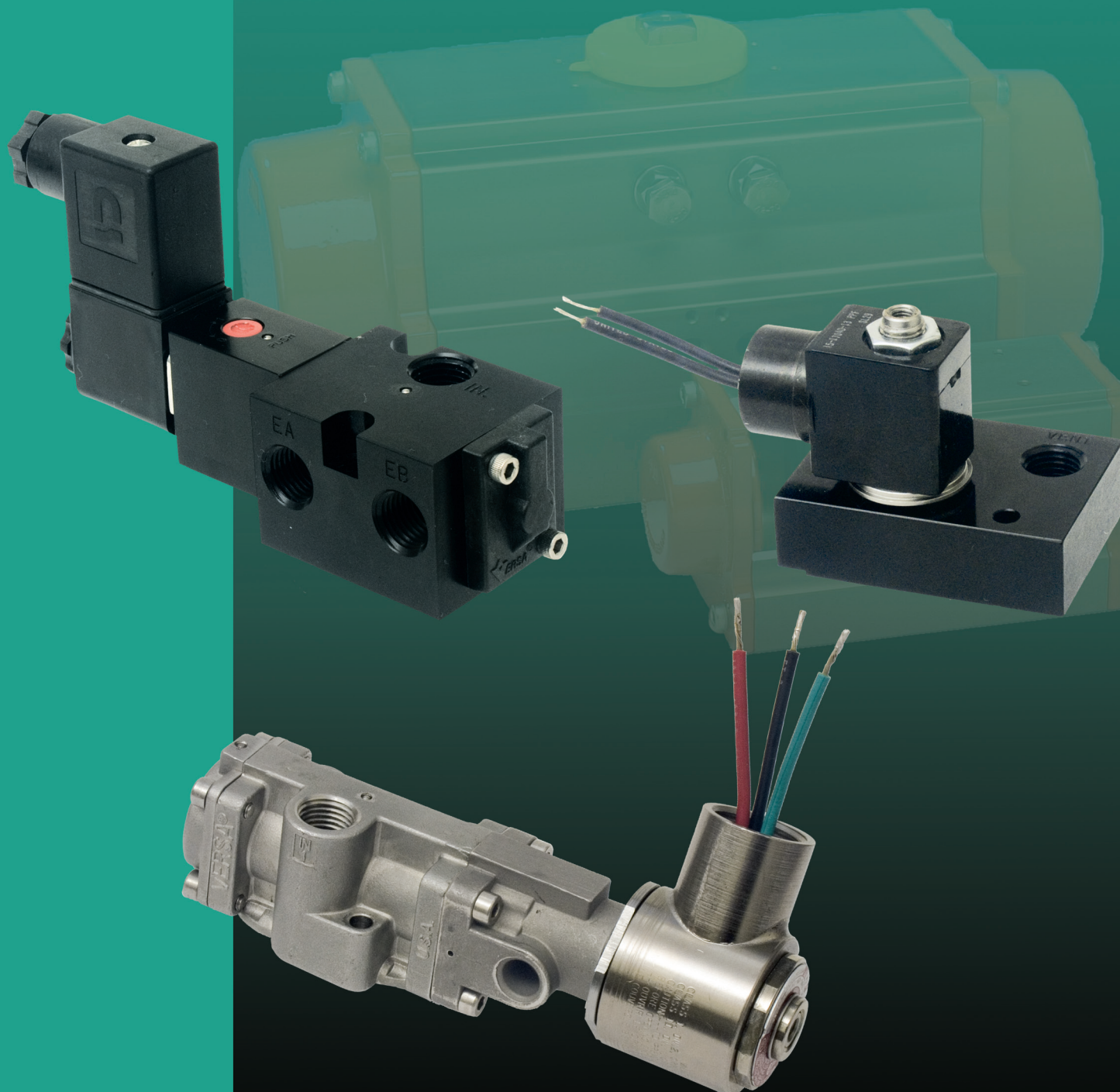




BULLETIN
NMce-2012



NAMUR DIRECT MOUNT PNEUMATIC ACTUATOR VALVES



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DIRECT MOUNT ACTUATOR VALVES



GENERAL DESCRIPTION

The Versa NAMUR mount control valves are high flow, bubbletight, and designed to mount directly to any NAMUR actuator, thus reducing actuator response time and space. Installed costs are also lower as the need for tubing, fittings, brackets and assembly labor are greatly reduced. All mounting screws and seals are included with the valve. There are two types of valves, direct acting and pilot operated; materials are aluminum or stainless steel.

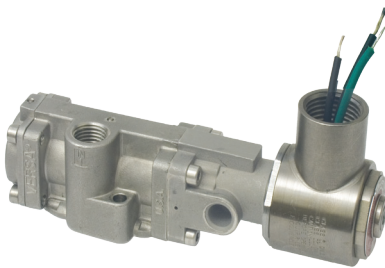
C5 and the C316 are bubbletight, high flow, 5-port, solenoid/pilot

SERIES C5 NAMUR 3-Way/4-Way Field Convertible Solenoid Valves

The C5 aluminum NAMUR 5-port designed valves can be ordered as either 4-way (for double acting actuators) or 3-way (for spring return or fail-safe actuators).

This valve is field convertible from 3-way to a 4-way, or a 4-way to a 3-way. Relocation of a port plug facilitates the conversion; no special tools, gaskets, or sealants are required. When the 4-way valve is converted to 3-way function, the unused exhaust port becomes an actuator vent into which a filter/muffler can be installed to prevent contaminants from entering either the valve or the actuator.

SERIES C316 NAMUR Stainless Steel 3 or 4-Way Solenoid Valves



The Versa C316 Series stainless steel NAMUR valve 5-port design can be ordered as either a 4-way for double acting actuators, or as a 3-way for spring return actuators. When the 3-way function is utilized, the unused exhaust port becomes an actuator vent where a filter/muffler can be installed to prevent contaminants from entering either the valve or the

type valves. This design assures a positive shift when the valve is energized and reduces the chance of coil burnout. Manual override for single or double solenoid valves are available as an option.

The Versa E5 NAMUR is a 3-way direct-acting solenoid valve.

A complete selection of electrical connections, area classifications, and power requirements makes the most exacting and demanding specifications or applications easy to satisfy. (See page 4).



Single solenoid models (for 2-position control), or double solenoid models (for 2 or 3-position control) are available. Actuator positioning is possible with the use of 3-position valves. Manual overrides (guarded-push to operate) are standard on all C5 NAMUR valves. Consult factory for other manual overrides available as an option.

SERIES E5 NAMUR 3-Way Solenoid Valves

The Versa E5 aluminum NAMUR mount, control valve is an inexpensive, simple and effective 3-way direct-acting solenoid valve. It is designed to mount directly to any NAMUR actuator thus reducing cost of tubing, fittings, brackets and labor.

The E5 is most effective on spring return or fail-safe actuators where high speed open or close is not important, but where cost is a factor.

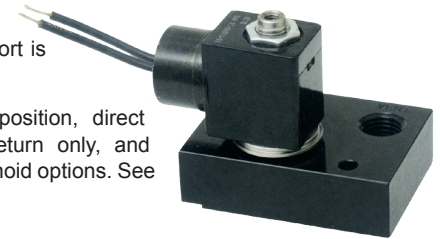
actuator.

The 5-port design allows the user to independently control actuator speed in either open or close direction by utilizing speed or bleed controls. Single or double solenoid 2-position models are available. Single solenoid spring return models utilize an air assisted spring return feature, assuring a positive return. Double solenoid valves may be used in applications where a momentary signal is required or in a "fail in last shifted position" actuator application.

Double solenoid models are equipped with a detent that maintains the valve in the last shifted position, even in high vibration applications.

A threaded actuator vent port is standard.

Available as a 3-way, 2-position, direct acting, solenoid, spring return only, and with most of the Versa solenoid options. See page 4.



SPECIFICATIONS

MATERIALS

Series	Valve Body	Plunger	Actuating Caps		Valve Seals			Solenoid Parts
			Solenoid	Spring	Plunger	Body	Valve to Actuator	
E5	Anodized Aluminum	—	—	—	NBR (Nitrile)	—	NBR (Nitrile)	304, 430F & 302 Stainless Steel
C5	Anodized Aluminum	Anodized Aluminum	Anodized Aluminum	Synthetic Resin	FKM (Fluorocarbon)	—	—	
C316	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel	316L Stainless Steel	FKM (Fluorocarbon)	—	—	

Temperature:

C5 & E5: Ambient and media range 5°F to 125°F (-15°C to 50°C).

C316: Ambient and media range -5°F to 200°F (-20°C to 93°C)
-55°F to 200°F (-48°C to 93°C)
(Low temp option -44)

Flow Rate:

E5: Cv = 0.08 (Kv = 1.2)

C5: Cv = 0.75 (Kv = 11)

C316: Cv = 1.6 (Kv = 23.5)

PRESSURES & WEIGHTS

Valve Series	Function	Operating Pressure Range Pneumatic	Approximate Weights				
			Ordinary Service	Hazardous Service			
				XISC, XISX6	-XX, -XN, -XIS	-XMA, -XIF	XDB
E5	Single Solenoid/spring return (2-position)	0-150 psi (0-10.3 bar)	0.6 lbs (272 g)	0.5 lbs (227 g)	0.9 lbs (408 g)	—	—
C5		15-115 ps (1-8 bar)	0.8 lbs. (363 g)	0.7 lbs (318 g)	1.1 lbs. (500 g)	—	—
C316		25-150 psi (1.8-10.3 bar)*	1.5 lbs (680 g)	1.5 lbs (680 g)	1.7 lbs (771 g)	2.3 lbs (1043 g)	2.5 lbs (1134 g)
C5	Double Solenoid/detented (2-position)	10-115 ps (0.7-8 bar)	1.5 lbs (545 g)	1.7 lbs (771 g)	1.8 lbs. (816 g)	—	—
C316		15-150 psi (1-10.3 bar)*	2.2 lbs (998 g)	2.2 lbs (998 g)	2.6 lbs (1179 g)	3.8 lbs (1724 g)	4.3 lbs (1950 g)
C5	Double Solenoid/spring centered (3-position)	15-115 ps (1-8 bar)	1.2 lbs. (545 g)	1.4 lbs (635 g)	1.8 lbs. (816 g)	—	—

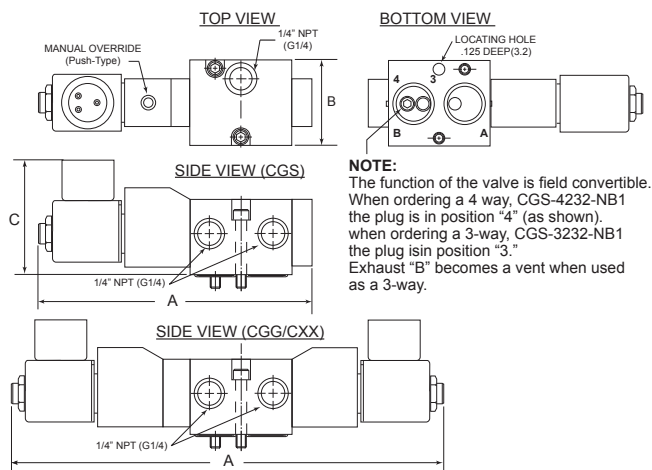
*for applications above 125 psi (8.6 bar) exhaust flow controls or mufflers are recommended

DIRECT MOUNT ACTUATOR VALVES



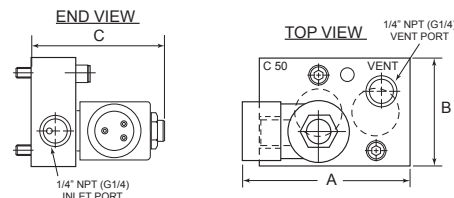
DIMENSIONS

Series C5

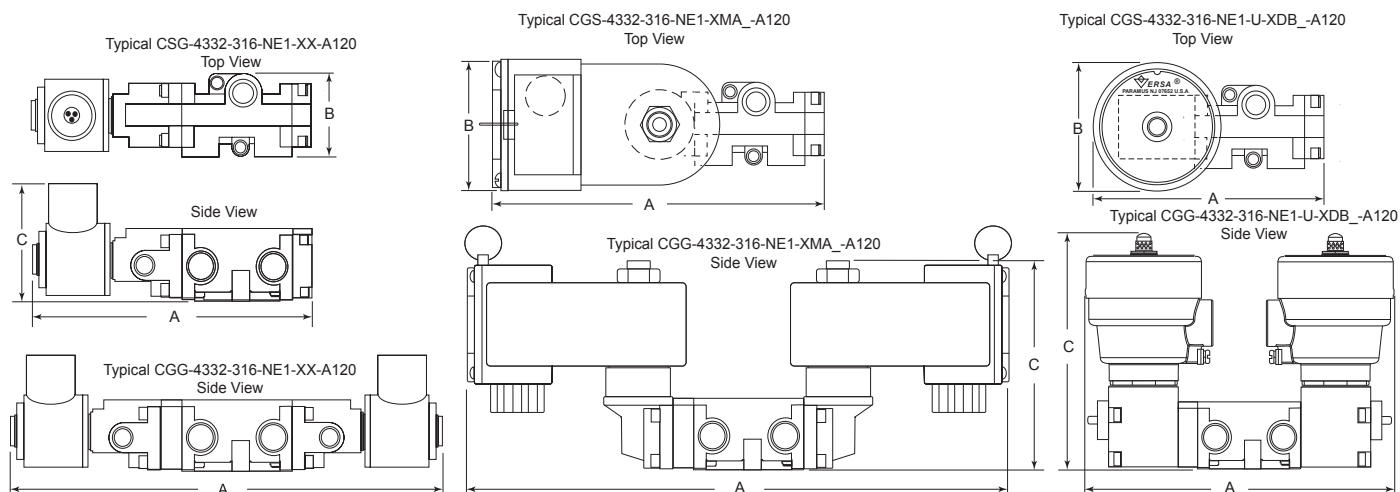


NOTE:
The function of the valve is field convertible. When ordering a 4 way, CGS-4232-NB1 the plug is in position "4" (as shown). when ordering a 3-way, CGS-3232-NB1 the plug is in position "3". Exhaust "B" becomes a vent when used as a 3-way.

Series E5



Series C316



DIMENSIONS

INCHES
(mm)

VALVE SERIES	Function	Solenoid Options																				
		General Service									Hazardous Location											
		Standard, -228L			-027, 043			C50, -PC			-XX, -XN			-XISC, -XISX6			-XMA_, XIF_			-XDB_		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
E5	Single solenoid, spring return	2.11 (53.6)	1.75 (44)	2.31 (58.7)	—	—	—	2.84 (204.9)	1.75 (44)	2.31 (58.7)	3.01 (76.5)	2.47 (62.7)	2.39 (60.7)	2.8 (71)	1.89 (48.2)	1.75 (44)	—	—	—	—	—	—
C5	Single solenoid, spring return	5.02 (127.5)	1.56 (39.6)	1.29 (32.8)	3.45 (87.6)	1.56 (39.6)	2.34 (59.4)	5.02 (127.5)	1.04 (26.4)	2.09 (53.1)	3.79 (96.3)	1.31 (33.3)	1.45 (36.8)	3.53 (89.7)	1.31 (33.3)	1.15 (29.2)	—	—	—	—	—	—
C316	3-Way or 4-Way	5.56 (141.3)	1.63 (41.3)	2.15 (54.7)	—	—	—	5.56 (141.3)	1.63 (41.3)	2.15 (54.7)	5.56 (141.3)	1.63 (41.3)	2.32 (59)	5.43 (138)	1.63 (41.3)	2.94 (74.6)	6.59 (167.3)	2.56 (65)	4.13 (104.8)	4.63 (117.6)	2.50 (63.5)	4.74 (120.3)
C5	Double solenoid	7.92 (201.1)	1.56 (39.6)	2.04 (51.8)	7.42 (188.4)	1.56 (39.6)	2.34 (59.4)	7.93 (201.4)	1.56 (39.6)	2.09 (53)	8.07 (205)	1.56 (39.6)	2.26 (57.4)	7.55 (191.7)	1.56 (39.6)	6.93 (176)	—	—	—	—	—	—
C316	3-Way or 4-Way	5.56 (141.3)	1.63 (41.3)	2.15 (54.7)	—	—	—	8.57 (217.7)	1.63 (41.3)	2.15 (54.6)	8.78 (223.1)	1.63 (41.3)	2.32 (59)	8.31 (211.1)	1.63 (41.3)	2.94 (74.6)	10.8 (275)	2.56 (65)	4.13 (104.8)	6.32 (160.5)	2.50 (63.5)	4.74 (120.3)

For warranty information and/or any additional information with regards to installation, operation and service warnings, please consult factory.

		ACTUATOR VOLUME in³ (cm³)										
		Valve Type	5 (82)	10 (162)	25 (410)	50 (820)	100 (1641)	150 (2460)	200 (3280)	400 (6560)	600 (9840)	1000 (16400)
Actuator Cycle time in seconds	C5/C316		.32	.36	.47	.63	.98	1.3	1.7	3.1	4.5	7.2
	E5		.46	.64	1.1	2.0	3.9	5.7	7.5	—	—	—

The above chart represents approximate actuator operation times under average load conditions at 80 psi (5.5 bar). Due to differing designs of quarter-turn actuators, breakaway friction, loading, internal airflow, inlet piping, fittings and exhaust port options, the values shown are intended as an estimate. Faster or slower times may actually be achieved.

For double-acting actuators (open & close), use volumes from selected actuator specifications and the chart for estimated speed. The times indicated are per shift. For spring return actuators, use open volume to obtain time from chart. Actuator spring loading may affect shift time.

Slower speeds (adjustable) can always be accomplished by using Versa's Bleed Control Valves in the control valve exhaust port.

DIRECT MOUNT ACTUATOR VALVES



PRODUCT NUMBER SELECTOR

C5, C316 & E5 NAMUR

Basic Valve Number*

SERIES	FUNCTION**	PORT SIZE	Cv (Kv)	SINGLE SOLENOID/SPRING RETURN, 2 POSITION	DOUBLE SOLENOID/ DETENT, 2 POSITION	DOUBLE SOLENOID/SPRING CENTERED, 3 POSITION	
						Blocked Center	Exhaust Ports Open
C5	4-way 5/2 & 5/3	1/4 NPT G1/4	.75 (11) .75 (11)	CGS-4232-NB1 -†- (coil code) CGS-4292-NB1 -†- (coil code) 	CGG-4232-NB1 -†- (coil code) CGG-4292-NB1 -†- (coil code) 	CXX-4233-NB1 -†- (coil code) CXX-4293-NB1 -†- (coil code) 	CXX-4234-NB1 -†- (coil code) CXX-4294-NB1 -†- (coil code)
	3-way** 3/2 & 3/3	1/4 NPT G1/4	.75 (11) .75 (11)	CGS-3232-NB1 -†- (coil code) CGS-3292-NB1 -†- (coil code) 	CGG-3232-NB1 -†- (coil code) CGG-3292-NB1 -†- (coil code) 	CXX-3233-NB1 -†- (coil code) CXX-3293-NB1 -†- (coil code) 	CXX-3234-NB1 -†- (coil code) CXX-3294-NB1 -†- (coil code)
C316	4-way 5/2 &	1/4 NPT	1.6 (23.5)	CGS-4332-316-NE1 -†- (coil code) 	CGG-4332-316-NE1 -†- (coil code) 		
	3-way**	1/4 NPT	1.6 (23.5)	CGS-3331-316-NE1 -†- (coil code) 	CGG-3331-316-NE1 -†- (coil code) 		
E5	3-Way 3/2	1/4 NPT	.08 (1.2)	E5SM-3011-34-NB1 -†- (coil code) 			

*All valves include O ring interface seals and #10-24 mounting screws.

† Add suffix option here if required, For coil code see page 4.

E5 & C5: For #10-32 screws change NB1 to NB2. For M5 screws change NB1 to NB3.

C316 NUMAR: For #10-32 screws change NE1 to NE2. For M5 screws change NE1 to NE3.

3-way is the same valve as 4-way, but is provided with a relocated cylinder port plug. See note on page 4.

ELECTRICAL

	Valve Series	General Purpose	Suffix Detail	Solenoid Housing Material	Voltages (Coil Codes) All options available in all voltages, except where noted ††	Nominal Coil Power AC/DC (watts)
GENERAL	E5 C5 C316	1/2" NPT conduit, NEMA 1, 2, & 3* 1/2" NPT conduit, watertight, NEMA 4 & 4X* Cord grip PG9 mini-DIN type connector, NEMA 4 1/2" NPT conduit, mini-DIN type connector, NEMA 4 * For high temperature coil include -HT	None -PC -HC -HCC	Carbon Steel, Painted Carbon Steel, Chromate plated Engineered polymer Engineered polymer		6.0/7.0 6.0/7.0 6.5/10.5 6.5/10.5
	E5 C5 C316	Hazardous Location UL/CSA (NEMA 7 & 9) Class I, Div 2 (A & B); Class I Div 1 (C & D); Class II Div 1 (E, F & G)* 1/2" NPT conduit entry, Basic standard with Low power 1.8W coil with potted coil with Stainless housing coil housing Flameproof (d)* - ATEX/IECEx II 2 G Ex d IIB + H ₂ T ₆ ...T ₃ Ex d IIB + H ₂ T ₆ to T ₃ Gb IP66/67/68 M20 x 1.5 conduit entry, Basic standard with Low power 1.8W coil, with potted coil with Stainless steel coil housing with Flameproof Junction Box	-XX -LB-XX -PC-XX -ST-XX -XN -LB-XN -PC-XN -ST-XN -AJB-XN	Carbon Steel, Plated Carbon Steel, Plated Carbon Steel, Plated Stainless Steel Carbon Steel, Plated Carbon Steel, Plated Carbon Steel, Plated Stainless Steel -XN w/Aluminum Epoxy Coated Box	12VDC (D012) 24VDC (D024) 48VDC (D048) 120V60 (A120) 110V50 (E110) 220V50 (E220) 240V60 (A240)	5.6/7.2 1.8/1.8 5.6/7.2 5.6/7.2 5.6/7.2 1.8/1.8 5.6/7.2 5.6/7.2
	C316	Flameproof (me) (d) - ATEX/IECEx UL/CSA EX II 2 G D Ex d e IIC T* Gb EX tb IIIC T* °C Db Ex d IIC DIP A21 T ₆ T ₄ CI Div I Grp B, C & D CI Div II Grp E, F & G IP66, NEMA 4X, 6P with M20 x 1.5 conduit entry NEMA 4X, 6P with 1/2" NPT conduit entry ** XDBS meets ATEX/IECEx UL/CSA XDBT meets ATEX/IECEx UL/CSA (Zones only) For ordering information see "Suffix Detail Ordering Code" to right.	-U-XDBS** -U-XDBT**	Stainless Steel	24VDC (D024) 120V60 (A120) 110V50 (E110) 230V50 (E230)	1.8 1.8
	C316	Encapsulated (mb), Increased Safety (e) Dust (tD) - ATEX/IECEx II 2 G Ex e mb II T ₅ T ₆ II 2 D Ex tD A21 T ₁₀₀ °C, T ₈₅ °C Ex e mb II T ₅ T ₆ Gb Ex tD A21 T ₁₀₀ °C, T ₈₅ °C Db IP66/IP67 M20 x 1.5 Conduit entry† with 6-12mm ø cable gland† 1/2" NPT conduit entry† with 9-16mm ø cable gland†	-XMAA -XMFA -XMFF	Engineered polymer	12VDC (D012) 24VDC (D024) 48VDC (D048) 120V60 (A120) 110V50 (E110) 220V50 (E220) 240V60 (A240)	4.0 4.0 4.0 4.0
LOCATION	E5 C5 C316	Intrinsically Safe FM/CSA Class I (Group A, B, C, D); Class II (Group E, F, G), CLASS III, DIV 1 With PG9 cable gland, mini-DIN type connector with 1/2" NPT conduit entry Intrinsically Safe (ia) - ATEX/IECEx IP65 With PG9 cable gland, mini-DIN type connector with 1/2" NPT conduit entry	-HC-XISC -HCC-XISC -HC-XISX6 -HCC-XISX6	Engineered polymer	24VDC (D024) Intrinsically Safe 24 Volt DC only	1.6 1.6 1.6 1.6
	C316	Intrinsically Safe (ia) - ATEX/IECEx II 2 G Ex ia IIC T ₄ ...T ₆ Gb II 2 D Ex ia D 21 T ₁₃₀ °C...T ₈₀ °C Ex ia IIC T ₄ ...T ₆ Gb Ex ia IIIC T ₁₃₀ °C...T ₈₀ °C Db IP66/IP67 with M20 x 1.5 conduit entry with 1/2" NPT conduit entry	-XIFA -XIFF	Engineered polymer		0.8 0.8
Overrides	E5 C5 C316	None available Un-guarded push and hold (standard) None standard - Optional un-guarded push and hold (-ME Suffix Detail required)	-ME			
Misc		Solenoid exhaust adapter, 1/4" NPT Silencer/Dust Excluder for Solenoid Exhaust (not available -XISC or -XISX6)	-H2 -L14			

Notes

* For high temperature coil add , -HT (included in XMA_, XIF_, XDB_)

† Contact factory for other options in this series

†† Consult factory for other voltages