

SERIES 502

ASCO NUMATICS™

502 Series – Directional Control Valve Platform Featuring Higher Flow in a Compact Valve Package


 ISO 15407-2 (18mm)
 ISO 15407-1 (18mm)

Features

- Solenoid air pilot actuated
- Low wattage 1.3 Watt for DC application
- DC solenoids Polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring
- Integral recessed gaskets
- IN Fittings to accommodate various tube sizes
- Simple conversion from internal to external pilot
- IP65 Certified

Sandwich and Manifold Accessories

- Pressure Regulators for supply pressure control at individual valve
- Speed control to control exhaust flow allows for control of actuator extend or retract speed
- Shut off block for individual valve to be isolated from pressure supply during operation and repair
- Mid Station Supply Manifold block allows for multiple pressure zones (with blocking discs) or additional air supply to a manifold

Fieldbus Electronics Compatible

- G3 Fieldbus Electronics
 - Graphic Display for easy commissioning, visual status & diagnostics
 - 80 valve solenoids per manifold
 - Easy distribution of additional manifolds through Sub-Bus communication
 - One Node supports up to 16 I/O modules
 - Available with Auto Recovery Module (ARM) which allows configuration information to be saved and reloaded to replacement module automatically
- 580 Fieldbus Electronics
 - Graphic Display for easy commissioning, visual status & diagnostics
 - 80 valve solenoids per manifold


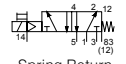
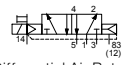
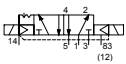
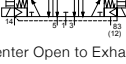
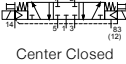



502 PERFORMANCE
& HOW TO ORDER

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Performance Data

Function Type	Function Code	ISO Symbol Pilot (14) Return (12)	Interface	Rated Flow at 90 PSI Cv (l/min (ANR))		Response Time (ms)	Pilot Pressure at 73°F/23°C PSI (bar)		Operating Pressure Port 1 PSI (bar)/inHg (-bar)		Part Number
				1 → 2 1 → 4	2 → 3 4 → 5		Energize/ De-Energize	min.	max.	min.	
				Rubber Packed Technology, with Manual Override							
2 x 3/2 NC	BD	 Normally Closed	Proprietary	0.650 (650)	0.600 (600)	36/15	58 (4.0)	115 (8)	36* (2)	115 (8)	R502A2BD0MA00F1
			ISO	0.500 (500)	0.440 (440)						
Spool and Sleeve Technology, with Manual Override											
5/2	B1	 Spring Return	Proprietary	0.470 (470)	0.530 (530)	16/49	29 (2)	115 (8)	28 (-0.95)	115 (8)	R502A1B10MA00F1
			ISO	0.410 (410)	0.390 (390)						
	BN	 Differential Air Return	Proprietary	0.470 (470)	0.530 (530)	11/26	22 (1.5)	115 (8)	28 (-0.95)	115 (8)	R502A1BN0MA00F1
			ISO	0.410 (410)	0.390 (390)						
	B4	 Solenoid Air Return	Proprietary	0.470 (470)	0.530 (530)	12/15	29 (2)	115 (8)	28 (-0.95)	115 (8)	R502A1B40MA00F1
			ISO	0.410 (410)	0.390 (390)						
5/3	B5	 Center Open to Exhaust	Proprietary	0.380 (380)	0.500 (500)	23/13	22 (1.5)	115 (8)	28 (-0.95)	115 (8)	R502A1B50MA00F1
			ISO	0.340 (340)	0.350 (350)						
	B6	 Center Closed	Proprietary	0.420 (420)	0.440 (440)	12/12	22 (1.5)	115 (8)	28 (-0.95)	115 (8)	R502A1B60MA00F1
ISO			0.360 (360)	0.350 (350)							
B7	 Center Open to Pressure	Proprietary	0.420 (420)	0.430 (430)	13/23	22 (1.5)	115 (8)	28 (-0.95)	115 (8)	R502A1B70MA00F1	
		ISO	0.370 (370)	0.350 (350)							

* Minimum pressure with external piloting

Construction

Materials in Contact w/Fluid	
Body	Aluminum, E-Coating treatment
Spool	Aluminum or Stainless Steel
Piston	POM
Spring	Steel
Spool Seals	NBR + PUR
Other Seals	NBR + FKM
Other materials	PAM (Polyarylamide) 50% Glass Fiber Reinforced
Valve to Subbase Gasket	NBR
Subbases	Aluminum, E-Coating treatment

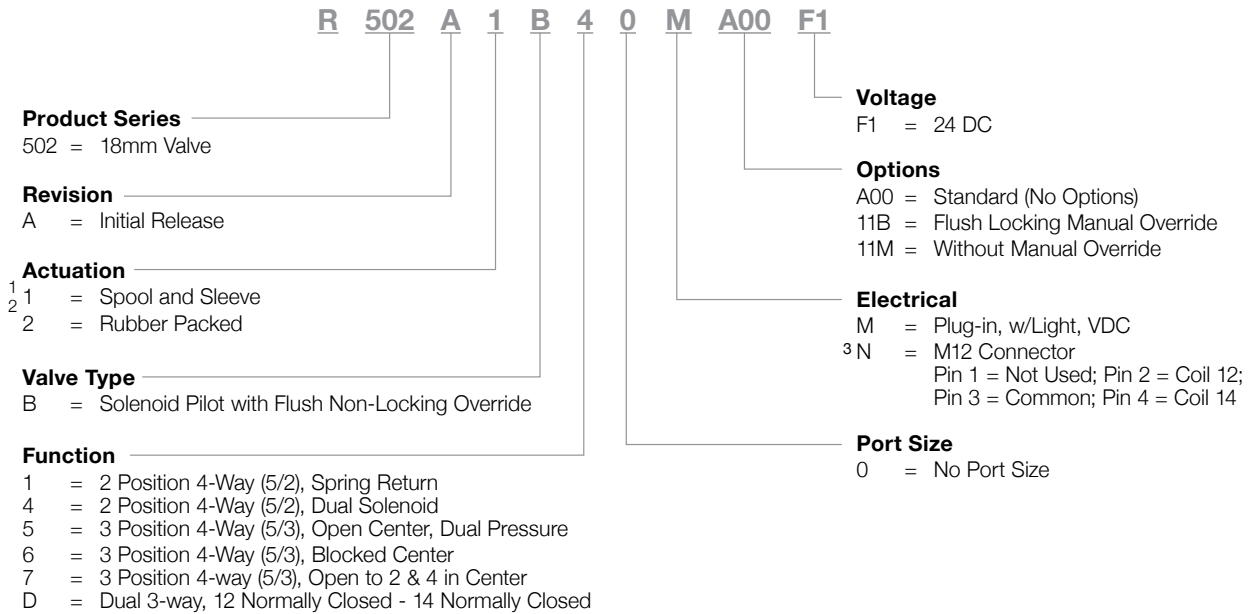
Operating Data

All Solenoids Are Continuous Duty Rated	24 VDC
Power (Watts)	1.3
Holding Current (Amps)	0.054
Ambient Temperature Range Min/Max °F (°C)	-14 °F (-10 °C)/122 °F (50 °C)

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How to Order: Valve



¹ Not available with Function D

² Available with Function D only

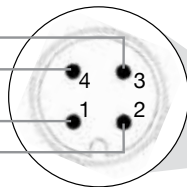
³ See diagram:

Pin 3 = Common

Pin 4 = Coil 14

Pin 1 = Not Used

Pin 2 = Coil 12



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**SERIES
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How to Order: Regulator

R 502 A R S 1 1 J A00 1 0

Product Series
502 = 18mm Valve

Revision
A = Initial Release

Product Type
R = Regulator

Regulator Type
S = Single Reg. - Pressure to Port 1
D = Double Reg. - Pressure to Ports 5 & 3
E = Double Reg. - Pressure to Ports 4 & 2, w/o Valve
T = Double Reg. - Pressure to Ports 1 & 3, 2 Pressure Selector

Pressure Range
1 = 10 - 130 PSIG (0.7 - 9 bar)
3 = 3 - 30 PSIG (0.2 - 2 bar)
4 = 5 - 60 PSIG (0.3 - 4.1 bar)

Interface
1 = Proprietary
2 = ISO 15407-2
3 = ISO 15407-1

Options
A00 = Standard (No Options)
14M = Temperproof Needle Cartridge Assembly or Regulator
16N = Jumper for Supply Pressure to Valve, 14 End
16P = Jumper for Supply Pressure to Valve, 12 End
* 61Y = Regulator with Gauge Extension Fitting

Wiring Option
J = Plug-in, Receptacle Assembly
0 = Non Plug-in

Gauge Type
1 = PSI
2 = bar
8 = with 1/8" NPTF adaptor for external gauge
G = with 1/8" G tap adaptor for external gauge

* Regulator gauges must be offset with 61Y option on alternating stations to prevent interference.

Sandwich Pressure Regulator Block

Types: RS / RD / RE / RT

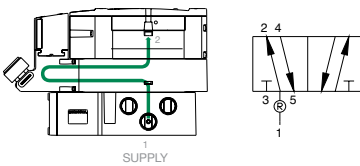


ISO 15407-2/15407-1 Interface



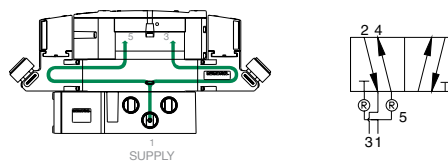
Proprietary Interface

Type RS



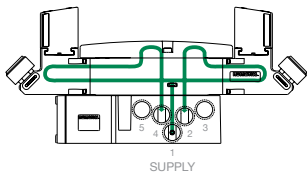
Single pressure from a single supply.

Type RD



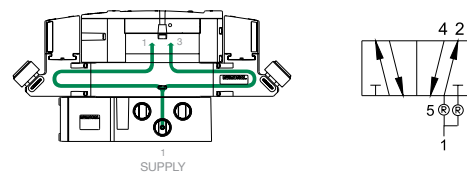
Dual pressure from a single supply.

Type RE



External outlet regulator used with jumper plate for single or dual pressure.

Type RT

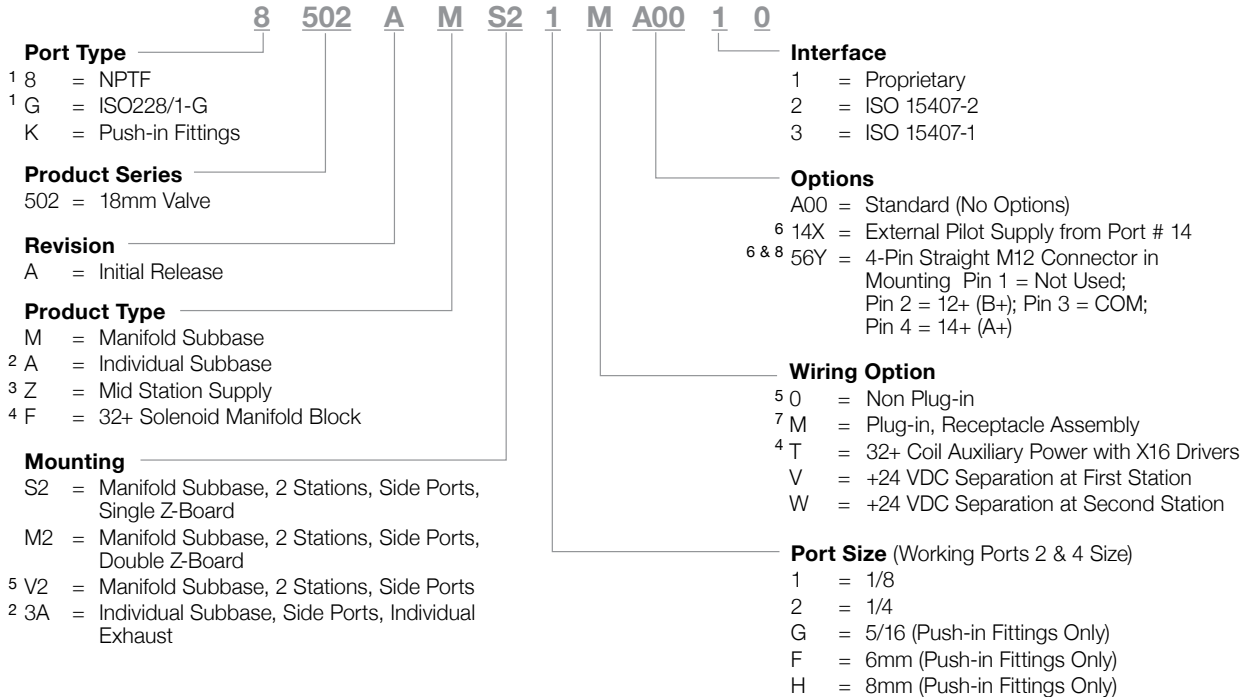


Two-pressure selector used for multi-pressure applications.

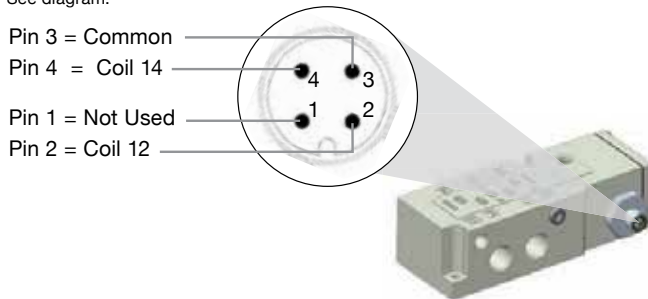
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How to Order: Mounting



- ¹ Port Type 8 & G available in 1/8 size for Product Type F, M and Z or 1/4 for Product Type A
- ² Not available with proprietary interface, only available with 1/4 port size
- ³ Only available with M2 and V2 mountings
- ⁴ 32+ Coil Rule: Product Type F, Mounting M4, and Wiring Option T must all be selected together
- ⁵ Only available with ISO 15407-1 Interface
- ⁶ Available with 3A mounting only
- ⁷ Not available with V2 Mounting
- ⁸ See diagram:



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How to Order: Manifold Assembly

8 502 A V 3 B 3 0 0 V A00

Port Type

¹ 8 = NPTF
¹ G = ISO228/1-G
K = Push-in Fittings

Product Series

502 = 18mm Valve

Revision

A = Initial Release

Product Type

V = Valve Manifold Assembly

Electrical Interface

3 = G3 Series Fieldbus Interface
8 = 580 Series Fieldbus Interface
D = CHARMS Interface
J = 25 Pin Sub-D Interface
M = 37 Pin Sub-D Interface
Q = 19 Pin M23 Interface
R = 26 Pin M27 Interface
T = 1-32 Pin Terminal Strip Interface
² Z = Robot End Effector (EE) Connection Interface
0 = No Electrical Interface

Number of Valve Stations

B = 2/34/66	N = 14/46/78	Z = 26/58
D = 4/36/68	P = 16/48/80	3 = 28/60
F = 6/38/70	R = 18/50	5 = 30/62
H = 8/40/72	T = 20/52	7 = 32/64
J = 10/42/74	V = 22/54	
L = 12/44/76	X = 24/56	

Options

A00 = Standard (No Options)
MUF = Muffler in End Plates
DRM = DIN Rail Mount
DWM = DIN Rail with (MUF) Muffler in End Plates
14X = External Pilot Supply from Port # 14
D12 = (14X) External Pilot Supply from Port #14 and (MUF) Muffler in End Plates
D14 = (14X) External Pilot Supply from Port #14 and (DRM) DIN Rail Mount
F06 = (14X) External Pilot Supply from Port # 14, (MUF) Muffler in End Plates, and (DRM) DIN Rail Mount
A27 = FANUC Robot EE Connection Interface
D28 = FANUC Robot EE Connection + (MUF) Muffler in End Plates

End Plate Style

V = Vertical
³ H = Horizontal

Second Valve Series

0 = No Second Valve Series
⁴ 1 = 501 Valve Series (11mm)

Valve Station Adder

0 = No Adder
1 = 32+
2 = 64+

End Plate Port Size (Supply Ports 1, 3/5)

3 = 3/8
4 = 1/2
K = 10mm
M = 12mm

¹ Port Type 8 & G available in Port Size 3/8

² FANUC EE Interface (A27 or D28) must be selected under Options

³ Horizontal End Plates available with 0 = No Electrical Interface option

⁴ End Plate is NPTF 1/8 or Push-in 8mm

NOTE: See the Multipin Electrical Interface table for Max Solenoid Outputs.

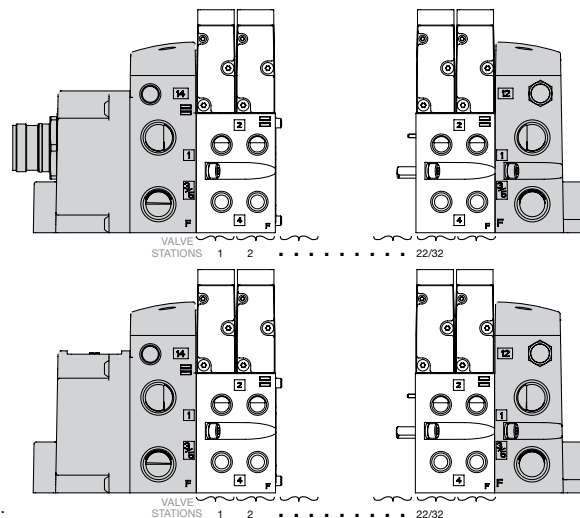
Sub-D, Terminal Strip, Round Interface, and End Effector Interface

- Shaded components described by Assembly Kit model number designation
- Each valve manifold station is listed in sequential order from left to right when facing the port side of the manifold as indicated

Example Order - 502 Shown

25 Pin Sub-D	8502AVJF300VA00
Valve Station #1	R502A2B40MA00F1
Valve Station #2	R502A2B40MA00F1
Mounting #1	8502AMM21MA0010
Valve Station #3	R502A2B60MA00F1
Valve Station #4	R502A2B60MA00F1
Mounting #2	8502AMM21MA0010
Valve Station #5	R502A2B40MA00F1
Valve Station #6	R502A2B40MA00F1
Mounting #3	8502AMM21MA0010
	Assembled

NOTE: Example order for Fieldbus electronics see 580 or G3 Fieldbus catalog.

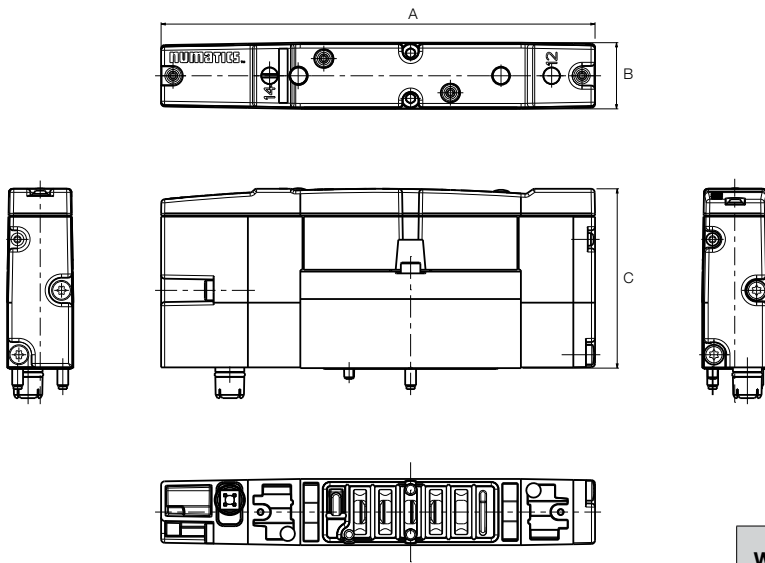


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Dimensions: mm (inches)

502 Series Plug-in Valve



502 SERIES
DIMENSIONAL DRAWINGS

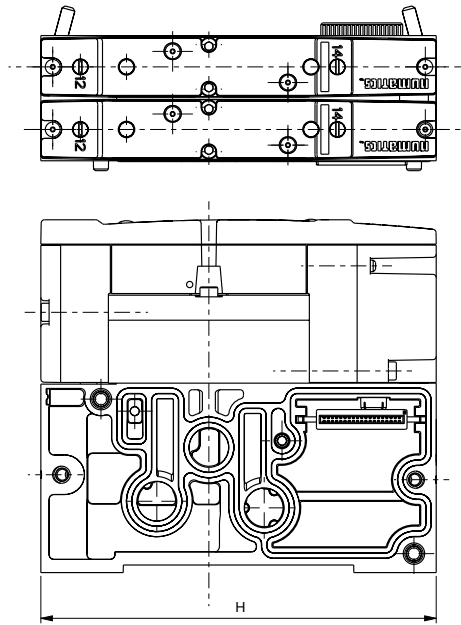
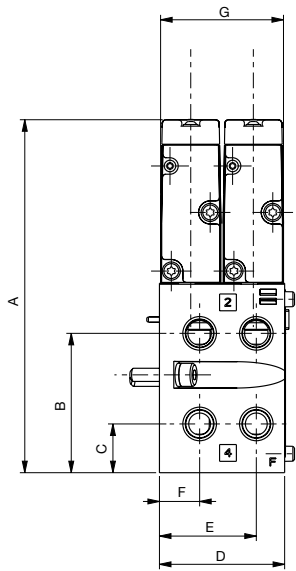
Weight	Valve Body	Manifold Block	End Plates
lbs (kg)	0.372 (0.169)	0.75 (0.34)	3.30 (0.45)
A	B	C	
120 (4.72)	18 (0.71)	49.6 (1.95)	

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Dimensions: mm (inches)

Plug-in Valve Mounted
Plug-in Manifold Block



A	B	C	D	E	F	G	H
107.1 (4.217)	42.3 (1.665)	14.8 (0.583)	38 (1.496)	29.4 (1.157)	12.2 (0.48)	37.3 (1.469)	120 (4.724)

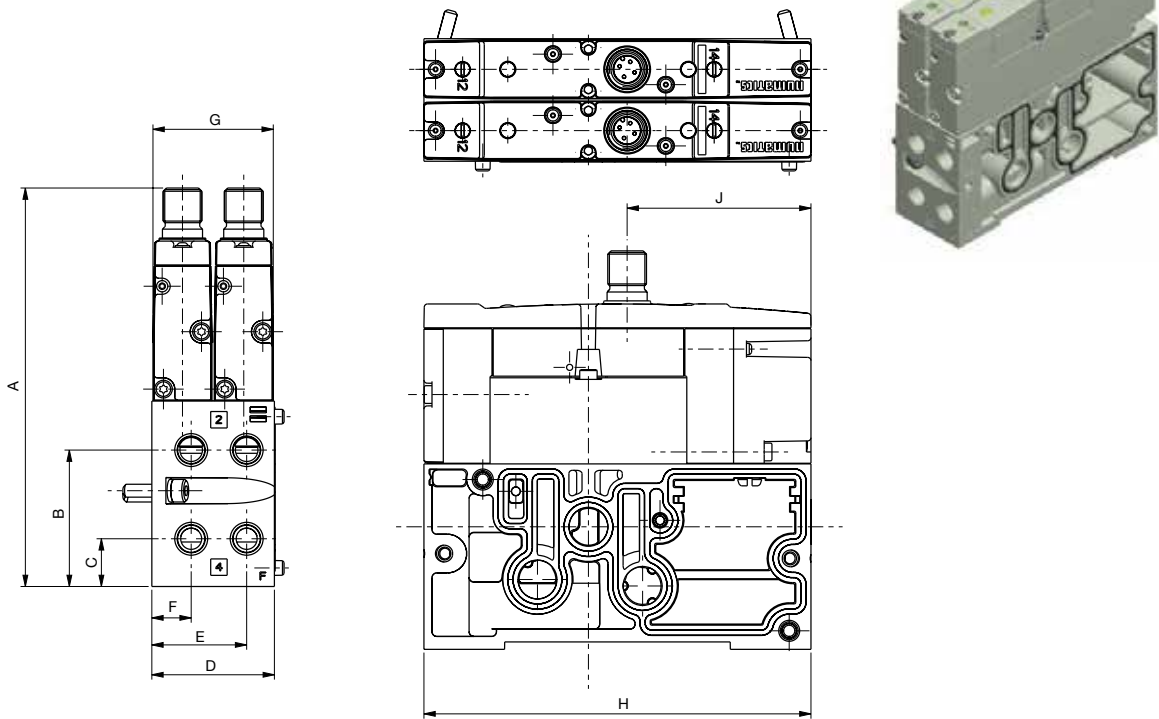
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Dimensions: mm (inches)

M12 Valve Mounted

Non Plug-in Manifold Block (ISO 15407-1)



A	B	C	D	E	F	G	H	J
123.6 (4.866)	42.3 (1.665)	14.8 (0.583)	38 (1.496)	29.4 (1.157)	12.2 (0.48)	37.3 (1.469)	120 (4.724)	57 (2.244)

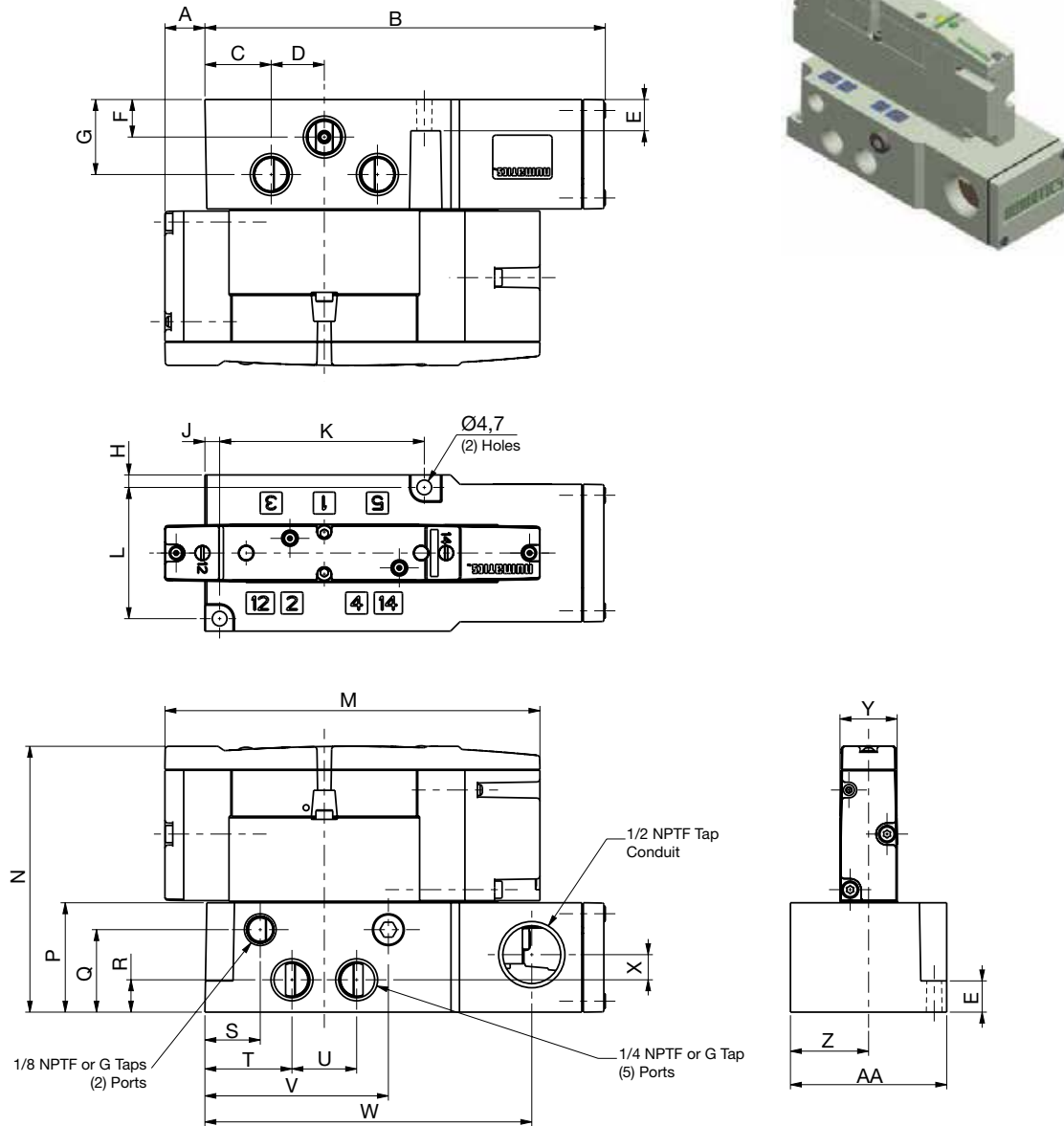
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Dimensions: mm (inches)

Plug-in Valve on Individual Subbase

Plug-in Individual Subbase



A	B	C	D	E	F	G	H	J	K	L	M	N
12.8 (0.504)	128.1 (5.043)	21.2 (0.835)	17 (0.669)	10 (0.394)	12 (0.472)	24 (0.945)	4 (0.157)	4.7 (0.185)	65.5 (2.579)	42 (1.654)	120 (4.724)	85.1 (3.35)

P	Q	R	S	T	U	V	W	X	Y	Z	AA
35 (1.378)	26.4 (1.039)	10.4 (0.409)	17.7 (0.697)	27.9 (1.098)	20.7 (0.815)	58.7 (2.311)	104.6 (4.118)	8.1 (0.319)	18.3 (0.72)	25 (0.984)	50 (1.969)

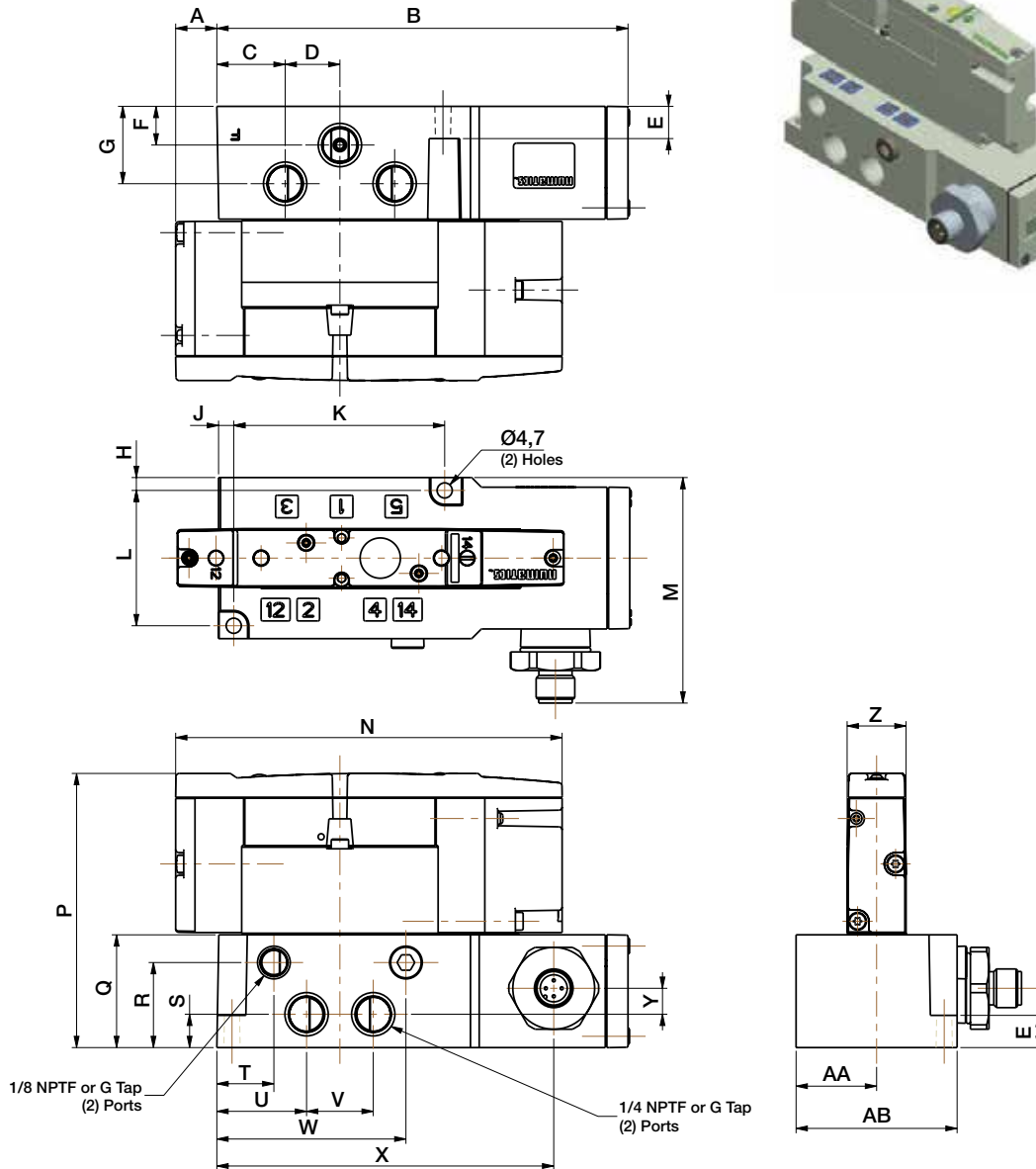
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Dimensions: mm (inches)

Plug-in Valve on Individual Subbase

M12 Individual Subbase (ISO 15407-2)



A	B	C	D	E	F	G	H	J	K	L	M	N
12.8 (0.504)	128.1 (5.043)	21.2 (0.835)	17 (0.669)	10 (0.394)	12 (0.472)	24 (0.945)	4 (0.157)	4.7 (0.185)	65.5 (2.579)	42 (1.654)	70 (2.756)	120 (4.724)
P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
85.1 (3.35)	35 (1.378)	26.4 (1.039)	10.4 (0.409)	17.7 (0.697)	27.9 (1.098)	20.7 (0.815)	58.7 (2.311)	104.6 (4.118)	8.1 (0.319)	18.3 (0.72)	25 (0.984)	50 (1.969)

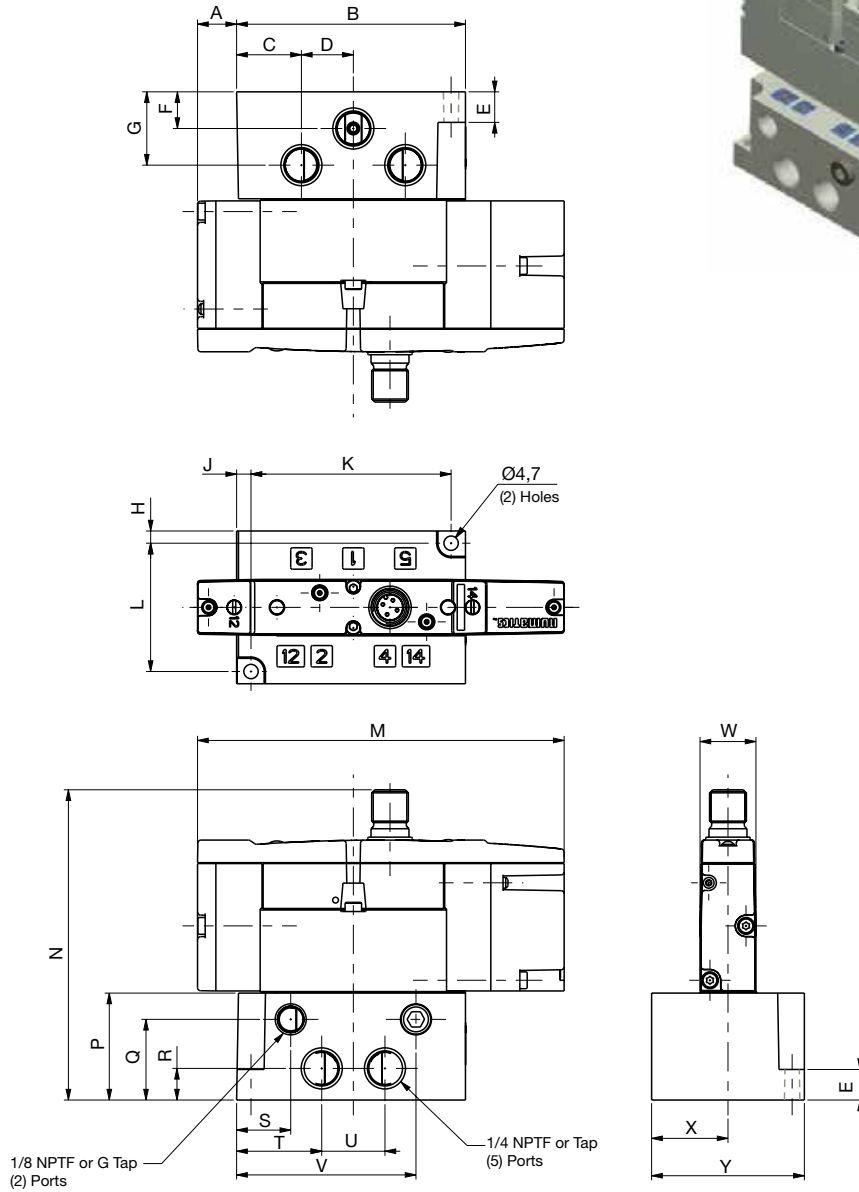
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Dimensions: mm (inches)

Non Plug-in Valve on Individual Subbase

Non Plug-in Individual Subbase (ISO 15407-1)



A	B	C	D	E	F	G	H	J	K	L	M	N
12.8 (0.504)	74.9 (2.949)	21.2 (0.835)	17 (0.669)	10 (0.394)	12 (0.472)	24 (0.945)	4 (0.157)	4.7 (0.185)	65.5 (2.579)	42 (1.654)	120 (4.724)	101.6 (4)

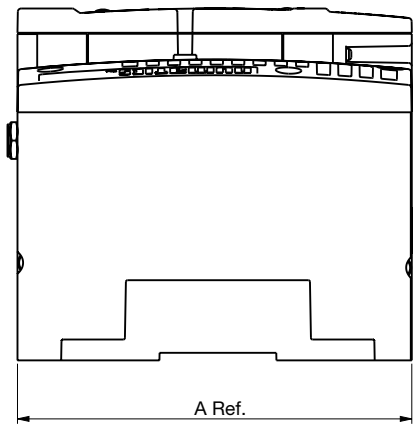
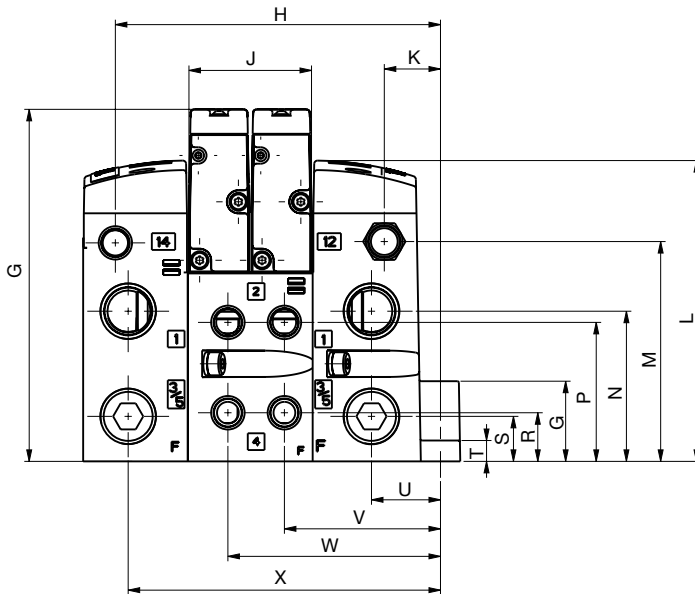
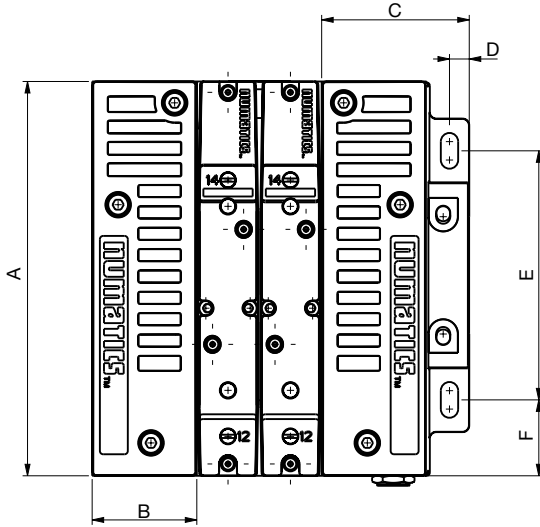
P	Q	R	S	T	U	V	W	X	Y
35 (1.378)	26.4 (1.039)	10.4 (0.409)	17.7 (0.697)	27.9 (1.098)	20.7 (0.815)	58.7 (2.311)	18.3 (0.72)	25 (0.984)	50 (1.969)

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Dimensions: mm (inches)

Manifold Assembly with Vertical End Plates



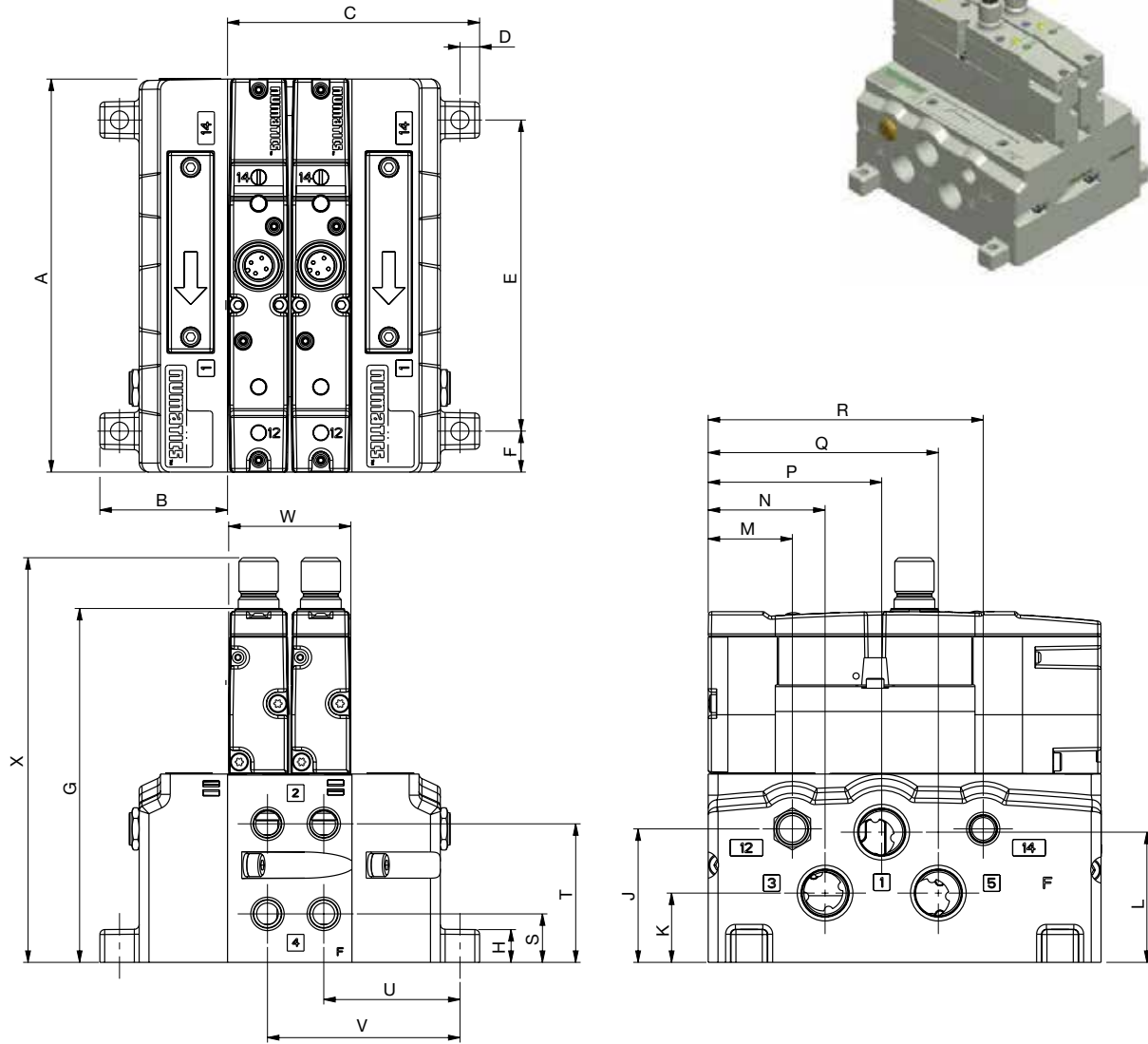
A	B	C	D	E	F	G	H	J	K	L
120 (4.724)	31.9 (1.256)	44.9 (1.768)	6 (0.236)	75.8 (2.984)	23.1 (0.909)	107.1 (4.217)	98.9 (3.894)	37.3 (1.469)	17.1 (0.673)	91.6 (3.606)
M	N	P	Q	R	S	T	U	V	W	X
66.9 (2.634)	45.7 (1.799)	42.3 (1.665)	24.4 (0.961)	14.8 (0.583)	13.7 (0.539)	6.35 (0.25)	21 (0.827)	47.5 (1.87)	64.7 (2.547)	95 (3.74)

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Dimensions: mm (inches)

Manifold Assembly with Horizontal End Plates



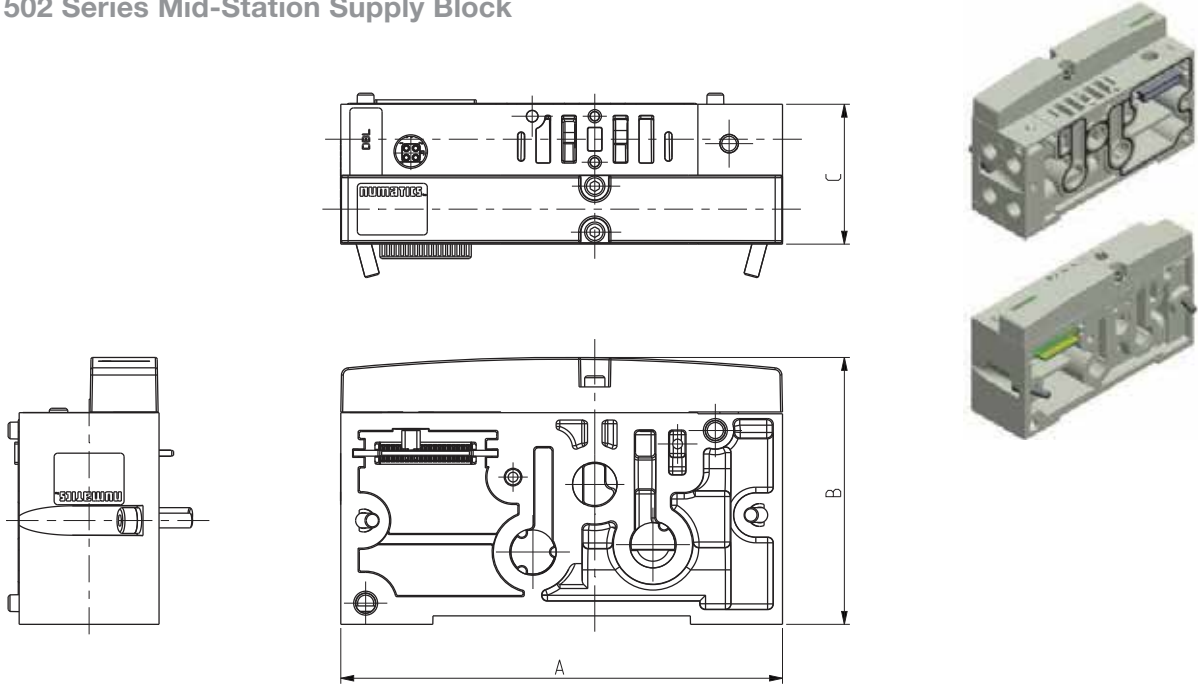
A	B	C	D	E	F	G	H	J	K	L
120.0 (4.72)	39.0 (1.54)	39.0 (1.54)	6.0 (0.24)	95.0 (3.74)	12.5 (0.49)	108.1 (4.26)	10.0 (0.39)	40.8 (1.61)	21.2 (0.83)	39.8 (1.57)
M	N	P	Q	R	S	T	U	V	W	X
25.7 (1.01)	35.7 (1.41)	53.0 (2.09)	70.3 (2.77)	84.0 (3.31)	14.8 (0.58)	42.3 (1.67)	41.6 (1.64)	58.8 (2.31)	37.3 (1.47)	123.6 (4.87)

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Dimensions: mm (inches)

502 Series Mid-Station Supply Block



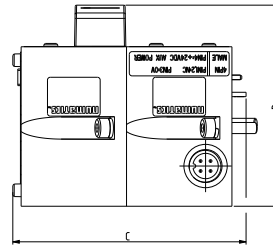
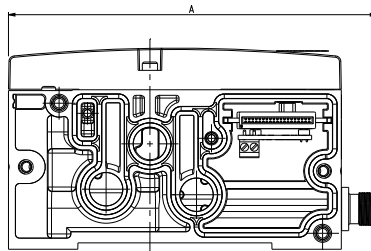
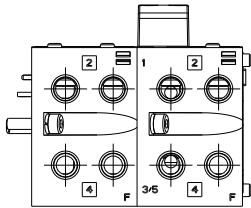
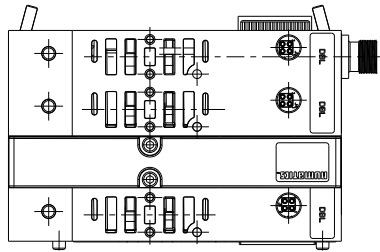
A	B	C
120 (4.72)	72.5 (2.85)	38 (1.50)

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Dimensions: mm (inches)

502 Series Mid-Station Supply/Auxiliary Power Manifold Block with X32 Solenoid Coils Kit



Weight	
lbs	(kg)
1.70	(0.77)

A	B	C
132.7 (5.22)	72.5 (2.85)	84 (3.31)

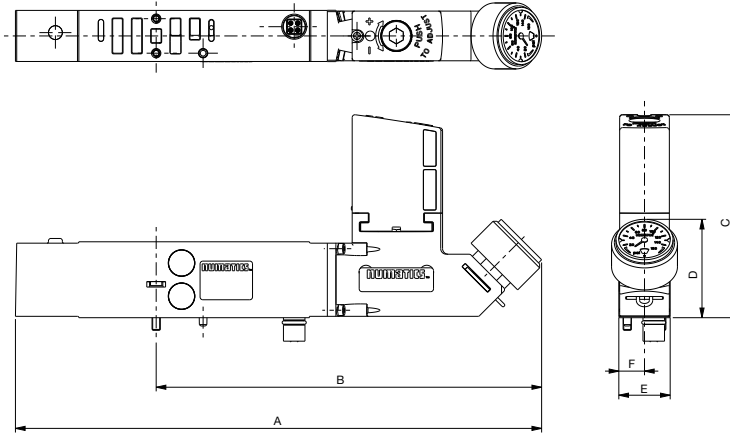
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Dimensions: mm (inches)

Sandwich Pressure Regulator

Single Regulator

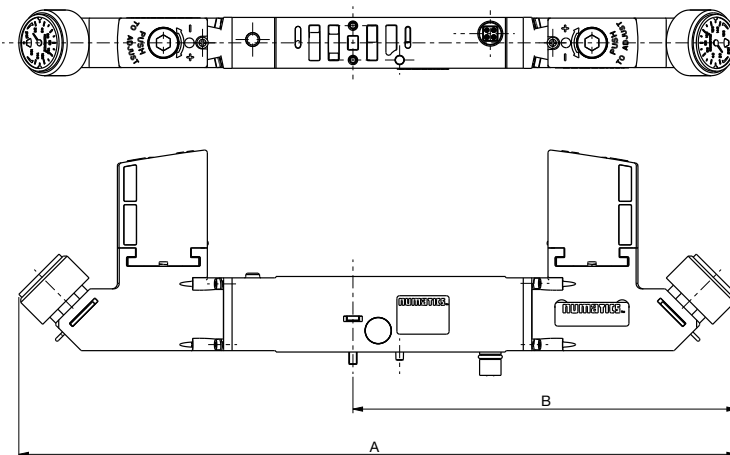


Weight
lbs (kg)
0.65 (0.30)

A	B	C	D	E	F
190.6 (7.504)	139.6 (5.496)	73.5 (2.894)	35.6 (1.402)	18.6 (0.732)	9.3 (0.366)

Dimensions: mm (inches)

Double Regulator



Weight
lbs (kg)
1.05 (0.48)

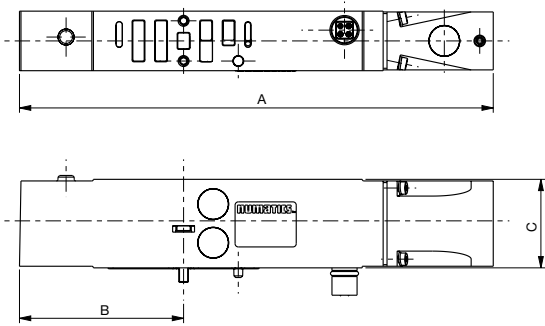
A	B	C	D	E	F
261.2 (10.283)	139.6 (5.496)	73.5 (2.894)	35.6 (1.402)	18.6 (0.732)	9.3 (0.366)

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Dimensions: mm (inches)

Sandwich Shut Off Block Kit

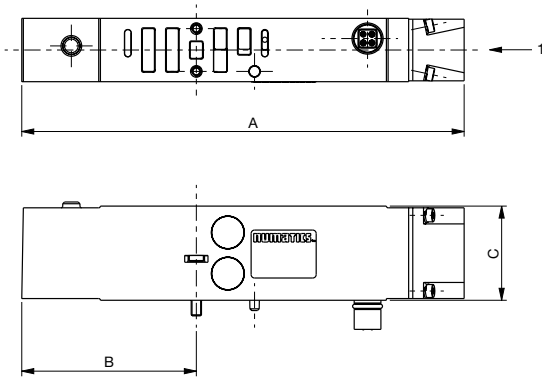


Weight	
lbs	(kg)
0.30	(0.14)

A	B	C	D
147.2 (5.795)	51 (2.008)	27.5 (1.083)	18.5 (0.728)

Dimensions: mm (inches)

Sandwich Pressure Block Kit



Weight	
lbs	(kg)
0.50	(0.23)

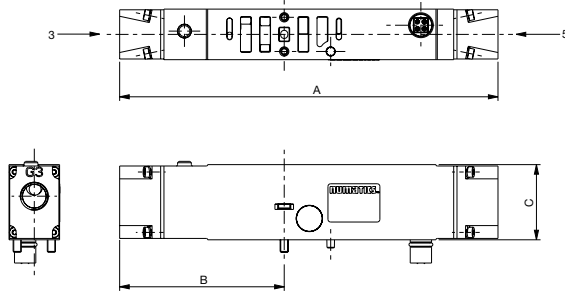
A	B	C	D
129.2 (5.087)	51 (2.008)	27.5 (1.083)	18.5 (0.728)

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Dimensions: mm (inches)

Sandwich Exhaust Block Kit

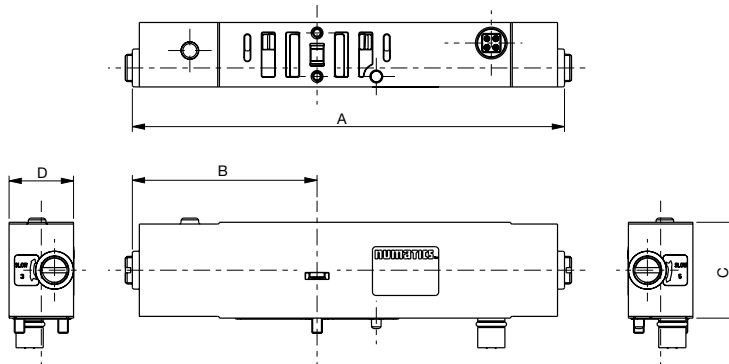


Weight	
lbs	(kg)
0.30	(0.14)

A	B	C	D
138.4 (5.449)	60.2 (2.37)	27.5 (1.083)	18.5 (0.728)

Dimensions: mm (inches)

Sandwich Speed Control Kit



Weight	
lbs	(kg)
0.30	(0.14)

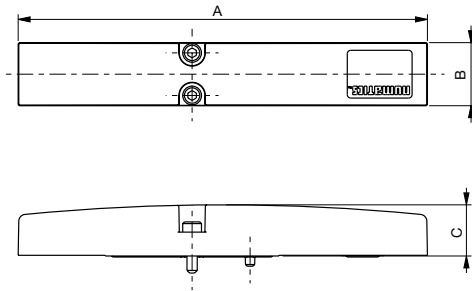
A	B	C	D
124 (4.882)	53 (2.087)	27.5 (1.083)	18.5 (0.728)

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Dimensions: mm (inches)

Blank Station Plate Kit



Weight	
lbs (kg)	
0.10	(0.05)

A	B	C
120 (4.724)	18.5 (0.728)	15 (0.591)