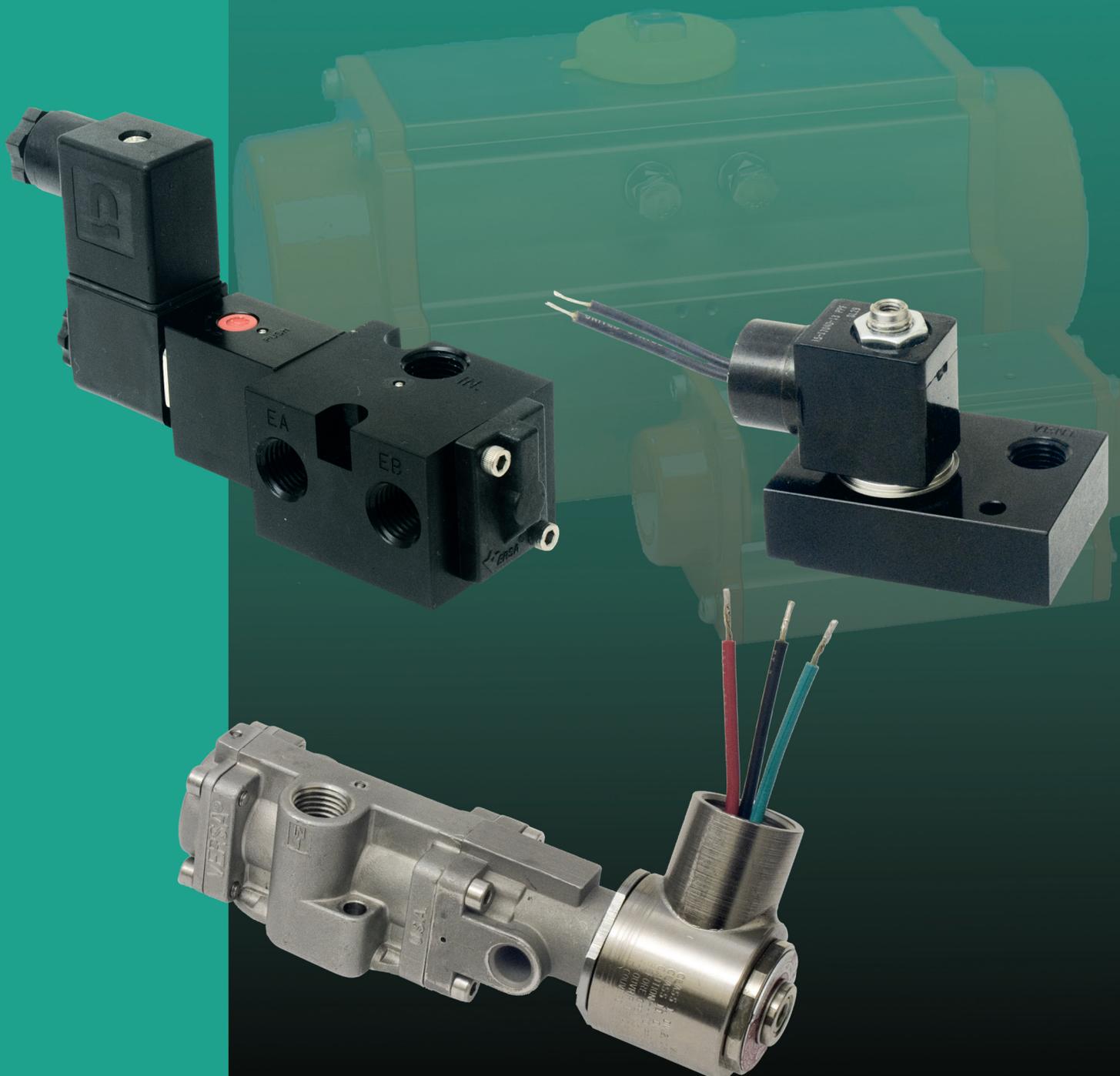




BULLETIN
NMce-2012



NAMUR DIRECT MOUNT PNEUMATIC ACTUATOR VALVES



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

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.

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.



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 Sleeve, Plunger & Spring |
|--------|----------------------|----------------------|----------------------|----------------------|--------------------|---------------|---------------------------------|--|
| | | | Solenoid | Spring | Plunger | Body | Valve to Actuator | |
| E5 | Anodized Aluminum | — | — | — | NBR (Nitrile) | — | 304, 430F & 302 Stainless Steel | |
| C5 | | Anodized Aluminum | Anodized Aluminum | Synthetic Resin | FKM (Fluorocarbon) | NBR (Nitrile) | | |
| 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 | Ordinary Service | Approximate Weights | | | |
|--------------|--|------------------------------------|------------------|---------------------|------------------|------------------|------------------|
| | | | | 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) | — | — |

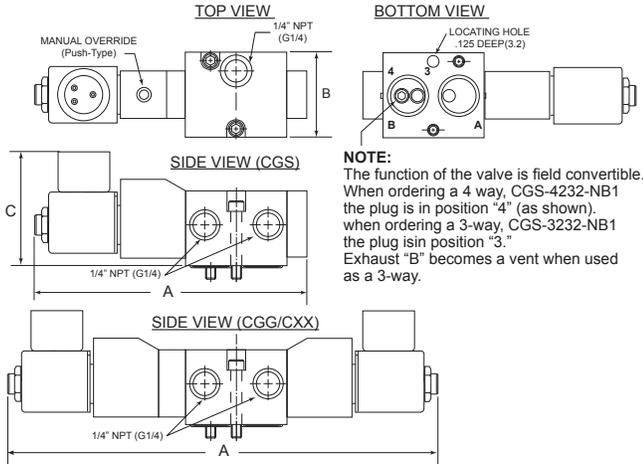
*for applications above 125 psi (8.6 bar) exhaust flow controls or mufflers are recommended

DIRECT MOUNT ACTUATOR VALVES

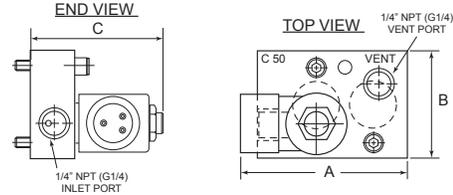


DIMENSIONS

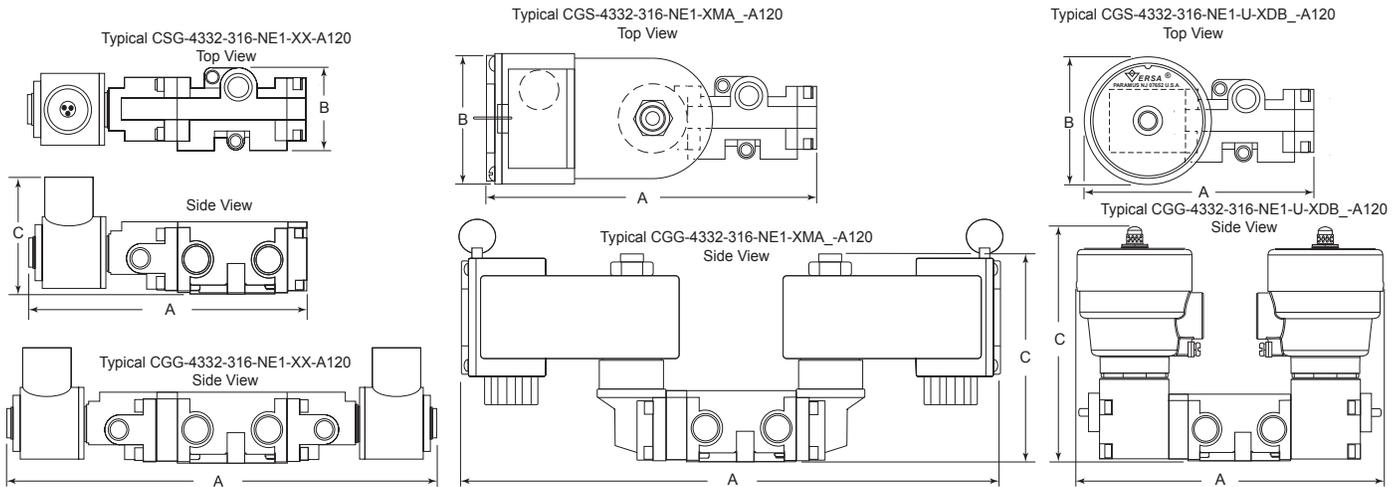
Series C5



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 in ³ (cm ³) | | | | | | | | | | |
|--------------------------------|---------|--|-----------|-------------|-------------|-------------|---------------|---------------|---------------|---------------|---------------|-----------------|
| | | 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 |
| | HAZARDOUS | 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 Flamproof Junction Box | -XX -LB-XX -PC-XX -ST-XX | Carbon Steel, Plated Carbon Steel, Plated Carbon Steel, Plated Stainless Steel | 12VDC (D012) 24VDC (D024) 48VDC (D048) 120V60 (A120) 110V50 (E110) 220V50 (E220) 240V60 (A240) |
| C316 | | Flameproof (me) (d)- ATEX/IECEx UL/CSA EX II 2 G D Ex de IIC T* Gb EX tb IIIC T* °C Db Ex d IIC DIP A21 T6 T4 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 |
| | | 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 T130°C...T85°C Ex e mb II T ₅ T ₆ Gb Ex tD A21 T100°C...T85°C Db IP66/IP67 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 -XMF A -XMAF -XMAFF | 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 | Engineered polymer | 24VDC (D024) Intrinsically Safe 24 Volt DC only |
| | C316 | Intrinsically Safe (ia) - ATEX/IECEx II 2 G Ex ia IIC T4...T6 Gb II 2 D Ex ia D 21 T130°C...T80°C Ex ia IIC T4...T6 Gb Ex ia IIC T130°C...T80°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 | | | |

| Suffix Detail Ordering Code | Suffix Detail Ordering Code | | | |
|-------------------------------|-----------------------------|-----------------|----------|-------|
| | M 20 Connection | 1/2" Connection | No Diode | Diode |
| Standard (vent to atmosphere) | XDBS1 | XDBS5 | XDBT1 | XDBT5 |
| 1/8" Adapter (-H2E) | XDBS2 | XDBS6 | XDBT2 | XDBT6 |
| 1/4" Adapter (-H2) | XDBS3 | XDBS7 | XDBT3 | XDBT7 |
| Dust Nut (-L14) | XDBS4 | XDBS8 | XDBT4 | XDBT8 |

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