Electronically Enhanced Solenoid Valves

Brass and Stainless Steel Bodies 1/4" - 2" NPT

SERIES
2/2 -3/2 -4/2
Next Generation

RedHat Next Generation is the future of solenoid valve technology, designed and manufactured to provide new capabilities. The Next Generation of solenoid valves provides lower operating cost, and represents an advancement in the performance, reliability, and ruggedness that you have come to expect from EMERSON.

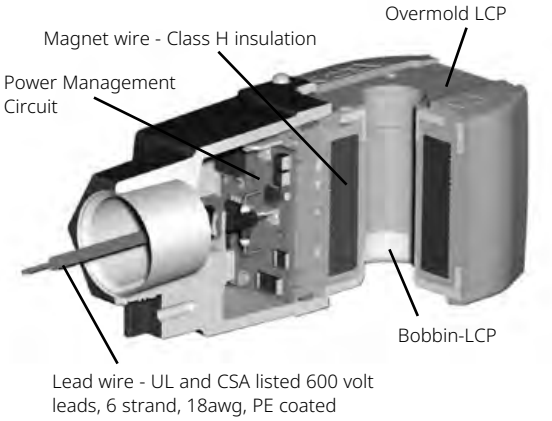
RedHat Next Generation valves use electronics technology to manage power, providing a new standard of operation. The solenoid incorporates a power management circuit providing lower power consumption, enhanced pressure and flow ratings, and electrical surge suppression to both the solenoid and electronic controls.

The new solenoid draws only 1.2 watts of power for 12-24V DC and 1.5 watts for 24-120/AC, 24-125/DC, 100-240V AC/DC. A conventional solenoid with the same performance can draw as high as 17 watts of power. The savings in power usage over the installed life of the valve will lower the total cost of ownership up to 14%.

The new technology accepts both AC and DC voltages without sacrificing flow or pressure specifications. DC performance has been increased by 150% to 500% from today's industry standards, making the valves' DC characteristics equivalent to AC pressure and flow values. This simplifies your control by eliminating the need for AC output cards, reduces wiring costs, and provides safer working environments for users operating on DC.

RedHat Next Generation coils are offered in three voltageranges covering most electrical requirements – 100-240/AC or DC, 24-120/AC or DC, or 12-24/DC. Each coil has built-in electrical surge suppression that protects the coil from external voltage spikes and eliminates inductive voltage spikes associated with conventional solenoids. An optional solenoid is available for use in Class I, Division 2 hazardous locations.

ASCO RedHat Next Generation addresses many other operating characteristics that will further improve the life of your solenoid valves. These include a much lower temperature rise, and an increase in valve ambient temperature rating to 140˚F/60˚C. Because of our confidence in the rugged design of the RedHat Next Generation solenoids, EMERSON is pleased to extend a 3-year warranty on the coils.



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Features

- Increase in DC pressure ratings to AC levels on all products (up to a 500% improvement)
- Lower power operation
- Voltage ranging
- Built-in surge suppression
- Elimination of AC hum
- Increase in AC and DC operating temperatures
- Low solenoid temperature rise
- Longer coil life due to lower operating temperatures and electrical surge suppression
- Solenoid approvals to UL, CSA, and CE directives
- Available with Class I, Division 2 coils (EE prefix)
- RoHS 2 Compliant
- Available in leaded wire or DIN type electrical connection

Nominal Ambient Temp. Ranges

14˚F to 140˚F (-10˚C to 60˚C)
For 8262/8263/8314 Series: -13˚F to 140˚F (-25˚C to 60˚C)

How to order

Find the valve that you are looking for in the provided specifications tables.
The tables contain the following information designed to help you in making your selection:

Pipe Size (in)	Orifice Dia. (in)	Cv Flow	Operating Pressure Differential (psi)				Max Fluid Temp.˚F	Brass ①	Const. Ref.	Agency	Stainless Steel	Const. Ref.	Agency	Wattage		Approx. Shipping Weight (lbs.)
			Min.	Max.						UL			UL	DC	AC/DC	
				Air-Inert Gas	Water	Light Oil @ 300 SSU										
1/2	5/8	4	0	150	150	-	180	8210P094	4	m	-	-	-	1.2	1.5	3.2

① When ordering a valve product, specify the ASCO base catalog number (Ex. 8210P094). This number will always be 8 digits long.
Choose one of the three operating voltage ranges (100-240V/50-60Hz/DC, 24-120V/50-60Hz/DC or 12-24/DC) and add it to the base catalog number (Ex. 8210P094 24-120V/50-60Hz/DC).
If you want to enhance the product with one or more of the options allowed in the Optional Features Chart for that catalog number, please add the appropriate prefix or suffix (as shown):

Pipe Size (in)	Orifice Dia. (in)	Solenoid Options ②		Base Catalog Number		Resilient Materials ③								Other ③		Standard Rebuild Kit ④	
		DIN	Class I, Division 2 Coil	Brass	Stainless Steel	NBR	FKM	EPDM	CR	Oxygen Service	PTFE	Urethane	Vacuum	Manual Operator	Mounting Bracket	Brass	Stainless Steel
1/2	5/8	SU	EE	8210P094	-	•	V	E	J	N	-	-	VH	MO	MB	322670	-

② Optional Class I, Division 2 solenoid (Ex. **EE**8210P094 24-120V/50-60Hz/DC)
③ If an FKM elastomer and manual operator are required, add VMO to the back of the base catalog number. (Ex. 8210P094**VMO** 24-120V/50-60Hz/DC)
④ When ordering a rebuild kit for a valve, supply the rebuild kit number as shown in the table. (Ex. 322670) When ordering a rebuild kit for a valve with a suffix, add the suffix to the appropriate standard rebuild kit. (Ex. The rebuild kit for the above valve with FKM is 322670-V)
All constructions are available with prefix EE for Class I, Division 2 requirements.

When ordering a replacement coil, select from the following:

Voltage Range	Valve Prefix	Replacement Coil Part Number
100-240V/50-60Hz/DC	-	250404-605-*
24-120V/50-60Hz, 24-125V DC	-	250404-606-*
12-24/DC	-	250404-607-*
100-240V/50-60Hz/DC	EE	250504-605-*
24-120V/50-60Hz, 24-125V DC	EE	250504-606-*
12-24/DC	EE	250504-607-*
100-240V/50-60Hz/DC	SU	550472-001
24-120V/50-60Hz, 24-125V DC	SU	550472-002
12-24/DC	SU	550472-003

Solenoid Enclosures

Standard: Watertight, Types 1, 2, 3, 3S, 4, and 4X. IP65
Optional: Class I, Division 2 for Hazardous Locations and Watertight, Types 3, 3S, 4, 4X. (To order, add prefix "EE" to catalog number.)

Construction & Electrical

See Engineering Section for valve parts in contact with fluids and additional electrical information.

2-Way Features

- Two-way (2/2) Next Generation solenoid valves have one inlet port and one outlet port
- Control of air, water, light oil, and non-corrosive media
- Normally closed (opens when energized) and normally open (closed when energized) operation
- Pipe sizes – 1/8 to 2 inch

Pipe Size (in)	Orifice Dia. (in)	Cv Flow	Operating Pressure Differential (psi)				Max Fluid Temp.˚F	Brass - NPT	Brass - ISO	Const. Ref.	Stainless Steel	Stainless Steel - ISO	Const. Ref
			Min.	Max.									
				Air-Inert Gas	Water	Light Oil @ 300 SSU							
General Service - Normally Closed													
1/8	3/64	0.06	0	2200	2200	1700	140	-	-	-	8262R175	-	1
1/8	3/64	0.06	0	1500	1500	1500	140	8262R099	-	1	-	-	-
1/8	3/32	0.21	0	720	410	410	180	8262R277	-	1	8262R178	-	1
1/8	1/8	0.35	0	540	395	360	180	8262R105	-	1	8262R174	-	1
1/8	1/8	0.35	0	200	-	-	167	8262R077	-	1	-	-	-
1/4	3/64	0.06	0	1500	1500	1500	140	8262R107	-	2	-	-	-
1/4	3/64	0.06	0	2200	2200	1700	140	-	-	-	8262R181	-	2
1/4	3/32	0.21	0	720	410	410	180	8262R109	E262R109SKN00	2	8262R183	E262R183SKN00	2
1/4	1/8	0.35	0	540	395	360	180	8262R232	E262R232SKN00	2	8262R185	E262R185SKN00	2
1/4	5/32	0.52	0	300	225	225	180	8262R202	E262R202SKN00	2	8262R220	E262R220SKN00	2
1/4	7/32	0.73	0	125	125	125	180	8262R208	E262R208SKN00	2	8262R226	E262R226SKN00	2
1/4	9/32	0.88	0	105	105	105	180	8262R212	E262R212SKN00	2	8262R230	E262R230SKN00	2
1/4	9/32	1.0	0	50	-	-	167	8262R078	-	2	-	-	-
1/4	5/16	1.5	10	1500	1500	1500	180	8223P025	E223P125	18	-	-	-
3/8	1/8	0.35	0	540	395	360	180	8263R115	E263R115SKN00	3	8263R191	E263R191SKN00	3
3/8	5/32	0.52	0	300	225	225	180	8263R200	E263R200SKN00	3	8263R193	E263R193SKN00	3
3/8	7/32	0.73	0	125	125	125	180	8263R124	E263R124SKN00	3	8263R332	E263R332SKN00	3
3/8	9/32	0.88	0	105	85	85	180	8263R210	E263R210SKN00	3	8263R333	E263R333SKN00	3
3/8	5/16	1.5	10	1500	1500	1500	180	8223P027	E223P027	18	-	-	-
3/8	5/8	3	0	150	150	-	180	8210P093	E210P093	4	-	-	-
3/8	5/8	3	5	300	300	300	180	8210P006	E210P006	4	-	-	-
1/2	3/8	3.2	25	1500	1500	1500	180	8223P003	E223P003	5	8223P010	E223P010	6
1/2	5/8	4	0	150	150	-	180	8210P094	E210P094	4	-	-	-
1/2	5/8	4	0	150	150	125	180	-	-	-	8210P087	E210P087	7
1/2	5/8	4	5	300	300	300	180	8210P007	E210P007	4	-	-	-
3/4	5/8	4.5	0	150	150	125	180	-	-	-	8210P088	E210P088	7
3/4	3/4	5	0	150	150	-	180	8210P095	E210P095	7	-	-	-
3/4	3/4	5	0	3	3	-	180	8030P003	E030P003	8	-	-	-
3/4	3/4	7.8	25	750	750	750	180	8223P005	E223P005	9	-	-	-
1	1	13	5	150	150	100	180	8210P004	E210P004	10	-	-	-
1 1/4	1 1/8	15	5	150	150	100	180	8210P008	E210P008	10	-	-	-
1 1/2	1 1/4	22.5	5	150	150	100	180	8210P022	E210P022	11	-	-	-
2	1 3/4	43	5	150	125	90	180	8210P100	E210P100	12	-	-	0
General Service - Normally Open													
1/8	3/64	0.06	0	1150	900	800	140	8262R155	G262R155SKW00	1	8262R168	G262R168SKW00	1
1/8	3/64	0.06	0	750	750	750	180	8262R156	G262R156SKN00	1	8262R169	G262R169SKN00	1
1/8	3/32	0.21	0	275	230	180	180	8262R128	G262R128SKN00	1	8262R236	G262R236SKN00	1
1/8	1/8	0.35	0	160	145	125	180	8262R129	G262R129SKN00	1	8262R237	G262R237SKN00	1
1/4	3/64	0.06	0	1150	900	800	140	8262R161	E262R161SKN00	2	8262R199	E262R199SKN00	2
1/4	3/64	0.06	0	750	750	750	180	8262R260	E262R260SKN00	2	8262R130	E262R130SKN00	2
1/4	3/32	0.21	0	275	230	180	180	8262R261	E262R261SKN00	2	8262R134	E262R134SKN00	2
1/4	1/8	0.35	0	160	145	125	180	8262R262	E262R262SKN00	2	8262R138	E262R138SKN00	2
1/4	5/32	0.54	0	90	90	70	180	8262R263	E262R263SKN00	2	8262R142	E262R142SKN00	2
1/4	7/32	0.83	0	45	45	40	180	8262R264	E262R264SKN00	2	8262R148	E262R148SKN00	2
1/4	9/32	0.96	0	30	30	30	180	8262R265	E262R265SKN00	2	8262R152	E262R152SKN00	2
3/8	1/8	0.35	0	160	145	125	180	8263R070	E263R070SKN00	3	8263R080	E263R080SKN00	3
3/8	5/32	0.54	0	90	90	70	180	8263R071	E263R071SKN00	3	8263R081	E263R081SKN00	3
3/8	7/32	0.83	0	45	45	40	180	8263R072	E263R072SKN00	3	8263R082	E263R082SKN00	3
3/8	9/32	0.96	0	30	30	30	180	8263R073	E263R073SKN00	3	8263R083	E263R083SKN00	3
3/8	5/8	3	0	150	150	125	180	8210P033	E210P033	15	-	-	-
1/2	5/8	4	0	150	150	125	180	8210P034	E210P034	15	-	-	-
3/4	3/4	5.5	0	150	150	125	180	8210P035	E210P035	16	-	-	-
3/4	3/4	5.5	0	2	2	-	180	8030P083	E030P083	17	-	-	-

15-digit product code voltage class:
HU = 12-24/DC
HV = 24-120 AC/DC
HW = 100-240 AC/DC

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2-Way Specifications (Metric units)

Pipe Size (in)	Orifice Dia. (mm)	Cv Flow	Operating Pressure Differential (bar)				Max Fluid Temp.˚C	Brass-NTP	Brass - ISO	Const. Ref.	Stainless Steel - NPT	Stainless Steel - ISO	Const. Ref.
			Min.	Max.									
				Air-Inert Gas	Water	Light Oil @ 300 SSU							
General Service - Normally Closed													
1/8	1.2	0.05	0	152	152	117	60	-	-	-	8262R175	-	1
1/8	1.2	0.05	0	103	103	103	60	8262R099	-	1	-	-	-
1/8	2.4	0.18	0	50	28	28	82	8262R277	-	1	8262R178	-	1
1/8	3.2	0.30	0	37	27	25	82	8262R105	-	1	8262R174	-	1
1/8	3.2	0.30	0	14	-	-	75	8262R077	-	1	-	-	-
1/4	1.2	0.05	0	103	103	103	60	8262R107	-	2	-	-	-
1/4	1.2	0.05	0	152	152	117	60	-	-	-	8262R181	-	2
1/4	2.4	0.18	0	50	28	28	82	8262R109	E262R109SKN00	2	8262R183	E262R183SKN00	2
1/4	3.2	0.30	0	37	27	25	82	8262R232	E262R232SKN00	2	8262R185	E262R185SKN00	2
1/4	4.0	0.45	0	21	16	16	82	8262R202	E262R202SKN00	2	8262R220	E262R220SKN00	2
1/4	5.6	0.63	0	9	9	9	82	8262R208	E262R208SKN00	2	8262R226	E262R226SKN00	2
1/4	7.1	0.76	0	7	7	7	82	8262R212	E262R212SKN00	2	8262R230	E262R230SKN00	2
1/4	7.1	0.74	0	3	-	-	75	8262R078	-	2	-	-	-
1/4	7.9	1.3	.7	103	103	103	82	8223P025	E223P125	18	-	-	-
3/8	3.2	0.30	0	37	27	25	82	8263R115	E263R115SKN00	3	8263R191	E263R191SKN00	3
3/8	4.0	0.45	0	21	16	16	82	8263R200	E263R200SKN00	3	8263R193	E263R193SKN00	3
3/8	5.6	0.63	0	9	9	9	82	8263R124	E263R124SKN00	3	8263R332	E263R332SKN00	3
3/8	7.1	0.76	0	7	6	6	82	8263R210	E263R210SKN00	3	8263R333	E263R333SKN00	3
3/8	7.9	1.3	.7	103	103	103	82	8223P027	E223P027	18	-	-	-
3/8	16	2.6	0	10	10	-	82	8210P093	E210P093	4	-	-	-
3/8	16	2.6	0.3	21	21	21	82	8210P006	E210P006	4	-	-	-
1/2	9.5	2.7	1.7	103	103	103	82	8223P003	E223P003	5	8223P010	E223P010	6
1/2	16	3.4	0	10	10	-	82	8210P094	E210P094	4	-	-	-
1/2	16	3.4	0	10	10	9	82	-	-	-	8210P087	E210P087	7
1/2	16	3.4	0.3	21	21	21	82	8210P007	E210P007	4	-	-	-
3/4	16	3.9	0	10	10	9	82	-	-	-	8210P088	E210P088	7
3/4	19	4.3	0	10	10	-	82	8210P095	E210P095	7	-	-	-
3/4	19	4.3	0	0.2	0.2	-	82	8030P003	E030P003	8	-	-	-
3/4	19	6.7	1.7	52	52	52	82	8223P005	E223P005	9	-	-	-
1	25	11	0.3	10	10	7	82	8210P004	E210P004	10	-	-	-
1 1/4	29	13	0.3	10	10	7	82	8210P008	E210P008	10	-	-	-
1 1/2	32	19	0.3	10	10	7	82	8210P022	E210P022	11	-	-	-
2	44	37	0.3	10	9	6	82	8210P100	E210P100	12	-	-	-
General Service - Normally Open													
1/8	1.20	0.05	0	79	62	55	60	8262R155	G262R155SKW00	1	8262R168	G262R168SKW00	1
1/8	1.20	0.05	0	52	52	52	82	8262R156	G262R156SKN00	1	8262R169	G262R169SKN00	1
1/8	2.40	0.18	0	19	16	12	82	8262R128	G262R128SKN00	1	8262R236	G262R236SKN00	1
1/8	3.20	0.30	0	11	10	9	82	8262R129	G262R129SKN00	1	8262R237	G262R237SKN00	1
1/4	1.20	0.05	0	79	62	55	60	8262R161	E262R161SKN00	2	8262R199 ƒ	E262R199SKN00	2
1/4	1.20	0.05	0	52	52	52	82	8262R260	E262R260SKN00	2	8262R130	E262R130SKN00	2
1/4	2.40	0.18	0	19	16	12	82	8262R261	E262R261SKN00	2	8262R134	E262R134SKN00	2
1/4	3.20	0.30	0	11	10	9	82	8262R262	E262R262SKN00	2	8262R138	E262R138SKN00	2
1/4	3.90	0.47	0	6	6	5	82	8262R263	E262R263SKN00	2	8262R142	E262R142SKN00	2
1/4	5.60	0.72	0	3	3	3	82	8262R264	E262R264SKN00	2	8262R148	E262R148SKN00	2
1/4	7.10	0.83	0	2	2	2	82	8262R265	E262R265SKN00	2	8262R152	E262R152SKN00	2
3/8	3.20	0.30	0	11	10	9	82	8263R070	E263R070SKN00	3	8263R080	E263R080SKN00	3
3/8	3.90	0.47	0	6	6	5	82	8263R071	E263R071SKN00	3	8263R081	E263R081SKN00	3
3/8	5.60	0.72	0	3	3	3	82	8263R072	E263R072SKN00	3	8263R082	E263R082SKN00	3
3/8	7.10	0.83	0	2	2	2	82	8263R073	E263R073SKN00	3	8263R083	E263R083SKN00	3
3/8	16	2.6	0	10	10	9	82	8210P033	E210P033	15	-	-	-
1/2	16	3.5	0	10	10	9	82	8210P034	E210P034	15	-	-	-
3/4	19	4.8	0	10	10	9	82	8210P035	E210P035	16	-	-	-
3/4	19	4.8	0	0.15	0.15	-	82	8030P083	E030P083	17	-	-	-

2-Way Optional Features Chart

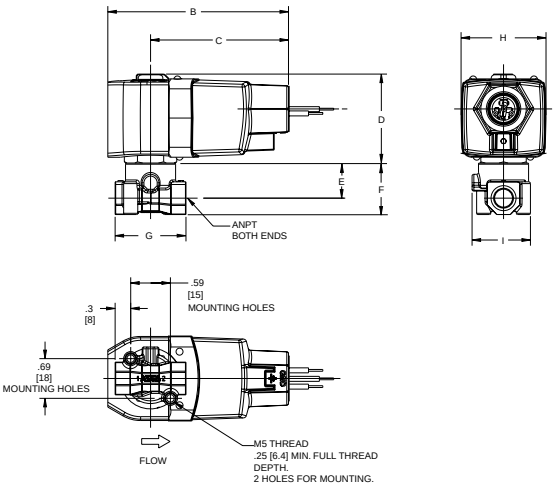
Pipe Size (in)	Orifice Dia. (in)	Base Catalog Number				Resilient Materials and Suffix Options										Other		Standard Rebuild Kit	
		Brass_NTP	Brass - ISO	Stainless Steel - NPT	Stainless Steel - ISO	Ammonia ⑦	Silicone Free	Dry Air	NBR	LT NBR	FKM	EPDM	CR	Oxygen Service	PTFE ②	Urethane	Vacuum	Manual Operator	Mounting Bracket	Brass	Stainless Steel
1/8	3/64	8262R099 ⑤	-	8262R175 ⑤	-	-	SF	-	-	-	-	-	-	-	-	I	-	-	MB	323593-W	323595-W
1/8	3/64	8262R155 ⑤	G262R155SKW00 ⑤	8262R168 ⑤	G262R168SKW00 ⑤	-	SF	-	-	-	-	-	-	-	-	I	-	-	MB	323986-W	323988-W
1/8	3/64	8262R156	G262R156SKN00	8262R169	G262R169SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323986	323988
1/8	3/32	8262R277	-	8262R178	-	NH	SF	-	I	A	V	E	J	N	T	-		MS	MB	323593	323595
1/8	3/32	8262R128	G262R128SKN00	8262R236	G262R236SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
1/8	1/8	8262R105	-	8262R174	-	NH	SF	-	I	A	V	E	J	N	T	-	VH	MS	MB	323593	323595
1/8	1/8	8262R077 ⑦	-	-	-	-	SF	-	-	I	-	-	-	-	-	-	-	-	MB	325039	-
1/8	1/8	8262R129	G262R129SKN00	8262R237	G262R237SKN00	NH	SF	-	I	A	V	E	J	N	T	-	VH	-	MB	323987	323989
1/4	3/64	8262R107 ⑤	-	8262R181 ⑤	-	-	SF	-	-	-	-	-	-	-	-	I	-	-	MB	323593-W	323595-W
1/4	3/64	8262R161 ⑤	E262R161SKN00 ⑤	8262R199 ⑤	E262R199SKN00 ⑤	-	SF	-	-	-	-	-	-	-	-	I	-	-	MB	323986-W	323988-W
1/4	3/64	8262R260	E262R260SKN00	8262R130	E262R130SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323986	323988
1/4	3/32	8262R109	E262R109SKN00	8262R183	E262R183SKN00	NH	SF	P	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
1/4	3/32	8262R261	E262R261SKN00	8262R134	E262R134SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
1/4	1/8	8262R232	E262R232SKN00	8262R184	E262R184SKN00	NH	SF	P	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
1/4	1/8	8262R262	E262R262SKN00	8262R138	E262R138SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
1/4	5/32	8262R202	E262R202SKN00	8262R220	E262R220SKN00	NH	SF	P	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
1/4	5/32	8262R263	E262R263SKN00	8262R142	E262R142SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
1/4	7/32	8262R208	E262R208SKN00	8262R226	E262R226SKN00	NH	SF	P	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
1/4	7/32	8262R264	E262R264SKN00	8262R148	E262R148SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
1/4	9/32	8262R212	E262R212SKN00	8262R230	E262R230SKN00	NH	SF	P	I	A	V	E	J	N	T	-	VH	MS	MB	323593	323595
1/4	9/32	8262R265	E262R265SKN00	8262R152	E262R152SKN00	NH	SF	-	I	A	V	E	J	N	T	-	VH	-	MB	323987	323989
1/4	9/32	8262R078 ⑦	-	-	-	-	SF	-	-	I	-	-	-	-	-	-	-	-	MB	325039	-
1/4	5/16	8223P025 ⑥	E223P125 ⑥	-	-	-	-	-	I	A	-	-	-	-	-	-	-	-	-	322815	-
3/8	1/8	8263R115	E263R115SKN00	8263R191	E263R191SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
3/8	1/8	8263R070	E263R070SKN00	8263R080	E263R080SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
3/8	5/32	8263R200	E263R200SKN00	8263R193	E263R193SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
3/8	5/32	8263R071	E263R071SKN00	8263R081	E263R081SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
3/8	7/32	8263R124	E263R124SKN00	8263R332	E263R332SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
3/8	7/32	8263R072	E263R072SKN00	8263R082	E263R082SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
3/8	9/32	8263R210	E263R210SKN00	8263R333	E263R333SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	MS	MB	323593	323595
3/8	9/32	8263R073	E263R073SKN00	8263R083	E263R083SKN00	NH	SF	-	I	A	V	E	J	N	T	-	-	-	MB	323987	323989
3/8	5/16	8223P027 ⑥	E223P127 ⑥	-	-	-	-	-	I	-	-	-	-	-	-	-	-	-	-	322815	-
3/8	5/8	8210P093	E210P093	-	-	-	-	-	I	-	V	E	J	N	-	-	VH	MO	MB	322670	-
3/8	5/8	8210P033	E210P033	-	-	-	-	-	I	-	V	E	J	N	-	-	VH	-	MB	322770	-
3/8	5/8	8210P006	E210P006	-	-	-	-	-	I	-	V	E	J	N	-	-	-	MO	MB	322654	-
1/2	3/8	8223P003 ⑥	E223P103 ⑥	8223P010 ①	E223P010 ①	-	-	-	I	-	-	-	-	-	-	-	-	-	-	322816	322817
1/2	5/8	8210P094	E210P094	-	-	-	-	-	I	-	V	E	J	N	-	-	VH	MO	MB	322670	-
1/2	5/8	8210P034	E210P034	-	-	-	-	-	I	-	V	E	J	N	-	-	VH	-	MB	322770	-
1/2	5/8	-	-	8210P087	E210P087	-	-	-	I	-	V	E	J	N	-	-	-	MO	MB	-	322676
1/2	5/8	8210P007	E210P007	-	-	-	-	-	I	-	V	E	J	N	-	-	-		MB	322654	-
3/4	5/8	-	-	8210P088	E210P088	-	-	-	I	-	V	E	J	N	-	-	-	MO	MB	-	322676
3/4	3/4	8210P095	E210P095	-	-	-	-	-	I	-	V	E	J	N	-	-	VH	MO	MB	322673	-
3/4	3/4	8030P003	E030P003	-	-	-	-	-	I	-	V	E	J	N	-	-	-	MO	MB	322758	-
3/4	3/4	8210P035	E210P035	-	-	-	-	-	I	-	V	E	J	N	-	-	VH	-	MB	322771	-
3/4	3/4	8030P083	E030P083	-	-	-	-	-	I	-	V	E	J	N	-	-	-	-	MB	322763	-
3/4	3/4	8223P005 ⑥	E223P005 ⑥	-	-	-	-	-	I	-	-	-	-	-	-	-	-	-	-	322818	-
1	1	8210P004	E210P004	-	-	-	-	-	I	-	V	E	J	N	-	-	-	MO	-	322677	-
1 1/4	1/8	8210P008	E210P008	-	-	-	-	-	I	-	V	E	J	N	-	-	-	MO	-	322680	-
1 1/2	1/4	8210P022	E210P022	-	-	-	-	-	I	-	V	E	J	N	-	-	-	MO	-	322680	-
2	3/4	8210P100	E210P100	-	-	-	-	-	I	-	V	E	J	N	-	-	-	MO	-	322682	-

① Valve Contains PTFE main disc; ② Pressure rating reduced by 25%; ③ Pressure rating limited to 250 psi; ④ Valve contains Nylon 11 piston ⑤ Cast UR disc supplied as standard, limits min.temp. to 32 F (0 C) (Add degree symbol to temperature numbers) ⑥ Fuel gas service only; Ambient Temp. -40 F to 140 F, Fluid Temp. -40 F to 167 F; Gas capacity for 8262R077 is 18,700 Btu/hr, for 8262R078 53,500 Btu/hr based on 1" W.C. Inlet Pressure, 1000 Btu/cu.ft. or more, 0.64 Specific Gravity Gas ⑦ NH suffix only available for Stainless Steel constructions.

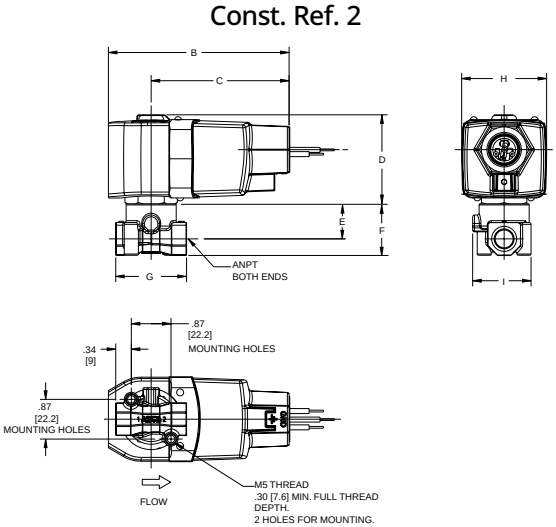
Dimensions: inches (mm)

Const. Ref.		B		C		D		E		F		G		H		I		M		N	
		Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN
1	in	3.98	5.12	3.04	4.18	2.00	2.00	0.69	0.69	1.00	1.00	1.19	1.19	1.87	1.87	1.24	1.24	-	3.57	-	2.37
	mm	101	130	77	106	51	51	18	18	25	25	30	30	47	47	31	31	-	91	-	60
2	in	3.98	5.12	3.04	4.18	2.00	2.00	0.78	0.78	1.11	1.11	1.56	1.56	1.87	1.87	1.29	1.29	-	3.57	-	2.37
	mm	101	130	77	106	51	51	20	20	28	28	40	40	47	47	33	33	-	91	-	60
3	in	3.98	5.12	3.04	4.18	2.00	2.00	0.77	0.77	1.20	1.20	1.88	1.88	1.87	1.87	1.25	1.25	-	3.57	-	2.37
	mm	101	130	77	106	51	51	20	20	30	30	48	48	47	47	32	32	-	91	-	60
4	in	3.98	5.12	3.04	4.18	2.00	2.00	1.28	1.28	1.84	1.84	2.75	2.75	1.87	1.87	2.28	2.28	-	3.57	-	2.37
	mm	101	130	77	106	51	51	33	33	47	47	70		47	47	58	58	-	91	-	60
5	in	3.98	5.12	3.04	4.18	2.00	2.00	1.05	1.05	2.31	2.31	-	-	1.87	1.87	3.03	3.03	-	3.57	-	2.37
	mm	101	130	77	106	51	51	27	27	59	59	-	-	47	47	77	77	-	91	-	60
6	in	3.98	5.12	3.04	4.18	2.00	2.00	1.13	1.13	2.31	2.31	-	-	1.87	1.87	3.13	3.13	-	3.57	-	2.37
	mm	101	130	77	106	51	51	29	29	59	59	-	-	47	47	80	80	-	91	-	60
7	in	3.98	5.12	3.04	4.18	2.00	2.00	1.46	1.46	2.19	2.19	2.81	2.81	1.87	1.87	2.28	2.28	-	3.57	-	2.37
	mm	101	130	77	106	51	51	37	37	56	56	71	71	47	47	58	58	-	91	-	60
8	in	3.98	5.12	3.04	4.18	2.00	2.00	1.44	1.44	2.13	2.13	2.81	2.81	1.87	1.87	2.28	2.28	-	3.57	-	2.37
	mm	101	130	77	106	51	51	37	37	54	54	71	71	47	47	58	58	-	91	-	60
9	in	3.98	5.12	3.04	4.18	2.00	2.00	1.61	1.61	3.03	3.03	-	-	1.87	1.87	3.60	3.60	-	3.57	-	2.37
	mm	101	130	77	106	51	51	41	41	77	77	-	-	47	47	91	91	-	91	-	60
10	in	3.98	5.12	3.04	4.18	2.00	2.00	2.21	2.21	3.67	3.67	3.75	3.75	1.87	1.87	-	-	-	3.57	-	2.37
	mm	101	130	77	106	51	51	56	56	93	93	95	95	47	47	-	-	-	91	-	60
11	in	3.98	5.12	3.04	4.18	2.00	2.00	2.36	2.36	4.14	4.14	4.38	4.38	1.87	1.87	3.92	3.92	-	3.57	-	2.37
	mm	101	130	77	106	51	51	60	60	105	105	111	111	47	47	100	100	-	91	-	60
12	in	3.98	5.12	3.04	4.18	2.00	2.00	2.75	2.75	5.52	5.52	5.06	5.06	1.87	1.87	4.72	4.72	-	3.57	-	2.37
	mm	101	130	77	106	51	51	70	70	140	140	129	129	47	47	120	120	-	91	-	60
15	in	3.98	5.12	3.04	4.18	2.00	2.00	1.72	1.72	2.18	2.18	2.75	2.75	1.87	1.87	2.28	2.28	-	3.57	-	2.37
	mm	101	130	77	106	51	51	44	44	55	55	70	70	47	47	58	58	-	91	-	60
16	in	3.98	5.12	3.04	4.18	2.00	2.00	1.88	1.88	2.57	2.57	2.81	2.81	1.87	1.87	2.28	2.28	-	3.57	-	2.37
	mm	101	130	77	106	51	51	48	48	65	65	71	71	47	47	58	58	-	91	-	60
17	in	3.98	5.12	3.04	4.18	2.00	2.00	0.85	0.85	1.81	1.81	2.81	2.81	1.87	1.87	2.28	2.28	-	3.57	-	2.37
	mm	101	130	77	106	51	51	22	22	46	46	71	71	47	47	58	58	-	91	-	60
18	in	3.98	5.12	3.04	4.18	2.00	2.00	0.77	0.77	1.20	1.20	1.88	1.88	1.87	1.87	1.25	1.25	-	3.57	-	2.37
	mm	101	130	77	106	51	51	20	20	30	30	48	48	47	47	32	32	-	91	-	60

Const. Ref. 1



Const. Ref. 2



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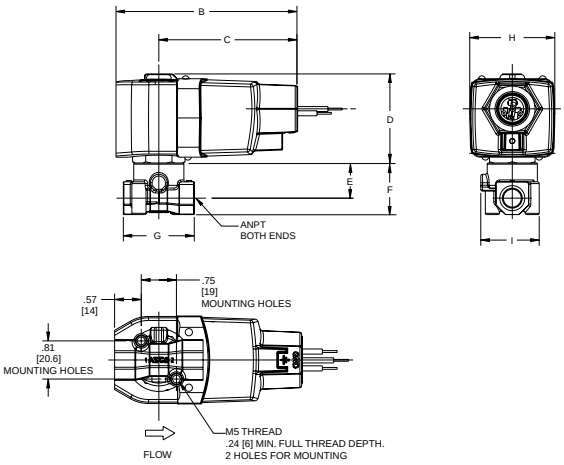
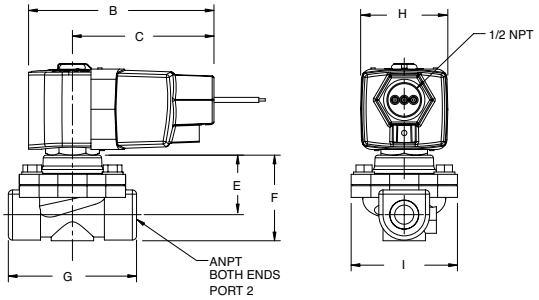
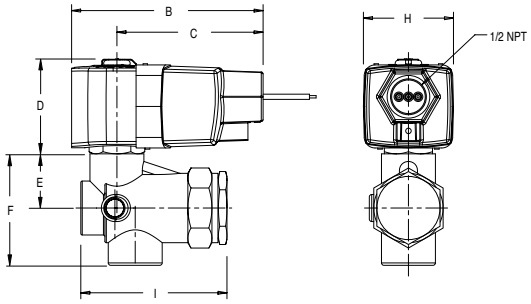


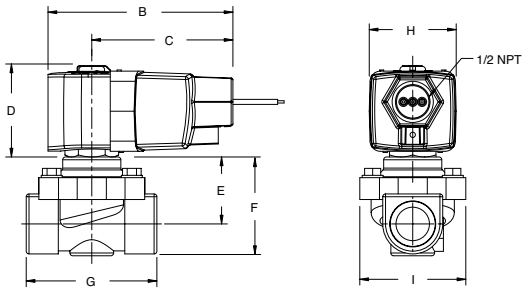
Const. Ref. 4, 7, 15, 16, 17



Const. Ref. 5, 6, 9



Const. Ref. 8



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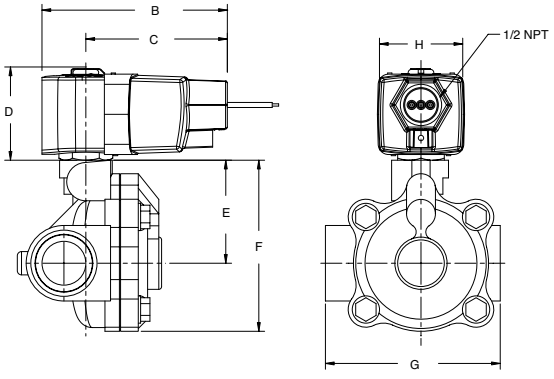
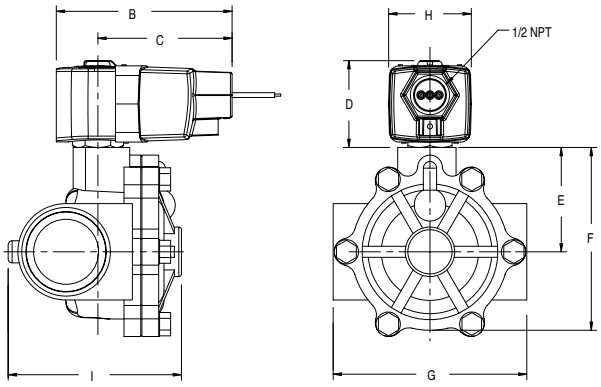
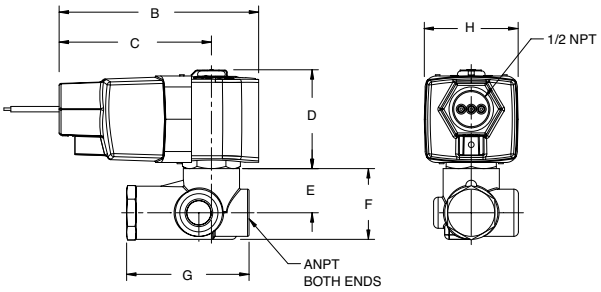


Const. Ref. 11, 12



Const. Ref. 18



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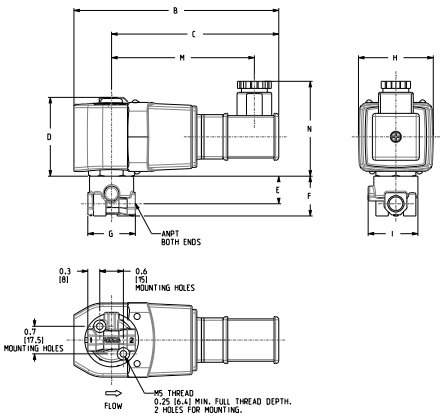

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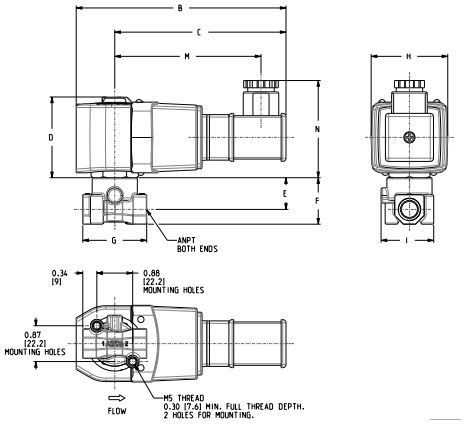

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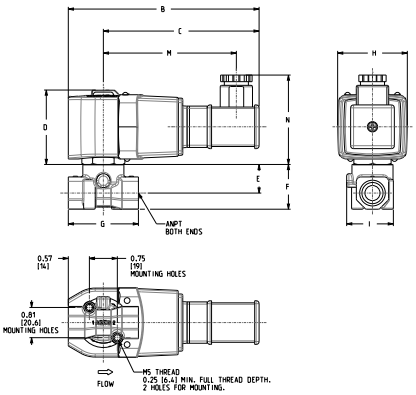
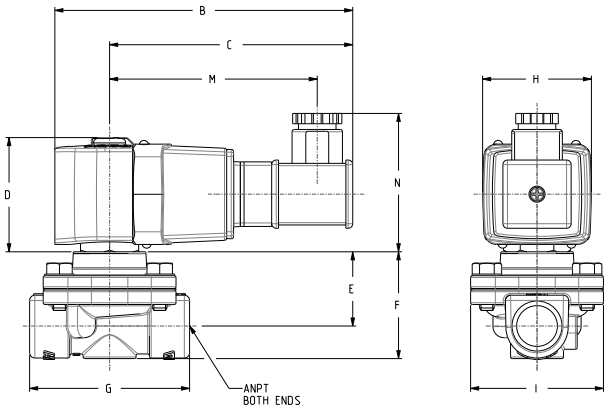
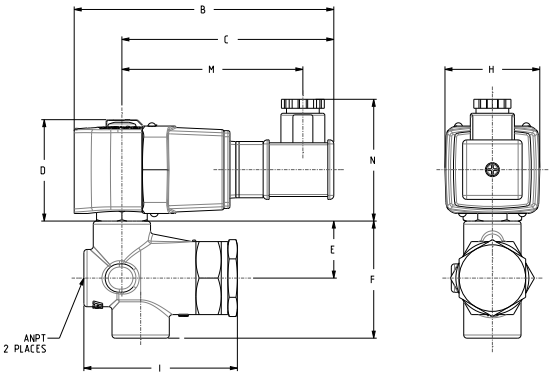


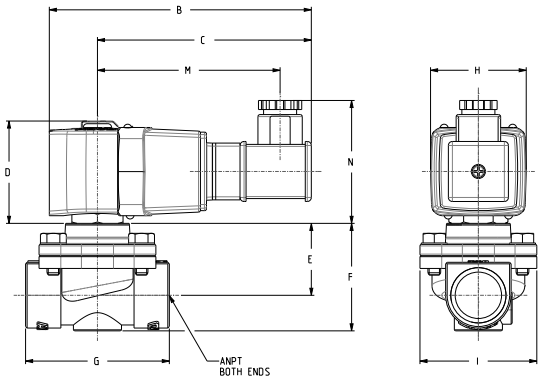
Const. Ref. 4,7,15,16,17



Const. Ref. 5, 6, 9



Const. Ref. 8



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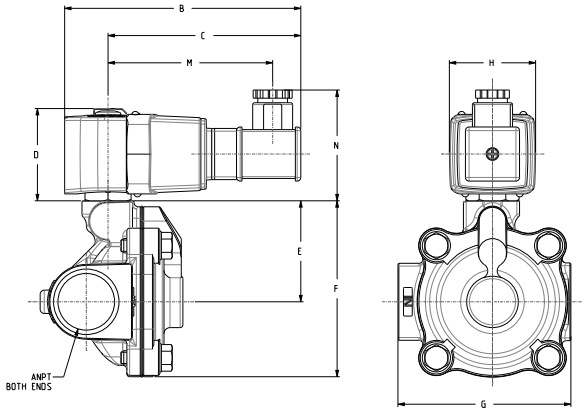
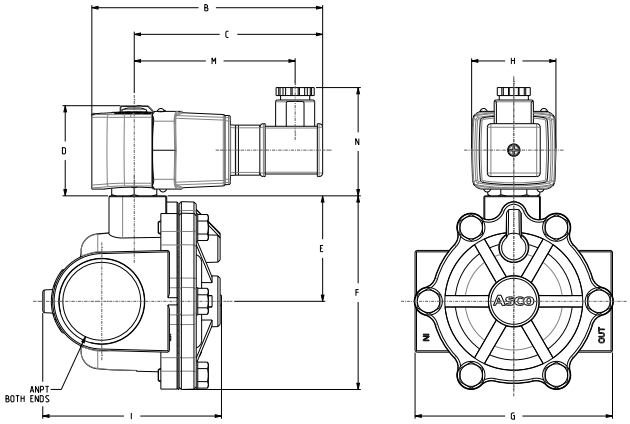
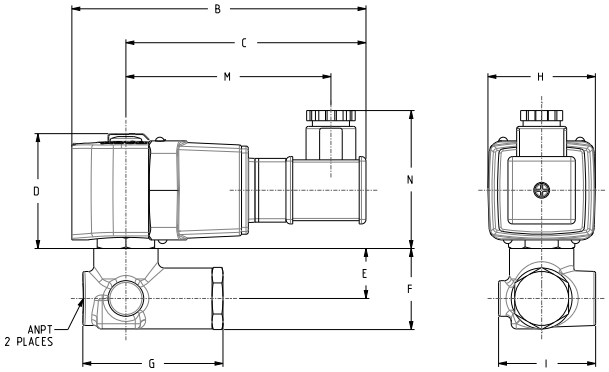


Const. Ref. 11, 12



Const. Ref. 18



3-Way Features

- Three-way (3/2) Next Generation solenoid valves have three ports and two orifices. When one orifice is open, the other is closed
- Control of air, water, light oil, and other non-corrosive media
- Normally closed (pressure to cylinder port when energized) operation
- Normally open (cylinder port exhausts when energized) operation
- Universal operation (can function as normally open, normally closed, diverter of fluid flow, or selector of 2 fluid sources configurable by piping)
- Pipe sizes – 1/4 to 3/4 inch

Pipe Size (in)	Orifice Dia. (in)	Cv Flow	Operating Pressure Differential (psi)				Max. Fluid Temp.˚F	Brass-NPT	Brass - ISO	Const. Ref.	Stainless -NPT Steel	Stainless Steel - ISO	Const. Ref.	Approx. Shipping Weight (lbs.)
			Min.	Max.										
				Air-Inert Gas	Water	Light Oil @ 300 SSU								
General Service - Normally Closed														
1/8	3/64	0.05 ③	0	300	300	300 ⑦	200 ⑥	8314R031	G314R031SKN00	1	8314R037	G314R037SKN00	1	1.7
1/8	3/32	0.15 ④	0	205	205	190 ⑦	200 ⑥	8314R032	G314R032SKN00	1	8314R038	G314R038SKN00	1	1.7
1/8	1/8	0.25 ④	0	145	145	100 ⑦	200 ⑥	8314R033	G314R033SKN00	1	8314R039	G314R039SKN00	1	1.7
1/4	3/64	0.05 ③	0	300	300	300 ⑦	200 ⑥	8314R034	E314R034SKN00	2	8314R068	E314R068SKN00	2	1.8
1/4	3/32	0.15 ④	0	205	205	190 ⑦	200 ⑥	8314R035	E314R035SKN00	2	8314R121	E314R121SKN00	2	1.8
1/4	1/8	0.25 ④	0	145	145	100 ⑦	200 ⑥	8314R036	E314R036SKN00	2	8314R126	E314R126SKN00	2	1.8
1/4	5/32	0.5 ④	0	75	75	75 ⑦	200 ⑥	8314R130	E314R130SKN00	2	8314R230	E314R230SKN00	2	1.8
1/4	7/32	0.7 ④	0	40	40	40 ⑦	200 ⑥	8314R131	E314R131SKN00	2	8314R231	E314R231SKN00	2	1.8
1/4	9/32	0.85 ④	0	25	25	25 ⑦	200 ⑥	8314R132	E314R132SKN00	2	8314R232	E314R232SKN00	2	1.8
1/4	1/32	0.05	0	750	750	750	194	8320R180	E320P180	3	-	-	-	2.5
1/4	1/16	0.09	0	255	255	255	194	8320R182	E320P182	3	-	-	-	2.5
1/4	7/64	0.23	0	190	190	190	194	8320R184	E320P184	3	-	-	-	2.5
1/4	1/8	0.25	0	90	90	90	194	8320R186	E320P186	3	-	-	-	2.5
1/4	11/64	0.35	0	55	55	55	194	8320R188	E320P188	3	-	-	-	2.5
1/4	3/32 ①	0.2 ①	5 ⑤	150	150	100	180	8317P035	-	4	-	-	-	2.7
1/4	9/32 ②	0.8 ②	10	200	200	200	180	8321P001	-	5	-	-	-	3.8
3/8	9/32 ②	0.8 ②	10	200	200	200	180	8321P002	-	5	-	-	-	3.8
3/8	5/8	2.5	10	250	250	-	180	8316P054	8316P054	6	-	-	-	4.9
1/2	5/8	3.2	10	250	250	-	180	8316P064	8316P064	6	-	-	-	4.9
3/4	11/16	4.8	10	250	250	-	180	8316P074	8316P074	7	-	-	-	5.1
NAMUR Mount - 3/2 Normally Closed														
1/4	3/32	0.12	-	150	-	-	194	8320R704	-	9	E320R714	-	9	3.2
General Service - Normally Open														
1/8	3/64	0.05 ③	0	300	300	300 ⑦	200 ⑥	8314R049	G314R049SKN00	1	8314R055	G314R055SKN00	1	1.7
1/8	3/32	0.15 ④	0	175	175	175 ⑦	200 ⑥	8314R050	G314R050SKN00	1	8314R056	G314R056SKN00	1	1.7
1/8	1/8	0.25 ④	0	160	160	160 ⑦	200 ⑥	8314R051	G314R051SKN00	1	8314R057	G314R057SKN00	1	1.7
1/4	3/64	0.05 ③	0	300	300	300 ⑦	200 ⑥	8314R052	E314R052SKN00	2	8314R069	E314R069SKN00	2	1.8
1/4	3/32	0.15 ④	0	175	175	175 ⑦	200 ⑥	8314R053	E314R053SKN00	2	8314R122	E314R122SKN00	2	1.8
1/4	1/8	0.25 ④	0	160	160	160 ⑦	200 ⑥	8314R054	E314R054SKN00	2	8314R070	E314R070SKN00	2	1.8
1/4	5/32	0.5 ④	0	150	150	150 ⑦	200 ⑥	8314R133	E314R133SKN00	2	8314R233	E314R233SKN00	2	1.8
1/4	7/32	0.7 ④	0	100	100	100 ⑦	200 ⑥	8314R134	E314R134SKN00	2	8314R234	E314R234SKN00	2	1.8
1/4	9/32	0.85 ④	0	65	65	65 ⑦	200 ⑥	8314R135	E314R135SKN00	2	8314R235	E314R235SKN00	2	1.8
1/8	3/64	0.06	0	350	350	350	194	8320R136	-	8	8320R146	-	8	2.5
1/4	1/32	0.05	0	790	825	825	194	8320R190	E320P190	3	-	-	-	2.5
1/4	1/16	0.09	0	255	255	255	194	8320R192	E320P192	3	-	-	-	2.5
1/4	3/32	0.12	0	200	200	200	194	8320R194	E320P194	3	-	-	-	2.5
1/4	1/8	0.25	0	95	95	95	194	8320R196	E320P196	3	-	-	-	2.5
1/4	11/64	0.35	0	60	60	60	194	8320R198	E320P198	3	-	-	-	2.5
General Service - Universal Operation														
1/8	3/64	0.05 ⑤	0	200	200	200 ⑦	200 ⑥	8314R041	G314R041SKN00	1	8314R042	G314R042SKN00	1	1.7
1/8	3/32	0.25 ④	0	105	85	60 ⑦	200 ⑥	8314R043	G314R043SKN00	1	8314R044	G314R044SKN00	1	1.7
1/8	1/8	0.25 ④	0	70	70	40 ⑦	200 ⑥	8314R045	G314R045SKN00	1	8314R040	G314R040SKN00	1	1.7
1/4	3/64	0.05 ⑤	0	200	200	200 ⑦	200 ⑥	8314R006	E314R006SKN00	2	8314R123	E314R123SKN00	2	1.8
1/4	3/32	0.15 ④	0	105	85	60 ⑦	200 ⑥	8314R007	E314R007SKN00	2	8314R120	E314R120SKN00	2	1.8
1/4	1/8	0.25 ④	0	70	70	40 ⑦	200 ⑥	8314R008	E314R008SKN00	2	8314R124	E314R124SKN00	2	1.8
1/4	5/32	0.5 ④	0	35	35	35 ⑦	200 ⑥	8314R127	E314R127SKN00	2	8314R227	E314R227SKN00	2	1.8
1/4	7/32	0.7 ④	0	18	18	18 ⑦	200 ⑥	8314R128	E314R128SKN00	2	8314R228	E314R228SKN00	2	1.8
1/4	9/32	0.85 ④	0	10	10	10 ⑦	200 ⑥	8314R129	E314R129SKN00	2	8314R229	E314R229SKN00	2	1.8
1/4	1/32	0.05	0	395	395	395	194	8320R170	E320P170	3	-	-	-	2.5
1/4	1/16	0.09	0	160	160	160	194	8320R172	E320P172	3	-	-	-	2.5
1/4	3/32	0.12	0	100	100	100	194	8320R174	E320P174	3	-	-	-	2.5
1/4	1/8	0.25	0	50	50	50	194	8320R176	E320P176	3	-	-	-	2.5
1/4	11/64	0.35	0	30	30	30	194	8320R178	E320P178	3	-	-	-	2.5

① 1/4" exhaust orifice with 0.73 Cv flow; ② 11/32" exhaust orifice with 1.20 Cv flow; ③ 3/64" exhaust orifice with 0.06 Cv flow ④ 3/32" exhaust orifice with 0.20 Cv flow ⑤ 10 psi minimum for light oils
⑥ Max. fluid temp. 180 F for light oil @ 45 SSU ⑦ Pressure rating for light oil @ 45 SSU.

3-Way Specifications (Metric units)

Pipe Size (in)	Orifice Dia. (mm)	Kv Flow Factor (m^3/h)	Operating Pressure Differential (bar)				Max. Fluid Temp.˚C	Brass - NPT	Brass - ISO	Const. Ref.	Stainless Steel- NTP	Stainless Steel - ISO	Const. Ref.	Approx. Shipping Weight (kgs.)
			Min.	Max.										
				Air-Inert Gas	Water	Light Oil @ 300 SSU								
General Service - Normally Closed														
1/8	1.2	0.04 ③	0	21	21	21 ⑦	93 ②	8314R031	G314R031SKN00	1	8314R037	G314R037SKN00	1	0.77
1/8	2.4	0.13 ④	0	14	14	13 ⑦	93 ②	8314R032	G314R032SKN00	1	8314R038	G314R038SKN00	1	0.77
1/8	3.2	0.22 ④	0	10	10	7 ⑦	93 ②	8314R033	G314R033SKN00	1	8314R039	G314R039SKN00	1	0.77
1/4	1.2	0.04 ③	0	21	21	21 ⑦	93 ②	8314R034	E314R034SKN00	2	8314R068	E314R068SKN00	2	0.81
1/4	2.4	0.13 ④	0	14	14	13 ⑦	93 ②	8314R035	E314R035SKN00	2	8314R121	E314R121SKN00	2	0.81
1/4	3.2	0.22 ④	0	10	10	7 ⑦	93 ②	8314R036	E314R036SKN00	2	8314R126	E314R126SKN00	2	0.81
1/4	4.0	0.43 ④	0	5.2	5.2	5.2 ⑦	93 ②	8314R130	E314R130SKN00	2	8314R230	E314R230SKN00	2	0.81
1/4	5.6	0.6 ④	0	3	3	3 ⑦	93 ②	8314R131	E314R131SKN00	2	8314R231	E314R231SKN00	2	0.81
1/4	7.1	0.73 ④	0	2	2	2 ⑦	93 ②	8314R132	E314R132SKN00	2	8314R232	E314R232SKN00	2	0.81
1/4	0.8	0.04	0	51	51	51	90	8320R180	E320P180	3	-	-	-	2.5
1/4	1.9	0.08	0	18	18	18	90	8320R182	E320P182	3	-	-	-	1.1
1/4	2.7	0.10	0	13	13	13	90	8320R184	E320P184	3	-	-	-	1.1
1/4	3.9	0.21	0	6	6	6	90	8320R186	E320P186	3	-	-	-	1.1
1/4	4.4	0.30	0	4	4	4	90	8320R188	E320P188	3	-	-	-	1.1
1/4	2.3 ①	0.17 ①	0.3 ④	10	10	7	82	8317P035	-	4	-	-	-	1.2
1/4	7.1 ②	0.7 ②	0.7	14	14	14	82	8321P001	-	5	-	-	-	1.7
3/8	7.1 ②	0.7 ②	0.7	14	14	14	82	8321P002	-	5	-	-	-	1.7
3/8	3.3	2.1	0.7	17	17	-	82	8316P054	8316P054	6	-	-	-	2.2
1/2	3.3	2.7	0.7	17	17	-	82	8316P064	8316P064	6	-	-	-	2.2
3/4	17	4.1	0.7	17	17	-	82	8316P074	8316P074	7	-	-	-	2.3
NAMUR Mount - 3/2 Normally Closed														
1/4	2.4	0.1	-	10	-	-	90	8320R704	-	9	8320R714	-	9	1.5
General Service - Normally Open														
1/8	1.2	0.04 ③	0	21	21	21 ⑦	93 ②	8314R049	G314R049SKN00	1	8314R055	G314R055SKN00	1	0.77
1/8	2.4	0.13 ④	0	12	12	12 ⑦	93 ②	8314R050	G314R050SKN00	1	8314R056	G314R056SKN00	1	0.77
1/8	3.2	0.22 ④	0	11	11	11 ⑦	93 ②	8314R051	G314R051SKN00	1	8314R057	G314R057SKN00	1	0.77
1/4	1.2	0.04 ③	0	21	21	21 ⑦	93 ②	8314R052	E314R052SKN00	2	8314R069	E314R069SKN00	2	0.81
1/4	2.4	0.13 ④	0	12	12	12 ⑦	93 ②	8314R053	E314R053SKN00	2	8314R122	E314R122SKN00	2	0.81
1/4	3.2	0.22 ④	0	11	11	11 ⑦	93 ②	8314R054	E314R054SKN00	2	8314R070	E314R070SKN00	2	0.81
1/4	4.0	0.43 ④	0	10	10	10 ⑦	93 ②	8314R133	E314R133SKN00	2	8314R233	E314R233SKN00	2	0.81
1/4	5.6	0.6 ④	0	6.8	6.8	6.8 ⑦	93 ②	8314R134	E314R134SKN00	2	8314R234	E314R234SKN00	2	0.81
1/4	7.1	0.73 ④	0	4.5	4.5	4.5 ⑦	93 ②	8314R135	E314R135SKN00	2	8314R235	E314R235SKN00	2	0.81
1/8	1.2	0.05	0	24	24	24	90	8320R136	-	8	8320R146	-	8	1.1
1/4	0.8	0.04	0	54	57	57	90	8320R190	E320P190	3	-	-	-	1.1
1/4	1.6	0.08	0	18	18	18	90	8320R192	E320P192	2	-	-	-	1.1
1/4	2.4	0.10	0	14	14	14	90	8320R194	E320P194	2	-	-	-	1.1
1/4	3.2	0.21	0	6.5	6.5	6.5	90	8320R196	E320P196	2	-	-	-	1.1
1/4	4.4	0.30	0	4	4	4	90	8320R198	E320P198	2	-	-	-	1.1
General Service - Universal Operation														
1/8	1.2	0.04 ③	0	14	14	14 ⑦	93 ②	8314R041	G314R041SKN00	1	8314R042	G314R042SKN00	1	0.77
1/8	2.4	0.13 ④	0	7	6	4 ⑦	93 ②	8314R043	G314R043SKN00	1	8314R044	G314R044SKN00	1	0.77
1/8	3.2	0.22 ④	0	5	5	3 ⑦	93 ②	8314R045	G314R045SKN00	1	8314R040	G314R040SKN00	1	0.77
1/4	1.2	0.04 ④	0	14	14	14 ⑦	93 ②	8314R006	E314R006SKN00	2	8314R123	E314R123SKN00	2	0.81
1/4	2.4	0.13 ④	0	7	6	4 ⑦	93 ②	8314R007	E314R007SKN00	2	8314R120	E314R120SKN00	2	0.81
1/4	3.2	0.22 ④	0	5	5	3 ⑦	93 ②	8314R008	E314R008SKN00	2	8314R124	E314R124SKN00	2	0.81
1/4	4.0	0.43 ④	0	2.5	2.5	2.5 ⑦	93 ②	8314R127	E314R127SKN00	2	8314R227	E314R227SKN00	2	0.81
1/4	5.6	0.6 ④	0	1.5	1.5	1.5 ⑦	93 ②	8314R128	E314R128SKN00	2	8314R228	E314R228SKN00	2	0.81
1/4	7.1	0.73 ④	0	0.7	0.7	0.7 ⑦	93 ②	8314R129	E314R129SKN00	2	8314R229	E314R229SKN00	2	0.81
1/4	0.8	0.04	0	27	27	27	90	8320R170	E320P170	3	-	-	-	1.1
1/4	1.6	0.08	0	11	11	11	90	8320R172	E320P172	3	-	-	-	1.1
1/4	2.4	0.10	0	7	7	7	90	8320R174	E320P174	3	-	-	-	1.1
1/4	3.2	0.21	0	3	3	3	90	8320R176	E320P176	3	-	-	-	1.1
1/4	4.4	0.30	0	2	2	2	90	8320R178	E320P178	3	-	-	-	1.1

① 6.3 mm exhaust orifice with 0.63 Kv flow ② 8.7 mm exhaust orifice with 1.0 kV flow ③ 1.3 mm exhaust orifice with 0.05 Kv flow ④ 2.5 mm exhaust orifice with 0.17 Kv flow
⑤ 0.7 bar maximum for light oils ⑥ Max. fluid temp. 82 C for light oil @ 45 SSU ⑦ Pressure rating for light oil @ 45 SSU

3-Way Optional Features Chart

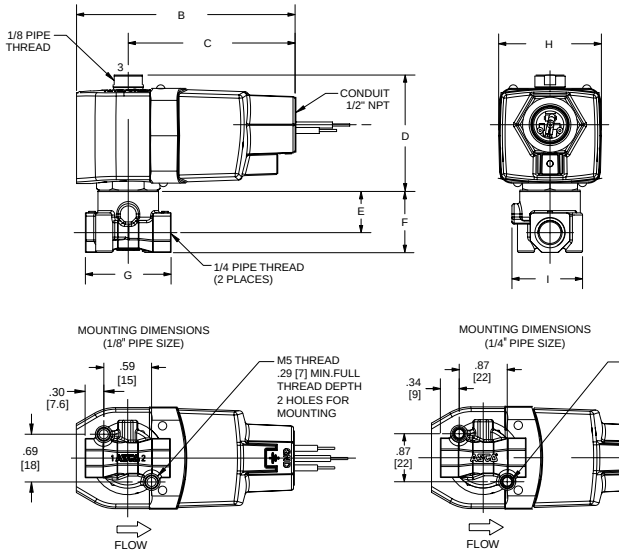
Pipe Size (in)	Orifice Dia. (in)	Base Catalog Number				Resilient Materials and Suffix Options									Other		Standard Rebuild Kit	
		Brass-NTP	Brass - ISO	Stainless Steel NTP	Stainless Steel ISO	Silicone Free	NBR	FKM	EPDM	CR	Oxygen Service	PTFE ①	Urethane	Vacuum	Manual Operator ③	Mounting Bracket	Brass	Stainless Steel
1/8	3/64	8314R031	G314R031SKN00	8314R037	G314R037SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323957	323959
1/8	3/64	8314R041	G314R041SKN00	8314R042	G314R041SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323961	323963
1/8	3/64	8314R049	G314R049SKN00	8314R055	G314R049SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323969	323971
1/8	3/32	8314R032	G314R032SKN00	8314R038	G314R032SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323958	323960
1/8	3/32	8314R043	G314R043SKN00	8314R044	G314R043SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323966	323968
1/8	3/32	8314R050	G314R050SKN00	8314R056	G314R050SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323970	323972
1/8	1/8	8314R033	G314R033SKN00	8314R039	G314R033SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323958	323960
1/8	1/8	8314R045	G314R045SKN00	8314R040	G314R045SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323966	323968
1/8	1/8	8314R051	G314R051SKN00	8314R057	G314R051SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323970	323972
1/8	3/64	8320R136	-	8320R146	-	SF	I	V	E	J	N	-	-	-	MO/MS	MB	326062	326062
1/4	1/32	8320R190	E320P190	-	-	SF	I	V	E	J	N	-	-	-	MO/MS	MB	326060	-
1/4	3/64	8314R006	E314R006SKN00	8314R123	E314R123SKN00	SF	I	V	-	-	N	-	-	-	MS	MB	323961	323963
1/4	3/64	8314R034	E314R034SKN00	8314R068	E314R068SKN00	SF	I	V	-	-	N	-	-	-	MS	MB	323957	323959
1/4	3/64	8314R052	E314R052SKN00	8314R069	E314R069SKN00	SF	I	V	-	-	N	-	-	-	MS	MB	323969	323971
1/4	1/32	8320R170	E320P170	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326061	-
1/4	1/16	8320R172	E320P172	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326061	-
1/4	1/8	8320R176	E320P176	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326061	-
1/4	11/64	8320R178	E320P178	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326061	-
1/4	1/32	8320R180	E320P180	-	-	SF	I	V	E	J	N	-	-	-	MO/MS	MB	326059	-
1/4	1/16	8320R182	E320P182	-	-	SF	I	V	E	J	N	-	-	-	MO/MS	MB	326059	-
1/4	11/64	8320R188	E320P188	-	-	SF	I	V	E	J	N	-	-	-	MO/MS	MB	326059	-
1/4	1/16	8320R192	E320P192	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326060	-
1/4	3/32	8314R007	-	8314R120	E314R120SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323966	323968
1/4	3/32	8314R035	-	8314R121	E314R121SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323958	323960
1/4	3/32	8314R053	-	8314R122	E314R122SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323970	323972
1/4	3/32	8317P035	-	-	-	SF	I	V	-	-	N	-	-	-	-	-	322919	-
1/4	3/32	8320R704	-	8320R714	-	SF	I	V	E	J	N	-	-	-	MO/MS	-	326059	326059
1/4	3/32	8320R174	E320P174	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326061	-
1/4	7/64	8320R184	E320P184	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326059	-
1/4	3/32	8320R194	E320P194	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326060	-
1/4	1/8	8320R196	E320P196	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326060	-
1/4	1/8	8320R186	E320P186	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326059	-
1/4	11/64	8320R198	E320P198	-	-	SF	I	V	E	J	N	-	-	-	MO/MS ④	MB	326060	-
1/4	1/8	8314R008	E314R008SKN00	8314R124	E314R124SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323966	323968
1/4	1/8	8314R036	E314R036SKN00	8314R126	E314R126SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323958	323960
1/4	1/8	8314R054	E314R054SKN00	8314R070	E314R070SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323970	323972
1/4	5/32	8314R127	E314R127SKN00	8314R227	E314R227SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323966	323968
1/4	5/32	8314R130	E314R130SKN00	8314R230	E314R230SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323958	323960
1/4	5/32	8314R133	E314R133SKN00	8314R233	E314R233SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323970	323972
1/4	7/32	8314R128	E314R128SKN00	8314R228	E314R228SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323966	323968
1/4	7/32	8314R131	E314R131SKN00	8314R231	E314R231SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323958	323960
1/4	7/32	8314R134	E314R134SKN00	8314R234	E314R234SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323970	323972
1/4	9/32	8314R129	E314R129SKN00	8314R229	E314R229SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323966	323968
1/4	9/32	8314R132	E314R132SKN00	8314R232	E314R232SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323958	323960
1/4	9/32	8314R135	E314R135SKN00	8314R235	E314R235SKN00	SF	I	V ②	-	-	N	-	-	-	MS	MB	323970	323972
1/4	9/32	8321P001	-	-	-	- ⑤	I	V	E	-	-	-	-	-	MO/MS	-	322688	-
3/8	9/32	8321P002	-	-	-	- ⑤	I	V	E	-	-	-	-	-	MO/MS	-	322688	-
3/8	5/8	8316P054	8316P054	-	-	- ⑤	I	V	E	J	N	-	-	-	MO	MB	322690	-
1/2	5/8	8316P064	8316P064	-	-	- ⑤	I	V	E	J	N	-	-	-	MO	MB	322690	-
3/4	11/16	8316P074	8316P074	-	-	- ⑤	I	V	E	J	N	-	-	-	MO	MB	322692	-

① Pressure rating reduced by 25% ② Upper disc is FKM ③ Not available with PTFE resilient materials ④ Pressure rating limited to 100 psi (6.9 bar) for MO constructions ⑤ Consult factory

Dimensions: inches (mm)

Const. Ref.		B		C		D		E		F		G		H		I		j		M		N	
		Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN
1	in	3.98	5.12	3.04	4.18	2.09	2.09	0.69	0.69	1.00	1.00	1.19	1.19	1.87	1.87	1.24	1.24	-	-	-	3.57	-	2.45
	mm	101	130	77	106	53	53	18	18	25	25	30	30	47	47	31	31	-	-	-	91	-	62
2	in	3.98	5.12	3.04	4.18	2.09	2.09	0.79	0.79	1.19	1.19	1.56	1.56	1.87	1.87	1.29	1.29	-	-	-	3.57	-	2.45
	mm	101	130	77	106	53	53	20	20	30	30	40	40	47	47	33	33	-	-	-	91	-	62
3	in	3.98	5.12	3.04	4.18	2.00	2.00	1.02	1.02	2.02	2.02	1.69	1.69	1.87	1.87	1.45	1.45	0.44	0.44	-	3.57	-	2.37
	mm	101	130	77	106	51	51	26	26	51	51	43	43	47	47	37	37	11	11	-	91	-	60
4	in	3.98	5.12	3.04	4.18	2.00	2.00	0.57	0.57	1.07	1.07	2.00	2.00	1.87	1.87	2.05	2.05	-	-	-	3.57	-	2.37
	mm	101	130	77	106	51	51	14	14	27	27	51	51	47	47	52	52	-	-	-	91	-	60
5	in	3.98	5.12	3.04	4.18	2.00	2.00	1.00	1.00	2.03	2.03	1.31	1.31	1.87	1.87	3.12	3.12	1.00	1.00	-	3.57	-	2.37
	mm	101	130	77	106	51	51	25	25	52	52	33	33	47	47	79	79	25	25	-	91	-	60
6	in	3.98	5.12	3.04	4.18	2.00	2.00	2.12	2.12	3.77	3.77	2.76	2.76	1.87	1.87	4.29	4.29	-	-	-	3.57	-	2.37
	mm	101	130	77	106	51	51	54	54	96	96	70	70	47	47	109	109	-	-	-	91	-	60
7	in	3.98	5.12	3.04	4.18	2.00	2.00	2.50	2.50	4.19	4.19	-	-	1.87	1.87	3.38	3.38	-	-	-	3.57	-	2.37
	mm	101	130	77	106	51	51	64	64	106	106	-	-	47	47	86	86	-	-	-	91	-	60
8	in	3.98	5.12	3.04	4.18	2.00	2.00	0.67	0.67	1.64	1.64	1.19	1.19	1.87	1.87	-	-	1.81	1.81	-	3.57	-	2.37
	mm	101	130	77	106	51	51	17	17	42	42	30	30	47	47	-	-	46	46	-	91	-	60

Const. Ref.1, 2



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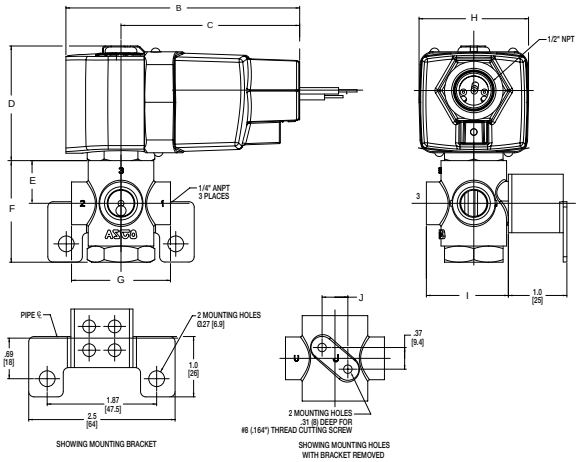

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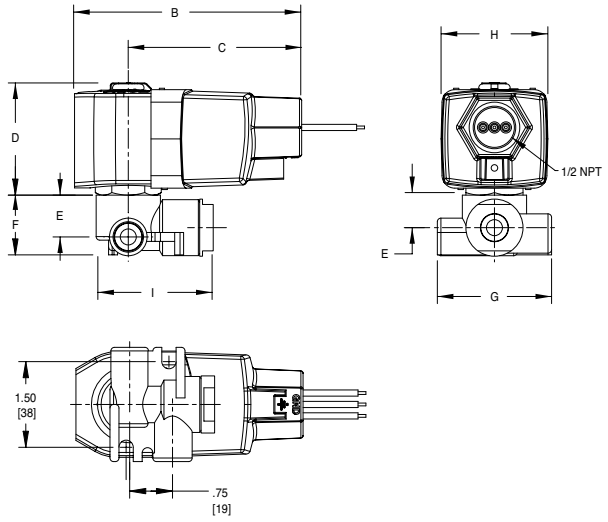

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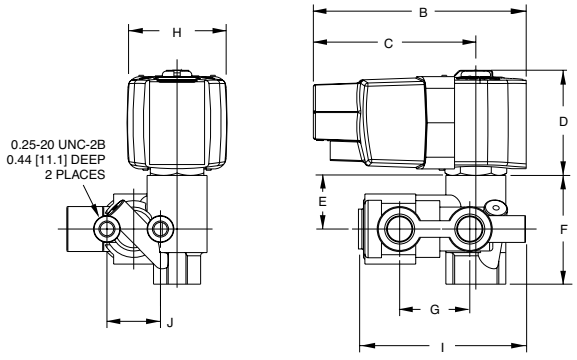
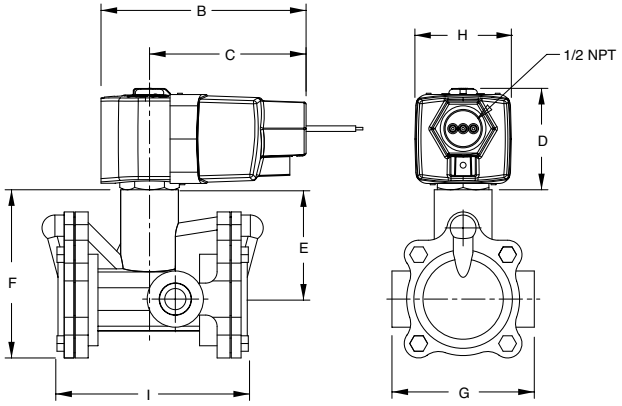


Dimensions: inches (mm)

Const. Ref. 6



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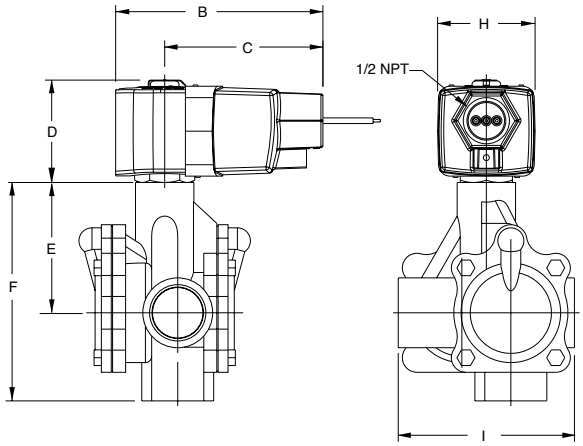

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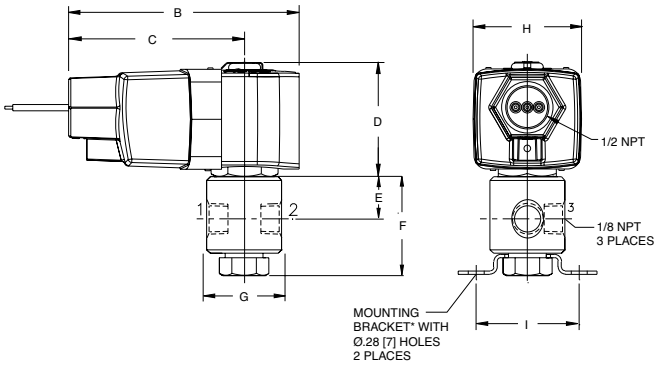

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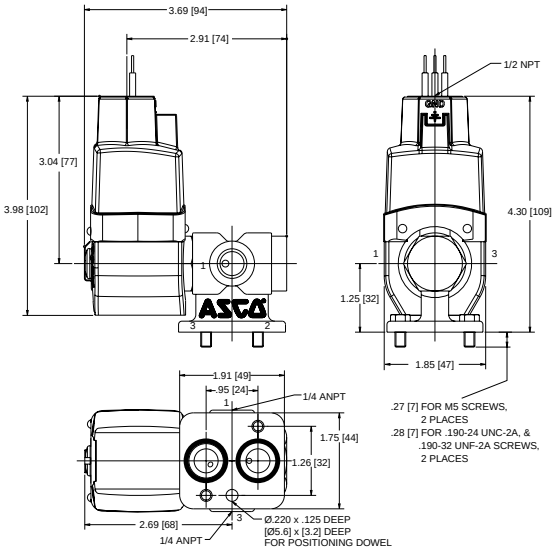
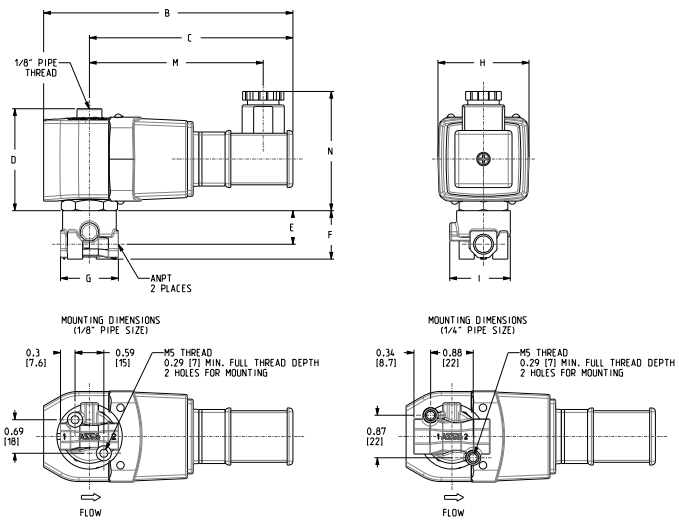


Dimensions: inches (mm)

Const. Ref. 1,2



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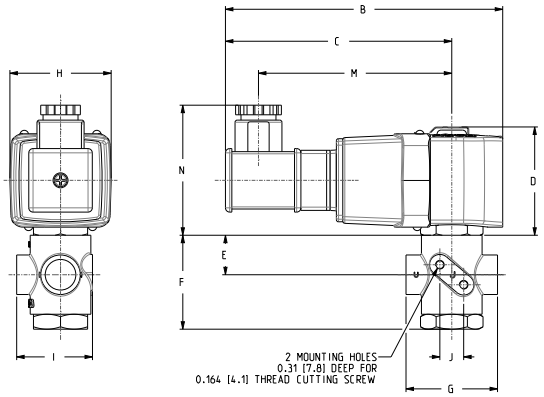

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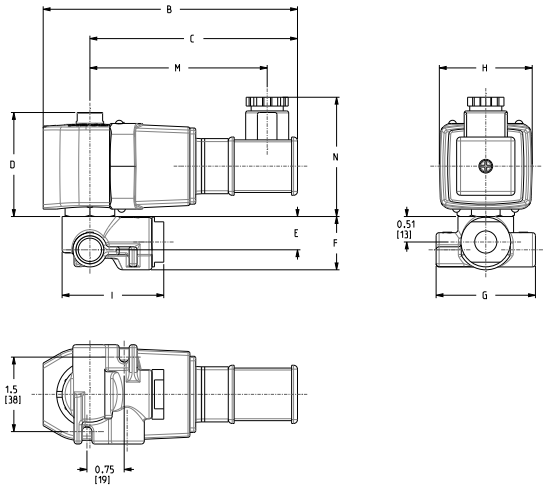

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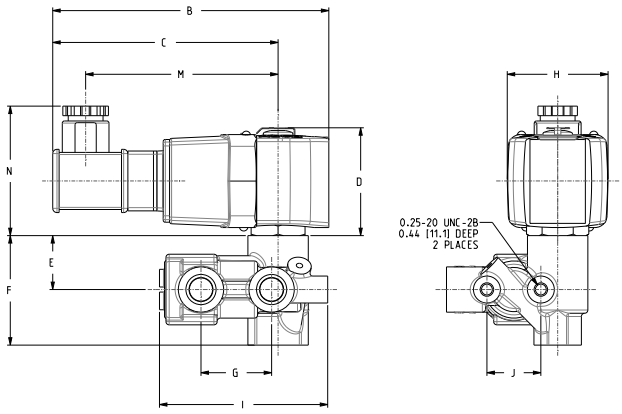
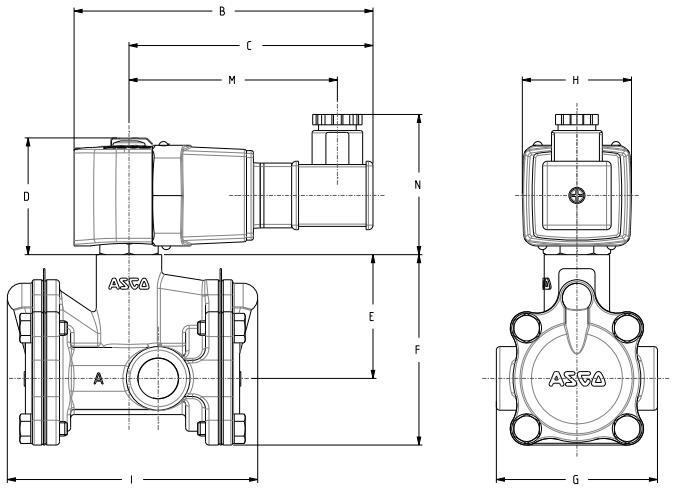


Dimensions: inches (mm)

Const. Ref. 6



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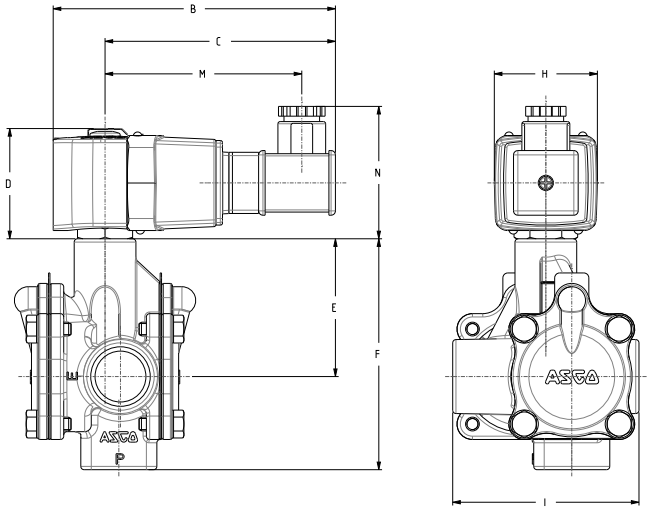

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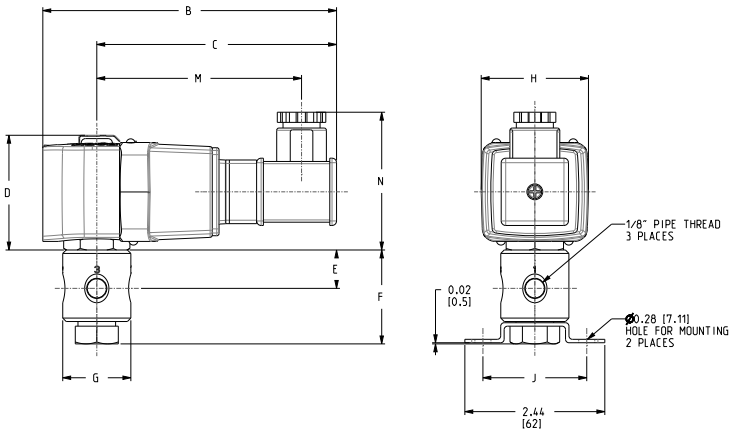
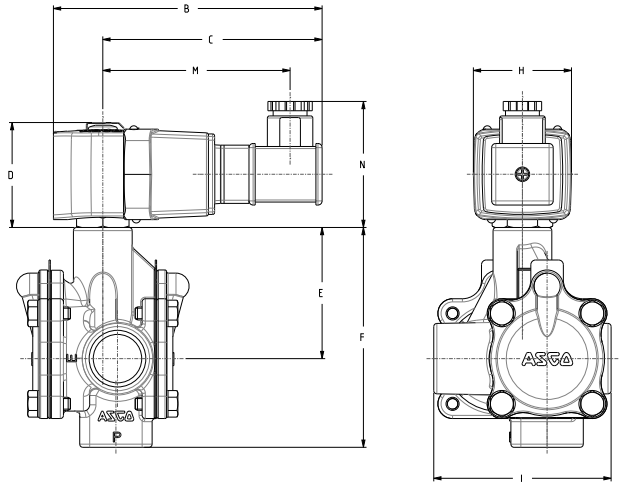




4-Way Features

- Four-way, four port (4/2) and five port (5/2) Next Generation solenoid valves have one pressure port, 2 cylinder ports, and either 1 or 2 exhaust ports
- Control of air, water, light oil, and non-corrosive media
- Single solenoid operation (pressure and exhaust ports and cylinder ports alternate connection based on solenoid operation)
- Pipe sizes – 1/4 to 1 inch

4-Way Specifications (English units)

Pipe Size (in)	Orifice Dia. (in)	Cv Flow		Operating Pressure Differential (psi)				Max. Fluid Temp.˚F	Brass - NPT	Const. Ref.	316L Stainless Steel - NPT	316L Stainless Steel - ISO	Const. Ref.
				Min.	Max.								
		Pressure	Exhaust		Air-Inert Gas	Water	Light Oil @ 300 SSU						
General Service - Single Solenoid													
1/4	1/16 ②	0.09	0.09	10	150	150	150 ③	180	8345P001	1	-	-	-
1/4	1/4	0.8	1.0	10 ①	250	250	250	180	8344P070	2	-	-	-
3/8	3/8	1.4	2.2	10 ①	250	250	250	180	8344P072	3	-	-	-
1/2	3/8	1.4	2.2	10 ①	250	250	250	180	8344P074	3	-	-	-
3/4	3/4	5.2	5.6	10 ①	250	250	250	180	8344P076	4	-	-	-
1	3/4	5.2	5.6	10 ①	250	250	250	180	8344P078	4	-	-	-
General Service - 4/2 Dual Solenoid													
3/8	3/8	1.4	2.2	10 ①	300	300	200	180	8344P080	5	-	-	-
NAMUR Mount - 3/2, 5/2 Single Solenoid													
1/4	1/4	0.86	0.86	30	150	-	-	180	EE8551P401 ④	6	-	-	6
1/4	1/4	0.86	0.86	30	150	-	-	180	EE8551P403	6	EE8551P409	EEE551P409	6

① 25 psi minimum for light oils ② 3/32" exhaust orifice ③ Viscosity 50 SSU max. ④ Aluminum body

4-Way Specifications (Metric units)

Pipe Size (in)	Orifice Dia. (mm)	Cv Flow		Operating Pressure Differential (bar)				Max. Fluid Temp.˚C	Brass - NPT	Const. Ref.	316L Stainless Steel - NPT	316L Stainless Steel - ISO	Const. Ref.
				Min.	Max.								
		Pressure	Exhaust		Air-Inert Gas	Water	Light Oil @ 300 SSU						
General Service - Single Solenoid													
1/4	1.5 ②	0.07	0.07	0.7	10	10 ③	10	82	8345P001	1	-	-	-
1/4	6.3	0.7	0.86	0.7 ①	17	17	17	82	8344P070	2	-	-	-
3/8	9.5	1.2	2	0.7 ①	17	17	17	82	8344P072	3	-	-	-
1/2	9.5	1.2	2	0.7 ①	17	17	17	82	8344P074	3	-	-	-
3/4	19	4.5	4.8	0.7 ①	17	17	17	82	8344P076	4	-	-	-
1	19	4.5	4.8	0.7 ①	17	17	17	82	8344P078	4	-	-	-
General Service - 4/2 Dual Solenoid													
3/8	9.5	1.2	1.9	¨ ①	21	21	14	82	8344P080	5	-	-	-
NAMUR Mount - 3/2, 5/2 Single Solenoid													
1/4	6.3	0.74	0.74	2.1	10.3	-	-	82	EE8551P401 ④	6	-	-	-
1/4	6.3	0.74	0.74	2.1	10.3	-	-	82	EE8551P403	6	EE8551P409	EEE551P409	6

① 25 psi minimum for light oils ② 3/32" exhaust orifice ③ Viscosity 50 SSU max. ④ Aluminum body

Important

A Minimum Operating Pressure Differential must be maintained between the pressure and exhaust ports. Supply and exhaust piping must be full area, unrestricted. ASCO flow controls and other similar components must be installed in the cylinder lines only.
Refer to Engineering Section for details.

4-Way Optional Features Chart

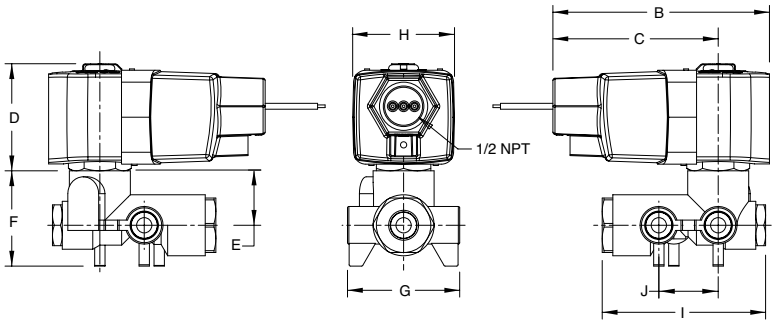
Pipe Size (in)	Orifice Dia. (in)	Base Catalog Number			Resilient Materials and Suffix Options								Other		Standard Rebuild Kit
		Brass - NTP	Stainless Steel - NTP	Stainless Steel - ISO	NBR	FKM	EPDM	CR	Oxygen Service	PTFE	Urethane	Vacuum	Manual Operator	Mounting Bracket	Brass - NTP
1/4	1/16	8345P001	-	-	I	V	-	-	-	-	-	-	MO	-	322925
1/4	1/4	EE8551P401*	-	-	I	-	-	-	-	-	-	-	MH/MS	-	-
1/4	1/4	EE8551P403	-	-	I	-	-	-	-	-	-	-	MH/MS	-	-
1/4	1/4	8344P070	-	-	I	V	-	-	-	-	-	-	MO	-	322696
3/4	3/4	8344P080	-	-	I	V	-	-	-	-	-	-	MO		322700
3/8	3/8	8344P072	-	-	I	V	-	-	-	-	-	-	MO	MB	322697
1/2	3/8	8344P074	-	-	I	V	-	-	-	-	-	-	MO	MB	322697
3/4	3/4	8344P076	-	-	I	V	-	-	-	-	-	-	MO	MB	322698
1	3/4	8344P078	-	-	I	V	-	-	-	-	-	-	MO	MB	322698

* Aluminum Body

Dimensions: inches (mm)

Const. Ref.		B		C		D		E		F		G		H		I		J		K		M		N		Exhaust Pipe Size
		Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	Lead	DIN	
1	in	3.98	5.12	3.04	4.18	2.09	2.09	1.00	1.00	1.75	1.75	2.06	2.06	1.87	1.87	3.00	3.00	1.09	1.09	-	-	-	3.57	-	2.37	1/4
	mm	101	130	77	106	53	53	25	25	44	44	52	52	47	47	76	76	28	28	-	-	-	91	-	60	1/4
2	in	3.98	5.12	3.04	4.18	2.00	2.00	1.12	1.12	2.08	2.08	2.94	2.94	1.87	1.87	4.82	4.82	1.03	1.03	1.41	1.41	-	3.57	-	2.37	3/8
	mm	101	130	77	106	51	51	28	28	53	53	75	75	47	47	122	122	26	26	36	36	-	91	-	60	3/8
3	in	3.98	5.12	3.04	4.18	2.00	2.00	0.94	0.94	2.06	2.06	3.18	3.18	1.87	1.87	6.05	6.05	1.50	1.50	1.86	1.86	-	3.57	-	2.37	1/2
	mm	101	130	77	106	51	51	24	24	52	52	81	81	47	47	154	154	38	38	47	47	-	91	-	60	1/2
4	in	3.98	5.12	3.04	4.18	2.00	2.00	1.31	1.31	2.86	2.86	4.12	4.12	1.87	1.87	8.25	8.25	2.10	2.10	2.12	2.12	-	3.57	-	2.37	1
	mm	101	130	77	406	51	51	33	33	73	73	105	105	47	47	210	210	53	53	54	54	-	91	-	60	1

Const. Ref. 1



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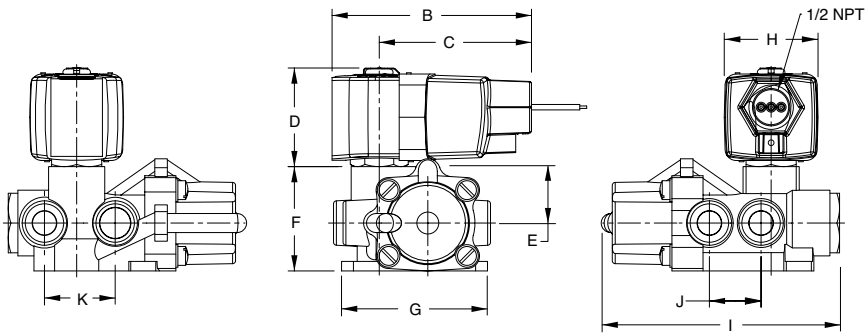

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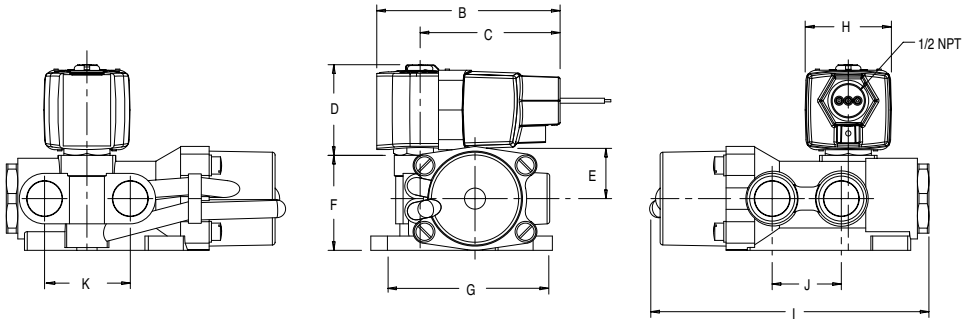

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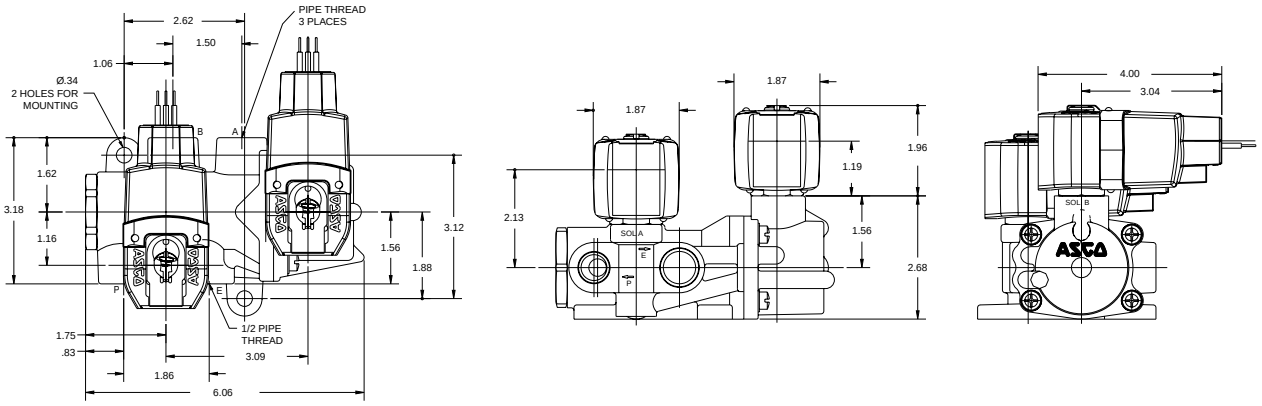
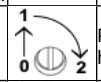
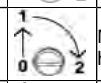
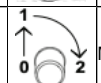
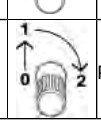
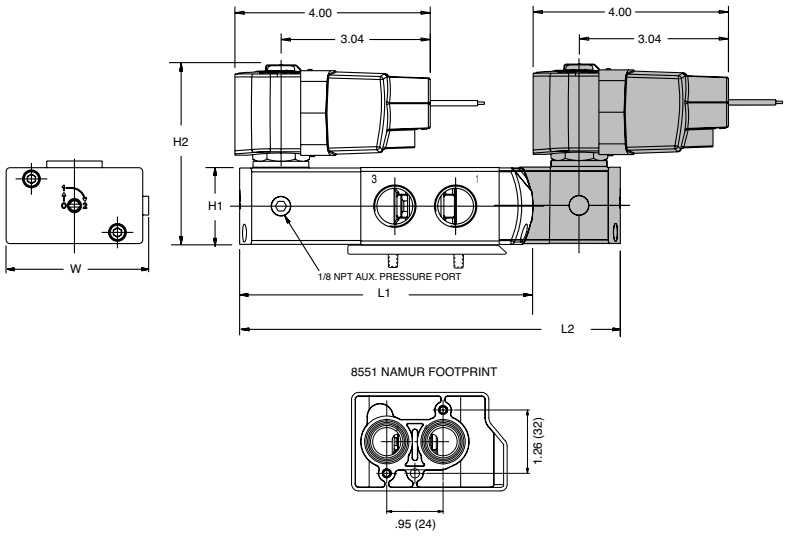


Series	8551
NPT	1/4
L1	4.96 (126)
L2	6.50 (165)
H2	3.97 (101)
H1	1.57 (40)
W	1.77 (45)

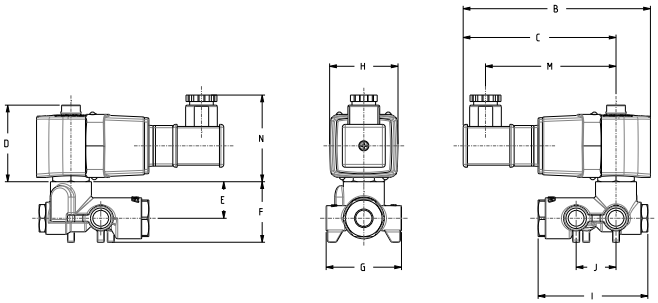
Optional Manual Operators		
Add Suffix		Description
MO		Push and turn to lock with flat head screwdriver slot
MI		Momentary push in with flat head screwdriver slot
MH		Momentary push in by hand
MS		Push and turn to lock by hand

Const. Ref. 6

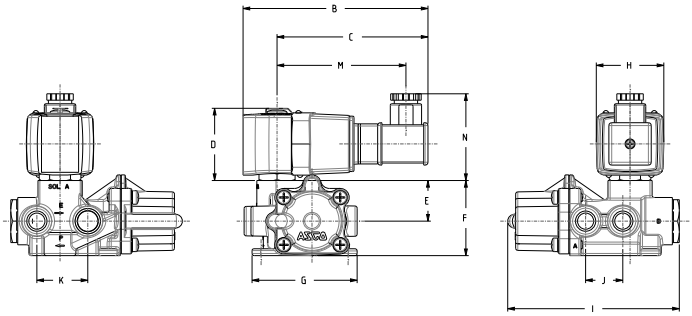


Dimensions: inches (mm)

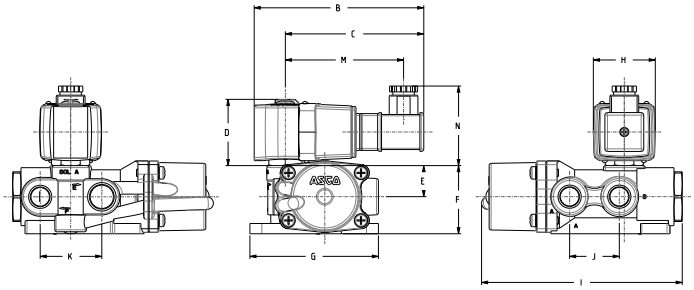
Const. Ref. 1



Const. Ref. 2



Const. Ref. 3



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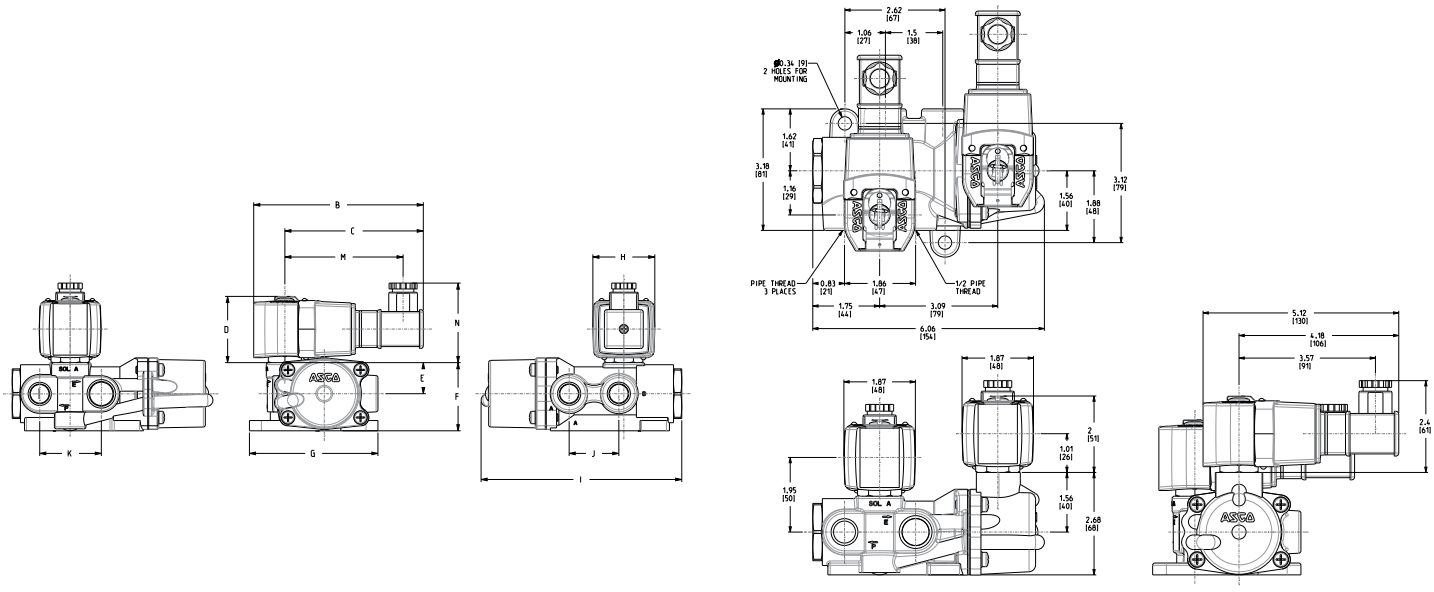
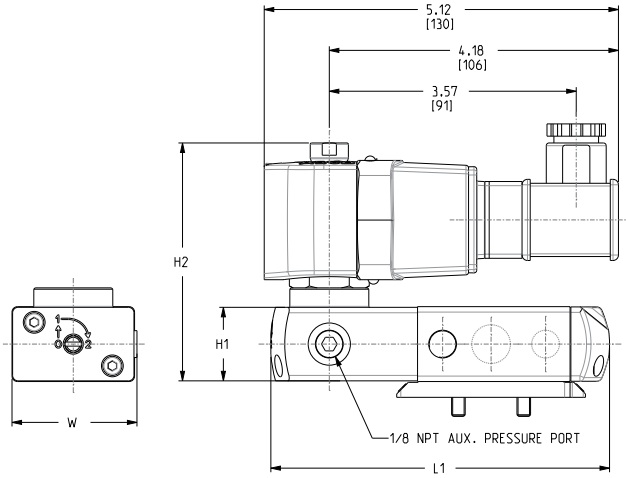
Dimensions: inches (mm)

Const. Ref. 4

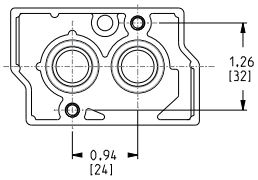


	Lead	DIN
Series	**8551**	**8551**
NPT	1/4	1/4
L1	4.96 (126)	4.96 (126)
H2	3.97 (101)	3.44 (87)
H1	1.08 (27)	1.08 (27)
W	1.77 (45)	1.77 (45)

Optional Manual Operators		
Add Suffix		**Description**
MO		Push and turn to lock with flat head screwdriver slot
MI		Momentary push in with flat head screwdriver slot
MH		Momentary push in by hand
MS		Push and turn to lock by hand



8551 NAMUR Footprint



Engineering Information

All RedHat Next Generation solenoid valves are rated for continuous duty under the operating conditions outlined within this section.

Coil Operating Voltage Ranges

All coils are designed for industrial operating voltages and can be used on the following voltage ranges:

Voltage Range	Minimum Voltage	Maximum Voltage
100-240V/50 or 60Hz/DC	85	264
24-120V/50 or 60Hz/DC	20.4	132
12-24/DC only	10.4	26.4

The coils with voltage ranges of 100-240 and 24-120 have three lead wires, 24 inches long (2 red for power input, and one green lead for grounding where necessary). These two versions are not polarity sensitive.

The coil with a voltage range of 12-24/DC has 3 lead wires, one red, one black, and one green. This coil is polarity sensitive. The red lead is the posi-tive, black is the negative, and green is the ground wire. This solenoid is also polarity protected. Reversing the polarity will not damage the coil, but the coil will not function until the correct polarity is applied.

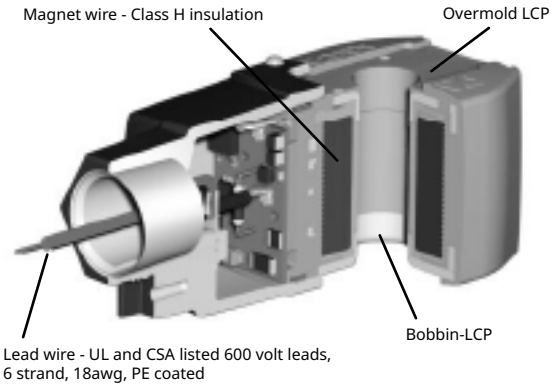
Note: The 100-240 voltage range is also suitable for battery charging circuits designed around a 125/DC nominal voltage range.

Electrical Specifications

2 Watt Electronic Coils	Type
Maximum Ambient Temperature	140˚F (60˚C)
Maximum Cycle Rate	1 Operation/ Second
Standard Coil Class of Insulation	H

Power Consumption

The Next Generation solenoid power rating is 1.2 watt of power for 12-24V DC and 1.5 watts for 24-120V AC/DC, and 100-240V AC/DC.



The advanced technology used in the Next Generation coil includes electronic circuitry which may limit the compatibility with certain control system components. The following issues need to be considered when specifying an output card or device to operate the Next Generation coil. An initial inrush current spike is drawn by the Next Generation coil. This inrush spike is 72 msec in duration, which is sufficient time for the core to reach the plugnut. The electrical requirement then drops to the holding value.

Inrush Current: The power source, wiring, and output device used need to have surge ratings equal to or greater than the inrush current value (appropriate to the voltage range) specified in the table below.

Inrush Current Rating	
Coil Version	**Peak Inrush Current (Amps)**
12-24/DC	3.2
24-120/50-60Hz/DC	1.4
100-240/50-60Hz/DC	0.32
Maximum Duration = 72 ms	

Holding Current: The power source, wiring, and output device used need to have continuous current ratings equal to or greater than the holding current value (appropriate to the voltage range) specified in the table below.

Holding Current Rating			
Coil Version	**Input Voltage**	**Average Holding Current (Amps)**	**Average Holding Volt-Amps (VA)**
12-24/DC	12	0.09	1.1
	24	0.058	1.4
24-120/50-60Hz/DC	24	0.148	3.6
	120	0.077	9.3
100-240/50-60Hz/DC	100	0.044	4.4
	240	0.032	7.8

Supervisory/Leakage Currents: The leakage current is defined as a current that is supplied from an output device when the device is in its off or de-activated state.

The Next Generation coil is suitable for systems using supervisory currents that do not exceed the drop-out currents noted in the table below.

Supervisory/Leakage Current Rating	
Coil Version	**Drop-out Current (mA)**
12-24/DC	20
24-120/50-60Hz/DC	15
100-240/50-60Hz/DC	7
Important: Supervisory and leakage currents above the drop-out current listed with cause improper operation. Consult your local ASCO Sales office for additional assistance.	

Solenoid Enclosures

The Next Generation solenoid coil is fully encapsulated using Dupont™ Zenite® Liquid Crystal Polymer resin (LCP). Zenite (LCP) is a thermoplas-tic polyester resin which exhibits several advan-tages over other thermoplastics. The advantages include excellent resistance to a wide range of organic solvents and automotive fluids*, resis-tance to impact, and long term retention of prop-erties at continuous-use temperatures.

*Chemical resistance of Zenite LCP may not be suitable for all applications. Zenite LCP is not suitable for caustic solution. Please consult ASCO for appropriate product solutions.

Zenite is a registered Trademark of Dupont Co.

RedHat Next Generation Solenoids are available as:

General Purpose/Watertight – Intended for indoor and outdoor use and provides protection classifications from NEMA Types 1 through 4X.(IP65) Available in either leaded wire or DIN Type electrical connection

Class I, Division 2 for Hazardous Locations/ Watertight – Meets Types 1 through 4X and is UL listed and CSA certified for Class I, Division 2, Groups A, B, C, and D and Class II, Division 2, Groups F and G. Operating temperature code T4A (120˚C).

Valve Specifications

Maximum Ambient Temperature

The maximum ambient temperature is 140˚F (60˚C). This limit is based on continuous energiza-tion with the maximum fluid temperatures as shown on each catalog page.

Response Time

Response time from fully closed to fully open or vice versa depends on valve size, operating mode, fluids, temperature, inlet pressure, and pressure drop. The response times for Next Generation are defined as:

- Small direct acting valves – 10 to 60 msec
- Large direct acting valves – 25 to 90 msec

Internally pilot operated valves:

- Small diaphragm types – 20 to 100 msec
- Large diaphragm types – 80 to 150 msec
- Small piston types – 80 to 150 msec
- Large piston types – 105 to 200 msec

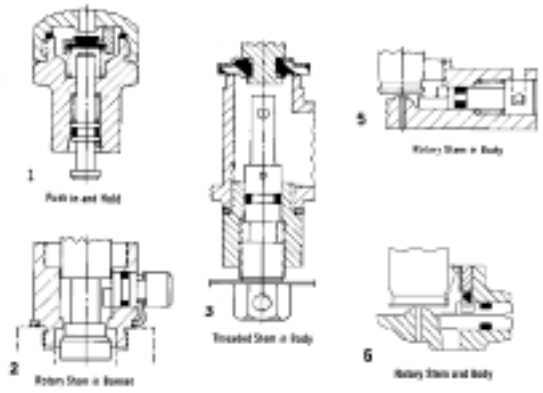
Operation on liquids has relatively little effect on small direct acting valves, however, response times of large direct acting and internally piloted valves may be lengthened by 50% to 100%.

Manual Operators

Manual operators are provided to operate the valves manually when electric actuation is not provided. There are two basic types of manual operators, momentary and maintained. To deter-mine which type of manual operator is available for your valves, please see the Optional Features Chart on the relevant valve catalog page. Once it is determined that the subject valve can accom-modate a manual operator, the chart below will tell you the type of manual operator. The chart also references the relevant cutaway illustration.

Series Number	Const. Ref	Manual Operator Sufix	Manual Operator Type	Illustration Number
8030	8	MO	Maintained	3
8210	4,7,10,11,12	MO	Maintained	2
8262	1	MS	Maintained	6
8263	1	MS	Maintained	6
8314	1	MS	Maintained	6
8316	5,6	MO	Maintained	2
8320	2	MO	Momentary	1
8320	2	MS	Maintained	6
8321	4	MO	Momentary	1
8321	4	MS	Maintained	3
8344	1,3,4	MO	Maintained	2
8345	2	MO	Maintained	5

Cutaway Illustrations



Valve Parts in Contact with Fluids						
Series	**Body**	**Seals and Discs**	**Disc Holder**	**Core Guide**	**Springs**	**Shading Coil**
8030	Brass	NBR	-	-	302 Stainless Steel	Copper
8210	304 Stainless Steel	NBR	-	-	302 Stainless Steel	Silver
	Brass	NBR	①	-	302 Stainless Steel	Copper
8223	304 Stainless Steel	PTFE, NBR	-	-	302 Stainless Steel	Silver
	Brass	NBR, PA, PTFE	-	-	302 Stainless Steel	Copper
8262	304 Stainless Steel	NBR	-	-	302 Stainless Steel	Silver
8262P261	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262R099	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262R107	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262R175	304 Stainless Steel	UR		-	302 Stainless Steel	Silver
8262R178	304 Stainless Steel	UR	-	-	302 Stainless Steel	Silver
8262	Brass	NBR	-	-	302 Stainless Steel	Copper
8262R077	Brass	LT NBR	-	-	Inconel	Copper
8262R078	Brass	LT NBR	-	POM	Inconel	Copper
8263	304 Stainless Steel	NBR	-	-	302 Stainless Steel	Copper
8263	Brass	NBR	-	-	302 Stainless Steel	Silver
8314	304 Stainless Steel	NBR, FKM	-	POM	302 Stainless Steel	Copper
8314	Brass	NBR, FKM	-	POM	302 Stainless Steel	Copper
8316	Brass	NBR	POM	POM	302, 17-7PH Stainless Steels	Copper
8317	Brass	NBR, FKM, CR	-	POM	302, 17-7PH Stainless Steels	Silver
8320	303 Stainless Steel	NBR	POM	POM	302 Stainless Steel	Copper
8320	Brass	NBR	POM	POM	302 Stainless Steel	Copper
8321	Brass	NBR	POM	POM	302 Stainless Steel	Copper
8344	Brass	NBR	POM	POM	302, 17-7PH Stainless Steels	Copper
8345	Brass	NBR, PA	-	POM	302 Stainless Steel	Copper
8551	316 Stainless Steel	NBR, PA	-	POM	302 Stainless Steel	Copper
8551	Anodized Aluminum	NBR, PA	-	POM	302 Stainless Steel	Copper

① 8210P033, 8210P034, and 8210P035 with PA Disc Holder
NOTE: All core tubes are 305 stainless steel and all cores and plugnuts are 430F stainless steel.

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