



SP SERIES 300

Bourdon tube pressure gauges

- ◆ stainless steel tube or Monel;
- ◆ watertight casing, dry or liquid filled execution;
- ◆ NS 100 - 150 - 200 - 260;
- ◆ ranges included between -1 and 1600 bar.

Instruments of SP 300 series are designed for special executions; with dial NS 100 and 150 are the base for the electric contact pressure gauges.



made in
ITALY



PED 2014/68/EU
ATEX 2014/34/EU



TECHNICAL FEATURES

- **Nominal size**
 - 100, 150, 200 and 260.
- **Casing**
 - execution B:
case and ring in AISI 304 stainless steel (AISI 316 on request for NS 100 and 150 - option V61) with bayonet bezel;
 - execution A:
aluminium case and ring NS 260 painted with black epoxy powder with screw clamping.
- **Protection degree (according to EN 60529)**
 - IP 55 for execution D (dry);
 - IP 67 for execution F (liquid filled) and for execution P (fillable).
- **Window**
 - glass for dry execution NS 100 and 150;
 - methacrylate for liquid filled, fillable and for NS 200 and 260;
 - laminated safety glass (on request - option V17).
- **Blow-out device**
 - blow out plug for NS 100, 150 and 200 and for execution D (dry) NS 260;
 - calibrated valve for execution F (liquid filled) and for execution P (fillable) for NS 260.

note: see SF SERIES for solid front execution.
- **Filling liquid**
 - glycerine (standard);
 - silicone fluid, standard if the instrument is provided with electrical contact or, on request, as alternative to glycerine - option V64;
 - special fluids (on request).

note: see also headings "Service conditions" and "Ambient temperature".
- **Pressure connection (according to EN 837-1)**
 - G 1/2 B (1/2 Gas or BSP) or 1/2-14 NPT EXT (1/2 NPT) thread (others on request):
 - AISI 316L stainless steel (execution 2);
 - Monel 400 (option W04).
- **Pressure element**
 - AISI 316L stainless steel (execution 2);
 - Monel 400 (option M04 and W04).

note: pressure element pierced inside connection body for a depth 7 mm, according to petrol-chemical industry specification.
- **Welding**
 - TIG.
- **Movement**
 - stainless steel.
- **Ranges (according to EN 837-1)**
 - **Maximum values referred to NS:**
 - 1600 bar for NS 100 and 150;
 - 1000 bar for NS 200 and 260.
 - **Divisions related for pressure values between -1 e 1600 bar:**
 - pressure gauges: see table C1 at page P04;
 - vacuum gauges and compound gauges: see table C1 at page P04;
 - other graduations not normalized for single or double range (on request).
 - **Unit of pressure:**
 - bar, kPa, MPa, kg/cm² and psi for single or double range.
 - **Scale angle:**
 - 270°.
- **Working pressure (referred to full scale deflection)**
 - steady from 1/10 to 3/4;
 - fluctuating from 1/10 to 2/3;
 - pulsating from 1/10 to 1/2.
- **Over-pressure (occasionally allowed)**
 - 130% of full scale value (standard);
 - 160% of full scale value (option V25);
 - 250% of full scale value (option V27);
 - for others over-pressure values use over-pressure protectors (see AM series).
- **Pointer**
 - aluminium with micrometer adjustment for dry execution and for execution with electric contacts;
 - aluminium not adjustable for liquid filled or fillable execution.



- **Dial**
 - white aluminium with black figures (for dial modifications see available options).
- **Accuracy (according to EN 837-1)**
 - class 1 ($\pm 1\%$ of full scale deflection) standard.
 - note 1:** accuracy indicated on the pressure gauge does not consider the interference of an eventually applied electric contact.
 - note 2:** diaphragm seal can affect instrument accuracy according with the service conditions because of the pressure/temperature ratio.
- **Ambient temperature**
 - $-40 \div +60$ °C dry execution;
 - $-20 \div +60$ °C glycerine filled execution;
 - $-40 \div +60$ °C silicone fluid filled execution.
- **Thermal drift**
 - out of optimum ambient temperature values included within $+15 \div +25$ °C, the thermal drift affects the instruments accuracy of 0,3% every 10°C.
- **Service conditions**
 - see table SP 5 at page SP10.

Table SP 5

Welding – service conditions

Welding	Material		Service conditions		
	Connection	Pressure element	Temperature °C		Pressure bar
			min.	max	max
TIG	Acciaio inox	Stainless steel	-30	250	1600
TIG	Monel	Monel	-30	250	1600

note:

80°C maximum process temperature for glycerine filled instruments, 120°C for silicone fluid filled ones.

APPLICATIONS

- **Diaphragm seal (see FP series)**

applicable to pressure gauges with NS 100 and 150; in this case the instrument can be identified by the number of the chosen model, adding the reference of the suitable diaphragm seal among those of FP series. **(identification FP..)**
- **Electric contact (see CE series)**

applicable to instruments with NS 100 and 150; in this case the instrument can be identified by the number of the chosen model, adding the reference of the switching action as shown in tables of the CE series. **(identification CE...)**
- **Accessories (see AM series)**
 - cooling siphons, recommended when high temperatures are involved;
 - valves;
 - dampers for control of process fluid entry speed into the instrument;
 - adjusting over-pressure protectors to cut automatically off the instrument from the circuit.

OPTIONS

- **Maximum pointer**

to indicate the maximum pressure reached:

 - zero setting on the window; **(identification V11)**
 - zero setting outside the casing (suitable for dry execution instruments NS 100 and 150 with electric contacts). **(identification V12)**
- **Window**

different from standard (only DN 100 and 150):

 - methacrylate; **(identification V16)**
 - laminated safety glass; **(identification V17)**
 - laminated safety glass increased thickness for instruments with electric contacts. **(identification V19)**
- **Elastic pointer stop**

in cases of sudden return to zero of the pointer. **(identification V21)**
- **Restrictor**

applicable to pressure connection to reduce the process fluid entry speed into the instrument. **(identification V26)**
- **High overpressures device**

allows to NS 100 and NS 150 for ranges up to 40 bar to with-stand over-pressures up to:

 - 160%; **(identification V25)**
 - 250%. **(identification V27)**



note: for higher over-pressures you must use over-pressure protector.

• **Degreasing for oxygen service**
(identification V31)

note: if the instrument is supplied with diaphragm seal, the filling liquid is fluoride fluid.

• **Accuracy class 0,5**

± 0,5% of full scale deflection.
(identification V34)

• **Dial with antiparallax mirror**

for accuracy class 0,6 (0,5)
NS 150 and 260.
(identification V35)

• **Accuracy class 0,6**

± 0,6% of full scale deflection.
(identification V36)

• **Process connection**

not standard.
(identification V42)

• **Changes to the dial**

- serial number; (identification V50)
- specific dial; (identification V51)
- red mark; (identification V52)
- writings; (identification V53)
- TAG number; (identification V54)
- dial without logo; (identification V56)
- double logo (Fantinelli + customer); (identification V57)
- customer's logo. (identification V58)

• **Fluoride fluid**

as alternative to glycerine fluid for case filling.
(identification V60)

• **AISI 316 stainless steel case and ring**

as alternative to AISI 304 stainless steel for NS 100 and 150 (for model SP 308 only, excluded the type with electric contact).
(identification V61)

• **Silicone fluid**

as alternative to glycerine for the case filling, where it is not already provided for.
(identification V64)

• **Tropicalization**

requires AISI 316 stainless steel case and ring.
(identification V67)

• **Metal tag plate**

AISI 316 stainless steel for tag number.
(identification V82)

• **Monel 400 pressure element**

as alternative to AISI 316L st.st. pressure element on NS 100 and 150.
(identification M04)

• **Monel 400 pressure element assembly**

as alternative to AISI 316L st.st. pressure element assembly on NS 100 and 150 (only for model SP 308 with the exclusion of model with electric contact).
(identification W04)

DOCUMENTATION

• **Fantinelli calibration certificate**

rising pressure:
- class 0,6;
(identification V91)
- class 1;
(identification V92)

• **ACCREDIA calibration certificate**
(identification V98)

• **Complementary documents**

- o certificate of compliance with the order EN 10204-2.2.
- o technical documentation including:
 - drawings and technical informations;
 - installation and maintenance instructions.
- o inspection and test certificate EN 10204-3.1.
- o material certificates.
- o PED declaration.
- o ATEX declaration (II 2 G/D).

TECHNICAL INFORMATIONS

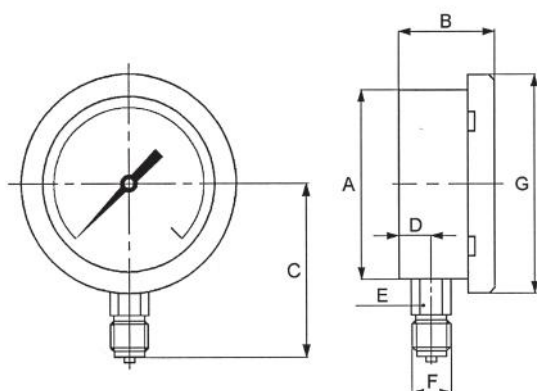


Table SP 308

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø fori 120°	PESO ~ kg es. D es. F
100	103	50	90	155	22	1/2	118							0,61 0,98
150	150	50	114	155	22	1/2	166							0,98 1,82
200	199	68	158	26	17	1/2	240							1,93 3,93
260	258	64	177	185	17	1/2	280							3,32 5,72

Pressure gauge with bottom connection for local mounting.



Table SP 311

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø fori 120°	PESO ~ kg es. D es. F
100	103	50	355	33	17	1/2	118	7	19	126	140	27	5	0,70 1,07
150	150	50	355	33	17	1/2	166	7	19	178	192	27	5	1,04 1,88
200	199	54	39	51	17	1/2	240		9	220		45	6,5	2,06 3,56
260	258	64	34	48	17	1/2	280	6	27	298	315	31	6,5	3,64 6,04

Pressure gauge with back connection for flush mounting with 3 fixing holes

Table SP 312

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø fori 120°	PESO ~ kg es. D es. F
100	103	50	355	33	17	1/2	121	20						0,76 1,13
150	150	50	355	33	17	1/2	168	20						1,17 2,01

Pressure gauge with back connection for flush mounting with clamp fixing.

Table SP 313

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø fori 120°	PESO ~ kg es. D es. F
100	103	57	90	225	22	1/2	118	7		126	140		5	0,74 1,11
150	150	57	114	225	22	1/2	166	7		178	192		5	1,22 2,06
200	199	77	158	35	17	1/2	240	9		220	240		6,5	2,22 4,22
260	258	67	177	215	17	1/2	280	3		290	322		6,5	5,25 7,65

Pressure gauge with bottom connection for surface mounting with 3 fixing holes.

Table SP 315

DN	A	B	C	D	E	F	G	H	I	L	M	N	Ø fori 120°	PESO ~ kg es. D es. F
100	103	50	355	33	17	1/2	118							0,61 0,98
150	150	50	355	33	17	1/2	166							0,98 1,82

Pressure gauge with back connection for direct mounting.

