

Digital Gauging Probes

The Solartron DP range of Gauging probes are the work horse of the gauging industry. Very high resolution, excellent linearity and high data speeds are coupled with outstanding measurement repeatability.



Contact gauge probes often provide the most cost-effective solution for a wide range of measuring and positioning applications. Long life precision capabilities and excellent sideload strength ensures the probes will last over 100 million cycles.

- Accuracy up to 0.05 % F.S. (0.1 micron)
- Repeatability of up to 0.05 micron, Resolution of up to 0.01 micron
- IP 65 Sealing on all probes (except Jet Pneumatic) with IP 68 sealing option
- Output up to 3906 readings per probe per second via the Orbit® Network.
- Customizability



Standard DP Spring Push

- 8 mm Diameter
- 0.5, 1, 2, 5, 10, 12, 20, & 30 mm ranges
- 0.7 N Tip Force

Standard DP Pneumatic Push

- 8 mm Diameter
- 2, 5, 10, 12, 20, & 30 mm ranges
- 0.7 N Tip Force

Standard DP Vacuum retract

- 2, 5, 10, 12, 20, & 30 mm ranges
- Same specifications as Digital Pneumatic probes.



DJ Jet Pneumatic Push

- 2, 5, 10, 12, & 20 mm ranges
- Actuation by an inbuilt piston, independent of gaiter. Air exits via side port



D12P Rugged Spring

- 12 mm diameter with 5 mm stem
- Built for applications with stronger sideload
- 5 & 10 mm ranges



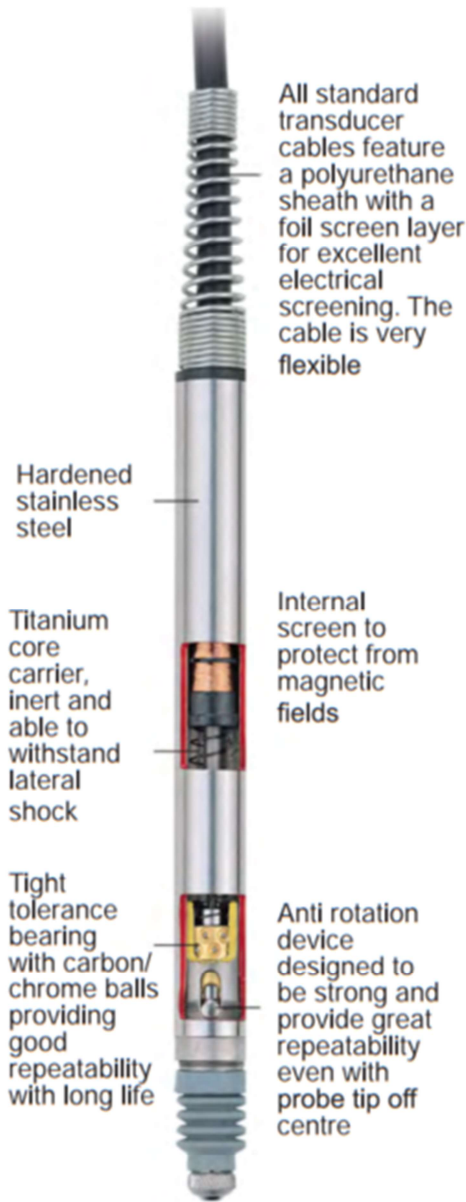
DSP Digital Short Probes

- Shorter versions of standard digital probes, for tighter spaces
- Up to 25% shorter, with same accuracy specifications
- 4 mm range available

REAL PRECISION. REAL SOLUTIONS.

www.solartronmetrology.com • sales.solartronmetrology@ametec.com

Data is only of value when it is processed from a reliable source



All standard transducer cables feature a polyurethane sheath with a foil screen layer for excellent electrical screening. The cable is very flexible

Hardened stainless steel

Titanium core carrier, inert and able to withstand lateral shock

Tight tolerance bearing with carbon/chrome balls providing good repeatability with long life

Internal screen to protect from magnetic fields

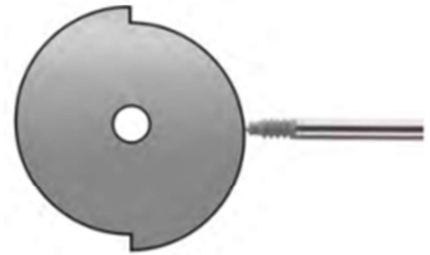
Anti rotation device designed to be strong and provide great repeatability even with probe tip off centre

Indicator lamps show power and data transmission active



PIE (Probe Interface Electronics)

Strong, and lightweight body with internal electrical screening



Probe design endures a harsh "stepped cam" test where probe is actuated with a sideload. Repeatability is maintained during the test.



35 mm DIN rail mount for PIE, strong, lightweight construction. Holds the sensor address

Solartron Digital Transducers calibrated using laser interferometers are error mapped to significantly improve linearity. In gauging applications this minimises number of setting masters required, reducing investment costs and ongoing cost of ownership.

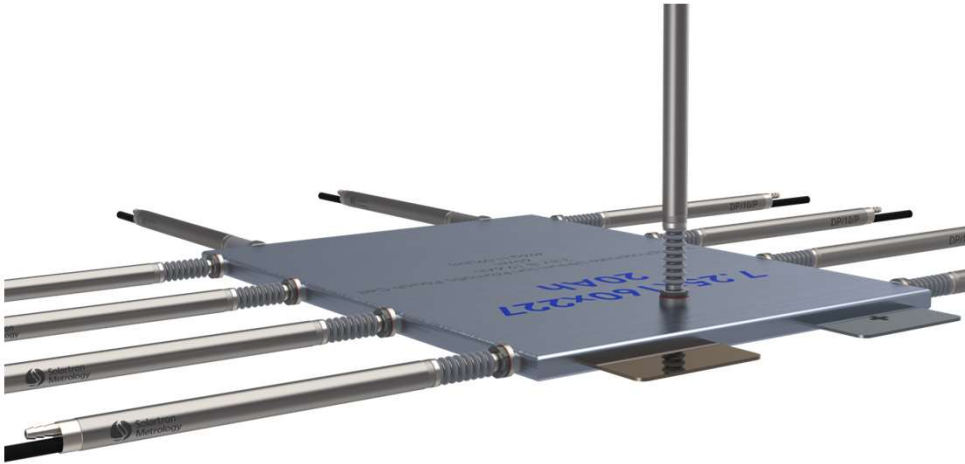
UNERRING DATA COLLECTION + POWERFUL PROCESSING = ROCK SOLID RESULTS

Good original data can be ruined by noisy signal conditioning and poor immunity from electrical interference which in turn affects the repeatability of results. Orbit® processes and transmits clean, repeatable data from sensors at high speeds of up to 3906 readings per second.

A reliable sensor is essential to any data processing system. All Solartron Orbit® based sensors and mechanical interfaces are designed to generate reliable data, not just from new but for millions of cycles.

Data is only of use if it can be displayed and/or acted on. Orbit® offers a range of displays and readouts, interface modules and software for both PC and PLC based systems. The Excel® Add-In provides a simple way to get data into Excel®. PLC systems are addressed with various interfaces.

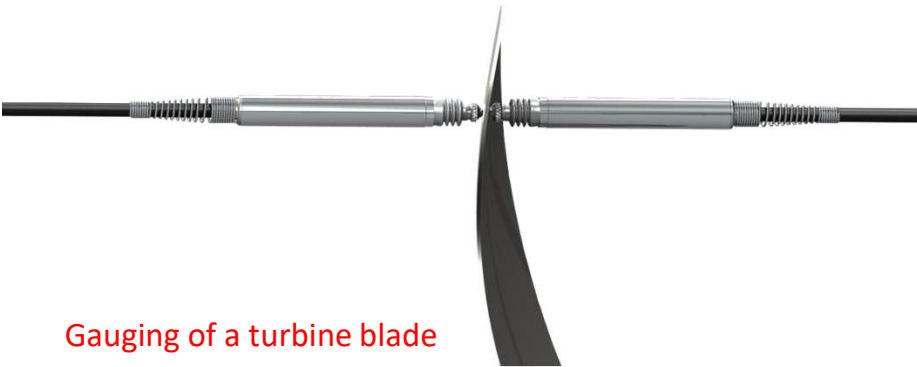
Applications



Gauging of EV battery pouch



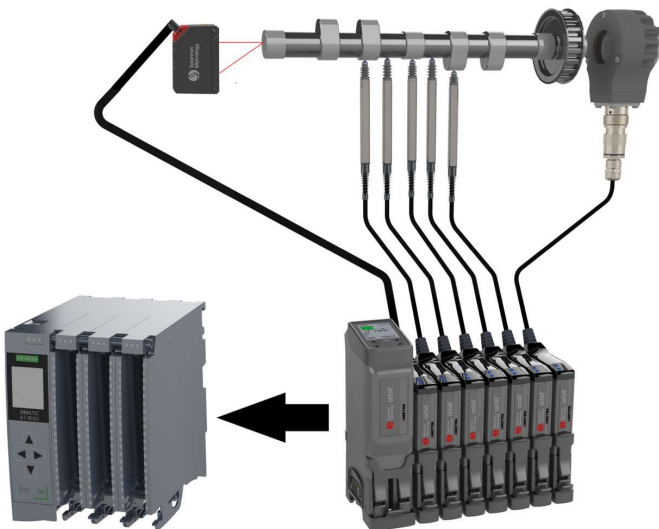
Process Monitoring: Use Contact probes to monitor distances travelled, including the distance a screw is inserted into metal sheet



Gauging of a turbine blade

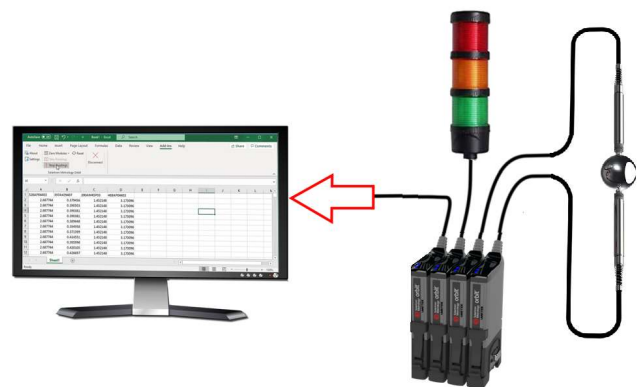


The high resolution of Solartron gauging probes make it the ideal sensor for checking flatness



Siemens S7

With Orbit®, Solartron Gauging Probes can be combined with Non-contact sensors and 3RD party sensors, and then output to a PC or PLC.



Solartron's high precision and repeatability make our gauging probes a popular choice for the Bearing industry.

Customization



Air Vent

Jet Probes

Jet Pneumatic Probes operate independently of the gaiter. Even when a gaiter is damaged or punctured, the probe can still pneumatically extend as excess air vents out of a tiny hole. (Indicated right) This means no downtime for gaiter repair.

Inline Connector

- Calibration data for probe loaded onto chip inside plug.
- Simple Probe replacement without any need for software programming
- Available with Standard Digital Probes, Flexures and Block Gauges
- Connector has IP67 rating
- Small Diameter Connector for ease of installation
- Resolution programmable to $< 0.01 \mu\text{m}$
- Traceable calibration



IP 68 Sealing

- Probe sealed by hand at all points of ingress
- IP 68 sealing validated by 3rd party
- Available on standard spring and pneumatic probes (Not available with Jet Probes or Feather Touch)
- Ideal for Oily or Wet Environments

Epoxy sealing at all key points



Cable Customization

- Customizable cable lengths up to 10 meters
- Various cable protections available



Steel



Nylon



Armored

Right Angle Outlets

- Ideal for tighter spaces
- No change in probe performance



Offset Pneumatic Probes

- Pneumatic probes that have a 10 or 20 mm stroke, but only 2 or 5 mm measurement range at end of stroke
- Example of DP/10/2/P



10 mm stroke
2mm measuring range at end of stroke

Technical Specifications

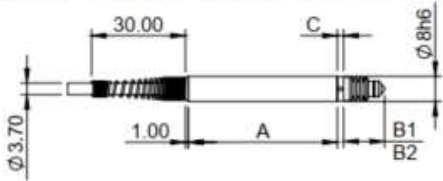
PRODUCTS (Note 4)	STANDARD, SPRING, PNEUMATIC, VACUUM, JET, RUGGED								
Spring Push Axial Cable	DP/0.5/S	DP/1/S	DP/2/S	DP/5/S	DP/10/S	DP/12/S	DP/20/S	DP/30/S	DP/10/2/S
Pneumatic Axial Cable	N/A	N/A	DP/2/P	DP/5/P	DP/10/P	DP/12/P	DP/20/P	DT/30/P	DP/10/2/P
Vacuum Axial Cable			DP/2/V	DP/5/V	DP/10/V	DP/12/V	DP/20/V		N/A
Pneumatic Axial Cable Jet			DJ/2/P	DJ/5/P	DJ/10/P	DJ/12/P	DJ/20/P		DJ/10/2/P
Digital Short Probe - Spring			DSP/2/S	DSP/5/S	N/A	N/A	N/A	N/A	N/A
Digital Short Probe - Pneumatic			N/A	N/A	N/A				
12 mm Diameter Rugged Probe			D12P/5/S D12P/10/S						
Diameter	8h6 (with the exception of D12P/5/S and D12P/10/S which are 12h6)								
MEASUREMENT PERFORMANCE									
Measurement Range (mm)	0.5	1	2	5	10	12	20	30	2
Accuracy (% of Reading) (Note 1)	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.1	0.05
Accuracy (% of Reading) (Note 1) - with In line Connector	N/A	0.20	0.20	0.15	0.15	0.15	0.15	0.2	0.20
Repeatability (worst case) µm (Note 2)	0.10	0.15	0.15	0.15	0.15	0.15	0.25	0.5	0.15
Repeatability (typical) µm (Note 3)	0.05	0.05	0.05	0.05	0.08	0.10	0.16	0.25	0.05
Resolution (µm)	0.01	0.01	0.01	0.02	0.04	0.05	0.08	0.12	0.01
Pre Travel (mm)	0.03	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Post Travel (mm)	0.05	0.35	0.85	0.85	0.85	0.85	0.85	0.85	8.85
Tip Force (N) at Middle of Range ±20% (Note 7)									
Spring Push	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.85	0.70
12mm Diameter Spring Push				0.80	0.80				
Pneumatic at 0.4 bar Minimum (Note 6)	N/A	N/A	0.70	0.70	0.70	0.70	0.70	N/A	0.70
Pneumatic at 1 bar Maximum (Note 6)	N/A	N/A	2.60	2.60	2.60	2.60	2.60	N/A	2.60
Pneumatic Jet ±30% at 1 bar	N/A	N/A	0.85	0.85	0.85	0.85	0.85	N/A	0.85
Temperature Coefficient %FS/°C	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.03	0.01
ENVIRONMENTAL									
Sealing for Probe	IP65 with gaiter or IP50 without gaiter								
Sealing for Probe Interface Electronics	IP43 for module and TCON								
Storage Temperature (°C)	-20 to +80								
Probe Operating Temperature with Gaiter (°C)	+5 to +80								
Probe Operating Temperature without Gaiter (°C)	-10 to +80								
ELECTRONICS OPERATING									
Temperature (°C)	0 to +60								
EMC Emission	EN61000-6-3								
EMC Immunity	EN61000-6-2								
Probe life (Operating Cycles)	100 million cycles (no side load), > 10 million cycles in most applications								
MATERIAL									
Probe Body	Stainless Steel								
Probe Tip (options)	Nylon, Ruby, Silicon Nitride, Tungsten Carbide								
Gaiter (Note 5)	Fluoroelastomer or Silicon								
Cable	PUR								
Electronics Module	ABS								
ELECTRONICS INTERFACE (ORBIT®)									
Orbit® Interface options	PC: USB, Ethernet®, RS232, R5485, Bluetooth™, PLC: MODBUS® TCP/IP, EtherNet/IP®, Profinet®, EtherCat®, CC-Link®								
Reading Rate	Up to 3906 readings per second								
Bandwidth of Electronics (Hz) user selectable	460, 230, 115, 58, 29, 14, 7, 4								
Power	5±0. 25 VDC @ 0.06 A typical								

- ▶ Note 1: Accuracy 0.1 µm or % reading whichever is greater
- ▶ Note 2: Repeated operation against a carbide target with side load applied to the bearing using max-min
- ▶ Note 3: Repeated operation against a carbide target standard deviation from average (66%)
- ▶ Note 4: Right angle outlet versions of all of the standard 8h6 diameter probes for measuring ranges 2 mm to 20 mm are available, part description add R after first two letters e.g DPR/2/S is right angled version of DP/2/S
- ▶ Note 5: Different gaiter materials available for specific applications - Fluoroelastomer standard option.
- ▶ Note 6: PNEUMATIC ACTUATION: For continual reliable operation and to maximise working life, the air supply should be clean and dry. 60% maximum relative humidity, filtered to better than 5µm particle size.
- ▶ Note 7: VACUUM OPERATION: 0 to 0.27 Bar Absolute.

Dimensions

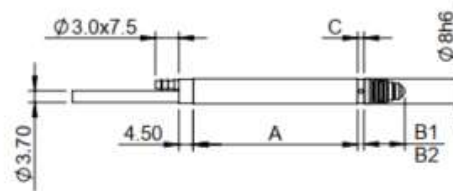
Standard Spring Push (DP/S)

	DP/2/S	DP10/2/S	DP/5/S	DP/10/S	DP/20/S
A	47.50	75.00	66.50	90.50	127.00
C	2.00	4.00	2.00	2.00	3.00
B1	14.25	25.50	18.00	25.50	45.00
B2	11.25	14.50	12.00	14.50	24.00
D	33.50	61.50	52.50	76.50	113.50

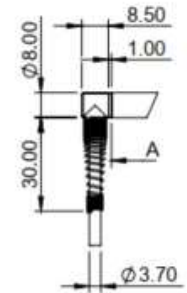


Pneumatic Push (DP/P)

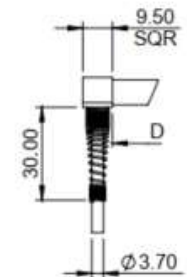
	DP/2/S	DP10/2/S	DP/5/S	DP/10/S	DP/20/S
A	52.50	84.00	71.00	96.00	127.00
C	2.00	2.00	2.00	2.00	3.00
B1	14.25	25.50	18.00	25.50	45.00
B2	11.25	14.50	12.00	14.50	24.00
D	38.50	70.50	57.50	82.50	113.50



Radial Cable Outlet Plastic Adapter

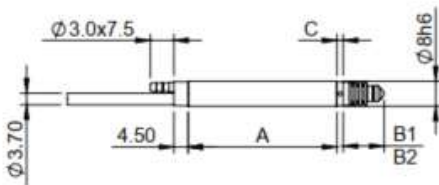


Radial Cable Outlet Fixed / Spring Push



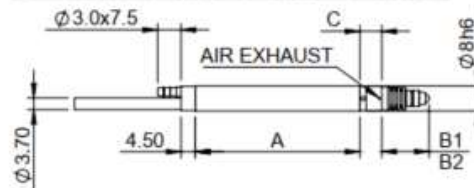
Vacuum Retract (DP/V)

	DP/2/V	DP/5/V	DP/10/V	DP/20/V
A	47.50	66.50	90.50	127.00
C	2.00	2.00	2.00	3.00
B1	14.25	18.00	25.50	45.00
B2	11.25	12.00	14.50	24.00
D	33.50	52.50	76.50	113.50

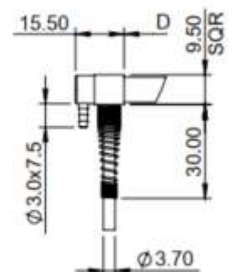


Gaiger Independent Pneumatic (DJ/P)

	DJ/2/P	DJ/5/P	DJ/10/P	DJ/20/P
A	52.50	71.00	96.00	127.00
C	7.00	7.00	7.00	4.00
B1	16.25	20.00	27.50	46.00
B2	13.25	14.00	16.50	25.00
D	38.50	57.50	82.50	113.50

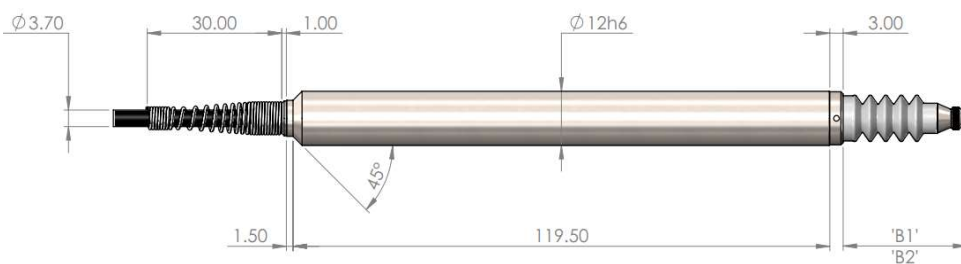
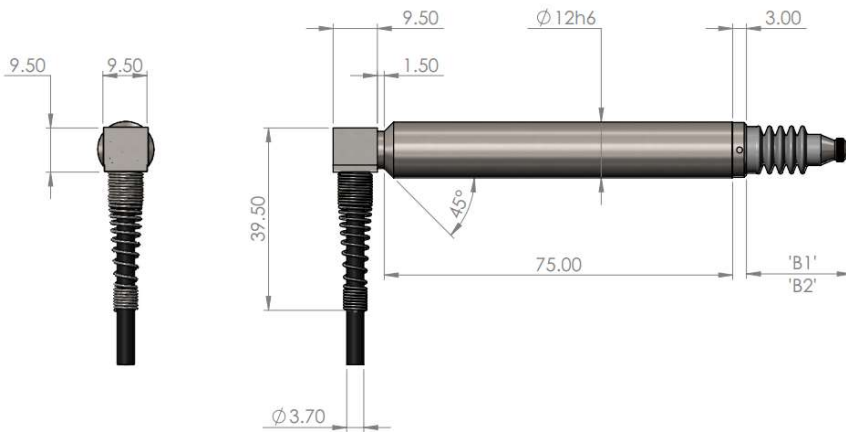
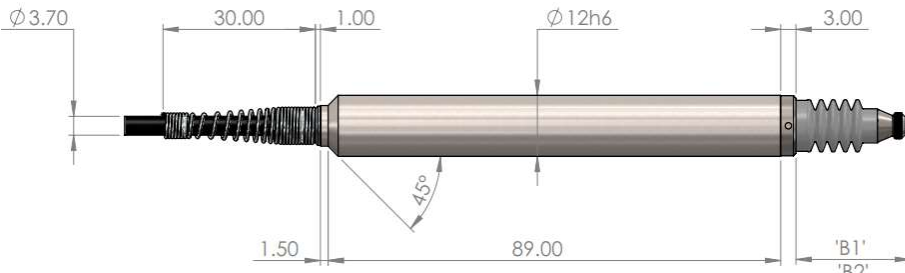


Radial Cable Outlet Fixed / Pneumatic Push



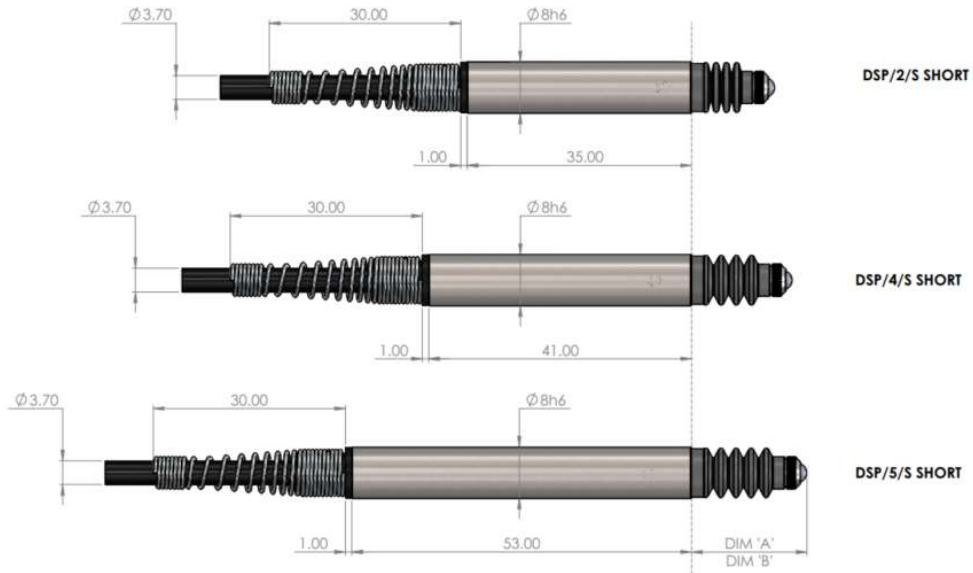
Dimensions

12mm Diameter Gauging Probes



Dimensions

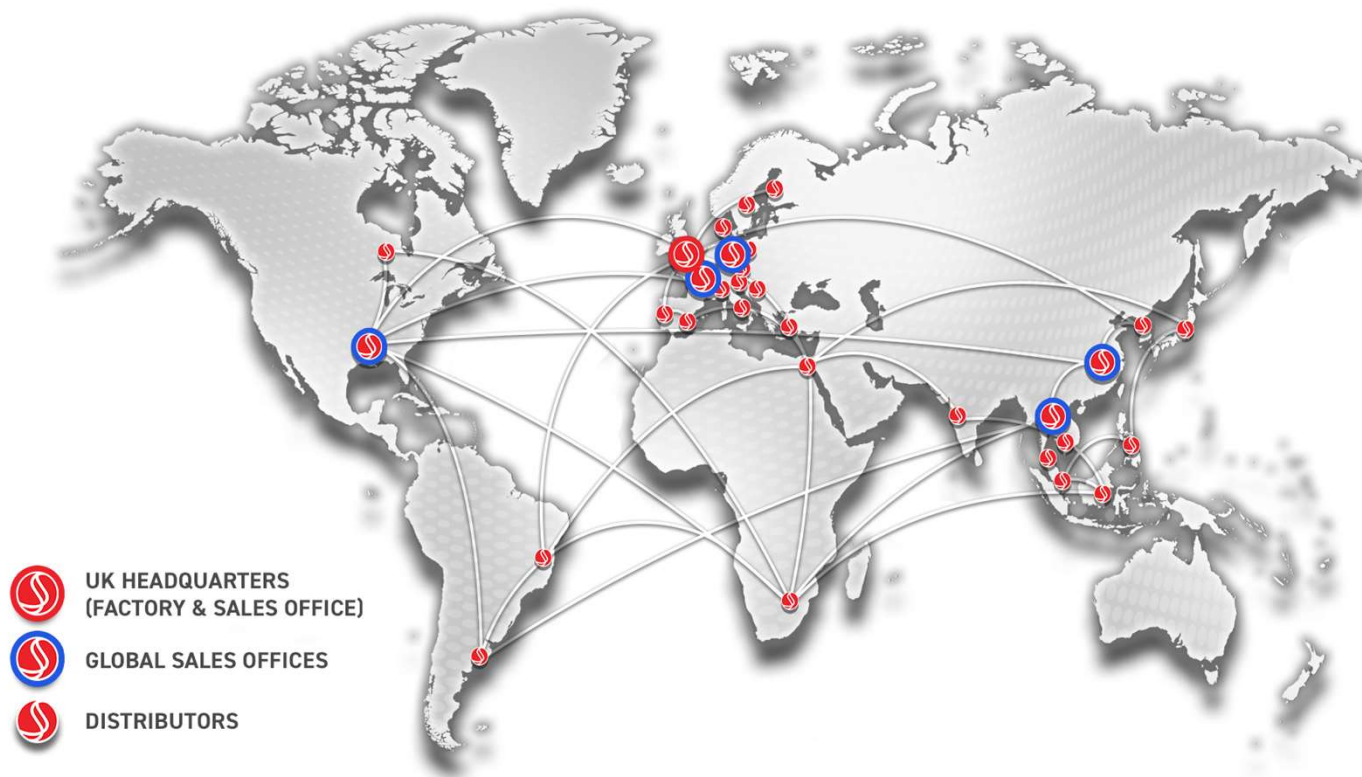
Digital Short Probes



DIGITAL PROBE	DSP/2/S	DSP/4/S	DSP/5/S
MEASUREMENT RANGE (mm)	2.00	4.00	5.00
FULLY EXTENDED DIM 'A' (mm)	13.00	15.70	18.00
PRE-TRAVEL (mm)	0.15	0.15	0.15
POST-TRAVEL (mm)	0.35	0.85	0.85
FULLY RETRACTED DIM 'B' (mm)	10.50	10.70	12.00



DSPR/2-5/S Ø3.70 CABLE - TIP Ø3.00 SHORT REACH			
MEASUREMENT RANGE	2.00	4.00	5.00
CASE LENGTH DIM 'A1'	26.5	32.50	44.5
FULLY EXTENDED DIM 'B1'	13.00	15.80	18.00
PRE TRAVEL	0.15	0.15	0.15
POST TRAVEL	0.45	0.85	0.85
FULLY RETRACTED DIM 'B2'	10.40	10.80	12.00



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