

# Micro Motion® R-Series Coriolis Flow and Density Meters



## Detailed Specifications

### R-Series accuracy

Model	Liquid mass flow accuracy		Gas mass flow accuracy	Density accuracy (g/cm <sup>3</sup> )	
	0.50%	0.40%	0.75%	0.01	0.003
R025	•	•	•	•	•
R050	•	•	•	•	•
R100	•	•	•	•	•
R200	•	•	•	•	•

### Flow tube information

Model	Number of tubes	Tube inside diameter inches	Tube inside diameter mm	Tube length inches	Tube length mm
R025	2	0.21	5.3	14.6	370
R050	2	0.35	8.8	18.8	478
R100	2	0.65	16	25.1	637
R200	2	1.1	27	23.5	598

### ASME B16.5 specification flange compatibility

Model	1/2"	3/4"	1"	1-1/2"	2"	3"
R025	•	•	•			
R050	•	•	•			
R100			•	•	•	
R200				•	•	•

### DIN specification flange compatibility

Model	DN15	DN25	DN40	DN50
R025	•			
R050	•	•		
R100		•		
R200			•	•

### EN1092-1 specification flange compatibility

Model	DN15	DN25	DN40	DN50
R025	•	•		
R050	•	•		
R100		•		

Model	DN15	DN25	DN40	DN50
R200			•	•

**JIS B 2220 specification flange compatibility**

**Note**




Sensors with JIS process connections do not meet ASME B31.1 power piping code.

Model	15mm	25mm	40mm	50mm
R025	•			
R050	•			
R100		•		
R200			•	•

**VCO/VCR specification flange compatibility and Tri-clamp compatible flanges**

Model	VCO specification				Tri-clamp compatible				
	#4	#8	#12	#16	1/2"	3/4"	1"	1-1/2"	2"
R025		•	•		•	•			
R050		•	•		•	•			
R100				•			•		
R200								•	•

**Transmitter compatibility**

Sensor model	Transmitter model		
	1500/2500	1700/2700	3000 Series
			
All R-Series models	•	•	•

## Process pressure ratings

Sensor maximum working pressure reflects the highest possible pressure rating for a given sensor. Process connection type and environmental and process fluid temperatures may reduce the maximum rating. Refer to the Technical Data Sheet for common sensor and fitting combinations.

All sensors comply with ASME B31.3 process piping code and Council Directive 97/23/EC of 29 May 1997 on pressure equipment.

**Note**

R-Series sensors with JIS process connections do not comply with ASME B31.1 power piping code.

**Sensor maximum working pressure for all models: 316L stainless steel (S) and high pressure (P)**

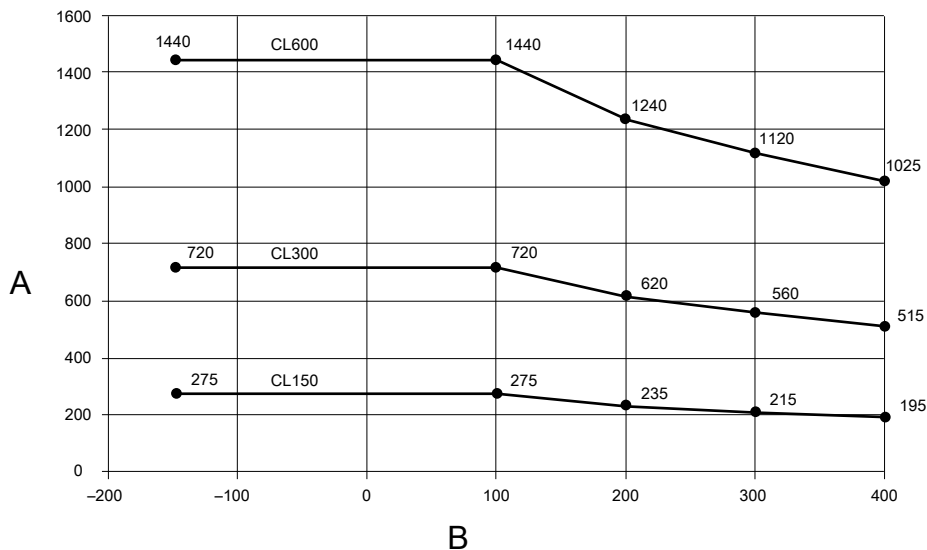
Model	psig	barg
All stainless steel models (R025S–R200S)	1,450	100
R025P	2,300	159

## Temperature and pressure de-ratings

**Note**

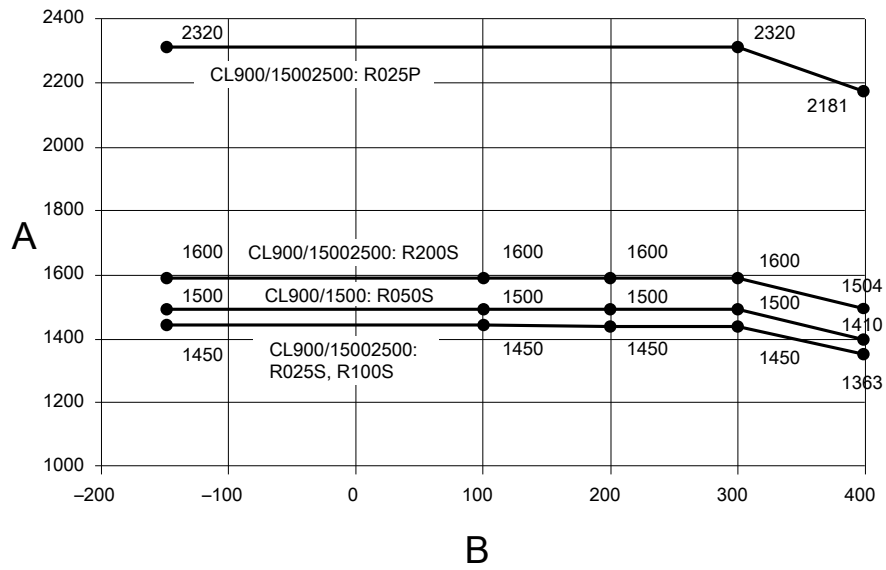
- The ratings in this section apply to the combined sensor and process connection to ensure that the meter does not exceed the limits of either component.
- The temperature and pressure de-ratings graphs do not represent all possible model and fitting combinations. For combinations not listed here, contact a sales representative or the factory.

**ASME B16.5 (CL150-CL600)**



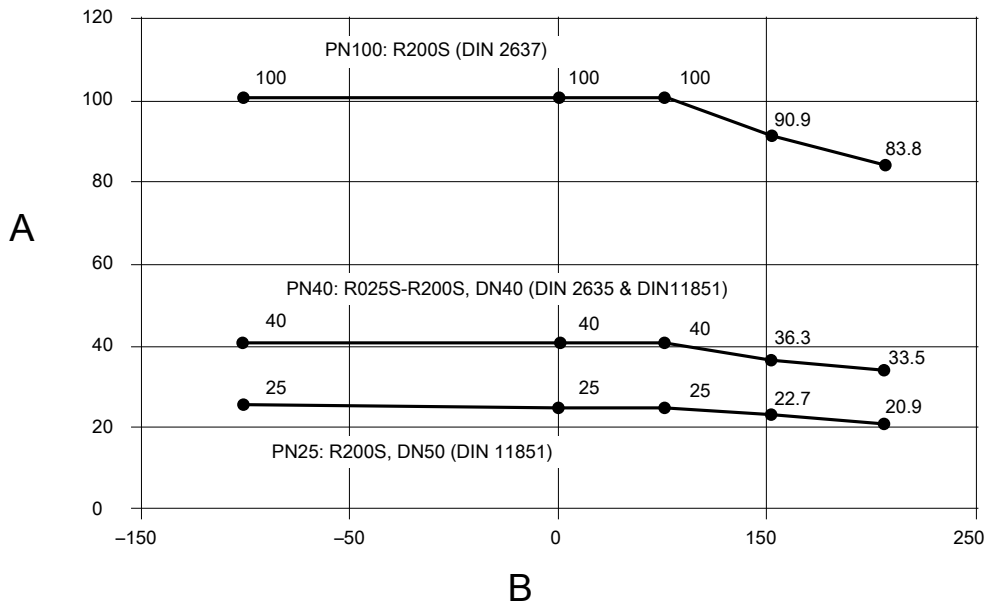
- A. Pressure (psi)
- B. Temperature (° F)

**ASME B16.5 (CL900-CL2500)**



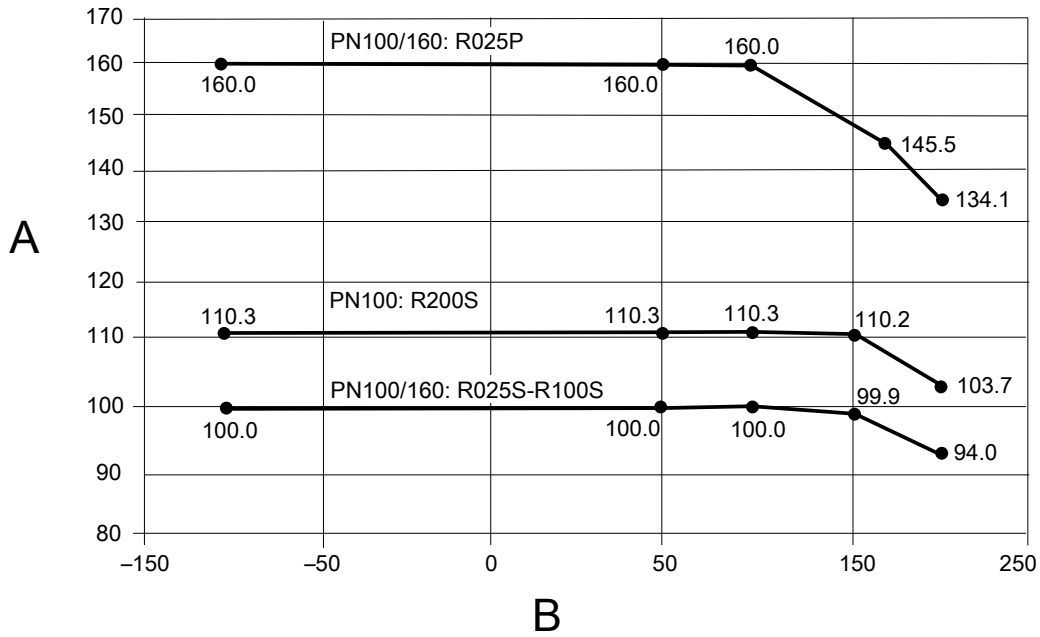
A. Pressure (psi)  
 B. Temperature (° F)

**DIN 2635 & 11851 F316/F316L**



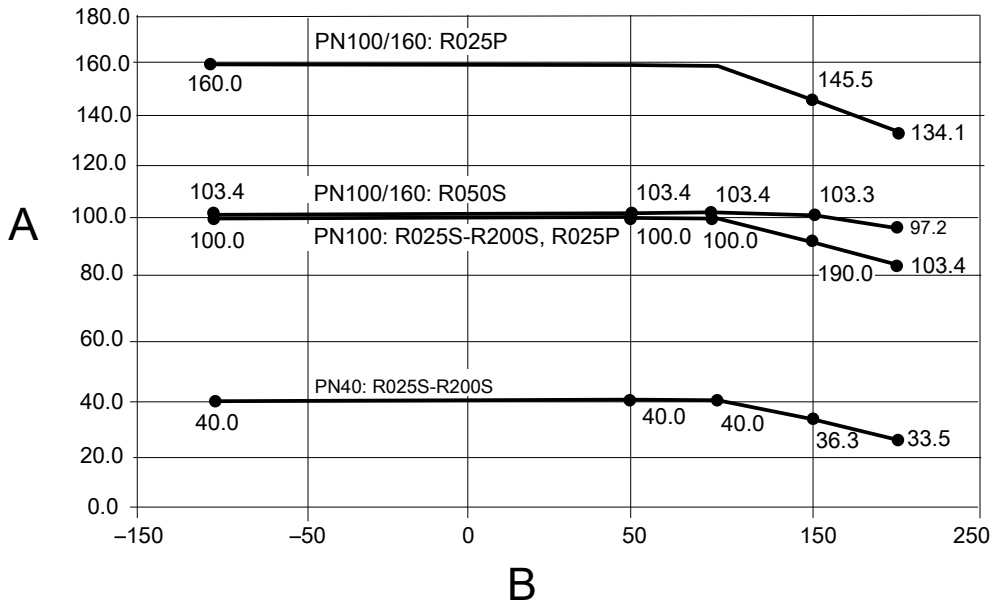
A. Pressure (Bar)  
 B. Temperature (° C)

**DIN 2638 F316/F316L**



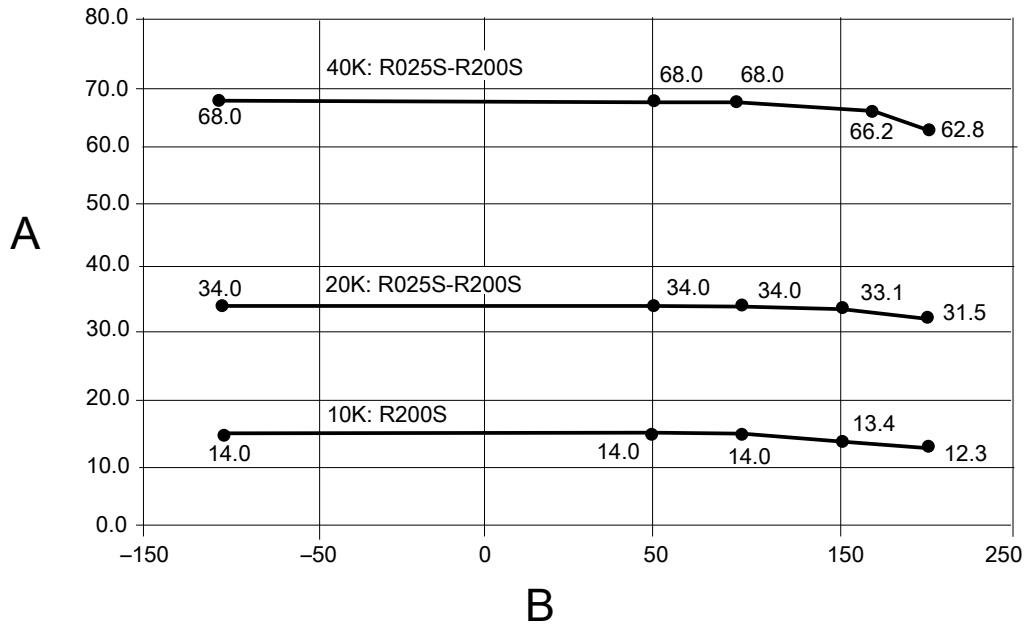
A. Pressure (Bar)  
 B. Temperature (°C)

**EN 1092-1 F316/F316L**



A. Pressure (Bar)  
 B. Temperature (°C)

**JIS B 2220 F316/F316L**

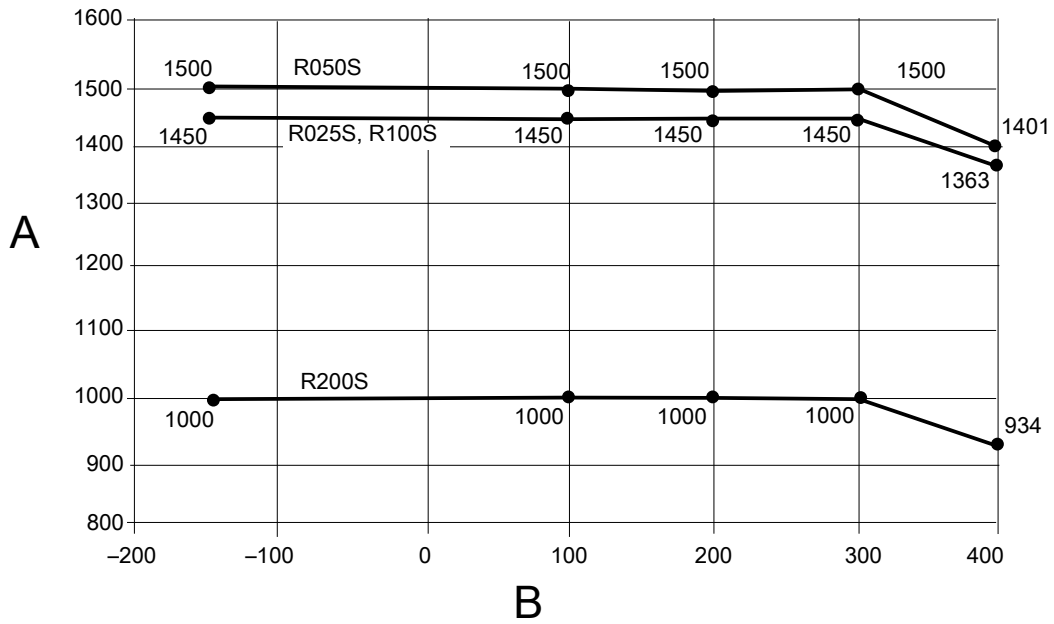


A. Pressure (Bar)  
 B. Temperature (° C)

**Note**

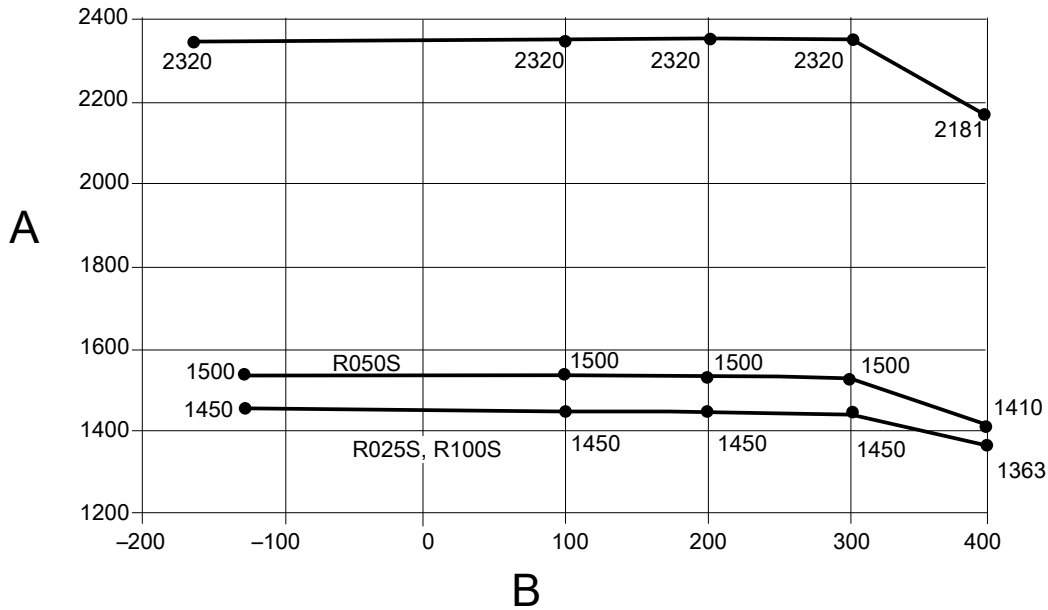
Sensors with JIS process connections do not comply with ASME B31.1 power piping code.

**Tri-Clamp compatible 316L**



A. Pressure (psi)  
 B. Temperature (° F)

VCO & VCR 316/316L



A. Pressure (psi)  
 B. Temperature (° F)

## Hazardous area classifications

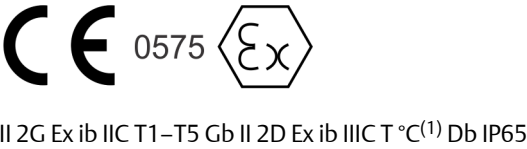
### Detailed classifications

**Note**

All information and approvals may change depending on sensor/transmitter configurations and operating conditions. Please reference appropriate certificates for exact approvals.

CSA and CSA C-US	
Sensor with integrally mounted Model 1700/2700 transmitter or with core processor	Ambient temperature: -40 to +140 °F (-40 to +60 °C)
	Class I, Div. 1, Groups C and D Class I, Div. 2, Groups A, B, C, and D Class II, Div. 1, Groups E, F, and G
	Class I, Div. 2, Groups A, B, C, and D
	Class II, Div. 1, Groups E, F, and G
IECEX and NEPSI	
Sensor with integrally mounted Model 1700/2700 transmitter or with core processor	Ex ib IIC T1-T5 Gb
Sensor with Model 1700/2700 with THUM adapter	Ex ib IIC T1-T4
ATEX	



All models (CIC A2) with core processor or Model 1700/2700 transmitter	
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(1) For ambient and process temperature limits, refer to the appropriate approval certificate.

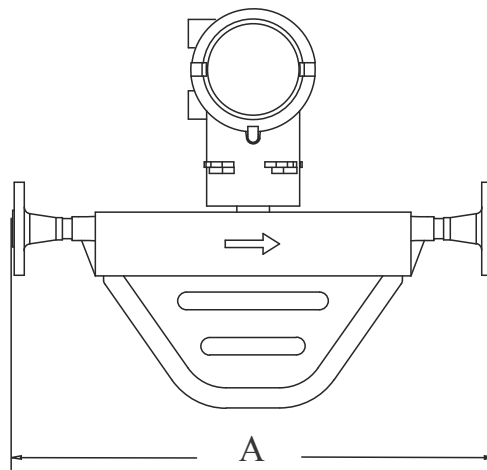
## Process connections

### Note

The tables in this section do not represent all possible model and flange combinations. For combinations not listed here, contact a sales representative or the factory.

### Dimensions with process connections

Dimension “A” is provided for each process fitting type, when available. It is the finished face-to-face dimension of the sensor with the process connection  $\pm 1/8$  inch ( $\pm 3$  mm).



### Weight with process connections

Product weights in this section include the weight of the sensor with the process connection and integral core processor, except where noted. Values are rounded to  $\pm 1$  lb (0.5 kg). Contact the factory for product shipping weight.

## Fitting options

### Model R025S

Code	Description					Dim A inch (mm)	Weight lb (kg)	
113	1/2-inch	CL150	ASME B16.5	F316/F316L	Weld neck flange	Raised face	16.0 (406)	14 (6.5)
114	1/2-inch	CL300	ASME B16.5	F316/F316L	Weld neck flange	Raised face	16.4 (416)	15 (7)

Code	Description						Dim A inch (mm)	Weight lb (kg)
115	1/2-inch	CL600	ASME B16.5	F316/F316L	Weld neck flange	Raised face	16.9 (428)	16 (7)
116	DN15	PN40	DIN 2635	F316/F316L	Weld neck flange	Form C face	15.3 (387)	15 (7)
120	DN15	PN100/ 160	DIN 2638	F316/F316L	Weld neck flange	Form E face	15.8 (401)	17 (8)
121	1/2-inch		Tri-Clamp com- patible	316L	Hygienic fitting		14.0 (355)	12 (5.5)
122	15mm	20K	JIS B 2220	F316/316L	Weld neck flange	Raised face	15.4 (392)	15 (7)
170	DN15	PN100/ 160	EN 1092-1	F316/F316L	Weld neck flange	Type B2	15.4 (391)	17 (8)
172	DN25	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type B1	15.3 (387)	17 (8)
176	DN15	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type B1	15.2 (387)	15 (7)
178	DN15	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type D	15.4 (391)	17 (7.5)
183	DN25	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type D	13.9 (353)	17 (8)
221	15mm	40K	JIS B 2220	F316/316L	Weld neck flange	Raised face	16.5 (419)	19 (9)
222	DN15		DIN11851	316/316L	Hygienic coupling		15.3 (387)	12 (5.5)
310	DN15	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type D	14.0 (355)	15 (7)
319	#8		VCO	316/316L	Swagelok com- patible fitting	1/2-inch NPT fe- male adapter	15.8 (401) <sup>(1)</sup>	12 (5.5)

(1) Dimension specified in table does NOT include fitting length. For installation, modify Dim. A value to include fitting.

### Model R025P

Code	Description						Dim A inch (mm)	Weight lb (kg)
120	DN15	PN100/ 160	DIN 2638	F316/F316L	Weld neck flange	Type E face	15.8 (401)	17 (8)
170	DN15	PN100/ 160	EN 1092-1	F316/F316L	Weld neck flange	Form B2	15.8 (401)	17 (8)
178	DN15	PN100	EN 1092-1	F316/F316L	Weld neck flange	Form D	15.8 (401)	17 (7.5)
180	DN25	PN100	EN 1092-1	F316/F316L	Weld neck flange	Form B2	16.8 (427)	24 (10.5)
319	#8		VCO	316/316L	Swagelok com- patible fitting	1/2-inch NPT fe- male adapter	14.0 (355) <sup>(1)</sup>	12 (5.5)

(1) Dimension specified in table does NOT include fitting length. For installation, modify Dim. A value to include fitting.

**Model R050S**

Code	Description						Dim A inch (mm)	Weight lb (kg)
113	1/2-inch	CL150	ASME B16.5	F316/F316L	Weld neck flange	Raised face	18.1 (460)	15 (7)
114	1/2-inch	CL300	ASME B16.5	F316/F316L	Weld neck flange	Raised face	18.5 (469)	16 (7.5)
115	1/2-inch	CL600	ASME B16.5	F316/F316L	Weld neck flange	Raised face	19.0 (482)	17 (7.5)
116	DN15	PN40	DIN 2635	F316/F316L	Weld neck flange	Form C face	17.4 (441)	16 (7.5)
120	DN15	PN100/ 160	DIN 2638	F316/F316L	Weld neck flange	Form E face	17.9 (455)	18 (8.5)
122	15mm	20K	JIS B 2220	F316/316L	Weld neck flange	Raised face	17.6 (446)	18 (8)
131	DN25	PN40	DIN 2635	F316/F316L	Weld neck flange	Form C face	17.5 (444)	18 (8.5)
170	DN15	PN100/ 160	EN 1092-1	F316/F316L	Weld neck flange	Type B2	17.9 (455)	18 (8.5)
172	DN25	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type B1	17.5 (445)	18 (8.5)
176	DN15	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type B1	17.4 (441)	16 (7.5)
178	DN15	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type D	17.9 (455)	18 (8)
183	DN25	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type D	17.5 (445)	18 (8.5)
221	15mm	40K	JIS B 2220	F316/316L	Weld neck flange	Raised face	18.6 (473)	19 (9)
222	DN15		DIN11851	316/316L	Hygienic coupling		16.0 (407)	13 (6)
239	#12		VCO	316/316L	Swagelok compatible fitting	3/4-inch NPT female adapter	16.4 (415)	14 (6)
310	DN15	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type D	17.4 (441)	16 (7.5)
322	3/4-inch		Tri-Clamp compatible	316L	Hygienic fitting		15.9 (403)	13 (6)

**Model R100S**

Code	Description						Dim A inch (mm)	Weight lb (kg)
128	1-inch	CL150	ASME B16.5	F316/F316L	Weld neck flange	Raised face	22.7 (576)	24 (11)
129	1-inch	CL300	ASME B16.5	F316/F316L	Weld neck flange	Raised face	23.2 (588)	27 (12)
130	1-inch	CL600	ASME B16.5	F316/F316L	Weld neck flange	Raised face	23.7 (601)	27 (12.5)

Code	Description						Dim A inch (mm)	Weight lb (kg)
131	DN25	PN40	DIN 2635	F316/F316L	Weld neck flange	Form C face	21.4 (544)	25 (11.5)
137	DN25	PN100/ 160	DIN 2638	F316/F316L	Weld neck flange	Form E face	22.8 (580)	31 (14)
138	1-inch		Tri-Clamp com- patible	316L	Hygienic fitting			
139	25mm	20K	JIS B 2220	F316/F316L	Weld neck flange	Raised face		
179	DN25	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type B1	21.4 (544)	25 (11.5)
180	DN25	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type B2	22.9 (580)	31 (14)
181	DN25	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type D	22.9 (580)	31 (14)
229	25mm	40K	JIS B 2220	F316/316L	Weld neck flange	Raised face	22.9 (582)	31 (14)
230	DN25		DIN11851	316/316L	Hygienic coupling		20.6 (522)	20 (9)
311	DN25	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type D	21.4 (544)	25 (11.5)

**Model R200S**

Code	Description						Dim A inch (mm)	Weight lb (kg)
312	DN40	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type D	23.4 (595)	48 (21.5)
316	DN50	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type D	23.7 (601)	51 (23)
341	1-1/2- inch	CL150	ASME B16.5	F316/F316L	Weld neck flange	Raised face	24.8 (629)	46 (21)
342	1-1/2- inch	CL300	ASME B16.5	F316/F316L	Weld neck flange	Raised face	25.3 (642)	52 (23.5)
343	1-1/2- inch	CL600	ASME B16.5	F316/F316L	Weld neck flange	Raised face	25.8 (654)	55 (25)
351	1-1/2- inch		Tri-Clamp com- patible	316L	Hygienic fitting		23.3 (591)	39 (17.5)
352	2-inch		Tri-Clamp com- patible	316L	Hygienic fitting		22.9 (581)	39 (18)
353	DN40		DIN11851	316/316L	Hygienic coupling		23.2 (589)	46 (21)
363	DN40	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type B2	24.8 (629)	56 (25.5)
365	DN50	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type B2	25.3 (641)	64 (29)
366	DN40	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type D	24.8 (629)	56 (25.5)

Code	Description						Dim A inch (mm)	Weight lb (kg)
367	DN50	PN100	EN 1092-1	F316/F316L	Weld neck flange	Type D	25.3 (641)	64 (29)
368	DN40	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type B1	23.4 (595)	48 (21.5)
369	DN50	PN40	EN 1092-1	F316/F316L	Weld neck flange	Type B1	23.7 (601)	51 (23)
378	DN50	PN100	DIN 2637	F316/F316L	Weld neck flange	Form E face	25.4 (646)	64 (29)
381	DN40	PN40	DIN 2635	F316/F316L	Weld neck flange	Form C face	23.6 (599)	48 (21.5)
382	DN50	PN40	DIN 2635	F316/F316L	Weld neck flange	Form C face	23.8 (605)	51 (23)
385	40mm	10K	JIS B 2220	F316/F316L	Weld neck flange	Raised face	23.4 (595)	46 (21)
386	50mm	10K	JIS B 2220	F316/316L	Weld neck flange	Raised face	23.7 (602)	48 (22)
387	40mm	20K	JIS B 2220	F316/F316L	Weld neck flange	Raised face	23.4 (595)	47 (21)
388	50mm	20K	JIS B 2220	F316/316L	Weld neck flange	Raised face	23.7 (602)	48 (22)
418	2-inch	CL150	ASME B16.5	F316/F316L	Weld neck flange	Raised face	24.9 (632)	50 (22.5)
419	2-inch	CL300	ASME B16.5	F316/F316L	Weld neck flange	Raised face	25.4 (645)	54 (24.5)
420	2-inch	CL600	ASME B16.5	F316/F316L	Weld neck flange	Raised face	26.1 (664)	58 (26)





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