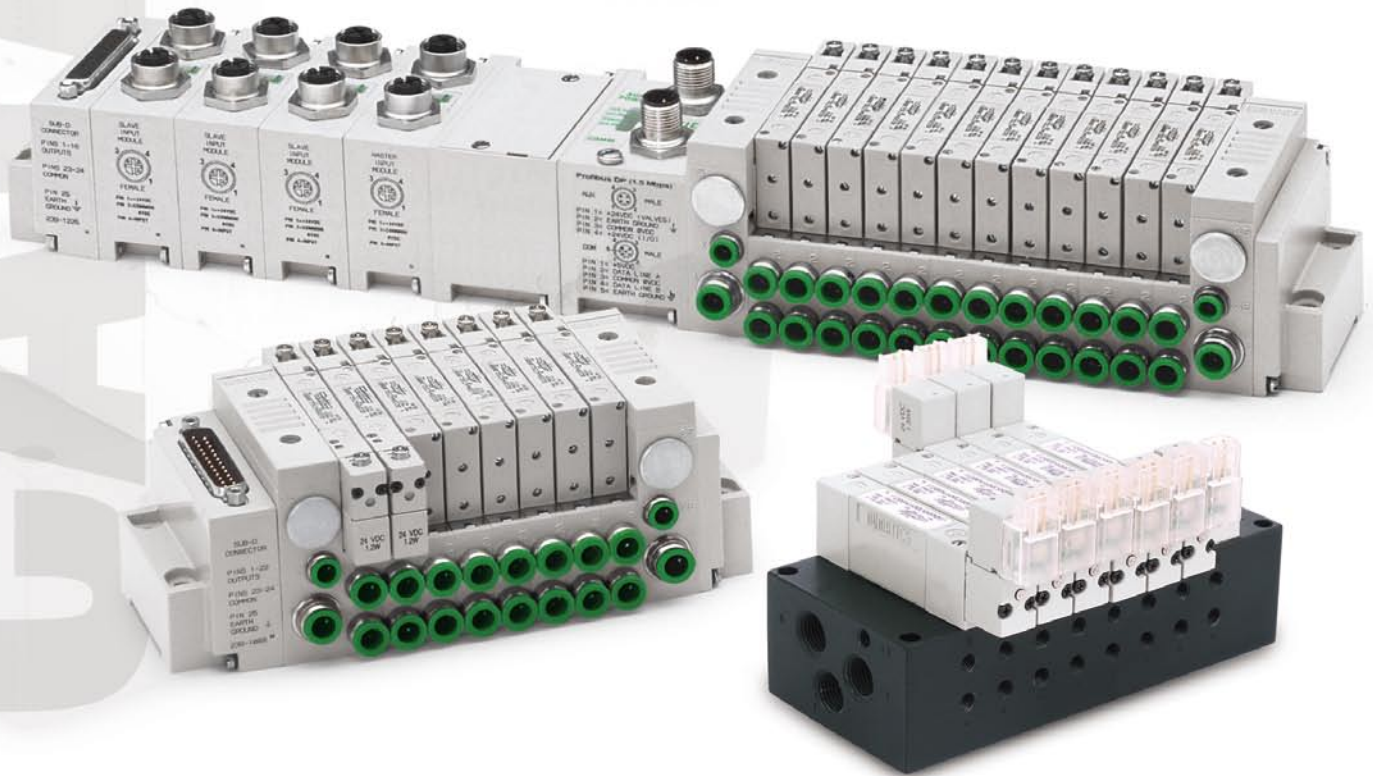


valves

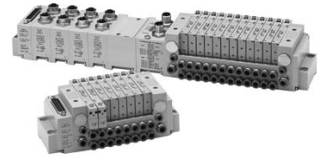
2002 Series

Solenoid Air Pilot Actuated Valves

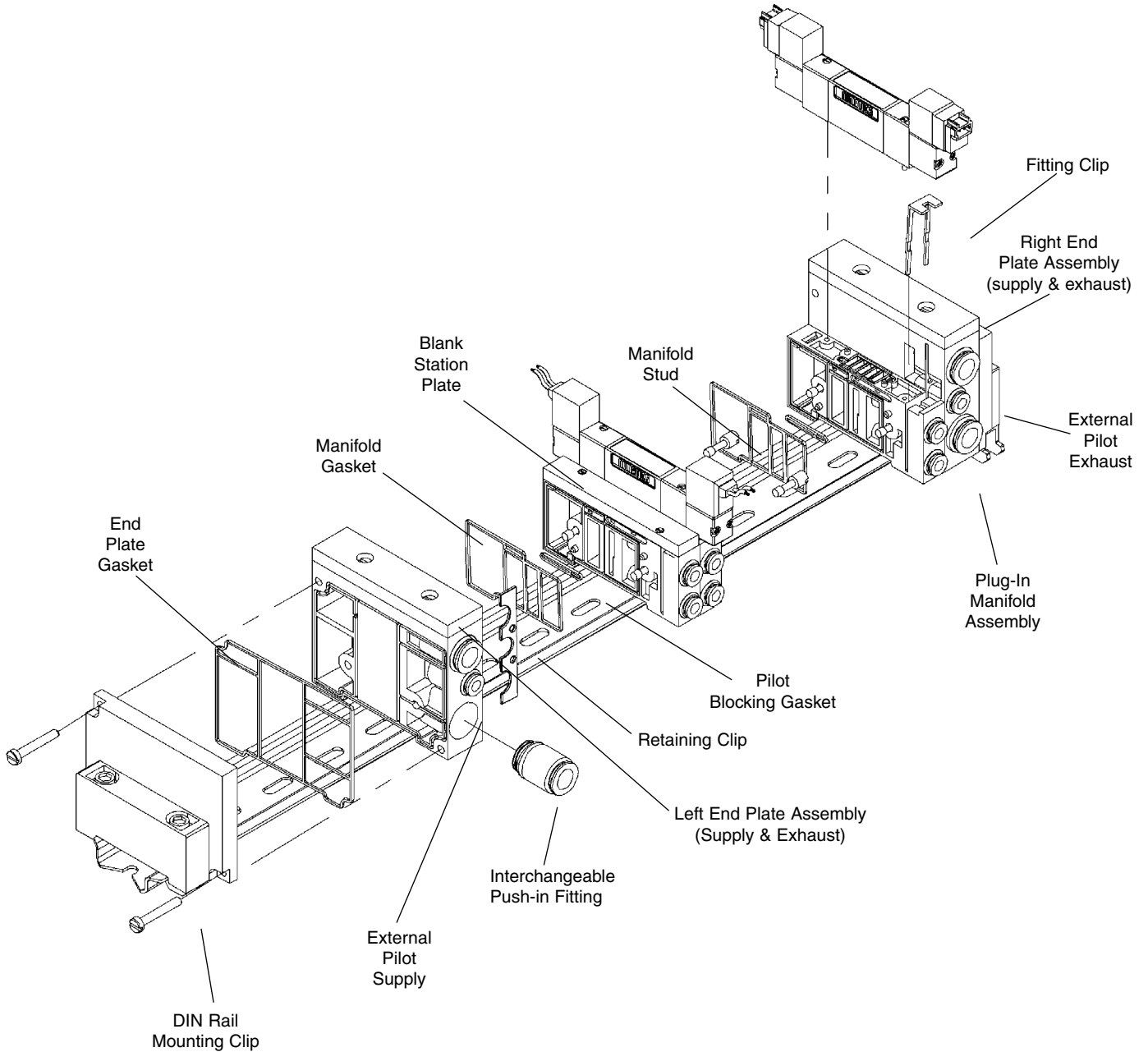


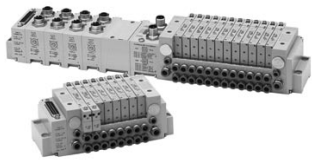
numatics®

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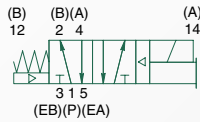
Hardwired and Plug-In Solenoid Valve Manifold (exploded view)



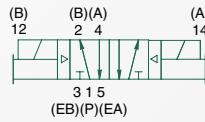


2002 Series

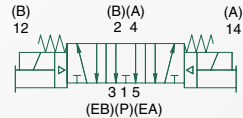
single solenoid
2 position 4-way



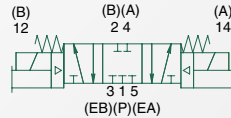
double solenoid
2 position 4-way



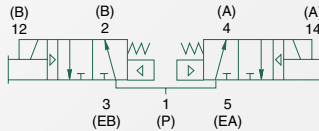
double solenoid
3 position 4-way
open center



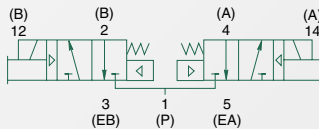
double solenoid
3 position 4-way
closed center



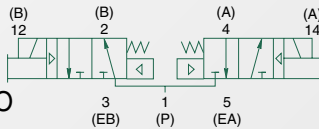
double solenoid
2 position dual 3-way
"14(A)" & "12(B)" NO



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



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



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 leakproof 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 NI/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range	28" Hg. Vacuum to 150 PSIG	Vacuum to 10 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

Operating Data

ALL SOLENOIDS ARE CONTINUOUS DUTY RATED	24 VDC	12 VDC		
Power (Watts)	0.75	0.75		
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



How To Order

Valves

F 2 1 B B A 4 1 B L 0 0 0 6 1

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

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 or Bar Stock Manifold

Manifold Assembly

AK 0 6 H 0 0 0 0 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

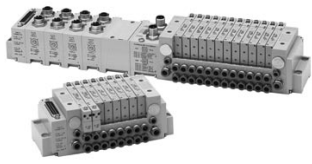
STD = Standard
 DRM = DIN Rail Mounting (Std. 35mm)
 MUF = Muffler in End Plates
 DWM = DIN Rail with MUF

Port Type

L = Push-In
 N = Bar Stock Manifold (NPTF)
 G = Bar Stock Manifold (G Tap)

End Plate Port Size

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



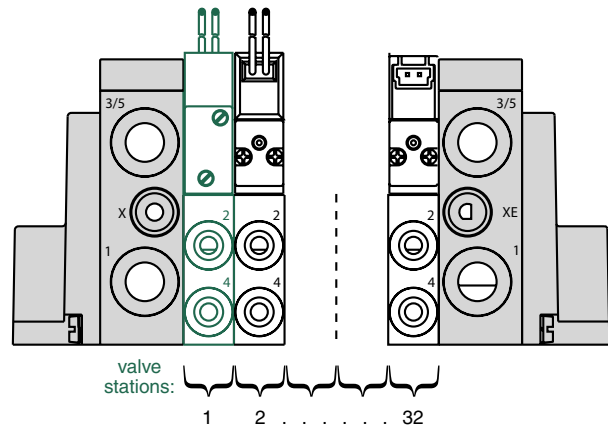
When Ordering:

AK0 Hardwired Valve Manifold

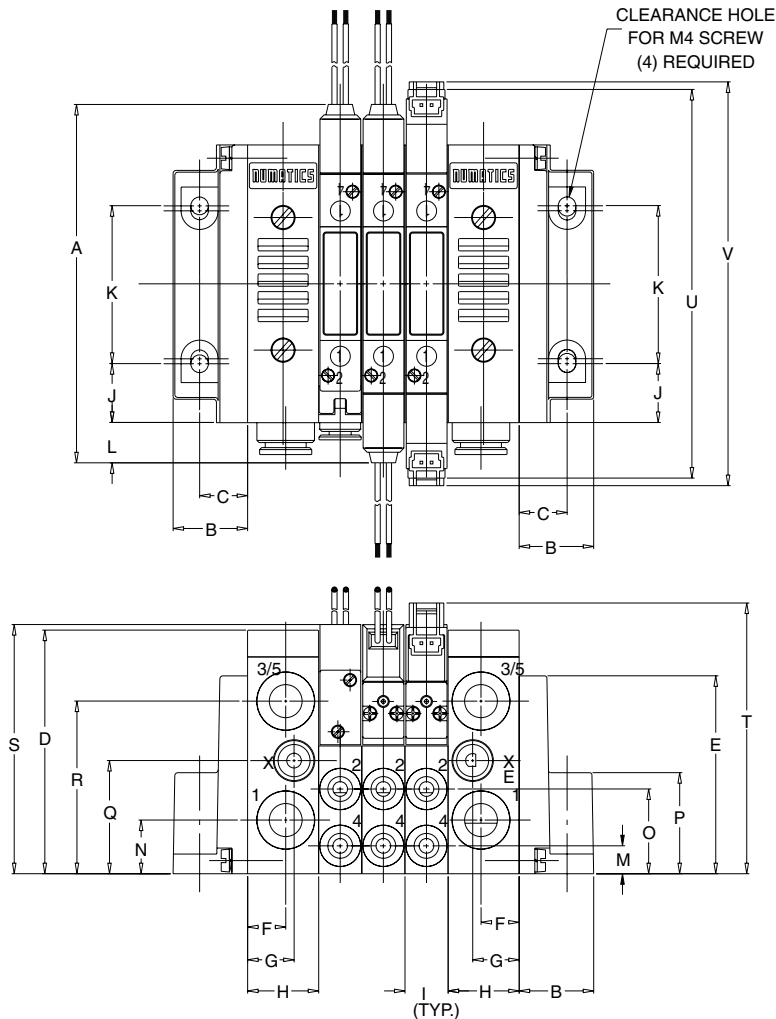
- Shaded components described by Assembly Kit (AK) model number designation (page 5).
- Each valve manifold station is listed in sequential order from left to right when facing the port side of the manifold as indicated.

Example order:

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



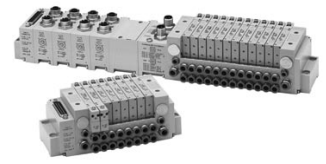
Valve Manifold Assembly



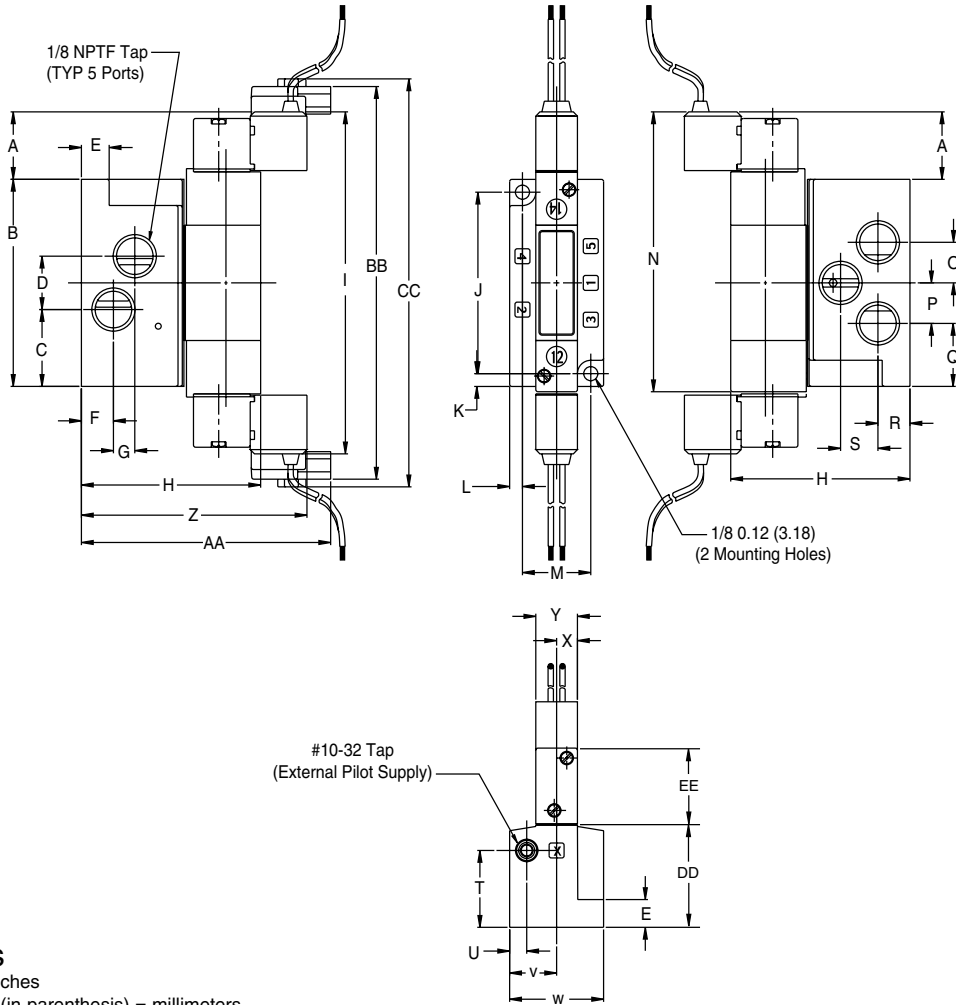
Dimensions

top dimensions = inches
 bottom dimensions (in parenthesis) = millimeters

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
3.41	0.71	0.46	2.31	1.88	0.37	0.45	0.68	0.41	0.56	1.50	0.38	0.27	0.51	0.81	0.96	1.08	1.64	2.37	2.57	3.69	3.84
(86.6)	(18.0)	(11.9)	(58.7)	(47.8)	(9.4)	(11.4)	(17.3)	(10.5)	(14.2)	(38.1)	(9.7)	(6.9)	(13.0)	(20.6)	(24.4)	(27.4)	(41.7)	(60.2)	(65.3)	(93.7)	(97.5)



Individual Base Mount Assembly

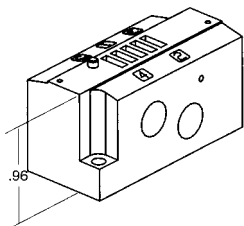


Dimensions

top dimensions = inches
bottom dimensions (in parenthesis) = millimeters

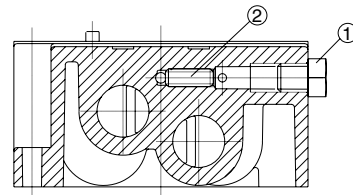
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
0.63	1.94	0.72	0.50	0.26	0.30	0.20	1.68	3.20	1.70	0.12	0.12	0.64	2.62	0.38	0.38	0.59	0.30	0.35	0.72	0.16
(16.0)	(49.3)	(18.3)	(12.7)	(6.6)	(7.70)	(5.1)	(42.7)	(81.3)	(43.2)	(3.0)	(3.0)	(16.3)	(66.5)	(9.7)	(9.7)	(15.0)	(7.6)	(8.9)	(18.3)	(4.1)
V	W	X	Y	Z	AA	BB	CC	DD	EE											
0.44	0.88	0.195	0.39	2.11	2.33	3.68	3.82	0.96	0.72											
(11.2)	(22.4)	(5.00)	(9.9)	(53.6)	(59.2)	(93.5)	(97.0)	(24.4)	(18.3)											

Individual Base Assembly Kits

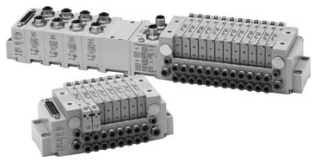


PORT SIZE	PART NO.
1/8 NPTF	203-1073
10/32 UNF-3B	203-1071
M5	203-1072

For External Pilot Supply

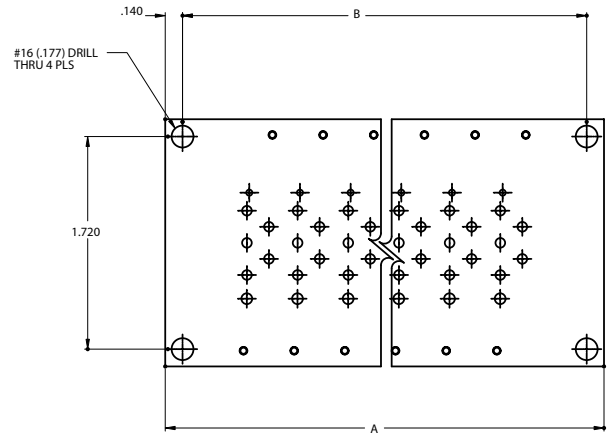
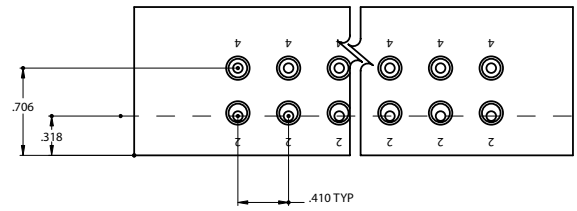
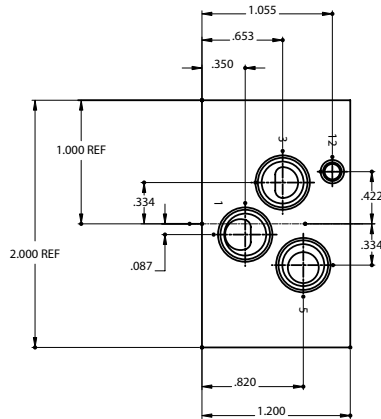


For External Pilot Supply, remove Plug 1 (129-127) and insert M3 Pipe Plug 2 (127-693) as shown



Bar Stock Manifold

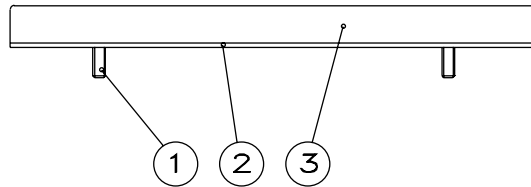
STATIONS	PART NO.
2	106-1355
4	106-1356
6	106-1357
8	106-1358
10	106-1359
12	106-1360
14	106-1361
16	106-1362
18	106-1363
20	106-1364

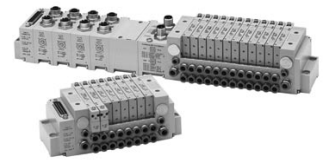


Blank Station Plate Kit

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





Plug Connector



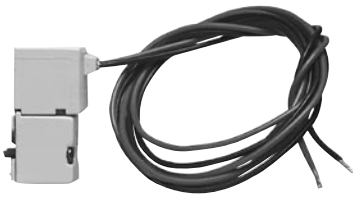
LEAD LENGTH	PART NO.
12" Lead	230-443
48" Lead	230-476
120" Lead	230-486

PART NAME	PART NO.
Housing	140-384
Terminal	140-385

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

Note: Wire Gage = 22 AWG

Pilot Valve Assembly



Hardwired



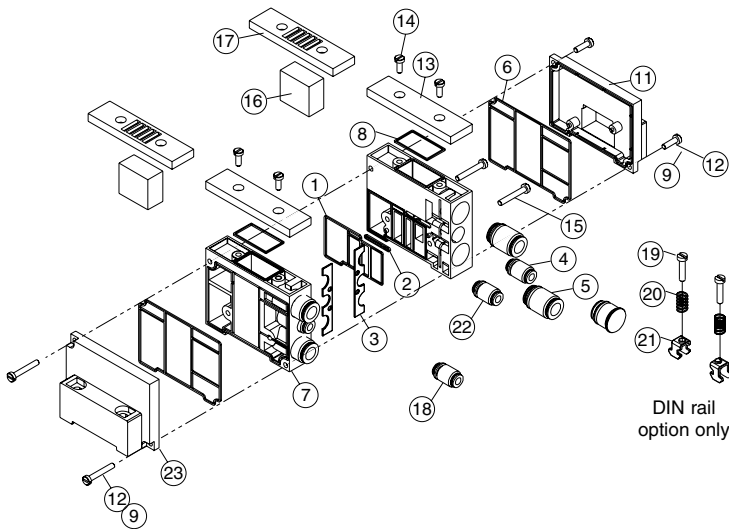
Straight Plug-in



90° Plug-in

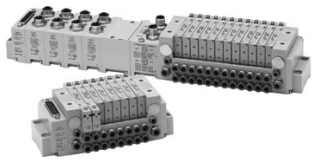
VOLTAGE	HARDWIRED	STRAIGHT PLUG-IN	90 DEGREE PLUG-IN
12 VDC	236-378	236-374	236-376
24 VDC	236-379	236-587	236-583

End Plate Kits



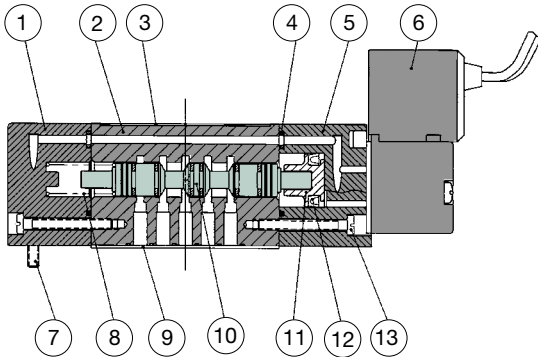
PORT TYPE	PUSH-IN			PUSH-IN		
PORT	1	3/5	X, XE	1	3/5	X, XE
PORT SIZE	1/4	1/4	5/32	8mm	8mm	6mm
End Plate Kit w/o muffler, w/o DIN Rail	239-1210			239-1208		
End Plate Kit w/o muffler, w/ DIN Rail	239-1209			239-1207		
End Plate Kit w/ muffler, w/o DIN Rail	239-1214			239-1212		
End Plate Kit w/ muffler, w/ DIN Rail	239-1213			239-1211		

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

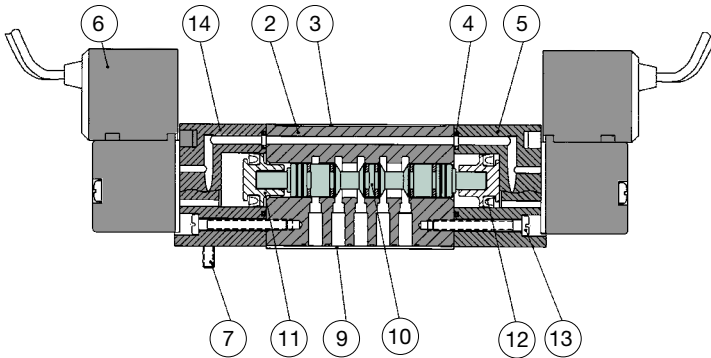


F2 Valve Service Kits and Parts, 2 and 3 Position 4-Way

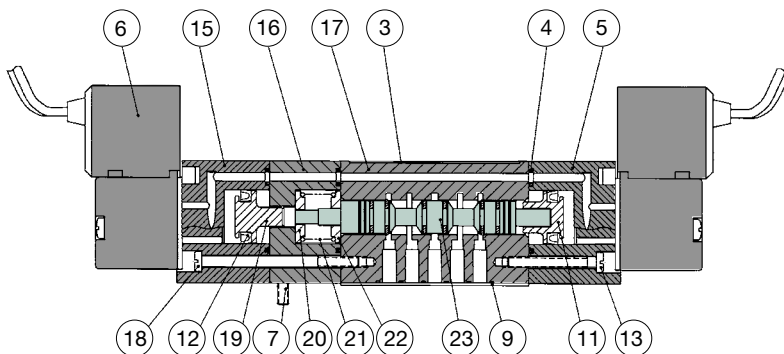
Kit No. MKF2-K1
(for models F20BW4, F21BW4, F2CBW4)



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

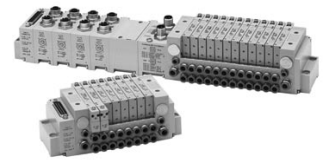


Kit No. MKF2-K35 (for models F20BB5, F21BB5, F2CBB5)
Kit No. MKF2-K36 (for models F20BB6, F21BB6, F2CBB6)



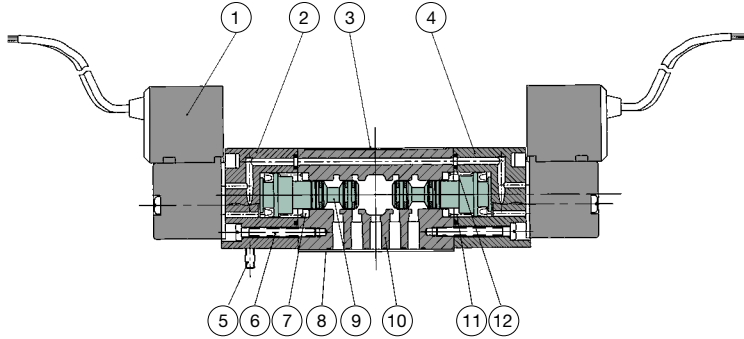
DET. NO.	BW4	BB4	BB5/6	PART NAME	PART NO.
1	1	N/A	N/A	Spring Cover Ass'y	204-594
2	1	1	N/A	Body (not sold separately)	
3	1	1	1	Nameplate	122-1059
4	2*	2*	3*	Gasket	113-517
5	1	1	1	Pilot Adaptor Ass'y	219-391
6	1	2	2	Pilot Valve Ass'y	See p. 8
7	2	2	2	Screw	127-832
8	1*	N/A	N/A	Spring	115-357
9	1*	1*	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.



F2 Valve Service Kits and Parts, Dual 3-Way

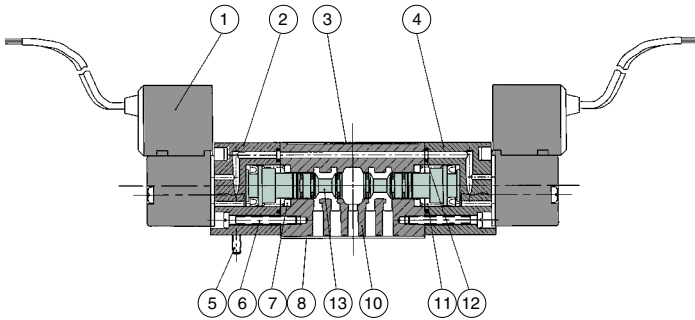
Kit No. MKF2-K3A
(for models F20BBA, F21BBA, F2CBBA)



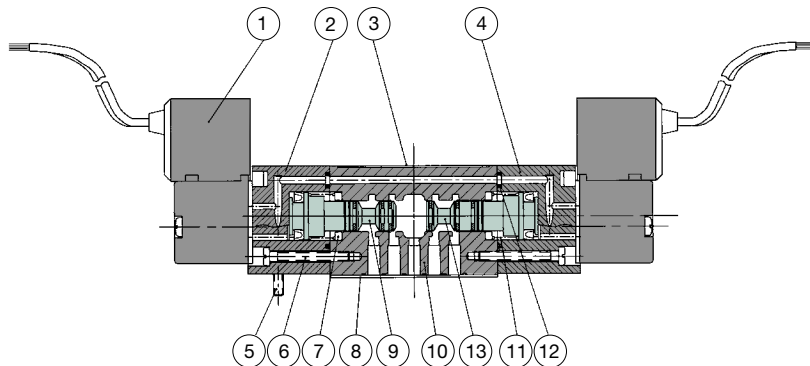
DET. NO.	BBA	BBD	BBC	PART NAME	PART NO.
1	2	2	2	Pilot Valve Ass'y	See p. 8
2	1	1	1	Pilot Adaptor Ass'y	219-393
3	1	1	1	Nameplate	122-1059
4	1	1	1	Pilot Adaptor Ass'y	219-391
5	2	2	2	Screw	127-832
6	4	4	4	Screw	127-834
7	2*	2*	2*	Bumper	114-189
8	1*	1*	1*	Gasket	113-525
9	2*	N/A	1*	Spool Ass'y (N.O.)	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	2*	1*	Spool Ass'y (N.C.)	221-179

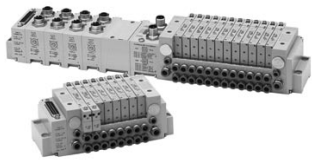
* Indicates parts included in kit.

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

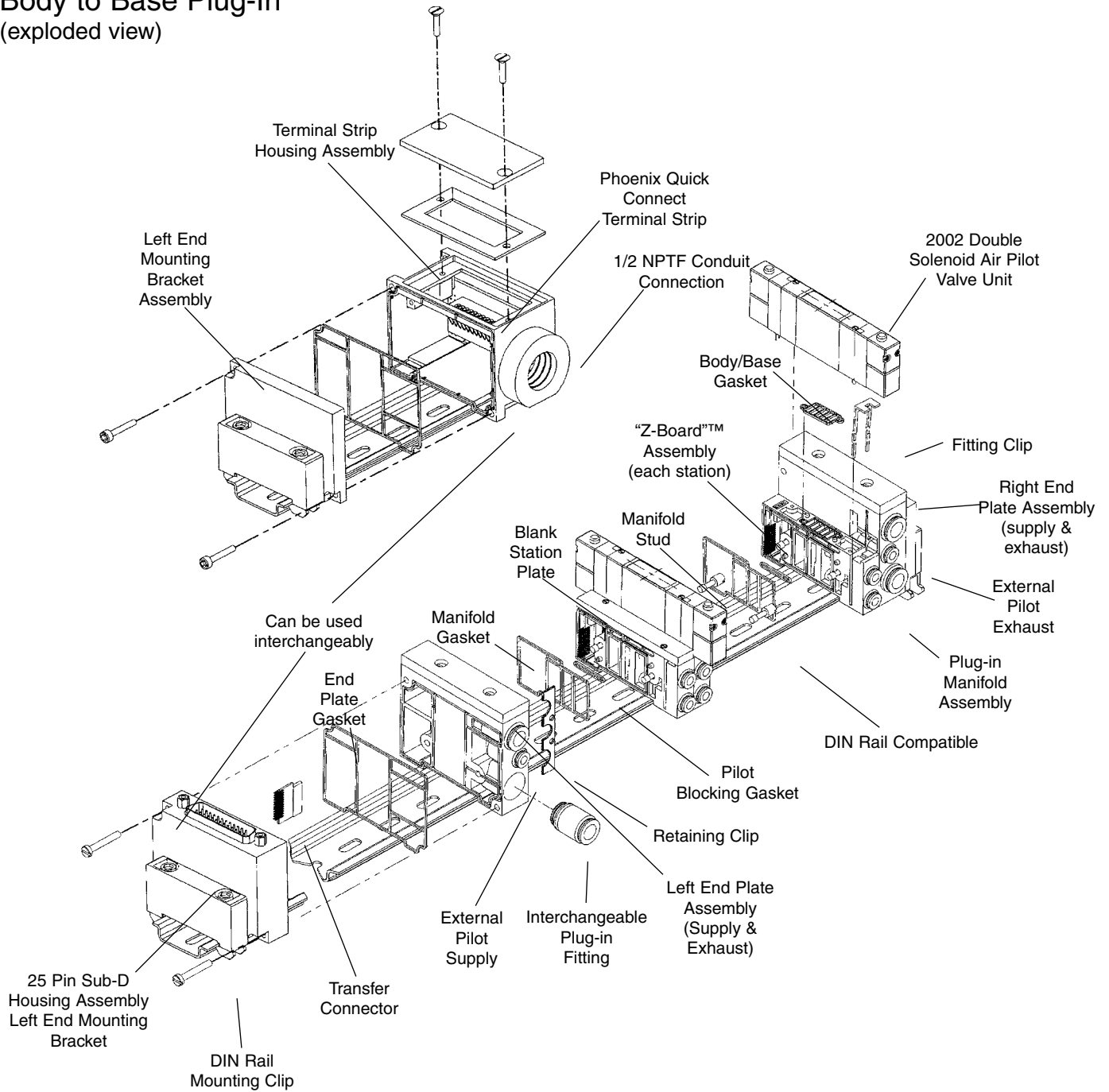


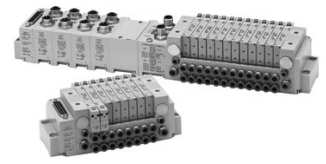
Kit No. MKF2-K3C
(for models F20BBC, F21BBC, F2DBBC, F2FBBC)





25 Pin Sub-D and Terminal Strip Options Body to Base Plug-In (exploded view)





2002 Series

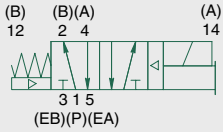
02 Series

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

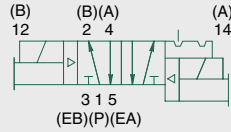
- Solenoid air pilot actuated
- Low current requirements
- Elimination of internal wiring
- Pusher piston – high spool shifting force
- Compact/modular Fieldbus electronics and I/O
- Adjustable port sizes utilizing interchangeable cartridge fittings



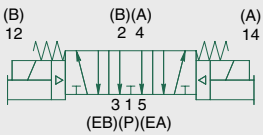
single solenoid air pilot
2 position 4-way



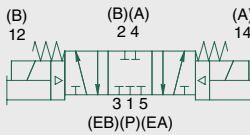
double solenoid air pilot
2 position 4-way



double solenoid
3 position 4-way
open center



double solenoid
3 position 4-way
closed center

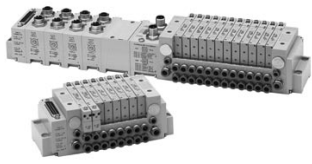


Technical Data

VALVE DATA	ENGLISH	METRIC
Cv	0.20	0.20
Flow Capacity	9.2 SCFM @ 80 PSIG upstream pressure to atmosphere	197 NI/m @ 6 bar upstream to 5 bar downstream
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

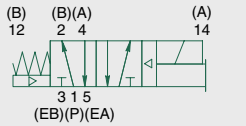
Operating Data

ALL SOLENOIDS ARE CONTINUOUS DUTY RATED	24 VDC	12 VDC		
Power (Watts)	0.50	0.75		
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	0.006	N/A
3 - Position, Spring Centered	0.009	0.057	0.008	0.022

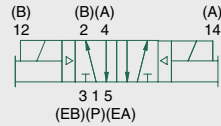


2002 Series

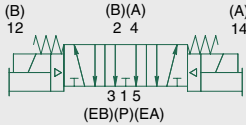
single solenoid air pilot
2 position 4-way



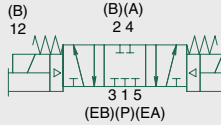
double solenoid air pilot
2 position 4-way



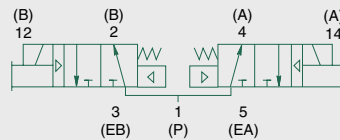
double solenoid air pilot
3 position 4-way
open center



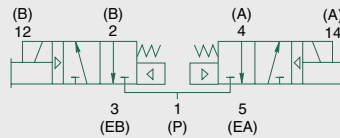
double solenoid air pilot
3 position 4-way
closed center



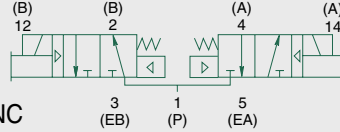
double solenoid
air pilot
dual 3-way
“12(B)” & “14(A)” NO



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



R2 Series

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 leakproof sealing
- Pusher piston – high spool shifting force
- Compact/modular Fieldbus electronics and I/O
- Adjustable port sizes utilizing interchangeable cartridge fittings

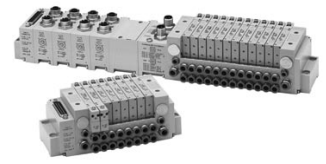


Technical Data

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 downstream
Operating Pressure Range	28" Hg. Vacuum to 100 PSIG	Vacuum 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

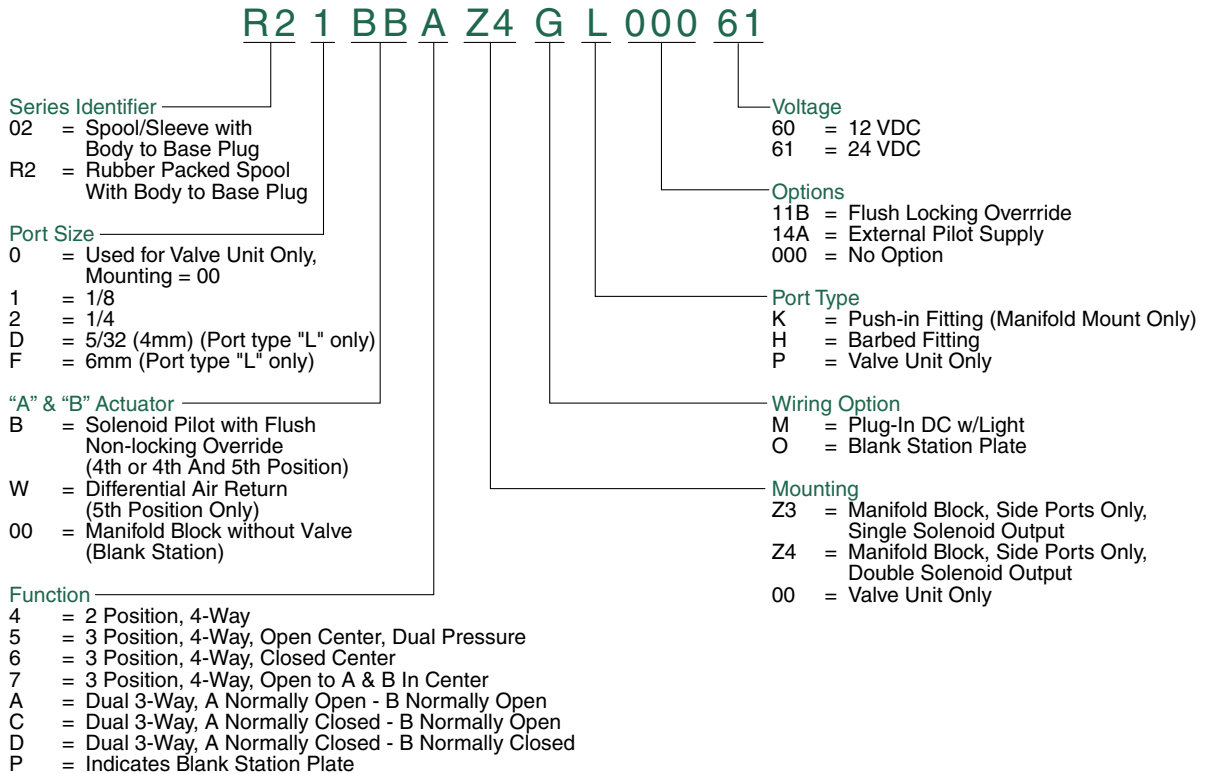
Operating Data

ALL SOLENOIDS ARE CONTINUOUS DUTY RATED	24 VDC	12 VDC		
Power (Watts)	0.50	0.75		
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

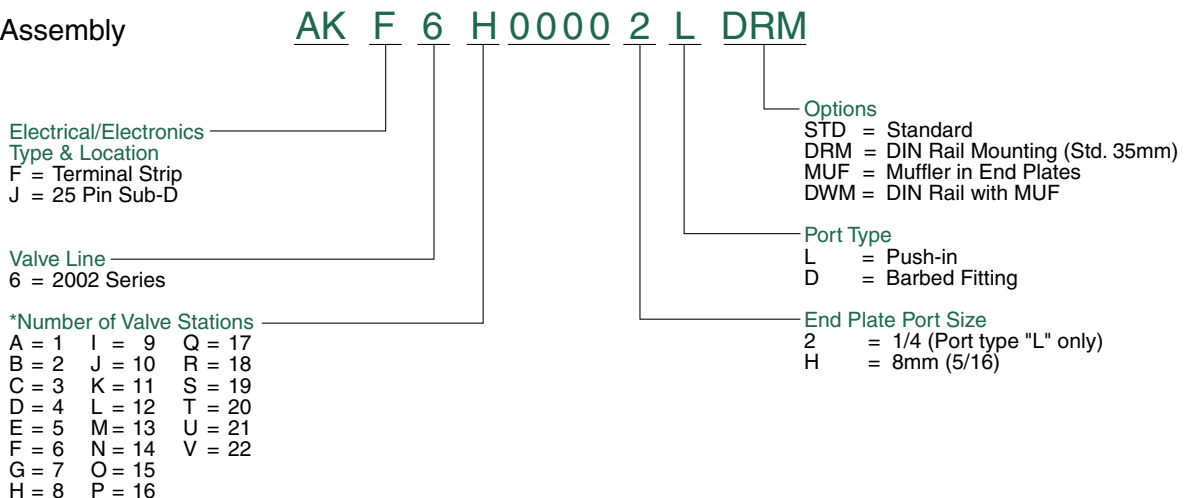


How To Order

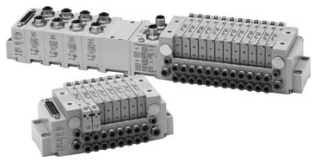
Valves



Manifold Assembly



- The electrical connection type.
 - Sub-D (AK“J”) 22 maximum solenoid outputs
 - Terminal Strip (AK“F”) 16 maximum solenoid outputs



When Ordering

AKJ 25 Pin Sub-D

- Shaded components described by Assembly Kit (AK) model number designation (page 14).
- 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:

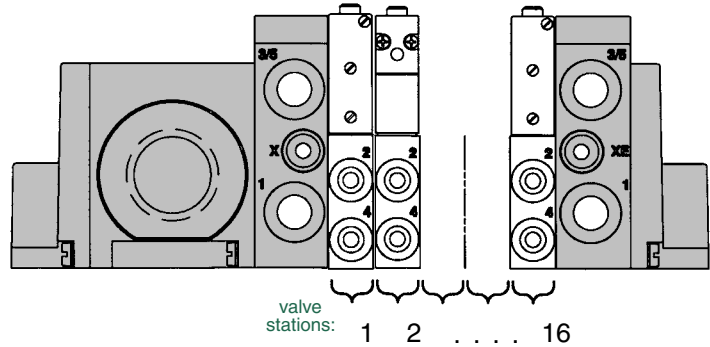
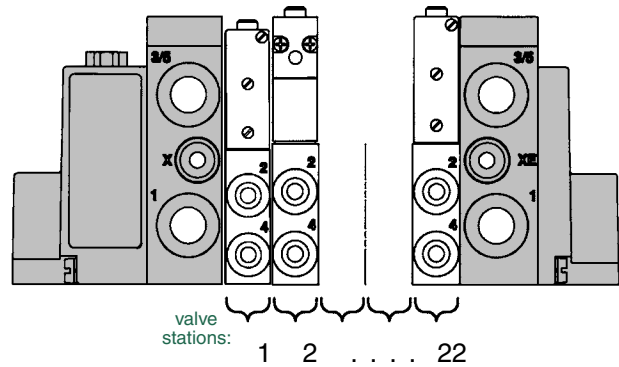
	AKJ6D00002LSTD
valve station 1	021BW4Z3ML00061
valve station 2	021BW4Z3ML00061
valve station 3	021BB4Z4ML00061
valve station 4	021BB4Z4ML00061
	ASSEMBLED

AKF Terminal Strip

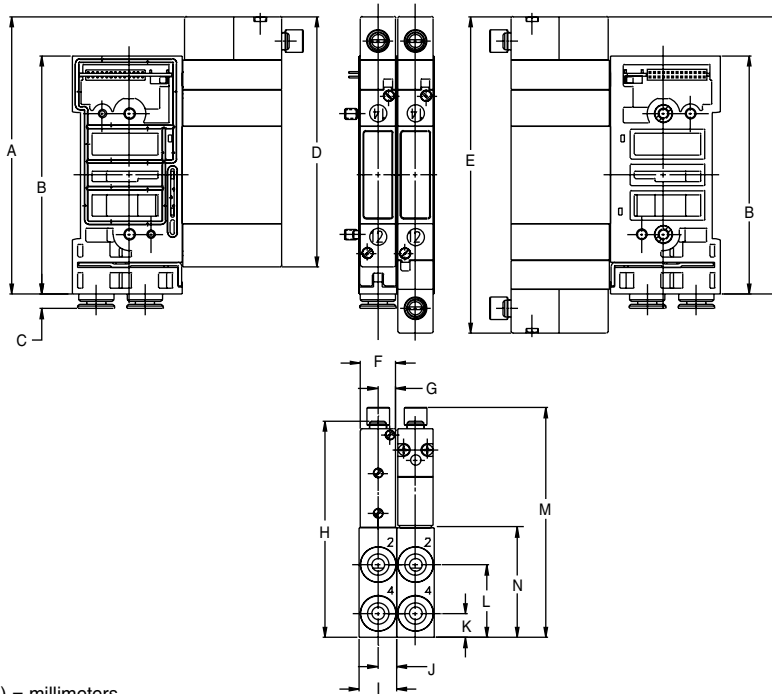
- Ordered using the same method as for AKJ

Example order:

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



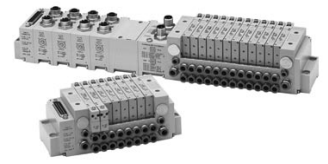
Assembly Dimensions Single Station Valve Manifold



Dimensions

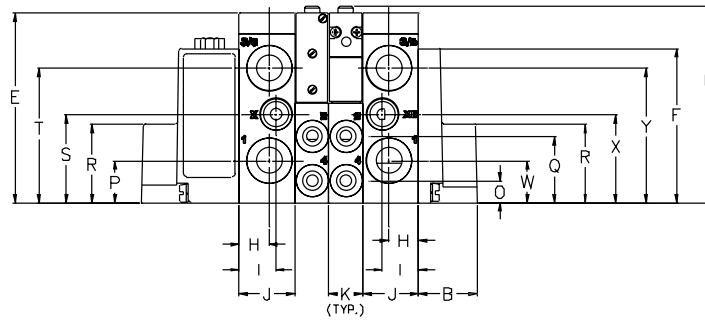
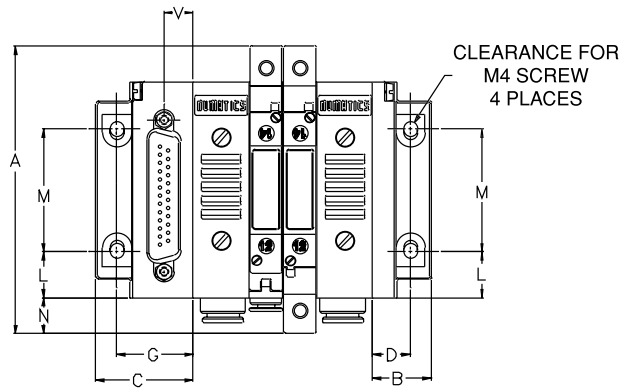
top dimensions = inches
bottom dimensions (in parenthesis) = millimeters

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

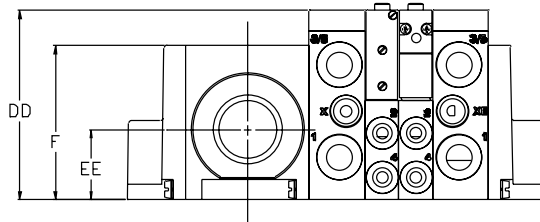
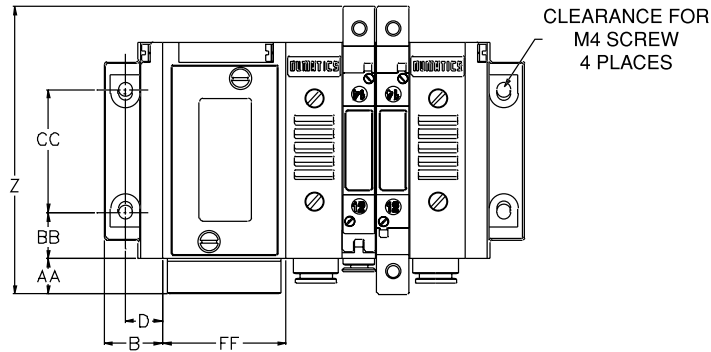


FlexiBlok® Assembly

25 pin Sub-D Housing Assembly



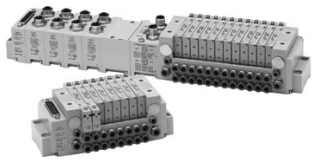
Terminal Strip Housing Assembly



Dimensions

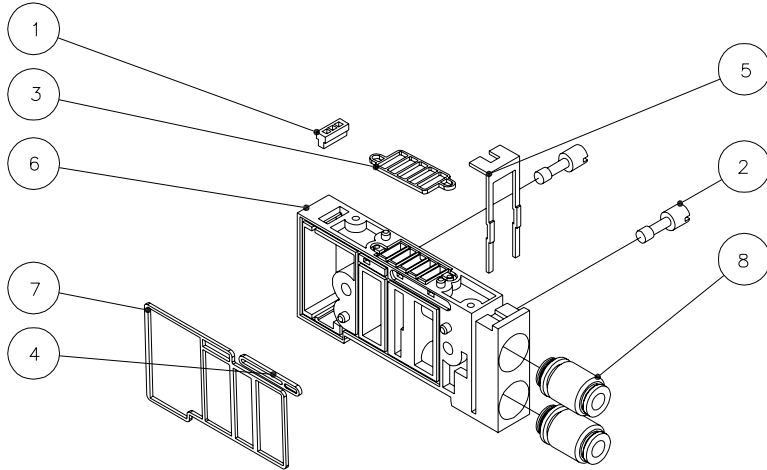
top dimensions = inches
bottom dimensions (in parenthesis) = millimeters

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)



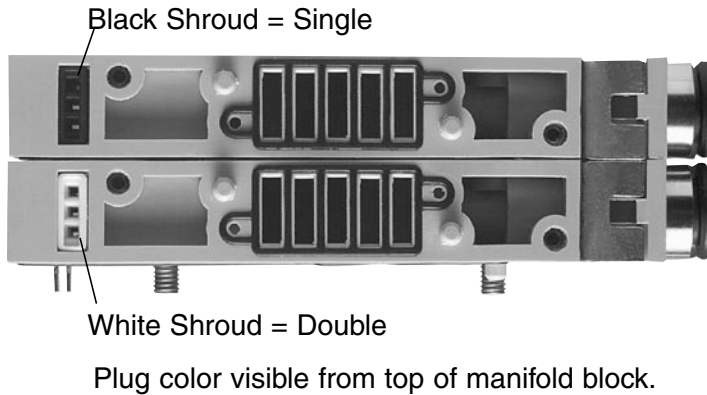
2002 Series

Manifold Block Assemblies

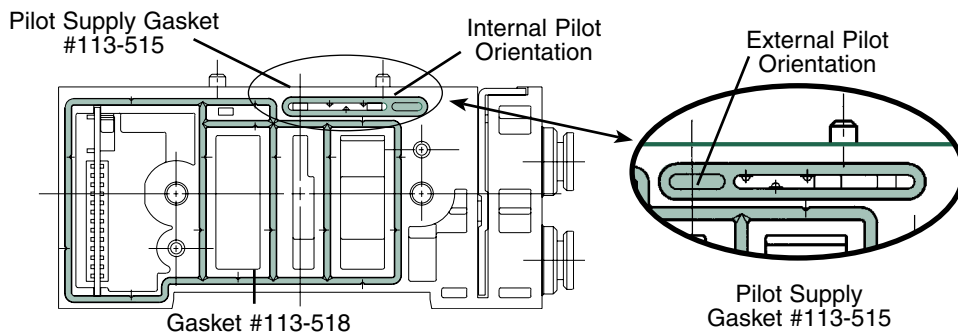


DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Shroud, White (Double)	125-786
1	1	Shroud, Black (Single)	125-785
2	1	Stud	125-787
3	1	Gasket (Body)	113-516
4	1	Blocking Gasket	113-515
5	1	Clip (Fitting)	125-784
6	1	Manifold	106-1208
7	1	Gasket (Manifold)	113-518
8	2	Push-in (1/4 Tube)	134-518
8	2	Push-in (1/8 Tube)	134-500
8	2	Push-in (4mm Tube)	134-498
8	2	Push-in (6mm Tube)	134-499

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

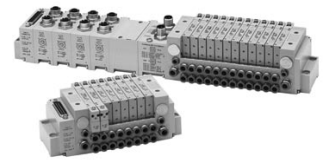


Internal/External Pilot Selection



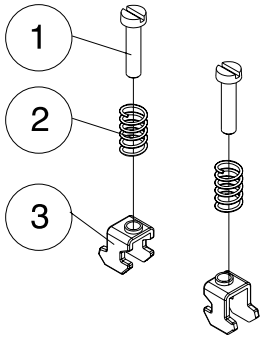
Note:

- 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.



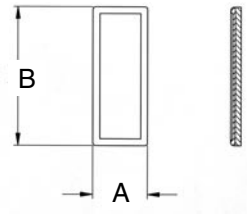
DIN Rail Clamp Kit

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

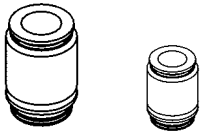
Blocking Discs



PORT	PART NO.	A	B
1	124-335	0.228	0.809
3/5	124-336	0.318	0.809

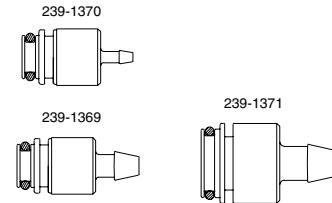
Interchangeable Cartridge Fittings and Port Plugs

Push-in Fittings



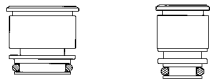
SIZE	PORTS	PART NO.
4mm (5/32")	Ports 2, 4, X, XE	134-498
6mm	Ports 2, 4, X, XE	134-499
1/8"	Ports 2, 4, X, XE	134-500
1/4"	Ports 2, 4, X, XE	134-518
8mm (5/16")	Ports 1, 3/5	134-501
1/4"	Ports 1, 3/5	134-502

Barbed Fittings

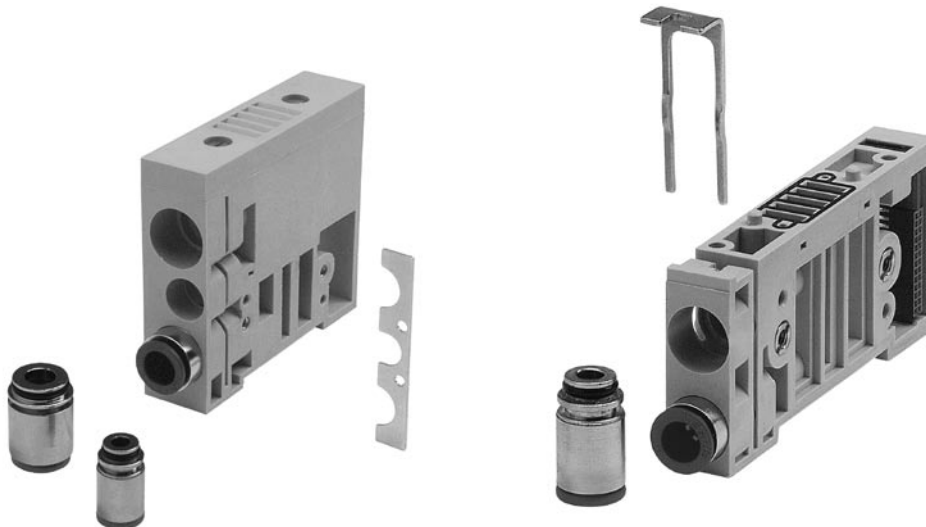


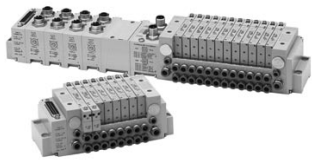
SIZE	PORTS	PART NO.
1/8"	Ports 2, 4, X, XE	239-1370
1/4"	Ports 2, 4, X, XE	239-1369
5/16"	Ports 1, 3/5	239-1371

Port Plugs



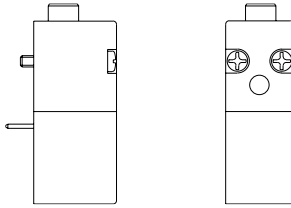
SIZE	PORTS	PART NO.
Large	Ports 1, 3/5	239-1085
Small	Ports 2, 4	239-1086





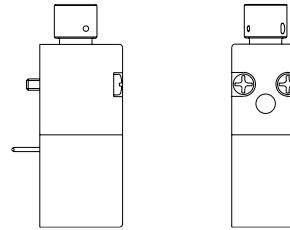
Solenoid Pilot Valve Assemblies

Non-Locking Override



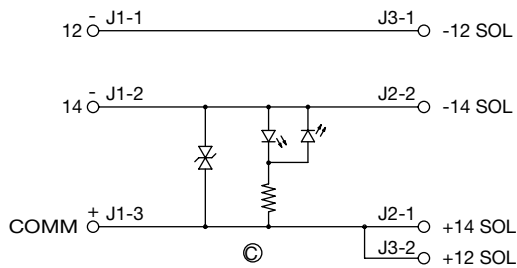
VDC	PART NO.
12	236-521
24	236-565

Locking Override

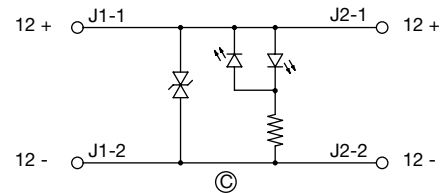


VDC	PART NO.
12	236-525
24	236-566

Solenoid Control Board Circuit Diagrams

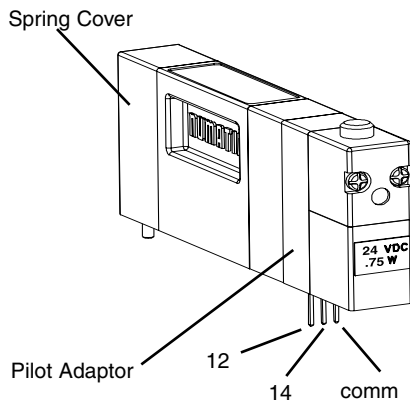


14 End

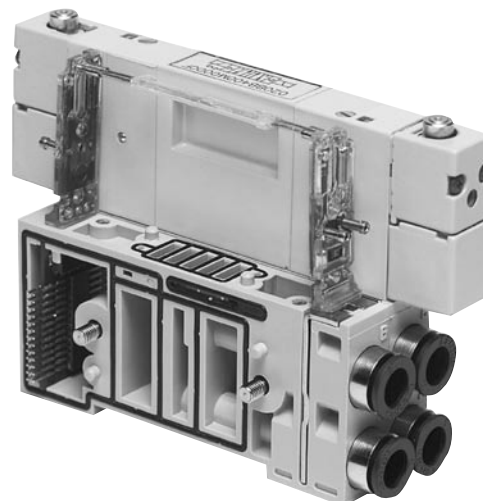


12 End

Valve Unit Pin Out



Solenoid Board Encapsulation Assembly



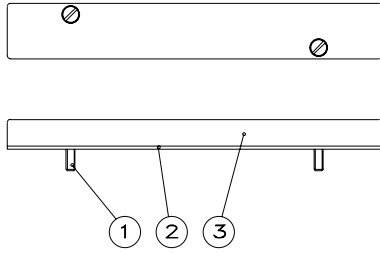
Complete elimination of internal wiring!

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



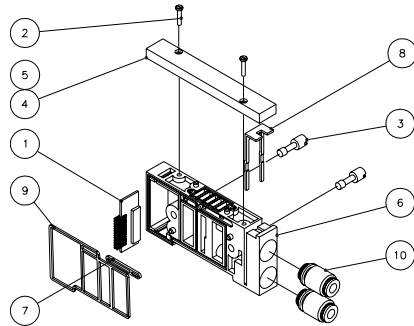
Blank Station Plate Kit

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

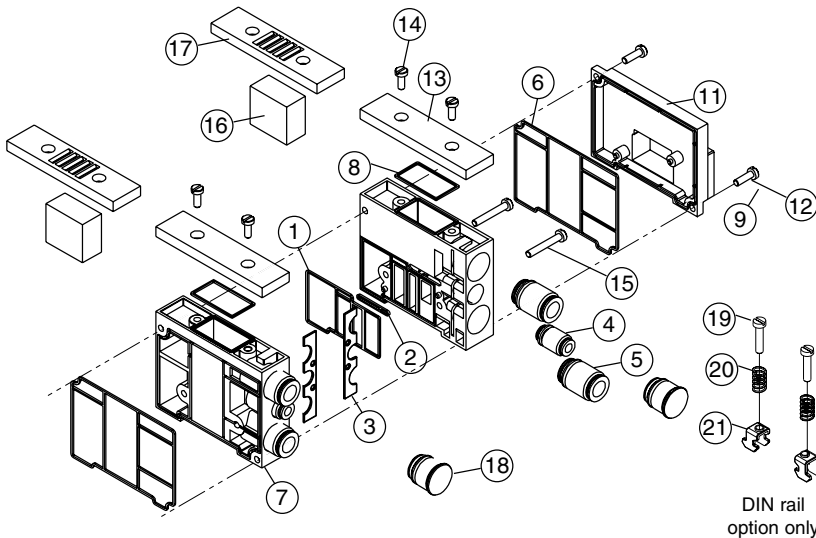
Mid-Station Supply and Exhaust Block



PORT SIZE	PART NO.
1/4	239-1348
6mm	239-1299

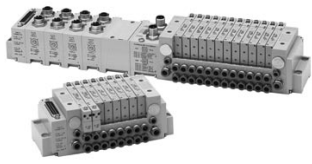
DET. NO.	NO. REQ'D	PART NAME	PART NO.
1	1	Transfer Board Ass'y	256-683
2	2	Screw	127-841
3	2	Stud	125-787
4	1	Blank Station Plug	104-698
5	1	Gasket	113-526
6	1	Mid Station Plate	125-857
7	1	Blocking Gasket	113-515
8	1	Clip (Fitting)	125-784
9	1	Gasket (Manifold)	113-518
10	2	Cartridge (6mm tube)	134-499

End Plate Assembly Kit

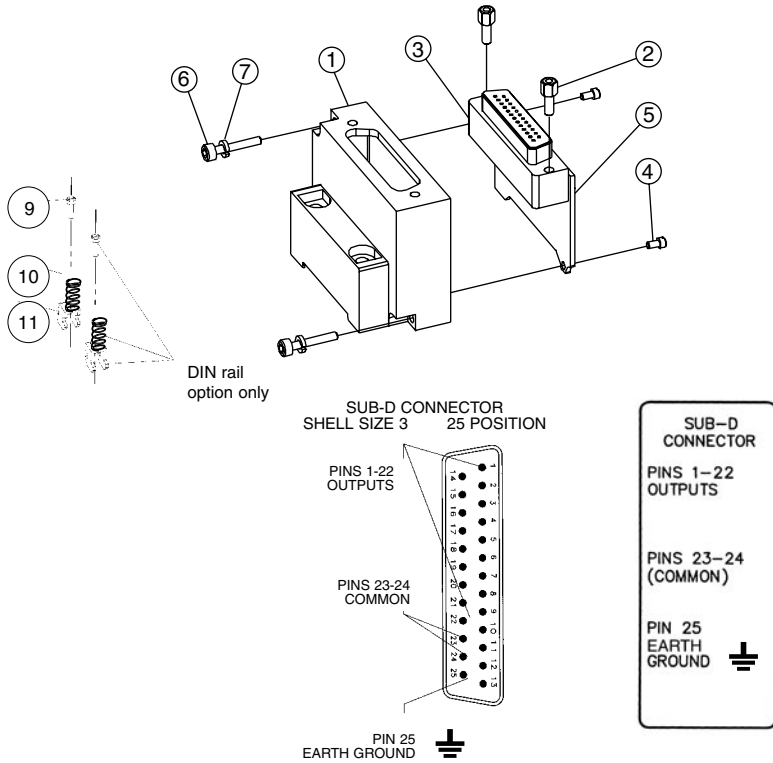


PORT TYPE	PUSH-IN			PUSH-IN		
	1	3/5	X, XE	1	3/5	X, XE
PORT SIZE	1/4	1/4	5/32	8mm	8mm	6mm
End Plate Kit w/o muffler, w/o DIN Rail	239-1068			239-1062		
End Plate Kit w/o muffler, w/ DIN Rail	239-1067			239-1061		
End Plate Kit w/ muffler, w/o DIN Rail	239-1084			239-1078		
End Plate Kit w/ muffler, w/ 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



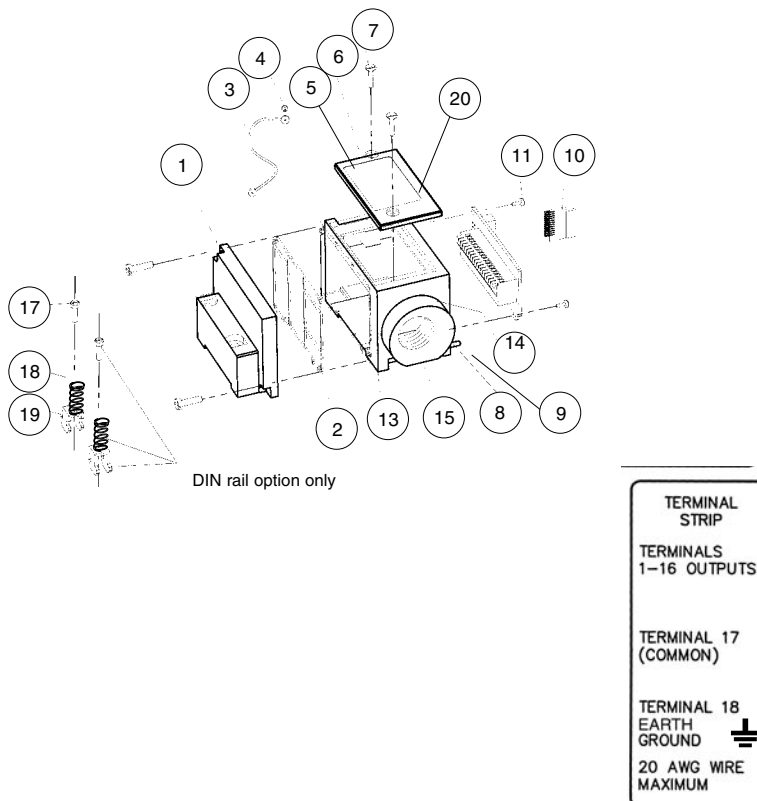
25 Pin Male Sub-D Housing Assembly Kit



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	Nameplate	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.

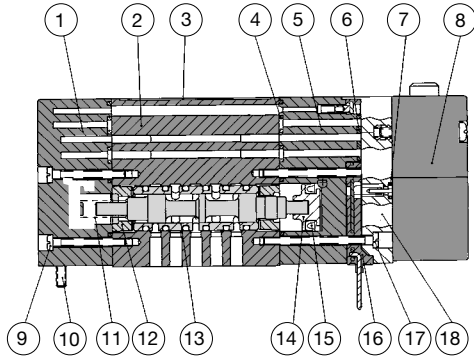
TERMINAL STRIP HOUSING KITS	PART NO.
With DIN Rail	239-1090
Without DIN Rail	239-1089



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

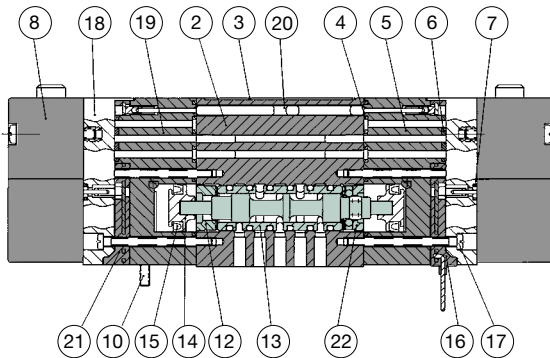
Kit No. MK02-K1

(for models 020BW4, 021BW4, 02DBW4, 02FBW4)



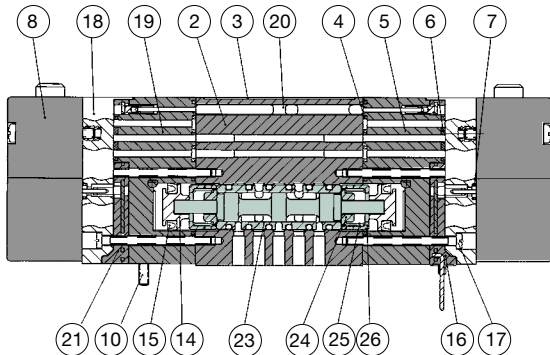
Kit No. MK02-K2

(for models 020BB4, 021BB4, 02DBB4, 02FBB4)



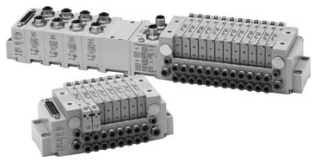
Kit No. MK02-K3

(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	1	Body (not sold separately)	
3	1	1	1	Nameplate	122-1059
4	2*	2*	2*	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

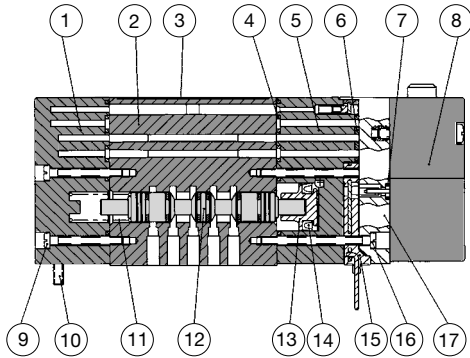
* Indicates parts included in kit.



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

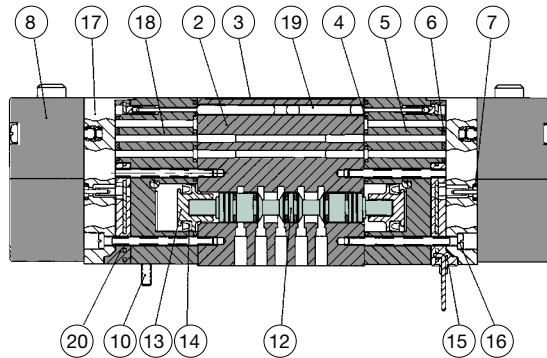
Kit No. MKR2-K1

(for models R20BW4, R21BW4, R2DBW4, R2FBW4)



Kit No. MKR2-K2

(for models R20BB4, R21BB4, R2DBB4, R2FBB4)

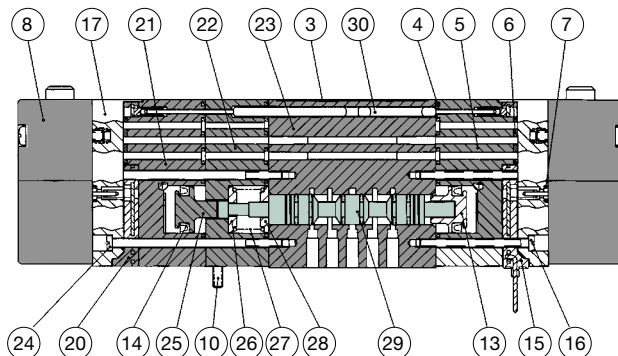


Kit No. MKR2-K35

(for models R20BB5, R21BB5, R2DBB5, R2FBB5)

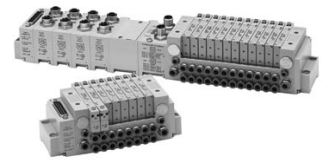
Kit No. MKR2-K36

(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

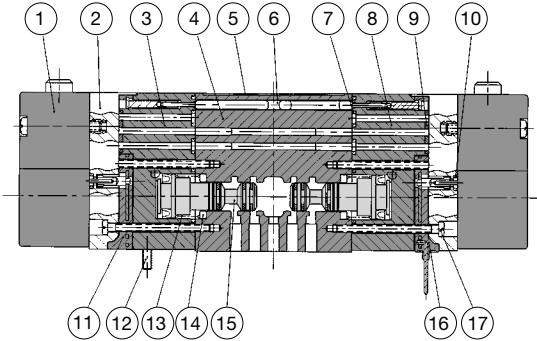
* Indicates parts included in kit.



R2 Dual 3-Way Valve Service Kits and Parts

Kit No. MKR2-K3A

(for models R20BBA, R21BBA, R2DBBA, R2FBBA)

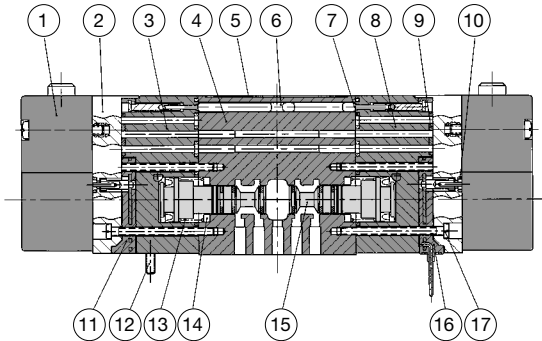


DET. NO.	BW4	BB4	BB5/6	PART NAME	PART NO.
1	2	2	2	Pilot Valve Ass'y	See p. 20
2	2	2	2	Pilot Adaptor	119-610
3	1	1	1	Pilot Adaptor Ass'y	219-390
4	1	1	1	Body (not sold separately)	
5	1	1	1	Nameplate	122-1059
6	1	1	1	14" - 12" Encap.	230-887
7	2*	2*	2*	Gasket	113-520
8	1	1	1	Pilot Adaptor Ass'y	219-388
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

*Indicates parts included in kit.

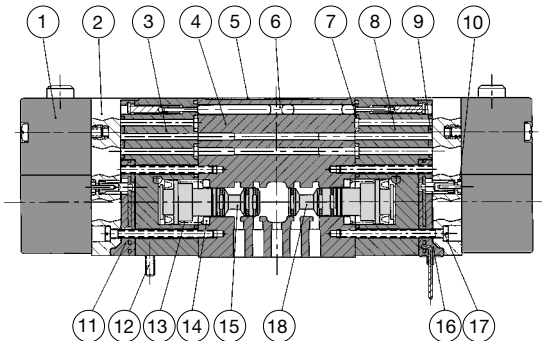
Kit No. MKR2-K3D

(for models R20BBD, R21BBD, R2DBBD, R2FBBD)



Kit No. MKR2-K3C

(for models R20BBC, R21BBC, R2DBBC, R2FBBC)



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