ASCO™ 1.4W Low Power Solenoid Valves

Aluminum, Brass or Stainless Steel Bodies | 1/4" to 1" NPT

SERIES
Low Power

Features

- Molded one-piece solenoid with highly efficient solenoid cartridge and special low wattage coil
- Increased ambient temperature capabilities up to 175˚F (80˚C)
- Designed for use in automation of plant control systems to provide:
  -PLC compatibility -Reduced battery drain
  -Reduced heat rise -Reduced wiring cost
- Wide selection includes 2/2 normally closed, 3/2 normally closed (including Quick Exhaust), 3/2 universal, 4/2, 5/2, & 5/3
- Air or inert gas only
- Lower-cost alternative to intrinsically safe valves in critical applications not requiring a safety barrier



Construction

Valve Parts in Contact with Fluids			
Body	Aluminum	Brass	Stainless Steel
Seals and Discs	PUR, NBR, CR, as listed		
Sleeve	304L Stainless Steel		
Core and Plugnut	430F Stainless Steel		
Core Springs	302 Stainless Steel		
Pilot Seat Cartridge (Series 8316 & 8344 only)	POM		
Rider Rings	PTFE		
Spring Retainer	POM		

Electrical

Description	Wattage	Max. Ambient Temp.	T Code Explosion-proof	Insulation Class	Prefix
Standard Ambient Version	1.4 W	140˚F (60˚C)	T6	F	-
High Ambient Version	1.8 W	176˚F (80˚C) ①	T5	H	HT
Surge Suppression Version	1.7 W	140˚F (60˚C)	T6	F	MF
Surge Suppression High Ambient Version	2.0 W	176˚F (80˚C) ①	T5	H	MH

① 165˚F (74˚C) for ATEX/IECEx versions

② **IMPORTANT:** Supervisory and leakage current above the drop out current listed will cause improper operation. Consult your local ASCO sales office for additional assistance.

Description	Wattage	Voltage (DC)	Min. Pull In (mA)	3-Way Drop Out (mA) ②	2-Way Drop Out (mA) ②	Coil resistance @ 68˚F (20˚C) (ohms)
Standard Ambient Version	1.4 W	12V	83.5	13.9	3.2	102
		24V	42.0	7.0	1.6	410
		48V	21.4	3.6	0.8	1640
		120V	8.7	1.4	0.3	10000
High Ambient Version	1.8 W	12V	94.3	15.7	3.6	80
		24V	47.9	8.0	1.8	320
		48V	24.0	4.0	0.9	1260
Surge Suppression Version (Explosion-Proof Version only)	1.7 W	12V	94.3	15.7	3.6	80
		24V	47.9	8.0	1.8	320
		48V	22.7	3.8	0.9	1470
Surge Suppression High Ambient Version (Explosion-Proof Version only, Solenoid Only Approvals)	2.0 W	12V	105.3	17.6	4.0	64
		24V	54.1	9.0	2.1	270
		48V	24.0	4.0	0.9	1260

24VDC Spare Coil P/N	Standard Ambient Temp. Version	High Ambient Temp Version
General Purpose	238710-902-D*	238910-937-D*
Explosion Proof	238714-902-D*	238914-937-D*
Explosion Proof, Corrosion Resistant	274714-902-D*	274914-937-D*
Explosion Proof, Surge Suppression	276006-006-D*	523129-106-D*
Explosion Proof, Corrosion Resistant, Surge Suppression	276007-006-D*	523130-106-D*

Ordering

Normal Ambient Version
EV8551G322 24VDC
High Ambient Version
EF**HT**8316G301 24VDC
Surge Suppression Version
EV**MF**8316G301 24VDC

Solenoid Enclosures

Standard: Watertight, Types 1, 2, 3, 3S, 4, and 4X.

Optional: Explosion-proof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9.
(To order, add prefix "EF" to catalog number.
For explosion-proof with 316 Stainless Steel hub and trim, specify prefix "EV".) Surge suppression coils also available for explosion-proof coils, use "MF" or "MH" prefix.

See Optional Features Section for other available options.

Approvals

UL & CSA approved for Class I, Div. 1 groups A,B,C,D and Class II Div. 1 groups E,F,G.

Applicable UL & CSA files:

-Ordinary location: UL MP618, CSA 10381

-Hazardous locations: UL E25549 or E12264, CSA 13976

Additionally nonincendive (Class I, Div 2)

Meets applicable CE directives.

SIL 3 capable per IEC 61508 on 8314 and 8316 constructions. Third party certification provided by EXIDA.

Refer to Engineering Section for details.

ATEX/IECEx certified with prefix "EV" as listed.

Refer to Optional Features Electrical Section for details.

Refer to catalog numbers and footnotes as applicable.

ASCO™ 1.4W Low Power Solenoid Valves

Aluminum, Brass or Stainless Steel Bodies | 1/4" to 1" NPT

Nominal Ambient Temp. Ranges

Series	Body Material	Normal Temperature Range	High Ambient Temp Version
8553	Stainless Steel	-40°F to 140°F (-40°C to 60°C)	Not Available
8551	Brass		
8553	Aluminum	-13°F to 140°F (-25°C to 60°C)	
8551		5°F to 140°F (-15°C to 60°C)	
8551	Stainless Steel	-40°F to 140°F (-40°C to 60°C)	Low Limit is the same as Normal Temperature Ratings, but High Limit is 176°F (80°C)
8262	Brass / Stainless Steel		
8314			
8317			
8316*		-20°F to 140°F (-29°C to 60°C)	
8223		-4°F to 140°F (-20°C to 60°C)	
8344	Brass only		
8316G334			

*Does not include 8316G334; Includes 8316H374. **Note**: 8553 not available in brass

Important

These solenoid valves are intended for use on clean dry air or inert gas, filtered to 40 micrometres or better. The dew point of the media should be at least 10°C (18°F) below the minimum temperature to which any portion of the clean air/inert gas system could be exposed to prevent freezing. If lubricated air is used, the lubricants must be compatible with Nitrile elastomers. Diester oils may cause operational problems. Instrument air in compliance with ANSI/ISA Standard 7.0.01-1996 exceeds the above requirements and is, therefore, an acceptable media for these valves.

Specifications English units (Metric)

Pipe Size (in)	Orifice Size in (mm)	Flow Factor Cv (Kv) Pressure to Cylinder	Flow Factor Cv (Kv) Cylinder to Exhaust	Operating Pressure Differential psi (bar) Air-Inert Gas Min.	Operating Pressure Differential psi (bar) Air-Inert Gas Max.	Max. Fluid and Ambient Temp. °F (°C)	Brass Body Catalog Number	Brass Body Const. Ref.	Stainless Steel Body Catalog Number	Stainless Steel Body Const. Ref.
2/2 VALVES, NORMALLY CLOSED, with NBR Disc										
1/4	1/16 (2)	.08 (.07)		0	150 (10)	140 (60)	8262G320	18	8262G386 ⑥⑨	18
3/8	5/16 (8)	1.5 (1.29)		10 (0.7)	150 (10)	140 (60)	8223G323	19	-	-
1/2	3/8 (10)	3.2 (2.74)		25 (1.7)	150 (10)	140 (60)	8223G303 ⑨	20	8223G310 ⑥⑨	20
3/2 VALVES, UNIVERSAL OPERATION (Normally Closed or Normally Open) with NBR Disc – SIL 3 Capable, Certified by Exida ⑦ ⑧										
1/4	1/16 (2)	.08 (.07)	.08 (.07)	0	150 (10)	140 (60)	8314G300	1	8314G301 ⑥⑨	2
3/2 VALVES, NORMALLY CLOSED (Closed when de-energized) with NBR Disc – SIL 3 Capable, Certified by Exida ⑦										
1/4	5/16 (8)	1.5 (1.29)	1.5 (1.29)	⑤	150 (10)	140 (60)	8316G301 ③⑨⑩	3	EV8316G381 ⑥⑨⑩	3
3/8	5/16 (8)	1.8 (1.37)	1.8 (1.37)	⑤	150 (10)	140 (60)	8316G302 ③⑨⑩	3	EV8316G382 ⑥⑨⑩	3
3/8	5/8 (16)	4 (3.43)	4 (3.43)	⑤	150 (10)	140 (60)	8316G303 ③⑨⑩	3A	-	-
1/2	5/8 (16)	4 (3.43)	4 (3.43)	⑤	150 (10)	140 (60)	8316G304 ③⑨⑩	3A	EV8316G384 ⑥⑨⑩	3A
3/4	11/16 (17)	5.5 (4.71)	5.5 (4.71)	10 (0.7)	150 (10)	140 (60)	8316H374 ③	4	-	-
1	1 (25)	13 (11.14)	13 (11.14)	10 (0.7)	150 (10)	140 (60)	8316G334 ③⑨	5	-	-
3/2 VALVES, UNIVERSAL (Normally Closed or Normally Open) "Quick Exhaust" with CR Diaphragm and NBR Disc										
1/4	②	.08 (.07)	.73 (.63)	5 (0.3)	150 (10)	140 (60)	8317G307 ①	6	8317G308 ①⑥	7
4/2 VALVES, with NBR Disc and Seals										
1/4	1/16 (2)	.08 (.07)	.08 (.07)	10 (0.7)	150 (10)	140 (60)	8345G301 ①③	6	EV8345G381 ①③⑥	8
4/2 VALVES, Brass Body with NBR Disc										
Pipe Size (in)	Orifice Size in (mm)	Flow Factor Cv (Kv) Pressure to Cylinder	Flow Factor Cv (Kv) Cylinder to Exhaust	Operating Pressure Differential psi (bar) Air-Inert Gas Min.	Operating Pressure Differential psi (bar) Air-Inert Gas Max.	Max. Fluid and Ambient Temp. °F (°C)	Single Solenoid Catalog Number	Single Solenoid Const. Ref.	Dual Solenoid Catalog Number	Dual Solenoid Const. Ref.
1/4	1/4 (6)	.80 (0.69)	1 (0.86)	10 (0.7)	150 (10)	140 (60)	8344G370 ①③	9	8344G344 ③	12
3/8	3/8 (10)	1.4 (1.20)	2.2 (1.89)	10 (0.7)	150 (10)	140 (60)	8344G372 ①③⑨	11	8344G380 ③⑨	10
1/2	3/8 (10)	1.4 (1.20)	2.2 (1.89)	10 (0.7)	150 (10)	140 (60)	8344G374 ①③⑨	11	8344G382 ③⑨	10
3/4	3/8 (10)	5.2 (4.46)	5.6 (4.80)	10 (0.7)	150 (10)	140 (60)	8344G376 ①③	13	8344G354 ③	14
1	3/8 (10)	5.2 (4.46)	5.6 (4.80)	10 (0.7)	150 (10)	140 (60)	8344G378 ①③	13	8344G356 ③	14

① There are two exhaust flows in the exhaust mode (pilot and main). The pilot exhaust must be connected to the main exhaust when the air or inert gas cannot be exhausted to atmosphere.

② For "Quick Exhaust" valves, pressure port is 1/16", exhaust port is 1/4".

③ **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.

⑤ Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. Minimum 15 psi (1 bar) Operating Pressure Differential when selection gasket is in the internal position.

⑥ Can be used for **dry** natural gas service with the EF or EV prefix.

⑦ Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.

⑧ SIL 3 Capable, Certified by Exida, only valid when used as Normally Closed.

⑨ ATEX/IECEx certified with prefix "EV".

⑩ Solenoid only approvals with EF or EV prefix.

Specifications English units (Metric)

Body Material	Pipe Size (in)	Orifice Size in (mm)	Flow Factor Cv (Kv)	Single Solenoid: Operating Pressure Differential (psi) Air-Inert Gas Min.	Single Solenoid: Operating Pressure Differential (psi) Air-Inert Gas Max.	Single Solenoid: Max. Fluid Temp.°F	Single Solenoid: Catalog Number	Single Solenoid: Const. Ref.	Dual Solenoid: Operating Pressure Differential psi (bar) Air-Inert Gas Min.	Dual Solenoid: Operating Pressure Differential psi (bar) Air-Inert Gas Max.	Dual Solenoid: Max. Fluid Temp. °F (°C)	Dual Solenoid: Catalog Number	Dual Solenoid: Const. Ref.
3/2, 5/2, 5/3 VALVES, with NBR and PUR Seals													
Aluminum 3/2	1/4	1/4 (6)	.86 (.7)	30 (2)	150 (10)	140 (60)	8551G305 ⑦	21	30 (2)	150 (10)	140 (60)	8551G306 ⑦	21
Aluminum 5/2							8551G317 ⑦	22				8551G318 ⑦	22
Aluminum 5/3 Center Closed							-	22				8551G367 ⑦	22
Aluminum 5/3 Center Open							-	22				8551G368 ⑦	22
Brass 3/2							EF8551G307 ②⑦	21				EF8551G308 ②⑦⑧	21
Brass 5/2							EF8551G319 ②⑦⑧	22				EF8551G320 ②⑦	22
316L Stainless Steel 3/2							EV8551G313 ③⑥⑦⑧	21				EV8551G314 ③⑥⑦⑧	21
316L Stainless Steel 5/2							EV8551G321 ③⑥⑧	22				EV8551G322 ③⑥⑧	22
Aluminum 3/2	1/2	1/2 (13)	3.7 (3.15)				8553G305 ⑦	21				8553G306 ⑦	21
Aluminum 5/2							8553G317 ⑦	22				8553G318 ⑦	22
316L Stainless Steel 3/2							EV8553G313 ③⑥⑦⑧	21				EV8553G314 ③⑥⑦⑧	21
316L Stainless Steel 5/2							EV8553G321 ③⑥⑦⑧	22				EV8553G322 ③⑥⑦⑧	22

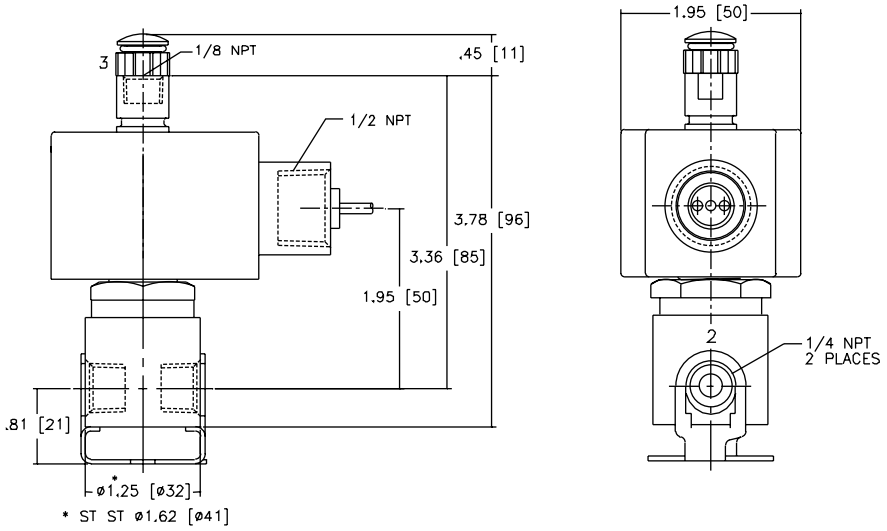
② Brass construction supplied standard with EF solenoid.
③ Stainless steel construction supplied standard with EV solenoid.
⑥ Can be used for **dry** natural gas service with the EF or EV prefix.
⑦ Solenoid only approvals with EF or EV prefix, no approvals with general purpose coil (no prefix).
⑧ ATEX/IECEx certified with prefix "EV".

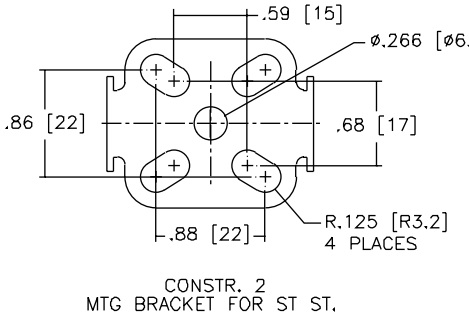
Body Material	Pipe Size (in)	Orifice Size in (mm)	Flow Factor Cv (Kv)	Single Solenoid: Operating Pressure Differential (psi) Air-Inert Gas Min.	Single Solenoid: Operating Pressure Differential (psi) Air-Inert Gas Max.	Single Solenoid: Max. Fluid Temp.°F	Single Solenoid: Catalog Number	Single Solenoid: Const. Ref.	Dual Solenoid: Operating Pressure Differential psi (bar) Air-Inert Gas Min.	Dual Solenoid: Operating Pressure Differential psi (bar) Air-Inert Gas Max.	Dual Solenoid: Max. Fluid Temp. °F (°C)	Dual Solenoid: Catalog Number	Dual Solenoid: Const. Ref.
3/2, 5/2, 5/3 VALVES, with NBR and PUR Seals, NAMUR Mount													
Aluminum 3/2, 5/2	1/4	1/4 (6)	.86 (.7)	30 (2)	150 (10)	140 (60)	8551G301 ①	23	30 (2)	150 (10)	140 (60)	8551G302 ①	23
Aluminum 5/3 Center Closed							-	-				8551G365 ⑦	24
Aluminum 5/3 Center Open							-	-				8551G366 ⑦	24
Brass 3/2, 5/2							EF8551G303 ②①⑦	23				EF8551G304 ②①⑦	23
316L Stainless Steel 3/2, 5/2							EV8551G309 ③⑥⑧	24				EV8551G310 ③⑥⑧	24
Aluminum 3/2, 5/2	1/2	1/2 (13)	3.7 (3.15)				8553G301 ⑦	24				8553G302 ⑦	24
316L Stainless Steel 3/2, 5/2							EV8553G309 ③⑥⑦⑧	24				EV8553G310 ③⑥⑦⑧	24

① 1/8" NPT exhaust for 1/4" aluminum and brass.
② Brass construction supplied standard with EF solenoid.
③ Stainless steel construction supplied standard with EV solenoid.
⑥ Can be used for **dry** natural gas service with the EF or EV prefix.
⑦ Solenoid only approvals with EF or EV prefix, no approvals with general purpose coil (no prefix).
⑧ ATEX/IECEx certified with prefix "EV".

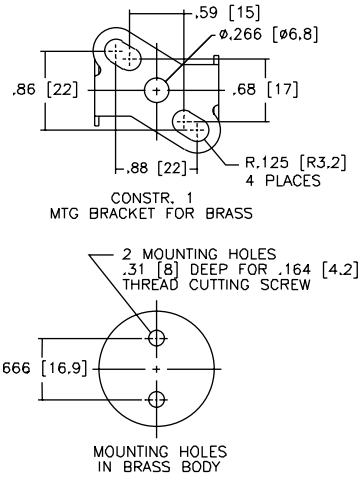
Dimensions: inches (mm)

Const. Ref. 1, 2





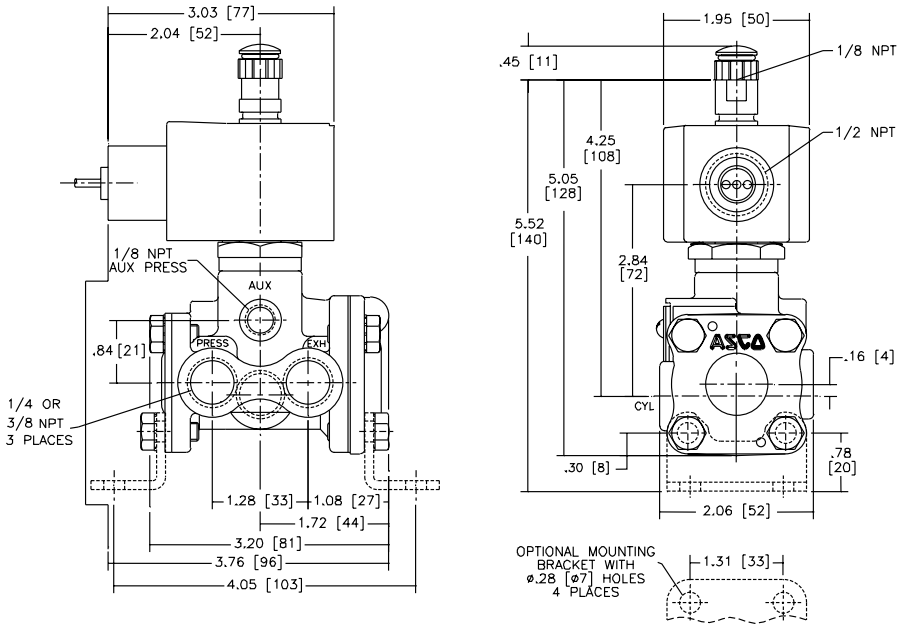
CONSTR. 2
MTG BRACKET FOR ST ST.



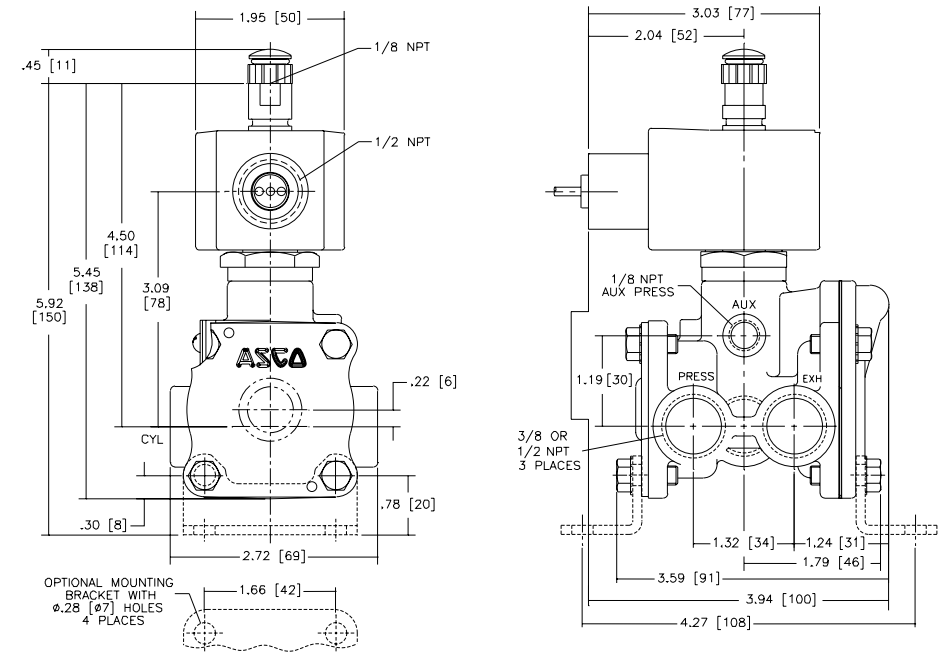
CONSTR. 1
MTG BRACKET FOR BRASS

Dimensions: inches (mm)

Const. Ref. 3



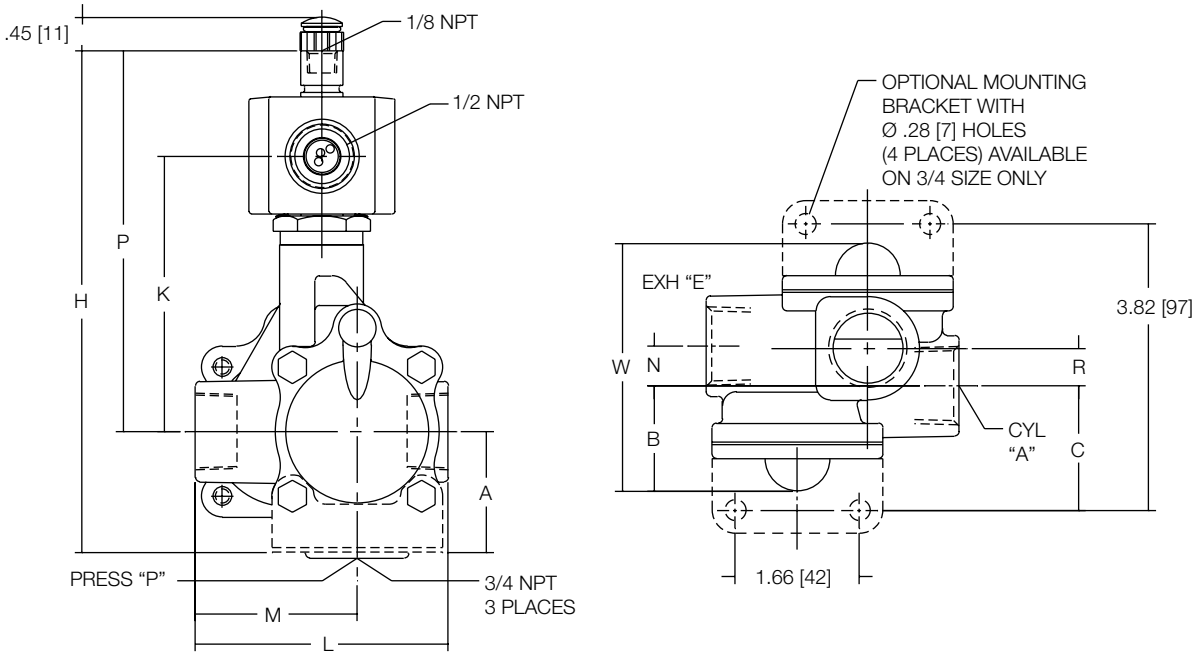
Const. Ref. 3A



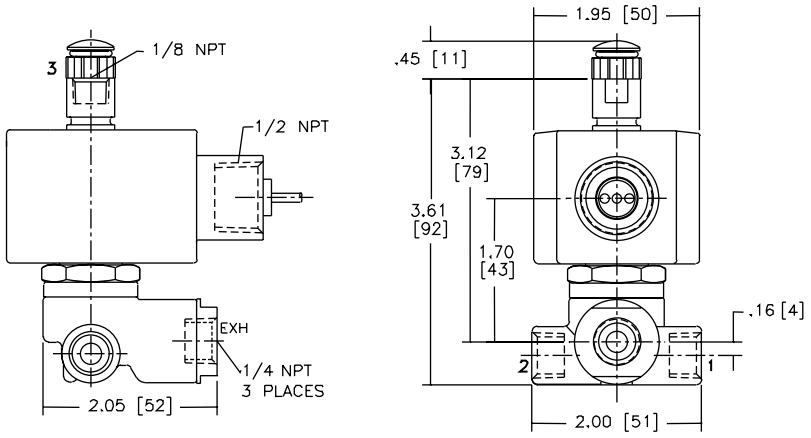
Dimensions: inches (mm)

Const. Ref.		A	B	C	H	K	L	M	N	P	R	W
4	in	1.61	1.41	1.66	6.78	3.68	3.38	2.16	.53	5.09	.50	3.31
	mm	41	36	42	172	93	86	55	13	129	13	84
5	in	X	1.78	X	7.40	3.93	4.44	2.81	.87	5.34	1.74	5.31
	mm	X	45	X	188	100	113	71	22	136	44	135

Const. Ref. 4, 5

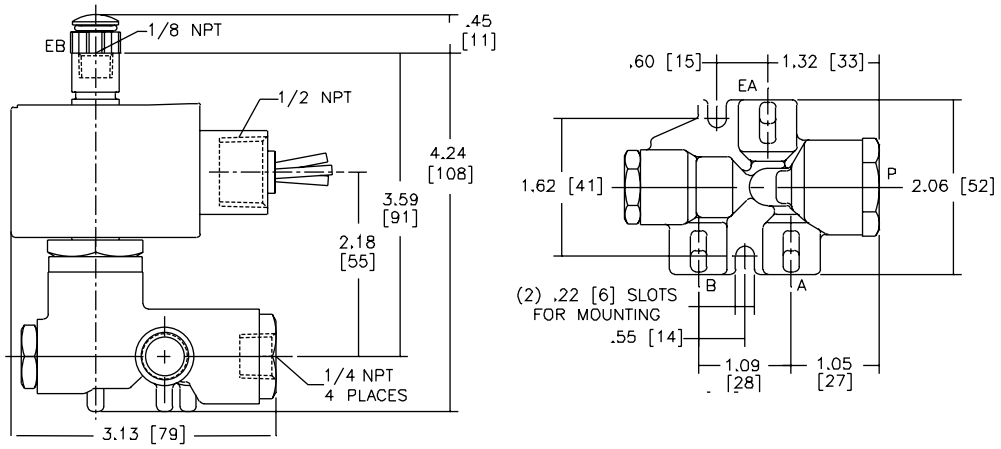


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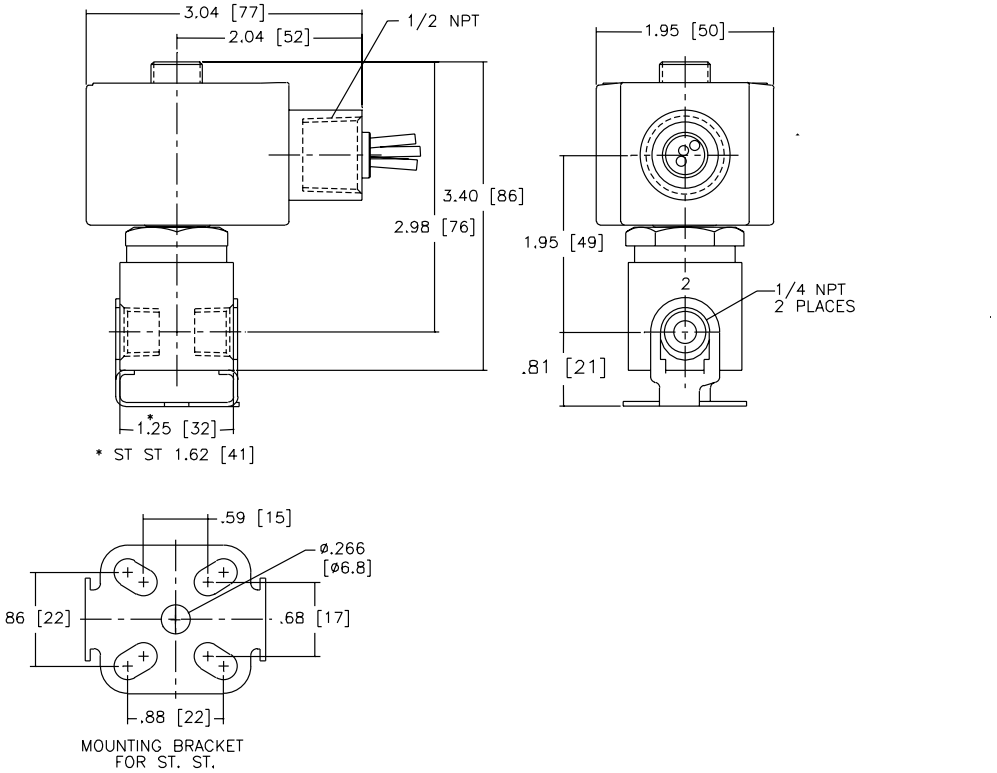


Dimensions: inches (mm)

Const. Ref. 8



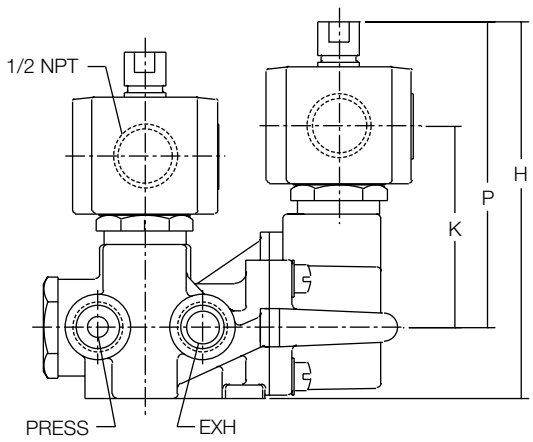
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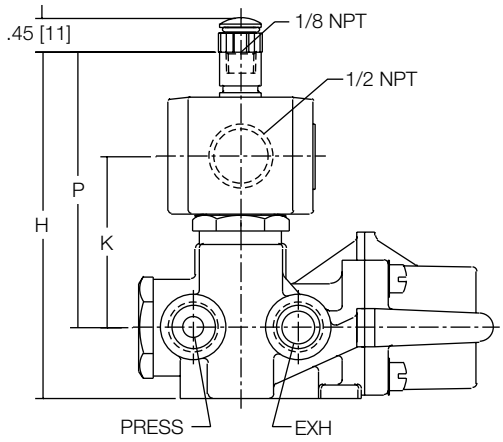


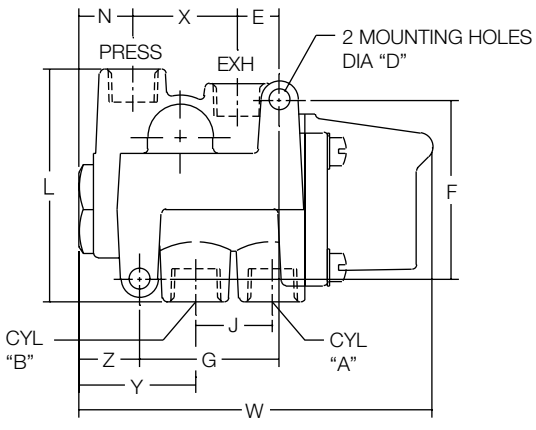
Dimensions: inches (mm)

Const. Ref.		Dia "D"	E	F	G	H	J	K	L	N	P	W	X	Y	Z	Exhaust Pipe Size
9	in	Ø .28	.56	2.41	1.88	4.67	1.03	2.30	3.12	.72	3.72	4.75	1.41	1.56	.81	3/8
	mm	7	14	61	48	119	26	58	79	18	95	121	36	40	21	
10	in	Ø .34	.76	3.12	2.62	4.89	1.50	2.11	3.18	.83	3.77	6.06	1.86	1.89	.83	1/2
	mm	9	16	79	67	118	38	70	81	21	90	154	48	49	21	
11	in	Ø .34	.76	3.12	2.62	4.65	1.50	2.11	3.18	.83	3.53	6.06	1.86	1.89	.83	1/2
	mm	9	35	97	99	138	53	54	116	40	99	210	54	67	30	
12	in	Ø .28	.56	2.41	1.88	5.06	1.03	2.71	3.12	.72	4.12	4.81	1.41	1.56	.81	3/8
	mm	7	14	61	48	129	26	69	79	18	105	122	36	40	21	
13	in	Ø .34	.78	3.12	2.62	5.27	1.50	2.49	3.19	.84	4.16	6.06	1.88	1.91	.84	1
	mm	9	16	79	67	134	38	63	81	21	106	154	48	49	21	
14	in	Ø .34	1.38	3.81	3.88	6.09	2.09	3.18	4.56	1.56	4.59	8.25	2.12	2.62	1.16	1
	mm	9	35	97	99	155	53	81	116	40	117	210	54	67	30	

Const. Ref. 9, 10, 11, 12, 13, 14



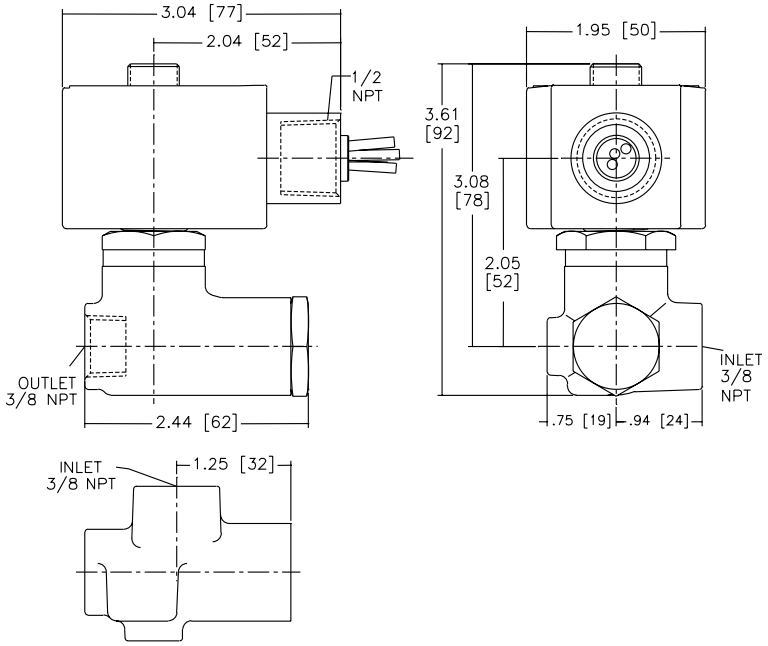




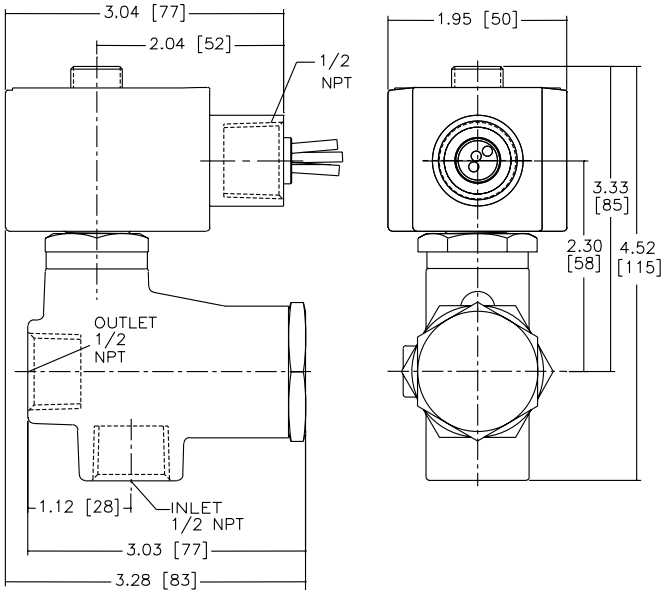
BOTTOM VIEW OF VALVE

Dimensions: inches (mm)

Const. Ref. 19



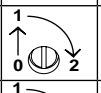
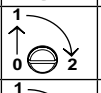
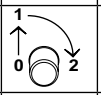
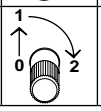
Const. Ref. 20



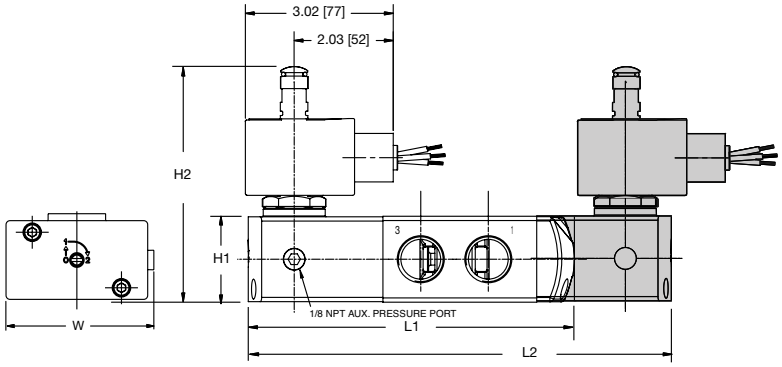
Dimensions: inches (mm)

Series	8551	8553
NPT	1/4	1/2
L1 ①	5.12 (132)	6.00 (153)
L2 ①	6.73 (171)	7.80 (198)
H2	4.38 (111)	4.77 (121)
H1	1.10 (28)	1.58 (40)
W	1.77 (45)	2.85 (72)

① Manual override option MH adds .250" (6.4), MS option adds .468" (11.9) to each solenoid endcap.

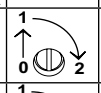
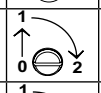
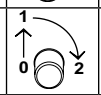
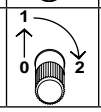
Optional Manual Operators		
Add Suffix		Description
MO		Push and turn to lock with flat head screwdriver slot
MI		Momentary push in with flat head screwdriver slot
MH		Momentary push in by hand
MS		Push and turn to lock by hand

Const. Ref. 21

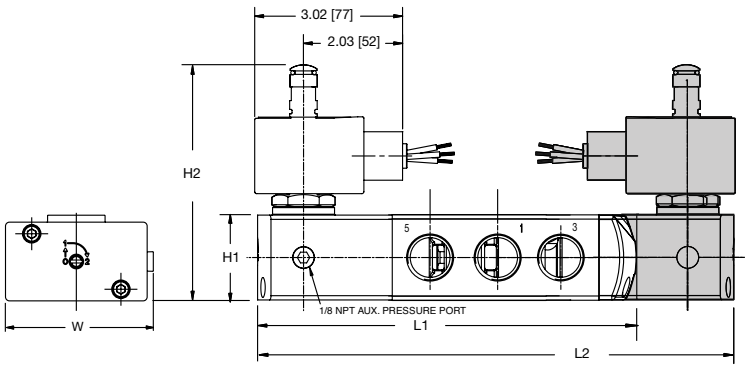


Series	8551	8553
NPT	1/4	1/2
L1 ①	5.63 (144)	7.06 (180)
L2 ①	7.20 (183)	8.86 (225)
H2	4.38 (111)	4.77 (121)
H1	1.10 (28)	1.58 (40)
W	1.77 (45)	2.85 (72)

① Manual override option MH adds .250" (6.4), MS option adds .468" (11.9) to each solenoid endcap.

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

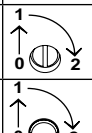
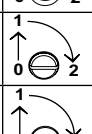
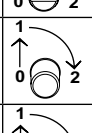
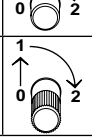
Const. Ref. 22



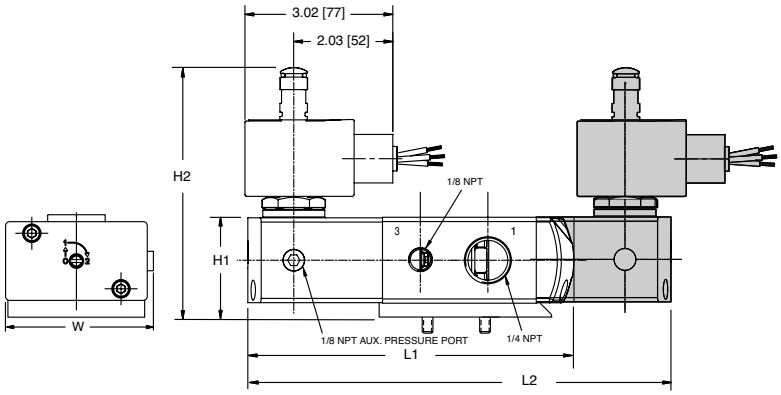
Dimensions: inches (mm)

Series	8551 (Aluminum, Brass)
NPT	1/4
L1 ①	4.96 (126)
L2 ①	6.49 (165)
H2	4.38 (111)
H1	1.57 (40)
W	1.77 (45)

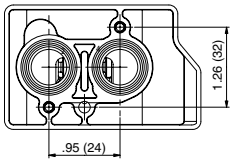
① Manual override option MH adds .250" (6.4), MS option adds .468" (11.9) to each solenoid endcap.

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. 23

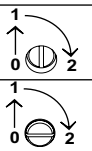
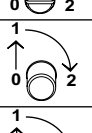
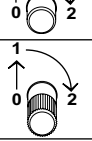


8551 NAMUR Footprint

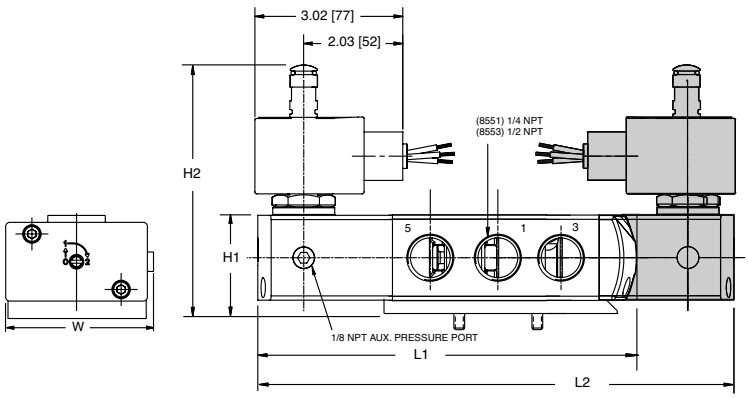


Series	8551 (316L SS)	8551 (5/3)	8553
NPT	1/4	1/4	1/2
L1 ①	5.20 (132)	-	7.08 (180)
L2 ①	6.73 (171)	7.44 (189)	8.85 (225)
H2	4.38 (111)	4.38 (111)	4.77 (121)
H1	1.57 (40)	1.57 (40)	2.08 (53)
W	1.77 (45)	1.77 (45)	2.87 (73)

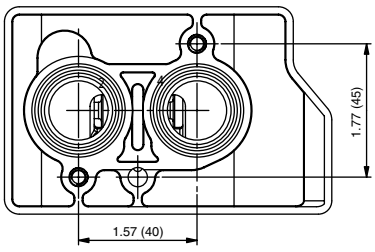
① Manual override option MH adds .250" (6.4), MS option adds .468" (11.9) to each solenoid endcap.

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. 24



8553 NAMUR Footprint



8551 NAMUR Footprint

