Compendium of SAU Series

Standard cylinder manufactured by our enterprise

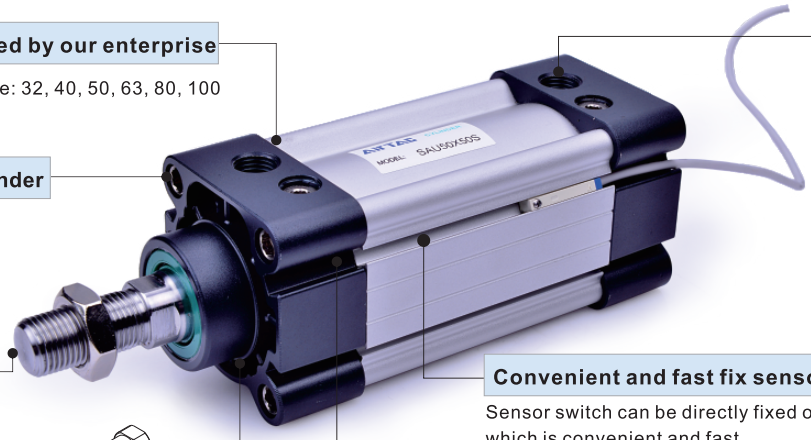
Bore size: 32, 40, 50, 63, 80, 100

Adjustable air buffer

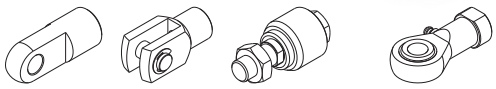
With adjustable air buffer on the front and back cover

No tie rod cylinder

The cylinder barrel is aluminum profile with hard anodizing treatment.



Four kinds of cylinder joints

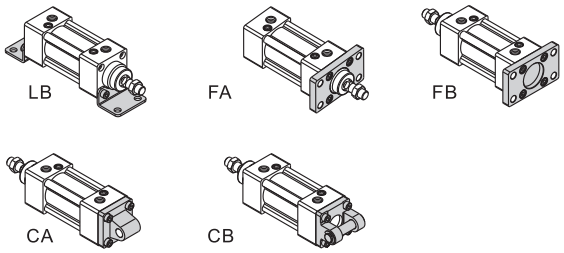


I Knuckle Y Knuckle Floating Joint Universal Joint

Convenient and fast fix sensor switch

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

Multi-mounting accessories



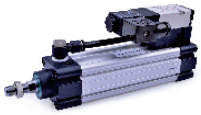
LB FA FB CA CB

Multi-type cylinder

SAU: Double acting type

SAUD: Double rod type

SAUJ: Adjustable stroke type



SAUF: With valve type

Criteria for selection: Cylinder thrust

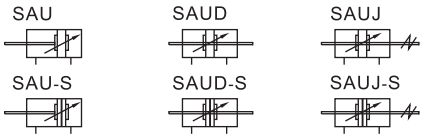
Unit：Newton(N)

Bore size	Rod size	Acting type		Pressure area(mm^2)	Operating pressure(MPa)								
					0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
32	12	Double acting	Push side	804	80.4	160.8	241.2	321.6	402.0	482.4	562.8	643.2	723.6
			Pull side	690	69.0	138.0	207.0	276.0	345.0	414.0	483.0	552.0	621.0
40	16	Double acting	Push side	1256	125.6	251.2	376.8	502.4	628.0	753.6	879.2	1004.8	1130.4
			Pull side	1055	105.5	211.0	316.5	422.0	527.5	633.0	738.5	844.0	949.5
50	20	Double acting	Push side	1963	196.3	392.6	588.9	785.2	981.5	1177.8	1374.1	1570.4	1766.7
			Pull side	1649	164.9	329.8	494.7	659.6	824.5	989.4	1154.3	1319.2	1484.1
63	20	Double acting	Push side	3117	311.7	623.4	935.1	1246.8	1558.5	1870.2	2181.9	2493.6	2805.3
			Pull side	2803	280.3	560.6	840.9	1121.2	1401.5	1681.8	1962.1	2242.4	2522.7
80	25	Double acting	Push side	5026	502.6	1005.2	1507.8	2010.4	2513.0	3015.6	3518.2	4020.8	4523.4
			Pull side	4536	453.6	907.2	1360.8	1814.4	2268.0	2721.6	3175.2	3628.8	4082.4
100	25	Double acting	Push side	7853	785.3	1570.6	2355.9	3141.2	3926.5	4711.8	5497.1	6282.4	7067.7
			Pull side	7362	736.2	1472.4	2208.6	2944.8	3681.0	4417.2	5153.4	5889.6	6625.8

Installation and application

1. When load changes in the work, the cylinder with abundant output capacity shall be selected.
2. Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion.
3. Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
4. Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder.
5. The medium used by cylinder shall be filtered to 40μm or below.
6. Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
7. The cylinder shall be carried out test run without load before application. Prior to run, buffer shall be turned to the minimum and gradually released to avoid the damage on cylinder caused by excessive impact.
8. The cylinder shall avoid the influence of side load in operation to maintain the normal work of cylinder and extend the service life.
9. 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.

Symbol



Specification

Bore size(mm)		32	40	50	63	80	100
Acting type		Double acting					
Fluid		Air(to be filtered by 40μm filter element)					
Mounting type	SAU	Basic FA FB CA CB LB					
	SAUD、SAUJ	Basic FA LB					
Operating pressure		0.15~1.0MPa(22~145psi)(1.5~10.0bar)					
Proof pressure		1.5MPa(215psi)(15bar)					
Temperature ℃		-20~70					
Speed range mm/s		30~800					
Stroke tolerance		0~250 $^{+1.0}_{0}$	251~1000 $^{+1.5}_{0}$		1001~1500 $^{+2.0}_{0}$		
Cushion type		Variable cushion					
Adjustable cushion stroke		21				28	29
Port size [Note1]		1/8"	1/4"		3/8"		1/2"

[Note1] PT thread, G thread are available.
Add) Refer to P353 for detail of sensor switch.

Product feature

1. Standard cylinder manufactured by our enterprise.
2. The seal of piston adopts heterogeneous two way seal structure. It's dimension is tight and it has the function of oil reservation.
3. It is no tie rod cylinder. The cylinder barrel is aluminum profile with hard anodizing treatment.
4. Compared with ISO15552 standard cylinder, SAU series cylinder with the same bore size is shorter.
5. The buffer adjustment of cylinder is smooth and steady.
6. Mounting accessories are the same as SC series.
7. The seal material with high temperature resistance is adopted to guarantee the normal operation of cylinder at 150℃.

Stroke

Bore size (mm)	Standard stroke (mm)	Max.std stroke	Max. stroke
32	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	1000	1800
40	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	1200	1800
50	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	1200	1800
63	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	1500	1800
80	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	1500	1800
100	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	1500	1800

[Note] Consult us for non-standard stroke.

Ordering code

SAU 50×50 S □ □ □
SAUD50×50 S □ □ □
SAUJ 50×50–20 S □ □ □

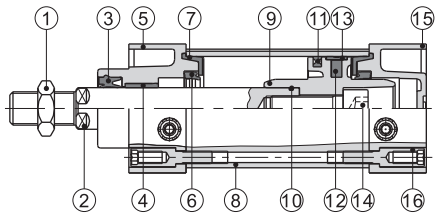
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Model	② Bore size	③ Stroke	④ Adjustable stroke	⑤ Magnet	⑥ Mounting type[Note1]	⑦ Seals Material	⑧ Thread type
SAU: Double acting type	32 40 50 63 80 100	Refer to stroke table for details	No this code	Blank: Without magnet S: With magnet	Blank LB FA FB CA CB	Blank: TPU H: Viton N: NBR	Blank: PT G: G
SAUD: Double rod type					Blank LB		
SAUJ: Adjustable stroke type			10 20 30 40 50 75 100		FA		

[Note1] The accessories are the same as SC series, please refer to page 49~52 for details.

Inner structure and material of major parts

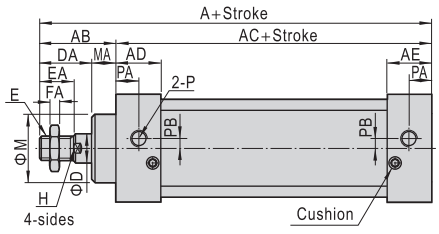
SAU

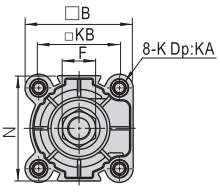


NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	Carbon steel with 20μm chrome plated
3	Front cover packing	TPU
4	Bushing	Wear resistant material
5	Front cover	Aluminum alloy
6	Cushing O-ring	NBR
7	Cushion gasket	TPU
8	Barrel	Aluminum alloy
9	Piston	Aluminum alloy
10	Piston rod O-ring	NBR
11	Piston seal	NBR
12	Magnet	Plastic
13	Wear ring	Wear resistant material
14	Bolt	Carbon steel
15	Back cover	Aluminum alloy
16	Tie-rod nut	Carbon steel

Dimensions

SAU

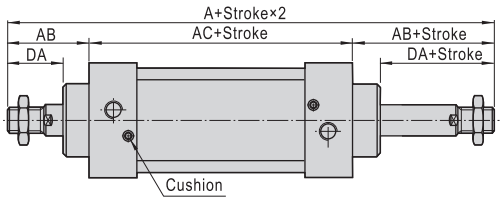




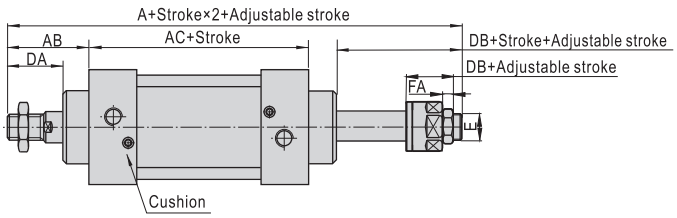
Bore size\Item	A	AB	AC	AD	AE	B	D	DA	E	EA	F	FA	M	MA	H	K	KA	KB	P	PA	PB
32	140	47	93	27.5	27.5	45	12	32	M10×1.25	22	17	6	28	15	10	M6×1.0	16	33	1/8"	14	5.5
40	142	49	93	27.5	27.5	50	16	34	M12×1.25	24	17	7	32	15	13	M6×1.0	16	37	1/4"	15	6
50	150	57	93	27.5	27.5	62	20	42	M16×1.5	32	23	8	38	15	17	M6×1.0	16	47	1/4"	17	8.5
63	153	57	96	27.5	27.5	75	20	42	M16×1.5	32	23	8	38	15	17	M8×1.25	16	56	3/8"	15	9.5
80	182	75	107	33	33	94	25	54	M20×1.5	40	26	10	47	21	22	M10×1.5	18	70	3/8"	19.5	10
100	188	75	113	33	33	112	25	54	M20×1.5	40	26	10	47	21	22	M10×1.5	18	84	1/2"	16.5	11

Remark：The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

SAUD

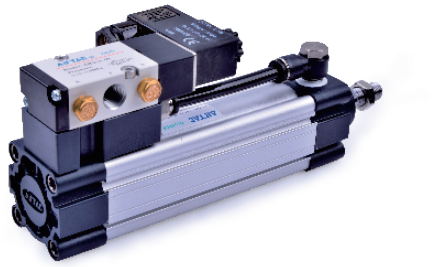


SAUJ

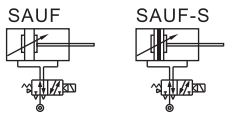


Bore size\Item	A(SAUD)	A(SAUJ)	AB	AC	DA	DB	E	FA
32	187	182	47	93	32	27	M10X1.25	6
40	191	185	49	93	34	28	M12X1.25	7
50	207	194	57	93	42	29	M16X1.5	8
63	210	197	57	96	42	29	M16X1.5	8
80	257	238.5	75	107	54	35.5	M20X1.5	10
100	263	244.5	75	113	54	35.5	M20X1.5	10

Remark：
1. The dimensions of magnet type cylinder are the same as non-magnet type cylinder.
2. The unmarked dimension is the same as SAU standard type.



Symbol



Product feature

1.For Standard Cylinders:use 4M210 valve for bore size 32, 40 & 50; 4M310 valve for bore size 63,80 & 100mm.
2.Individually control, no need for extra solenoid valves.
3.Installation time & space saving; suitable for decentralize installation in large system.
4.Options of mounting accessories & easy installation.

Stroke

Bore size (mm)	Standard stroke (mm)	Mini. stroke	Max. std stroke	Max. stroke
32	50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	50	1000	2000
40 50	50 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	50	1200	2000
63 80 100	75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	75	1500	2000

[Note] Consult us for non-standard stroke.

Specification

Cylinder specification						
Bore size(mm)	32	40	50	63	80	100
Acting type	Double acting					
Fluid	Air(to be filtered by 40μm filter element)					
Mounting type	Basic FA FB CA CB LB					
Operating pressure	0.1~1.0MPa(15~145psi)(1.0~10.0bar)					
Proof pressure	1.5MPa(215psi)(15bar)					
Temperature ℃	-20~70					
Speed range mm/s	30~800					
Stroke tolerance	$0\sim250\ ^{+1.0}_{0}$ $251\sim1000^{+1.5}_{0}$ $1001\sim1500^{+2.0}_{0}$					
Cushion type	Variable cushion					
Adjustable cushionstroke	21				28	29
Port size	1/8"	1/4"		3/8"		1/2"
PU tube size(ODXID)	Φ8× Φ5				Φ10× Φ6.5	
Solenoid valve specification						
Model	4M210-06 & 4M210-08			4M310-08 & 4M310-10		
Fluid	Air(to be filtered by 40μm filter element)					
Acting type	Internal piloted					
Port size [Note1]	In=Exhaust=1/8" & In=1/4" Exhaust=1/8"			In=Exhaust=1/4" & In=PT3/8 Exhaust=1/4"		
Orifice size	4M210-06: 14.0mm²(Cv=0.78) 4M210-08: 16.0mm²(Cv=0.89)			4M310-08: 25.0mm²(Cv=1.40) 4M310-10: 30.0mm²(Cv=1.68)		
Valve type	5 port 2 position					
Operating pressure	0.15~0.8MPa(21~114psi)					
Proof pressure	1.5MPa(215psi)					
Temperature ℃	-20~70					
Body material	Aluminum alloy					
Lubrication [Note2]	Not requined					
Max. frequency [Note3]	5 cycle/sec			4 cycle/sec		
Coil specification						
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V					
Scope voltage	AC: ±15% DC: ±10%					
Power consumption	AC: 3.5VA DC: 3.0W					
Protection	IP65(DIN40050)					
Temperature classification	B Class					
Electrical entry	Terminal, Grommet					
Activating time	0.05 sec and below					

[Note1] PT thread is available.
[Note2] It cann't stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.
[Note3] The maximum actuation frequency is in the no-load state.
Add) Refer to P353 for detail of sensor switch.

Ordering code

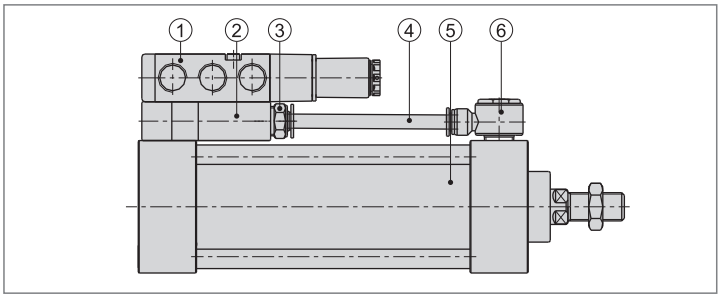
SAUF 50 x 1000 S □-06 A □ □

1 2 3 4 5 6 7 8 9

①Model	②Bore size	③Stroke	④Magnet	⑤Mounting type[Note1]		⑥Port size	⑦Voltage	⑧Electrical entry	⑨Thread type
SAUF: Double acting with valve type	32 40 50 63 80 100	Refer to stroke table for details	Blank: Without magnet S: With magnet	Blank		06: 1/8" 08: 1/4" 10: 3/8"	A: AC220V B: DC24V C: AC110V E: AC24V F: DC12V	Blank: Terminal I: Grommet	Blank: PT
				LB					
				FA					
				FB					
				CA					
				CB					

[Note1] The accessories are the same as SC series, please refer to page 49~52 for details.

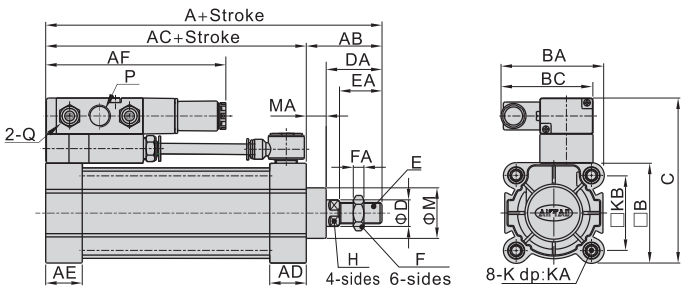
Inner structure



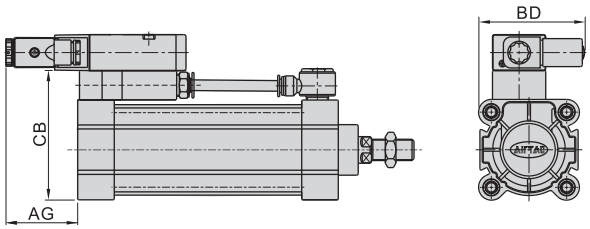
NO.	Item
1	4M series solenoid valve
2	Unite block
3	APC series tube connector
4	PU tube
5	SAU series cylinder
6	APH series tube connector

Dimensions

Pull when energized



Push when energized



Bore size\Item	A	AB	AC	AD	AE	AF	AG	B	BA	BC	BD
32	140	47	93	27.5	27.5	118	53	45	67	67	77
40	142	49	93	27.5	27.5	118	53	50	68.5	67	80.5
50	150	57	93	27.5	27.5	120	51	62	72	67	89
63	153	57	96	27.5	27.5	135.5	54.5	75	77.5	69.5	96.5
80	182	75	107	33	33	137	53	94	86.5	69.5	106.5
100	188	75	113	33	33	135.5	54.5	112	96	69.5	115

Bore size\Item	C	CB	D	DA	E	EA	F	FA	H	M	MA
32	89	67	12	32	M10X1.25	22	17	6	10	28	15
40	94	72	16	34	M12X1.25	24	17	7	13	32	15
50	106	84	20	42	M16X1.5	32	23	8	17	38	15
63	124	97	20	42	M16X1.5	32	23	8	17	38	15
80	143	116	25	54	M20X1.5	40	26	10	22	47	21
100	161	134	25	54	M20X1.5	40	26	10	22	47	21

Bore size\Item	valve's type	P	Q	K	KA	KB
32	4M210-06	1/8"	1/8"	M6X1	16	33
	4M210-08	1/4"				
40	4M210-06	1/8"	1/8"	M6X1	16	37
	4M210-08	1/4"				
50	4M210-06	1/8"	1/8"	M6X1	16	47
	4M210-08	1/4"				
63	4M310-08	1/4"	1/4"	M8X1.25	16	56
	4M310-10	3/8"				
80	4M310-08	1/4"	1/4"	M10X1.5	18	70
	4M310-10	3/8"				
100	4M310-08	1/4"	1/4"	M10X1.5	18	84
	4M310-10	3/8"				

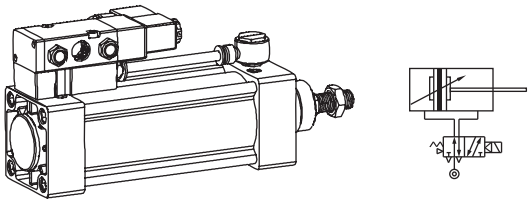
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

How to use

1.Options for piston rod to retract or extend when solenoid coil is energized.
2.Default factory setting will be piston rod to retract when energized(see Drawing one). Should you require piston rod to extend when energized, reposition the solenoid valve as shown in Drawing two.

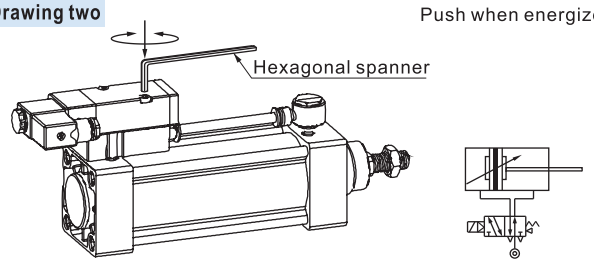
Drawing one

Pull when energized



Drawing two

Push when energized



Attention Ensure that the seals between the mounting block & valve are placed correctly when repositioning the valve.

List for ordering code of accessories

Accessories / Bore size	Mounting accessories			
	LB	FA\FB	CA	CB
32	F-SC32LB	F-SC32FA	F-SC32CA	F-SC32CB
40	F-SC40LB	F-SC40FA	F-SC40CA	F-SC40CB
50	F-SC50LB	F-SC50FA	F-SC50CA	F-SC50CB
63	F-SC63LB	F-SC63FA	F-SC63CA	F-SC63CB
80	F-SC80LB	F-SC80FA	F-SC80CA	F-SC80CB
100	F-SC100LB	F-SC100FA	F-SC100CA	F-SC100CB

Accessories / Bore size	Knuckle				Sensor switch	
	I：I Knuckle	Y：Y Knuckle	F：F Knuckle	U：U Knuckle	CMSG	DMSG(S)
32	F-M10X125I	F-M10X125Y	F-M10X125F	F-M10X125U	CMSG	DMSG(S)
40	F-M12X125I	F-M12X125Y	F-M12X125F	F-M12X125U		
50	F-M16X150I	F-M16X150Y	F-M16X150F	F-M16X150U		
63	F-M16X150I	F-M16X150Y	F-M16X150F	F-M16X150U		
80	F-M20X150I	F-M20X150Y	F-M20X150F	F-M20X150U		
100	F-M20X150I	F-M20X150Y	F-M20X150F	F-M20X150U		

Accessory selection

Accessories / Cylinder model		Mounting accessories					Knuckle [Note1]				Sensor switch	
		LB	FA	FB	CA	CB	I	Y	U	F	CMSG	DMSG(S)
SAU	Standard	●	●	●	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●	●	●	●
SAUF	Standard	●	●	●	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●	●	●	●
SAUD	Standard	●	●	×	×	×	●	●	●	●	×	×
	With magnet	●	●	×	×	×	●	●	●	●	●	●
SAUJ	Standard	●	●	×	×	×	●	●	●	●	×	×
	With magnet	●	●	×	×	×	●	●	●	●	●	●

[Note1] Please refer to P349~352 for knuckle detail.

Material of accessories

Accessories / Bore size	Mounting accessories					Knuckle			
	LB	FA	FB	CA	CB	I	Y	F	U
32~100	□	●	●	◇	◇	□	□	□	□

●——Aluminum alloy, ◇——Cast steel, □——Carbon steel

Dimensions

The accessories are the same as SC series's accessories, please refer to P49~52 for details.