



Compendium of NACF Series

Convenient and fast fix sensor switch

Sensor can be directly fixed onto the groover of the cylinder, which is convenient and fast.
the counterpart sensor type is: CMSH、DMSH(S)

Two kinds of rod type



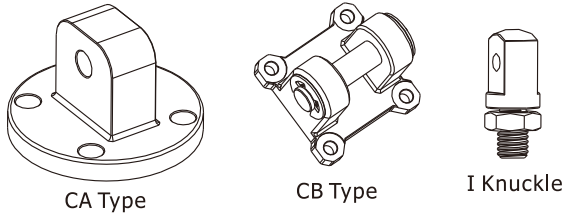
Female thread

Male thread

Imperial cylinder

Bore size: 9/16", 3/4", 1-1/16",
1-1/2", 2", 2-1/2", 3", 4"

Multi-mounting accessories



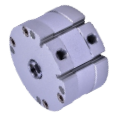
CA Type

CB Type

I Knuckle

Multi-type cylinder

NACF: Round compact cylinder
(Double acting)



NASF: Round compact cylinder
(Single acting-push)



NATF: Round compact cylinder
(Single acting-pull)



NACFD: Round compact cylinder
(Double rod)



Convenient and fast fix sensor switch

Sensor can be directly fixed onto the groover of the cylinder, which is convenient and fast.
the counterpart sensor type is: CMSH、DMSH、EMSH

Criteria for selection: Cylinder thrust

Unit: Newton(N)

Bore size(in)	Rod size(in)	Acting type	Pressure area(mm ²)	Operating pressure(psi)							
				15	30	45	60	75	90	105	
9/16	1/4	Double acting	Push side	160.3	16.6	33.1	49.7	66.3	82.8	99.4	116.0
			Pull side	128.7	13.3	26.6	39.9	53.2	66.5	79.8	93.1
3/4	5/16	Double acting	Push side	285.0	29.5	58.9	88.4	117.8	147.3	176.7	206.2
			Pull side	235.5	24.3	48.7	73.0	97.4	121.7	146.0	170.4
1-1/16	1/2	Double acting	Push side	572.0	59.1	118.2	177.4	236.5	295.6	354.7	413.8
			Pull side	445.3	46.0	92.1	138.1	184.1	230.1	276.2	322.2
1-1/2	5/8	Double acting	Push side	1140.1	117.8	235.7	353.5	471.3	589.1	707.0	824.8
			Pull side	942.0	97.4	194.7	292.1	389.4	486.8	584.2	681.5
2	3/4	Double acting	Push side	2026.8	209.5	418.9	628.4	837.9	1047.4	1256.8	1466.3
			Pull side	1741.8	180.0	360.0	540.0	720.1	900.1	1080.1	1260.1
2-1/2	3/4	Double acting	Push side	3166.9	327.3	654.6	981.9	1309.2	1636.5	1963.8	2291.1
			Pull side	2881.9	297.8	595.7	893.5	1191.4	1489.2	1787.1	2084.9
3	7/8	Double acting	Push side	4560.4	471.3	942.6	1413.9	1885.3	2356.6	2827.9	3299.2
			Pull side	4172.2	431.2	862.4	1293.6	1724.8	2156.0	2587.2	3018.4
4	1	Double acting	Push side	8107.3	837.9	1675.8	2513.7	3351.6	4189.5	5027.3	5865.2
			Pull side	7600.6	785.5	1571.0	2356.6	3142.1	3927.6	4713.1	5498.7

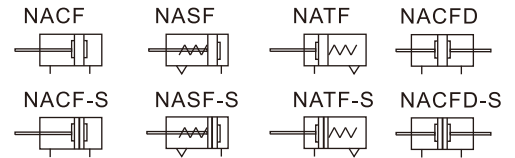
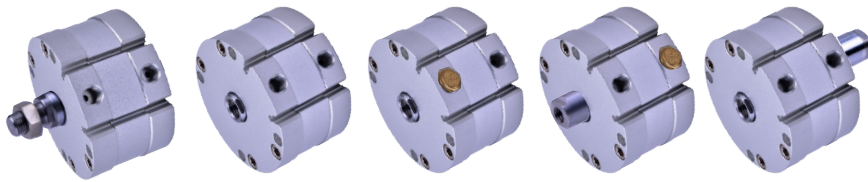
Installation and application

- When load changes in the work, the cylinder with abundant output capacity shall be selected.
- Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion.
- Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
- Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder.
- The medium used by cylinder shall be filtered to 40μm or below.
- As both of the front cover and piston of the cylinder are short, typically too large stroke can not be selected.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- The cylinder shall avoid the influence of side load in operation to maintain the normal work of cylinder and extend the service life.
- If the cylinder is dismantled and stored for a long time, please conduct anti-rust treatment to the surface. Anti-dust caps shall be added in air inlet and outlet ports. The front and back cover can not be dismantled, which shall be especially noticed.



Round compact cylinder

NACF Series



Ordering code

NACF 2 X3/8 S B □ T



① Model	② Bore size	③ Stroke	④ Magnet	⑤ Rod type	⑥ Mounting type	⑦ Thread type
NACF: Round compact cylinder (Double acting)	9/16" 3/4"	Refer to stroke table for details	Blank: Without magnet	Blank: Female thread	Blank: No accessories CA: CA type	T: NPT [Note1]
NASF: Round compact cylinder (Single acting-push)	1-1/16" 1-1/2"					
NATF: Round compact cylinder (Single acting-pull)	2" 2-1/2"		S: With magnet	B: Male thread	Blank: No accessories	
NACFD: Round compact cylinder (Double rod)	3" 4"					

[Note1] $\Phi 9/16"$ and $\Phi 3/4"$ thread are #10-32UNF and is blank here.

Stroke

Bore size (inch)	Standard stroke (inch)															
9/16", 3/4", 1-1/16", 1-1/2", 2", 2-1/2", 3", 4"	Double acting	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2	2-1/2	3	3-1/2	4
	Single acting	1/4	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2				

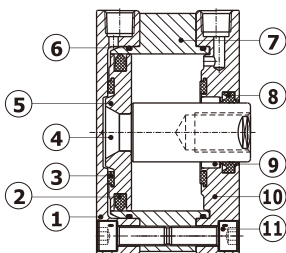
Specification

Bore size (inch)	9/16"	3/4"	1-1/16"	1-1/2"	2"	2-1/2"	3"	4"
Acting type	Double acting, Single acting_Push type, Single acting_Pull type							
Fluid	Air(to be filtered by 40 μ m filter element)							
Operating pressure	Double acting: 22~145psi(0.15~1.0MPa) Single acting: 28~145psi(0.2~1.0MPa)							
Proof pressure	215psi(1.5MPa)							
Temperature	-5 $^{\circ}$ ~160 $^{\circ}$ F(-20~70 $^{\circ}$ C)							
Speed range inch/s	Double acting: 1.2~20 Single acting: 2~20							
Stroke tolerance inch	$\begin{matrix} +0.04 \\ 0 \end{matrix}$							
Cushion type	Bumper							
Port size	#10-32UNF			NPT1/8		NPT1/4		NPT3/8

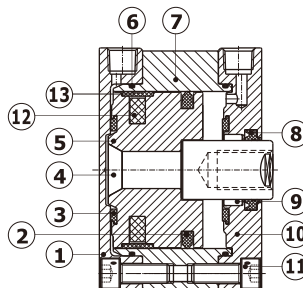
Add) Refer to P475 for detail of sensor switch.

Inner structure

NACF



NACF-S



NO.	Item	NO.	Item
1	Back cover	8	Front cover packing
2	Piston seal	9	Bushing
3	Bumper	10	Front cover
4	Piston rod	11	Bolt
5	Piston	12	Magnet
6	O-ring	13	Wear ring
7	Body		

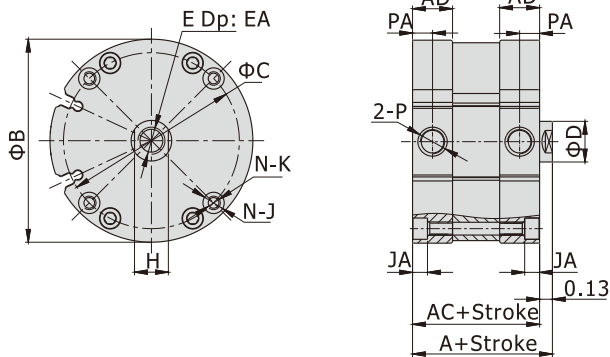
Note: The piston rod material is stainless steel($\Phi 9/16"$, $\Phi 3/4"$), and carbon steel(others).

Round compact cylinder

NACF Series

Dimensions

NACF

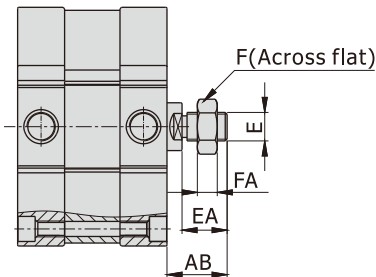


Item Bore size	A		AC	
	No magnet	With magnet	No magnet	With magnet
9/16"	0.69	1.57	0.56	1.44
3/4"	0.69	1.57	0.56	1.44
1-1/16"	1.01	1.89	0.88	1.76
1-1/2"	1.01	1.89	0.88	1.76
2"	1.07	1.95	0.94	1.82
2-1/2"	1.32	2.2	1.19	2.07
3"	1.38	2.26	1.25	2.13
4"	1.69	2.57	1.56	2.44

[Unit: Inch]

Bore size \ Item Stroke	AD		B	C	D	E	EA		H	J	JA	K	N	P	PA	
	1/4	≥3/8					≤3/8	≥1/2							1/4	≥3/8
9/16"	0.39		1.12	0.88	1/4	#8-32 UNC	0.24		7/32	0.20	0.13	#8-32 UNC	2	#10-32 UNF	0.22	
3/4"	0.39		1.50	1.22	5/16	#10-32 UNF	0.31		1/4	0.24	0.15	#10-24 UNC	4	#10-32 UNF	0.22	
1-1/16"	0.55		1.99	1.69	1/2	5/16-24 UNF	0.37		7/16	0.24	0.15	#10-24 UNC	4	NPT1/8	0.30	
1-1/2"	0.55		2.62	2.19	5/8	3/8-24 UNF	0.59		1/2	0.34	0.22	1/4-20 UNC	4	NPT1/8	0.30	
2"	0.55		3.12	2.69	3/4	1/2-20 UNF	0.60	0.70	5/8	0.34	0.22	1/4-20 UNC	4	NPT1/8	0.30	
2-1/2"	0.70	0.75	3.75	3.25	3/4	1/2-20 UNF	0.60	0.70	5/8	0.40	0.27	5/16-18 UNC	4	NPT1/4	0.33	0.41
3"	0.75	0.75	4.25	3.78	7/8	5/8-18 UNF	0.63	0.79	3/4	0.40	0.27	5/16-18 UNC	4	NPT1/4	0.33	0.41
4"	0.89	0.93	5.50	4.94	1	3/4-16 UNF	0.70	1.02	7/8	0.49	0.33	3/8-16 UNC	4	NPT3/8	0.40	0.51

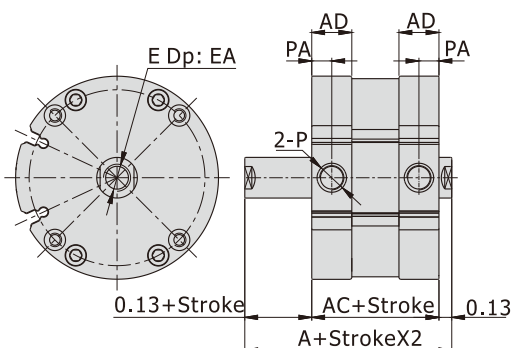
Male thread



Bore size \ Item	AB	E	EA	F	FA
9/16"	0.51	#8-32 UNC	0.38	11/32	0.13
3/4"	0.51	#10-32 UNF	0.38	3/8	0.13
1-1/16"	0.63	5/16-24 UNF	0.50	1/2	0.19
1-1/2"	0.63	3/8-24 UNF	0.50	9/16	0.22
2"	0.76	1/2-20 UNF	0.63	3/4	0.31
2-1/2"	0.76	1/2-20 UNF	0.63	3/4	0.31
3"	0.88	5/8-18 UNF	0.75	15/16	0.38
4"	0.88	3/4-16 UNF	0.75	1-1/8	0.42

[Unit: Inch]

NACFD



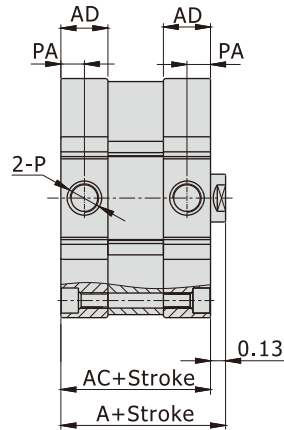
Item Bore size	A		AC		AD	E	EA	PA	P
	No magnet	With magnet	No magnet	With magnet					
9/16"	1.08	1.96	0.82	1.70	0.39	#8-32 UNC	0.22	#10-32 UNF	
3/4"	1.08	1.96	0.82	1.70	0.39	#10-32 UNF	0.22	#10-32 UNF	
1-1/16"	1.4	2.28	1.14	2.02	0.55	5/16-24 UNF	0.30(S≤3/8)/0.5(S>3/8)	NPT1/8	
1-1/2"	1.52	2.4	1.26	2.14	0.55	3/8-24 UNF	0.43(S≤3/8)/0.59(S>3/8)	NPT1/8	
2"	1.58	2.46	1.32	2.2	0.55	1/2-20 UNF	0.30(S=1/4,3/8) 0.47(S=1/2,5/8) 0.70(S>5/8)	NPT1/8	
2-1/2"	1.83	2.71	1.57	2.45	0.75	1/2-20 UNF	0.42(S=1/4,3/8) 0.55(S=1/2) 0.70(S>1/2)	NPT1/4	
3"	1.89	2.77	1.63	2.51	0.75	5/8-18 UNF	0.45(S=1/4,3/8) 0.55(S=1/2) 0.79(S>1/2)	NPT1/4	
4"	2.2	3.08	1.94	2.82	0.93	3/4-16 UNF	0.40(S=1/4,3/8) 0.63(S=1/2~7/8) 1.02(S>7/8)	NPT3/8	

[Unit: Inch]

Round compact cylinder

NACF Series

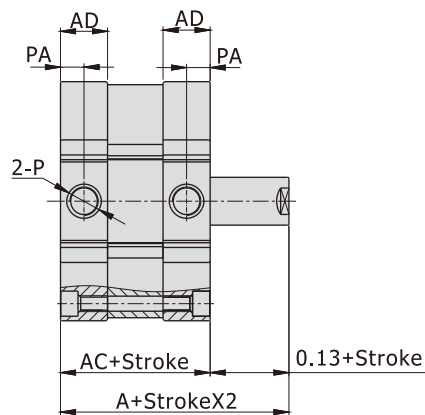
NASF



[Unit: Inch]

Bore size \ Item	A(No magnet)		A(With magnet)		AC(No magnet)		AC(With magnet)		AD	P	PA
	1/4~1	1.001~2	1/4~1	1.001~2	1/4~1	1.001~2	1/4~1	1.001~2			
Stroke 9/16"	1.19	1.69	2.07	2.57	1.06	1.56	1.94	2.44	0.39	#10-32 UNF	0.22
Stroke 3/4"	1.19	1.69	2.07	2.57	1.06	1.56	1.94	2.44	0.39	#10-32 UNF	0.22
Stroke 1-1/16"	1.50	2.00	2.38	2.88	1.38	1.88	2.25	2.75	0.55	NPT1/8	0.30
Stroke 1-1/2"	1.50	2.00	2.38	2.88	1.38	1.88	2.25	2.75	0.55	NPT1/8	0.30
Stroke 2"	1.57	2.07	2.45	2.95	1.44	1.94	2.32	2.82	0.55	NPT1/8	0.30
Stroke 2-1/2"	1.82	2.32	2.70	3.20	1.69	2.19	2.57	3.07	0.75	NPT1/4	0.41
Stroke 3"	1.88	2.38	2.75	3.26	1.75	2.25	2.63	3.13	0.75	NPT1/4	0.41
Stroke 4"	2.19	2.69	3.07	3.58	2.06	2.56	2.94	3.44	0.93	NPT3/8	0.51

NATF



[Unit: Inch]

Bore size \ Item	A(No magnet)		A(With magnet)		AC(No magnet)		AC(With magnet)		AD	P	PA
	1/4~1	1.001~2	1/4~1	1.001~2	1/4~1	1.001~2	1/4~1	1.001~2			
Stroke 9/16"	1.19	1.69	2.07	2.57	1.06	1.56	1.94	2.44	0.39	#10-32 UNF	0.22
Stroke 3/4"	1.19	1.69	2.07	2.57	1.06	1.56	1.94	2.44	0.39	#10-32 UNF	0.22
Stroke 1-1/16"	1.50	2.00	2.38	2.88	1.38	1.88	2.25	2.75	0.55	NPT1/8	0.30
Stroke 1-1/2"	1.50	2.00	2.38	2.88	1.38	1.88	2.25	2.75	0.55	NPT1/8	0.30
Stroke 2"	1.57	2.07	2.45	2.95	1.44	1.94	2.32	2.82	0.55	NPT1/8	0.30
Stroke 2-1/2"	1.82	2.32	2.70	3.20	1.69	2.19	2.57	3.07	0.75	NPT1/4	0.41
Stroke 3"	1.88	2.38	2.75	3.26	1.75	2.25	2.63	3.13	0.75	NPT1/4	0.41
Stroke 4"	2.19	2.69	3.07	3.58	2.06	2.56	2.94	3.44	0.93	NPT3/8	0.51

Round compact cylinder

NACF Series—Accessories

List for ordering code of accessories

Accessories Bore size	Mounting accessories		Knuckle	Sensor switch
	CA	CB	I	
9/16"	F-NACF9/16CA	F-NACF9/16CB	F-NACF9/16I	CM5H DM5H EM5H
3/4"	F-NACF3/4CA		F-NACF3/4I	
1-1/16"	F-NACF1-1/16CA		F-NACF1-1/16I	
1-1/2"	F-NACF1-1/2CA	F-NACF1-1/2CB	F-NACF1-1/2I	
2"	F-NACF2CA		F-NACF2I	
2-1/2"	F-NACF2-1/2CA		F-NACF2I	
3"	F-NACF3CA	F-NACF3CB	F-NACF3I	
4"	F-NACF4CA		F-NACF4I	

Accessory selection

Cylinder model \ Accessories			Mounting accessories		Knuckle	Sensor switch		
			CA	CB [1]	I	CM5H	DM5H	EM5H
NACF	Female thread	Without magnet	•	•	•	×	×	×
		With magnet				•	•	•
	Male thread	Without magnet			×	×	×	
		With magnet			•	•	•	
NASF NATF	Female thread	Without magnet	•	•	•	×	×	×
		With magnet				•	•	•
	Male thread	Without magnet			×	×	×	
		With magnet			•	•	•	
NACFD	Female thread	Without magnet	×	•	•	×	×	×
		With magnet				•	•	•
	Male thread	Without magnet			×	×	×	
		With magnet			•	•	•	

[Note1] CB is attached with relevant PIN.

Material of accessories

Accessories Bore size	Mounting accessories		Knuckle
	CA	CB	I
9/16"~2-1/2"	•	•	□
3", 4"	□	□	□

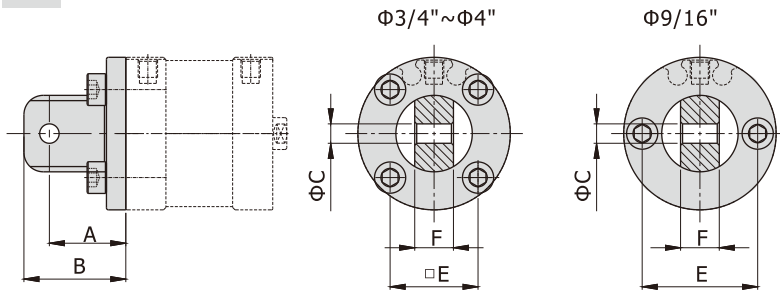
•—Aluminum alloy ; □—Steel

Round compact cylinder

NACF Series—Accessories

Dimensions

CA

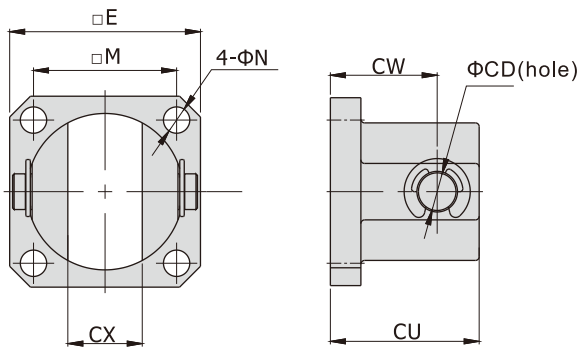


[Unit: Inch]

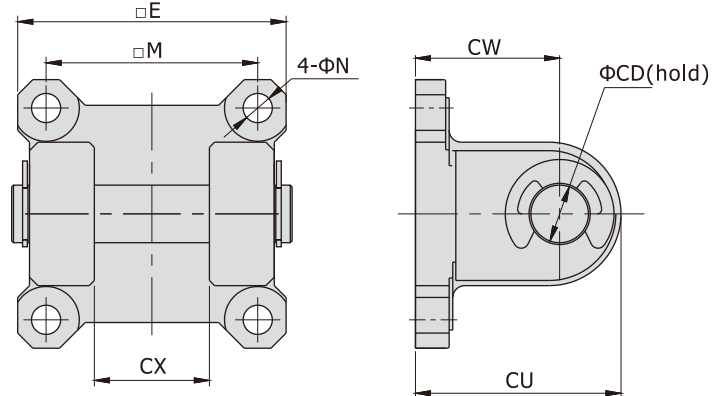
Bore size\Item	A	B	C	E	F
9/16"	0.75	1.00	3/16	0.88	3/8
3/4"	0.75	1.00	3/16	0.84	3/8
1-1/16"	0.81	1.06	3/16	1.19	3/8
1-1/2"	1.19	1.63	3/8	1.55	3/4
2"	1.25	1.69	3/8	1.90	3/4
2-1/2"	1.31	1.75	3/8	2.30	3/4
3"	1.69	2.25	5/8	2.67	1
4"	1.75	2.31	5/8	3.49	1

CB

Φ9/16"~Φ1-1/16"



Φ1-1/2"~Φ4"

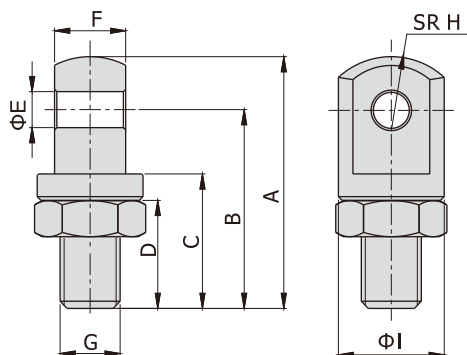


[Unit: Inch]

Type\Item	Bore size	E	CX	CD	CW	CU	M	N
F-NACF9/16CB	9/16"	1.00	25/64	3/16	0.56	0.78	0.75	0.16
	3/4"							
	1-1/16"							
F-NACF1-1/2CB	1-1/2"	1.75	3/4	3/8	0.94	1.34	1.38	0.21
	2"							
	2-1/2"							
F-NACF3CB	3"	2.50	1	5/8	1.25	1.81	2.00	0.27
	4"							

I Knuckle

[Unit: Inch]



Bore size\Item	A	B	C	D	E	F	G	H	I
9/16"	1.13	0.85	0.51	0.38	3/16	3/8	#8-32 UNC	0.41	0.55
3/4"	1.13	0.85	0.51	0.38	3/16	3/8	#10-32 UNF	0.41	0.55
1-1/16"	1.38	1.00	0.77	0.63	3/16	3/8	5/16-24 UNF	0.41	0.55
1-1/2"	1.89	1.35	0.77	0.63	3/8	3/4	3/8-24 UNF	0.59	0.98
2"	2.01	1.47	0.88	0.75	3/8	3/4	1/2-20 UNF	0.59	0.98
2-1/2"	2.01	1.47	0.88	0.75	3/8	3/4	1/2-20 UNF	0.59	0.98
3"	2.68	1.88	1.08	0.88	5/8	1	5/8-18 UNF	0.79	1.50
4"	2.68	1.88	1.08	0.88	5/8	1	3/4-16 UNF	0.79	1.50