



SLM30-E Swirl Flow Meter

Description

The SLM30-E is designed to measure the flow of liquids, gases, and steam. The measured medium is conditioned at the inlet. As flow is introduced to the SLM30-E, a fixed impeller causes rotation of the medium. The frequency of rotation measured by piezo sensor is proportional to the flow rate.

Due to the inner geometry of the SLM30-E meter body, a constant Strouhal number (St) over a wide range of the Reynolds number (Re) is possible and excellent linear flow characteristics are achieved.

Since the flow is conditioned on entry, many considerations regarding laminar flow are mitigated. This technology allows the SLM30-E to operate with impressively short straight pipe considerations and provide unrivalled measurement performance.

The SLM30-E utilises three primary sensing elements to provide the mass flow rate of steam, liquids, and gases.

- Piezo frequency sensor (flow rate)
- Internal RTD temperature sensor (std) or external temperature transmitter (temperature compensation)
- Pressure (fixed or measured via external transducer*)

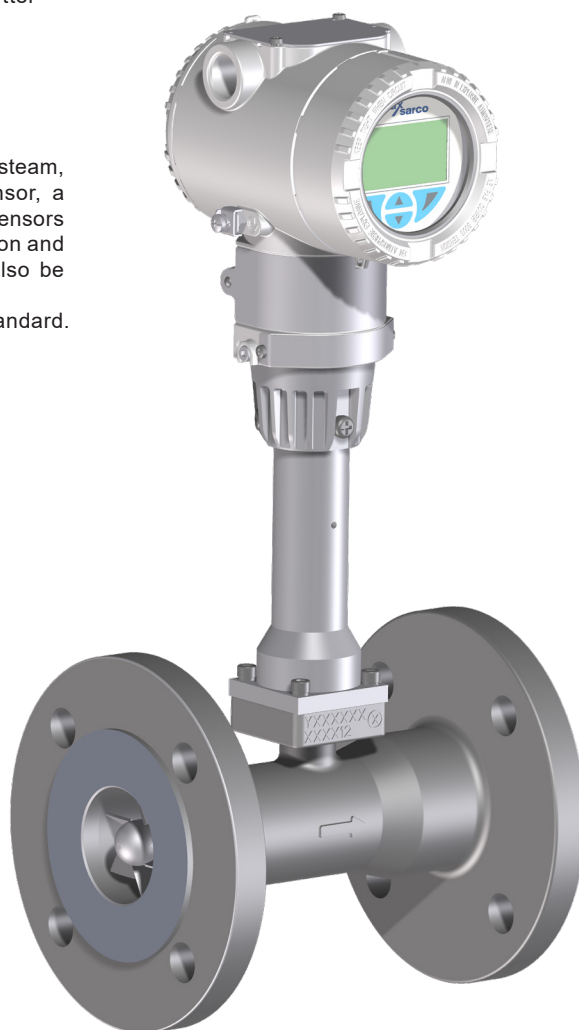
* Supplied separately

The SLM30-E swirl flowmeter is designed for saturated steam, superheated steam, liquid, and gas applications. Equipped with an internal temperature sensor, a 4-20mA input for integration with external pressure, temperature or density sensors and user selectable binary outputs, the capability to provide flow computation and energy calculation functionality is possible. Gas analyser outputs may also be integrated for enhanced measurements.

HART 7 or Modbus RTU digital communication protocols are offered as standard.

Compliance and approvals:

- 2014/30/EU Electromagnetic Compatibility EMC
- 2014/68/EU Pressure Equipment Directive
- CRN (Canada) Pending



Approvals

EMC	Electromagnetic compatibility of equipment for process and lab control technology 5/93 and EMC Directive 2014/30/EU. Devices with HART communication are optionally available with EMC protection in accordance with NAMUR NE 21.
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Caution: When selecting a flow meter for steam flow measuring, care must be taken around the low flow velocity as this can cause instability in the flow measurement readings. Please ensure the appropriate flow meter size is selected via the sizing tool for the application.

Sizes and pipe connections

	DN15 (½")	DN20 (¾")	DN25 (1")	DN32 (1¼")	DN40 (1½")	DN50 (2")	DN80 (3")	DN100 (4")	DN150 (6")	DN200 (8")	DN300 (12")	DN400 (16")
PN16								•	•	•	•	•
PN40	•	•	•	•	•	•	•	•	•	•	•	•
PN63*	•	•	•	•	•	•	•	•	•	•		
PN100	•	•	•	•	•	•	•	•	•	•		
CL150	•	•	•	•	•	•	•	•	•	•	•	•
CL300	•	•	•	•	•	•	•	•	•	•	•	•
CL600*	•	•	•	•	•	•	•	•	•			

• Available



Not Available

*Price on application, extended lead times.

Technical data

System Design	Mount type	Signal cable length
	Integral mount transmitter	N/A
	Remote mount transmitter	5m standard
		10m / 20m / 30m options
Wetted materials	Meter Tube and tower	stainless steel CF3M
	Piezo Sensor housing	stainless steel 1.4571
	Swirler + outlet cross	stainless steel
	Sensor gasket	PTFE O-ring, -55 to 260 °C
		Kalrez 6375 O-ring, -20 to 275 °C
		Graphite, -55 to 280 °C
Application	Any gas, liquid or steam compatible with stainless steel and other listed wetted materials. Not recommended for multi-phase fluids.	

Technical data (continued)

Environmental	LVD	Electrical Safety	EN61010-1:2010
		Overvoltage Category	II
		Pollution Degree	2
	EMC	Emissions	Group 1, Class A (Suitable for Industrial Environments only)
		Immunity	Suitable for Industrial Environments
	Enclosure	IP66, IP67 and NEMA 4x in accordance with EN60529	

	Style connection	Rating
Pressure ratings	Flanged	ASME Class 150
		ASME Class 300
		ASME Class 600*
		EN 1092-1 PN16
		EN 1092-1 PN40
		EN 1092-1 PN63*
		EN 1092-1 PN100*

*Price on application, extended lead times.

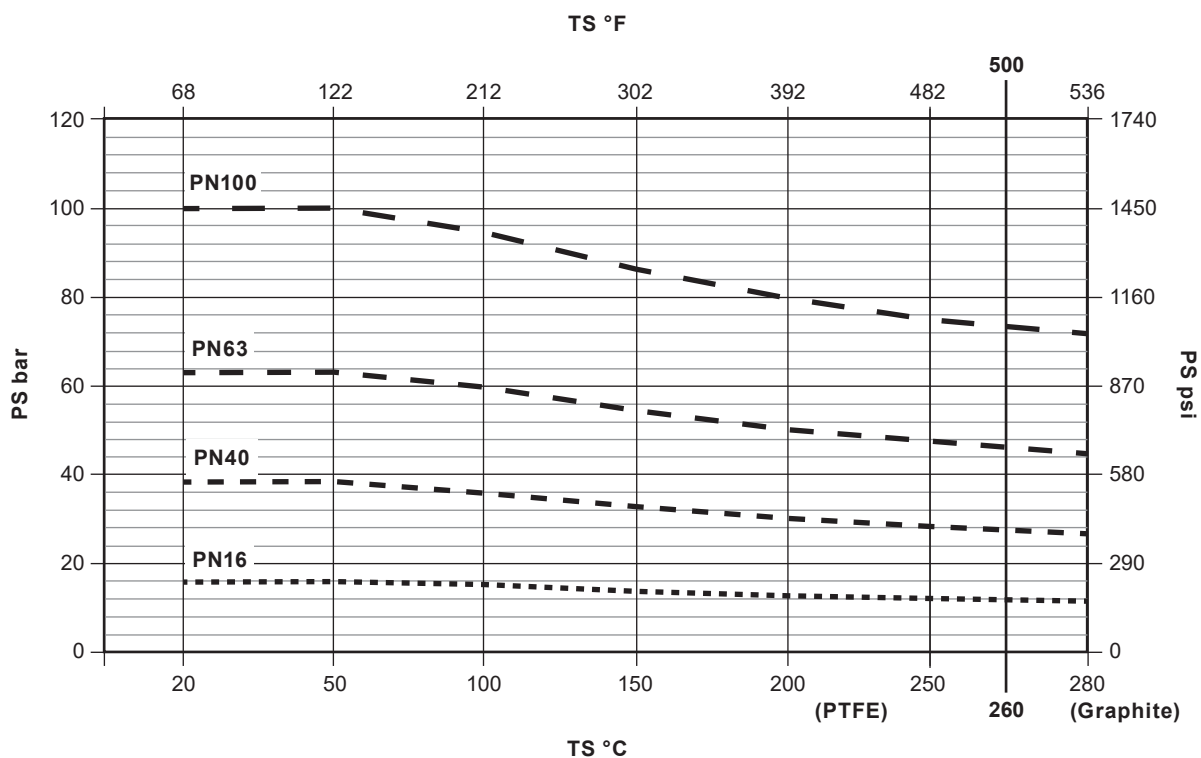
		Supply voltage	
Transmitter power supply	HART®	12 to 42 Vdc	
	Modbus	9 to 30 Vdc	
	Ethernet APL	9 to 15 Vdc (via APL-Switch)	
	Digital output	16 to 30 Vdc	
Display	SLM30 - E	LCD indicator with four operating buttons	
Output signals (all options)	HART Digital Communication	Support for HART communications up to the HART 7 protocol.	
	ModBus Communication	Modbus RTU - RS485 serial connection	
	4 to 20 mA	Re-Transmission of flow or temperature	
	Digital Contact Output	Optocoupler, 16 to 30 Vdc, max 20mA. User configurable as Frequency, Pulse or Binary output.	
	Ethernet-APL™ protocol.	Configurable for PROFINET, ModBus TCP, Webserver (default).**	
Input signals (For connection of external sensors e.g. pressure or temperature.)	Variant	Input Type	Input Voltage
	4-20mA HART®	Analog 4 to 20 mA	16 to 30 Vdc
		HART® (burst mode)	
	Modbus	Analog 4 to 20 mA	
	Ethernet APL	Analog 4 to 20 mA	
Transmitter material and cable gland options*	Transmitter material	Cable gland thread	Cable gland included
	Die-cast aluminium, copper content < 0.3 %, epoxy resin coated	M20 × 1.5	No
		½ inch NPT	
	Stainless steel CF3M (316L)	M20 × 1.5	
		½ inch NPT	

*Devices are supplied without cable glands

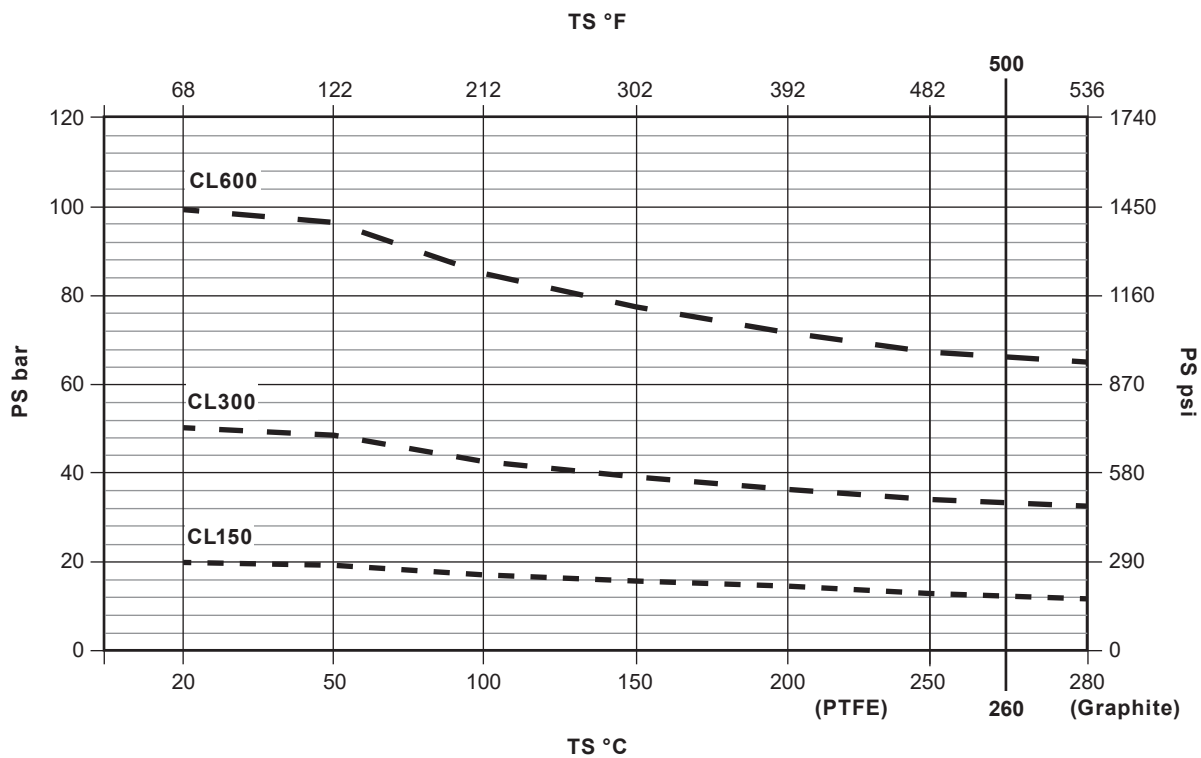
** Webserver is default, Profinet and Modbus TCP are selectable within the device menu see IMI for further details.

Pressure/temperature limits - SLM30-E

Flanged devices - DIN Flange process connection



Flanged devices - ASME Flange process connection



*Max temp defined by piezo sensor sealing material, check "How to Order"

Body material: Stainless steel

Body design conditions

All Versions

Maximum process temperature

280 °C
(536 °F)

Minimum process temperature

-55 °C
(-67 °F)

Electronic ambient temperature range*

standard

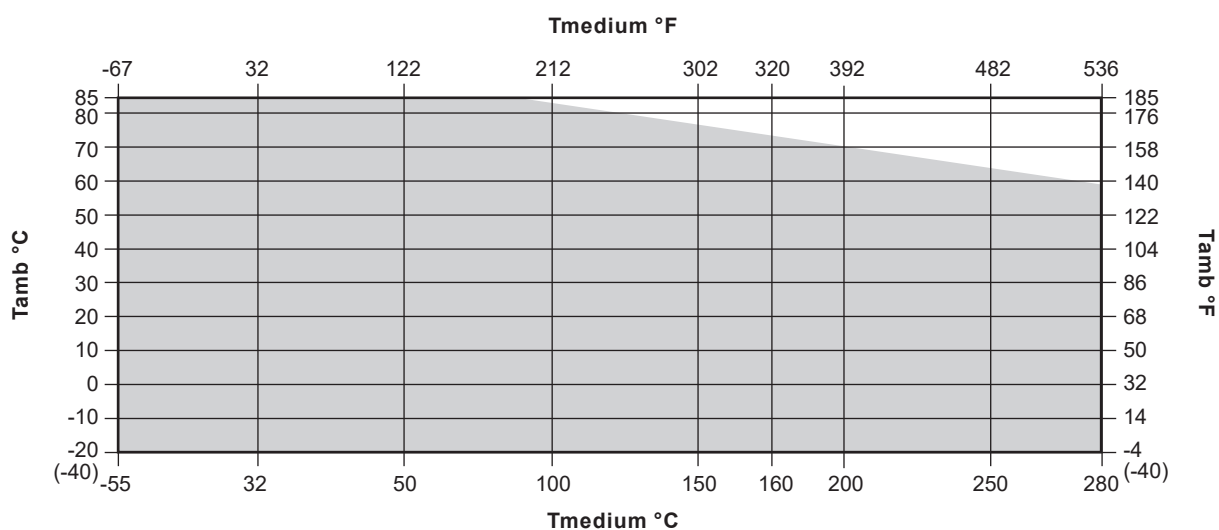
-20 to +85 °C
(-4 to +185 °F)

extended

-40 to +85 °C
(-40 to +185 °F)

*temperatures are reduced to +80 °C (+176 °F) for remote mount transmitter applications due to the signal cable specification.

Measuring medium temperature T_{medium} dependent on the ambient temperature T_{amb}



Measuring accuracy - Reference conditions

Flow measurement

Set flow range

0.5 to 1 x $Q_{v\text{max}}$ DN

Ambient temperature

20 °C (68 °F) ± 2 K

Relative humidity

65 %, ± 5 %

Air Pressure

86 to 106 kPa

Power supply

12-42 Vdc (4-20mA HART) / 10-30 Vdc (Modbus)

Signal cable length (for remote mount design)

30 m (98 ft)

Current output load

250 Ω (only 4 to 20 mA)

Measuring medium for calibration

Water, approx. 20 °C (68 °F), 2 bar (29 psi)

Air, 960 mbar abs. ± 50 mbar (14 psi ± 0.7 psi), 24 °C ± 4 °C (75 °F ± 7 °F)

Calibration loop internal diameter

corresponds to inside diameter of device

Unobstructed straight inlet section*

3 x DN

Outlet section*

1 x DN

Pressure measurement

3 x DN to 5 x DN behind the flowmeter

Temperature measurement

2 x DN to 3 x DN after the pressure measurement

*See IM for specific installation requirements.

Performance specifications

Measured error (including transmitter) depending on the measuring medium and operating mode

Fluid

Operating volume flow	±0,5 %
Standard volume flow	±0,6 %
Mass flow measurement	±0,6 %

Gas

Operating volume flow	±0,50 %
Standard volume flow*	±0,64 %
Mass flow measurement*	±0,64 %

Steam

Operating volume flow	±0,50 %
Measurement of overheated steam / saturated steam mass (with internal temperature measurement)	±2,50 %
Measurement of overheated steam / saturated steam mass (with internal temperature measurement and external pressure measurement)*	±0,71 %
Measurement of overheated steam / saturated steam mass (with external temperature and pressure measurement)**	±0,57 %

* When using a pressure transmitter with 0.1 % accuracy

** When using a pressure transmitter with 0.1 % accuracy and a temperature transmitter with PT100 Class A

Measured error for current output

Additional measured error	< 0,1 %
At zero-point:	< 0,05 % / 10 K

A pipe offset in the inlet section or outlet section can influence the measured error. Additional measured errors may occur if there are deviations from the reference conditions.

Repeatability

DN15 to DN20 (½ in to ¾ in)	0,3 %
DN25 to DN150 (1 to 6 in)	0,2 %
DN200 to DN400 (8 to 12 in)	0,2 %

Temperature measurement

Measured value deviation (including transmitter) ±1 °C or 1 % of measured value (in °C), whichever is greater

Repeatability ≤ 0.2 % of the measured value

Response time

200 ms (1 tau) or 3/f in seconds (with deactivated damping, the respective greater value shall apply). The response time depends on the respective swirl frequency f. Low flow rates can result in higher response times.

Flowrates

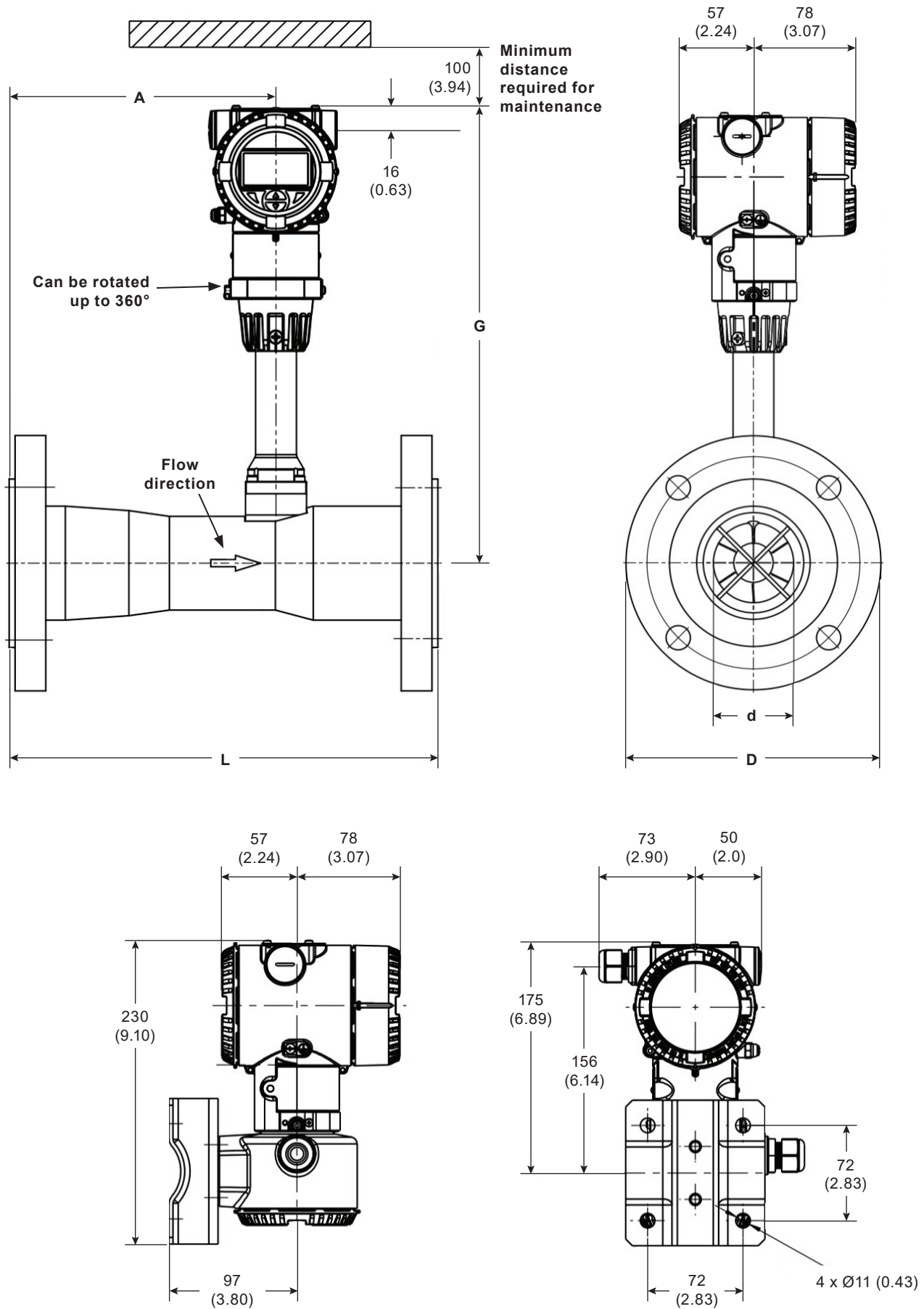
			Maximum Liquid		Maximum Gases and Steam	
			m ³ /hr	US GPM	m ³ /hr	ft ³ /min
	15 mm	½"	2.5	11	20	12
	20 mm	¾"	4	18	44	26
	25 mm	1"	8	35	90	53
	32 mm	1¼"	16	70	230	135
	40 mm	1½"	20	88	300	177
	50 mm	2"	30	132	440	259
	80 mm	3"	120	528	1160	683
	100 mm	4"	180	793	1725	1015
	150 mm	6"	400	1760	3800	2237
	200 mm	8"	700	3082	5800	3414
	300 mm	12"	1600	7045	13600	8005
	400 mm	16"	2500	11000	21500	12655

Sizing considerations

Piping conditions	Straight run piping requirements*	Inlet section	Outlet section
	Straight pipe section	minimum 3 × DN	minimum 1 × DN
	Valve upstream of the meter	minimum 5 × DN	minimum 1 × DN
	Pipe size reduction	minimum 3 × DN	minimum 1 × DN
	Pipe size expansion	minimum 3 × DN	minimum 3 × DN
DN = valve nominal diameter			

*Check IM-P799-02 for full installation guidance.

Dimensions (approximate) in mm (inches)



Dimensions with DN Flanges (approximate) in mm (inches)

Nominal diameter	Pressure rating	L	G	A	D	d
DN15	PN40	200 (7.87)	346 (13.62)	92.5 (3.64)	95 (3.74)	17.3 (0.68)
	PN63	205 (8.07)	350 (13.78)	93.5 (3.68)	105 (4.13)	15.7 (0.62)
	PN100					
DN20	PN40	200 (7.87)	349 (13.74)	104.5 (4.11)	105 (4.13)	22.6 (0.89)
	PN63	220 (8.66)	348 (13.7)	113.5 (4.47)	130 (5.12)	20.5 (0.81)
	PN100					
DN25	PN40	150 (5.91)	348 (13.7)	66 (2.6)	115 (4.53)	28.1 (1.11)
	PN63	265 (10.43)	343 (13.5)	123.5 (4.86)	140 (5.51)	28.5 (1.12)
	PN100					
DN32	PN40	150 (5.91)	346 (13.62)	67 (2.64)	140 (5.51)	37.1 (1.46)
	PN63	265 (10.43)	341 (13.43)	124.5 (4.9)	155 (6.1)	36.6 (1.44)
	PN100					
DN40	PN40	200 (7.87)	350 (13.78)	79.5 (3.13)	150 (5.91)	42.1 (1.66)
	PN63	320 (12.6)	349 (13.74)	140 (5.51)	170 (6.69)	42.1 (1.66)
	PN100					
DN50	PN40	200 (7.87)	353 (13.9)	105 (4.13)	165 (6.5)	51.1 (2.01)
	PN63	305 (12.01)	353 (13.9)	158 (6.22)	180 (7.09)	54.5 (2.15)
	PN100	320 (12.6)	353 (13.9)	165 (6.5)	195 (7.68)	53.9 (2.12)
DN80	PN40	300 (11.81)	356 (14.02)	159 (6.26)	200 (7.87)	82.6 (3.25)
	PN63	425 (16.73)	357 (14.06)	224 (8.82)	215 (8.46)	81.7 (3.22)
	PN100	440 (17.32)	357 (14.06)	232 (9.13)	230 (9.06)	80.9 (3.19)
DN100	PN16	350 (13.78)	360 (14.17)	188 (7.4)	220 (8.66)	101.1 (3.98)
	PN40	350 (13.78)	360 (14.17)	188 (7.4)	235 (9.25)	101.1 (3.98)
	PN63	485 (19.09)	359 (14.13)	256 (10.08)	250 (9.84)	106.3 (4.19)
	PN100	510 (20.08)	359 (14.13)	268.5 (10.57)	265 (10.43)	104.3 (4.11)
DN150	PN16	480 (18.9)	384 (15.12)	330 (12.99)	285 (11.22)	150.1 (5.91)
	PN40	480 (18.9)	384 (15.12)	330 (12.99)	300 (11.81)	150.1 (5.91)
	PN63	655 (25.79)	384 (15.12)	410 (16.14)	345 (13.58)	157.1 (6.19)
	PN100	695 (27.36)	384 (15.12)	430 (16.93)	355 (13.98)	157.1 (6.19)
DN200	PN 16	600 (23.62)	404 (15.91)	438.5 (17.26)	340 (13.39)	203.1 (8.00)
	PN40	600 (23.62)	404 (15.91)	438.5 (17.26)	375 (14.76)	203.1 (8.00)
	PN63	810 (31.89)	404 (15.91)	519 (20.43)	415 (16.34)	204.9 (8.07)
	PN100	855 (33.66)	404 (15.91)	541 (21.3)	430 (16.93)	204.9 (8.07)
DN300	PN16	1000 (39.37)	450 (17.72)	662 (26.06)	460 (18.11)	309.7 (12.19)
	PN40	1000 (39.37)	450 (17.72)	662 (26.06)	515 (20.28)	309.7 (12.19)
DN400	PN16	1274 (50.16)	486 (19.13)	841 (33.11)	580 (22.83)	390.4 (15.37)
	PN40	1274 (50.16)	486 (19.13)	841 (33.11)	660 (25.98)	390.4 (15.37)

Tolerance for dimension L: DN 15 to 200 +0 / -3 mm (+0 / -0.12 in), DN 300 to 400 +0 / -5 mm (+0 / -0.20 in)

Weights are shown on next page

Weights with DN Flanges and cable length (approximate) in kg (lbs) and m (ft)

Nominal diameter	Pressure rating	Weight									
		Integral		Remote							
		Stainless steel	Aluminium	Stainless steel				Aluminium			
		Cable length shown in m (ft) Ø		5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)	5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)
DN15	PN10 to PN40	7.5 (16.5)	5.9 (13)	13.0 (28.66)	13.7 (30.20)	15.1 (33.29)	16.5 (36.38)	9.8 (21.61)	10.5 (23.15)	11.9 (26.23)	13.3 (29.32)
	PN63	8.1 (17.9)	6.5 (14.3)	11.4 (25.13)	12.1 (26.68)	13.5 (29.76)	14.9 (32.85)	9.8 (21.61)	10.5 (23.15)	11.9 (26.23)	13.3 (29.32)
	PN100			11.4 (25.13)	12.1 (26.68)	13.5 (29.76)	14.9 (32.85)	9.8 (21.61)	10.5 (23.15)	11.9 (26.23)	13.3 (29.32)
DN20	PN10 to PN40	8 (17.6)	6.4 (14.1)	13.5 (29.76)	14.2 (31.31)	15.6 (34.39)	17.0 (37.48)	10.3 (22.71)	11.0 (24.25)	12.4 (27.34)	13.8 (30.42)
	PN63	9.6 (21.2)	8 (17.6)	12.9 (28.44)	13.6 (29.98)	15.0 (33.07)	16.4 (36.16)	11.3 (24.91)	12.0 (26.46)	13.4 (29.54)	14.8 (32.63)
	PN100			12.9 (28.44)	13.6 (29.98)	15.0 (33.07)	16.4 (36.16)	11.3 (24.91)	12.0 (26.46)	13.4 (29.54)	14.8 (32.63)
DN25	PN10 to PN40	7.5 (16.5)	5.9 (13)	13.0 (28.66)	13.7 (30.20)	15.1 (33.29)	16.5 (36.38)	9.8 (21.61)	10.5 (23.15)	11.9 (26.23)	13.3 (29.32)
	PN63	11 (24.3)	9.4 (20.7)	14.3 (31.53)	15.0 (33.07)	16.4 (36.16)	17.8 (39.24)	12.7 (28.00)	13.4 (29.54)	14.8 (32.63)	16.2 (35.71)
	PN100			14.3 (31.53)	15.0 (33.07)	16.4 (36.16)	17.8 (39.24)	12.7 (28.00)	13.4 (29.54)	14.8 (32.63)	16.2 (35.71)
DN32	PN10 to PN40	8.8 (19.4)	7.2 (15.9)	14.3 (31.53)	15.0 (33.07)	16.4 (36.16)	17.8 (39.24)	11.1 (24.47)	11.8 (26.01)	13.2 (29.10)	14.6 (32.19)
	PN63	12.3 (27.1)	10.7 (23.6)	15.6 (34.39)	16.3 (35.93)	17.7 (39.02)	19.1 (42.11)	14.0 (30.86)	14.7 (32.41)	16.1 (35.49)	17.5 (38.58)
	PN100			15.6 (34.39)	16.3 (35.93)	17.7 (39.02)	19.1 (42.11)	14.0 (30.86)	14.7 (32.41)	16.1 (35.49)	17.5 (38.58)
DN40	PN10 to PN40	9.7 (21.4)	8.1 (17.9)	15.2 (33.51)	15.9 (35.05)	17.3 (38.14)	18.7 (41.23)	12.0 (26.46)	12.7 (28.00)	14.1 (31.08)	15.5 (34.17)
	PN63	16.2 (35.7)	14.6 (32.2)	19.5 (42.99)	20.2 (44.53)	21.6 (47.62)	23.0 (50.71)	17.9 (39.46)	18.6 (41.01)	20.0 (44.09)	21.4 (47.18)
	PN100			19.5 (42.99)	20.2 (44.53)	21.6 (47.62)	23.0 (50.71)	17.9 (39.46)	18.6 (41.01)	20.0 (44.09)	21.4 (47.18)
DN50	PN10 to PN40	11.3 (24.9)	9.7 (21.4)	16.8 (37.04)	17.5 (38.58)	18.9 (41.67)	20.3 (44.75)	13.6 (29.98)	14.3 (31.53)	15.7 (34.61)	17.1 (37.70)
	PN63	17.8 (39.2)	16.2 (35.7)	21.1 (46.52)	21.8 (48.06)	23.2 (51.15)	24.6 (54.23)	19.5 (42.99)	20.2 (44.53)	21.6 (47.62)	23.0 (50.71)
	PN100	20.1 (44.3)	18.5 (40.8)	23.4 (51.59)	24.1 (53.13)	25.5 (56.22)	26.9 (59.30)	21.8 (48.06)	22.5 (49.60)	23.9 (52.69)	25.3 (55.78)
DN80	PN10 to PN40	18.8 (41.4)	17.2 (37.9)	24.3 (53.57)	25.0 (55.12)	26.4 (58.20)	27.8 (61.29)	21.1 (46.52)	21.8 (48.06)	23.2 (51.15)	24.6 (54.23)
	PN63	25.1 (55.3)	23.5 (51.8)	28.4 (62.61)	29.1 (64.15)	30.5 (67.24)	31.9 (70.33)	26.8 (59.08)	27.5 (60.63)	28.9 (63.71)	30.3 (66.80)
	PN100	29.8 (65.7)	28.2 (62.2)	34.1 (75.18)	34.8 (76.72)	36.2 (79.81)	37.6 (82.89)	31.5 (69.44)	32.2 (70.99)	33.6 (74.07)	35.0 (77.16)

Weights continued on next page

Weights with DN Flanges and cable length (approximate) in kg (lbs) and m (ft) (continued)

Nominal diameter	Pressure rating	Weight									
		Integral		Remote							
		Stainless steel	Aluminium	Stainless steel				Aluminium			
		Cable length shown in m (ft) Ø		5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)	5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)
DN100	PN10 to PN16	23.7 (52.2)	22.1 (48.7)	29.2 (64.37)	29.9 (65.92)	31.3 (69.00)	32.7 (72.09)	26.0 (57.32)	26.7 (58.86)	28.1 (61.95)	29.5 (65.04)
	PN25 to PN40	26 (57.3)	24.4 (53.8)	31.5 (69.44)	32.2 (70.99)	33.6 (74.07)	35.0 (77.16)	28.3 (62.39)	29.0 (63.93)	30.4 (67.02)	31.8 (70.11)
	PN63	34.8 (76.7)	33.2 (73.2)	38.1 (84.00)	38.8 (85.54)	40.2 (88.62)	41.6 (91.71)	36.5 (80.47)	37.2 (82.01)	38.6 (85.10)	40.0 (88.18)
	PN100	40.1 (88.4)	38.5 (84.9)	43.4 (95.68)	44.1 (97.22)	45.5 (100.31)	46.9 (103.40)	41.8 (92.15)	42.5 (93.70)	43.9 (96.78)	45.3 (99.87)
DN150	PN10 to PN16	42.5 (93.7)	40.9 (90.2)	48.0 (105.82)	48.7 (107.36)	50.1 (110.45)	51.5 (113.54)	44.8 (98.77)	45.5 (100.31)	46.9 (103.40)	48.3 (106.48)
	PN25 to PN40	55 (121.3)	53.4 (117.7)	60.5 (133.38)	61.2 (134.92)	62.6 (138.01)	64.0 (141.09)	57.3 (126.32)	58.0 (127.87)	59.4 (130.95)	60.8 (134.04)
	PN63	83.6 (184.3)	82 (180.8)	86.7 (191.14)	87.4 (192.68)	88.8 (195.77)	90.2 (198.85)	85.3 (188.05)	86.0 (189.60)	87.4 (192.68)	88.8 (195.77)
	PN100	96.6 (213)	95 (209.4)	99.9 (220.24)	100.6 (221.78)	102.0 (224.87)	103.4 (227.96)	98.3 (216.71)	99.0 (218.26)	100.4 (221.34)	101.8 (224.43)
DN200	PN10 / PN16	52.4 (115.5)	50.8 (112)	57.9 (127.65)	58.6 (129.19)	60.0 (132.28)	61.4 (135.36)	54.7 (120.59)	55.4 (122.13)	56.8 (125.22)	58.2 (128.31)
	PN25	52.4 (115.5)	50.8 (112)	66.9 (147.49)	67.6 (149.03)	69.0 (152.12)	70.4 (155.20)	63.7 (140.43)	64.4 (141.98)	65.8 (145.06)	67.2 (148.15)
	PN40	68.4 (150.8)	66.8 (147.3)	73.9 (162.92)	74.6 (164.46)	76.0 (167.55)	77.4 (170.64)	70.7 (155.87)	71.4 (157.41)	72.8 (160.49)	74.2 (163.58)
	PN63	110.6 (243.8)	109 (240.3)	113.9 (251.10)	114.6 (252.65)	116.0 (255.73)	117.4 (258.82)	112.3 (247.58)	113.0 (249.12)	114.4 (252.21)	115.8 (255.29)
	PN100	139.6 (307.8)	138 (304.2)	142.9 (315.04)	143.6 (316.58)	145.0 (319.67)	146.4 (322.75)	141.3 (311.51)	142.0 (313.05)	143.4 (316.14)	144.8 (319.23)
DN300	PN10	173.4 (382.3)	171.8 (378.8)	178.9 (394.40)	179.6 (395.95)	181.0 (399.03)	182.4 (402.12)	175.7 (387.35)	176.4 (388.89)	177.8 (391.98)	179.2 (395.06)
	PN16	188.4 (415.4)	186.8 (411.8)	193.9 (427.47)	194.6 (429.02)	196.0 (432.10)	197.4 (435.19)	190.7 (420.42)	191.4 (421.96)	192.8 (425.05)	194.2 (428.13)
	PN25	204.0 (449.7)	202.4 (446.2)	209.5 (461.86)	210.2 (463.41)	211.6 (466.49)	213.0 (469.58)	206.3 (454.81)	207.0 (456.35)	208.4 (459.44)	209.8 (462.53)
	PN40	210 (463)	208.4 (459.4)	215.5 (475.09)	216.2 (476.63)	217.6 (479.72)	219.0 (482.81)	212.3 (468.04)	213.0 (469.58)	214.4 (472.67)	215.8 (475.75)
DN400	PN10	247.4 (604.9)	245.8 (541.9)	252.9 (557.54)	253.6 (559.09)	255.0 (562.17)	256.4 (565.26)	249.7 (550.49)	250.4 (552.03)	251.8 (555.12)	253.2 (558.20)
	PN16	268.4 (591.7)	266.8 (588.2)	273.9 (603.84)	274.6 (605.38)	276.0 (608.47)	277.4 (611.56)	270.7 (596.79)	271.4 (598.33)	272.8 (601.41)	274.2 (604.50)
	PN25	277 (610.7)	275.4 (607.2)	282.5 (622.80)	283.2 (624.34)	284.6 (627.43)	286.0 (630.52)	279.3 (615.74)	280.0 (617.29)	281.4 (620.37)	282.8 (623.46)
	PN40	290 (639.3)	288.4 (635.8)	295.5 (651.46)	296.2 (653.00)	297.6 (656.09)	299.0 (659.18)	292.3 (644.40)	293.0 (645.95)	294.4 (649.03)	295.8 (652.12)

Dimensions with ASME Flanges (approximate) in mm (inches)

Nominal diameter	Pressure rating	L	G	A	D	d
½"	CL150	200 (7.87)	346 (13.62)	92.5 (3.64)	88.9 (3.50)	15.8 (0.62)
	CL300	200 (7.87)	346 (13.62)	92.5 (3.62)	95.2 (3.75)	15.8 (0.62)
	CL600	235 (9.25)	346 (13.62)	106 (4.17)	95.0 (3.74)	15.7 (0.62)
¾"	CL150	220 (8.66)	349 (13.74)	114.5 (4.51)	98.4 (3.87)	22.6 (0.89)
	CL300	230 (9.06)	349 (13.74)	119.5 (4.70)	117.5 (4.63)	22.6 (0.89)
	CL600	246 (9.69)	349 (13.7)	127.5 (5.02)	115 (4.53)	18.9 (0.74)
1"	CL150	150 (5.91)	348 (13.70)	66 (2.59)	108 (4.25)	28.1 (1.1)
	CL300	150 (5.91)	348 (13.70)	66 (2.59)	124 (4.88)	28.1 (1.1)
	CL600	285 (11.22)	348 (13.70)	134.2 (5.28)	124 (4.88)	24.3 (0.96)
1¼"	CL150	150 (5.91)	346 (13.62)	67 (2.64)	118 (4.65)	37.1 (1.46)
	CL300	150 (5.91)	346 (13.62)	67 (2.64)	133 (5.24)	37.1 (1.46)
	CL600	290 (11.41)	346 (13.62)	137.7 (5.42)	133 (5.24)	32.5 (1.28)
1½"	CL150	200 (7.87)	350 (13.78)	79.5 (3.11)	127 (5.0)	42.1 (1.66)
	CL300	200 (7.87)	350 (13.78)	79.5 (3.11)	155.0 (6.10)	42.1 (1.66)
	CL600	345 (13.59)	350 (13.78)	152 (5.98)	155 (6.10)	38.1 (1.5)
2"	CL150	200 (7.87)	353 (13.89)	105 (4.13)	152.4 (6.0)	51.1 (2.01)
	CL300	200 (7.87)	353 (13.89)	105 (4.13)	165 (6.5)	51.1 (2.01)
	CL600	340 (13.58)	353 (13.89)	176 (6.93)	165 (6.5)	49.2 (1.94)
3"	CL150	300 (11.81)	356 (14.01)	159 (6.26)	190.5 (7.5)	82.6 (3.25)
	CL300	300 (11.81)	356 (14.01)	159 (6.26)	210 (8.27)	82.6 (3.25)
	CL600	460 (18.11)	356 (14.01)	243 (9.57)	210 (8.27)	73.7 (2.90)
4"	CL150	350 (13.78)	360 (14.17)	188 (7.4)	230 (9.06)	101.1 (3.98)
	CL300	350 (13.78)	360 (14.17)	188 (7.4)	255 (10.04)	101.1 (3.98)
	CL600	545 (21.46)	360 (14.17)	287.5 (11.32)	273 (10.75)	97.2 (3.82)
6"	CL150	480 (18.9)	384 (15.12)	330 (12.99)	280 (11.02)	150.1 (5.91)
	CL300	480 (18.9)	384 (15.12)	330 (12.99)	320 (12.60)	150.1 (5.91)
	CL600	710 (27.95)	384 (15.12)	438.5 (17.26)	355 (13.98)	146.4 (5.76)
8"	CL150	600 (23.62)	404 (15.90)	438.5 (17.26)	343 (13.5)	203.1 (8.0)
	CL300	600 (23.62)	404 (15.90)	438.5 (17.26)	381 (15.0)	203.1 (8.0)
12"	CL150	1000 (39.37)	450 (17.71)	662 (26.1)	485 (19.09)	309.7 (12.19)
	CL300	1000 (39.37)	450 (17.71)	662 (26.1)	520 (20.47)	309.7 (12.19)
16"	CL150	1274 (50.16)	486 (19.13)	841 (33.1)	595 (23.43)	390.4 (15.37)
	CL300	1274 (50.16)	486 (19.13)	841 (33.1)	650 (25.59)	390.4 (15.37)

Tolerance for dimension L: DN 15 to 200 +0 / -3 mm (+0 / -0.12 in), DN 300 to 400 +0 / -5 mm (+0 / -0.20 in)

Weights with ASME Flanges and cable length (approximate) in kg (lbs) and m (ft)

Nominal diameter	Pressure rating	Weight (approximate)									
		Integral		Remote							
		Stainless steel	Aluminium	Stainless steel				Aluminium			
		Cable length shown in m (ft) Ø		5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)	5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)
½"	CL150	6.9 (15.2)	5.3 (11.7)	12.4 (27.34)	13.1 (28.88)	14.5 (31.97)	15.9 (35.05)	9.2 (20.28)	9.9 (21.83)	11.3 (24.91)	12.7 (28.00)
	CL300	7.3 (16.1)	5.7 (12.6)	12.8 (28.22)	13.5 (29.76)	14.9 (32.85)	16.3 (35.93)	9.6 (21.16)	10.3 (22.71)	11.7 (25.79)	13.1 (28.88)
	CL600	6.7 (14.8)	5.1 (11.2)	12.2 (26.90)	12.9 (28.44)	14.3 (31.53)	15.7 (34.61)	9.0 (19.84)	9.7 (21.38)	11.1 (24.47)	12.5 (27.56)
¾"	CL150	7.2 (15.9)	5.6 (12.3)	12.7 (28.00)	13.4 (29.54)	14.8 (32.63)	16.2 (35.71)	9.5 (20.94)	10.2 (22.49)	11.6 (25.57)	13.0 (28.66)
	CL300	8.2 (18.1)	6.6 (14.6)	13.7 (30.20)	14.4 (31.75)	15.8 (34.83)	17.2 (37.92)	10.5 (23.15)	11.2 (24.69)	12.6 (27.78)	14.0 (30.86)
	CL600	7.2 (15.9)	5.6 (12.3)	12.7 (28.00)	13.4 (29.54)	14.8 (32.63)	16.2 (35.71)	9.5 (20.94)	10.2 (22.49)	11.6 (25.57)	13.0 (28.66)
1"	CL150	7.2 (15.9)	5.6 (12.3)	12.7 (28.00)	13.4 (29.54)	14.8 (32.63)	16.2 (35.71)	9.5 (20.94)	10.2 (22.49)	11.6 (25.57)	13.0 (28.66)
	CL300	8.2 (18.1)	6.6 (14.6)	13.7 (30.20)	14.4 (31.75)	15.8 (34.83)	17.2 (37.92)	10.5 (23.15)	11.2 (24.69)	12.6 (27.78)	14.0 (30.86)
	CL600	7.7 (17)	6.1 (13.4)	13.2 (29.10)	13.9 (30.64)	15.3 (33.73)	16.7 (36.82)	10.0 (22.05)	10.7 (23.59)	12.1 (26.68)	13.5 (29.76)
1¼"	CL150	7.9 (17.4)	6.3 (13.9)	10.5 (23.15)	11.2 (24.69)	12.6 (27.78)	14.0 (30.86)	8.9 (19.62)	9.6 (21.16)	11.0 (24.25)	12.4 (27.34)
	CL300	9.2 (20.3)	7.6 (16.8)	11.8 (26.01)	12.5 (27.56)	13.9 (30.64)	15.3 (33.73)	10.2 (22.49)	10.9 (24.03)	12.3 (27.12)	13.7 (30.20)
	CL600	8.2 (18.1)	6.6 (14.6)	13.7 (30.20)	14.4 (31.75)	15.8 (34.83)	17.2 (37.92)	10.5 (23.15)	11.2 (24.69)	12.6 (27.78)	14.0 (30.86)
1½"	CL150	8.7 (19.2)	7.1 (15.7)	11.3 (24.91)	12.0 (26.46)	13.4 (29.54)	14.8 (32.63)	9.7 (21.38)	10.4 (22.93)	11.8 (26.01)	13.2 (29.10)
	CL300	11.4 (25.1)	9.8 (21.6)	14.0 (30.86)	14.7 (32.41)	16.1 (35.49)	17.5 (38.58)	12.4 (27.34)	13.1 (28.88)	14.5 (31.97)	15.9 (35.05)
	CL600	11.9 (26.2)	10.3 (22.7)	17.4 (38.36)	18.1 (39.90)	19.5 (42.99)	20.9 (46.08)	14.2 (31.31)	14.9 (32.85)	16.3 (35.93)	17.7 (39.02)
2"	CL150	10.6 (23.4)	9 (19.8)	13.2 (29.10)	13.9 (30.64)	15.3 (33.73)	16.7 (36.82)	11.6 (25.57)	12.3 (27.12)	13.7 (30.20)	15.1 (33.29)
	CL300	13.1 (28.9)	11.5 (25.4)	15.7 (34.61)	16.4 (36.16)	17.8 (39.24)	19.2 (42.33)	14.1 (31.08)	14.8 (32.63)	16.2 (35.71)	17.6 (38.80)
	CL600	13.9 (30.6)	12.3 (27.1)	19.4 (42.77)	20.1 (44.31)	21.5 (47.40)	22.9 (50.49)	16.2 (35.71)	16.9 (37.26)	18.3 (40.34)	19.7 (43.43)
3"	CL150	18.5 (40.8)	16.9 (37.3)	21.1 (46.52)	21.8 (48.06)	23.2 (51.15)	24.6 (54.23)	19.5 (42.99)	20.2 (44.53)	21.6 (47.62)	23.0 (50.71)
	CL300	24 (52.9)	22.4 (49.4)	26.6 (58.64)	27.3 (60.19)	28.7 (63.27)	30.1 (66.36)	25.0 (55.12)	25.7 (56.66)	27.1 (59.74)	28.5 (62.83)
	CL600	22.6 (49.8)	21 (46.3)	28.1 (61.95)	28.8 (63.49)	30.2 (66.58)	31.6 (69.67)	24.9 (54.89)	25.6 (56.44)	27.0 (59.52)	28.4 (62.61)

Weights continued on next page

Weights with ASME Flanges and cable length (approximate) in kg (lbs) and m (ft) (continued)

Nominal diameter	Pressure rating	Weight (Approx)									
		Integral		Remote							
		Stainless steel	Aluminium	Stainless steel				Aluminium			
		Cable length shown in m (ft) Ø		5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)	5 (16.4)	10 (32.8)	20 (65.6)	30 (98.4)
4"	CL150	25 (55.1)	23.4 (51.6)	27.6 (60.85)	28.3 (62.39)	29.7 (65.48)	31.1 (68.56)	26.0 (57.32)	26.7 (58.86)	28.1 (61.95)	29.5 (65.04)
	CL300	38 (83.8)	36.4 (80.2)	40.6 (89.51)	41.3 (91.05)	42.7 (94.14)	44.1 (97.22)	39.0 (85.98)	39.7 (87.52)	41.1 (90.61)	42.5 (93.70)
	CL600	36.2 (79.8)	34.6 (76.3)	41.7 (91.93)	42.4 (93.48)	43.8 (96.56)	45.2 (99.65)	38.5 (84.88)	39.2 (86.42)	40.6 (89.51)	42.0 (92.59)
6"	CL150	42.5 (93.7)	40.9 (90.2)	45.1 (99.43)	45.8 (100.97)	47.2 (104.06)	48.6 (107.14)	43.0 (94.80)	43.7 (96.34)	45.1 (99.43)	46.5 (102.51)
	CL300	66 (145.5)	64.4 (142)	68.6 (151.24)	69.3 (152.78)	70.7 (155.87)	72.1 (158.95)	67.0 (147.71)	67.6 (149.03)	69.1 (152.34)	70.5 (155.42)
	CL600	78.3 (172.6)	76.7 (169.1)	83.8 (184.75)	84.5 (186.29)	85.9 (189.38)	87.3 (192.46)	80.6 (177.69)	81.3 (179.23)	82.7 (182.32)	84.1 (185.41)
8"	CL150	47.4 (104.5)	45.8 (101)	50.0 (110.23)	50.7 (111.77)	52.1 (114.86)	53.5 (117.95)	48.4 (106.70)	49.1 (108.25)	50.5 (111.33)	51.9 (114.42)
	CL300	77.4 (170.6)	75.8 (167.1)	80.0 (176.37)	80.7 (177.91)	82.1 (181.00)	83.5 (184.08)	78.4 (172.84)	79.1 (174.38)	80.5 (177.47)	81.9 (180.56)
12"	CL150	184.4 (406.5)	182.8 (403)	187.0 (412.26)	187.7 (413.80)	189.1 (416.89)	190.5 (419.98)	185.4 (408.73)	186.1 (410.28)	187.5 (413.36)	188.9 (416.45)
	CL300	195 (429.9)	197 (434.3)	197.6 (435.63)	198.3 (437.17)	199.7 (440.26)	201.1 (443.35)	199.6 (440.04)	200.3 (441.58)	201.7 (444.67)	203.1 (447.75)
16"	CL150	262.4 (578.5)	260.8 (575)	265.0 (584.22)	265.7 (585.76)	267.1 (588.85)	268.5 (591.94)	263.4 (580.69)	264.1 (582.23)	265.5 (585.32)	266.9 (588.41)
	CL300	280 (617.3)	282 (621.7)	282.6 (623.02)	283.3 (624.56)	284.7 (627.65)	286.1 (630.74)	284.6 (627.43)	285.3 (628.97)	286.7 (632.06)	288.1 (635.15)

Tolerance for dimension L: DN 15 to 200 +0 / -3 mm (+0 / -0.12 in), DN 300 to 400 +0 / -5 mm (+0 / -0.20 in)

How to order

Selection:

Category	Description	Suffix code	Example
Base code	In-line multivariable mass flowmeter with integrated binary output, temperature compensation, and flow computer functionality.	SLM30-E	SLM30-E
Explosion Protection Certification	None (Safe area)	Y0	Y0
System design	Integral Transmitter.	C1	C1
	Remote mount transmitter - 5 m (16") signal cable supplied.	R1	
Process connection type	Flange/DN15 (½")/DN15 (½")	F015R0	F050R0
	Flange/DN20 (¾")/DN20 (¾")	F020R0	
	Flange/DN25 (1")/DN25 (1")	F025R0	
	Flange/DN32 (1¼")/DN32 (1¼")	F032R0	
	Flange/DN40 (1¼")/DN40 (1¼")	F040R0	
	Flange/DN50 (2")/DN50 (2")	F050R0	
	Flange/DN80 (3")/DN80 (3")	F080R0	
	Flange/DN100 (4")/DN100 (4")	F100R0	
	Flange/DN150 (6")/DN150 (6")	F150R0	
	Flange/DN200 (8")/DN200 (8")	F200R0	
	Flange/DN300 (12")/DN300 (12")	F300R0	
	Flange/DN400 (16")/DN400 (16")	F400R0	
Pressure range ⁵	PN16	D2	D4
	PN40	D4	
	PN63	D5	
	PN100	D6	
	ASME Class 150	A1	
	ASME Class 300	A3	
	ASME Class 600	A6	
Temperature range of measuring medium ⁶	Standard -55 °C up to +280 °C (-67 °F up to +536 °F)	A1	A1
Housing material/ Cable gland threads	Aluminium / Metric M20 × 1.5 (2 places), cable glands mounted	A1	A1
	Aluminium / ½ inch NPT (2 places), cable glands not included.	B1	
	Stainless steel / Metric M20 × 1.5 (2 places), cable glands mounted	S1	
	Stainless steel / ½ inch NPT (2 places), cable glands not included	T1	

Notes:

⁵ PN16 only available with Process Connection Type / Meter Size / Connection Size code F100R0, F150R0, F200R0, F300R0, F400R0, PN63, PN100, CL600 not available with Process Connection Type / Meter Size / Connection Size code F300R0, F400R0

⁶ Maximum temperature +280°C is for graphite gasket only, reduced to +260°C when PTFE gasket is fitted

'How to order' continued on next page

How to order (continued)

Selection:

Category	Description	Suffix Code	Example
Output signal	HART Digital Communication, 4 to 20 mA and digital contact output	H5	H5
	MODBUS Communication with digital contact output	M4	
	Ethernet APL	A1	
Integrated digital display (LCD)	Display and Glass cover	L1	L1
	Integrated Smart HMI incl. Bluetooth and backlight option ⁷	LE	
Piezo sensor sealing material	PTFE - Suitable for -55 °C to +260 °C (-4 °F to +500 °F)	SP0	SP0
	Graphite - Suitable for -55 °C to +280 °C (-67 °F to 536 °F)	SP2	
Ambient temperature range ⁸	Extended -40 °C to +85 °C (-40 °F to 185 °F)	TA4	
Signal cable length (remote mount transmitter models only)	10m (32' Approx)	SC2	
	20m (64' Approx)	SC4	
	30m (96' Approx)	SC6	
Calibration type ⁹	5 Point Calibration	R5	R5
Certification	Material monitoring with inspection certificate 3.1 acc. EN 10204	C2	C2
	Material monitoring NACE MR 01-75 with inspection certificate 3.1 acc. EN 10204	CN	
	Declaration of compliance with the order 2.1 acc. EN 10204	C4	
	Inspection certificate 3.1 acc. EN 10204 of visual, dimensional and functional test	C6	
	Inspection certificate 3.1 acc. EN 10204 of positive material identification PMI with material analysis	C5	
	Inspection certificate 3.1 acc. EN 10204 of positive material identification PMI	CA	
	Pressure test acc. to factory test plan	CB	
	Test package (pressure test, non-destructive test, welder an welding procedure certificate) only sizes DN200, DN300 and DN400	CT	
Pressure Equipment Directive	DN15-DN150: PED compliant, via SEP or Category III (CE marked). Code CP is mandatory D200-DN400 available with or without PED compliance. Code CP is not mandatory.	CP	CP
Documentation language	English	M5	M5
Ethernet APL communication protocol	Integrated Webserver, Mandatory for Ethernet APL Output Signal'	MGW	
Configuration/ Type	Parameters set customer specific (standard): A calculation using the Product Selection Assistant tool is required with each order	NCC	NCC
Hardware options	Integral RTD temperature measurement (standard)	G1	G1
	Increased EMC protection (only available with HART, Output Signal option H5)	G4	
Operation mode	Energy Flow	N1	N1

Notes:

⁷ LE: Compulsory for Ethernet APL output signal, optional for HART versions. MODBUS versions use 'L1', HMI only

⁸ Standard temperature range is -20°C to 85°C. Reduced to 80°C for remote mount transmitter.

⁹ 3 point calibration as standard.

How to order example:

1 off Spirax Sarco SLM30-E.Y0.C1.F050R0.D4.A1.A1.H5.L1.SP0.C2.M5.NCC.G1 in-line swirl flowmeter for installation between EN 1092 PN40 flanges.