

C-316 SERIES



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GENERAL DESCRIPTION

Series "C-316"

The C-316 Series consists of 3-Way 3/2 and 4-Way 5/2 investment cast, 316 stainless steel valves, in three categories: Side Ported, NAMUR style direct mount and CMAP, an integral stainless steel regulator and valve.

"C-316" Body Ported Valves

The C-316 Series is available as either a 4-way, for double acting devices or a 3-way, for spring return devices. The 3-way function can be specified as either normally closed or opened.

All solenoid actuators are solenoid/pilot type, which allows the use of the smallest solenoids available resulting in low power consumption. This design also assures a positive shifting force which makes certain the valve shifts when energized and reduces the chance of coil burnout. Single solenoid spring return models utilize an air assisted spring return feature assuring a positive return. Double solenoid models are equipped with a detent that maintains the valve in the last shifted position, even in high vibration environments.

A complete selection of electrical connections, power requirements and area classifications are available. See page 18 & 19.

"C-316" Namur Valves

The Versa C-316 Series stainless steel NAMUR mount actuator control valve is a high flow, bubble-tight, 5-port, Pilot valve. It is 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 valve.

The 5-port design allows the C-316 NAMUR to be ordered as either a 4-way, for double acting actuators or 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 actuator.

The 5-port design allows the user to independently control actuator speed in either the open or close direction. Speed or bleed controls are optional. See page 16.

CMAP Modular Air Package

A CMAP system consists of a filter/regulator, gauge and directional control valve all in one.

CMAP is based on Versa's field proven C-316 and AR Series. All inter-component connections utilize "0"-ring interface sealing reducing potential leakage points. The combination of C-316 & AR reliability, "0" ring sealing and a simple design principal all provide a reliable and easily maintained product. CMAP is the sensible choice.

The basic CMAP 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 consisting of many different variations of 3-way control valves. See page 17.

Epoxy Molded Coil

Epoxy molding offers

moisture resistance

and heat dissipation

in the toughest ap-

CONSTRUCTION:

Balanced Spool

The forces required to actuate the plunger are unaffected by pressures being controlled assuring positive shifting throughout the entire range.

Wafer Sealing

Wafer type elastomer sealing provides leakproof operation throughout entire pressure range. The wafer/wiper style seal also provides a low friction profile.

Large Diameter Pilot

Large diameter pilot piston produces high shifting forces in Versa C-316 pilot and Solenoid actuated applications assuring a positive shifting force. The U cup offers friction free sealing for a positive shift.

plications.

Air-Assisted Spring Return

Air boosts spring for positive valve return.

Investment Cast Stainless Steel

316 stainless steel components utilized for superior corrosion protection in the harshest environments. Investment cast components offer a first class finish while providing weight savings and superior flow.

Fully Ported – High Flow

Internal flow area equal to or greater than the area of the corresponding pipe/tube size.

High Performance Solenoid Actuator

All the C-316 Series solenoid valves utilize a high performance solenoid pilot design. This design utilizes available media pressure/ force to shift valve assuring positive shifting. This design also produces the lowest wattage requirements in the industry.



Specifications

Port Size: Inlet, cylinder and exhaust: ¼" NPT

Media: C-316 Pneumatic* Pneumatic Pneumatic

Pilot: Inpilot & Expilot solenoid valves

Temperature: -5 to 200°F (-20 to 93° C), Media and ambient
Low Temp (-44 option) Manual: -20 to 200°F (-29 to 93° C), Media and ambient
Pilot: -55 to 200°F (-48 to 93° C), Media and ambient

Solenoid: -40 (-40°C) to Max based on solenoid type

^{*}For hydraulic service consult factory

Operating Pressure		
Valve Function	Minimum psi (bar)	Maximum psi (bar)
Single Solenoid Spring Return	25 (1.8)	150* (10.3)
Dual Solenoid Detent	15 (1.0)	150* (10.3)
Expilot Spring Return (with and without strong spring -S)	See Controlled (inle	et) Pressure chart below

^{*}Exhaust restriction recommended for operating pressures over 125 psi (8.6 bar)

Pilot Operated Spring Return						Со	ntroll	ed (ir	nlet) I	ress	ure					
	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar
	25	1.7	30	1.2	50	3.4	70	4.8	90	6.2	110	7.6	130	9.0	150	10.3
Minimum Pilot Pressure Required	19	1.3	20	1.4	27	1.9	33	2.3	40	2.8	46	3.2	52	3.6	59	4.1

Materials:

Valve body and internal parts: 316L stainless steel
Actuator caps: 316L stainless steel
Valve seals: FKM (fluorocarbon)

Pals: FKM (fluorocarbon)
Option Low Temp Nitrile ("-44")
Stainless steel

Screws:Stainless steelSolenoid internal parts:304, 430F and 302 stainless steelSolenoid Coil housing:Depends on coil selected, see page 19

Repai	r kits	Repair Kit Number							
Prefix No.	Suffix No.	3-Way	4-Way	NAMUR					
CAG, CGA CAP, CPA	136PE	C-3301-316-356AN	C-4302-316-356AN	*					
CZA, CAZ	314E 357E	C-3301-316-AZ	C-4302-316-AZ	*					
CSI, CIS	Standard								
CSA, CAS	357E	C-3301-316-S C-4302-316-S	*						
CSC,CCS	Standard								
CAI, CIA	150E								
CZI, CIZ	Standard	C-3301-316-ZI	C-4302-316-ZI	*					
CAI, CIA	173E								
CAG, CGA	356B	C-3321-316-356AN	C-4322-316-356AN	*					
CAG, CGA CAP, CPA	356BN	C-3321-316-356BN	C-4322-316-356BN	*					
CGG, CPP		C-3321-316-GG	C-4322-316-GG	C-4322-316-GG-NE					
CSP,CPS	Standard	C-3321-316-SG	C-4322-316-SP	*					
CSG,CGS		C-3321-316-SG	0-4322-310-31	C-4322-316-SG-NE					
CAP, CPA	314E	C-3301-316-AP	C-4302-316-AP	*					
CSA, CAS	314E	C-3301-316-SI	C-4302-316-SI	*					
CIZ	LOV	C-3301-316-ZI-LOV	C-4302-316-ZI-LOV	*					

^{*}For NAMUR valve repair kits contact factory.

SELECTOR CHART & PRODUCT NUMBERING

Each letter and digit in the product number of a Versa Valve has a significant meaning, as explained below.

C	S	G		3	3		2	1		316		XX		A120
Valve	_	G DEVICES		Function	Port	Ι.		Spool Details				Suffix De	tails	
Series	Left Side	Right Side*	(se	ee Spool Details)	Size		Type of Body	(flow pattern)	_	Material _	-	Mechanical		Electrical
Series C-316 Valves	A Combinat 136PE, -15 -314E, -35 -357E see suffix C Cam Opera G Solenoid-p I Hand Butto (for panel n P Pressure-P S Spring Rett (spring pus valve spool Z 2-Position (for 2-posit operated va *NOTE "S" above of valve lo "G" above	ion Actuators OE, -173E, OE, -173E, SB, -356BN, column tor iilot n nounting) iilot urn hes) Detent ion manually	2* 3 4 *Tw be plu exh thre	. ,	3 1/4" NPT	3	Expilot Body with threaded side-ports (for Manual, Pilot and Expilot solenoid actuated valves) Inpilot Body with threaded side-ports with internal drilling to supply inlet pressure to Solenoid-pilot actuator Inpilot Manifold mounted with internal drilling to supply inlet pressure to Solenoid-pilot actuator Inpilot Manifold mounted with internal drilling to supply inlet pressure to Solenoid-pilot actuator. NAMUR Valve	Three-Way 3/2 Valves 1 Normally Closed 2 Normally Open Four-Way 5/2 Valves 2 2-Position	,	'316' indicates that the basic construction material for valve parts is AISI 316 Stainless Steel (Conforms to NACE Standard MR-01-75)	-NE_ -44 -U -ME Taggin Combi -136PE -173E -314E -356B	CMAP identifier NAMUR valve with 316 mounting screws, -NE1 10-28 -NE2 10-32 -NE3 M5 Low Temperature seals Up Right coil housing Override, momentary contact Page 15	-HTI-LA -LB-PC-STI-U-VC-STI-VC-STI-VC-VC-STI-VC-VC-VC-VC-VC-VC-VC-VC-VC-VC-VC-VC-VC-	ctrical High Temp coil 0.85 Watt coil 1.8 Watt coil NEMA 4/4X Stainless steel coil housing Upright solenoid end cap B_ Stainless Steel housing,multi agency approvals NEMA 7 & 9



THE C-316 FAMILY

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THE C-316 Side Ported



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Pilot, Palm button,.....Page 8 - 9
Pilot Latching.....Page 9 - 10

Manually Operated





Mechanical

CAM......Page 15



THE C-316 NAMUR

NAMUR – Direct Mount

Solenoid	OperatedPage	16
Latching.	Page	16



CMAP

CMAP – Modular Air Package

Solenoid Operated	Page	17
Latching	Page	17



Options

Solenoid Manual Override	.Page	15
Solenoid Vent Options	Page	15
Stainless Steel Tag	.Page	15

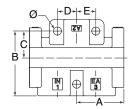




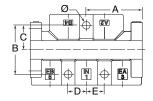




Mounting Hole Dimensions Side Ported Valves

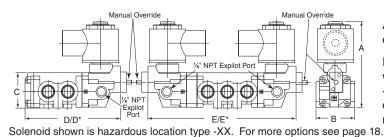


Mounting Hole Dimensions	A 3-Way	A 4-Way	В	С	D	Е	Ø
Inches	1.0	1.25	1.13	0.56	0.41	0.41	0.17
mm	25.4	31.8	28.6	14.3	10.3	10.3	4.4



D D* E E*

Optional Upright Coil Housing



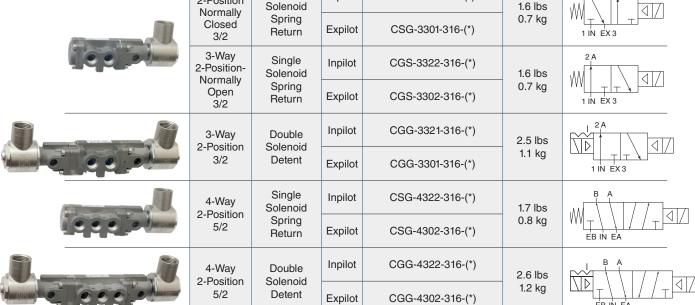
Available as an option on side ported valves.

Recommended for use with -XDB_, -XMA_, -XMF_ & XIF_ coils on NAMUR valves for mounting clearance.

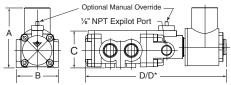
	Α	В	C	3-Way	4-Way	3-Way	4-Way					
Side Ported												
Inches	2.8	1.62	1.42	5.41	5.91	8.53	9.0					
mm	72.1	41.1	36.1	137.5	150.1	217	288.6					
			N	AMUR								
Inches	2.8	1.63	1.44	4.14	4.14	7.25	7.25					
mm	72.1	41.3	36.6	105.2	105.2	184.2	184.2					

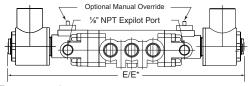
Body Ported Valves

SOLENOID OPERATED Pilot **Type Function Actuation** Weight Flow Symbol **Side Ported Part Number** 3-Way Single CSG-3321-316-(*) Inpilot 2-Position Solenoid 1.6 lbs Normally Spring 0.7 kg Closed CSG-3301-316-(*) Expilot Return 1 IN EX3 3/2 3-Way Single CGS-3322-316-(*) Inpilot 2-Position-Solenoid 1.6 lbs



Add solenoid/coil voltages (page 19) & Suffix from Selector Chart (page 3)





	A	В	C	D 3-Way	D* 4-Way	E 3-Way	E* 4-Way
Inches	2.8	1.62	1.42	5.41	5.91	8.53	9.0
mm	72.1	41.1	10.3	137.5	150.1	217	288.6

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Solenoid shown is hazardous location type -XX. For more options see page 18.

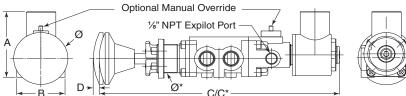


Body Ported Valves

SOLENOID, PALM BUTTON with SPRING RETURN

				Pilot			
	Side Ported	Function	Actuation	Type	Part Number	Weight	Flow Symbol
		3-Way 2-Position	n Solenoid '		d Inpliet CAG-3321-316-136PE-(")		2 A 4
		Normally Closed 3/2	Palm Button Spring Return	Expilot	CAG-3301-316-136PE-(*)	0.9 kg	1 IN EX3
		3-Way 2-Position Normally	Single Solenoid Palm Button	Inpilot	CGA-3322-316-136PE-(*)	2.0 lbs	2A
		Open 3/2	Spring Return	Expilot	CGA-3302-316-136PE-(*)	0.9 kg	1 IN EX3
A notes		4-Way	Single Solenoid Palm Button	Inpilot	CAG-4322-316-136PE-(*)	2.1 lbs	HAAA \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	0000	2-Position 5/2		Expilot	CAG-4302-316-136PE-(*)	1.0 kg	EB IN EA

^{*} Add solenoid/coil voltages (page 19) & Suffix from Selector Chart (page 3)



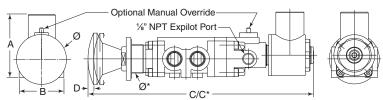
	A	В	C 3-Way	C* 4-Way	D Travel	Ø	Ø*
Inches	2.3	1.62	8.08	8.58	.20	1.81	1.0
mm	58.4	41.2	205.2	217.9	5.08	46	25.4

For mounting hole dimensions see page 5

Solenoid shown is hazardous location type -XX. For more options see page 18. Manual override see page 15

	S	INGLE S	OLENOID,	PALM	BUTTON with DE	TENT	
				Pilot			
	Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol
		3-Way 2-Position	Single Solenoid	Inpilot	CIA-3321-316-173E-(*)	2.1 lbs	2 A
		Normally Closed 3/2	Detent with Button	E. and it add	CIA-3301-316-173E-(*)	1.0 kg	1 IN EX 3
		3-Way 2-Position-	Single Solenoid Detent with Button	Inpilot	CAI-3322-316-173E-(*)	2.1 lbs	2 A
		Normally Open 3/2		Expilot	CAI-3302-316-173E-(*)	1.0 kg	1 IN EX3
A		4-Way	Single Solenoid	Inpilot	CAI-4322-316-173E-(*)	2.2 lbs	B A
		2-Position 5/2	Detent with Button	Expilot	CAI-4302-316-173E-(*)	1.0 kg	EB IN EA

* Add solenoid/coil voltages (page 19) & Suffix from Selector Chart (page 3)



Solenoid shown is hazardous location type -XX. For more options see page 18. Manual override see page 15

	A	В	C 3-Way	C* 4-Way	D Travel	Ø	Ø*
Inche	2.3	1.62	7.92	8.42	.20	1.81	1.0
mm	58.4	41.2	201.2	213.8	5.08	46	25.4

For mounting hole dimensions see page 5



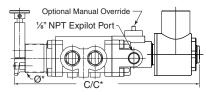
Body Ported Valves

LATCHING, SINGLE SOLENOID, SPRING RETURN without PALM BUTTON

			Pilot			
Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol
	3-Way 2-Position Normally	Solenoid Spring	Inpilot	CAG-3321-316-356BN-(*)	1.9 lbs	2 A
	Closed 3/2		Expilot	CAG-3301-316-356BN-(*)	0.9 kg	1 IN EX3
	3-Way 2-Position- Normally	Single Solenoid, Latching Reset	Inpilot	CGA-3322-316-356BN-(*)	1.9 lbs	2 A
	Open 3/2		Expilot	CGA-3322-316-356BN-(*)	0.9 kg	1 IN EX3
	4-Way	Single	Inpilot	CAG-4322-316-356BN-(*)		B A
	2-Position 5/2	Solenoid Latching Reset	Expilot	CAG-4302-316-356BN-(*)	2.0 lbs 0.9 kg	EB IN EA

^{*} Add solenoid/coil voltages (page 19) & Suffix Details from Selector Chart (page 3)







Solenoid shown is hazardous location type -XX. For more options see page 18. Manual override see page 15 $\,$

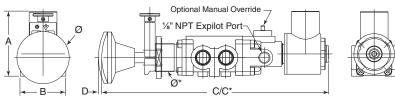
	A	В	C 3-Way	C* 4-Way	Ø*
Inches	2.3	1.62	6.5	7.0	1.0
mm	58.4	41.2	165	177.8	25.4

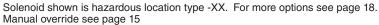
For mounting hole dimensions see page 5

LATCHING, SINGLE SOLENOID, SPRING RETURN with PALM BUTTON

				Pilot			
	Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol
		3-Way 2-Position Normally	Single Sole- noid, Latching	Inpilot	CAG-3321-316-356B-(*)	2.0 lbs	2 A
		Closed 3/2	Reset with Button	Expilot	CAG-3301-316-356B-(*)	0.9 kg	1 IN EX3
PHIQUIN		3-Way 2-Position- Normally	Single Sole- noid, Latching	Inpilot	CGA-3322-316-356B-(*)	2.0 lbs	2 A
		Open 3/2	Reset with Button	Expilot	CGA-3302-316-356B-(*)	0.9 kg	1 IN EX 3
. 8		4-Way	Single Sole- noid, Latching	Inpilot	CAG-4322-316-356B-(*)	2.1 lbs	B A
PHE	2-Posit 5/2		SITION Reset with		CAG-4302-316-356B-(*)	1.0 kg	EB IN EA

* Add solenoid/coil voltages (page 19) & Suffix from Selector Chart (page 3)





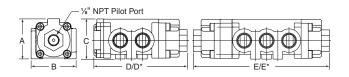
	A	В	C 3-Way	C* 4-Way	D Travel	Ø	Ø*
Inches	2.3	1.62	8.08	8.58	.20	1.81	1.0
mm	58.4	41.2	205.2	217.9	5.08	46	25.4

For mounting hole dimensions see page 5



Body Ported Valves

PILOT OPERATED Pilot Type Side Ported Function Actuation Part Number Weight Flow Symbol 3-Way 2-Position Single Pilot Remote 1.0 lbs 1 Normally Spring CSP-3301-316 Pilot 0.5 kg Closed Return 1 IN EX3 3/2 3-Way Single Pilot 2-Position-Remote 1.0 lbs Spring Normally CPS-3302-316 Pilot 0.5 kg Return Open 1 IN EX 3 3/2 3-Way Double Pilot Remote 1.3 lbs 2-Position CPP-3301-316 Detent Pilot 0.6 kg 3/2 1 IN EX3 Single Pilot 4-Way Remote 1.0 lbs 2-Position Spring CSP-4302-316 Pilot 0.5 kg 5/2 Return EB IN EA 4-Way Double Pilot Remote 1.4 lbs 2-Position CPP-4302-316 Detent Pilot 0.6 kg 5/2 EB IN EA



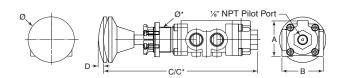
	A	В	С	D 3-Way	D* 4-Way	E 3-Way	E* 4-Way
Inches	2.8	1.62	1.42	3.36	3.86	4.43	4.94
mm	72.1	41.1	10.3	85	98	112.4	125.4

For mounting hole dimensions see page 5

Pilot Type Side Ported Function Actuation Part Number Weight Flow Symbol 3-Wav Single Pilot 2-Position Palm Button Remote 1.3 lbs Normally CAP-3301-316-136PE Pilot Spring 0.6 kg Closed Return 1 IN EX3 3/2 3-Way Single Pilot 2-Position-Palm Button 1.3 lbs Remote CPA-3302-316-136PE Normally Spring Pilot 0.6 kg Open Return 3/2 Single Pilot 4-Way Palm Button Remote 1.4 lbs

Pilot

PILOT, PALM BUTTON with SPRING RETURN



2-Position

5/2

Spring

Return

	A	В	C 3-Way	C* 4-Way	D Travel	Ø	Ø*
Inches	2.3	1.62	7.88	8.38	.20	1.81	1.0
mm	58.4	41.2	200.1	212.9	5.08	46	25.4

0.6 kg

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For mounting hole dimensions see page 5

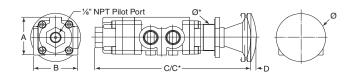
CAP-4302-316-136PE



Body Ported Valves

PILOT, PALM BUTTON with DETENT

				Pilot			
	Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol
			Single Pilot Detent with Button	Remote Pilot	CAI-3301-316-150E	1.5 lbs 0.7 kg	1 IN EX3
			Single Pilot Detent with Button	Remote Pilot	CIA-3302-316-150E	1.5 lbs 0.7 kg	1 IN EX3
		4-Way 2-Position 5/2	Single Pilot Detent with Button	Remote Pilot	CAI-4302-316-150E	1.6 lbs 0.7 kg	B A T T EB IN EA

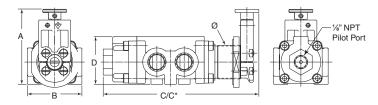


	A	В	C 3-Way	C* 4-Way	D Travel	Ø	Ø*
Inches	1.42	1.62	5.86	6.36	.20	1.81	1.0
mm	36.1	41.2	149	161.4	5.08	46	25.4

For mounting hole dimensions see page 5

LATCHING, PILOT, SPRING RETURN without PALM BUTTON

				Pilot			
	Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol
L		3-Way 2-Position Normally Closed 3/2	Pilot, Latching, Spring Return	Remote Pilot	CAP-3301-316-356BN	1.3 lbs 0.6 kg	1 IN EX3
		3-Way 2-Position- Normally Open 3/2	Pilot, Latching Spring Return	Remote Pilot	CPA-3302-316-356BN	1.3 lbs 0.6 kg	1 IN EX3
	999	4-Way 2-Position 5/2	Pilot, Latching Spring Return	Remote Pilot	CAP-4302-316-356BN	1.4 lbs 0.6 kg	B A EB IN EA



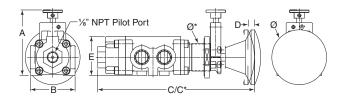
	Α	В	C 3-Way	C* 4-Way	Ø
Inches	2.23	1.42	4.36	4.86	1.81
mm	56.6	36.1	117.5	123.4	46



Body Ported Valves

LATCHING, PILOT, SPRING RETURN with PALM BUTTON

			Pilot				
	Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol
		3-Way 2-Position Normally Closed 3/2	Pilot, Latching Reset with Palm Button	Remote Pilot	CAP-3301-316-356B	1.4 lbs 0.6 kg	1 IN EX3
	PHOO		Pilot, Latching Reset with Palm Button	Remote Pilot	CPA-3302-316-356B	1.4 lbs 0.6 kg	1 IN EX3
Þķ	000	4-Way 2-Position 5/2	Pilot, Latching Reset with Palm Button	Remote Pilot	CAP-4302-316-356B	1.5 lbs 0.7 kg	B A EB IN EA



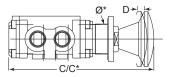
	A	В	C 3-Way	C* 4-Way	D Travel	E	Ø	Ø*
Inches	2.23	1.62	8.08	8.58	.20	2.3	1.81	1.0
mm	56.6	41.2	205.2	217.9	5.08	58.4	46	25.4

For mounting hole dimensions see page 5

MANUAL, PALM BUTTON, SPRING RETURN

				Pilot					
	Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol		
		3-Way 2-Position Normally Closed 3/2	Palm Button Spring Return	NA	CSI-3301-316	1.1 lbs 0.5 kg	1 IN EX3		
		3-Way 2-Position- Normally Open 3/2	Palm Button Spring Return	NA	CIS-3302-316	1.1 lbs 0.5 kg	1 IN EX3		
0		4-Way 2-Position 5/2	Palm Button Spring Return	NA	CSI-4302-316	1.3 lbs 0.6 kg	B A T		







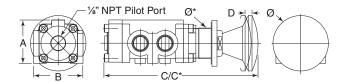
	A	В	C 3-Way	C* 4-Way	D Travel	Ø	Ø*
Inches	2.3	1.62	8.08	8.58	.20	1.81	1.0
mm	58.4	41.2	205.2	217.9	5.08	46	25.4



Body Ported Valves

MANUAL, PALM BUTTON, DETENTED

			,					
				Pilot				
	Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol	
-			Palm Button Detent	NA	CZI-3301-316	1.3 lbs 0.6 kg	1 IN EX3	
			Palm Button Detent	NA	CIZ-3302-316	1.3 lbs 0.6 kg	2 A 1 IN EX3	
		4-Way 2-Position 5/2	Palm Button Detent	NA	CZI-4302-316	1.4 lbs 0.6 kg	B A EB IN EA	

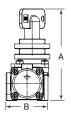


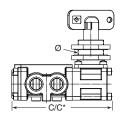
	A	В	C 3-Way	C* 4-Way	D Travel	Ø	Ø*
Inches	1.42	1.62	4.8	5.3	.20	1.81	1.0
mm	36.1	41.2	122	135	5.1	46	25.4

For mounting hole dimensions see page 5

MANUAL, ROTARY, SPRING RETURN

			Pilot	ot				
Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol		
	3-Way 2-Position Normally Closed 3/2	Rotary Spring Return	NA	CSA-3301-316-357E	1.6 lbs 0.7 kg	1 IN EX3		
CC	3-Way 2-Position Normally Open 3/2	Rotary Spring Return	NA	CAS-3302-316-357E	1.6 lbs 0.7 kg	1 IN EX 3		
	4-Way 2-Position 5/2	Rotary Spring Return	NA	CSA-4302-316-357E	1.8 lbs 0.8 kg	B A EB IN EA		







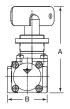
	A		C 3-Way	C* 4-Way	Ø
Inches	3.5	1.62	3.73	4.23	1.0
mm	90	41.2	95	107.4	25.4

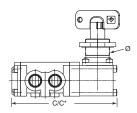


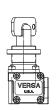
Body Ported Valves

MANUAL, ROTARY, DETENTED

		,	,					
			Pilot					
Side Ported	Function	Actuation	Туре	Part Number	Weight	Flow Symbol		
	3-Way 2-Position- Normally Closed 3/2	Rotary Detent	NA	CZA-3301-316-357E(*)	1.8 lbs 0.8 kg	2 A 1 IN EX 3		
	3-Way 2-Position- Normally Open 3/2	Rotary Detent	NA	CAZ-3302-316-357E(*)	1.8 lbs 0.8 kg	2 A 1 IN EX 3		
	4-Way 2-Position 5/2	Rotary Detent	NA	CZA-4302-316-357E(*)	2.0 lbs 0.9	B A T		





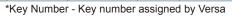


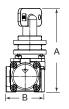
	A	В	C 3-Way	C* 4-Way	Ø
Inches	3.5	1.62	4.2	4.7	1.0
mm	90	41.2	105	119.3	24.5

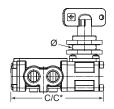
For mounting hole dimensions see page 5

MANUAL, KEY, SPRING RETURN

			Pilot				
	Side Ported Function Actuation				Part Number	Weight	Flow Symbol
			Key Spring Return	NA	CSA-3301-316-314E(*)	1.8 lbs 0.8 kg	1 IN EX3
		3-Way 2-Position- Normally Open 3/2	Key Spring Return	NA	CAS-3302-316-314E(*)	1.8 lbs 0.8 kg	2 A IIN EX3
	Parlace 2000	4-Way 2-Position 5/2	Key Spring Return	NA	CSA-4302-316314E(*)	2 lbs 0.9 kg	B A T T EB IN EA







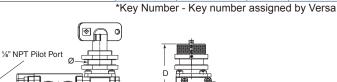


	A	В	C 3-Way	C* 4-Way	D	Ø
Inches	3.5	1.62	3.73	4.23	2.8	1.0
mm	90	41.2	95	107.4	71.3	24.5



Body Ported Valves

MANUAL, KEY, PILOT RETURN **Pilot Type Side Ported Function Actuation Part Number** Weight Flow Symbol 3-Way 2-Position Key Remote 2 lbs CPA-3301-316-314E(*) Normally Pilot Return Pilot 0.9 kg Closed 3/2 1 IN FX 3 3-Way 2-Position 2 lbs Key Remote Normally CAP-3302-316-314E(*) Pilot Return Pilot 0.9 kg Open 1 IN EX3 3/2 4-Wav Key Remote 2 lbs CPA-4302-316-314E(*) 2-Position Pilot Return Pilot 0.9 kg 5/2 EB IN EA

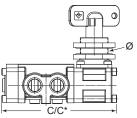




	A	В	C 3-Way	C* 4-Way	D	Ø
Inches	3.53	1.62	8.08	8.58	2.8	1.0
mm	90	41.2	205.2	217.9	71.3	24.5

For mounting hole dimensions see page 5

MANUAL, KEY, DETENT **Pilot Type Side Ported** Weight **Function** Actuation **Part Number** Flow Symbol 3-Way 2-Position Key 1.9 lbs Normally NA CZA-3301-316-314E(*) Pilot Return 0.9 kg Closed 1 IN EX3 3/2 3-Way 2-Position Key 1.9 lbs Normally NA CAZ-3301-316-314E(*) Pilot Return 0.9 kg Open 1 IN EX3 4-Way Key 2 lbs 2-Position NA CAZ-4302-316-314E(*) Pilot Return 0.9 kg 5/2 EB IN EA *Key Number - Key number assigned by Versa



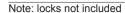


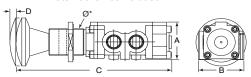
	A	В	C 3-Way	C* 4-Way	D	Ø
Inches	3.53	1.62	4.2	4.7	2.8	1.0
mm	90	41.2	105	217.9	71.3	24.5
_						



Body Ported Valves

MANUAL, LOCK - OUT Pilot **Type Function Side Ported** Actuation **Part Number** Weight Flow Symbol 3-Way 2-Position Palm Button 1.3 lbs Normally NA CIZ-3301-316-LOVBE Detent 0.6 Closed 3/2 1 IN EX3 4-Way Palm Button 1.4 lbs NA CIZ-4302-316-LOVEE 2-Position Detent 0.6 5/2 EB IN EA



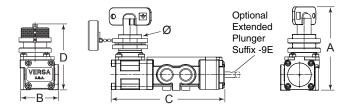


	Α	В	C (3-Way)	C* (4-Way)	D (Travel)	Ø	Ø*
Inches	2.3	1.62	8.08	8.58	.20	1.81	1.0
mm	58.4	41.2	205.2	217.9	5.08	46	25.4

For mounting hole dimensions see page 5

MANUAL, By Pass Valve

Side Ported	Function	Actuation	Pilot Type	Part Number	Weight	Flow Symbol	
Coll	1/4" NPT* 4Way 3-Position	Key Operated	14/7	CAU-430X-316-314E***-2039 (*** = key code assigned at factory) Add -9E Sffix Detail for Extended Plunger	2 lbs 0.9 kg	Positions 3 2	NORMAL 1 5 3 A2



		Α	В	C	D*	Ε	Ø
In	ches	3.53	1.62	5.14	4.7	2.8	1.0
m	ım	90	41.2	130	217.9	71.3	24.5

For mounting hole dimensions see page 5

The, basic valve is a 3 position manual valve. Operation is as follows:

Position 1. This position is the <u>normal</u> position or the regular operation mode.

Position 2. This position places the control circuit in the <u>test</u> mode. In this position the bypass valve allows pressure to the circuit for testing while maintaining pressure on the actuator. With pressure to solenoid inlet and solenoid circuit outlet blocked/isolated this position allows complete testing of solenoid circuit while not shutting down the system.

Position 3. This position places the control system in a <u>replace</u> mode. Should it be determined that a component in the control circuit needs to be repaired and or replaced this position allows total isolation from pressure while still holding system pressure to actuator.

*1/2" NPT available; part number: VAU-450X-316-314E507-2039. See V-316 Series.

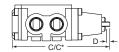


Body Ported Valves

MANUAL, CAM Pilot **Type** Side Ported **Function Actuation Part Number** Weight Flow Symbol 3-Way Cam 2-Position 1.0 lbs Spring NA CSC-3301-316 Normally 0.5 kg Return Closed 3/2 3-Wav Cam 2-Position 1.0 lbs NA CCS-3302-316 Spring Normally 0.5 kg Return Open 3/2 4-Way Cam 1.0 lbs 2-Position Spring NA CSC-4302-316 0.5 kg 5/2 Return





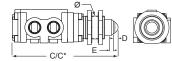




Standard Cam







C C* A В E Ø Travel (3-Way) (4-Way) (Travel) Inches 1.42 1.62 3.87 4.37 0.19 1.0 110.9 58.4 41.2 217.9 5.08 4.8 25.4

For mounting hole dimensions see page 5

Over Travel Cam Suffix -18E

Options

Override



-ME Override On Standard Solenoid Cap



-ME -U Override On Up Right Solenoid Cap

Solenoid Vent Options



Hydraulic Adapter -H2 1/8"

-H2 1/4"



-L14 Dust Proof



Water Tight

Excluders -D14

ORDERING INFORMATION

Order any B-316, C-316, T, V or V-316 valve. As a separate line item (listed directly under



valve part number to be tagged) list the tag part number P- 2002-16-NV28A. In remarks field specify the tag marking instructions. If sequential numbering is required provide the start and end numbers required in the sequence for the appropriate number of valves.

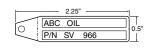
Stainless Steel Tag

Engraving Options

Versa's engraved tags are available in two configurations.

Configuration one: is a simple text field consisting of two lines of text, 20 characters maximum per line. The text can be specified as alpha, numeric or both.

Configuration two: is a text field with sequential numbering added. This option includes two lines of text. Line one is text. Line two allows for sequentially numbering the tag, 20 characters maximum per line.

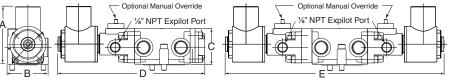


	ABC	OIL			Ŋ
	P/N	SV	966	*	
Field for	Seque	ntial Ch	aracters	3 7	_



Note: NAMUR. SOLENOID OPERATED 3-Way & 4-Way **Pilot** NAMUR valves **NAMUR Function Actuation Type Part Number** Weight Flow Symbol look the same externally. 3-Way Single 2-Position 1.7 lbs Solenoid Normally Inpilot CGS-3331-316-NE†-(*) Spring 0.8 kg Closed Return 1 IN EX3 3/2 3-Way Single 2-Position-Solenoid 1.7 lbs Normally Inpilot CSG-3332-316-NE+-(*) 0.8 kg Spring Open Return 1 IN EX3 3-Way Double 2.3 lbs Solenoid 2-Position CGG-3331-316-NE†-(*) Inpilot 1.0 kg 3/2 Detent 1 IN EX3 Single 4-Way Solenoid 1.7 lbs 2-Position Inpilot CGS-4332-316-NE†-(*) Spring 0.8 kg 5/2 Return FR IN FA 4-Way Double 2.3 lbs 2-Position Solenoid Inpilot CGG-4332-316-NE†-(*) 1.0 kg 5/2 Detent

† Add mounting screw type from Selector Chart "Suffix" column (page 3) * Add solenoid/coil voltages (page 19) & Suffix from Selector Chart (page 3).



	Α	В	C	D
Inches	2.3	1.62	5.7	8.8
mm	58.4	41.2	144	223

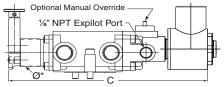
Solenoid shown is hazardous location type -XX. For more options see page 18. Manual override see page 15

NAMUR LATCHING, SOLENOID, SPRING RETURN without PALM BUTTON

				Pilot			
	NAMUR	Function	Actuation**	Туре	Part Number	Weight	Flow Symbol
		3-Way 2-Position Normally Closed 3/2	Pilot, Latching Reset without Button	Inpilot	CAG-3331-316-356BN-NE†-(*)	1.5 lbs 0.7 kg	1 IN EX3
		3-Way 2-Position- Normally Open 3/2	Pilot, Latching Reset without Button	Inpilot	CGA-3332-316-356BN-NE†-(*)	1.5 lbs 0.7 kg	1 IN EX 3
		4-Way 2-Position 5/2	Single Solenoid, Latching Reset without Button	Inpilot	CAG-4332-316-356BN-NE†-(*)	1.5 lbs 0.7 kg	B A EB IN EA

† Add mounting screw type from Selector Chart "Suffix" column (page 3). * Add solenoid/coil voltages (page 19) & Suffix from Selector Chart (page 5).







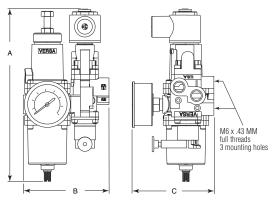
**Consult factory for other configurations

	Α	В	C	Ø*
Inches	2.23	1.62	5.7	1
mm	56.6	41.2	144	25.4



CMAP Modular Air Package

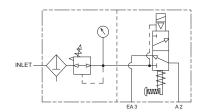




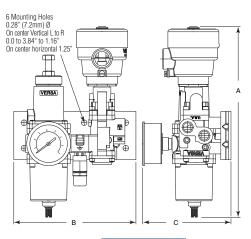
	Α	В	C
Inches	8.44	4.0	3.85
mm	214	101.6	97.9

Bill of Materials

Description	Part Number
Regulator	ARFA-3111-316-CA3-GBG
Valve	CAG-3321-316-356BN-CA3-XX-A120



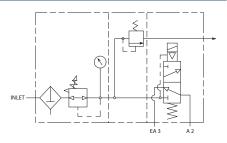




	Α	В	C
Inches	9.39	6.0	3.85
mm	238	152.4	97.9

Bill of Materials

Description	Part Number
Regulator	ARFA-3111-316-CA3-GBG
Valve	CSG-3321-316-CA3-XDBS1-A120
Spacer	CY-3209-32-316-CA3
Bracket	4302-99-316-CA3
Relief Valve	RV-3-316-100



Air Prep Selection		Part Number			Weights	
Regulator, Description		0-100 psi	0-150 psi	lbs	kg	
Filter and No gauge		ARFA-3112-316-CA3	ARFA-3111-316-CA3	2.7	1.22	
manual 2" gauge liquid filled		ARFA-3112-316-CA3-GBG	ARFA-3111-316-CA3-GBG	2.9	1.32	
<u> </u>		ARFA-3112-316-CA3-GAG	ARFA-3111-316-CA3-GAG	2.9	1.32	

Valve Selection	lection Part Number		Weig	hts ††
Description	3-way, normally closed †	way, normally closed † 3-way, normally open †		Kg
3/2 Pilot, Spring Return	CSG-3321-316-CA3-**	CGS-3322-316-CA3-**	1.9	0.86
3/2 Double Pilot, detented	CGG-3321-316-CA3-**	CGG-3322-316-CA3-**	2.5	1.13
3/2 Pilot, spring return w/ latch	CAG-3321-316-CA3-356BN-**	CGA-3322-316-CA3-356BN-**	2.2	0.99
3/2 Pilot, spring return w/ latch and button	CAG-3321-316-CA3-356B-**	CGA-3322-316-CA3-356B-**	2.3	1.04
3/2 Pilot, spring return	CSP-3301-316-CA3	CPS-3302-316-CA3	1.3	0.59

Accessories		We	ights
Description	Part Number	lbs	kg
Mounting bracket	Add 4302-99-316-CA3 to bill of Material	0.5	0.23
Auxiliary port plate	Add CY-3209-32-316-CA3 to bill of Material	0.2	0.09
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 to bill of Material	0.5	0.23

Patrill
INULUS

- * For regulator auto drain, consult factory
 ** Add voltage and Pilot options. See page 19

- † For expilot change 3321 to 3301 †† Weight are for -XX type Pilots *** Add set pressure, for example RV-3-316-080 for 80 psi



Electrical

NON HAZARDOUS LOCATIONS OPERATORS

_		Suffix Identification	Protection Classification	Area Classification and (Gas Grouping)	Certification- (Conformance)	Ingress Protection
		None or -HT, PC	General Purpose	Indoor & Outdoor	CSA	NEMA 1,2, 3 & 4
-		-HC -HCC (Shown)	General Purpose	Indoor & Outdoor	CSA	NEMA 4; IP65
HAZ	ARDOUS LOCATION	N OPERATORS				
		Suffix Identification	Protection Classification	Area Classification and (Gas Grouping)	Certification- (Conformance)	Ingress Protection
>		-XX	Hozordouo	CLASS I, DIV. 2 (A & B)		
		-LB-XX	Locations	CLASS I, DIV. 1 (C & D) CLASS II, DIV. 1 (E, F & G)	UL - CSA	NEMA 7 & 9
		-XN	(d) Flamours of	Ex d IIB+H2 T3 to T6 Gb	IECEx	DOE & IDOO
		-LB-XN	Classification Classification Conformance Protection CSA NEMA 1, 2, 3 & 4	P05 & IP06		
		-XDBS* -XDBT*		Ex d e IIC T* Gb EX tb IIIC T* °C Db Class I Div I Grp B, C & D Class I Div II Grp E, F & G	IECEx -INMETRO	IP66, IP67, & IP68
	See "Miscellane	eous" column page 19 for	ordering information			
		-XMAA -XMAE -XMAF -XMAG	(mb) Encapsulation		IECEx	IP66 & IP67
		-XMFA -XMFE -XMFF -XMFG			CSA	
		-XIFA -XIFE			IECEx	IP66 & IP67
		-XIFF	(ia) Intrinsic Safe		ATEX	22 3 0.
		-XISX6		II 2 G EEx ia IIC T6	ATEX	ID65
	Windows Comments of the Commen	-XISC	Intrinsic Safe	Class II, Groups (E, F, &G)	Factory Mutual CSA	IFOO
* 11 (1)	(vielet eeil een) D		with VDD VAAA	VAAE O VIE NIABALIE	l	

^{* -}U (up right coil cap) Recommended for use with -XDB_, -XMA_, -XMF_ & XIF_ coils on NAMUR valves for mounting clearance. See page 5 for dimensions.



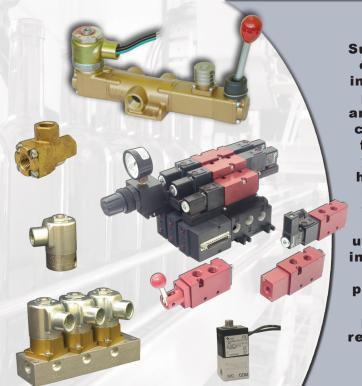
PRODUCT NUMBER COIL CODES: Complete product numbers require, when applicable, a coil code that represents the desired coil current type, frequency and voltage. The coil code takes the form shown below, with ratings and voltage substituted as required.

Rating Code A = 60Hz frequency D = Direct Current (DC) E = 50Hz frequency A120 = AC,120Volts/60hz

Voltage Indicated by three digits: e.g. 24 volts = 024 120 volts = 120.

Voltage (Power)	Electrical Characteristics	Miscellaneous
All usual 50 Hz & 60 Hz AC (6W) All usual DC (7W)	Class F epoxy molded coil (155°C). Continuous duty, 2 leads 24" (60 cm).	Steel cover with 1/2 NPT conduit entry.
24V60, 120V60, 240V60 (8.5W) 24V50, 110V50, 220V50 (8.5W) 12VDC, 24VDC, 48VDC (10.5W)	Class F epoxy molded coil (155°C), with 3 spade terminals. Continuous duty.	Mini DIN socket with PG9 cable gland (-HC) or 1/2" conduit connection (-HCC).

	Voltage (Power)	Electrical Characteristics	М	iscellane	ous		
	All usual 50 Hz & 60 Hz AC (5.6W) All usual DC (7.2W)		Steel chromate coated coil housing with 1/2 NPT conduit entry For stainless steel (182FM) coil housing add: (-ST)				uit entry.
	12V60, 24V60, 48V60, 120V60, 240V60 (1.8W) 6VDC, 12VDC, 24VDC, 48VDC (1.8W)	Class F epoxy molded coil (155°C).	Steel chromate coated coil housing with 1/2 NPT conduit entry. For stainless steel (182FM) coil housing add: (-ST) Maximum pilot pressure 120 psi (8 bar). 1.8W nominal power.				
	All usual 50 Hz & 60 Hz AC (5.6W) All usual DC (7.2W)	Continuous duty. 3 leads 24" (60 cm).	Steel chromate coated coil housing with M20 x 1.5 conduit entry. Ground terminal on cover. For stainless steel (182FM) coil housing add: (-ST)				
	12V60, 24V60, 48V60, 120V60, 240V60 (1.8W) 6VDC, 12VDC, 24VDC, 48VDC (1.8W)	with I Grou For s Maxir	Steel chromate coated coi with M20 x 1.5 conduit ent Ground terminal on cover. For stainless steel (182FM Maximum pilot pressure 12 1.8W nominal power.	ry.) coil hou		(-ST)	
			Stainless steel coil housing with	Su	ffix Detail C	Ordering Cod	е
	24VDC (D024)		internal Junction Box. Internal and external ground screw.	M 20 Cor		½" Conr	
	120V60 (A120) 110V50 (E110) 230V50 (E230)	Epoxy molded coils rated for	Standard (vent to atmosphere)	No Diode XDBS1	Diode XDBS5	No Diode XDBT1	XDBT5
	1.8 Watt standard, for lower watt	continuous duty, Class H, 180°C.	1/8" Adapter (-H2E)	XDBS1	XDBS5	XDBT1	XDBT6
	contact factory.		1/4" Adapter (-HE)	XDBS3	XDBS7	XDBT3	XDBT7
			Dust Nut (-L14)		XDBS8	XDBT4	XDBT8
	24VDC (4W) (Consult factory for other voltage options)	Continuous duty. Coil & rectifier, including surge suppression, potted within housing.	Thick wall epoxy coil housing with integral junction box. Internal ground terminal. M20 x 1.5 conduit entry: (-XMAA), (-XMFA), Cable gland for 6-12 mm ø cable: (-XMAE), (-XMFE) 1/2 NPT conduit entry with adapter: (-XMAF), (-XMFF) Cable gland for 9-16 mm ø cable: (-XMAG), (-XMFG) Requires the use of an approved safety barrier or isolator. Thick wall epoxy coil housing and integral junction box. Internal ground terminal. M20 x 1.5 conduit entry: (-XIFA) Cable gland for 6-12 mm ø cable: (-XIFE) 1/2 NPT conduit entry with adapter: (-XIFF)				
	24VDC (10W inrush, 4 W holding) (Consult factory for other voltages)	Continuous duty. Coil & power controller potted with in housing.				, (-XMFF)	
	24VDC (0.8W) (Consult factory for other voltages)	Continuous duty. Coil and power controller potted within housing.				or.	
	24VDC system voltage prior to barrier (1.6 watt max.)	Class F epoxy molded coil (155°C). Continuous duty.	1/2 NPT conduit entry with adapter: (-XIFF) Requires the use of an approved barrier or isolator. Maximum operating system voltage before barrier 28VDC. Maximum pilot pressure 115 psi (8 bar). 3 spade terminals & DIN connector with PG9 cable gland: (-HC) 1/2 NPT conduit entry: (-HCC)			DC.	



Versa has been Supplying the oil and gas industry with pneumatic and hydraulic components for over 50 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.

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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. 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.



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