

## 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)**
  - o **Maximum values referred to NS:**
    - 1600 bar for NS 100 and 150;
    - 1000 bar for NS 200 and 260.
  - o **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).
  - o **Unit of pressure:**
    - bar, kPa, MPa, kg/cm<sup>2</sup> and psi for single or double range.
  - o **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	<i>Monel</i>	<i>Monel</i>	-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)

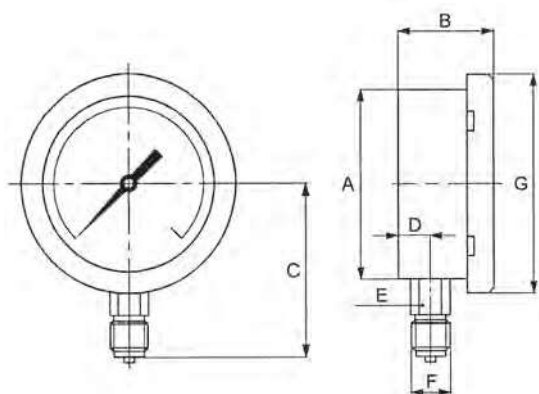
• **ACCREDIA calibration certificate**

(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).

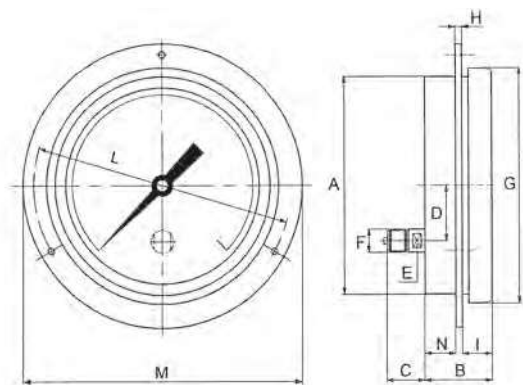
## TECHNICAL INFORMATIONS



**Table SP 308**

DN	A	B	C	D	E	F	G	H	I	L	M	N	∅ 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

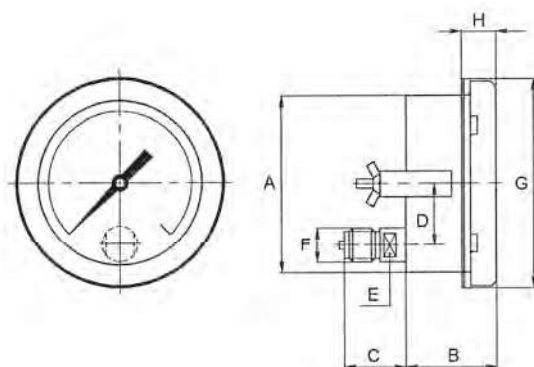
Pressure gauge with bottom connection for local mounting.



**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

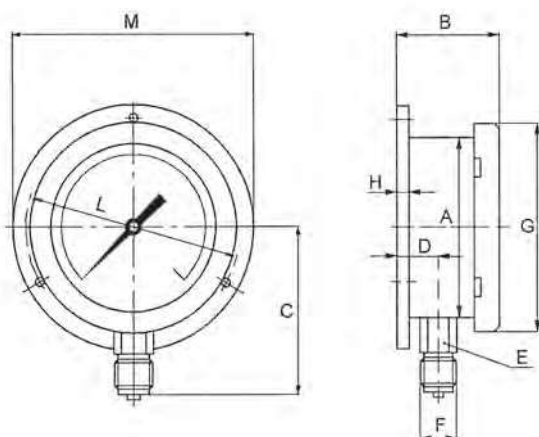
Pressure gauge with back connection for flush mounting with 3 fixing holes



**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

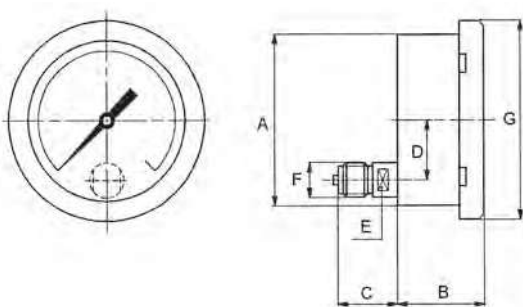
Pressure gauge with back connection for flush mounting with clamp fixing.



**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.

**note:** informations shown in this series may be changed at any time without prior notice.