

DA01 || Differential Pressure Gauge

The DA01 is used for indication and switching differential pressure of gaseous and liquid media.

Construction and Operation

The pressures to be compared act on flexible stainless steel diaphragms on either side of the sensing capsule. The two diaphragms are mechanically linked by a rigid connecting rod. To compensate for high static pressures, the cavity between the two diaphragms is filled with hydraulic fluid. When pressures are equal on both diaphragms, they are at zero position. When there is a difference in pressures acting on the two diaphragms, they are deflected away from the high pressure side, towards the lower pressure side, causing a displacement of the connecting rod.

A precision mechanism translates the linear displacement of the diaphragm connecting rod to angular movement of the gauge's dial pointer. The pointer's displacement range of 270° corresponds to the full scale differential pressure. The connecting rod has intermediate flanges on either side, which protects the diaphragms against excess differential pressure. When differential pressure exceeds the specified limit, the flange towards the lower pressure side is pressed against the sealing O-ring on the inside of the sensing capsule. This action isolates the fluid adjacent to the diaphragm exposed to lower pressure, from the fluid at higher pressure on the other side. This limits the pressure differential across the lower pressure diaphragm, and equalizes the pressure across the higher pressure diaphragm. Thus both diaphragms are protected against excess deflection and risks of rupturing.



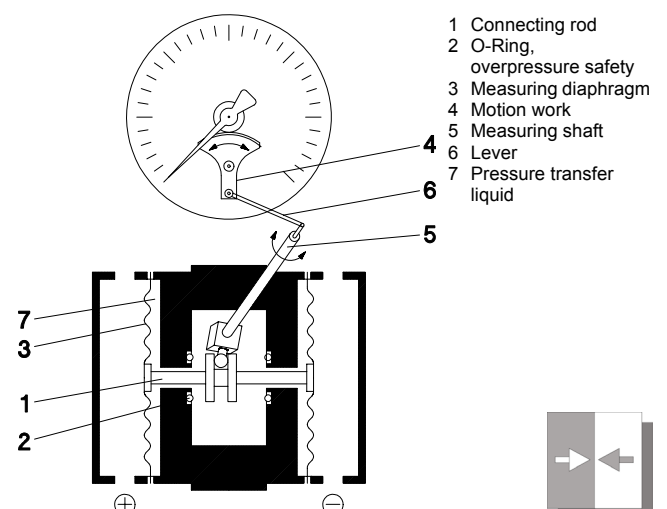
Main Features

- High corrosion-resistance
- Robust, good wear resistant movement
- Rinseable pressure chambers, insensitive against dirt
- overpressure safe up to 250 bar

Applications

- Chemicals and gas plants
- On and offshore area

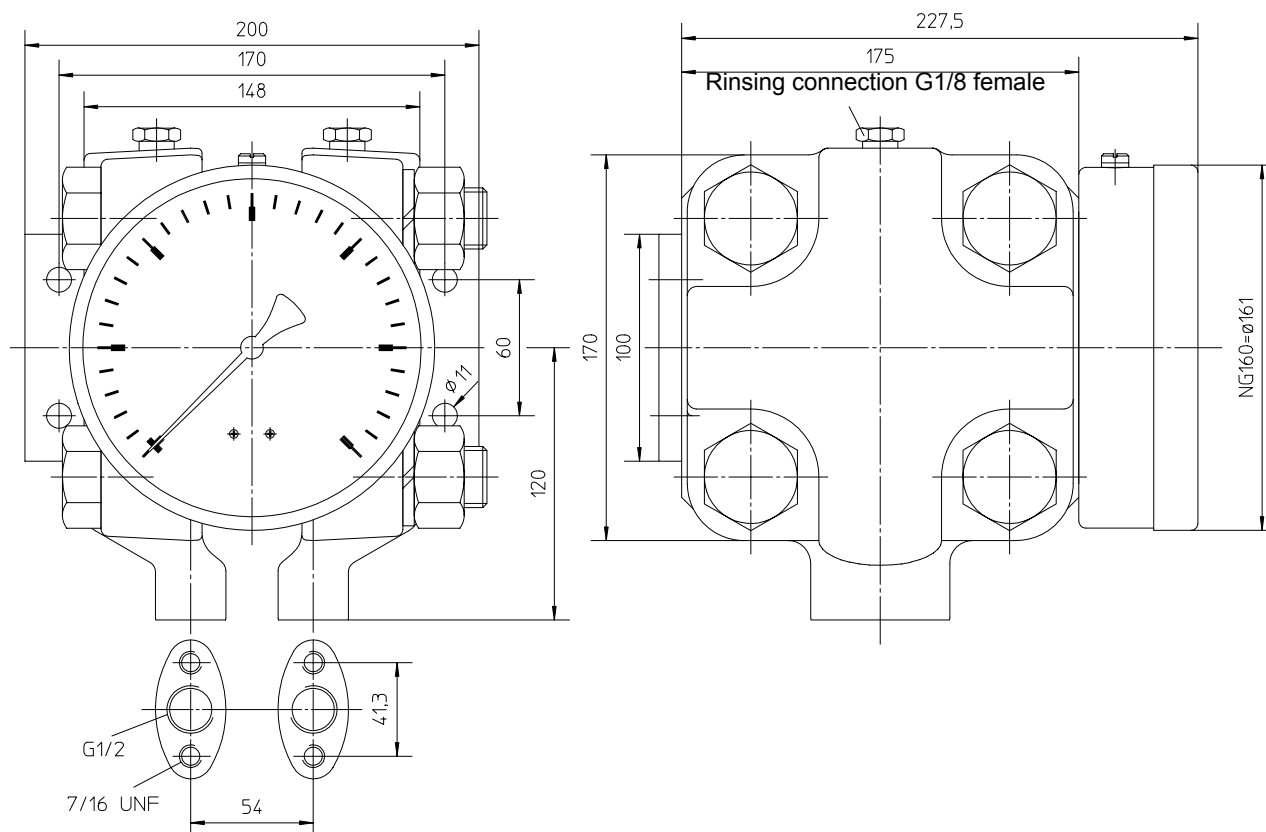
Functional Scheme



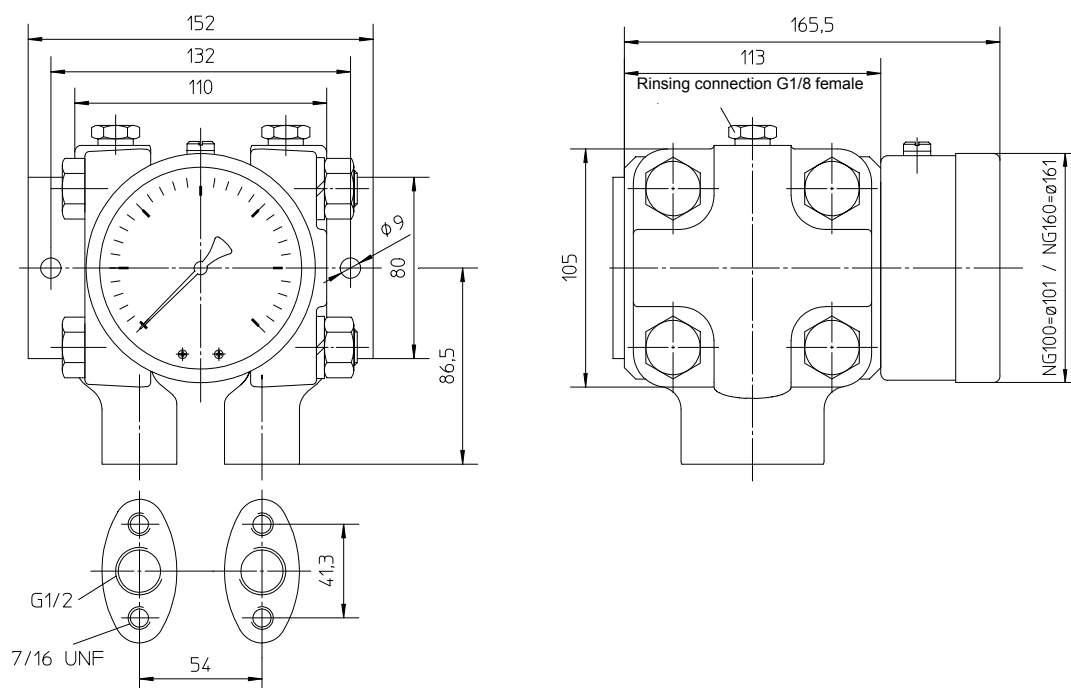
Specifications

General	
Range	See Ordering Code
Max. pressure load	Overpressure safe up to max. operating pressure
Max. static operating pressure	PN 250; PN 400 (see Ordering Code)
Indication	Circular dial type 100 or 160 diameter Scale design acc. to DIN, 270°
Accuracy	± 1.6% FS
Perm. ambient temperature (housing)	-20 ... +80°C
Perm. medium temperature	-20 ... +80°C
Zero adjustment	Accessible through marginal openings of the housing, max. ±30% FS
Pressure connection	Flange connection acc. to DIN EN 61518, female thread G1/2
Pressure chamber	Plain walls without undercuts, even measuring diaphragm; Rinsing and venting connection G1/8
Protection class	IP54 acc. to DIN EN 60529 IP65 acc. to DIN EN 60529 for filled models
Materials, Mounting	
Pressure chamber	1.4404
Measuring diaphragm	For ranges ≤ 400 mbar: 1.4571 stainless steel For ranges ≥ 0.6 bar: NiCrCo alloy (Duratherm®)
Pressure transfer liquid	Silicone oil
Inner plate	AlMgSiPb HART-COAT®
Indicator and housing	1.4301 stainless steel
Gaskets	Viton® O-Rings
Glass	Multi layer laminated safety glass
Dial and Indicator	Aluminium
Mounting	Pressure acc. to indicated symbols Wallmounting by mounting plate

Dimensions (all units in mm unless stated otherwise)



Differential Pressure Gauge DA01 Model: Range (60 ... 400) mbar



Differential Pressure Gauge DA01 Model: Range (0.6 ... 25) bar

Ordering Code

Differential Pressure Gauge		DA01																			0	0	
Range																							
0 ... 60 mbar	>	5	8																				
0 ... 100 mbar	>	5	9																				
0 ... 160 mbar	>	6	0																				
0 ... 250 mbar	>	8	2																				
0 ... 400 mbar	>	8	3																				
0 ... 0.6 bar	>	0	1																				
0 ... 1 bar	>	0	2																				
0 ... 1.6 bar	>	0	3																				
0 ... 2.5 bar	>	0	4																				
0 ... 4 bar	>	0	5																				
0 ... 6 bar	>	0	6																				
0 ... 10 bar	>	0	7																				
0 ... 16 bar	>	0	8																				
0 ... 25 bar	>	0	9																				
0 ... 40 kPa	>	E	8																				
0 ... 100 kPa	>	F	2																				
0 ... 250 kPa	>	F	4																				
0 ... 600 kPa	>	F	6																				
0 ... 1000 kPa	>	F	7																				
0 ... 1600 kPa	>	F	8																				
Other ranges on request	>	9	9																				
Nominal Pressure Rating																							
PN 250	>	N																					
PN 400 (only for ranges ≥ 0.6 bar)	>	P																					
Measuring System Material																							
Pressure chamber chrome-nickel-steel 1.4404 / AISI 316L/ Standard diaphragm...	>	R																					
Pressure Connection																							
Flange connection acc. to DIN EN 61518 with G1/2 (F)	>	0	3																				
Threaded connectors 1/4-18 NPT (F)	>	0	4																				
Threaded connectors 1/2-14 NPT (F)	>	0	5																				
Threaded connectors G1/2 (M) stainless steel	>	1	3																				
Threaded connectors 1/4-18 NPT EXT (M) stainless steel	>	1	4																				
Threaded connectors 1/2-14 NPT EXT (M) stainless steel	>	1	5																				
Dial Size																							
Bayonet ring case ø100 (Range 0.6 up to 25 bar) 1.4301 stainless steel	>	L																					
Bayonet ring case ø160, 1.4301 stainless steel	>	M																					
Mounting																							
Pipe mounting (only for bar ranges)	>	R																					
Wall mounting (standard)	>	W																					
Panel mounting set (only for bar ranges / without additional superstructural parts)	>	T																					
Front cover ring for panel mounting	>	G																					
Liquid Filling																							
Without liquid filling	>	0																					
Dial with liquid filling: glycerine	>	1																					
Additional Pointer																							
Without additional pointer	>	0																					
Adjustable reference pointer	>	1																					