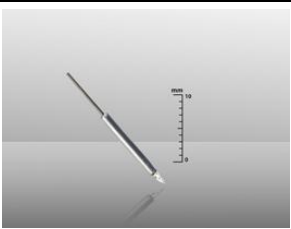
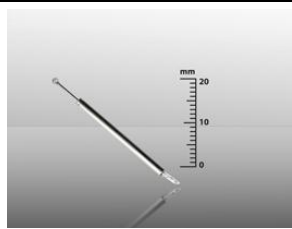
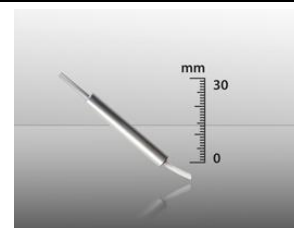
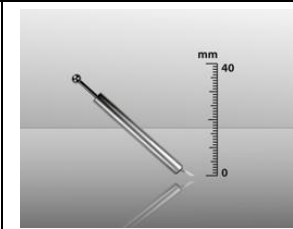
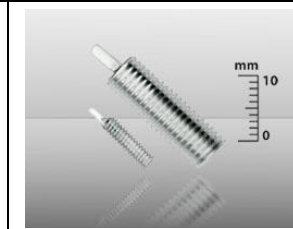


Displacement Sensors Comparison

Specifications					
Model	M-DVRT®	MG-DVRT®	S-DVRT®	SG-DVRT®	Non-contact DVRT®
Application	miniature control elements for automotive and robotic systems • process control for production-line monitoring • dimensional gauging for quality control applications • measuring strain and deflection in materials science and civil structures • linear/angular positioning of optical components • miniature force, torque, acceleration sensors • measuring strain, micromotion and deformation in bone and tissue				
Electrical Specifications (Obtained using DEMOD-DVRT® and DVRT® with 800 Hz low pass filter at constant temperature)					
Linear stroke lengths	3, 6 & 9 mm (standard version) 1.5 mm (high resolution version)	3, 6 & 9 mm (standard version) 1.5 mm (high resolution version)	4, 8, 24, 38 mm (standard resolution) 6 mm (high resolution) 500 µm or less (nano resolution)	4, 8, 24, 38 mm (standard resolution) 6 mm (high resolution) 500 µm or less (nano resolution)	
Measurement range					1.0 mm, 1.5 mm, 2.5 mm, 5.0 mm (not compatible with DEMOD-DC®)
Accuracy	± 1.5% using straight line ± 0.1% using polynomial	± 1.0% using straight line ± 0.1% using polynomial	± 1.0% using straight line ± 0.1% using polynomial	± 1.0% using straight line ± 0.1% using polynomial	±0.2 to ±1 % with polynomial calibration
Sensitivity	DEMOD output/sensor range	DEMOD output/sensor range	DEMOD output/sensor range	DEMOD output/sensor range	DEMOD output/sensor range
Signal to noise	2000 to 1 (with filter 3 dB down at 800 Hz, standard); 600 to 1 (unfiltered) noise measured peak to peak	2000 to 1 (with filter 3 dB down at 800 Hz, standard); 600 to 1 (unfiltered) noise measured peak to peak	4200 to 1 (with filter 3 dB down at 800 Hz, standard); 466 to 1 (unfiltered)	4200 to 1 (with filter 3 dB down at 800 Hz, standard); 466 to 1 (unfiltered)	1000 to 1 with filter 3 dB down at 800 Hz, standard
Resolution	1.5 µm for 3 mm stroke 3.0 µm for 6 mm stroke 4.5 µm for 9 mm stroke 300 nm for high resolution version	1.5 µm for 3 mm stroke 3.0 µm for 6 mm stroke 4.5 µm for 9 mm stroke 300 nm for high resolution version	1.0 µm for 4 mm stroke 2.0 µm for 8 mm stroke 6.0 µm for 24 mm stroke 9.5 µm for 38 mm stroke 0.6 µm for high resolution version 125 nm for nano resolution version (up to 10 nm resolution is possible with customized sensor range and electronics)	1.0 µm for 4 mm stroke 2.0 µm for 8 mm stroke 6.0 µm for 24 mm stroke 9.5 µm for 38 mm stroke 0.6 µm for high resolution version 125 nm for nano resolution version (up to 10 nm resolution is possible with customized sensor range and electronics)	dependent upon displacement area
Frequency response	800 Hz standard, 20 kHz optional	800 Hz standard, 20 kHz optional	800 Hz standard, 20 kHz optional	800 Hz standard, 20 kHz optional	800 Hz standard, 20 kHz optional

Model	M-DVRT®	MG-DVRT®	S-DVRT®	SG-DVRT®	Non-contact DVRT®
Temperature coefficient	Offset 0.0029%/ °C (typical) Span 0.030%/ °C (typical)	Offset 0.0029%/ °C (typical) Span 0.030%/ °C (typical)	Offset 0.002%/ °C (typical) Span 0.030%/ °C (typical)	Offset 0.002%/ °C (typical) Span 0.030%/ °C (typical)	Offset 0.0039%/°C (typical) Span 0.016%/°C (typical) dependent upon target material
Hysteresis	±1 micron	±1 micron	±1 micron	±1 micron	±2 microns (typical)
Repeatability	±1 micron	±1 micron	±1 micron	±1 micron	±2 µm (typical) at constant temperature
Mechanical Specifications (Contact us for information on custom designs suitable for immersion, corrosive and high pressure environments.)					
Overall body length	11.3 mm for 3 mm stroke 18.7 mm for 6 mm stroke 26.8 mm for 9 mm stroke 11.3 mm for high res version	24 mm for 3 mm stroke 40 mm for 6 mm stroke 50 mm for 9 mm stroke 24 mm for high res version	18.5 mm for 4 mm stroke 34.5 mm for 8 mm stroke 81 mm for 24 mm stroke 110 mm for 38 mm stroke 34.5 mm for high res version 34.5 mm for nano version	30.5 mm for 4 mm stroke 50.5 mm for 8 mm stroke 127 mm for 24 mm stroke 183 mm for 38 mm stroke 50.5 mm for high res version 50.5 mm for nano version	
Diameter x length (thread)					4.83 x 19.0 mm (10-32 UNF-2A) 6.35 x 19.0 mm (¼-28 UNF-2A) 12.70 x 19.0 mm (½-20 UNF 2A) 19.1 x 32.0 mm (smooth body)
Outside diameter	1.5 mm (standard version) 1.8 mm (high resolution)	1.8 mm (smooth body)	4.76 mm (3/16 inch)	6.0 mm (smooth body) 8.0 mm for 38 mm stroke	
Spring stiffness		0.2 Newtons/mm (1 lb/inch)		0.2 Newtons/mm (1 lb/in)	
Bearing materials		sapphire on stainless steel		sapphire on stainless steel	
Standard core tips		1.5 mm sapphire ball, 1.5 mm sapphire cup, sapphire stylus with 60 micron tip radius		4.76 mm stainless steel ball	
Housing material	smooth 316 stainless steel; 4-40, 6-32 & 8-32 400 series stainless steel threaded body options	316 stainless steel, smooth body; or 8-32, 400 series stainless steel threaded body	300 stainless steel, smooth 5/16 - 24 threaded 400 stainless steel(optional)	400 stainless steel; smooth body or 3/8-24 UNF thread; 38 mm stroke has 7/16-20 UNF thread	300 series stainless steel
Attachment method	stainless steel clamp, screws, barbs, threaded body	clamping collar or threaded body	optional: magnetic mounting block, threaded body, clamping collar	threaded body	threaded stainless nuts (excluding NC-DVRT-5.0)
Leadouts	45 cm, multi stranded, shielded, stainless steel reinforced, Teflon insulated	45 cm, multi stranded, shielded, stainless steel reinforced, Teflon insulated	45 cm, multi stranded, shielded, stainless steel reinforced, Teflon insulated	45 cm, multi stranded, shielded, stainless steel reinforced, Teflon insulated	45 cm, multi stranded, shielded, stainless steel reinforced
Connector	keyed 4-pin Lemo, polyolefin relief	keyed 4-pin Lemo, polyolefin relief	keyed 4-pin Lemo, polyolefin relief	keyed 4-pin Lemo, polyolefin relief	keyed 4-pin Lemo, polyolefin relief
Operating temperature	-55 °C to 175 °C	-55 °C to 175 °C	-55 °C to 175 °C	-55 °C to 175 °C	-55 °C to 175 °C
Core weight	3 mm: 0.06 g; 6 mm: 0.07 g; 9 mm: 0.07 g; 1.5 mm: 0.06 g		500 µm: 0.04 g; 4 mm: 0.04 g; 6 mm: 0.04 g; 24 mm: 1.62 g; 38 mm: 1.67 g		
Core material	0.020" diameter superelastic NiTi alloy, 00-90 thread optional	superelastic NiTi alloy	stainless steel	stainless steel	
Cable diameter	0.036 "	0.036 "	0.070 "	0.070 "	0.036 " to 0.070 "
Call 802.862.6629 or visit us online at www.microstrain.com					