

numatics *EXPRESS*™



BHL

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Numatics, Inc. is a leading manufacturer of pneumatic products and motion control products. Our broad spectrum of standard, custom developed products and application components have made a significant impact on pneumatic innovation as well as pneumatic and motion control technology. Our company has an extensive history of generating innovative concepts and technological breakthroughs. Many of today's standard features in pneumatic technology were industry firsts from Numatics. We continue our innovative approach to product development by developing electric motion control solutions and enhancing our embedded Fieldbus and I/O products to continually meet and solve our customer's application requirements.



Today Numatics is proud to be a part of the Industrial Automation Division of Emerson Electric Co.

Emerson (NYSE:EMR), based in St. Louis, Missouri (USA), is a global leader in bringing technology and engineering together to provide innovative solutions for customers in industrial, commercial, and consumer markets through its network power, process management, industrial automation, climate technologies, and appliance and tools businesses. For more information, visit www.Emerson.com.





Numatics Express Shipping Program guarantees[†] product shipment in two, three or five business days. Unlike most traditional quick ship programs, the Numatics Express Shipping Program includes the most comprehensive offering in the industry. This program encompasses the range and options that you require!

Numatics is committed to offering you the highest level of customer service, quality and performance.

2DAY

Numatics Express 2Day shipping program guarantees[†] product shipment in two business days. The program includes the most popular valve, air preparation and actuator products and includes applicable switches and mounting accessories.

Numatics guarantees[†] to ship any order received before 3 pm EST for up to 10 2Day products* in two business days.

3DAY

Numatics Express shipping program offers a 3Day shipping program that guarantees[†] product shipment of a fully assembled and tested valve manifold in 3 business days. The program includes the most popular manifold configurations of the 2000 and Mark series valves:

- Sub D, Terminal Strip and Fieldbus Electronic Options
- Can be configured for DIN Rail Mounting and Muffled Exhaust
- Shipped complete and 100% tested

The 3Day Express shipping program enables you to create a 2 to 8 station manifold assembly complete with any combination of valves, regulators, and blank stations that can be configured from the valve model charts in this catalog.

Numatics guarantees[†] to ship any order received before 3 pm EST for up to 5 manifold assemblies configured from this catalog in three business days or Numatics pays the shipping cost.

5DAY

We are pleased to expand Numatics Express to include a broad range of products in a 5Day shipping program. Numatics guarantees[†] to ship up to 10 of any 5Day product** for orders received before 3 pm EST in 5 business days or Numatics pays the shipping cost.

***Sentronic[®] Proportional Valves, CGT Compact Slides, NR Series Rodless and Air Bellows are limited to orders up to 5.**

****A Series Large Bore NFPA, ASP Series Steel Body NFPA and G Series Guide Rail Rodless are limited to orders up to 5.**



Welcome to the World of Fluid Automation...

Since 1945, Numatics has emerged as the prominent specialist in developing and manufacturing pneumatic and fluid power components for a widely diverse field of automated industry. From idea to implementation, leading engineers choose Numatics as their single source for:

- Quality Fluid Power components
- Technologically advanced design resources
- Quick response time in delivery and service from around the world



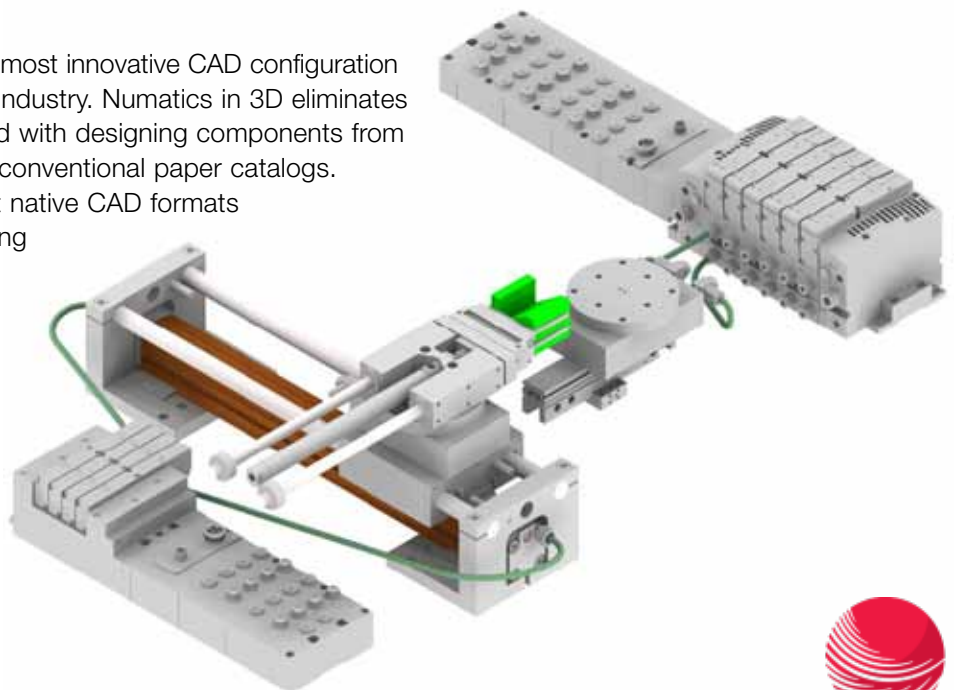
Numasizing®

Developed by Numatics, Numasizing® offers a whole new level of fluid power system optimization. Compare large amounts of component and process data against user objectives and industry benchmarks for the best possible size, pneumatic pressure, actuator stroke velocities and other part and process variable determinations.

CAD Modeling

Save critical development time with the most innovative CAD configuration program in the pneumatic component industry. Numatics in 3D eliminates the time consuming process associated with designing components from scratch based on information found in conventional paper catalogs.

The models are available in 85 different native CAD formats in 2D drawings and 3D models, including all the popular formats including Catia, I-DEAS, Pro/Engineer, SolidWorks, Unigraphics and more.



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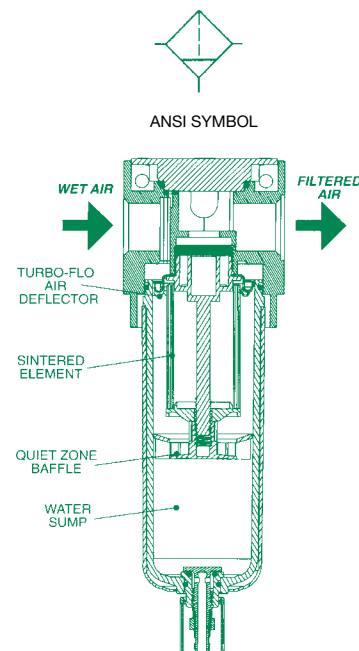
F14, F22, F32, F42 Series

- Four convenient sizes
- 5 micron sintered elements standard
- Can be installed as modular or individual unit
- Includes screws and o-rings for modular connection
- Manual or automatic drain
- Polycarbonate bowl standard
- Optional metal bowl (sight glass available on 22, 32 and 42 Series)
- Bowl seal held captive (22, 32 and 42 Series)

Specifications

Bowl		14 Series	22 Series	32 Series	42 Series
Temperature Range °F (°C)		40-120 (4-50)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	Poly C	150 (10)	150 (10)	150 (10)	150 (10)
	Metal	200 (14)	200 (14)	200 (14)	200 (14)
Weight lbs. (kg)	Poly C	0.60 (0.28)	0.65 (0.30)	1.3 (0.59)	3.70 (1.68)
	Metal	0.65 (0.30)	1.25 (0.57)	2.5 (1.14)	4.80 (2.18)
Nominal Flow SCFM (L/M)*		32 (906)	65 (1841)	105 (2973)	270 (7647)
Body Material		Zinc	Aluminum	Aluminum	Aluminum

*Nominal flow with a 5 micron element at 80 psig (5.5 bar) inlet and 5 psig (0.35 bar) pressure drop



How to Order

2DAY - Particulate Filters

Model _____ **F 22 B - 04 A**

F = Filter

Series _____

14 = 1.5 oz. Bowl
22 = 3.8 oz. Bowl
32 = 8.5 oz. Bowl
42 = 8.5 oz. Bowl

Element _____

B = 5 Micron Element

Threads _____

- = NPTF

Options

A = Auto Drain (22, 32 and 42 Series)
J = External Pulse Drain (14 Series)
M = Metal Bowl with Sight Glass
Q = Metal Manual Drain

Port Size

02 = 1/4 (14 or 22 Series)
03 = 3/8 (22 Series)
04 = 1/2 (22 or 32 Series)
06 = 3/4 (32 Series)
08 = 1 (42 Series)

F14D, F22D, F32D, F42D Series

- Four convenient sizes
- Cartridge element design
- Inner and outer support cores prevent element from crushing in either flow direction
- Optional metal bowl (sight glass available on 22, 32 and 42 Series)
- Manual or automatic drain
- DP indicator standard on 14, 22, 32 and 42 Series

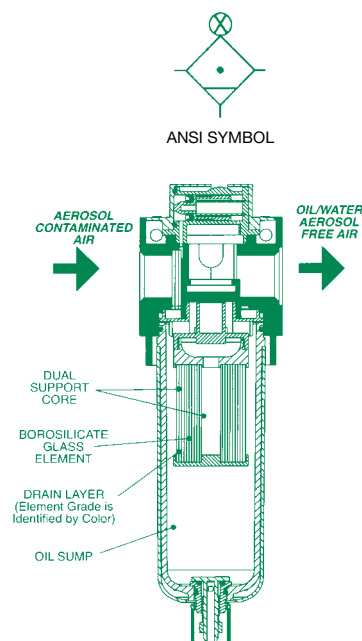
Recommended Uses

D grade element, identified by its green drain layer, is a fine filter for cylinder or valves - especially when the circuit is being run without lubrication ('dry'). Excellent filter for desiccant or regenerative style dryers.

Specifications

Bowl		14 Series	22 Series	32 Series	42 Series
Temperature Range °F (°C)		40-120 (4-50)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	Poly C	150 (10)	150 (10)	150 (10)	150 (10)
	Metal	200 (14)	200 (14)	200 (14)	200 (14)
Weight lbs. (kg)	Poly C	0.65 (0.28)	0.66 (0.30)	1.42 (0.65)	3.70 (1.68)
	Metal	0.70	1.28	2.56	4.80
Nominal Flow SCFM (L/M)*		12 (340)	18 (510)	48 (1359)	100 (2832)
Body Material		Zinc	Aluminum	Aluminum	Aluminum

*Nominal flow with a 0.3 micron element at 80 psig (5.5 bar) inlet pressure and 1.5 psig (0.1 bar) pressure drop



How to Order

2DAY - Coalescing Filters

Model

F = Filter

Series

14 = 1.5 oz. Bowl
22 = 3.8 oz. Bowl
32 = 8.5 oz. Bowl
42 = 8.5 oz. Bowl

Element

D = 0.3 Micron Fine Coalescer

Threads

- = NPTF

F 22 D - 04 A

Options

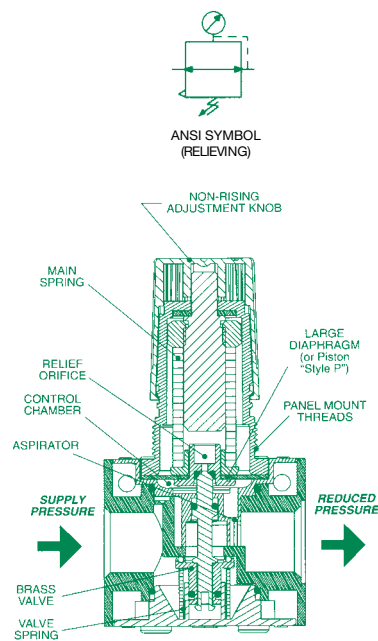
A = Auto Drain (22, 32 and 42 Series)
D = 3 Micron, Internal Pleated Prefilter
J = External Pulse Drain (14 Series)
M = Metal Bowl With Sight Glass
Q = Metal Manual Drain

Port Size

02 = 1/4 (14 or 22 Series)
03 = 3/8 (22 Series)
04 = 1/2 (22 or 32 Series)
06 = 3/4 (32 Series)
08 = 1 (42 Series)

R14, R22, R32, R42 Series

- Four convenient sizes
- High flow in compact size
- Locking non-rising adjustment
- Can be installed as modular or individual unit
- Standard output pressure 0-125 PSIG



Specifications

	14 Series	22 Series	32 Series	42 Series
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	250 (17)	200 (14)	250 (17)	250 (17)
Weight lbs. (kg)	0.65 (0.30)	0.69 (0.31)	1.37 (0.62)	4.30 (1.95)
Body Material	Zinc	Aluminum	Aluminum	Aluminum

How to Order

2DAY - Regulators

Model _____ **R 22 R - 04 G**

R = Regulator

Series _____

14
22
32
42

Style _____

R = Relieving

Threads _____

- = NPTF

Options
G = Gauge

Port Size
02 = 1/4 (14 or 22 Series)
03 = 3/8 (22 Series)
04 = 1/2 (22 or 32 Series)
06 = 3/4 (32 Series)
08 = 1 (42 Series)

FLEXIBLOK® Particulate Filter/Regulator



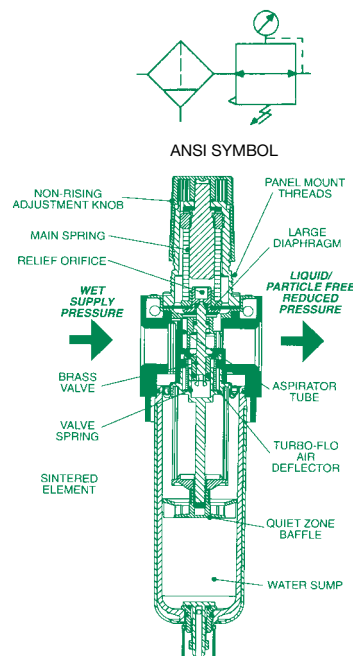
P14, P22, P32, P42 Series

- Four convenient sizes
- 5 micron element standard
- Can be installed as individual or modular unit
- Locking non-rising adjustment
- Polycarbonate bowl standard
- Optional metal bowl (sight glass available on 22, 32 and 42 Series)
- Standard output pressure 0-125 PSIG
- Bowl seal held captive (22, 32, and 42 Series)

Specifications

Bowl		14 Series	22 Series	32 Series	42 Series
Temperature Range °F (°C)		40-120 (4-50)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	Poly C	150 (10)	150 (10)	150 (10)	150 (10)
	Metal	200 (14)	200 (14)	200 (14)	200 (14)
Weight lbs. (kg)	Poly C	0.75 (0.34)	0.91 (0.41)	1.81 (0.82)	5.05 (2.29)
	Metal	0.80 (0.37)	1.50 (0.68)	2.99 (1.34)	6.15 (2.79)
Nominal Flow SCFM (L/M)*		40 (1133)	60 (1699)	90 (2549)	300 (8496)
Body Material		Zinc	Aluminum	Aluminum	Aluminum

*Nominal flow using a 5 micron element, at 100 psig (6.9 bar) inlet pressure and 80 psig (5.5 bar) set pressure



How to Order

2DAY - Particulate Filter/Regulator

Model _____ **P 22 B - 04 G**

P = Particulate Filter/Regulator

Series _____

14 = 1.5 oz. Bowl
22 = 3.8 oz. Bowl
32 = 8.5 oz. Bowl
42 = 8.5 oz. Bowl

Style _____

B = 5 Micron Element

Threads _____

- = NPTF

Options

A = Auto Drain (22, 32, and 42 Series)
G = Gauge
J = External Pulse Drain (14 Series)
M = Metal Bowl with Sight Glass
Q = Metal Manual Drain

Port Size

02 = 1/4 (14 or 22 Series)
03 = 3/8 (22 Series)
04 = 1/2 (22 or 32 Series)
06 = 3/4 (32 Series)
08 = 1 (42 Series)

C14D, C22D, C32D, C42D Series

- Four convenient sizes
- Cartridge element design
- Inner/outer support cores prevent element from crushing in either flow direction
- Manual or automatic drain
- Polycarbonate bowl standard
- Optional metal bowl (sight glass available on 22, 32 and 42 Series)
- Standard output pressure 0-125 PSIG

Recommended Uses

D grade element, identified by its green drain layer, is a fine filter for cylinder or valves - especially when the circuit is being run without lubrication ('dry'). Excellent filter for desiccant or regenerative style dryers.

Specifications

	Bowl	14 Series	22 Series	32 Series	42 Series
Temperature Range °F (°C)		40-120 (4-50)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	Poly C	150 (10)	150 (10)	150 (10)	150 (10)
	Metal	200 (14)	200 (14)	200 (14)	200 (14)
Weight lbs. (kg)	Poly C	0.80 (0.35)	0.92 (0.42)	1.82 (0.83)	5.05 (2.29)
	Metal	0.85 (0.38)	1.60 (0.73)	2.95 (1.34)	6.15 (2.76)
Nominal Flow SCFM (L/M)*		20 (560)	35 (991)	50 (1416)	100 (2832)
Body Material		Zinc	Aluminum	Aluminum	Aluminum

*Nominal flow using a 0.3 micron element, at 100 psig (6.9 bar) inlet pressure and 80 psig (5.5 bar) set pressure

How to Order

2DAY - Coalescing Filter/Regulators

Model _____ **C 22 D - 04 ADG**

C = Coalescing Filter/Regulators

Series

14 = 1.5 oz. Bowl
22 = 3.8 oz. Bowl
32 = 8.5 oz. Bowl
42 = 8.5 oz. Bowl

Element

D = 0.3 Micron Fine Coalescer

Threads

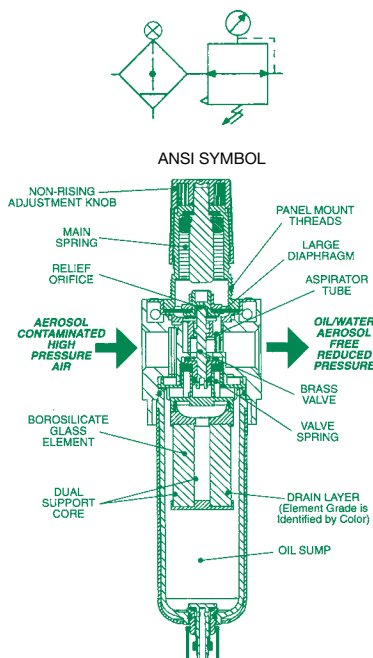
- = NPTF

Options

A = Auto Drain (22, 32, and 42 series)
D = 3 Micron, Internal Pleated Prefilter
G = Gauge
J = External Pulse Drain (14 Series)
M = Metal Bowl with Sight Glass
Q = Metal Manual Drain

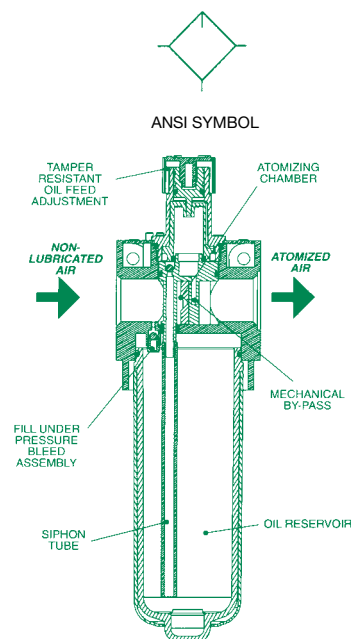
Port Size

02 = 1/4 (14 or 22 Series)
03 = 3/8 (22 Series)
04 = 1/2 (22 or 32 Series)
06 = 3/4 (32 Series)
08 = 1 (42 Series)



L14, L22, L32, L42 Series

- Four convenient sizes
- Lubrication to begin at 2 SCFM
- Can be filled under pressure (22, 32 and 42 series)
- Tamper-resistant knob standard
- Polycarbonate bowl standard
- Optional metal bowl (sight glass available on 22, 32 and 42 Series)
- Can be mounted as individual or modular unit



Specifications

	14 Series	22 Series	32 Series	42 Series
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Max. Pressure PSIG (BAR)	200 (14)	200 (14)	200 (14)	200 (14)
Weight lbs. (kg)	0.60 (0.27)	0.69 (0.31)	1.37 (0.62)	4.15 (2.18)
Body Material	Zinc	Aluminum	Aluminum	Aluminum

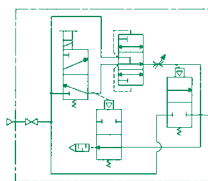
How to Order

2DAY - Lubricators

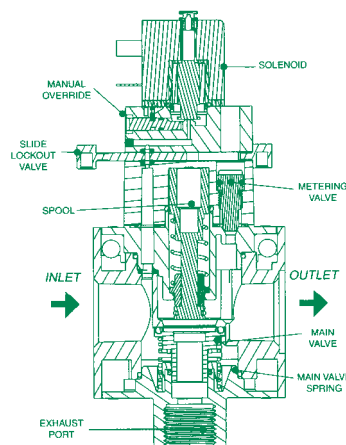
Model _____	L	22	L	-	04	M	Options
L = Lubricator							M = Metal Bowl with Sight Glass
Series _____							Port Size
14 = 1.5 oz. Bowl							02 = 1/4 (14 or 22 Series)
22 = 3.8 oz. Bowl							03 = 3/8 (22 Series)
32 = 8.5 oz. Bowl							04 = 1/2 (22 or 32 Series)
42 = 8.5 oz. Bowl							06 = 3/4 (32 Series)
Style _____							08 = 1 (42 Series)
L = Standard Lubricators							
Threads _____							
- = NPTF							

S22C, S32C, S42C Series

- Three convenient sizes
- Lockout feature prevents unauthorized pressurization of system.
- High exhaust capacity for quick depletion of downstream pressure
- High inlet to outlet flow capability
- Connects easily to **FlexiBlok[®]** Modular system
- Incorporated metering valve controls how quickly downstream pressure is reached, which controls the slow start feature.



ANSI SYMBOL



Specifications

	22 Series	32 Series	42 Series
Exhaust Ports NPTF	1/2	1/2	3/8 (3 exh. ports)
Gauge Ports NPTF	1/8	1/4	1/4
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Min. Pressure PSI (BAR)	60 (4)	60 (4)	20 (1.38)
Max. Pressure PSI (BAR)	150 (10)	150 (10)	150 (10)
Weight lbs. (kg)	0.94 (0.43)	1.56 (0.71)	4.35 (1.97)
Body Material	Aluminum	Aluminum	Aluminum

Series	CV	
	In/Out	Out/Exhaust
22 Series, 1/4	2.0	1.2
22 Series, 3/8	2.87	1.38
22 Series, 1/2	3.62	1.38
32 Series, 1/2	5.24	3.01
32 Series, 3/4	6.47	3.14
42 Series, 1	8.0	5.0

How to Order

2DAY - Solenoid Soft Start Quick Exhaust Valve

Model _____ **S 22 C - 04 B EGLM**

S = Solenoid Soft Start

Series _____

22
32
42

Element _____

C = Solenoid Soft Start

Threads _____

- = NPTF

Options

E = 110V AC 50/60 Hz
G = Gauge
K = 24V DC Coil
L = Plug with Light
M = Muffler

Revision Level

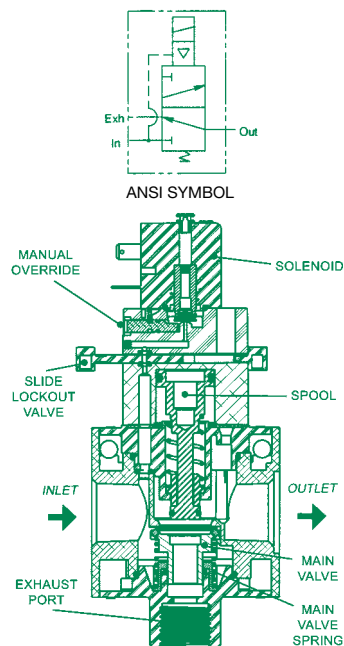
B

Port Size

02 = 1/4 (22 Series)
03 = 3/8 (22 Series)
04 = 1/2 (22 or 32 Series)
06 = 3/4 (32 Series)
08 = 1 (42 Series)

S14E, S22E, S32E, S42E Series

- Four convenient sizes
- Lockout feature (located in slide valve) prevents unauthorized pressurization of system (22, 32, and 42 Series)
- Standard manual override
- Low-wattage coil
- High exhaust capacity for quick depletion of pressure
- High inlet to outlet flow capability
- Connects easily to **FlexiBlok®** Modular system



Specifications

	14 Series	22 Series	32 Series	42 Series
Exhaust Ports NPTF	1/2	1/2	1/2	3/8 (3 exh. ports)
Gauge Ports NPTF	1/8	1/8	1/4	1/4
Temperature Range °F (°C)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)	40-120 (4-50)
Min. Pressure PSI (BAR)	60 (4)	60 (4)	60 (4)	20 (1.38)
Max. Pressure PSI (BAR)	150 (10)	150 (10)	150 (10)	150 (10)
Weight lbs. (kg)	0.94 (0.43)	0.94 (0.43)	1.56 (0.71)	4.35 (1.97)
Body Material	Zinc	Aluminum	Aluminum	Aluminum

Series	In/Out	CV	
		Inlet	Out/Exhaust
14 Series, 1/4	1.55		1.10
22 Series, 1/4	2.0		1.2
22 Series, 3/8	2.87		1.38
22 Series, 1/2	3.62		1.38
32 Series, 1/2	5.24		3.01
32 Series, 3/4	6.47		3.14
42 Series, 1	8.0		5.0

How to Order

2DAY - Solenoid Quick Exhaust Valve

Model S 22 E - 04 B EGLM

S = Solenoid Quick Exhaust

Series

14
22
32
42

Style

E = Solenoid Quick Exhaust Valve

Threads

- = NPTF

Options

E = 110V AC 50/60 Hz
G = Gauge
K = 24V DC Coil
L = Plug with Light
M = Muffler

Revision Level

B

Port Size

02 = 1/4 (14 and 22 Series)
03 = 3/8 (22 Series)
04 = 1/2 (22 or 32 Series)
06 = 3/4 (32 Series)
08 = 1 (42 Series)



2DAY - Shut-Off Valve

VS14, VS22, VS32, VSL42 Series

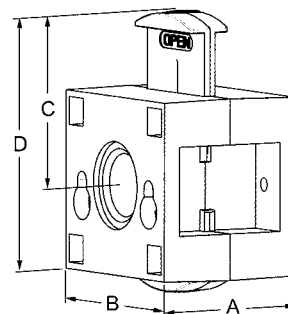
The **FlexiBlok®** Shut-Off Valve is an easy and inexpensive way to add shut off capability to an FRL. The valve includes a lockout feature designed for a padlock to prevent unauthorized downstream pressurization during maintenance. The shut off valve is usually mounted first in the assembly.

Max. inlet pressure: 200 PSI (13.7 bar)

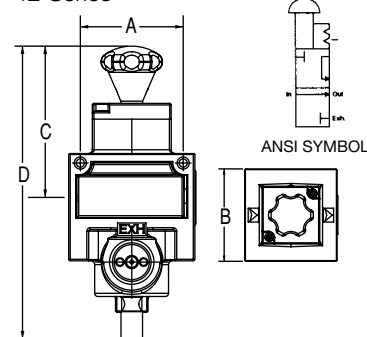
250 PSI (17 bar) - 42 Series

- Relieves downstream pressure when closed
- Lockout feature prevents unauthorized pressurization of system.

		Dimensions					Ports
	NPTF	A	B	C	D		
14	VS14-02	1.63 (41)	1.6 (41)	1.6 (41)	3 (76)	1/4	
22	VS22-02	2.0 (50)	2.16 (55)	1.86 (47)	3.1 (79)	1/4	
	VS22-03	2.0 (50)	2.16 (55)	1.86 (47)	3.1 (79)	3/8	
	VS22-04	2.0 (50)	2.16 (55)	1.86 (47)	3.1 (79)	1/2	
32	VS32-04	2.25 (57)	3.0 (76)	2.57 (65)	4.2 (107)	1/2	
	VS32-06	2.25 (57)	3.0 (76)	2.57 (65)	4.2 (107)	3/4	
42	VSL42-08	3.2 (83)	4.0 (102)	4.8 (122)	9.3 (236)	1	



42 Series



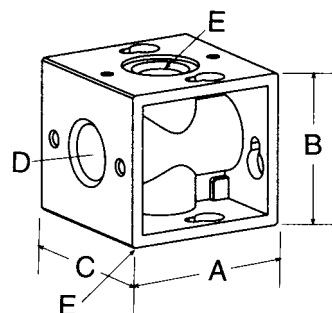
2DAY - Diverter Block and Gauges

DK14, DK22, DK32, DK42 Series

Designed to give **FlexiBlok®** components total versatility, the diverter block mounts directly inline with the FRL combination. Additional components can then be manifold mounted in a compact manner that doesn't cause excessive pressure drop. There are two available tapped ports per unit.

Max. inlet pressure: 200 PSI (13.7 bar) (14, 22, 32 Series)

250 PSI (17 bar) (42 Series)



		Dimensions					Ports
Series	NPTF	A	B	C	D	E	
14	DK14-02	1.72 (44)	1.54 (39)	1.6 (41)	1/4	1/8	Tapped 1/4 NPTF In & Out with two 1/8 NPTF branches
22	DK22-03	2.16 (55)	2.00 (50)	2.16 (55)	1/2	3/8	Tapped 1/2 NPTF in & out with two 3/8 NPTF branches
32	DK32-04	3.00 (76)	2.70 (69)	3.00 (76)	3/4	1/2	Tapped 3/4 NPTF in & out with two 1/2 NPTF branches
42	DK42-08	4.00 (102)	3.40 (87)	4.00 (102)	1	1	In & Out and branches 1 with two 1 NPTF branches

Gauges

Model	Face Diameter	Thread Size	Pressure Range PSI (BAR)
214-103	1.5	1/8 NPT	0-160 (0-11)
201-188	2.0	1/4 NPT	0-160 (0-11)



02 Series

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

Cv: 0.20

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 wattage plug-in - 0.5 watt for DC application
- Elimination of internal wiring
- Pusher piston – high spool shifting force
- Compact/modular Fieldbus electronics
- Interchangeable Push-In fittings to accommodate various tube sizes



02 Series - Technical Data

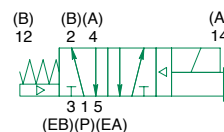
Valve Data	English	Metric
Cv	0.20	0.20
Flow Capacity	9.2 SCFM @ 80 PSIG upstream pressure to atmosphere	197 NL/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range	28" Hg. Vacuum to 150 PSIG	Vacuum to 10 bar
Pilot Pressure Range	35 to 100 PSIG	2.5 to 7 bar
Temperature Range (Ambient)	-10°F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

R2 Series - Technical Data

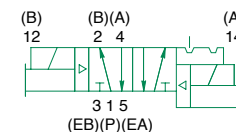
Valve Data	English	Metric
Cv	0.25	0.25
Flow Capacity	11.5 SCFM @ 80 PSIG upstream pressure to atmosphere	246 NL/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range: 4 way	28" Hg. Vacuum to 100 PSIG	Vacuum to 7 bar
Dual 3 Way	0 to 100 PSIG	0 to 7 bar
Pilot Pressure Range	35 to 100 PSIG	2.5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

02 Series and R2 Series

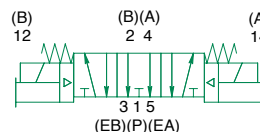
single solenoid air pilot
2 position 4-way



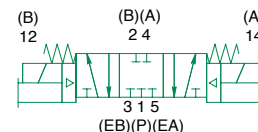
double solenoid air pilot
2 position 4-way



double solenoid 3 position
4-way open center

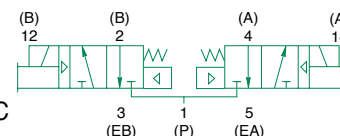


double solenoid 3 position
4-way closed center



R2 Series Only

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



02 Series - Operating Data

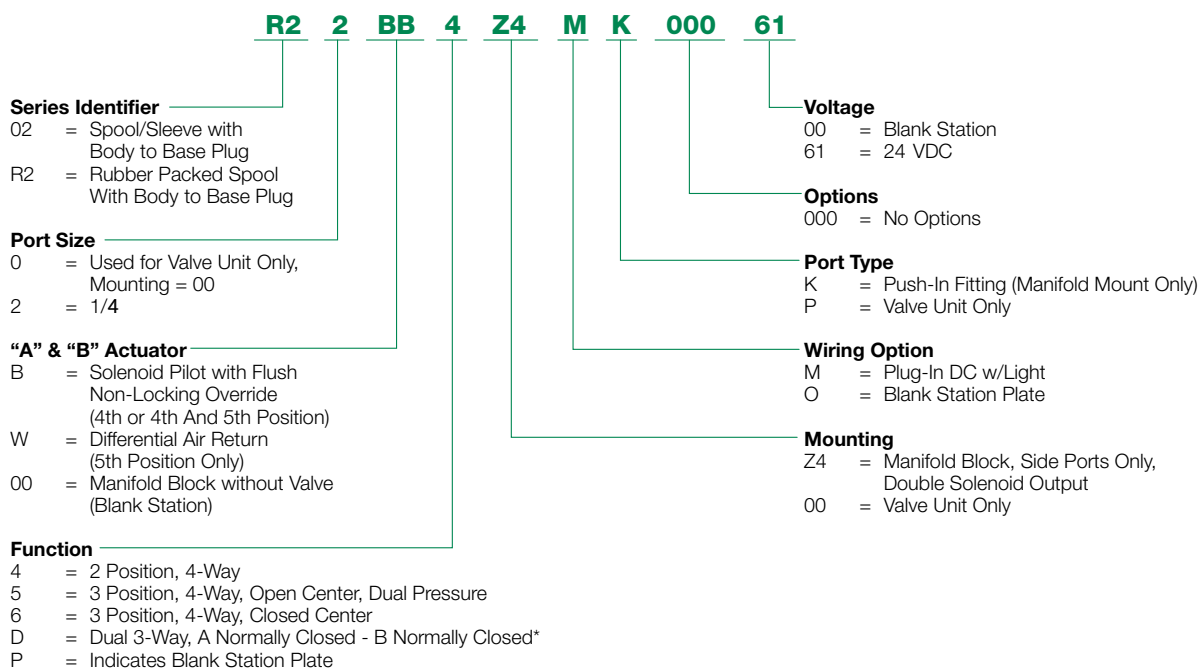
All solenoids are continuous duty rated	24 VDC	
Power (Watts)	0.50	
Holding Current (Amps)	0.02	
Response time in sec.	Energize	De-energize
2 - Position, Single, Spring Return	0.014	0.020
2 - Position, Double, Detented	0.010	N/A
3 - Position, Spring Centered	0.009	0.057

R2 Series - Operating Data

All solenoids are continuous duty rated	24 VDC	
Power (Watts)	0.50	
Holding Current (Amps)	0.02	
Response time in sec.	Energize	De-energize
2 - Position, Single, Spring Return	0.017	0.013
2 - Position, Double, Detented	0.010	N/A
3 - Position, Spring Centered	0.009	0.022
Dual 3-way	0.018	0.010

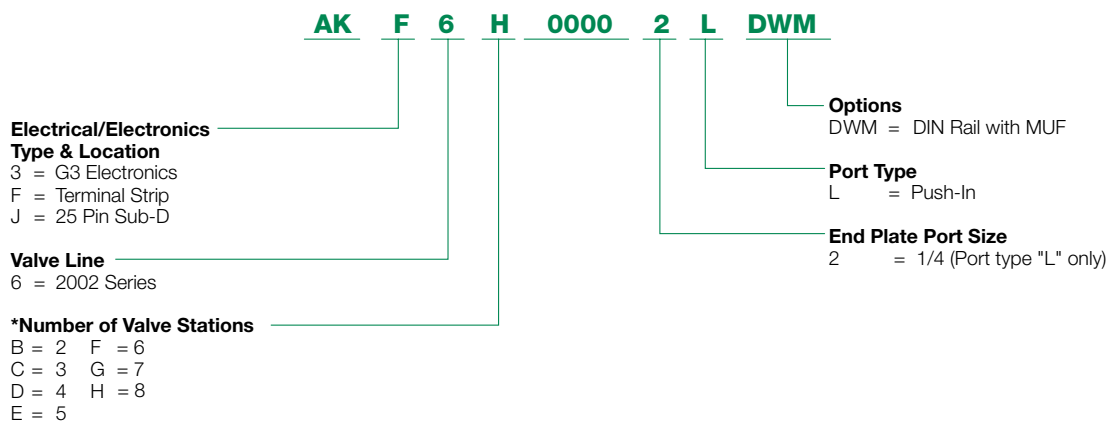
How to Order

2DAY Valves



*Valve Functions for use in Pressure Applications only

3DAY Manifold Assemblies



See How To Order Manifolds (pg. 32-33) for Ordering Details.

2005 Series

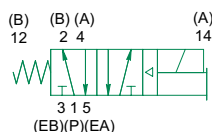
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

Cv: 0.56

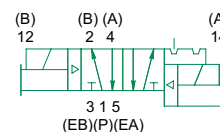
Dual 3-Way Pack Spool Cv: 0.56

- Solenoid air pilot actuated
- Low wattage plug-in - 1.0 watt for DC application
- DC solenoids polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring
- Integral recessed gaskets
- Interchangeable Push-In fittings to accommodate various tube sizes
- Simple conversion from internal to external pilot supply
- Modular plug-together Fieldbus electronics
- NEMA 4/IP65

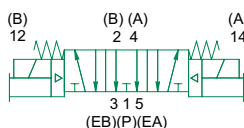
single solenoid air pilot
2 position 4-way



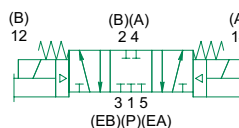
double solenoid air pilot
2 position 4-way



double solenoid air pilot
3 position 4-way
open center



double solenoid air pilot
3 position 4-way
closed center



Technical Data

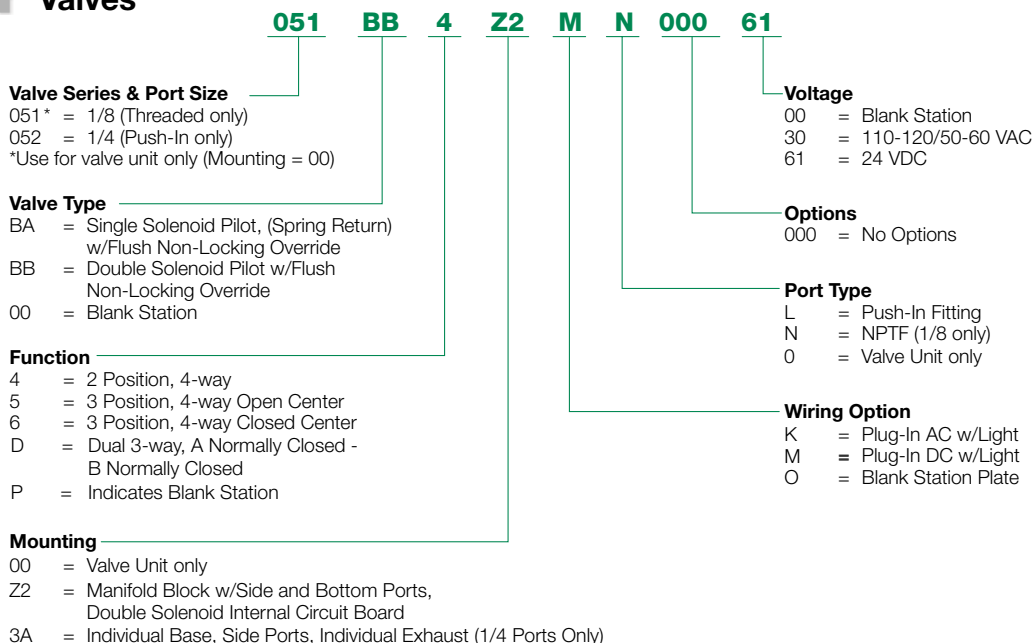
Valve Data	English	Metric
Cv	0.56	0.56
Flow Capacity	26 SCFM @ 80 PSIG upstream pressure to atmosphere	552 NI/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range	28" Hg. Vacuum to 150 PSIG	Vacuum to 10 bar
Operating Pressure Range – 3 Way	22" Hg. Vacuum to 100 PSIG	Vacuum to 7 bar
Pilot Pressure Range	26 to 120 PSIG	1.8 to 8.2 bar
Pilot Pressure Range – 3 Way	26 to 100 PSIG	1.8 to 7 bar
Pilot Pressure Vacuum	50 to 100 PSIG	3.5 to 7 bar
Temperature Range (Ambient)	-10°F to +115°F	-23°C to +46°C

Operating Data

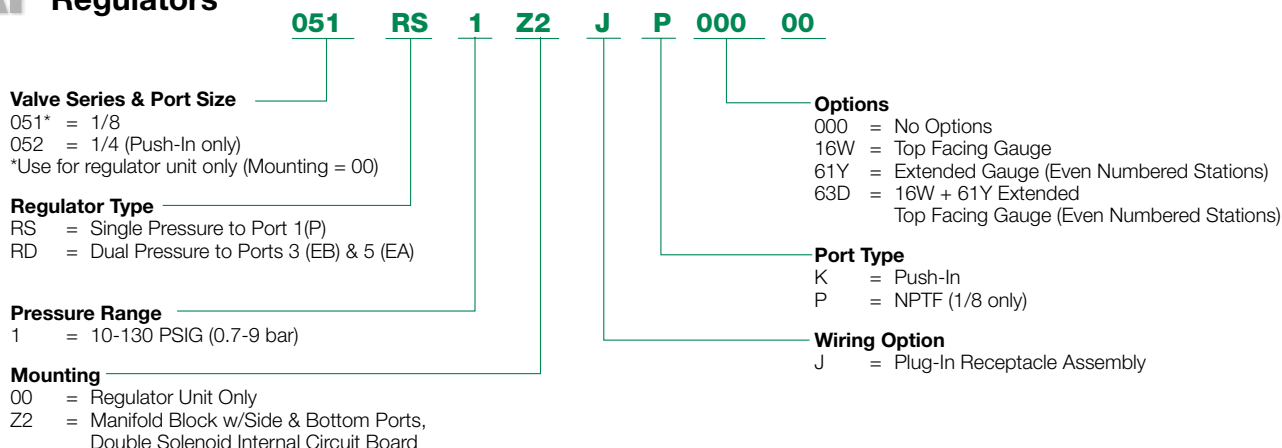
All solenoids are continuous duty rated		24 VDC	110-120 VAC / 50/60 Hz.	
Power (Watts)		1.35	4.2	
Holding Current (Amps)		0.04	0.04	
Response time in seconds	Energize	De-energize	Energize	De-energize
2 - Position, Single, Spring Return	0.014	0.016	0.014	0.016
2 - Position, Double, Detented	0.013	N/A	0.013	N/A
3 - Position, Spring Centered	0.014	0.016	0.014	0.016
Dual 3 Way	0.014	0.016	0.014	0.016

How to Order

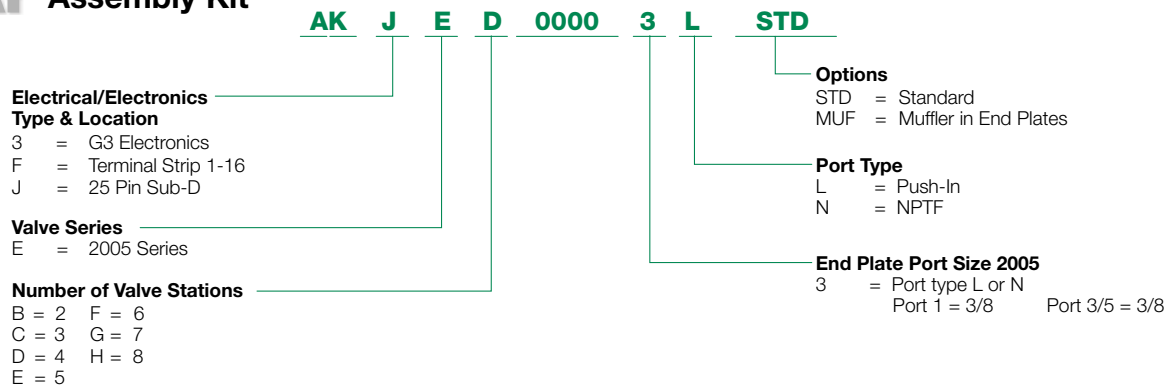
2DAY Valves



2DAY Regulators



3DAY Assembly Kit



2012 Series

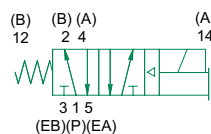
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

Cv: 1.2

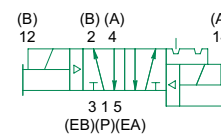
- Solenoid air pilot actuated
- Low wattage plug-in – 2.5 watt for DC application
- DC solenoids polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring.
- Integral recessed gaskets
- Interchangeable Push-In fittings to accommodate various tube sizes
- Simple conversion from internal to external pilot
- Modular plug-together Fieldbus electronics
- NEMA 4/IP65



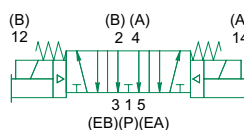
single solenoid air pilot
2 position 4-way



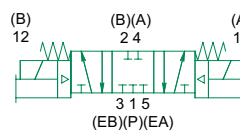
double solenoid air pilot
2 position 4-way



double solenoid air pilot
3 position 4-way
open center



double solenoid air pilot
3 position 4-way
closed center



Technical Data

Valve Data	English	Metric
Cv	1.20	1.20
Flow Capacity	56 SCFM @ 80 PSIG upstream pressure to atmosphere	1180 NL/m @ 6 bar upstream to 5 bar downstream
Operating Pressure Range	28"Hg Vacuum to 150 PSIG	Vacuum to 10 bar
Pilot Pressure Range	26 to 120 PSIG	1.8 to 8.2 bar
Temperature Range (Ambient)	-10°F to + 115°F	-23°C to +46° C

Operating Data

All Solenoids are Continuous Duty Rated		24 VDC	110 - 120 VAC 50/60 Hz.	
Power (Watts)		2.5	4.2	
Holding Current (Amps.)		0.10	0.05	
Response Time in Seconds	Energize	De-energize	Energize	De-energize
2-Position, Single, Spring Return	0.010	0.020	0.010	0.020
2-Position, Double, Detented	0.010	N/A	0.010	N/A
3-Position, Spring Centered	0.010	0.020	0.010	0.020

How to Order

2DAY Valves

122	BB	4	Z2	M	L	000	61
Valve Series & Port Size 122* = 1/4 123 = 3/8 *Use for valve unit only (Mounting = 00).				Voltage 00 = Blank Station 30 = 110-120/50-60 VAC 61 = 24 VDC			
Valve Type BA = Single Solenoid Pilot, (Spring Return) w/Flush Non-Locking Override BB = Double Solenoid Pilot w/Flush Non-Locking Override 00 = Blank Station				Special Options 000 = No Options			
Function 4 = 2 Position, 4-way 5 = 3 Position, 4-way Open Center 6 = 3 Position, 4-way Closed Center P = Blank Station Plate				Port Type L = Push-In Fitting N = NPTF 0 = Valve Unit only			
Mounting 00 = Valve Unit only 3A = Individual Base, Side Ports, Individual Exhaust (3/8 Ports Only) Z2 = Manifold Block w/Side and Bottom Ports Double Solenoid Internal Circuit Board				Wiring Option K = Plug-In AC w/Light M = Plug-In DC w/Light O = Blank Station			

2DAY Regulators

122	RS	1	Z2	J	L	000	00
Valve Series & Port Size 122* = 1/4 123 = 3/8 *Use for regulator unit only (Mounting = 00).				Special Options 000 = No Options 16W = Top Facing Gauge			
Regulator Type RS = Single Pressure to Port 1 (P) RD = Dual Pressure to Ports 3 (EB) & 5 (EA)				Port Type 0 = Regulator Unit Only L = Push-In N = NPTF			
Pressure Range 1 = 10-130 PSIG (0.7-9 bar)				Wiring Option J = Plug-In Receptacle Assembly			
				Mounting 00 = Regulator Unit Only Z2 = Manifold Block w/Side and Bottom Ports, Double Solenoid Internal Circuit Board			

3DAY Assembly Kit

A	K	J	G	D	0	000	3	L	STD
Electrical Connection Type & Location 3 = G3 Electronics F = Terminal Strip 1-16 J = 25 Pin Sub-D				Options STD = Standard MUF = Muffler in End Plates					
Valve Series G = 2012 Series				Port Type L = Push-In N = NPTF					
Number of Valve Stations* B = 2 F = 6 C = 3 G = 7 D = 4 H = 8 E = 5				End Plate Port Size 2012 3 = Port Type L or N Port 1 = 3/8 Port 3/5 = 1/2					

See How To Order Manifolds (pg. 32-33) for Ordering Details.

2035 Series

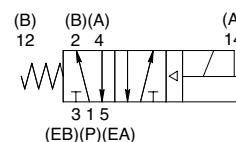
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

Cv: 3.5

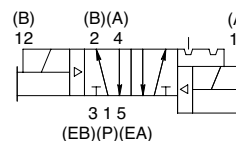
- Solenoid air pilot actuated
- Low wattage plug-in - 2.5 watt for DC application
- DC solenoids polarity insensitive with surge suppression
- Plug together circuit boards eliminate internal wiring.
- Integral recessed gaskets
- Simple conversion from internal to external pilot supply
- Modular plug-together Fieldbus electronics
- Designed to meet NEMA 4/IP65
- Manifold connection allows disassembly at any station.



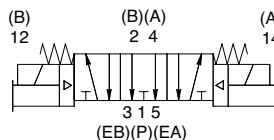
single solenoid air pilot
2 position 4-way



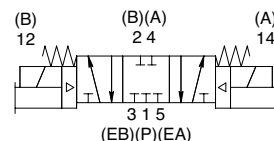
double solenoid air pilot
2 position 4-way



double solenoid air pilot
3 position 4-way
open center



double solenoid air pilot
3 position 4-way
closed center



Technical Data

Valve Data	English	Metric
Cv*	3.5*	3.5*
Flow Capacity	161 SCFM @ 80 PSIG upstream pressure to atmosphere	3500 NI/m @ 6 bar upstream pressure to 5 bar atmosphere
Operating Pressure Range	28" Hg. Vacuum to 145 PSIG	Vacuum to 10 bar
Pilot Pressure Range	26.1 to 120 PSIG	1.8 to 8.2 bar
Temperature Range (Ambient)	-10°F to +115°F	-23°C to +46°C

Operating Data

All solenoids are continuous duty rated	24 VDC		110-120 VAC / 50/60 Hz.	
Power (Watts)	2.5		4.2	
Holding Current (Amps)	0.10		0.03	
Response time in seconds**	Energize	De-energize	Energize	De-energize
2 - Position, Single, Spring Return	.021	.067	.015	.070
2 - Position, Double, Detented	.017	N/A	.015	N/A
3 - Position, Spring Centered	.021	.072	.018	.080

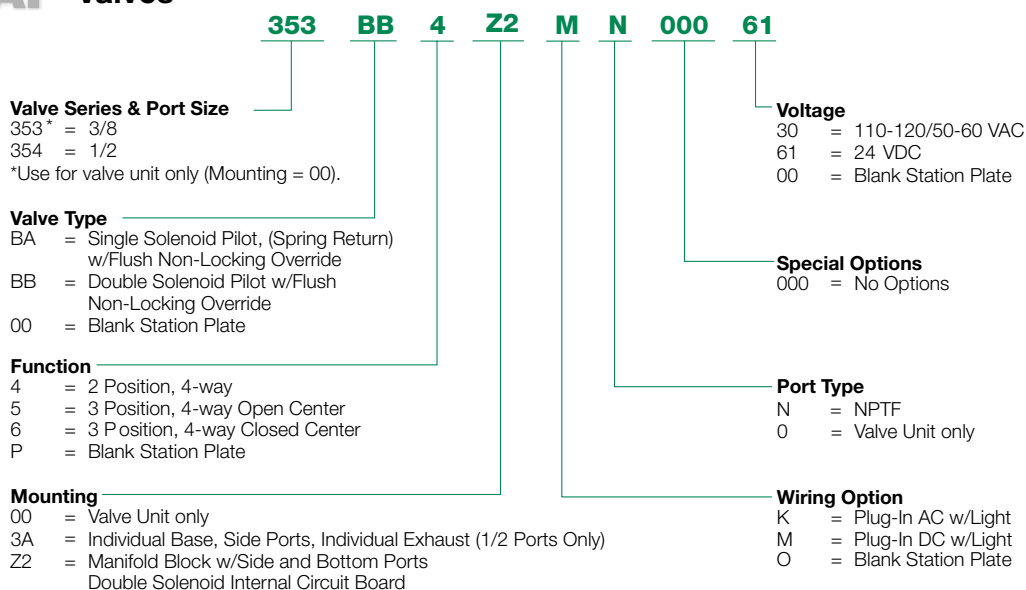
* Valve on 1/2 NPTF Sub-Plate

** Per ISO12238 Standard

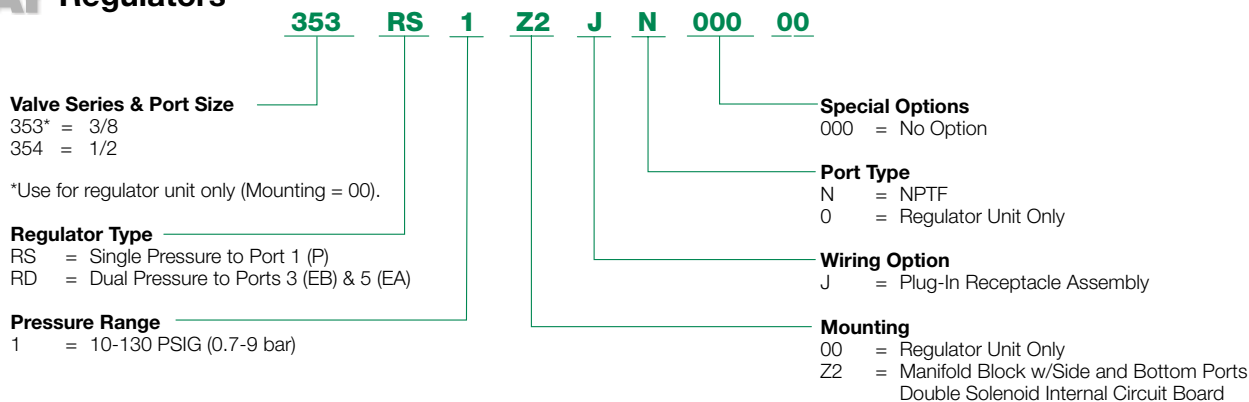


How to Order

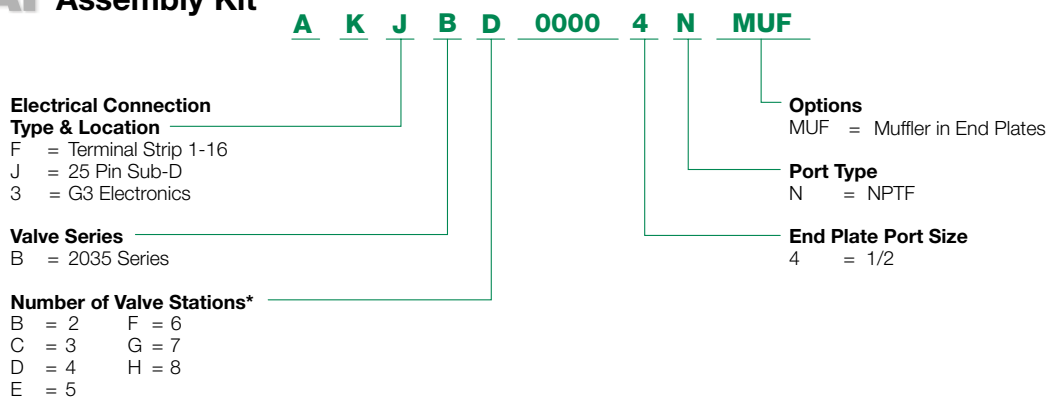
2DAY Valves



2DAY Regulators



3DAY Assembly Kit



See How To Order Manifolds (pg. 32-33) for Ordering Details.

Mark 3 Series

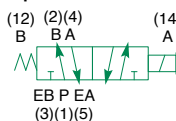
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

Cv: 0.35

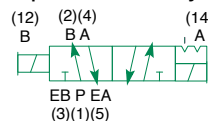
- Direct solenoid actuated
- DIN plug-in solenoid with indicator light
- Unlubricated or lubricated service
- Integral regulators available
- NEMA 4/IP65



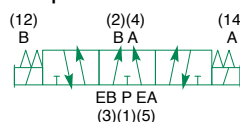
single solenoid 2 position 4-way



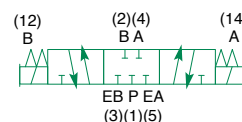
double solenoid 2 position 4-way



double solenoid 3 position 4-way open center



double solenoid 3 position 4-way closed center



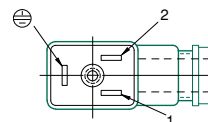
Technical Data

Valve Data	English	Metric
Cv	1/8 NPTF = 0.35 10-32 UNF = 0.18	1/8 = 0.35 M5 = .018
Flow Capacity	16.21 SCFM 8.34 SCFM Upstream pressure to atmosphere @80 PSIG	345 NI/m 177 NI/m @ 6 bar upstream/5 bar downstream
Operating Pressure Range	28" HG. Vacuum to 150 PSIG	Vacuum to 10 Bar
Temperature Range (ambient)	Direct Solenoid -10°F to +115°F	-23°C to +46°C

Operating Data - Mark 3

All Solenoids are Continuous Duty Rated		24 VDC	115 VAC 50 Hz.	120 VAC 60 Hz.
Power (Watts)		6.0	5.5	4.0
Holding Current (Amps.)		0.250	0.063	0.052
Inrush Current (Amps.)		N/A	0.093	0.090
Energize in seconds	2-Position, Single, Spring Return	0.012	0.008	0.008
	2-Position, Double, Detented	0.012	0.008	0.008
	3-Position, Spring Centered	0.012	0.008	0.008
De-energize in seconds	2-Position, Single, Spring Return	0.008	0.012	0.012
	2-Position, Double, Detented	N/A	N/A	N/A
	3-Position, Spring Centered	0.008	0.012	0.012

Plug Connector Assemblies
Per DIN Spec. NO 43650. Accepts cable
diameter 0.240 to 0.310.
11mm Industry Standard DIN Form B

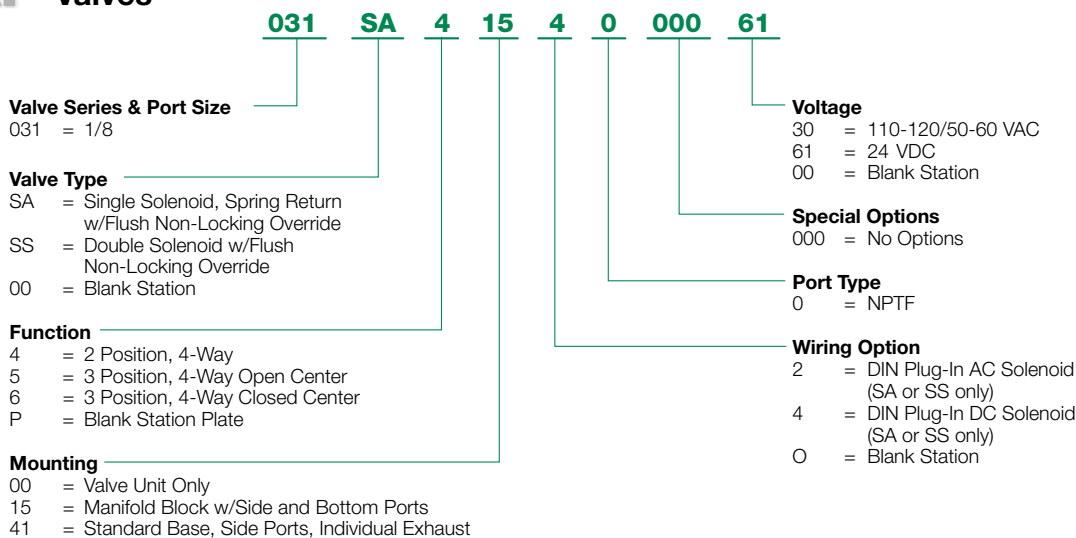


Normal Polarity
1 = (+) Positive, High
2 = (-) Negative, Neutral
⊕ = Chassis Ground

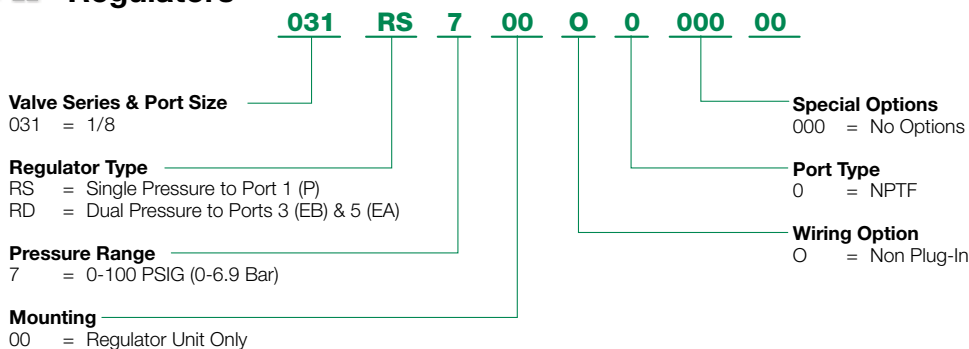
Plug Connector Description	Part No.
Gray (14 end solenoid) Plug Assembly	230-363
Black (12 end solenoid) Plug Assembly	230-364
Plug Assembly with 24 V Light	230-365
Plug Assembly with 110 V Light	230-366

How to Order

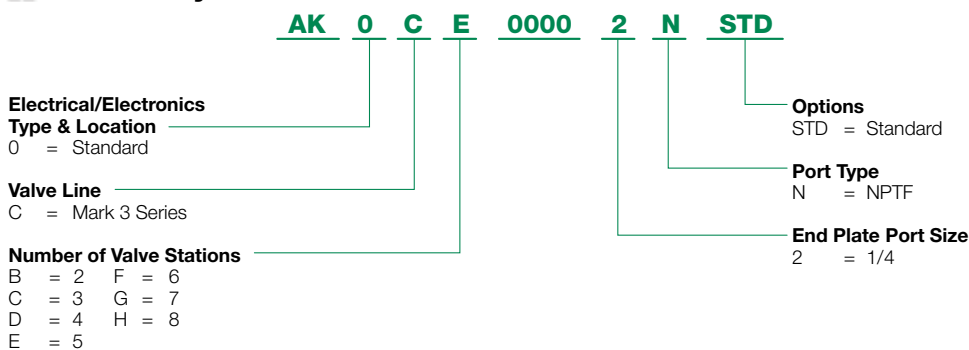
2DAY Valves



2DAY Regulators



3DAY Assembly Kit



See How To Order Manifolds (pg. 32-33) for Ordering Details.

Mark 8 Series

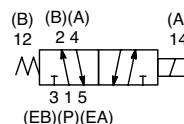
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

Cv: 0.8 - 1.0

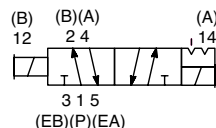
- Direct solenoid actuated
- Plug-in solenoid with indicator light
- Unlubricated or lubricated service
- Integral regulators available
- NEMA 4/IP65



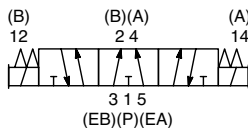
single solenoid
2 position 4-way



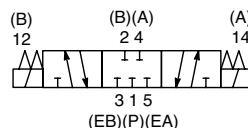
double solenoid
2 position 4-way



double solenoid
3 position 4-way
open center



double solenoid
3 position 4-way
closed center



Technical Data

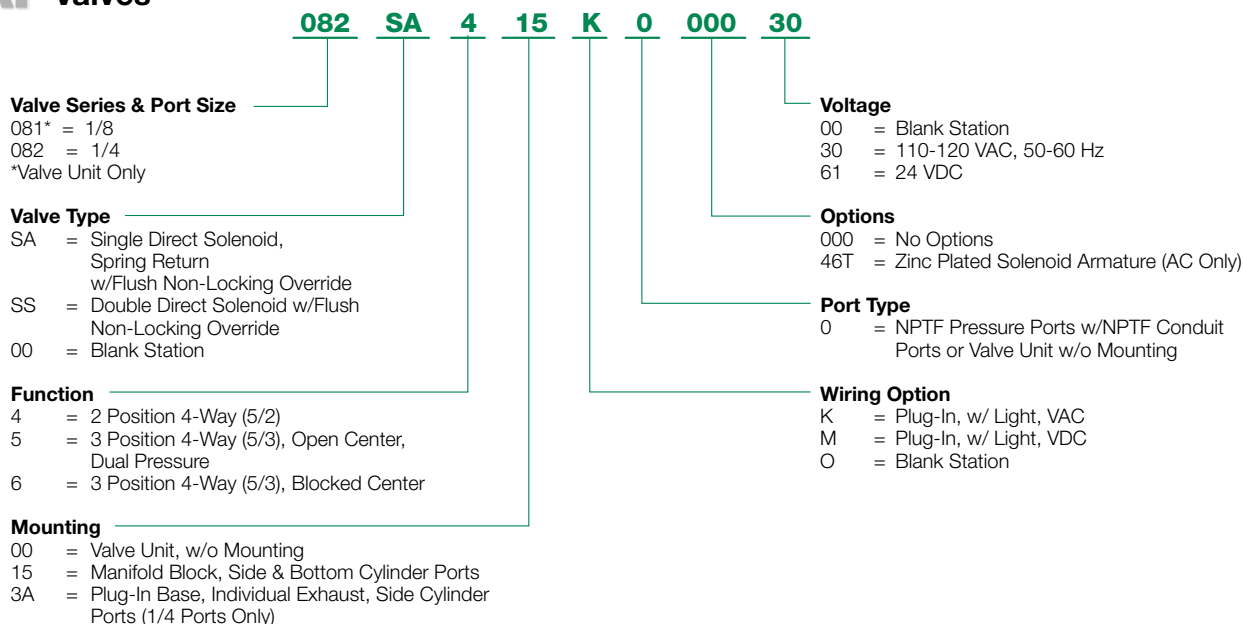
Valve Data	English		Metric	
Cv	1/8 NPTF = 0.80	1/4 NTPF = 1.0	1/8 G Tap = 0.80	1/4 G Tap = 1.0
Flow Capacity	37 SCFM Upstream pressure to atmosphere @80 PSIG	46 SCFM	790 NI/m @ 6 bar upstream/5 bar downstream	985 NI/m
Operating Pressure Range	28" Hg. Vacuum to 150 PSIG		Vacuum to 10 Bar	
Temperature Range (Ambient)	-10°F to +115°F		-23°C to +46°C	

Operating Data

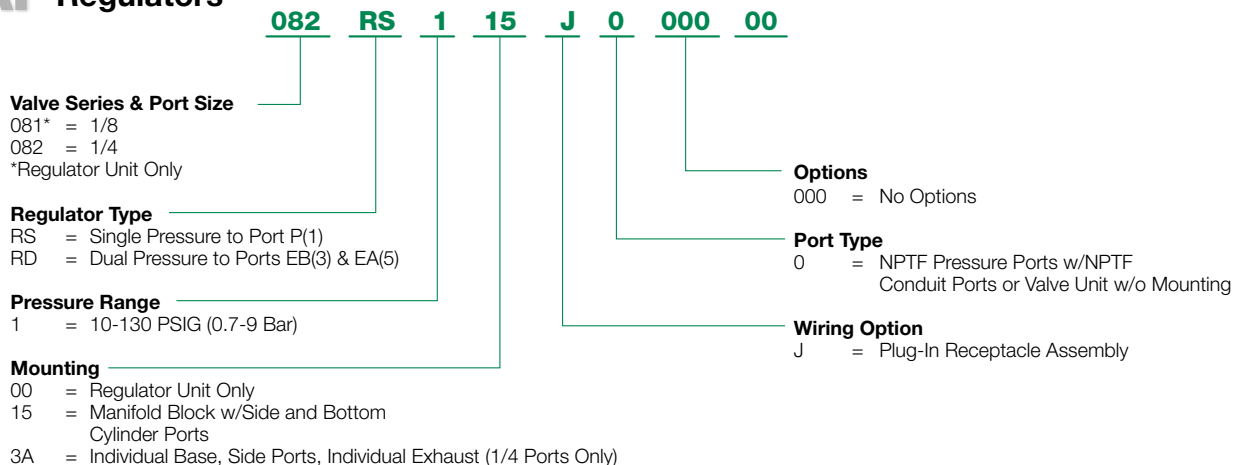
All Solenoids are Continuous Duty Rated		24 VDC	115 VAC 50 Hz.	120 VAC 60 Hz.
Power (Watts)		6.0	N/A	N/A
Holding Current (Amps.)		0.25	0.15	0.09
Inrush Current (Amps.)		N/A	0.41	0.38
Energize in seconds	2-Position, Single, Spring Return	0.032	0.011	0.011
	2-Position, Double, Detented	0.028	0.012	0.012
	3-Position, Spring Centered	0.028	0.012	0.012
De-energize in seconds	2-Position, Single, Spring Return	0.010	0.011	0.011
	2-Position, Double, Detented	N/A	N/A	N/A
	3-Position, Spring Centered	0.008	0.018	0.018

How to Order

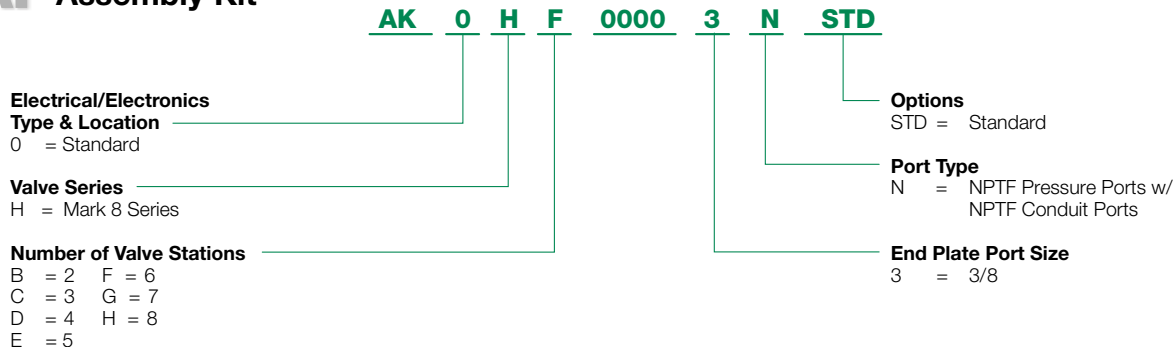
2DAY Valves



2DAY Regulators



3DAY Assembly Kit



See How To Order Manifolds (pg. 32-33) for Ordering Details.

Mark 15 Series

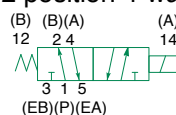
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

Cv: 1.5

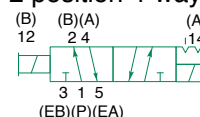
- Direct solenoid actuated
- Plug-in solenoid with indicator light
- Unlubricated or lubricated service
- Integral regulators available
- NEMA 4/IP65
- Body to base plug-in



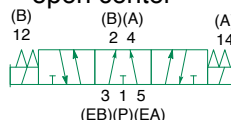
single solenoid
2 position 4-way



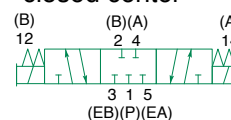
double solenoid
2 position 4-way



double solenoid
3 position 4-way
open center



double solenoid
3 position 4-way
closed center



Technical Data

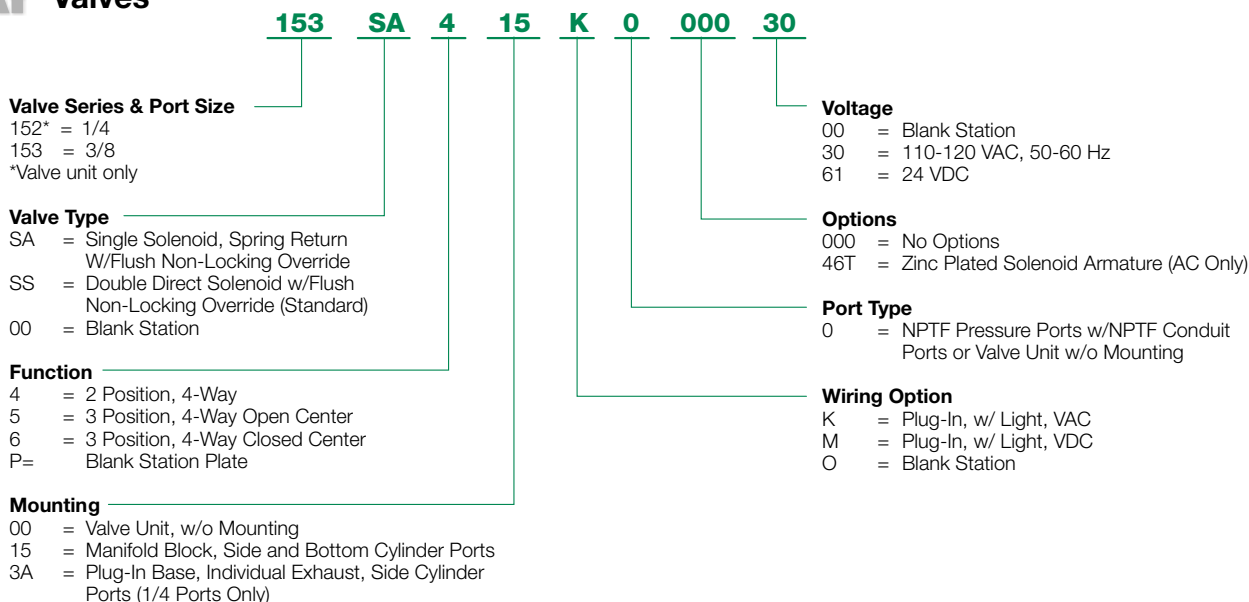
Valve Data	English		Metric Mark 15 Only	
Cv	1/4 NPTF = 1.4	3/8 NTPF = 1.5	1/4 G Tap = 1.4	3/8 G Tap = 1.5
Flow Capacity	65 SCFM Upstream pressure to atmosphere @80 PSIG	69 SCFM	1379 NI/m @ 6 bar upstream/5 bar downstream	1477 NI/m
Operating Pressure Range	28" Hg. Vacuum to 150 PSIG		Vacuum to 10 Bar	
Temperature Range (ambient)	-10°F to +115°F		-23°C to +46°C	

Operating Data

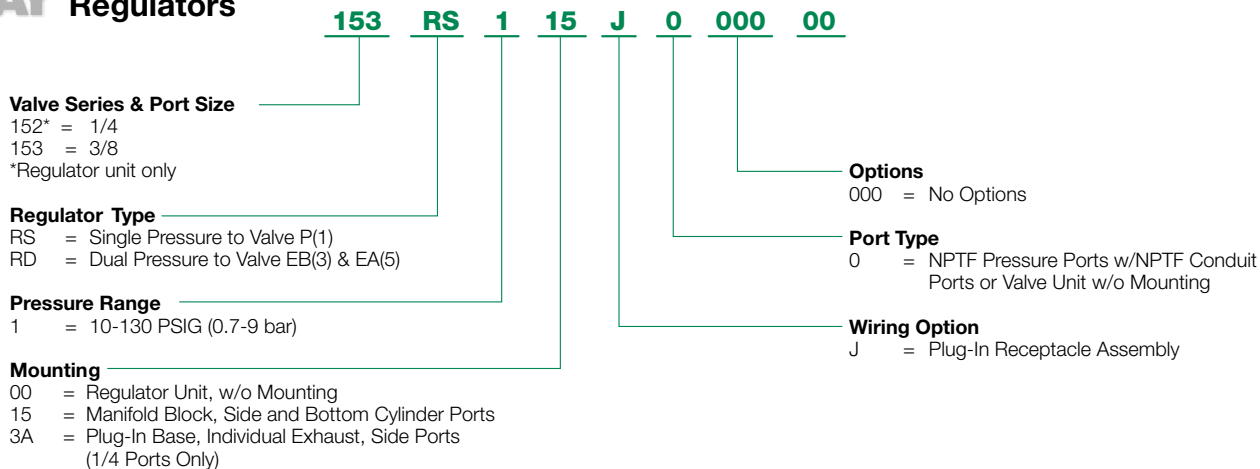
All Solenoids are Continuous Duty Rated		24 VDC	115 VAC 50 Hz.	120 VAC 60 Hz.
Power (Watts)		6.0	N/A	N/A
Holding Current (Amps.)		0.250	0.110	0.090
Inrush Current (Amps.)		N/A	0.630	0.580
Energize in seconds	2-Position, Single, Spring Return	0.034	0.010	0.010
	2-Position, Double, Detented	0.035	0.010	0.010
	3-Position, Spring Centered	0.040	0.010	0.010
	2-Position, Single, Spring Return	0.011	0.015	0.015
De-energize in seconds	2-Position, Double, Detented	N/A	N/A	N/A
	3-Position, Spring Centered	0.010	0.012	0.012

How to Order

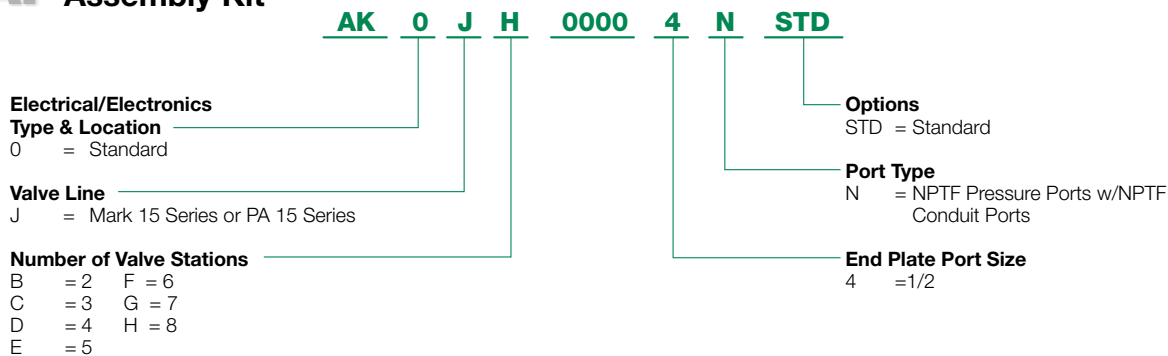
2DAY Valves



2DAY Regulators



3DAY Assembly Kit



L1 Series

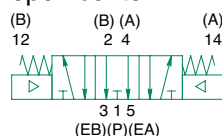
5 Ported, 2 and 3 position, 4-way, Spool & Sleeve

Cv: 1.0

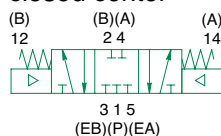
- Solenoid pilot or air pilot actuated
- DIN plug-in solenoid and plug connector with indicator light
- Unlubricated or lubricated service
- In-line or manifold mounted



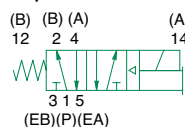
double air pilot
3 position 4-way
open center



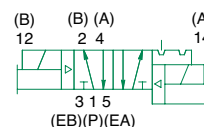
double air pilot
3-position 4-way
closed center



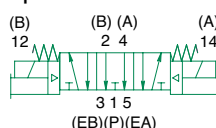
single solenoid pilot
2 position 4-way



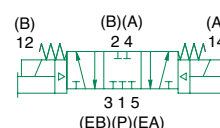
double solenoid pilot
2 position 4-way



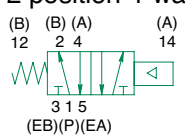
double solenoid pilot
3 position 4-way
open center



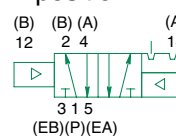
double solenoid pilot
3 position 4-way
closed center



single air pilot
2 position 4-way



double air pilot
2 position 4-way



Technical Data

Valve Data	English		Metric	
Cv	1/8 = 1.0	1/4 = 1.0	1/8 = 1.0	1/4 = 1.0
Flow Capacity	46 SCFM upstream pressure to atmosphere @ 80 PSIG		985 NI/m @ 6 bar upstream/5 bar downstream	
Main Valve Operating Pressure Range	28" HG. Vacuum to 150 PSIG		Vacuum to 10 bar	
Pilot Pressure Range: Internal and External	14.5 to 150 PSIG		1 to 10 bar	
Temperature Range: Solenoid Pilot (ambient)	-10°F to +115°F		-23°C to +46°C	
Temperature Range: Air Pilot (ambient)	-10°F to +150°F		-23°C to +66°C	

Operating Data

All Solenoids are Continuous Duty Rated		24 VDC	115 VAC 50 Hz.	120 VAC 60 Hz.
*Power (Watts)		3.5	4.8	4.0
Holding Current (Amps.)		0.15	0.064	0.054
Inrush Current (Amps.)		N/A	0.087	0.082
Energize in seconds	2-Position, Single, Spring Return	0.010	0.007	0.007
	2-Position, Double, Detented	0.010	0.007	0.007
	3-Position, Spring Centered	0.010	0.007	0.007
De-energize in seconds	2-Position, Single, Spring Return	0.035	0.035	0.035
	2-Position, Double, Detented	N/A	N/A	N/A
	3-Position, Spring Centered	0.035	0.035	0.035

*A 1.4 Watt DC solenoid is available.
Add "17G" to the model number.

EXAMPLE: L12BA400B017G61.

Maximum pilot pressure is reduced to 116 PSIG (8 bar).



How to Order

2DAY Valves

Valve Series & Port Size
 L11 = 1/8
 L12 = 1/4

Valve Type
 BA = Single Solenoid Pilot, Spring Return w/Flush Locking Override
 BB = Double Solenoid Pilot W/Flush Locking Override
 PA = Single Air Pilot w/Spring Return
 PP = Double Air Pilot

Function
 4 = 2 Position, 4-Way
 5 = 3 Position, 4-Way Open Center
 6 = 3 Position, 4-Way Closed Center

Mounting
 52 = Line Mounted

Voltage
 30 = 110-120/50-60 VAC
 61 = 24 VDC
 00 = N/A (Used with Air Pilot)

Options
 000 = No Options
 17G = Low Watt Solenoid 1.42 Watt

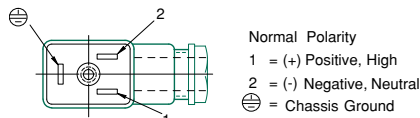
Port Type
 0 = NPTF

Wiring Option
 B = DIN Plug-In DC Solenoid
 O = DIN Plug-In AC Solenoid or Air Pilot

Ordering Code: L12 PA 4 52 0 0 000 00

Plug Connector Assemblies

Per DIN Spec. NO 43650. Accepts cable diameter 0.240 to 0.310.
 11mm Industry Standard DIN Form B



Plug Connector Description	Part No.
Gray (14 end solenoid) Plug Assembly	230-363
Black (12 end solenoid) Plug Assembly	230-364
Plug Assembly with 24 V Light	230-365
Plug Assembly with 110 V Light	230-366

3DAY Assembly Kit

Electrical/Electronics Type & Location
 0 = Standard

Valve Line
 2 = L1 Series

Number of Valve Stations
 B = 2
 D = 4
 F = 6
 H = 8

Options
 STD = Used with Line Mounted Valves, Includes Adaptor Kits (valve mounting = 52)

Port Type
 N = NPTF

End Plate Port Size
 2 = 1/4

Ordering Code: AK 0 2 D 0000 2 N STD

Example order:

Assembly Kit: AK02D00002NSTD
 Station 1: L12BB552O0000030
 Station 2: L12BA452O0000030
 Station 3: L12PP452O0000000
 Station 4: L12PA452O0000000
 ASSEMBLED

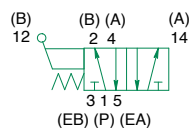
L2 Series

5 Ported, 2 and 3 position, 4-way, Spool & Sleeve
Cv: 1.7

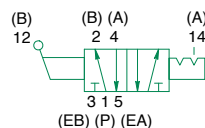
- Solenoid pilot or air pilot actuated
- Hand-lever valves available
- DIN plug-in solenoid and plug connector with indicator light
- Unlubricated or lubricated service
- In-line or manifold mounted



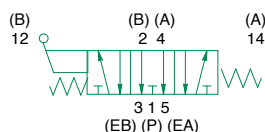
hand lever 2 position
4-way w/spring return



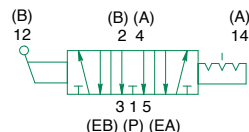
hand lever 2 position
4-way w/detent



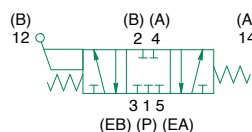
hand lever 3 position 4-way
open center w/spring center



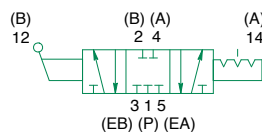
hand lever 3 position 4-way
open center w/detent



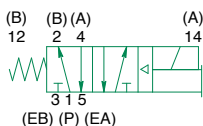
hand lever 3 position 4-way
closed center w/spring center



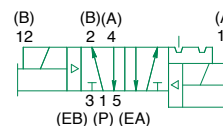
hand lever 3 position 4-way
closed center w/detent



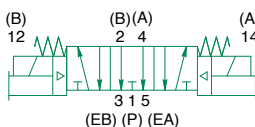
single solenoid 2 position 4-way



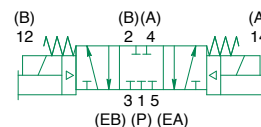
double solenoid pilot 2 position 4-way



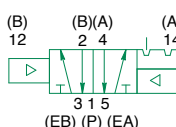
double solenoid pilot 3 position
4-way open center



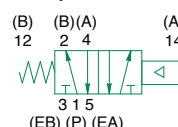
double solenoid pilot 3 position
4-way closed center



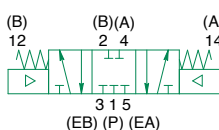
single air pilot 2 position
4-way no override



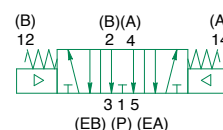
single air pilot 2 position
4-way no override



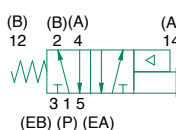
double air pilot 3 position 4-way
closed center no override



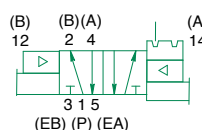
double air pilot 3 position 4-way
open center no override



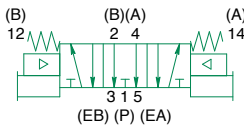
single air pilot 2 position 4-way
w/override



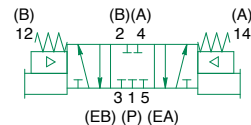
double air pilot 2 position 4-way
w/override



double air pilot 3 position 4-way
open center w/override



double air pilot 3 position 4-way
closed center w/override



Technical Data

Valve Data	English		Metric	
Cv	1/4 = 1.7	3/8 = 1.7	1/4 = 1.7	3/8 = 1.7
Flow Capacity	79 SCFM @ 80 PSIG upstream pressure to atmosphere		1674 NI/m @ 6 bar upstream/5 bar downstream	
Main Valve Operating Pressure Range	28" HG. Vacuum to 150 PSIG		Vacuum to 10 bar	
Pilot Pressure Range: Internal and External	14.5 to 150 PSIG		1 to 10 bar	
Temperature Range: Solenoid Pilot (Ambient)	-10°F to +115°F		-23°C to +46°C	
Temperature Range: Air Pilot (Ambient)	-10°F to +150°F		-23°C to +66°C	

Operating Data

All Solenoids are Continuous Duty Rated		24 VDC	115 VAC 50 Hz.	120 VAC 60 Hz.
Power (Watts)*		3.5	4.8	4.0
Holding Current (Amps.)		0.15	0.064	0.054
Inrush Current (Amps.)		N/A	0.087	0.082
Energize in seconds	2-Position, Single, Spring Return	0.010	0.007	0.007
	2-Position, Double, Detented	0.010	0.007	0.007
	3-Position, Spring Centered	0.010	0.007	0.007
De-energize in seconds	2-Position, Single, Spring Return	0.035	0.035	0.035
	2-Position, Double, Detented	N/A	N/A	N/A
	3-Position, Spring Centered	0.035	0.035	0.035

*A 1.4 Watt DC solenoid is available. Add "17G" to the model number.

EXAMPLE: L22BA452B017G61.

Maximum pilot pressure is reduced to 116 PSIG (8 bar).

How to Order

2DAY Valves

Valve Series & Port Size
L22 = 1/4
L23 = 3/8

Valve Type
BA = Single Solenoid Pilot, Spring Return w/Flush Locking Override
BB = Double Solenoid Pilot w/Flush Locking Override
PA = Single Air Pilot Cap w/Spring Return
PP = Double Air Pilot Cap
JA = Single Air Pilot w/Flush Non-Locking Override and Spring Return
JJ = Double Air Pilot w/Flush Non-Locking Override
LA = Hand Lever w/Spring Return
LD = Hand Lever w/Detent

Function
4 = 2 Position, 4-Way
5 = 3 Position, 4-Way Open Center
6 = 3 Position, 4-Way Closed Center

Voltage
30 = 110-120/50-60 VAC
61 = 24 VDC
00 = N/A (Use With Air Pilot or Hand Lever)

Options
000 = No Options
17G = Low Watt Solenoid – 1.42 Watt

Port Type
0 = NPTF

Wiring Option
B = DIN Plug-In DC Solenoid
O = DIN Plug-In AC Solenoid or Air Pilot or Handlever

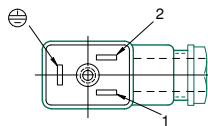
Mounting
52 = Line Mounted

Model Number: L22 JA 4 52 0 0 000 00

NOTE: Plug connector is NOT included with DIN solenoid. Order plug-in connector assembly separately (see ordering information below).

Plug Connector Assemblies

Per DIN Spec. NO 43650. Accepts cable diameter 0.240 to 0.310. 11mm Industry Standard DIN Form B



Normal Polarity
1 = (+) Positive, High
2 = (-) Negative, Neutral
⊕ = Chassis Ground

Plug Connector Description	Part No.
Gray (14 end solenoid) Plug Assembly	230-363
Black (12 end solenoid) Plug Assembly	230-364
Plug Assembly with 24 V Light	230-365
Plug Assembly with 110 V Light	230-366

3DAY Assembly Kit

Electrical/Electronics Type & Location
0 = Standard

Valve Line
3 = L2 Series

Number of Valve Stations
B = 2 F = 6
D = 4 H = 8

Options
STD = Standard (Common Supply and Exhaust)

Port Type
N = NPTF

End Plate Port Size
3 = 3/8

Model Number: AK 0 3 D 0000 3 N STD



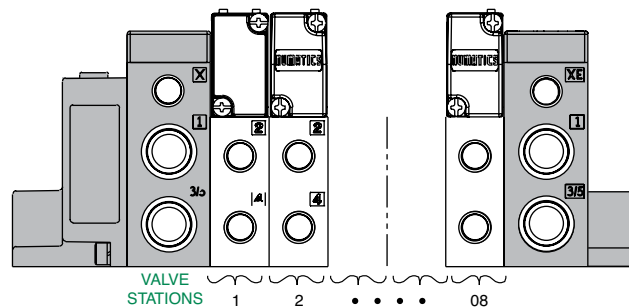
3DAY Manifold Assembly

AKJ 25 Pin Sub-D

- Shaded components described by Assembly Kit (AK) model number designation **(See Valve Series Order Charts.)**
- 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: (2005)

25 Pin Sub-D	AKJED00003NDWM
valve station 1	051BA4Z2MN00061
valve station 2	051BA4Z2MN00061
valve station 3	051BB4Z2MN00061
valve station 4	051BB5Z2MN00061
	ASSEMBLED

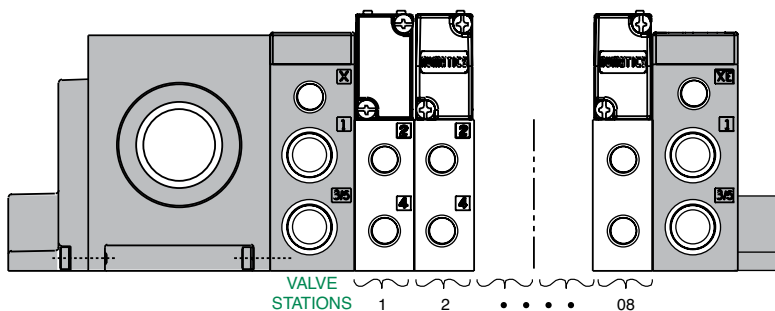


AKF 1-16 Terminal Strip

- Ordered using the same method as Sub-D:

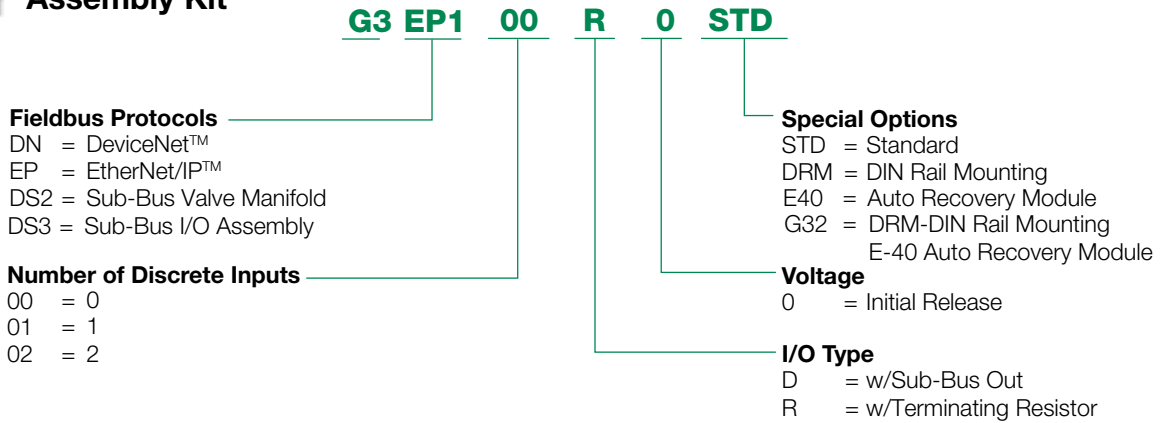
Example order: (2005)

valve station 1	AKFEF00003LDWM
valve station 2	052BA4Z2ML00061
valve station 3	052BA4Z2ML00061
valve station 4	052BB4Z2ML00061
valve station 5	052BB4Z2ML00061
valve station 6	052BB5Z2ML00061
	052BB6Z2ML00061
	ASSEMBLED



How to Order

3DAY Assembly Kit

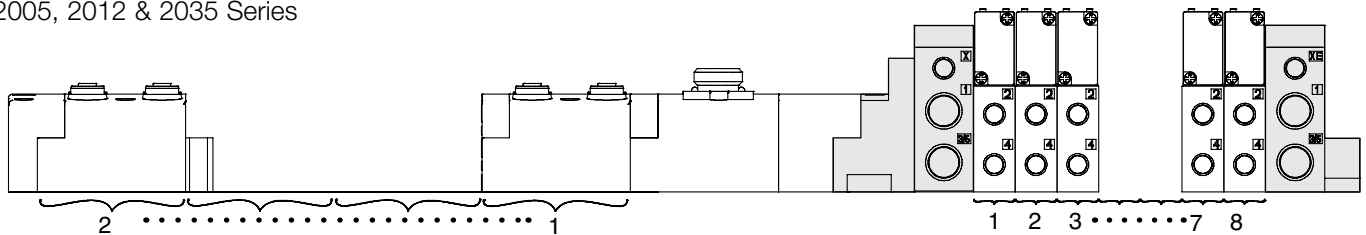


Digital I/O 5-Pin M12 Modules

Description	Part Number
16 PNP Inputs	240-205
16 PNP Outputs	240-207
8 PNP Inputs and 8 PNP Outputs	240-211

When Ordering

AK3 Manifold Assembly Kit with G3 Fieldbus Electronics
 2005, 2012 & 2035 Series



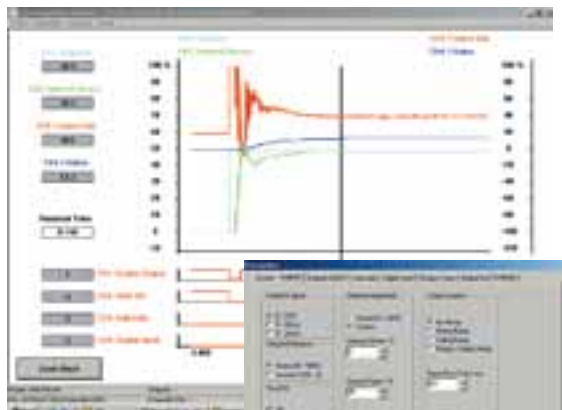
- Shaded components described by Assembly Kit (AK) model number designation, with the exception of the communication module are described by Electronic Interface (G3) model number designation.
- Each valve manifold station is listed in sequential order from left to right when facing the port side of the manifold as indicated.
- Input station listed as indicated.

Example Order: (2005)

valve station 1
 valve station 2
 valve station 3
 valve station 4
 valve station 5
 valve station 6
 valve station 7
 valve station 8

Input Station

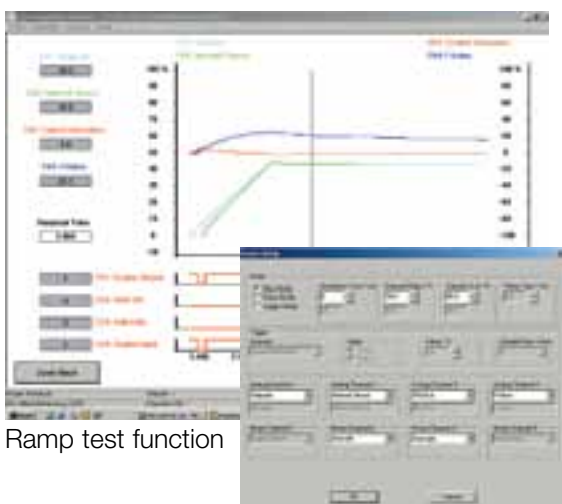
AKCEH00003NDWN
 051BB4Z2MN00061
 051BB4Z2MN00061
 051BB4Z2MN00061
 051BB4Z2MN00061
 051BB4Z2MN00061
 051BB4Z2MN00061
 051BB4Z2MN00061
 051BB4Z2MN00061
 G3DN101ROSTD
 240-205
 ASSEMBLED

Step test function



Parameters setup



Ramp test function



Scope setup



By connecting the Sentronic^D to a PC with an RS232 interface, the Data Acquisition Software (DaS) can be used to optimally adjust the valve's control parameters to a specific application. DaS has an oscilloscope function that allows the user to select and visually see various response characteristics as the valve operates in an application. Control loop parameters can be adjusted using the software without removing the valve from service. This functionality streamlines the application development process. Control parameters can be saved and reloaded at any time.

The DaS software offers the following features:

- Real time display of: command signal, outlet pressure, internal control parameters (e.g. P, I or D), pressure switch signal, etc.
- Parameter setting: command signal, zero offset, span, limitation of output current, ramp function, etc.
- Diagnostics menu for error detection and testing
- Custom adjustment to an application
- Control of Sentronic^D

Advantages

- Minimum hysteresis
- Quick response times
- Very high sensitivity
- Standard 50 µm filtration
- No constant air consumption
- Analog feedback output
- Easy change of control parameters
- Digital control
- Integrated display
- PC communication

Specifications

Fluids: Air or neutral gases
 Pressure Range: 0 - 50 psi,
 0 - 100 psi, 0 - 150 psi
 Ports: 1/4, 3/8 (NPT)
 Construction: Poppet Valve
 Actuation: Proportional Solenoid
 Command Signal: 0 - 10 V,
 4 - 20 mA

Sentronic^D

1/8 to 3/8 NPT tapped body



Construction

Body: Aluminum
Internal parts: POM (polyacetal)
Seals: NBR (nitrile) and FPM (fluoroelastomer)

Features

- Sentronic^D is a highly dynamic 3-way proportional valve with digital control.
- Sentronic^D stands for:
 - Digital communication and control
 - Display (integrated)
 - Direct operated valve
- A special feature of the Sentronic^D is its DaS software supplied for optimum adjustment via PC and viewing of command and feedback signals.
- Other functions are valve diagnostics, parameter setting and maintenance.
- Sentronic^D can be configured for dual loop control of process variables such as flow, force, speed, RPM and temperature.

General

Fluids: Air or neutral gas, filtered at 50 µm, condensate-free, lubricated or unlubricated
Maximum allowable pressure (MAP): 90 to 190 psi (6 to 13 bar)
Pressure range: 0-50 psi to 0-150 psi
Fluid temperature: 32°F - 140°F (0°C - 60°C)
Ambient temperature: 32°F - 122°F (0°C - 50°C)
Flow (Qv at 6 bar): 470 to 1300 l/min (ANR)
Command signal: 0 - 10 V (impedance 100 kΩ) 4 - 20 mA (impedance 250 Ω)
Hysteresis: < 1% of span
Linearity: < 0.5% of span
Repeatability: < 0.5% of span
Minimum setpoint: 100 mV (4.2mA) with shut-off function
Minimum outlet pressure: 1% of span

Electrical Characteristics

Nominal Diameter DN (mm)	Voltage *	Max. Power (W)	Max. Current (mA)	Insulation Class	Degree of Protection	Electrical Connection
4	24 VDC ±10%	21	850	H	IP 65	5-pin M12 connector (not supplied)
8	24 VDC ±10%	40	1650	H	IP 65	5-pin M12 connector (not supplied)

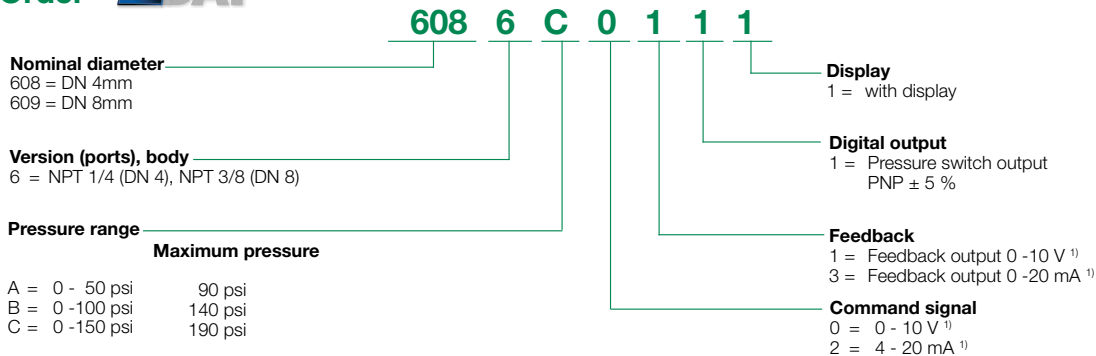
* Max. ripple: 10 %

Specifications

Ø Ports	Ø Orifice DN (mm)	C _v Flow Factor (K _v , Nm ³ /h)	Flow at 6 Bar (l/min - ANR)
1/8, 1/4 NPT or GTap	4	0.29 (0.25)	470
1/4, 3/8 NPT or GTap	8	0.81 (0.7)	1300

Test conditions according to ISO 8778: temperature: 20 °C, relative inlet pressure: 6 bar, relative outlet pressure: 5 bar

How to Order **2DAY**



Notes:

¹⁾ Command signal and feedback signal type must be the same for Express shipping.
Numatics Express 2Day for Sentronic^D applies to **order quantities of up to 5 units.**



The A Series is an aluminum NFPA Interchangeable cylinder line that is designed and built to excel in the most demanding applications. The A Series encompasses many value-added features such as an extra long graphite filled cast iron rod bushing and a standard oversized wear band that is located on the rear of the piston. Additionally, the A Series includes the well-proven "T Seal" piston seal configuration made from carboxilated nitrile with self-lubricating PTFE compound. These are just a sample of the features that make the A Series the superior NFPA Interchangeable air cylinder line.



Tube

The **tube** is hard coat anodized. The hard coating is an electro-chemical process, which produces a very dense surface of aluminum oxide. This surface has extreme hardness (60 Rc), excellent wear and corrosion resistance, and a low coefficient of friction.

End Caps

The **end caps** are accurately machined from (6061-T6) solid aluminum bar stock. They are anodized for corrosion resistance. Additionally, a recess on the piston-mating surface (at both ends) enables the air to work on a larger piston area for effortless breakaway.

Rod Bushing

The A Series includes a graphite filled, cast iron **rod bushing** that is extra long in length. Graphite filled offers the best bearing surface when using a hard chrome plated steel piston rod. Cast iron provides maximum resistance against wear. The added length adds superior alignment and support of the piston rod as well as provides maximum load bearing support.

Rod Seal

The carboxilated nitrile with PTFE compound **rod seal** is self-lubricating and durable. The rounded lip design ensures proper sealing and long life.

Rod Wiper

The standard **rod wiper** construction is a highly durable polyurethane.

Piston Rod

High strength steel (100,000 psi minimum yield) **piston rod** has a ground, polished, and chrome plated surface. This surface provides maximum life for both the rod bushing and the seals.

Bushing Retainer

The **bushing retainer** allows cartridge removal (cylinder repair) without complete disassembly.

Tie Rods

The **tie rods** are 100,000 psi minimum yield steel for maximum holding power. The threads are roll formed for superior strength and engagement.



Piston Seal

The **piston seal** is a carboxilated nitrile with PTFE compound making it self-lubricating. The "T" seal with back-up ring construction prevents rolling and seals at all pressures.

Wear Band

The **wear band** is a stable, lubricating strip located on the piston. We separated the load bearing points by locating the wear band at the rear of the piston. This maximizes column strength at full extension.

Piston

The solid aluminum alloy **piston** is strong and durable.

Cushion Seal

The floating **cushion seal** design enables rapid stroke reversal by providing instantaneous full flow to the piston. Each cushion has a flush, retained adjustment needle.

Tube End Seal

The **tube end seals** are compression type and reusable.

Ports

Our enhanced **port** design enables the cylinder to work more efficiently. Through the use of precise machining depths and tool shape, we are able to smooth the flow path into and out of the cylinder.

Standard Specifications

- Meets NFPA specifications
- Bore sizes from 1-1/2" through 6" (10" through 14" available, but Express Program does not apply)
- Piston rod diameters from 5/8" to 1-3/4"
- Nominal pressure rating is 250 psi air
- Standard temperature -10°F to 165°F (-23°C to 74°C)
- NPTF ports
- Flexible port and cushion location
- Multitude of mounting options



How to Order

2DAY

P1 A L - 04 A 1 D - C AA 0

Mount

- E3 = Head Square Mount (8" Bore Only)
- E4 = Cap Square Mount (8" Bore Only)
- F1 = Front Flange (Not Available 8" Bore)
- F2 = Rear Flange (Not Available 8" Bore)
- P1 = Fixed Clevis
- P2 = Detachable Clevis
- P3 = Fixed Eye
- P4 = Detachable Eye
- S1 = Angle Mount
- S2 = Side Lug Mount
- S4 = Bottom Tap
- T6 = Head Trunnion
(Removable Aluminum Ears)
- T7 = Cap Trunnion
(Removable Aluminum Ears)
- SN = Sleeve Nut
- X0 = Basic No Mount
- X1 = Extended Tie Rods Both Ends
- X2 = Extended Tie Rod Cap
- X3 = Extended Tie Rod Head

Type

- A = A Series
NFPA Interchangeable

Bore

- K = 1-1/2" R = 4"
- L = 2" T = 5"
- M = 2-1/2" U = 6"
- P = 3-1/4" W = 8"

Full Inches of Stroke

- 00 = 0" Stroke
- 01 = 1" Stroke
- 02 = 2" Stroke
- 03 = 3" Stroke
- 99 = 99" Stroke
- 99" Max. for Fast Ship Program

Fractional Inches of Stroke

- A = 0" I = 1/2"
- B = 1/16" J = 9/16"
- C = 1/8" K = 5/8"
- D = 3/16" L = 11/16"
- E = 1/4" M = 3/4"
- F = 5/16" N = 13/16"
- G = 3/8" O = 7/8"
- H = 7/16" P = 15/16"

Rod Code

- 1 = Style #1 Standard Rod Diameter
- 2 = Style #2 Standard Rod Diameter
- 3 = Style #3 Standard Rod Diameter
- 6 = Style #1 Oversize Rod Diameter
- 7 = Style #2 Oversize Rod Diameter
- 8 = Style #3 Oversize Rod Diameter

Magnet

- 0 = No Magnet
- 2 = Reed Magnet

Options

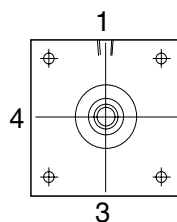
- AA = No Options
- BA** = Bumpers Both Ends
- BC** = Bumper Cap Only
- BH** = Bumper Head
- DA = Double Rod End
- EB = Silencer Bumpers
(Not Available with 8" Bore)
- LB = Low Breakaway Seals
- MA = Metallic Rod Scraper
- PA = Polypak Rod Seal
- SA = Stainless Steel Piston Rod
- SS = Stainless Piston Rod and Tie Rod
- ST = Stainless Tie Rods
- VA = FKM Seals
- 1A* = Rod Extension
- 2A* = Thread Extension
- 12* = Rod and Thread Extension
- 3A = Studded Rod End
- * Specify length.
- ** Bumpers add .062" to OAL (per bumper).

Cushions

Position	1	2	3	4	Fixed
No Cushion	A	A	A	A	A
Head and Cap	B	C	D	E	Y
Head Only	F	G	H	J	W
Cap Only	K	L	M	N	V

Ports

Position	1/8"	1/4"	3/8"	1/2"	3/4"
1	B	C	D	E	F
2	H	I	J	K	L
3	N	O	P	Q	R
4	T	U	V	W	X



Cylinder Orientation

Ports are normally located in position 1.

Cushions are normally located in position 2.

Rod Diameters by Bore Size

Bore	Standard Dia.
1-1/2"	0.625
2"	0.625
2-1/2"	0.625
3-1/4"	1.000
4"	1.000
5"	1.000
6"	1.375
8"	1.375

Rod End Styles, Diameters and Threads

Diameter	Style #1 Standard Male	Style #2 Optional Male	Style #3 Optional Female
0.625	7/16-20	1/2-20	7/16-20
1.000	3/4-16	7/8-14	3/4-16
1.375	1-14	1 1/4-12	1-14
1.750	1 1/4-12	1 1/2-12	1 1/4-12

*Switches and Cylinder Mounting Accessories available to ship with Cylinders.

The **Large Bore A Series** is an NFFA Interchangeable cylinder line that is designed and built to excel in the most demanding applications. The Large Bore A Series encompasses many of the proven design features of the A Series.



Tube

The 10", 12", and 14" Large Bore **tubes** use a honed, chrome plated steel tube.

End Caps

The **end caps** are accurately machined from (6061-T6) solid aluminum bar stock. They are anodized for corrosion resistance. Additionally, a recess on the piston-mating surface (at both ends) enables the air to work on a larger piston area for effortless breakaway.

Rod Bushing

All bores are equipped with a bronze **bushing** that is extra long in length. The added length adds superior alignment and support of the piston rod as well as provides maximum load bearing support. The bronze bushing offers an excellent bearing surface for a hard chrome plated piston rod.

Rod Seal

The carboxylated nitrile with PTFE compound **rod seal** is self-lubricating and durable. The rounded lip design ensures proper sealing and long life.

Rod Wiper

The standard **rod wiper** construction is a highly durable polyurethane.

Piston Rod

High strength steel (100,000 psi minimum yield) **piston rod** has a ground, polished, and chrome plated surface. This surface provides maximum life for both the rod bushing and the seals.

Bushing Retainer

The **bushing retainer** allows cartridge removal (cylinder repair) without complete disassembly.

Tie Rods

The **tie rods** are 100,000 psi minimum yield steel for maximum holding power. The threads are roll formed for superior strength and engagement.

Piston Seal

The **piston seal** is a carboxylated nitrile with PTFE compound making it self-lubricating. A lip seal configuration is used on all bores which prevents rolling and is designed to seal at all pressures.

Wear Band

The **wear band** is a stable, lubricating strip located on the piston. We separated the load bearing points by locating the wear band at the rear of the piston. This maximizes column strength at full extension.

Piston

The solid aluminum alloy **piston** is strong and durable. We use a nylon locking insert nut to attach the piston to the piston rod. This enables piston rod disassembly if necessary.



Cushion Seal

The floating **cushion seal** design enables rapid stroke reversal by providing instantaneous full flow to the piston. Each cushion has a flush, retained adjustment needle.

Tube End Seal

The **tube end seals** are compression type and reusable.

Ports

Our enhanced **port** design enables the cylinder to work more efficiently. Through the use of precise machining depths and tool shape, we are able to smooth the flow path into and out of the cylinder.

Standard Specifications

- Meets NFFA specifications
- Bore sizes from 10" through 14"
- Piston rod diameters from 1-3/4" through 2-1/2"
- Maximum pressure rating is 250 psi air
- Standard temperature -10°F to 165°F (-23°C to 74°C)
- NPTF ports
- Flexible port and cushion location
- Multitude of mounting options



How to Order



E3 A W - 06 A 1 F - C AA 0

Mount

E3 = Head Square Mount
E4 = Cap Square Mount
X1 = Extended Tie Rods Both Ends
X2 = Extended Tie Rod Cap
X3 = Extended Tie Rod Head

Type

A = Large Bore A Series
NFFPA Interchangeable

Bore

X = 10"
Y = 12"
B = 14"

Full Inches of Stroke

00 = 0" Stroke
01 = 1" Stroke
02 = 2" Stroke
03 = 3" Stroke
99 = 99" Stroke

NOTE: Consult factory for strokes greater than 99".

Fractional Inches of Stroke

A = 0" I = 1/2"
B = 1/16" J = 9/16"
C = 1/8" K = 5/8"
D = 3/16" L = 11/16"
E = 1/4" M = 3/4"
F = 5/16" N = 13/16"
G = 3/8" O = 7/8"
H = 7/16" P = 15/16"

Magnet

0 = No Magnet
2 = Magnet

Options

AA = No Option
DA = Double Rod
MA = Metallic Rod Scraper
PA = Polypak Rod Seal
1A* = Rod Extension
2A* = Thread Extension
3A = Studded Rod End
4A* = Stop Tube

SA = Stainless Steel Rod
SS = Stainless Steel Rod and Tie Rods
ST = Stainless Steel Tie Rods
*Must specify length.

Cushions

Position	1	2	3	4
No Cushion	A	A	A	A
Head and Cap	B	C	D	E
Head Only	F	G	H	J
Cap Only	K	L	M	N

Ports

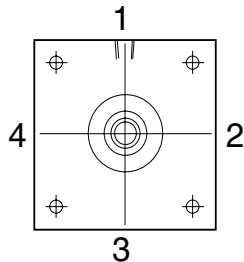
Position	3/4"	1"	1 1/4"
1	F	G	1
2	L	M	2
3	R	S	3
4	X	Y	4

Rod End Codes

1 = #1 Standard Rod Diameter
2 = #2 Standard Rod Diameter
3 = #3 Standard Rod Diameter
4* = Special Standard Rod Diameter
5* = Special Oversize Rod Diameter
6 = #1 Oversize Rod Diameter
7 = #2 Oversize Rod Diameter
8 = #3 Oversize Rod Diameter
A = #1 Second Oversize Rod Diameter
B = #2 Second Oversize Rod Diameter
C = #3 Second Oversize Rod Diameter
* Must specify threads.

Numatics Express 5Day for A Series Large Bore NFFPA applies to order quantities of up to 5 units.

Cylinder Orientation



Ports Normally in Position 1

Ports are normally located in position 1.

Cushions are normally located in position 2.

NOTE: Ports -

10" & 12" Bore-standard port size is 1" NPTF, smaller port sizes available.

14" Bore-standard port size is 1 1/4" NPTF, smaller port sizes available.

Rod End Styles, Diameters and Threads

Diameter	Style #1 Standard Male	Style #2 Optional Male	Style #3 Optional Female
1.38	1-14	1 1/4-12	1-14
1.75	1 1/4-12	1 1/2-12	1 1/4-12
2.00	1 1/4-12	1 3/4-12	1 1/2-12
2.50	1 7/8-12	2 1/4-12	1 7/8-12



The **ASP Cylinder Line** is a heavy-duty, steel body cylinder line that is designed and built to exceed all of your strenuous application requirements. The **ASP Series** is an NFPA Steel Body pneumatic cylinder line. The ASP Series encompasses many of the same proven design features as our original NFPA Interchangeable cylinder, the A Series. This includes the extra long graphite filled cast iron rod bushing and a standard oversize wear band (located on the rear of the piston). Additionally, we have also included the proven "T" piston seal configuration with carboxilated nitrile with self-lubricating PTFE compound. These are just a sample of things that make the ASP Series the superior Steel Body air cylinder line.



Tube

Our honed tubing is produced using our Suitable To Hone Drawn Over Mandrel (DOM) and Cold Drawn Seamless CDS. This tubing is ready to use for pneumatic or hydraulic cylinders without further ID processing. The honing process involves using abrasive polishing stones and abrasive paper to remove small amounts of material, to produce extremely precise ID dimensions and improved finishes.

End Caps

The **end caps** are accurately machined from precision square steel blocks. They also have a black oxide finish to protect from corrosion. Additionally, a recess on the piston-mating surface (at both ends) enables the air to work on a larger piston area for effortless breakaway (even at low pressures).

Rod Bushing

The ASP Series (1-1/2" through 6") includes a graphite filled, cast iron **rod bushing** that is extra long in length. Graphite filling offers the best bearing surface when using a hard chrome plated piston rod. Cast iron provides maximum resistance against wear. The added length adds superior alignment and support of the piston rod as well as provides maximum load bearing support. Sizes 10" through 14" bores include an extra long bronze rod bushing.

Rod Seal

The carboxilated nitrile with PTFE compound **rod seal** is self-lubricating and durable. The rounded lip design ensures proper sealing and long life.

Rod Wiper

The standard **rod wiper** construction is highly durable polyurethane.

Piston Rod

The high strength steel (100,000 psi minimum yield) **piston rod** has a ground, polished, and chrome plated surface. This surface provides maximum life for both the rod bushing and the seals.

Bushing Retainer

The **bushing retainer** allows cartridge removal (cylinder repair) without complete disassembly (except X1 and X3 mounts). Full-face retainer on 1-1/2" through 2-1/2" bore. Round retainer on 3-1/4" through 6" bore. Both the full-face and round retainer are steel construction.

Tie-Rods

The **tie-rods** are 100,000 psi minimum yield steel for maximum holding power. They are roll formed for superior strength and engagement (up to 5/8").

Piston Seal

The **piston seal** is carboxilated nitrile with PTFE compound for self-lubricating. The "T" seal with back-up rings prevents rolling and seals at all pressures.



Wear Band

The **wear band** is a stable, lubricating strip located on the piston. We separated the load bearing points by locating the wear band at the rear of the piston. This maximizes column strength at full-extension.

Piston

The solid aluminum alloy **piston** is strong and durable.

Cushion Seal

The floating **cushion seal** design enables rapid stroke reversal by providing instantaneous full-flow to the piston. Each cushion has a flush, retained adjustment needle.

Tube End Seal

The **tube end seals** are compression type and reusable.

Ports

Our enhanced **port** design enables the cylinder to work more efficiently. The use of precise machining depths and tool shape allows a smooth flow path into and out of the cylinder.

Standard Specifications

- Meets NFPA specifications
- Bore sizes from 1-1/2" through 6"
- Piston rod diameters from 5/8" to 2-1/2"
- Maximum pressure rating is 250 psi air
- Standard temperature -10° F to 165° F (-23° C to 74° C)
- All steel construction, except piston (aluminum)
- NPTF ports
- Flexible port locating



How to Order

5DAY

P1 ASP L - 04 A 1 1 D - C AA

Cylinder Mounting

- F1 = Front Flange
- F2 = Rear Flange
- P2 = Detachable Clevis
- P4 = Detachable Eye
- X0 = Basic No Mount
- X1 = Extended Tie Rods (Both Ends)
- X2 = Cap Extended Tie Rods
- X3 = Head Extended Tie Rods

Cylinder Type

ASP = Steel Body NFPA Pneumatic Cylinder Line

Cylinder Bore

- K = 1.50 R = 4.00
- L = 2.00 T = 5.00
- M = 2.50 U = 6.00
- P = 3.25

Full Inches of Stroke

- 00 = 0" Stroke
 - 01 = 1" Stroke
 - 02 = 2" Stroke
 - 03 = 3" Stroke
 - 04 = 4" Stroke
 - 05 = 5" Stroke
 - 99 = 99" Stroke
- Note: Consult factory for strokes greater than 99".

Fractional Inches of Stroke

- A = 0" E = 1/4" I = 1/2" M = 3/4"
- B = 1/16" F = 5/16" J = 9/16" N = 13/16"
- C = 1/8" G = 3/8" K = 5/8" O = 7/8"
- D = 3/16" H = 7/16" L = 11/16" P = 15/16"

Rod Diameter

- 1 = 0.625"
- 2 = 1.000"
- 3 = 1.375"
- 4 = 1.750"

*Standard and first oversized rod diameter per bore size are available for 5Day Express.

Options

- AA = No Options
- EB = Silencer Bumpers
- KA = Stroke Adjuster
- DA = Double Rod End
- MA = Metallic Rod Scraper
- LB = Low Breakaway
- SA = Stainless Rod
- ST = Stainless Tie Rods
- SS = Stainless Rod and Tie Rods
- VA** = FKM Seals
- 1A* = Rod Extension
- 2A* = Thread Extension
- 3A = Rod Stud
- 4A* = Stop Tube
- 4D* = Double Piston Stop Tube
- FB = Four Wrench Flats
- JN = Jam Nut
- PA = Polypak Rod Seal
- PP = Polypak Piston

* Specify length.

** FKM is not recommended for non-lube service.

Note: For additional and combination options, consult factory for details.

Cushions

Position	1	2	3	4	Fixed
No Cushions	A	A	A	A	A
Head & Cap	B	C	D	E	Y
Head Only	F	G	H	J	W
Cap Only	K	L	M	N	V

NOTE: Standard port location is position 1 and Standard cushion location is position 2.

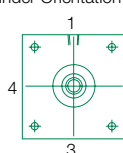
Port Size

Position	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"
1	B	C	D	E	F	G	1
2	H	I	J	K	L	M	2
3	N	O	P	Q	R	S	3
4	T	U	V	W	X	Y	4

Rod End Style

- 1 = Style #1 Male Thread
- 2 = Style #2 Male Thread
- 3 = Style #3 Female Thread
- 4 = Special Rod End (Specify Threads)

Cylinder Orientation



Numatics Express 5Day for ASP Series Steel Body NFPA applies to order quantities of up to 5 units.

Rod End Styles, Diameters and Threads

Diameter	Style #1 Standard Male	Style #2 Optional Male	Style #3 Optional Female
0.625	7/16-20	1/2-20	7/16-20
1.000	3/4-16	7/8-14	3/4-16
1.375	1-14	1 1/4-12	1-14
1.750	1 1/4-12	1 1/2-12	1 1/4-12

Rod Diameter by Bore Size

Bore	Standard Diameter	1st Oversized
1-1/2"	0.625	1.000
2"	0.625	1.000
2-1/2"	0.625	1.000
3-1/4"	1.000	1.375
4"	1.000	1.375
5"	1.000	1.375
6"	1.375	1.750

The **M Series** is a stainless steel body air cylinder line that is the perfect solution for tight design budgets. This cylinder is reliable and is designed and built to maximize performance. It will exceed all of your light-duty cylinder application requirements. The M Series comes standard with a multitude of value-added features such as stainless steel piston rods, roll-formed threads at both ends of the piston rod, and pre-lubed for non-lube added service. These are just a sample of things that make the M Series the superior interchangeable round body air cylinder line.



Piston Rod

The type 303 stainless steel **piston rod** is ground, polished, and roller burnished for a mirror finish to ensure corrosion-free longevity.

Rod Thread

Roll-formed **rod threads** (at both ends) ensure a durable customer-end connection as well as piston to rod connection.

Rod Bushing

Oil impregnated sintered bronze **rod bushing** provides excellent wear resistance and anti-friction qualities for smooth operation and long life.

End Caps

The **end caps** are made from a high strength aluminum alloy.

Ports

Unrestricted (full-flow) **ports** in conjunction with rectangular slots on the piston-mating surface (at both ends) enable the air to work on a larger piston area for effortless breakaway (even at low pressures).

Tube

The type 304 stainless steel **tube**, drawn and polished to a micro-inch finish on the I.D., enables low friction and longevity.

Crimp

The cylinder body is attached to the end caps using innovative assembly equipment that ensures a consistent and reliable double rolled-in **crimp**.

Piston

High strength aluminum alloy **piston** with blow-by flats (double acting only) ensure proper and rapid seal inflation. Piston rod connections are threaded (roll-formed threads), sealed with Loctite Threadlocker®, torqued, and staked for a solid, leak-proof connection.

Piston Seals

Low friction Buna N "U" cup **pistons seals** (optional low and high temperature seals) are wear compensating for millions of maintenance free cycles.

Magnet

Magnetic band position indication is optional in 9/16" – 3" bore sizes. The **magnet** does not affect the overall length of the cylinder 3/4" – 3" (bore sizes - double acting only) but does add .250" to the overall length of the 9/16" bore cylinders.

Rod Seal

The low friction Buna N "U" cup **rod seal** (optional low and high temperature seals) is wear compensating to ensure longevity.



Pre-Lubricated

Pre-lubricated with our specially formulated oil-based compound for extensive maintenance free performance.

Threadlocker® is a registered trademark of the Loctite Corporation.

Standard Specifications

- 303 stainless steel piston rods are standard
- 304 stainless steel cylinder tube
- Aluminum head and caps
- Nominal pressure rating is 250 psi air
- Twelve bore sizes – 5/16" – 3"
- Standard temperature -10°F to +165°F
- Single and double acting

Optional Specifications

- Magnetic pistons
- Delrin® end caps
- Double rods
- High and low temperature seals
- Rod wipers



How to Order



1500	D01 - 02	A - 01 - 1A01A
Bore Size 0313 = 5/16" 0438 = 7/16" 0563 = 9/16" 0750 = 3/4" 0875 = 7/8" 1062 = 1-1/16" 1250 = 1-1/4" 1500 = 1-1/2" 1750 = 1-3/4" 2000 = 2" 2500 = 2-1/2" 3000 = 3"	Mounting Style S01 = Single Acting Spring Return Nose Mount S02 = Single Acting Spring Return Rear Pivot R01 = Single Acting Spring Extend Nose Mount R02 = Single Acting Spring Extend Rear Pivot N01 = Single Acting Spring Return Non-Rotating Nose Mount N02 = Single Acting Spring Return Non-Rotating Rear Pivot D01 = Double Acting Nose Mount D02 = Double Acting Rear Pivot D03 = Double Acting Through Rod D04 = Double Acting Double Nose D05 = Double Acting Front Block D13 = Interchange Option for 1-1/16" Bore Double Acting Through Rod Hollow Rod DH3 = Double Acting Through Rod Hollow Rod D06 = Double Acting Trunnion Mount DL1 = Double Acting Nose Mount 2" Bore, 1" Rod DL2 = Double Acting Rear Pivot 2" Bore, 1" Rod DC1 = Double Acting Delrin® Nose Mount DC2 = Double Acting Delrin® Rear Pivot DC3 = Double Acting Delrin® Through Rod V01 = Nose Mount Volume Chamber V02 = Rear Pivot Mount Volume Chamber DM1 = Nose Mount MRS Interchange DM2 = Rear Pivot Mount MRS Interchange	Options 00 = No Options (or leave blank) 01 = Bumpers* 02 = FKM Seals 03 = Magnet** 04 = Bumpers with Magnet* 05 = Pivot Bushing*** 06 = Pivot Bushing with Bumpers* 07 = Pivot Bushing with FKM Seals 08 = Pivot Bushing with Magnet* 09 = Pivot Bushing with Bumper and Magnet* 20 = Port Rotated with No Options 30 = Rod Wiper with No Options 31 = Rod Wiper with Bumpers 32* = Rod Wiper with FKM Seals 33 = Rod Wiper with Magnet 34 = Rod Wiper with Bumpers and Magnet 35 = Rod Wiper with Pivot Bushing 36 = Rod Wiper with Bumpers and Pivot Bushing 37 = Rod Wiper with FKM Seals and Pivot Bushing 38 = Rod Wiper with Magnet and Pivot Bushing 39 = Rod Wiper with Bumpers, Magnet and Pivot Bushing

Rod and/or Thread Extension

Note: Leave blank if rod and/or thread extension is not required.

- 1A = Rod Extension (must specify extension)
Example: 1A01A (full and fractional length)
- 2A = Thread Extension (must specify extension)
Example: 2A01A (full and fractional length)
- RT = Rod and Thread Extension (must specify extension)
Example: RT01A01A (full and fractional length)

Note: When applying the option, rod extension length must be specified first and the thread extension length must be specified last.

Options

- 00 = No Options (or leave blank)
- 01 = Bumpers*
- 02 = FKM Seals
- 03 = Magnet**
- 04 = Bumpers with Magnet*
- 05 = Pivot Bushing***
- 06 = Pivot Bushing with Bumpers*
- 07 = Pivot Bushing with FKM Seals
- 08 = Pivot Bushing with Magnet*
- 09 = Pivot Bushing with Bumper and Magnet*
- 20 = Port Rotated with No Options
- 30 = Rod Wiper with No Options
- 31 = Rod Wiper with Bumpers
- 32* = Rod Wiper with FKM Seals
- 33 = Rod Wiper with Magnet
- 34 = Rod Wiper with Bumpers and Magnet
- 35 = Rod Wiper with Pivot Bushing
- 36 = Rod Wiper with Bumpers and Pivot Bushing
- 37 = Rod Wiper with FKM Seals and Pivot Bushing
- 38 = Rod Wiper with Magnet and Pivot Bushing
- 39 = Rod Wiper with Bumpers, Magnet and Pivot Bushing

Available with these mounting styles:
D02, S02, R02, N02

Rod Wiper option available
on 3/4" Bore and Up.
Not available with these mount
styles: S01, S02, N01, N02

Does Not Include Multi-Position, Hole Punch, etc.

Fractional Inch Stroke

- A = 0" Stroke
- B = 1/16" Stroke
- C = 1/8" Stroke
- D = 3/16" Stroke
- E = 1/4" Stroke
- F = 5/16" Stroke
- G = 3/8" Stroke
- H = 7/16" Stroke
- I = 1/2" Stroke
- J = 9/16" Stroke
- K = 5/8" Stroke
- L = 11/16" Stroke
- M = 3/4" Stroke
- N = 13/16" Stroke
- O = 7/8" Stroke
- P = 15/16" Stroke

Full Inch Stroke

- 00 = 0" Stroke
- 01 = 1" Stroke
- 02 = 2" Stroke
- 03 = 3" Stroke

32 = 32" Stroke (maximum)

* Bumpers available on 9/16" through 3" Bore Cylinders. See length adder charts for more information. (N/A on DG1 and DG2 types)

** Magnet available on 9/16" Bore. See length adder charts for more information.

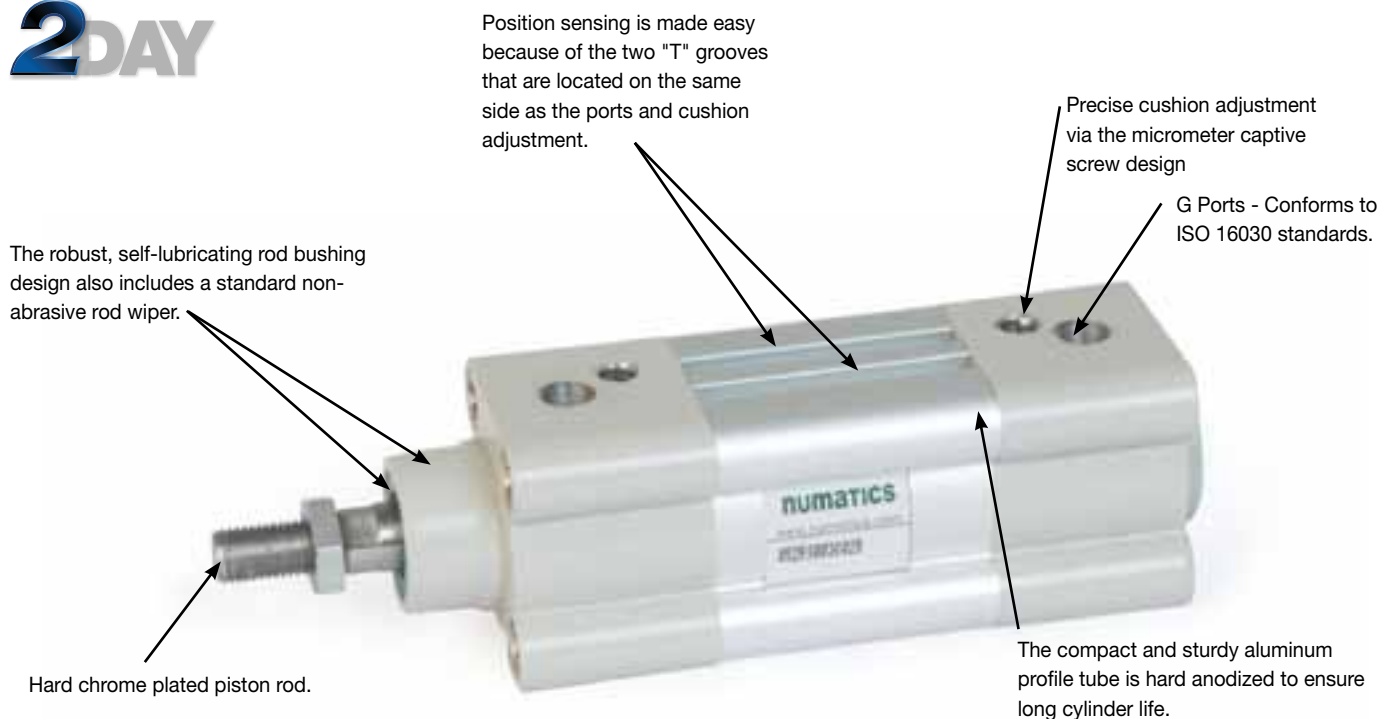
*** Pivot Bushing standard on 5/16", 9/16", 2", 2 1/2", and 3" bore sizes.

Optional on all other Rear Pivot Cylinders.

*Switches and Cylinder Mounting Accessories available to ship with Cylinders.

The **Series 452** is an aluminum body air cylinder line that is designed to meet all international cylinder requirements. The Series 452 meets the following international standards: ISO/DIS 15552 & AFNOR. The combination of robust construction and a multitude of value-added features make the Series 452 the superior ISO 15552 cylinder line on the market.

2DAY



General

Detection:	Equipped for magnetic position sensors
Fluid:	Air
Operating pressure:	10 bar max./150 PSI
Ambient temperature:	-20°C to +70°C (-4°F to 158°F)
Optimal max. speed:	≤ 1 m/s (for optimal service life)
Max. speed rate:	2 m/s
Standards:	ISO 15552-AFNOR NF ISO 15552-DIN ISO 15552 (replace ISO 6431-AFNOR NFE 49003-VDMA 24562)

Construction

Tube:	Hard anodized aluminum alloy
End Caps:	Aluminum alloy
Tube/End Cap Connection:	Steel sleeve bolts
Bearing:	Self lubricating steel backed composite
Cushioning seals:	PUR (polyurethane)
Cushioning:	Pneumatic, adjustable from both sides with captive screw
Rod:	Hard chrome plated steel
Rod nut:	Galvanized steel
Piston:	Ø 32 to 80 mm: POM (polyacetal) Ø 100 mm: light alloy, fitted with an annular permanent magnet
Piston seals:	PUR (polyurethane)



How to Order

2DAY

452 1 00 0 5 0080 000

Series
452 Series = Profile Tube

Version
1 = ISO 15552

Cylinder Type
00 = Single Rod, Cushioned
0A = Double Rod, Cushioned

Sensor Groove Location
0 = Position 1
3 = Position 2
6 = Position 3
9 = Position 4

Bore
3 = 32mm
4 = 40mm
5 = 50mm
6 = 63mm
8 = 80mm
1 = 100mm

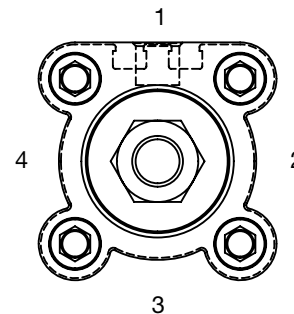
Options
000 = Cylinder w/o mounting parts and options
01A* = Rod Extension
02A* = Thread Extension
0SA = Stainless Rod
C01 = Foot Bracket (Outside) Mount
CV9 = Mid Trunnion
CF2 = Front Flange Mount
CR2 = Rear Flange Mount
CF4 = Rod Clevis Mount
CD4 = Rod Clevis Mount Both Ends (Double Rod)
CF5 = Spherical Eye Mount (Front Side)
CD5 = Spherical Eye Mount (Both Sides - Double Rod)
C07 = Oscillating Bracket with Lugs
C08 = Oscillating Bracket with Wide Fork Type Mount
C13 = Spherical Eye Mount (Back Side)
C14 = Oscillating Bracket with Narrow Fork Type Mount
Consult factory for combination options.
*Specify length.

Stroke
0015 = 15mm (Minimum Stroke)
0400 = 400mm (Maximum Stroke)

Port Chart

Bore	Port Size	Rod Threads
32mm	G 1/8	M10 x 1.25
40mm	G 1/4	M12 x 1.25
50mm	G 1/4	M16 x 1.25
63mm	G 3/8	M16 x 1.50
80mm	G 3/8	M20 x 1.50
100mm	G 1/2	M20 x 1.50

Switch/Sensor Position



Standard Cylinder Mounting Options

CF2 - Front Flange	CR2 - Rear Flange	C01 - Foot	C08 - Oscillating Bracket with Wide Fork Type Mount	C07 - Oscillating Bracket with Lugs
C14 - Oscillating Bracket with Narrow Fork Type Mount	CV9 - Mid Trunnion	CF4 - Front Clevis	CF5 - Spherical Eye Mount (Front Side)	



The **C Series** is a robust compact cylinder line that is designed to fit tight space requirements. The low profile design and variety of mounting options makes this cylinder line extremely popular. Furthermore, its unique style and diversity makes the C Series a one of a kind compact cylinder line.

**Tube**

The **tube** is hard coat anodized aluminum. The hard coating is an electrochemical process which produces a very dense surface of aluminum oxide. This surface has extreme hardness (60 RC.), excellent wear and corrosion resistance, and a low coefficient of friction. Additionally, profile tubing is standard on 3/4" through 2-1/2" bore sizes (3" and 4" bores are the tie rod configuration). The profile tubing has a custom dovetail groove on all sides for trouble-free switch and accessory mounting.

End Caps

The **end caps** are accurately machined from solid aluminum bar stock. They are anodized for corrosion resistance. Additionally, a recess on the piston-mating surface (at both ends) enables the air to work on a larger piston area for effortless breakaway.

Rod Bushing

The C Series includes a sintered bronze **rod bushing** for maximum load bearing support.

Rod Seal

The quad ring **rod seal** ensures proper sealing even at low pressures.

Piston Rod

High strength steel (100,000 psi minimum yield) **piston rod** has a ground, polished, and chrome plated surface. This surface provides maximum life for both the rod bushing and the seals.

Piston Seal

The quad ring **piston seal** ensures proper sealing even at low pressures.

Piston

The solid aluminum alloy **piston** is strong and durable.

Tie Rods

The **tie rods** (3" and 4" only) are 100,000 psi minimum yield steel for maximum holding power. The threads are roll formed for superior strength and engagement.

Tube End Seal

The **tube end seals** are compression type and reusable.

Ports

Our enhanced **port** design enables the cylinder to work more efficiently. Through the use of precise machining depths and tool shape, we are able to smooth the flow path into and out of the cylinder.

Mounting Holes

The dual purpose **mounting holes** allow use of through bolts or threaded-in attachments.

**Standard Specifications:**

- Variety of mounts
- Bore sizes from 3/4" through 4"
- Piston rod diameters from 1/4" to 1"
- Maximum pressure rating is 250 psi air
- Standard temperature -10°F to 165°F (-23°C to 74°C)
- All aluminum construction
- NPTF ports
- Flexible port locating

How to Order

2DAY

P1 C L - 04 A 1 B - A AA 0

Mount

F1 = Front Flange
F2 = Rear Flange
P1 = Fixed Clevis
P2 = Detachable Clevis
P3 = Fixed Eye
P4 = Detachable Eye
S2 = Foot Mount
*S4 = Bottom Tapped
X0 = Basic-No Mount

*S4 mount is standard
on 3/4" and 1 1/8" bore.

Type

C = Compact Cylinder Line

Bore

C = 3/4"
G = 1-1/8"
K = 1-1/2"
L = 2"
M = 2-1/2"
N = 3"
R = 4"

Full Inches of Stroke

00 = 0" Stroke
01 = 1" Stroke
02 = 2" Stroke
03 = 3" Stroke
20 = 20" Stroke

Fractional Inches of Stroke

A = 0" I = 1/2"
B = 1/16" J = 9/16"
C = 1/8" K = 5/8"
D = 3/16" L = 11/16"
E = 1/4" M = 3/4"
F = 5/16" N = 13/16"
G = 3/8" O = 7/8"
H = 7/16" P = 15/16"

Rod End Code

1* = #1 Standard Rod Diameter
2 = #2 Standard Rod Diameter
3 = #3 Standard Rod Diameter
4 = Special Standard Rod Diameter
(must specify threads)
5 = Special Oversize Rod Diameter
(must specify threads)
6 = #1 Oversize Rod Diameter
7 = #2 Oversize Rod Diameter
8 = #3 Oversize Rod Diameter

Magnet Piston

0 = No Magnet
*2 = Reed Magnet & Wear Band
* Adds to OAL of cylinder, see online PDF.

Options

AA = No Options
**BA = Bumpers Both Ends
KA = Stroke Adjuster (Specify Length)
DA = Double Rod End
SA = Stainless Steel Rod
SS = Stainless Steel Rod and
Tie Rods (3 and 4 Bores)
ST = Stainless Steel Tie Rods
(3 and 4 Bores)
VA = FKM Seals
1A = Rod Extension (specify length)
2A = Thread Extension (specify length)
*WA = Wear Band
* Adds to OAL of cylinder, see online PDF.
**Bumpers add .062" to OAL (per bumper).

Cushions

A = No Cushions

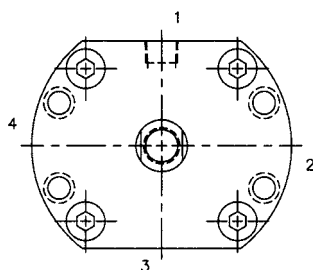
Ports

Position #	10-32	*1/8"	1/4"
1	A	B	C
2	G	H	I
3	M	N	O
4	S	T	U

NOTE: 1/8" and 1/4" ports can affect
OAL of cylinder.

See online PDF for more information.

Cylinder Orientation



Ports Normally in Position 1

Rod End Styles, Diameters and Threads

Bore	Diameter	Style #1 Standard Male	Style #2 Optional Female	Style #3 Standard Female
3/4"	.250	#8-32	N/A	#8-32
1 1/8"	.500	1/4-28	5/16-24	1/4-28
1 1/2"	.625 .750	7/16-20 1/2-20	3/8-24 N/A	7/16-20 1/2-20
2"	.625 .750	7/16-20 1/2-20	N/A N/A	7/16-20 1/2-20
2 1/2"	.625 .750	7/16-20 1/2-20	N/A N/A	7/16-20 1/2-20
3"	1.000	3/4-16	5/8-18	3/4-16
4"	1.000	3/4-16	N/A	3/4-16

*NOTE: Style #1 Male rods are studded female rods.



Numatics, a world leader in air powered products and systems, offers an extensive range of rodless cylinders. Utilizing the most advanced design and production criteria, Numatics provides solutions for automation throughout all sectors of industry.

Specifications

Bore Sizes: 25, 32, 40, and 50 mm

Single Barrel Extrusions

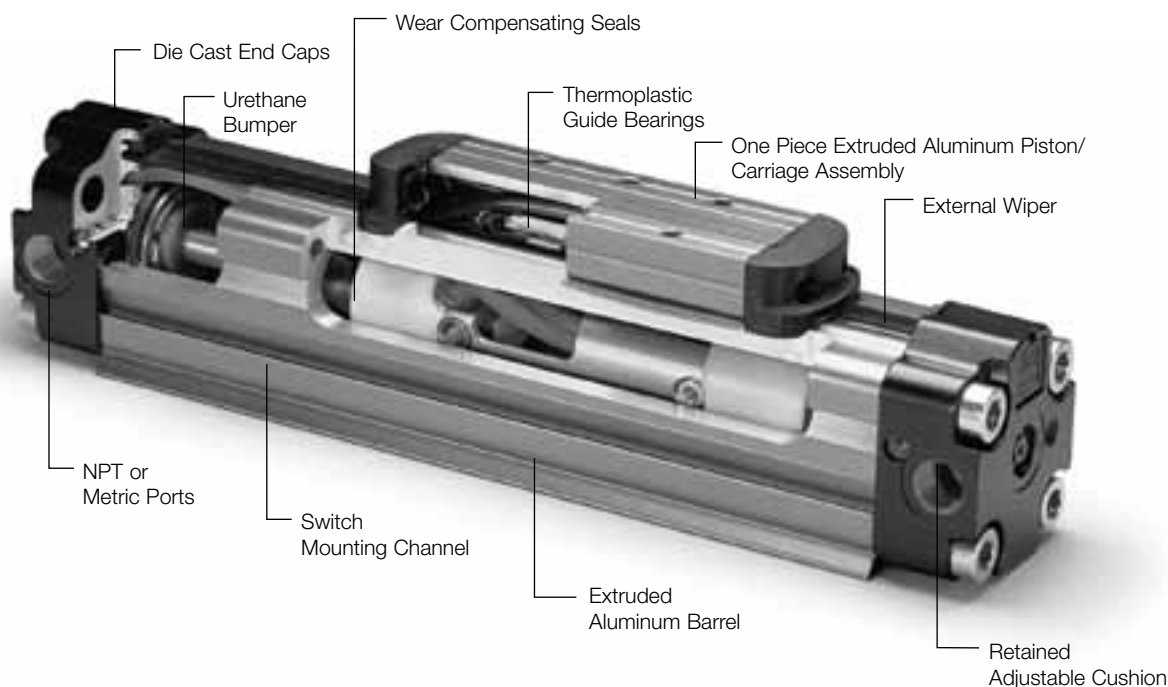
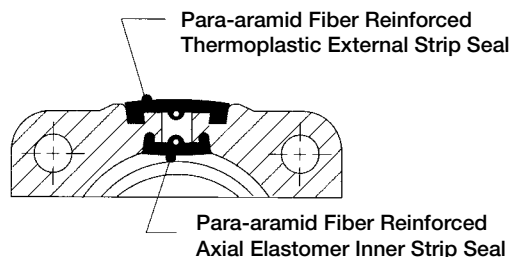
Working Pressure: (min) 45 to 145 PSIG (max)

Ambient Temperature Range: -4°F to 175°F (-20°C to 80°C)

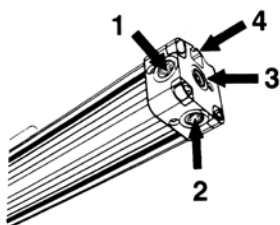
Medium: Filtered Air, with or without lubrication

Standard Stroke Lengths: Up to 19.5 ft. (6 meters)

Operating Speed: Up to 9.75 ft./sec. (3m/sec.)



Supply Port Options



- 0 = No Supply Port (left end cap only when both chambers are supplied from the right end cap)
- 1 = Side
- 2 = Bottom
- 3 = Rear
- 4 = Both Chambers supplied from one end cap

NR Series How to Order

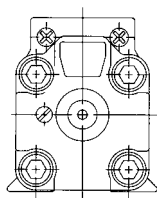
2DAY

<p>Series</p> <p>S1 = Single Barrel</p> <p>Carriage Type</p> <p>0 = Standard 2 = Medium 3 = Long 4 = Double Standard 5 = Double Medium 6 = Double Long</p> <p>Right End-Cap Supply Port</p> <p>1 = Side Supply Port, NPT 2 = Bottom Supply Port, NPT 3 = Rear Supply Port, NPT 4 = Both Chambers Supplied from Right End-Cap, NPT 5 = Side Supply Port, G Tap 6 = Bottom Supply Port, G Tap 7 = Rear Supply Port, G Tap 8 = Both Chambers Supplied from Right End-Cap, G Tap</p> <p>Left End-Cap Supply Port</p> <p>0 = No Supply Port (when both chambers are supplied from right end-cap) 1 = Side Supply Port, NPT 2 = Bottom Supply Port, NPT 3 = Rear Supply Port, NPT 5 = Side Supply Port, G Tap 6 = Bottom Supply Port, G Tap 7 = Rear Supply Port, G Tap</p> <p>Cylinder Bore Sizes</p> <p>25 = 25 Millimeters (1/8" Ports) 32 = 32 Millimeters (1/4" Ports) 40 = 40 Millimeters (3/8" Ports) 50 = 50 Millimeters (3/8" Ports)</p>	<p>Special Options</p> <p>Reserved for Special Options</p> <p>Sensing Type</p> <p>M = Magnetic Carriage Only O = No Magnet</p> <p>Standard Cord (ALL switches come with mounting brackets - see online PDF.)</p> <p>1 = Hall Effect PNP (Sourcing) - magnet sensing 2 = Hall Effect NPN (Sinking) - magnet sensing 3 = Reed Switch - magnet sensing</p> <p>Quick Disconnect Switch***</p> <p>Z = Hall Effect PNP (Sourcing) - magnet sensing Y = Hall Effect NPN (Sinking) - magnet sensing X = Reed Switch - magnet sensing</p> <p>***Cord to be purchased as separate item. Information found in the PDF online. NOTE: Individual switch part numbers are in the PDF online.</p> <p>Fractional Inches of Stroke</p> <p>(If ordering cylinder stroke in millimeters, place the letter "M" in this box.)</p> <p>A = 0" B = 1/8" C = 1/4" D = 3/8" E = 1/2" F = 5/8" G = 3/4" H = 7/8" M = Millimeters</p> <p>Full Inches or Millimeters of Stroke</p> <p>(Note: This section requires four digits.)</p> <p>0048 = 48" Stroke</p>
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Numatics Express 2Day for NR Series Rodless applies to order quantities of up to 5 units.

Barrel Configuration

S1 Series with Single Chamber



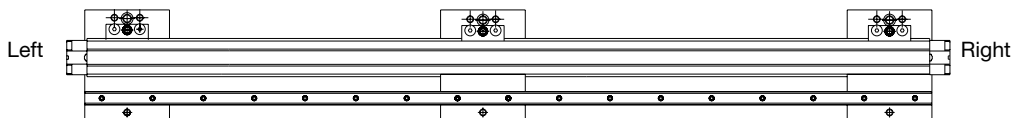
- Single chamber bore sizes 25 mm to 50 mm in extruded aluminum alloy
- Standard stroke length up to 19.5 ft.
- Various supply port configurations available
- Various carriage sizes
- High speed up to 9.75 ft./sec.

Rodless Cylinder Theoretical Force Charts for NR Series

Single Barrel

Bore Diameter	Piston Area inches (mm)	Pressure PSIG (Bar)						
		20 (1.4)	40 (2.8)	60 (4.1)	80 (5.5)	100 (6.9)	120 (8.3)	145 (10.0)
25mm	0.76 (19.3)	15 (1.0)	30 (2.1)	46 (3.2)	61 (4.2)	76 (5.2)	91 (6.3)	110 (7.6)
32mm	1.25 (31.8)	25 (1.7)	50 (3.4)	75 (5.2)	100 (6.9)	125 (8.6)	150 (10.3)	181 (12.5)
40mm	1.95 (49.5)	39 (2.7)	78 (5.4)	117 (8.1)	156 (10.8)	195 (13.4)	234 (16.1)	283 (19.5)
50mm	3.04 (77.2)	61 (4.2)	122 (8.4)	182 (12.5)	243 (16.8)	304 (21.0)	365 (25.2)	441 (30.4)

G Series How to Order



G1 2 1 1 25 0048 E M O

Series

G1 = Single Barrel / Single Bearing Rail
G2 = Single Barrel / Twin Bearing Rail

Carriage Type

2 = Medium Carriage
3 = Long Carriage
5 = Double Medium Carriage
6 = Double Long Carriage

Right End-Cap Supply Port

0 = No Supply Port (When Both Chambers are Supplied from the Left End-Cap)
1 = Side Supply Port, NPT
2 = Bottom Supply Port, NPT
3 = Rear Supply Port, NPT
4 = Both Chambers Supplied from the Right End-Cap, NPT
5 = Side Supply Port, G Tap
6 = Bottom Supply Port, G Tap
7 = Rear Supply Port, G Tap
8 = Both Chambers Supplied from the Right End-Cap, G Tap

Left End-Cap Supply Port

0 = No Supply Port (When Both Chambers Are Supplied from the Right End-Cap)
1 = Side Supply Port, NPT
2 = Bottom Supply Port, NPT
3 = Rear Supply Port, NPT
4 = Both Chambers Supplied from the Left End-Cap, NPT
5 = Side Supply Port, G Tap
6 = Bottom Supply Port, G Tap
7 = Rear Supply Port, G Tap
8 = Both Chambers Supplied from the Left End-Cap, G Tap

Cylinder Bore Size in Millimeters

25 = 25 Millimeters (1/8" Ports)
32 = 32 Millimeters (1/4" Ports)
40 = 40 Millimeters (3/8" Ports)
50 = 50 Millimeters (3/8" Ports)

Sensing Position & Other Options

A = Single Position (one switch)
B = Both Left & Right Position (two switches)
O = No Sensing
L = Lock Unit
M = Lock Unit & One Switch
N = Lock Unit & Two Switches

Sensing Type

M = Magnetic Carriage Only
O = No Magnet

Standard Cord (ALL switches come with mounting brackets - see online PDF.)

1 = Hall Effect PNP (Sourcing) - magnet sensing
2 = Hall Effect NPN (Sinking) - magnet sensing
3 = Reed Switch - magnet sensing

Quick Disconnect Switch***

Z = Hall Effect PNP (Sourcing) - magnet sensing
Y = Hall Effect NPN (Sinking) - magnet sensing
X = Reed Switch - magnet sensing

***Cord to be purchased as separate item.

NOTE: Individual switch part numbers are in the PDF online.

Fractional Inches of Stroke

(If ordering cylinder stroke in millimeters, place the letter "M" in this box.)

A = 0"
B = 1/8"
C = 1/4"
D = 3/8"
E = 1/2"
F = 5/8"
G = 3/4"
H = 7/8"
M = Millimeters

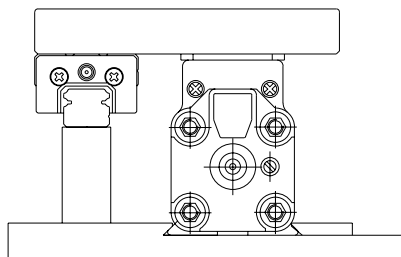
Full Inches or Millimeters of Stroke (Note: This section requires four digits.)

0048 = 48" Stroke

Barrel Configurations

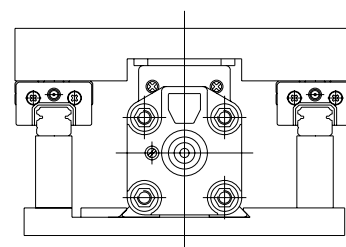
G1 Series

Single Rail Heavy Duty



G2 Series

Twin Rail Super Heavy Duty



Single chamber bore sizes 25mm to 50mm in extruded aluminum alloy
Various supply port configurations available
Medium and long carriage types
High speed up to 9.75 ft./sec.

CGT Series Compact Guide Slide

A. Body

Anodized aluminum alloy, lightweight and durable. Multiple mounting options, counter bored holes, drilled and tapped holes and extruded "T" slots.

B. Tool Plate

Nickel-plated steel, easy access mounting holes for tooling attachment.

C. Bearings

Two choices, recirculating ball for heavy-duty applications and sintered bronze for medium to light duty applications.

D. Rod Wipers

Steel reinforced rod wiper assures wiping action on guide shafts to protect bearings from operating environment contamination.

E. Guide Shafts

Hardened, ground and polished, oversized diameter for additional load support and rigidity.

F. Piston

Internal to body. Magnetic band for position sensing standard on all sizes and strokes.

G. Sensor Mounting Track

Extruded directly in body, no external brackets, easy access for Hall effect and Reed switches.



How to Order

CGT 032 050 B 1 6 D X		
Bore Diameter		Options
016 = 16 mm (20, 50 mm strokes only)		X = No Options
020 = 20 mm (20, 50 mm strokes only)		
025 = 25 mm (20, 25, 50 mm strokes only)		Sensing Position
032 = 32 mm (25, 50 mm strokes only)		A = Single Position Extend
040 = 40 mm (25, 50 mm strokes only)		B = Single Position Retract
050 = 50 mm (25, 50 mm strokes only)		C = Two Position Sensing
		D = No Sensing
Stroke		Sensing Type
020 = 20 mm		Standard Cord Set
025 = 25 mm		1 = Hall Effect - PNP (Sourcing)
050 = 50 mm		2 = Hall Effect - NPN (Sinking)
		3 = Reed Switch
Bearing Option		6 = No Sensing
B = Bronze Bushing		Quick Connect Cord Set
L = Linear Ball Bearing		Z = Hall Effect - PNP (Sourcing)
		Y = Hall Effect - NPN (Sinking)
Seal Option		X = Reed Switch
1 = Polyurethane		

Numatics Express 2Day for CGT Slides applies to order quantities of up to 5 units.

When Ordering Additional Sensors

Switch Description	Standard Part No.
Hall Effect - PNP (Sourcing)	PNP-FL2-00-U
Hall Effect - NPN (Sinking)	NPN-FL2-00-U
Reed Switch	REED-FL2-00S

The **SH Series** is a robust linear pneumatic slide that is designed to excel in the most strenuous applications. The SH Series encompasses a multitude of desirable features, i.e., adjustable shaft collars, alignment coupler, and *NuMate*™ universal mounting pattern, just to mention a few. Additionally, the SH Series includes the well-proven Numatics M Series cylinder as the driving mechanism. These are just a sample of the features that make the SH Series the superior pneumatic linear slide line.



Body:

The hard coat anodized aluminum **body** is lightweight yet extremely durable. The body includes standard dowel location holes for precision mounting. Multi-surface mounting holes enable flexible and easy access mounting.

Air Cylinder:

The driving mechanism of all SH Series Slides is the proven Numatics M Series **air cylinder**. The cylinder includes stainless steel end caps and piston rod for corrosion resistance. With the exception of 5/16" bore, all other bore sizes include a cylinder with a magnetic piston for position sensing applications.

Alignment Coupler:

The **alignment coupler** has 360° of rotation. Subsequently, it protects the cylinder piston rod from side loading. This enables maximum cylinder life.

Tooling Plate:

The tooling plate includes the *NuMate*™ universal mounting pattern. *NuMate*™ is a standardized mounting system that is unique to Numatics. The mounting system eliminates the need for custom transition plates. The holes are drilled, tapped and counter bored from the opposite side which enables mounting the unit to be effortless.

Guide Shafts:

Hardened steel (Rc 60 – 65) **guide shafts** are standard with the Linear Ball Bearing and Sintered Bronze bearing units. Hardened stainless steel (Rc 50 – 55) guide rods are standard with the PTFE bearing units. All guide shafts are precision ground and polished to 15u/RMS for smooth cycling and low breakaway. The large diameters enable increased load capacity. The shaft pilot is mounted directly to the tooling plate for maximum rigidity.

Bearings Options:

Each SH Series Slide includes 4 **bearings**. The SH Series is unique because of the 3 bearing options.

Linear Ball Bearing

This consists of 4 self-aligning bearings that reduce wear while maximizing load capability. It is sealed with rod wipers that protect against dirt and contamination.

Sintered Bronze

This consists of 4 oil impregnated (self-lubricating) sintered bronze sleeves with a high Pv rating that enables long application life.

PTFE

This has 4 maintenance free, self-lubricating PTFE bearings that enables long application life and low friction.

Bumper/Wiper

All SH Series Slides include a standard polyurethane **bumper/wiper** combo that is durable and long lasting. The bumper/wiper is integrated into the body of the slide and reduces shock and loading on both the extend and retract stroke. The wiper removes contamination from the guide shafts.

Adjustable Shaft Collars

The adjustable shaft collars enable extend stroke adjustment.



Standard Specifications

- Bore sizes from 5/16" through 3"
- *NuMate*™ universal mounting pattern
- 3 bearing options
- Nominal pressure rating is 250 psi air
- Alignment coupler standard on all slides
- Standard temperature -10°F to +165°F



How to Order



	SH	075	03	LB	1	3	C	S	3	
Bore Size										Shock Option
031 = 5/16"										Shock Hardware Only
056 = 9/16"										1 = Extend
075 = 3/4"										2 = Retract
106 = 1-1/16"										3 = Extend/Retract
150 = 1-1/2"										4 = No Shock Hardware
200 = 2"										Hardware & Shocks
250 = 2-1/2"										A = Extend
300 = 3"										B = Retract
										C = Extend/Retract
Standard Stroke (inches)										Mounting Option
X5 = 1/2"										S = Std. Mount
01 = 1"										B = Base Mount
X9 = 1-1/2"										A = Angle Mount
02 = 2"										
03 = 3"										Sensing Position
04 = 4"										A = Single Pos. Extend
05 = 5"										B = Single Pos. Retract
06 = 6"										C = Two Position
07 = 7"										D = No Sensing
08 = 8"										
Bearing Option										Sensing Type
LB = Linear Ball										Standard Cord Set
TB* = PTFE										1 = Hall Effect PNP (Sourcing)
BB = Sintered Bronze										2 = Hall Effect NPN (Sinking)
* Supplied Standard with 440 C Stainless Steel Guide Rods, Stop Collars and Hardware.										3 = Reed Switch
										6 = No Sensing
										7 = 8mm Threaded Barrel Prox Bracket*
Cylinder Type										Quick Disconnect Cord Set
1 = Buna-N Seals***										Z = Hall Effect PNP (Sourcing)
2 = FKM Seals (no magnet)										Y = Hall Effect NPN (Sinking)
4 = FKM Seals with magnet***										X = Reed Switch
*** Magnet not available on SH031										* Bracket only - does not include switch



SPS Series Small Power Slide

The **SPS Series'** small size makes it the ideal slide for getting into those tight spaces.

A. Body

Hardcoat Anodized, PTFE impregnated inside & out.
Lightweight, durable, high strength to weight ratio.

B. Slide

Aluminum Bronze alloy. Heavy cross section T-Slot style to prevent fatigue failure and breakage. Offers superior load bearing capabilities throughout stroke. Payload can be attached to top of slide or tooling plate.

C. Stroke adjustment

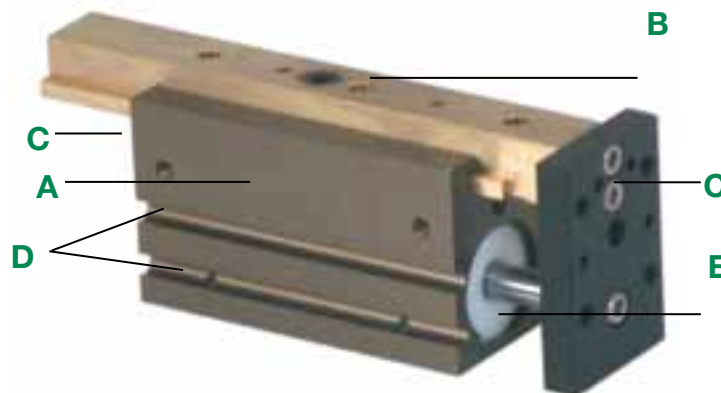
Fine adjustments can be made to extend stroke accessible through the tooling plate. Retract stroke can be adjusted from backside of unit. Locking set screws ensure precise repetitive operation.

D. Sensing

Hall effect sensing is available for sensing extend & retract.

E. Bearing

Special engineered material, low friction, long life, maximum rigidity.



How to Order

	SPS	075	X9	1	4	C	X	
Bore Sizes								Special Options
050 = 8 mm								M = Metric
075 = 12 mm								X = Standard
Standard Stroke								Stroke Adjustment
X5 = 1/2 Inch								A = Single Position Extend
01 = 1 Inch								B = Single Position Retract
X9 = 1-1/2 Inches								C = Two Position Sensing
02 = 2 Inches								D = No Sensing
Seal Option								Sensing Type
1 = Buna-N								Standard Cord Set
								1 = Hall Switch - PNP (Sourcing)
								2 = Hall Switch - NPN (Sinking)
								6 = No Sensing
								Quick Disconnect Cord Set
								Z = Hall Switch - PNP (Sourcing) Straight
								Y = Hall Switch - NPN (Sinking) Straight
								See Sensor section.

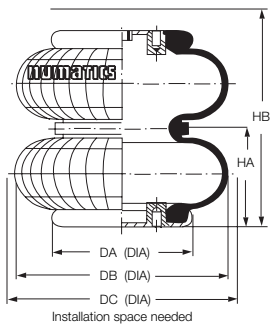
When ordering additional switches

Switch Description	Standard Part No.	Quick Disconnect Part No.
Hall Effect-PNP (Sourcing)	CS-20TP	CS-18P-QD
Hall Effect-NPN (Sinking)	CS-20TN	CS-20TN-QD

Single/Double/Triple Convoluted and Sleeve Series



Typical Of
All Models



(Double Convoluted
Unit Shown)

DA = Cap Diameter
DB = Maximum Bellows Diameter
DC = Installation Space Required
HA = Minimum Collapse Height*
HB = Maximum Extend Height*

*Do not exceed - may cause damage
to the air bellows.

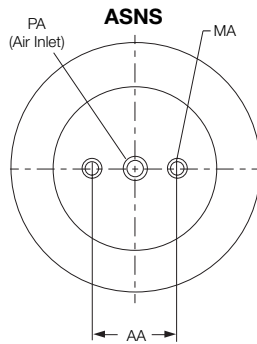
Specifications

Medium: Filtered compressed air with or without lubrication
Ambient Temperature Range: -40°F to +140°F (-40°C to +70°C)
Working Pressure: Up to 120 PSIG (8 bar)
Materials: Caps, Galvanized steel. Bellows, Reinforced Rubber
Force: Up to 15,000 lbs.
Stroke: Up to 16.75 inches

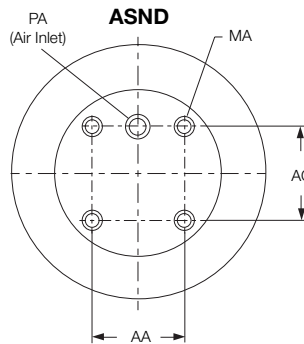
2DAY

End Cap Styles for Model Numbers Listed Below

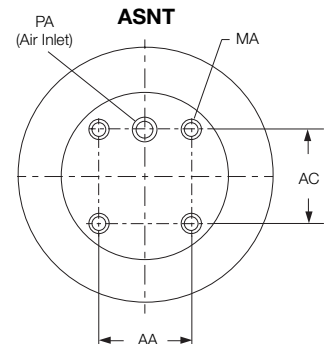
Air inlet caps shown. Opposite end does not include a supply port.



ANS11-1-1
ASNS11-2-1
ASNS11-3-1
ASNS18-3-1
ASNS18-4-1
ASNS18-5-1
ASND11-4-1
ASND18-5-1
ASND18-6-1



ASNS31-3-1
ASNS51-3-1
ASND31-6-1
ASND51-7-1
ASND51-8-1
ASNT51-11-1



ASNS82-4-1
ASND82-7-1
ASND82-10-1
ASNT82-12-1

Sleeve Type Bellows Model

ASNC2-1-1*
ASNC6-1-1*
ASNC6-2-1*

*Reference online PDF
for specifications.

How To Order

Depending on your adapter selection, add either a -2 or -3 to the end of bellows part number (ie. ASNS18-3-1-2).

Model Number Reference												
Adapter Option Code												
Bellow Model	3/4 to 1/4	3/4 to 3/8	AA	AB	AC	DA	DB	DC	HA	HB	MA	PA
Single Convoluted												
ASNS11-1-1	NA	NA	1.75	N/A	N/A	4.25	5.91	6.50	2.00	3.70	3/8"-16 UNC	1/4"NPTF
ASNS11-2-1	NA	NA	1.75	N/A	N/A	4.25	6.50	7.09	2.00	4.50	3/8"-16 UNC	1/4"NPTF
ASNS11-3-1	NA	NA	1.75	N/A	N/A	4.25	7.88	8.46	2.00	5.90	3/8"-16 UNC	1/4"NPTF
ASNS18-3-1	-2	-3	2.75	N/A	N/A	5.55	8.47	9.06	2.00	5.30	3/8"-16 UNC	3/4"NPTF
ASNS18-4-1	-2	-3	2.75	N/A	N/A	5.55	9.10	9.65	2.00	5.90	3/8"-16 UNC	3/4"NPTF
ASNS18-5-1	-2	-3	2.75	N/A	N/A	5.55	9.25	9.84	2.00	6.70	3/8"-16 UNC	3/4"NPTF
ASNS31-3-1	-2	-3	3.50	1.50	N/A	6.34	9.84	10.43	2.00	5.60	3/8"-16 UNC	3/4"NPTF
ASNS51-3-1	-2	-3	6.20	2.88	N/A	8.98	12.80	13.40	2.20	6.00	3/8"-16 UNC	3/4"NPTF
ASNS82-4-1	-2	-3	6.25	N/A	6.25	11.30	15.16	15.75	2.20	6.90	3/8"-16 UNC	3/4"NPTF
Double Convoluted												
ASND11-4-1	NA	NA	1.75	N/A	N/A	4.25	6.50	7.09	3.00	7.90	3/8"-16 UNC	1/4"NPTF
ASND18-5-1	-2	-3	2.75	N/A	N/A	5.55	8.47	9.06	3.00	9.10	3/8"-16 UNC	3/4"NPTF
ASND18-6-1	-2	-3	2.75	N/A	N/A	5.55	8.60	9.25	3.00	10.60	3/8"-16 UNC	3/4"NPTF
ASND31-6-1	-2	-3	3.50	1.50	N/A	6.34	9.84	10.43	3.00	10.80	3/8"-16 UNC	3/4"NPTF
ASND51-7-1	-2	-3	6.20	2.88	N/A	8.98	12.80	13.40	3.00	12.00	3/8"-16 UNC	3/4"NPTF
ASND51-8-1	-2	-3	6.20	2.88	N/A	8.98	13.40	14.00	3.10	14.20	3/8"-16 UNC	3/4"NPTF
ASND82-7-1	-2	-3	6.25	N/A	6.25	11.30	14.96	15.75	3.03	12.20	3/8"-16 UNC	3/4"NPTF
ASND82-10-1	-2	-3	6.25	N/A	6.25	11.30	15.95	16.55	3.03	15.35	3/8"-16 UNC	3/4"NPTF
Triple Convoluted												
ASNT51-11-1	-2	-3	6.20	2.88	N/A	8.98	12.80	13.40	4.40	18.10	3/8"-16 UNC	3/4"NPTF
ASNT82-12-1	-2	-3	6.25	N/A	6.25	11.30	14.96	15.94	4.40	21.30	3/8"-16 UNC	3/4"NPTF

Numatics Express 2Day for Bellows applies to order quantities of up to 5 units.

All mounting holes are .625 deep.

The **LR Series** rotary actuator is a low profile rack and pinion design. Two independent pistons drive their corresponding racks against the pinion thereby rotating the platform.

A. Body

Hardcoated anodized aluminum PTFE impregnated, lightweight, high strength to weight ratio.

B. Rotary Platform

Hardcoated anodized aluminum, durable. Supported by two bearings, one on each side of the pinion shaft, providing superior dynamic load capacity.

C. Stroke Adjustment

Built-in rotary hard stops protect rotary platform from over travel. External stroke adjust screws with locking set screws provide fine tuned rotary position.

D. Flow Controls

Built in design is easily adjustable, provides precise deceleration speed control in both directions.

E. Position Sensing

Proximity switch sensors available for rotary position sensing.

F. Shocks

LR60, LR125 & LR270 come standard with internal shock absorbers.

**How to Order****Torque Rating**

06 = 6 in-lb
20 = 21 in-lb
60 = 62.5 in-lb
60M* = 62.5 in-lb
125 = 125 in-lb
125M* = 125 in-lb
270 = 270 in-lb
*Manifold option, contact factory.

Rotation

A = 90°
B = 180°

Seal Option

1 = Buna-N

LR 06 A 1 6 D 4 X

Special Options

M = Metric
Q = No Switch Cables
X = Standard

Shock Absorbers

3 = Clockwise and Counter Clockwise Shock (standard on LR-60, LR-125 & LR-270)
4 = No Shocks (Shocks are not available on LR-06 and LR-20.)

Sensing Position

A = Single Position Clockwise
B = Single Position Counter Clockwise
C = Two Position
D = No Sensing

Sensing Type

Standard Cord Set
4 = Prox Switch - PNP (Sourcing)
5 = Prox Switch - NPN (Sinking)
6 = No Sensing
Quick Disconnect Cord Set
W = Prox Switch - PNP (Sourcing) Straight
U = Prox Switch - PNP (Sourcing) 90 Deg.
Prox switches are 5 mm diameter.

See PDF online.

When ordering additional switches

Switch Description	Standard Part No.	Quick Disconnect Part No.
Prox Switch - PNP (Sourcing)	PROX-5FL2-P	PROX-5QDS-P
Prox Switch - NPN (Sinking)	PROX-5FL2-N	Not Available
Quick Disconnect Cable	—	PXCST
90° 5 meter cable	—	PXC90
Bronze switch housing for LR & RM Rotaries	—	RSH05



Gripper Summary of Operation

WBG Series utilizes four independent pistons to power the jaws open and closed. Jaws utilize a rack and pinion for synchronization which are independent from force rods and support rods. Non-Synchronous operation is available.

A. Body

High strength, anodized aluminum.
Ultra high gripping force to weight ratio.

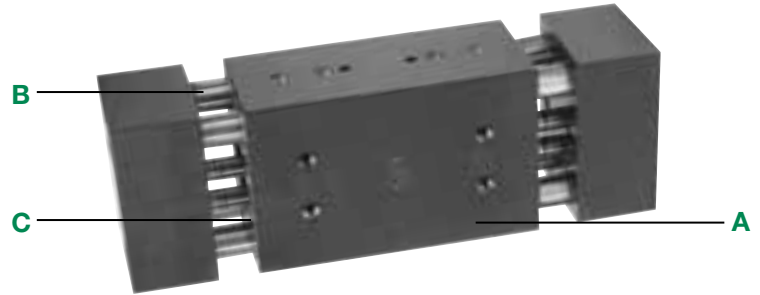
B. Support Rods

Hardened steel support shafts are guided through the full width of the body. Wiper seals assist in keeping rods free of debris.

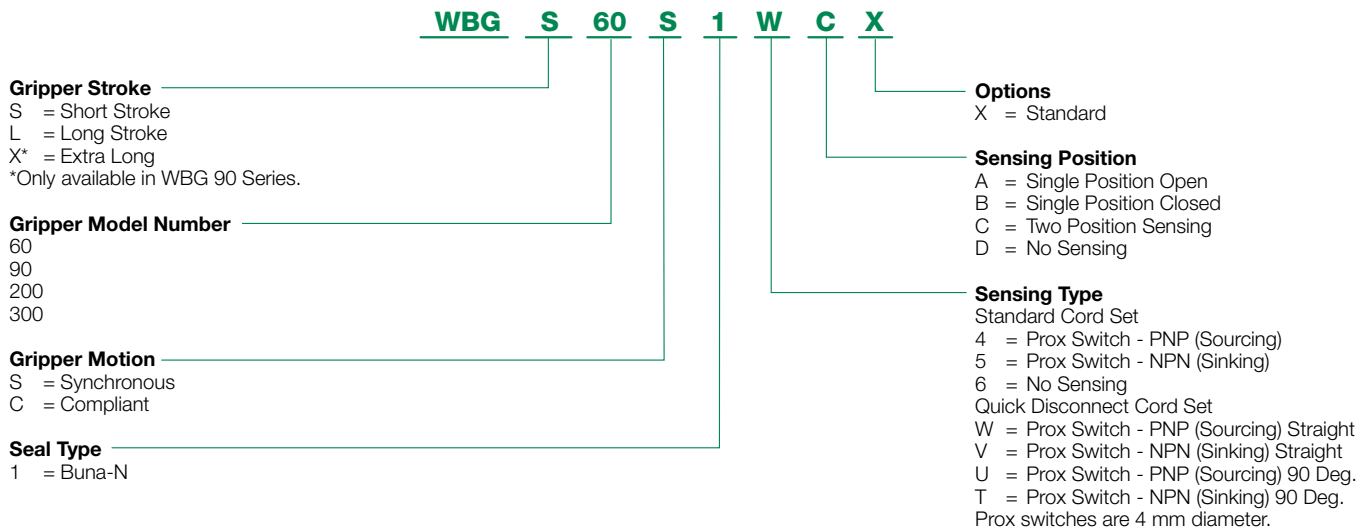
C. Seals

Piston seals are quad ring type for long service life.

- Pre-lubricated with our specially formulated oil based compound for extensive maintenance free performance.
- Proximity switches are available to monitor open and closed position of the jaws.



How to Order



When ordering additional switches

Switch Description	Standard Part No.	Quick Disconnect Part No.
Prox Switch - PNP (Sourcing)	PROX-4FL2-P	PROX-4QDS-P
Prox Switch - NPN (Sinking)	PROX-4FL2-N	Not Available
Quick disconnect cable straight	–	PXCST
Quick disconnect cable 90 deg.	–	PXC90

WGS-50 Parallel Gripper Double Guided Wedge

Gripper summary of operation:

Synchronous motion is achieved with a double acting piston attached via the piston shaft to a double sided wedge. The double sided angles of the wedge convert vertical motion to synchronous horizontal motion of the jaws.

A. Body

Hardcoat anodized PTFE impregnated aluminum inside and out. Ultra high gripping force to weight ratio.

B. Jaws

Jaws machined from S7 tool steel to prevent jaw breakage.

C. Switches

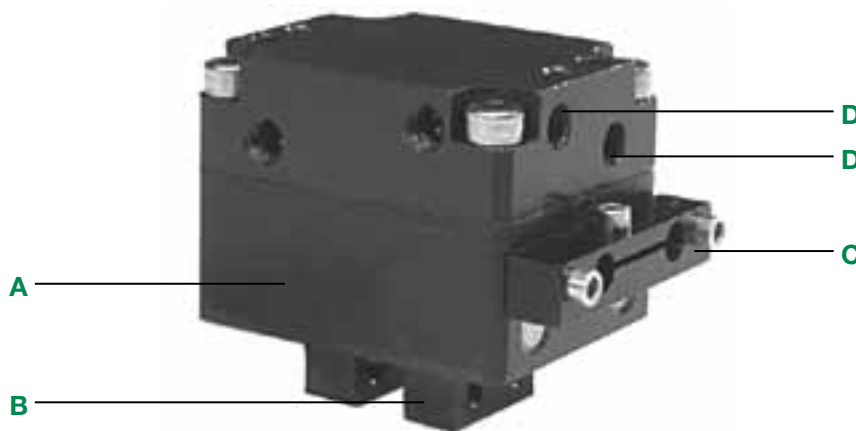
Proximity switches are available to monitor open and closed position of the jaws.

D. Side Ports

Additional side mounting holes and side air ports for optional mounting and porting.

E. Lubrication

Pre-lubricated with our specially formulated oil based compound for extensive maintenance free performance.



WGL-50 Long Stroke and WGS-90 Short Stroke Parallel Grippers Double Guided Wedge

Gripper summary of operation:

Synchronous motion is achieved with a double acting piston attached via the piston shaft to a double sided wedge. The double sided angles of the wedge convert vertical motion to synchronous horizontal motion of the jaws.

A. Body

Hardcoat anodized PTFE impregnated aluminum inside and out. Ultra high gripping force to weight ratio.

B. Jaws

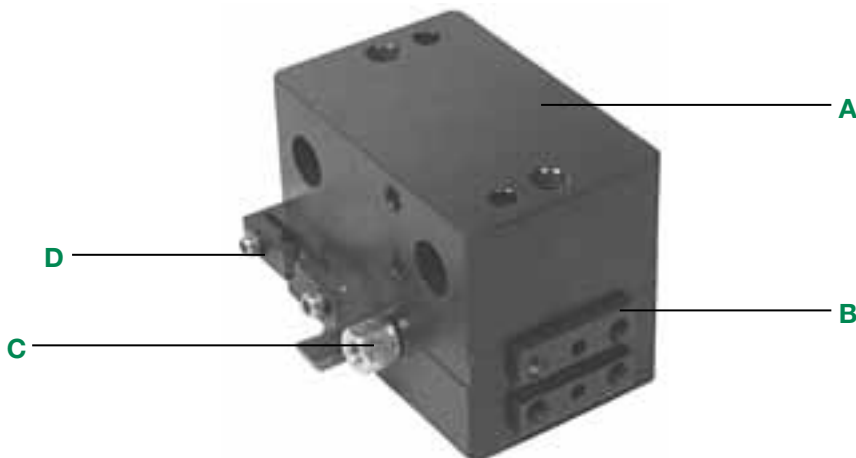
Hardcoat anodized PTFE impregnated aluminum. Lightweight, durable, high strength.

C. Purge Port

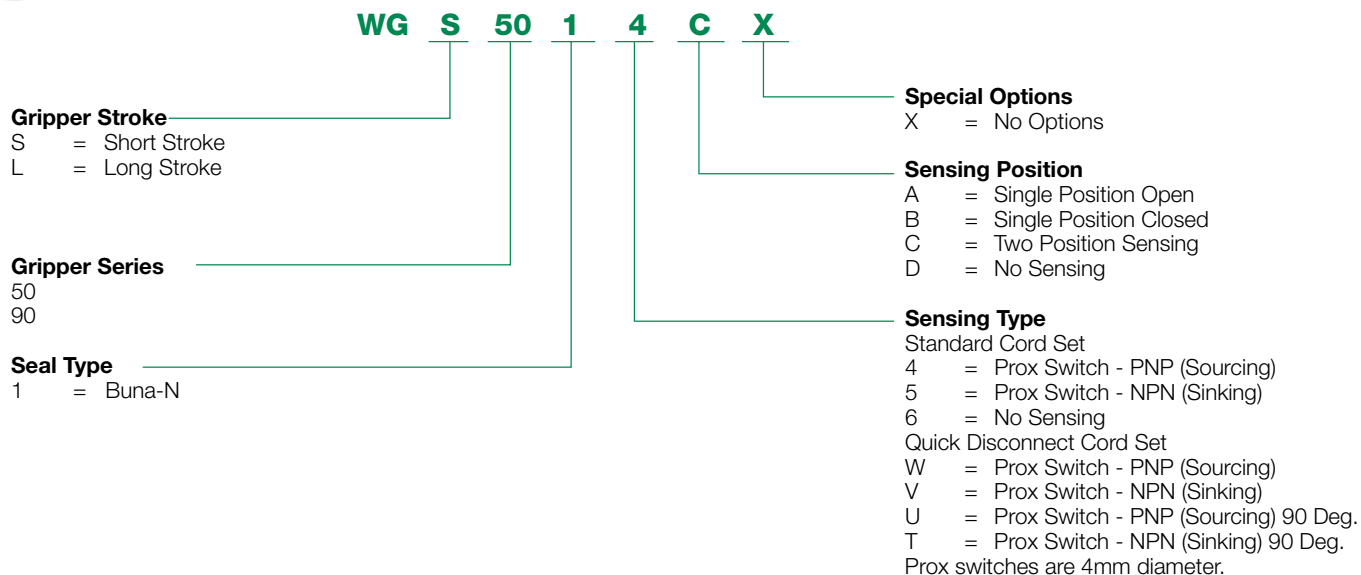
Unit can be slightly pressurized to prevent debris or coolant from entering. A vacuum can be applied to evacuate contaminants from inside the unit in a clean room environment.

D. Switches

Proximity switches are available to monitor open and closed position of the jaws.



How to Order



When ordering additional switches

Switch Description	Standard Part No.	Quick Disconnect Part No.
Prox Switch - PNP (Sourcing)	PROX-4FL2-P	PROX-4QDS-P
Prox Switch - NPN (Sinking)	PROX-4FL2-N	Not Available
Quick disconnect cable straight	–	PXCST
Quick disconnect cable 90 deg.	–	PXC90

Gripper Summary of Operation

PG Series has true parallel motion that is generated by a pinion mechanism powered by a double acting piston.

A. Body

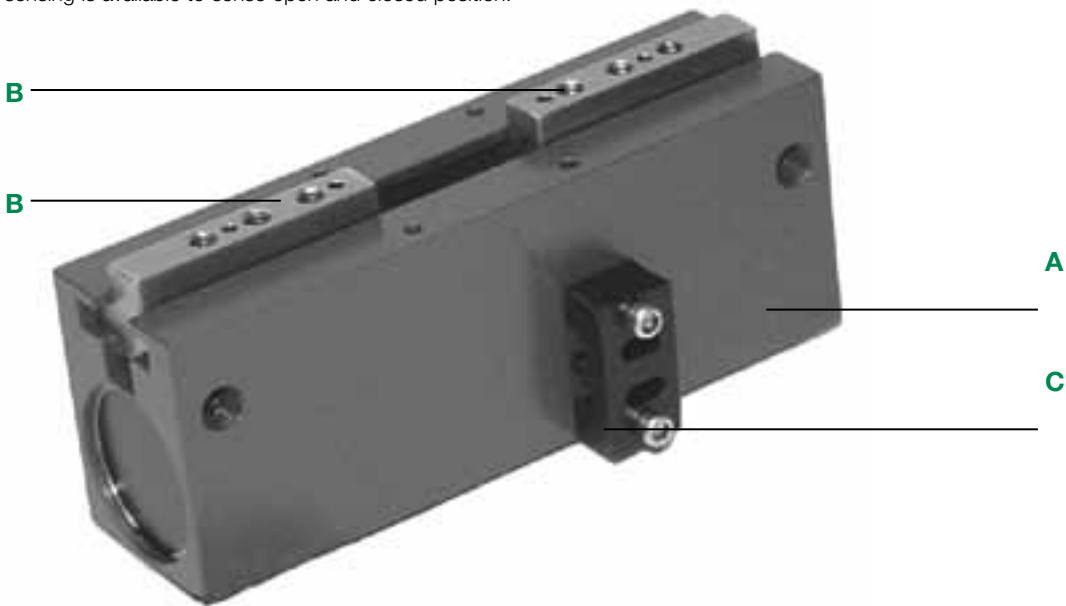
Hardcoat anodized, PTFE impregnated inside and out. Two different strokes with the same size low profile body.

B. Jaws

Jaws are aluminum bronze alloy and T-Slot style to prevent jaw breakage and offers superior load bearing capabilities.

C. Sensing

Reed & Hall effect sensing is available to sense open and closed position.



How to Order



Gripper Stroke
S = Short Stroke
L = Long Stroke

Gripper Series
25
35

Seal Type
1 = Buna-N

PG S 35 1 1 C X

Special Options
X = Standard

Sensing Position
A = Single Position Open
B = Single Position Closed
C = Two Position Sensing
D = No Sensing

Sensing Type
Standard Cord Set
1 = Hall Switch - PNP (Sourcing)
2 = Hall Switch - NPN (Sinking)
6 = No Sensing
Quick Disconnect Cord Set
Z = Hall Switch - PNP (Sourcing)
Y = Hall Switch - NPN (Sinking)
See Sensor section.

When ordering additional switches

Switch Description	Standard Part No.	Quick Disconnect Part No.
Hall Effect - PNP (Sourcing)	CS-20TP	CS-18P-QD
Hall Effect - NPN (Sinking)	CS-20TN	CS-20TN-QD

Gripper Summary of Operation

RPG Series has true parallel motion that is generated by a double acting piston attached to the pinion mechanism with a linkage that is guided in the body for precise centering.

A. Body

Hardcoat anodized, PTFE impregnated inside and out. High force to weight ratio.

B. Jaws

Jaws are aluminum bronze alloy to prevent jaw breakage. T-Slot style jaws offers superior load bearing capabilities.

C. Sensing

Proximity switches available for sensing open and closed positions.



How to Order

	RPG	35	1	4	C	X	
Gripper Series							Special Options
25							X = Standard
35							
80							
Seal Type							Sensing Position
1 = Buna-N							A = Single Position Open
							B = Single Position Closed
							C = Two Position Sensing
							D = No Sensing
							Sensing Type
							Standard Cord Set
							4 = Prox Switch - PNP (Sourcing)
							5 = Prox Switch - NPN (Sinking)
							6 = No Sensing
							Prox switches are 4 mm diameter.

When ordering additional switches

Switch Description	Standard Part No.
Hall Effect - PNP (Sourcing)	PROX-4FL2-P
Hall Effect - NPN (Sinking)	PROX-4FL2-N



TJ30 Series 3 Jaw Gripper

TJ30 3 jaw gripper provides high grip force in a compact design. Stripper plate option provides 9 lbs. of linear spring force to facilitate part insertion when gripper jaws release part.

A. Jaws

Jaws are T-Slot bearing supported to prevent Jaw breakage and offer superior load bearing performance.

B. Flexible Mounting

Flexible mounting, thru hole for SHCS, tapped from opposite side.

C. Dowel Holes

Dowel holes for locating.

D. Body

Hardcoated aluminum body.

E. Sensing Tracks

Sensing tracks for Hall effect switches sensing.

F. Stripper Plate

Optional Stripper Plate.



Specifications

Series	Grip Force Close 100 PSI	Stroke	Weight	Displacement	Maximum Operating Pressure
TJ30	36 lbs.	0.300	9 oz.	0.35 cu. in.	120 psi

How To Order



	TJ	30	1	6	D	SP	X	
Series	30							
Seal Option	1 = Buna-N							
								X = Standard
								Stripper Plate
								SP = With Stripper Plate
								NP = No Stripper Plate
								Sensing Position
								A = Single Position Open
								B = Single Position Closed
								D = No Sensing
								Sensing Type
								1 = Hall Switch – PNP (Sourcing)
								2 = Hall Switch – NPN (Sinking)
								6 = No Sensing
								Quick Disconnect Cord Set
								Z = Hall Switch – PNP (Sourcing)
								Y = Hall Switch – NPN (Sinking)

Sensing Kits

Switch Description	Standard Cord Set Part No.	Quick Disconnect Part No.
Hall Effect - PNP Sourcing	CS-20TP	CS-18P-QD
Hall Effect - NPN Sinking	CS-20TN	CS-20TN-QD
90° 5 Meter Cable	N/A	PXC90
Straight 5 Meter Cable	N/A	PXCST



TJ200 Series 3 Jaw Gripper

Provides high grip force in a compact design. Shielded design makes the TJ ideal for machine loading and unloading. Compact design to grip force ratio are ideal for confined work areas.

A. Jaws

Jaws are T-Slot bearing supported to prevent Jaw breakage and offer superior load bearing performance.

B. Flexible Mounting

Flexible mounting, thru hole for SHCS, tapped from opposite side.

C. Dowel Holes

Dowel holes for locating.

D. Body

Hardcoated aluminum body.

E. Sensing

Sensing tracks for Hall effect switches sensing.



Specifications

Series	Grip Force Close 100 PSI	Stroke	Weight	Maximum Operating Pressure
TJ200	250 lbs.	0.330	2.3 oz.	120 psi

How To Order

5DAY

	TJ	200	1	6	D	X	
Series 200							
Seal Option 1 = Buna-N							
							X = Standard
							Sensing Position A = Single Position Open B = Single Position Closed C = Two Position Sensing D = No sensing
							Sensing Type CS Series Switch 1 = Hall Switch – PNP (Sourcing) 2 = Hall Switch – NPN (Sinking) 6 = No Sensing Quick Disconnect Cord Set Z = Hall Switch – PNP (Sourcing) Y = Hall Switch – NPN (Sinking)

When ordering additional switches

Switch Description	Standard Cord Set Part No.	Quick Disconnect Part No.
Hall Effect - PNP Sourcing	CS-20TP	CS-18P-QD
Hall Effect - NPN Sinking	CS-20TN	CS-20TN-QD



The **PG6J80 Series** 6 finger gripper design utilizes a dual acting piston to open and close gripper jaws. All six jaws are synchronized for accurate positioning. The included ejectors operate independent of the gripper jaws, providing a convenient method to strip parts from the jaws. An example of this could be expanding an o-ring and pushing it on to the desired part.

A. Body

Hardcoat, anodized, PTFE impregnated aluminum, lightweight durable.

B. Jaws

T-slot design for superior load bearing support, six jaws in synchronized parallel motion.

C. Ejectors

Independent motion from jaws. Single acting, air pressure to extend, spring return. All ejectors extend and retract together.

D. Stroke adjustment

Easy access stroke adjustment screw provides precise controllability of jaw travel. Locking jam nut secures adjusted position.



How to Order

	PG6J	80	1	6	D	X	
Series							Special Option
80							X = No Options
Seal Type							Sensing Position
1 = Buna-N							A = Single Position Open B = Single Position Closed C = Ejection Position D = All Positions E = No Sensing
							Sensing Type
							Standard Cord Set 4 = Prox Switch - PNP (Sourcing) 5 = Prox Switch - NPN (Sinking) 6 = No Sensing Quick Disconnect Cord Set W = Prox Switch - PNP (Sourcing) Straight V = Prox Switch - NPN (Sinking) Straight U = Prox Switch - PNP (Sourcing) 90 Deg. T = Prox Switch - NPN (Sinking) 90 Deg. Prox switch 6.5 mm diameter

When ordering additional switches

Switch Description	Standard Part No.	Quick Disconnect Part No.
Prox Switch - PNP (Sourcing)	PROX-65FL2-PN	PROX-65QDS-P
Prox Switch - NPN (Sinking)	PROX-65FL2-PN	Not Available
Quick Disconnect Cable	—	PXCST
90° 5 meter cable	—	PXC90

MPG5 Miniature Parallel Gripper

The **MPG5 Gripper** is designed for pick & place of small pieces. The cutting edge design of the MPG5 allows for manifold mounting a series of MPG5s in line without the concerns of space for fittings or air lines. Another unique feature of the MPG5 is the dual-purpose purge port that is part of every gripper. This feature facilitates use of the MPG5 in some clean room applications and very dirty environments.

A.

Shielded design for long service life. High grip force to weight ratio.

B.

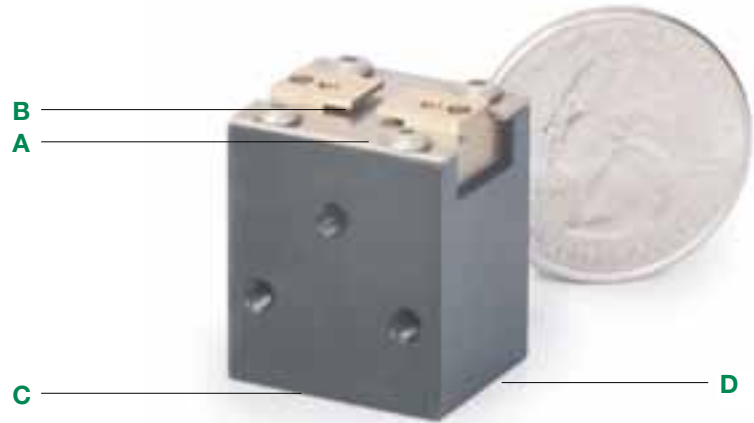
Top porting allows units to be manifold mounted eliminating air fittings. Side and Top porting standard.

C.

Purge port will evacuate any contaminants from inside for a clean room environment. When pressurized the purge will keep debris from entering unit in dirty environments.

D.

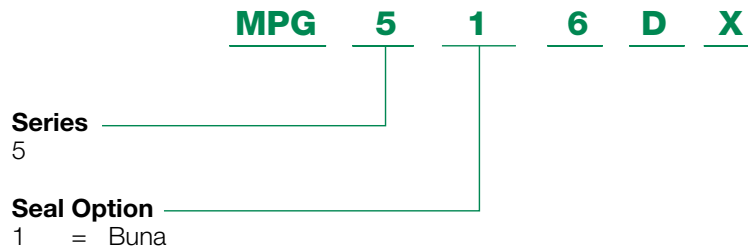
Jaws are aluminum bronze alloy and T-Slot style to prevent jaw breakage.



Specifications

Grip Force Close 80 PSI	Grip Force Open 80 PSI	Stroke	Weight	Displacement	Maximum Operating Pressure
9 lbs.	9 lbs.	0.19	1.7 oz.	0.008 cu. in.	100 psi

How To Order



GR90-Series Angular Grippers

The **GR90 Series** has a double acting piston attached to a cross bar by a connecting rod. The linear movement of the piston is transformed into angular movement of the jaws through a double toggle link mechanism.

A. Body:

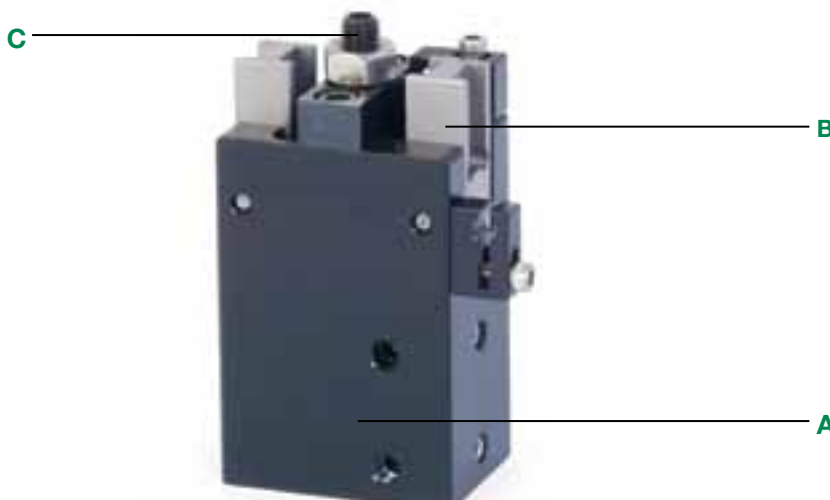
Hardcoat anodized with PTFE for reduced friction and wear. Front and side ports standard.

B. Jaws:

Hardened alloy steel.
Keyway slot for tooling location.
180° jaw motion.

C. Locking Adjustment Screw:

Jaw rotations can be adjusted from 0-90° to be custom fit to each application.



How to Order



GR90 1 6 D X

Seal Type

1 = Buna-N Seals

Sensing Type

Standard Cord Set

4 = Prox Switch – PNP (Sourcing)

5 = Prox Switch – NPN (Sinking)

6 = No Sensing

Quick Disconnect Cord Set

W = Prox Switch – PNP (Sourcing) Straight

V = Prox Switch – NPN (Sinking) Straight

U = Prox Switch – PNP (Sourcing) 90 Deg.

T = Prox Switch – NPN (Sinking) 90 Deg.

Prox switches are 4 mm diameter.

Special Options

X = Standard

Sensing Position

A = Single Position Open

B = Single Position Closed

C = Two Position Sensing

D = No Sensing

When ordering additional switches & Seal Kits

Sensing Kits

Standard Cord Set

Hall Effect - PNP Sourcing	PROX-4FL2-P
Hall Effect - NPN Sinking	PROX-4FL2-N

Sensing Kits

Quick Disconnect Cord Set

Hall Effect - PNP Sourcing	PROX-4QDS-P
Hall Effect - NPN Sinking	Not Available

90° 5 meter cable PXC90

Straight 5 meter cable PXCST

(5m Cables)



GR1400 – 180° Radial Gripper

The **GR1400** has a double acting piston attached to a cross bar by a connecting rod. The linear movement of the piston is transformed into radial movement of the jaws through a double toggle link mechanism.

A. Body

Hardcoat anodized, T- Slot Sensing track for direct mount of the Numatics Global Switch. Side and top mounting standard. Dowel holes for locating.

B. Jaws

Keyway slot for tooling location, 180° Jaw motion.

C. Pivot Pins

Hardened steel, needle bearings reduce friction, reduce wear.

D. Center Toggle

Aluminum bronze guided in body for repeatability to center. Bumper for cushion at full open and noise reduction.



Specifications

Grip Force Close 80 PSI	Grip Force Open 80 PSI	Side Play	Weight	Maximum Operating Pressure
720 lbs.	317 lbs.	±0.001	5.62 lbs.	120 psi

How To Order



Series
1400

Seal Option
1 = Buna-N

GR 1400 1 6 D X

X = Standard

Sensing Position

A = Single Position Open
B = Single Position Closed
C = Two Position Sensing
D = No Sensing

Sensing Kits

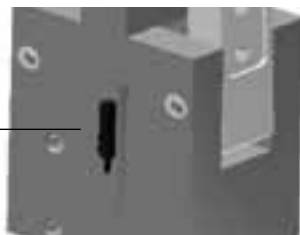
Switch Description	Standard Cord Set Part No.	Quick Disconnect Part No.
Hall Effect - PNP Sourcing	PNP-FL2-00-U	PNP-QDS-M8-U
Hall Effect - NPN Sinking	NPN-FL2-00-U	NPN-QDS-M8-U
Reed Switch	REED-FL2-00	REED-QDS-M8U
90° 5 Meter Cable	N/A	PXC90
Straight 5 Meter Cable	N/A	PXCST

Sensing Type

1 = Hall Effect – PNP (Sourcing)
2 = Hall Effect – NPN (Sinking)
3 = Reed Switch
6 = No Sensing
Quick Disconnect Cord Set
Z = Hall Effect – PNP (Sourcing)
Y = Hall Effect – NPN (Sinking)
X = Reed Switch

GR1400 Series Gripper

Direct Mount
No Bracket Required



Sensor Description	Standard Cord Set	Quick Disconnect
Reed Switch	REED-FL2-00	REED-QDS-M8U
Hall PNP	PNP-FL2-00-U	PNP-QDS-M8-U
Hall NPN	NPN-FL2-00-U	NPN-QDS-M8-U

See online PDF for sensor specifications.



The **FE Series** design uses two double acting cylinders that are cross-ported and internally sequenced for smooth functioning parts regulation. Internal back pressure cross-port design allows both rods to be retracted with the air off to easily clear jammed parts. A four-way two-position valve is required for operation.

A. Body

High strength hardcoat aluminum.

B. Rods

Ground aluminum, hardcoat anodized, PTFE impregnated non-rotating.

C. Retract Stop Adjustments

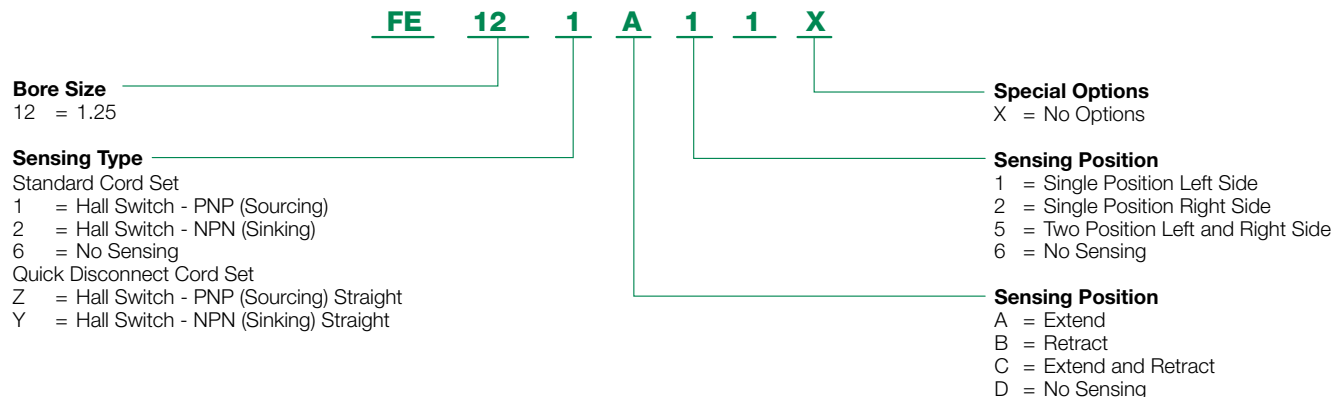
Two adjustment screws allow flexibility to adjust the retract stroke on both rods independently.

D. Bronze Bushings

High side load capabilities, self lubricating, long life.

E. Sensing

Hall effect sensors available to sense extend and retract positions.

**How to Order****When ordering additional switches**

Switch Description	Part No.	Quick Disconnect Part No.
Hall Effect PNP (Sourcing)	CS-20TP	CS-18P-QD
Hall Effect NPN (Sinking)	CS-20TN	CS-20TN-QD

Numatics Motion Control **SC Series** Swing Clamps combine linear and rotary motions. A specially machined spline internal to the piston rod develops the combined motions. When the clamp is extended, a linear movement first happens. This removes the clamp tooling from the clamped surface so it is not damaged. After completing the linear travel, rotation occurs swinging the clamp arm away from the work holding area. When clamping, the opposite motions occur.

A. Body

Hardcoat anodized aluminum, lightweight, durable PTFE impregnated, lubricated, maximizes seal life.

B. Rod Bushing

Large bearing area provides maximum rod support, side load protected.

C. Piston Rod

Hardened electroless nickel plated, corrosion resistant, durable low wearing surface.

D. Clamp Arm

Taper mounted convenient arm adjustment, 360 degree adjustment.

E. Mounting Surface

Convenient location precision machined to accept standard industrial fasteners.



How to Order

SC	025	A	1	6	D	X	
Bore Size		Arm Rotation		Clamp Arm		Special Options	
025 = 25 mm		A = CW		1 = Single		X = No Options	
032 = 32 mm		B = CCW		2* = Double		Sensing Position	
040 = 40 mm						A = Clamp	
050 = 50 mm						B = Unclamp	
063 = 63 mm						C = Clamp and Unclamp	
						D = No Sensing	
						E = Magnetic Piston - No Sensing	
						Sensing Type	
						Standard Cord Set	
						1 = Hall Effect - PNP (Sourcing)	
						2 = Hall Effect - NPN (Sinking)	
						3 = Reed Switch	
						6 = No Sensing	
						Quick Disconnect Cord Set	
						Z = Hall Effect - PNP (Sourcing)	
						Y = Hall Effect - NPN (Sinking)	
						X = Reed Switch	

*Not available on SC025.

Sensing Kits

Standard Cord Set Switch	Part No.
Hall Effect PNP (Sourcing)	PNP-FL2-00-U
Hall Effect NPN (Sinking)	NPN-FL2-00-U
Reed Switch	REED-FL2-00S

Quick Disconnect Cord Set	Part No.
Hall Effect PNP (Sourcing)	PNP-QDS-M8-U
Hall Effect NPN (Sinking)	NPN-QDS-M8-U
Reed Switch	REED-QDS-M8S
90° 5 meter cable	PXC90
Straight 5 meter cable	PXCST

See online PDF.

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World Class Supplier of Pneumatic Components



BHL Industrial S.A de C.V

**Misión san Jorge 109, Misión de Huinala
Apodaca Nuevo León
CP: 66646**

Tel: +52 (81) 968-0031 y 9688-0032

bhl@bhl.mx