



D-316 Family



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D-316 Family

Overview

D-316 Family of valves, available in DSM side ported, DMAP manifold, and NAMUR mount models, are high performance, high flow, direct acting solenoid valves. Designed as a 3-way (3/2), it is a true multipurpose/universal flow, "bubble tight" valve. Suitable for air, natural gas and hydraulic media.

High performance stainless steels make the D-316 Series an ideal choice for the harshest environments and can be configured for full NACE compliance.

The high flow, balanced poppet design has a unique sealing arrangement that assures no false shifts due to pressure spikes regardless of application pressures. Universal flow provides both 3-Way NO or NC in one valve.

Unique to the D-316 family of valves the solenoid housing can be rotated 360° without need for tools, disassembly or valve re-adjustment, facilitating the efficient electrical connections. The D-316 high performance valve can be mounted in any orientation for simplified installation and connection.

The solenoid is available in two versions with world wide approvals and options for M20 or 1/2" NPT conduit connection.

The encapsulated class H coil offers high temperature ratings for long product life in the most severe environments where moisture resistant and enhanced heat dissipation is an added value. A low watt option (-LLP) is also available for the 12 & 24 volt coils requiring only 1.0 watts of power.

Designed for ease of installation and field serviceability, the D-316 is an ideal choice for most applications.

DSM D-316 Side Ported

The DSM is a 1/4" NPT (G1/4"), side ported 3-Way (3/2), direct acting, solenoid/spring return, internally vented valve with universal flow that provides NO or NC in one valve.

The DSM can be mounted in any orientation and solenoid housing can be rotated 360° for ease of conduit connection. Integral junction box O' Ring sealing for solenoid enclosure fully weather protected integral junction box for IP66/67/68 rating and NEMA 6P prolonged submersibility.



DSM NAMUR D-316 Series Direct Actuator Mount

Direct Acting Solenoid Design

The D-316 NAMUR mount valve is designed for single acting, spring return actuators. The valve can be mounted in four orientations. The vertical and horizontal options allow for NC or NO operation based on the mounting.

ReBreather

The D-316 NAMUR 3-way version's internal drilling provides an integral ReBreather function. ReBreathers are used on single acting actuators to utilize air from the exhaust cycle of the piston side to fill the spring side of actuator, preventing corrosive external atmosphere from entering the spring side.



DSM DMAP D-316 Series Modular Air Package

Modular Concept

The basic DMAP system is made of two configurable modules. Module one is the air preparation module consisting of filter/regulators, gauges and drains. Module two is the control valve module, a solenoid operated, direct acting, 3-way control valve.

Air Prep Module

This module is based on the high-flow AR-316 filter-regulators. It comes with a special adapter plate with options for pressure relief and reliability accessories.

The regulator may also be customized to meet your needs with options like an auto drain, pressure adjust knob and tamper-proof adjustment locknut. See Versa's air preparation catalog for more details.

Control Valve Module

This module is based on the same proven design of the side-porting model with the same options and versatility available.



Specifications

Valve

Actuation:	Solenoid actuated, spring return
Function:	3/2, 3-Way, 2 Position, universal flow
Media:	Pneumatic, Air/Inert gas and Hydraulic
Pressure:	vac to 175 psi (vac to 12 bar)
Flow:	0.8 Cv
Temperature:	-4°F to 194°F (-20°C to 90°C) -40°F to 194°F (-40°C to 90°C), low temp Buna option -44 -61°F to 194°F (-52°C to 90°C) Fluorosilicone option -T40
Port size:	¼" npt



DSM-3301-316-M5R-XDDT-D024

Solenoid

Coil class:	H Class
Surge protection:	None, standard Diode, suffix -303D. DC only Metal-oxide varistor (MOV), suffix -303. AC or DC
Connections:	½" NPT or M20 conduit hub
Ingress protection:	IP66/67/68 & NEMA 4X & 6P
Materials of construction*	
Body:	316L Stainless Steel
Poppet:	316L Stainless Steel
Coil Housing:	316L Stainless Steel
Coil:	Epoxy molded
Seals:	FKM standard. Low-temp Buna and fluorosilicone options available.

*All valve components comply with NACE MR0175 except for main spring which is 316 stainless steel.
All wetted parts are NACE Compliant. For full NACE compliance, add option -NA for Inconel spring.



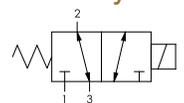
DSM-3301-316-XDDT-356BN-D024+

Voltage/Power

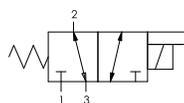
Voltage	Power	Ordering code		
		DC	AC 60 Hz	AC 50 Hz
12 VDC*	2.6 watts	-D012	—	—
24 VDC*		-D024		
48 VDC		-D048		
110 VDC		-D110		
125 VDC		-D125		
110/120 VAC	3.1 watts	—	-A120	-E110
220/240 VAC			-A240	-E220

*Reduced power option (-LLP) 12 & 24 VDC only

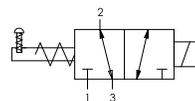
Flow Symbol



DSM-3301-316-XDD_-Volt



DSM-3301-316-M-XDD_-Volt



DSM-3301-316-XDD_-356BN-Volt

Solenoid Type

Solenoid Type	Suffix Number	Conduit Connection	Hazardous Location Rating		Additional Certificates
			ATEX and IECEx	cCSA _{US}	
World Solenoid	-XDDS	M20	Ex II 2 G D Ex d IIC T4 Gb Ex tb IIIC IP66 T135°C Db	CI, I Zn 1, A/Ex d e IIC CI, II, Zn 21, AEx tD A21, T4 °C	CCC INMETRO KC NEPSI PESO TR-CU TS OSHA
World Solenoid with North American rating	-XDDT	½" NPT	CI, I Zn 1, A/Ex d IIC T4 Gb Zn 21, AEx tb IIIC T135 Db	CI I Div 1, Grps B, C & D CI II Div 1 Grps E, F & G CI III CI I Div 2, Grps A, B, C & D	

For other "T" ratings consult factory

For ATEX Certificate
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For IECEx Certificate
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Options

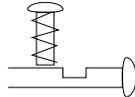
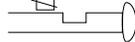
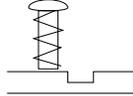
Overrides Options

Suffix	Description
-G	A non-locking, guarded override; push to actuate
-G5R	A locking, guarded manual override with screwdriver slot for turning
-M	A non-locking unguarded manual override; push to actuate
-M5R	An unguarded, locking manual override with screwdriver slot; push to actuate, turn to lock.

Electrical Options

Suffix	Description
-303	Suppression Varistor used to neutralize voltage peaks over 250 volts.
-303D	Free wheeling diode used to absorb inductive kick when the coil is de-energized.
-303T	Transient voltage suppressor used to absorb inductive kick when the coil is de-energized.
-LLP	A Low watt power controller that reduces the total electrical load on a DC solenoid to 1.0 Watts.

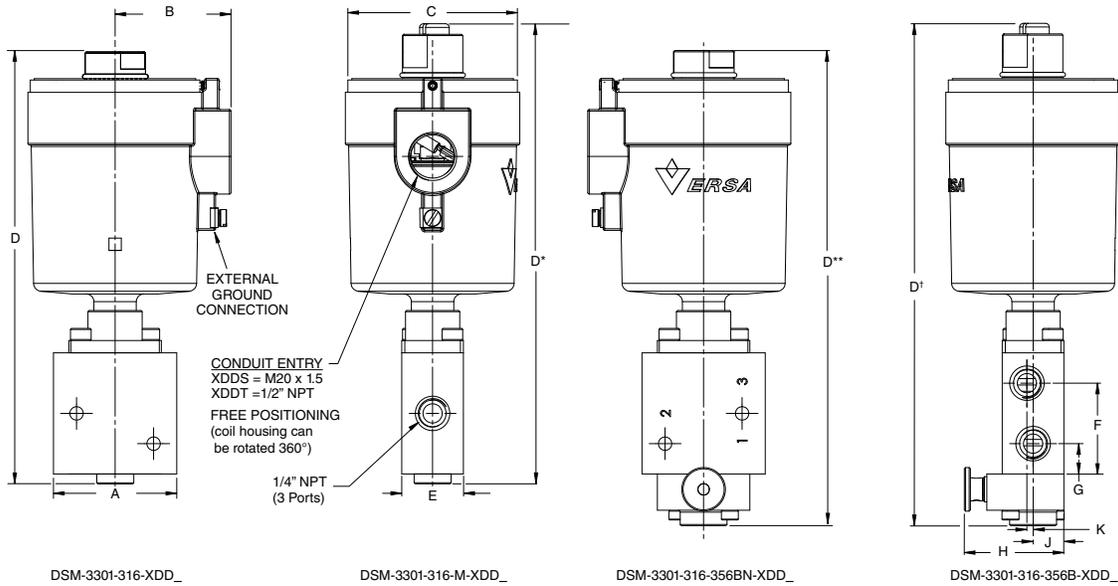
Latch Options

Suffix	Description	Latch Schematic
-356B	Latches automatically when valve plunger is shifted away from button cap side. Use -M manual override.	
-356BR	Same as -356B, but with latch rotated 180°. Use -M manual override	
-356BN	Latches automatically when valve plunger is shifted away from button cap side. No button is provided and rod does not protrude.	
-356BNR	Same as -356BN, but with latch rotated 180°. No button is provided and rod does not protrude.	

D-316 Side Ported

Valve Type & Options	Part Number	Weight
Solenoid Operated-Spring return	DSM-3301-316-XDD*-(**)	5.1 lbs (2.3 kg)
Solenoid Operated-Spring return with Non-locking override, unguarded	DSM-3301-316-M-XDD*-(**)	5.2 lbs (2.4 kg)
Solenoid Operated-Spring return with Locking override, unguarded	DSM-3301-316-M5R-XDD*-(**)	5.2 lbs (2.4 kg)
Solenoid Operated-Spring return with Non-locking override, guarded	DSM-3301-316-G-XDD*-(**)	5.2 lbs (2.4 kg)
Solenoid Operated-Spring return with Locking override, guarded	DSM-3301-316-G5R-XDD*-(**)	5.2 lbs (2.4 kg)
Solenoid Operated-Spring return with Latching reset	DSM-3301-316-XDD*-356BN-(**)	5.4 lbs (2.4 kg)
Solenoid Operated-Spring return with Latching reset and manual button	DSM-3301-316-XDD*-356B-(**)	5.6 lbs (2.5 kg)

Dimensions



Dimensions	A	B	C Ø	D	D*	D**	D†	E	F	G	H	J	K
DSM-3301-316-XDD_-Volts	2.00 50.8	1.87 47.5	2.83 71.9	7.06 177.8	—	—	—	1.00 25.4	1.47 7.4	0.49 12.5	—	0.50 12.7	0.10 2.54
DSM-3301-316-G-XDD_-Volts	2.00 50.8	1.87 47.5	2.83 71.9	—	7.31 185.7	—	—	1.00 25.4	1.47 7.4	0.49 12.5	—	0.50 12.7	0.10 2.54
DSM-3301-316-M-XDD_-Volts	2.00 50.8	1.87 47.5	2.83 71.9	—	7.48 190.0	—	—	1.00 25.4	1.47 7.4	0.49 12.5	—	0.50 12.7	0.10 2.54
DSM-3301-316-XDD_-356B-Volts	2.00 50.8	1.87 47.5	2.83 71.9	—	—	7.70 196.0	—	1.00 25.4	1.47 7.4	0.49 12.5	1.62 41.0	0.50 12.7	0.10 2.54
DSM-3301-316-XDD_-356BN-Volts	2.00 50.8	1.87 47.5	2.83 71.9	—	—	—	8.16 207.3	1.00 25.4	1.47 7.4	0.49 12.5	1.62 41.0	0.50 12.7	0.10 2.54

D-316 Family

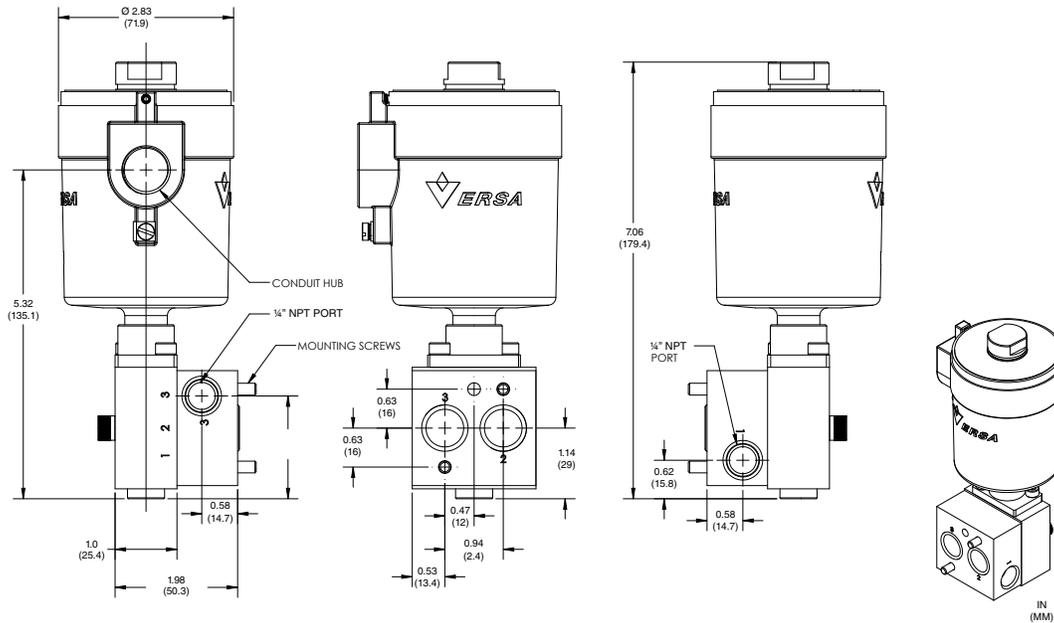
NAMUR

Valve Type & Options	Part Number	Weight
Solenoid Operated-Spring Return	DSM-3311-316-NE*-XDD**-(†)	5.1 lbs (2.3 kg)
Solenoid Operated-Spring Return with Non-locking Override	DSM-3311-316-NE*-M-XDD**-(†)	5.2 lbs (2.4 kg)
Solenoid Operated-Spring Return with Locking Override	DSM-3311-316-NE*-M5R-XDD**-(†)	5.2 lbs (2.4 kg)

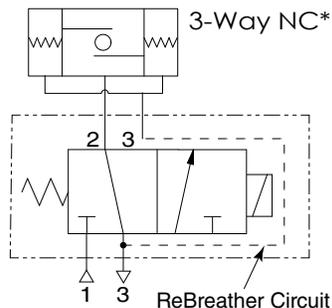
**Select Suffix Number; XDDS for M20 conduit hub or XDDT for ½" NPT conduit hub. See "Solenoid Type" on page 4
 †Select voltage (see "Ordering Code" Page 4).

	Orientation	Mounting screws*			NC Function	NO Function
		10-24	10-32	M5		
NE1	Vertical	X			Mount Upright	Mount downward
NE2	Vertical		X			
NE3	Vertical			X		
NE6	Vertical	X	X	X		
NEH1	Horizontal	X			Mount left	Mount right
NEH2	Horizontal		X			
NEH3	Horizontal			X		
NEH6	Horizontal	X	X	X		

Dimensions

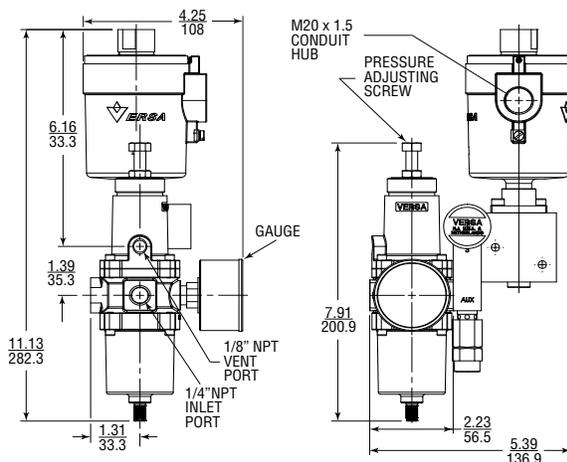


Flow Symbol



DMAP

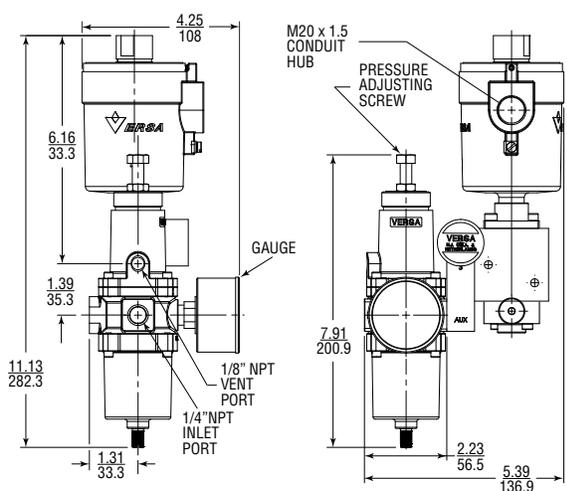
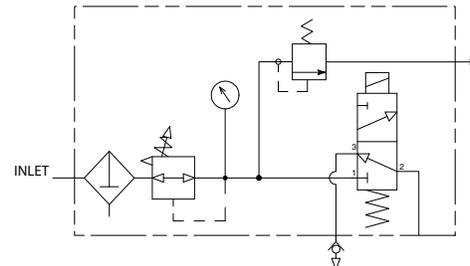
Dimensions



DMAP Bill of Materials

Description	Part Number
Regulator	ARFB-3112-316-DA3-GB
Valve	DSM-3301-316-DA3-XDDS-A120
Dust Excluder	DE-3-316
Relief Valve	RV-3-316-100

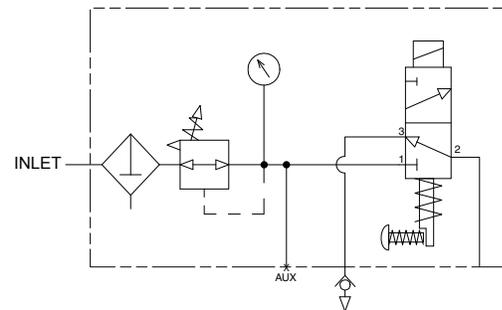
Flow Symbol



DMAP Bill of Materials

Description	Part Number
Regulator	ARFB-3112-316-DA3-GB
Valve	DSM-3301-316-DA3-XDDS-356BN-A120
Dust Excluder	DE-3-316

Flow Symbol



Air Prep Selection

Regulator, Filter and manual drain*	Description	Part Number		Weights	
		0-100 psi	0-150 psi	lbs	kg
	No gauge	ARFB-3112-316-DA3	ARFB-3111-316-DA3	2.7	1.22
	2" gauge liquid filled**	ARFB-3112-316-DA3-GBG	ARFB-3111-316-DA3-GBG	2.9	1.32
	2 1/2" gauge liquid filled**	ARFB-3112-316-DA3-GAG	ARFB-3111-316-DA3-GAG	2.9	1.32

*For Auto Drain change ARFB to ARDB **For non liquid filled gauges, replace GBG with GB or GAG with GA.

Control Valve Selection

Description	Part Number	Weight
Solenoid Operated-Spring return	DSM-3301-316-DA3-†(††)	5.1 lbs (2.3 kg)
Solenoid Operated-Spring return with Non-locking override	DSM-3301-316-DA3-M-†(††)	5.2 lbs (2.4 kg)
Solenoid Operated-Spring return with Locking override	DSM-3301-316-DA3-M5R-†(††)	5.2 lbs (2.4 kg)
Solenoid Operated-Spring return with Latching reset	DSM-3301-316-DA3-356BN-†(††)	5.4 lbs (2.4 kg)
Solenoid Operated-Spring return with Latching reset and manual button	DSM-3301-316-DA3-356B-†(††)	5.6 lbs (2.5 kg)

†Select Suffix Number; XDDS for M20 conduit hub or XDDT for 1/2" NPT conduit hub. See "Agency Approvals" chart on front page.

††Select voltage from "Voltage/Code" chart right.

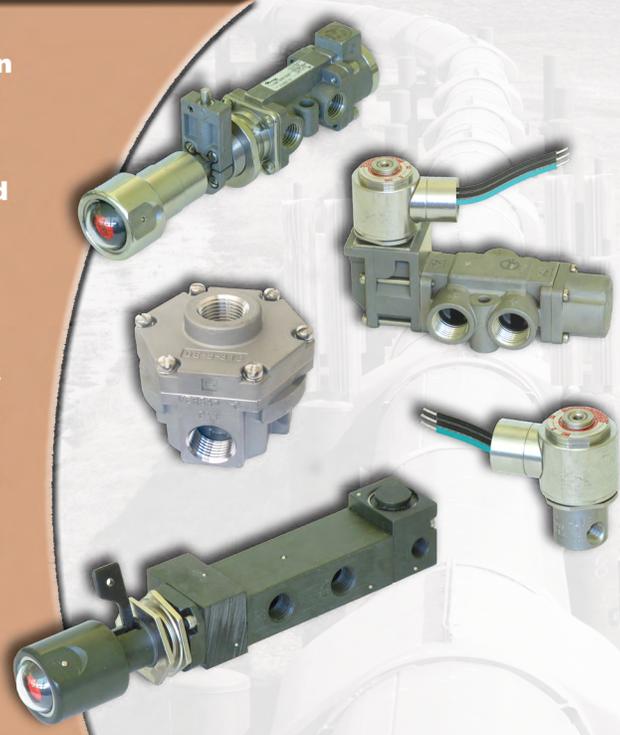
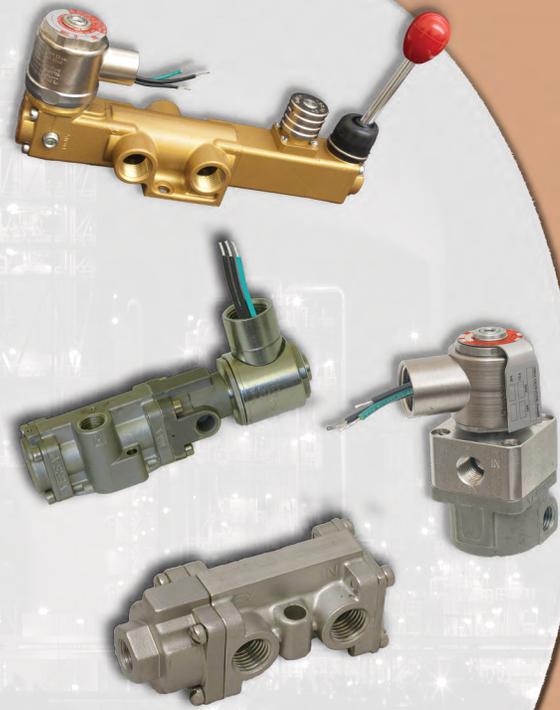
Option Selection

Description	Part Number	Weights	
		lbs	kg
Mounting bracket	Add 4302-99-316-DA3 to bill of Material	0.5	0.23
Relief Valve (also specify Aux port plate)	Add RV-3-316-††† to bill of Material	0.2	0.09
Speed Control, close only	Add suffix -BC3 to Control Valve p/n	0.1	0.05
Speed Control, both open closed	Add FCV-3-316	0.5	0.23
Exhaust Dust Excluder	Add DE-3-316 to bill of Material	0.2	0.09

†††Add relief valve pressure in psi.

Voltage	Code
12 VDC	D012
24 VDC	D024
48 VDC	D048
110 VDC	D110
125 VDC	D125
120 Volt 60 Hz	A120
110 Volt 50 Hz	E110
220 Volt 50 Hz	E220
240 Volt 60 Hz	A240

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Supplying the
fluid power
industry with
pneumatic and
hydraulic
components
for over 70
years. we
have built a
reputation for
quality that is
unsurpassed
in the market
for high
performance
solenoids,
pneumatic
relays,
resets and
pilot valves**



**WARNINGS REGARDING THE DESIGN APPLICATION,
INSTALLATION AND SERVICE OF VERSA PRODUCTS**

The warnings below must be read and reviewed before designing a system utilizing, installing, servicing, or removing a Versa product. Improper use, installation or servicing of a Versa product could create a hazard to personnel and property.

DESIGN APPLICATION WARNINGS

Versa products are intended for use where compressed air or industrial hydraulic fluids are present. For use with media other than specified or for non-industrial applications or other applications not within published specifications, consult Versa.

Versa products are not inherently dangerous. They are only a component of a larger system. The system in which a Versa product is used must include adequate safeguards to prevent injury or damage in the event of system or product failure, whether this failure be of switches, regulators, cylinders, valves or any other system component. System designers must provide adequate warnings for each system in which a Versa product is utilized. These warnings, including those set forth herein, should be provided by the designer to those who will come in contact with the system.

Where questions exist regarding the applicability of a Versa product to a given use, inquiries should be addressed directly to the manufacturer. Confirmation should be obtained directly from the manufacturer regarding any questioned application prior to proceeding.

INSTALLATION, OPERATION AND SERVICE WARNINGS

Do not install or service any Versa product on a system or machine without first depressurizing the system and turning off any air, fluid, or electricity to the system or machine. All applicable electrical, mechanical, and safety codes, as well as applicable governmental regulations and laws must be complied with when installing or servicing a Versa product.

Versa products should only be installed or serviced by qualified, knowledgeable personnel who understand how these specific products are to be installed and operated. The individual must be familiar with the particular specifications, including specifications for temperature, pressure, lubrication, environment and filtration for the Versa product which is being installed or serviced. Specifications may be obtained upon request directly from Versa. If damages should occur to a Versa product, do not operate the system containing the Versa product. Consult Versa for technical information.

**LIMITED WARRANTY DISCLAIMER
AND LIMITATION OF REMEDIES**

Versa's Series products are warranted to be free from defective material and workmanship for a period of ten years from the date of manufacture, provided said products are used in accordance with Versa specifications. Versa's liability pursuant to that warranty is limited to the replacement of the Versa product proved to be defective provided the allegedly defective product is returned to Versa or its authorized distributor. Versa provides no other warranties, expressed or implied, except as stated above. There are no implied warranties of merchantability or fitness for a particular purpose. Versa's liability for breach of warranty as herein stated is the only and exclusive remedy and in no event shall Versa be responsible or liable for incidental or consequential damages.

