

## Definox Flow Control Valves



Stainless Steel Flow Control Equipment for the  
Food, Beverage, Dairy, Cosmetics, Pharmaceutical,  
Biotechnology, and Electronics Processing Industries

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# Premium Manufacturer of Sanitary Fittings, Valves, Pumps & More

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# DCX3 – Single Sealing Shut-Off

# DCX4 – Single Sealing Divert

## FEATURES

- Patented PFA floating plug seal that is easily cleaned during CIP and offers outstanding sealing at high temperatures and excellent chemical resistance.
- Heavy duty stainless steel pneumatic actuator that is capable of function changes: NO (Normally Open) – NC (Normally Closed) – DA (Double Acting).
- Clamp style operator connection (manual and automated) for easy inspection and maintenance.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Wide variety of body configurations: DCX3 (L) - (T) - (X) / DCX4 (L/L) - (L/T) – (T/L).

## SPECIFICATIONS

Size Range	1/2" - 6"	Surface Finish
Materials		R <sub>a</sub> Interior = 32R <sub>a</sub> R <sub>a</sub> Exterior = 40-50R <sub>a</sub>
Body:	316L SS	
Stem:	316L SS	
Operator:	304 SS	
Valve seals:	PFA floating plug seal	Service Conditions
	FKM stem seal & body seal	Max. temperature: 284°F (depending on seal type)
Optional seals:	EPDM, FKM, or Silicone plug seal	Min. temperature: 23°F
	EPDM, FKM, or Silicone stem and body seal	Max. working pressure: 116 psi
Connections:	OD tube butt weld	Actuator air supply: 80 psi Minimum/116 psi Maximum
	Sanitary clamp	Vacuum resistance: 0.4 cm <sup>3</sup> /s
	Others upon request	
Options:	Long stroke for improved solids handling	
	Tangential bodies for horizontal installation	
	PTFE diaphragm type body seal for stem isolation	

## Signal Equipment

ICS Control top – valve sizes 1" - 3"

ACS Control top – valve sizes 4" - 6"

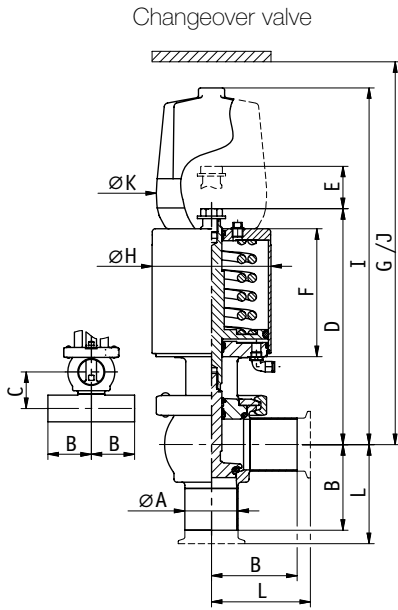
Network options: point-to-point & AS-i (others upon request)



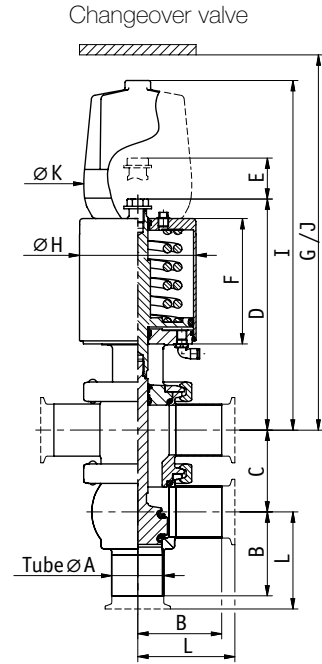
DCX3 Automatic

DCX4 Automatic

# Dimensions DCX3/DCX4

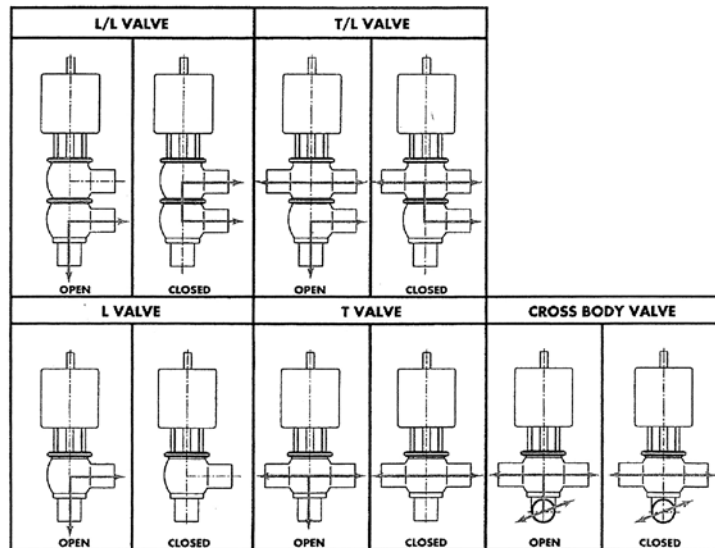


DCX3 Automatic



DCX4 Automatic

Tube A	B	C		D		E		F	G	H	I	J	K	L	Weight in lbs.	
		DCX3	DCX4	DCX3	DCX4	DCX3	DCX4								DCX3	DCX4
1	2.01	1.77	3.25	7.56	7.56	0.669	0.551	4.33	11.02	3.5	11.89	16.92	4.09	2.52	9.92	13.23
1-1/2	2.24	2.17	3.25	7.68	7.68	0.827	0.709	4.33	11.81	3.5	12.17	16.92	4.09	2.76	11.02	14.33
2	2.99	2.76	3.74	8.82	8.86	1.14	1.06	4.84	13.78	4.49	13.31	18.50	4.09	3.50	16.53	22.49
2-1/2	2.99	3.35	4.25	10.87	10.83	1.38	1.26	6.26	16.54	6.57	13.31	20.47	4.09	3.50	33.07	42.55
3	3.23	3.74	4.75	11.06	11.02	1.38	1.26	6.26	16.93	6.57	15.51	20.47	4.09	3.74	34.17	42.11
4	5.12	4.92	6.5	13.11	13.19	1.57	1.38	7.13	21.26	8.50	18.15	23.23	5.51	5.75	72.75	88.18
6	7.09	7.09	7.68	19.69	19.69	2.76	2.44	11.22	24.41	10.63	24.61	29.92	5.51	7.87	143.3	171.96



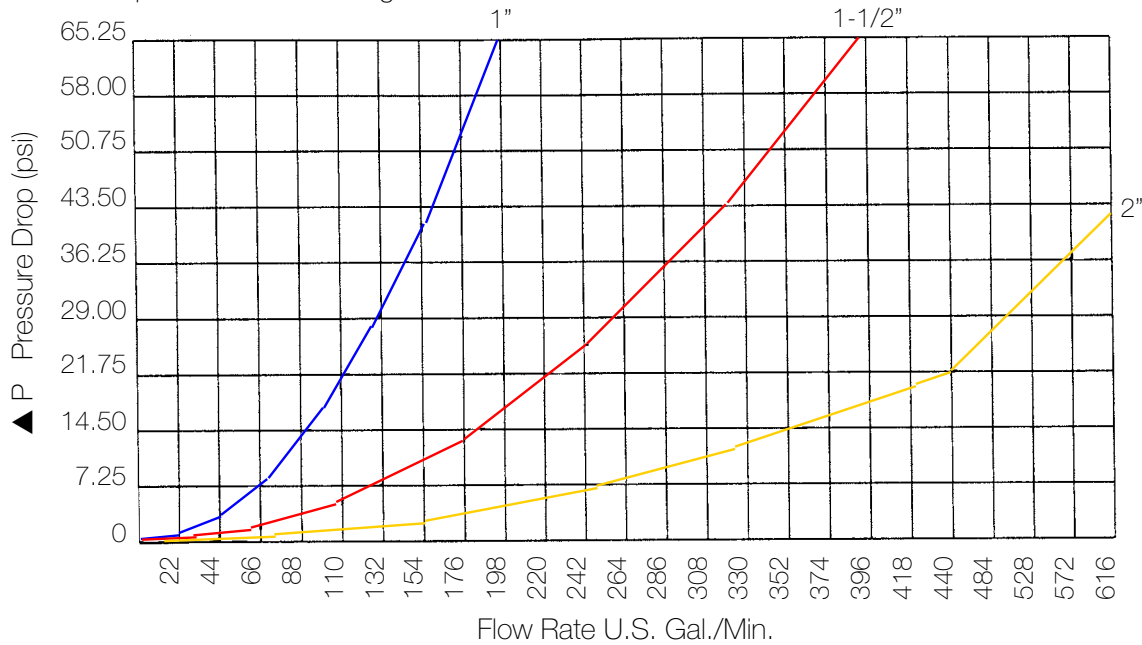
# Performance Curve for DCX3/DCX4

## Working conditions

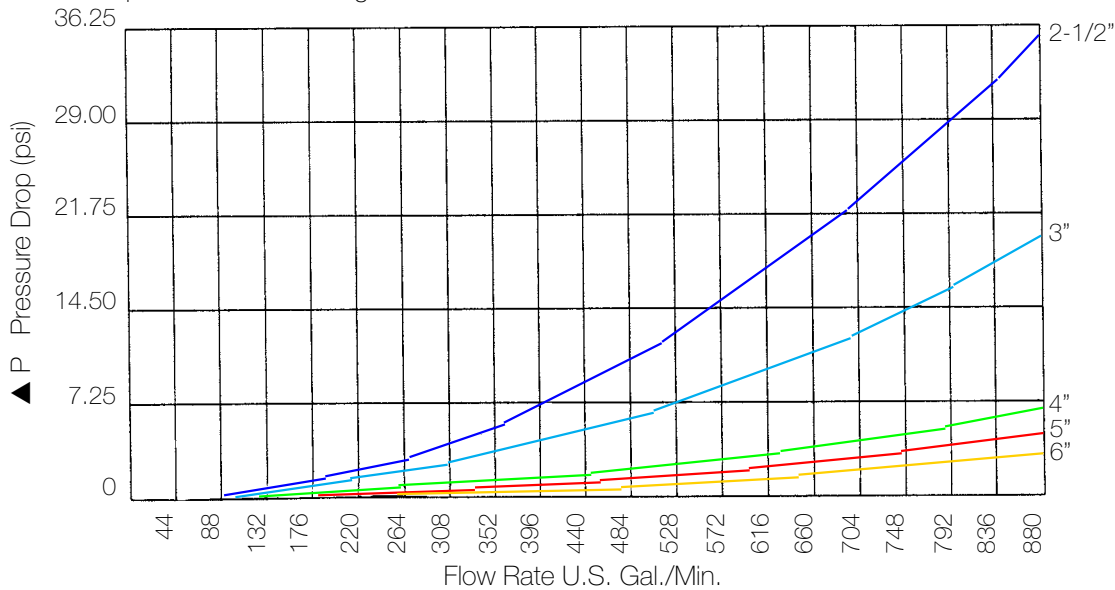
The working conditions are established for valve normally closed (NC), normally open (NO), or double acting (DA).

SIZE	1" - 2-1/2"	3"	4"	6"
Maximum pressure under the plug at 68°F	116 psi	116 psi	116 psi	116 psi

Pressure drop DCX3/DCX4 changeover valves 1" - 2"



Pressure drop DCX3/DCX4 changeover valves 2-1/2" - 6"



Air supply of the actuator  
80 to 116 psi (filtered dry air)

Permissible maximum temperature  
284°F

Vacuum resistance (absolute pressure)  
5.8 psi or 12" of Hg

Test  
Valves meet the requirements of the ISO 5208 norm.

# Fractional DCX3 – Single Sealing Shut Off

# Fractional DCX4 – Single Sealing Divert

## FEATURES

- PFA stem/plug that is easily cleaned during CIP and offers outstanding sealing at high temperatures and excellent chemical resistance.
- Heavy duty stainless steel pneumatic actuator that is capable of function changes: NO (Normally Open) – NC (Normally Closed) – DA (Double Acting).
- Clamp style operator connection (manual and automated) for easy inspection and maintenance.
- Wide variety of body configurations: DCX3 (L) - (T) – (X) / DCX4 (L/L) – (L/T) - (T/L).

## SPECIFICATIONS

Size Range 1/2", 3/4", 1"

### Materials

Body: 316L SS

Stem: Peek

Optional stem: 316L SS

Operator: 304 SS (actuator)  
Thermoplastic (manual)

Valve seals: PFA stem/plug  
FKM stem/body seal

Optional seals: EPDM, FKM, Silicone, Isolast plug seal (316L stem type only)  
EPDM, FKM, or Silicone, Isolast stem/body seal

Connections: OD tube butt weld  
Sanitary clamp  
Others upon request

### Service Conditions

Max. temperature: 284°F (depending on seal type)

Min. temperature: 23°F

Max. working pressure: 261 psi

Actuator air supply: 80 psi Minimum/116 psi Maximum

Vacuum resistance: 0.4 cm<sup>3</sup>/s

### Signal Equipment

ICS Control top – valve sizes 1/2" - 1"

Network options: point-to-point & AS-i (others upon request)

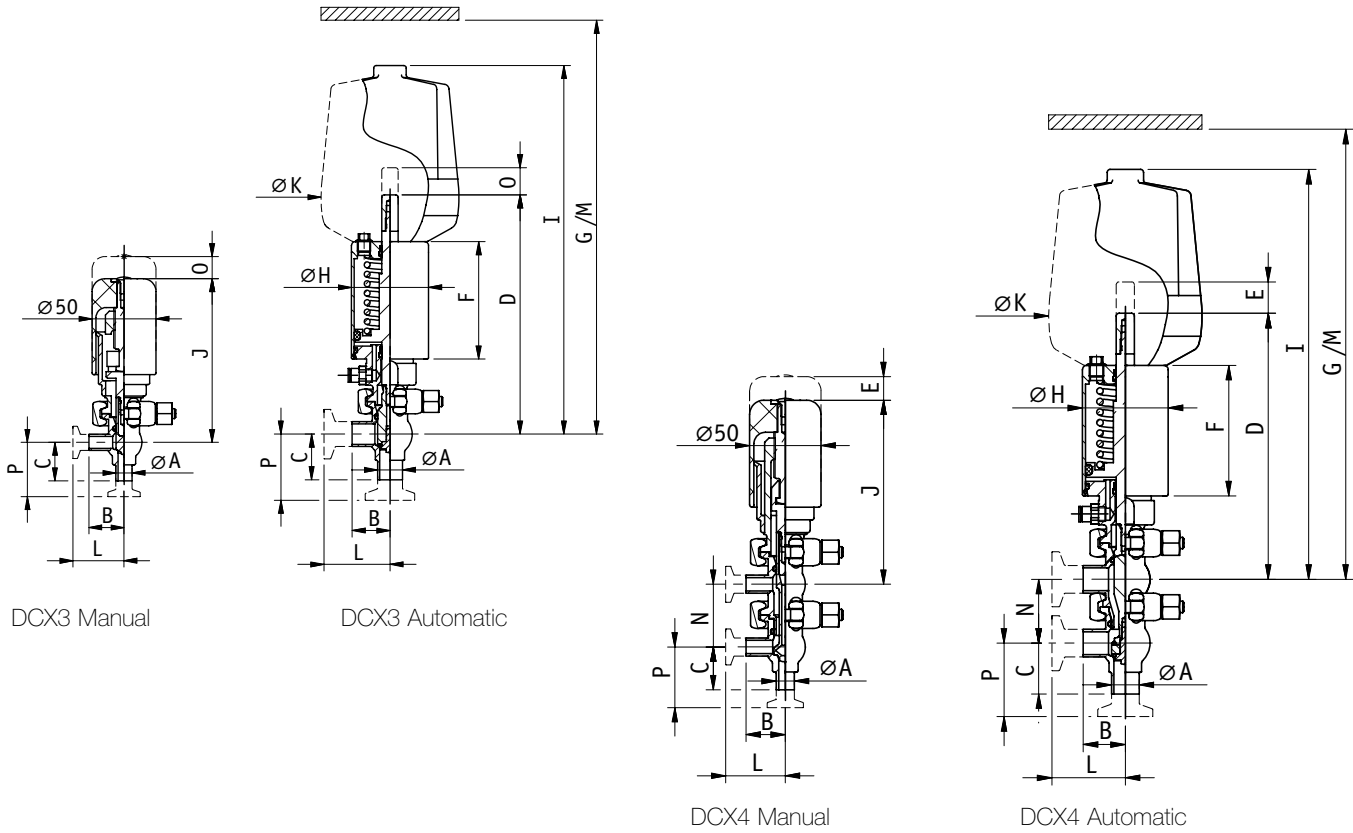
### Surface Finish

R<sub>a</sub> Interior = 32R<sub>a</sub>

R<sub>a</sub> Exterior = 40-50R<sub>a</sub>

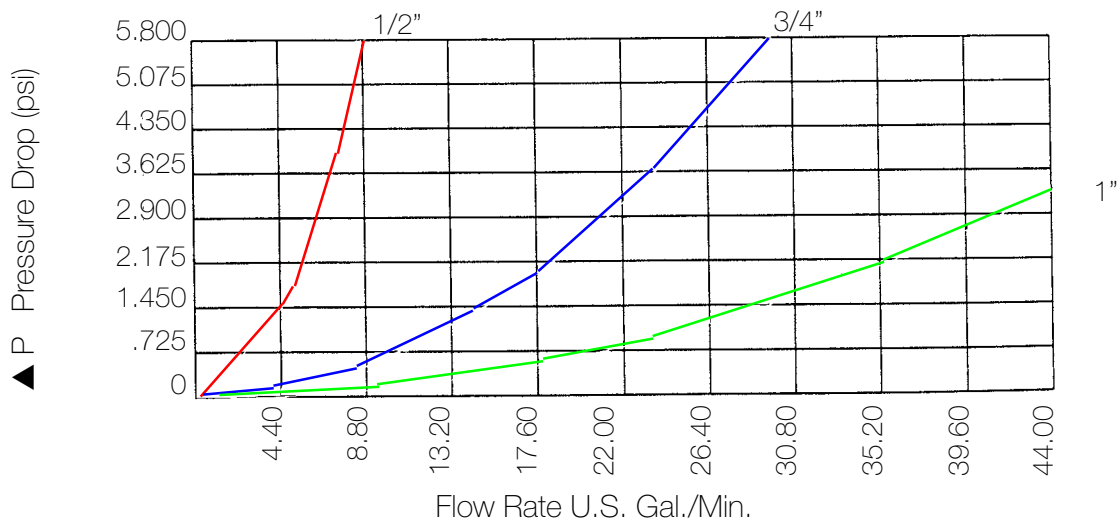


# Dimensions Fractional DCX3/DCX4



Tube A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	DCX3 Weight in lbs. Manual	DCX3 Weight in lbs. Automatic	DCX4 Weight in lbs. Manual	DCX4 Weight in lbs. Automatic
1/2	1.08	1.18	7.56	0.413	3.54	8.46	2.32	10.91	5.04	4.09	1.57	11.81	1.73	0.472	1.67	1.32	3.31	1.54	3.53
3/4	1.14	1.38	7.68	0.433	3.54	8.66	2.32	10.98	5.12	4.09	1.63	11.99	1.73	0.472	1.87	1.32	3.31	1.54	3.75
1	1.39	1.57	8.35	0.579	4.05	9.45	2.80	11.57	5.12	4.09	2.52	12.68	2.17	0.591	2.52	2.20	4.19	2.43	4.41

Pressure drop automated DCX3 small size changeover valve



# Diaphragm DCX3 – Single Sealing Shut Off

# Diaphragm DCX4 – Single Sealing Divert

## FEATURES

- Patented PFA floating plug seal that is easily cleaned during CIP and offers outstanding sealing at high temperatures and excellent chemical resistance.
- PTFE diaphragm type stem/body seal creates a barrier between the interior of the valve and the outside environment.
- Integral micro valve to indicate PTFE diaphragm failure.
- Heavy duty stainless steel pneumatic actuator that is capable of function changes: NO (Normally Open) – NC (Normally Closed) – DA (Double Acting).
- Clamp style operator connection (manual and automated) for easy inspection and maintenance.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Wide variety of body configurations: DCX3 (L) - (T) - (X) / DCX4 (L/L) - (L/T) – (T/L).

## SPECIFICATIONS

Size Range	1", 1-1/2", 2", 2-1/2", 3", 4", 6"	Surface Finish	
		R <sub>a</sub> Interior = 32R <sub>a</sub>	
Materials		R <sub>a</sub> Exterior = 40-50R <sub>a</sub>	
Body:	316L SS	Service Conditions	
Stem:	316L SS	Max. temperature:	284°F (depending on seal type)
Operator:	304 SS	Min. temperature:	34°F
Valve seals:	PFA floating plug seal	Max. working pressure:	116 psi
	PTFE diaphragm type stem/body seal	Actuator air supply:	80 psi Minimum/116 psi Maximum
Optional seals:	EPDM, FKM, or Silicone plug seal	Vacuum resistance:	0.4 cm <sup>3</sup> /s
Connections:	OD tube butt weld		
	Sanitary clamp		
	Others upon request		
Options:	Dual micro valve alcohol barrier		

## Signal Equipment

ICS Control top – valve sizes 1" – 3"

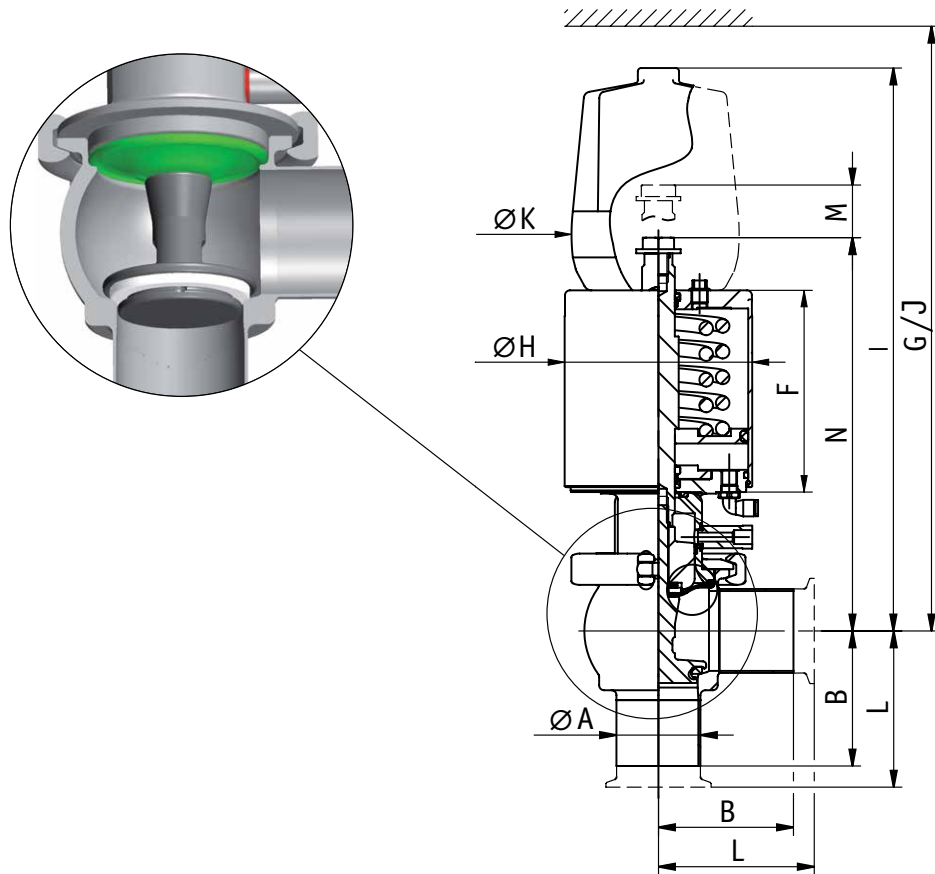
ACS Control top – valve sizes 4" – 6"

Network options: point-to-point & AS-i (others upon request)





# Dimensions Diaphragm DCX3/DCX4



Tube A	B	F	G	H	I	J	K	L	M	N	Weight in lbs.
1	2.01	4.33	11.02	3.50	11.89	16.93	4.09	2.52	0.472	8.07	13.23
1-1/2	2.24	4.33	11.81	3.50	12.17	16.93	4.09	2.76	0.472	8.07	13.23
2	2.99	4.84	13.78	4.49	13.31	18.50	4.09	3.50	0.669	9.41	20.94
2-1/2	2.99	6.26	16.54	6.57	13.31	20.47	4.09	3.50	1.02	11.50	40.79
3	3.23	6.26	16.93	6.57	15.51	20.47	4.09	3.74	1.02	11.50	40.79
4	5.12	7.23	21.26	8.5	18.15	23.23	5.51	5.75	1.38	13.46	79.37

# DCX3 DE– Double Sealing Shut Off

## FEATURES

- Non-independent double valve system
- Internal leakage chamber created by primary and secondary plug seals prevents cross contamination between process lines.
- Single micro valve for indication of leakage from the chamber.
- Heavy duty stainless steel actuator is capable of withstanding hydraulic shock under the plug.
- Clamp style operator connection (manual and automated) for easy inspection and maintenance.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Wide variety of body configurations: DCX3 (L) - (T) - (X).

## SPECIFICATIONS

Size Range	2", 2-1/2", 3", 4"	Surface Finish	
		R <sub>a</sub> Interior = 32R <sub>a</sub>	
		R <sub>a</sub> Exterior = 40-50R <sub>a</sub>	
Materials		Service Conditions	
Body:	316L SS	Max. temperature:	248°F (depending on seal type)
Stem:	316L SS	Min. temperature:	32°F
Operator:	304 SS	Max. working pressure:	116 psi
Valve seals:	FKM plug seals	Actuator air supply:	80 psi Minimum/116 psi Maximum
	FKM stem seal & body seal	Vacuum resistance:	0.4 cm <sup>3</sup> /s
Optional seals:	EPDM or Silicone plug seal		
	EPDM, or Silicone stem & body seal		
Connections:	OD tube butt weld		
	Sanitary clamp		
	Others upon request		
Options:	Additional micro valve for cleaning of leakage chamber		

## Signal Equipment

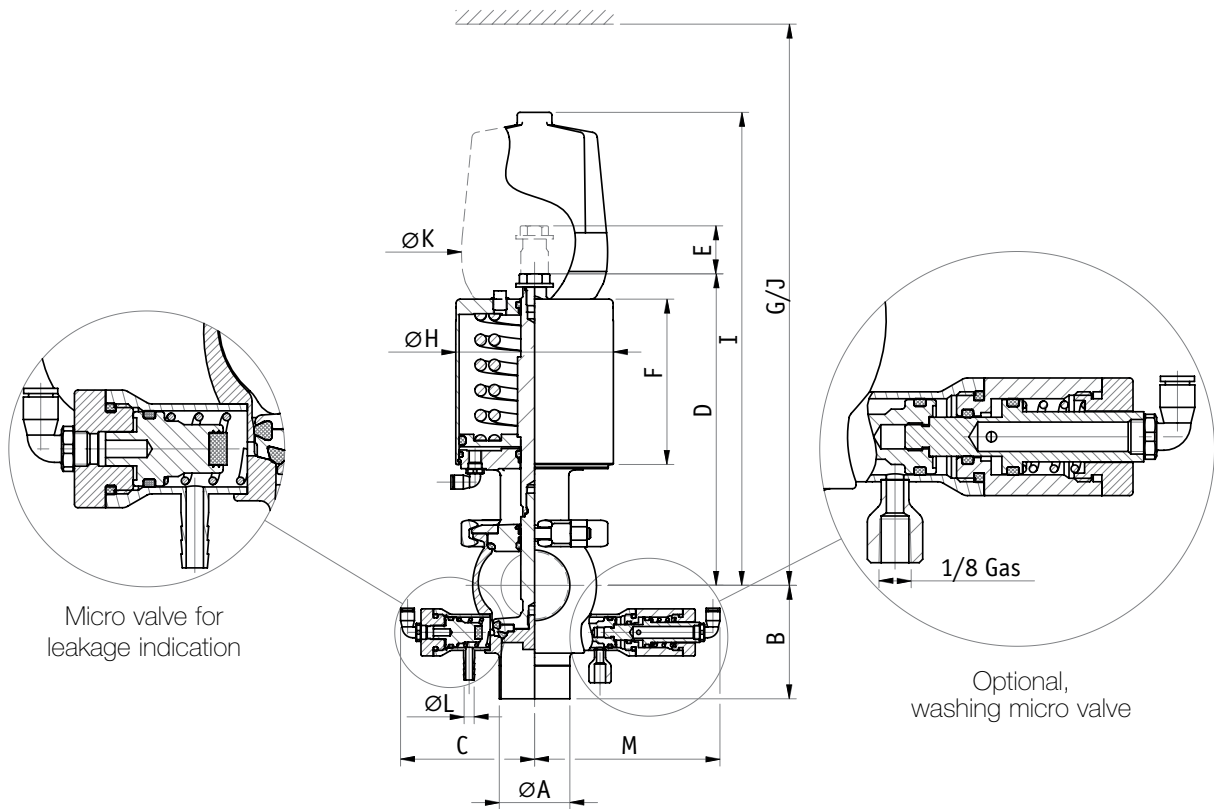
ICS Control top – valve sizes 2" – 3"

ACS Control top – valve sizes 4"

Network options: point-to-point & AS-i (others upon request)



# Dimensions DCX3 DE



Tube A	B	C	D	E	F	G	H	I	J	K	L	M	Weight in lbs.
2	2.99	3.82	8.94	1.14	4.84	14.57	4.49	13.46	18.5	4.09	0.315	5.26	17.64
2-1/2	2.99	4.21	10.87	1.38	6.26	16.93	6.57	15.35	20.08	4.09	0.315	5.67	37.48
3	3.23	4.45	11.10	1.38	6.26	18.11	6.57	15.63	20.87	4.09	0.315	5.98	38.58
4	5.12	5.00	13.31	1.57	7.13	21.65	8.5	18.23	23.62	5.51	0.315	6.54	80.47

# DCX3 Regulating

## FEATURES

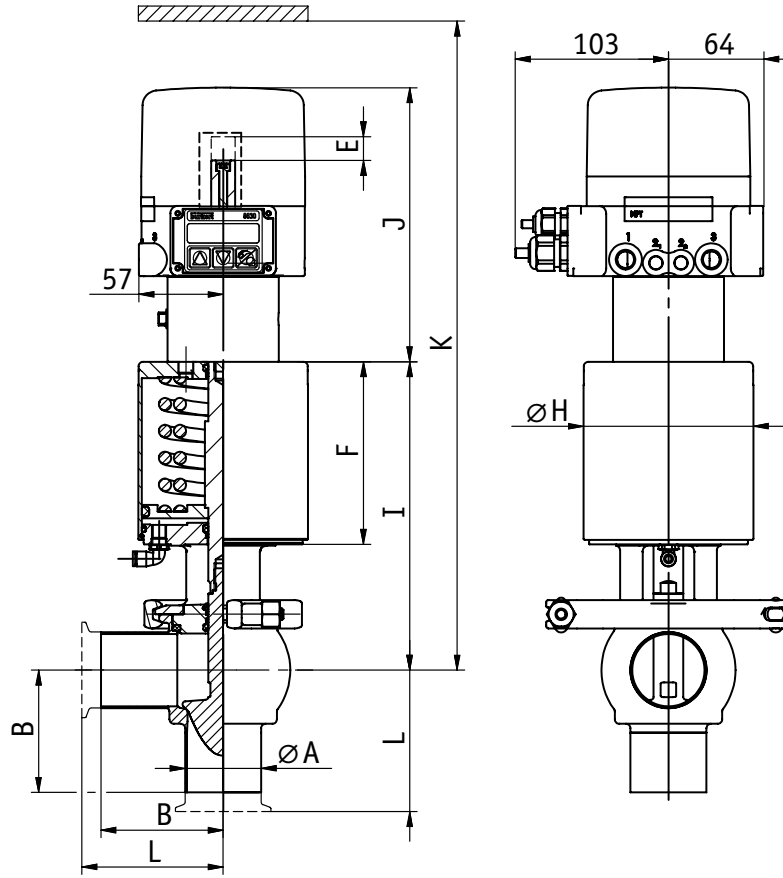
- Stainless steel parabolic stem profile allows for fluid control.
- Precision electro-pneumatic positioner (IP65 Rated).
- Heavy duty stainless steel actuator that is capable of function changes: NO (Normally Open) – NC (Normally Closed).
- Clamp style operator connection for easy inspection and maintenance.
- Wide variety of body configurations: DCX3 (L).

## SPECIFICATIONS

Size Range	1", 1-1/2", 2", 2-1/2", 3", 4"	Service Conditions	
<b>Materials</b>		Positioner:	24VDC powered 4-20mA or 0-10V input signal
Body:	316L SS	Max. temperature:	284°F (depending on seal type)
Stem:	316L SS (Parabolic type)	Min. temperature:	23°F
Operator:	304 SS	Max. working pressure:	87 psi
Valve seals:	Parabolic SS plug (non-100% shut-off) FKM stem seal & body seal	Max. sealing pressure:	116 psi (with elastomer sealed parabolic plug)
Optional seals:	Parabolic SS plug (100% shut-off) with: EPDM, FKM, or Silicone seal EPDM or Silicone stem & body seal	Actuator air supply:	80 psi Minimum/116 psi Maximum
Connections:	OD tube butt weld Sanitary clamp Others upon request	Vacuum resistance:	0.7 cm <sup>3</sup> /s (with elastomer sealed parabolic plug)
Options:	Manual 304 SS operator		
<b>Surface Finish</b>			
R <sub>a</sub> Interior = 32R <sub>a</sub>			
R <sub>a</sub> Exterior = 40-50R <sub>a</sub>			



# Dimensions DCX3



DCX3 regulating type

Tube A	B	E	F	H	L	I	J	K	Weight in lbs.
1	2.01	0.669	4.33	3.50	2.52	6.69	6.50	15.35	12.13
1-1/2	2.24	0.827	4.33	3.50	2.76	6.97	6.5	15.75	12.13
2	2.99	1.14	4.84	4.89	3.5	8.11	7.23	19.69	18.74
2-1/2	2.99	1.38	6.26	6.57	3.5	10.08	7.23	22.05	38.58
3	3.23	1.38	6.26	6.57	3.74	10.32	7.23	23.23	38.58
4	5.12	1.57	7.13	8.5	5.75	12.28	7.23	25.98	65.04

Cv Flow Characteristics (USGPM @ 1 psi)

% OPENING OF VALVE	1	1-1/2	2	2-1/2	3	4
10	5.00	5.00	16.71	17.25	19.85	28.78
20	7.38	9.57	28.00	29.94	35.90	53.85
30	9.38	14.71	37.42	42.25	54.21	83.54
40	11.42	20.43	48.15	56.23	71.45	110.74
50	13.76	25.92	57.12	68.56	89.98	143.96
60	15.74	31.50	66.32	81.54	108.12	175.15
70	18.06	36.07	72.48	95.23	125.75	203.71
80	19.46	40.71	81.24	107.46	143.21	234.86
90	21.59	44.93	88.18	120.65	162.32	269.45
100	24.34	49.30	95.29	132.25	181.25	305.81

■ : Optimum operating point

# DCX3 FdC – Tank Bottom Single Sealing Shut Off

## FEATURES

- Patented PFA floating plug seal that is easily cleaned during CIP and offers outstanding sealing at high temperatures and excellent chemical resistance.
- Body & plug shape provide minimal fluid retention area.
- Rising plug or lowering plug type depending on application.
- Heavy duty stainless steel pneumatic actuator that is capable of function changes: NO (Normally Open) – NC (Normally Closed) – DA (Double Acting).
- Clamp style operator connection (manual and automated) for easy inspection and maintenance.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Body configuration: DCX3 FdC (L).

## SPECIFICATIONS

Size Range	1", 1-1/2", 2", 2-1/2", 3", 4"	Surface Finish	
		R <sub>a</sub> Interior = 32R <sub>a</sub>	
		R <sub>a</sub> Exterior = 40-50R <sub>a</sub>	
Materials		Service Conditions	
Body:	316L SS	Max. temperature:	284°F (depending on seal type)
Stem:	316L SS	Min. temperature:	23°F
Operator:	304 SS	Max. working pressure:	87 psi
Valve seals:	PFA floating plug seal	Sealing Pressure:	101 psi
	FKM stem seal & body seal	Actuator air supply:	80 psi Minimum/116 psi Maximum
Optional seals:	EPDM, FKM, or Silicone plug seal	Vacuum resistance:	0.4 cm <sup>3</sup> /s
	EPDM, FKM, or Silicone stem & body seal		
Tank connection:	Special tank flange for welding		
Connections:	OD tube butt weld		
	Sanitary clamp (45° outlet)		
	Others upon request		
Options:	Long stroke for improved solids handling		

## Signal Equipment

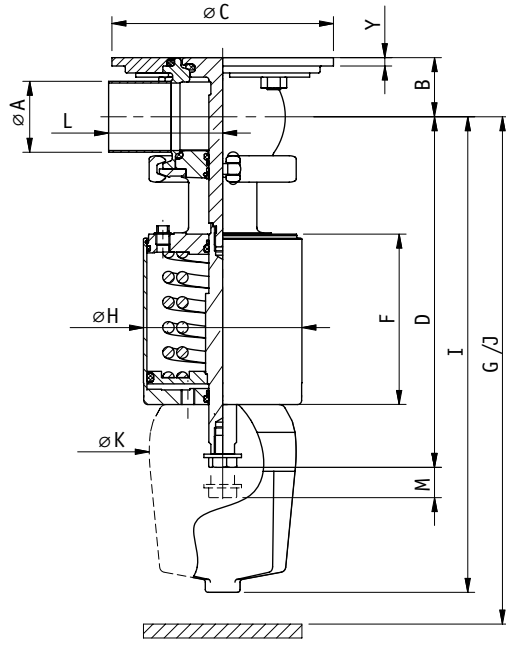
ICS Control top – valve sizes 1" – 3"

ACS Control top – valve sizes 4" – 6"

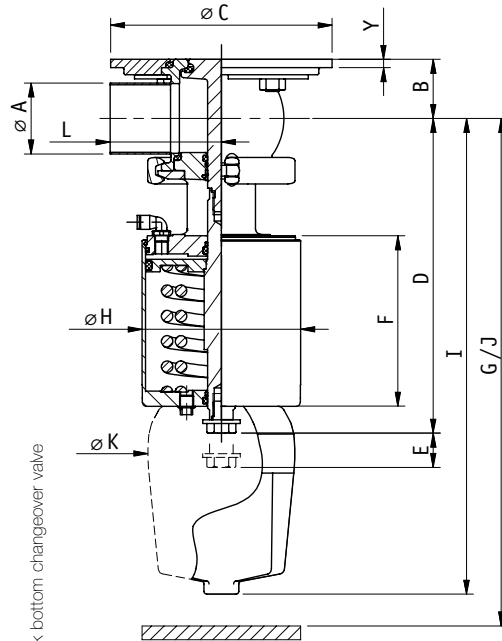
Network options: point-to-point & AS-i (others upon request)



# Dimensions DCX3 FdC

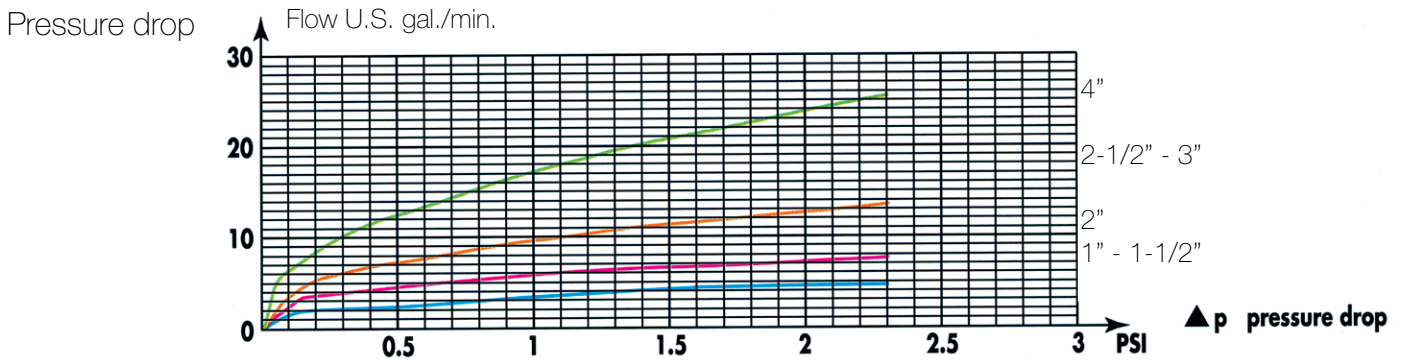


DCX3 FdC raising plug



DCX3 FdC lowering plug

Tube A	B	C	D	E	F	G	H	I	J	K	L	M	Weight in lbs.
1	1.16	5.47	7.44	0.925	4.31	11.81	3.50	12.66	17.72	4.09	2.01	1.38	9.92
1-1/2	1.38	5.47	7.62	1.00	4.31	12.60	3.50	12.87	17.72	4.09	2.24	1.38	11.02
2	1.67	6.26	8.90	1.00	4.84	14.17	4.49	14.02	18.50	4.09	2.99	1.56	18.73
2-1/2	1.91	7.44	10.85	1.38	6.26	16.54	6.57	15.98	20.47	4.09	2.99	1.56	33.07
3	2.17	7.44	11.10	1.38	6.26	17.72	6.57	16.22	20.87	4.09	3.23	1.56	33.95
4	2.95	9.8	13.27	1.57	7.13	23.62	8.50	18.19	27.56	5.51	5.12	1.56	103.62



# VDCI-MC PFA – PFA Seat Mixproof

## FEATURES

- Patented PFA floating plug seal & independent plug seals that are easily cleaned during CIP and offer outstanding sealing at high temperatures and excellent chemical resistance.
- Compact heavy duty stainless steel pneumatic actuator.
- Clamp style operator connection to main body for easy inspection and reduced maintenance time.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Precision machined balanced upper and lower plugs resist mechanical & thermal damage and protect against pressure spikes.
- Leakage chamber with bottom discharge for positive identification of seal failure.

## SPECIFICATIONS

Size Range	1-1/2", 2", 2-1/2", 3", 4"	Service Conditions
Materials		Max. temperature: 266°F
Body:	316L SS	Max. differential temp: 194°F (between upper & lower line)
Stem:	316L SS	Min. temperature: 23°F
Operator:	304 SS	Max. working pressure: 131 psi
Valve seals:	PFA floating plug seal, independent plug seal	Max. CIP pressure: 101 psi
	FKM stem seal, body seal, leak chamber plug seal	Actuator air supply: 80 psi Minimum/116 psi Maximum
Optional seals:	EPDM stem seal, body seal, leak chamber plug seal	
Connections:	OD tube butt weld	
	Sanitary clamp	
	Others upon request	

## Signal Equipment

- ACS Control top – valve sizes 1-1/2" – 4"
- Network options: point-to-point & AS-i (others upon request)
- Optional lantern mounted proximity switch for upper seat lift detection

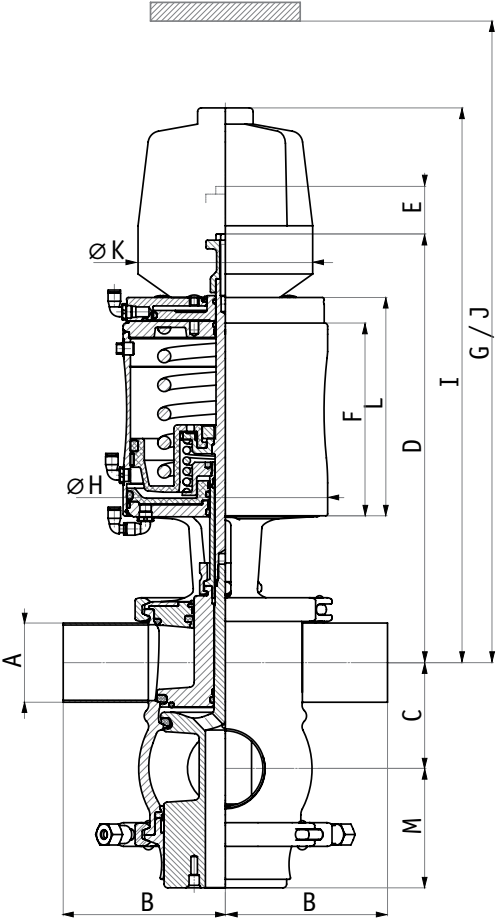
## Surface Finish

- R<sub>a</sub> Interior = 32R<sub>a</sub>
- R<sub>a</sub> Exterior = 40-50R<sub>a</sub>





# Dimensions VDCI-MC PFA



Tube A	B	C	D	E	F	G	H	I	J	K	L	M	Weight in lbs.
1-1/2	4.13	2.17	11.02	1.02	4.76	12.99	5.04	14.96	16.93	5.51	5.71	3.15	31.97
2	4.13	2.76	11.3	1.38	4.96	14.84	5.04	15.24	18.78	5.51	5.71	3.46	33.07
2-1/2	5.12	3.35	13.11	1.77	6.14	18.78	6.46	17.05	22.72	5.51	6.89	4.06	62.83
3	5.12	3.74	13.39	1.77	6.14	19.21	6.46	17.32	23.15	5.51	6.89	4.33	66.14
4	6.10	4.92	16.46	2.44	7.72	25.39	8.58	20.39	29.33	5.51	8.46	5.55	136.69

# VDCI-MC SP – Leak Free Mixproof

## FEATURES

- Sliding elastomer plug seals prevent product loss during fully open operation.
- Plug seals are easily cleaned during CIP during seat lifting operations.
- Compact heavy duty stainless steel pneumatic actuator.
- Clamp style operator connection to main body for easy inspection and reduced maintenance time.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Precision machined balanced upper and lower plugs resist mechanical & thermal damage and protect against pressure spikes.
- Leakage chamber with bottom discharge for positive identification of seal failure.

## SPECIFICATIONS

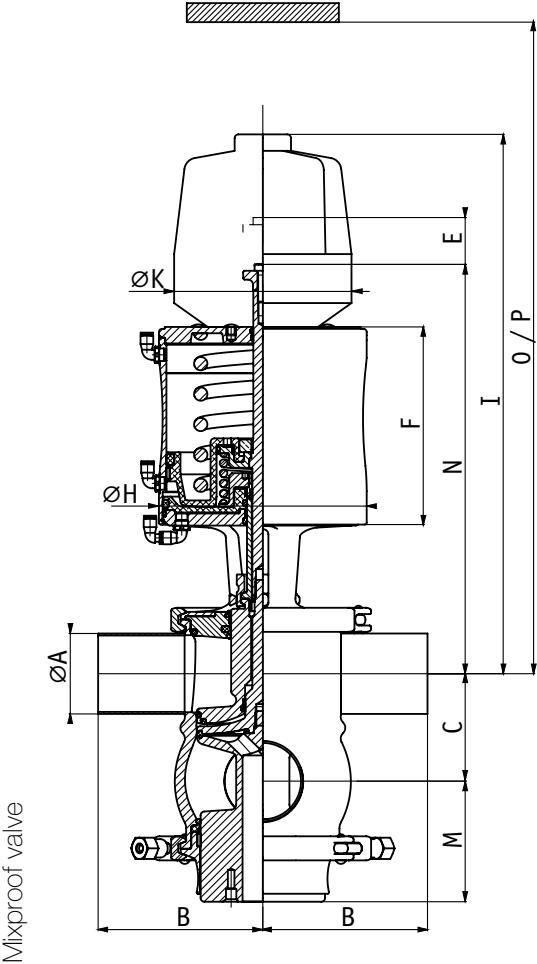
Size Range	1-1/2", 2", 2-1/2", 3", 4"	Surface Finish	
		R <sub>a</sub> Interior = 32R <sub>a</sub>	
		R <sub>a</sub> Exterior = 40-50R <sub>a</sub>	
Materials		Service Conditions	
Body:	316L SS	Max. temperature:	248°F
Stem:	316L SS	Max. differential temp:	194°F (between upper & lower line)
Operator:	304 SS	Min. temperature:	23°F
Valve seals:	FKM plug seal, independent plug seals	Max. working pressure:	131 psi
	FKM stem seal, body seal, leak chamber plug seal	Max. CIP pressure:	101 psi
Optional seals:	EPDM plug seal, independent plug seals	Actuator air supply:	80 psi Minimum/116 psi Maximum
	EPDM stem seal, body seal, leak chamber plug seal		
Connections:	OD tube butt weld		
	Sanitary clamp		
	Others upon request		

## Signal Equipment

- ACS Control top – valve sizes 1-1/2" – 4"
- Network options: point-to-point & AS-i (others upon request)
- Optional lantern mounted proximity switch for upper seat lift detection



# Dimensions VDCI-MC SP



Tube A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Weight in lbs.
1-1/2	4.15	2.17	11.02	1.02	4.96	12.99	5.04	14.96	16.93	5.51	5.71	3.15	10.83	12.8	16.73	28.66
2	4.15	2.76	11.30	1.38	4.96	14.84	5.04	15.24	18.78	5.51	5.71	3.46	11.10	14.65	18.58	29.76
2-1/2	5.12	3.35	13.11	1.77	6.14	18.78	6.46	17.65	22.72	5.51	6.89	4.06	12.72	17.68	21.61	57.32
3	5.12	3.74	13.39	1.77	6.14	19.21	6.46	17.32	23.15	5.51	6.89	4.33	12.99	18.9	22.83	60.63
4	6.1	4.92	16.46	2.44	7.72	25.39	8.58	20.39	29.33	5.51	8.46	5.55	16.06	25.00	28.94	130.07

# VDCI-MC PMO – Leak Free Mixproof

## FEATURES

- Leakage chamber & discharge size conform to USDA PMO “Pasteurized Milk Ordinance” requirements.
- Sliding elastomer plug seals prevent product loss during fully open operation.
- Plug seals are easily cleaned during CIP during seat lifting operations.
- Compact heavy duty stainless steel pneumatic actuator.
- Clamp style operator connection to main body for easy inspection and reduced maintenance time.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Precision machined balanced upper and lower plugs resist mechanical & thermal damage and protect against pressure spikes.
- Leakage chamber with bottom discharge for positive identification of seal failure.

## SPECIFICATIONS

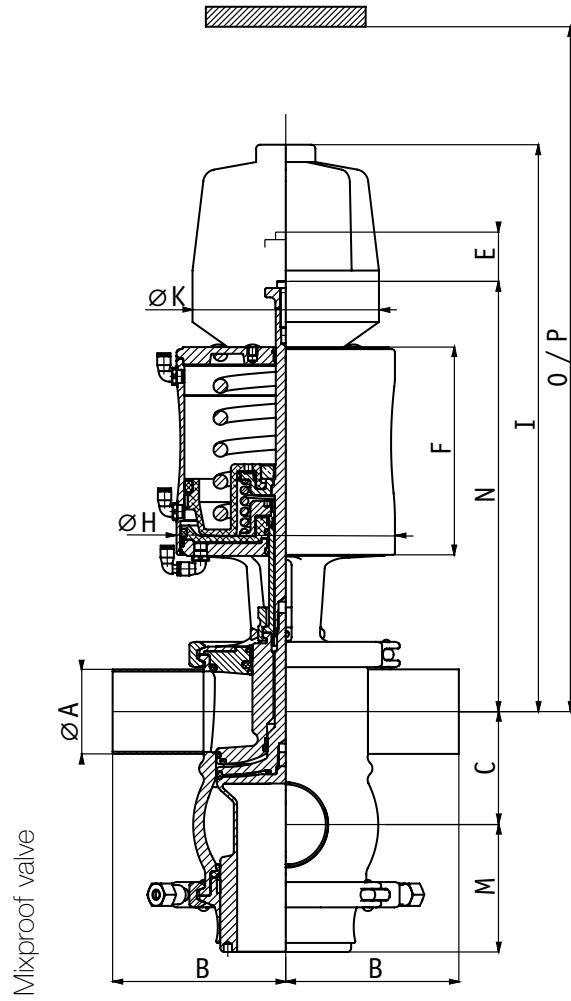
Size Range	1-1/2", 2", 2-1/2", 3", 4"	Surface Finish	
		R <sub>a</sub> Interior = 32R <sub>a</sub>	
		R <sub>a</sub> Exterior = 40-50R <sub>a</sub>	
Materials		Service Conditions	
Body:	316L SS	Max. temperature:	248°F
Stem:	316L SS	Max. differential temp:	194°F (between upper & lower line)
Operator:	304 SS	Min. temperature:	23°F
Valve seals:	FKM plug seal, independent plug seals	Max. working pressure:	131 psi
	FKM stem seal, body seal, leak chamber plug seal	Max. CIP pressure:	101 psi
Optional seals:	EPDM plug seal, independent plug seals	Actuator air supply:	80 psi Minimum/116 psi Maximum
	EPDM stem seal, body, seal, leak chamber plug seal		
Connections:	OD tube butt weld		
	Sanitary clamp		
	Others upon request		

## Signal Equipment

- ACS Control top – valve sizes 1-1/2" – 4"
- Network options: point-to-point & AS-i (others upon request)
- Optional lantern mounted proximity switch for upper seat lift detection



# Dimensions VDCI-MC PMO



Tube A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Weight in lbs.
1-1/2	4.15	2.17	11.02	1.02	4.96	12.99	5.04	14.96	16.93	5.51	5.71	3.15	10.83	12.8	16.73	27.57
2	4.15	2.76	11.30	1.38	4.96	14.84	5.04	15.24	18.78	5.51	5.71	3.46	11.10	14.65	18.58	28.66
2-1/2	5.12	3.35	13.11	1.77	6.14	18.78	6.46	17.65	22.72	5.51	6.89	4.06	12.72	17.68	21.61	52.91
3	5.12	3.74	13.39	1.77	6.14	19.21	6.46	17.32	23.15	5.51	6.89	4.33	12.99	18.9	22.83	54.01
4	6.1	4.92	16.46	2.44	7.72	25.39	8.58	20.39	29.33	5.51	8.46	5.55	16.06	25.00	28.94	117.95

# VDCI MC PMO-C Mixproof

## New Generation

### Continuous Operation (7 days a week, 24 hours a day)

The new design of DEFINOX VDCI MC PMO-C mixproof valve meets the 3-A recommendations (85-02) in accordance with dairy sanitary requirements.

The PMO-C mixproof valve technology allows two different liquids to cross over in complete safety even during seat lifting operations.

**Production no longer needs to completely stop during cleaning operations.**

#### Simple and high-tech design

- No need for an additional seal, due to an intermediate plug made from PEEK Thermoplastic (FDA approved).
- 3 identical O-rings which avoid risk of confusion between the spare parts during maintenance operations.
- The innovative design of the intermediate plug prevents turbulences into the leakage chamber and facilitates its correct positioning onto the lower plug.

#### Patented solution

- The intermediate plug ensures double protection, even during the seat lifting operations:
  - No risk of mixing between two different liquids.
  - Natural vacuum in the leakage chamber. The patented design of the plug assembly prevents any CIP solution transfer into the opposite leakage chamber.

#### 3-A design

Our valve technology complies with 3-A standard 85-02 which allows pasteurized milk in one chamber while CIP solution is flowing into the other chamber, without any risk of cross mixing. Another feature is to provide a leakage section identical to the one of the process pipeline.



# PMO-C



**ACS control top with 3 solenoid valves and a linear sensor**  
(detection of lower plug lifting)

**Compact actuator machined from solid stainless steel block,**  
standard on all versions and options

Fitted with quick-fitting pneumatic connections for easy maintenance

**Lantern fitted with switch**  
for detection of the upper plug lifting

**Seal support plate**  
**Flush seals**

**Leak indicator**  
showing faults in the sealing point between the plugs

**Robust clamp collar**  
enabling a quick disconnect of the plugs, which facilitates the maintenance

**Upper plug machined from solid stainless steel block**

**Upper and lower plugs fitted with EPDM or FKM seals**

**Intermediate plug**  
made from high resistant plastic (PEEK)

**Lower plug machined from solid stainless steel block**

Leakage section identical to the process pipeline meeting PMO requirements

**The counterbalance**  
offers good resistance against water hammer

**Body machined from solid stainless steel block**  
guaranteeing excellent resistance against mechanical and thermal distortions

The body is the same design on all versions of the VDCI MC mixproof valve

**Flush seal easy to clean**

**Cleanable counterbalance cover**



# Working Operations - PMO-C

Closed phase



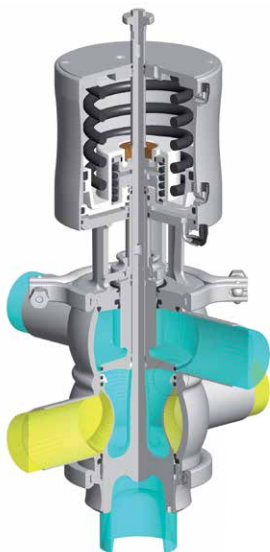
Transfer of fluids in the upper line and the lower line with a leakage chamber between the two lines preventing the mixing of two different liquids

Open phase



Transfer of the fluid between the upper line and the lower line

Cleaning of the upper line



Washing of the upper line and of the leakage chamber while operating the upper plug

Cleaning of the lower line

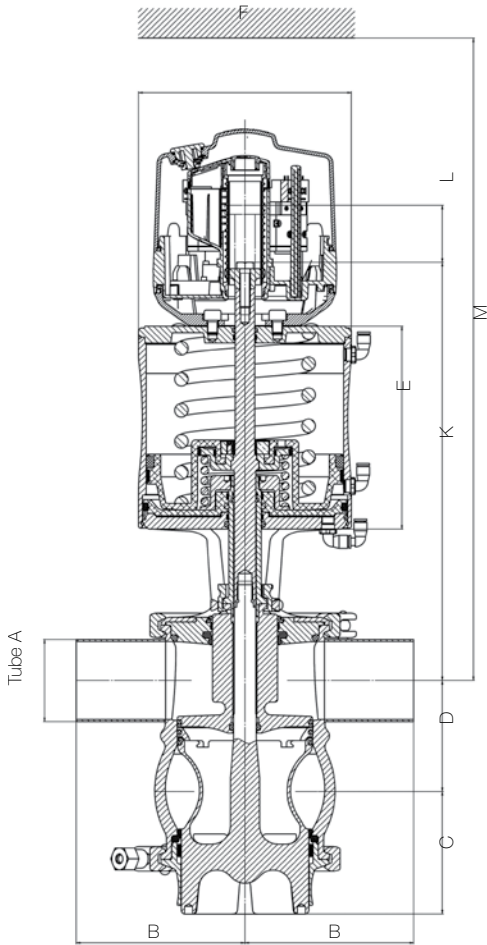


Washing of the lower line and of the leakage chamber while operating the lower plug

\*Washing of the lower balancer



# Working Conditions - PMO-C



## Working Conditions

Working temperature: .....+23°F - 248°F  
(-5°C - 120°C)

Sterilization temperature: .....266°F  
(130°C)

Max. working pressure: ..... 130 psi (9 bar)  
except during  
cleaning operations:  
101 psi (7 bar)

Compressed air supply pressure: .....  
from 72 - 101 psi  
(from 5 - 7 bar)  
with ACS control top.  
Up to 116 psi (8 bar) in direct supply

## Surface Finish

Interior: .....32Ra (0.8 μm)

Exterior: .....47Ra (1.2 μm)

## Valve VDCI MC PMO-C

Tube A	B	C	D	E	F	L (stroke)	K	M (with control top)	Weight in lbs.
1-1/2	4.13	3.15	2.17	4.96	5.04	1.02	11.02	16.73	25.35
2	4.13	3.46	2.76	4.96	5.04	1.38	11.30	18.58	27.56
2-1/2	5.12	4.05	3.35	6.14	6.46	1.77	13.11	21.61	51.81
3	5.12	4.33	3.74	6.14	6.46	1.77	13.39	22.83	52.91
4	6.10	5.55	4.92	7.72	8.58	2.44	16.46	28.94	116.84

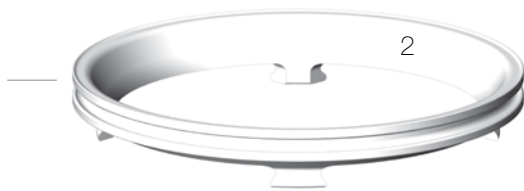
ND	CV FLOW COEFFICIENT		KV FLOW COEFFICIENT		OPENING TIME (s)	AIR CONSUMPTION (NI)
	Low	High	Low	High		
1-1/2		58		50	1	1.7
2		70		60	1	1.7
2-1/2		122		105	2	3.2
3		139		120	2	3.2
4		249		215	3	11

# Innovative Technology - PMO-C

## PEEK INTERMEDIATE PLUG

- An intermediate plug “2” is inserted between the lower plug “3” and the upper plug “1” to prevent any risk of contamination between non-compatible products during the seat lifting (such as milk and cleaning solutions).
- This intermediate plug is made from a specific type of natural plastic called PEEK and approved by the FDA. This plastic is more resistant to high temperatures and high pressure.

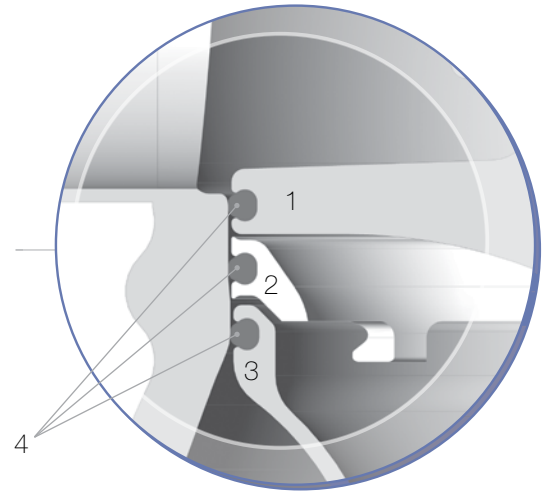
An intermediate plug made from PEEK



## SLIDING O-RINGS

- 3 identical sliding O-ring seals “4” assembled on each plug ensure a perfect sealing during the opening and the closing of the valve. These O-rings offer a double security against the risk of mixing and facilitate the maintenance.

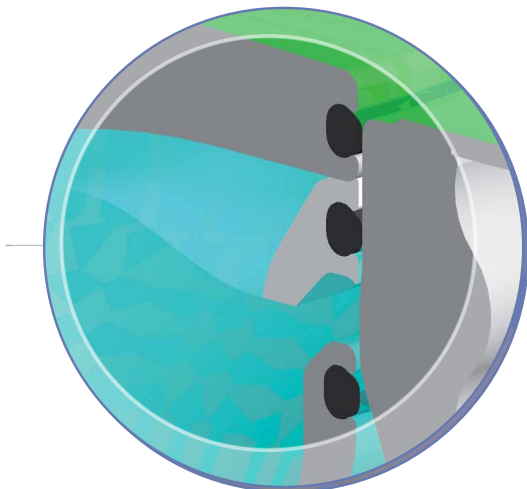
3 identical O-rings



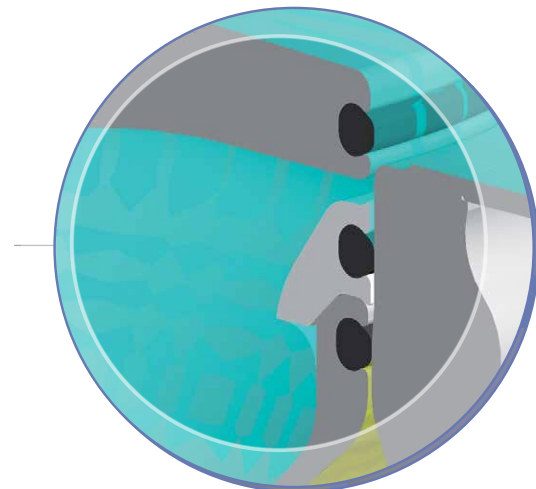
## ORIGINAL & INTELLIGENT DESIGN

The legs of the intermediate plug are positioned on the outside diameter to facilitate its centering onto the lower plug. This design prevents turbulences in the leakage chamber.

Lifting of the lower plug



Lifting of the upper plug



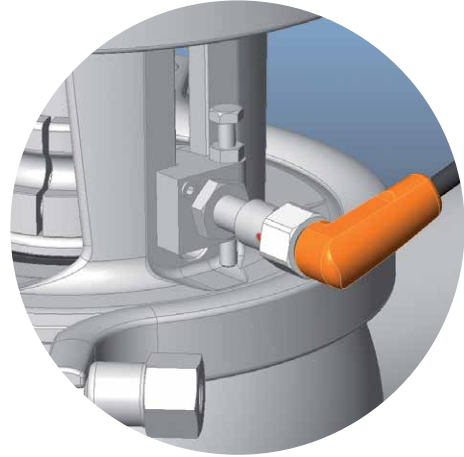
# VDCI ACS Control Top

## Linear sensor



- Accuracy to 0.2 mm
- Lifting detection of the lower plug
- Calibration on valve

## Proximity switch on lantern



- Lifting detection of the upper plug

## COMMAND AND CONTROL SYSTEMS

The ACS control top offers numerous options to facilitate the control and command of the VDCI MC PMO-C:

- AS-i or multi-voltage interface
- Detection of movements for each plug
- Use of a linear sensor
- Accurate adjustment of the sensor
- Quick disassembly of the control top for easy maintenance

# VDCI Body Configurations



Type 1



Type 2



Type 3



Type 4



Type 5



Type 6



Type 7



Type 8



Type 9



Type 10



Type 11



Type 12



Type 13



Type 14



Type 15



Type 16



Type 17



Type 18



Type 19



Type 20



Type 21

Main body configurations  
Other configurations available on request

# VDCI-MC FdC – Tank Bottom Mixproof

## FEATURES

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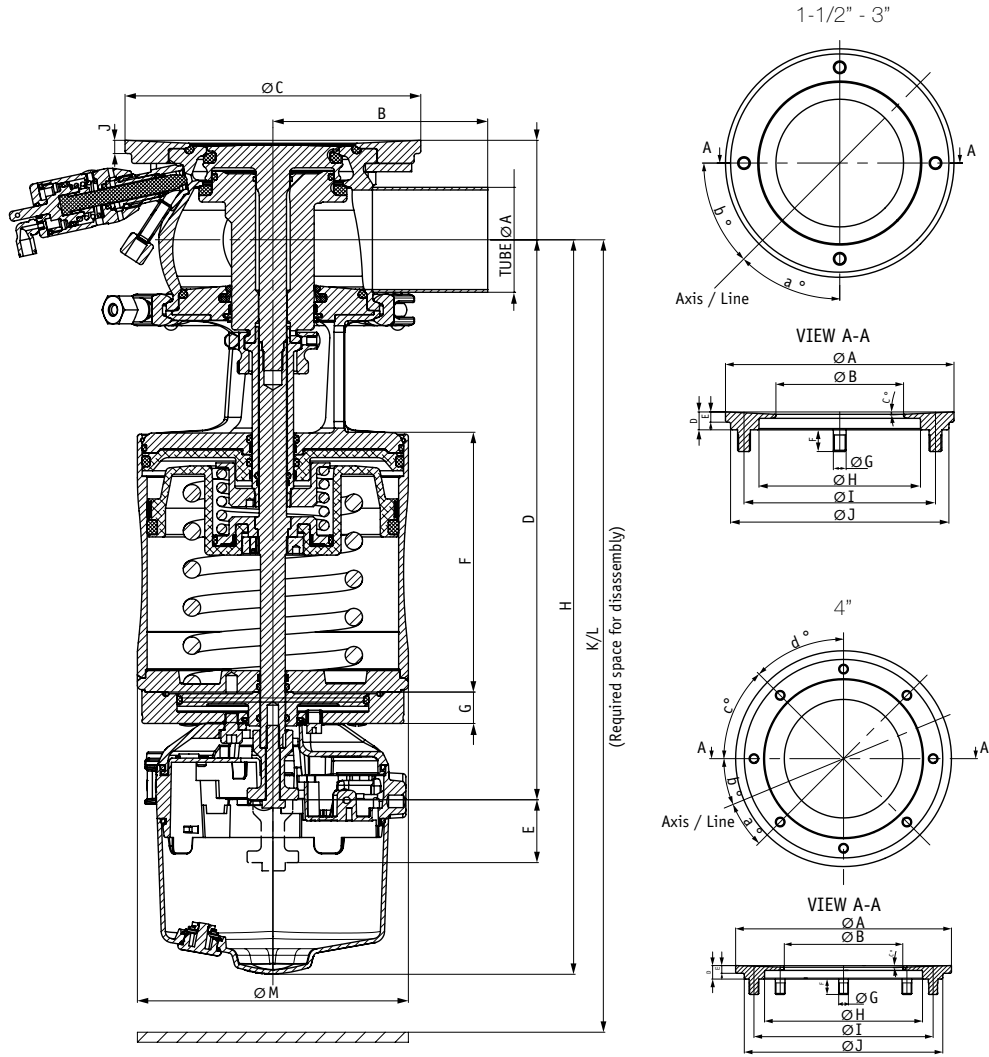
- Patented PFA floating plug seal & independent lifting plug seal that are easily cleaned during CIP and offers outstanding sealing at high temperatures and excellent chemical resistance.
- Body & plug shape provide minimal fluid retention area.
- Lowering plug with sliding seal prevents leakage during valve opening.
- Integral micro valve to ensure secondary seal cleaning during seat lift.
- Clamp style operator connection for easy inspection and maintenance.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.

## SPECIFICATIONS

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Size Range	2", 2-1/2", 3", 4"	<u>Signal Equipment</u>	
		ACS Control top – valve sizes 2" – 4"	
Materials		Network options: point-to-point & AS-i (others upon request)	
Body:	316L SS	Optional lantern mounted proximity switch for upper seat lift detection	
Stem:	316L SS		
Operator:	304 SS		
Valve seals:	PFA floating plug seal, independent plug seal FKM stem seal, body seal, leak chamber plug seal	<u>Surface Finish</u>	
		R <sub>a</sub> Interior = 32R <sub>a</sub>	
		R <sub>a</sub> Exterior = 40-50R <sub>a</sub>	
Optional seals:	EPDM stem seal, body seal, leak chamber plug seal	<u>Service Conditions</u>	
Tank connection:	Special tank flange for welding	Max. temperature:	284°F (depending on seal type)
Connections:	OD tube butt weld Sanitary clamp Others upon request	Max. differential temp:	194°F (between upper & lower line)
		Min. temperature:	23°F
		Max. working pressure:	58 psi (in the tank)
		Max. working pressure:	87 psi (through the valve)
		Sealing Pressure:	101 psi
		Actuator air supply:	80 psi Minimum/116 psi Maximum
		Vacuum resistance:	0.4 cm <sup>3</sup> /s

# Dimensions VDCI-MC FdC



Tube A	B	C	D	E	F	G	H	I	J	K	L	M	Weight in lbs.
2	4.13	5.87	11.54	1.30	5.00	0.77	15.79	2.09	0.33	15.39	19.33	5.04	24.25
2-1/2	5.12	7.05	13.35	1.54	6.18	0.75	17.56	2.40	0.31	19.29	23.23	6.46	46.30
3	5.12	7.05	13.62	1.50	6.18	0.75	17.83	2.60	0.31	19.72	23.66	6.46	47.40
4	6.10	8.82	16.65	2.36	7.72	0.75	20.87	3.23	0.31	25.87	29.80	8.58	92.59

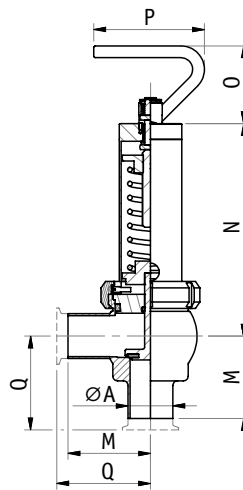
# Manual Pressure Relief

## FEATURES

- Manual adjustment of relief pressures with the option of three different spring ranges.
- SMS style body nut for easy inspection, maintenance and cleaning.
- Heavy wall machined spherical bodies guarantee excellent resistance to thermal expansion and contraction.
- Body configuration: (L) type only.

## SPECIFICATIONS

Size Range	1-1/2", 2"	Available springs
		#1 0-51 psi relief pressure
		#2 44-110 psi relief pressure
		#3 110-175 psi relief pressure
Materials		Surface Finish
Body:	316L SS	R <sub>a</sub> Interior = 32R <sub>a</sub>
Stem:	316L SS	R <sub>a</sub> Exterior = 40-50R <sub>a</sub>
Operator:	304 SS	
Valve seals:	FKM plug seal FKM stem seal & body seal	
Optional seals:	EPDM plug seal EPDM stem & body seal	
Connections:	OD tube butt weld Sanitary clamp Others upon request	Service Conditions
		Max. temperature: 248°F
		Min. temperature: 32°F



Tube A	M	N	O	P	Q	Weight in lbs.
1-1/2	2.76	7.09	2.56	3.94	3.35	5.95
2	3.23	9.84	2.56	3.94	3.82	8.6

# DCX3 Relief

## FEATURES

- Predetermined desired relief pressure allows the valve to relieve main piping overpressure which protects system equipment and piping.
- Valve is able to be activated to the open position for clean-in-place (CIP) operations.
- Heavy duty stainless steel actuator is able to be fitted with a variety of springs to achieve desired relief pressures.
- Clamp style operator connection for easy inspection and maintenance.

## SPECIFICATIONS

Size Range	1", 1-1/2", 2", 2-1/2", 3", 4"	Service Conditions
Materials		Pressure tolerance: +/- 15% of set pressure
Body:	316L SS	Max. temperature: 248°F (depending on seal type)
Stem:	316L SS	Min. temperature: 23°F
Operator:	304 SS	Max. working pressure: 116 – 174 psi (valve size dependant)
Valve seals:	PFA floating plug seal FKM stem seal & body seal	Actuator air supply: 80 psi Minimum/116 psi Maximum
Optional seals:	EPDM, FKM, or Silicone plug seal EPDM or Silicone stem & body seal	Vacuum resistance: 0.4 cm <sup>3</sup> /s
Connections:	OD tube butt weld Sanitary clamp Others upon request	
Options:	Air assist with regulator for increased relief pressures	

## Surface Finish

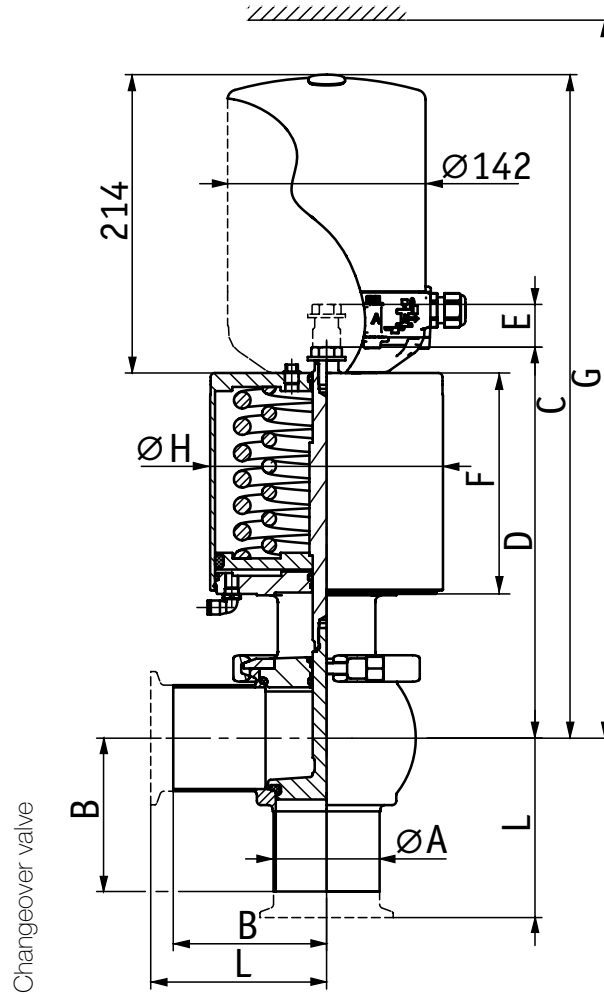
R<sub>a</sub> Interior = 32R<sub>a</sub>

R<sub>a</sub> Exterior = 40-50R<sub>a</sub>





# Dimensions DCX3 Relief



DCX3 relief type

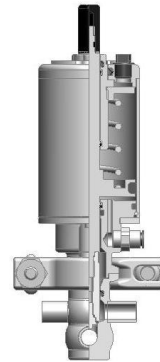
Tube A	B	E	F	H	L	C	D	G	Weight in lbs.
1	2.01	0.669	4.33	3.50	2.52	16.34	7.56	19.29	8.82
1-1/2	2.24	0.827	4.33	3.50	2.76	16.61	7.56	19.69	8.82
2	2.99	1.14	4.84	4.89	3.5	17.76	8.82	20.47	15.43
2-1/2	2.99	1.38	6.26	6.57	3.5	19.72	10.87	23.23	35.27
3	3.23	1.38	6.26	6.57	3.74	19.96	11.06	23.62	35.27
4	5.12	1.57	7.13	8.5	5.75	21.93	13.11	29.57	61.73

# Adjustable Relief DCX3 Changeover

## ADVANTAGES

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- Reduction of tolerance of the adjustment value
- Easy to adjust with a standard wrench
- High precision of response during excess pressure
- Working security
  - Protection against excessive pressure
- Compact
  - Adjustment system integrated in the valve



Relief fractional DCX3  
1/2" - 3/4" - X body

## SPECIFICATIONS

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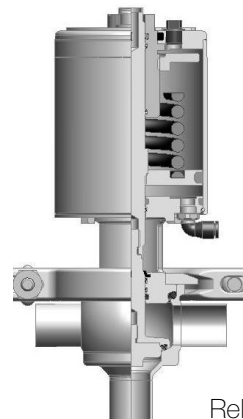
### Service Conditions

- Max. temperature: +140°C
- Min. temperature: -5°C

## DIMENSIONS

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- 1", 1-1/2", 2", 2-1/2", 3", 4"
- Max. working pressure: 8 - 12 bar (800 to 1200 kPa)  
depending on the diameter  
reduced because of its fine  
thread
- Vacuum resistance: 0.4 cm<sup>3</sup>/s



Relief DCX3  
1" - 4" - T body  
Standard plug - elastomer seal

## CHARACTERISTICS

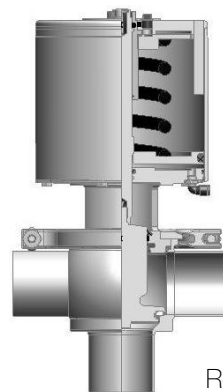
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- Plug: standard or balanced
- Seals: PFA or elastomer
- Body: T - L - X

## OPTIONS

---

- Adjustable relief DCX3 changeover valve with 3 functions :
- Counter-pressure during cleaning, resistance to high pressure



Relief DCX3  
1" - 4" - L body  
Balanced plug - PFA seal

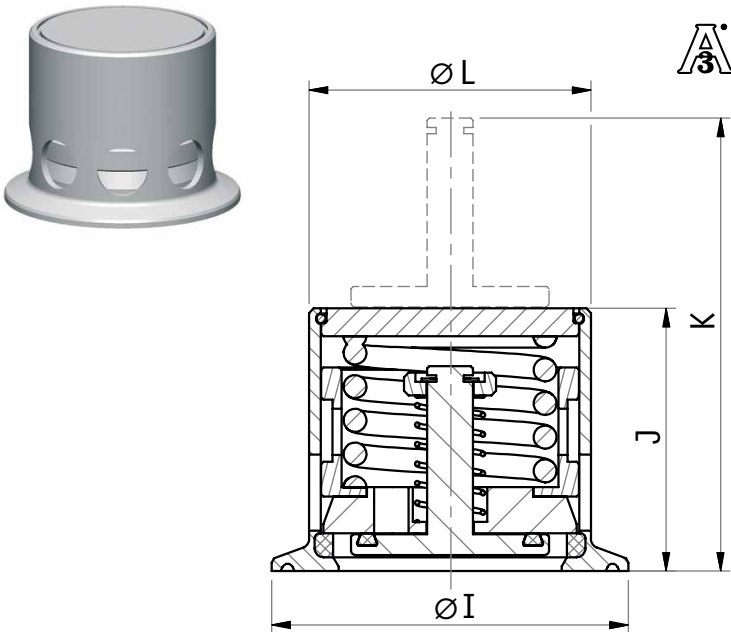
# Tank Service Vacuum-Pressure Relief

## FEATURES

- Manual valve that allows the following:
  - Automatic seat lift to relieve air or fluid to prevent vessel overpressure
  - Automatic seat retraction to allow air into a vessel to prevent vacuum conditions

## SPECIFICATIONS

Size Range	2", 2-1/2", 4"	Surface Finish	
Materials		R <sub>a</sub> Interior = 32R <sub>a</sub>	
Body:	316L SS	R <sub>a</sub> Exterior = 40-50R <sub>a</sub>	
Plug:	PTFE	Service Conditions	
Valve seals:	Silicone	Max. temperature:	176°F
Optional seals:	EPDM	Min. temperature:	32°F
Connections:	Sanitary clamp	Pressure relief:	10-35 psi see chart below
		Vacuum relief:	30 mBar



### Optional Pressure Relief Springs

Size	Spring	Relief Pressure
2 & 2-1/2	#1	10 psi
	#2	15 psi
	#3	20 psi
	#4	25 psi
	#5	35 psi
4	#1	15 psi
	#2	25 psi
	#3	35 psi

Pressure relief spring # must be specified at time of order.

Tube A	I	J	K	L	Weight in lbs.
2	2.52	2.76	4.41	2.40	1.32
2-1/2	3.05	2.24	3.90	2.40	1.21
4	4.69	5.94	10.63	4.69	9.04

# ACS – ICS Control Units

## FEATURES

### Optimized Application

- A modular design
- Easy handling
- A user-friendly interface
- Quick-fitting electric and pneumatic connections

### Additional Functions

- A relief valve
- Optional linear sensor to detect plug operations
- Various electronic modules
- Easy assembly and disassembly

### News

- Simplified air circuit
- Threaded pneumatic connections on the base of the control top

### 2 Ranges For All Types Of Valves

- ACS (Advanced Control System)

The ACS control top covers:

DPAX range of butterfly valve from 1" - 6"

DCX range of changeover valve from 1" - 6"

VDCI MC range of mixproof valve from 1-1/2" - 6"

- ICS (Integrated Control System)

The ICS control top covers:

DPAX range of butterfly valve from 1" - 6"

DCX range of changeover valve from 1-1/2" - 3"

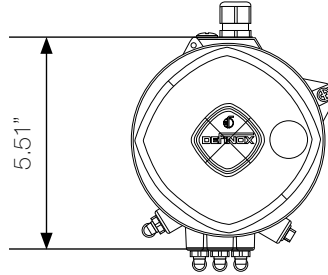
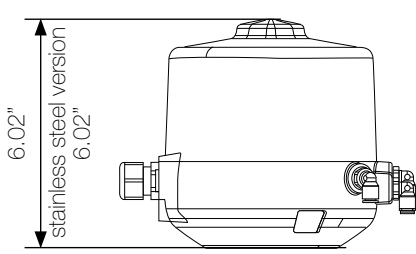
## SPECIFICATIONS

	ACS unit	ICS unit
Stainless steel cover	Yes, optional	Yes, optional
Relief valve	Yes	Yes
Point-to-point connections	24-48V AC/DC	24-48V AC/DC
Multi-voltage modules	PNP/NPN retro data	PNP/NPN retro data
AS-i connections	AS-i 2.1 or AS-i 2.0	AS-i 2.1 or AS-i 2.0
Sensors	2 TOR sensors with fine adjustment or 1 linear sensor	2 TOR sensors
	Resolution 0.2 mm	
Linear sensor	Manual calibration Stroke 80 mm	No
External sensor	Yes	No
Electrical consumption (1 SV and 1 sensor activated)	< 70 mA in AS-i < 50 mA in 24V DC	< 70 mA in AS-i < 50 mA in 24V DC
Solenoid valves	1 to 3 SV 3/2 or 1 SV 5/2 (24V DC)	1 SV 3/2 (24V DC)
Pneumatic functions	NC - NO and DA	NC - NO
Pneumatic connections	Quick 4/6	Quick 4/6
Air quality	Dry air filtered to 10µm 500 to 700 kPa (5 to 7 bar)	Dry air filtered to 10µm 500 to 700 kPa (5 to 7 bar)
Display for version with module	Yellow LEDs (3 or 7): I/O Red LED (1): faults Green LED (1): power supply	Yellow LEDs (3): I/O Red LED (1): faults Green LED (1): power supply
Operating temperature	0°C - +70°C	0°C - +70°C
Protection index	IP67	IP67

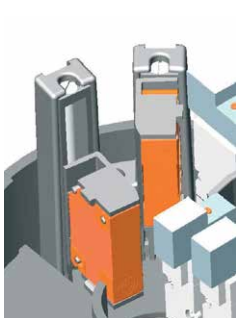
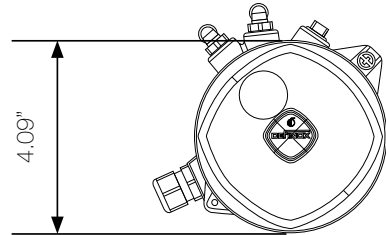
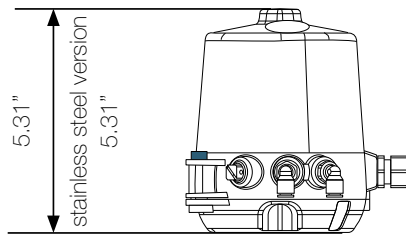
For choice

# ACS – ICS Control Units

## ACS



## ICS



TOR sensors

Accurate detection



Linear sensor



User interface

# Customized Equipment

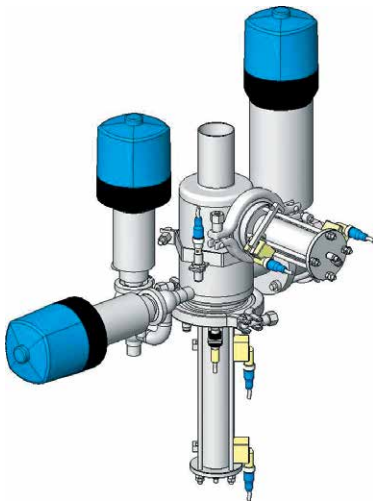
We develop customized systems adapted to your process.



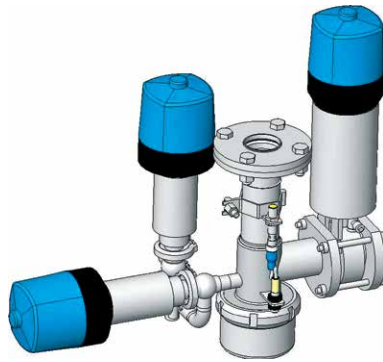
Manifold Scraping System  
 Tank Equipment  
 Cip Ozone  
 Blender or Micro-Blender  
 Filter

We bring you innovative solutions

## PIGGING SYSTEM



Pigging crossing body



Pigging no crossing body with absorber



All valves are manufactured by Definox

