HIGH ACCURACY

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PRODUCT DATASHEET

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Product Data Sheet
February 2018
00813-0100-4601, Rev FB

Rosemount™ 9901 Chamber for Process Level Instrumentation

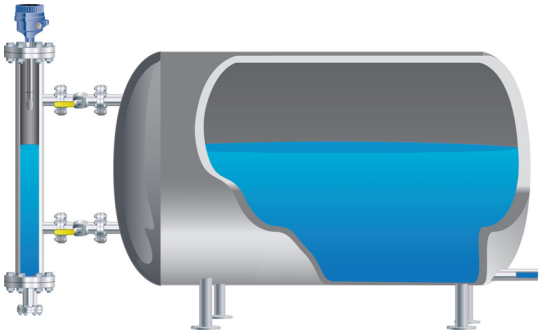
- Allows external mounting of process level instrumentation, which enables isolation of the process for live maintenance
- Optimized for use with the Rosemount 3300, 3308, and 5300 Guided Wave Radar, and Vertical Level Switches
- Rated for pressures up to ASME B16.5 Class 1500 and EN1092 PN250
- Designed to ASME B31.3 Process Piping Code. ASME B31.1 Power Piping Code is available upon request
- Pressure Equipment Directive (PED) compliant design available
- Used worldwide by major industries: Power, Petro-Chemical, Refining, Oil & gas, Chemical, and Process Steam Raising sectors. Ideal for critical area and general purpose applications
- Custom design service available

EMERSON

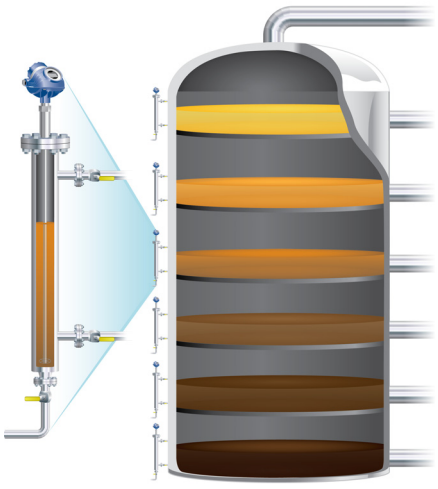
Reliable performance in challenging applications

Threaded process connections

Flanged process connections



Horizontal tank with Rosemount 9901 and Rosemount 2130 Vibrating Fork Level Switch



Distillation column with Rosemount 9901 and Rosemount 5300 Guided Wave Radar

Overview of the Rosemount 9901

The Rosemount 9901 product is the result of more than 50 years of experience in designing and manufacturing chambers (also known as bridles or bypass chambers) in accordance with international codes.

It is a self-contained chamber for externally mounting the Rosemount range of process level instruments to a vessel. It is also useful for in-tank restrictions that do not allow mounting of the instrument in a vessel.

This approach offers many advantages when solving application challenges:

In-tank constraints:

- Agitator
- Heat exchanger
- Internal structures

Isolation of instrument:

- Live maintenance
- Safety
- Hazardous liquids
- High pressures and temperatures

Turbulent vessel conditions:

- Chamber acts as a stilling well

Features and benefits

- Industry preferred weld neck flanges are used throughout, increasing safety by minimizing stress levels and the number of welds. All welds are full penetration to increase integrity and reduce crevice corrosion
- Drain options for even easier maintenance of the instrument. Optional vent allows gas in the upper zone above the liquid to be vented off

Contents

Chamber design

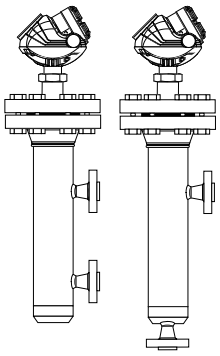
- Global quality assured design and manufacturing
- Designed to the ASME B31.3 Process Piping Code. ASME B31.1 Power Piping Code is available upon request
- Conforms to Pressure Equipment Directive (PED) 2014/68/EU for gases and liquids in Groups 1 and 2
- Weld Neck Flanges and Full Penetration Welds are in accordance with EN ISO 15614-1, and ASME Boiler and Pressure Vessel Code Section IX
- All welders are qualified to EN 287-1 and ASME Boiler and Pressure Vessel Code Section IX
- All construction materials have full traceability in accordance with the EN 10204 type 3.1 certificate
- Hydrostatic tests performed as standard
- There are two designs available: Standard design and T-Piece design
- Designs are independently assessed by a third party organization

Standard design

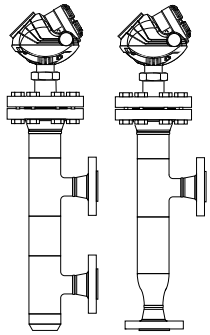
- Process connections are welded directly onto the chamber body, minimizing the number of welds for increased safety
- Available with a 3-in. (80 mm) chamber body and 1-in. (25 mm) process connection
- Available with a 4-in. (100 mm) chamber body with 1-in. (25 mm), 1 1/2-in. (40 mm), or 2-in. (50 mm) process connection
- Pressure ratings up to and including ASME B16.5 Class 1500 and EN 1092 PN250

T-Piece design

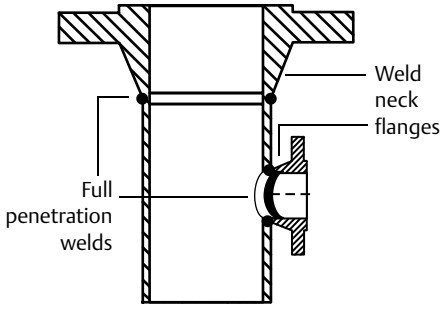
- Used when a 1 1/2-in. (40 mm) or 2-in. (50 mm) process connection is required on a 3-in. (80 mm) chamber
- Unequal T's are used so that the larger process connections can fit on the smaller chamber body
- Pressure ratings of up to and including ASME B16.5 Class 600 and EN 1092 PN100



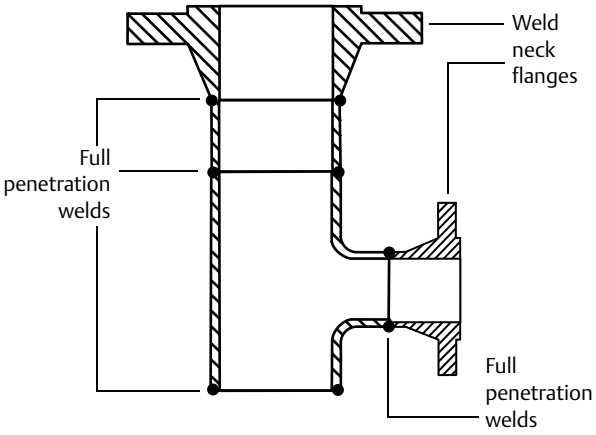
Standard design with Rosemount 5300



T-Piece design with Rosemount 5300



Standard design flanges and welds



T-Piece design flanges and welds

Ordering Information

Rosemount 9901 Chambers

- Allows external mounting of process level instrumentation
- Enables isolation of the process for live maintenance
- Designed to ASME B31.3, and Pressure Equipment Directive (PED) compliant
- Variety of process connections and optional drain and vent connections

Additional information

Specifications: page 12
Dimensional Drawings: page 15

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 12 for more information on Material Selections.

Table 1. Rosemount 9901 Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Model	Product description	
9901	Chamber	★
Instrument type		
G	Rosemount 3300/5300 Guided Wave Radar Level Transmitter	★
V	Vertically Mounted Level Switch e.g. Rosemount 2100 Series Vibrating Forks	
Design		
1	Standard design – Pressure Equipment Directive (PED) compliant	★
3(1)	Standard design – Not Pressure Equipment Directive (PED) compliant	★
5(2)	T-Piece design – Pressure Equipment Directive (PED) compliant	
6(1)(2)	T-Piece design – Not Pressure Equipment Directive (PED) compliant	
Chamber material		
C	Carbon SteelASTM A105/A106 Gr. B	★
S	Stainless Steel ASTM A182/A312 316/316L	★
Chamber size		
3	3 in. / 80 mm (DN80)	★
4	4 in. / 100 mm (DN100)	★
Instrument and chamber rating		
AA	ASME B16.5 Class 150 Flange	★
AB	ASME B16.5 Class 300 Flange	★
AC	ASME B16.5 Class 600 Flange	★
AD(3)	ASME B16.5 Class 900 Flange	★

Table 1. Rosemount 9901 Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

AE[3]	ASME B16.5 Class 1500 Flange	★
DA	EN1092 PN16 Flange	★
DB	EN1092 PN40 Flange	★
DC	EN1092 PN63 Flange	★
DD	EN1092 PN100 Flange	★
DE[3]	EN1092 PN160 Flange	★
DF[3]	EN1092 PN250 Flange	★
DH	EN1092 PN25 Flange	
Instrument connection type		
R	Raised Face (RF) flange	★
T	Ring Joint (RTJ) flange	★
N[4]	NPT thread (1-in. Bottle Style Chamber)	
Instrument gasket		
1[5]	Flat Ring (non-asbestos)	★
2[6]	Spiral Wound (316 Stainless Steel 316/Graphite)	★
3[7]	Ring Joint	★
4[8]	None	
Process connection orientation		
B	Side and Side	★
C	Side and Bottom	★
Process connection size		
1	1 in./25 mm (DN25)	★
2[9]	2 in./50 mm (DN50)	★
5[9]	1 1/2 in./40 mm (DN40)	★
Process connection rating		
AA	ASME B16.5 Class 150 Flange	★
AB	ASME B16.5 Class 300 Flange	★
AC	ASME B16.5 Class 600 Flange	★
AD	ASME B16.5 Class 900 Flange	★
AE	ASME B16.5 Class 1500 Flange	★
DA	EN1092 PN16 Flange	★
DB	EN1092 PN40 Flange	★

Table 1. Rosemount 9901 Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

DC	EN1092 PN63 Flange			★
DD	EN1092 PN100 Flange			★
DE	EN1092 PN160 Flange			★
DF	EN1092 PN250 Flange			★
DH	EN1092 PN25 Flange			★
NN[10]	For use with NPT, BSPT, or Socket Weld process connection type			★
Process connection type				
R	Raised Face (RF) Flange			★
T	Ring Type Joint (RTJ) Flange			★
N[11]	NPT Thread			★
B[11]	BSPT Thread			★
S	Socket Weld			★
Center to center units				
E	Imperial (English), feet and inches			★
M	Metric, meters and millimeters			★
Center-to-center (feet or meters)[12] – Length limit: Min. 10 in. (271 mm); Max. 20 ft. (6 m)				
000	Zero meters/Zero feet			★
xx	xx m or xx ft.	01= 1 m or 1 ft.	01 to 06 (6 m or 6 ft.)	★
		07 = 7 ft. only	07 to 40 (40 ft.)	
XX	Other lengths			★
Center-to-center (inches or millimeters)[12]				
000	Zero mm/Zero inches			★
xxx	xxx mm or xxx inches	010 = 10 mm or 1-in.	010 to 119 (119 mm or 11.9-in.)	★
		120 = 120 mm only	120 to 999 (999 mm)	
XXX	Other lengths			★
Drain				
X[13]	No drain required			★
D[14]	Drain required			★
Drain size				
8	1/2-in.			★
9	3/4-in.			★
1	1-in.			★
4	None			★

Table 1. Rosemount 9901 Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

Drain type		
R[15]	Raised Face (RF) Flange	★
T[15]	Ring Type Joint (RTJ) Flange	★
N[16]	NPT Thread	★
B[16]	BSPT Thread	★
S	Socket Weld	★
X	No drain required	★
Vent		
X	No vent required	★
V[14]	Vent required	★
Vent size		
8	1/2-in.	★
9	3/4-in.	★
1	1 in.	★
4	None	★
Vent type		
R[15]	Raised Face (RF) flange	★
T[15]	Ring Joint (RTJ) flange	★
N[16]	NPT thread	★
B[16]	BSPT thread	★
S	Socket weld	★
X	No vent required	★

Options (include with selected model number)

Bolting option		
L4[17]	316 Stainless Steel Bolting	
Paint options		
SP[18][19]	Standard Primer	
WE[18][19]	Primer and White Epoxy	
Schedule 80 piping (for ratings up to and including ASME 600/PN100)		
CA[3][18]	Schedule 80 piping for ratings up to and including ASME 600/PN100	

Table 1. Rosemount 9901 Ordering Information

The starred offerings (★) represent the most common options and should be selected for best delivery. The non-starred offerings are subject to additional delivery lead time.

GWR vapor compensation		
G1[18][20]	GWR vapor compensation probe < 78.7-in. (2000 mm)	★
G2[18][20]	GWR vapor compensation probe > 78.7-in. (2000 mm)	★
Sour service options		
Q15[18]	NACE® MR0175/ISO 15156	
Q25[18]	ANSI/NACE MR0103/ISO 17945	
Weld inspection chamber body		
Q81[18]	X-Ray 100% Body Welds	
Weld inspection –Branch connection		
Q73[18]	Dye Penetrant Inspection Branch Welds	
Q82[18]	Magnetic Particle Inspection Branch Welds	
Hydrostatic pressure test certification		
Q5[18][21]	Hydrostatic Pressure Test Certification	
Material certification		
Q8[18]	Material Traceability Certificate (EN10204 3.1)	
Assemble/consolidate to code		
XC[22]	Consolidate to Transmitter/Switch	★
Engineered solutions (see page 14)		
Rxxxx	Engineered Solutions beyond standard model codes. (consult factory for details)	
Typical model number: 9901 G 1 C 3 AB R 1 B 1 AB R E 02 080 D1N V1N Q8		

1. Available only for North America, South America, and Asia.
2. Select when $1^1/2$-in. or 2-in. process connections are required on a 3-in. (80-mm) chamber.
3. Not available for Instrument type code V.
4. Available for instruments that have a 1-in. NPT thread. The pressure rating is ASME B16.5 Class 600. Not available for Instrument type code G.
5. Available only for Instrument connection type code R (flanges up to and including ASME B16.5 Class 300 and EN 1092 PN63).
6. Available only for Instrument connection type code R. Not available for EN1092 PN16, PN40, or PN63.
7. Available for Instrument Connection type code T only.
8. No gasket is required for a threaded instrument connection.
9. Select the T-Piece Design if a 3-in. (80-mm) chamber is required for Rosemount 3300/5300 Guided Wave Radar Level Transmitter.
10. Not available with T-Piece Design.
11. The fitting used has a rating of #3000 for a chamber up to and including maximum pressure rating of ASME B31.3 Class 600 and EN1092 PN100.
12. The minimum length is 10 in. (271 mm) and the maximum length is 20 ft. (6 m). See dimension B on pages 15 and 19.
13. Select no drain for side-and-bottom chamber orientations.
14. Drain and vent are not fitted with valves by default. See page 11
15. Ratings are dependent on the selection of chamber and process connections.
16. The fitting used has a #3000 rating for chambers up to and including the maximum pressure rating of ASME B31.3 Class 900 and EN1092 PN160; for above Class 900 and PN160, the fitting used has a rating of #6000.
17. Stainless steel bolting is always supplied for Instrument type code G. Alloy steel bolting is supplied as standard for instrument type code V.

18. See "Order options – must be specified at time of order" on page 10 for descriptions.
19. Available with Chamber material code C only; black paint is used if the paint option is not specified.
20. The G1 and G2 option codes ensure the Rosemount 9901 has correct dimensions for a vapor compensation probe. G1 is selected with GWR option R1, G2 is selected with GWR option R2.
21. The hydrostatic pressure test is included as standard; select option Q5 if the certificate is required.
22. Available for Instrument type code G only. Selecting the XC option code on the GWR and the Rosemount 9901 will result in consolidating and shipping of the two products together in one crate. **Note that the flange bolts are only hand-tightened**.

Order options – must be specified at time of order

Paint

The standard is high quality, general purpose stoving black paint. White epoxy paint is an available option and consists of a primer, two undercoats of a two-pack high-build undercoat, and a final coat of a two-pack epoxy full gloss finish. The chamber can also be provided with just a primer for on-site painting. Upon request, the Rosemount 9901 can be painted to a customer specification.

Schedule 80 piping (for ratings up to and including ASME 600 / PN100)

The standard body pipe schedule for these ratings is Schedule 40. A corrosion allowance option is available to increase this to Schedule 80 for carbon steel chambers.

GWR Vapor Compensation probe

Saturated steam under high pressure can influence radar level transmitter measurements. A Rosemount Guided Wave Radar (GWR) level transmitter, with a Dynamic Vapor Compensation probe fitted, automatically compensates for this and maintains the level accuracy. Select options G1 or G2 (refer to Rosemount 5300 Product Data Sheet for further information about Dynamic Vapor Compensation). G1 is selected with GWR option R1, G2 is selected with GWR option R2.

Sour service

Materials can be conditioned and tested for use in H_2S environments with options for NACE MR0175/ISO 15156 (Materials for use in H_2S-containing environments in oil and gas production) and ANSI/NACE MR0103/ISO 17945 (Materials Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments).

Test and inspection

All chambers have standard inspection and testing as required by the codes and standards. The testing documentation is provided as applicable to the selected model option codes.

Chambers can be subjected to rigorous testing and inspection. The following testing is available upon request:

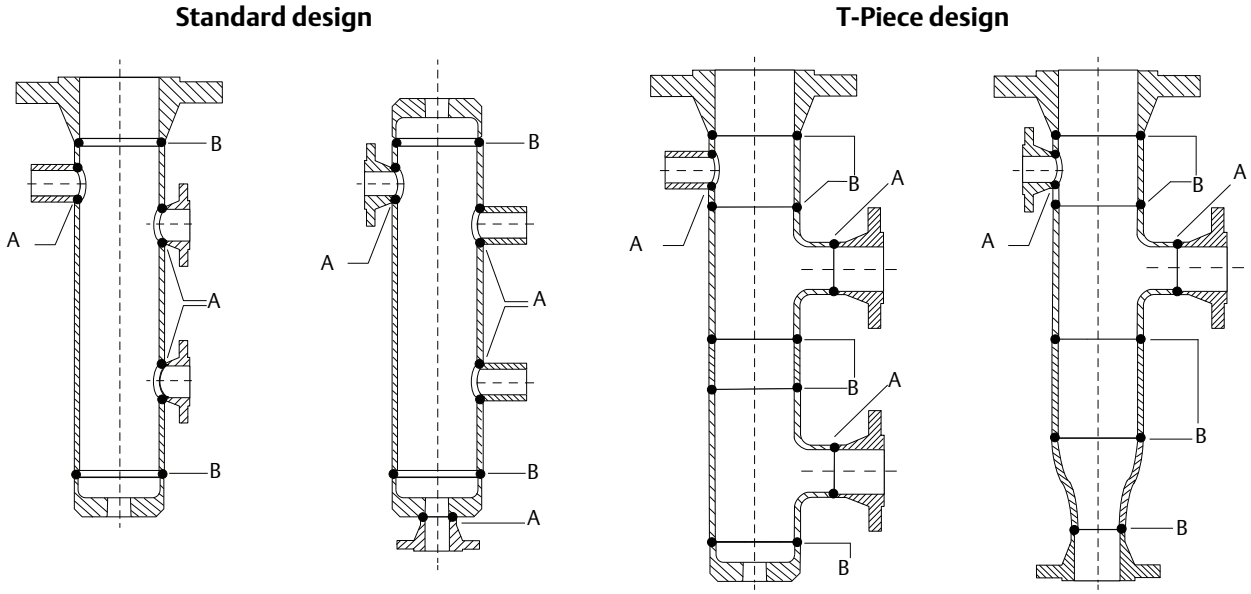
Hydrostatic pressure test

Hydrostatic pressure tests are performed as standard on all Rosemount 9901's. Select option Q5 if the certificate is required.

Weld inspection

X-Ray can be used to inspect chamber body welds. Where X-Ray is not practical, inspection of the branch connection welds is available using Dye Penetrate Inspection (DPI) on stainless steel or Magnetic Particle Inspection (MPI) on carbon steel.

Figure 1. Test and Inspection



A. DPI or MPI
B. X-Ray

Material certification

Material traceability certification conforming to EN 10204 3.1 is available, and Positive Material Identification (PMI) can also be ordered. PMI is a process to identify the composition of the material of the chamber and can be requested to support any material certificates that have been supplied. Requests for PMI should be made when making an inquiry.

Documentation available:

- Outline dimensional drawings for approval prior to construction
- Weld procedures and welder qualifications
- Quality control plans define activities planned to deliver the product while meeting customer's quality expectation

We can accommodate any request for inspections by a customer or third party organizations. This normally takes place prior to shipping. Requests for inspections should be made when making an inquiry.

Valves

Valves are commonly mounted on the drain or vent connection to allow draining or venting of the chamber. It is common practice to also mount valves on the process connection to allow isolation of the chamber. Valves can be supplied with the Rosemount 9901, and details are available upon request.

Technical Specifications

Material selection

Emerson™ provides a variety of Rosemount products with various product options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options and components for the particular application. Emerson is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration or materials of construction selected.

Pressure ratings

Table 2. Chamber Pressure and Temperature Ratings

Class/Rating		Working pressure for the Rosemount 9901 Chambers			
		Carbon steel chamber[1]		Stainless steel chamber[2]	
		Psi	Bar	Psi	Bar
ASME B16.5 Class 150	Ps max (RT)[3]	285	19.6	275	19.0
	Ps max (752 °F)/(400 °C)	95	6.5	95	6.5
	Pt	428	30	413	29
ASME B16.5 Class 300	Ps max (RT)	740	51.1	720	49.6
	Ps max (752 °F)/(400 °C)	505	34.7	425	29.4
	Pt	1110	77	1080	75
ASME B16.5 Class 600	Ps max (RT)	1480	102.1	1440	99.3
	Ps max (752 °F)/(400 °C)	1015	69.4	855	58.9
	Pt	2220	154	2160	149
ASME B16.5 Class 900	Ps max (RT)	2220	153.2	2160	148.9
	Ps max (752 °F)/(400 °C)	1520	104.2	1280	88.3
	Pt	3330	230	3240	224
ASME B16.5 Class 1500	Ps max (RT)	3705	255.3	3600	248.2
	Ps max (752 °F)/(400 °C)	2535	173.6	2135	147.2
	Pt	5558	383	5400	373
EN 1092 PN16	Ps max (RT)	232	16	227	15.7
	Ps max (752 °F)/(400 °C)	137	9.5	134	9.3
	Pt	348	24	348	24
EN 1092 PN25	Ps max (RT)	362	25	356	24.6
	Ps max (752 °F)/(400 °C)	214	14.8	211	14.6
	Pt	543	37.5	536	37

Table 2. Chamber Pressure and Temperature Ratings

EN 1092 PN40	Ps max (RT)	580	40	569	39.3
	Ps max (752 °F)/(400 °C)	345	23.8	339	23.4
	Pt	870	60	855	59
EN 1092 PN63	Ps max (RT)	913	63	899	62
	Ps max (752 °F)/(400 °C)	543	37.5	536	37
	Pt	1377	95	1348	93
EN 1092 PN100	Ps max (RT)	1450	100	1427	98.4
	Ps max (752 °F)/(400 °C)	862	59.5	851	58.7
	Pt	2175	150	2146	148
EN 1092 PN160	Ps max (RT)	2320	160	2291	158
	Ps max (752 °F)/(400 °C)	1380	95.2	1361	93.9
	Pt	3480	240	3437	237
EN 1092 PN250	Ps max (RT)	3625	250	3567	246
	Ps max (752 °F)/(400 °C)	2158	148.8	2132	147
	Pt	5438	375	5351	369

1. For PED compliant Rosemount 9901 Chambers (Design codes 1 and 5), Ts min is 14 °F (-10 °C).
   For not PED compliant Rosemount 9901 Chambers (Design codes 3 and 6), Ts min is -20 °F (-29°C) except Class 1500 where Ts min is 7.5 °F (-13 °C).
2. Ts min is -148 °F (-100 °C).
3. RT is Room Temperature of 68 °F (20 °C).

Temperature ratings

Table 3. Chamber Temperature Ratings

Material	Chamber temperature range
Carbon steel chamber	14 to 752 °F (-10 to 400 °C)(1)
Stainless steel chamber	-148 to 752 °F (-100 to 400 °C)

1. For not PED compliant Rosemount 9901 Chambers (Design codes 3 and 6), Ts min is -20 °F (-29°C) except Class 1500 where Ts min is 7.5 °F (-13 °C).

Materials of construction

Only materials suitable for pressure use and certified to ASME B31.3 are used in the construction of chambers. Other materials are available to special order.

Table 4. Chamber Materials

Component	Carbon steel[1]	Stainless steel
Instrument mounting flange	ASTM A105	ASTM A182 F316/F316L
Chamber body tube	ASTM A106 Grade B	ASTM A312 TP316/TP316L
Chamber end cap	ASTM A105	ASTM A182 F316/F316L
Process flange / fitting	ASTM A105	ASTM A182 F316/F316L
T-Pieces and reducers	ASTM A234 WPB	ASTM A403 WP316/WP316L–S
Stainless studbolts[2]	ASTM A193 B8M CL.2	ASTM A193 B8M CL.2
Stainless nuts[2]	ASTM A194 Grade 8M	ASTM A194 Grade 8M
Alloy Steel studbolts[3]	ASTM A193 B7	ASTM A320 L7
Alloy Steel nuts[3]	ASTM A194 2H	ASTM A194 Grade 7 + S3

1. Consult factory if low temperature carbon steel chamber is required.
2. Stainless steel bolting is always supplied with chambers when Instrument type code G is selected.
3. Alloy steel bolting is supplied as standard with chambers when instrument type code V is selected.

Engineered solutions

When standard model codes are not sufficient to fulfill requirements, please consult the factory to explore possible Engineered Solutions. This is typically, but not exclusively, related to the choice of wetted materials or the design of a process connection. These Engineered Solutions are part of the expanded offerings and may be subject to additional delivery lead time. For ordering, factory will supply a special R-labeled numeric option code that should be added at the end of the standard model string. See example model string below.

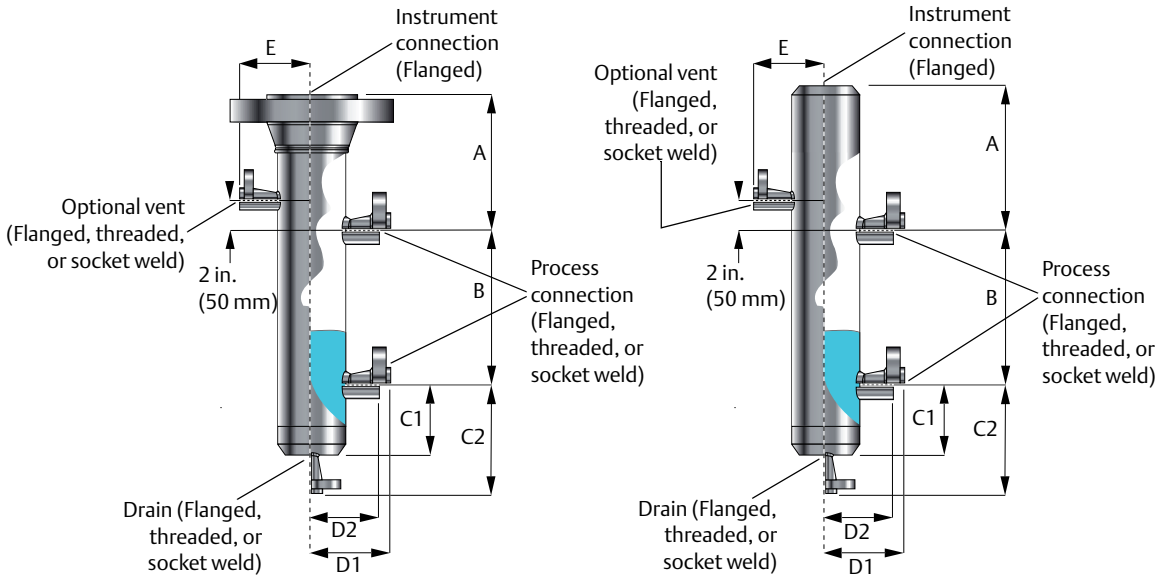
Example Model String:

9901-G-1-C-3-AB-R-1-B-1-AB-R-E-02-080-D1N-V1N-Q8-**R1234**

Dimensional Drawings

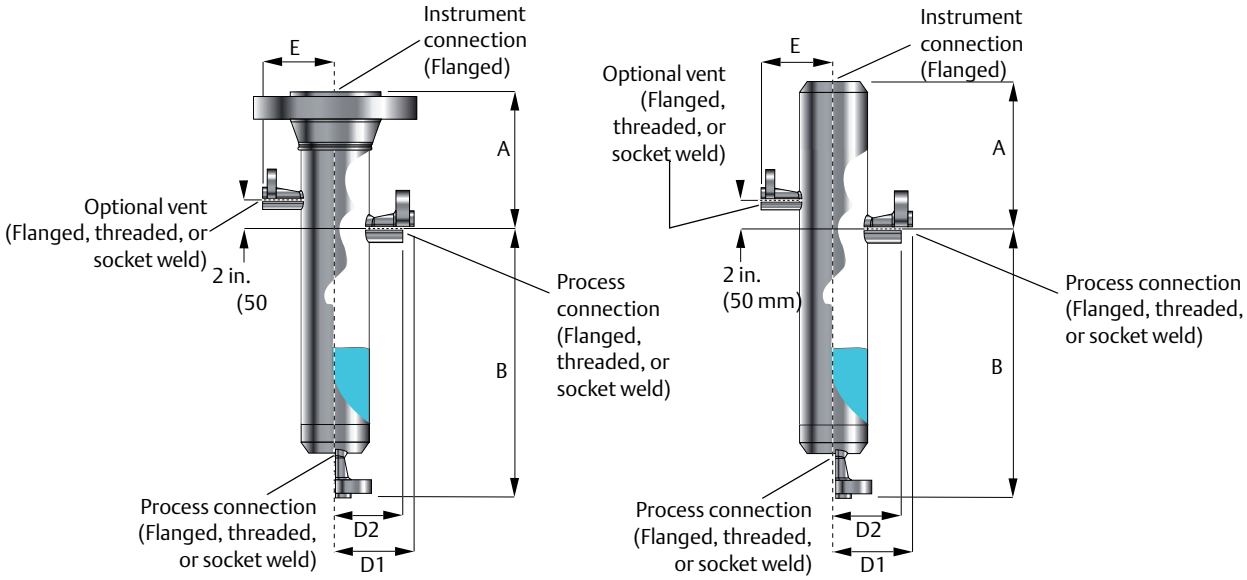
Standard design

Figure 2. Side-and-Side Chambers



Note
Specify center-to-center dimension B when ordering. Dimensions A, C, D, and E are in the tables on pages 16 to 18.

Figure 3. Side-and-Bottom Chambers



Note
Specify center-to-center dimension B when ordering. Dimensions A, D, and E are in the tables on pages 16 to 18.

Table 5. Dimension A For Side-and-Side and Side-and-Bottom Chamber

Instrument connections[1]		3-in. (80 mm) DN80 chamber				4-in. (100 mm) DN100 chamber			
		No vent fitted		Vent fitted		No vent fitted		Vent fitted	
		in.	mm	in.	mm	in.	mm	in.	mm
Instrument type code G[2]									
All supported flanges		10.83	275	10.83	275	10.83	275	10.83	275
All supported flanges with G1 option		22	560	22	560	22	560	22	560
All supported flanges with G2 option		28	710	28	710	28	710	28	710
Instrument type code V[3]									
ASME B16.5 Class 150 flange	RF/RTJ	7.87/7.56	200/192	9.84/9.53	250/242	7.87/7.56	200/192	9.84/9.53	250/242
ASME B16.5 Class 300 flange	RF/RTJ	7.68/7.24	195/184	9.65/9.21	245/234	7.56/7.13	192/181	9.53/9.09	242/231
ASME B16.5 Class 600 flange	RF/RTJ	N/A	N/A	N/A	N/A	7.05/6.85	179/174	9.02/8.82	229/224
EN 1092 PN16 flange	RF	8.03	204	10.00	254	8.03	204	10.00	254
EN 1092 PN25 or PN40 flange	RF	7.87	200	9.84	250	7.87	200	9.84	250
EN 1092 PN63 flange	RF	N/A	N/A	N/A	N/A	7.56	192	9.53	242
EN 1092 PN100 flange	RF	N/A	N/A	N/A	N/A	7.32	186	9.29	236
Threaded or socket weld		6.30	160	6.30	160	6.30	160	6.30	160

1. RF = Raised Face flange. RTJ = Ring Type Joint flange.
2. Threaded or socket weld connections are not available for chambers with Instrument type code G selected.
3. ASME B16.5 Class 900/1500 and EN 1092 PN160/PN250 flanges are not available for chambers with Instrument type code V selected.

Table 6. Dimensions C1 and C2 for Side-and-Side Chamber

Drain connections	3-in. (80-mm) DN80 chamber		4-in. (100-mm) DN100 chamber	
	in.	mm	in.	mm
Instrument type code G				
C1: SW/Threaded drain or no drain	11.42	290	11.42	290
C2: Flanged drain	14.57	370	14.57	370
Instrument type code V				
C1: SW/Threaded drain or no drain	6.30	160	6.30	160
C2: Flanged drain	9.45	240	9.45	240

Table 7. Dimension D1 for Side-and-Side and Side-and-Bottom Chamber (Flanged Process Connections)

Flanged process connections[1]		3-in. (80-mm) DN80 chamber						4-in. (100-mm) DN100 chamber					
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
ASME B16.5		**Class 150**		**Class 300**		**Class 600**		**Class 150**		**Class 300**		**Class 600**	
1-in.	RF	3.86	98	4.09	104	4.37	111	4.33	110	4.61	117	4.84	123
	RTJ	4.06	103	4.33	110	4.37	111	4.57	116	4.84	123	4.84	123
1 1/2-in.	RF	N/A	N/A	N/A	N/A	N/A	N/A	4.53	115	4.76	121	5.12	130
	RTJ	N/A	N/A	N/A	N/A	N/A	N/A	4.76	121	5.00	127	5.12	130
2-in.	RF	N/A	N/A	N/A	N/A	N/A	N/A	4.49	114	4.72	120	5.20	132
	RTJ	N/A	N/A	N/A	N/A	N/A	N/A	4.72	120	4.96	126	5.20	132
ASME B16.5		**Class 900**		**Class 1500**				**Class 900**		**Class 1500**			
1-in.	RF/RTJ	4.80	122	4.80	122			5.31	135	5.31	135		
1 1/2-in.	RF/RTJ	N/A	N/A	N/A	N/A			5.63	143	5.63	143		
2-in.	RF/RTJ	N/A	N/A	N/A	N/A			6.34	161	6.34	161		
EN 1092 (PN)		**PN16**		**PN25**		**PN40**		**PN16**		**PN25**		**PN40**	
1-in.	RF	3.23	82	3.23	82	3.23	82	3.78	96	3.78	96	3.78	96
1 1/2-in.	RF	N/A	N/A	N/A	N/A	N/A	N/A	3.82	97	3.82	97	3.82	97
2-in.	RF	N/A	N/A	N/A	N/A	N/A	N/A	3.74	95	3.86	98	3.86	98
EN 1092 (PN)		**PN63/PN100**		**PN160**		**PN250**		**PN63/PN100**		**PN160**		**PN250**	
1-in.	RF	3.98	101	3.98	101	4.25	108	4.49	114	4.49	114	4.76	121
1 1/2-in.	RF	N/A	N/A	N/A	N/A	N/A	N/A	4.49	114	4.57	116	5.20	132
2-in.	RF	N/A	N/A	N/A	N/A	N/A	N/A	4.41/4.7	113/119	4.96	126	5.35	136

1. RF = Raised Face flange. RTJ = Ring Type Joint flange.

Table 8. Dimension D2 for Side-and-Side and Side-and-Bottom Chamber (Threaded/Socket Weld Connections)

Threaded or SW process connections	3-in. (80-mm) DN80 chamber		4-in. (100-mm) DN100 chamber	
	in.	mm	in.	mm
1-in. (25 mm)	3.74	95	4.21	107

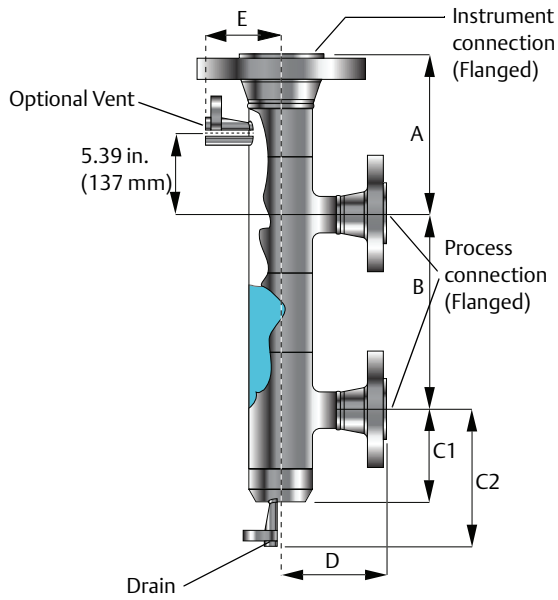
Table 9. Dimension E for Side-and-Side and Side-and-Bottom Chamber

Vent connections[1]		3-in. (80-mm) DN80 chamber						4-in. (100-mm) DN100 chamber					
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
ASME B16.5		**Class 150**		**Class 300**		**Class 600**		**Class 150**		**Class 300**		**Class 600**	
1/2-in.	RF	3.62	92	3.78	96	4.06	103	4.09	104	4.29	109	4.53	115
	RTJ	N/A	N/A	3.94	100	4.02	102	N/A	N/A	4.41	112	4.45	113
3/4-in.	RF	3.78	96	3.98	101	4.25	108	4.29	109	4.49	114	4.72	120
	RTJ	N/A	N/A	4.17	106	4.25	108	N/A	N/A	4.65	118	4.69	119
1-in.	RF	3.86	98	4.09	104	4.37	111	4.33	110	4.57	116	4.84	123
	RTJ	4.06	103	4.33	110	4.37	111	4.57	116	4.84	123	4.84	123
ASME B16.5		**Class 900**		**Class 1500**				**Class 900**		**Class 1500**			
½-in.	RF	4.37	111	4.37	111			4.84	123	4.84	123		
	RTJ	4.37	111	4.37	111			4.80	122	4.80	122		
¾ in.	RF	4.72	120	4.72	120			5.24	133	5.24	133		
	RTJ	4.72	120	4.72	120			5.20	132	5.20	132		
1 in.	RF	4.80	122	4.80	122			5.31	135	5.31	135		
	RTJ	4.80	122	4.80	122			5.31	135	5.31	135		
EN 1092 (PN)		**PN16**		**PN25**		**PN40**		**PN16**		**PN25**		**PN40**	
½ in.	RF	3.19	81	3.19	81	3.19	81	3.70	94	3.70	94	3.70	94
¾ in.	RF	3.27	83	3.27	83	3.27	83	3.78	96	3.78	96	3.78	96
1 in.	RF	3.23	82	3.23	82	3.23	82	3.78	96	3.78	96	3.78	96
EN 1092 (PN)		**PN63/PN100**		**PN160**		**PN250**		**PN63/PN100**		**PN160**		**PN250**	
½ in.	RF	3.50	89	3.50	89	4.09	104	3.98	101	3.98	101	4.57	116
¾ in.	RF	3.62	92	N/A	N/A	N/A	N/A	4.09	104	N/A	N/A	N/A	N/A
1 in.	RF	3.98	101	3.98	101	4.25	108	4.49	114	4.49	114	4.76	121
Non-Flanged		**Threaded**		**Socket weld**				**Threaded**		**Socket weld**			
½ in., ¾ in., and 1 in.		3.74	95	3.74	95			4.21	107	4.21	107		

1. RF = Raised Face flange. RTJ = Ring Type Joint flange.

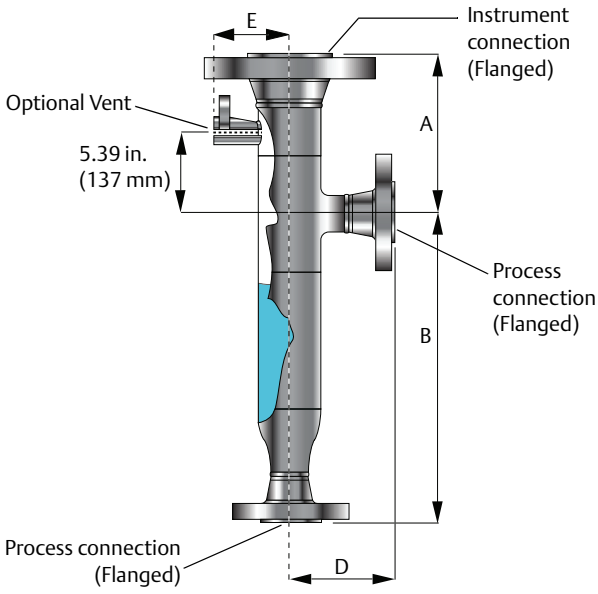
T-Piece design

Figure 4. Side-and-Side Chambers



Note
Specify center-to-center dimension B when ordering. Dimensions A, C, D, and E are in the tables on pages 20 to 22.

Figure 5. Side-and-Bottom Chambers



Note
Specify center-to-center dimension B when ordering. Dimensions A, C, D, and E are in the tables on pages 20 to 22.

Table 10. Dimension A for T-Piece Side-and-Side and Side-and-Bottom Chamber

Flanged instrument connections[1]		3-in. (80-mm) DN80 chamber			
		No vent fitted		Vent fitted	
		in.	mm	in.	mm
Instrument type code G[2][3]					
All supported flanges		10.83	275	10.83	275
All supported flanges with G1 option		22	560	22	560
All supported flanges with G2 option		28	710	28	710
Instrument type code V[3][4]					
ASME B16.5 Class 150	RF/RTJ	6.10/6.38	155/162	10.43/10.70	265/272
ASME B16.5 Class 300	RF/RTJ	6.50/6.81	165/173	10.83/11.14	275/283
EN 1092 PN16	RF	5.35	136	9.69	246
EN 1092 PN25/PN40	RF	5.67	144	10.00	254

1. RF = Raised Face flange. RTJ = Ring Type Joint flange.
2. Threaded and Socket weld connections are not available when Instrument type code G is selected.
3. ASME B16.5 Class 900/1500 and EN 1092 PN160/PN250 flanges are not supported on T-Piece design chambers.
4. ASME B16.5 Class 600 and EN 1092 PN63/PN100 flanges are not available for T-Piece design chambers with Instrument type code V selected.

Table 11. Dimension C1 for T-Piece Side-and-Side Chamber

Threaded or socket weld drain connections	3-in. (80-mm) DN80 chamber	
	in.	mm
½ in., ¾ in., or 1 in.	11.42	290

Table 12. Dimension C2 for T-Piece Side-and-Side Chamber

Drain connections[1]		3-in. (80-mm) DN80 chamber			
		in.	mm	in.	mm
ASME B16.5		**Instrument type code V**		**Instrument type code G**	
½-in. Class 150	RF	7.68	195	14.57	370
	RTJ	N/A	N/A	14.57	370
¾-in. Class 150	RF	7.87	200	14.57	370
	RTJ	N/A	N/A	14.57	370
1-in. Class 150	RF	7.99	203	14.57	370
	RTJ	8.23	209	14.57	370
½-in. Class 300	RF	7.87	200	14.57	370
	RTJ	8.07	205	14.57	370
¾-in. Class 300	RF	8.07	205	14.57	370
	RTJ	8.31	211	14.57	370
1-in. Class 300	RF	8.23	209	14.57	370
	RTJ	8.46	215	14.57	370
½-in. Class 600	RF	8.11	206	14.57	370
	RTJ	8.11	206	14.57	370
¾-in. Class 600	RF	8.31	211	14.57	370
	RTJ	8.31	211	14.57	370
1-in. Class 600	RF	8.46	215	14.57	370
	RTJ	8.46	215	14.57	370
EN1092 (PN)		**Instrument type code V**		**Instrument type code G**	
½-in. PN16/25/40 RF		7.28	185	14.57	370
¾-in. PN16/25/40 RF		7.36	187	14.57	370
1-in. PN16/25/40 RF		7.36	187	14.57	370
½-in.PN63/100 RF		7.56	192	14.57	370
¾-in.PN63/100 RF		7.68	195	14.57	370
1-in.PN63/100 RF		8.07	205	14.57	370

1. RF = Raised Face flange. RTJ = Ring Type Joint flange.

Table 13. Dimension D for T-Piece Side-and-Side Chamber

Flanged process connections[1]		3-in. (80 mm) DN80 chamber							
		in.	mm	in.	mm	in.	mm	in.	mm
ASME B16.5		**Class 150**		**Class 300**		**Class 600**			
1½ in.	RF	5.32	135	5.55	141	5.87	149		
	RTJ	5.47	139	5.79	147	5.87	149		
2 in.	RF	5.51	140	5.75	146	6.10	155		
	RTJ	5.67	144	5.98	152	6.18	157		
EN 1092 (PN)		**PN16**		**PN25/40**		**PN63**		**PN100**	
1½ in.	RF	4.65	118	4.65	118	5.32	135	5.32	135
2 in.	RF	4.76	121	4.88	124	5.43	138	5.67	144

1. RF = Raised Face flange. RTJ = Ring Type Joint flange.

Table 14. Dimension E for T-Piece Side-and-Side and Side-and-Bottom Chamber

Vent connections[1]		3-in. (80 mm) DN80 chamber					
		in.	mm	in.	mm	in.	mm
ASME B16.5		**Class 150**		**Class 300**		**Class 600**	
½ in.	RF	3.62	92	3.78	96	4.06	103
	RTJ	N/A	N/A	3.94	100	4.02	102
¾ in.	RF	3.78	96	3.98	101	4.25	108
	RTJ	N/A	N/A	4.17	106	4.25	108
1in.	RF	3.86	98	4.09	104	4.37	111
	RTJ	4.06	103	4.33	110	4.37	111
EN1092 (PN)		**PN16/25/40**		**PN63/100**			
½ in.	RF	3.20	81	3.50	89		
¾ in.	RF	3.27	83	3.62	92		
1 in.	RF	3.23	82	3.98	101		
Non-Flanged		**Threaded**		**Socket weld**			
½ in.		3.74	95	3.74	95		
¾ in.		3.74	95	3.74	95		
1 in.		3.74	95	3.74	95		

1. RF = Raised Face flange. RTJ = Ring Type Joint flange.

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