

# Integra® WS Manual and Pneumatic Valves

*Ideal for use in CMP slurry and  
ultrapure chemical applications*

To meet the strict processing requirements of today, Entegris expands its weir valve portfolio to include 1/4", 3/8", 1/2", and 3/4" manual and pneumatic Integra® WS weir-style valves specifically designed for use in chemically corrosive semiconductor processing applications. These weir valves give customers another reliable option for dispensing slurry and ultrapure chemicals in chemical mechanical planarization (CMP) and wet etch and clean (WEC) ultrapure chemical applications.

## Clean Flow Path

Integra WS valves have a weir valve body design that streamlines the flow path and eliminates dead volume. This streamlined design, combined with high-purity, chemically-resistant PFA and PTFE construction, keeps the flow path clean and free from contaminants. This is especially important in critical CMP processes that occur in the latter stages of the manufacturing process – the point where the fab has the most time and money invested in a wafer or substrate. Integra WS valves provide gentle flow that minimizes slurry agglomeration, which can cause costly defects if it reaches the wafer surface.



*Minimize fluid shear, reduce agglomeration.*

## System Design Flexibility

Integra WS valves are forward and backward compatible – meaning there is not a wrong way to install the inlet and outlet ports. Offset, integrated mounting feet allow customers to nest multiple valves within a small footprint, providing quick and easy valve installation.

Entegris offers Integra WS weir valves in 2-way configurations with either manual multi-turn or pneumatic normally closed actuators. Fully characterized standard PrimeLock®, Flaretek®, and Pureline flare port connections are available. This broad product offering provides system flexibility and easy installation into any fluid handling system, saving customers valuable time and money.

## APPLICATIONS

- CMP slurry dispense
- WEC ultrapure chemical handling
- TFT/LCD corrosive chemical handling

## SPECIFICATIONS

<b>Materials</b>	All wetted parts	PFA, PTFE
	Exterior actuator parts	PVDF, PC
	Interior actuator parts	PFA, PVDF, Viton®, EPDM, PP
	Springs (pneumatic version only)	Coated stainless steel
<b>Pressure range</b>	586 kPa (85 psig) 21° to 90°C (70° to 194°F), fluid	
<b>Temperature range</b>	21°C to 50°C (70°F to 122°F), ambient	
<b>Pneumatic supply port (pneumatic version only)</b>	1/8" PT	
<b>Pneumatic supply pressure</b>	414 kPa (60 psig) minimum to 586 kPa (85 psig) maximum	

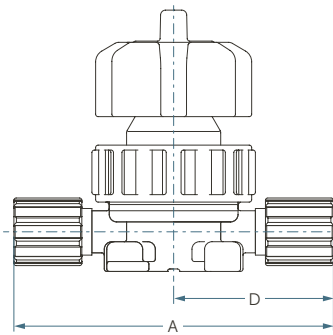
### Valve qualification testing

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 cyclic testing	896 kPa (130 psig) water @ 23°C (73°F)	No external leakage failures for 1 million cycles @ 1.5 times rated pressure	PASS No external leakage
Actuation cyclic testing	Cabot Semi-Sperse® 25E slurry @ 207 kPa (30 psig) at 23°C (73°F)	No leakage in functional performance for up to 1 million cycles	PASS No external or port-to-port leakage <0.05 cc H <sub>2</sub> O/hr
Actuation cyclic testing with vacuum	Continuous vacuum 27" Hg air @ 23°C (73°F)	No leakage in functional performance for up to 1 million cycles	PASS No external leakage

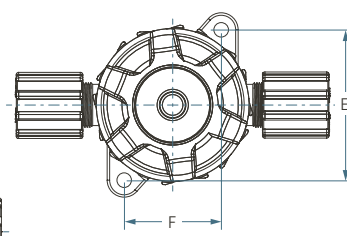
## DIMENSIONS

### Integra WS 2-way, Manual Multi-turn

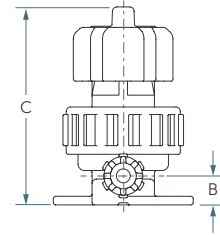
Front View



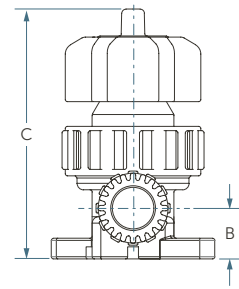
Top View



Side View 1/4" and 3/8"



Side View 1/2" and 3/4"

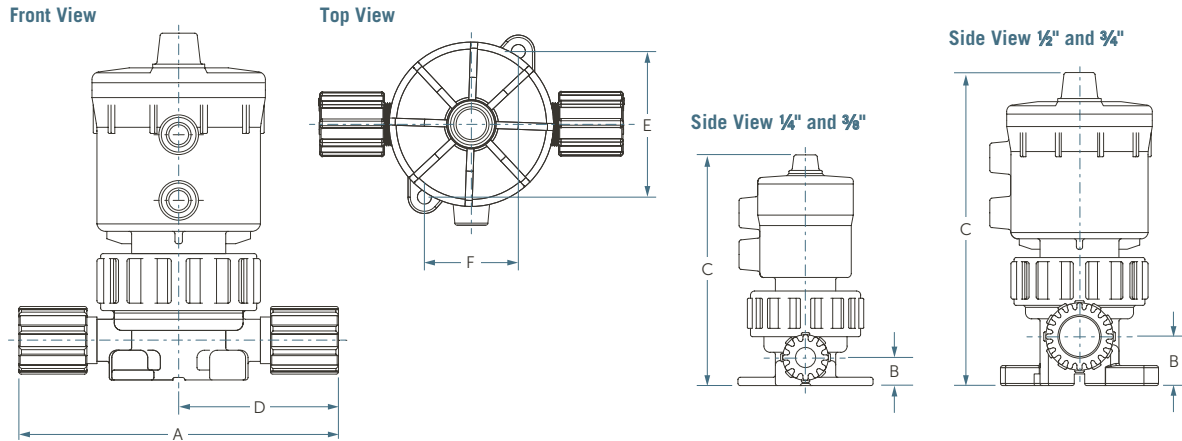


## DIMENSIONS

Port connection	Flow factor C <sub>v</sub>	Flow factor K <sub>v</sub>	A	B	C	D	E	F
1/4" PrimeLock	0.31	0.27	111.5 mm (4.39")	15.5 mm (0.61")	95.0 mm (3.74")	55.6 mm (2.19")	51.0 mm (2.01")	34.0 mm (1.34")
1/4" Pureline flare	0.31	0.27	110.0 mm (4.33")	13.5 mm (0.53")	93.0 mm (3.66")	55.0 mm (2.17")	51.0 mm (2.01")	34.0 mm (1.34")
1/4" Flaretek	0.31	0.27	108.0 mm (4.25")	13.5 mm (0.53")	93.0 mm (3.66")	54.0 mm (2.13")	51.0 mm (2.01")	34.0 mm (1.34")
3/8" PrimeLock	1.05	0.87	114.5 mm (4.50")	15.5 mm (0.61")	95.0 mm (3.74")	57.2 mm (2.25")	51.0 mm (2.01")	34.0 mm (1.34")
3/8" Pureline flare	1.05	0.87	110.0 mm (4.33")	13.5 mm (0.53")	93.0 mm (3.66")	55.0 mm (2.17")	51.0 mm (2.01")	34.0 mm (1.34")
3/8" Flaretek	1.05	0.87	112.0 mm (4.41")	13.5 mm (0.53")	93.0 mm (3.66")	56.0 mm (2.20")	51.0 mm (2.01")	34.0 mm (1.34")
1/2" PrimeLock	2.81	2.32	134.8 mm (5.31")	18.0 mm (0.71")	109.5 mm (4.31")	67.4 mm (2.65")	62.0 mm (2.44")	40.0 mm (1.57")
1/2" Pureline flare	2.81	2.32	133.0 mm (5.24")	16.0 mm (0.63")	106.9 mm (4.21")	66.5 mm (2.62")	62.0 mm (2.44")	40.0 mm (1.57")
1/2" Flaretek	2.81	2.32	129.0 mm (5.08")	16.0 mm (0.63")	106.8 mm (4.20")	64.5 mm (2.54")	62.0 mm (2.44")	40.0 mm (1.57")
3/4" PrimeLock	5.17	4.27	149.5 mm (5.89")	23.6 mm (0.93")	118.2 mm (4.65")	74.8 mm (2.94")	62.0 mm (2.44")	40.0 mm (1.57")
3/4" Pureline flare	5.17	4.27	137.5 mm (5.41")	19.0 mm (0.75")	112.1 mm (4.41")	68.8 mm (2.71")	62.0 mm (2.44")	40.0 mm (1.57")
3/4" Flaretek	5.17	4.27	136.0 mm (5.35")	19.0 mm (0.75")	112.1 mm (4.41")	68.0 mm (2.68")	62.0 mm (2.44")	40.0 mm (1.57")

## DIMENSIONS (CONTINUED)

### Integra WS 2-way, Pneumatic Normally Closed



DIMENSIONS								
Port connection	Flow factor $C_v$	Flow factor $K_v$	A	B	C	D	E	F
1/4" PrimeLock	0.31	0.27	111.5 mm (4.39")	15.5 mm (0.61")	113.5 mm (4.47")	55.8 mm (2.19")	51.0 mm (2.01")	34.0 mm (1.34")
1/4" Pureline flare	0.31	0.27	110.0 mm (4.33")	13.5 mm (0.53")	111.5 mm (4.39")	55.0 mm (2.16")	51.0 mm (2.01")	34.0 mm (1.34")
1/4" Flaretek	0.31	0.27	108.0 mm (4.25")	13.5 mm (0.53")	111.5 mm (4.39")	54.0 mm (2.13")	51.0 mm (2.01")	34.0 mm (1.34")
3/8" PrimeLock	1.05	0.87	114.5 mm (4.50")	15.5 mm (0.61")	113.5 mm (4.47")	57.2 mm (2.25")	51.0 mm (2.01")	34.0 mm (1.34")
3/8" Pureline flare	1.05	0.87	110.0 mm (4.33")	13.5 mm (0.53")	111.5 mm (4.39")	55.0 mm (2.17")	51.0 mm (2.01")	34.0 mm (1.34")
3/8" Flaretek	1.05	0.87	112.0 mm (4.41")	13.5 mm (0.53")	111.5 mm (4.39")	56.0 mm (2.20")	51.0 mm (2.01")	34.0 mm (1.34")
1/2" PrimeLock	2.81	2.34	134.8 mm (5.31")	18.0 mm (0.71")	144.2 mm (5.68")	67.4 mm (2.65")	62.0 mm (2.44")	40.0 mm (1.57")
1/2" Pureline flare	2.81	2.34	133.0 mm (5.24")	16.0 mm (0.63")	142.2 mm (5.60")	66.5 mm (2.62")	62.0 mm (2.44")	40.0 mm (1.57")
1/2" Flaretek	2.81	2.34	129.0 mm (5.08")	16.0 mm (0.63")	142.2 mm (5.60")	64.5 mm (2.54")	62.0 mm (2.44")	40.0 mm (1.57")
3/4" PrimeLock	5.17	4.27	149.5 mm (5.89")	23.6 mm (0.93")	153.6 mm (6.05")	74.7 mm (2.94")	62.0 mm (2.44")	40.0 mm (1.57")
3/4" Pureline flare	5.17	4.27	137.5 mm (5.41")	19.0 mm (0.75")	149.0 mm (5.87")	68.8 mm (2.71")	62.0 mm (2.44")	40.0 mm (1.57")
3/4" Flaretek	5.17	4.27	136.0 mm (5.35")	19.0 mm (0.75")	149.0 mm (5.87")	68.0 mm (2.68")	62.0 mm (2.44")	40.0 mm (1.57")

## ORDERING INFORMATION — INTEGRA WS VALVES

### Manual, multi-turn valves

Part number	Port 1 connection	Port 2 connection
WS04-2M-04FF	1/4" Flaretek	1/4" Flaretek
WS04-2M-04KK	1/4" PrimeLock	1/4" PrimeLock
WS04-2M-04LL	1/4" Pureline flare	1/4" Pureline flare
WS06-2M-06FF	3/8" Flaretek	3/8" Flaretek
WS06-2M-06KK	3/8" PrimeLock	3/8" PrimeLock
WS06-2M-06LL	3/8" Pureline flare	3/8" Pureline flare
WS08-2M-08FF	1/2" Flaretek	1/2" Flaretek
WS08-2M-08KK	1/2" PrimeLock	1/2" PrimeLock
WS08-2M-08LL	1/2" Pureline flare	1/2" Pureline flare
WS12-2M-12FF	3/4" Flaretek	3/4" Flaretek
WS12-2M-12KK	3/4" PrimeLock	3/4" PrimeLock
WS12-2M-12LL	3/4" Pureline flare	3/4" Pureline flare

### Pneumatic, normally closed valves

Part number	Port 1 connection	Port 2 connection
WS04-2C-04FF	1/4" Flaretek	1/4" Flaretek
WS04-2C-04KK	1/4" PrimeLock	1/4" PrimeLock
WS04-2C-04LL	1/4" Pureline flare	1/4" Pureline flare
WS06-2C-06FF	3/8" Flaretek	3/8" Flaretek
WS06-2C-06KK	3/8" PrimeLock	3/8" PrimeLock
WS06-2C-06LL	3/8" Pureline flare	3/8" Pureline flare
WS08-2C-08FF	1/2" Flaretek	1/2" Flaretek
WS08-2C-08KK	1/2" PrimeLock	1/2" PrimeLock
WS08-2C-08LL	1/2" Pureline flare	1/2" Pureline flare
WS12-2C-12FF	3/4" Flaretek	3/4" Flaretek
WS12-2C-12KK	3/4" PrimeLock	3/4" PrimeLock
WS12-2C-12LL	3/4" Pureline flare	3/4" Pureline flare

#### FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit [entegris.com](https://www.entegris.com) and select the [Contact Us](#) link to find the customer service center nearest you.

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