

Integra® 1" Manual and Pneumatic 2-way and Sampling Valves

Ideal for high-flow bulk chemical distribution applications

Designed for applications where greater flow is required, the molded 1" orifice Integra® valve is ideal for valve boxes and bulk chemical distribution applications. The vacuum rated Integra valve can be installed in the upstream side of pressure vacuum vessels and pumps.

The valve maintains a high flow rate while reducing the footprint in manufacturer's equipment. This Integra valve illustrates our ability to address customer space constraints while still providing superior performance.

System Design Flexibility

The high-purity PFA construction provides chemical resistance, appropriate for applications that use high-purity chemicals, solvents, and deionized water. The molded distribution valve, in either 2-way or sampling configurations, has either normally open or normally closed pneumatic, or manual multi-turn actuation, and a number of flow configurations and geometries. Available with fully characterized industry standard port connections including PrimeLock®, PrimeLock "SpaceSaver", Flaretek®, PureBond®, and Super 300 Type Pillar®, the Integra distribution valves can be easily configured into a variety of systems.

APPLICATIONS

- CMP slurry, ultrapure water, and high-purity, corrosive chemical handling
- Valve boxes and high-flow bulk chemical distribution applications
- Upstream or downstream side of pressure vacuum vessels and pumps
- Chemical line sizes ¾" to 1¼"

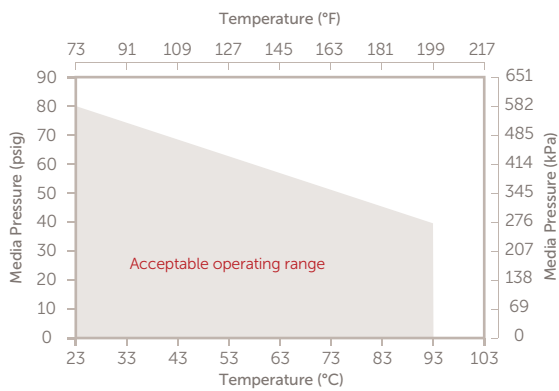


SPECIFICATIONS

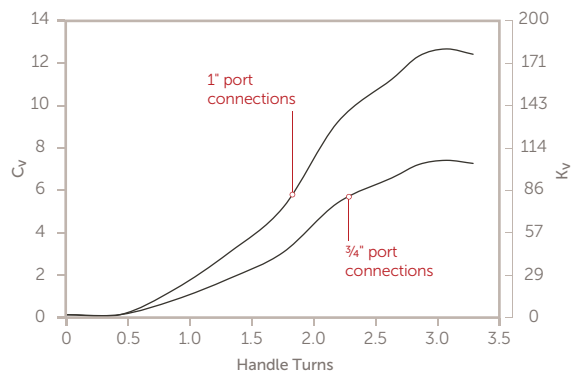
Materials	All wetted parts	PFA, PTFE
	Exterior actuator parts	PVDF
	Interior actuator parts	PVDF, Viton®, PFA
	Springs	Coated stainless steel
Pressure range	980 mbar to 552 kPa (29" Hg to 80 psig) @ 21°C (70°F) fluid temperature	
	980 mbar to 276 kPa (29" Hg to 40 psig) @ 93°C (200°F) fluid temperature	
Ambient temperature	38°C (100°F)	
Pneumatic supply port (pneumatic version only)	1/8" FNPT	
Pneumatic supply pressure	345 kPa (50 psig) minimum to 552 kPa (80 psig) maximum	

PERFORMANCE DATA

Temperature vs. Media Pressure



1" Integra Manual Multi-turn Valve
C_v/K_v vs. Number of Handle Turns



VALVE RELIABILITY TEST RESULTS

Valve qualification testing

Test type	Test conditions	Acceptance criteria	Test results
Burst pressure	Hydraulic oil pressure increased until leakage detected	Burst pressure must be >2 times rated pressure	PASS
Pressure envelope	827 kPa (120 psig) water @ 23°C (73°F)	No external leakage failures for 1 million cycles @ 1.5 times rated pressure	PASS No external leakage
	414 kPa (60 psig) hydraulic oil @ 93°C (200°F)	No external leakage failures for 1 million cycles @ 1.5 times rated pressure	PASS No external leakage
Actuation cycle testing	552 kPa (80 psig) water @ 23°C (73°F) for 1.5 million cycles	No leakage in functional performance for: – Pneumatic up to 1.5 million cycles – Manual up to 5,000 cycles	PASS No external or port-to-port leakage <0.050 cc H ₂ O/hr
	276 kPa (40 psig) hydraulic oil @ 93°C (200°F) for 1.5 million cycles	No leakage in functional performance for up to 1.5 million cycles in normally closed valves	PASS No external or port-to-port leakage <0.050 cc H ₂ O/hr
Vacuum testing	23 in/Hg @ 23°C (73°F) for 1.5 million cycles	No leakage in functional performance for up to 1.5 million cycles	PASS No external or port-to-port leakage <0.050 cc H ₂ O/hr

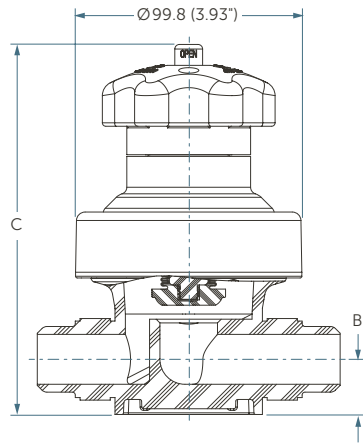
Valve test procedure in production

Test type	Test conditions	Acceptance criteria
External media leak	552 kPa (80 psig) CDA	Zero bubbles per minute through 1/32" ID tube immersed in DI water
Port-to-port valve test	552 kPa (80 psig) CDA to valve outlet	Less than 4 bubbles per minute through 1/32" ID tube immersed in DI water
Valve actuation	Pressure decay 552 kPa (80 psig) CDA	Less than 7 kPa (1 psig/min) pressure drop

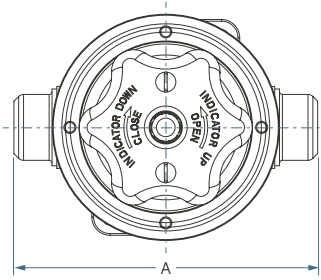
DIMENSIONS

Integra 2-way, Manual Multi-turn Valve

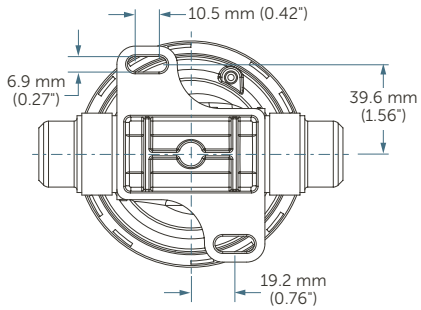
Front View



Top View



Bottom View



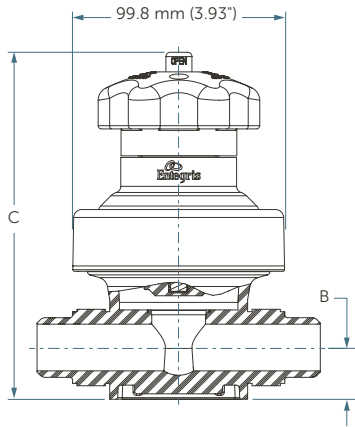
DIMENSIONS

Port connection	Flow factor C_v	Flow factor K_v	A	B	C
¾" Flaretek	7.2	103.0	129.0 mm (5.08")	24.4 mm (0.96")	164.3 mm (6.47")
¾" PrimeLock	7.2	103.0	141.7 mm (5.58")	24.4 mm (0.96")	164.3 mm (6.47")
¾" PureBond	10.4	149.0	167.4 mm (6.59")	24.4 mm (0.96")	164.3 mm (6.47")
1" Flaretek	12.4	177.1	133.6 mm (5.26")	24.4 mm (0.96")	164.3 mm (6.47")
1" Super 300 Type Pillar*	12.4	177.1	147.1 mm (5.79")	26.9 mm (1.06")	166.9 mm (6.57")
1" PrimeLock	12.4	177.1	150.9 mm (5.94")	28.4 mm (1.12")	168.4 mm (6.63")
1" PureBond	13.6	194.2	167.4 mm (6.59")	24.4 mm (0.96")	164.3 mm (6.47")
1¼" Extended Flaretek	13.6	194.2	170.7 mm (6.72")	39.1 mm (1.54")	179.1 mm (7.05") with spacer

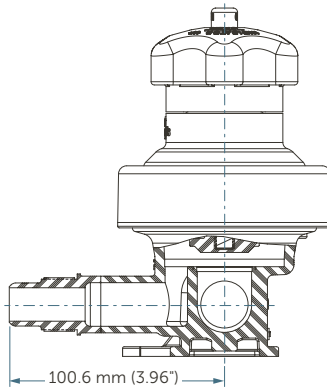
*Pillar nuts, inserts, and gauge rings are supplied separately.

Integra Sampling, Manual Multi-turn Valve

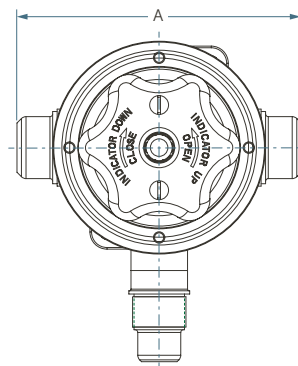
Front View



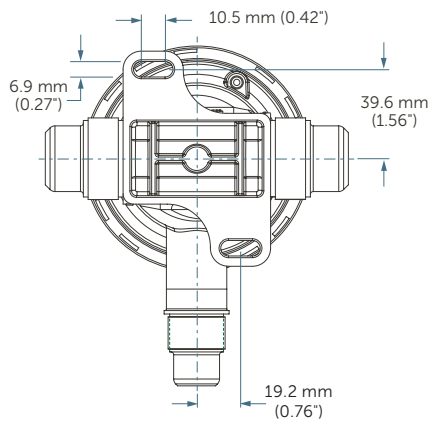
Side View



Top View



Bottom View



Function

Ports 1 and 3 provide continuous flow through the valve in either direction. Port 2 draws a sample from or injects fluid into the continuous flow stream when the valve is open.

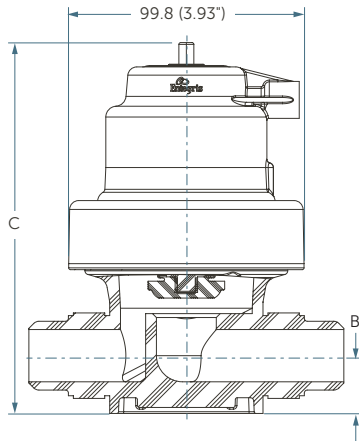
3-port Sampling Valve Flow Path



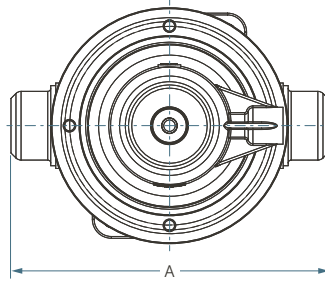
Port 1 connection	Port 2 (sampling) connection	Port 3 connection	Flow factor C_v	Flow factor K_v	DIMENSION		
					A	B	C
3/4" Flaretek	3/4" Flaretek	3/4" Flaretek	7.2	102.8	129.0 mm (5.08")	24.4 mm (0.96")	164.3 mm (6.47")
3/4" PureBond	3/4" Flaretek	3/4" PureBond	7.2	102.8	167.4 mm (6.59")	24.4 mm (0.96")	164.3 mm (6.47")
1" Flaretek	3/4" Flaretek	1" Flaretek	7.2	102.8	133.6 mm (5.26")	24.4 mm (0.96")	164.3 mm (6.47")
1" PureBond	3/4" Flaretek	1" PureBond	7.2	102.8	167.4 mm (6.59")	24.4 mm (0.96")	164.3 mm (6.47")
1" PureBond	3/4" Flaretek	1" Flaretek	7.2	102.8	121.7 mm (4.79")	24.4 mm (0.96")	164.3 mm (6.47")

Integra 2-way, Pneumatic Valve

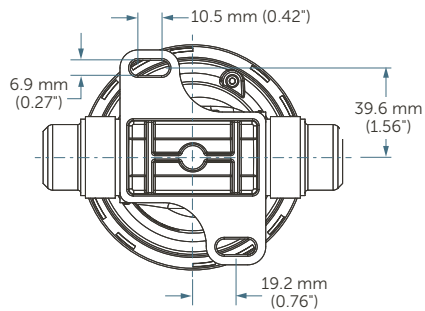
Front View



Top View



Bottom View



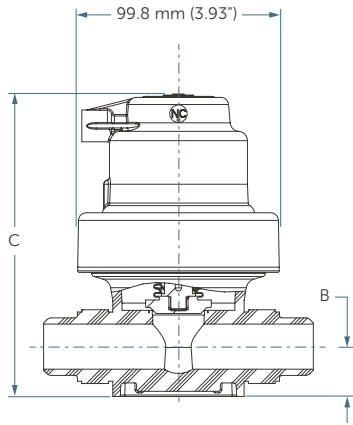
DIMENSIONS

Port connection	Flow factor C_v	Flow factor K_v	A	B	C
3/4" Flaretek	7.2	103.0	129.0 mm (5.08")	24.4 mm (0.96")	156.7 mm (6.17")
3/4" PrimeLock	7.2	103.0	141.7 mm (5.58")	24.4 mm (0.96")	156.7 mm (6.17")
3/4" PureBond	10.4	149.0	167.4 mm (6.59")	24.4 mm (0.96")	156.7 mm (6.17")
1" Flaretek	12.4	177.1	133.6 mm (5.26")	24.4 mm (0.96")	156.7 mm (6.17")
1" Super 300 Type Pillar*	12.4	177.1	147.1 mm (5.79")	26.9 mm (1.06")	159.3 mm (6.27")
1" PrimeLock	12.4	177.1	150.9 mm (5.94")	28.4 mm (1.12")	160.8 mm (6.33")
1" PureBond	13.6	194.2	167.4 mm (6.59")	24.4 mm (0.96")	156.7 mm (6.17")
1 1/4" Extended Flaretek	13.6	194.2	170.7 mm (6.72")	39.1 mm (1.54")	171.4 mm (6.75") with spacer

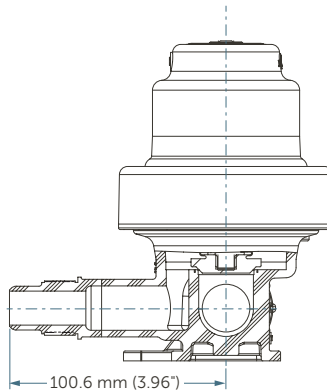
*Pillar nuts, inserts, and gauge rings are supplied separately.

Integra Sampling, Pneumatic Valve

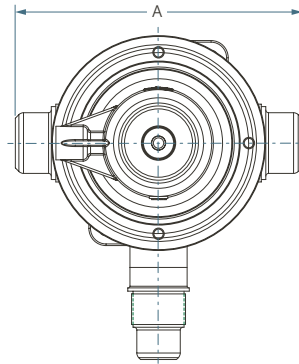
Front View



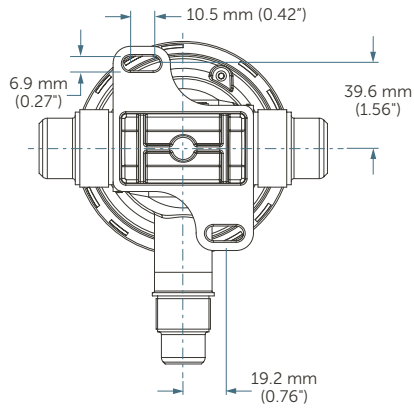
Side View



Top View



Bottom View



Function

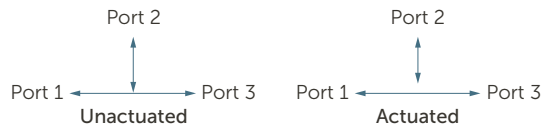
Ports 1 and 3 provide continuous flow through the valve in either direction. Port 2 draws a sample from or injects fluid into the continuous flow stream when the valve is open.

3-port Sampling Valve Flow Path

Normally Closed



Normally Open



Port 1 connection	Port 2 (sampling) connection	Port 3 connection	Flow factor C _v	Flow factor K _v	DIMENSIONS		
					A	B	C
3/4" Flaretek	3/4" Flaretek	3/4" Flaretek	7.2	102.8	129.0 mm (5.08")	24.4 mm (0.96")	156.7 mm (6.17")
3/4" PureBond	3/4" Flaretek	3/4" PureBond	7.2	102.8	167.4 mm (6.59")	24.4 mm (0.96")	156.7 mm (6.17")
1" Flaretek	3/4" Flaretek	1" Flaretek	7.2	102.8	133.6 mm (5.26")	24.4 mm (0.96")	156.7 mm (6.17")
1" PureBond	3/4" Flaretek	1" PureBond	7.2	102.8	167.4 mm (6.59")	24.4 mm (0.96")	156.7 mm (6.17")
1" PureBond	3/4" Flaretek	1" Flaretek	7.2	102.8	121.7 mm (4.79")	24.4 mm (0.96")	156.7 mm (6.17")

SENSING OPTION DIMENSIONS

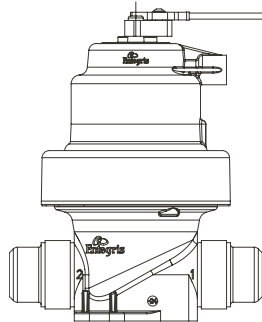
Remote Position Indication Option

Valve position sensing for monitoring valve open and closed positions electronically.

Note: To enable the remote position indication option you must special order the Omron® sensor (-OM) on the valve. In addition, order the Omron position sensor indicator (EE-SX770R or EE-SX770A), which is sold separately.

Omron Sensor

Omron part number EE-SX770R or EE-SX770A



ORDERING INFORMATION

Integra 2-Way, Manual and Pneumatic Valve: part number

DS16

Port configuration

- 12F = Port 1 (inlet), Port 2 (outlet) 3/4" Flaretek
- 12S2 = Port 1 (inlet) 3/4" Flaretek, Port 2 (outlet) 3/4" Flaretek "SpaceSaver"
- 12F12P = Port 1 (inlet) 3/4" Flaretek, Port 2 (outlet) 3/4" PureBond
- 12S12F = Port 1 (inlet) 3/4" Flaretek "SpaceSaver", Port 2 (outlet) 3/4" Flaretek
- 12S1S2 = Port 1 (inlet), Port 2 (outlet) 3/4" Flaretek "SpaceSaver"
- 12K = Port 1 (inlet), Port 2 (outlet) 3/4" PrimeLock
- 12KV = Port 1 (inlet) 3/4" PrimeLock, Port 2 (outlet) 3/4" PrimeLock "SpaceSaver"
- 12KP = Port 1 (inlet) 3/4" PrimeLock, Port 2 (outlet) 3/4" PureBond
- 12VK = Port 1 (inlet) 3/4" PrimeLock "SpaceSaver", Port 2 (outlet) 3/4" PrimeLock
- 12VV = Port 1 (inlet), Port 2 (outlet) 3/4" PrimeLock "SpaceSaver"
- 12P12F = Port 1 (inlet) 3/4" PureBond, Port 2 (outlet) 3/4" Flaretek
- 12PK = Port 1 (inlet) 3/4" PureBond, Port 2 (outlet) 3/4" PrimeLock
- 12P = Port 1 (inlet), Port 2 (outlet) 3/4" PureBond
- 12F-TS = Port 1 (inlet), Port 2 (outlet) 3/4" Tube stub no nuts
- 16F = Port 1 (inlet), Port 2 (outlet) 1" Flaretek
- 16S2 = Port 1 (inlet) 1" Flaretek, Port 2 (outlet) 1" Flaretek "SpaceSaver"
- 16F16P = Port 1 (inlet) 1" Flaretek, Port 2 (outlet) 1" PureBond
- 16S16F = Port 1 (inlet) 1" Flaretek "SpaceSaver", Port 2 (outlet) 1" Flaretek
- 16S1S2 = Port 1 (inlet), Port 2 (outlet) 1" Flaretek "SpaceSaver"
- 16PS3 = Port 1 (inlet), Port 2 (outlet) 1" Super 300 Type Pillar
- 16PS316P = Port 1 (inlet) 1" Super 300 Type Pillar, Port 2 (outlet) 1" PureBond
- 16K = Port 1 (inlet), Port 2 (outlet) 1" PrimeLock
- 16KV = Port 1 (inlet) 1" PrimeLock, Port 2 (outlet) 1" PrimeLock "SpaceSaver"
- 16KP = Port 1 (inlet) 1" PrimeLock, Port 2 (outlet) 1" PureBond
- 16VK = Port 1 (inlet) 1" PrimeLock "SpaceSaver", Port 2 (outlet) 1" PrimeLock
- 16VV = Port 1 (inlet), Port 2 (outlet) 1" PrimeLock "SpaceSaver"
- 16P = Port 1 (inlet), Port 2 (outlet) 1" PureBond
- 16P16F = Port 1 (inlet) 1" PureBond, Port 2 (outlet) 1" Flaretek
- 16P16PS3 = Port 1 (inlet) 1" PureBond, Port 2 (outlet) 1" Super 300 Type Pillar
- 16PK = Port 1 (inlet) 1" PureBond, Port 2 (outlet) 1" PrimeLock
- 16F-TS = Port 1 (inlet), Port 2 (outlet) 1" Tube stub no nuts
- 20MLF = Port 1 (inlet), Port 2 (outlet) 1 1/4" Flaretek (Extended Flare)

Special order

- 3 = PFA*
- 6 = CPFA*
- 3A = 1 1/4" Flaretek only (extended flare)***
- II = FlareLock II*
- N = Pillar nuts, inserts, and gauge rings included**
- OM = Omron sensor = N/A

Actuator

- 2C = 2-way normally closed tube
- 2U = 2-way normally open tube
- 2M = Manual multi-turn

Integra Sampling Manual and Pneumatic Valves: part number

DS16

Port configuration

- 12F12F = Port 1 (thru) 3/4" Flaretek, Port 2 (sample) 3/4" Flaretek, Port 3 (thru) 3/4" Flaretek
- 12P12F = Port 1 (thru) 3/4" PureBond, Port 2 (sample) 3/4" Flaretek, Port 3 (thru) 3/4" PureBond
- 16F12F = Port 1 (thru) 1" Flaretek, Port 2 (sample) 3/4" Flaretek, Port 3 (thru) 1" Flaretek
- 16P12F = Port 1 (thru) 1" PureBond, Port 2 (sample) 3/4" Flaretek, Port 3 (thru) 1" PureBond
- 16PF12F = Port 1 (thru) 1" PureBond, Port 2 (sample) 3/4" Flaretek, Port 3 (thru) 1" Flaretek

Actuator

- SC = 2-way normally closed tube
- SU = 2-way normally open tube
- SM = Manual multi-turn

Special order

- 3 = PFA*
- 6 = CPFA*
- II = FlareLock II*
- OM = Omron sensor
- = N/A

* Available for Flaretek port connections only.

** Available for Super 300 Type Pillar port connections only.

*** Available for 1 1/4" 2-way manual and pneumatic only.

Note: Not all configurations are permitted. Consult Entegris if multiple special order features are required. Contact Entegris if "SpaceSaver" port connections are to be used in media containing a fluorinated surfactant.

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the Contact Us link to find the customer service center nearest you.

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