

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

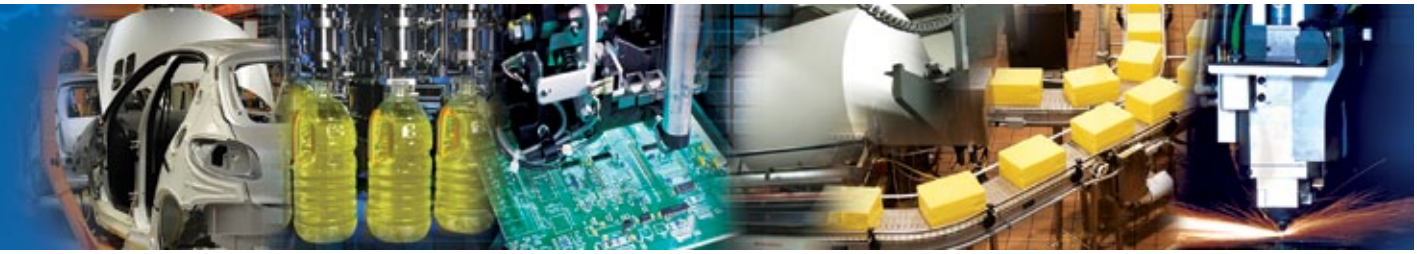
Visit our website - *Click HERE*

numatics®

2002 Series

Solenoid Air Pilot Actuated Valves





www.numatics.com

EMERSON™
Industrial Automation

Table of Contents

numatics

2002 Series

F2 Series

Hardwired and Plug-in Solenoid Valve Manifold-Exploded View	3
Technical and Operating Data	4
How to Order	5
Valve Manifold Assembly Dimensions	6
Individual Base Dimensions	7
Individual Base Assembly Kits	7
External Pilot Supply	7
Bar Shock Manifold	8
Plug Connector	9
Pilot Valve Assembly	9
End Plate Kits	9
Service Kits and Parts	10-11

O2 and R2 Series

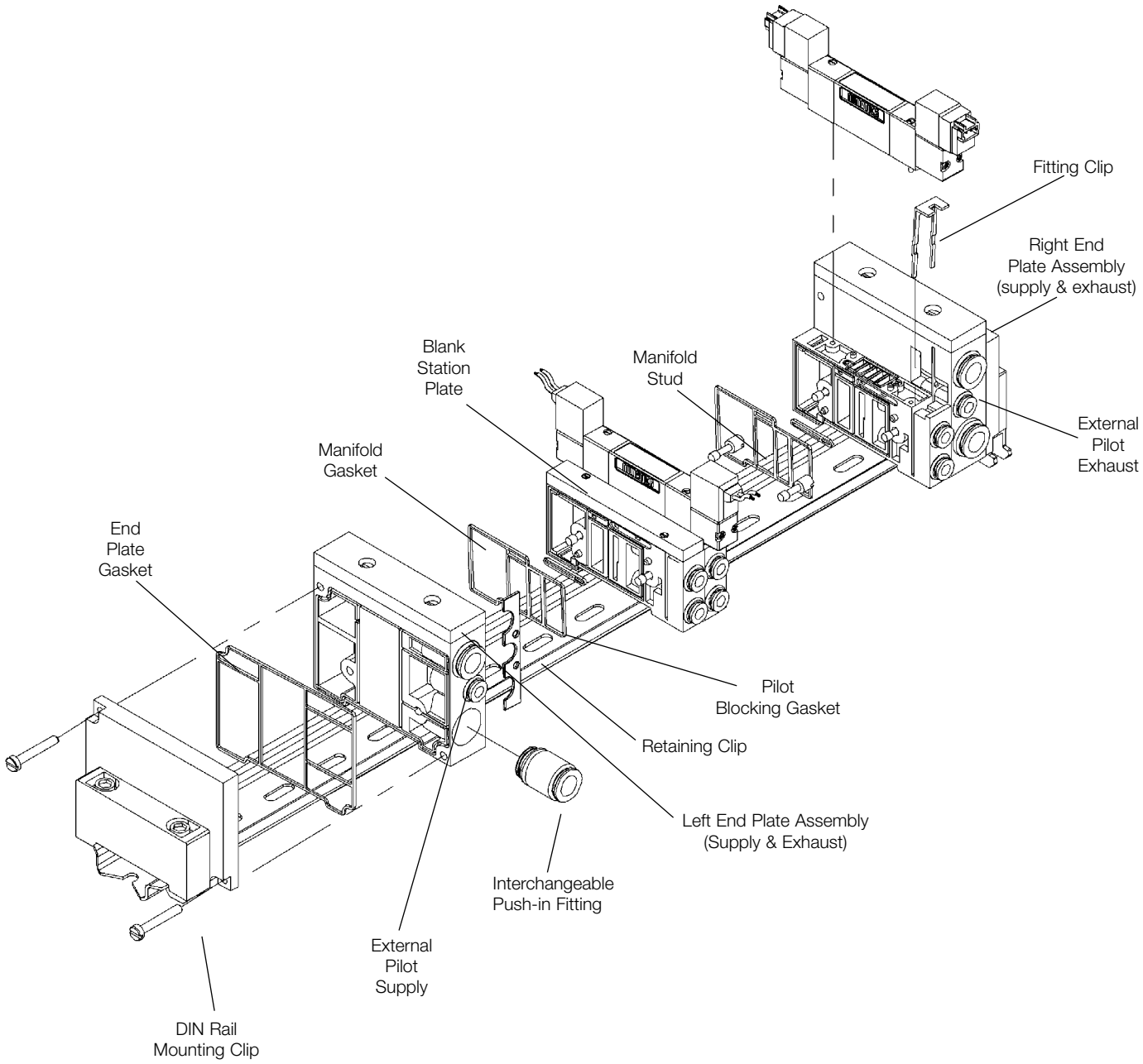
25 Pin Sub-D and Terminal Strip Options-Exploded View	12
Technical and Operating Data	13-14
How to Order	15
Single Station Manifold Dimensions	16
FlexiBlok Assembly Dimensions	17
Manifold Block Assemblies	18
Internal/External Pilot Selection	18
DIN Rail Clamp Kit	19
Interchangeable Cartridge Fittings and Port Plugs	19
Solenoid Valve Assemblies	20
Solenoid Control Board Circuit Diagrams	20
Valve Unit Pin Out	20
Solenoid Board Encapsulation Assembly	20
Blank Station Plate Kit	21
Mid-Station Supply and Exhaust Block	21
End Plate Assembly Kit	21
25 Pin Male Sub-D Housing Assembly Kit	22
Terminal Strip Housing Assembly Kit	22
Service Kits and Parts	23-25

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Manifold and Wiring Architecture

Hardwired and Plug-In Solenoid Valve Manifold
F2 Series

(exploded view)



Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

F2 Series – Individual Base Mount
– Hardwired Manifold Mount

5 Ported, 2 and 3 position, 4-way and dual 3-way,
Packed Spool
Cv: 0.25

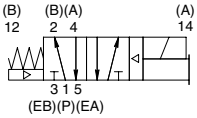
- Low current requirements
- Elimination of internal wiring
- Buna-N seals provide leak-proof sealing
- Pusher piston – high spool shifting force
- Adjustable port sizes utilizing interchangeable
- cartridge fittings



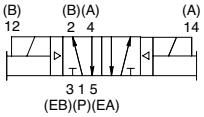
Technical Data

Valve Data	English	Metric
Cv	0.25	0.25
Flow Capacity	11.5 SCFM @ 80 PSIG upstream pressure to atmosphere	246 Nl/m @ 6 bar upstream to 5 bar down-stream
Operating Pressure Range: 4 Way Dual 3 Way	 28" Hg. Vacuum to 150 PSIG 0 to 100 PSIG	 Vacuum to 10 bar 0 to 7 bar
Pilot Pressure Range	35 to 115 PSIG	2.5 to 8 bar
Temperature Range (Ambient)	-10°F to +115°F	-23°C to +46°C

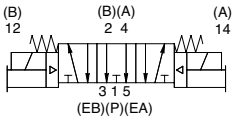
single solenoid air pilot
2 position 4-way



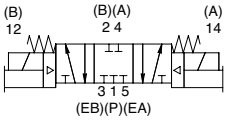
double solenoid air pilot
2 position 4-way



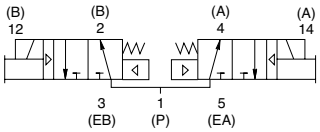
double solenoid air pilot
3 position 4-way
open center



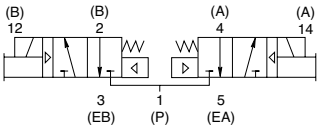
double solenoid air pilot
3 position 4-way
closed center



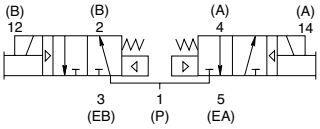
double solenoid air pilot
2 position dual 3-way
"14(A)" & "12(B)" NO



double solenoid air pilot
2 position dual 3-way
"14(A)" & "12(B)" NC



double solenoid air pilot
2 position dual 3-way
"14(A)"NC, "12(B)" NO



Operating Data

All Solenoids Are Continuous Duty Rated	24 VDC	12 VDC
Power (Watts)	0.50	0.50
Holding Current (Amps.)	0.032	0.064

Response Time in Seconds	Energize	De-Energize	Energize	De-Energize
2-Position, Single, Spring Return	0.013	0.013	0.013	0.013
2-Position, Double, Detented	0.006	N/A	0.006	N/A
3-Position, Spring Centered	0.008	0.022	0.008	0.022
Dual 3-way	0.011	0.010	0.011	0.010

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

How to Order

Valves

F2 1 BB A 41 B N 000 61

Series Identifier
F2 = Rubber Packed Spool Without Body to Base Plug

Port Size
0* = 10/32 UNF-3B (Port types "G" only)
1 = 1/8 (All port types)
2 = 1/4 (Port type "L and D" only)
C = M5 (Port type "G" only)
D = 5/32 (4mm) (Port type "L" only)
F = 6mm (Port type "L" only)
* Use for valve unit only (mounting = 00)

"A" & "B" Actuator
B = Solenoid Pilot with Flush Non-locking Override (4th or 4th and 5th Position)
W = Differential Air Return (5th Position Only)
00 = Manifold Block without Valve (Blank Station)

Function
4 = 2 Position, 4-Way
5 = 3 Position, 4-Way, Open Center, Dual Pressure
6 = 3 Position, 4-Way, Closed Center
A = Dual 3-Way, A Normally Open - B Normally Open*
C = Dual 3-Way, A Normally Closed - B Normally Open*
D = Dual 3-Way, A Normally Closed - B Normally Closed*
P = Indicates Blank Station Plate

*Valve Functions for use in Pressure Applications Only

Voltage
60 = 12 VDC
61 = 24 VDC
00 = Not Applicable

Options
14A = External Pilot Supply
000 = No Option

Port Type
L = Push-in Fitting (Manifold Mount Only)
N = NPTF (Individual Base Only)
0 = Valve Unit Only
G = G Tap (Individual Base Only)
D = Barbed Fitting (Manifold Mount Only)

Wiring Option
3 = Straight 2 Pin Plug-in with Light (DC Voltage)
B = Hardwired (DC Voltage)
D = 90 Degree 2 Pin Plug-in with Light (DC Voltage)
0 = Blank Station Plate

Mounting
41 = Individual Base Mount, Side Ports, Individual Exhaust
11 = Manifold Mount, Side Ports, Individual Exhaust
00 = Valve Unit Only

Manifold Assembly

AK 0 6 H 0000 2 L DRM

Electrical/Electronics Type & Location
0 = Hardwired Valve Manifold

Valve Line
6 = 2002 Series

Number of Valve Stations

A = 1	I = 9	Q = 17
B = 2	J = 10	R = 18
C = 3	K = 11	S = 19
D = 4	L = 12	T = 20
E = 5	M = 13	U = 21
F = 6	N = 14	V = 22
G = 7	O = 15	W = 23
H = 8	P = 16	X = 24

Options
STD = Standard
DRM = DIN Rail Mounting (Std .35mm)
MUF = Muffler in End Plates
DWM = DIN Rail with MUF

Port Type
L = Push-In

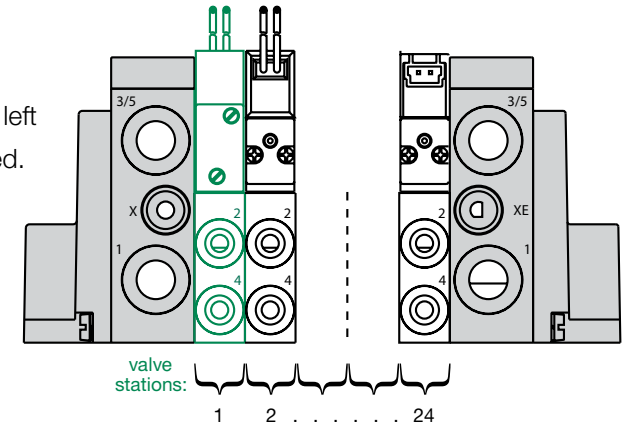
End Plate Port Size
2 = 1/4 (Port type "L" only)
H = 8mm (5/16)
1 = 1/8 NPTF or G Tap

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Manifold Assembly Example

AK0 Hardwired Valve Manifold

- Shaded components described by Assembly Kit (AK model number designation (page 5).
- Each valve manifold station is listed in sequential order from left to right when facing the port side of the manifold as indicated.

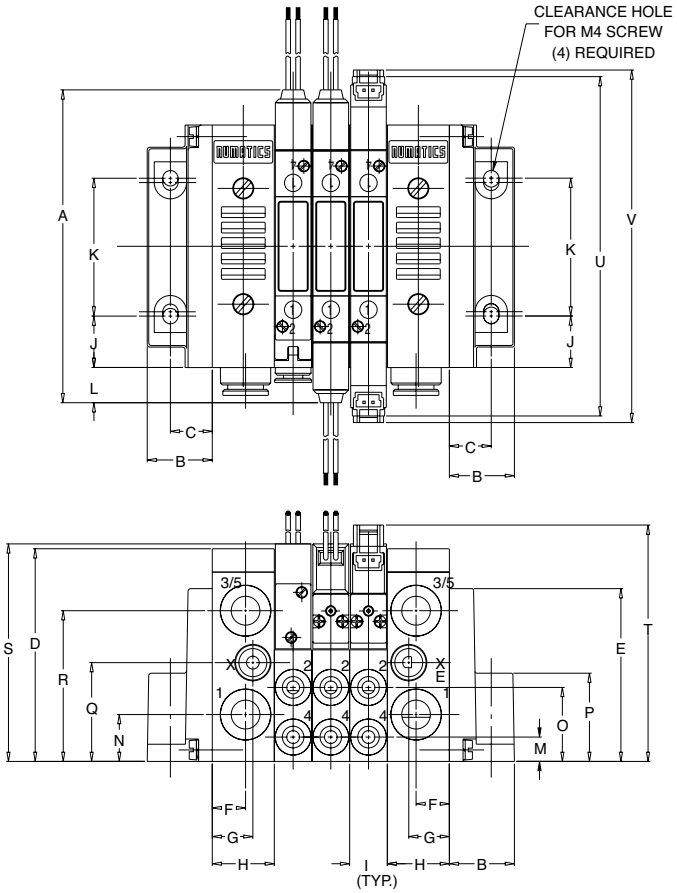


Example order:

	AK06D00002LSTD
Valve Station 1	F21BBA11BL00061
Valve Station 2	F21BBA11BL00061
Valve Station 3	F21BBA11BL00061
Valve Station 4	F21BBA11BL00061
	ASSEMBLED

Valve Manifold Assembly

Dimensions: Inches (mm)



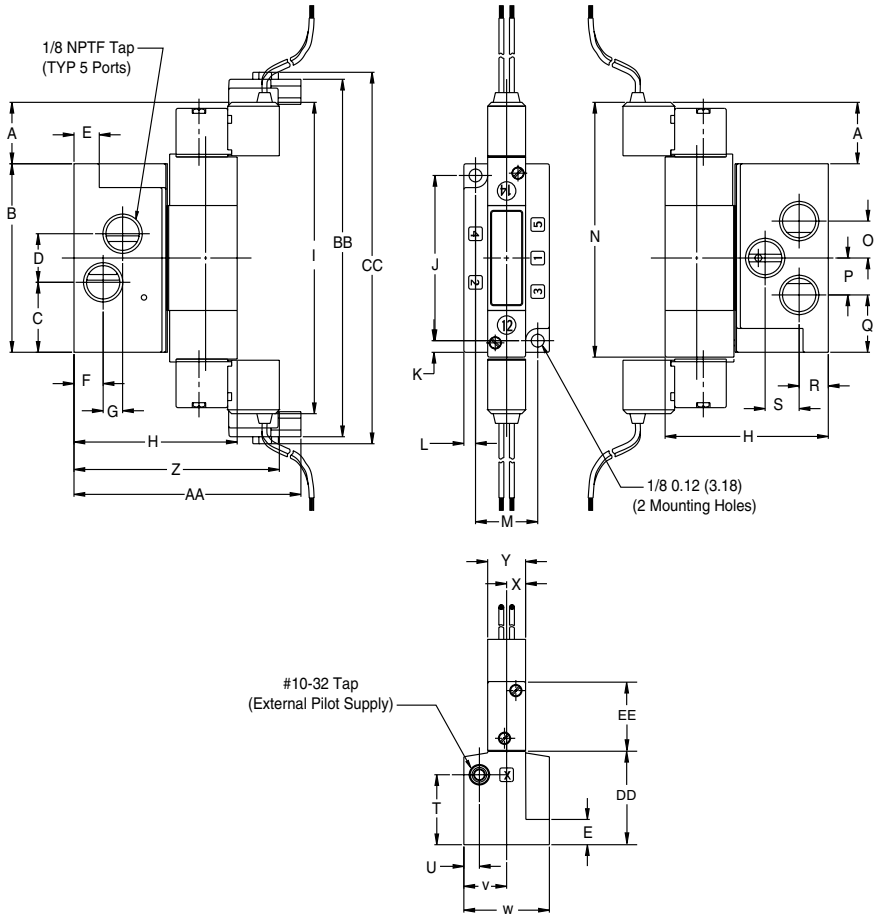
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
3.41 (86.6)	0.71 (18.0)	0.46 (11.9)	2.31 (58.7)	1.88 (47.8)	0.37 (9.4)	0.45 (11.4)	0.68 (17.3)	0.41 (10.5)	0.56 (14.2)	1.50 (38.1)	0.38 (9.7)	0.27 (6.9)	0.51 (13.0)	0.81 (20.6)

P	Q	R	S	T	U	V
0.96 (24.4)	1.08 (27.4)	1.64 (41.7)	2.37 (60.2)	2.57 (65.3)	3.69 (93.7)	3.84 (97.5)

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Individual Base Mount Assembly

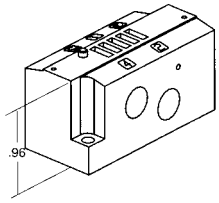
Dimensions: Inches (mm)



A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0.63 (16.0)	1.94 (49.3)	0.72 (18.3)	0.50 (12.7)	0.26 (6.6)	0.30 (7.70)	0.20 (5.1)	1.68 (42.7)	3.20 (81.3)	1.70 (43.2)	0.12 (3.0)	0.12 (3.0)	0.64 (16.3)	2.62 (66.5)	0.38 (9.7)	0.38 (9.7)

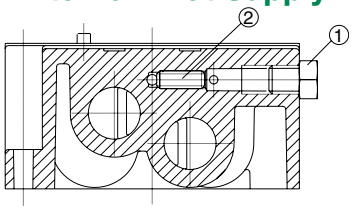
Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE
0.59 (15.0)	0.30 (7.6)	0.35 (8.9)	0.72 (18.3)	0.16 (4.1)	0.44 (11.2)	0.88 (22.4)	0.195 (5.00)	0.39 (9.9)	2.11 (53.6)	2.33 (59.2)	3.68 (93.5)	3.82 (97.0)	0.96 (24.4)	0.72 (18.3)

Individual Base Assembly Kit



Port Size	Part. No.
1/8 NPTF	203-1073
10/32 UNF-3B	203-1071
M5	203-1072

For External Pilot Supply

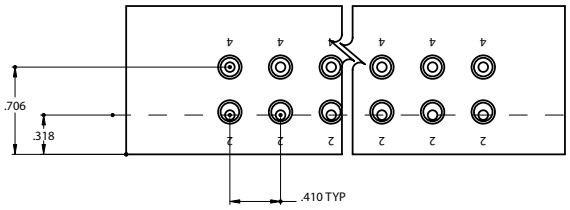


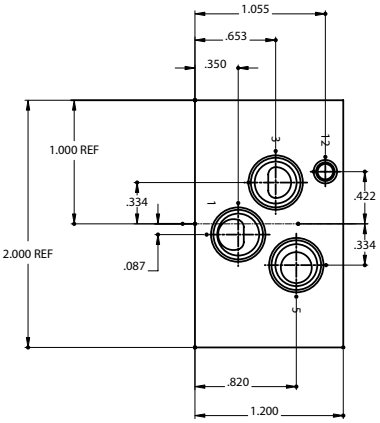
For External Pilot Supply, remove Plug 1 (129-127) and insert M3 Pipe Plug 2 (127-693) as shown

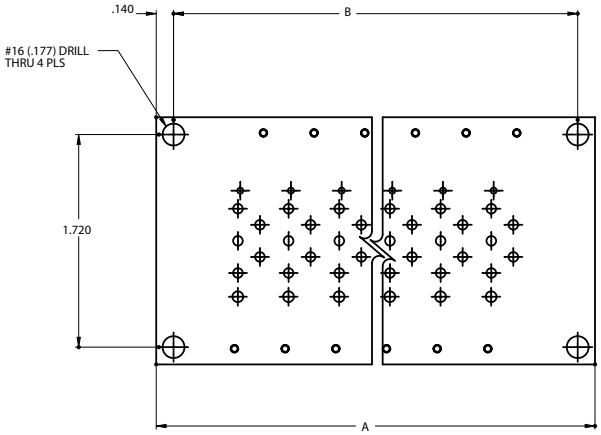
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Bar Shock Manifold

Stations	Part. No.
2	106-1355
4	106-1356
6	106-1357
8	106-1358
10	106-1359
12	106-1360
14	106-1361
16	106-1362
18	106-1363
20	106-1364



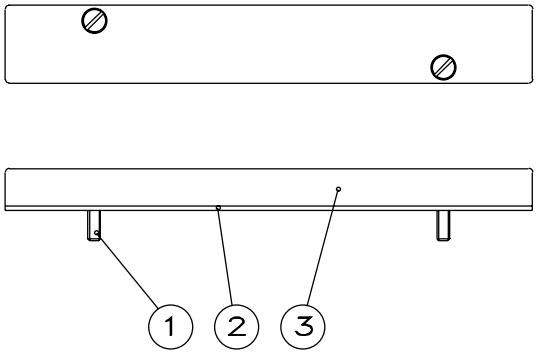




Blank Station Plate Kit

239-1055

Det. No.	No. Req'd	Part Name	Part No.
1	2	Screw	127-841
2	1	Gasket	113-526
3	1	Blank Station Plate	104-698



Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Plug Connector



Lead Length	Part. No.
12" Lead	230-443
48" Lead	230-476
120" Lead	230-486

Plug connector is not included with solenoid assemblies or valve models. Must order separately.
Note: Wire Gage = 22 AWG

Pilot Valve Assembly



Hardwired



Straight Plug-in

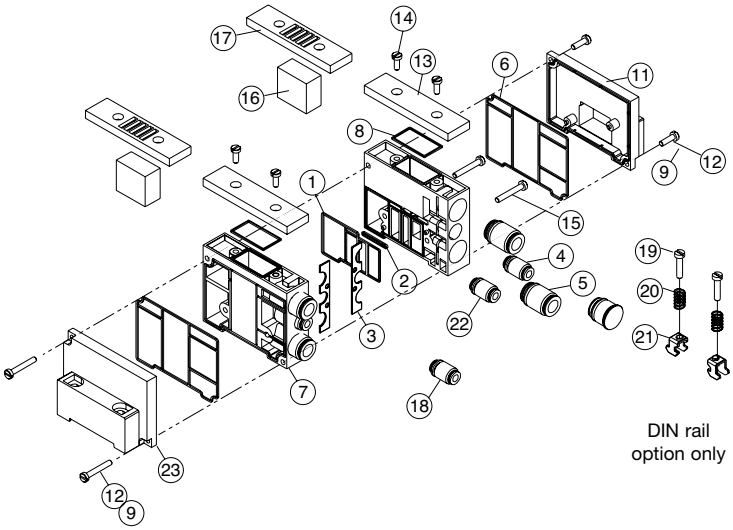


90° Plug-in

Voltage	Hardwired	Straight Plug-In	90 Degree Plug-In
12 VDC	236-378	236-374	236-376
24 VDC	236-379	236-587	236-583

Plug connector is not included with solenoid assemblies or valve models. Must order separately.

End Plate Kits



DIN rail option only

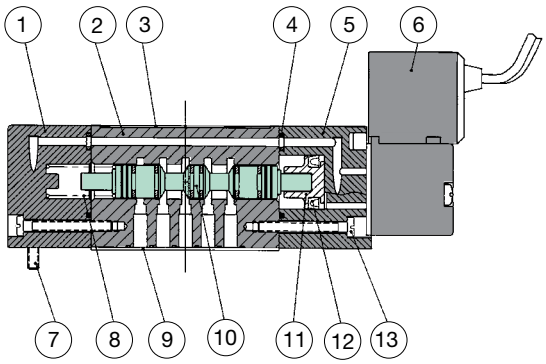
Det. No.	No. Req'd	Part Name	Part No.
1	1	Gasket	113-518
2	1	Gasket	113-515
3	2	Fitting Clip	125-780
4	1	5/32 Slip-in Fitting	134-498
4	1	6mm Slip-in Fitting	134-499
5	4	Fitting	See-p. 21
6	2	Gasket	113-503
7	1	LH End Plate	104-696
8	2	Gasket	113-519
9	4	Lockwasher	128-192
10	1	RH End Plate	104-697
11	1	RH Mounting Cover	105-385
12	4	Screw	127-844
13	2	End Plate Cover	105-387
14	4	Screw	127-838
15	2	Screw	127-839
16	2	Muffler (optional)	125-791
17	2	Vented Cover (optional)	105-388
18	2	Exhaust Plug (optional)	239-1085
19	4	Screw	127-472
20	4	Spring	115-355
21	4	Clamp	125-720
22	1	Pilot Exhaust Plug	239-1086
23	1	LH Mounting Cover	105-381

Port Type	Push-In			Push-In		
PORT	1	3/5	X, XE	1	3/5	X, XE
PORT SIZE	1/4	1/4	5/32	8mm	8mm	8mm
Kit w/o muffler, w/o DIN Rail	239-1210			239-1208		
Kit w/o muffler, w/ DIN Rail	239-1209			239-1207		
Kit w/ muffler, w/o DIN Rail	239-1214			239-1212		
Kit w/ muffler, w/ DIN Rail	239-1213			239-1211		

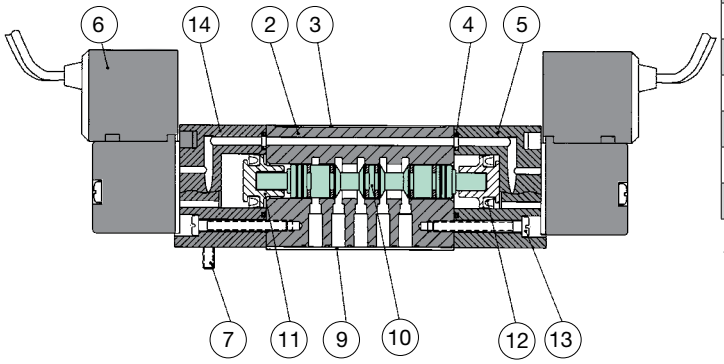
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

F2 Valve Service Kits and Parts, 2 and 3 Position 4-Way

Kit No. MKF2-K1
(for models F20BW4, F21BW4, F2CBW4)



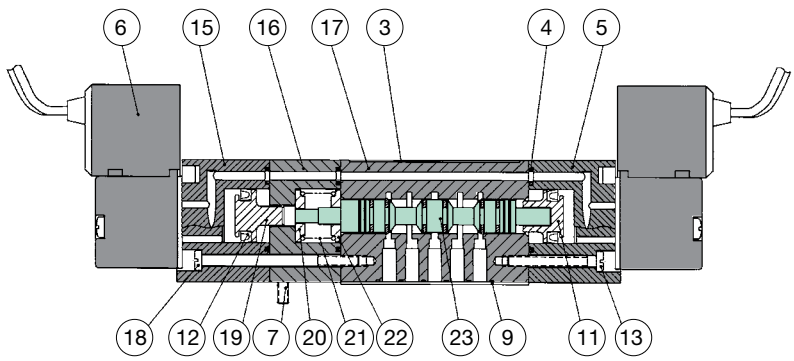
Kit No. MKF2-K2
(for models F20BB4, F21BB4, F2CBB4)



Det. No.	BW4	BB4	BB5/6	Part Name	Part No.
1	1	N/A	N/A	Spring Cover Ass'y	204-594
2	1	1	N/A	Body (not sold separately)	
3	1	1	1	Nameplate	122-1059
4	2*	2*	3*	Gasket	113-517
5	1	1	1	Pilot Adaptor Ass'y	219-391
6	1	2	2	Pilot Valve Ass'y	See p. 8
7	2	2	2	Screw	127-832
8	1*	N/A	N/A	Spring	115-357
9	1*	1*	1*	Gasket	113-525
10	1*	1*	N/A	Spool Ass'y (BA4, BB4)	221-176
11	1*	2*	1*	Piston	117-238
12	1*	2*	2*	U-Cup Seal	124-333
13	4	4	2	Screw	127-834
14	N/A	1	N/A	Pilot Adaptor Ass'y	219-393
15	N/A	N/A	1	Pilot Adaptor Ass'y	219-392
16	N/A	N/A	1	Adaptor	119-613
17	N/A	N/A	1	Body	101-721
18	N/A	N/A	2	Screw	127-840
19	N/A	N/A	1*	Piston	117-240
20	N/A	N/A	1*	Spring Retainer	116-506
21	N/A	N/A	1*	Spring	115-360
22	N/A	N/A	1	Spring Retainer	116-507
23	N/A	N/A	1*	Spool Ass'y (BB5)	221-175
23	N/A	N/A	1*	Spool Ass'y (BB6)	221-177

*Indicated part included in kit.

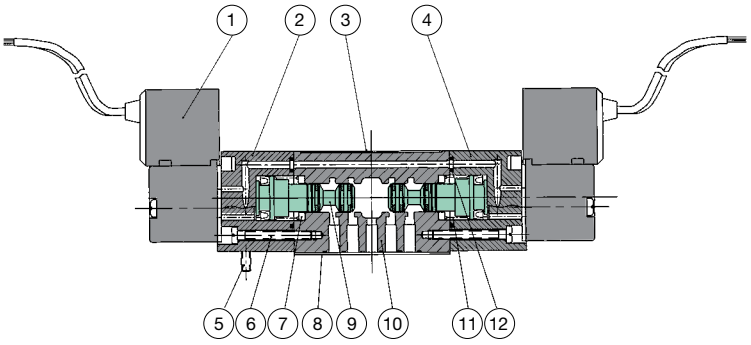
Kit No. MKF2-K35 (for models F20BB5, F21BB5, F2CBB5)
Kit No. MKF2-K36 (for models F20BB6, F21BB6, F2CBB6)



Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

F2 Valve Service Kits and Parts, Dual 3-Way

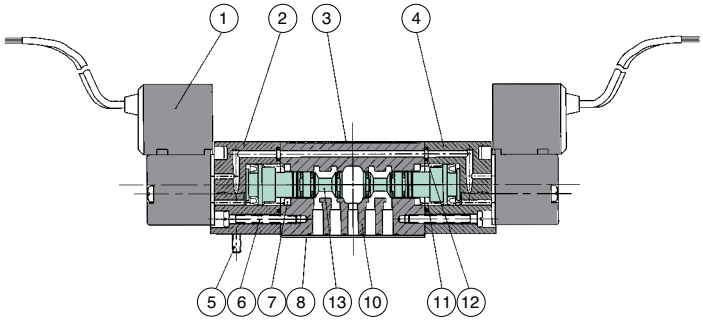
Kit No. MKF2-K3A
(for models F20BBA, F21BBA, F2CBBA)



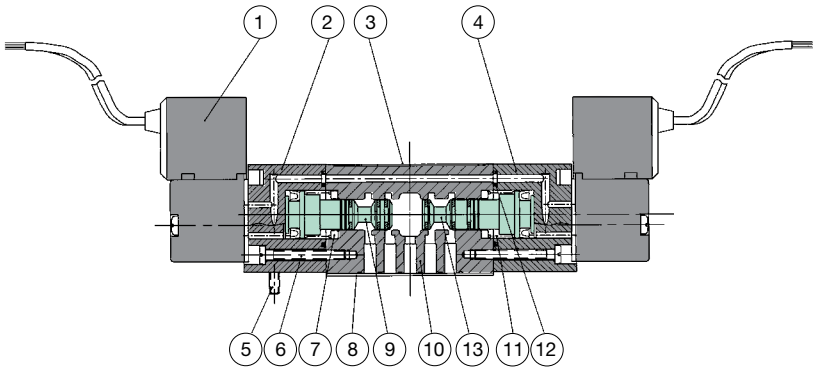
Det. No.	BBA	BBD	BBC	Part Name	Part No.
1	2	2	2	Pilot Valve Ass'y	See p. 9
2	1	1	1	Pilot Adaptor Ass'y	219-393
3	1	1	1	Nameplate	122-1059
4	1	1	1	Pilot Adaptor Ass'y	219-391
5	2	2	2	Screw	127-832
6	4	4	4	Screw	127-834
7	2*	2*	2*	Bumper	114-189
8	1*	1*	1*	Gasket	113-525
9	2*	N/A	1*	Spool Ass'y (N.O.)	221-178
10	1	1	1	Body (not sold separately)	
11	2*	2*	2*	Spring	115-361
12	2*	2*	2*	Gasket	113-517
13	N/A	1*	1*	Spool Ass'y (N.C.)	221-179

*Indicated part included in kit.

Kit No. MKF2-K3D
(for models F20BBD, F21BBD, F2DBBD, F2FBBD)



Kit No. MKF2-K3C
(for models F20BBC, F21BBC, F2DBBC, F2FBBC)

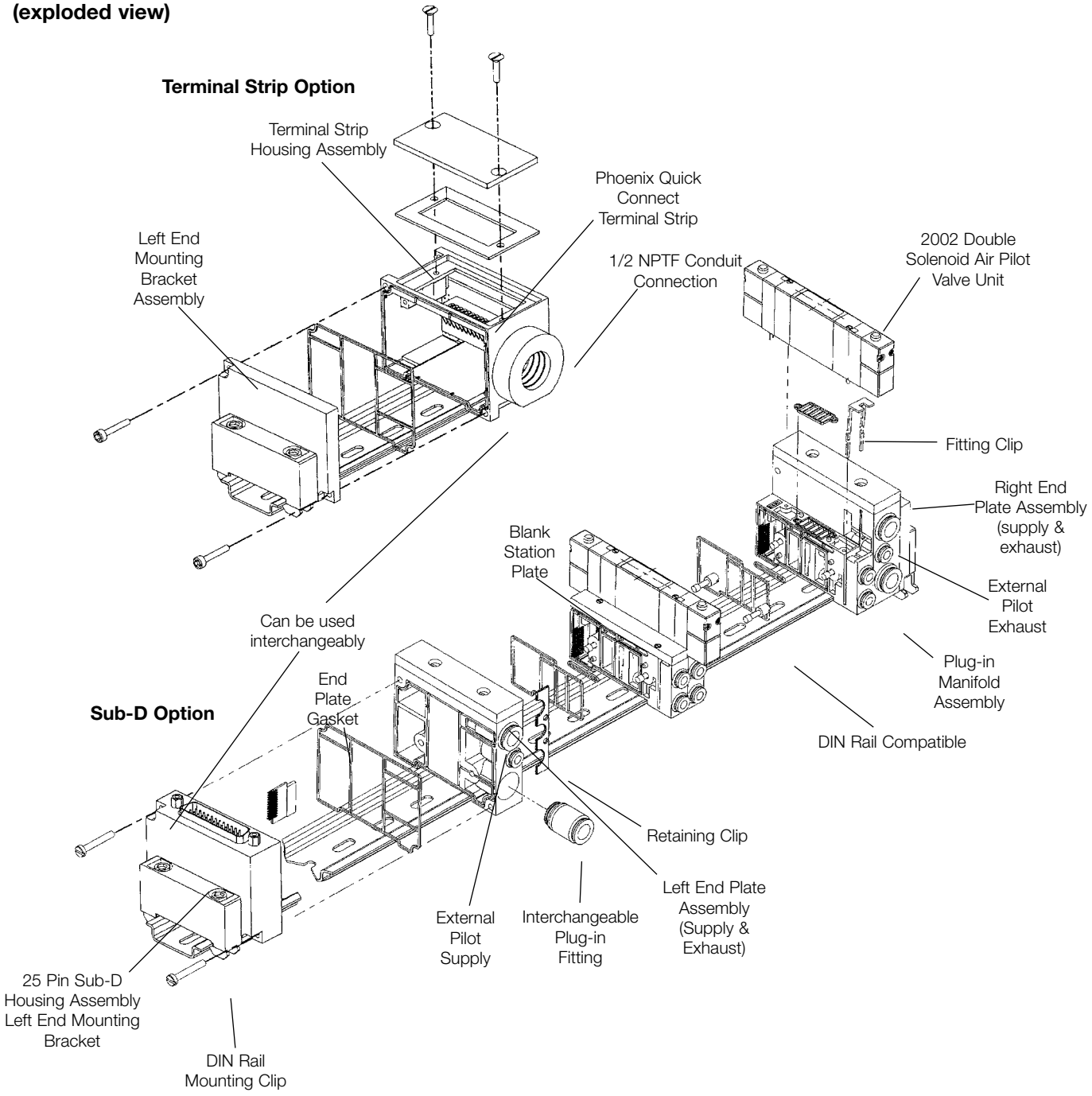


Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Manifold and Wiring Architecture

25 Pin Sub-D and Terminal Strip Options – Body to Base Plug-In
02 Spool & Sleeve series & R2 Packed Spool series

(exploded view)



Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

02 Series



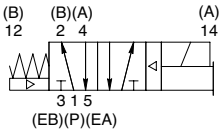
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve
Cv: 0.20

- Solenoid air pilot actuated
- Low current requirements
- Elimination of internal wiring
- Pusher piston – high spool shifting force
- Modular Fieldbus electronics and I/O
- Adjustable port sizes utilizing interchangeable cartridge fittings

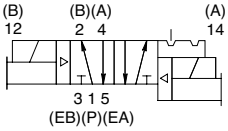
Technical Data

Valve Data	English	Metric
Cv	0.20	0.20
Flow Capacity	9.2 SCFM @ 80 PSIG upstream pressure to atmosphere	197 Nl/m @ 6 bar upstream to 5 bar down-stream
Operating Pressure Range:	28" Hg. Vacuum to 150 PSIG	Vacuum to 10 bar
Pilot Pressure Range	35 to 100 PSIG	2.5 to 7 bar
Temperature Range (Ambient)	-10˚F to +115˚F	-23˚C to +46˚C

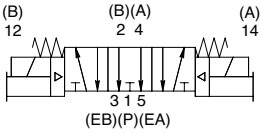
single solenoid air pilot
2 position 4-way



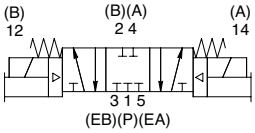
double solenoid air pilot
2 position 4-way



double solenoid
3 position 4-way
open center



double solenoid
3 position 4-way
closed center



Operating Data

All Solenoids Are Continuous Duty Rated	24 VDC		12 VDC	
Power (Watts)	0.50		0.50	
Holding Current (Amps.)	0.02		0.064	
Response Time in Seconds	**Energize**	**De-Energize**	**Energize**	**De-Energize**
2-Position, Single, Spring Return	0.014	0.020	0.013	0.013
2-Position, Double, Detented	0.010	N/A	0.008	N/A
3-Position, Spring Centered	0.009	0.057	0.008	0.022

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

R2 Series - Packed Spool



5 Ported, 2 and 3 position, 4-way and dual 3-way, Packed Spool

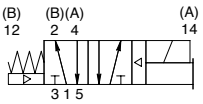
Cv: 0.25 (4-way) 0.20 (Dual 3-way)

- Solenoid air pilot actuated
- Low current requirements
- Elimination of internal wiring
- Buna-N seals provide leak-proof sealing
- Pusher piston – high spool shifting force
- Modular Fieldbus electronics and I/O
- Adjustable port sizes utilizing interchangeable cartridge fittings

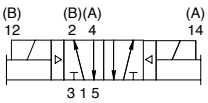
Technical Data

Valve Data	English	Metric
Cv	0.25	0.25
Flow Capacity	11.5 SCFM @ 80 PSIG upstream pressure to atmosphere	246 Nl/m @ 6 bar upstream to 5 bar down-stream
Operating Pressure Range: 4 Way Dual 3 Way	 28" Hg. Vacuum to 100 PSIG 0 to 100 PSIG	 Vacuum to 7 bar 0 to 7 bar
Pilot Pressure Range	35 to 100 PSIG	2.5 to 7 bar
Temperature Range (Ambient)	-10˚F to +115˚F	-23˚C to +46˚C

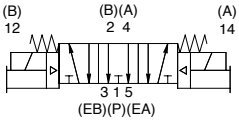
single solenoid air pilot
2 position 4-way



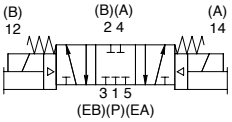
double solenoid air pilot
2 position 4-way



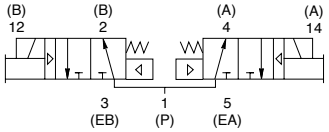
double solenoid air pilot
3 position 4-way
open center



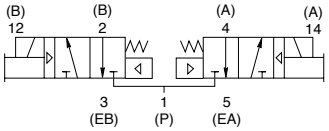
double solenoid air pilot
3 position 4-way
closed center



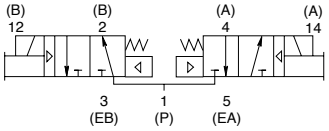
double solenoid air pilot
dual 3-way
“12(B)” & “14(A)” NO



double solenoid air pilot
dual 3-way
“12(B)” & “14(A)” NC



double solenoid air pilot
2 position dual 3-way
“12(B)” NO, & “14(A)” NC



Operating Data

All Solenoids Are Continuous Duty Rated	24 VDC		12 VDC	
Power (Watts)	0.50		0.50	
Holding Current (Amps.)	0.02		0.064	
Response Time in Seconds	**Energize**	**De-Energize**	**Energize**	**De-Energize**
2-Position, Single, Spring Return	0.017	0.013	0.017	0.013
2-Position, Double, Detented	0.010	N/A	0.010	N/A
3-Position, Spring Centered	0.009	0.022	0.009	0.022
Dual 3-way	0.018	0.010	0.018	0.010

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

How to Order

Valves

R2 1 BB A Z4 M K 000 61

Series Identifier
02 = Spool/Sleeve with Body to Base Plug
R2 = Rubber Packed Spool With Body to Base Plug

Port Size
0 = Used for Valve Unit Only, Mounting = 00
1 = 1/8
2 = 1/4
D = 5/32 (4mm) (Port type "K" only)
F = 6mm (Port type "K" only)

"A" & "B" Actuator
B = Solenoid Pilot with Flush Non-locking Over ride (4th or 4th And 5th Position)
W = Differential Air Return (5th Position Only)
00 = Manifold Block without Valve (Blank Station)

Function
4 = 2 Position, 4-Wayay
5 = 3 Position, 4-Way, Open Center, Dual Pressure
6 = 3 Position, 4-Way, Closed Center
A = Dual 3-Way, A Normally Open - B Normally Open* (R2 series only)
C = Dual 3-Way, A Normally Closed - B Normally Open* (R2 series only)
D = Dual 3-Way, A Normally Closed - B Normally Closed* (R2 series only)
P = Indicates Blank Station Plate

*Valve Functions for use in Pressure Applications Only

Voltage
60 = 12 VDC
61 = 24 VDC

Options
11B = Flush Locking Override
14A = External Pilot Supply
000 = No Option

Port Type
K = Push-in Fitting (Manifold Mount Only)
P = Valve Unit Only

Wiring Option
M = Plug-In DC w/Light
O = Blank Station Plate

Mounting
Z3 = Manifold Block, Side Ports Only, Single Solenoid Output
Z4 = Manifold Block, Side Ports Only, Double Solenoid Output
00 = Valve Unit Only

Manifold Assembly

AK F 6 H 0000 2 L DRM

Electrical/Electronics Type & Location
F = Terminal Strip
J = 25 Pin Sub-D

Valve Line
6 = 2002 Series

***Number of Valve Stations**

A = 1	I = 9	Q = 17
B = 2	J = 10	R = 18
C = 3	K = 11	S = 19
D = 4	L = 12	T = 20
E = 5	M = 13	U = 21
F = 6	N = 14	V = 22
G = 7	O = 15	
H = 8	P = 16	

Options
STD = Standard
DRM = DIN Rail Mounting (Std .35mm)
MUF = Muffler in End Plates
DWM = DIN Rail with MUF

Port Type
L = Push-in

End Plate Port Size
2 = 1/4 (Port type "L" only)
H = 8mm (5/16)

The electrical connection type.

– Sub-D (AK"J") 22 maximum solenoid outputs

– Terminal Strip (AK"F") 16 maximum solenoid outputs

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

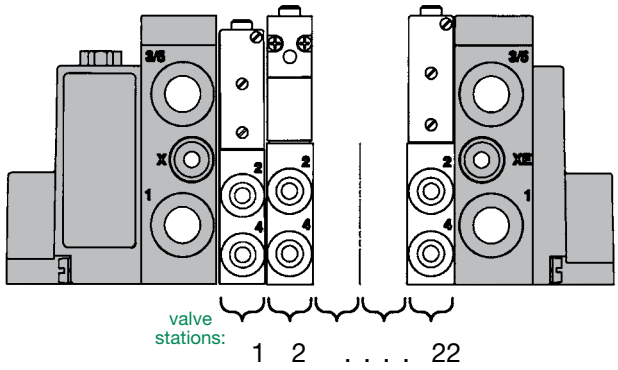
Manifold Assembly Example

AKJ 25 Pin Sub-D

- Shaded components described by Assembly Kit (AK) model number designation (page 15).
- 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:

	AKJ6D00002LSTD
valve station 1	021BW4Z3ML00061
valve station 2	021BW4Z3ML00061
valve station 3	021BB4Z4ML00061
valve station 4	021BB4Z4ML00061
	ASSEMBLED

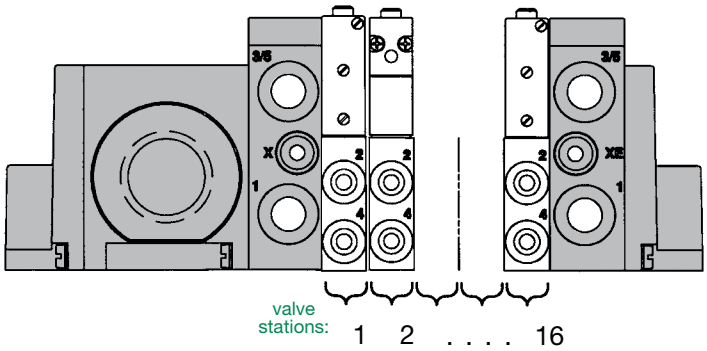


AKF Terminal Strip

- Ordered using the same method as for AKJ

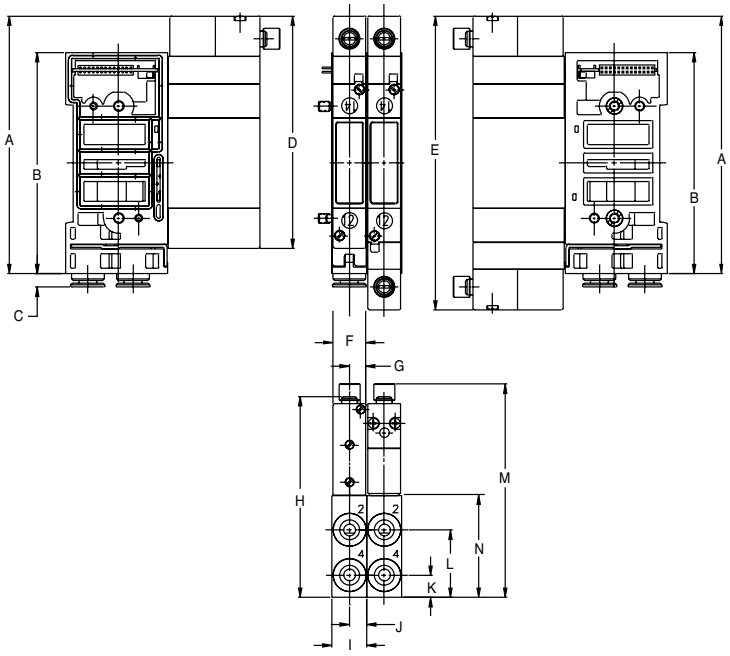
Example order:

	AKF6D00002LSTD
valve station 1	R21BW4Z3ML00061
valve station 2	R21BW4Z3ML00061
valve station 3	R21BB4Z4ML00061
valve station 4	R21BB4Z4ML00061
	ASSEMBLED



Assembly Dimensions Single Station Valve Manifold

Dimensions: Inches (mm)



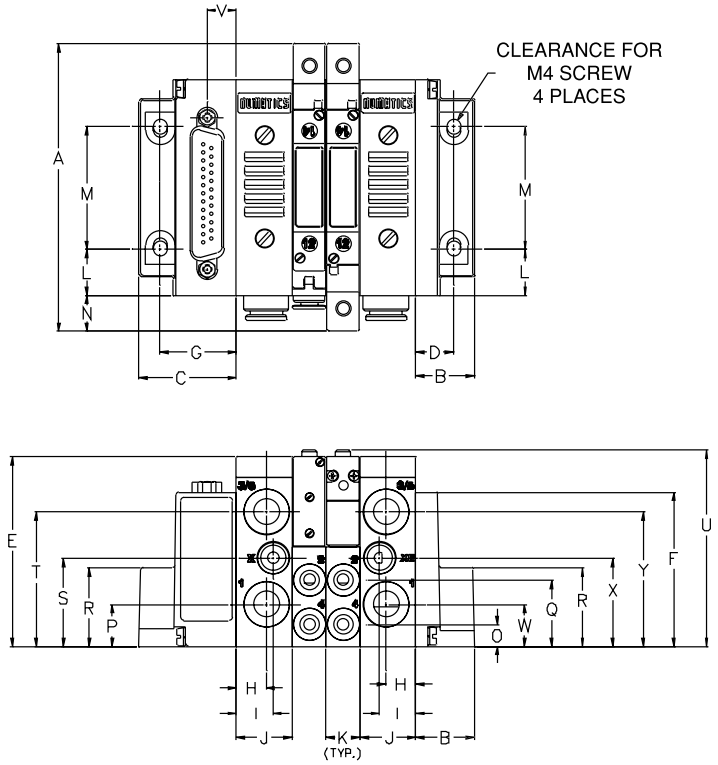
A	B	C	D	E	F	G	H	I	J	K	L	M	N
3.08 (78.1)	2.64 (67.1)	0.16 (4.2)	2.78 (70.5)	3.51 (89.2)	0.39 (9.9)	0.195 (4.95)	2.40 (61.0)	0.41 (10.5)	0.206 (5.30)	0.27 (6.9)	0.81 (20.6)	2.55 (64.8)	1.21 (30.7)

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

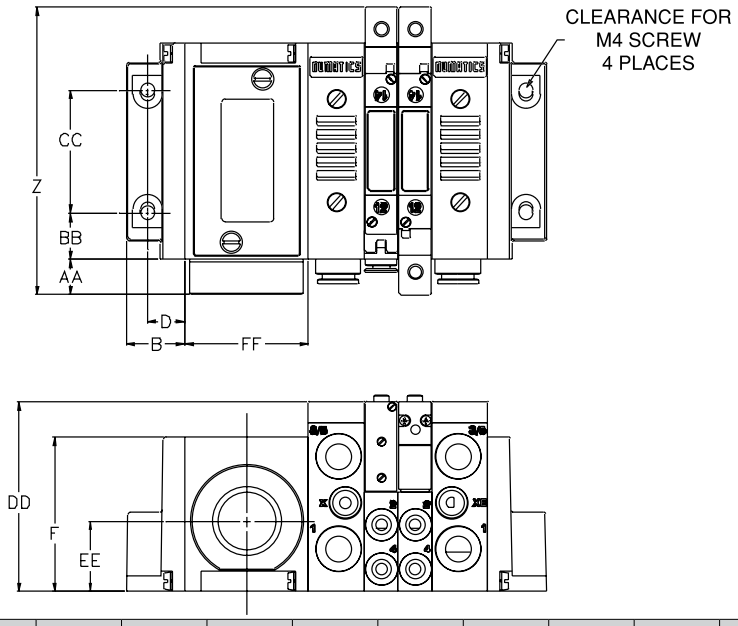
FlexiBlok® Assembly

Dimensions: Inches (mm)

25 pin Sub-D Housing Assembly



Terminal Strip Housing Assembly

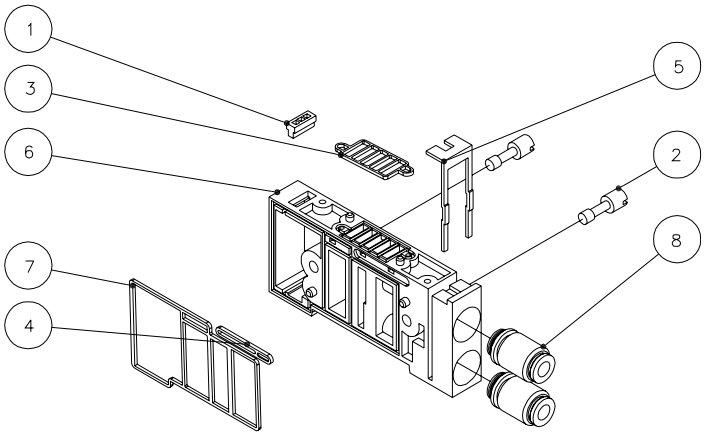


A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
3.51 (89.2)	0.71 (18.0)	1.18 (30.0)	0.46 (11.9)	2.31 (58.7)	1.88 (47.8)	0.93 (23.6)	0.37 (9.4)	0.45 (11.4)	0.68 (17.3)	0.41 (10.5)	0.56 (14.2)	1.50 (38.1)	0.44 (11.2)	0.27 (6.9)	0.51 (13.0)

Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF
0.81 (20.6)	0.96 (24.4)	1.08 (27.4)	1.64 (41.7)	2.40 (61.0)	0.36 (9.1)	0.51 (13.0)	1.08 (27.4)	1.64 (41.7)	3.50 (88.9)	0.43 (10.9)	0.56 (14.2)	1.50 (38.1)	2.31 (58.7)	0.85 (21.6)	1.50 (38.1)

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

Manifold Block Assemblies



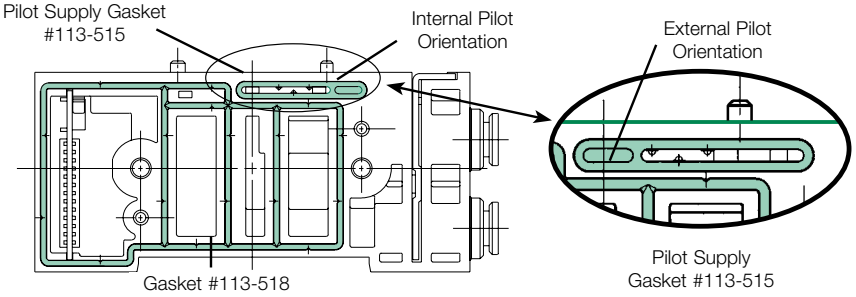
Det. No.	No. Req'd	Part Name	Part No.
1	1	Shroud, White (Double)	125-786
1	1	Shroud, Black (Single)	125-785
2	1	Stud	125-787
3	1	Gasket (Body)	113-516
4	1	Blocking Gasket	113-515
5	1	Clip (Fitting)	125-784
6	1	Manifold	106-1208
7	1	Gasket (Manifold)	113-518
8	2	Push-in (1/4 Tube)	134-518
8	2	Push-in (1/8 Tube)	134-500
8	2	Push-in (4mm Tube)	134-498
8	2	Push-in (6mm Tube)	134-499



Plug color visible from top of manifold block.

Manifold Description	1/8 Push-In	1/4 Push-In	5/32-4mm Push-In	6mm Push-In
Single "Z-board"™	239-1069	239-1339	239-1071	239-1073
Double "Z-board"™	239-1070	239-1340	239-1072	239-1074
w/o "Z-board"™	N/A	239-1343	239-1205	239-1206

Internal/External Pilot Selection

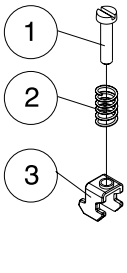


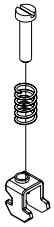
Note:

- All manifolds will have the pilot blocking gasket (113-515) installed with internal pilot supply orientation as standard.
- For external pilot supply, valve stations should be ordered with 14A option code.

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

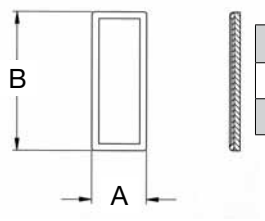
DIN Rail Clamp Kit 239-980





Det. No.	No. Req'd	Part Name	Part No.
1	4	Screw	127-472
2	4	Spring	115-355
3	4	Clamp	125-720

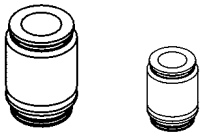
Blocking Discs



Port	Part No.	A	B
1	124-335	0.228	0.809
3/5	124-336	0.318	0.809

Interchangeable Cartridge Fittings and Port Plugs

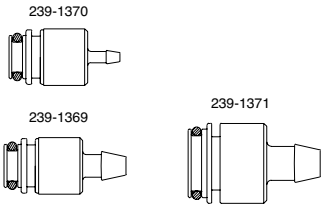
Push-in Fittings



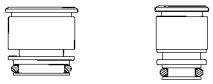
Size	Ports	Part No.
4mm (5/32")	Ports 2, 4, X, XE	134-498
6mm	Ports 2, 4, X, XE	134-499
1/8"	Ports 2, 4, X, XE	134-500
1/4"	Ports 2, 4, X, XE	134-518
8mm (5/16")	Ports 1, 3/5	134-501
1/4"	Ports 1, 3/5	134-502

Barbed Fittings

Size	Ports	Part No.
1/8"	Ports 2, 4, X, XE	239-1370
1/4"	Ports 2, 4, X, XE	239-1369
5/16"	Ports 1, 3/5	239-1371



Port Plugs



Size	Ports	Part No.
Large	Ports 1, 3/5	239-1085
Small	Ports 2, 4	239-1086

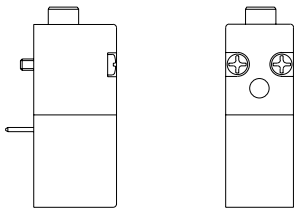




Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

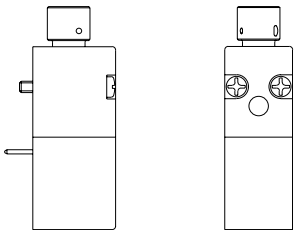
Solenoid Pilot Valve Assemblies

Non-Locking Override



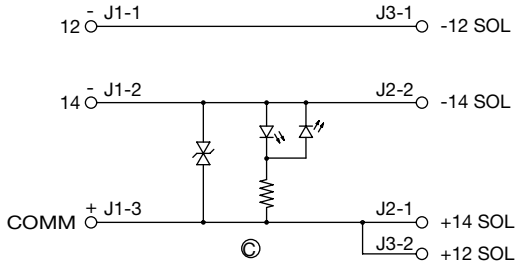
VDC	Part. No.
12	236-571
24	236-565

Locking Override

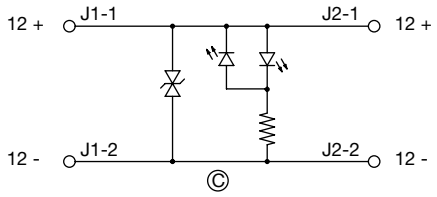


VDC	Part. No.
12	236-572
24	236-566

Solenoid Control Board Circuit Diagrams

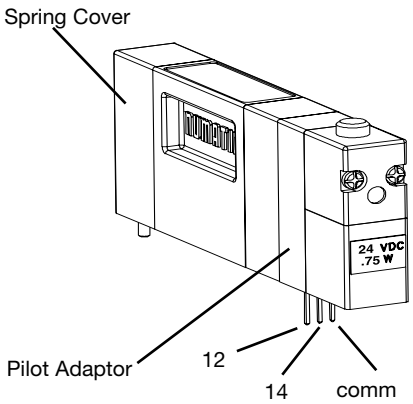


14 End

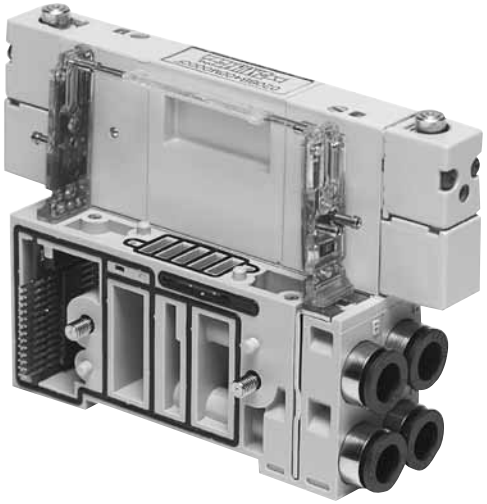


12 End

Valve Unit Pin Out



Solenoid Board Encapsulation Assembly



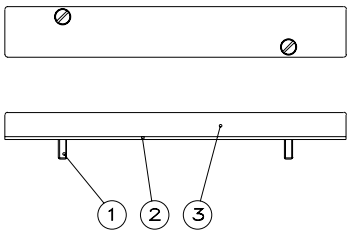
Complete elimination of internal wiring!

Description	
"12" End	230-889
"14" End	230-888

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

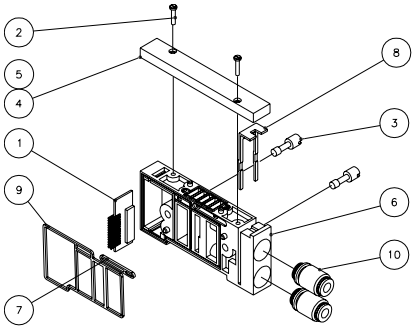
Blank Station Plate Kit

239-1055



Det. No.	No. Req'd	Part Name	Part No.
1	2	Screw	127-841
2	1	Gasket	113-526
3	1	Blank Station Plate	104-698

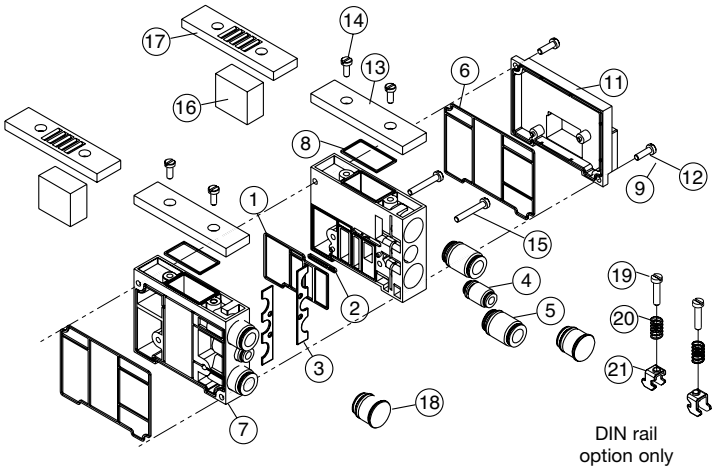
Mid-Station Supply and Exhaust Block



Port Type	Part. No.
1/4	239-1348
6mm	239-1299

Det. No.	No. Req'd	Part Name	Part No.
1	1	Transfer Board Ass'y	256-683
2	2	Screw	127-841
3	2	Stud	125-787
4	1	Blank Station Plug	104-698
5	1	Gasket	113-526
6	1	Mid Station Plate	125-857
7	1	Blocking Gasket	113-515
8	1	Clip (Fitting)	125-784
9	1	Gasket (Manifold)	113-518
10	2	Cartridge (6mm tube)	134-499

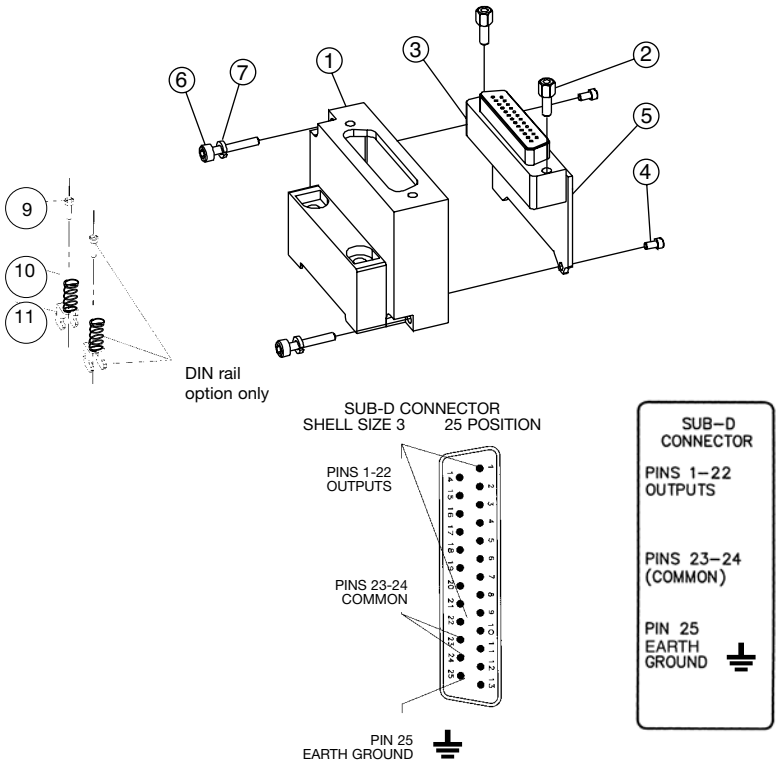
End Plate Kits



Port Type	Push-In			Push-In		
PORT	1	3/5	X, XE	1	3/5	X, XE
PORT SIZE	1/4	1/4	5/32	8mm	8mm	8mm
Kit w/o muffler, w/o DIN Rail	239-1068			239-1062		
Kit w/o muffler, w/ DIN Rail	239-1067			239-1061		
Kit w/ muffler, w/o DIN Rail	239-1084			239-1078		
Kit w/ muffler, w/ DIN Rail	239-1083			239-1077		

Det. No.	No. Req'd	Part Name	Part No.
1	1	Gasket	113-518
2	1	Gasket	113-515
3	2	Fitting Clip	125-780
4	2	Push-in Fitting	See p. 19
5	4	Push-in Fitting	See p. 19
6	2	Gasket	113-503
7	1	LH End Plate	104-696
8	2	Gasket	113-519
9	2	Lockwasher	128-192
10	1	RH End Plate	104-697
11	1	RH Mounting Cover	105-385
12	2	Screw	127-844
13	2	End Plate Cover	105-387
14	2	Screw	127-838
15	2	Screw	127-839
16	2	Muffler (optional)	125-791
17	2	Vented Cover (optional)	105-388
18	2	Exhaust Plug (optional)	239-1085
19	4	Screw	127-472
20	4	Spring	115-355
21	4	Clamp	125-720

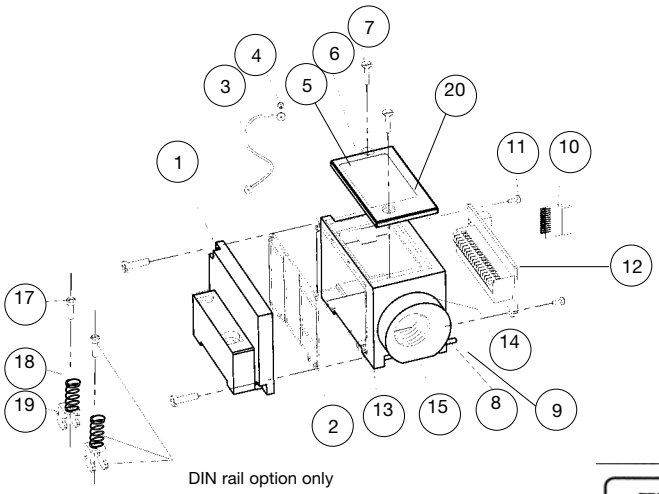
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.



Det. No.	No. Req'd	Part Name	Part No.
1	1	Housing	105-379
2	1	Transfer Connector	256-583
3	2	Hex Screw	127-825
4	1	Gasket	113-507
5	2	Screw	127-794
6	1	Sub-D Board Ass'y	256-584
7	2	Screw	127-839
8	2	Lockwasher	128-192
9	2	Screw	127-472
10	2	Spring	115-355
11	2	Clamp	125-720
12	1	Clamp	122-1057

Sub-D Housing Kits	Part No.
With DIN Rail	239-1088
Without DIN Rail	239-1087

Terminal Strip Housing Assembly Kit



Det. No.	No. Req'd	Part Name	Part No.
1	1	LH DIN Rail Mtg Cover	105-381
2	1	Gasket	113-503
3	1	Cover Strap	125-772
4	1	Stick Screw	127-172
5	1	Cover	105-384
6	1	Gasket	113-508
7	2	Screw	127-826
8	4	Screw	127-844
9	6	Lockwasher	128-192
10	1	Transfer Connector	256-583
11	3	Screw	127-794
12	1	Terminal Strip Board	256-585
13	1	Housing	125-765
14	1	Gasket	113-509
15	1	Adaptor 1/2" NPTF	119-598
*16	2	Adaptor Mtg. Screw	127-827
17	2	Screw	127-472
18	2	Spring	115-355
19	2	Clamp	125-720
20	1	Nameplate	122-1057

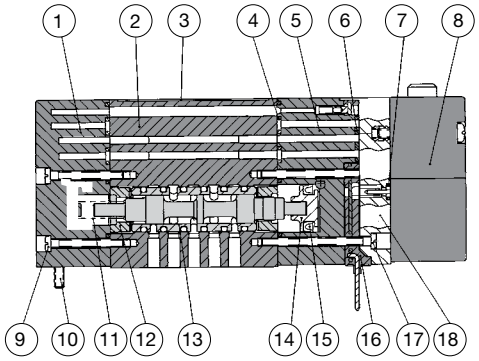
*Attaches det #15, not shown for clarity.

Terminal Strip Housing Kits	Part No.
With DIN Rail	239-1090
Without DIN Rail	239-1089

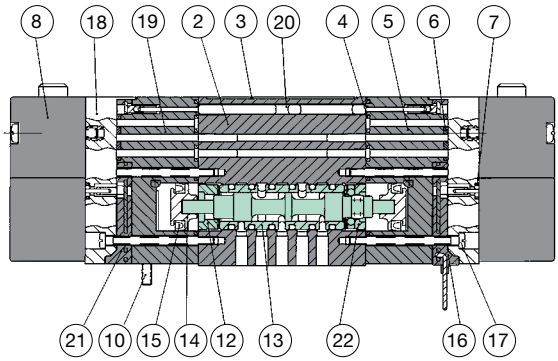
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

02 Valve Service Kits and Parts, 2 and 3 Position 4-Way

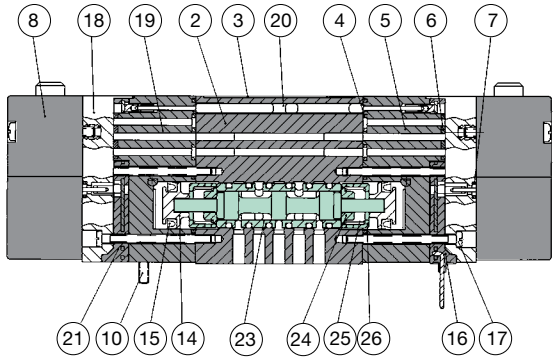
Kit No. MK02-K1
(for models 020BW4, 021BW4, 02DBW4, 02FBW4)



Kit No. MK02-K2
(for models 020BB4, 021BB4, 02DBB4, 02FBB4)



Kit No. MK02-K3
(for models 020BB5, 021BB5, 02DBB5, 02FBB5, 020BB6, 021BB6, 02DBB6, 02FBB6)



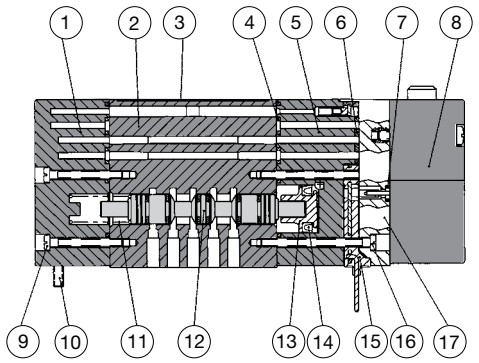
Det. No.	BW4	BB4	BB5/6	Part Name	Part No.
1	1	N/A	N/A	Spring Cover Ass'y	204-593
2	1	1	N/A	Body (not sold separately)	
3	1	1	1	Nameplate	122-1059
4	2*	2*	3*	Gasket	113-520
5	1	1	1	Pilot Adaptor Ass'y	219-388
6	1*	2*	2*	Gasket	113-521
7	1*	2*	2*	Gasket	113-513
8	1	2	2	Pilot Valve Ass'y	See p. 20
9	3	N/A	N/A	Screw	127-836
10	2	2	2	Screw	127-833
11	1*	N/A	N/A	Spring	115-358
12	2*	1*	N/A	Detent Body	110-140
13	1	1	N/A	Sleeve Ass'y (BA4, BB4)	209-564
14	1*	2*	2*	Piston	117-239
15	1*	2*	2*	U-Cup Seal	124-333
16	1	1	1	14" Board Encap.	See p. 20
17	3	6	6	Screw	127-835
18	1	2	2	Pilot Adaptor	119-610
19	N/A	1	1	Pilot Adaptor Ass'y	219-390
20	N/A	1	1	14" - 12" Encap.	230-887
21	N/A	1	1	"12" Board Encap.	See p. 20
22	N/A	1*	N/A	Detent Assembly	210-140
23	N/A	N/A	1	Sleeve Ass'y (BB5)	209-565
23	N/A	N/A	1	Sleeve Ass'y (BB6)	209-570
24	N/A	N/A	2*	Spring Retainer	116-505
25	N/A	N/A	2*	Spring	115-359
26	N/A	N/A	2*	Spring Retainer	116-504

*Indicated part included in kit.

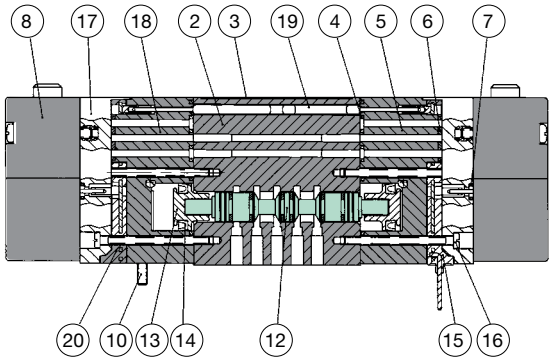
Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

R2 Valve Service Kits and Parts, 2 and 3 Position 4-Way

Kit No. MKR2-K1
(for models R20BW4, R21BW4, R2DBW4, R2FBW4)

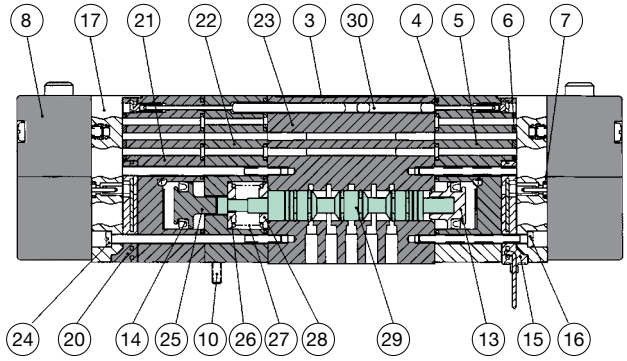


Kit No. MKR2-K2
(for models R20BB4, R21BB4, R2DBB4, R2FBB4)



Kit No. MKR2-K35
(for models R20BB5, R21BB5, R2DBB5, R2FBB5)

Kit No. MKR2-K36
(for models R20BB6, R21BB6, R2DBB6, R2FBB6)

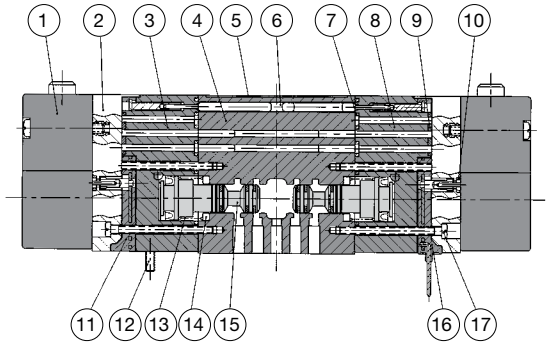


Det. No.	BW4	BB4	BB5/6	Part Name	Part No.
1	1	N/A	N/A	Spring Cover Ass'y	204-593
2	1	1	N/A	Body (not sold separately)	
3	1	1	1	Nameplate	122-1059
4	2*	2*	3*	Gasket	113-520
5	1	1	1	Pilot Adaptor Ass'y	219-388
6	1*	2*	2*	Gasket	113-521
7	1*	2*	2*	Gasket	113-513
8	1	2	2	Pilot Valve Ass'y	See p. 20
9	3	N/A	N/A	Screw	127-836
10	2	2	2	Screw	127-833
11	1*	N/A	N/A	Spring	115-357
12	1*	1*	N/A	Spool Ass'y (BA4, BB4)	221-176
13	1*	2*	1*	Piston	117-238
14	1*	2*	2*	U-Cup Seal	124-333
15	1	1	1	"14" Board Encap.	See p. 20
16	3	6	3	Screw	127-835
17	1	2	2	Pilot Adaptor	119-610
18	N/A	1	N/A	Pilot Adaptor Ass'y	219-390
19	N/A	1	N/A	14" - 12" Encap.	230-887
20	N/A	1	1	"12" Board Encap.	See p. 20
21	N/A	1	1	Pilot Adaptor Ass'y	219-389
22	N/A	N/A	1	Adaptor	119-609
23	N/A	N/A	1	Body (not sold separately)	
24	N/A	N/A	3	Screw	127-837
25	N/A	N/A	1*	Piston	117-240
26	N/A	N/A	1*	Spring Retainer	116-506
27	N/A	N/A	1*	Spring	115-360
28	N/A	N/A	1*	Spring Retainer	116-507
29	N/A	N/A	1*	Spool Ass'y (BB5)	221-175
29	N/A	N/A	1	Spool Ass'y (BB6)	221-177
30	N/A	N/A	1	14" - 12" Encap.	230-886

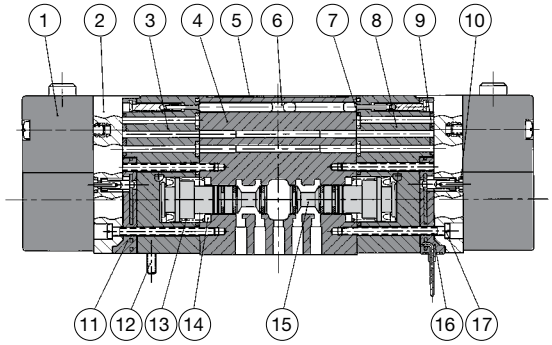
*Indicated part included in kit.

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

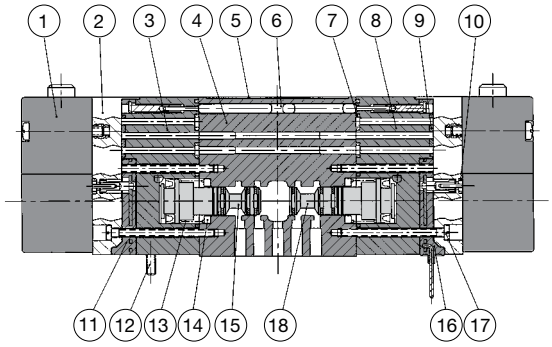
Kit No. MKR2-K3A
(for models R20BBA, R21BBA, R2DBBA, R2FBBA)



Kit No. MKR2-K3D
(for models R20BBD, R21BBD, R2DBBD, R2FBBD)



Kit No. MKR2-K3C
(for models R20BBC, R21BBC, R2DBBC, R2FBBC)



Det. No.	BW4	BB4	BB5/6	Part Name	Part No.
1	2	2	2	Pilot Valve Ass'y	See p. 20
2	2	2	2	Pilot Adaptor	119-610
3	1	1	1	Pilot Adaptor Ass'y	219-390
4	1	1	1	Body (not sold separately)	
5	1	1	1	Nameplate	122-1059
6	1	1	1	14" - 12" Encap.	230-887
7	2*	2*	2*	Gasket	113-520
8	1	1	1	Pilot Adaptor Ass'y	219-388
9	2*	2*	2*	Gasket	113-521
10	2*	2*	2*	Gasket	113-513
11	1	1	1	"12" Board Encap.	See p. 20
12	2	2	2	Screw	127-833
13	2*	2*	2*	Spring	115-361
14	2*	2*	2*	Bumper	114-189
15	2*	N/A	1*	Spool Ass'y (N.O.)	221-178
16	1	1	1	"14" Board Encap.	See p. 20
17	6	6	6	Screw	127-835
18	N/A	2*	1*	Spool Ass'y (N.O.)	221-179

*Indicated part included in kit.

Information subject to change without notice. For ordering information or regarding your local sales office visit www.numatics.com.

numatics®

World Class Supplier of Pneumatic Components



World Headquarters

USA Numatics, Incorporated
46280 Dylan Drive
Novi, Michigan 48377

P: 248-596-3200
F: 248-596-3201

Canada Numatics, Ltd
P: 519-758-2700
F: 519-758-5540

México - Ascomatica SA de CV
P: 52 55 58 09 56 40 (DF y Area metropolitana)
P: 01 800 000 ASCO (2726) (Interior de la República)
F: 52 55 58 09 56 60

Brazil Ascoval Ind.e Comercio Ltda
P: (55) 11-4208-1700
F: (55) 11-4195-3970

LT-2002Series Rev 03/12
2.5M-TGI-10/09

© Numatics Inc. 2009 - 2013
Numatics® is registered in the United States and elsewhere

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP