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## Terwin 2000 Series “Environmentally Friendly” Extrusion Pressure / Temperature Transducers



### Description:

The Terwin 2000 series transducers have been designed to meet the most exacting requirements in modern day extrusion technology. Fitted with the unique Di-Hard™ diaphragms, these transducers are suitable for extrudate temperatures up to 450°C / 842°F and are resilient against attack from most abrasive or corrosive products.

The 2000 series incorporates unequalled mechanical and electrical design features to overcome the problems of large zero and span shifts caused by changes in process temperatures. This has only been obtainable in the past with transducers that utilise a liquid filled system incorporating substances such as Mercury or Sodium Potassium. All Terwin 2000 series transducers are constructed throughout from stainless steel and DO NOT employ any toxic substances, thus allowing them to be used on machines involved in the process of food, film or pharmaceutical products.

When it is required to measure temperature as well as pressure, the 2000 series is available with type “J” or “K” integral thermocouples. Standard thermocouples have grounded junctions.

The 2000 series is also available with a variety of head and connection / calibration types.

### Advantages:

- ✓ Accuracy  $\pm 0.5\%$  (typically  $\pm 0.25\%$ ).
- ✓ 4 x thicker Di-Hard™ abrasion / corrosion resistant diaphragm.
- ✓ Stainless steel construction throughout.
- ✓ Compatible with food, film and pharmaceutical applications.
- ✓ DOES NOT contain Mercury, NaK (sodium Potassium) or any other toxic product to contaminate the extrudate.
- ✓ Compliant with EN50082 part 1 and EN55022-1987 class A.
- ✓ Protected by UK patent No. 2,153,538 USA patent No. 4,625,559 and European patent No. 0156081.
- ✓ Suitable for extrudate temperatures up to 450°C / 842°F.
- ✓ Interchangeable with most other brands.

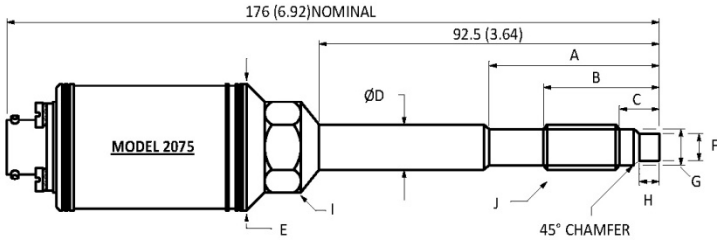
Terwin Instruments Ltd, Winterbeck Industrial Estate, Orston Lane, BOTTESFORD, Nottinghamshire, NG13 0AU – UK  
Tel: +44 (0) 1949 84 2000 Fax: +44 (0) 1949 84 2004 E-mail: [info@terwin.com](mailto:info@terwin.com) [www.terwin.com](http://www.terwin.com)



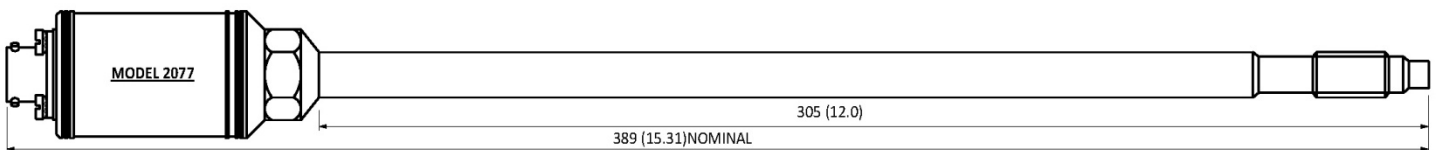
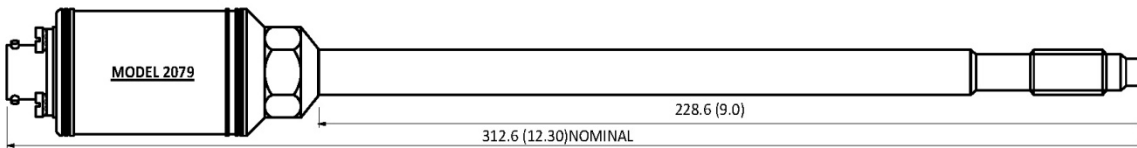
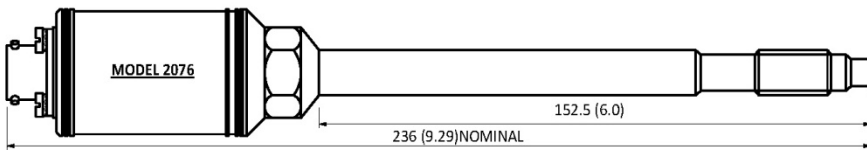
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## Stem length options:



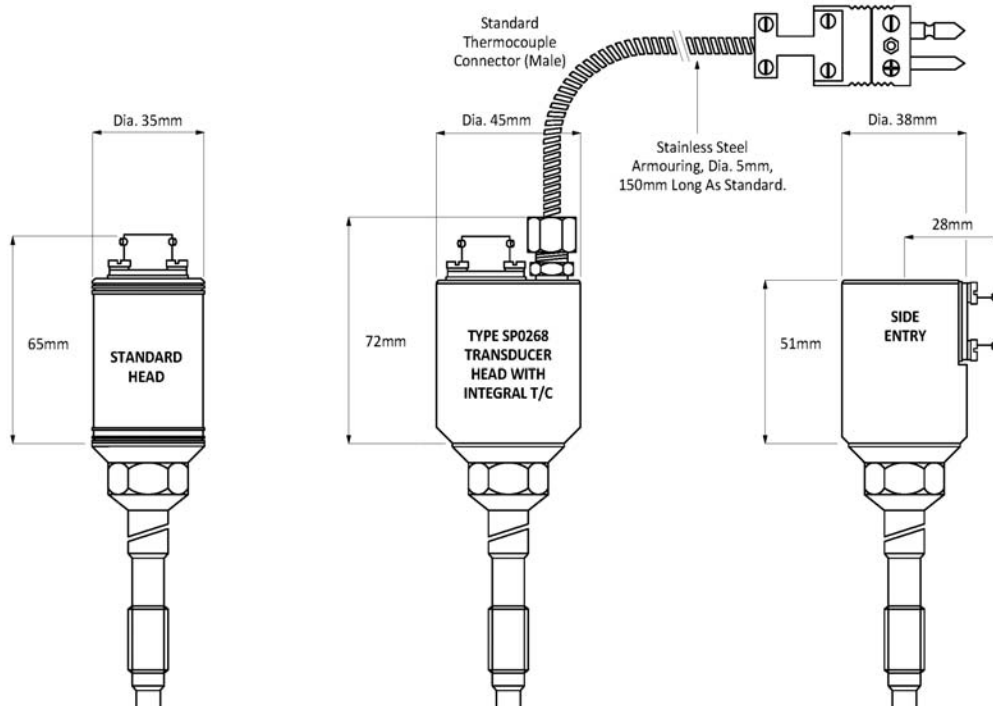
mm (INCHES)	DIMENSION
47 (1.85)	A
31.3 (1.23)	B
12.2 (0.48)	C
12.7 (0.50)	D
35.0 (1.38)	E
7.77±0.03 (0.306±0.001)	F
10.49±0.03 (0.413±0.001)	G
5.54±0.12 (0.218±0.005)	H
22 A/F	I
1/2-20-UNF-2A	J



PLEASE NOTE:

A to J dimensions are common  
to all standard models listed.

## Head options:



Terwin Instruments Ltd, Winterbeck Industrial Estate, Orston Lane, BOTTESFORD, Nottinghamshire, NG13 0AU – UK  
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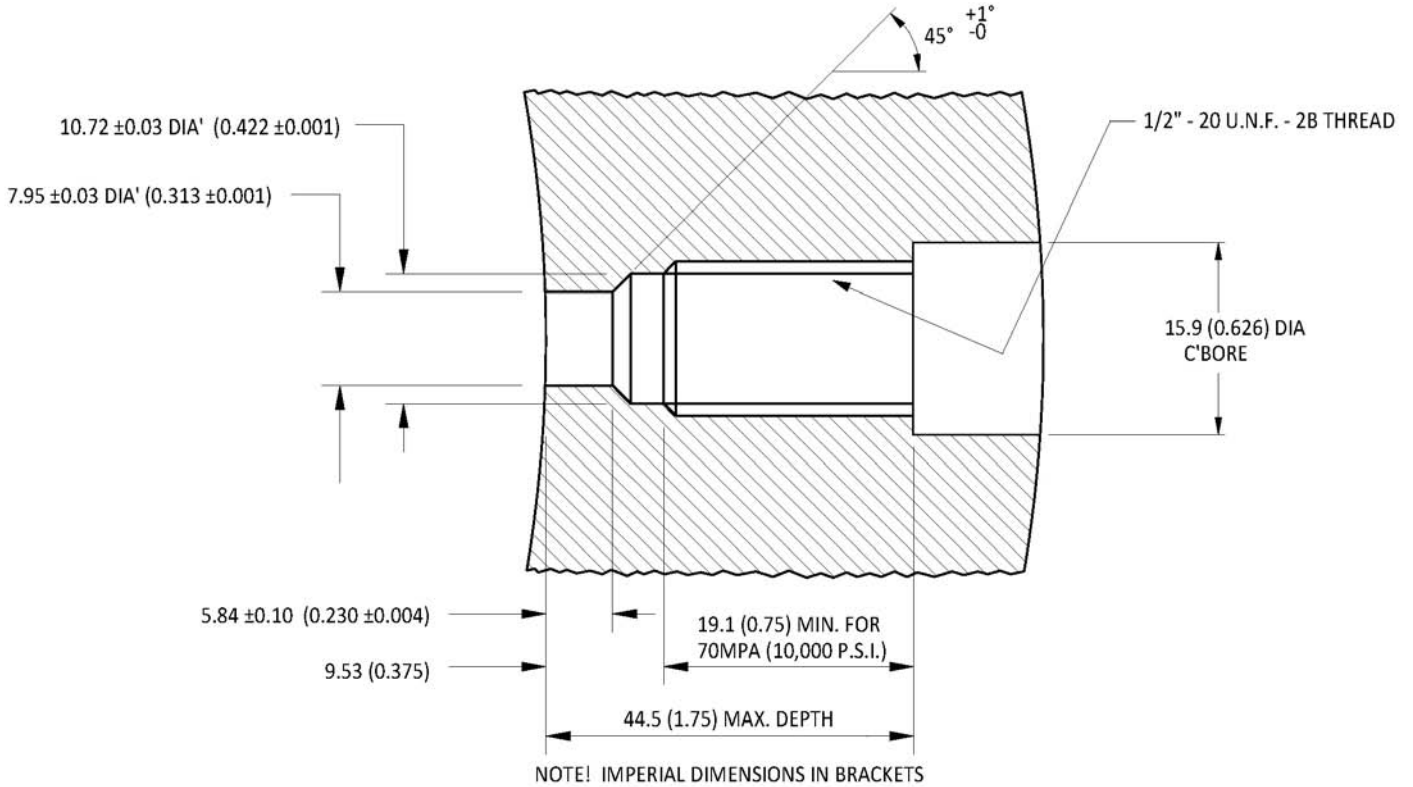
### Specifications

<b>Standard Pressure Ranges:</b>	psi	0-1,500	0-3,000	0-5,000	0-7,500	0-10,000	0-15,000
	bar	0-100	0-200	0-350	0-500	0-700	0-1,000
<b>Available Pressure Ranges</b>	psi	0-500 thru to 0-30,000					
	bar	0-35 thru to 0-2,000					
<b>Combined Error</b>	Standard ranges:			Non-standard ranges:			
	Within $\pm 0.5\%$ F.R.O. (Typically $\pm 0.25\%$ )			Within $\pm 1\%$ F.R.O. (Typically $\pm 0.5\%$ )			
<b>Repeatability</b>	Within $\pm 0.1\%$ F.R.O.						
<b>Resolution</b>	Infinite						
<b>Maximum Pressure:</b>	2 x full range or 25,000psi (1,700 bar) which ever is less.						
	On 30,000psi (2,000bar) sensors, the maximum pressure is 35,000psi (2,400 bar).						
<b>Body Material</b>	17-4PH Stainless steel.						
<b>Diaphragm Material</b>	Terwin <b>Di-Hard™</b> Extra Thick, Abrasion / Corrosion Resistant Long Life Diaphragm						
<b>Optional Diaphragm Coatings</b>	Titanium Nitride (TN)		Hastelloy C276 (H)		Double Chromium Nitride (DCN)		
	Additional anti-abrasion resistance and to prevent thread galling.		Additional anti-corrosion resistance.		Out performs TN and H coatings in most applications.		
<b>Mounting Torque</b>	20ft lbs (27Nm) (240 inch/lbs)						
<b>Standard Thread Size</b>	1/2"-20UNF-2A						
<b>Available Thread Size Adaptor</b>	M18 x 1.5mm						
<b>Electrical Specifications</b>							
<b>Excitation</b>	5-12V D.C.						
<b>Configuration</b>	Four-arm bonded foil Wheatstone bridge strain gauge						
<b>Bridge Resistance</b>	350 $\Omega$ $\pm 10\%$						
<b>Output</b>	3.0mV/V D.C. $\pm 10\%$						
<b>Zero Balance</b>	$\pm 5\%$ F.R.O.						
<b>Internal Negative Shunt Calibration</b>	6-wire 80% F.S.O. $\pm 0.1\%$ - Other calibration types are available.						
<b>Electrical Connectors</b>	6-Pin (D6)	8-Pin (D8)	9-Pin (D9)	12-Pin (D12)	Cannon 6-Pin (G) (Gentran)	Cannon 6-Pin (BC) (Barber Coleman)	1/2"-NPT direct cable outlet
	PT02A-10-6P	PT02E-12-8P					
<b>Integral Temperature Sensors</b>	"J" I/C				"K" C/A		
<b>Maximum Diaphragm Temperature</b>	450°C / 842°F						
<b>Maximum Strain Gauge Temperature</b>	200°C / 392°F						
<b>Zero Shift Due To Temperature Change</b>	$< 0.01\%$ F.S.O./°C or $< 0.02\%$ F.S.O./°F						
<b>Span Shift Due To Temperature Change</b>	$< 0.01\%$ F.S.O./°C or $< 0.02\%$ F.S.O./°F						

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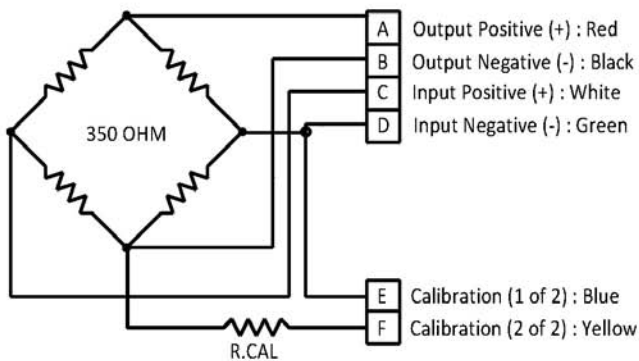
### Recommended Port Dimensions for 1/2"-20UNF Threaded Transducers:



All diameters to be concentric to within 0.05 (0.002) T.I.R.

### Terwin 2000 Series Standard Wiring Connections:

"D6" PRESSURE TRANSDUCER



"D8" PRESSURE / TEMPERATURE TRANSDUCER

