

Features

- Available in 4 different coil terminations
- H Class coil construction
- Designed solely for installation in intrinsically safe or NIFW areas, with properly approved and sized limiting barriers
- Compatible with supervisory current applications
- Mountable in any position

Enclosure Ratings

Catalog Prefix	Description	Enclosure Type Rating	Enclosure IP Rating
IS	1/2" NPT Conduit	4, 4X	IP66
		6, 6P	IP67
JPIS	Aluminum Junction Box with 1/2" NPT Conduit	4, 4X	IP66
		6, 6P	IP67
JSIS	316L Stainless Steel Junction Box with 1/2" NPT Conduit	4, 4X	IP66
		6, 6P	IP67
ISVT	5-Pin (Male M12)	NA	IP20
ISSC	DIN (Form A)	NA	IP20

Valve Construction

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

Electrical

Nominal voltage before the barrier – 24VDC +/- 10%.

IMPORTANT: Maximum allowable "Off" state leakage current or supervisory current is 1.6mA.

I_{loop} - Loop current in the circuit, which may be calculated as follows:

$$I_{loop} = \frac{V_{supply}}{(R_{coil} + R_{loop} + R_{barrier})}$$

Where: R_{coil} - The resistance of the solenoid coil at $T_{ambient}$ in degrees C

$$R_{coil} = 320 \text{ ohms} \times \frac{(T_{ambient} + 234)}{254}$$

R_{loop} - Resistance of the lead wires

$R_{barrier}$ - Internal resistance of the barrier

V_{supply} - Supply voltage

This current must always be greater than or equal to 0.030 amps for proper operation of the solenoid valve.



24VDC Spare Coil Part Number	
IS	298006-002-D*
ISSC, JPIS, JSIS	298008-002-*
ISVT	272401-047-*
Note: For 12VDC, 48VDC and 125VDC coil PN consult factory	

SPECIAL SERVICE
PILOT

Ordering Information

Example:

With Junction Box – JPIS8314B300

With 316L Stainless Steel Junction Box – JSIS8314B300

With Conduit – IS8314B300

With Quick Disconnect – ISVT8314B300

With DIN Connection – ISSC8314B300
(Connector not included)

Approvals

FM and CSA approved for IS - Class I, Div. 1 & 2, Groups A, B, C, and D; Class II, Groups E, F, and G. Approved for NIFW - Class I, Div. 2

FM (US & Canada) approved under 3037789 & 3037789C
CSA certified under File 13976, Class 3228-01 (Certificate 1099243)

ATEX Approved for:
II 1 G Ex ia IIC T6 Ga under FM10ATEX0015X

IECEx Approved for:
Ex ia IIC T6 Ga under IECExFMG10.0008X

Meets applicable CE directives.

Refer to Engineering Section for details.

Entity Parameters

$V_{max} = 32 \text{ VDC}$ $C_i = 0 \text{ nF}$

$I_{max} = 500 \text{ mA}$ $L_i = 0 \text{ mH}$

$P_i = 1.5 \text{ W}$

Nominal Ambient Temp. Ranges

Series	Body Material	Temperature Range
8553	Stainless Steel	-40°F to 140°F (-40°C to 60°C)
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 149°F (-40°C to 65°C)
8314	Brass / Stainless Steel	
8317		
8316*		
8316 (Suffix V)		-20°F to 149°F (-29°C to 65°C)
		32°F to 149°F (0°C to 65°C)
8344	Brass only	-4°F to 149°F (-20°C to 65°C)
8316B334		

*Does not include 8316B334; Includes 8316B374

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)

SPECIAL SERVICE
PILOT

Pipe Size (in)	Orifice Size (in)	Cv Flow Factor		Operating Pressure Differential (psi)		Max. Fluid and Ambient Temp. °F	Brass Body		Stainless Steel Body	
				Air-Inert Gas			Catalog Number	Const. Ref.	Catalog Number	Const. Ref.
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.					
3/2 VALVES, UNIVERSAL OPERATION (Normally Closed or Normally Open) with NBR Disc – SIL 3 Capable, Certified by Exida ⑦ ⑧										
1/4	1/20	.06	.06	0	130/105 ⑥	149	JPIS8314B300	4	JPIS8314B301	5
3/2 VALVES, NORMALLY CLOSED (Closed when de-energized) with NBR Disc or FKM (Suffix V), as Listed – SIL 3 Capable, Certified by Exida ⑧										
1/4	5/16	1.5	1.5	⑤	130	149	JPIS8316B301 ③	6	JPIS8316B381V ④	6
3/8	5/16	1.8	1.8	⑤	130	149	JPIS8316B302 ③	6	JPIS8316B382V ④	6
3/8	5/8	4	4	⑤	130	149	JPIS8316B303 ③	6	-	-
1/2	5/8	4	4	⑤	130	149	JPIS8316B304 ③	6	JPIS8316B384V ④	6
3/4	11/16	5.5	5.5	10	130	149	JPIS8316B374 ③	7	-	-
1	1	13	13	10	130	149	JPIS8316B334 ③	8	-	-
3/2 VALVES, UNIVERSAL (Normally Closed or Normally Open) "Quick Exhaust" with NBR Diaphragm and NBR Disc										
1/4	②	.06	.73	5	130	149	JPIS8317B307 ①	9	JPIS8317B308 ①	10
4/2 VALVES, Brass Body with NBR Disc										
Pipe Size (in)	Orifice Size (in)	Cv Flow Factor		Operating Pressure Differential (psi)		Max. Fluid and Ambient Temp. °F	Single Solenoid			
				Air-Inert Gas			Catalog Number	Const. Ref.		
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.					
1/4	1/4	.80	1	10	130	149	JPIS8344B370 ①③	11		
3/8	3/8	1.4	2.2	10	130	149	JPIS8344B372 ①③	13		
1/2	3/8	1.4	2.2	10	130	149	JPIS8344B374 ①③	13		
3/4	3/4	5.2	5.6	10	130	149	JPIS8344B376 ①③	15		
1	3/4	5.2	5.6	10	130	149	JPIS8344B378 ①③	15		

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 1/20"; 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.

④ Diaphragm and main disc FKM only (pilot is low-temperature NBR).

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

⑥ Normally closed = 130 psi. Normally open = 105 psi.

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

⑧ SIL 3 Capable per IEC 61508, Certified by Exida, only valid when used as Normally Closed.

Specifications (English units)

Body Material	Pipe Size (in)	Orifice Size (in)	Cv Flow Factor	Single Solenoid – SIL 3 Capable, Certified by Exida ①					Dual Solenoid				
				Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.
				Min.	Max.	Min.	Max.	Min.	Max.				
3/2, 5/2, 5/3 VALVES, with NBR and PUR Seals													
Aluminum 3/2	1/4	1/4	.86	35	130	149	JPIS8551B305	17	30	130	149	JPIS8551B306	17
Aluminum 5/2							JPIS8551B317	18				JPIS8551B318	18
Aluminum 5/3 Center Closed							-	18				JPIS8551B367	18
Aluminum 5/3 Center Open							-	18				JPIS8551B368	18
Brass 3/2							JPIS8551B307	17				JPIS8551B308	17
Brass 5/2							JPIS8551B319	18				JPIS8551B320	18
316L Stainless Steel 3/2							JPIS8551B313	17				JPIS8551B314	17
316L Stainless Steel 5/2							JPIS8551B321	18				JPIS8551B322	18
Aluminum 3/2	1/2	1/2	3.7	35	130	149	JPIS8553B305	17	30	130	149	JPIS8553B306	17
Aluminum 5/2							JPIS8553B317	18				JPIS8553B318	18
316L Stainless Steel 3/2							JPIS8553B313	17				JPIS8553B314	17
316L Stainless Steel 5/2							JPIS8553B321	18				JPIS8553B322	18

① Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.

① Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.

Body Material	Pipe Size (in)	Orifice Size (in)	Cv Flow Factor	Single Solenoid – SIL 3 Capable, Certified by Exida ②					Dual Solenoid				
				Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.	Operating Pressure Differential (psi)		Max. Fluid Temp. °F	Catalog Number	Const. Ref.
				Air-Inert Gas					Air-Inert Gas				
				Min.	Max.				Min.	Max.			
				Min.	Max.				Min.	Max.			
3/2, 5/2, 5/3 VALVES, with NBR and PUR Seals, NAMUR Mount													
Aluminum 3/2, 5/2	1/4	1/4	.86	35	130	149	JPIS8551B301 ①	19	30	130	149	JPIS8551B302 ①	19
Aluminum 5/3 Center Closed							-	-				JPIS8551B365	20
Aluminum 5/3 Center Open							-	-				JPIS8551B366	20
Brass 3/2, 5/2							JPIS8551B303 ①	19				JPIS8551B304 ①	19
316L Stainless Steel 3/2, 5/2	1/2	1/2	3.7	35	130	149	JPIS8551B309	20	30	130	149	JPIS8551B310	20
Aluminum 3/2, 5/2							JPIS8553B301	20				JPIS8553B302	20
316L Stainless Steel 3/2, 5/2							JPIS8553B309	20				JPIS8553B310	20
① 1/8" NPT exhaust for 1/4" aluminum and brass. ② Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.													

① 1/8" NPT exhaust for 1/4" aluminum and brass.

② Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.

Specifications (Metric units)

Pipe Size (in)	Orifice Size (mm)	Kv Flow Factor (m³/h)		Operating Pressure Differential (bar)		Max. Fluid and Ambient Temp. °C	Brass Body		Stainless Steel Body		
				Air-Inert Gas			Catalog Number	Const. Ref.	Catalog Number	Const. Ref.	
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.						
3/2 VALVES, UNIVERSAL OPERATION (Normally Closed or Normally Open) with NBR Disc – SIL 3 Capable, Certified by Exida ⑦ ⑧											
1/4	1.3	.05	.05	0	9/7 ⑥	65	JPIS8314B300	4	JPIS8314B301	5	
3/2 VALVES, NORMALLY CLOSED (Closed when de-energized) with NBR Disc or FKM (Suffix V), as Listed – SIL 3 Capable, Certified by Exida ⑧											
1/4	8	1.3	1.3	⑤	9	65	JPIS8316B301 ③	6	JPIS8316B381V ④	6	
3/8	8	1.6	1.6	⑤	9	65	JPIS8316B302 ③	6	JPIS8316B382V ④	6	
3/8	16	3.5	3.5	⑤	9	65	JPIS8316B303 ③	6	-	-	
1/2	16	3.5	3.5	⑤	9	65	JPIS8316B304 ③	6	JPIS8316B384V ④	6	
3/4	17	4.7	4.7	0.7	9	65	JPIS8316B374 ③	7	-	-	
1	25	11.2	11.2	0.7	9	65	JPIS8316B334 ③	8	-	-	
3/2 VALVES, UNIVERSAL (Normally Closed or Normally Open) "Quick Exhaust" with NBR Diaphragm and NBR Disc											
1/4	②	.07	.63	0.3	9	65	JPIS8317B307 ①	9	JPIS8317B308 ①	10	
4/2 VALVES, Brass Body with NBR Disc											
Pipe Size (in)	Orifice Size (mm)	Kv Flow Factor (m³/h)		Operating Pressure Differential (bar)		Max. Fluid and Ambient Temp. °C	Single Solenoid				
				Air-Inert Gas			Catalog Number	Const. Ref.			
		Pressure to Cylinder	Cylinder to Exhaust	Min.	Max.						
1/4	6	.69	.86	0.7	9	65	JPIS8344B370 ①③	11			
3/8	10	1.2	1.9	0.7	9	65	JPIS8344B372 ①③	13			
1/2	10	1.2	1.9	0.7	9	65	JPIS8344B374 ①③	13			
3/4	19	4.5	4.8	0.7	9	65	JPIS8344B376 ①③	15			
1	19	4.5	4.8	0.7	9	65	JPIS8344B378 ①③	15			
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 1.3 mm, exhaust port is 6.4 mm. 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. ④ Diaphragm and main disc FKM only (pilot is low-temperature NBR). ⑤ Zero minimum when valve selection gasket is in external position and proper auxiliary air pressure is applied. Minimum 1.0 bar Operating Pressure Differential when selection gasket is in the internal position. ⑥ Normally closed = 9 bar / Normally open = 7 bar. ⑦ Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available. ⑧ SIL 3 Capable per IEC 61508, Certified by Exida, only valid when used as Normally Closed.											

Specifications (Metric units)

Body Material	Pipe Size (in)	Orifice Size (mm)	Kv Flow Factor (m³/h)	Single Solenoid – SIL 3 Capable, Certified by Exida ①					Dual Solenoid				
				Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Catalog Number	Const. Ref.	Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Catalog Number	Const. Ref.
				Air-Inert Gas					Air-Inert Gas				
				Min.	Max.				Min.	Max.			
3/2, 5/2, 5/3 VALVES, with NBR and PUR Seals													
Aluminum 3/2	1/4	6	.74	2.4	9	65	JPIS8551B305	17	2	9	65	JPIS8551B306	17
Aluminum 5/2							JPIS8551B317	18				JPIS8551B318	18
Aluminum 5/3 Center Closed							-	18				JPIS8551B367	18
Aluminum 5/3 Center Open							-	18				JPIS8551B368	18
Brass 3/2							JPISF8551B307	17				JPIS8551B308	17
Brass 5/2							JPIS8551B319	18				JPIS8551B320	18
316L Stainless Steel 3/2							JPIS8551B313	17				JPIS8551B314	17
316L Stainless Steel 5/2							JPIS8551B321	18				JPIS8551B322	18
Aluminum 3/2	1/2	13	3.2	2.4	9	65	JPIS8553B305	17	2	9	65	JPIS8553B306	17
Aluminum 5/2							JPIS8553B317	18				JPIS8553B318	18
316L Stainless Steel 3/2							JPIS8553B313	17				JPIS8553B314	17
316L Stainless Steel 5/2							JPIS8553B321	18				JPIS8553B322	18
① Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.													

① Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.

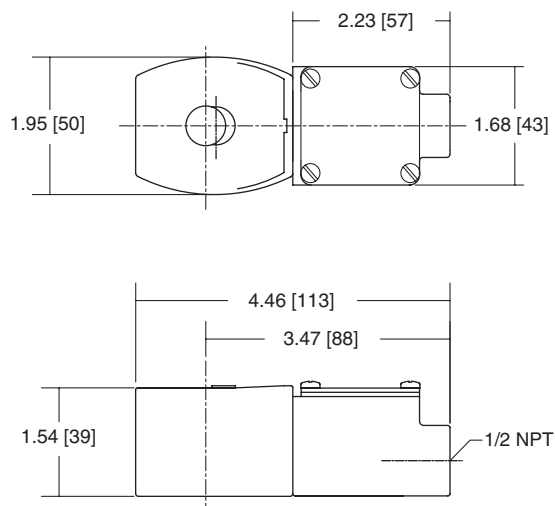
Body Material	Pipe Size (in)	Orifice Size (mm)	Kv Flow Factor (m³/h)	Single Solenoid – SIL 3 Capable, Certified by Exida ②					Dual Solenoid				
				Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Catalog Number	Const. Ref.	Operating Pressure Differential (bar)		Max. Fluid Temp. °C	Catalog Number	Const. Ref.
				Air-Inert Gas					Air-Inert Gas				
				Min.	Max.				Min.	Max.			
				Min.	Max.				Min.	Max.			
3/2, 5/2, 5/3 VALVES, with NBR and PUR Seals, NAMUR Mount													
Aluminum 3/2, 5/2	1/4	6	.74	2.4	9	65	JPIS8551B301 ①	19	2	9	65	JPIS8551B302 ①	19
Aluminum 5/3 Center Closed							-	-				JPIS8551B365	20
Aluminum 5/3 Center Open							-	-				JPIS8551B366	20
Brass 3/2, 5/2							JPIS8551B303 ①	19				JPIS8551B304 ①	19
316L Stainless Steel 3/2, 5/2	1/2	13	3.2	2.4	9	65	JPIS8551B309	20	2	9	65	JPIS8551B310	20
Aluminum 3/2, 5/2							JPIS8553B301	20				JPIS8553B302	20
316L Stainless Steel 3/2, 5/2							JPIS8553B309	20				JPIS8553B310	20
① 1/8" NPT exhaust for 1/4" aluminum and brass. ② Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.													

① 1/8" NPT exhaust for 1/4" aluminum and brass.

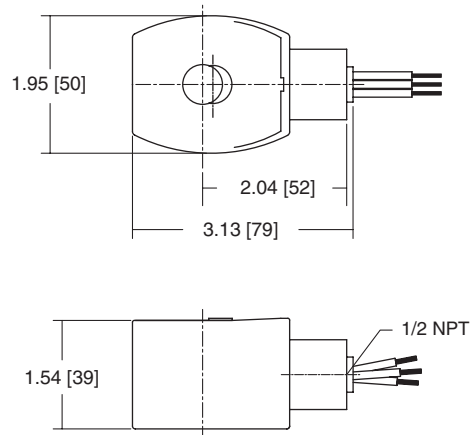
② Safety manual and FMEDA (Failure Modes Effects and Diagnostic Analysis) report available.

Dimensions: inches (mm)

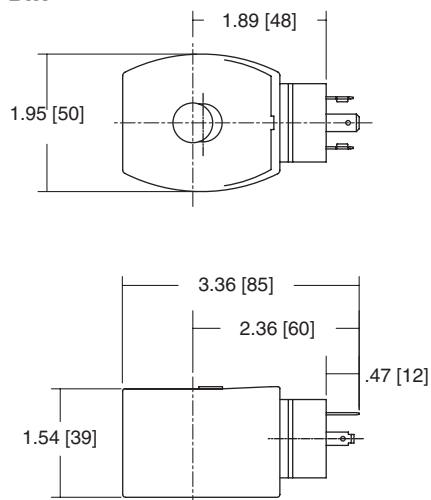
JUNCTION BOX



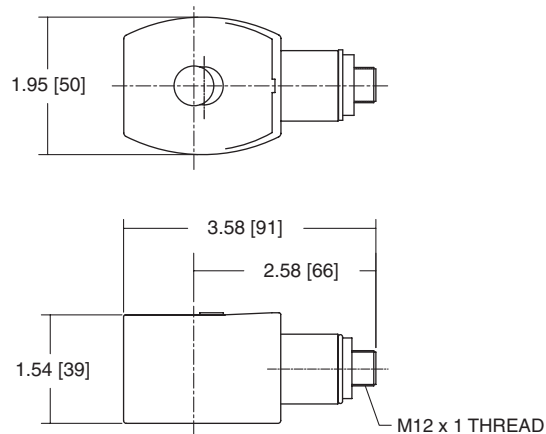
CONDUIT



DIN

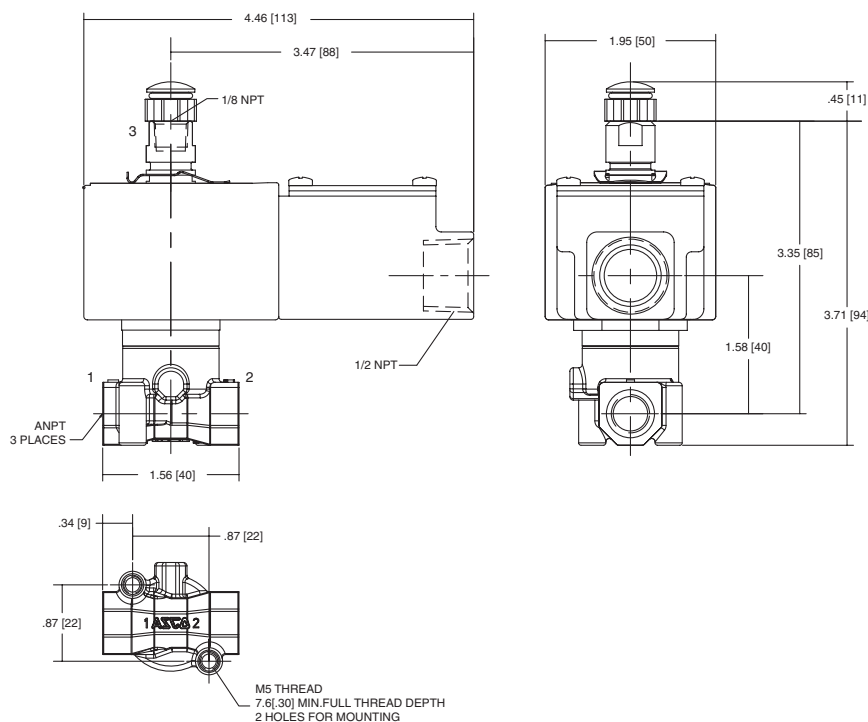


MULTIPIN



Dimensions: inches (mm)

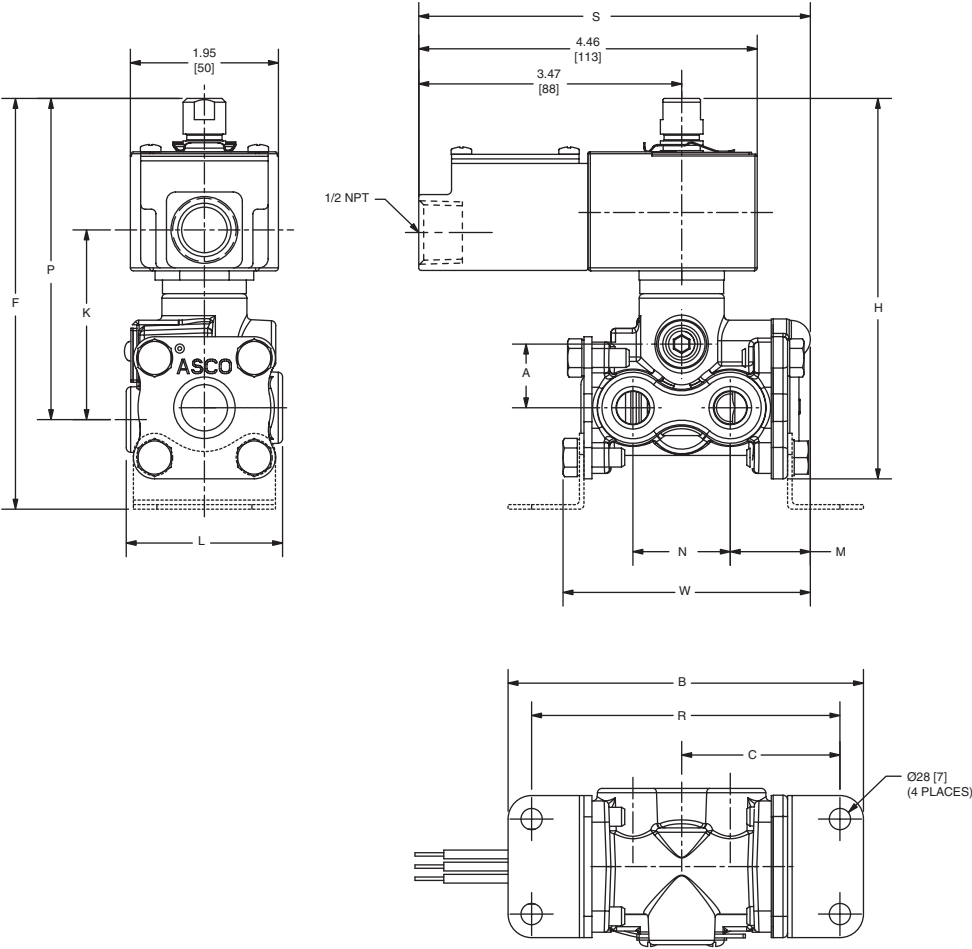
Const. Ref. 4, 5



Dimensions: inches (mm)

Catalog Number		A	B	C	F	H	K	L	M	N	P	R	S	W
JPIS8316B301, 302	in	.84	4.68	2.08	5.41	5.01	2.47	2.60	1.06	1.28	4.23	4.06	5.16	3.26
	mm	21	119	53	137	127	63	52	27	33	108	103	131	83
JPIS8316B303, 304	in	1.19	4.88	2.18	5.90	5.40	2.72	2.72	1.24	1.32	4.48	4.26	5.36	3.59
	mm	30	124	56	150	137	69	69	31	34	114	108	136	91
JPIS8316B381, 382	in	1.00	4.71	1.98	5.57	5.17	2.47	2.06	1.08	1.28	4.24	4.09	5.19	3.28
	mm	25	120	50	141	131	63	52	27	33	108	104	132	83
JPIS8316B384	in	1.11	4.88	2.18	5.98	5.48	2.58	2.72	1.24	1.32	4.34	4.26	5.37	3.59
	mm	28	124	55	152	139	66	69	31	34	110	108	136	91

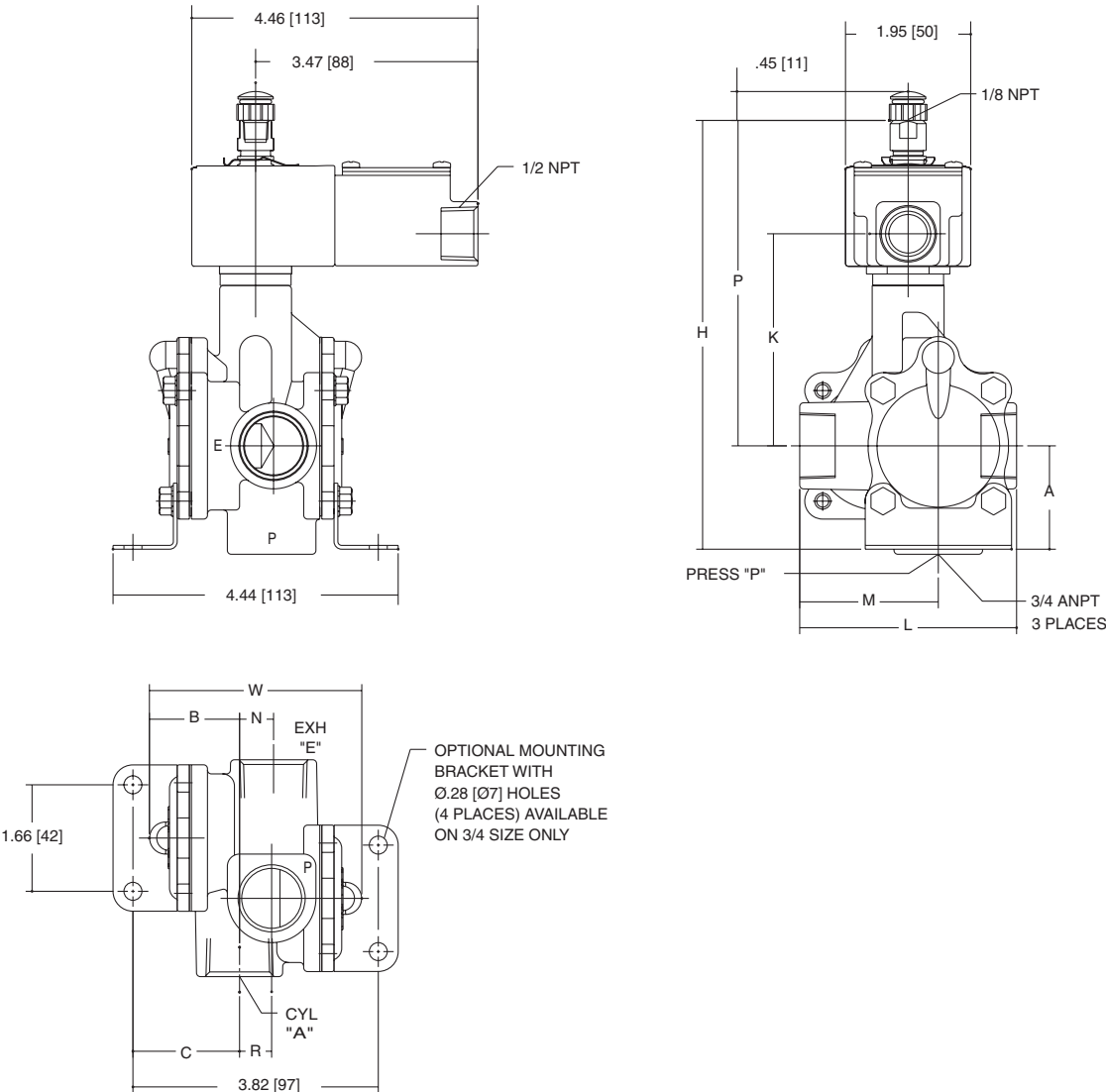
Const. Ref. 6



Dimensions: inches (mm)

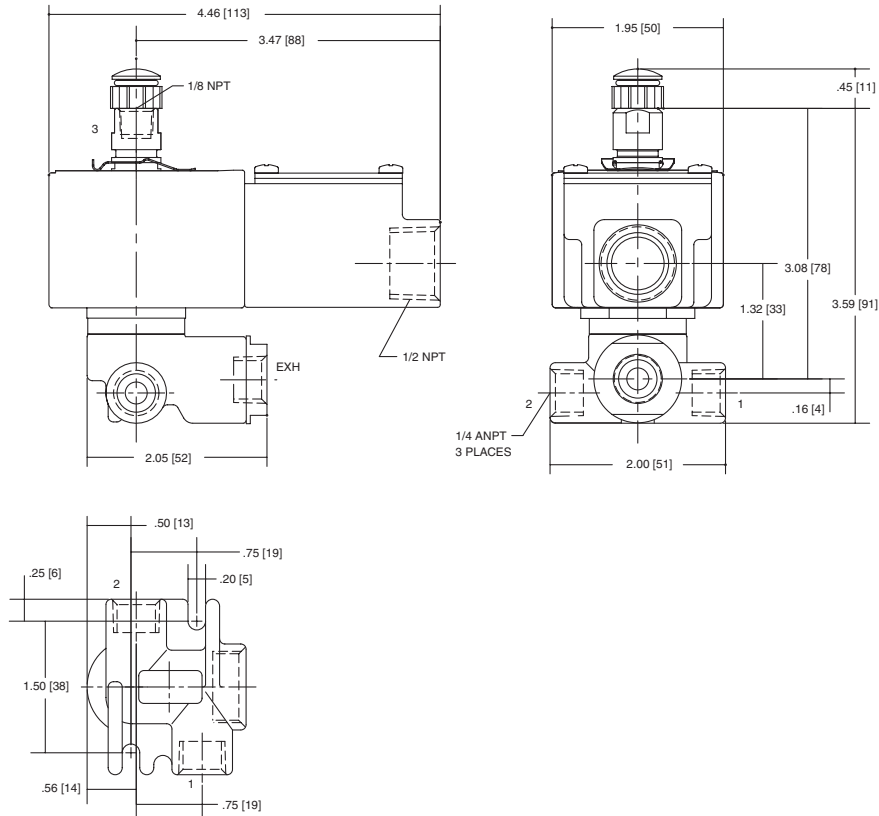
Const. Ref.		A	B	C	H	K	L	M	N	P	R	W
7	in	1.61	1.41	1.66	6.78	3.31	3.38	2.16	.53	5.09	.50	3.31
	mm	41	36	42	172	84	86	55	13	129	13	84
8	in	2.06	1.78	-	7.40	3.56	4.44	2.70	.87	5.34	1.74	5.31
	mm	52	45	-	188	90	113	69	22	136	44	135

Const. Ref. 7, 8



Dimensions: inches (mm)

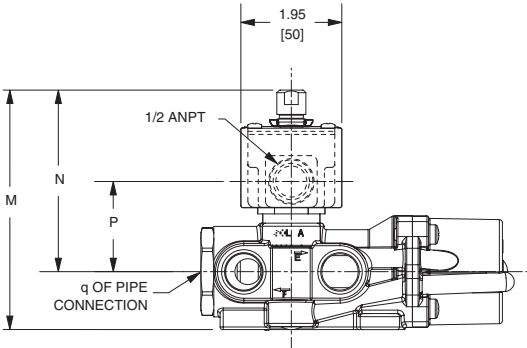
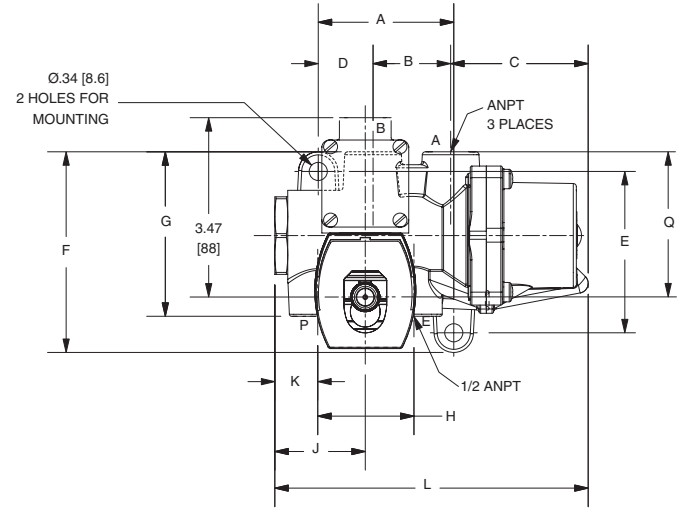
Const. Ref. 9. 10



Dimensions: inches (mm)

Catalog Number		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
JPIS8344B370	in	1.88	1.03	2.15	0.72	2.41	3.21	3.13	1.41	1.36	0.72	4.71	4.65	3.70	1.93	2.22
	mm	48	26	55	18	61	82	80	36	35	18	120	118	94	49	57
JPIS8344B372, 374	in	2.62	1.50	2.66	1.06	3.12	3.88	3.18	1.86	1.75	0.83	6.06	4.63	3.51	1.75	2.81
	mm	67	38	68	27	79	99	81	47	45	21	154	118	89	44	71
JPIS8344B376, 378	in	3.89	2.10	3.53	1.48	3.79	4.69	4.56	2.12	2.49	1.52	8.22	5.41	3.86	2.10	3.38
	mm	99	53	90	38	96	119	116	54	63	39	209	137	98	53	86

Const. Ref. 11, 13, 15



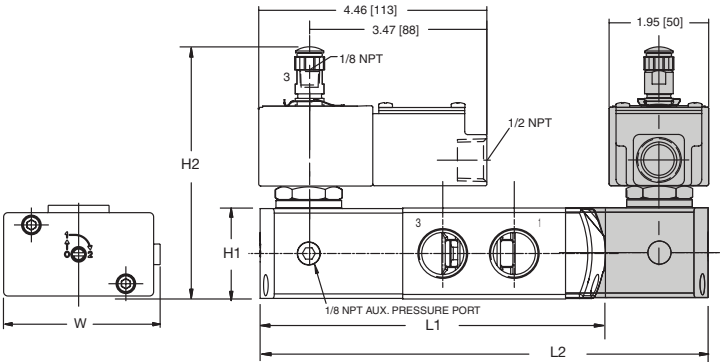
Dimensions: inches (mm)

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)

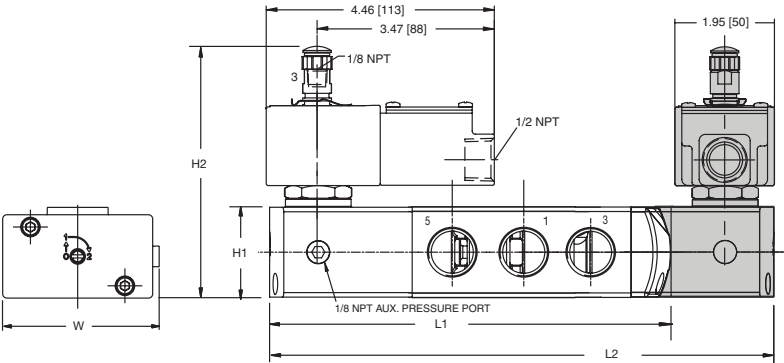
① Manual override option MH adds .250" (6.4),
MS option adds .468" (11.9) to each solenoid endcap.

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. 17



Const. Ref. 18



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

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.

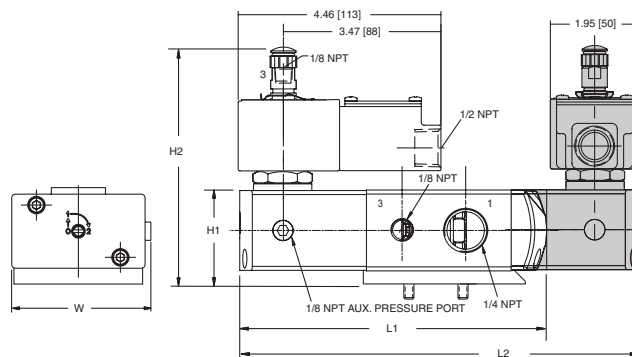
Optional Manual Operators		
Add Suffix		Description
MO		Push and turn to lock with flat head screwdriver slot
MI		Momentary push in with flat head screwdriver slot
MH		Momentary push in by hand
MS		Push and turn to lock by hand

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)

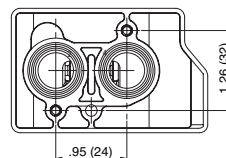
① Manual override option MH adds .250" (6.4),
MS option adds .468" (11.9) to each solenoid endcap.

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

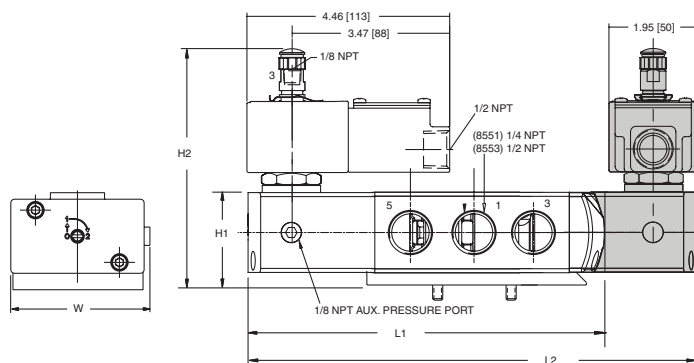
Const. Ref. 19



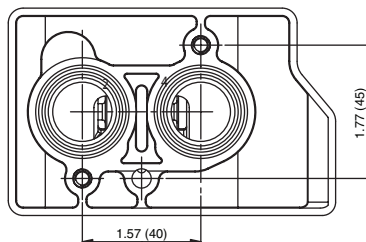
8551 NAMUR Footprint



Const. Ref. 20



8553 NAMUR Footprint



8551 NAMUR Footprint

