



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

NC **M** **B** **056** **01** **00** **M9BW**

Built-in magnet

Nil	None
D	Built-in magnet with auto switch

Mounting

B	Front nose mount
C	Rear pivot mount
E	Double end mount
R	Block mount Note 2, 10, 11
W	Double rod Note 3, 10

Bore size

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" Note 3, 4

Standard stroke
Inches Note 5

Stroke
Hundredths of an inch
(i.e. 06 = 0.06")

Bumper

Nil	Without bumper
C Note 6	Bumper

Rod boot Note 10, 11

Nil	None
J	Nylon tarpaulin
K	Heat resistant tarpaulin

Option Note 10
When ordering multiple options, refer to options compatibility page to ensure options availability.

Nil	None
XB6	High temperature Note 10, 11
XB7	Low temperature Note 10, 11
XB9	Low speed Note 10, 11
XC4	Heavy duty wiper Note 10
XC6	Stainless steel rod Note 9
X103US	Rotated ports Note 7, 10
X114US	Rear clevis mount without pin and with rear clevis bronze bushing. Note 10, 11
X142US	Long stroke Note 10, 11
X155US	Rear pivot mount (C) without clevis pin Note 10, 11
X163US	Heavy duty spring Note 12
X169US	Dimensional interchange to other manufacturer's magnetic reed switch cylinders Note 1, 8, 10
X6002	Air tank Note 10
X6005	Spring assist Note 12

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch
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* For applicable auto switch models, refer to the table on page 2.

- 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	●	●	●	○	—	○	IC circuit	Relay, PLC	
				3-wire (PNP)				M9P	●	●	●	○	—			○
		Connector		2-wire	12 V		M9B	●	●	●	○	—	○	—		
							H7C	●	—	●	●	●	—			
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	24 V		M9NW	●	●	●	○	—	○	IC circuit		
				3-wire (PNP)	5 V, 12 V		M9PW	●	●	●	○	—	○			
				2-wire	12 V		M9BW	●	●	●	○	—	○	—		
				Water resistant (2-color indication)					H7BA	—	—	●	○	—		○
	With diagnostic output (2-color indication)			4-wire (NPN)	5 V, 12 V		H7NF	●	—	●	○	—	○	IC circuit		
	Reed switch	—		Grommet	Yes		3-wire (NPN equivalent)	—	5 V	—	A96	●	—	●		—
2-wire		24 V	12 V			100 V	A93	●	—	●	—	—	—	—	—	Relay, PLC
						100 V or less	A90	●	—	●	—	—	—			
						100 V, 200 V	B54	●	—	●	●	—	—			
						200 V or less	B64	●	—	●	—	—	—			
						—	C73C	●	—	●	●	●	—			
Connector		Yes				24 V or less	C80C	●	—	●	●	●	—			
		Grommet	Yes	—	—	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)

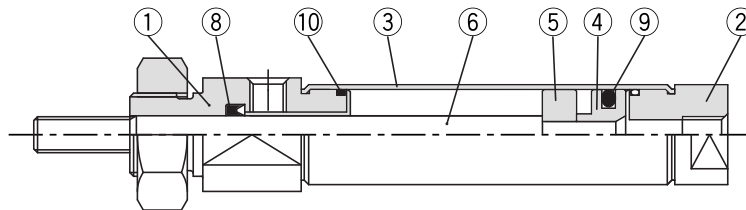
(lbf)

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

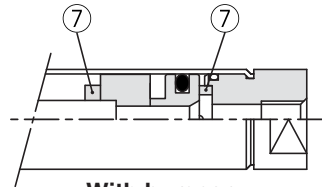
Series NCM

Construction: Double Acting, Single Rod

NCM044/056



NCMB044 shown as example

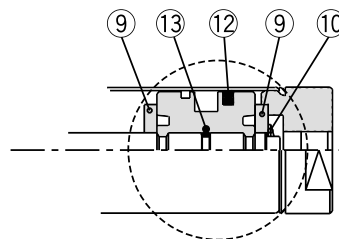
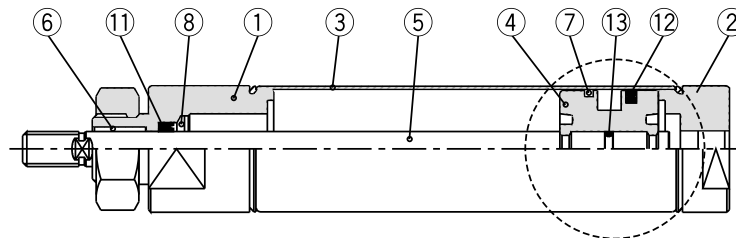


With bumper

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

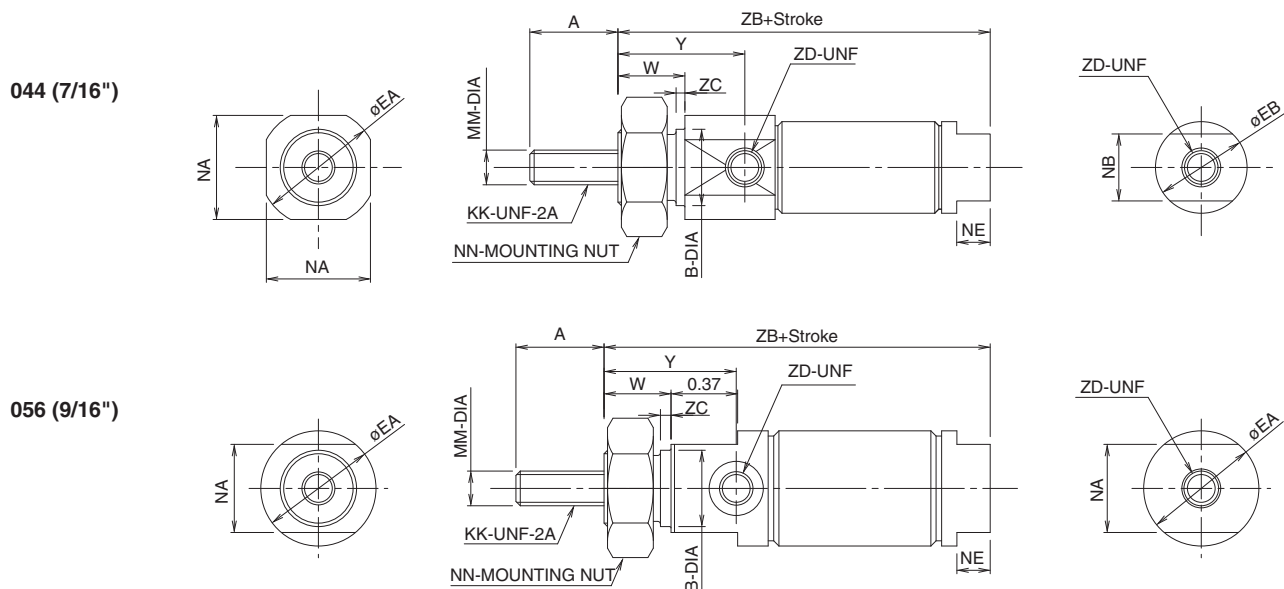
Component Parts

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
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

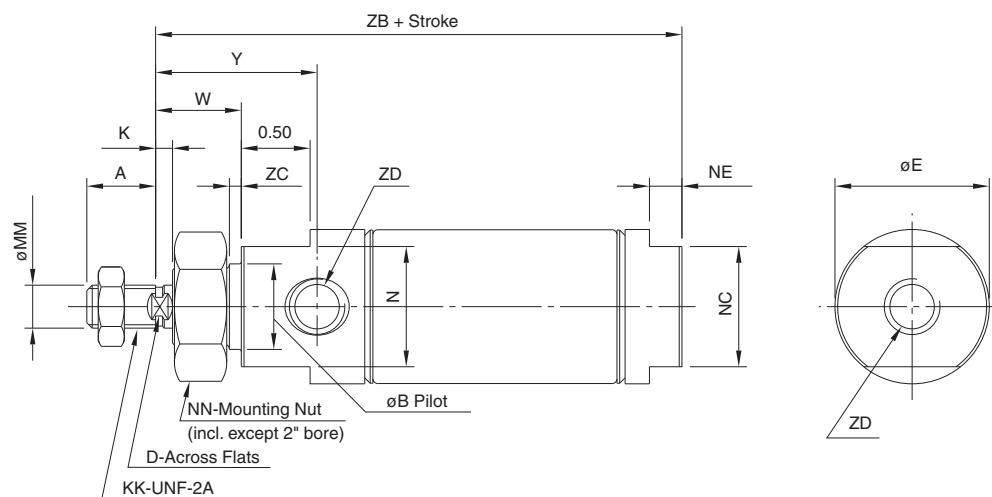
Dimensions: Double Acting, Single Rod

Front nose mount: NC(D)MB



Bore size (inch)	A	B	EA	EB	KK	MM	NA	NB	NE	NN	W	Y	ZC	ZD	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")



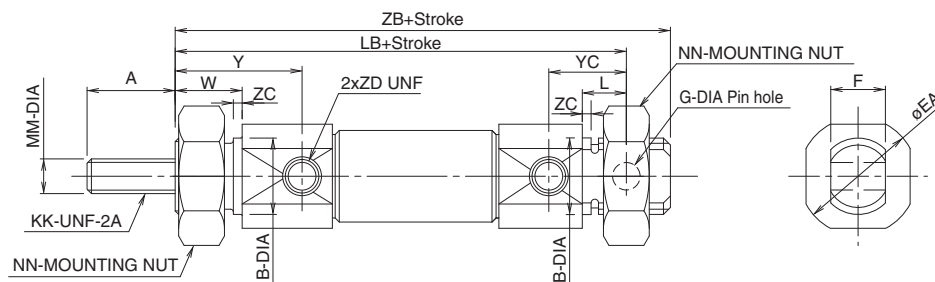
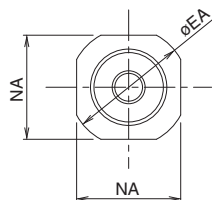
Bore size (inch)	MM	KK	A	B	D	E	K	N	NC	NE	NN	W	Y	ZC	ZD	ZB No bumper	ZB With bumper
075 (3/4")	0.250	1/4-28	0.50	0.624 ⁰ _{-0.003}	—	0.86	—	0.75	0.62	0.12	5/8-18	0.50	0.95	0.09	1/8 NPT	2.97	2.97
088 (7/8")	0.250	1/4-28	0.50	0.624 ⁰ _{-0.003}	—	0.93	—	0.75	0.75	0.18	5/8-18	0.50	0.95	0.09	1/8 NPT	2.69	2.94
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

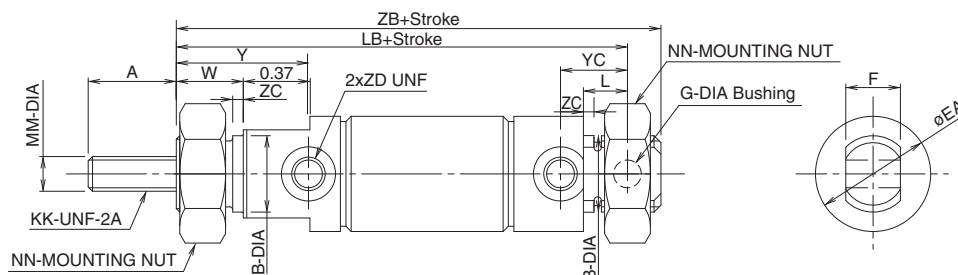
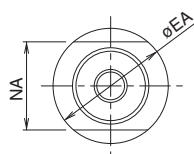
Dimensions: Double Acting, Single Rod

Double end mount: NC(D)ME

044 (7/16")

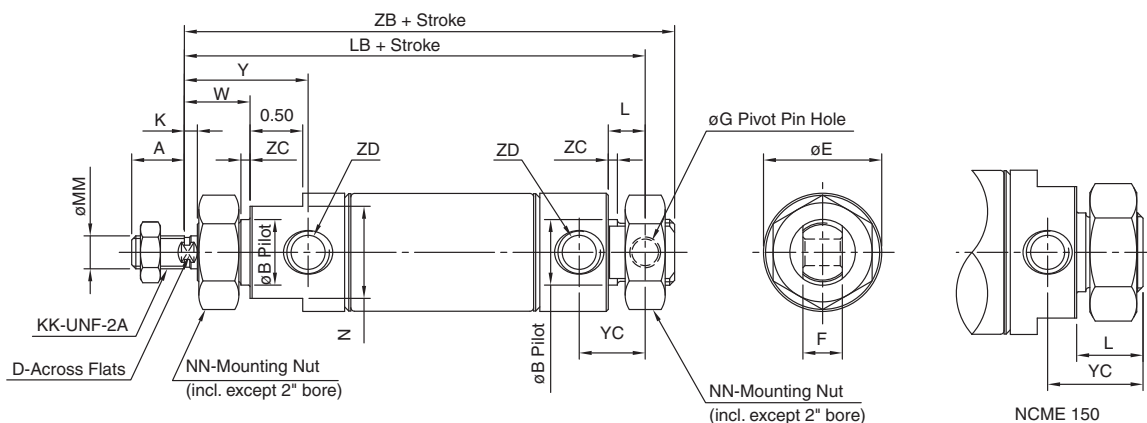


056 (9/16")



Bore size (inch)	A	B	EA	F	G	KK	L	MM	NA	NN	W	Y	YC	ZC	ZD	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