



1/4" to 2" Air Pilot Actuated
2/2, 3/2, & 4/2 In-line
and Sub-base Valves

- High flow - Cv of 1.2 to 49.5
- Durable, robust construction
- Two mounting styles: inline or sub-base
- 1/4" to 2" ports (BSPP, PTF, or ISO Rc threads)
- Wide range of Air Pilot Operators available
- Four functional types: available in 2/2, 3/2, 3/2 multi-directional and 4/2 configurations



Technical Data

Medium:

Filtered and lubricated or non-lubricated compressed air or vacuum.

Operation:

Poppet valve air pilot actuated.

Mounting:

Through-holes in valve body and sub-base.

Port Size:

1/4" to 2" BSPP, PTF, or ISO Rc.

Operating Pressure:

Maximum 20.7 bar (300 psig). For details see overleaf.

Flow Characteristics:

Basic Size	Function	l/min	Cv
1/4"	3/2 & 4/2	984 - 2,435	1.2 - 1.8
1/2"	2/2, 3/2 & 4/2	3,398 - 6,230	3.2 - 5.8
1"	2/2, 3/2 & 4/2	4,474 - 15,348	10.3 - 17.7
2"	2/2 & 3/2	38,228 - 54,085	39.6 - 49.5

Contact Technical Service for additional flow information.

Operating Temperature:

-29°C to 79°C (-20°F to 175°F)

Consult Technical Service for use below +2°C (35°F).

Materials:

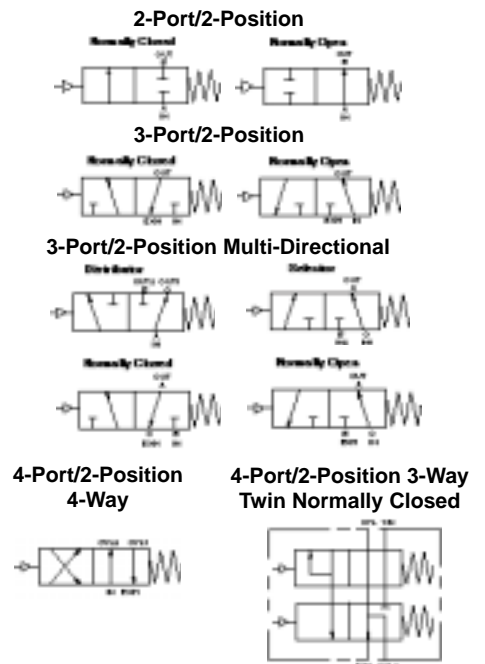
Body: Aluminum alloy body, piston, poppets and sub-base.

Operators: Zinc or aluminum air pilot operators.

Elastomers: Nitrile rubber seals. (Fluorocarbon seals are optional, contact Technical Services.)

Ordering Information

To order standard poppet valves with air pilot operators, quote model number from tables overleaf, e.g. order D1024C-00-A1 for a 3-port, 2-position, normally closed, Air Pilot Operated Spring Return model.



This example shows a 3-way normally closed valve.





Air Pilot Operated Spring Return In-line and Sub-base Valves

General Information

2-Port/2-Position (2 way) In-line, Normally Closed

Below listed operators are single air operators with spring returns. For other options see page 6.

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kit††	For Details see page
	1/2"	1/4"	A*012C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
		3/8"	A*013C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
		1/2"	A*014C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
		3/4"	A*015C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
	1"	3/4"	A*025C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.68 (3.69)	53475-01	8 and 13
		1"	A*026C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.68 (3.69)	53475-01	8 and 13
		1-1/4"	A*027C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.68 (3.69)	53475-01	8 and 13
	2"	1-1/2"	A*038C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	3.65 (8.05)	53822-01	8 and 13
		2"	A*039C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	3.65 (8.05)	53822-01	8 and 13

2-Port/2-Position (2 way) In-line, Normally Open

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kit††	For Details see page
	1/2"	1/4"	B*012C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
		3/8"	B*013C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
		1/2"	B*014C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
		3/4"	B*015C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.69 (1.51)	53474-03	8 and 13
	1"	3/4"	B*025C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.68 (3.69)	53475-01	8 and 13
		1"	B*026C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.68 (3.69)	53475-01	8 and 13
		1-1/4"	B*027C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.68 (3.69)	53475-01	8 and 13

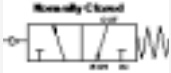
* **THREAD:** Insert **A** for In-line BSPP and change operator from A1 to AA; **1** for In-line PTF; or **B** for In-line ISO Rc.
Contact Technical Services for details.

†† **Spares Kit:** Kit contains all elastomers necessary to service one valve body.




3-Port/2-Position (3 way) In-line, Normally Closed

Below listed operators are single air operators with spring returns. For other options see page 6.

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kitt†	For Details see page
	1/4"	1/4"	D*012H-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.55 (1.20)	53474-05	9 and 13
		3/8"	D*013H-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.55 (1.20)	53474-05	9 and 13
	1/2"	1/4"	D*022C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53474-03	9 and 13
		3/8"	D*023C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53474-03	9 and 13
		1/2"	D*024C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53475-03	9 and 13
		3/4"	D*025C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53475-03	9 and 13
	1"	3/4"	D*035C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.72 (3.78)	53475-01	9 and 13
		1"	D*036C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.72 (3.78)	53475-01	9 and 13
		1-1/4"	D*047C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.72 (3.78)	53475-01	9 and 13

3-Port/2-Position (3 way) In-line, Normally Open

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kitt†	For Details see page
	1/4"	1/4"	E*012H-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.55 (1.20)	53473-05	9 and 13
		3/8"	E*013H-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.55 (1.20)	53473-05	9 and 13
	1/2"	1/4"	E*022C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53474-03	9 and 13
		3/8"	E*023C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53474-03	9 and 13
		1/2"	E*024C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53474-03	9 and 13
		3/4"	E*025C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.81 (1.79)	53474-03	9 and 13
	2"	3/4"	E*035C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.72 (3.78)	53475-01	9 and 13
		1"	E*036C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.72 (3.78)	53475-01	9 and 13
		1-1/4"	E*047C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.72 (3.78)	53475-01	9 and 13

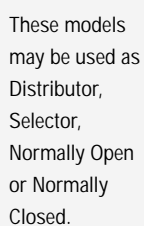
* **THREAD:** Insert **A** for In-line BSPP and change operator from A1 to AA; **1** for In-line PTF; or **B** for In-line ISO Rc.. Contact Technical Services for details.

†† **Spares Kit:** Kit contains all elastomers necessary to service one valve body.

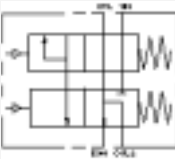


3-Port/2-Position (3 way) Multi-Directional In-line

Below listed operators are single air operators with spring returns. For other options see page 6.

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kit††	For Details see page
 These models may be used as Distributor, Selector, Normally Open or Normally Closed.	1/2"	1/4"	C*012C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.64 (1.41)	53474-03	10 and 13
		3/8"	C*013C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.64 (1.41)	53474-03	10 and 13
		1/2"	C*014C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.64 (1.41)	53474-03	10 and 13
		3/4"	C*025C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.64 (1.41)	53474-03	10 and 13
	1"	3/4"	C*035C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.79 (3.94)	53475-01	10 and 13
		1"	C*036C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.79 (3.94)	53475-01	10 and 13
		1-1/4"	C*037C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.79 (3.94)	53475-01	10 and 13
	2"	1-1/2"	C*048C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	3.97 (8.75)	53822-01	10 and 13
		2"	C*049C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	3.97 (8.75)	53822-01	10 and 13

4-Port/2-Position (3 way twin) In-line

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kit††	For Details see page
	1/2"	3/8"	G*023B-00-A4	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.02 (2.25)	53474-03	11 and 13
		1/2"	G*024B-00-A4	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.02 (2.25)	53474-03	11 and 13
		3/4"	G*025B-00-A4	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.02 (2.25)	53474-03	11 and 13
	1"	3/4"	G*035B-00-A4	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	2.25 (4.96)	53474-03	11 and 13
		1"	G*036B-00-A4	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	2.25 (4.96)	53475-01	11 and 13
		1-1/4"	G*037B-00-A4	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	2.25 (4.96)	53475-01	11 and 13

* THREAD: Insert **A** for In-line BSPP and change operator from A1 to AA; **1** for In-line PTF; or **B** for In-line ISO Rc. Contact Technical Services for details.

†† Spares Kit: Kit contains all elastomers necessary to service one valve body.



4-Port/2-Position (4 way) In-line

Below listed operators are single air operators with spring returns. For other options see page 6.

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kit††	For Details see page
	1/4"	1/4"	F*012C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	0.82 (1.81)	53473-05	11 and 13
		3/8"	F*013C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	.82 (1.81)	53473-05	11 and 13
	1/2"	3/8"	F*023C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.04 (2.30)	53474-06	11 and 13
		1/2"	F*024C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.04 (2.30)	53474-06	11 and 13
		3/4"	F*025C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.79 (2.30)	53474-06	11 and 13
	1"	3/4"	F*035C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	2.46 (5.42)	53475-06	11 and 13
		1"	F*036C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	2.46 (5.42)	53475-06	11 and 13
		1-1/4"	F*037C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	2.46 (5.42)	53475-06	11 and 13

4-Port/2-Position (4 way) Sub-base

Symbol	Basic Size	Port Size	Model	Operating Pressure bar (psig)	Pilot Pressure bar (psig)	Weight kg (lbs.)	Spares Kit††	For Details see page
	1/2"	1/2"	F*214C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	1.80 (3.96)	53474-06	12 and 13
	1"	1"	F*226C-00-A1	0 - 20.7 (0 - 300)	2.1 - 20.7 (30 - 300)	4.37 (9.62)	53475-06	12 and 13

* **THREAD:** Insert **A** for In-line BSPP; **1** for In-line PTF; or **B** for In-line ISO Rc; **4** for Sub-base valve with sub-base, BSPP; **5** for Sub-base valve without sub-base, BSPP; **2** for Sub-base valve with sub-base, PTF; **3** for Sub-base valve without sub-base, PTF; **6** for Sub-base valve with sub-base, ISO Rc; or **7** for Sub-base valve without sub-base, ISO Rc.

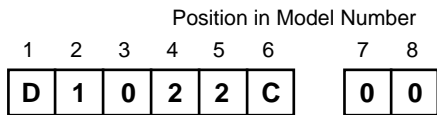
†† **Spares Kit:** Kit contains all elastomers necessary to service one valve body.



Air Pilot Operated In-line & Sub-base Valves

Options Information

For optional features, note the valve model number that comes closest to the desired valve from the preceding order table. Change the model number as shown in the following diagram to obtain the desired option. For example: the ordering table on Page 3 shows D1022C-00-A1, a 3-port/2-position single air pilot operated valve with spring return. To use this valve with a twin operator, change the last two digits to A4, as shown below.



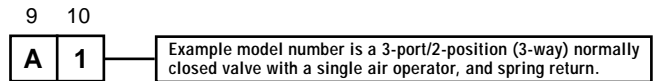
7	Indicator Pin (Basic 1/2" valve)**
8	Indicator Pin (Basic 1" valve)**

F	Bleed Operation††
K	Momentary Signal Operation†
J	Vacuum Service§

****INDICATOR PIN** : Used to operate a switch or other device to provide a signal for a control circuit. Available only on 3-Port/2-Position, normally closed, basic 1/2" and basic 1" valves.

††BLEED OPERATION : Has an internal pilot supply with the flow restrictor. Use only with A1 and A4 air operators.

§ VACUUM SERVICE : Please contact Technical Services for details.



Operator Options		Weight kg (lbs.)
A A	A1 Operator with BSPP Threads	0.13 (0.29)
A 6	Momentary Signal Operator (PTF Threads)†	0.17 (0.38)
A F	Momentary Signal Operator (BSPP Threads)†*	0.17 (0.38)
A 4	Twin Operator (PTF Threads Only)§§	0.27 (0.59)

† MOMENTARY SIGNAL OPERATOR : Used when it is desirable to control the valve with 2 alternately applied momentary signals of 0.2 second minimum duration (first signal shifts and hold the poppet; the second allows the poppet to return to its normal position). Available only on 3-port/2-position normally closed valves and on 4-port/2 position (4-way) valves. Be sure to change the 6th, 9th and 10th positions of the model number.

§§ TWIN OPERATOR : Allows independent operation of each valve element. Available only on 4-port/2-position (4-way) valves.

*** SPARES KIT** : Available for A6 operator. Kit contains all elastomers necessary to service one operator body. To order, request: 53476-01.

To calculate the weight of a valve and optional operator take the weight given for the relevant valve from the ordering tables, subtract either 0.13 kg (0.29 lbs) for an A1 operator and add the weight given above for the appropriate optional operator.

For example: For D1022C-00-A1 has a listed weight of 0.81 kg (1.79 lbs). To convert this to a Momentary Signal Operator, i.e. D1022C-00-A6 → 0.81 - 0.13 + 0.17 = 0.85 kg (1.87 lbs.)



WARRANTY

All items sold by NORGREN Valves are warranted to be free from defects in materials and workmanship for a period of two years from the date of manufacture, provided said items are used according to NORGREN's recommended usages. NORGREN's liability is limited to the repair of, refund of purchase price paid for, or replacement in kind of, at NORGREN's sole option, any items proved defective, provided the allegedly defective items are returned to NORGREN prepaid. The warranties expressed above are in lieu of and exclusive of all other warranties. There are no other warranties, expressed or implied, except as stated herein.

There are no implied warranties of merchantability or fitness for a particular purpose, which are specifically disclaimed. NORGREN's liability for breach of warranty as herein stated is the exclusive remedy, and in no event shall NORGREN be liable or responsible for incidental or consequential damages, even if the possibility of such incidental or consequential damages has been made known to NORGREN.

NORGREN reserves the right to discontinue manufacture of any product or change product materials, design, or specifications.

WARNING

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under 'Technical Data'.

Before using these products with fluids other than those specified, for non-industrial applications, life support systems, or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts

used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

Systems designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

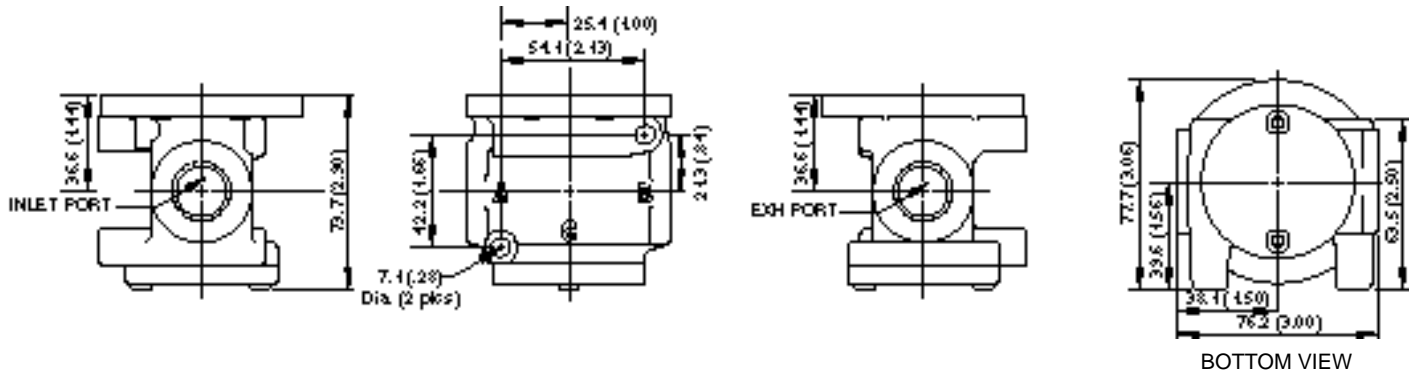
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products where applicable.



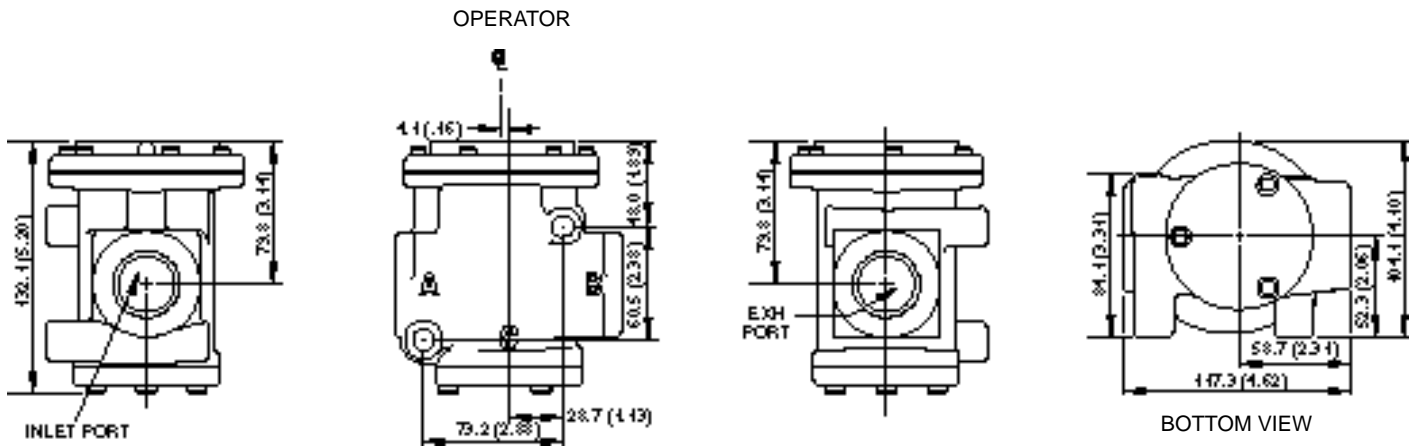
Valve Body Dimensions – 2-Port/2-Position In-line Bodies

Dimensions in mm (inches).

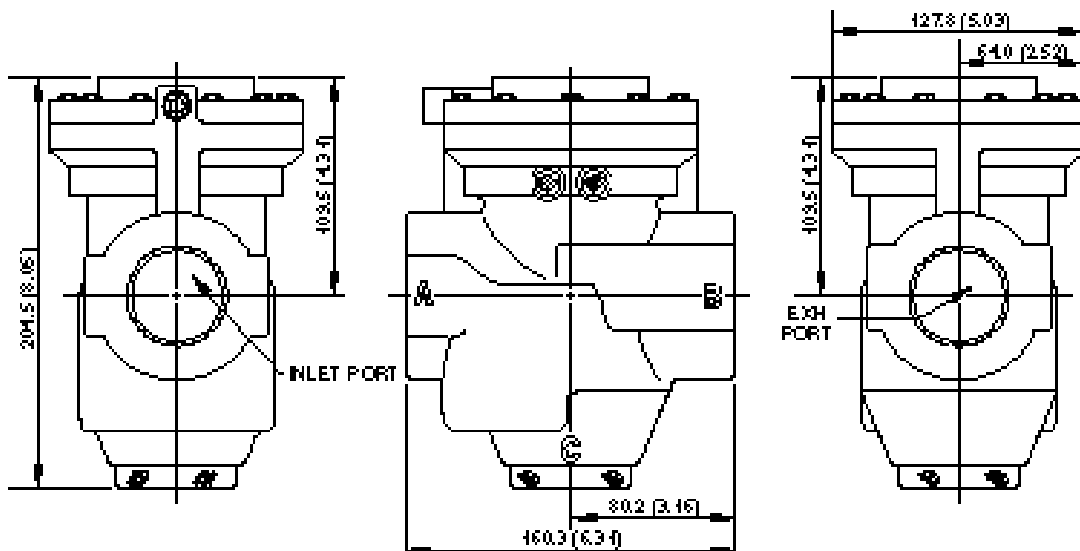
Basic 1/2-Inch Body† A101°C & B101°C (2-Port/2 Position Pilot Operated Valve)



Basic 1-Inch Body† A102°C & B102°C (2-Port/2 Position Pilot Operated Valve)



Basic 2-Inch Body† A103°C & C104°C (2-Port/2 Position Pilot Operated Valve)



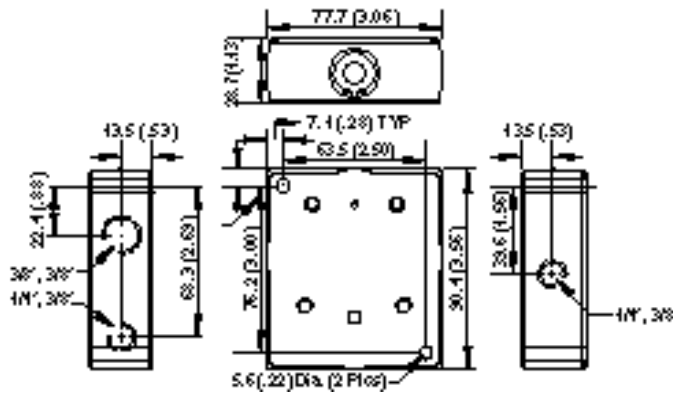
†Sample part numbers given here. Envelope dimensions do not change for thread or internal variation options.



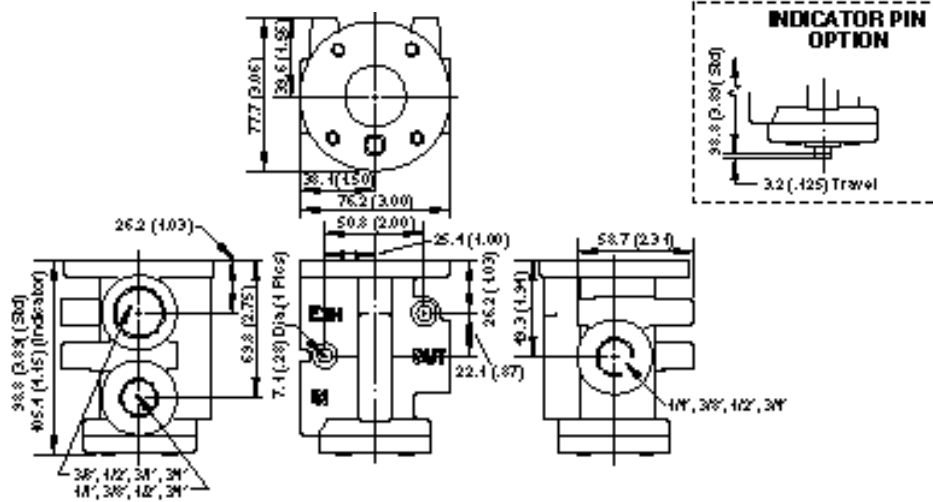
Valve Body Dimensions – 3-Port/2-Position In-line Bodies

Dimensions in mm (inches).

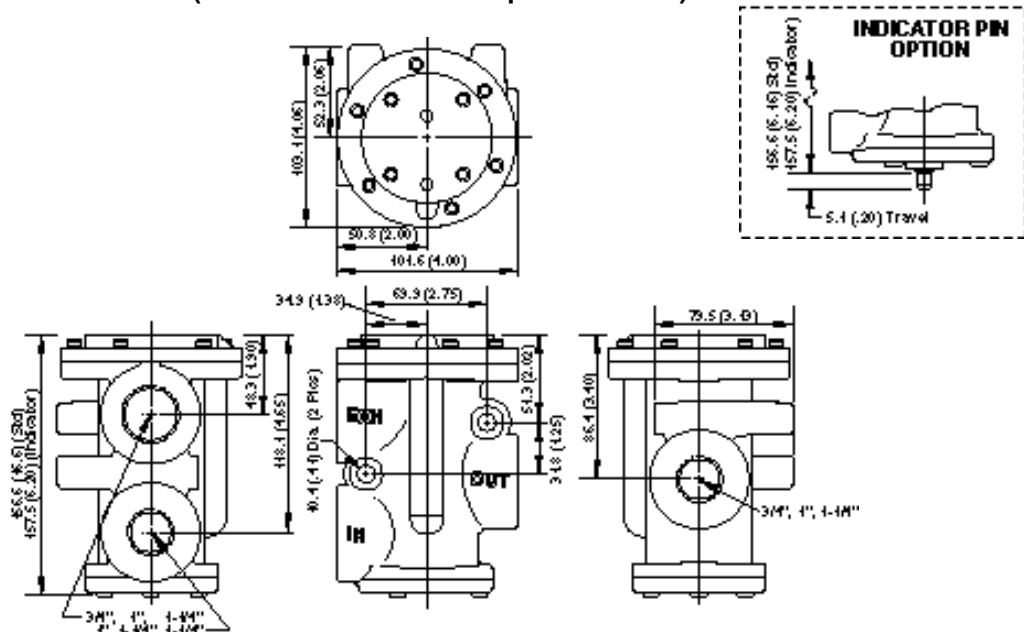
Basic 1/4-Inch Body† D101*B & E101*B (3-Port/2-Position Pilot Operated Valve)



Basic 1/2 - Inch Body† D102*C & E102*C (3-Port/2-Position Pilot Operated Valve)



Basic 1 - Inch Body† D103*C, D104*C, E103*C & E104*C (3-Port/2-Position Pilot Operated Valve)



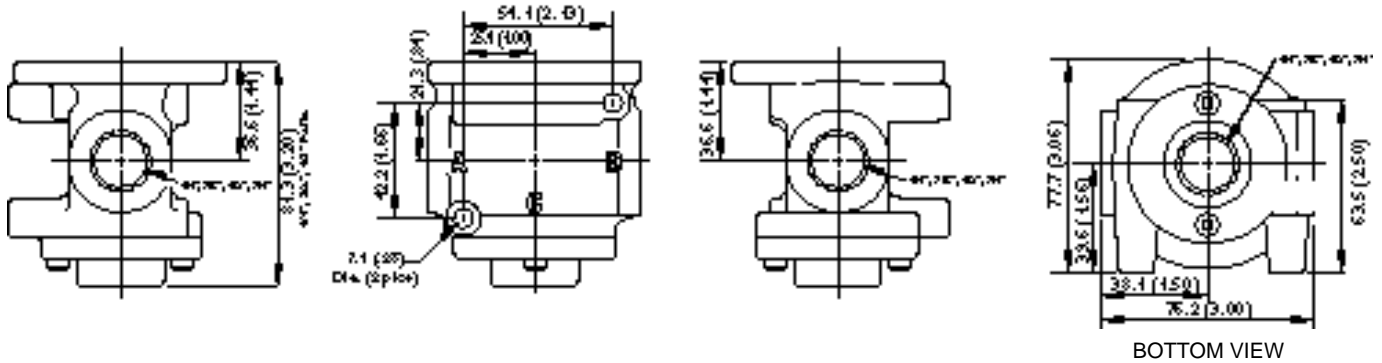
†Sample part numbers given here. Envelope dimensions do not change for thread or internal variation options.



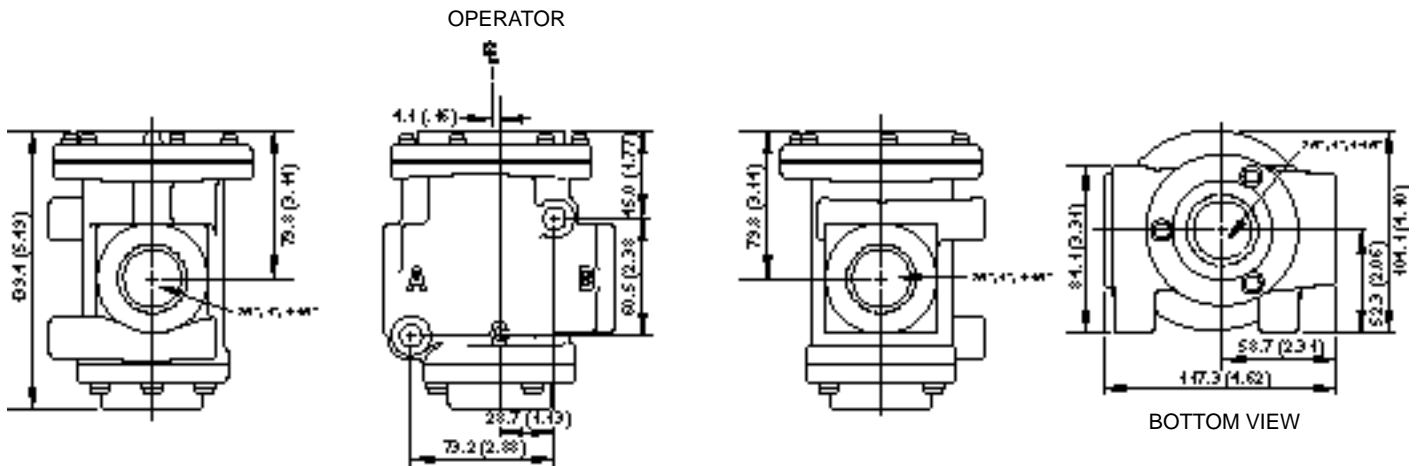
Valve Body Dimensions – 3-Port/2-Position Multi-Directional In-line Bodies

Dimensions in mm (inches).

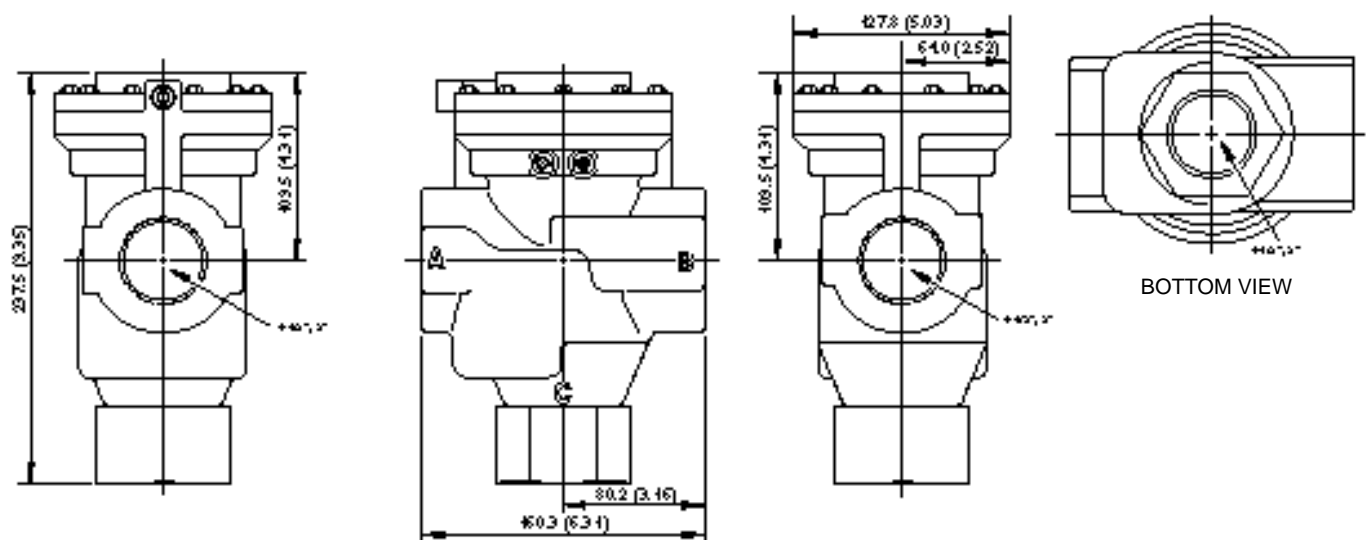
Basic 1/2 - Inch Body† C101*C, C102*C, C105*C & C106*C (3-Port/2-Position Multi-Directional Operated Valve)



Basic 1 - Inch Body† C103*C & C103*H (3-Port/2-Position Multi-Directional Operated Valve)



Basic 2 - Inch Body† C104*C, C108*C & C104*H (3-Port/2-Position Multi-Directional Operated Valve)



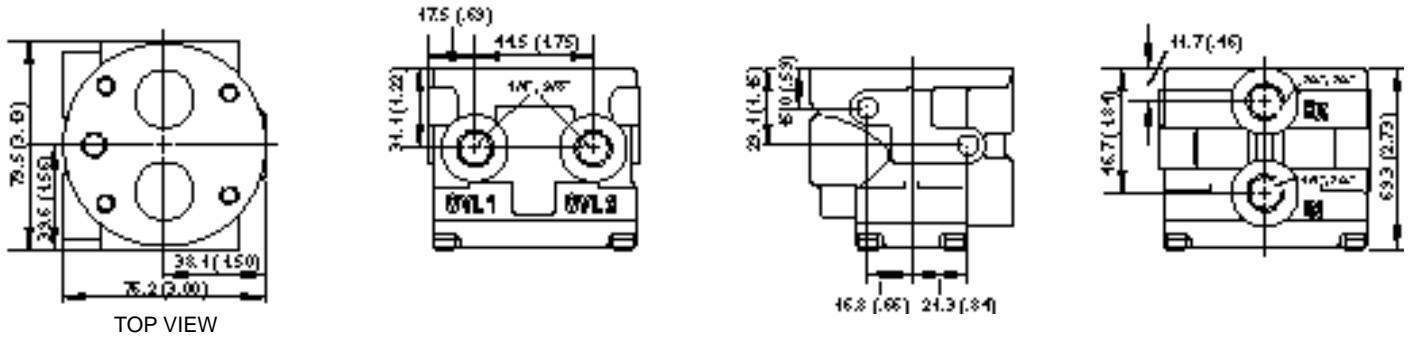
†Sample part numbers given here. Envelope dimensions do not change for thread or internal variation options.



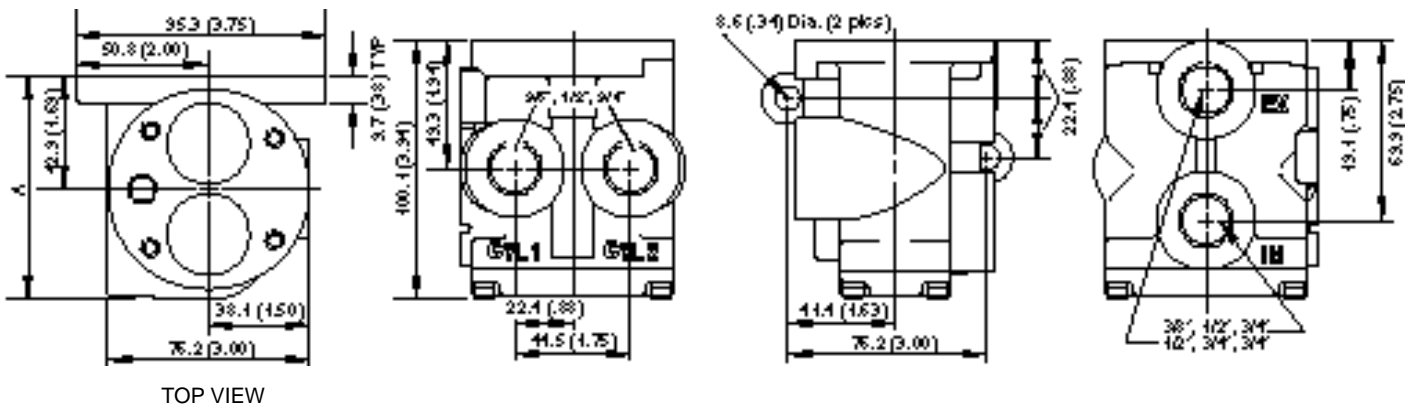
Valve Body Dimensions – 4-Port/2-Position In-line Bodies

Dimensions in mm (inches).

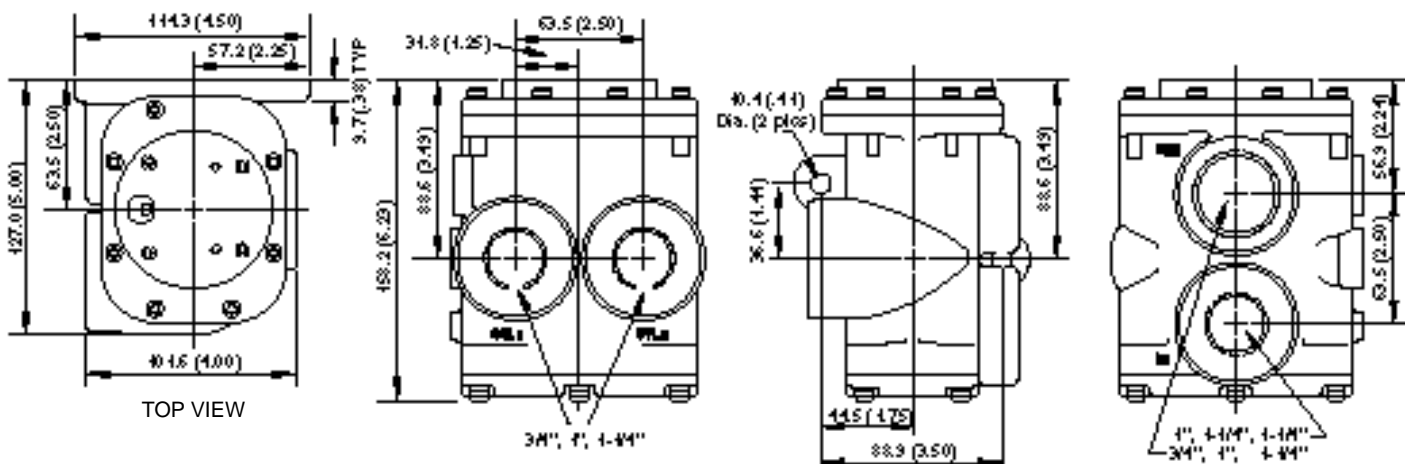
Basic 1/4 - Inch Body† F101*C (4-Port/2-Position Pilot Operated Valve)



Basic 1/2 - Inch Body† F102*C (4-Port/2-Position Pilot Operated Valve)



Basic 1 - Inch Body† F103*C (4-Port/2-Position Pilot Operated Valve)



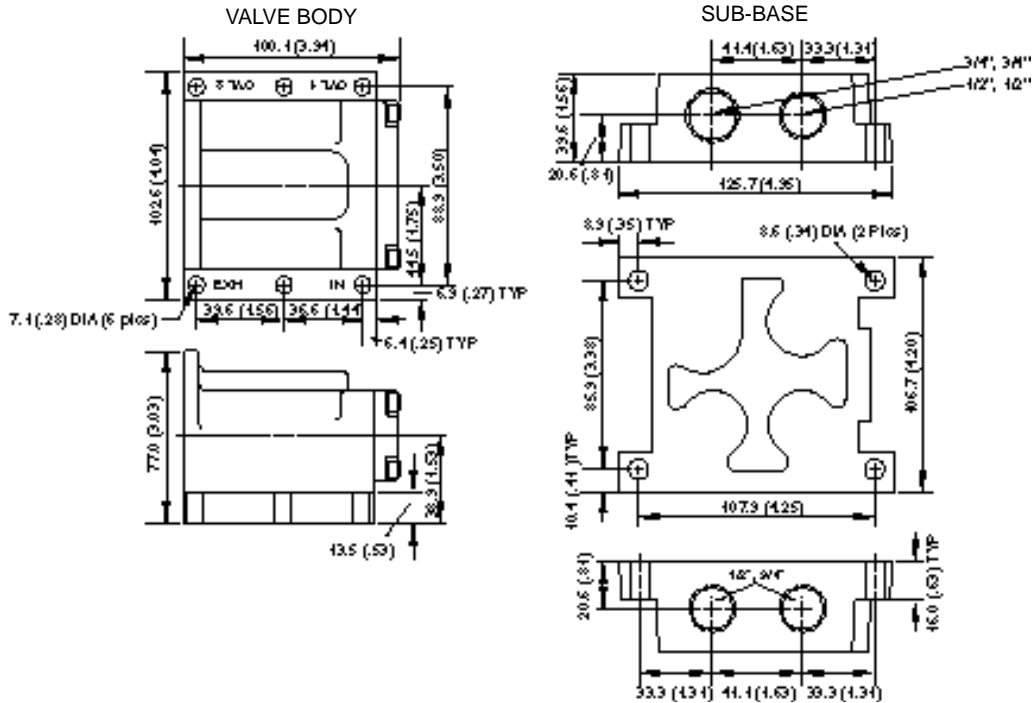
†Sample part numbers given here. Envelope dimensions do not change for thread or internal variation options.



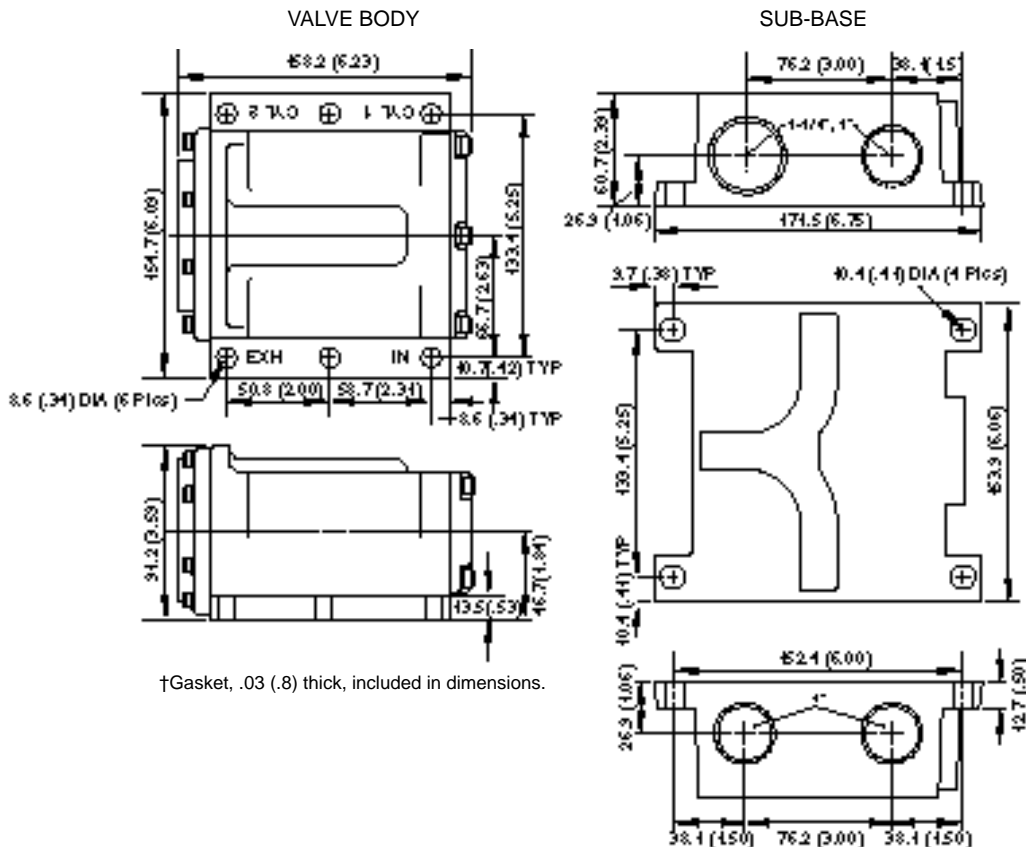
Valve Body Dimensions – 4-Port/2-Position Sub-base Bodies

Dimensions in mm (inches).

Basic 1/2 - Inch Body† F2214C (4-Port/2-Position Pilot Operated Valve)



Basic 1- Inch Body† F2226C (4-Port/2-Position Pilot Operated Valve)



†Gasket, .03 (.8) thick, included in dimensions.

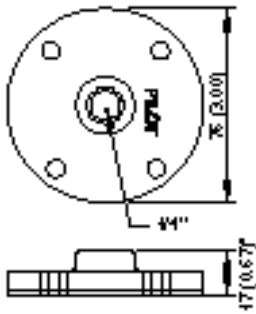
†Sample part numbers given here. Envelope dimensions do not change for thread or internal variation options.



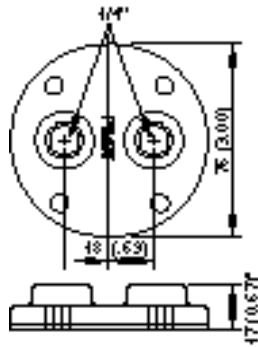
Air Pilot Operator Dimensions

Dimensions in mm (inches).

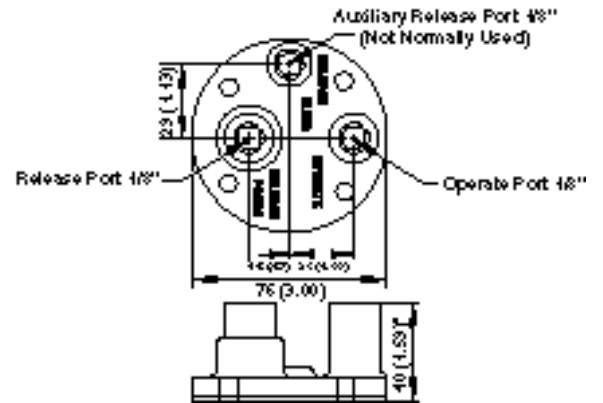
A1 & AA Single



A4 Twin



A6 & AF Momentary Signal



* Gasket, 0.03 (0.8) thick included in dimension.