

Power Generation

Solenoid & Air Operated Valves

Company Information	2
Quality Standards & Features	3
Safety Related 2 Way Valves	4
Safety Related 3 Way Valves	6
Safety Related 4 Way Valves	10
Safety Related Accessories	12
Commercial Grade Valves	14
Commercial Grade Accessories	22
Warranty and Precautions	24



Since 1945 Automatic Valve Nuclear's exclusive focus has been fluid power. Engineering and Quality are our foundations. Our systems are registered to ISO 9001 and certified to NQA-1. Our engineers are experienced, knowledgeable and customer focused.

With a library of thousands of working applications, we can quickly provide you with a solution to your specialized pneumatic needs. Our network of full service representation is available to help with on-site support, rapid deliveries and total package solutions.

Whether you are looking for a single air valve, a manifold with complicated pneumatic circuitry, or something individually dedicated to your specifications, we can help with a world class pneumatic solution.

avn@avnuclear.com
avnuclear.com

41144 Vincenti Court
22550 Heslip Drive
Novi, MI 48375-1922
United States of America



Quality Systems

- Automatic Valve Nuclear quality assurance systems meet the requirements of 10CFR50B, NQA-1, ANSI N45.2 and ISO 9001. Responsibility for reportability under 10CFR21 is accepted.

Products

- Commercial grade products are certified to CSA, PTB, UL and FM standards.
- Safety related products are qualified for harsh environmental conditions and continuous operation during a LOCA/MSLB/HELB event.
- Safety related products are environmentally and seismically qualified to IEEE standards 323, 344, and 382 with conduit connections unsealed (per Report 44400R97).

Environmental/Seismic Qualification

Summary of Report 44400R97

- LIFE: 40 years at 40°C (104°F) with 100% RH
 28 years at 54°C (129°F) with 100% RH
 10.5 years at 66°C (151°F) with 100% RH
- RADIATION: 1.495E8 rads, gamma
- CYCLES: 6000
- SEISMIC: Aging @ .75g from 5-100-5 Hz
 OBE @ 3.0g from 2-35-2 Hz
 SSE @ 6.0g from 2-100 Hz
- ACCIDENT: 100 days inside containment accident profile at 180°C (356°F) and 255°C (491°F) peak, chemical spray and 100% RH for 2 cycles

Features

Reliable Design

- The simplicity of the poppet design ensures reliability and ease of maintenance with no diaphragms.
- Mounting installation may be in any position.
- All safety related solenoids are class H insulation or better, continuous duty, NEMA 4 and nominal 18 Watt.
- All safety related elastomers are certified fluorocarbon and independently material verified.
- All safety related metalics are certified and independently material verified.
- Large free-flow orifices only require 50 micron filtration.
- Qualified mounting brackets available separately.



Safety Related

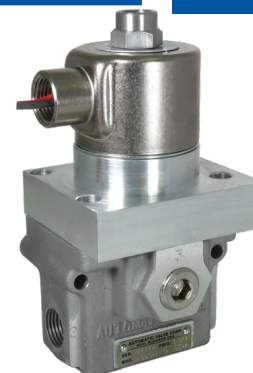
2 Way Solenoid & Air Operated



U0203JBBR-AA

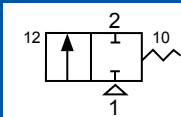
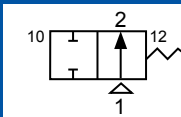


U0605JBAR-N



U0605KBBR-DEN

Model Numbers & Specifications (Qualification Report #44400R97)

Function	Port Size NPTF	Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials	
			PSIG	kPa		Air Pilot	Solenoid	°F	°C		Body	Seal
2 Way Normally Closed  Energized Applies Pressure De-Energized Blocks Pressure	1/4	Direct	0-125	0-861	0.5	NA	U0203JBBR-**	32-150	0-65	2.2 1.0	SS	F L U O R O C A R B O N
	3/8						U0204JBBR-**					
	1/2						U0205JBBR-**					
	1/4	Pilot	35-150	241-1034	2.8	U0603JBAR-N	U0603JBBR-**N	4.1 1.8	AL with NI finish			
	3/8				4.7	U0604JBAR-N	U0604JBBR-**N					
	1/2				5.6	U0605JBAR-N	U0605JBBR-**N					
	1/2				8.8	U1405JBAR-N	U1405JBBR-**N					
	3/4				12.8	U1406JBAR-N	U1406JBBR-**N					
	1				14.1	U1407JBAR-N	U1407JBBR-**N					
	1				24.0	U3607JBAR-N	U3607JBBR-**N					
1 1/4	31.7	U3608JBAR-N	U3608JBBR-**N									
1 1/2	35.9	U3609JBAR-N	U3609JBBR-**N									
2 Way Normally Open  Energized Blocks Pressure De-Energized Applies Pressure	1/4	Direct	0-150	0-1034	0.2	NA	U0203KBBR-**	32-150	0-65	2.2 1.0	SS	
	3/8						U0204KBBR-**					
	1/2						U0205KBBR-**					
	1/4	Pilot	35-150	241-1034	2.8	U0603KBAR-N	U0603KBBR-**N	4.2 2.0	AL with NI finish			
	3/8				4.6	U0604KBAR-N	U0604KBBR-**N					
	1/2				5.0	U0605KBAR-N	U0605KBBR-**N					
	1/2				5.4	U1405KBAR-N	U1405KBBR-**N					
	3/4				8.6	U1406KBAR-N	U1406KBBR-**N					
	1				9.6	U1407KBAR-N	U1407KBBR-**N					
	1				22.0	U3607KBAR-N	U3607KBBR-**N					
1 1/4	30.0	U3608KBAR-N	U3608KBBR-**N									
1 1/2	33.6	U3609KBAR-N	U3609KBBR-**N									

Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms @25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
AA ¹	120/60	90-140	H	No	18	38	.47	.26	40
AB	220/50	165-257	H	No	18	35	.27	.16	161
DBE	24VDC	18-28	H	No	16	-	.71	.71	34
DC	48VDC	35-56	H	Yes	16	-	.32	.32	148
DE ²	125VDC	90-144	H	Yes	16	-	.13	.13	948
DD	250VDC	180-288	H	Yes	16	-	.07	.07	3758
DG	220VDC	175-245	H	No	16	-	.08	.08	2832

¹ For 10.8 watt coil, replace 8th character 'B' with 'C'.

² For 8.7 watt coil, replace 8th character 'B' with 'C' and add suffix option 'E'.

Suffix Options

2	Extended Turn-Locking Override (U02)
B	External Pilot (U06-U36)
C	3/4" NPT Conduit
E	125VDC Coil Without Diode
F	IEEE 383 Lead Wire
H	High Pressure 250 psig (U02: 150 psig)
L	10 Meter Lead Wire Length
P	EGS Quick Disconnect Male Connector
R	Brass Body (U06, U14 per Rpt #PVUTL181)
Y	Explosion Proof Coil (Class I & II, Div 2)



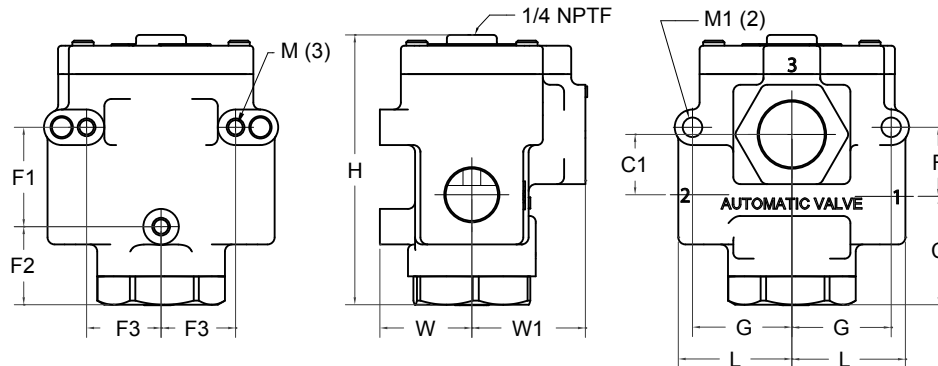
Safety Related

2 Way Solenoid & Air Operated

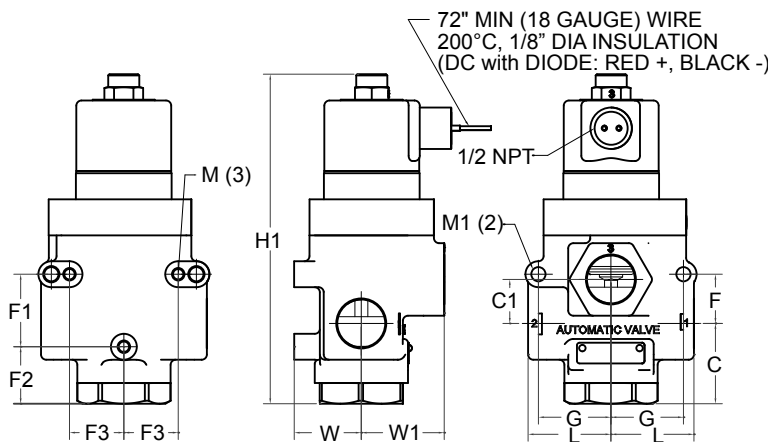


Dimensional Information

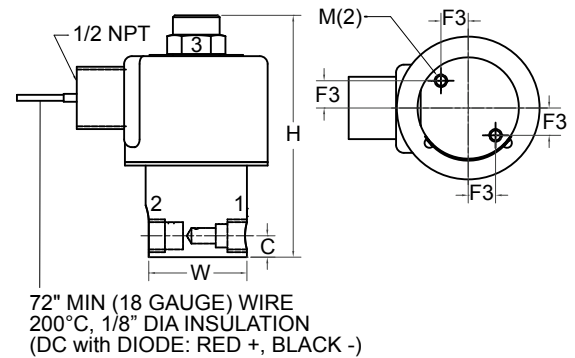
Air Pilot: Series U06, U14, U36



Pilot Solenoid: Series U06, U14, U36



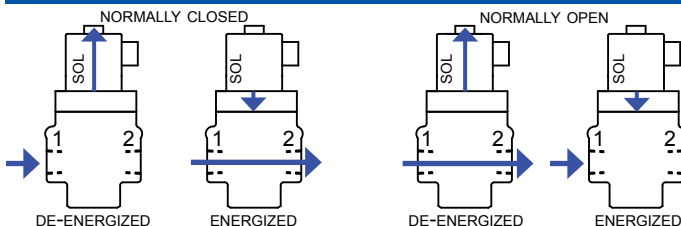
Direct Solenoid: Series U02



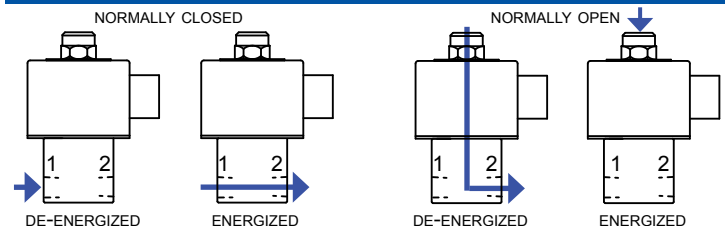
Series	Model	C	C1	F	F1	F2	F3	G	H	H1	L	M	M1	W	W1
U02	All	8,7 .34	-	-	-	-	11,2 .44	-	98,6 3.88	-	-	#10- 32	-	41,3 1.63	-
	Normally Closed	32,5 1.28	20,6 .81	20,6 .81	42,9 1.68	17,4 .68	25,4 1.00	37,3 1.47	91,3 3.59	172 6.77	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75
U06	Normally Open	20,6 .81	27,0 1.06	29,5 1.16	42,9 1.68	7,14 .28	25,4 1.00	37,3 1.47	85,8 3.38	166 6.55	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75
	Normally Closed	49,3 1.94	27,0 1.06	30,2 1.19	44,5 1.75	34,9 1.37	33,3 1.31	44,5 1.75	121 4.75	202 7.94	50,8 2.00	5/16- 18	Ø8,7 x 73,16 Ø.34 x 2.88	41,3 1.62	50,8 2.00
U14	Normally Open	22,1 .87	27,0 1.06	-	44,5 1.75	7,9 .31	33,3 1.31	-	105 4.13	186 7.31	50,8 2.00	5/16- 18	-	41,3 1.62	50,8 2.00
	Normally Closed	67,5 2.66	50,8 2.00	-	100 3.94	43,7 1.72	41,3 1.62	-	184 7.25	269 10.59	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12
U36	Normally Open	35,1 1.38	50,8 2.00	-	100 3.94	11,1 .44	41,3 1.62	-	165 6.50	248 9.75	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12

Flow Diagrams

Pilot



Direct





Safety Related

3 Way Solenoid & Air Operated



U0203FBBR-DE



U3607GBAR-N



U1406GBBR-DENP

Model Numbers & Specifications (Qualification Report #44400R97)

Function	Port Size NPTF		Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials	
	1,2	3		PSIG	kPa		Air Pilot	Solenoid	°F	°C		Body	Seal
3 Way Normally Closed Energized Applies Pressure De-Energized Exhausts Pressure	1/4	1/4	Direct	0-125	0-861	0.5	NA	U0203GBBR-**	32-150	0-65	2.2 1.0	SS	FLUOROCARBON
	3/8	3/8						U0204GBBR-**					
	1/2	1/2						U0205GBBR-**					
	1/4	1/2	Pilot	35-150	241-1034	3.0	U0603GBAR-N	U0603GBBR-***N	4.1 1.8				
	3/8						U0604GBAR-N	U0604GBBR-***N					
	1/2						U0605GBAR-N	U0605GBBR-***N					
	1/2						U1405GBAR-N	U1405GBBR-***N					
	3/4						U1406GBAR-N	U1406GBBR-***N					
	1	1 1/2					13.0	U1407GBAR-N	U1407GBBR-***N	5.1 2.5			
	1							24.0	U3607GBAR-N		U3607GBBR-***N		
1 1/4	31.7								U3608GBAR-N		U3608GBBR-***N		
1 1/2									35.9		U3609GBAR-N	U3609GBBR-***N	
1											10.6 4.8		
1													
1 1/4													
1 1/2													
3 Way Normally Open Energized Exhausts Pressure De-Energized Applies Pressure	1/4	1/4	Direct	0-150	0-1034	0.2	NA	U0203HBBR-**	32-150	0-65		2.2 1.0	SS
	3/8	3/8						U0204HBBR-**					
	1/2	1/2						U0205HBBR-**					
	1/4	1/2	Pilot	35-150	241-1034	3.1	U0603HBBR-N	U0603HBBR-***N	4.2 2.0				
	3/8						U0604HBBR-N	U0604HBBR-***N					
	1/2						U0605HBBR-N	U0605HBBR-***N					
	1/2						U1405HBBR-N	U1405HBBR-***N					
	3/4						U1406HBBR-N	U1406HBBR-***N					
	1	1 1/2					8.3	U1407HBBR-N	U1407HBBR-***N	5.1 2.3			
	1							9.0	U3607HBBR-N		U3607HBBR-***N		
1 1/4	22.0								U3608HBBR-N		U3608HBBR-***N		
1 1/2									30.0		U3609HBBR-N	U3609HBBR-***N	
1											10.3 4.7		
1													
1 1/4													
1 1/2													
3 Way Universal ³ May be used for NC or NO operations	1/4	1/4	Direct	0-150	0-1034	0.2	NA	U0203FBBR-**	32-150	0-65		2.2 1.0	SS
	3/8	3/8						U0204FBBR-**					
	1/2	1/2						U0205FBBR-**					

Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms @25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
AA ¹	120/60	90-140	H	No	18	38	.47	.26	40
AB	220/50	165-257	H	No	18	35	.27	.16	161
DBE	24VDC	18-28	H	No	16	-	.71	.71	34
DC	48VDC	35-56	H	Yes	16	-	.32	.32	148
DE ^{2,3}	125VDC	90-144	H	Yes	16	-	.13	.13	948
DD	250VDC	180-288	H	Yes	16	-	.07	.07	3758
DG	220VDC	175-245	H	No	16	-	.08	.08	2832

¹ For 10.8 watt coil, replace 8th character 'B' with 'C'.

² For 8.7 watt coil, replace 8th character 'B' with 'C' and add suffix option 'E'.

³ Drop-out voltage is equal/greater than 18 volts when energized more than 5 minutes.

Suffix Options

2	Extended Turn-Locking Override (U02)
B	External Pilot (U06-U36)
C	3/4" NPT Conduit
E	125VDC Coil Without Diode
F	IEEE 383 Lead Wire
H	High Pressure 250 psig (U02: 150 psig)
L	10 Meter Lead Wire Length
P	EGS Quick Disconnect Male Connector
R	Brass Body (U06, U14 per Rpt #PVUTL181)
Y	Explosion Proof Coil (Class I & II, Div 2)

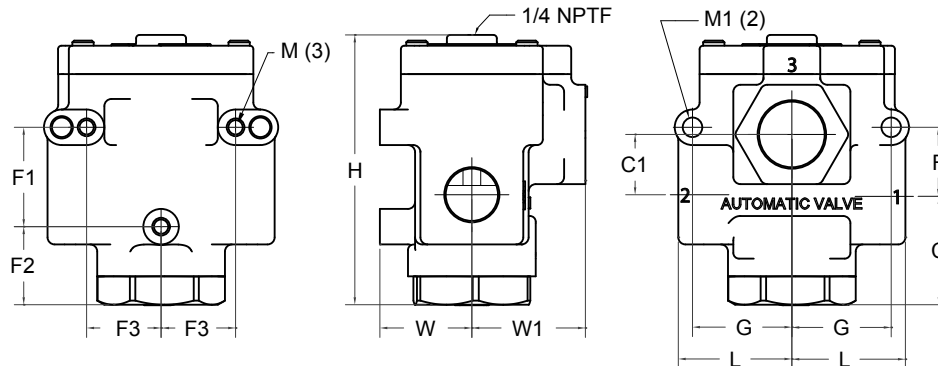


Safety Related

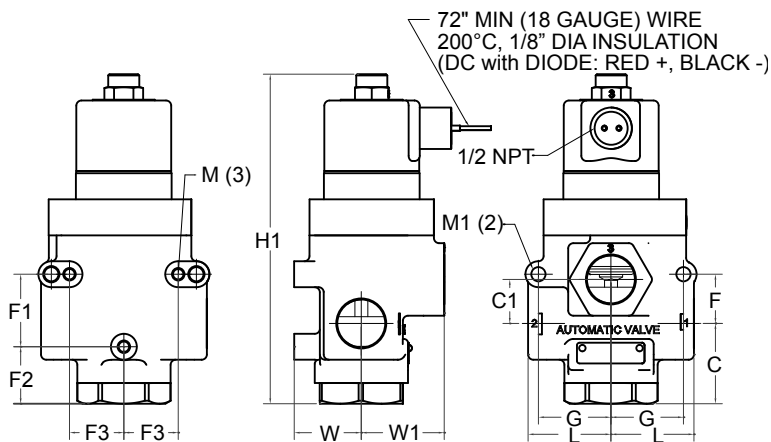
3 Way Solenoid & Air Operated

Dimensional Information

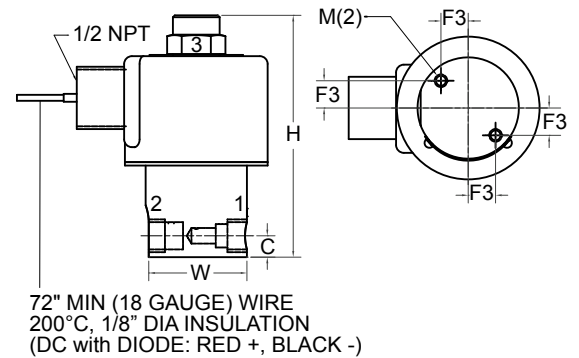
Air Pilot: Series U06, U14, U36



Pilot Solenoid: Series U06, U14, U36



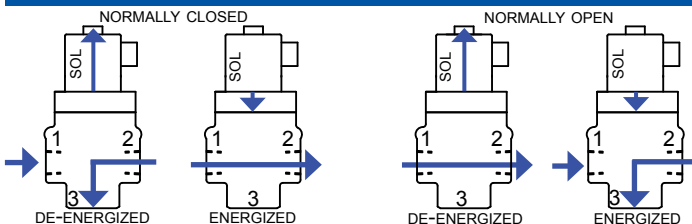
Direct Solenoid: Series U02



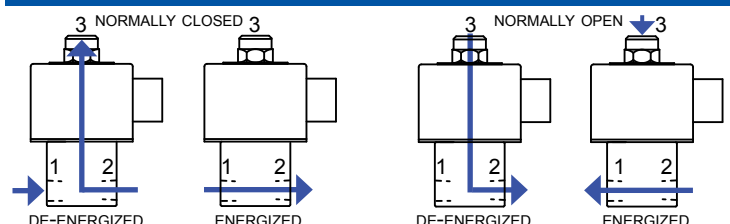
Series	Model	Dimensions (mm/inches)														
		C	C1	F	F1	F2	F3	G	H	H1	L	M	M1	W	W1	
U02	All	8,7 .34	-	-	-	-	11,2 .44	-	98,6 3.88	-	-	#10- 32	-	41,3 1.63	-	
U06	Normally Closed	32,5 1.28	20,6 .81	20,6 .81	42,9 1.68	17,4 .68	25,4 1.00	37,3 1.47	91,3 3.59	172 6.77	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75	
	Normally Open	20,6 .81	27,0 1.06	29,5 1.16	42,9 1.68	7,14 .28	25,4 1.00	37,3 1.47	85,8 3.38	166 6.55	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75	
U14	Normally Closed	49,3 1.94	27,0 1.06	30,2 1.19	44,5 1.75	34,9 1.37	33,3 1.31	44,5 1.75	121 4.75	202 7.94	50,8 2.00	5/16- 18	Ø8,7 x 73,16 Ø.34 x 2.88	41,3 1.62	50,8 2.00	
	Normally Open	22,1 .87	27,0 1.06	-	44,5 1.75	7,9 .31	33,3 1.31	-	105 4.13	186 7.31	50,8 2.00	5/16- 18	-	41,3 1.62	50,8 2.00	
U36	Normally Closed	67,5 2.66	50,8 2.00	-	100 3.94	43,7 1.72	41,3 1.62	-	184 7.25	269 10.59	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12	
	Normally Open	35,1 1.38	50,8 2.00	-	100 3.94	11,1 .44	41,3 1.62	-	165 6.50	248 9.75	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12	

Flow Diagrams

Pilot



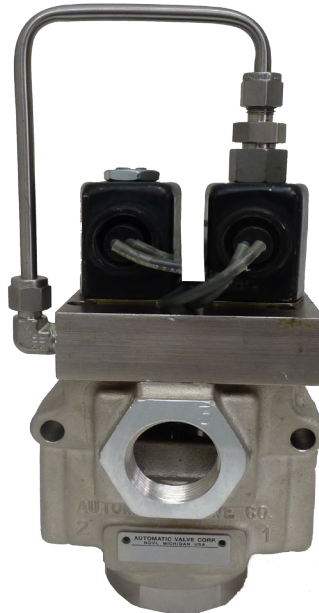
Direct





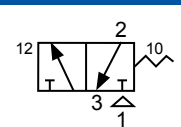
Safety Related

3 Way Redundant Solenoid



U0605GBCC-AAN

Model Numbers & Specifications (Qualification Report #44400R96-1)

Function	Port Size NPTF		Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials	
	1,2	3		PSIG	kPa		Solenoid		°F	°C		Body	Seal
3 Way Normally Closed  Energize Sol 1 or 2 Or Both Applies Pressure De-Energize Both Sol 1 and 2 Exhausts Pressure	1/4	1/2	Pilot	50-150	345-1034	3.0	U0603GBCC-**N		32-150	0-65	4.1 1.8	AL with NI finish	F L U O R O C A R B O N
	3/8					4.6	U0604GBCC-**N						
	1/2					6.1	U0605GBCC-**N						
	1/2	1				8.8	U1405GBCC-**N						
	3/4					13.0	U1406GBCC-**N						
	1					14.6	U1407GBCC-**N						

Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms @25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
	AA	120/60			90-140	H	No	10.8	
DE	125VDC	90-144	H	No*	8.7	-	.07	.07	1770

Suffix Options

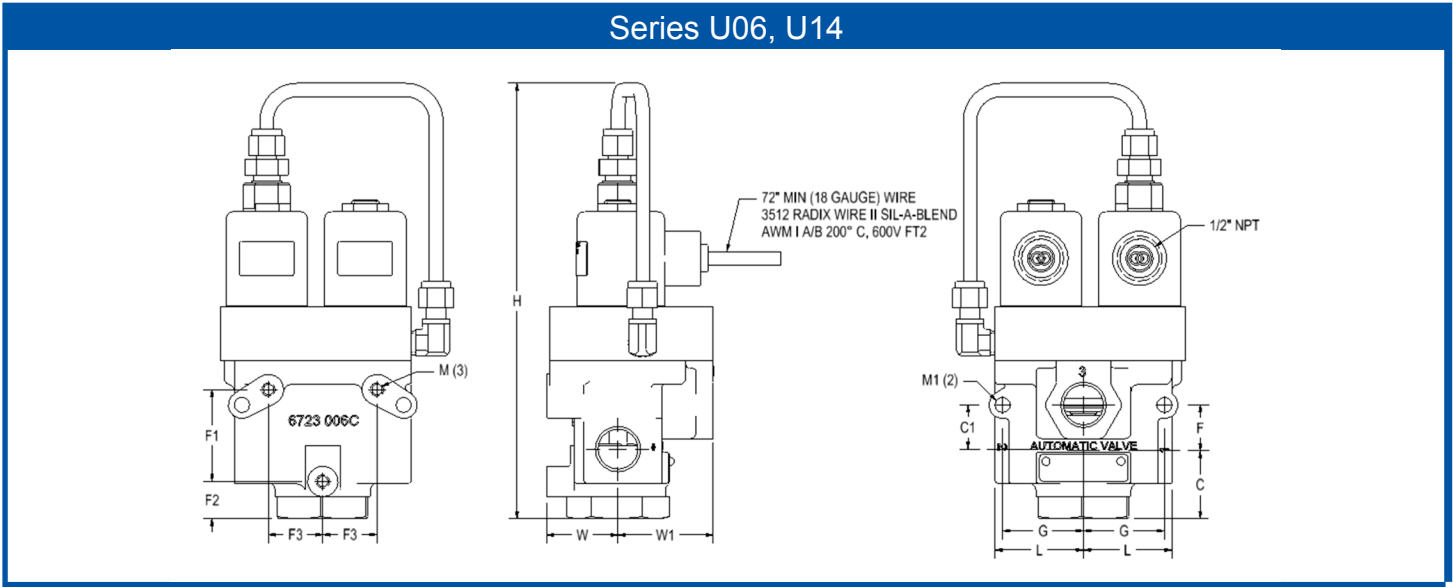
B	External Pilot
C	3/4" NPT Conduit
E*	125VDC Coil Without Diode

Safety Related

3 Way Redundant Solenoid

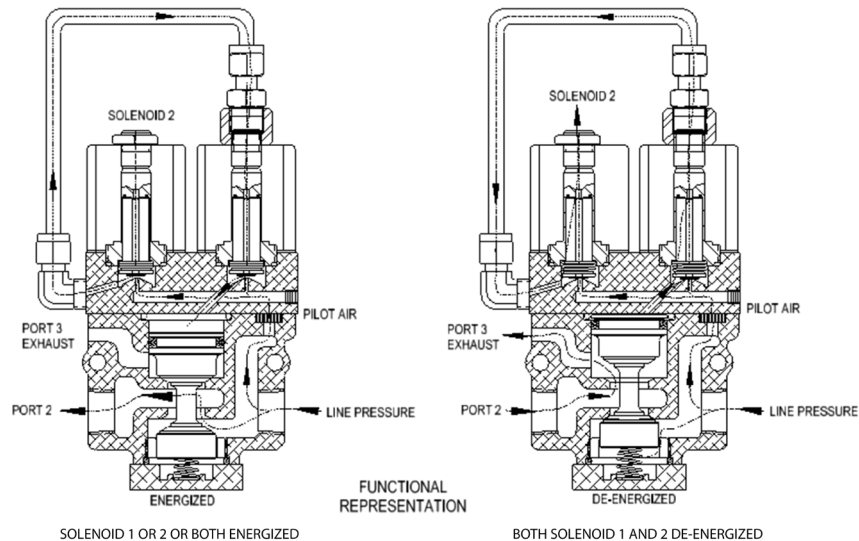
Dimensional Information

Series U06, U14



	Series	Model	C	C1	F	F1	F2	F3	G	H	L	M	M1	W	W1
Dimensions	U06	Normally Closed	32,5 1.28	20,6 .81	20,6 .81	42,9 1.68	17,4 .68	25,4 1.00	37,3 1.47	119,4 7.85	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75
	U14	Normally Closed	49,3 1.94	27,0 1.06	30,2 1.19	44,5 1.75	34,9 1.37	33,3 1.31	44,5 1.75	232,7 9.16	50,8 2.00	5/16- 18	Ø8,7 x 73,16 Ø.34 x 2.88	41,3 1.62	50,8 2.00

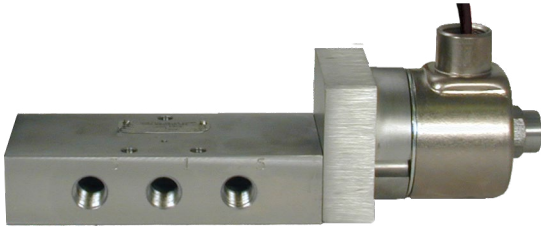
Flow Diagrams





Safety Related

4 Way Solenoid & Air Operated



U0404AABR-AAS



U0403ABBB-DDS

Model Numbers & Specifications (Qualification Reports #PVUTL181 and TR23050005402)

Function	Port Size NPTF		Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials	
	1,3,5	2,4		PSIG	kPa		Air Pilot	Solenoid	°F	°C		Body	Seal
4 Way Single¹ (Fail Safe) De-energized Pressure from port 1 to port 2 Exhaust from port 4 to port 5 Maintained Energized Pressure from port 1 to port 4 Exhaust from port 2 to port 3	1/4	1/4	Pilot	35-150	241-1034	2.8	U0403AAAR-S	U0403AABR-**S	32-150	0-65	7.6 3,3	SS	F L U O R O C A R B O N
	3/8	3/8					U0404AAAR-S	U0404AABR-**S					
	1/2	1/2					U0405AAAR-S	U0405AABR-**S					
4 Way Double² (Fail As Is) Momentary Energized 12 Pressure from port 1 to port 2 Exhaust from port 4 to port 5 Momentary Energized 14 Pressure from port 1 to port 4 Exhaust from port 2 to port 3	1/4	1/4	Pilot	35-150	241-1034	2.8	U0403ABAA-S	U0403ABBB-**S	32-150	0-65	11.0 5,0	SS	
	3/8	3/8					U0404ABAA-S	U0404ABBB-**S					
	1/2	1/2					U0405ABAA-S	U0405ABBB-**S					

Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms @25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
AA	120/60	90-140	H	No	18	38	.47	.26	40
AB	220/50	165-257	H	No	18	35	.27	.16	161
DBE	24VDC	18-28	H	No	16	-	.71	.71	34
DC	48VDC	35-56	H	Yes	16	-	.32	.32	148
DE	125VDC	90-144	H	Yes	16	-	.13	.13	948
DD	250VDC	180-288	H	Yes	16	-	.07	.07	3758
DG	220VDC	175-245	H	No	16	-	.08	.08	2832

Suffix Options

2	Extended Turn-Locking Override
B	External Pilot
C	3/4" NPT Conduit
E	125VDC Coil Without Diode
F	IEEE 383 Lead Wire
H	High Pressure 250 psig
L	10 Meter Lead Wire Length
P	EGS Quick Disconnect Male Connector
Y	Explosion Proof Coil (Class I & II, Div 2)

¹ 4 Way Single valve may be ordered plugged for a 3 way function by replacing the 6th character with "G" for 3WNC or "H" for 3WNO.

² 4 Way Double may be ordered for a 3 position function by replacing the 6th character with "C" for Blocked Center, "D" for Exhaust Center, or "E" for Pressure Center.

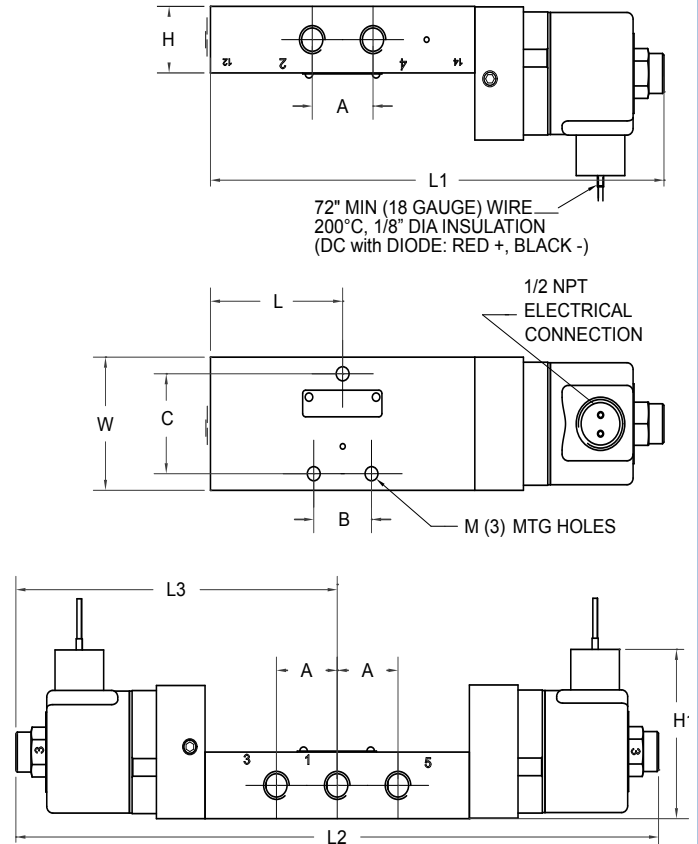
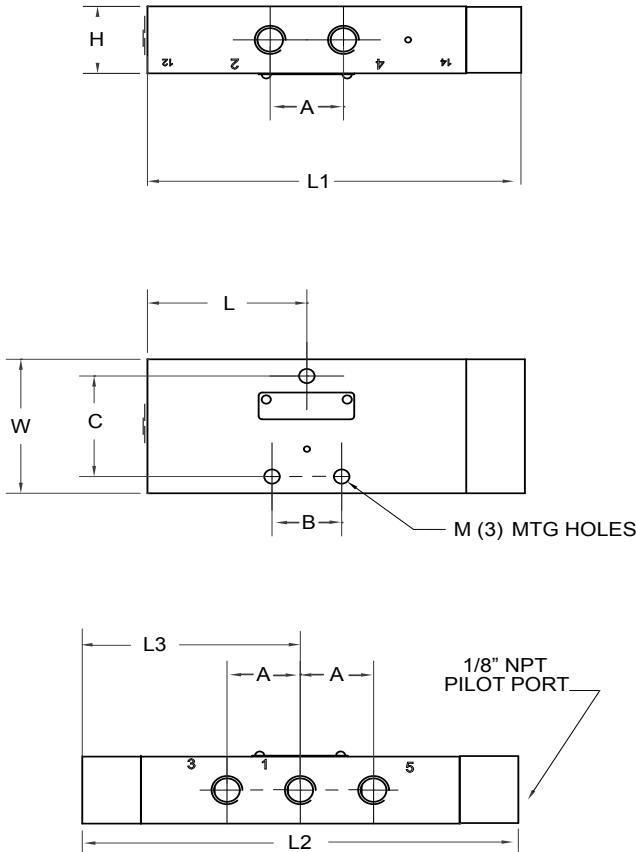
Safety Related

4 Way Solenoid & Air Operated

Dimensional Information

Air Pilot: Series U04

Pilot Solenoid: Series U04

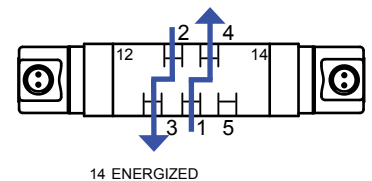
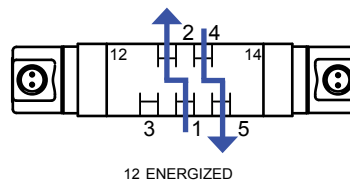
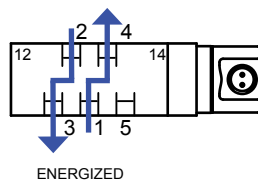
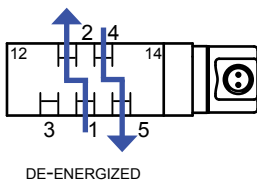


Dimensions (mm/inches)	Series	Model	A	B	C	H	H1	L	L1	L2	L3	M	W
	U04	SOL		31,8 1.25	30,2 1.19	47,7 1.88	31,8 1.25	80,7 3.18	69 2.72	237 9.34	336 13.22	168 6.61	6,7 0.27
AIR									150,9 5.94	163,6 6.44	81,8 3.22		

Flow Diagrams

Single

Double



Safety Related Accessories

2/2 3/2
 IEEE 323, 344, 382



U200A-66






U203A-88



U370A-66

Model Numbers & Specifications

Type	Port Size (NPT)		Air Pressure		Flow Cv	Model Numbers	Temp.		Wt. lb kg	Material	
	IN, OUT	EXH	PSIG	kPa			°F	°C		Body	Seal
Flow Control Valve (FCV)  (Qualification Report #13277QTR00001)	1/4	1/4	0-150	0-1034	1.6	U200A-43	32-150	0-65	0.6 0,3	AL	F L U O R O C A R B O N
	3/8	3/8			1.8	U200A-44					
	1/2	1/2			2.0	U200A-45					
	3/4	3/4			5.0	U200A-66					
	1	1			6.0	U200A-67					
	1	1			8.0	U200A-87					
	1 1/4	1 1/4			10.0	U200A-88					
	1 1/2	1 1/2			11.0	U200A-89					
Check Valve (CV)  (Qualification Report #13277QTR00001)	1/4	1/4	5-150	35-1034	1.9	U203A-43	32-150	0-65	0.6 0,3	AL	F L U O R O C A R B O N
	3/8	3/8			2.7	U203A-44					
	1/2	1/2			2.8	U203A-45					
	3/4	3/4	5-150	35-1034	9.0	U203A-66			1.4 0,6		
	1	1			9.7	U203A-67					
	1	1	5-150	35-1034	11.0	U203A-87			4.1 1,9		
	1 1/4	1 1/4			12.7	U203A-88					
	1 1/2	1 1/2			13.0	U203A-89					
Quick Exhaust Valve (QEV)  (Qualification Report #44400R97)	1/4	1/4	5-120	34-827	1.9	U370A-63	32-150	0-65	1.6 0,7	AL	F L U O R O C A R B O N
	3/8	3/8			4.0	U370A-64					
	1/2	3/4			4.8	U370A-65					
	3/4	3/4			5.4	U370A-66					

Suffix Options

B	Brass Body (FCV and CV only) WT 1.9 lbs/ 0.9 kg
----------	---



Safety Related Accessories

2/2 3/2
IEEE 323, 344, 382

Dimensional Information

Type	Series	Dimensions (mm/inches)					Flow Diagrams	
Flow Control Valve (FCV)		Port Size	A	B	B1	C	D	FCV
	U200A	1/4						
		3/8	38,1 1.50	73,2 2.88	-	85,6 3.37	12,7 0.50	
		1/2						
		3/4	47,7 1.88	102,0 4.00	-	135,0 5.31	19,8 0.78	
		1						
		1 1/4	74,7 2.94	140,0 5.50	-	221,7 8.73	31,2 1.23	
		1 1/2						
Check Valve (CV)		Port Size	A	B	B1	C	D	CV
	U203A	1/4						
		3/8	38,1 1.50	73,2 2.88	-	65,8 2.59	12,7 0.50	
		1/2						
		3/4	47,7 1.88	102,0 4.00	-	95,3 3.78	19,8 0.78	
		1						
		1 1/4	74,7 2.94	140,0 5.50	-	139,7 5.50	31,2 1.23	
		1 1/2						
Quick Exhaust Valve (QEV)		Port Size	A	B	B1	C	D	QEV
	U370A	1/4						
		3/8						
		1/2	55,4 2.18	74,9 2.95	29,0 1.14	93,0 3.66	22,4 0.88	
		3/4						



Commercial Grade 2 Way Solenoid & Air Operated

2/2



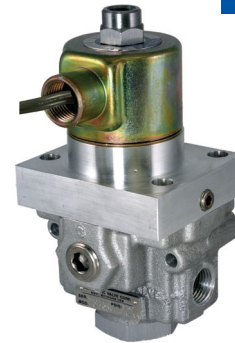
CSA, UL



C0203JBBR-AA

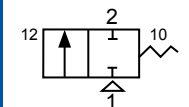
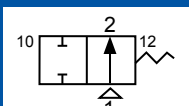


C0605JBAR-N



C0605JBBR-DEEN

Model Numbers & Specifications

Function	Port Size NPTF	Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials	
			PSIG	kPa		Air Pilot	Solenoid	°F	°C		Body	Seal
2 Way Normally Closed  Energized Applies Pressure De-Energized Blocks Pressure	1/4	Direct	0-125	0-861	0.5	NA	C0203JBBR-**	32-150	0-66	2.2	SS	F L U O R O C A R B O N
	3/8						1,0					
	1/2											
	1/4	Pilot	35-150	241-1034	2.8	C0603JBAR-N	C0603JBBR-**N	4.1				
	3/8				4.7	C0604JBAR-N	C0604JBBR-**N	1,8				
	1/2				5.6	C0605JBAR-N	C0605JBBR-**N					
	1/2				8.8	C1405JBAR-N	C1405JBBR-**N					
	3/4				12.8	C1406JBAR-N	C1406JBBR-**N	5.1				
	1				14.1	C1407JBAR-N	C1407JBBR-**N	2,3				
	1				24.0	C3607JBAR-N	C3607JBBR-**N					
1 1/4	31.7				C3608JBAR-N	C3608JBBR-**N	8.0					
1 1/2	35.9	C3609JBAR-N	C3609JBBR-**N	3,6								
2 WAY NORMALLY OPEN  Energized Blocks Pressure De-Energized Applies Pressure	1/4	Direct	0-150	0-1034	0.2	NA	C0203KBBR-**	32-150	0-66	2.2	SS	
	3/8						1,0					
	1/2											
	1/4	Pilot	35-150	241-1034	2.8	C0603KBAR-N	C0603KBBR-**N	4.2				
	3/8				4.6	C0604KBAR-N	C0604KBBR-**N	2,0				
	1/2				5.0	C0605KBAR-N	C0605KBBR-**N					
	1/2				5.4	C1405KBAR-N	C1405KBBR-**N					
	3/4				8.6	C1406KBAR-N	C1406KBBR-**N	5.1				
	1				9.6	C1407KBAR-N	C1407KBBR-**N	2,3				
	1				22.0	C3607KBAR-N	C3607KBBR-**N					
1 1/4	30.0				C3608KBAR-N	C3608KBBR-**N	10.8					
1 1/2	33.6	C3609KBAR-N	C3609KBBR-**N	4,9								

Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms@25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
AA ¹	120/60	90-140	H	No	18	38	.47	.26	40
AB	220/50	165-257	H	No	18	35	.27	.16	161
DBE	24VDC	18-28	H	No	16	-	.71	.71	34
DC	48VDC	35-56	H	Yes	16	-	.32	.32	148
DE ²	125VDC	90-144	H	Yes	16	-	.13	.13	948
DD	250VDC	180-288	H	Yes	16	-	.07	.07	3758
DG	220VDC	175-245	H	No	16	-	.08	.08	2832

¹ For 10.8 watt coil, replace 8th character 'B' with 'C'.

² For 8.7 watt coil, replace 8th character 'B' with 'C' and add suffix option 'E'.

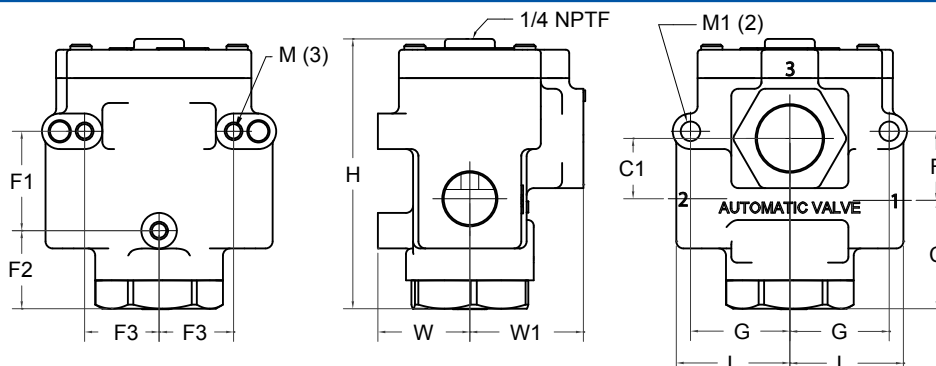
Suffix Options

2	Extended Turn-Locking Override (C02)
B	External Pilot (C06-C36)
C	3/4" NPT Conduit
E	125VDC Coil Without Diode
F	IEEE 383 Lead Wire
H	High Pressure 250 psig (C02: 150 psig)
L	10 Meter Lead Wire Length
P	EGS Quick Disconnect Male Connector
R	Brass Body (C06, C14)
Y	Explosion Proof Coil (Class I & II, Div 2)

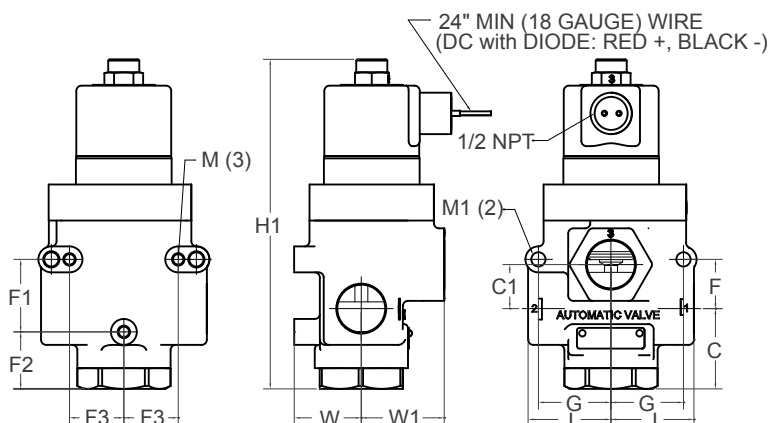
Commercial Grade 2 Way Solenoid & Air Operated

Dimensional Information

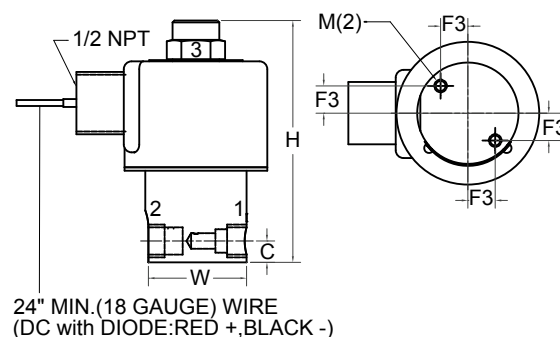
Air Pilot: Series C06, C14, C36



Pilot Solenoid: Series C06, C14, C36

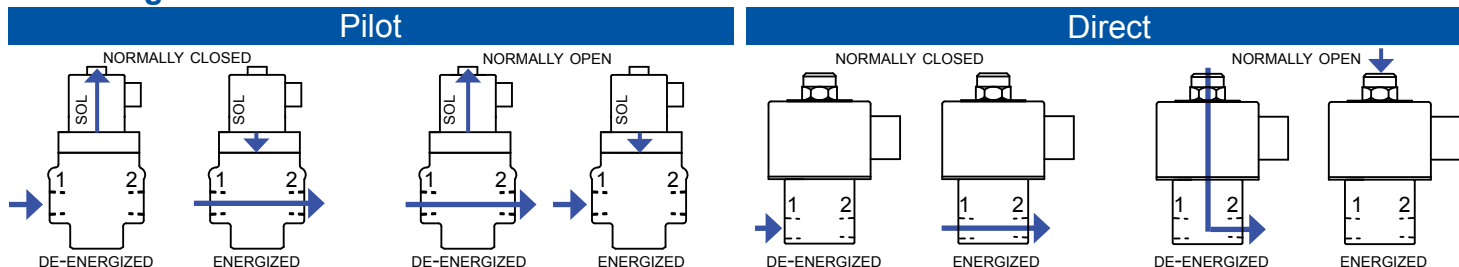


Direct Solenoid: Series C02



Series	Model	Dimensions (mm/inches)														
		C	C1	F	F1	F2	F3	G	H	H1	L	M	M1	W	W1	
C02	All	8,7 .34	-	-	-	-	11,2 .44	-	98,6 3.88	-	-	#10- 32	-	41,3 1.63	-	
	Normally Closed	32,5 1.28	20,6 .81	20,6 .81	42,9 1.68	17,4 .68	25,4 1.00	37,3 1.47	91,3 3.59	172 6.77	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75	
C06	Normally Open	20,6 .81	27,0 1.06	29,5 1.16	42,9 1.68	7,14 .28	25,4 1.00	37,3 1.47	85,8 3.38	166 6.55	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75	
	Normally Closed	49,3 1.94	27,0 1.06	30,2 1.19	44,5 1.75	34,9 1.37	33,3 1.31	44,5 1.75	121 4.75	202 7.94	50,8 2.00	5/16- 18	Ø8,7 x 73,16 Ø.34 x 2.88	41,3 1.62	50,8 2.00	
C14	Normally Open	22,1 .87	27,0 1.06	-	44,5 1.75	7,9 .31	33,3 1.31	-	105 4.13	186 7.31	50,8 2.00	5/16- 18	-	41,3 1.62	50,8 2.00	
	Normally Closed	67,5 2.66	50,8 2.00	-	100 3.94	43,7 1.72	41,3 1.62	-	184 7.25	269 10.59	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12	
C36	Normally Open	35,1 1.38	50,8 2.00	-	100 3.94	11,1 .44	41,3 1.62	-	165 6.50	248 9.75	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12	
	Normally Closed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Flow Diagrams





Commercial Grade 3 Way Solenoid & Air Operated

3/2



CSA, UL



C0203GBBR-AA



C0605GBAR-N



C0605HBBR-DEEN

Model Numbers & Specifications

Function	Port Size NPTF		Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials					
	1,2	3		PSIG	kPa		Air Pilot	Solenoid	°F	°C		Body	Seal				
3 Way Normally Closed Energized Applies Pressure De-Energized Exhausts Pressure	1/4	1/4	Direct	0-125	0-861	0.5	NA	C0203GBBR-**		32-150	0-65	2.2	SS				
	3/8	3/8						C0204GBBR-**				1.0					
	1/2	1/2						C0205GBBR-**				1.0					
	3 Way Normally Open Energized Exhausts Pressure De-Energized Applies Pressure	1/4	1/4	Direct	0-150	0-1034	0.2	NA	C0203HBBR-**		32-150	0-65	2.2	SS			
		3/8	3/8						C0204HBBR-**				1.0				
		1/2	1/2						C0205HBBR-**				1.0				
		3 Way Universal³ May be used for NC or NO operations	1/4	1/4	Direct	0-150	0-1034	0.2	NA	C0203FBBR-**		32-150	0-65	2.2	SS		
			3/8	3/8						C0204FBBR-**				1.0			
			1/2	1/2						C0205FBBR-**				1.0			
			3 Way Universal³ May be used for NC or NO operations	1/4	1/4	Pilot	35-150	241-1034	2.5	C0603GBAR-N	C0603GBBR-***N		32-150	0-65	4.1	AL with NI finish	
3/8				1/2	3.9						C0604GBAR-N	C0604GBBR-***N			1.8		
1/2				5.5								C0605GBAR-N			C0605GBBR-***N		1.8
1/2						7.6	C1405GBAR-N	C1405GBBR-***N		5.1							
3/4	1				11.3			C1406GBAR-N	C1406GBBR-***N		2.5						
1				14.8					C1407GBAR-N	C1407GBBR-***N		10.6					
1						22.0	C3607GBAR-N			C3607GBBR-***N		4.8					
1 1/4	1 1/2	31.8			C3608GBAR-N			C3608GBBR-***N		10.3							
1 1/2				35.7				C3609GBAR-N	C3609GBBR-***N		4.7						
1 1/2						35.7	C3609GBAR-N		C3609GBBR-***N		4.7						

FLUOROCARBON

Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms @25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
AA ¹	120/60	90-140	H	No	18	38	.47	.26	40
AB	220/50	165-257	H	No	18	35	.27	.16	161
DBE	24VDC	18-28	H	No	16	-	.71	.71	34
DC	48VDC	35-56	H	Yes	16	-	.32	.32	148
DE ^{2,3}	125VDC	90-144	H	Yes	16	-	.13	.13	948
DD	250VDC	180-288	H	Yes	16	-	.07	.07	3758
DG	220VDC	175-245	H	No	16	-	.08	.08	2832

¹ For 10.8 watt coil, replace 8th character 'B' with 'C'.

² For 8.7 watt coil, replace 8th character 'B' with 'C' and add suffix option 'E'.

³ Drop-out voltage is equal/greater than 18 volts when energized more than 5 minutes.

Suffix Options

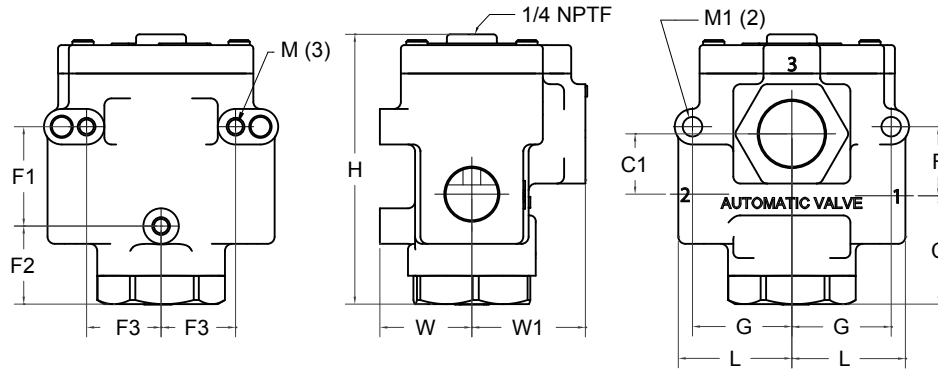
2	Extended Turn-Locking Override (C02)
B	External Pilot (C06-C36)
C	3/4" NPT Conduit
E	125VDC Coil Without Diode
F	IEEE 383 Lead Wire
H	High Pressure 250 psig (C02: 150 psig)
L	10 Meter Lead Wire Length
P	EGS Quick Disconnect Male Connector
R	Brass Body (C06, C14)
Y	Explosion Proof Coil (Class I & II, Div 2)



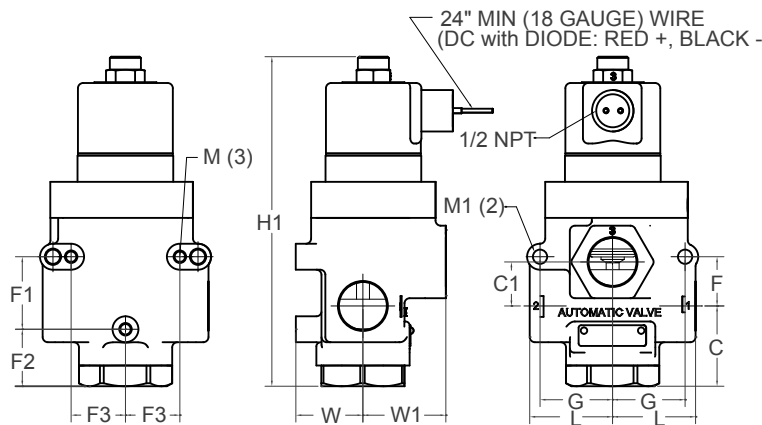
Commercial Grade 3 Way Solenoid & Air Operated

Dimensional Information

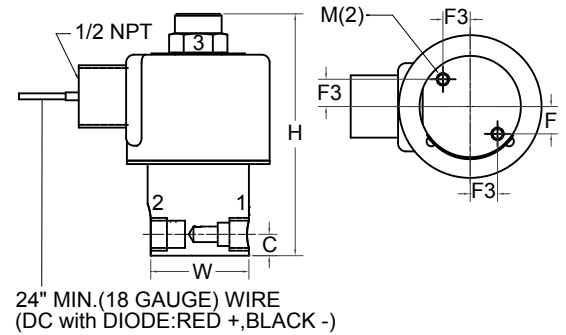
Air Pilot: Series C06, C14, C36



Pilot Solenoid: Series C06, C14, C36



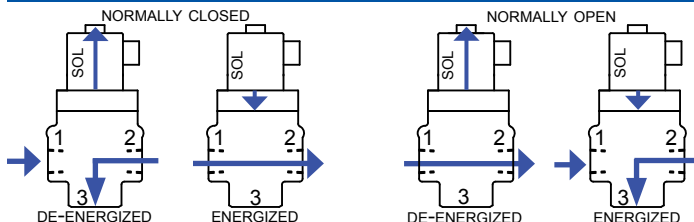
Direct Solenoid: Series C02



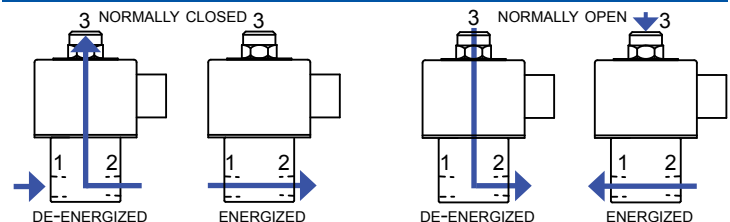
Series	Model	Dimensions (mm/inches)														
		C	C1	F	F1	F2	F3	G	H	H1	L	M	M1	W	W1	
C02	All	8,7 .34	-	-	-	-	11,2 .44	-	98,6 3.88	-	-	#10- 32	-	41,3 1.63	-	
	Normally Closed	32,5 1.28	20,6 .81	20,6 .81	42,9 1.68	17,4 .68	25,4 1.00	37,3 1.47	91,3 3.59	172 6.77	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75	
C06	Normally Open	20,6 .81	27,0 1.06	29,5 1.16	42,9 1.68	7,14 .28	25,4 1.00	37,3 1.47	85,8 3.38	166 6.55	41,3 1.62	1/4- 20	Ø7,1 x 53,85 Ø.28 x 2.12	33,3 1.31	44,5 1.75	
	Normally Closed	49,3 1.94	27,0 1.06	30,2 1.19	44,5 1.75	34,9 1.37	33,3 1.31	44,5 1.75	121 4.75	202 7.94	50,8 2.00	5/16- 18	Ø8,7 x 73,16 Ø.34 x 2.88	41,3 1.62	50,8 2.00	
C14	Normally Open	22,1 .87	27,0 1.06	-	44,5 1.75	7,9 .31	33,3 1.31	-	105 4.13	186 7.31	50,8 2.00	5/16- 18	-	41,3 1.62	50,8 2.00	
	Normally Closed	67,5 2.66	50,8 2.00	-	100 3.94	43,7 1.72	41,3 1.62	-	184 7.25	269 10.59	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12	
C36	Normally Open	35,1 1.38	50,8 2.00	-	100 3.94	11,1 .44	41,3 1.62	-	165 6.50	248 9.75	76,2 3.00	3/8- 16	-	60,5 2.38	79,2 3.12	

Flow Diagrams

Pilot



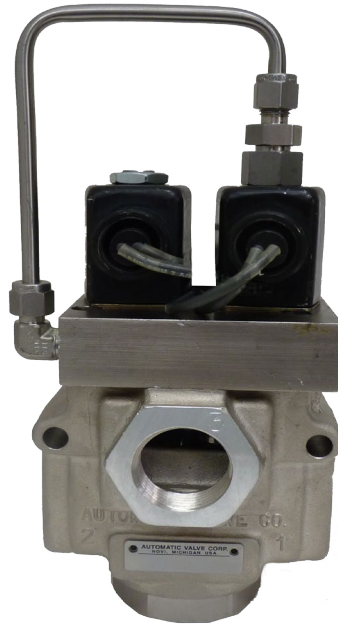
Direct





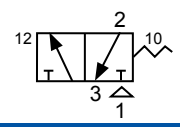
Commercial Grade 3 Way Redundant Solenoid

3/2



C0605GBCC-AAN

Model Numbers & Specifications

Function	Port Size NPTF		Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials	
	1,2	3		PSIG	kPa		Solenoid		°F	°C		Body	Seal
3 Way Normally Closed  Energize Sol 1 or 2 Or Both Applies Pressure De-Energize Both Sol 1 and 2 Exhausts Pressure	1/4	1/2	Pilot	50-150	345-1034	3.0	C0603GBCC-**N		32-150	0-65	4.1 1.8	AL with NI finish	F L U O R O C A R B O N
	3/8					4.6	C0604GBCC-**N						
	1/2					6.1	C0605GBCC-**N						
	1/2	1				8.8	C1405GBCC-**N						
	3/4					13.0	C1406GBCC-**N						
	1					14.6	C1407GBCC-**N						

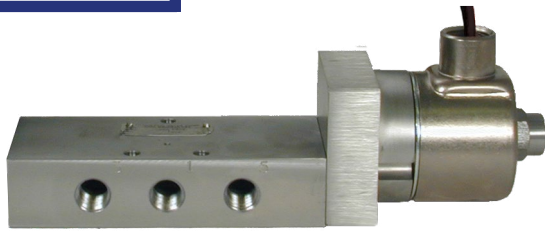
Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms@25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
AA	120/60	90-140	H	No	10.8	25	.26	.20	85
DE	125VDC	90-144	H	No*	8.7	-	.07	.07	1770

Suffix Options

B	External Pilot
C	3/4" NPT Conduit
E*	125VDC Coil Without Diode

Commercial Grade 4 Way Solenoid & Air Operated

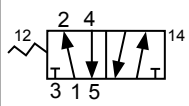
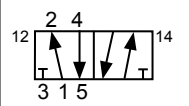


C0404AABR-AAS



C0403ABBB-DDS

Model Numbers & Specifications

Function	Port Size NPTF		Type	Air Pressure		Flow Cv	Model Numbers		Temp.		Wt. lb/kg	Materials		
	1,3,5	2,4		PSIG	kPa		Air Pilot	Solenoid	°F	°C		Body	Seal	
4 Way Single¹ (Fail Safe)  De-energized Pressure from port 1 to port 2 Exhaust from port 4 to port 5 Maintained Energized Pressure from port 1 to port 4 Exhaust from port 2 to port 3	1/4	1/4	Pilot	35-150	241-1034	2.8	C0403AAAR-S	C0403AABR-***	32-150	0-65	7.6 3.3	SS	F L U O R O C A R B O N	
	3/8	3/8				4.0	C0404AAAR-S	C0404AABR-***						
	1/2	1/2				4.2	C0405AAAR-S	C0405AABR-***						
4 Way Double² (Fail As Is)  Momentary Energized 12 Pressure from port 1 to port 2 Exhaust from port 4 to port 5 Momentary Energized 14 Pressure from port 1 to port 4 Exhaust from port 2 to port 3	1/4	1/4	Pilot	35-150	241-1034	2.8	C0403ABAA-S	C0403ABBB-***	32-150	0-65	11.0 5.0	SS		F L U O R O C A R B O N
	3/8	3/8				4.0	C0404ABAA-S	C0404ABBB-***						
	1/2	1/2				4.2	C0405ABAA-S	C0405ABBB-***						

Electrical Characteristics

** Voltage Code	Continuous Duty		Coil Class	Diode	Power		Current (Amps)		Resistance (Ohms @25°C)
	Nominal	Range			Watts	Volt Amps	Inrush	Holding	
	AA	120/60			90-140	H	No	18	
AB	220/50	165-257	H	No	18	35	.27	.16	161
DBE	24VDC	18-28	H	No	16	-	.71	.71	34
DC	48VDC	35-56	H	Yes	16	-	.32	.32	148
DE	125VDC	90-144	H	Yes	16	-	.13	.13	948
DD	250VDC	180-288	H	Yes	16	-	.07	.07	3758
DG	220VDC	175-245	H	No	16	-	.08	.08	2832

Suffix Options

2	Extended Turn-Locking Override
B	External Pilot
C	3/4" NPT Conduit
E	125VDC Coil Without Diode
F	IEEE 383 Lead Wire
H	High Pressure 250 psig
L	10 Meter Lead Wire Length
P	EGS Quick Disconnect Male Connector
Y	Explosion Proof Coil (Class I & II, Div 2)

¹ 4 Way Single valve may be ordered plugged for a 3 way function by replacing the 6th character with "G" for 3WNC or "H" for 3WNO.

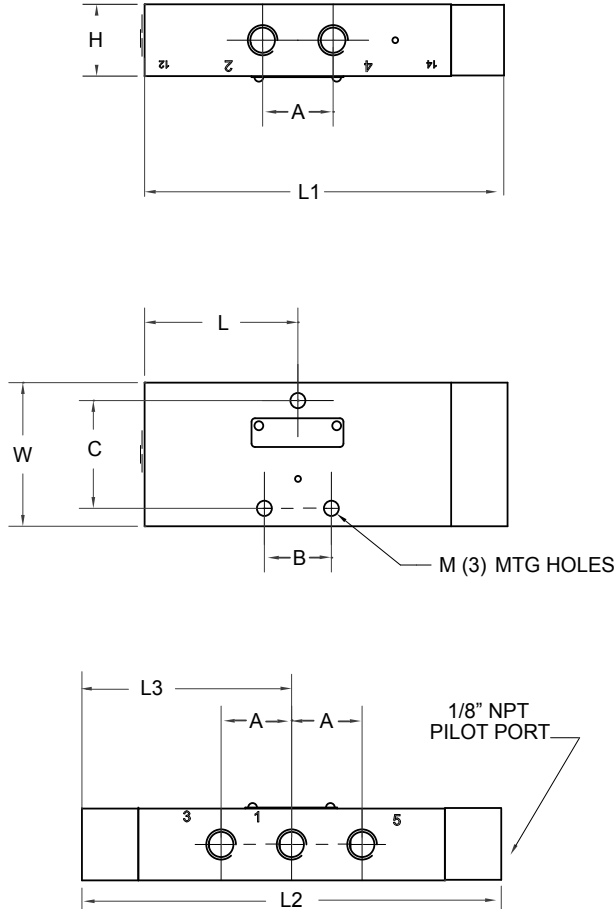
² 4 Way Double may be ordered for a 3 position function by replacing the 6th character with "C" for Blocked Center, "D" for Exhaust Center, or "E" for Pressure Center.



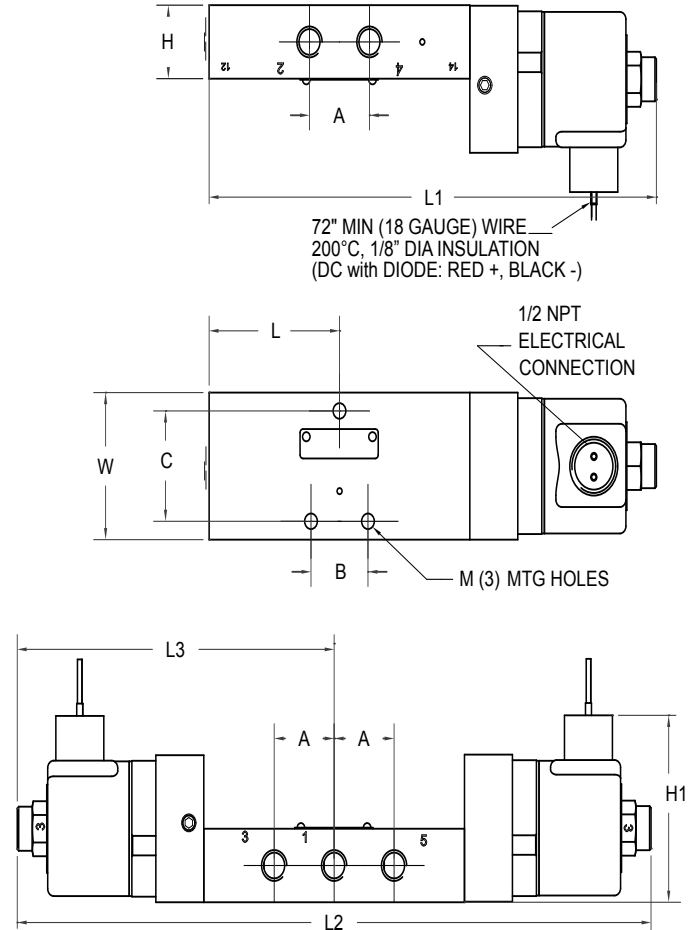
Commercial Grade 4 Way Solenoid & Air Operated

Dimensional Information

Air Pilot: Series C04



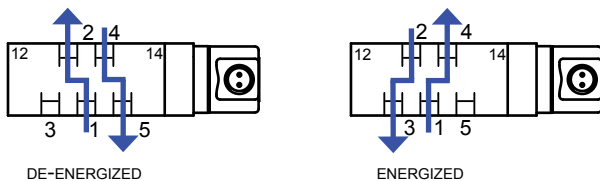
Pilot Solenoid: Series C04



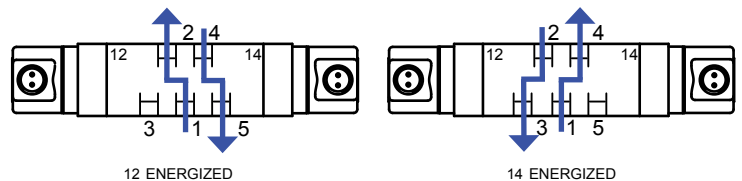
Dimensions (mm/inches)	Series	Model	A	B	C	H	H1	L	L1	L2	L3	M	W
	C04	SOL		31,8 1.25	30,2 1.19	47,7 1.88	31,8 1.25	80,7 3.18	69 2.72	237 9.34	336 13.22	168 6.61	6,7 0.27
	AIR								150,9 5.94	163,6 6.44	81,8 3.22		

Flow Diagrams

Single



Double



Commercial Grade Accessories



C200A-66



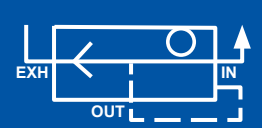


C203A-88



C370A-66

Model Numbers & Specifications

Type	Port Size (NPT)		Air Pressure		Flow Cv	Model Numbers	Temp.		Wt. lb kg	Material	
	IN, OUT	EXH	PSIG	kPa			°F	°C		Body	Seal
Flow Control Valve (FCV) 	1/4	1/4	0-150	0-1034	1.6	C200A-43	32-150	0-65	0.6 0,3	AL	F L U O R O C A R B O N
	3/8	3/8			1.8	C200A-44					
	1/2	1/2			2.0	C200A-45					
	3/4	3/4			5.0	C200A-66					
	1	1			6.0	C200A-67					
	1	1			8.0	C200A-87					
	1 1/4	1 1/4			10.0	C200A-88					
	1 1/2	1 1/2			11.0	C200A-89					
Check Valve (CV) 	1/4	1/4	5-150	35-1034	1.9	C203A-43	32-150	0-65	0.6 0,3	AL	F L U O R O C A R B O N
	3/8	3/8			2.7	C203A-44					
	1/2	1/2			2.8	C203A-45					
	3/4	3/4	5-150	35-1034	9.0	C203A-66					
	1	1			9.7	C203A-67					
	1	1			11.0	C203A-87					
	1 1/4	1 1/4			12.7	C203A-88					
	1 1/2	1 1/2	13.0	C203A-89							
Quick Exhaust Valve (QEV) 	1/4	1/4	5-120	34-827	1.9	C370A-63	32-150	0-65	1.6 0,7	AL	F L U O R O C A R B O N
	3/8	3/8			4.0	C370A-64					
	1/2	3/4			4.8	C370A-65					
	3/4	3/4			5.4	C370A-66					

Suffix Options

B Brass Body (FCV and CV only) WT 1.9 lbs/ 0.9 kg



Commercial Grade Accessories

2/2 3/2

Dimensional Information

Type	Series	Dimensions (mm/inches)					Flow Diagrams	
Flow Control Valve (FCV)		Port Size	A	B	B1	C	D	FCV
	C200A	1/4						
		3/8	38,1 1.50	73,2 2.88	-	85,6 3.37	12,7 0.50	
		1/2						
		3/4	47,7 1.88	102,0 4.00	-	135,0 5.31	19,8 0.78	
		1						
		1 1/4	74,7 2.94	140,0 5.50	-	221,7 8.73	31,2 1.23	
		1 1/2						
Check Valve (CV)		Port Size	A	B	B1	C	D	CV
	C203A	1/4						
		3/8	38,1 1.50	73,2 2.88	-	65,8 2.59	12,7 0.50	
		1/2						
		3/4	47,7 1.88	102,0 4.00	-	95,3 3.78	19,8 0.78	
		1						
		1 1/4	74,7 2.94	140,0 5.50	-	139,7 5.50	31,2 1.23	
		1 1/2						
Quick Exhaust Valve (QEV)		Port Size	A	B	B1	C	D	QEV
	C370A	1/4						
		3/8	55,4 2.18	74,9 2.95	29,0 1.14	93,0 3.66	22,4 0.88	
		1/2						
		3/4						



avnuclear.com

41144 Vincenti Court

22550 Heslip Drive

Novi, MI 48375-1922

United States of America

WARRANTY

Automatic Valve Nuclear warrants its products to be free from defect in material or workmanship over a period of 18 months from the date of shipment from its factory. Automatic Valve Nuclear will, at its option, either repair or replace the non-conforming product at no charge upon return of the product with transportation prepaid.

Automatic Valve Nuclear will replace standard commercial grade NEMA 4 solenoid coils which fail due to burnout when operated within their rated capacity or voltage.

Automatic Valve Nuclear is not responsible for damage to its products through improper installation, maintenance, use, repairs or operating beyond rated capacity or voltage, intentional or otherwise. Automatic Valve Nuclear is not liable for claims for labor, loss of profit or good will, repairs, delay damages, direct or indirect penalties, or expenses incidental to replacement. The buyer, by acceptance of delivery, assumes all liability for the product's use or misuse in the as-shipped condition.

Automatic Valve Nuclear, recognizing its goal of continuous improvement, reserves the right to discontinue or change specifications, products or prices without incurring obligation.

PRECAUTIONS

Applications: Automatic Valve Nuclear manufactures general purpose, industrial pneumatic and vacuum service valves, which are not inherently harmful. However, the control systems in which they operate must have safeguards to prevent injury or damage in case of system component failure.

OSHA 1910.217, dated November 1, 1975, ANSI B11.1, Revision 1982, and EN 13736: 1999 specifically recommend special purpose dual (double) safety clutch and brake valves for power presses. Automatic Valve Nuclear does not manufacture special purpose dual safety valves for presses. Do not use Automatic Valve Nuclear's valves for power presses.

Two position valves, whether they are 2 way, 3 way, or 4 way, will always have a flow path from the valve's inlet port or ports to one of the outlets, regardless of which of the two positions is used. If air trapped in or exhausted from the ports presents a hazard in operation or in servicing the system, a separate method must be provided to exhaust this air or the valve should not be used.

Three position 3 way and 4 way valves, whether solenoid operated, air piloted or manually operated, can move to the center position if the operators are not actuated. If air trapped in or exhausted from the ports presents a hazard in operation or in servicing the system, a separate method must be provided to exhaust this air or the valve should not be used.

Some solenoid and air piloted valves incorporate manual overrides. Manual overrides, when activated, shift the valve as if the solenoid or air pilot were actuated. If accidental or intentional operation of the manual override could cause a dangerous problem, valves without a manual override should be used.

Use valves only within specification limits listed in our catalog.

Installation: Consult the Engineering and Maintenance section of the document for installation instructions. Do not install valves without first turning off air and electricity. Valves must be installed by qualified and knowledgeable personnel who understand how specific valves are to be piped and electrically connected. Do not install valves unless the valves' flow path, as described by ANSI and ISO symbols in our catalog, conform to the application's design specifications.

Maintenance: Disconnect air and electricity and bleed all pressurized lines before removing two and three position valves. Consult the Engineering and Maintenance document for maintenance instructions. Servicing should only be undertaken by qualified and knowledgeable personnel who understand the function and operation of specific valves. Care must be followed to prevent damage to valves caused by stepping on them, dropping them or hitting them with any object. Damaged valves should be returned to Automatic Valve Nuclear for inspection and rebuilding.