SR301

3S301

REMOTE SEAL

REMOTE SEALS, LEVEL TRANSMITTERS AND SANITARY TRANSMITTERS

- **Remote Seals:** Flanged (SR301T), Threaded (SR301R), Pancake (SR301P), Sanitary (SR301S), Flanged with Extension (SR301E) and Pancake with Extension (SR301Q).
- **Transmitters:** Level (LD300L) and Sanitary (LD300S).
- **Standards:**
  - **ANSI** Dimensions 1" to 4", pressure class 150# to 2500#.
  - **DIN** Dimensions DN25 to DN100, pressure class PN10 to PN250.
  - **JIS** Dimensions 40A to 100A, pressure class 10K to 40K.
  - **Threaded** Dimensions ¼" to 1½" NPT with 2500 psi pressure limit.
  - **Sanitary** Given the 3A standard to finishing, wet o'rings and fill fluid.

smar

What is SR301?

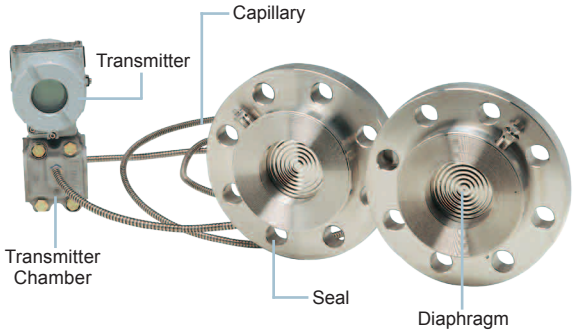
- The SR301 series is a complete line of Remote Seals, which allow the pressure transmitter to do measurements in situations where a direct contact of the transmitter's diaphragm with process fluid is not allowed.

Basic Features

Remote seal transmitters are used when it is necessary to isolate the transmitter from the process.

The seal system comprises a process connection with a flexible diaphragm seal between the process fluid and a liquid filled capillary tube, connected to the transmitter.

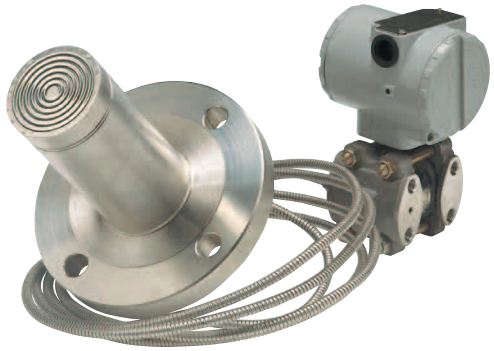
The diaphragm isolates the process fluid while the filled capillary tube transmits the process pressure to the transmitter sensor.



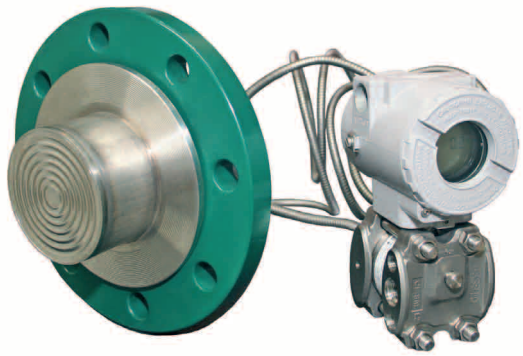
Available Models

The remote seals available in SR301 series are:

- Flanged (SR301T), Threaded (SR301R), Pancake (SR301P), where those three models has an optional flush connection, Sanitary (SR301S), Flanged with Extension (SR301E) and Pancake with Extension (SR301Q), with several materials for most of the industrial processes. The Level (LD300L) and Sanitary (LD300S) models are also available.
- The SR301T, SR301E and LD300L models are available with two flange types for process connection: integral and slip-on flange. With the integral flange model the diaphragm is welded directly on the flange. With the slip-on flange model, the diaphragm is not welded on the flange, so it is possible to rotate the flange, making it easier to assemble in the field. Using the slip-on flange model it is possible to choose a less noble material for the flange than what is used in the diaphragm, such as Coated Carbon Steel.



Integral Flange Model



Slip-on Flange Model

- The flanged remote seals are available in the standards ANSI, DIN and JIS. The dimensions are 1" to 4"; DN25 to DN100 and 40A to 100A; and the pressure classes are 150# to 2500#; PN10 to PN250 and 10K to 40K, respectively.
- The threaded seals have connections of ¼" NPT to 11/2" NPT with pressure limit of 2500 psi to 25°C.

The sanitary models are according to 3A standard, with threaded connections standard SMS, IDF and Tri-Clamp.

Considerations for Remote Seal Specification

In the remote seal specification the following items should be considered:

- Process Pressure (minimum and maximum);
- Process Temperature (minimum and maximum);
- Process Fluid;
- Connection to Process;
- Seal Installation Type;
- Distance between Pressure Tap and the Transmitter.

Application

The SR301 is assembled with both gage and differential pressure transmitters. When used in food applications the connections are sanitary. The level models are also available.

The typical applications of the remote seal with transmitter are:

- Process with corrosion;
- Process with viscosity or with suspended solids;
- Process with possibility of solidifying, crystallizing or freezes;
- Process that demand ease of cleaning;
- Process with extreme temperature.

Main Functions

The use of the remote seal guarantees a correct measurement and without damage to the pressure transmitter. Therefore the main functions are:

- To prevent the process fluid from entering the pressure transmitter thereby protecting the instrument if the process fluid is corrosive and would otherwise attack and destroy the transmitter;
- To prevent process fluids with very high temperature from coming in contact with and damaging the pressure sensor;
- To prevent abrasive process fluids from scratching the isolating diaphragm. This may happen if the process fluid is carrying suspended solids;
- To prevent the process fluid from building up or solidifying inside the transmitter and blocking the transmission of pressure to the sensor. This may happen if the process fluid freezes, polymerizes or if carrying suspended solids, that are viscous or crystallizing;
- Sanitary seals are used to prevent bacteria etc. to build up in cavities in the transmitter. These seals are designed to be easily cleaned. These are required in the pharmaceutical and food & beverage industries.

Main Advantages

- Better Cost/Benefit
- Easy Maintenance
- Easy Installation
- High Durability
- Safety

Avoid the Common Errors

Using the SR301 avoids possible errors as:

- Wetted materials not compatible with the process fluid. Consider normal operation as well as cleaning;
- Fill fluid not compatible with the process fluid may cause hazardous situations in case of diaphragm ruptures and the fluids come in contact with the process;
- Vacuum below 600 mmHg requires special considerations. Operation at these high vacuums is possible if done right. Consult Smar for advice;
- Process data such as pressure, temperature, required seal type and process fluid must be furnished to evaluate the application;
- Only one seal or capillary with different lengths on a differential pressure transmitter causes zero shift as the temperature changes. Keep capillaries same length, if possible;
- Long capillaries cause response time to increase and augment temperature effect;
- The temperature is beyond the upper or lower operating temperature range of the fill fluid;
- The process pressure exceeds the seal pressure rating at maximum process temperature;
- Upper measurement ranges below 600 mmH2O will see errors as the remote seal reduces the sensitivity of the transmitter.

Fill Fluid Considerations

Before a fill fluid is chosen, it must be determined that it is suitable for operation at the extremes of vacuum and temperature at which it will operate. Another important consideration is that the diaphragm may be damaged.

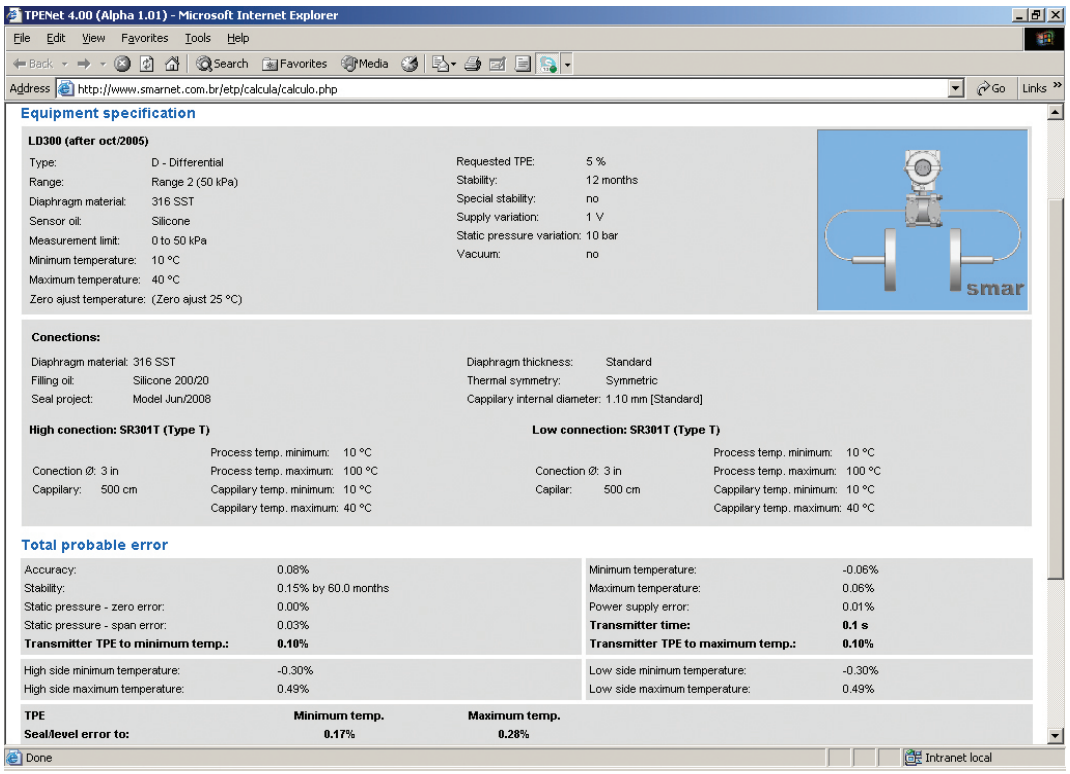
It is therefore important that the fill fluid does not start a hazardous chemical reaction with the process fluid.

As a rule of thumb, do not use hydrocarbon based fill fluids, such as silicone, with strong oxidizers like: chlorine, hydrogen, hydrazine, oxygen, peroxide or nitric acid. Also do not use Fluorolube oil if there is a chance for it to come in contact with aluminum or magnesium or vacuum.

The user must insure that the right type of seal with the proper fill fluid and wetted materials is used, and if a remote seal should be used at all. See in the SR301 manual the software dedicated to the calculation of the pressure transmitters with the possible process connections assembly error (TPE), and the calculations for temperature errors and response time. Or request an equipment performance report through TPE to the Applications Engineering department and Commercial Areas of Smar.

TPE Software

Smar offers equipment performance report generated by the TPE software (Total Probable Error), which accomplishes a probable total estimate for the transmitter error with the connections to the process sealed.



The pressure transmitter accuracy is not significantly altered by the addition of seals / level. However, the error of resulting measurement of the combination suffers significant increase due to geometric and physical parameters, because of the temperature variation.

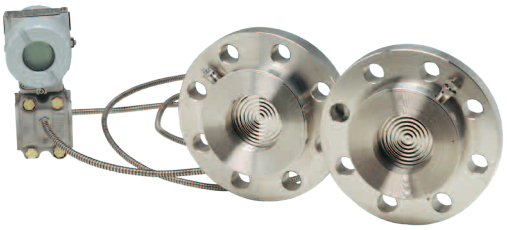
Vacuum Considerations

The fill fluid vapor pressure point is dependent on temperature. At a combination of high temperature and pressure near vacuum the fill fluid may vaporize and the pressure measurement becomes inaccurate. The seal may also become permanently destroyed. Careful selection of fill fluid is therefore of upmost importance.

The SR301 series provides features of the fill fluids. This data is given in table 7.

"T" Type Flanged Remote Seal - SR301T

The SR301T is a flanged seal with welded diaphragm. It can be supplied with an optional flush connection and housing. The flush connection removes deposits on the diaphragm without disconnecting the seal. If installed correctly, the seal flange is a non-wetted part and does not get wet in contact with the process fluid during normal operation. However, the diaphragm and housing are wetted.



Bolts and nuts are not supplied with the seal.

For Dimensions see the pages 18, 19 (for integral flange) and 20 (for slip-on flange). For Pressure Limits see the Tables 1, 2 and 3 in the page 16.

MODEL | **REMOTE SEAL**

SR301T — **"T" TYPE FLANGED REMOTE SEAL**

CODE — **Process Connection, Range and Standard**

1	1	1" 150 # ANSI B-16.5 **(11)**	6	8	DN 25 PN160 DIN 2501 **(11)**
1	2	1" 300 # ANSI B-16.5 **(11)**	6	9	DN 25 PN250 DIN 2501 **(11)**
1	3	1" 600 # ANSI B-16.5 **(11)**	7	B	DN 40 PN10/40 DIN EN1092-1 **(11)**
1	4	1" 1500 # ANSI B-16.5 **(4) (11)**	7	D	DN 40 PN63/100 DIN EN1092-1 **(11)**
1	5	1" 2500 # ANSI B-16.5 **(11)**	7	8	DN 40 PN160 DIN 2501 **(11)**
2	1	1 1/2" 150 # ANSI B-16.5 **(11)**	7	9	DN 40 PN250 DIN 2501 **(11)**
2	2	1 1/2" 300 # ANSI B-16.5 **(11)**	8	B	DN 50 PN10/40 DIN EN1092-1 **(3) (11)**
2	3	1 1/2" 600 # ANSI B-16.5 **(11)**	8	6	DN 50 PN63 DIN EN1092-1 **(11)**
2	4	1 1/2" 1500 # ANSI B-16.5 **(4) (11)**	8	7	DN 50 PN100 DIN EN1092-1 **(11)**
2	5	1 1/2" 2500 # ANSI B-16.5 **(11)**	8	8	DN 50 PN160 DIN 2501 **(11)**
3	1	2" 150 # ANSI B-16.5	8	9	DN 50 PN250 DIN 2501 **(11)**
3	2	2" 300 # ANSI B-16.5	9	B	DN 80 PN10/40 DIN EN1092-1 **(3) (11)**
3	3	2" 600 # ANSI B-16.5	9	6	DN 80 PN63 DIN EN1092-1 **(11)**
3	4	2" 1500 # ANSI B-16.5 **(4) (11)**	9	7	DN 80 PN100 DIN EN1092-1 **(11)**
3	5	2" 2500 # ANSI B-16.5 **(11)**	9	8	DN 80 PN160 DIN 2501 **(11)**
4	1	3" 150 # ANSI B-16.5	A	A	DN 100 PN10/16 DIN EN1092-1 **(11)**
4	2	3" 300 # ANSI B-16.5	A	C	DN 100 PN25/40 DIN EN1092-1 **(11)**
4	3	3" 600 # ANSI B-16.5	C	G	JIS 40A 20K **(11)**
5	1	4" 150 # ANSI B-16.5	D	F	JIS 50A 10K **(11)**
5	2	4" 300 # ANSI B-16.5	D	H	JIS 50A 40K **(11)**
5	3	4" 600 # ANSI B-16.5	E	F	JIS 80A 10K **(11)**
6	B	DN 25 PN10/40 DIN EN1092-1 **(11)**	E	G	JIS 80A 20K **(11)**
6	D	DN 25 PN63/100 DIN EN1092-1 **(11)**	F	F	JIS 100A 10K **(11)**

CODE — **Capillary Length**

1	500 mm	8	6000 mm
2	1000 mm	E	7000 mm
3	1500 mm	9	8000 mm
4	2000 mm	B	9000 mm
5	3000 mm	A	10000 mm
6	4000 mm		
7	5000 mm		

CODE — **Diaphragm Material**

I	316L Stainless Steel	U	Titanium	G	316L Stainless Steel Gold Plated
H	Hastelloy C276	A	316L Stainless Steel with Teflon Lining	L	316L Stainless Steel with Halar Lining **(10)**
M	Monel 400	B	Tantalum with Teflon Lining	C	Hastelloy with Teflon Lining
T	Tantalum	D	304L Stainless Steel		

CODE — **Fill Fluid**

S	DC 200 – silicone oil
D	DC 704 – silicone oil
F	Fluorolube MO-10 **(1)**
T	Sylltherm 800
N	Neobee M20
G	Glicerin + Water **(7)**
B	Fomblim 06/06
K	Krytox 1506
H	Halocarbon 4.2

CODE — **Lower Housing**

0	Without Lower Housing **(2)**
1	316 Stainless Steel
2	Hastelloy C276
3	Super Duplex (UNS 32750) **(7)**
4	Duplex (UNS 31803) **(7)**
5	304L Stainless Steel **(7)**
M	Monel

CODE — **Gasket Material**

0	Without Gasket	C	Copper
T	Teflon (PTFE)	I	316L Stainless
G	Grafoil (Flexible Grafoil)		

COD. — **Optional Items***

ZZ	Special Options – Specify

SR301T	-	4	2	3	-	H	S	-	1	T	-	*

* Leave it blank if there are not optional items.

Optional Items

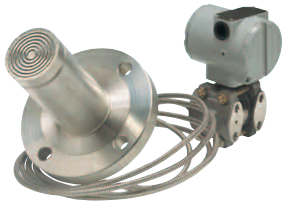
Shield Material	A0 - 304 Stainless Steel A1 - 316 Stainless Steel A2 - 304 Stainless Steel With PVC Lining A3 - 316 Stainless Steel With PVC Lining	
Material / Flange Type	F0 - 316L Stainless Steel (Integral Flange) F1 - C276 Hastelloy (Integral Flange) F2 - 304L Stainless Steel (Integral Flange) **(7)** F3 - Super Duplex (UNS 32750) (Integral Flange) **(7)** F4 - Duplex (UNS 31803) (Integral Flange) **(7)**	F5 - Coated Carbon Steel (Slip-on Flange) F6 - 304 Stainless Steel (Slip-on Flange) F7 - 316L Stainless Steel (Slip-on Flange)
Lower Housing Connection	G0 - With Flush Connection of 1/4" NPT (If supplied with housing) G1 - With Two Flush Connections of 1/4" NPT at 180° G2 - With Two Flush Connections of 1/4" NPT at 90°	G3 - With Two Connections of 1/2" NPT - 14 NPT at 180° (With Lid) G4 - Without Flush Connection
Face (8)	H0 - Raised Face (ANSI, DIN, JIS) H1 - Flat Face (ANSI, DIN) H2 - Flat Face With Sealing Channel – RTJ (ANSI B 16.20) (5) H3 - Tongue Type Face (DIN) **(7)** H4 - Groove Type Face (DIN) **(7)** H5 - Small Tongue (ANSI) **(7)** H6 - Small Groove (ANSI) **(7)** H7 - Large Tongue (ANSI) **(7)** H8 - Large Groove (ANSI) **(7)**	
Insulator Kit (6)	K0 - Without Kit K1 - With Kit	
Special Procedure	P1 - Degrease Cleaning (Oxygen or Chlorine Service) **(9)** P5 - Mounting according NACE standard	
Diaphragm Thickness	N0 – Default **(12)** N1 – 0.1mm **(7)**	

Note - SR301T:

(1) Fluorolube Filling Fluid is not available with Monel Diaphragm.
(2) Supplied Without Gasket.
(3) The Smar Standardized PN10/40 (With Dimension PN40), however, the DIN Standard Divides It in PN10/16 and PN25/40.
(4) Also fits the #900 class.
(5) Only the gasket code available I (Stainless 316).
(6) The Insulator Kit is applicable with Raised Face (H0) and Flat Face (H1), with Gasket T (Teflon) material and limited only for the models ANSI until #600, DIN until P40 and JIS until 40K; for models with extension the gasket T (Teflon) have special format.
(7) Item by inquiry.
(8) Finishing of the flange faces sealing regions.
a - Standard: ANSI B 16.5 / MSS-SP6:
Raised or Flat Face with grooved lining: 3.2 to 6.3 µm Ra (125 to 250 µ" AA);
Face Small or Large Tongue and Small or Large Groove with smooth finishing not exceeding: 3.2 µm Rt (125 µ" AA);
b- Standard RTJ ANSI B 16.20 / MSS-SP6:
Smooth finishing not exceeding: 1,6 µm Rt (63 µ" AA);
c- Standard DIN EN-1092-1:
Grooved Finishing "B1" (PN 10 to PN40): 3.2 to 12.5 µm Ra (125 to 500 µ" AA);
Smooth Finishing "B2" (PN 63 to PN100), "C" (Tongue) and "D" (Groove): 0.8 to 3.2 µm Ra (32 to 125 µ" AA).
d- Standard Din 2501 (DIN 2526):
Smooth Finishing "E" (PN 160 to PN250): Rz = 16 (3.2 µm Ra (125 µ" AA)).
e- Standard Jis B2201:
Groove Finishing: 3.2 to 6.3 µm Ra (125 to 250 µ" AA).
Whereby: Ra (average ruggedness) and Rt (total ruggedness).
(9) Degrease cleaning not available for carbon steel flanges.
(10) Applicable only for:
- Diaphragm Thickness of 0.05mm.
- Diameters/Capillary Length:
2" ANSI B 16.5, DN 50 DIN, JIS 50 A, for seals up to 3 meters of capillary and level models (by inquiry).
3" ANSI B 16.5, DN 80 DIN, JIS 80 A, for seals up to 5 meters of capillary and level models.
4" ANSI B 16.5, DN 100 DIN, JIS 100 A, for seals up to 8 meters of capillary and level models.
- Faces: RF and FF.
- Temperature Limits:
+10 to 100°C;
+101 to 150°C (by inquiry).
- Not applicable for diaphragm thickness: N1 - 0.10mm.
- Not applicable for use with housing.
(11) Not available for Slip-on flange.
(12) Diaphragms of Titanium and Monel available only in 0.1 mm, and diaphragms of Tantalum only in 0.075 mm.

Flanged Remote Seal with Extension - SR301E

The SR301E is a flanged seal with welded diaphragm. The diaphragm is extended from the seal flange and welded to the extension. Different from Model SR301T, it is not supplied with a housing, because the diaphragm coincides with the internal wall of the tank.
Bolts and nuts are not supplied with the seal.
For Dimensions see the pages 18, 19 (for integral flange) and 20 (for slip-on flange). For Pressure Limits see the Tables 1 and 2 in the page 16.



MODEL	REMOTE SEAL
SR301E	FLANGED REMOTE SEAL WITH EXTENSION

CODE — Process Connection, Range and Standard (3)

21	1.1/2" 150 # ANSI B-16.5 **(9)**	41	3" 150 # ANSI B-16.5	7B	DN 40 PN10/40 DIN EN1092-1 **(9)**
22	1.1/2" 300 # ANSI B-16.5 **(9)**	42	3" 300 # ANSI B-16.5	8B	DN 50 PN10/40 DIN EN1092-1 **(2) (9)**
23	1.1/2" 600 # ANSI B-16.5 **(9)**	43	3" 600 # ANSI B-16.5	9C	DN 80 PN10/40 DIN EN1092-1 **(2) (9)**
31	2" 150 # ANSI B-16.5	51	4" 150 # ANSI B-16.5	AA	DN 100 PN10/16 DIN EN1092-1 **(9)**
32	2" 300 # ANSI B-16.5	52	4" 300 # ANSI B-16.5	AC	DN 100 PN25/40 DIN EN1092-1 **(9)**
33	2" 600 # ANSI B-16.5	53	4" 600 # ANSI B-16.5		

CODE — Capillary Length

1	500 mm	3	1500 mm	5	3000 mm	7	5000 mm	E	7000 mm	A	10000 mm
2	1000 mm	4	2000 mm	6	4000 mm	8	6000 mm	9	8000 mm	B	9000 mm

CODE — Diaphragm Material

I	316L Stainless Steel	T	Tantalum	B	Tantalum with Teflon Lining	C	Hastelloy with Teflon Lining
H	Hastelloy C276	U	Titanium	G	316L Gold Plated Stainless Steel		
M	Monel 400	A	316L Stainless Steel with Teflon Lining	L	316L Stainless Steel with Halar Lining **(8)**		

CODE — Filling Fluid

S	DC 200 – silicone oil	T	Syltherm 800	B	Fomblim 06/06
D	DC 704 – silicone oil	N	Neobee M20	K	Krytox 1506
F	Fluorolube MO-10 **(1)**	G	Glicerin + Water **(5)**	H	Halocarbom 4.2

CODE — Extension Length (2)

1	50 mm **(2")**	2	100 mm **(4")**	3	150 mm **(6")**	4	200 mm **(8")**

CODE — Optional Items*

ZZ	Special Options – Specify

SR301E - 4 | 2 | 3 - H | S - 1 / *

* Leave it blank when there are not optional items.

Optional Items

Shield Material	A0 - 304 Stainless Steel A1 - 316 Stainless Steel	A2 - 304 Stainless Steel With PVC Lining A3 - 316 Stainless Steel With PVC Lining	
Material / Flange Type	F0 - 316L Stainless Steel (Integral Flange) F1 - C276 Hastelloy (Integral Flange) F2 - 304L Stainless Steel (Integral Flange) **(5)**	F3 - Super Duplex (UNS 32750) (Integral Flange) **(5)** F4 - Duplex (UNS 31803) (Integral Flange) **(5)** F5 - Coated Carbon Steel (Slip-on Flange)	F6 - 304 Stainless Steel (Slip-on Flange) F7 - 316L Stainless Steel (Slip-on Flange)
Face (6)	H0 - Raised Face (ANSI, DIN, JIS) H1 - Flat Face (ANSI, DIN) H2 - Flat Face With Sealing Channel – RTJ (ANSI B 16.20) H3 - Tongue Type Face (DIN) **(5)** H4 - Groove Type Face (DIN) **(5)**	H5 - Small Tongue (ANSI) **(5)** H6 - Small Groove (ANSI) **(5)** H7 - Large Tongue (ANSI) **(5)** H8 - Large Groove (ANSI) **(5)**	
Extension Material	J0 - 316 Stainless Steel J1 - C276 Hastelloy J2 - 304l Stainless Steel **(5)**	J3 - Super Duplex (UNS 32750) **(5)** J4 - Duplex (UNS 31803) **(5)**	
Insulator Kit (4)	K0 - Without Kit K1 - With Kit		
Special Procedure	P1 - Degrease Cleaning (Oxygen or Chlorine Service) **(7)** P5 - Mounting according NACE standard		
Diaphragm Thickness	N0 – Default **(10)** N1 – 0.1mm **(5)**		

Note - SR301E:

(1) Fluorolube Filling Fluid Is Not Available With Monel Diaphragm.
(2) The Smar Standardized PN10/40 (With Dimension PN40), however, the DIN Standard Divides It in PN10/16 and PN25/40.
(3) Flanges ANSI # (1500 and 2500), DIN PN (63, 100, 160 and 250) and JIS. Supply by inquiry.
(4) The Insulator Kit is applicable with Raised Face (H0) and Flat Face (H1), with Gasket T (Teflon) material and limited only for the models ANSI until #600, DIN until P40 and JIS until 40K; for models with extension the gasket T (Teflon) have special format.
(5) Item by inquiry.
(6) Finishing of the flange faces sealing regions:
a- Standard: ANSI B 16.5 / MSS-SP6:
Raised or Flat Face with grooved lining: 3.2 to 6.3 µm Ra (125 to 250 µ" AA);
Face Small or Large Tongue and Small or Large Groove with smooth finishing not exceeding: 3.2 µm Rt (125 µ" AA);
b- Standard RTJ ANSI B 16.20 / MSS-SP6:
Smooth finishing not exceeding: 1,6 µm Rt (63 µ" AA);
c- Standard DIN EN-1092-1:
Grooved Finishing "B1" (PN 10 to PN40): 3.2 to 12.5 µm Ra (125 to 500 µ" AA);
Smooth Finishing "B2" (PN 63 to PN100), "C" (Tongue) and "D" (Groove): 0.8 to 3.2 µm Ra (32 to 125 µ" AA).
d- Standard Din 2501 (DIN 2526):
Smooth Finishing "E" (PN 160 to PN250): Rz = 16 (3.2 µm Ra (125 µ" AA)).
e- Standard Jis B2201:
Groove Finishing: 3.2 to 6.3 µm Ra (125 to 250 µ" AA).
Whereby: Ra (average ruggedness) and Rt (total ruggedness).
(7) Degrease cleaning not available for carbon steel flanges.
(8) Applicable only for:
- Diaphragm Thickness of 0.05mm.
- Diameters/Capillary Length: 2" ANSI B 16.5, DN 50 DIN, JIS 50 A, for seals up to 3 meters of capillary and level models (by inquiry).
3" ANSI B 16.5, DN 80 DIN, JIS 80 A, for seals up to 5 meters of capillary and level models.
4" ANSI B 16.5, DN 100 DIN, JIS 100 A, for seals up to 8 meters of capillary and level models.
- Faces: RF and FF.
- Temperature Limits:
+10 to 100°C;
+101 to 150°C (by inquiry).
- Not applicable for diaphragm thickness: N1 - 0.10mm.
(9) Not available for Slip-on flange.
(10) Diaphragms of Titanium and Monel available only in 0.1 mm, and diaphragms of Tantalum only in 0.075 mm.

Threaded Remote Seal - SR301R

The SR301R is a threaded connection seal. The diaphragm is welded to the flange. This model is always supplied with housing, because the process thread is located in this part. The flush connection (optional) in the housing enables the removal of deposits on the diaphragm without disconnecting the seal. The parts are bolted together and sealed with a gasket.

This model is supplied with bolts and nuts in Stainless Steel 316.

For Dimensions see the page 21. For Pressure Limits see the Table 4 in the page 16.

MODEL	REMOTE SEAL
SR301R	THREADED REMOTE SEAL

Process Connection

CODE		CODE		CODE		CODE	
1	1/4 NPT	3	½ NPT	5	1 NPT	7	1/2" BSP
2	3/8 NPT	4	3/4 NPT	6	1 ½ NPT	8	1" BSP

Pressure Limit (3)

CODE	
1	2500 psi

Capillary Length

CODE		CODE		CODE	
1	500 mm	5	3000 mm	E	7000 mm
2	1000 mm	6	4000 mm	9	8000 mm
3	1500 mm	7	5000 mm	A	10000 mm
4	2000 mm	8	6000 mm	B	9000 mm

Diaphragm Material

CODE		CODE		CODE	
I	316L Stainless Steel	T	Tantalum	B	Tantalum with Teflon Lining
H	Hastelloy C276	U	Titanium	G	316L Gold Plated Stainless Steel
M	Monel 400	A	316L Stainless Steel with Teflon Lining	C	Hastelloy with Teflon Lining

Filling Fluid

CODE		CODE		CODE	
S	DC 200 – silicone oil	T	Syltherm 800	B	(5) Fomblim 06/06
D	DC 704 – silicone oil	N	Neobee M20	K	Krytox 1506
F	Fluorolube MO-10 **(1)**	G	Glicerin + Water	H	Halocarbom 4.2

Lower Housing

CODE		CODE	
I	316L Stainless Steel	D	Duplex (UNS 31803) **(5)**
H	Hastelloy C276	A	304L Stainless Steel **(5)**
S	Super Duplex (UNS 32750) **(5)**	M	Monel

Gasket Material (4)

CODE	
T	Teflon (PTFE)
G	Grafoil (Flexible Grafoil)

Flush Connection

CODE	
0	Without Flush Connection
1	With Flush Connection **(2)**

Optional Items*

CODE	
ZZ	Special Options – Specify

SR301R	-	4	1	3	-	H	A	-	I	T	0	/	*

* Leave it blank when there are not optional items.

Optional Items

Shield Material	A0 - 304 Stainless Steel A1 - 316 Stainless Steel A2 - 304 Stainless Steel With PVC Lining A3 - 316 Stainless Steel With PVC Lining	
Flange Material	F0 - 316 Stainless Steel F1 - C276 Hastelloy F2 - 304L Stainless Steel F3 - Super Duplex (UNS 32750) **(5)** F4 - Duplex (UNS 31803) **(5)**	
Lower Housing Connection	G0 - With Flush Connection of 1/4" NPT (If supplied with housing) G1 - With Two Flush Connections of 1/4" NPT at 180° G2 - With Two Flush Connections of 1/4" NPT at 90°	G3 - With Two Connections of 1/2" NPT - 14 NPT at 180° (With Lid) G4 - Without Flush Connection
Special Procedure	P1 - Degrease Cleaning (Oxygen or Chlorine Service) **(6)**	
Diaphragm Thickness	N0 – Default **(7)** N1 – 0.1mm **(5)**	

Note - SR301R:

(1) Fluorolube Filling Fluid Is Not Available With Monel Diaphragm.
(2) Flush connection not available for process connection 1½" NPT.
(3) See Table 4 – For Pressure Limits and Temperature
(4) See Table 7 – Gasket Application Guide for Pressure and Temperature Limits.
(5) Item by inquiry.
(6) Degrease cleaning not available for carbon steel flanges.
(7) Diaphragms of Titanium and Monel available only in 0.1 mm, and diaphragms of Tantalum only in 0.075 mm.

Sanitary Remote Seal - SR301S

The SR301S is a seal for food and other applications where the sanitary connections are necessary. The diaphragm is welded to the connection face, which can be Threaded type or Tri-Clamp, allowing an easy and fast connection/disconnection of the transmitter.

For Dimensions see the pages 28, 29 and 30. For Pressure Limits see the Tables 5 and 6 in the page 16.

MODEL	REMOTE SEAL
SR301S	SANITARY REMOTE SEAL 'S'

CODE — Process Connection (1)

T	1	Tri-Clamp DN50 – without extension	V	1	Threaded DN50– DIN 11851 – with extension **(2) (4)**
A	1	Tri-Clamp DN50 – with extension	W	1	Threaded DN80–DIN 11851 – without extension **(2)**
A	2	Tri-Clamp DN50 HP – with extension	X	1	Threaded DN80 – DIN 11851 – with extension **(2) (4)**
F	1	Tri-Clamp – 1.1/2" - without extension **(4)**	S	1	Threaded SMS – 1.1/2" - without extension **(2)**
F	2	Tri-Clamp – 1.1/2" HP - without extension **(4) (5)**	E	1	Threaded SMS – 2" - without extension **(2) (4)**
D	1	Tri-Clamp – 2" - without extension **(4)**	7	1	Threaded SMS – 2" - with extension **(2) (4)**
D	2	Tri-Clamp – 2" HP - without extension **(4) (5)**	1	1	Threaded SMS - 3" - without extension **(2) (4)**
6	1	Tri-Clamp – 2" - with extension **(4)**	M	1	Threaded SMS – 3" - with extension **(2) (4)**
6	2	Tri-Clamp – 2" HP - with extension **(4) (5)**	C	1	Threaded RJT – 2" - without extension **(2)**
G	1	Tri-Clamp – 3" - without extension	5	1	Threaded RJT – 2" - with extension **(2) (4)**
G	2	Tri-Clamp – 3" HP - without extension **(5)**	2	1	Threaded RJT - 3" - without extension **(2)**
I	1	Tri-Clamp – 3" - with extension **(4)**	L	1	Threaded RJT – 3" - with extension **(2) (4)**
I	2	Tri-Clamp – 3" HP - with extension **(4) (5)**	B	1	Threaded IDF – 2" - without extension **(2) (4)**
8	1	Threaded DN25–DIN 11851–with extension **(2) (4)**	4	1	Threaded IDF – 2" - with extension **(2) (4)**
H	1	Threaded DN40–IN 11851– without extension	3	1	Threaded IDF - 3" - without extension **(2) (4)**
9	1	Threaded DN40– DIN 11851 – with extension **(2) (4)**	K	1	Threaded IDF – 3" - with extension **(2) (4)**
U	1	Threaded DN50–DIN 11851 – without extension **(2)**			

CODE — Capillary Length

1	500 mm	5	3000 mm	E	7000 mm
2	1000 mm	6	4000 mm	9	8000 mm
3	1500 mm	7	5000 mm	A	10000 mm
4	2000 mm	8	6000 mm	B	9000 mm

CODE — Diaphragm Material

H	Hastelloy C276
I	316L SST

CODE — Fill Fluid

S	DC 200 – silicone oil	T	Syltherm 800	B	Fomblim 06/06
D	DC 704 – silicone oil	N	Neobee M20 **(4)**	K	Krytox 1506
F	Fluorolube MO-10	G	Glycerin + Water **(6)**	H	Halocarbom 4.2

CODE — Wet O-ring

0	Without O-ring	B	Buna N **(4)**
T	Teflon **(4)**	V	Viton **(4)**

CODE — Tank Adapter

0	Without Tank Adapter
3	With Tank Adapter in 316L SST **(3)**

CODE — Tri Clamp

0	Without Tri-Clamp
2	With Tri-Clamp in 304 SST

CODE — Optional Items*

ZZ	Special Options – Specify

SR301S	-	4	1	3	-	I	A	-	T	1	0	/	*

* Leave it blank when there are not optional items.

Optional Items

Shield Material	A0 – 304 Stainless Steel A1 – 316 Stainless Steel A2 - 304 Stainless Steel with PVC Lining A3 - 316 Stainless Steel with PVC Lining
Special Procedures	P1 – Degrease Cleaning (Oxygen or Chlorine Service) **(7)** P3 – Polishing of the wet parts according to 3A Certification **(4) (6)**
Diaphragm Thickness	N0 – Default N1 – 0.1mm **(6)**

Note - SR301S:

(1) Extension Material in 316 Stainless Steel and wet part with diaphragm material.
(2) Not available for Tri-clamp in 304 stainless steel.
(3) Not available for without O-Ring option.
(4) Compliant with 3A-7403 standard for food and other applications where sanitary connections are required:
- Neobee M2O Filling Fluid
- Wet Face finishing: 0.8 µm Ra (32 µ" AA)
- Wet O-Ring: Viton, Teflon and Buna-N

(5) HP – High Pressure.
(6) Item by inquiry.
(7) Degrease cleaning is not available for Carbon Steel Flanges.

Pancake Remote Seal - SR301P

The SR301P is a seal with welded diaphragm, whose assembly requires blind flanges. This model is supplied with housing and flush connection (optional). The flush connection removes deposits on the diaphragm without disconnecting the seal. The seal diaphragm and the housing are wetted (in contact with the process fluid). However, the blind flange does not get wet.

Bolts, nuts and blind flange are not supplied with the seal.

The pressure limits are established by pressure class of the blind flange.

For Dimensions see the page 22. For Pressure Limits see the Tables 1, 2 and 3 in the page 16.

MODEL SR301P — PANCAKE REMOTE SEAL

Process Connection, Pressure Class / Standard

CODE			
1	1 1/2"	150...2500 #	ANSI B-16.5
2	2"	150...2500 #	ANSI B-16.5
3	3"	150...2500 #	ANSI B-16.5
4	4"	150...2500 #	ANSI B-16.5
5	DN 40	PN10...100	DIN EN1092-1 **(1)**
6	DN 50	PN10...100	DIN EN1092-1 **(1)**
7	DN 80	PN10...100	DIN EN1092-1 **(1)**
8	DN 100	PN10...100	DIN EN1092-1 **(1)**
9	40A	20K	JIS B 22 01
A	50A	10K	JIS B 22 01
B	50A	40K	JIS B 22 01
C	80A	10K	JIS B 22 01
D	80A	20K	JIS B 22 01
E	100A	10K	JIS B 22 01

Capillary Length

CODE		CODE	
1	500 mm	7	5000 mm
2	1000 mm	8	6000 mm
3	1500 mm	9	8000 mm
4	2000 mm	B	9000 mm
5	3000 mm	A	10000 mm
6	4000 mm		

Diaphragm Material

I	316L Stainless Steel	U	Titanium	G	316L Stainless Steel Gold Plated
H	Hastelloy C276	A	316L Stainless Steel with Teflon Lining	L	316L Stainless Steel with Halar Lining **(7)**
M	Monel 400	B	Tantalum with Teflon Lining	C	Hastelloy with Teflon Lining
T	Tantalum	Z	Special (See Notes)		

Fill Fluid

S	DC 200 – silicone oil	G	Glycerin + Water
D	DC 704 – silicone oil	B	Fomblim 06/06
F	Fluorolube MO-10 **(2)**	K	Krytox 1506
T	Sylthern 800	H	Halocarbon 4.2
N	Neobee M20		

Lower Housing

0	Without Lower Housing **(3)**	2	Hastelloy C276	4	Duplex (UNS 31803) **(4)**
1	316 Stainless Steel	3	Super Duplex (UNS 32750) **(4)**	5	304L Stainless Steel **(4)**

Gasket Material

0	Without Gasket	T	Teflon (PTFE)	G	Grafoil (Flexible Grafoil)	C	Copper

Optional Items*

CODE	
ZZ	Special Options – Specify

SR301P	2	3	I	S	1	0	/	*

* Leave it blank when there are not optional items.

Optional Items

Shield Material	A0 - 304 Stainless Steel A1 - 316 Stainless Steel	A2 - 304 Stainless Steel with PVC Lining A3 - 316 Stainless Steel with PVC Lining	
Flange Material	F0 - 316L Stainless Steel F1 - C276Hastelloy	F2 - 304L Stainless Steel **(4)** F3 - Super Duplex (UNS 32750) **(4)**	F4 - Duplex (UNS 31803) **(4)**
Lower Housing Connection	G0 - With Flush Connection of ¼" NPT (If Supplied with Housing) G1 - With Two Flush Connections of ¼" NPT at 180°	G2 - With Two Flush Connections of ¼" NPT at 90° G3 - With Two Connections of ½" – 14 NPT at 180° (With Lid)	
Face (6)	H0 - Face (ANSI, DIN, JIS) **(5)**		
Insulator Kit	K0 - Without Kit	K1 - With Kit	
Special Procedure	P1 - Degrease Cleaning (Oxygen or Chlorine Service)		
Diaphragm Thickness	N0 – Default **(8)**	N1 - 0.1 mm	

Note – SR301P:

(1) Meets DIN 2501 PN 10... PN250 Standard, however with grooved lining and if mounted with counter-flange by solicited pressure class.
(2) Fluorolube filling fluid is not available with Monel diaphragm.
(3) Supplied without gasket.
(4) Item by inquiry.
(5) This face does not cause interference when mounted with counter-flanges with Flat Face (FF) or Raised Face (RF).
(6) Finishing of the flange faces sealing regions.
a - Standard ANSI B 16.5 / MSS-SP6:
Face with grooved lining: 3.2 to 6.3 µm Ra (125 to 250 µ" AA);
b - Standard DIN EN-1092-1:
Grooved Finishing (PN 10 to PN100): 3.2 to 12.5 µm Ra (125 to 500 µ" AA);
c - Standard JIS B2201:
Groove Finishing: 3.2 to 6.3 µm Ra (125 to 250 µ" AA).
Whereby: Ra (average ruggedness) and Rt (total ruggedness).
(7) Applicable only for:
- Diaphragm Thickness of 0.05mm.
- Diameters/Capillary Length:
2" ANSI B 16.5, DN 50 DIN, JIS 50 A, for seals up to 3 meters of capillary and level models (by inquiry).
3" ANSI B 16.5, DN 80 DIN, JIS 80 A, for seals up to 5 meters of capillary and level models.
4" ANSI B 16.5, DN 100 DIN, JIS 100 A, for seals up to 8 meters of capillary and level models.
- Faces: RF and FF.
- Temperature Limits:
+10 to 100°C;
+101 to 150°C (by inquiry).
- Not applicable for diaphragm thickness: N1 – 0.10mm.
- Not applicable for use with housing.
(8) Diaphragms of Titanium and Monel available only in 0.1 mm, and diaphragms of Tantalum only in 0.075 mm.

Pancake Remote Seal with Extension - SR301Q

The SR301Q is a seal with welded diaphragm, whose assembly requires blind flanges. The diaphragm is extended from the seal flange and welded to the extension. Different from Model SR301P, it is not supplied with housing, because the diaphragm coincides with the internal wall of the tank.

Bolts, nuts, gaskets and blind flange are not supplied with the seal.

The pressure limits are established by pressure class of the blind flange.

For Dimensions see the page 22. For Pressure Limits see the Tables 1, 2 and 3 in the page 16.

MODEL SR301Q — PANCAKE REMOTE SEAL WITH EXTENSION

Process Connection, Pressure Class / Standard

CODE			
1	1 1/2"	150 ... 600 #	ANSI B-16.5
2	2"	150 ... 600 #	ANSI B-16.5
3	3"	150 ... 600 #	ANSI B-16.5
4	4"	150 ... 600 #	ANSI B-16.5
5	DN 40	PN10 ...40	DIN EN1092-1 **(1)**
6	DN 50	PN10 ...40	DIN EN1092-1 **(1)**
7	DN 80	PN10 ...40	DIN EN1092-1 **(1)**
8	DN 100	PN10 ...40	DIN EN1092-1 **(1)**

Capillary Length

CODE		CODE	
1	500 mm	7	5000 mm
2	1000 mm	8	6000 mm
3	1500 mm	9	8000 mm
4	2000 mm	B	9000 mm
5	3000 mm	A	10000 mm
6	4000 mm		

Diaphragm Material

CODE		CODE		CODE	
I	316L Stainless Steel	U	Titanium	G	316L Stainless Steel Gold Plated
H	Hastelloy C276	A	316L Stainless Steel with Teflon Lining	L	316L Stainless Steel with Halar Lining **(6)**
M	Monel 400	B	Tantalum with Teflon Lining	C	Hastelloy with Teflon Lining
T	Tantalum				

Fill Fluid

CODE		CODE	
S	DC 200 – silicone oil	G	Glycerin + Water
D	DC 704 – silicone oil	B	Fomblim 06/06
F	Fluorolube MO-10 **(2)**	K	Krytox 1506
T	Sylltherm 800	H	Halocarbom 4.2
N	Neobee M20		

Extension Length

CODE		CODE	
1	50 mm (2")	3	150 mm (6")
2	100 mm (4")	4	200 mm (8")

Optional Items*

CODE	
ZZ	Special Options – Specify

SR301Q	2	3	I	S	1	/	*

* Leave it blank when there are not optional items.

Optional Items

Shield Material	A0 - 304 Stainless Steel A1 - 316 Stainless Steel	A2 - 304 Stainless Steel With PVC Lining A3 - 316 Stainless Steel With PVC Lining	
Flange Material	F0 - 316L Stainless Steel F1 - C276 Hastelloy	F2 - 304L Stainless Steel **(3)** F3 - Super Duplex (UNS 32750) **(3)**	F4 - Duplex (UNS 31803) **(3)**
Face (5)	H0 - Face (ANSI, DIN, JIS) **(4)**		
Extension Material	J0 - 316 Stainless Steel J1 - C276Hastelloy	J2 - 304L Stainless Steel **(3)** J3 - Super Duplex (UNS 32750) **(3)**	J4 - Duplex (UNS 31803) **(3)**
Insulator Kit	K0 - Without Kit	K1 - With Kit	
Special Procedure	P1 - Degrease Cleaning (Oxygen or Chlorine Service)		
Diaphragm Thickness	N0 – Default **(7)**	N1 - 0.1 mm	

Note – SR301Q:

(1) Meets DIN 2501 PN 10... PN40 Standard, however with grooved lining and if mounted with counter-flange by solicited pressure class.
(2) Fluorolube filling fluid is not available with Monel diaphragm.
(3) Item by inquiry.
(4) This face does not cause interference when mounted with counter-flanges with Flat Face (FF) or Raised Face (RF).
(5) Finishing of the flange faces sealing regions:
a - Standard ANSI B 16.5 / MSS-SP6:
Face with grooved lining: 3.2 to 6.3 µm Ra (125 to 250 µ" AA);
b - Standard DIN EN-1092-1:
Grooved Finishing (PN 10 to PN100): 3.2 to 12.5 µm Ra (125 to 500 µ" AA);
c - Standard JIS B2201:
Groove Finishing: 3.2 to 6.3 µm Ra (125 to 250 µ" AA).
Whereby: Ra (average ruggedness) and Rt (total ruggedness).

(6) Applicable only for:
- Diaphragm Thickness of 0.05mm.
- Diameters/Capillary Length:
2" ANSI B 16.5, DN 50 DIN, JIS 50 A, for seals up to 3 meters of capillary and level models (by inquiry).
3 " ANSI B 16.5, DN 80 DIN, JIS 80 A, for seals up to 5 meters of capillary and level models.
4" ANSI B 16.5, DN 100 DIN, JIS 100 A, for seals up to 8 meters of capillary and level models.
- Faces: RF and FF.
- Temperature Limits:
+10 to 100°C;
+101 to 150°C (by inquiry).
- Not applicable for diaphragm thickness: N1 – 0.10mm.
(7) Diaphragms of Titanium and Monel available only in 0.1 mm, and diaphragms of Tantalum only in 0.075 mm.

Level Transmitter – LD300L

The LD300L is a pressure or level transmitter using a high side flange. Its technical specifications and specifications for precision, drift and temperature effect are the same as the LD300L catalogue. The LD300L is a transmitter for industrial applications. The process connections can be supplied with housing when not having an extension.

For Dimensions see the pages 24 (for integral flange) and 25 (for slip-on flange). For Pressure Limits see the Tables 1, 2 and 3 in the page 16.

MODEL — LEVEL TRANSMITTERS

LD301 HART®
LD302 FOUNDATION™ fieldbus
LD303 PROFIBUS PA

COD.	Range Limits Min.	Range Limits Máx.	Min. Span	Unit.	Range Limits Min.	Range Limits Máx.	Min. Span	Unit.
L2	-50	50	1.25	kPa	-200	200	5	inH2O
L3	-250	250	2.08	kPa	-36	36	0.3	psi
L4	-2500	2500	20.83	kPa	-360	360	3	psi
L5	-25000	25000	208.30	kPa	-3625	3625	30.2	psi

Note: The range can be extended up to 0.75 LRL and 1.2 URL with small degradation of accuracy. The upper range value must be limited to the flange rating.

COD. Diaphragm material and Fill Fluid (Low Side)

1	316L SST	Silicone Oil **(2)**	8	Tantalum	Inert Fluorolube Oil **(3) (25)**	K	Monel 400	Inert Krytox Oil **(1) (25)**
2	316L SST	Inert Fluorolube Oil **(3) (25)**	9	316L SST	Fomblim Oil	M	Monel 400 Gold Plated	Silicone Oil **(1) (2)**
3	Hastelloy C276	Silicone Oil **(1) (2)**	A	Monel 400	Fomblim Oil **(1)**	P	Monel 400 Gold Plated	Inert Krytox Oil **(1) (25)**
4	Hastelloy C276	Inert Fluorolube Oil **(1) (3) (25)**	D	316L SST	Inert Krytox Oil **(25)**	Q	316L SST	Inert Halocarbon 4.2 Oil **(25)**
5	Monel 400	Silicone Oil **(1) (2)**	E	Hastelloy C276	Inert Krytox Oil **(1) (25)**	R	Hastelloy C276	Inert Halocarbon 4.2 Oil **(1) (25)**
7	Tantalum	Silicone Oil **(2)**	G	Tantalum	Inert Krytox Oil **(25)**	S	Tantalum	Inert Halocarbon 4.2 Oil **(25)**

COD. Flange, Adapter and Drain/Vent Valves material (Low Side)

A	304L Stainless Steel	I	316 SST – CF8M (ASTM – A351)	N	316 SST – CF8M (ASTM – A351) (Drain/Vent in Hastelloy C276) **(1)**
C	Plated CS (Drain/Vent in Stainless Steel) **(21)**	M	Monel 400 **(1)**	P	316 SST – CF8M (ASTM – A351) Flange with PVDF (Kynar) insert **(3) (4) (5)**
H	Hastelloy C276 (CW – 12MW, ASTM – A494) **(1)**				

COD. Wetted O'Ring Material (Low Side)

0 Without O'Rings | B Buna N | E Ethylene - Propylene | K Kalrez | T Teflon | V Viton **Note:** O'rings are not available on the sides with remote seals.

COD. Drain/Vent Position (Low Side)

0	Without Drain/Vent	D	Inferior	**Nota:** For better Drain/Vent operation, vent valves are strongly recommended. Drain/Vent valve are not available on the sides with remote seals.
A	Drain/Vent (Opposite to Process Connection)	U	Superior	

COD. Local Indicator

0 Without Indicator | 1 With Digital indicator

COD. Process Connection (Low Side)

0	1/4 - 18 NPT (Without Adapter)	3	Remote Seal (With Plug) **(7)**	9	Remote Seal (Low Volume Flange) **(3) (7)**	W	Without Connection (Absolute Reference)
1	1/2 - 14 NPT (With Adapter)	5	1/2 - 14 NPT Axial with PVDF Insert **(3) (4) (6)**	T	1/2 14 BSP (With Adapter)		

COD. Electrical Connection

0	1/2 – 14 NPT **(29)**	3	1/2 – 14BSP (with 316 SST adapter for ½ - 14 NPT) **(9)**	B	PG 13.5 DIN **(30)**
1	3/4 – 14 NPT (with 316 SST adapter for ½ - 14 NPT) **(26)**	A	M20 x 1.5 **(30)**	Z	User's specification
2	3/4 – 14 BSP (with 316 SST adapter for ½ - 14 NPT) **(9)**				

COD. Zero and Span Adjust

1 With Zero and Span Adjustment

COD. Process Connection

O	1.1/2" 150 # (ANSI B16.5) **(22)**	B	2" 600 # (ANSI B16.5	5	DN 25 PN 10/40 **(31)**	S	JIS 40A 20K **(22)**
U	1" 150 # (ANSI B16.5) **(31)**	1	3" 150 # (ANSI B16.5)	R	DN 40 PN 10/40 **(22)**	F	JIS 50A 10K **(22)**
V	1" 300 # (ANSI B16.5) **(31)**	2	3" 300 # (ANSI B16.5)	E	DN 50 PN 10/40 **(22)**	T	JIS 50A 40K **(22)**
W	1" 600 # (ANSI B16.5) **(31)**	C	3" 600 # (ANSI B16.5)	6	DN 80 PN 10/40 **(22)**	G	JIS 80A 10K **(22)**
P	1.1/2" 300 # (ANSI B16.5) **(22)**	3	4" 150 # (ANSI B16.5)	7	DN 100 PN 10/16 **(22)**	L	JIS 80A 20K **(22)**
Q	1.1/2" 600 # (ANSI B16.5) **(22)**	N	3" 600 # (ANSI B16.5 RTJ)	8	DN 100 PN 25/40 **(22)**	H	JIS 100A 10K **(22)**
9	2" 150 # (ANSI B16.5)	4	4" 300 # (ANSI B16.5)	K	JIS 20K 50A	Z	User's specification
A	2" 300 # (ANSI B16.5)	D	4" 600 # (ANSI B16.5)	M	JIS 20K 100A		

COD. Material and Flange Type (Level Tap)

2	316L SST (Integral Flange)	3	C276 Hastelloy (Integral Flange)	5	316L SST (Slip-on Flange)
Z	User's specification	4	304 SST (Slip-on Flange)	6	Coated Carbon Steel (Slip-on Flange)

COD. Extension Length

						Nota: Extension Material 316L SST
0	0 mm (0")	2	100 mm (4")	4	200 mm (8")	
1	50 mm (2")	3	150 mm (6")	Z	User's specification	

COD. Diaphragm (Level Tap)

1	316 SST	5	Titanium (10)	B	Tantalum with Teflon Lining
2	Hastelloy C276	6	316L SST with Teflon Lining (For 2"and 3")	L	316L Stainless Steel with Halar Lining **(20)**
3	Monel 400	7	316L SST Gold plated	C	Hastelloy with Teflon Lining
4	Tantalum **(10)**	A	304L Stainless Steel		

COD. Fill Fluid (Level Tap)

1	DC 200 Silicone Oil	T	Syltherm 800 Oil	B	Fomblim 06/06
3	DC 704 Silicone Oil	N	Neobee M20 Propylene Glycol Oil	4	Krytox Oil
2	MO – 10 Fluorolube Oil **(8)**	G	Glicerina + Água **(5)**	H	Halocarbon 4.2

COD. Lower Housing Material

0	Without Housing **(12)**	3	Super Duplex (UNS 32750) **(11)**	M	Monel
1	Stainless Steel 316	4	Duplex (UNS 31803) **(11)**		
2	Hastelloy C276	5	Stainless Steel 304L		

COD. Gaskte Material

0	Without Gasket	G	Grafoil (Flexible lead)	I	Stainless 316 L
T	Teflon (PTFE)	C	Copper		

LD301	L2	1	I	B	U	1	0	0	1	1	2	2	1	1	1	T

CONTINUES NEXT PAGE

* Leave it blank when there are not optional items.

MODEL | **LEVEL TRANSMITTERS (CONTINUOUS)**

COD. | **Flanges Bolts and Nuts Material**

A0	Plated Carbon Steel (Default) **(21)**	**A2**	Carbon Steel (ASTM A193 B7M) **(1) (21)**
A1	316 SST	**A5**	Hastelloy C276

COD. | **Flange thread for fixing accessories (adapters, manifolds, mounting brackets, etc)**

D0	7/16" UNF (Default)	**D1**	M10 X 1.5 Thread	**D2**	M12 X 1.75

COD. | **Flange Facing Finish (18)**

Q0	Raised Face – RF (Default)	**Q3**	Tongue Face **(11)**
Q1	Flat Face – FF	**Q4**	Grooved Face **(11)**
Q2	Ring Joint Face – RTJ (Only available for ANSI standard flange) **(17)**		

COD. | **Output Signal**

G0	4 – 20 mA (Default)	**G1**	0 – 20 mA (4 wire) **(13)**	**G3**	NAMUR NE43 Extended 4-20 mA (Burnout 3.55 and 22.8 mA)

COD. | **Housing Material (27) (28)**

H0	Aluminum (Default) (IP/Type)	**H2**	Aluminum for saline atmosphere **(23)** (IPW/TypeX)	**H4**	Aluminum Copper Free **(23)** (IPW/TypeX)
H1	316 SST – CF8M (ASTM – A351) (IP/Type)	**H3**	316 SST for saline atmosphere **(23)** (IPW/TypeX)		

COD. | **Tag Plate**

J0	With tag, when specified (Default)	**J1**	Blank	**J2**	According to user's notes

COD. | **PID Configuration**

M0	With PID (Default)	**M1**	Without PID

COD. | **LCD1 Indication**

Y0	LCD1: Percentage (Default)	**Y3**	LCD1: Temperature (Engineering Unit)
Y1	LCD1: Current – I (mA)	**YU**	LCD1: According to user notes **(14)**
Y2	LCD1: Pressure (Engineering Unit)		

COD. | **LCD2 Indication**

Y0	LCD2: Percentage (Default)	**Y6**	LCD2: Temperature (Engineering Unit)
Y4	LCD2: Current - I (mA)	**YU**	LCD2: According to user notes **(14)**
Y5	LCD2: Pressure (Engineering Unit)		

COD. | **Identification Plate**

I1	FM: XP, IS, NI, DI	**I4**	EXAM (DMT): Ex-ia; NEMKO: Ex-d	**I7**	EXAM (DMT): Classe I, M1 Ex-ia
I2	NEMKO: Ex-d, Ex-ia	**I5**	CEPEL: Ex-d, Ex-ia	**I8**	0 a 20 mA: LD301 **(13)**
I3	CSA: XP, IS, NI, DI	**I6**	Without Certification	**IM**	BDSR - GOST: Ex-d, Ex-ia

COD. | **Painting**

P0	Gray Munsell N6,5 Polyesters	**P8**	Without Painting
P3	Black Polyester	**P9**	Safety Blue Epoxy – Electrostatic Painting
P4	White Epoxy	**PC**	Safety Polyesters – Electrostatic Painting
P5	Yellow Polyester		

LD301	A0	D0	F0	G0	H0	J0	M0	Y0	Y0	I6	P0	*

← TYPICAL MODEL NUMBER

* Leave it blank when there are not optional items.

Optional Items

Burn-out	BD - Down Scale (Accordance to NAMUR NE43 specification)	BU - Up Scale (Accordance to NAMUR NE43 specification)	
Special Procedures	C1 - Degrease Cleaning (Oxygen or Chlorine Service) **(15)**	C2 – For Vacuum Application	C5 - Mounting according NACE standard
Special Features	ZZ – User's Specification.		
Lower Housing Connection	U0 - With Flush Connection of 1/4" NPT (If supplied with housing) U2 - With Two Flush Connections of 1/4" NPT at 90°	U1 - With Two Flush Connections of 1/4" NPT at 180° U3 - With Two Connections of 1/2" NPT - 14 NPT at 180° (With Lid)	U4 - Without Flush Connection
Insulator Kit	K0 – Without Kit	K1 – With Kit	
Diaphragm Thickness (16)	N0 - Default **(24)**	N1 - 0.1mm **(11)**	

Note - LD300L:

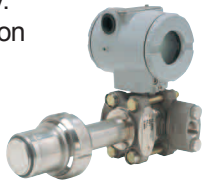
(1) Meets NACE MR – 01 – 75/ISO 15156 recommendations.
(2) Silicone oil not recommended for Oxygen (O2) or Chlorine Service.
(3) Not applicable for vacuum service.
(4) Drain/Vent is not applicable.
(5) O-ring material must be of Viton or Kalrez.
(6) Maximum pressure 24 bar.
(7) For remote seal is only available flange in 316 stainless steel– CF8M (ASTM A351) (thread M12).
(8) Fluorolube fills fluid not available with Monel diaphragm.
(9) Options not certified for Explosive Atmosphere.
(10) Not recommended with extension.
(11) Item by inquiry.
(12) Supplied without Gasket.
(13) Without certification for Explosion proof certification or Intrinsically safe.
(14) Limited values to 4 1/2 digits; limited unit to 5 characters.
(15) Degreaser's cleaning is not available for carbon steel flanges .
(16) The insulator kit is applicable with Raised Face (HO) and Smooth Face (H1) with Gasket material.
T(Teflon) and only for the following models: - ANSI until #600 , DIN until P40 and JIS until 40K;
- For models with extension the Gasket T (Teflon) it has special share.
(17) Gasket for housing, available only in Stainless 316.
(18) Finishing flange faces:
ANSI B 16.5 / MSS-SP6:
- Raised or Smoth Face with gooved lining: 3.2 to 6.3 µm Ra (125 a 250 µ" AA);
- Small or Large Tongue Face and Small or Large Groove with smooth finishing not exceeding: 3.2 µm Rt (125 µ" AA);
RTJ ANSI B 16.20 / MSS-SP6:
-Smooth finishing not exceeding: 1.6 µm Rt (63 µ" AA);
DIN EN-1092-1:
- Grooved finishing "B1" (PN 10 a PN40): 3.2 a 12.5 µm Ra (125 a 500 µ" AA);
- Smooth finishing "B2" (PN 63 a PN100), "C" (Tongue) e "D" (Groove): 0.8 a 3.2 µm Ra (32 a 125 µ" AA).
Din 2501 (DIN 2526):
- Smooth finishing "E" (PN 160 a PN250): Rz = 16 (3.2 µm Ra (125 µ" AA).
Standard Jis B2201
- Grooved finishing 3.2 a 6.3 µm Ra (125 a 250 µ" AA).
(19) Temperature application range:
-40 to 150°C.
(20) Applicable only for:
- Diaphragm Thickness of 0.05mm.
- Diameters/Capillary Length:
2" ANSI B 16.5, DN 50 DIN, JIS 50 A, for seals up to 3 meters of capillary and level models (by inquiry).
3" ANSI B 16.5, DN 80 DIN, JIS 80 A, for seals up to 5 meters of capillary and level models.
4" ANSI B 16.5, DN 100 DIN, JIS 100 A, for seals up to 8 meters of capillary and level models.
- Faces: RF and FF.
- Temperature Limits:
+10 to 100°C;
+101 to 150°C (by inquiry).
- Not applicable for diaphragm thickness: N1 - 0.10mm.
- Not applicable for use with housing.
(21) Not applicable for saline atmosphere.
(22) Not available for Slip-on flange.
(23) IPW / TypeX tested for 200 hours according to NBR 8094 / ASTM B 117 standard.
(24) Diaphragms of Titanium and Monel available only in 0.1 mm, and diaphragms of Tantalum only in 0.075 mm.
(25) The inert fluid guarantees safety for Oxygen (O2) service.
(26) Certificate for use in explosive atmosphere (CEPEL and CSA).
(27) IPX8 tested in 10 meters of water column for 24 hours.
(28) Ingress Protection:

Product	CEPEL	NEMKO / EXAM	FM	CSA	NEPSI
LD30X	IP66/68/W	IP66/68/W	Type 4X/6P	Type 4X	IP67

(29) Certified for use in explosive atmosphere (CEPEL, FM, CSA, NEPSI, NEMKO and EXAM).
(30) Certified for use in explosive atmosphere (CEPEL, NEPSI, NEMKO and EXAM).
(31) Not available for Integral flange.

Sanitary Transmitter – LD300S

The LD300S is a transmitter for food and other applications, where sanitary connections are necessary. The process connections can be Threaded or Tri-Clamp, allowing a fast and easy connection and disconnection from the process. The standard of lining of the wet surface is 32 Ra, highly polished, so that the seal is free of the breach not allowing the lodging of the food or bacterium that can infect the process.
The Smar's sanitary equipment (LD300S and SR301S) can be supplied according to 3A standard, the sanitary pattern widely accepted in the food industry, beverage and pharmaceutical industries.
For Dimensions see the pages 26, 27 and 30. For Pressure Limits see the Tables 5 and 6 in the page 16.



MODEL | **SANITARY TRANSMITTERS**

LD301 HART®
LD302 FOUNDATION™ fieldbus
LD303 PROFIBUS PA

COD.	Range Limits Min.	Range Limits Máx.	Min. Span	Unit.	Range Limits Min.	Range Limits Máx.	Min. Span	Unit.
S2	-50	50	1.25	kPa	-200	200	5	inH2O
S3	-250	250	2.08	kPa	-36	36	0.3	psi
S4	-2500	2500	20.83	kPa	-360	360	3	psi
S5	-25000	25000	208.30	kPa	-3625	3625	30.2	psi

Nota: The range can be extended up to 0.75 LRL and 1.2 URL with small degradation of accuracy. The upper range value must be limited to the connection.

Diaphragm Material and Fill Fluid (Low Side)

COD.			COD.			COD.		
1	316L SST	Silicone Oil **(2)**	8	Tantalum	Inert Fluorolube Oil **(3) (19)**	K	Monel 400	Inert Krytox Oil **(1) (19)**
2	316L SST	Inert Fluorolube Oil **(3) (19)**	9	316L SST	Fomblim Oil	M	Monel 400 Gold Plated	Silicone Oil **(1) (2)**
3	Hastelloy C276	Silicone Oil **(1) (2)**	A	Monel 400	Fomblim Oil **(1)**	P	Monel 400 Gold Plated	Inert Krytox Oil **(1) (19)**
4	Hastelloy C276	Inert Fluorolube Oil **(1) (3) (19)**	D	316L SST	Inert Krytox Oil **(19)**	Q	316L SST	Inert Halocarbon 4.2 Oil **(19)**
5	Monel 400	Silicone Oil **(1) (2)**	E	Hastelloy C276	Inert Krytox Oil **(1) (19)**	R	Hastelloy C276	Inert Halocarbon 4.2 Oil **(1) (19)**
7	Tantalum	Silicone Oil **(2)**	G	Tantalum	Inert Krytox Oil **(19)**	S	Tantalum	Inert Halocarbon 4.2 Oil **(19)**

Flange(s), Adapter (s) and Drain Valve(s) Material (Low Side)

COD.		COD.	
C	Plated CS (Drain in Stainless Steel) **(17)**	M	Monel 400 **(1)**
H	Hastelloy C276 (CW-12MW, ASTM - A494) **(1)**	N	316 SST – CF8M (ASTM – A351) (Drain in Hastelloy C276) **(1)**
I	316 SST - CF8M (ASTM - A351)	P	316 SST – CF8M (ASTM – A351) Flange with PVDF (Kynar) insert **(3) (4) (5)**

Wetted O-Ring Material (Low Side)

COD.		COD.		COD.		
0	Without O-Ring	E	Ethylene - Propylene	T	Teflon	**Note:** O-Rings are not available on the sides with remote seal.
B	Buna N	K	Kalrez	V	Viton	

Drain Position (Low Side)

COD.		COD.		
0	Without Drain	D	Bottom	**Note:** For better drain operation, drain valves are strongly recommended. Drain valve are not available on the sides with remote seal
A	Drain (Opposite to process connection)	U	Top	

Local Indicator

COD.		COD.	
0	Without Indicator	1	With Digital Indicator

Process Connection (Low Side)

COD.		COD.		COD.	
0	1/4 - 18 NPT (Without Adapter)	3	Remote Seal (With Plug – Vacuum Assembly) **(7)**	9	Remote Seal (Low Volume Flange) **(3) (7)**
1	1/2 - 14 NPT (With Adapter)	5	1/2 - 14 NPT Axial with PVDF insert **(3) (4) (6)**	T	1/2-14 BSP (With Adapter)

Electrical Connection

COD.		COD.		COD.	
0	1/2 - 14 NPT **(23)**	3	1/2 - 14 BSP (With 316 SST adapter for 1/2 - 14 NPT) **(9)**	B	PG 13.5 DIN **(24)**
1	3/4 - 14 NPT (With 316 SST adapter for 1/2 - 14 NPT) **(20)**	A	M20 X 1.5 **(24)**	Z	User's Specification
2	3/4 - 14 BSP (With 316 SST adapter for 1/2 - 14 NPT) **(9)**				

Zero and Span Adjust

COD.	
1	With Local Adjustment

Process Connection

COD.		COD.	
8	Threaded DN25 DIN 11851 - with ext. / 316L SST **(10) (11)**	7	Threaded SMS 2" - with ext. / 316L SST **(10) (11)**
9	Threaded DN40 DIN 11851 - with ext. / 316L SST **(10) (11)**	E	Threaded SMS 2" - without ext. / 316L SST **(10) (11)**
H	Threaded DN40 DIN 11851 - without ext. / 316L SST **(10)**	M	Threaded SMS 3" - with ext. / 316L SST **(10) (11)**
V	Threaded DN50 DIN 11851 - with ext. / 316L SST **(10) (11)**	1	Threaded SMS 3" - without ext. / 316L SST **(10) (11)**
U	Threaded DN50 DIN 11851 - without ext. / 316L SST **(10)**	F	Tri-Clamp 1 1/2" - without ext. / 316L SST **(11)**
X	Threaded DN80 DIN 11851 - with ext. / 316L SST **(10) (11)**	Q	Tri-Clamp 1 1/2" HP - without ext. / 316L SST **(8) (11)**
W	Threaded DN80 DIN 11851 - without ext. / 316L SST **(10)**	6	Tri-Clamp 2" - with ext. / 316L SST **(11)**
4	Threaded IDF 2" - with ext. / 316L SST **(10) (11)**	D	Tri-Clamp 2" - without ext. / 316L SST **(11)**
B	Threaded IDF 2" - without ext. / 316L SST **(10) (11)**	N	Tri-Clamp 2" HP - with ext. / 316L SST **(8) (11)**
K	Threaded IDF 3" - with ext. / 316L SST **(10) (11)**	P	Tri-Clamp 2" HP - without ext. / 316L SST **(8) (11)**
3	Threaded IDF 3" - without ext. / 316L SST **(10) (11)**	I	Tri-Clamp 3" - with ext. / 316L SST **(11)**
5	Threaded RJT 2" - with ext. / 316L SST **(10) (11)**	G	Tri-Clamp 3" - without ext. / 316L SST **(11)**
C	Threaded RJT 2" - without ext. / 316L SST **(10)**	J	Tri-Clamp 3" HP - with ext. / 316L SST **(8) (11)**
L	Threaded RJT 3" - with ext. / 316L SST **(10) (11)**	R	Tri-Clamp 3" HP - without ext. / 316L SST **(8) (11)**
2	Threaded RJT 3" - without ext. / 316L SST **(10)**	Z	User's specification
S	Threaded SMS 1 1/2" - without ext. / 316L SST **(10) (11)**		

Note: HP = High Pressure
ext. = extension

Diaphragm Material

COD.		COD.	
H	Hastelloy C276	I	316L SST

Fill Fluid

COD.		COD.		COD.		COD.	
S	DC 200 – silicone oil	T	Syltherm 800	B	Fomblim 06/06		
D	DC 704 – silicone oil	N	Neobee M20 **(11)**	K	Krytox 1506		
F	Fluorolube MO-10	G	Glycerin + Water **(12)**	H	Halocarbom 4.2		

Wet O-ring

COD.		COD.		COD.		COD.	
0	Without O-ring	T	Teflon **(11)**	B	Buna N **(11)**	V	Viton **(11)**

Tank Adapter

COD.		COD.	
0	Without Tank Adapter	1	With Tank Adapter in 316 SST

Tri-Clamp

COD.		COD.	
0	Without Tri-Clamp	2	With Tri-Clamp in 304 SST

COD. Continues next page

LD301	S2	1	I	B	U	1	0	0	1	A	I	S	T	1	2	*

TYPICAL MODEL NUMBER

* Leave it blank when there are not optional items.

MODEL	SANITARY TRANSMITTERS (CONTINUOUS)

COD. — Flange Bolts and Nuts Material

A0	Plated Carbon Steel (Default) **(17)**	A2	Carbon Steel (ASTM A193 B7M) **(1) (17)**
A1	316 SST	A5	Hastelloy C276

COD. — Flange Thread for fixing accessories (adapters, manifolds, mounting brackets, etc)

D0	7/16" UNF (Default)	D1	M10 X 1.5 Thread	D2	M12 X 1.75

COD. — Output Signal

G0	4 – 20 mA (Default)	G3	NAMUR NE43 Extended 4-20 mA (Burnout 3.55 and 22.8 mA)
G1	0 – 20 mA (4 wire) **(13)**		

COD. — Housing Material (21) (22)

H0	Aluminum (Default) (IP/Type)	H2	Aluminum for saline atmosphere **(18)** (IPW/TypeX)	H4	Aluminum Copper Free **(18)** (IPW/TypeX)
H1	316 SST – CF8M (ASTM – A351) (IP/Type)	H3	316 SST for saline atmosphere **(18)** (IPW/TypeX)		

COD. — TAG Plate

J0	With tag, when specified (Default)	J2	According to user's notes
J1	Blank		

COD. — PID Configuration

M0	With PID (Default)	M1	Without PID

COD. — LCD1 Indication

Y0	LCD1: Percentage (Default)	Y3	LCD1: Temperature (Engineering Unit)
Y1	LCD1: Current - I (mA)	YU	LCD1: User's Specification **(14)**
Y2	LCD1: Pressure (Engineering Unit)		

COD. — LCD2 Indication

Y0	LCD2: Percentage (Default)	Y6	LCD2: Temperature (Engineering Unit)
Y4	LCD2: Current - I (mA)	YU	LCD2: User's Specification **(14)**
Y5	LCD2: Pressure (Engineering Unit)		

COD. — Identification Plate

I1	FM: XP, IS, NI, DI	I4	EXAM (DMT): Ex-ia; NEMKO: Ex-d	I7	EXAM (DMT): Class I, M1 Ex-ia
I2	NEMKO: Ex-d, Ex-ia	I5	CEPEL: Ex-d, Ex-ia	I8	0 to 20 mA: LD301 **(13)**
I3	CSA: XP, IS, NI, DI	I6	Without Certification		

COD. — Painting

P0	Gray Munsell N 6,5 Polyester	P8	Without Painting
P3	Black Polyester	P9	Safety Blue Epoxy – Electrostatic Painting
P4	White Epoxy	PC	Safety Polyester - Electrostatic Painting
P5	Yellow Polyester		

LD301	A0	D0	G0	H0	J0	M0	Y0	Y0	I6	P0	*

TYPICAL MODEL NUMBER

* Leave it blank when there are not optional items

Optional Itens

Burn-out	BD – Down Scale (Accordance to NAMUR NE43 specification) BU – Up Scale (Accordance to NAMUR NE43 specification)
Special Procedures	**C1 – Degrease Cleaning (Oxygen or Chlorine Service) (15)** **C2 – For Vacuum Application** **C4 – Polishing of the wet parts according to 3A Certification (11)(12)** **C5 – Mounting according NACE standard**
Special Features	ZZ – User's Specification
Diaphragm Thickness	**N0 – Default** **N1 – 0.1mm (12)**

Note - LD300S:

(1) Meets NACE MR-01-75/ISO 15156 recommendations.
(2) Silicone oil not recommended for Oxygen (O2) or Chlorine Service.
(3) Not applicable for vacuum service.
(4) Drain not applicable.
(5) O-Ring material must be of Viton or Kalrez.
(6) Maximum pressure 24 bar.
(7) For remote seal is only available flange in 316 Stainless Steel - CF8M (ASTM A351) (thread M12).
(8) HP – High Pressure.
(9) Options not certified for Explosive Atmosphere.
(10) Not available for Tri-clamp.
(11) Compliant with 3A-7403 standard for food and other applications where sanitary connections are requered:
- Neobee M2O Fill Fluid
- Wet Face finishing: 0,8 µm Ra (32 µ" AA)
- Wet O-Ring: Viton, Buna-N and Teflon

(12) Item by inquiry.
(13) Without certification for explosion proof or intrinsically safe.
(14) Limited values to 4 1/2 digits; limited unit to 5 characters.
(15) Degrease cleaning is not available for Carbon Steel Flanges.
(16) Temperature application range: -40 to 140 °C and Tables 5 and 6 from the following page.
(17) Not applicable for saline atmosphere.
(18) IPW / TypeX tested for 200 hours according to NBR 8094 / ASTM B 117 standard.
(19) The inert fluid guarantees safety for Oxygen (O2) service.
(20) Certificate for use in explosive atmosphere (CEPEL and CSA).
(21) IPX8 tested in 10 meters of water column for 24 hours.
(22) Ingress Protection:

Product	CEPEL	NEMKO / EXAM	FM	CSA	NEPSI
LD30X	IP66/68/W	IP66/68/W	Type 4X/6P	Type 4X	IP67

(23) Certified for use in explosive atmosphere (CEPEL, FM, CSA, NEPSI, NEMKO and EXAM).
(24) Certified for use in explosive atmosphere (CEPEL, NEPSI, NEMKO and EXAM).

The calibration maximum limit of the remote seal or level transmitter should be the smallest value between the connection pressure limit (Tables 1 to 6) and the upper range limit of the transmitter (URL). See transmitter's manual.

Class \ Temperature °C (°F)	- 29 a 38 (20 a 100)	50 (122)	100 (212)	150 (302)	200 (392)	250 (482)	300 (572)	325 (617)	350 (662)
150	15.9	15.3	13.3	12.0	11.2	10.5	10.0	9.3	8.4
300	41.4	40.0	34.8	31.4	29.2	27.5	26.1	25.5	25.1
600	82.7	80.0	69.6	62.8	58.3	54.9	52.1	51.0	50.1
900	124.1	120.1	104.4	94.2	87.5	82.4	78.2	76.4	75.2
1500	206.8	200.1	173.9	157.0	145.8	137.3	130.3	127.4	125.4
2500	344.7	333.5	289.9	261.6	243.0	228.9	217.2	212.3	208.9

Table 1 - Pressure Limit (Bar) - ANSI (ASME B 16.5 – 2003)

PN \ Temperature °C (°F)	-10 a 50 (14 a 122)	50 (122)	100 (212)	150 (302)	200 (392)	250 (482)	300 (572)	350 (662)
10	7.6	7.4	6.3	5.7	5.3	4.9	4.6	4.4
16	12.3	11.8	10.2	9.2	8.5	7.9	7.4	7.1
25	19.2	18.5	16.0	14.5	13.3	12.4	11.7	11.1
40	30.6	29.6	25.5	23.1	21.2	19.8	18.7	17.8
63	48.3	46.6	40.2	36.4	33.5	31.1	29.5	28.1
100	76.6	74.0	63.9	57.8	53.1	49.4	46.8	44.5

Table 2 - Pressure Limit (Bar) - DIN (EN1092-1 / DIN 2501)

PN \ Temperature °C (°F)	120 (248)	220 (428)	300 (572)	350 (662)
10 K	14.0	12.0	10.0	----
20 K	34.0	31.0	29.0	26.0
40 K	68.0	62.0	57.0	52.0

Table 3 - Pressure Limit (Kgf/cm2) - JIS B 2201

Modelo \ Temperature °C (°F)	25 (77)
2500 psi	172

Table 4 - Pressure Limit (Bar) - SR301 R

Note: Tables 1, 2, 3 e 4

- The Tables 1,2 and 3 are based on the Norm and are subject to modifications. For more details consult the corresponding Norms;
- The DIN EN1092-1 norm does not assist pressure limits for PN 160 and 250;
- It is necessary verify the application limits of the sealing gasket, because the limits can do unviable the tables above;
- The temperature limits of the fill fluid limit this tables. See Table 2.5, Section2;
- Tables 1, 2 and 4 for 316L e 304L. Stainless Steel.

DN	Normal Pressure		High Pressure (HP)	
	20°C (68°F)	120°C (248°F)	20°C (68°F)	120°C (248°F)
1.1/2"	34	20	100	60
2"/DN50	28	17	70	42
3"	22	13	70	42

Table 5 - Pressure Limit Tri-Clamp (TC) (Bar)

DN	RJT	IDF	SMS	DIN
	120°C (248°F)	120°C (248°F)	120°C (248°F)	140°C (284°F)
DN25	10	16	40	40
1.1/2" / DN40	10	16	40	40
2" / DN50	10	16	25	25
3" / DN80	10	10	25	25

Table 6 - Pressure Limit for Thread (Bar)

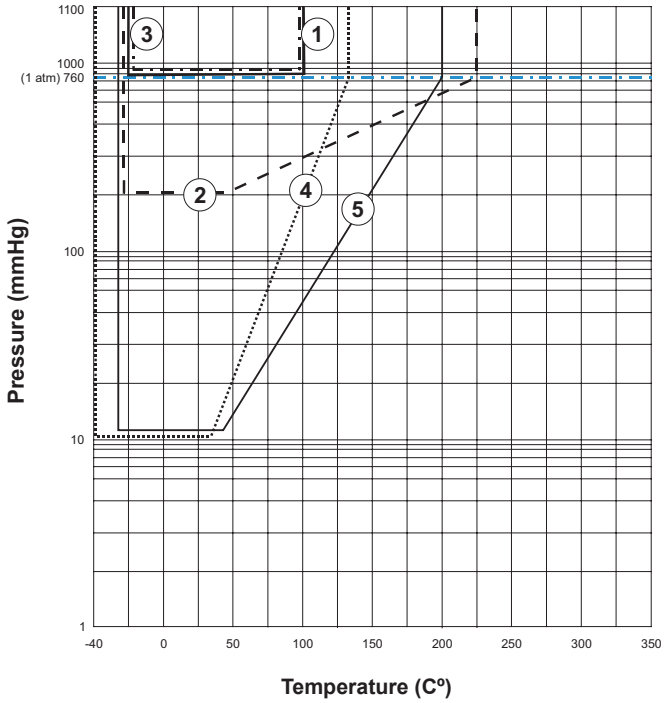
Notes: Tabelas 5 e 6

This Tables are based on the Norm and are subject to modifications. For more details consult the Norm:
- Tri-Clamp (TC) - BS 4825 : Part 3; ISO 2852;
- RJT - BS 4825 : Part 5 ;
- IDF - BS 4825 : Part 4; ISO 2853;
- SMS – 1145;
- DIN - 11851(Standard OD).

Fluid	Limit of °C Temperature (°F) to Pabs < 1 atm (Vacuum) (3)	Limit of °C Temperature (°F) to Pabs > 1 atm	Viscosity (cSt) at 25°C	Density (g/cm3) at 25°C	Volumetric Expansion Coefficient 1/°C (1/°F)	Types of Application
Sillicone DC200	-40 to 100 (-40 to 212) (3)	-40 to 170 (-40 to 338)	20	0.950	0.001070 (0.000594)	General (Atoxicity, not irritating, odorless, Food Processing)
Sillicone DC704	0 to 200 (+32 to 392) (3)	0 to 315 (+32 to 599)	39	1.070	0.000950 (0.000528)	General (High Temperatures and Vacuum)
Fluorolube MO-10	N.A. (2)	-20 to 100 (-4 to 212)	50	1.910	0.000874 (0.000486)	Oxygen, Chlorine, Nitric Acid
Syltherm 800	N.A. (2)	-40 to 350 (-40 to 662)	10	0.934	0.001500 (0.000833)	General (Positive and Negative External Temperature)
Neobee M20 (1)	-15 to 120 (+5 to 248) (3)	-15 to 225 (+5 to 437)	9.5	0.920	0.001008 (0.000560)	Foods, Beverage and Pharmaceuticals
Glycerin (50%) and Water (50%)	N.A. (2)	-15 to 93 (+5 to 199.4)	12.5	1.130	0.000342 (0.000190)	Foods
Fomblim	-20 to 100 (-4 to 212) (3)	-20 to 200 (-4 to 392)	48	1.87	0.000900 (0.000500)	Low toxicity, excellent compatibility with metals, plastics and elastomers, excellent performance in high vacuum
Krytox	-40 to 100 (-40 to 212) (3)	-40 to 120 (-40 to 248)	42	1.88	0.000900 (0.000500)	Inert, nontoxic, biologically inert, nonexplosive, nonreactive to all elastomers, plastics and metals, excellent performance in high vacuum
Halocarbon	-45 to 80 (-49 to 176) (3)	-45 to 130 (-49 to 266)	5.6	1.85	0.001199 (0.000667)	Inert, low odor, low toxicity, noncorrosive. Standard for manufacturers of oxygen and reactive liquids

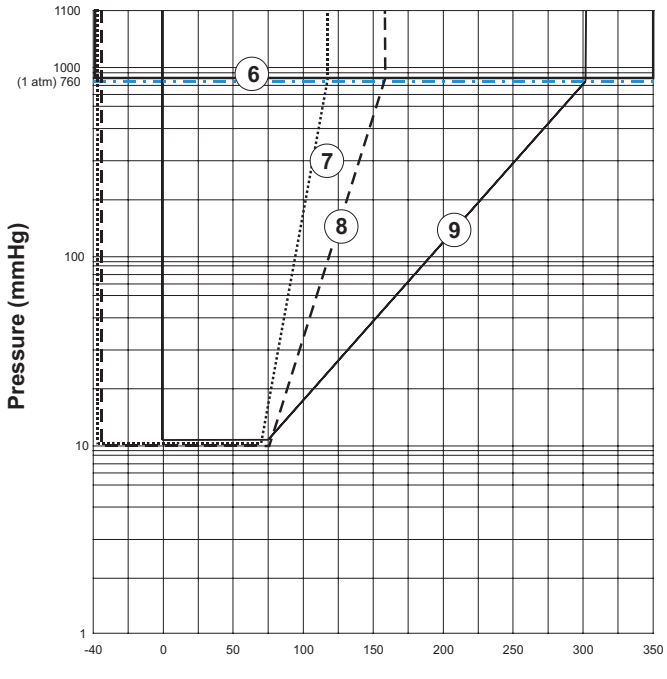
Legend: (1) Propylene Glycol Diester of Octanoato / Decanoato; (2) N.A. – Nonapplicable; (3) Consult graphs in the Figures 1 and 2 when the vacuum pressure is known

Table 7 - Filling Fluid Characteristics



1 - Fluorolube (——)
2 - Neobee M20 (– –)
3 - Glycerin + H_2O (– · –)
4 - Halocarbon (·····)
5 - Fomblim (——)

Pressure x Temperature Curve (1)



6 - Syltherm800 (——)
7 - Krytox (·····)
8 - Silicone DC200 (——)
9 - Silicone DC704 (– –)

Pressure x Temperature Curve (2)

Ring Material	Resistance to Temperature in Continuous Service		Application – Recommended Use and Specification	
	Minimum Temperature ºC (ºF)	Maximum Temperature ºC (ºF)	Recommended	Not Recommended
Teflon® (PTFE)	-23 (-10)	232 (450)	General Applications, Excellent resistance to acids, bases, water and amines	To avoid solvents and aromatic fuels.
Viton	-29 (-20)	205 (400)	Products of Petroleum, Silicone Fluids, Diester Fluids.	Amines, Cetone, Hot Water/Vapor Brake Fluids.
Buna N	-35 (-31)	135 (275)	General Applications, Products of Petroleum, Silicone Fluids, Fluids to Ethylene Glycol	Acids, Brake Fluids, Ozone, Cetones.

Table 8 - O'Ring Application Guide

Gasket Material		Factor (P.T) (Bar x ºC) (5)	Ambient	Minimum Temperature °C (°F) (8)	Maximum Temperature °C (°F) (8)	Maximum Pressure (Bar absolute) (6)	Ph	Hardness (HB)
No Metallic	Teflon (PTFE)	2700	—	-210 (-346)	260 (500)	83	0 to 14	—
	Flexible Graphite	12000	Neutro	-240 (-400)	3000 (5432)	20 (1)	0 to 14	—
			Oxidante	-240 (-400)	450 (842)			
			Vapor	--240 (-400)	650 (1202)			
Metallic	Copper	Upper 25000	—	—	260 (500)	(2)	—	80
	316L Stainless Steel		—	—	815 (1499)	(2)	—	160

Table 10 - (Note 3, 4 and 7) - Application Guide of Sealing Gasket

Notes: Table 10

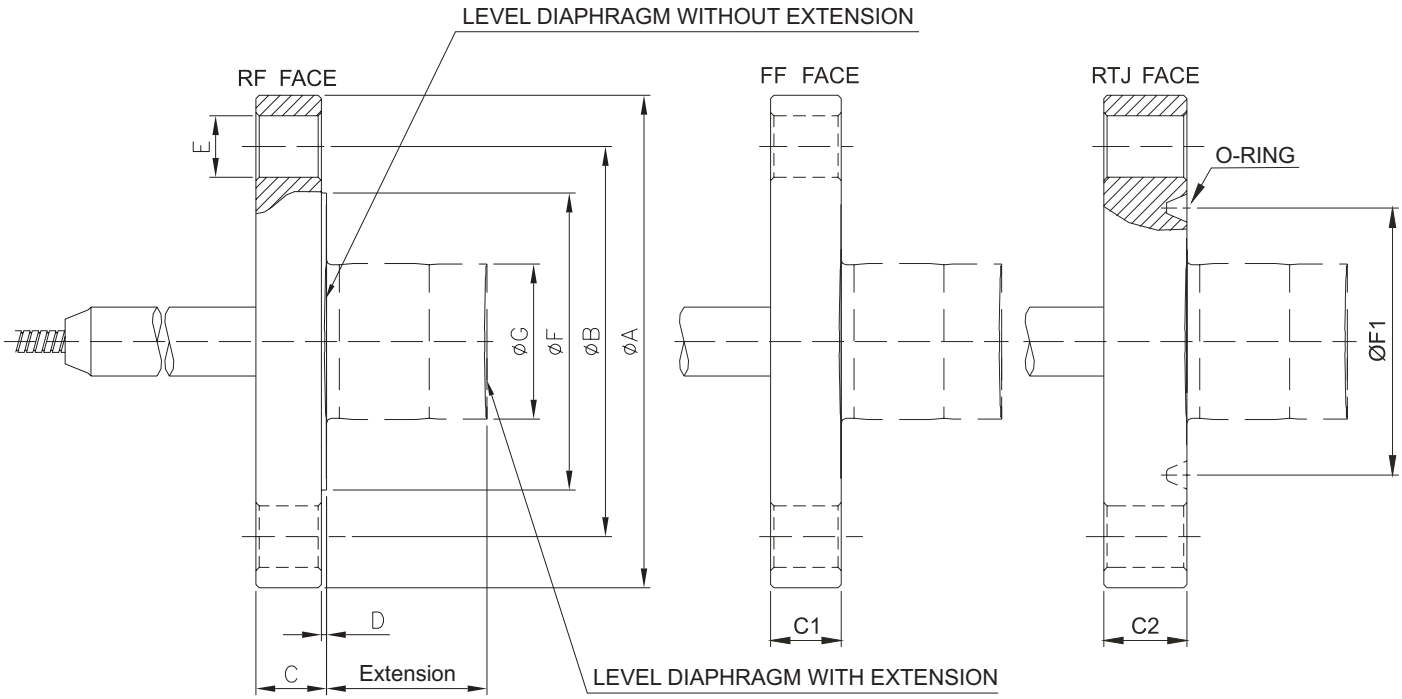
(1) Value for gasket without metallic reinforcement.
(2) According to pressure class referring to Norm (ANSI, DIN and JIS).
(3) This table does not gasket specification, only indicative guide for application.
(4) The corrosion analysis is very important for sealing gasket application.
(5) Factor (P.T) = Pressure (Bar abs.) x Temperature (ºC).
(6) Maximum Pressure - Use Continuous.
(7) For projects of gasket other factors must be considered as the gasket and screw squeezing.
(8) For maximum and minimum temperatures verify the Limits for Seal/Level filling fluids.

Ambient	Teflon® (PTFE)	Viton	Buna N
Acetic Acid, 30%	S.I.	++	+++
Acetone	-	-	-
Air, below 93 ºC (200° F)	++++	++++	++++
Ammonia Gas, Cold	++++	-	++++
Ammonia Gas, Hot	+++	-	-
Ammonia, Liquid	++	-	+++
Carbon Dioxide, Dry	++++	+++	++++
Carbon Dioxide, Wet	++++	+++	++++
Carbon Monoxide	++++	++++	++++
Caustic Soda	++++	-	+++
Chloro Dioxide	++	+++	-
Citric Acid	++++	++++	++++
Corn Oil	++++	++++	++++
Cottonseed Oil	++++	++++	++++
Diesel Oil	++++	++++	++++
Ethyl Alcohol (Ethanol)	++++	++	++++
Glycol Ethylene	++++	++++	++++
Fish Oil	S.I.	++++	++++
Gasoline	+++	++++	++++
Glucose	++++	++++	++++
Hydrogen	S.I.	++++	++++
Kerosene	+++	++++	++++
Methane	+++	++++	++++
Milk	++++	++++	++++
Mineral Oil	++++	++++	++++
Olive Oil	++++	++++	++++
Oxygen, Gas (Hot)	-	++	-
Oxygen, Liquid	-	-	-
Ozone	++++	++++	-
Propane	++++	++++	++++
Propylene Glycol	++++	++++	++++
Sodium Bicarbonate	++++	++++	++++
Vapour < 149 ºC (300 ºF)	+++	+++	-
Vapour > 149 ºC (300 ºF)	++	-	-
Vegetable Oils	++++	++++	++++
Vinegar	S.I.	+++	+++
Water	++++	++++	++++

(++++) Recommended; (+++) Satisfactory; (++) Transitory; (-) Not Recommended; (S. I.) Without Information

Table 9 - O'Ring Materials Guide

SR301T (RF/FF/RTJ) - "T" Type Flanged Remote Seal and SR301E (RF/FF/RTJ) - Flanged Remote Seal with Extension (Integral Flange)



DIMENSIONS IN mm (in)
EXTENSION LENGTH: 0 , 50 , 100 , 150 OR 200
* FLANGES 1500 AND 2500 WITH EXTENSION HAVE SUPPLYING UNDER CONSULT

ANSI-B 16.5 DIMENSIONS

DN	CLASS	A	B	C	C1 (FF)	C2 (RTJ)	D	E	F	F1 (RTJ)	ANEL RTJ	G	# HOLES
1"	150	108 (4.25)	79.2 (3.12)	20 (0.78)	15 (0.59)	21 (0.83)	1.6 (0.06)	16 (0.63)	50.8 (2)	47.6 (1.87)	R15		4
	300	123.9 (4.88)	88.9 (3.50)	20 (0.78)	18 (0.71)	24.4 (0.96)	1.6 (0.06)	19 (0.75)	50.8 (2)	50.8 (2)	R16		4
	600	123.9 (4.88)	88.9 (3.50)	24.4 (0.96)	24.4 (0.96)	24.4 (0.96)	6.4 (0.25)	19 (0.75)	50.8 (2)	50.8 (2)	R16		4
	1500	149.3 (5.88)	101.6 (4)	35.4 (1.39)		35.4 (1.39)	6.4 (0.25)	25 (0.98)	50.8 (2)	50.8 (2)	R16		4
	2500	158 (6.22)	108 (4.25)	42 (1.65)		42 (1.65)	6.4 (0.25)	25 (0.98)	50.8 (2)	60.3 (2.37)	R18		4
1.1/2"	150	127 (5)	98.6 (3.88)	20 (0.78)	19 (0.75)	24.4 (0.96)	1.6 (0.06)	16 (0.63)	73.2 (2.88)	65.1 (2.56)	R19	40 (1.57)	4
	300	155.4 (6.12)	114.3 (4.5)	21 (0.83)	21 (0.83)	27.4 (1.07)	1.6 (0.06)	22 (0.87)	73.2 (2.88)	68.3 (2.68)	R20	40 (1.57)	4
	600	155.4 (6.12)	114.3 (4.5)	29.3 (1.15)	29.3 (1.15)	29.3 (1.15)	6.4 (0.25)	22 (0.87)	73.2 (2.88)	68.3 (2.68)	R20	40 (1.57)	4
	1500	177.8 (7)	124 (4.88)	38.6 (1.52)		38.6 (1.52)	6.4 (0.25)	28 (1.10)	73.2 (2.88)	68.3 (2.68)	R20	40* (1.57)	4
	2500	203.2 (8)	146 (5.75)	51.5 (2.03)		52.9 (2.08)	6.4 (0.25)	32 (1.26)	73.2 (2.88)	82.6 (3.25)	R23	40* (1.57)	4
2"	150	152.4 (6)	120.7 (4.75)	22 (0.87)	20 (0.78)	25.9 (1.02)	1.6 (0.06)	19 (0.75)	91.9 (3.62)	82.6 (3.25)	R22	48 (1.89)	4
	300	165.1 (6.5)	127 (5)	22.8 (0.9)	22.8 (0.9)	30.8 (1.21)	1.6 (0.06)	19 (0.75)	91.9 (3.62)	82.6 (3.25)	R23	48 (1.89)	8
	600	165.1 (6.5)	127 (5)	32.3 (1.27)	32.3 (1.27)	32.3 (1.27)	6.4 (0.25)	19 (0.75)	91.9 (3.62)	82.6 (3.25)	R23	48 (1.89)	8
	1500	215.9 (8.50)	165 (6.50)	45 (1.77)		46.5 (1.83)	6.4 (0.25)	25 (0.98)	91.9 (3.62)	95.3 (3.75)	R24	48* (1.89)	8
	2500	235 (9.25)	171.5 (6.75)	57.7 (2.27)		59.2 (2.33)	6.4 (0.25)	28 (1.10)	91.9 (3.62)	101.6 (4)	R26	48* (1.89)	8
3"	150	190.5 (7.5)	152.4 (6)	24.4 (0.96)	24.4 (0.96)	30.7 (1.21)	1.6 (0.06)	19 (0.75)	127 (5)	114.3 (4.5)	R29	73 (2.87)	4
	300	209.5 (8.25)	168.1 (6.62)	29 (1.14)	29 (1.14)	36.9 (1.45)	1.6 (0.06)	22 (0.87)	127 (5)	123.8 (4.87)	R31	73 (2.87)	8
	600	209.5 (8.25)	168.1 (6.62)	38.7 (1.52)	38.7 (1.52)	40.2 (1.58)	6.4 (0.25)	22 (0.87)	127 (5)	123.8 (4.87)	R31	73 (2.87)	8
4"	150	228.6 (9)	190.5 (7.5)	24.4 (0.96)	24.4 (0.96)	30.7 (1.21)	1.6 (0.06)	19 (0.75)	158 (6.22)	149.2 (5.87)	R36	96 (3.78)	8
	300	254 (10)	200 (7.87)	32.2 (1.27)	32.2 (1.27)	40.2 (1.58)	1.6 (0.06)	22 (0.87)	158 (6.22)	149.2 (5.87)	R37	96 (3.78)	8
	600	273 (10.75)	215.9 (8.5)	45 (1.77)	45 (1.77)	46.5 (1.83)	6.4 (0.25)	25 (1)	158 (6.22)	149.2 (5.87)	R37	96 (3.78)	8

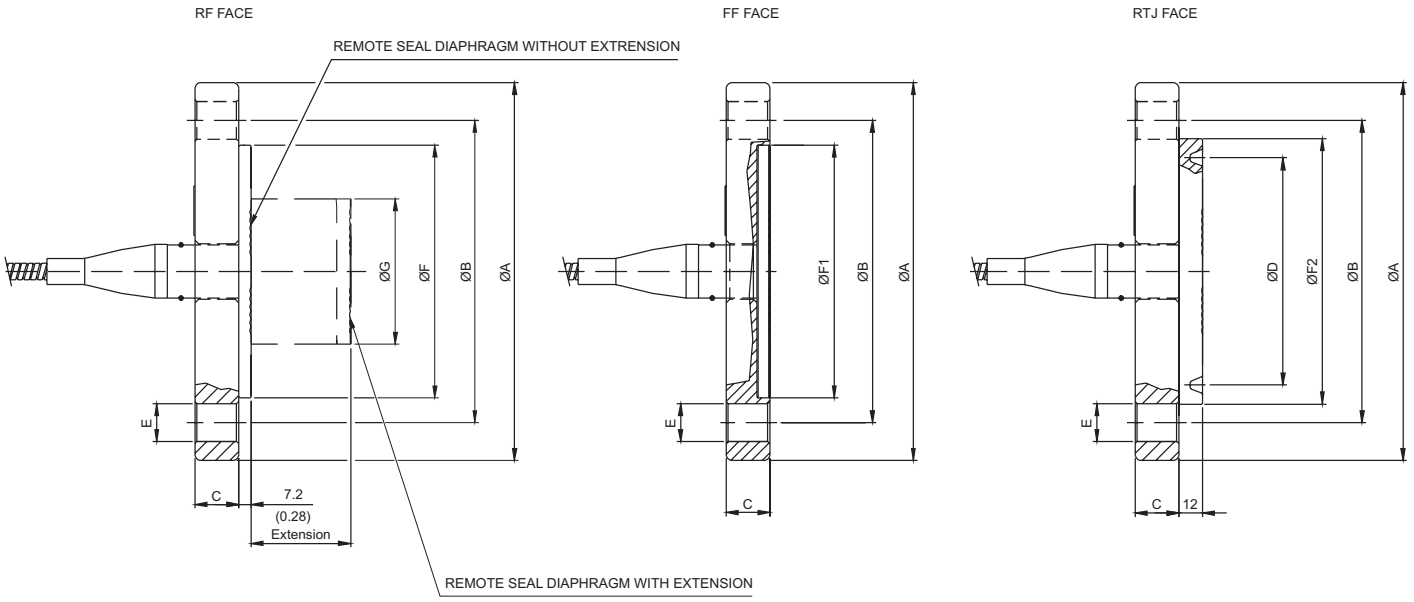
EN 1092-1 / DIN2501 DIMENSIONS

DN	PN	A	B	C	C1 (FF)		D	E	F		G	# HOLES
25	10/40	115 (4.53)	85 (3.35)	20 (0.78)	20 (0.78)		2 (0.08)	14 (0.55)	68 (2.67)			4
	63/100	140 (5.51)	100 (3.94)	24 (0.95)			2 (0.08)	18 (0.71)	68 (2.67)			4
	160	140 (5.51)	100 (3.94)	24 (0.95)			2 (0.08)	18 (0.71)	68 (2.67)			4
	250	150 (5.91)	105 (4.13)	28 (1.10)			2 (0.08)	22 (0.87)	68 (2.67)			4
40	10/40	150 (5.91)	110 (4.33)	20 (0.78)	20 (0.78)		3 (0.12)	18 (0.71)	88 (3.46)		40 (1.57)	4
	63/100	170 (6.69)	125 (4.92)	26 (1.02)			3 (0.12)	22 (0.87)	88 (3.46)		40 * (1.57)	4
	160	170 (6.69)	125 (4.92)	28 (1.10)			3 (0.12)	22 (0.87)	88 (3.46)		40 * (1.57)	4
	250	185 (7.28)	135 (5.31)	34 (1.34)			3 (0.12)	26 (1.02)	88 (3.46)		40 * (1.57)	4
50	10/40	165 (6.50)	125 (4.92)	20 (0.78)	22 (0.86)		3 (0.12)	18 (0.71)	102 (4.01)		48 (1.89)	4
	63	180 (7.09)	135 (5.31)	26 (1.02)			3 (0.12)	22 (0.87)	102 (4.01)		48 (1.89)	4
	100	195 (7.68)	145 (5.71)	28 (1.12)			3 (0.12)	26 (1.02)	102 (4.01)		48 (1.89)	4
	160	195 (7.68)	145 (5.71)	30 (1.18)			3 (0.12)	26 (1.02)	102 (4.01)		48 * (1.89)	4
	250	200 (7.87)	150 (5.91)	38 (1.50)			3 (0.12)	26 (1.02)	102 (4.01)		48 * (1.89)	8
80	10/40	200 (7.87)	160 (6.3)	24 (0.95)	24 (0.95)		3 (0.12)	18 (0.71)	138 (5.43)		73 (2.87)	8
	63	215 (8.46)	170 (6.69)	28 (1.12)			3 (0.12)	22 (0.87)	138 (5.43)		73 (2.87)	8
	100	230 (9.06)	180 (7.09)	32 (1.26)			3 (0.12)	26 (1.02)	138 (5.43)		73 * (2.87)	8
	160	230 (9.06)	180 (7.09)	36 (1.42)			3 (0.12)	26 (1.02)	138 (5.43)		73 * (2.87)	8
100	10/16	220 (8.67)	180 (7.08)	20 (0.78)			3 (0.12)	18 (0.71)	158 (6.22)		96 (3.78)	8
	25/40	235 (9.25)	190 (7.5)	24 (0.95)			3 (0.12)	22 (0.87)	162 (6.38)		96 (3.78)	8

JIS B 2202 DIMENSIONS

	CLASS	A	B	C		D	E	F		G	# HOLES
40A	20K	140 (5.5)	105 (4.13)	26 (1.02)		2 (0.08)	19 (0.75)	81 (3.2)		40 (1.57)	4
50A	10K	155 (6.1)	120 (4.72)	26 (1.02)		2 (0.08)	19 (0.75)	96 (3.78)		48 (1.89)	4
	40K	165 (6.5)	130 (5.12)	26 (1.02)		2 (0.08)	19 (0.75)	105 (4.13)		48 (1.89)	8
80A	10K	185 (7.28)	150 (5.9)	26 (1.02)		2 (0.08)	19 (0.75)	126 (4.96)		73 (2.87)	8
	20K	200 (7.87)	160 (6.3)	26 (1.02)		2 (0.08)	19 (0.75)	132 (5.2)		73 (2.87)	8
100A	10K	210 (8.27)	175 (6.89)	26 (1.02)		2 (0.08)	19 (0.75)	151 (5.95)		96 (3.78)	8

SR301T (RF/FF/RTJ) - "T" Type Flanged Remote Seal and SR301E (RF/FF/RTJ) - Flanged Remote Seal with Extension (Slip-on Flange)

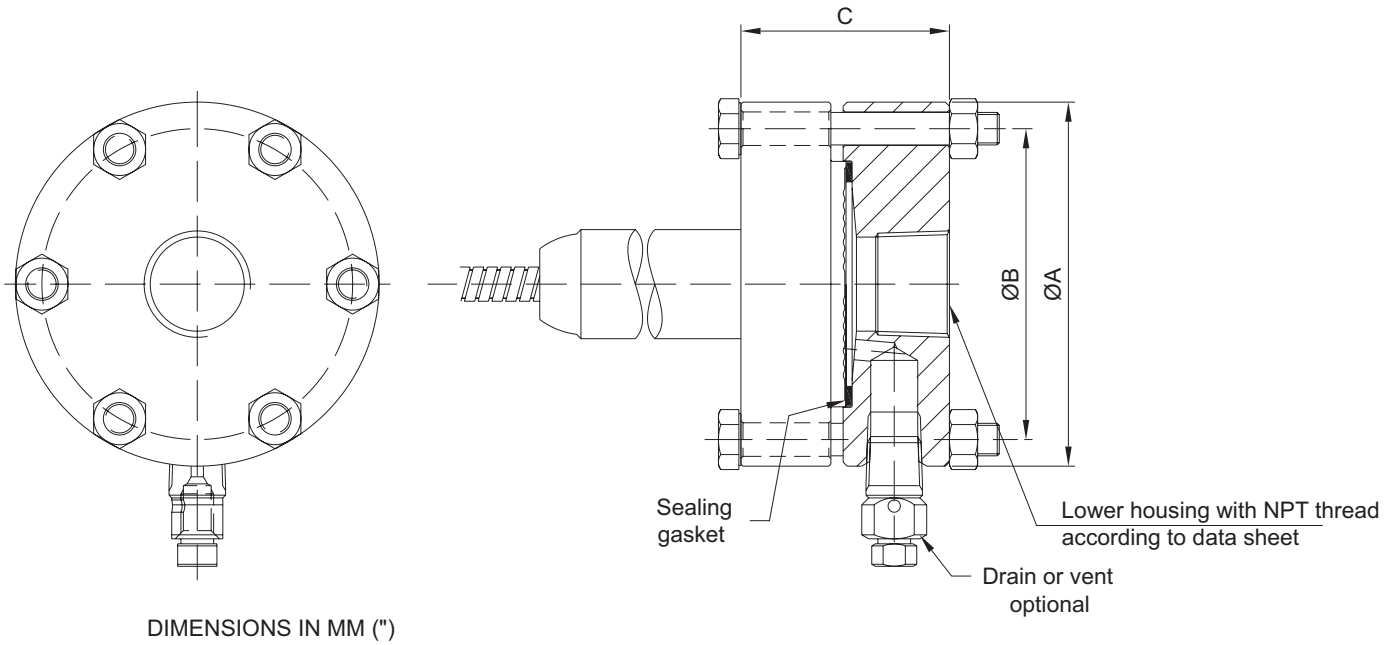


ANSI-B 16.5 DIMENSIONS																							
DN	CLASS	A		B		C		D		E		F (RF)		F1 (FF)		F2 (RTJ)		G		# HOLES			
1"	150	108	(4.25)	79.4	(3.16)	14.3	(0.56)	-		16	(0.63)	50.8	(2)	50.8	(2)	-		-		4			
	300/600	124	(4.88)	8.9	(3.5)	17.5	(0.69)	-		19	(0.75)	50.8	(2)	50.8	(2)	-		-		4			
1 1/2"	150	127	(5)	98.4	(3.87)	17.5	(0.69)	-		16	(0.63)	73	(2.87)	73	(2.87)	-		40	(1.57)	4			
	300/600	156	(6.14)	114.3	(4.5)	22.2	(0.87)	-		22	(0.87)	73	(2.87)	73	(2.87)	-		40	(1.57)	4			
2"	150	152.4	(6)	120.7	(4.75)	17.5	(0.69)	82.6	(3.25)	19	(0.75)	92	(3.62)	92	(3.62)	101.6	(4.00)	48	(1.89)	4			
	300	165.1	(6.5)	127	(5)	20.7	(0.8)	82.6	(3.25)	19	(0.75)	92	(3.62)	92	(3.62)	107.9	(4.25)	48	(1.89)	8			
	600	165.1	(6.5)	127	(5)	25.4	(1)	82.6	(3,25)	19	(0.75)	92	(3.62)	92	(3.62)	107.9	(4.25)	48	(1.89)	8			
3"	150	190.5	(7.5)	152.4	(6)	22.3	(0.87)	114.3	(4.50)	19	(0.75)	127	(5)	127	(5)	133.4	(5.25)	73	(2.87)	4			
	300	209.5	(8.25)	168.1	(6.62)	27	(1.06)	123.8	(4.87)	22	(0.87)	127	(5)	127	(5)	146.1	(5.75)	73	(2.87)	8			
	600	209.5	(8.25)	168.1	(6.62)	31.8	(1.25)	123.8	(4.87)	22	(0.87)	127	(5)	127	(5)	146.1	(5.75)	73	(2.87)	8			
4"	150	228.6	(9)	190.5	(7.5)	22.3	(0.87)	149.2	(5.87)	19	(0.75)	158	(6.22)	158	(6.22)	171.5	(6.75)	89	(3.5)	8			
	300	254	(10)	200	(7.87)	30.2	(1.18)	149.2	(5.87)	22	(0.87)	158	(6.22)	158	(6.22)	174.6	(6.87)	89	(3.5)	8			
	600	273	(10.75)	215.9	(8.5)	38.1	(1.5)	149.2	(5.87)	25	(1)	158	(6.22)	158	(6.22)	174.6	(6.87)	89	(3.5)	8			

EN 1092-1 / DIN2501 DIMENSIONS - RF/ FF																	
DN	PN	A		B		C		E		F		G		# HOLES			
25	10/40	115	(4.53)	85	(3.35)	18	(0.71)	14	(0.55)	68	(2.68)	-		4			
40	10/40	150	(5.91)	110	(4.33)	18	(0.71)	18	(0.71)	88	(3.46)	73	(2.87)	4			
50	10/40	165	(6.50)	125	(4.92)	20	(0.78)	18	(0.71)	102	(4.01)	48	(1.89)	4			
80	10/40	200	(7.87)	160	(6.30)	24	(0.95)	18	(0.71)	138	(5.43)	73	(2.87)	8			
100	10/16	220	(8.67)	180	(7.08)	20	(0.78)	18	(0.71)	158	(6.22)	89	(3.5)	8			
	25/40	235	(9.25)	190	(7.50)	24	(0.95)	22	(0.87)	162	(6.38)	89	(3.5)	8			

NOTES:
- EXTENSIONS LENGTH IN mm(in): 0, 50 (1.96), 100 (3.93), 150 (5.9) or 200 (7.87)
- DIMENSIONS IN mm(in)

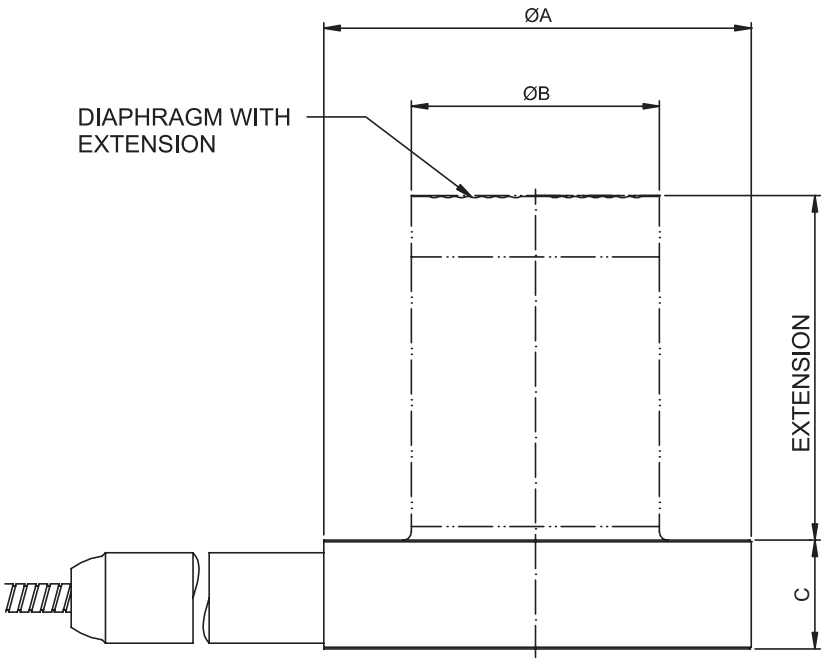
SR301R - Threaded Remote Seal



DIMENSIONS IN MM (")
DRAIN NOT AVAILABLE FOR 1.1/2"NPT

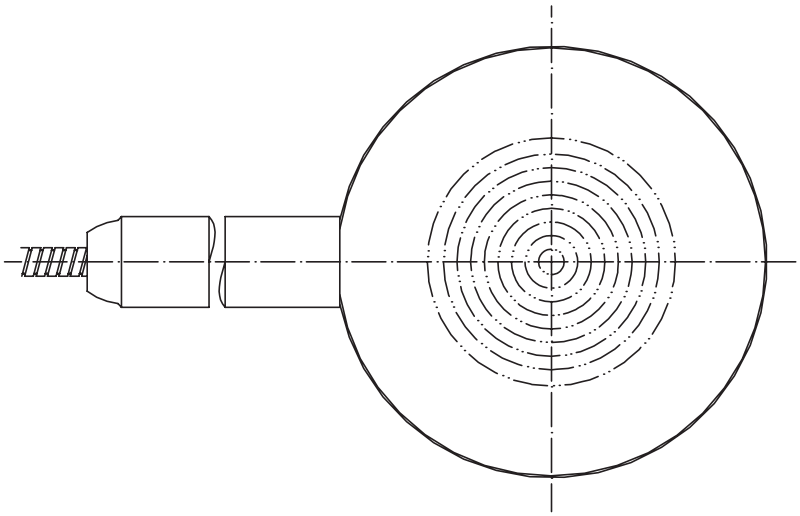
LIMIT	A	B	C	# HOLES
2500PSI	89 (3.50)	76 (2.99)	51 (2.01)	6

SR301P - Pancake Remote Seal without Extension
SR301Q - Pancake Remote Seal with Extension



WITHOUT EXTENSION

ANSI-B16.5 DIMENSIONS			
DN	CLASS	C	ØA
1.1/2"	150....2500	32 (1.26)	73.2 (2.88)
2"	150....2500	32 (1.26)	92 (3.62)
3"	150....2500	32 (1.26)	127 (5)
4"	150....2500	32 (1.26)	157.2 (6.19)
EN 1092-1 / DIN2501			
DN	PN	C	ØA
40	10....100	32 (1.26)	88 (3.46)
50	10....100	32 (1.26)	101.6 (4)
80	10....100	32 (1.26)	138 (5.43)
100	10....100	32 (1.26)	162 (6.38)
JIS B 2202 DIMENSIONS			
	CLASS	C	ØA
40A	20K	32 (1.26)	81 (3.19)
50A	10K	32 (1.26)	96 (3.78)
	40K	32 (1.26)	105 (4.13)
80A	10K	32 (1.26)	126 (4.96)
	20K	32 (1.26)	132 (5.19)
100A	10K	32 (1.26)	151 (5.94)

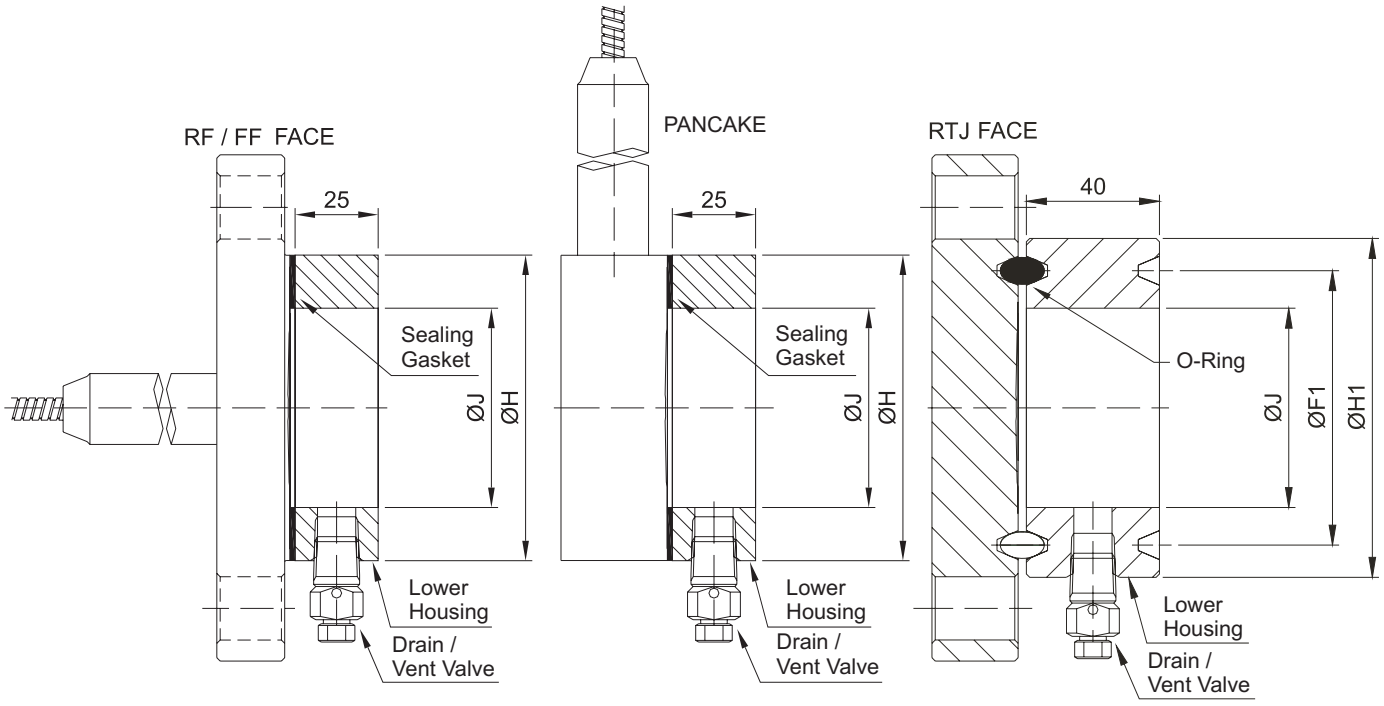


WITH EXTENSION

ANSI-B 16.5				
DN	CLASS	C	ØB	ØA
1.1/2"	150...600	30 (1.18)	39.5 (1.55)	73.2 (2.88)
2"	150...600	30 (1.18)	47.5 (1.87)	92 (3.62)
3"	150...600	30 (1.18)	72.5 (2.85)	127 (5)
4"	150...600	30 (1.18)	95.5 (3.76)	157.2 (6.19)
EN 1092-1 / DIN2501				
DN	PN	C	ØB	ØA
40	10...40	30 (1.18)	39.5 (1.55)	88 (3.46)
50	10...40	30 (1.18)	47.5 (1.87)	101.6 (4)
80	10...40	30 (1.18)	72.5 (2.85)	138 (5.43)
100	10...40	30 (1.18)	95.5 (3.76)	162 (6.38)

DIMENSIONS EM MM (")
EXTENSIONS LENGTH: 0, 50, 100, 150 OR 200
*FLANGES 1500 AND 2500 WITH EXTENSION HAVE SUPPLYING UNDER CONSULT

Lower Housing



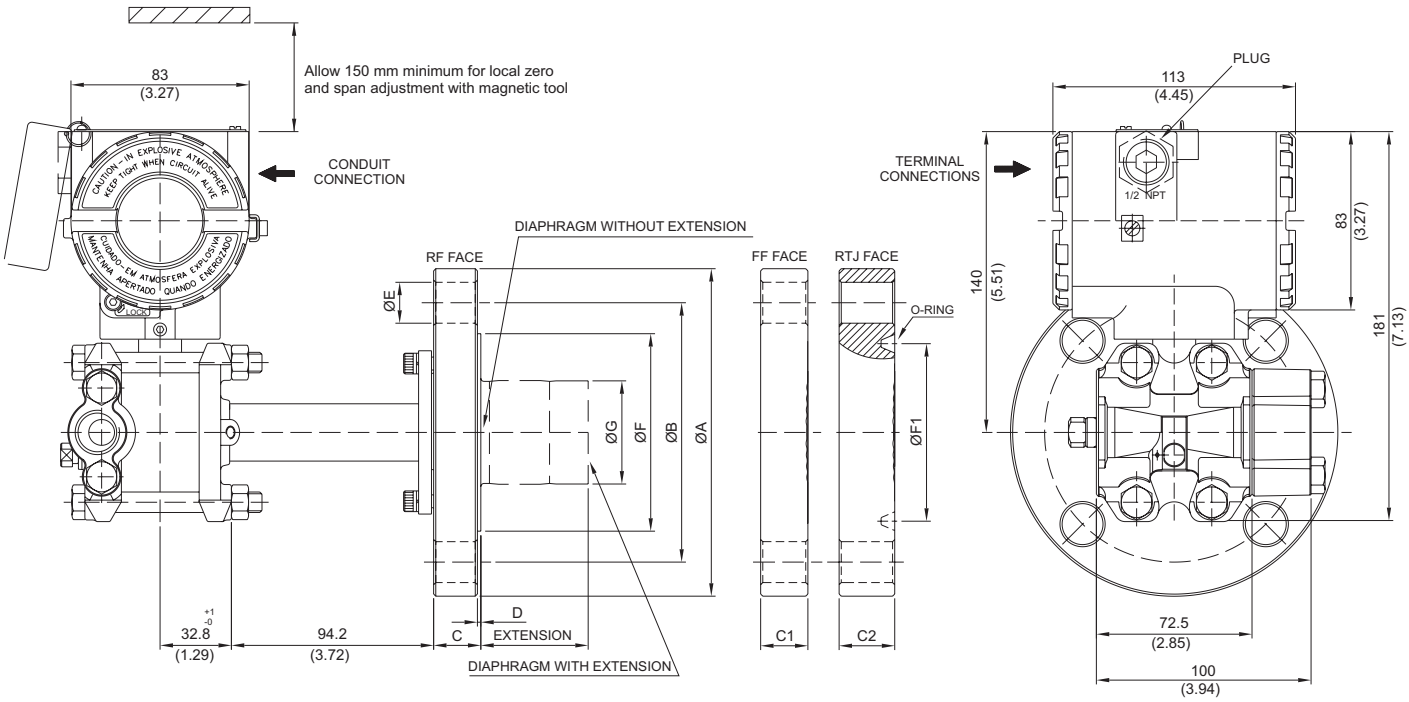
DIMENSIONS IN MM (")

ANSI-B 16.5 DIMENSIONS			
DN	CLASS	H	J
1"	ALL	50.8 (2.00)	35 (1.38)
1.1/2"		73.2 (2.88)	48 (1.89)
2"		91.9 (3.62)	60 (2.36)
3"		127 (5.00)	89 (3.50)
4"		158 (6.22)	115 (4.53)
DIN EN1092-1/ DIN2501/2526 FORM D DIMENSIONS			
DN	PN	H	J
25	ALL	68 (2.68)	35 (1.38)
40		88 (3.46)	48 (1.89)
50		102 (4.02)	60 (2.36)
80		138 (5.43)	89 (3.50)
100		158 (6.22)	115 (4.53)
JIS B 2202 DIMENSIONS			
DN	CLASS	H	J
40A	20K	81 (3.19)	48 (1.89)
50A	10K	96 (3.78)	60 (1.36)
	40K	105 (4.13)	60 (1.36)
80A	10K	126 (4.96)	89 (3.50)
	20K	132 (5.20)	89 (3.50)
100A	10K	151 (5.94)	115 (4.53)

DIMENSIONS IN MM (")

ANSI-B 16.5 DIMENSIONS - RTJ FACE					
DN	CLASS	F1	O-RING	H1	J
1"	150	47.6 (1.87)	R15	63.5 (2.50)	35 (1.38)
	300	50.8 (2.00)	R16	70 (2.75)	35 (1.38)
	600	50.8 (2.00)	R16	70 (2.75)	35 (1.38)
	1500	50.8 (2.00)	R16	71 5 (2.81)	35 (1.38)
	2500	60.3 (2.37)	R18	73 (2.88)	35 (1.38)
1.1/2"	150	65.1 (2.56)	R19	82.5 (3.25)	48 (1.89)
	300	68.3 (2.69)	R20	90.5 (3.56)	48 (1.89)
	600	68.3 (2.69)	R20	90.5 (3.56)	48 (1.89)
	1500	68.3 (2.69)	R20	92 (3.62)	48 (1.89)
	2500	82.6 (3.25)	R23	114 (4.50)	48 (1.89)
2"	150	82.6 (3.25)	R22	102 (4.00)	60 (2.36)
	300	82.6 (3.25)	R23	108 (4.25)	60 (2.36)
	600	82.6 (3.25)	R23	108 (4.25)	60 (2.36)
	1500	95.3 (3.75)	R24	124 (4.88)	60 (2.36)
	2500	101.6 (4.00)	R26	133 (5.25)	60 (2.36)
3"	150	114.3 (4.50)	R29	133 (5.25)	89 (3.50)
	300	123.8 (4.87)	R31	146 (5.75)	89 (3.50)
	600	123.8 (4.87)	R31	146 (5.75)	89 (3.50)
4"	150	149.2 (5.87)	R36	171 (6.75)	115 (4.53)
	300	149.2 (5.87)	R37	175 (6.88)	115 (4.53)
	600	149.2 (5.87)	R37	175 (6.88)	115 (4.53)

LD300L (RF/FF/RTJ) - Level Transmitter (Integral Flange)



NOTE
-EXTENSION LENGTH IN (mm): 0, 50, 100, 150 OR 200
-DIMENSIONS IN mm (in)

ANSI-B 16.5 DIMENSIONS

DN	CLASS	A	B	C (RF)	C1 (FF)	C2 (RTJ)	D (RF)	E	F (RF)	F1 (RTJ)	ANEL RTJ	G	# HOLES
1.1/2"	150	127 (5)	98.6 (3.88)	20 (0.78)	19 (0.75)	24.4 (0.96)	1.6 (0.06)	16 (0.63)	73.2 (2.88)	65.1 (2.56)	R19	40 (1.57)	4
	300	155.4 (6.12)	114.3 (4.5)	21 (0.83)	21 (0.83)	27.4 (1.07)	1.6 (0.06)	22 (0.87)	73.2 (2.88)	68.3 (2.68)	R20	40 (1.57)	4
	600	155.4 (6.12)	114.3 (4.5)	29.3 (1.15)	29.3 (1.15)	29.3 (1.15)	6.4 (0.25)	22 (0.87)	73.2 (2.88)	68.3 (2.68)	R20	40 (1.57)	4
2"	150	152.4 (6)	120.7 (4.75)	22 (0.87)	20 (0.78)	25.9 (1.02)	1.6 (0.06)	19 (0.75)	91.9 (3.62)	82.6 (3.25)	R22	48 (1.89)	4
	300	165.1 (6.5)	127 (5)	22.8 (0.9)	22.8 (0.89)	30.8 (1.21)	1.6 (0.06)	19 (0.75)	91.9 (3.62)	82.6 (3.25)	R23	48 (1.89)	8
	600	165.1 (6.5)	127 (5)	32.3 (1.27)	32.3 (1.27)	32.3 (1.27)	6.4 (0.25)	19 (0.75)	91.9 (3.62)	82.6 (3.25)	R23	48 (1.89)	8
3"	150	190.5 (7.5)	152.4 (6)	24.4 (0.96)	24.4 (0.96)	30.7 (1.21)	1.6 (0.06)	19 (0.75)	127 (5)	114.3 (4.50)	R29	73 (2.87)	4
	300	209.5 (8.25)	168.1 (6.62)	29 (1.14)	29 (1.14)	36.9 (1.45)	1.6 (0.06)	22 (0.87)	127 (5)	123.8 (4.87)	R31	73 (2.87)	8
	600	209.5 (8.25)	168.1 (6.62)	38.7 (1.52)	38.7 (1.52)	40.2 (1.58)	6.4 (0.25)	22 (0.87)	127 (5)	123.8 (4.87)	R31	73 (2.87)	8
4"	150	228.6 (9)	190.5 (7.5)	24.4 (0.96)	24.4 (0.96)	30.7 (1.21)	1.6 (0.06)	19 (0.75)	158 (6.22)	149.2 (5.87)	R36	96 (3.78)	8
	300	254 (10)	200 (7.87)	32.2 (1.27)	32.2 (1.27)	40.2 (1.58)	1.6 (0.06)	22 (0.87)	158 (6.22)	149.2 (5.87)	R37	96 (3.78)	8
	600	273 (10.75)	215.9 (8.5)	45 (1.77)	45 (1.77)	46.5 (1.83)	6.4 (0.25)	25 (1)	158 (6.22)	149.2 (5.87)	R37	96 (3.78)	8

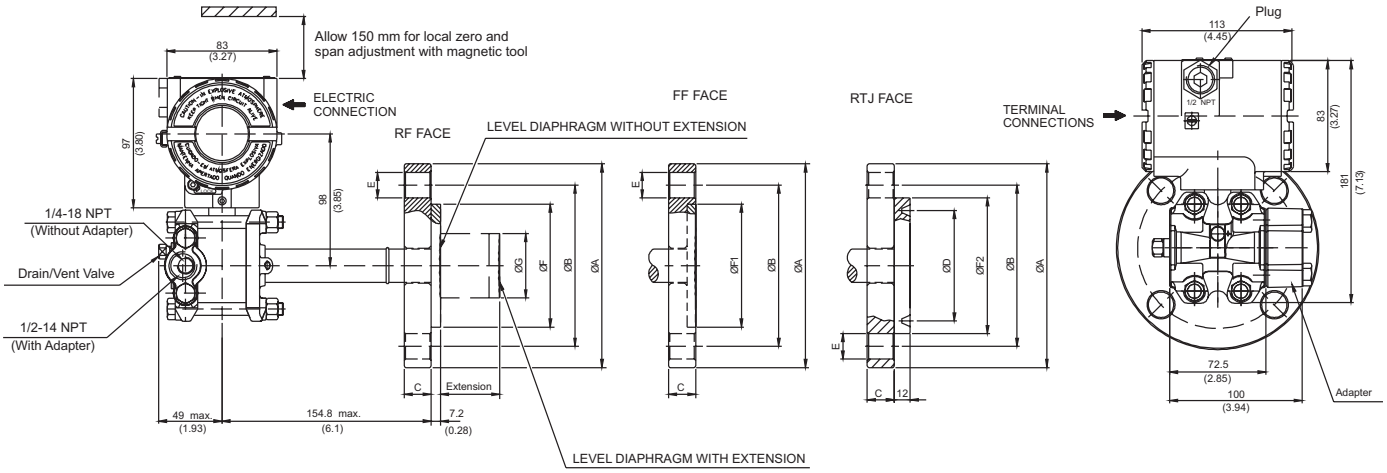
EN 1092-1 DIMENSIONS

DN	PN	A	B	C (RF)	C1 (FF)		D	E	F (RF)		G	# HOLES
DN40	10/40	150 (5.9)	110 (4.33)	20 (0.78)	20 (0.78)		3 (0.12)	18 (0.71)	88 (3.46)		40 (1.57)	4
DN50	10/40	165 (6.5)	125 (4.92)	20 (0.78)	22 (0.86)		3 (0.12)	18 (0.71)	102 (4.01)		48 (1.89)	4
DN80	10/40	200 (7.87)	160 (6.3)	24 (0.95)	24 (0.94)		3 (0.12)	18 (0.71)	138 (5.43)		73 (2.87)	8
DN100	10/16	220 (8.67)	180 (7.08)	20 (0.78)			3 (0.12)	18 (0.71)	158 (6.22)		96 (3.78)	8
	25/40	235 (9.25)	190 (7.5)	24 (0.95)			3 (0.12)	22 (0.87)	162 (6.38)		96 (3.78)	8

JIS B 2202 DIMENSIONS

DN	CLASS	A	B	C		D	E	F (RF)		G	# HOLES
40A	20K	140 (5.5)	105 (4.13)	26 (1.02)		2 (0.08)	19 (0.75)	81 (3.2)		40 (1.57)	4
50A	10K	155 (6.1)	120 (4.72)	26 (1.02)		2 (0.08)	19 (0.75)	96 (3.78)		48 (1.89)	4
	40K	165 (6.5)	130 (5.12)	26 (1.02)		2 (0.08)	19 (0.75)	105 (4.13)		48 (1.89)	8
80A	10K	185 (7.28)	150 (5.9)	26 (1.02)		2 (0.08)	19 (0.75)	126 (4.96)		73 (2.87)	8
	20K	200 (7.87)	160 (6.3)	26 (1.02)		2 (0.08)	19 (0.75)	132 (5.2)		73 (2.87)	8
100A	10K	210 (8.27)	175 (6.89)	26 (1.02)		2 (0.08)	19 (0.75)	151 (5.95)		96 (3.78)	8

LD300L (RF/FF/RTJ) - Level Transmitter (Slip-on Flange)

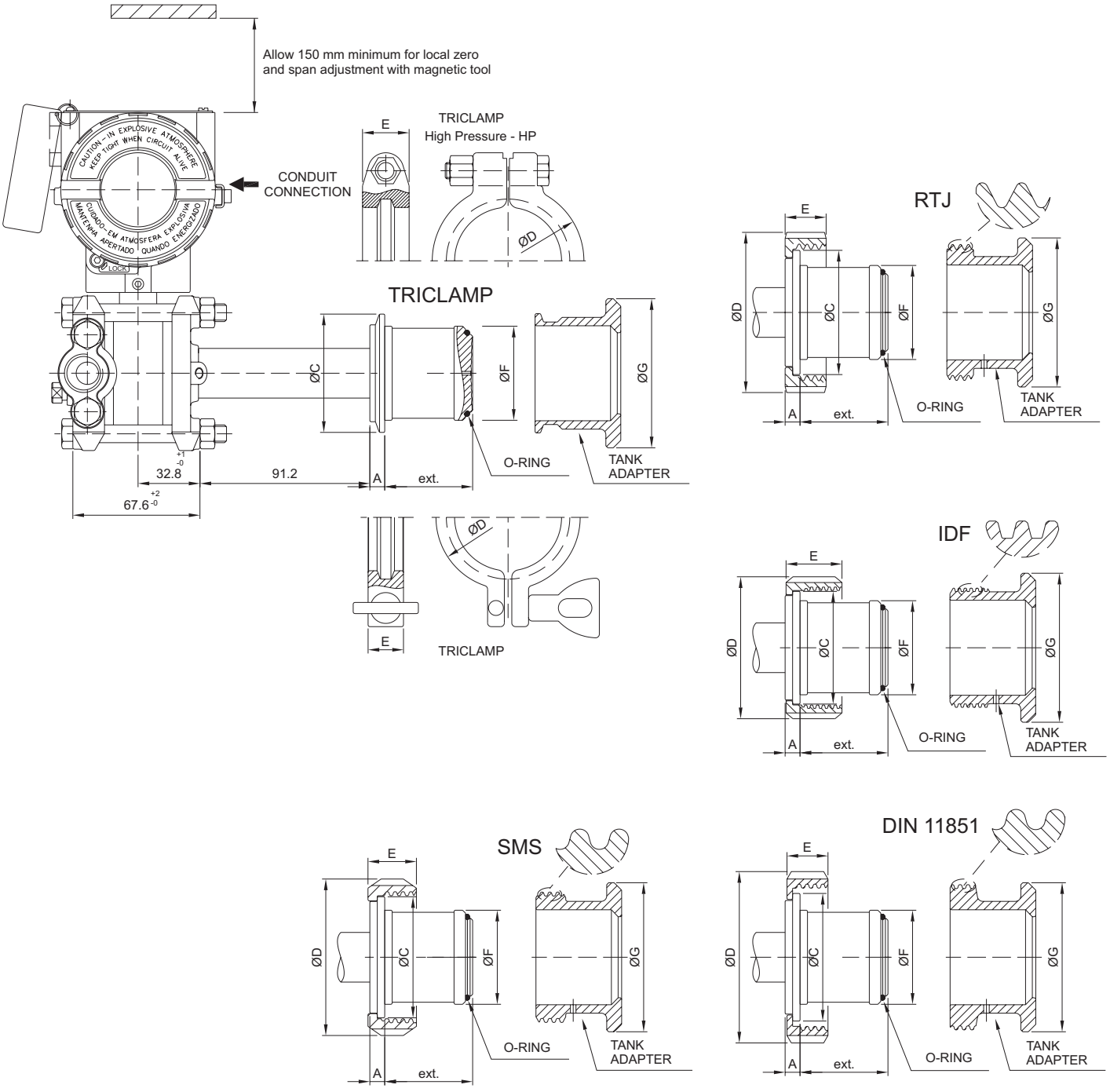


ANSI-B 16.5 DIMENSIONS																					
DN	CLASS	A		B		C		D		E		F (RF)		F1 (FF)		F2 (RTJ)		G		# HOLES	
1"	150	108	(4.25)	79.4	(3.16)	14.3	(0.56)	-		16	(0.63)	50.8	(2)	50.8	(2)	-		-		4	
	300/600	124	(4.88)	88.9	(3.5)	17.5	(0.69)	-		19	(0.75)	50.8	(2)	50.8	(2)	-		-		4	
1 1/2"	150	127	(5)	98.4	(3.87)	17.5	(0.69)	-		16	(0.63)	73	(2.87)	73	(2.87)	-		40	(1.57)	4	
	300/600	156	(6.14)	114.3	(4.5)	22.2	(0.87)	-		22	(0.87)	73	(2.87)	73	(2.87)	-		40	(1.57)	4	
2"	150	152.4	(6)	120.7	(4.75)	17.5	(0.69)	82.6	(3.25)	19	(0.75)	92	(3.62)	92	(3.62)	101.6	(4.00)	48	(1.89)	4	
	300	165.1	(6.5)	127	(5)	20.7	(0.8)	82.6	(3.25)	19	(0.75)	92	(3.62)	92	(3.62)	107.9	(4.25)	48	(1.89)	8	
	600	165.1	(6.5)	127	(5)	25.4	(1)	82.6	(3.25)	19	(0.75)	92	(3.62)	92	(3.62)	107.9	(4.25)	48	(1.89)	8	
3"	150	190.5	(7.5)	152.4	(6)	22.3	(0.87)	114.3	(4.50)	19	(0.75)	127	(5)	127	(5)	133.4	(5.25)	73	(2.87)	4	
	300	209.5	(8.25)	168.1	(6.62)	27	(1.06)	123.8	(4.87)	22	(0.87)	127	(5)	127	(5)	146.1	(5.75)	73	(2.87)	8	
	600	209.5	(8.25)	168.1	(6.62)	31.8	(1.25)	123.8	(4.87)	22	(0.87)	127	(5)	127	(5)	146.1	(5.75)	73	(2.87)	8	
4"	150	228.6	(9)	190.5	(7.5)	22.3	(0.87)	149.2	(5.87)	19	(0.75)	158	(6.22)	158	(6.22)	171.5	(6.75)	89	(3.5)	8	
	300	254	(10)	200	(7.87)	30.2	(1.18)	149.2	(5.87)	22	(0.87)	158	(6.22)	158	(6.22)	174.6	(6.87)	89	(3.5)	8	
	600	273	(10.75)	215.9	(8.5)	38.1	(1.5)	149.2	(5.87)	25	(1)	158	(6.22)	158	(6.22)	174.6	(6.87)	89	(3.5)	8	

EN 1092-1 / DIN2501 DIMENSIONS - RF/ FF																	
DN	PN	A		B		C		E		F		G		# HOLES	
25	10/40	115	(4.53)	85	(3.35)	18	(0.71)	14	(0.55)	68	(2.68)	-		4	
40	10/40	150	(5.91)	110	(4.33)	18	(0.71)	18	(0.71)	88	(3.46)	73	(2.87)	4	
50	10/40	165	(6.50)	125	(4.92)	20	(0.78)	18	(0.71)	102	(4.01)	48	(1.89)	4	
80	10/40	200	(7.87)	160	(6.30)	24	(0.95)	18	(0.71)	138	(5.43)	73	(2.87)	8	
100	10/16	220	(8.67)	180	(7.08)	20	(0.78)	18	(0.71)	158	(6.22)	89	(3.5)	8	
	25/40	235	(9.25)	190	(7.50)	24	(0.95)	22	(0.87)	162	(6.38)	89	(3.5)	8	

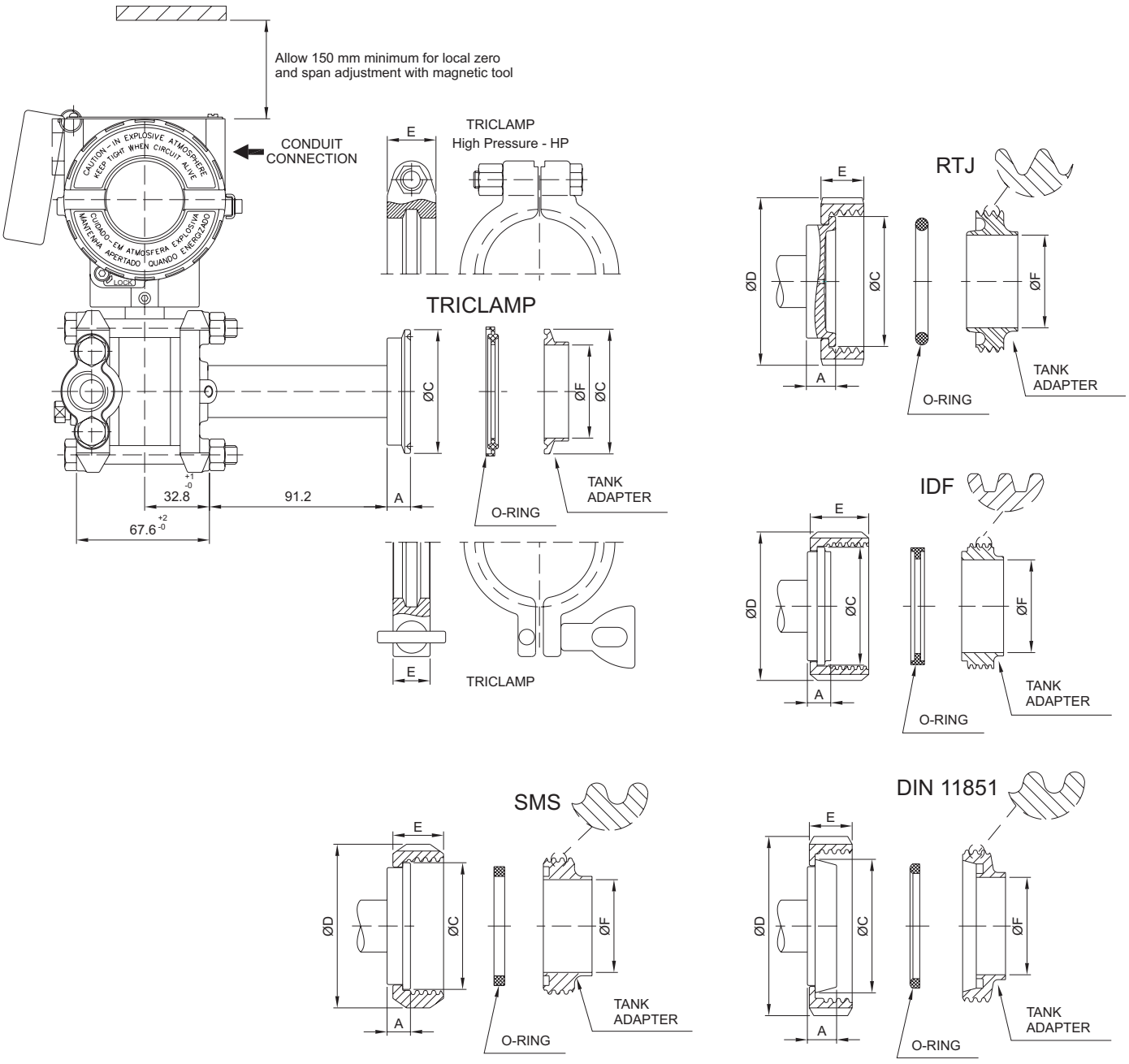
NOTES:
-EXTENSION LENGTH IN mm(in): 0, 50 (1.96), 100 (3.93), 150(5.9) or 200 (7.87)
-FOR 1" AND DN25 THE EXTENSION LENGTH IS 0 mm
-DIMENSIONS IN mm(in)

LD300S – Sanitary Transmitter with Extension



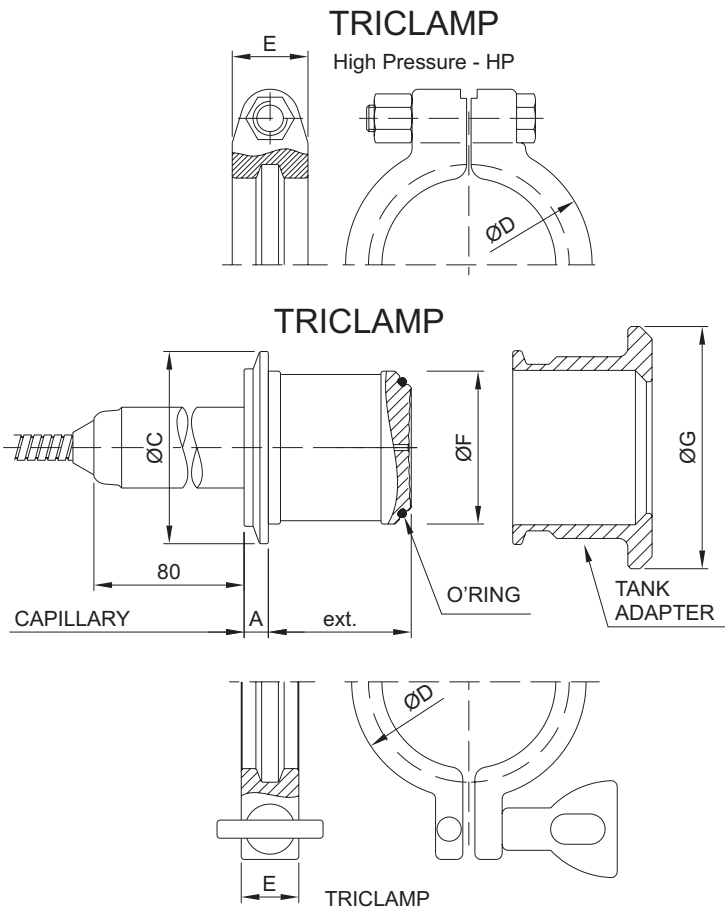
Dimensions see Table 11

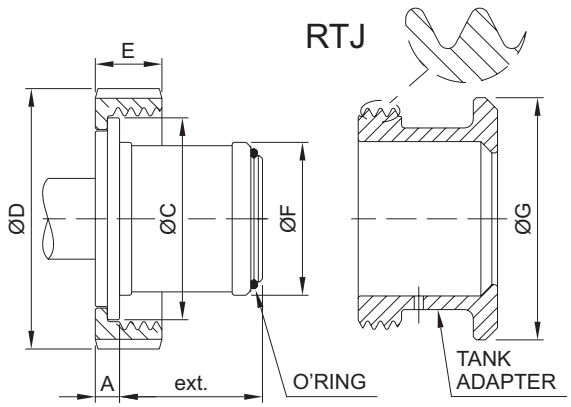
LD300S – Sanitary Transmitter without Extension

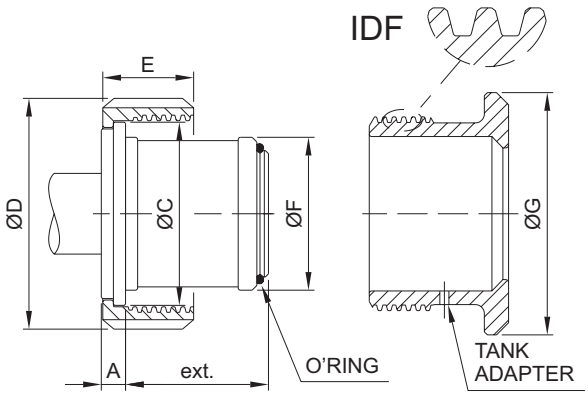


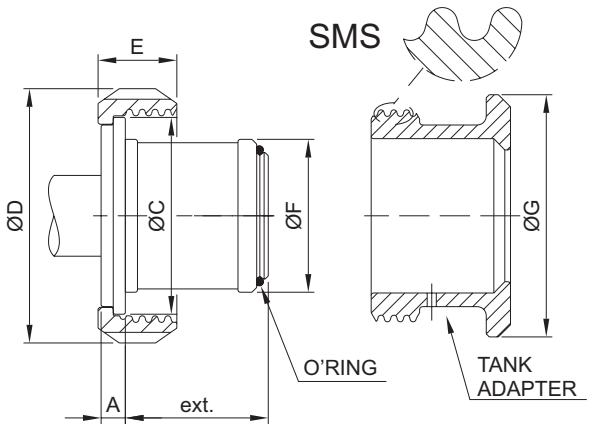
Dimensions see Table 11

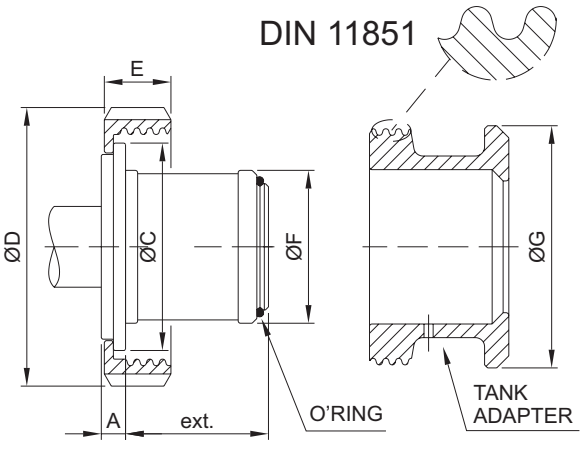
SR301S – Sanitary Remote Seal with Extension





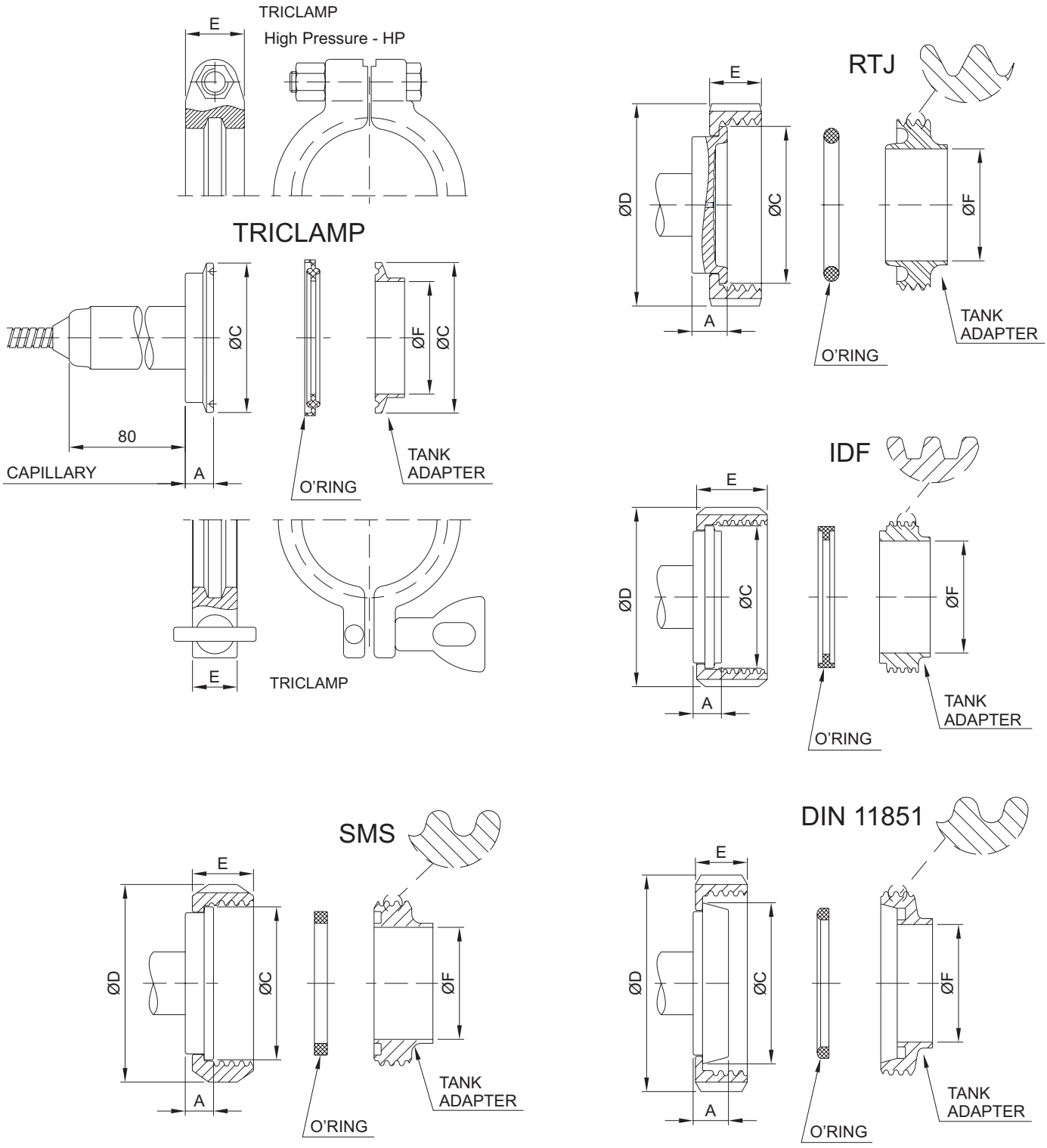






Dimensions see Table 11

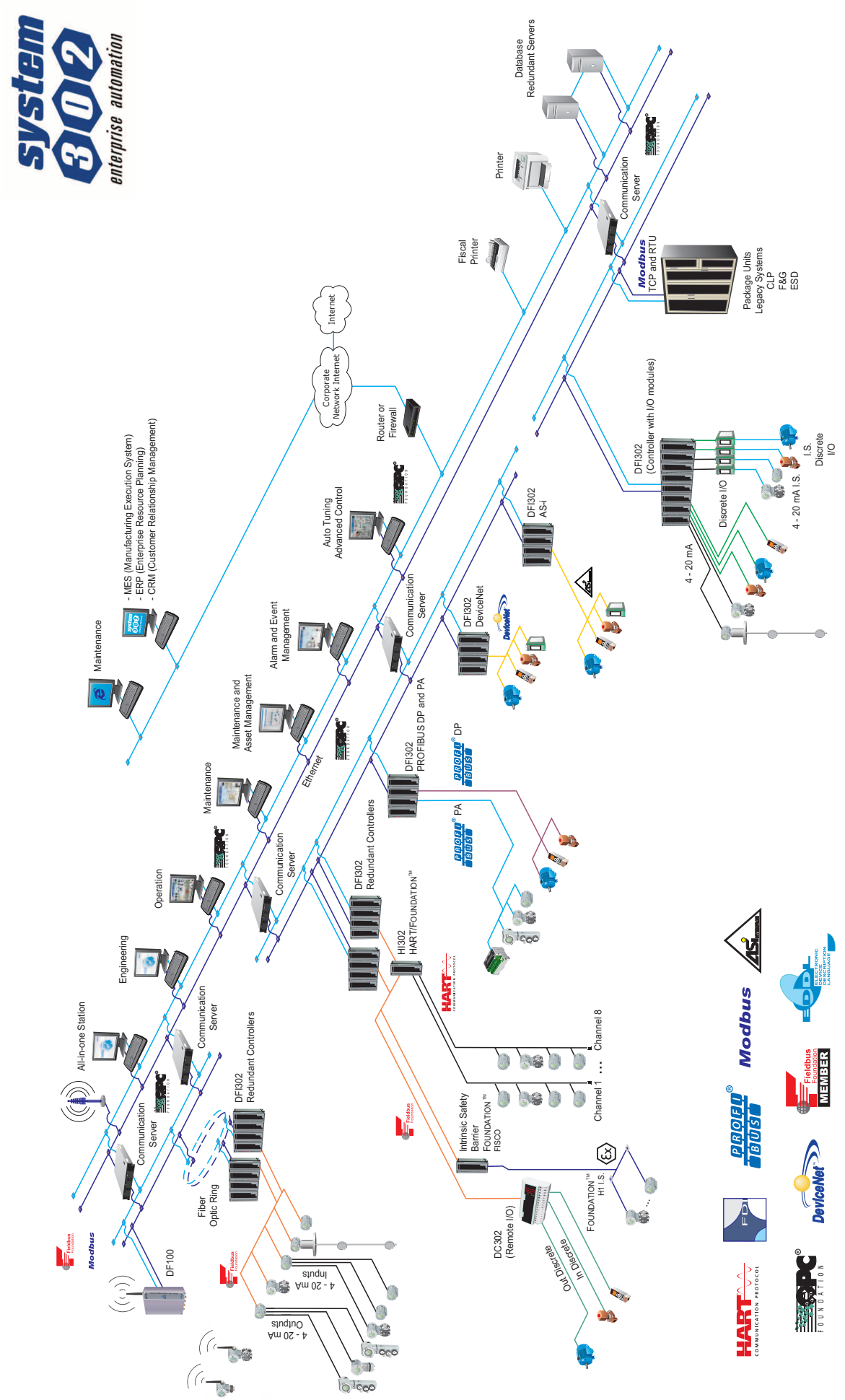
SR301S – Sanitary Remote Seal without Extension



Dimensions see Table 11

CONNECTION WITHOUT EXTENSION	SR301S / LD300S - Dimensions em mm (“)						
	A	ØC	ØD	E	ØF	ØG	EXT.
Tri-Clamp DN50 - without extension	8 (0.315)	63.5 (2.5)	76.5 (3.01)	18 (0.71)	47.5 (1.87)	---	---
Tri-Clamp - 1 1/2" - without extension	12 (0.47)	50 (1.96)	61 (2.4)	18 (0.71)	35 (1.38)	---	---
Tri-Clamp - 1 1/2" HP - without extension	12 (0.47)	50 (1.96)	66 (2.59)	25 (0.98)	35 (1.38)	---	---
Tri-Clamp - 2" - without extension	12 (0.47)	63.5 (2.5)	76.5 (3.01)	18 (0.71)	47.6 (1.87)	---	---
Tri-Clamp - 2" HP - without extension	12 (0.47)	63.5 (2.5)	81 (3.19)	25 (0.98)	47.6 (1.87)	---	---
Tri-Clamp - 3" - without extension	12 (0.47)	91 (3.58)	110 (4.33)	18 (0.71)	72 (2.83)	---	---
Tri-Clamp - 3" HP - without extension	12 (0.47)	91 (3.58)	115 (4.53)	25 (0.98)	72 (2.83)	---	---
Threaded DN40 - DIN 11851 - without extension	13 (0.51)	56 (2.2)	78 (3.07)	21 (0.83)	38 (1.5)	---	---
Threaded DN50 - DIN 11851 - without extension	15 (0.59)	68.5 (2.7)	92 (3.62)	22 (0.86)	50 (1.96)	---	---
Threaded DN80 - DIN 11851 - without extension	16 (0.63)	100 (3.94)	127 (5)	29 (1.14)	81 (3.19)	---	---
Threaded SMS - 1 1/2" - without extension	12 (0.47)	55 (2.16)	74 (2.91)	25 (0.98)	35 (1.38)	---	---
Threaded SMS - 2" - without extension	12 (0.47)	65 (2.56)	84 (3.3)	26 (1.02)	48.6 (1.91)	---	---
Threaded SMS - 3" - without extension	12 (0.47)	93 (3.66)	113 (4.45)	32 (1.26)	73 (2.87)	---	---
Threaded RJT - 2" - without extension	15 (0.59)	66.7 (2.63)	86 (3.38)	22 (0.86)	47.6 (1.87)	---	---
Threaded RJT - 3" - without extension	15 (0.59)	92 (3.62)	112 (4.41)	22.2 (0.87)	73 (2.87)	---	---
Threaded IDF - 2" - without extension	12 (0.47)	60.5 (2.38)	76 (2.99)	30 (1.18)	47.6 (1.87)	---	---
Threaded IDF - 3" - without extension	12 (0.47)	87.5 (3.44)	101.6 (4)	30 (1.18)	73 (2.87)	---	---
CONNECTION WITH EXTENSION	**SR301S / LD300S - Dimensions em mm (“)**						
	A	**ØC**	**ØD**	**E**	**ØF**	**ØG**	**EXT.**
Tri-Clamp DN50 - with extension	8 (0.315)	63.5 (2.5)	76.5 (3.01)	18 (0.71)	50.5 (1.99)	80 (3.15)	48 (1.89)
Tri-Clamp DN50 HP - with extension	8 (0.315)	63.5 (2.5)	81 (3.19)	25 (0.98)	50.5 (1.99)	80 (3.15)	48 (1.89)
Tri-Clamp - 2" - with extension	8 (0.315)	63.5 (2.5)	76.5 (3.01)	18 (0.71)	50.5 (1.99)	80 (3.15)	48 (1.89)
Tri-Clamp - 2" HP - with extension	8 (0.315)	63.5 (2.5)	81 (3.19)	25 (0.98)	50.5 (1.99)	80 (3.15)	48 (1.89)
Tri-Clamp - 3" - with extension	8 (0.315)	91 (3.58)	110 (4.33)	18 (0.71)	72.5 (2.85)	100 (3.94)	50 (1.96)
Tri-Clamp - 3" HP - with extension	8 (0.315)	91 (3.58)	115 (4.53)	25 (0.98)	72.5 (2.85)	100 (3.94)	50 (1.96)
Threaded DN25 - DIN 11851 - with extension	6 (0.24)	47.5 (1.87)	63 (2.48)	21 (0.83)	43.2 (1.7)	80 (3.15)	26.3 (1.03)
Threaded DN40 - DIN 11851 - with extension	8 (0.315)	56 (2.2)	78 (3.07)	21 (0.83)	50.5 (1.99)	80 (3.15)	48 (1.89)
Threaded DN50 - DIN 11851 - with extension	8 (0.315)	68.5 (2.7)	92 (3.62)	22 (0.86)	50.5 (1.99)	80 (3.15)	48 (1.89)
Threaded DN80 - DIN 11851 - with extension	8 (0.315)	100 (3.94)	127 (5)	29 (1.14)	72.5 (2.85)	100 (3.94)	50 (1.96)
Threaded SMS - 2" - with extension	8 (0.315)	65 (2.56)	84 (3.3)	26 (1.02)	50.5 (1.99)	80 (3.15)	48 (1.89)
Threaded SMS - 3" - with extension	8 (0.315)	93 (3.66)	113 (4.45)	32 (1.26)	72.5 (2.85)	100 (3.94)	50 (1.96)
Threaded RJT - 2" - with extension	8 (0.315)	66.7 (2.63)	86 (3.38)	22 (0.86)	50.5 (1.99)	80 (3.15)	48 (1.89)
Threaded RJT - 3" - with extension	8 (0.315)	92 (3.62)	112 (4.41)	22.2 (0.87)	72.5 (2.85)	100 (3.94)	50 (1.96)
Threaded IDF - 2" - with extension	8 (0.315)	60.5 (2.38)	76.2 (3)	30 (1.18)	50.5 (1.99)	80 (3.15)	48 (1.89)
Threaded IDF - 3" - with extension	8 (0.315)	87.5 (3.44)	101.6 (4)	30 (1.18)	72.5 (2.85)	100 (3.94)	50 (1.96)

Table 11 - SR301S / LD300S – Table relative to dimensional drawings from pages 26, 27, 28 and 29


system 302
enterprise automation
Database Redundant Servers
Printer
Communication Server
Modbus TCP and RTU
Package Units Legacy Systems CLP F&G ESD
Fiscal Printer
Internet
Corporate Network Internet
Router or Firewall
DFI302 (Controller with I/O modules)
Discrete I/O
4 - 20 mA I.S.
I.S. Discrete I/O
4 - 20 mA
Auto Tuning Advanced Control
DFI302 AS-i
DFI302 DeviceNet
Communication Server
Alarm and Event Management
Maintenance and Asset Management
Maintenance
- MES (Manufacturing Execution System)
- ERP (Enterprise Resource Planning)
- CRM (Customer Relationship Management)
Ethernet
DFI302 PROFIBUS DP and PA
DP
PA
DFI302 Redundant Controllers
HI302 HART/FOUNDATION™
Operation
Engineering
Communication Server
All-in-one Station
Channel 8
Channel 1
Intrinsic Safety Barrier FOUNDATION™ FISCO
FOUNDATION™ H1 I.S.
DC302 (Remote I/O)
In Distribute
Out Distribute
DF100
Fiber Optic Ring
4 - 20 mA Inputs
4 - 20 mA Outputs
Modbus
DeviceNet
Fieldbus Foundation MEMBER

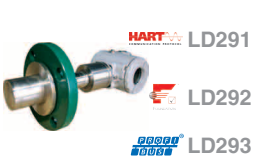
Main Smar Products

Pressure

Pressure Transmitter "In Line"

Gauge Economic Capacitive Pressure Transmitter

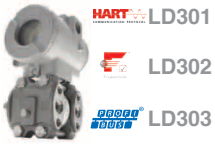
Pressure and Level



Flanged Transmitter

Pressure Transmitter with Extended Probe

Pressure, Level and Flow



Pressure Transmitter

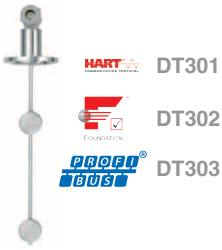
Pressure Transmitter with High Performance

WirelessHART Pressure Transmitter

Level

Guided Wave Level Transmitter

Density/Concentration



Intelligent Density / Concentration Transmitter

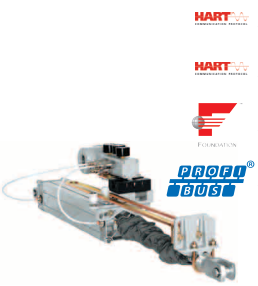
Position

Valve Positioner

Valve Positioner with Auto Tuning

Position

Valve Positioner with Remote Sensor

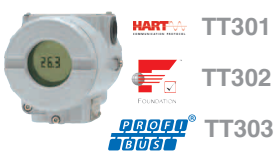


Pneumatic Linear Cylindric Actuador

Pneumatic Rotary Cylindric Actuador

Position Transmitter

Temperature



Temperature Transmitter

Eight Input Temperature Transmitter

Smart Temperature Transmitter

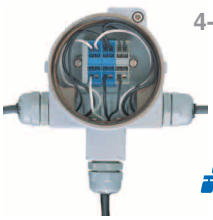
WirelessHART Temperature Transmitter

Panel Mounting Temperature Transmitter

Head Mouting Temperature Transmitter

Junction Box

JM1



4-20 mA

3 Ways Junction Box

JM400

4-20 mA

4 Ways Junction Box

Didactic Products

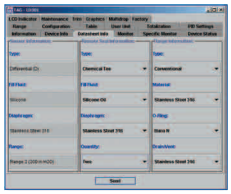
PD3

Didactic Plant

Didactical Kits

Configurators

CONF401



HART® Configurator Interface

DDCON 100

HART® Configurator Interface

HART® Configurator

Interfaces

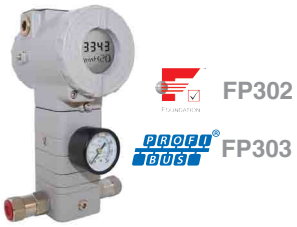
HI311/HI321

HART-USB Interface for PC

PBI-PLUS

Advanced PROFIBUS PA Interface

Converters



FOUNDATION™ / PROFIBUS PA to Pneumatic Signal Converter

IF302 / IF303

Triple Channel Current to FOUNDATION™ / PROFIBUS PA Converters

FI302 / FI303

Triple Channel FOUNDATION™ / PROFIBUS PA to Current Converters

FRI302 / FRI303

FOUNDATION™ / PROFIBUS PA Relay and Digital Input

HI302

HART® / Fieldbus Interface

HCC301

HART® / Current Converter

Controllers

DFI302

Interface Universal Fieldbus

LC700

Programmable Logical Controller

CD600Plus

Digital Controller

Controllers - Remote Input and Output

WirelessHART DF100

HSE Controller and
WirelessHART Gateway

DC303

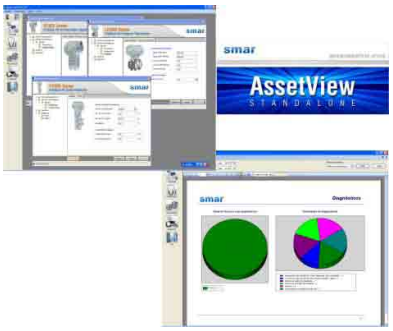
DC302

FOUNDATION™ fieldbus / PROFIBUS PA
Remote Input and Output

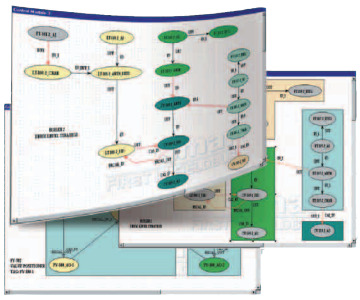
SYSTEM302

ProcessView
Supervision / Operation System

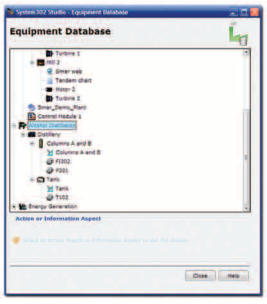
SimulationView
Control Strategy Simulator



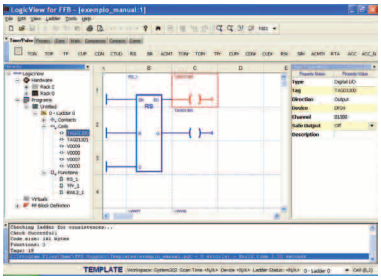
AssetView STANDALONE
Asset Management System



Syscon
Control Strategy and
Industrial Network Configurator



Process Equipment Database
Plant Information Management



LogicView for FFB
IEC61131 Programming Tool

HART COMMUNICATION PROTOCOL · FOUNDATION · PROFI BUS · DeviceNet · AS-i

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Up-to-date address information is available on our website.

web: www.smar.com/contactus.asp

SR301CE