

NUMATICS[®] **EXPRESS** SHIPPING PROGRAM

Air-Oil Systems, Inc. www.airoil.com

A Series - NFPA Interchangeable
M Series - Round Body



www.numatics.com


EMERSON
Industrial Automation



Numatics Express 2Day cylinder shipping program guarantees product shipment in two business days. The program includes both the A Series NFPA Interchangeable Line and the M Series Round Body Air Cylinder Line.

Unlike most traditional quick ship programs, the Numatics 2Day Cylinder Shipping Program includes the most comprehensive offering in the industry. This program encompasses the range and options that you require!

The A Series 2Day Program includes:

- 7 bore sizes (1-1/2" - 6")
- Strokes up to 24" (with 1/16" increments)
- 14 different mounting types
- Flexible port and cushion location
- The most popular options
 - high temperature seals
 - low breakaway seals
 - rod extension
 - thread extension



The M Series 2Day Program includes:

- 12 bore sizes (5/16" - 3")
- Strokes up to maximum standards (with 1/16" increments) per type
- 23 different mounting styles/types
- The most desirable options
 - high temperature seals
 - bumpers
 - magnetic strip on the piston for position feedback
 - rod extension
 - thread extension



Numatics guarantees[†] to ship any order received **before 3 PM EST for up to 10 of the same cylinders** ordered from this catalog in two business days or Numatics pays the shipping cost. Saturdays, Sundays, and Holidays are excluded. For example, orders received before 3 PM EST on Monday will be guaranteed to ship on Wednesday. Numatics Express orders cannot be cancelled or adjusted once entered.



- Guaranteed to ship in 2Days
- All cylinders 100% tested
- No premiums applied to program
- Cylinder switches and mounting accessories available to ship with cylinders

We are committed to providing you with an unmatched level of customer service, quality, and reliability. If you cannot locate the specific product for your application or need additional product specifications, visit www.numatics.com or call 888-686-2842.

[†]As industry requirements change, Numatics reserves the right to modify the contents of this catalog and program without notification. Updates on this program can be obtained from the Numatics website www.numatics.com or by calling 888-686-2842, or by contacting your local Numatics representative or distributor and referencing the Numatics Express program.

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A Series NFPA Interchangeable



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 Teflon® 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 Teflon® 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 Teflon® 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.

Teflon® is a registered trademark of DuPont™.

Standard Specifications:

- Meets NFPA specifications
- Bore sizes from 1-1/2" through 6"
(8" 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

For detailed dimensional cylinder information and technical specifications, please visit www.numatics.com



2DAY How to Order

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

Mount

- F1 = Front Flange
- F2 = Rear Flange
- P1 = Fixed Clevis
- P2 = Detachable Clevis
- P3 = Fixed Eye
- P4 = Detachable Eye
- S1 = Angle Mount
- S2 = Side Lug Mount
- S4 = Bottom Tap
- 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"

Full Inches of Stroke

- 00 = 0" Stroke
- 01 = 1" Stroke
- 02 = 2" Stroke
- 03 = 3" Stroke
- 24" 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

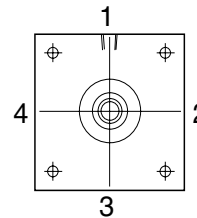
- AA = No Options
- LB = Low Breakaway Seals
- VA = Viton Seals
- 1A* = Rod Extension
- 2A* = Thread Extension
- 12* = Rod and Thread Extension
- 3A = Studded Rod End
- * Specify length.

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

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.

For detailed dimensional cylinder information and technical specifications, please visit www.numatics.com



M Series Round Line



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 to 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

Delrin® is a registered trade mark of Dupont. For detailed information regarding the properties of Delrin, please call 1-800-441-0573.

For detailed dimensional cylinder information and technical specifications, please visit www.numatics.com



2DAY 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

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 RT 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 = Viton Seals
- 03 = Magnet**
- 04 = Bumpers with Magnet*
- 05 = Pivot Bushing***
- 06 = Pivot Bushing with Bumpers*
- 07 = Pivot Bushing with Viton 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 Viton® 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 Viton® 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 on next page for more information. (N/A on DG1 and DG2 types).

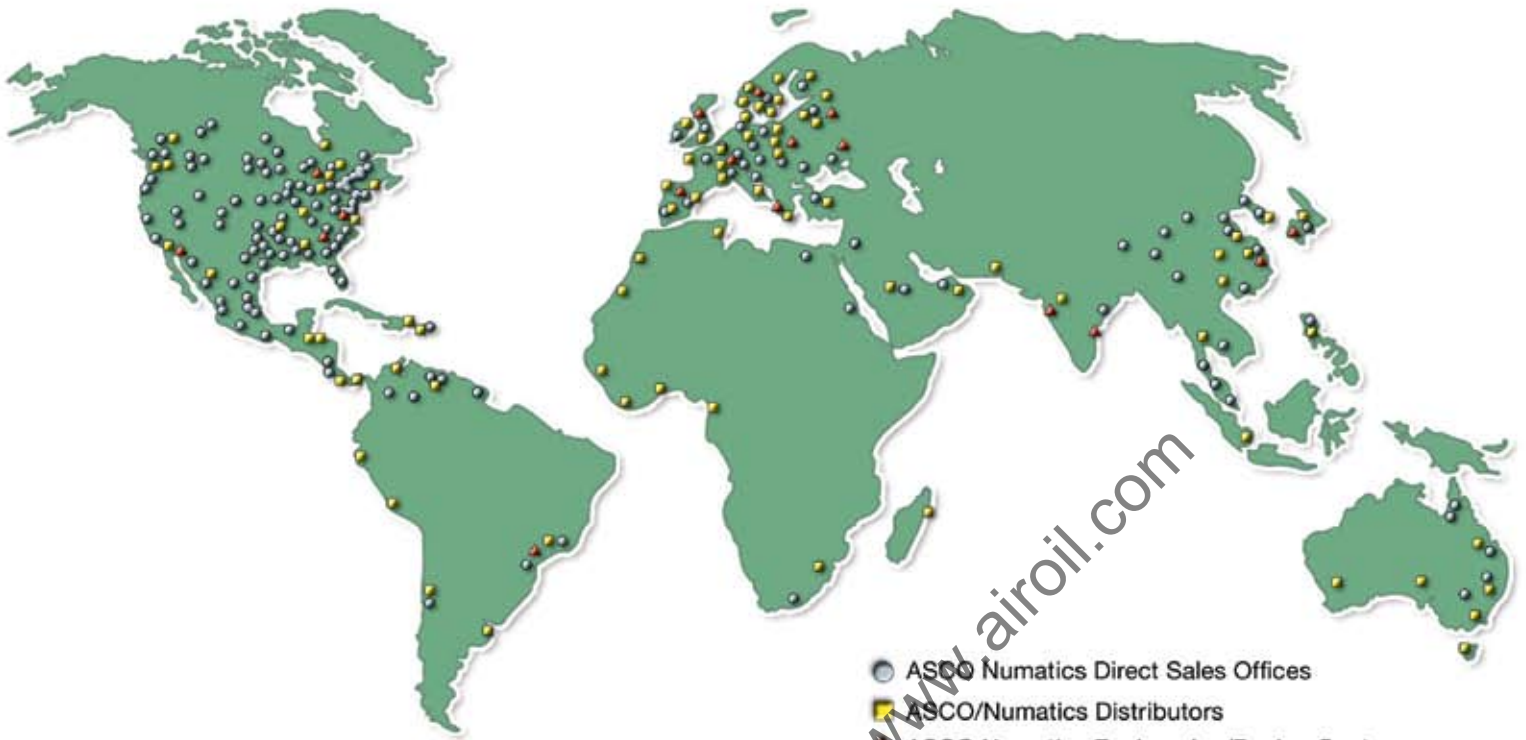
** Magnet available on 9/16" Bore. See length adder charts on next page for more information.

*** Pivot Bushing standard on 5/16", 9/16", 2", 2-21/2", and 3" bore sizes. Optional on all other Rear Pivot cylinders.

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

For detailed dimensional cylinder information and technical specifications, please visit www.numatics.com

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