

# Well Testing

## Measurement

### Differential Pressure Recorder

Differential pressure recorders are supplied to provide accurate, reliable measurement and recording of differential and static pressure and temperature.

The Barton 202E differential pressure recorder measures and records system operation parameters, including gas and liquid flow rate, liquid level in a vessel, and other system variables that can be measured by differential pressure and static pressure methods.

**Differential Pressure Unit** - The 199 Differential Pressure Unit (DPU) actuates the recorders and is a dual bellows assembly enclosed within pressure housings. Movement of the bellows is transmitted through a torque tube from the DPU to the recording mechanism.

**Recording mechanism** – Consists of a linkage and pen system that permanently records data. It converts mechanical inputs from the DPU and static pressure element to transcribe lines on a revolving chart. All operative parts of the recorder mechanism are made of stainless steel for a longer field life.

**Static pressure element** - Measures static pressure from 0 to 10,000 psi. The sensor element is a bourdon tube consisting of a slightly flattened cross-section of tubing coiled into a helix or flat spiral.

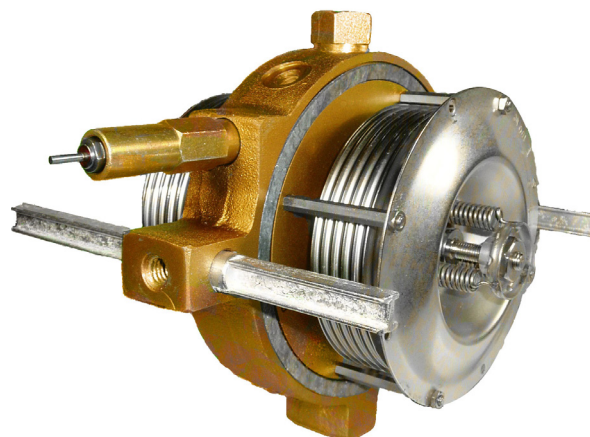
The outer end of the tubing is sealed and attached to a drive arm, which is attached to the static pressure connection tubing.

#### Applications

- Offshore and onshore well testing
- Production well testing
- Flow-back and clean-up well testing

#### Features and Benefits

- Various ranges of pressure and temperature
- Rugged construction for field use
- Accurate and reliable to industry standards
- Free standing or mountable (wall and yoke)



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Technical specifications					
Case			Die-cast aluminium, black epoxy resin paint, waterproof and weather resistant; hinged door; neoprene gasket seal		
DP ranges	inches w.c. (mbar) psi (bar)	Minimum span of 0-10 (0 to 25) Maximum span of 0-100 (0 to 6.9)			
Uncertainty		±0.5 % of full scale			
SP accuracy % of full scale		±1.0 % of full scale			
Ambient temperature limits °F (°C)		-40 to 180 (-40 to 82)			
199 DPU specifications					
Available differential pressure ranges					
SWP psi (bar)	Housing Material	St/St bellows		Iconel bellows	
		2 1/8" (55 mm) OD psi (bar)	3 3/4" (95 mm) OD psi (bar)	2 1/8" (55 mm) OD psi (bar)	3 3/4" (95 mm) OD psi (bar)
1,000 (69)	Cast aluminium 356T6 Forged stainless steel 316	0-15 (0-1) to 0-100 (0-6.9)	0-10 (0-25) to 0-400 (0-996)	0-15 (0-1) to 0-100 (0-6.9)	0-20 (0-50) to 0-400 (0-996)
2,500 (172)	Forged steel A.I.S.I. C1018				
3,000 (207)	Forged stainless steel 316				
4,500 (310)	Forged alloy steel 4142				
6,000 (414)	Forged alloy steel 4142 Forged stainless steel 17-4 PH				
Net volume (cu. in.)	L.P. head – inches (cc)	35 (575)	30 (490)	35 (575)	30 (490)
	H.P. head – inches (cc)	31 (510)	26 (425)	31 (510)	26 (425)
Displacement (cu. in.) for full-scale travel		0.5 (8.2)	1.5 (25)	0.5 (8.2)	1.5 (25)
Performance specifications					
Torque tube rotation (full scale DP)			8° ±10%		
Torque tube material			Beryllium copper (BeCu)		
Temperature limits °F (°C)			-40 to 180 (-40 to 82)		
0-20" to 0-400" w.c. (0-50 mbar to 0-996 mbar)			±0.5% of full scale with appropriate linkage		
0-15 to 0-100 psi (0-1 bar to 0-6.9 bar)			±0.75% of full scale with appropriate linkage		
Sensitivity			0.05% of full scale DP		
Repeatability			0.10% of full scale DP		

Note: Other sizes, configurations and pressure ratings are available to meet most applications, for more information contact your local Expro representative or email [welltesting@exprogroup.com](mailto:welltesting@exprogroup.com)