

How to Order

NC **D** A1 **B** **500** - **04** **00** - **XB5**

Built in magnet ●

Nil	None
D	Auto switch capable (magnetic option)

Bore size ●

500	5"
600	6"
800	8"

Option ●

Nil	No option
XB5	Oversized rod
XB6	High temperature
XB7	Low temperature
XC3	Rotated ports *
XC6	Stainless steel piston rod
XC35	With coil scraper

Mounting style ●

B	MX0	Basic style
BA	MX1	Tie rod extended - both ends
BB	MX2	Tie rod extended - head end
BC	MX3	Tie rod extended - rod cover end
F *	MF1	Rod side rectangular flange
G *	MF2	Head side rectangular flange
L	MS1	Foot style
S	MS2	Side lug style
R	MS4	Side tapped style
X	MP1	Double head clevis style
D	MP2	Double detachable head side clevis style

Standard stroke ●

Inches

Stroke ●

Hundredths of an inch

Air Cushion ●

Nil	Both ends
N	None
H	Head end
R	Rod end

Notes:

- Low temperature option does not include air cushions. When using this option, specify "N" in part number for air cushion.
- Auto switch capable not available with options XB6 & XB7
- High temperature option for bore 6" and 8" does not include air cushions. When using this option, specify "N" in part number for air cushion.
- External cushioning recommended for cylinder without standard air cushioning.
(Refer to kinetic energy absorption warning)
- Limit of two X-options per standard model. XB6 and XB7 can not be combined.

* Refer to page 11 for order details.

* Not available on 8" bore

Auto switches

Type	Special function	Indicator light	Wiring (output)	Load voltage		Auto switch model	Lead wire length (m)				Pre-wired Connector	Applicable load
				DC	AC		0.5 (Nil)	1 (M)	3 (L)	5 (Z)		
Solid state switch	Diagnostic indication (2-color indication)	Yes	3 wire (NPN)	24 V	5 V	M9N	●	●	●	○	○	IC circuit
			3 wire (PNP)	-	12 V	M9P	●	●	●	○	○	
			2 Wire	12 V	-	M9B	●	●	●	○	○	
			3 wire (NPN)	5 V	12 V	M9NW	●	●	●	○	○	IC circuit
	Water Resistant (2-color indication)	Yes	3 wire (PNP)	24 V	12 V	M9PW	●	●	●	○	○	
			2 Wire	12 V	-	M9BW	●	●	●	○	○	-
			3 wire (NPN)	5 V	12 V	M9NA	○	○	●	○	○	IC circuit
			3 wire (PNP)	12 V	-	M9PA	○	○	●	○	○	
Reed switch	-	Yes	3 Wire (NPN equivalent)	-	5 V	A96	●	-	●	-	-	IC circuit
		No	2 Wire	24 V	12 V	A93	●	-	●	-	-	-
		Yes	2 Wire	24 V	5 V or less	A90	●	-	●	-	-	IC circuit

* With pre-wired connector is available for solid state autoswitches. For details, refer to Best Pneumatics No. 2

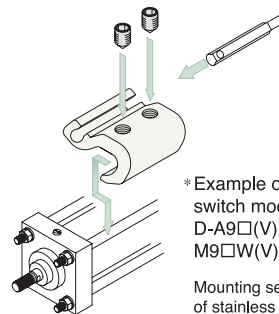
Operating Range

Auto switch model	Bore size		
	Ø5	Ø6	Ø8
D-A9□/A9□V	12	12.5	11.5
D-M9□/M9□V	6	6.5	6.5
D-M9□W/M9□WV			
D-M9□AL/M9□AVL			

* Since this is a guideline including hysteresis, it is not meant to be guaranteed. (Assuming approximately ±30% dispersion.) In some cases it may vary substantially depending on the ambient environment.

Switch Mounting Bracket Part No.

Auto switch model	Bore size (in)		
	Ø5	Ø6	Ø8
D-A9□/A9□V	BS5-125	BS5-125	BS5-160
D-M9□/M9□V			
D-M9□W/M9□WV			
D-M9□AL/M9□AVL			



* Example of mounting switch models:
D-A9□(V), M9□(V),
M9□W(V), M9□A(V)L
Mounting set screws made
of stainless steel

Series NCA1 Cylinder

Large Bore

Specifications

Type	Double acting, single rod
Fluid	Air
Lubrication	Non-lube
Minimum operating pressure	8 psi (0.06 Mpa)
Maximum operating pressure	250 psi (1.75 Mpa)
Ambient and Fluid Temperature	40 - 140°F (5 - 60°C)
Piston speed	2 ~ 20 in/sec (50 ~ 500mm/sec)
Cushion	Standard, both ends
Maximum stroke	36 in
Industry specification	ANSI/(NFPA) T3.6.7 R3

Kinetic Energy Absorbed

Bore size	Effective Cushion Length (in)	Absorbable Kinetic Energy (ft-lb)
Ø5"	0.85	23.49
Ø6"	1.06	38.48
Ø8"	1.03	65.25

⚠ Warning

A deceleration circuit or shock absorber may be required. When a driven object is operated at high speed or the load is heavy, a cylinder's cushion will not be sufficient to absorb the shock. Install a deceleration circuit to reduce the speed before cushioning, or install an external shock absorber to relieve the shock. In this case, the rigidity of the machinery should also be examined.

Weight / Aluminum Tube

Bore Size (inch)		500 (5")	600 (6")	800 (8")
Basic weight	B/R - basic type (MX0/MS4)	13.41	21.38	36.57
	BA/BB - Tie rod extended - either end (MX1/MX2)	13.65	21.63	37.25
	BC - Tie rod extended - both ends (MX3)	13.89	21.86	37.75
	F/G - Flange Mounting (MF1/MF2)	19.63	31.57	N/A
	L - Foot mounting (MS1)	16.66	25.55	41.64
	S - Side lug (MS2)	15.41	23.76	40.21
	X - Clevis mounting (MP1)	18.05	30.65	52.74
	D - Double detachable head side clevis	18.73	29.58	54.73
	Additional weight for magnet (NCDA1)	0.04	0.05	0.06
	Additional weight for oversize rod (XB5)	0.91	1.54	1.57
Additional weight per 2" stroke	Standard piston rod	1.22	1.61	2.30
	Oversize piston rod (XB5)	1.61	2.13	2.81

Calculation example: NCDA1B500-0600-XB5 (Basic mount, auto switch capable, Ø5" bore, 6" stroke, oversized rod)

basic weight	13.41lb + 0.91 lb	=	14.32 lb
add auto switch magnet	0.036 lb	=	0.04 lb
additional weight based on stroke	1.61 lb (6"/2")	=	4.84 lb
			19.20 lb

Cylinder Bores and Forces: Push Stroke (Extend)



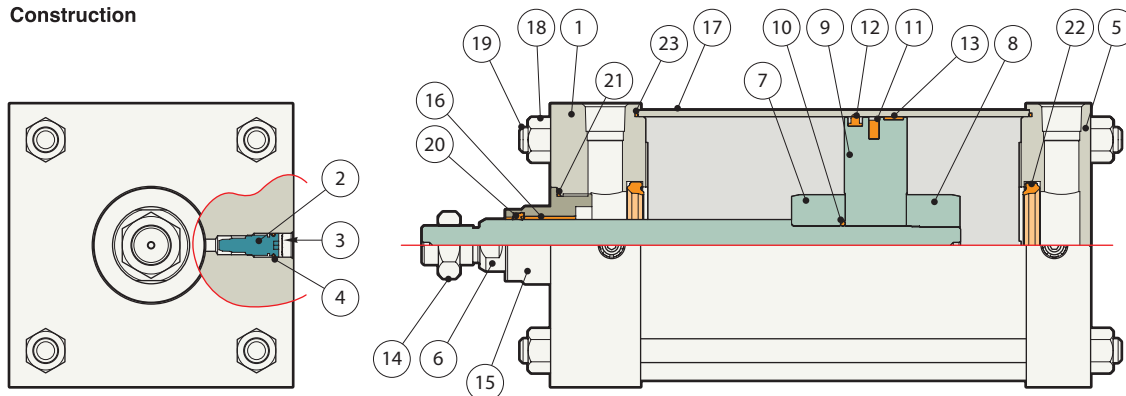
Operating Pressure (psi)		50	60	80	100	200	250
Bore Size	Piston Area	Force output (lbs)					
5"	19.63	982	1178	1571	1963	3927	4909
6"	28.27	1414	1696	2262	2827	5655	7069
8"	50.27	2513	3016	4021	5027	10053	12566

Cylinder Bores and Forces: Pull Stroke (Retract)



Operating Pressure (psi)		50	60	80	100	200	250
Bore Size	Piston Area	Force output (lbs)					
5"	18.85	942	1131	1508	1885	3770	4712
5" XB5	18.15	908	1089	1452	1815	3630	4538
6"	26.79	1339	1607	2143	2679	5358	6697
6" XB5	25.87	1293	1552	2070	2587	5174	6467
8"	48.78	2439	2927	3902	4878	9756	12195
8" XB5	47.86	2393	2872	3829	4786	9572	11965

Construction



How to Order Seal Kits

NCA **500** - PS -

Bore	Special options	
500	Nil	Standard
600	XB5	Oversized rod
800	XB6	High temperature
	XB7	Low temperature
	XB5B6	Oversized W/ high temperature
	XB5B7	Oversized W/ low temperature

Seal kits include the following parts:

1 - Rod seal	2 - Cushion valve seal
1 - Piston seal	2 - Grease pack
1 - Gland seal	1 - Loctite 243
2 - Cylinder tube gasket	

* Cushion seal is not included for XB6, XB5B6, XB7, and XB5B7 over ø5" bore

How to Order Cylinder Tube - Double Acting, Single Rod

NCA **500** - 04 - **0400**

Bore	Stroke
500	(In inches and hundredths)
600	
800	

How to Order Gland Kits

NCA **500** - RG -

Bore	Special options	Gland kits Include:
500	Nil	Standard
600	XB5	Oversized rod
800	XC35	Coil scraper
	XB5C35	Oversized W/ Coil scraper

How to Order Piston Rod Assembly - Double Acting, Single Rod

Magnet	Bore	Stroke	Special options	
NC	D	A	500	- 26A - 0400
Nil - Non-Magnet	500	(In inches and hundredths)	Nil	Standard
D - With Magnet	600		XB5	Oversized rod
	800		XB6	High temperature
			XB7	Low temperature
			XB5B6	Oversized W/ high temperature
			XB5B7	Oversized W/ low temperature
			XC3	Stainless steel piston rod

Component parts

Component	Material	Qty.	Note
1	Rod cover	Aluminum alloy	1
2	Cushion valve	Rolled steel	2
3	Snap ring	Spring steel	2
4	Cushion valve seal	NBR	2
5	Head cover	Aluminum alloy	1
6	Piston rod	Carbon steel	1
7	Cushion A	Aluminum alloy	1
8	Cushion B	Aluminum alloy	1
9	Piston	Aluminum alloy	1
10	Piston gasket	NBR	1
11	Magnet	-	(1)
12	Piston seal	NBR	1
13	Wear ring	Resin	1
14	Jam nut	Rolled steel	1
15	Gland	Aluminum alloy	1
16	Bushing	Composite	1
17	Cylinder tube	Aluminum alloy	1
18	Tie rod nut	Rolled steel	8
19	Tie rod	Carbon steel	4
20	Rod seal	NBR	1
21	Gland seal	NBR	1
22	Cushion seal	Urethane	2
23	Cylinder tube gasket	NBR	2

How to Order Tie Rods - Double Acting, Single Rod

NCA	B	500 - 11 - 0400	
	Mounting	Bore	Stroke
B	L	500	(In inches and hundredths)
BA	S	600	
BB	R	800	
BC	X		
F	D		
G			

Note: Tie rod length varies by mounting style.
Quantity one set (4 pcs) of tie rods by mounting

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