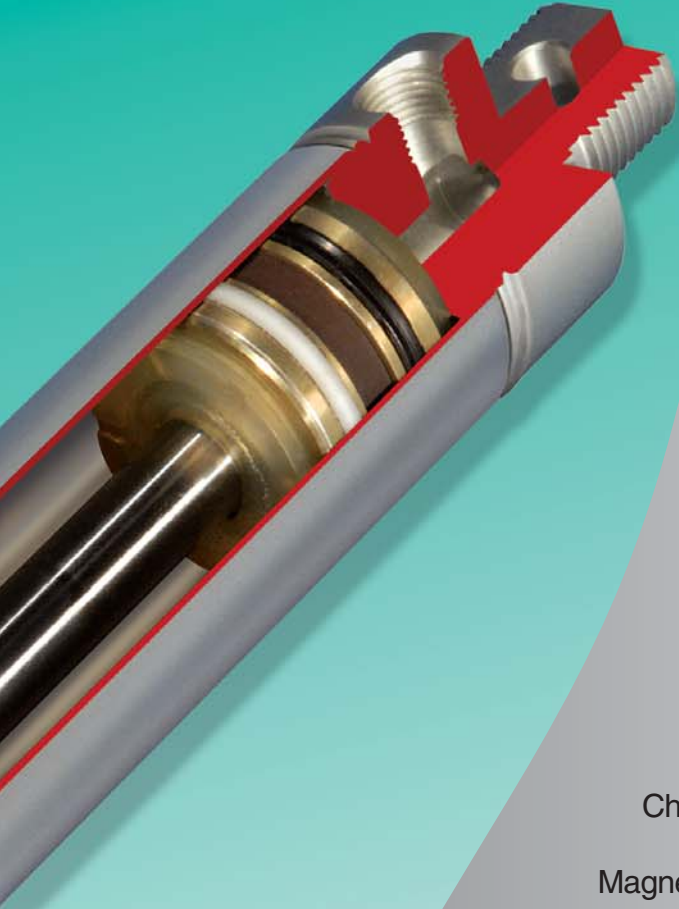




Air Cylinder Series NCM



Now available in 8 different bore sizes, 7/16" to 2".

5 Actuation options available:

- Double Acting, Single Rod
- Double Acting, Double Rod
- Non-rotating Rod
- Single Acting, Spring Return
- Single Acting, Spring Extend

A wide variety of mounting configurations:

- Front Nose Mount
- Rear Pivot Mount
- Double End Mount
- Block Mount
- Foot Mount (optional brackets)

Chrome plated carbon steel piston rod improves corrosion resistance. Stainless steel 304 is available for further protection.

Available bumper for increased kinetic energy absorption, increased life cycles, and decreased noise.

Piston is crimped to rod to achieve tighter clearances and reduce piston rod deflection.

Chromated aluminum piston improves corrosion resistance.

Magnetic actuated limit switches are available as a standard option.

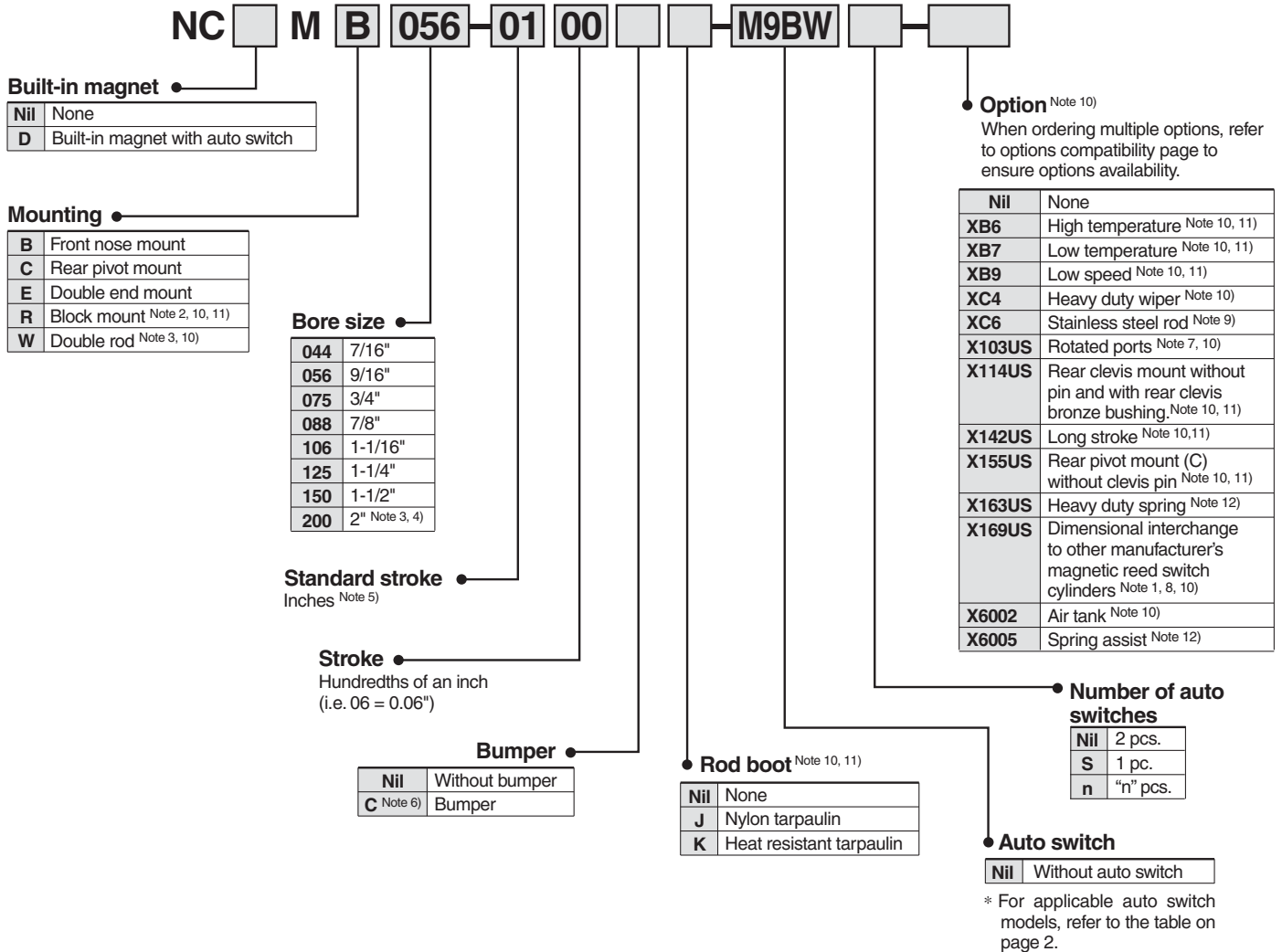
Seal, wear ring, and polished stainless steel tube work together to absorb side load and decrease overall friction, ensuring long lasting service life. (Wear ring used on 3/4" bore and larger.)



Pre-lubricated at the factory means that the NCM does not require a lubricated air system.

Air Cylinder: Standard Double Acting, Single/Double Rod Series *NCM*

How to Order



- Note 1) $\phi 3/4"$, $\phi 1-1/16"$, $\phi 1-1/2"$ and $\phi 2"$ only.
 Note 2) Not offered in $\phi 7/8"$, $\phi 1-1/4"$, or with rod boot.
 Note 3) Double acting only.
 Note 4) Not available as standard with C, R mount, with rod boot.
 Note 5) See specifications for standard and maximum stroke lengths.
 Note 6) Bumper is offered at no additional cost on $\phi 7/8"$ and $\phi 1-1/4"$. They are options on the other bore sizes. The "C" after the bore size must be included in either case. Bumper affects cylinder overall length of some models. Refer to the dimensional data.
 Note 7) Available only with B or C mounting. Not available on 2" bore.
 Note 8) Not available with $\phi 7/8"$ bore, or with C, R mount, or non-rotating rod (K).
 Note 9) Stainless steel rod standard on $\phi 7/16"$, $\phi 9/16"$, $\phi 3/4"$ and $\phi 7/8"$.
 Note 10) Exclude $\phi 7/16"$ and $\phi 9/16"$.
 Note 11) Exclude $\phi 2"$.
 Note 12) $\phi 3/4"$, $\phi 1-1/16"$ and $\phi 1-1/2"$ only.

Auto Switch Specifications

Applicable Auto Switches

| Type | Special function | Electrical entry | 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) | None (N) | | | | | | | | | |
| Solid state switch | — | Grommet | Yes | 3-wire (NPN) | 5 V, 12 V | — | M9N | ● | ● | ● | ○ | — | ○ | Relay, PLC | | | | | | | |
| | | | | 3-wire (PNP) | | | | ● | ● | ● | ○ | — | ○ | | | | | | | | |
| | | Connector | 2-wire | 12 V | ● | ● | ● | ○ | — | ○ | — | | | | | | | | | | |
| | Diagnostic indication (2-color indication) | Grommet | | Yes | 3-wire (NPN) | 24 V | 5 V, 12 V | — | M9NW | ● | ● | ● | ○ | — | ○ | IC circuit | | | | | |
| | | | 3-wire (PNP) | | ● | | | | | ● | ● | ○ | — | ○ | | | | | | | |
| | | | 2-wire | | 12 V | | | | | ● | ● | ● | ○ | — | ○ | | — | | | | |
| | | | Water resistant (2-color indication) | | 4-wire (NPN) | | | | | 5 V, 12 V | H7BA | — | — | ● | ○ | | — | ○ | — | | |
| | With diagnostic output (2-color indication) | H7NF | ● | — | | ● | ○ | — | ○ | | | IC circuit | | | | | | | | | |
| | Reed switch | — | Grommet | Yes | 3-wire (NPN equivalent) | — | 5 V | — | A96 | ● | — | ● | — | — | — | IC circuit | | | | | |
| Connector | | | | | 2-wire | | | | | 24 V | 12 V | 100 V | ● | — | ● | | — | — | — | — | |
| | | | | | | | | | | | | 100 V or less | ● | — | ● | | — | — | — | | IC circuit |
| | | | | | | | | | | | | 100 V, 200 V | ● | — | ● | | ● | — | — | | |
| | | | 200 V or less | ● | | — | ● | — | — | | | — | | | | | | | | | |
| Grommet | | | Yes | None | 2-wire | 24 V | — | — | C73C | ● | — | ● | ● | ● | — | — | | | | | |
| | | | | | | | | | | Connector | 2-wire | 24 V or less | C80C | ● | — | | ● | ● | ● | — | |
| | | | | | | | | | | | | | | Grommet | Yes | | None | 2-wire | — | B59W | ● |
| | Diagnostic indication (2-color indication) | — | | | | | | | | — | — | — | — | | | | | | | | — |

* Lead wire length symbols: 0.5 m Nil (Example) M9NW
 1 m M (Example) M9NWM
 3 m L (Example) M9NWL
 5 m Z (Example) M9NWZ
 None N (Example) H7CN

* Solid state switches marked with "○" are produced upon receipt of order.
 * D-B54, B64, and B59W cannot be mounted for bore size 044 and 056.

* For details about auto switches with pre-wired connector, refer to Best Pneumatics catalog.

* D-A9□, M9□, M9□W are shipped together.
 (Only switch mounting bracket is assembled at the time of shipment.)

* D-M9□M and M9□VM which lead wire length is 1 m are available from July, 2008.

Specifications: Double Acting, Single/Double Rod

Specifications

| Bore size (inch) | 044 (7/16") | 056 (9/16") | 075 (3/4") | 088 (7/8") | 106 (1-1/16") | 125 (1-1/4") | 150 (1-1/2") | 200 (2") |
|-------------------------------|---|-------------|------------|------------|---------------|--------------|--------------|----------|
| Fluid | Air | | | | | | | |
| Maximum operating pressure | 250 PSI / 1.7 MPa | | | | | | | |
| Minimum operating pressure | 8 PSI / 0.06 MPa | | | | | | | |
| Ambient and fluid temperature | 40 to 140°F / 5 to 60 °C | | | | | | | |
| Piston speed | No bumper: 2 to 20 in/sec (50 to 500 mm/sec) Bumper: 2 to 30 in/sec (50 to 750 mm/sec) | | | | | | | |
| Bumper | Optional (No additional charge on 7/8" and 1-1/4" bore) | | | | | | | |
| Lubrication | Not required (Pre-lubricated at factory) | | | | | | | |
| Mounting | B, C, E, R (see Note) | | | | | | | |

Note) R mount available on ø3/4", ø1-1/16", and ø1-1/2" only.

Standard Stroke

(inch)

| Mounting | Standard stroke | Max. stroke as standard ^{Note 2)} | Long stroke -X142US ^{Note 3)} |
|------------------------------------|-----------------------|--|--|
| Front nose mount (B) | 1/2, 1, 2, 3, 4, 5, 6 | 12 | 40 |
| Rear pivot mount (C) | 1/2, 1, 2, 3, 4, 5, 6 | 32 | 40 |
| Double end mount (E) | 1/2, 1, 2, 3, 4, 5, 6 | 32 | |
| Block mount (R) ^{Note 3)} | 1/2, 1, 2, 3, 4, 5, 6 | 12 | 40 |
| Double rod (W) ^{Note 3)} | 1/2, 1, 2, 3, 4, 5, 6 | 12 | 20 |

Note 1) Minimum stroke for mounting auto switches: 0.6 inch for 2 switches, 0.4 inch for one switch.

Note 2) The production maximum stroke of ø7/16" and ø9/16" are up to 12 inches.

Note 3) Exclude ø7/16" and ø9/16".

Weight (Except Non-rotating Rod)

(lbs)

| Bore size (inch) | Base weight by mounting style | | | | | Add'l weight per inch stroke | | Add'l weight for magnet | Add'l weight for bumper |
|------------------|-------------------------------|-------|-------|-------|-------|------------------------------|-------|-------------------------|-------------------------|
| | B | C | E | R | W | B, C, E, R | W | | |
| 044 (7/16") | 0.059 | 0.076 | 0.076 | N/A | N/A | 0.019 | N/A | 0.008 | 0.002 |
| 056 (9/16") | 0.080 | 0.091 | 0.091 | N/A | N/A | 0.026 | N/A | 0.008 | 0.004 |
| 075 (3/4") | 0.200 | 0.200 | 0.280 | 0.210 | 0.300 | 0.034 | 0.048 | 0.008 | 0.012 |
| 088 (7/8") | 0.218 | 0.198 | 0.288 | N/A | 0.308 | 0.037 | 0.051 | 0.010 | 0.012 |
| 106 (1-1/16") | 0.330 | 0.320 | 0.410 | 0.430 | 0.400 | 0.050 | 0.071 | 0.012 | 0.011 |
| 125 (1-1/4") | 0.531 | 0.581 | 0.681 | N/A | 0.781 | 0.079 | 0.121 | 0.020 | 0.029 |
| 150 (1-1/2") | 0.680 | 0.710 | 0.820 | 1.020 | 0.930 | 0.087 | 0.128 | 0.024 | 0.020 |
| 200 (2") | 1.345 | N/A | 1.493 | N/A | 1.812 | 0.151 | 0.151 | 0.030 | 0.065 |

Theoretical Output: Double Acting Cylinder (Extend)

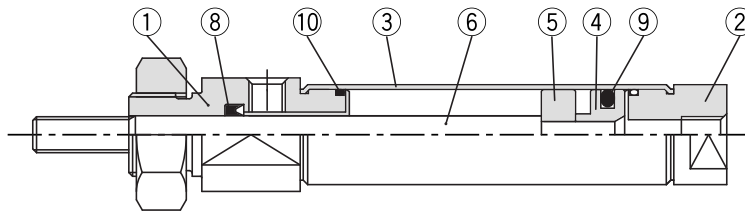
(lbf)

| Bore size (in) | Rod size (in) | Operating direction | Piston area (in ²) | Operating pressure (PSI) | | | | | |
|----------------|---------------|---------------------|--------------------------------|--------------------------|-------|-------|-------|-------|-------|
| | | | | 25 | 50 | 75 | 100 | 125 | 150 |
| 044 (7/16") | 0.197 | OUT | 0.152 | 3.8 | 7.6 | 11.4 | 15.2 | 19 | 22.8 |
| | | IN | 0.122 | 3.0 | 6.1 | 9.1 | 12.2 | 15.2 | 18.2 |
| 056 (9/16") | 0.197 | OUT | 0.246 | 6.2 | 12.3 | 18.5 | 24.6 | 30.8 | 36.9 |
| | | IN | 0.216 | 5.4 | 10.8 | 16.2 | 21.6 | 27 | 32.4 |
| 075 (3/4") | 0.250 | OUT | 0.442 | 11.1 | 22.1 | 33.2 | 44.2 | 55.3 | 66.3 |
| | | IN | 0.393 | 9.8 | 19.7 | 29.5 | 39.3 | 49.1 | 59 |
| 088 (7/8") | 0.250 | OUT | 0.601 | 15 | 30.1 | 45.1 | 60.1 | 75.1 | 90.2 |
| | | IN | 0.552 | 13.8 | 27.6 | 41.4 | 55.2 | 69 | 82.8 |
| 106 (1-1/16") | 0.312 | OUT | 0.887 | 22.2 | 44.4 | 66.5 | 88.7 | 110.9 | 133.1 |
| | | IN | 0.811 | 20.3 | 40.6 | 60.8 | 81.1 | 101.4 | 121.7 |
| 125 (1-1/4") | 0.437 | OUT | 1.227 | 30.7 | 61.4 | 92 | 122.7 | 153.4 | 184.1 |
| | | IN | 1.077 | 26.9 | 53.9 | 80.8 | 107.7 | 134.6 | 161.6 |
| 150 (1-1/2") | 0.437 | OUT | 1.767 | 44.2 | 88.4 | 132.5 | 176.7 | 220.9 | 265.1 |
| | | IN | 1.617 | 40.4 | 80.9 | 121.3 | 161.7 | 202.1 | 242.6 |
| 200 (2") | 0.625 | OUT | 3.14 | 78.5 | 157 | 235.6 | 314 | 392.5 | 471 |
| | | IN | 2.83 | 70.8 | 141.5 | 212.3 | 283 | 353.8 | 424.5 |

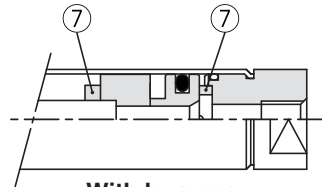
Series NCM

Construction: Double Acting, Single Rod

NCM044/056



NCMB044 shown as example

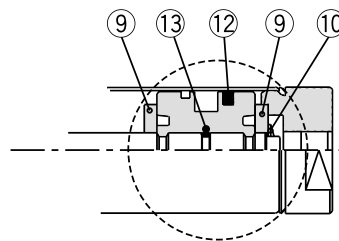
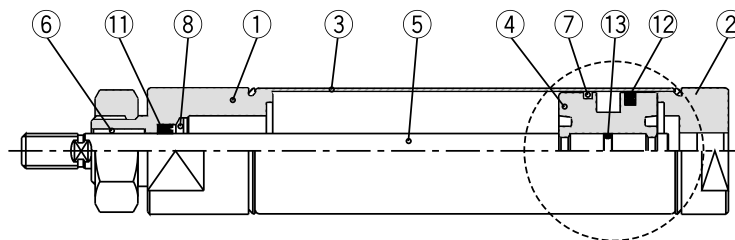


With bumper

Component Parts

| No. | Description | Material | Note |
|-----|---------------|-----------------|-----------------|
| 1 | Rod cover | Aluminum alloy | Anodized |
| 2 | Head cover | Aluminum alloy | Anodized |
| 3 | Cylinder tube | Stainless steel | |
| 4 | Piston A | Aluminum alloy | Chromated |
| 5 | Piston B | Aluminum alloy | Chromated |
| 6 | Piston rod | 7/16", 9/16" | Stainless steel |
| 7 | Bumper | Urethane | |
| 8 | Rod seal | NBR | |
| 9 | Piston seal | NBR | |
| 10 | Tube gasket | NBR | |

NCM075 and above



With bumper

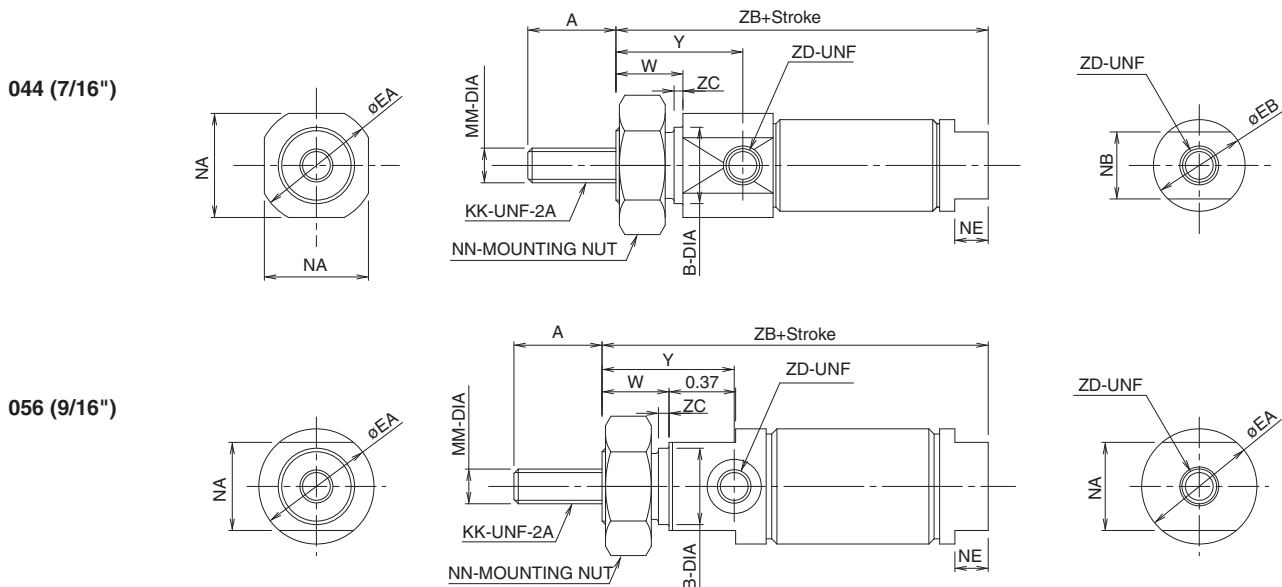
Component Parts

| No. | Description | Material | Note |
|-----|----------------|---|---|
| 1 | Rod cover | Aluminum alloy | Anodized |
| 2 | Head cover | Aluminum alloy | Anodized |
| 3 | Cylinder tube | Stainless steel | |
| 4 | Piston | Aluminum alloy | Chromated |
| 5 | Piston rod | 3/4", 7/8" 1-1/16", 1-1/4", 1-1/2", 2" | Stainless steel Carbon steel Hard chrome plated |
| 6 | Bushing | Sintered bronze | |
| 7 | Wear ring | Phenolic resin | |
| 8 | Retaining ring | Spring steel | |
| 9 | Bumper | Urethane | |
| 10 | Retaining ring | Spring steel | |
| 11 | Rod seal | NBR | |
| 12 | Piston seal | NBR | |
| 13 | Piston gasket | NBR | |

Series NCM

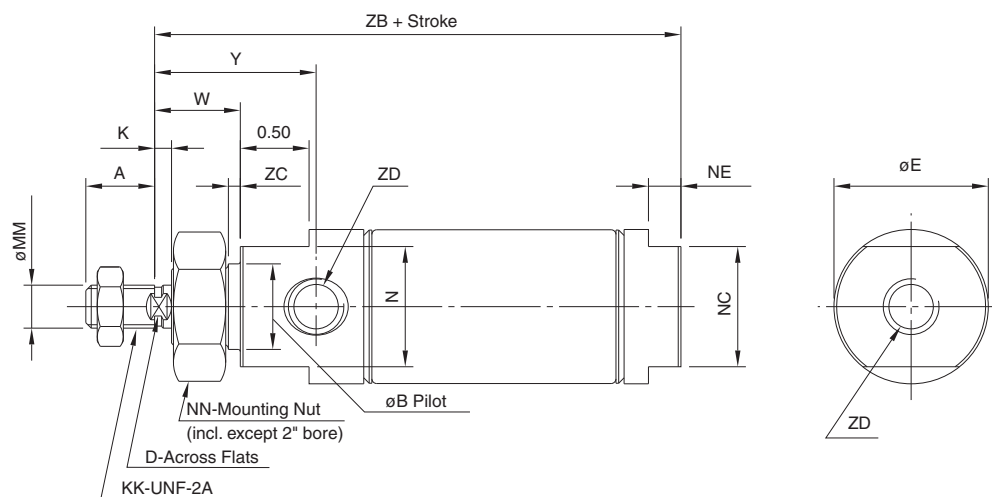
Dimensions: Double Acting, Single Rod

Front nose mount: NC(D)MB



| Bore size (inch) | A | B | EA | EB | KK | MM | NA | NB | NE | NN | W | Y | ZC | ZD | (inch) | | | |
|------------------|------|--------------------------------------|-------|-------|----------|-------|------|------|------|---------|------|------|------|----------|-------------------------|---------------------------|---------------------------|-----------------------------|
| | | | | | | | | | | | | | | | ZB No bumper, No magnet | ZB With bumper, No magnet | ZB No bumper, With magnet | ZB With bumper, With magnet |
| 044 (7/16") | 0.50 | 0.437 ⁰ _{-0.004} | 0.669 | 0.520 | No.10-32 | 0.197 | 0.59 | 0.38 | 0.19 | 7/16-20 | 0.38 | 0.72 | 0.05 | No.10-32 | 2.11 | 2.30 | 2.36 | 2.55 |
| 056 (9/16") | 0.50 | 0.437 ⁰ _{-0.004} | 0.654 | - | No.10-32 | 0.197 | 0.50 | - | 0.19 | 7/16-20 | 0.38 | 0.75 | 0.06 | No.10-32 | 2.19 | 2.32 | 2.19 | 2.32 |

075 (3/4"), 088 (7/8"), 106 (1-1/16"), 125 (1-1/4"), 150 (1-1/2"), 200 (2")



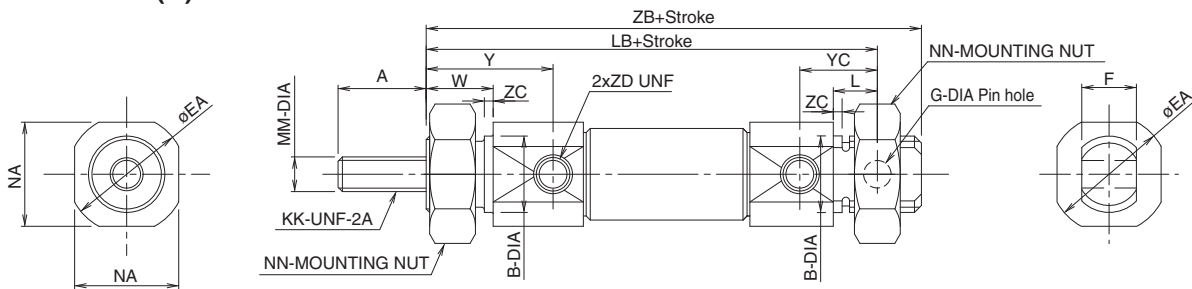
| Bore size (inch) | MM | KK | A | B | D | E | K | N | NC | NE | NN | W | Y | ZC | ZD | (inch) | |
|------------------|-------|---------|------|--------------------------------------|------|------|------|------|------|------|----------|------|------|------|---------|--------------|----------------|
| | | | | | | | | | | | | | | | | ZB No bumper | ZB With bumper |
| 075 (3/4") | 0.250 | 1/4-28 | 0.50 | 0.624 ⁰ _{-0.003} | - | 0.86 | - | 0.75 | 0.62 | 0.12 | 5/8-18 | 0.50 | 0.95 | 0.09 | 1/8 NPT | 2.97 | 2.97 |
| 088 (7/8") | 0.250 | 1/4-28 | 0.50 | 0.624 ⁰ _{-0.003} | - | 0.93 | - | 0.75 | 0.75 | 0.18 | 5/8-18 | 0.50 | 0.95 | 0.09 | 1/8 NPT | 2.69 | 2.94 |
| 106 (1-1/16") | 0.312 | 5/16-24 | 0.50 | 0.624 ⁰ _{-0.003} | 0.25 | 1.12 | 0.12 | 0.88 | 0.88 | 0.24 | 5/8-18 | 0.62 | 1.17 | 0.09 | 1/8 NPT | 3.25 | 3.38 |
| 125 (1-1/4") | 0.437 | 7/16-20 | 0.75 | 0.749 ⁰ _{-0.003} | 0.38 | 1.32 | 0.25 | 1.06 | 1.06 | 0.25 | 3/4-16 | 0.88 | 1.62 | 0.09 | 1/8 NPT | 3.75 | 4.00 |
| 150 (1-1/2") | 0.437 | 7/16-20 | 0.75 | 0.749 ⁰ _{-0.003} | 0.38 | 1.56 | 0.25 | 1.25 | 1.25 | 0.25 | 3/4-16 | 0.88 | 1.50 | 0.09 | 1/8 NPT | 3.69 | 3.82 |
| 200 (2") | 0.625 | 1/2-20 | 0.88 | 1.375 ⁰ _{-0.003} | 0.50 | 2.06 | 0.38 | 1.75 | 1.75 | 0.31 | 1-1/4-12 | 1.19 | 1.91 | 0.12 | 1/4 NPT | 4.69 | 4.95 |

Series NCM

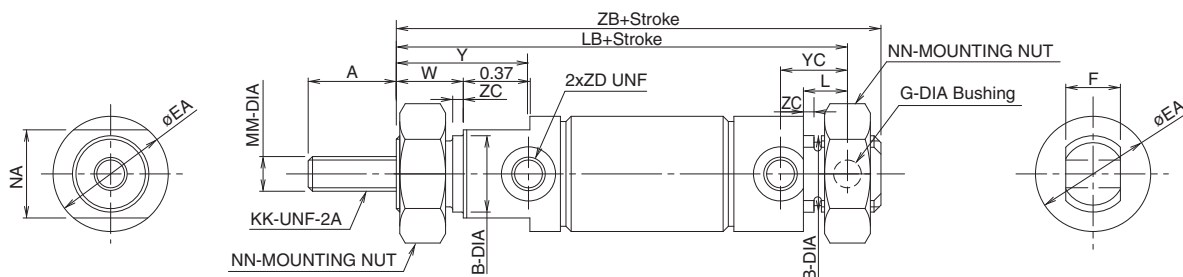
Dimensions: Double Acting, Single Rod

Double end mount: NC(D)ME

044 (7/16")

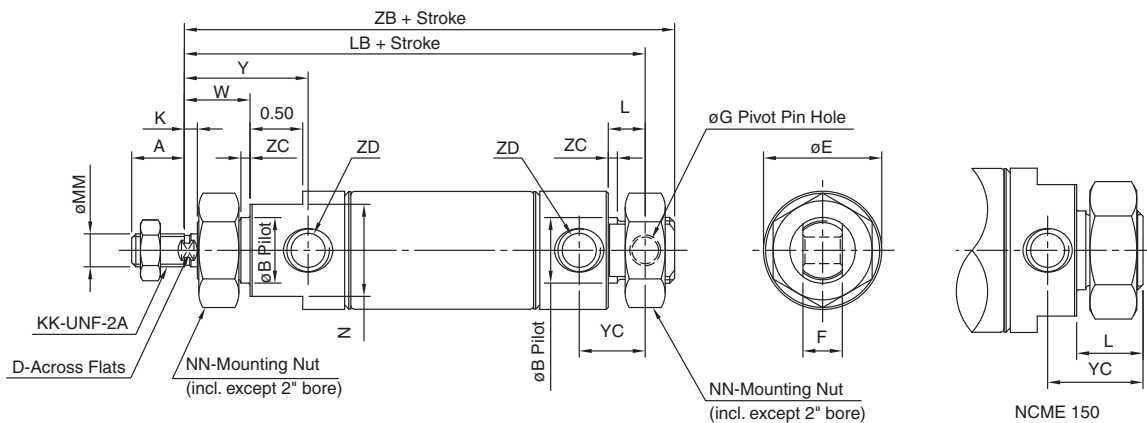


056 (9/16")



| Bore size (inch) | A | B | EA | F | G | KK | L | MM | NA | NN | W | Y | YC | ZC | ZD | (inch) | | | | | | | |
|------------------|------|---|-------|------|-------|----------|------|-------|------|---------|------|------|------|------|----------|-------------------------|---------------------------|---------------------------|-----------------------------|-------------------------|---------------------------|---------------------------|-----------------------------|
| | | | | | | | | | | | | | | | | LB No bumper, No magnet | LB With bumper, No magnet | LB No bumper, With magnet | LB With bumper, With magnet | ZB No bumper, No magnet | ZB With bumper, No magnet | ZB No bumper, With magnet | ZB With bumper, With magnet |
| 044 (7/16") | 0.50 | 0.437 ^{+0.004} _{-0.004} | 0.669 | 0.31 | 0.156 | No.10-32 | 0.25 | 0.197 | 0.59 | 7/16-20 | 0.38 | 0.72 | 0.44 | 0.05 | No.10-32 | 2.56 | 2.75 | 2.81 | 3.00 | 2.81 | 3.00 | 3.06 | 3.24 |
| 056 (9/16") | 0.50 | 0.437 ^{+0.004} _{-0.004} | 0.654 | 0.31 | 0.157 | No.10-32 | 0.25 | 0.197 | 0.50 | 7/16-20 | 0.38 | 0.75 | 0.38 | 0.06 | No.10-32 | 2.56 | 2.69 | 2.56 | 2.69 | 2.75 | 2.88 | 2.75 | 2.88 |

075 (3/4"), 088 (7/8"), 106 (1-1/16"), 125 (1-1/4"), 150 (1-1/2"), 200 (2")



| Bore size (inch) | No bumper | | With bumper | |
|------------------|-----------|------|-------------|------|
| | LB | ZB | LB | ZB |
| 075 (3/4") | 3.75 | 4.03 | 3.75 | 4.03 |
| 088 (7/8") | 3.31 | 3.59 | 3.56 | 3.84 |
| 106 (1-1/16") | 3.84 | 4.12 | 3.97 | 4.25 |
| 125 (1-1/4") | 4.47 | 4.87 | 4.72 | 5.12 |
| 150 (1-1/2") | - | 4.5 | - | 4.63 |
| 200 (2") | 5.62 | 6.06 | 5.88 | 6.32 |

| Bore size (inch) | MM | KK | A | B | D | E | F | G | K | L | N | NN | W | Y | YC | ZC | ZD |
|------------------|-------|---------|------|---|------|------|------|-------|------|------|------|----------|------|------|------|------|---------|
| | | | | | | | | | | | | | | | | | |
| 075 (3/4") | 0.250 | 1/4-28 | 0.50 | 0.624 ^{+0.003} _{-0.003} | - | 0.86 | 0.38 | 0.251 | - | 0.34 | 0.75 | 5/8-18 | 0.50 | 0.95 | 0.62 | 0.09 | 1/8 NPT |
| 088 (7/8") | 0.250 | 1/4-28 | 0.50 | 0.624 ^{+0.003} _{-0.003} | - | 0.93 | 0.38 | 0.251 | - | 0.34 | 0.75 | 5/8-18 | 0.50 | 0.95 | 0.62 | 0.09 | 1/8 NPT |
| 106 (1-1/16") | 0.312 | 5/16-24 | 0.50 | 0.624 ^{+0.003} _{-0.003} | 0.25 | 1.12 | 0.38 | 0.251 | 0.12 | 0.34 | 0.88 | 5/8-18 | 0.62 | 1.17 | 0.62 | 0.09 | 1/8 NPT |
| 125 (1-1/4") | 0.437 | 7/16-20 | 0.75 | 0.749 ^{+0.003} _{-0.003} | 0.38 | 1.32 | 0.50 | 0.251 | 0.25 | 0.41 | 1.06 | 3/4-16 | 0.88 | 1.62 | 0.78 | 0.09 | 1/8 NPT |
| 150 (1-1/2") | 0.437 | 7/16-20 | 0.75 | 0.749 ^{+0.003} _{-0.003} | 0.38 | 1.56 | - | - | 0.25 | 0.63 | 1.25 | 3/4-16 | 0.88 | 1.50 | 0.91 | 0.09 | 1/8 NPT |
| 200 (2") | 0.625 | 1/2-20 | 0.88 | 1.375 ^{+0.003} _{-0.003} | 0.50 | 2.06 | 0.75 | 0.375 | 0.38 | 0.56 | 1.75 | 1-1/4-12 | 1.19 | 1.91 | 1.03 | 0.12 | 1/4 NPT |