New: 4" Control Valve with Cv 165 and 200

Mark 978 Series

CRN Registration Number Available

Sanitary Control Valves – OR Version



The Mark 978 O-Ring Series is designed to meet the rigid specifications for sanitary process control valves for customers who prefer an O-ring style stem seal. This valve series is suitable for a wide variety of applications in the bio-pharmaceutical, pharmaceutical, cosmetic, dairy and food and beverage industries.

Conforming to ASME BPE guidelines, the MK978 is ideally suited for a wide range of flowing media in both the utility and process areas of sanitary and aseptic systems.

High rangeability, characterized trim, high capacities, superior temperature and pressure ratings along with a selection of sealing methods make the MK978 the sanitary control valve for liquid, gas and steam services.

Whether the need is to control pressure, temperature, flow, pH, or another variable, the MK978 is the right valve for your process.

Features

- FDA & USP Class VI compliance standard on all process seal and seat materials (except Buna-N)
- Self draining – Angle Body: when mounted in vertical (all sizes) or horizontal orientations. See guide on Page 5.
- No guiding in the wetted area – prevents particulate generation
- Mechanically polished internal components – 20Ra (0,5 µm) finish, electropolish – standard , 8 Ra (0,2µm) optional
- Wetted parts made of 100% 316L Stainless Steel barstock
- Maintenance-friendly – easy to perform sanitary maintenance with simple disassembly and reassembly
- Steel, baked corrosion resistant coated multi-spring actuators to meet a wide range of differential pressure requirements while providing excellent corrosion resistance during washdown; optional 304SS electropolish

Available Finishes

Body

- *Standard:* 20 Ra mechanical finish on internal wetted surfaces (0,5 µm); machine finish on exterior (63 RMS), and electropolished inside and out
- *Optional:* 20 Ra mechanical finish on external surfaces (0,5 µm); 8 Ra finish on internal or external surfaces (0,2 µm)

Stem

- *Standard:* 20 Ra mechanical finish and electropolish (0,5 µm)
- *Optional:* 8 Ra mechanical finish (0,2 µm)

Applications

A wide variety of applications exist for the MK978 in the pharmaceutical, biotech, health care, and food & beverage and other industries including:

Processes
- Clean air and gas systems
- CIP systems

Typical Media
- Clean Air and Gas
- Caustic
- Acids
- CIP Fluids

STERIFLOW a division of Jordan Valve

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Specifications – O-Ring Stem Seal

Sizes: 1/2" (DN15) through 2" (DN50), 4" (DN100)
Body/Bonnet Connection: bolted flange
Body/Bonnet Seal
- 1/2" - 2": Jorlon
- 4"" O-ring matches stem seal

Body Material: ASME SA479 316L (UNS 31603) is standard. EN 10272:2000 GR 1.4435, AL-6XN®, Hastelloy®C-22 and others are optional.
Stem Material: ASTM A479 316L SST Barstock
Bonnet Material: ASTM A479 316L SST Barstock
Stem Seal
- FDA/USP Class VI EPDM up to 275°F (+135°C)
- FDA/USP Class VI Silicon up to +450°F (+232°C)*
- FDA/USP Class VI Viton® up to +400°F (+204°C)*
- FDA Buna-N up to +225°F (+107°C)
- FDA/USP Class VI Kalrez® up to +450°F (+232°C)
- FDA/USP Class VI Fluoraz® up to +450°F (+232°C)

*While rated for use at normal SIP clean steam temperatures, Steriflow does not recommend, nor warrant non-encapsulated Viton, or Silicon for use on any clean steam service at temperatures exceeding 135°C.

Stem Bushing: FDA PEEK (no process contact)
Actuators: Pneumatic -
- 1/2" – 1" (DN15 – DN25); 35M & 55M: Steel, baked corrosion resistant coating
- 1-1/2" – 2" (DN40 – DN50); 55M & 85M: Steel, baked corrosion resistant coating
- 1/2" - 2": add optional 304SS
- 4" (DN100); 745M , barstock aluminum

Soft Seat Option (Cv ≥ 3.5 only)
- PTFE FDA/USP Class VI to 250°F (121°C)
- PEEK FDA/USP Class VI to 350°F (177°C)
- For service in excess of the temperatures listed, please consult factory

Electric
- 1/2" – 2" (DN15 – DN50)
  CML100 Cv 0.2 – 5.0 (Kv 0,17 – 4,3)
  CML250 All other Cv's

Shutoff
- Standard: ANSI Class III with metal seat
- Optional: ANSI Class VI with soft seat (Cv > 3.5 only)

Ranges: 3-15, 6-30, 3-9*, 9-15*, 18-70* or 3-56* psi (0,2-1,0; 0,4-2,0; 0,2-0,6; 0,6-1,0; 1,2-4,8 or 0,2-3,9 bar) (* positioner required)
Maximum Pressure @ 100°F (38°C): 450 PSI (31 bar) for 0.5"-3". 250 PSI (17 bar) for 4"
Flow Characteristics: Linear, equal percentage, or quick opening (consult factory for quick opening Cv's)
Pressure/Temperature Rating
- O-Ring for 1/2" - 2": 450 psi up to +450°F (31 bar up to +232°C), temperature dependent upon stem seal o-ring material
- 4": 150 psi up to 250°F (10 bar up to 121°C)

Cv (Kv) Ratings

Cv (Kv) Ratings		
Size	Linear	Equal Percentage
1/2"	0.2 \ 0.5 \ 1.0 (0,17 / 0,43 \ 0,86)	
3/4"	1.0 \ 2.0 \ 3.5 \ 5.0 (0.,86 \ 1,72 \ 3,01 \ 4,30)	
1"	3.5 \ 5.0 (3,01 \ 4,30)	
	7.5 \ 15.0 (6,45 \ 12,90)	
1-1/2"	5.0 \ 10 \ 15 \ 20 \ 30 (4,3 \ 8,6 \ 12,9 \ 17,2 \ 25,0)	
2"	10 \ 15 \ 20 \ 30 (8,6 \ 12,9 \ 17,20 \ 25,80)	
	40 \ 60 \ 70* (34,40 \ 51,60 \ 60,55*)	40 (34,40)
4"	165/200 (142/172)	N/A

* Modified Linear - Contact factory for more information

Note: For a complete ancillary list of all wetted and non-wetted material specifications, please contact Steriflow Valve.

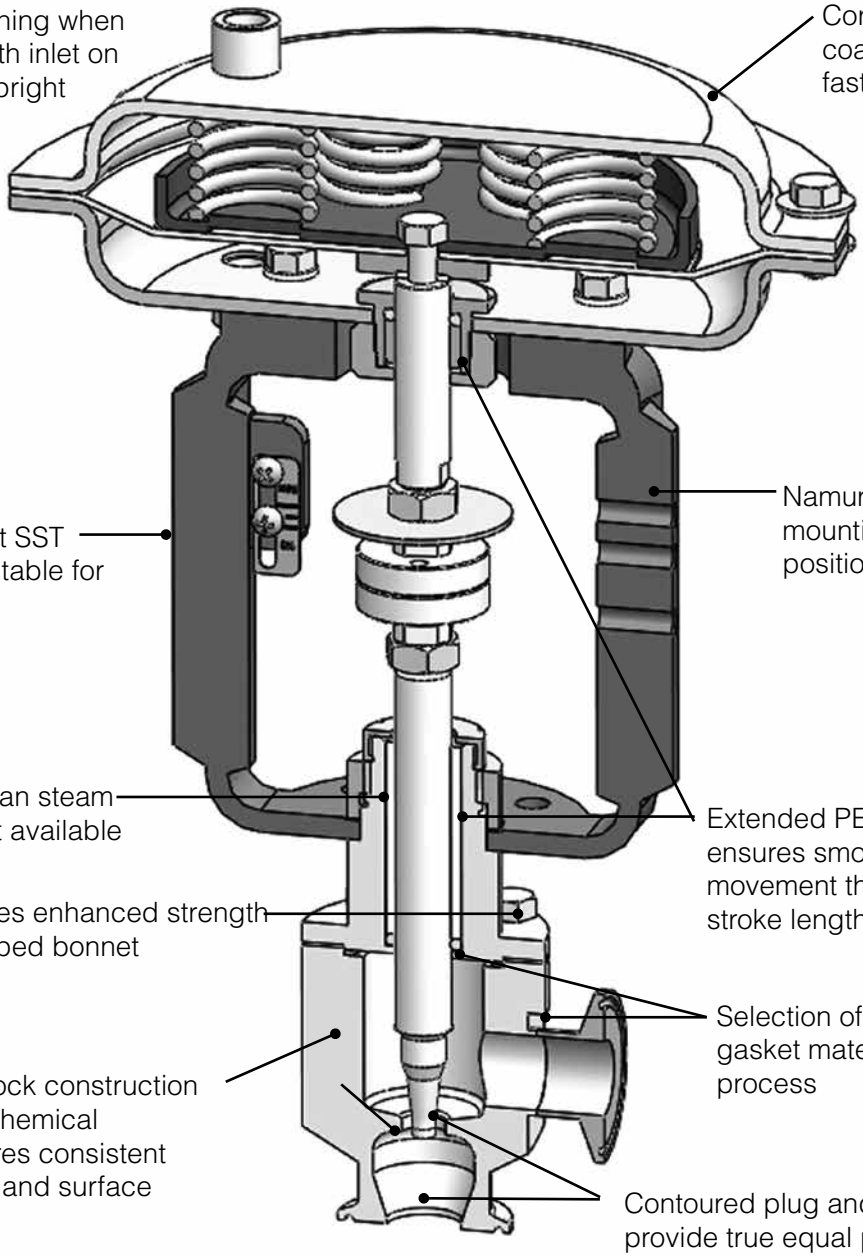
Maximum Δ Ratings, PSI (BAR)

Valve Size	Valve Cv	Actuator Size	ATO 3-15	ATO 6-30 or w/ positioner @ 40 psi	ATC 3-15 or w/ positioner @ 20 psi	ATC 6-30 or w/ positioner @ 40 psi	ATO 18-70 or w/ positioner @ 75 psi	ATC 3-56 or w/ positioner @ 75 psi
1/2"	0.2 / 0.5 / 1.0	35M / 55M	450 (31)	450 (31)	450 (31)	450 (31)	N/A	N/A
3/4"	1.0 / 2.0 / 3.5 / 5.0	35M	396 (27)	450 (31)	396 (27,3)	450 (31)	N/A	N/A
3/4"	1.0 / 2.0 /3.5 / 5.0	55M	450 (31)	450 (31)	450 (31)	450 (31)	N/A	N/A
1"	3.5 / 5.0	35M	150 (10,3)	216 (14,9)	150 (10,3)	450 (31)	N/A	N/A
1"	3.5 / 5.0	55M	316 (21,8)	416 (28,7)	316 (21,8)	450 (31)	N/A	N/A
1"	7.5 / 15	35M	75 (5,2)	120 (8,3)	75 (5,2)	300 (20,7)	N/A	N/A
1"	7.5 / 15	55M	188 (13,0)	256 (17,7)	188 (13,0)	450 (31)	N/A	N/A
1-1/2"	5 / 10 / 15	55M	86 (5,9)	126 (8,7)	86 (5,9)	288 (19,9)	N/A	N/A
1-1/2"	5 / 10 / 15	85M	220 (15,2)	288 (19,9)	220 (15,2)	450 (31)	N/A	N/A
1-1/2"	20 / 30	55M	63 (4,3)	97 (6,7)	63 (4,3)	232 (16,0)	N/A	N/A
1-1/2"	20 / 30	85M	176 (12,1)	232 (16,0)	176 (12,1)	450 (31)	N/A	N/A
2"	10/15/20/30/40/60	55M	15 (1,0)	34 (2,3)	15 (1,0)	111 (7,7)	N/A	N/A
2"	10/15/20/30/40/60	85M	79 (5,4)	111 (7,7)	79 (5,4)	238 (16,4)	N/A	N/A
4"	165/200	745M	N/A	N/A	N/A	N/A	50 (3,4)	50 (3,4)

Note: for pressure drop capabilities of electric actuators, please consult factory

O-RING STEM SEAL (ANGLE STYLE (1/2"-1")

NEW Bi-direction flow capability. Valve can be installed with inlet on side or bottom. Self draining when valve is installed with inlet on side and valve in upright position as shown.



Corrosion resistant coating with SST fasteners

Namur yoke permits easy mounting of a variety of positioners

Corrosion-resistant SST yoke assembly suitable for washdown

Optional, clean steam injection port available

Extended PEEK guide bushings ensures smooth, stable movement throughout entire stroke length

Bolted bonnet provides enhanced strength and safety over clamped bonnet

Selection of o-ring and gasket materials to suit your process

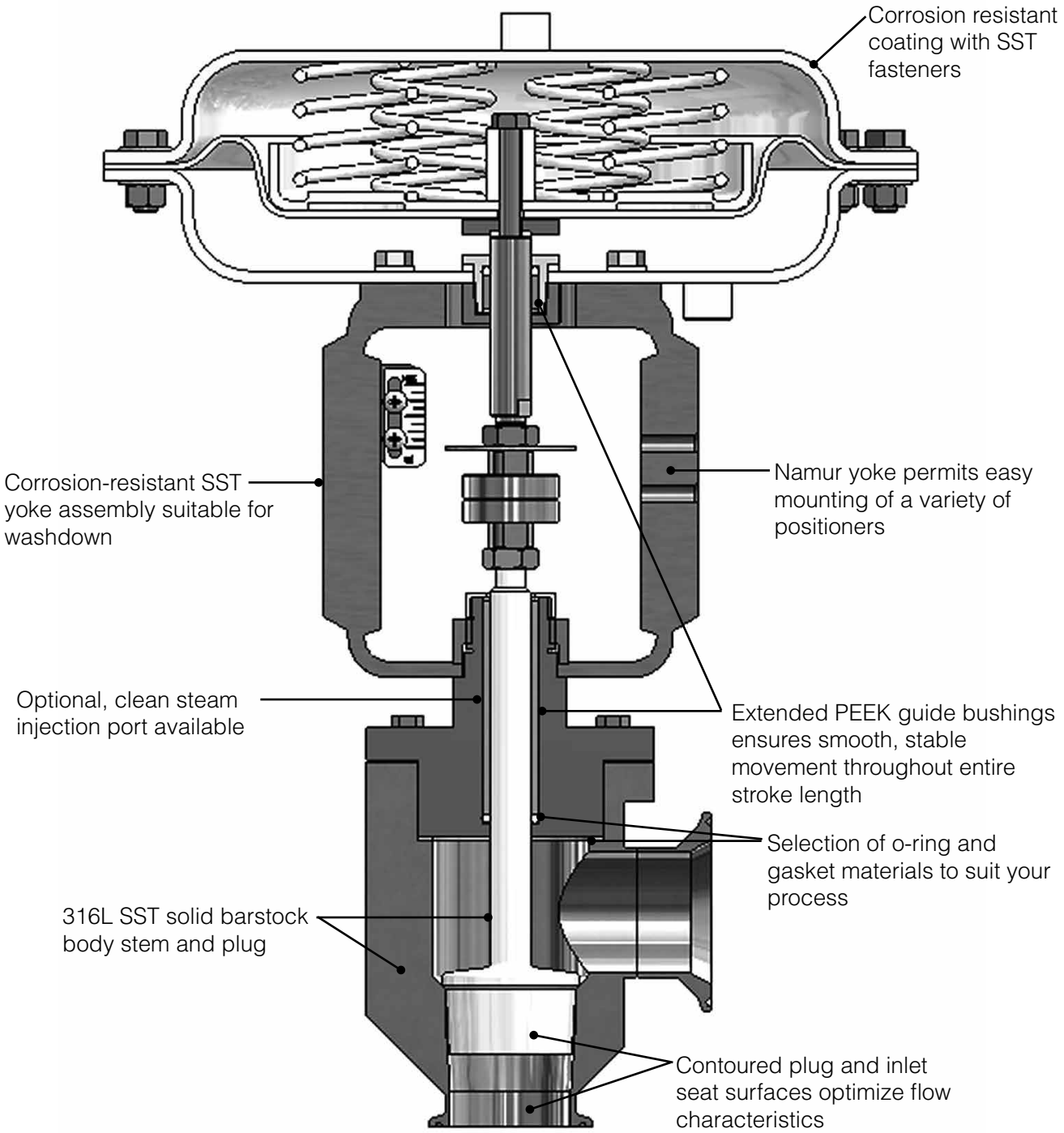
Solid 316L barstock construction offers excellent chemical resistance, ensures consistent material integrity and surface finish

Contoured plug and orifice design to provide true equal percentage or linear flow characteristic for improved turndown

SPECIFICATION

Stainless steel sanitary control valve shall be made from ASTM A479 316L barstock material, which includes body and all wetted metal parts. Control valve with the stem sealed by FDA approved and USP Class VI certified Jorlon diaphragm with lifetime warranty. The valve stem shall be supported by a one piece, SS NAMUR Yoke with two extended PEEK™ Guide bushings to provide structural rigidity and true guiding in any installation orientation. Guiding of valve stem/plug shall be outside of the wetted process areas of valve above diaphragm. Control valve shall have secondary stem seal, and extended guide bushing to provide additional support for multiple installation orientations. Valve shall be self draining in at least one orientation.

O-RING STEM SEAL (1-1/2" – 2")

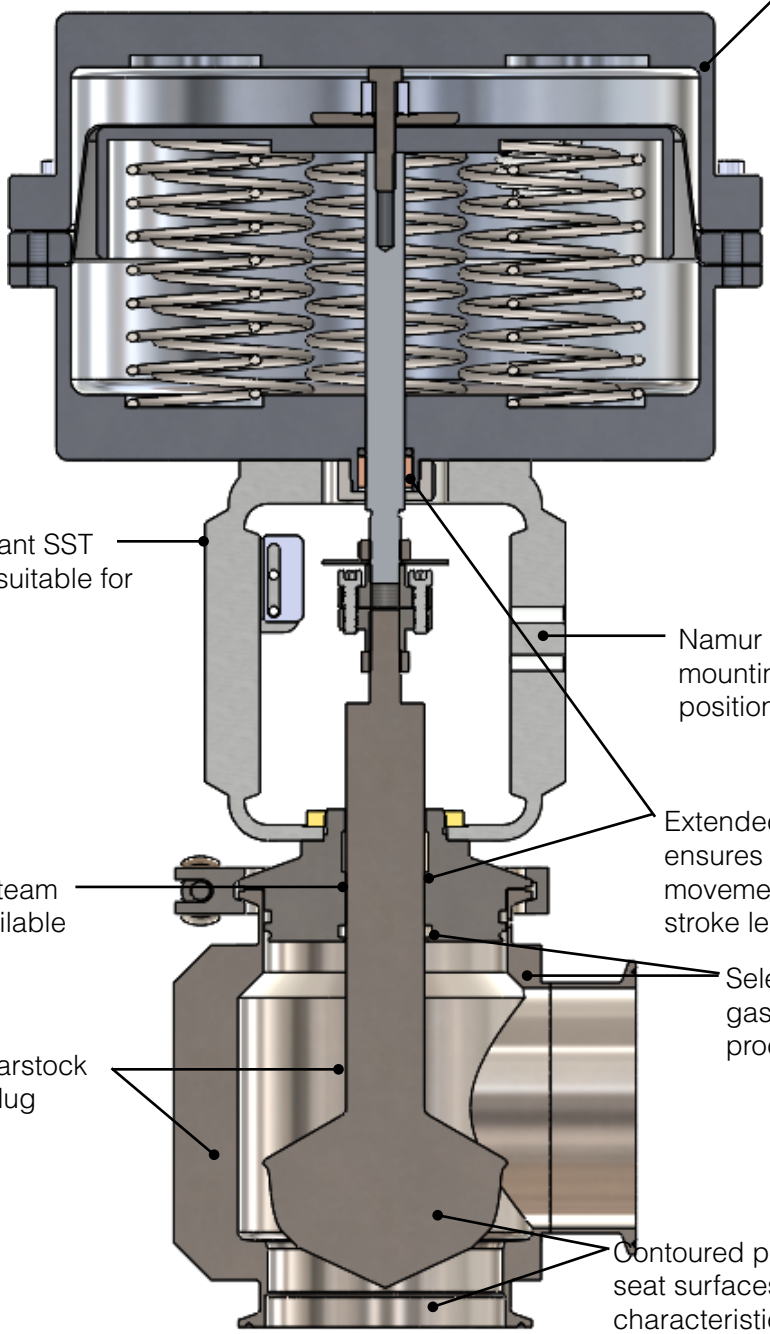


SPECIFICATION

Stainless Steel sanitary control valve shall be made from ASTM A479 barstock material, which includes body and all wetted parts. Valve stem sealed by FDA/USP Class VI approved material o-ring. Guiding of valve stem/plug shall be outside of the wetted process areas of the valve above the o-ring. The control valve shall be free of threads within the wetted process area. Valve shall have one piece SS Namur Yoke enabling Namur positioner bracketing and providing stem stabilization for Horizontal mounting. Valve is self draining in any orientation.

O-RING STEM SEAL (4")

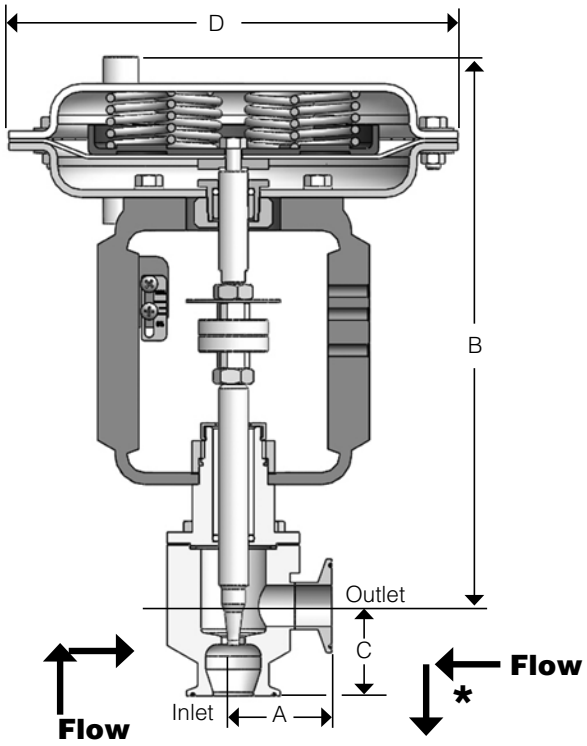
The 4" 978OR comes in a clamped body/bonnet design only



SPECIFICATION

Stainless Steel sanitary control valve shall be made from ASTM A479 barstock material, which includes body and all wetted parts. Valve stem sealed by FDA/USP Class VI approved material o-ring. Guiding of valve stem/plug shall be outside of the wetted process areas of the valve above the o-ring. The control valve shall be free of threads within the wetted process area. Valve shall have one piece SS Namur Yoke enabling Namur positioner bracketing and providing stem stabilization for Horizontal mounting. Valve is self draining in any orientation.

DIMENSIONS



INCHES

Valve Size	Dimensions				Weight Lbs
	A	B	C	D	
1/2"	2.08	11.94	1.91	9.50 (35M)	27 (35M)
				12.50 (55M)	42 (55M)
3/4"	2.08	11.94	1.91	9.50 (35M)	27 (35M)
				12.50 (55M)	42 (55M)
1"	2.08	11.94	1.91	9.50 (35M)	27 (35M)
				12.50 (55M)	42 (55M)

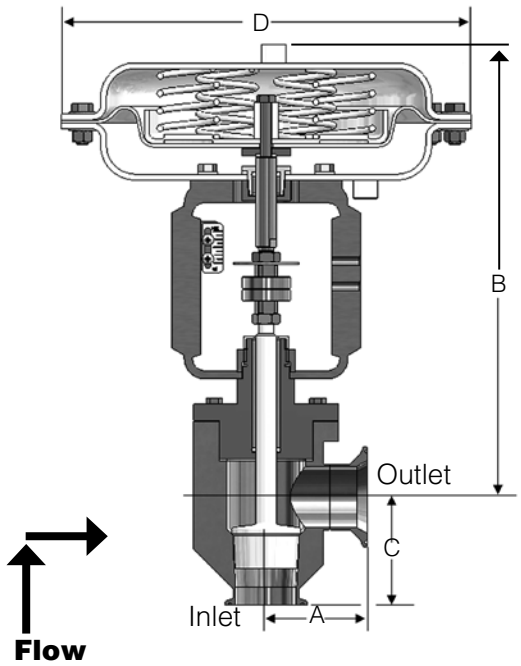
METRIC

Valve Size	Dimensions				Weight Kgs
	A	B	C	D	
DN15	53	303	49	241 (35M)	12 (35M)
				318 (55M)	19 (55M)
DN20	53	303	49	241 (35M)	12 (35M)
				318 (55M)	19 (55M)
DN25	53	303	49	241 (35M)	12 (35M)
				318 (55M)	19 (55M)

Based on US tri-clamp ends. Consult factory for DIN and ISO tri-clamp end dimensions

Installation and Drainability:

- Valve is bi-directional, flow can enter either connection
- When valve is open, there is no hold up volume
- * For gravity drainage from inlet to outlet, install as shown above.



INCHES

Valve Size	Dimensions				Weight Lbs
	A	B	C	D	
1-1/2"	3.08	15.00	3.30	12.50 (55M)	47 (35M)
				15.00 (85M)	57 (55M)
2"	3.08	15.00	3.30	12.50 (55M)	47 (35M)
				15.00 (85M)	57 (55M)

METRIC

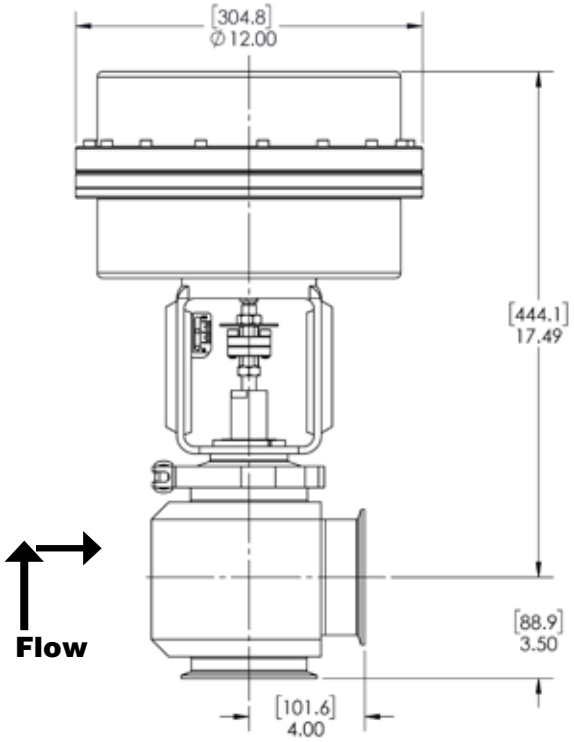
Valve Size	Dimensions				Weight Kgs
	A	B	C	D	
DN40	78	381	84	318 (55M)	21 (35M)
				381 (85M)	26 (55M)
DN50	78	381	84	318 (55M)	21 (35M)
				381 (85M)	26 (55M)

Based on US tri-clamp ends. Consult factory for DIN and ISO tri-clamp end dimensions

Installation and Drainability:

- Valve has no hold-up when installed as shown above, but must be drained below inlet.
- Valve will gravity drain from inlet to outlet when installed with inlet horizontal (outlet facing down)

DIMENSIONS CONT.



INCHES

Valve Size	Dimensions				Weight Lbs
	A	B	C	D	
4"	4.00	17.49	3.50	12.00 (745M)	87 (745M)

METRIC

Valve Size	Dimensions				Weight Kgs
	A	B	C	D	
DN100	102	444	89	305 (745M)	39 (745M)

Based on US tri-clamp ends. Consult factory for DIN and ISO tri-clamp end dimensions

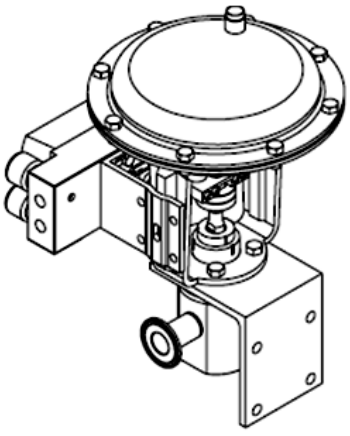
Installation and Drainability:

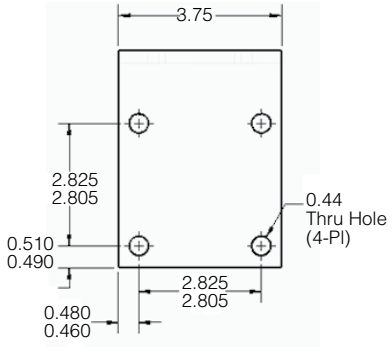
- Valve has no hold-up when installed as shown above, but must be drained below inlet.
- Valve will gravity drain from inlet to outlet when installed with inlet horizontal (outlet facing down)

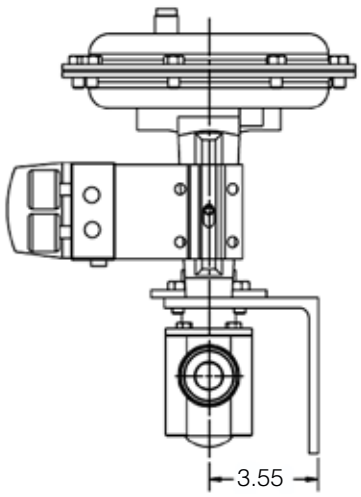
NEW MK978 CONTROL VALVE OPTION: MOUNTING BRACKET

We now have a Stainless Steel Bracket Kit for all of our ½" – 2" MK978JD and OR angle style, and 1" Inline style Control Valves.

- The bracket (shown to the right) mounts to the base of the Namur Yoke and provides exceptional support for mounting to a 2" pipe stand (Hardware included), wall or panel.
- **Specifications:**
  - **Materials:**
    - Bracket, HHCS: 304SS
    - Ubolts, Nut (for mounting to pipe stand): 304SS
    - Washers: 18/8 SS
  - **Surface Finish**:
    - 316SS Angle Standard Material Finish
- See the bottom of the MK978 pricing pages in the Steriflow Valve Price List for Kit 978-BRKT-KIT Pricing.







Kit Model Number: 978-BRKT-KIT

ORDERING SCHEMATIC - MK978E SERIES (1/2" - 1")

Model No	Size	Stem Seal / Seat	/	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

	Model
978E	Standard
978EMV	Motor Valve
978ESP	Side Mounted Positioner
978ETP	Top Mounted Positioner

	Size
050	1/2"
075	3/4"
100	1"

	Stem Seal / Seat
OR	O-Ring / Hard Seat
ORP	O-Ring / PEEK FDA/USP Class VI (Cv ≥ 3.5 only)
ORT	O-Ring / Teflon FDA/USP Class VI (Cv ≥ 3.5 only)

1,2.3,4,5,6	1/2" Tri-C Body, Cv, Char. Finish
AALN1A	1/2" LIN Cv 0.2 20Ra int./63 RMS. ext.
A1LN1A	1/2" LIN Cv 0.2 20Ra int./20Ra ext.
A2LN1Ø	1/2" LIN Cv 0.2 8Ra int. /20Ra ext.
A3LN1Ø	1/2" LIN Cv 0.2 8Ra int./8Ra ext.
A4LN1Ø	1/2" LIN Cv 0.2 8Ra int./63RMS ext.
AAEPA1	1/2" EQP Cv 0.2 20Ra int./63 RMS ext.
A1EPA1	1/2" EQP Cv 0.2 20Ra int./20Ra ext.
A2EP11	1/2" EQP Cv 0.2 8Ra int./20Ra ext.
A3EP11	1/2" EQP Cv 0.2 8Ra int./8Ra ext.
A4EP11	1/2" EQP Cv 0.2 8Ra int./63 RMS ext.
AALN2A	1/2" LIN Cv 0.5 20Ra int./63RMS ext.
A1LN2A	1/2" LIN Cv 0.5 20Ra int./20Ra ext.
A2LN21	1/2" LIN Cv 0.5 8Ra int./20Ra ext.
A3LN21	1/2" LIN Cv 0.5 8Ra int./8Ra ext.
A4LN21	1/2" LIN Cv 0.5 8Ra int./63 RMS ext.
AAEPA2	1/2" EQP Cv 0.5 20Ra int./63 RMS ext.
A1EPA2	1/2" EQP Cv 0.5 20Ra int./20Ra ext.
A2EP12	1/2" EQP Cv 0.5 8Ra int./20Ra ext.
A3EP12	1/2" EQP Cv 0.5 8Ra int./8Ra ext.
A4EP12	1/2" EQP Cv 0.5 8Ra int./63 RMS ext.
AALN3A	1/2" LIN Cv 1.0 20Ra int./63 RMS ext.
A1LN3A	1/2" LIN Cv 1.0 20Ra int./20Ra ext.
A2LN31	1/2" LIN Cv 1.0 8Ra int./20Ra ext.
A3LN31	1/2" LIN Cv 1.0 8Ra int./8Ra ext.
A4LN31	1/2" LIN Cv 1.0 8Ra int./63 RMS ext.
AAEPA3	1/2" EQP Cv 1.0 20Ra int./63 RMS ext.
A1EPA3	1/2" EQP Cv 1.0 20Ra int./20Ra ext.
A2EP13	1/2" EQP Cv 1.0 8Ra int./20Ra ext.
A3EP13	1/2" EQP Cv 1.0 8Ra int./8Ra ext.
A4EP13	1/2" EQP Cv 1.0 8Ra int./63 RMS ext.

1,2.3,4,5,6	3/4" Tri-C Body, Cv, Char. Finish
BALN1A	3/4" LIN Cv 1.0 20Ra int./63 RMS ext.
B1LN1A	3/4" LIN Cv 1.0 20Ra int./20Ra ext.
B2LN1Ø	3/4" LIN Cv 1.0 8Ra int./20Ra ext.
B3LN1Ø	3/4" LIN Cv 1.0 8Ra int./8Ra ext.
B4LN1Ø	3/4" LIN Cv 1.0 8Ra int./63 RMS ext.
BAEPA1	3/4" EQP Cv 1.0 20Ra int./63 RMS ext.
B1EPA1	3/4" EQP Cv 1.0 20Ra int./20Ra ext.
B2EP11	3/4" EQP Cv 1.0 8Ra int./20Ra ext.
B3EP11	3/4" EQP Cv 1.0 8Ra int./8Ra ext.
B4EP11	3/4" EQP Cv 1.0 8Ra int./63 RMS ext.
BALN2A	3/4" LIN Cv 2.0 20Ra int./63 RMS ext.
B1LN2A	3/4" LIN Cv 2.0 20Ra int./20Ra ext.
B2LN21	3/4" LIN Cv 2.0 8Ra int./20Ra ext.
B3LN21	3/4" LIN Cv 2.0 8Ra int./8Ra ext.
B4LN21	3/4" LIN Cv 2.0 8Ra int./63 RMS ext.

1,2.3,4,5,6	3/4" Tri-C Body, Cv, Char. Finish
BAEPA2	3/4" EQP Cv 2.0 20Ra int./63 RMS ext.
B1EPA2	3/4" EQP Cv 2.0 20Ra int./20Ra ext.
B2EP12	3/4" EQP Cv 2.0 8Ra int./20Ra ext.
B3EP12	3/4" EQP Cv 2.0 8Ra int./8Ra ext.
B4EP12	3/4" EQP Cv 2.0 8Ra int./63 RMS ext.
CALN3A	3/4" LIN Cv 3.5 20Ra int./63 RMS ext.
C1LN3A	3/4" LIN Cv 3.5 20Ra int./20Ra ext.
C2LN31	3/4" LIN Cv 3.5 8Ra int./20Ra ext.
C3LN31	3/4" LIN Cv 3.5 8Ra int./8Ra ext.
C4LN31	3/4" LIN Cv 3.5 8Ra int./63 RMS ext.
CAEPA3	3/4" EQP Cv 3.5 20Ra int./63 RMS ext.
C1EPA3	3/4" EQP Cv 3.5 20Ra int./20Ra ext.
C2EP13	3/4" EQP Cv 3.5 8Ra int./20Ra ext.
C3EP13	3/4" EQP Cv 3.5 8Ra int./8Ra ext.
C4EP13	3/4" EQP Cv 3.5 8Ra int./63 RMS ext.
CALN4A	3/4" LIN Cv 5.0 20Ra int./63 RMS ext.
C1LN4A	3/4" LIN Cv 5.0 20Ra int./20Ra ext.
C2LN41	3/4" LIN Cv 5.0 8Ra int./20Ra ext.
C3LN41	3/4" LIN Cv 5.0 8Ra int./8Ra ext.
C4LN41	3/4" LIN Cv 5.0 8Ra int./63 RMS ext.
CAEPA4	3/4" EQP Cv 5.0 20Ra int./63 RMS ext.
C1EPA4	3/4" EQP Cv 5.0 20Ra int./20Ra ext.
C2EP14	3/4" EQP Cv 5.0 8Ra int./20Ra ext.
C3EP14	3/4" EQP Cv 5.0 8Ra int./8Ra ext.
C4EP14	3/4" EQP Cv 5.0 8Ra int./63 RMS ext.

ORDERING SCHEMATIC CONTINUED

1,2,3,4,5,6	1" Tri-C Body, Cv, Char. Finish
DALN1A	1" LIN Cv 3.5 20Ra int./63 RMS ext.
D1LN1A	1" LIN Cv 3.5 20Ra int./20Ra ext.
D2LN1Ø	1" LIN Cv 3.5 8Ra int./20Ra ext.
D3LN1Ø	1" LIN Cv 3.5 8Ra int./8Ra ext.
D4LN1Ø	1" LIN Cv 3.5 8Ra int./63 RMS ext.
DAEPA1	1" EQP Cv 3.5 20Ra int./63 RMS ext.
D1EPA1	1" EQP Cv 3.5 20Ra int./20Ra ext.
D2EP11	1" EQP Cv 3.5 8Ra int./20Ra ext.
D3EP11	1" EQP Cv 3.5 8Ra int./8Ra ext.
D4EP11	1" EQP Cv 3.5 8Ra int./63 RMS ext.
DALN2A	1" LIN Cv 5.0 20Ra int./63 RMS ext.
D1LN2A	1" LIN Cv 5.0 20Ra int./20Ra ext.
D2LN21	1" LIN Cv 5.0 8Ra int./20Ra ext.
D3LN21	1" LIN Cv 5.0 8Ra int./8Ra ext.
D4LN21	1" LIN Cv 5.0 8Ra int./63 RMS ext.
DAEPA2	1" EQP Cv 5.0 20Ra int./63 RMS ext.
D1EPA2	1" EQP Cv 5.0 20Ra int./20Ra ext.
D2EP12	1" EQP Cv 5.0 8Ra int./20Ra ext.
D3EP12	1" EQP Cv 5.0 8Ra int./8Ra ext.
D4EP12	1" EQP Cv 5.0 8Ra int./63 RMS ext.
1,2,3,4,5,6	1" Tri-C Body, Cv, Char. Finish
EALN3A	1" LIN Cv 7.5 20Ra int./63 RMS ext.
E1LN3A	1" LIN Cv 7.5 20Ra int./20Ra ext.
E2LN31	1" LIN Cv 7.5 8Ra int./20Ra ext.
E3LN31	1" LIN Cv 7.5 8Ra int./8Ra ext.
E4LN31	1" LIN Cv 7.5 8Ra int./63 RMS ext.
EAEPA3	1" EQP Cv 7.5 20Ra int./63 RMS ext.
E1EPA3	1" EQP Cv 7.5 20Ra int./20Ra ext.
E2EP13	1" EQP Cv 7.5 8Ra int./20Ra ext.
E3EP13	1" EQP Cv 7.5 8Ra int./8Ra ext.
E4EP13	1" EQP Cv 7.5 8Ra int./63 RMS ext.
EALN4A	1" LIN Cv 15 20Ra int./63 RMS ext.
E1LN4A	1" LIN Cv 15 20Ra int./20Ra ext.
E2LN41	1" LIN Cv 15 8Ra int./20Ra ext.
E3LN41	1" LIN Cv 15 8Ra int./8Ra ext.
E4LN41	1" LIN Cv 15 8Ra int./63 RMS ext.
EAEPA4	1" EQP Cv 15 20Ra int./63 RMS ext.
E1EPA4	1" EQP Cv 15 20Ra int./20Ra ext.
E2EP14	1" EQP Cv 15 8Ra int./20Ra ext.
E3EP14	14" EQP Cv 15 8Ra int./8Ra ext.
E4EP14	1" EQP Cv 15 8Ra int./63 RMS ext.

7 & 8	Stem Seal
	O-Ring Seal
BN	Buna-N / FDA
EP	EPDM / FDA & USP Class VI
SI	Silicone / FDA & USP Class VI
VI	Viton / FDA & USP Class VI

9 & 10	Actuator / Range
	978 / 978TP/978N
3D	35M 3-15 DIR STL/PAINTED
3R	35M 3-15 REV STL/PAINTED
4D	35M 6-30 DIR STL/PAINTED
4R	35M 6-30 REV STL/PAINTED
5D	55M 3-15 DIR STL/PAINTED
5R	55M 3-15 REV STL/PAINTED
6D	55M 6-30 DIR STL/PAINTED
6R	55M 6-30 REV STL/PAINTED
D3	35M 3-15 DIR 304 SST
R3	35M 3-15 REV 304 SST
D4	35M 6-30 DIR 304 SST
R4	35M 6-30 REV 304 SST
D5	55M 3-15 DIR 304 SST
R5	55M 3-15 REV 304 SST
D6	55M 6-30 DIR 304 SST
R6	55M 6-30 REV 304 SST
	978SP
3D	35M ALL DIR STL/PAINTED
3R	35M ALL REV STL/PAINTED
5D	55M ALL DIR STL/PAINTED
5R	55M ALL REV STL/PAINTED
D3	35M ALL DIR 304 SST
R3	35M ALL REV 304 SST
D5	55M ALL DIR 304 SST
R5	55M ALL REV 304 SST
	978MV
3D	CML100 4-20MA DIR 0.2 - 5.0 Cv
3R	CML100 4-20MA REV 0.2 - 5.0 Cv
4D	CML250 4-20MA DIR All Cv
4R	CML250 4-20MA REV All Cv

11 & 12	Action
DD	Direct
RR	Reverse

13 & 14	Accessories
00	None
1A	I/P Trans. 4-20M / 3-15P
2A	Air Reg. with gage
3A	I/P Trans. 4-20M / 6-30P

15	SMP
N	None
A	SMP DIR / REV 3-15
B	SMP DIR / REV 3-9
C	SMP DIR / REV 9-15
D	SMP / IP DIR / REV 4-20
E	SMP / IP DIR / REV 4-12
F	SMP / IP DIR / REV 12-20
G	MK16IQ - S DIR / REV 4-20 (HART®)
H	MK16IQ - B DIR / REV 4-20 (not HART®)
J	MK16IQ - FF DIR / REV 4-20 (Foundation Fieldbus™)

ORDERING SCHEMATIC - MARK 978 SERIES (1-1/2" & 2")

Model No	Size	Stem Seal	Seat	/	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

	Model
978	Standard
978MV	Motor Valve
978SP	Side Mounted Positioner
978TP	Top Mounted Positioner

	Size
150	1-1/2"
200	2"

	Stem Seal
OR	O-Ring

	Seat
	Leave blank for standard Hard Seat
P	PEEK FDA/USP Class VI
T	Teflon FDA/USP Class VI

1,2.3,4,5,6	1-1/2" Tri-C Body, Cv, Char. Finish
FALN1A	1-1/2" LIN Cv 5 20Ra int./63 RMS. ext.
F1LN1A	1-1/2" LIN Cv 5 20Ra int./20Ra ext.
F2LN1Ø	1-1/2" LIN Cv 5 8Ra int. /20Ra ext.
F3LN1Ø	1-1/2" LIN Cv 5 8Ra int./8Ra ext.
F4LN1Ø	1-1/2" LIN Cv 5 8Ra int./63RMS ext.
FAEPA1	1-1/2" EQP Cv 5 20Ra int./63 RMS ext.
F1EPA1	1-1/2" EQP Cv 5 20Ra int./20Ra ext.
F2EP11	1-1/2" EQP Cv 5 8Ra int./20Ra ext.
F3EP11	1-1/2" EQP Cv 5 8Ra int./8Ra ext.
F4EP11	1-1/2" EQP Cv 5 8Ra int./63 RMS ext.
FALN2A	1-1/2" LIN Cv 10 20Ra int./63 RMS. ext.
F1LN2A	1-1/2" LIN Cv 10 20Ra int./20Ra ext.
F2LN21	1-1/2" LIN Cv 10 8Ra int. /20Ra ext.
F3LN21	1-1/2" LIN Cv 10 8Ra int./8Ra ext.
F4LN21	1-1/2" LIN Cv 10 8Ra int./63 RMS ext.
FAEPA2	1-1/2" EQP Cv 10 20Ra int./63 RMS. ext.
F1EPA2	1-1/2" EQP Cv 10 20Ra int./20Ra ext.
F2EP12	1-1/2" EQP Cv 10 8Ra int. /20Ra ext.
F3EP12	1-1/2" EQP Cv 10 8Ra int./8Ra ext.
F4EP12	1-1/2" EQP Cv 10 8Ra int./63 RMS ext.
FALN3A	1-1/2" LIN Cv 15 20Ra int./63 RMS. ext.
F1LN3A	1-1/2" LIN Cv 15 20Ra int./20Ra ext.
F2LN31	1-1/2" LIN Cv 15 8Ra int. /20Ra ext.
F3LN31	1-1/2" LIN Cv 15 8Ra int./8Ra ext.
F4LN31	1-1/2" LIN Cv 15 8Ra int./63 RMS ext.

1,2.3,4,5,6	1-1/2" Tri-C Body, Cv, Char. Finish
FAEPA3	1-1/2" EQP Cv 15 20Ra int./63 RMS. ext.
F1EPA3	1-1/2" EQP Cv 15 20Ra int./20Ra ext.
F2EP13	1-1/2" EQP Cv 15 8Ra int. /20Ra ext.
F3EP13	1-1/2" EQP Cv 15 8Ra int./8Ra ext.
F4EP13	1-1/2" EQP Cv 15 8Ra int./63 RMS ext.
GALN4A	1-1/2" LIN Cv 20 20Ra int./63 RMS. ext.
G1LN4A	1-1/2" LIN Cv 20 20Ra int./20Ra ext.
G2LN41	1-1/2" LIN Cv 20 8Ra int. /20Ra ext.
G3LN41	1-1/2" LIN Cv 20 8Ra int./8Ra ext.
G4LN41	1-1/2" LIN Cv 20 8Ra int./63 RMS ext.
GAEPA4	1-1/2" EQP Cv 20 20Ra int./63 RMS ext.
G1EPA4	1-1/2" EQP Cv 20 20Ra int./20Ra ext.
G2EP14	1-1/2" EQP Cv 20 8Ra int./20Ra ext.
G3EP14	1-1/2" EQP Cv 20 8Ra int./8Ra ext.
G4EP14	1-1/2" EQP Cv 20 8Ra int./63 RMS ext.
GALN5A	1-1/2" LIN Cv 30 20Ra int./63 RMS. ext.
G1LN5A	1-1/2" LIN Cv 30 20Ra int./20Ra ext.
G2LN51	1-1/2" LIN Cv 30 8Ra int. /20Ra ext.
G3LN51	1-1/2" LIN Cv 30 8Ra int./8Ra ext.
G4LN51	1-1/2" LIN Cv 30 8Ra int./63 RMS ext.
GAEPA5	1-1/2" EQP Cv 30 20Ra int./63 RMS. ext.
G1EPA5	1-1/2" EQP Cv 30 20Ra int./20Ra ext.
G2EP15	1-1/2" EQP Cv 30 8Ra int. /20Ra ext.
G3EP15	1-1/2" EQP Cv 30 8Ra int./8Ra ext.
G4EP15	1-1/2" EQP Cv 30 8Ra int./63 RMS ext.

1,2.3,4,5,6	2" Tri-C Body, Cv, Char. Finish
HALN1A	2" LIN Cv 10 20Ra int./63 RMS. ext.
H1LN1A	2" LIN Cv 10 20Ra int./20Ra ext.
H2LN1Ø	2" LIN Cv 10 8Ra int. /20Ra ext.
H3LN1Ø	2" LIN Cv 10 8Ra int./8Ra ext.
H4LN1Ø	2" LIN Cv 10 8Ra int./63 RMS ext.
HAEPA1	2" EQP Cv 10 20Ra int./63 RMS. ext.
H1EPA1	2" EQP Cv 10 20Ra int./20Ra ext.
H2EP11	2" EQP Cv 10 8Ra int. /20Ra ext.
H3EP11	2" EQP Cv 10 8Ra int./8Ra ext.
H4EP11	2" EQP Cv 10 8Ra int./63 RMS ext.
HALN2A	2" LIN Cv 15 20Ra int./63 RMS. ext.
H1LN2A	2" LIN Cv 15 20Ra int./20Ra ext.
H2LN21	2" LIN Cv 15 8Ra int. /20Ra ext.
H3LN21	2" LIN Cv 15 8Ra int./8Ra ext.
H4LN21	2" LIN Cv 15 8Ra int./63 RMS ext.

ORDERING SCHEMATIC CONTINUED (1-1/2" & 2")

1,2,3,4,5,6	2" Tri-C Body, Cv, Char, Finish
HAEPA2	2" EQP Cv 15 20Ra int./63 RMS. ext.
H1EPA2	2" EQP Cv 15 20Ra int./20Ra ext.
H2EP12	2" EQP Cv 15 8Ra int. /20Ra ext.
H3EP12	2" EQP Cv 15 8Ra int./8Ra ext.
H4EP12	2" EQP Cv 15 8Ra int./63 RMS ext.
HALN3A	2" LIN Cv 20 20Ra int./63 RMS. ext.
H1LN3A	2" LIN Cv 20 20Ra int./20Ra ext.
H2LN31	2" LIN Cv 20 8Ra int. /20Ra ext.
H3LN31	2" LIN Cv 20 8Ra int./8Ra ext.
H4LN31	2" LIN Cv 20 8Ra int./63 RMS ext.
HAEPA3	2" EQP Cv 20 20Ra int./63 RMS ext.
H1EPA3	2" EQP Cv 20 20Ra int./20Ra ext.
H2EP13	2" EQP Cv 20 8Ra int./20Ra ext.
H3EP13	2" EQP Cv 20 8Ra int./8Ra ext.
H4EP13	2" EQP Cv 20 8Ra int./63 RMS ext.
HALN4A	2" LIN Cv 30 20Ra int./63 RMS. ext.
H1LN4A	2" LIN Cv 30 20Ra int./20Ra ext.
H2LN41	2" LIN Cv 30 8Ra int. /20Ra ext.
H3LN41	2" LIN Cv 30 8Ra int./8Ra ext.
H4LN41	2" LIN Cv 30 8Ra int./63 RMS ext.
HAEPA4	2" EQP Cv 30 20Ra int./63 RMS. ext.
H1EPA4	2" EQP Cv 30 20Ra int./20Ra ext.
H2EP14	2" EQP Cv 30 8Ra int. /20Ra ext.
H3EP14	2" EQP Cv 30 8Ra int./8Ra ext.
H4EP14	2" EQP Cv 30 8Ra int./63 RMS ext.
IALN5A	2" LIN Cv 40 20Ra int./63 RMS. ext.
I1LN5A	2" LIN Cv 40 20Ra int./20Ra ext.
I2LN51	2" LIN Cv 40 8Ra int. /20Ra ext.
I3LN51	2" LIN Cv 40 8Ra int./8Ra ext.
I4LN51	2" LIN Cv 40 8Ra int./63 RMS ext.
IAEPA5	2" EQP Cv 40 20Ra int./63 RMS. ext.
I1EPA5	2" EQP Cv 40 20Ra int./20Ra ext.
I2EP15	2" EQP Cv 40 8Ra int. /20Ra ext.
I3EP15	2" EQP Cv 40 8Ra int./8Ra ext.
I4EP15	2" EQP Cv 40 8Ra int./63 RMS ext.
IALN6A	2" LIN Cv 60 20Ra int./63 RMS. ext.
I1LN6A	2" LIN Cv 60 20Ra int./20Ra ext.
I2LN61	2" LIN Cv 60 8Ra int. /20Ra ext.
I3LN61	2" LIN Cv 60 8Ra int./8Ra ext.
I4LN61	2" LIN Cv 60 8Ra int./63 RMS ext.
JAML7A	2" MOD* LIN Cv 70 20Ra int./63 RMS. ext.
J1ML7A	2" MOD* LIN Cv 70 20Ra int./20Ra ext.
J2ML71	2" MOD* LIN Cv 70 8Ra int./20Ra ext.
J3ML71	2" MOD* LIN Cv 70 8Ra int./8Ra RMS. ext.
J4ML71	2" MOD* LIN Cv 70 8Ra int./63 RMS. ext.

7 & 8	Stem Seal
	O-Ring Seal
BN	Buna-N / FDA
EP	EPDM / FDA & USP Class VI
SI	Silicone / FDA & USP Class VI
VI	Viton / FDA & USP Class VI

9 & 10	Actuator / Range
	978 / 978TP/978N
5D	55M 3-15 DIR STL/PAINTED
5R	55M 3-15 REV STL/PAINTED
6D	55M 6-30 DIR STL/PAINTED
6R	55M 6-30 REV STL/PAINTED
8D	85M 3-15 DIR STL/PAINTED
8R	85M 3-15 REV STL/PAINTED
9D	85M 6-30 DIR STL/PAINTED
9R	85M 6-30 REV STL/PAINTED
D5	55M 3-15 DIR 304 SST
R5	55M 3-15 REV 304 SST
D6	55M 6-30 DIR 304 SST
R6	55M 6-30 REV 304 SST
D8	85M 3-15 DIR 304 SST
R8	85M 3-15 REV 304 SST
D9	85M 6-30 DIR 304 SST
R9	85M 6-30 REV 304 SST
	978SP
5D	55M ALL DIR STL/PAINTED
5R	55M ALL REV STL/PAINTED
8D	85M ALL DIR STL/PAINTED
8R	85M ALL REV STL/PAINTED
D5	55M ALL DIR 304 SST
R5	55M ALL REV 304 SST
D8	85M ALL DIR 304 SST
R8	85M ALL REV 304 SST
	978MV
4D	CML250 4-20MA DIR All Cv
4R	CML250 4-20MA REV All Cv

11 & 12	Action
DD	Direct
RR	Reverse

13 & 14	Accessories
00	None
1A	I/P Trans. 4-20M / 3-15P
2A	Air Reg. with gage
3A	I/P Trans. 4-20M / 6-30P

15	SMP
N	None
A	SMP DIR / REV 3-15
B	SMP DIR / REV 3-9
C	SMP DIR / REV 9-15
D	SMP / IP DIR / REV 4-20
E	SMP / IP DIR / REV 4-12
F	SMP / IP DIR / REV 12-20
G	MK16IQ - S DIR / REV 4-20 (HART®)
H	MK16IQ - B DIR / REV 4-20 (not HART®)
J	MK16IQ - FF DIR / REV 4-20 (Foundation Fieldbus™)

* Modified Linear - contact factory for more information

ORDERING SCHEMATIC - MARK 978 SERIES (4")

Model No	Size	Stem Seal	Seat	/	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

	Model
978SP	Side Mounted Positioner

	Size
400	4"

	Stem Seal
OR	O-Ring

1,2,3,4,5,6	4" Tri-C Body, Cv, Char. Finish
KALN1A	4" LIN Cv165 20/40 Ra
KALN2A	4" LIN Cv200 20/40 Ra
ZZZZZZ	Non-Standard

7 & 8	Stem Seal
	O-Ring Seal
BN	Buna-N / FDA
EP	EPDM / FDA & USP Class VI
SI	Silicone / FDA & USP Class VI
VI	Viton / FDA & USP Class VI
ZZ	Non-Standard

9 & 10	Actuator / Range
	978SP
RM	745M ALL REV Aluminum/Painted
DM	745M ALL DIR Aluminum/Painted
ZZ	Non-Standard

11 & 12	Action
DD	Direct
RR	Reverse
ZZ	Non-Standard

13 & 14	Accessories
00	None
1A	I/P Trans. 4-20M / 3-15P
2A	Air Reg. with gage
3A	I/P Trans. 4-20M / 6-30P
ZZ	Non-Standard

15	SMP
N	None
A	SMP DIR / REV 3-15
B	SMP DIR / REV 3-9
C	SMP DIR / REV 9-15
D	SMP / IP DIR / REV 4-20
E	SMP / IP DIR / REV 4-12
F	SMP / IP DIR / REV 12-20
G	MK16IQ DIR / REV
H	MK16IQ - B DIR / REV
J	MK16IQ - FF DIR / REV
ZZ	Non-Standard

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