HCA-RA	5.22	148	6.28	178	0.39	11
2000 HCA / HCA-RA	5.65	160	6.70	190	0.46	13
3000 HCA / HCA-RA	8.33	236	9.38	266	0.49	14
5000 HCA / HCA-RA	10.31	292	11.35	322	0.60	17
10000 HCA / HCA-RA	18.57	526	19.61	556	0.85	24

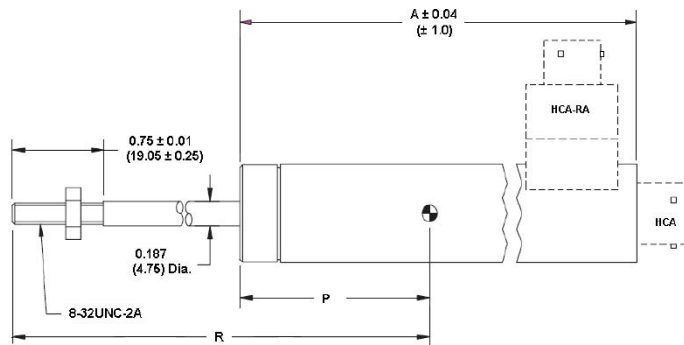
Wiring



Connect „B“ and „C“ for differential output.

■ Captive Core Option

These LVDTs feature a captive core design that greatly simplifies installation. The design utilizes a core rod and bearing assembly that is captured and guided within the LVDT providing low friction travel throughout the stroke length. The assembly incorporates two Delrin bearings on the core rod traveling through the stainless steel boreliner. A bronze bearing on the front end utilizes a self-aligning feature to accommodate lateral LVDT movement during operation, the core rod and bearing assembly is field replaceable.



Dimensions are in inch [mm] unless otherwise noted.
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Model	Stroke		Weight, approx.		Dimensions, approx.					
	Inches	mm	oz	g	A		P		R	
					in	mm	in	mm	in	mm
050 HCA / HCA-RA	±0.050	±1.27	1.98	56	2.00	50.8	0.89	22.8	3.70	94.0
125 HCA / HCA-RA	±0.125	±3.17	2.61	74	2.84	72.1	1.30	33.0	4.28	108.7
250 HCA / HCA-RA	±0.25	±6.35	3.14	89	3.70	94.0	1.73	43.9	4.75	120.7
500 HCA / HCA-RA	±0.5	±12.7	4.06	115	5.39	136.9	2.57	65.3	6.04	153.4
1000 HCA / HCA-RA	±1	±25.4	6.64	188	7.63	193.8	3.66	93.0	7.90	200.7
2000 HCA / HCA-RA	±2	±50.8	7.38	209	11.02	279.9	5.39	138.9	10.52	267.2
3000 HCA / HCA-RA	±3	±76.2	10.63	301	16.10	408.9	7.93	201.4	15.27	387.9

■ Ordering Information

Specify the HCA Model followed by the desired option number(s) added together.

Example:

Model Number 050 HCA-019 is an HCA Series LVDT with a ±0.05" range (050 HCA), with 10 kHz testing (003), Metric thread core (006), and a guided core (010).

Option number	Description
002	5.0 kHz linearity test ⁽¹⁾
003	10.0 kHz linearity test ⁽¹⁾
006	metric thread core
010	guided core
020	small diameter/low mass core ^(1,2)
080	mild radiation resistance
200	captive core ⁽³⁾

(1) 050 HCA/HCA-RA through 500 HCA/HCA-RA only

(2) Dimensions, mass and thread size on request

(3) 050 HCA/HCA-RA through 3000 HCA/HCA-RA only

Due to continual product development, ALTHEN and partners reserve the right to vary the foregoing details without prior notice.