







# Standard cylinder——SU Series

Profile type

## Product series

Series name	Mounting type							Acting type	Bore size	Collocation of sensor switch					
	Basic	LB	FA	FB	CA	CB	TC			CS1-B	DS1-B	CS1-F	DS1-F	CS1-U	DS1-U
Double acting type: SU 	●	●	●	●	●	●	●	Double acting	32 40 50 63 80 100	●	●	●	●	●	●
Double rod type: SUD 	●	●	●	●	●	●	●			●	●	●	●	●	●
Adjustable stroke type: SUJ 	●	●	●	●	●	●	●			●	●	●	●	●	●
Adjustable stroke type: SUJ 	●	●	●	●	●	●	●	Double acting	32 40 50 63 80 100	●	●	●	●	●	●
	●	●	●	●	●	●	●			●	●	●	●	●	●
Page	190									419					
	194 203														

## 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 40 μm or below.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- 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.
- 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.

## Criteria for selection: Cylinder thrust

Unit: Newton(N)

Bore size (mm)	Rod size (mm)	Acting type	Pressure area (mm <sup>2</sup> )	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
		Double acting 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
		Double acting 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
		Double acting 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
		Double acting 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
		Double acting 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
		Double acting Pull side	7362	736.2	1472.4	2208.6	2944.8	3681.0	4417.2	5153.4	5889.6	6625.8

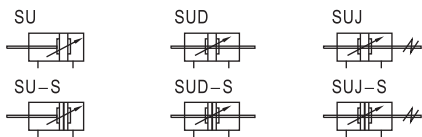


# Standard cylinder(Profile)

## SU Series



### Symbol



### Product feature

- Standard cylinder manufactured by our enterprise.
- The seal of piston adopts heterogeneous two way seal structure. Its dimension is tight and it has the function of oil reservation.
- It is no tie rod cylinder. The cylinder barrel is "Mickey Mouse" shape, and have good corrosion.
- Compared with ISO15552 standard cylinder, SU series cylinder with the same bore size is shorter.
- The buffer adjustment of cylinder is smooth and steady.
- Mounting accessories are the same as SC series.
- The seal material with high temperature resistance is adopted to guarantee the normal operation of cylinder at 150°C.

### Specification

Bore size(mm)	32	40	50	63	80	100
Acting type	Double acting					
Fluid	Air(to be filtered by 40 μm filter element)					
Mounting type	SU	Basic FA FB CA CB LB TC TCM1				
	SUD, SUJ	Basic FA LB TC TCM1				
Operating pressure	0.1~1.0MPa(15~145psi)(1.0~10.0bar)					
Proof pressure	1.5MPa(215psi)(15bar)					
Temperature °C	-20~80					
Speed range mm/s	30~800					
Stroke tolerance	0~250 <sup>+1.0</sup> <sub>0</sub>		251~1000 <sup>+1.4</sup> <sub>0</sub>		1001~1500 <sup>+1.8</sup> <sub>0</sub>	
Cushion type	Variable cushion					
Adjustable cushion stroke mm	21			28		29
Port size ①	1/8"	1/4"	3/8"		1/2"	

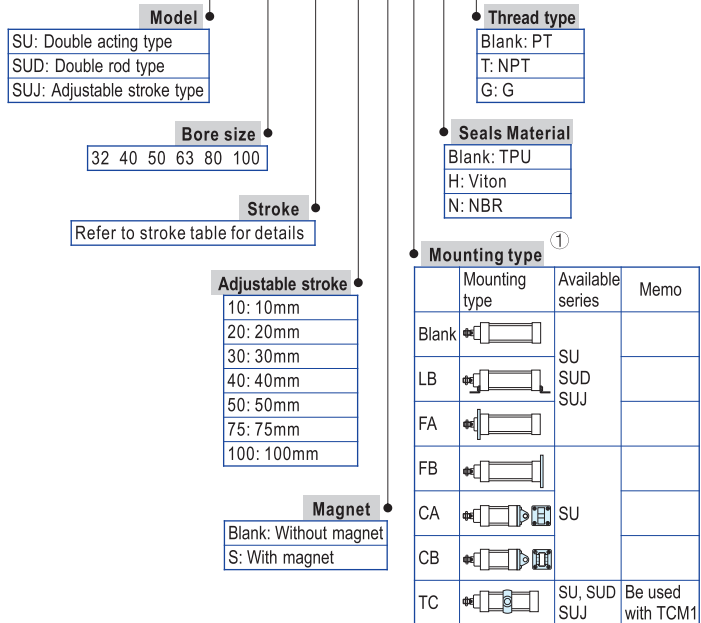
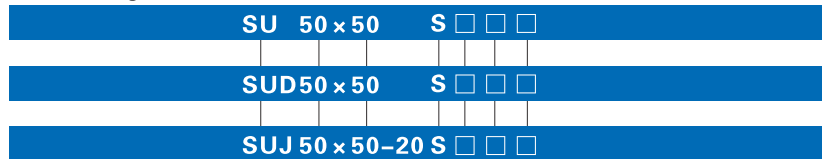
① PT thread, NPT thread and G thread are available.  
Add) Refer to P419~442 for detail of sensor switch.

### 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	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



① Please refer to page 194 & page 203~206 for accessory parts.



# Standard cylinder(Profile)

## SU Series

### Inner structure and material of major parts

**SU**

NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	Carbon steel with 20 μ m 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

**SU**

Bore size\Item	A	B	C	D	E	F	G	H	I	J	K
32	140	47	93	28	32	15	27.5	22	17	6	M10×1.25
40	142	49	93	32	34	15	27.5	24	17	7	M12×1.25
50	150	57	93	38	42	15	27.5	32	23	8	M16×1.5
63	153	57	96	38	42	15	27.5	32	23	8	M16×1.5
80	182	75	107	47	54	21	33	40	26	10	M20×1.5
100	188	75	113	47	54	21	33	40	26	10	M20×1.5

Bore size\Item	L	M	N	O	P	Q	R	S	T	V	W
32	M6×1.0	9.5	14	1/8"	5.5	6	6.5	45	33	12	10
40	M6×1.0	9.5	15	1/4"	6	5	8.5	50	37	16	14
50	M6×1.0	9.5	17	1/4"	8.5	2.5	10	62	47	20	17
63	M8×1.25	9.5	15	3/8"	9.5	4	8.5	75	56	20	17
80	M10×1.5	11.5	19.5	3/8"	10	4.5	14	94	70	25	22
100	M10×1.5	11.5	16.5	1/2"	11	6.5	14	112	84	25	22

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

**SUD**

**SUJ**

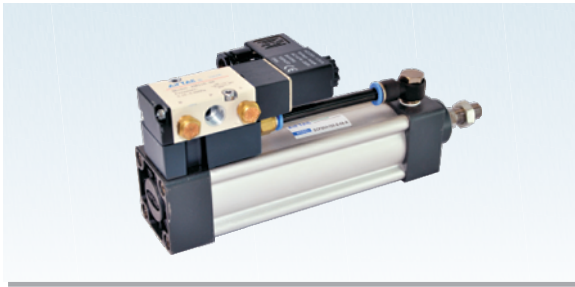
Bore size\Item	A1	A2	B	C	E	Z	J	K
32	187	182	47	93	32	27	6	M10X1.25
40	191	185	49	93	34	28	7	M12X1.25
50	207	194	57	93	42	29	8	M16X1.5
63	210	197	57	96	42	29	8	M16X1.5
80	257	238.5	75	107	54	35.5	10	M20X1.5
100	263	244.5	75	113	54	35.5	10	M20X1.5

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

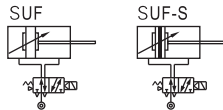


# Standard cylinder(Tie-rod)

## SUF Series(With valve 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 decentralise 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	Standard type 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	50	1000	2000
	With TC type 100 125 150 160 175 200 250 300 350 400 450 500			
40	Standard type 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	50	1200	2000
	With TC type 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000			
63 80 100	Standard type 75 80 100 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000	75	1500	2000
	With TC type 125 150 160 175 200 250 300 350 400 450 500 600 700 800 900 1000			

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 40 μm filter element)					
Mounting type	Basic FA FB CA CB LB TC TCM1					
Operating pressure	0.1~1.0MPa(15~145psi)(1.0~10.0bar)					
Proof pressure	1.5MPa(215psi)(15bar)					
Temperature °C	-20~80					
Speed range mm/s	30~800					
Stroke tolerance	0~250 <sup>+1.0</sup> <sub>0</sub> 251~1000 <sup>+1.4</sup> <sub>0</sub> 1001~1500 <sup>+1.8</sup> <sub>0</sub>					
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 40 μm filter element)					
Acting type	Internal piloted					
Port size ①	In=Exhaust=1/8" & In=1/4" Exhaust=1/8"		In=Exhaust=1/4" & In=PT3/8 Exhaust=1/4"			
Orifice size	4M210-06: 14.0mm <sup>2</sup> (Cv=0.78) 4M210-08: 16.0mm <sup>2</sup> (Cv=0.89)		4M310-08: 25.0mm <sup>2</sup> (Cv=1.40) 4M310-10: 30.0mm <sup>2</sup> (Cv=1.68)			
Valve type	5 port 2 position					
Operating pressure	0.15~0.8MPa(21~114psi)					
Proof pressure	1.5MPa(215psi)					
Temperature °C	-20~70					
Body material	Aluminum alloy					
Lubrication ②	Not required					
Max. frequency ③	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					

- ① PT thread, NPT thread and G thread are available.  
 ② It can't stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.  
 ③ The maximum actuation frequency is in the no-load state.  
 Add) Refer to P415~442 for detail of sensor switch.

### Ordering code

**SUF 50 × 1000 S □ -06 A □ □**

- Model**: SCF: Double acting with valve type
- Bore size**: 32 40 50 63 80 100
- Stroke**: Refer to stroke table for details
- Magnet**: Blank: Without magnet; S: With magnet
- Mounting type** ①:
 

Mounting type	Available series	Memo
Blank: Standard type		
LB: LB type		
FA: FA type	SCF	
FB: FB type		
CA: CA type		
CB: CB type		
TC: TC type		Be used with TCM1
- Thread type**: Blank: PT; T: NPT; G: G
- Electrical entry**: Blank: Terminal; I: Grommet
- Voltage**: A: AC220V; B: DC24V; C: AC110V; E: AC24V; F: DC12V
- Port size**: 06: 1/8"; 08: 1/4"; 10: 3/8"

① Please refer to page 194 & page 203~206 for accessory parts.



# Standard cylinder(Tie-rod)

## SUF Series(With valve type)

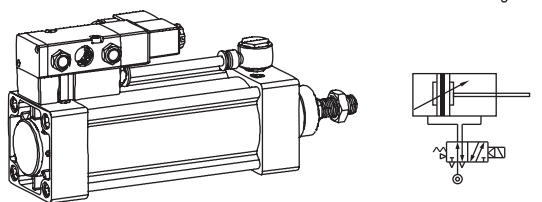
### Main combination

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

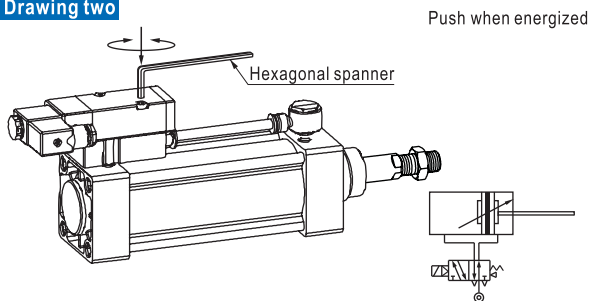
### How to use

- Options for piston rod to retract or extend when solenoid coil is energized.
- 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



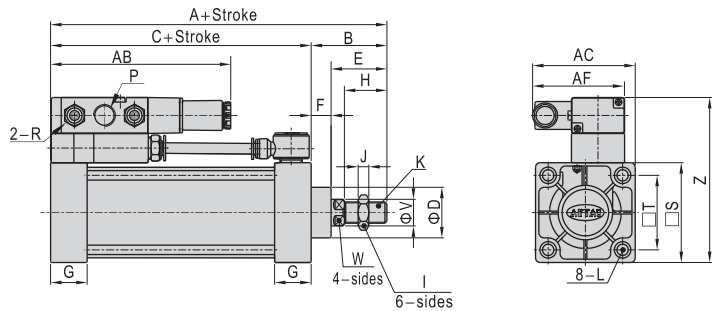
#### Drawing two



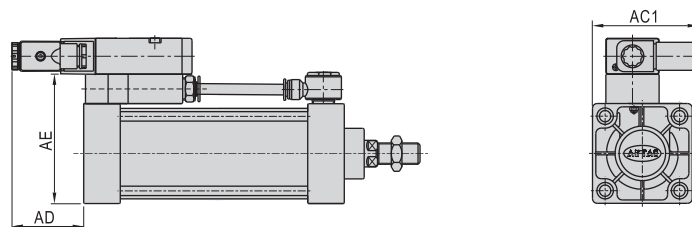
**Attention** Ensure that the seals between the mounting block & valve are placed correctly when repositioning the valve.

### Dimensions

#### Pull when electrify



#### Push when electrify



Bore size\Item	A	AB	AC	AC1	AD	AE	AF	B	C	D	E	F	K
32	140	118	66.7	76.7	52.8	67	66.7	47	93	28	32	15	M10X1.25
40	142	118	68.2	80.2	52.8	72	66.7	49	93	32	34	15	M12X1.25
50	150	120	71.7	88.7	50.8	84	66.7	57	93	38	42	15	M16X1.5
63	153	135.5	77.2	96.2	54.5	97	69.2	57	96	38	42	15	M16X1.5
80	182	137	86.2	106.2	53	116	69.2	75	107	47	54	21	M20X1.5
100	188	135.5	95.7	114.7	54.5	134	69.2	75	113	47	54	21	M20X1.5

Bore size\Item	Compatible valve's type	P	R	L	G	H	I	J	S	T	V	W	Z
32	4M210-06	1/8"											
	4M210-08	1/4"	1/8"	M6X1	27.5	22	17	6	45	33	12	10	89
40	4M210-06	1/8"											
	4M210-08	1/4"	1/8"	M6X1	27.5	24	17	7	50	37	16	14	94
50	4M210-06	1/8"											
	4M210-08	1/4"	1/8"	M6X1	27.5	32	23	8	62	47	20	17	106
63	4M310-08	1/4"											
	4M310-10	3/8"	1/4"	M8X1.25	27.5	32	23	8	75	56	20	17	124
80	4M310-08	1/4"											
	4M310-10	3/8"	1/4"	M10X1.5	33	40	26	10	94	70	25	22	143
100	4M310-08	1/4"											
	4M310-10	3/8"	1/4"	M10X1.5	33	40	26	10	112	84	25	22	161

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



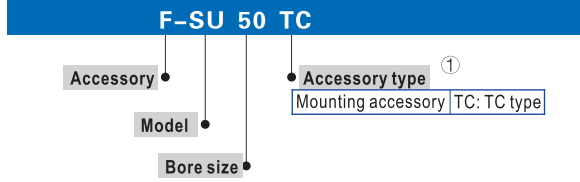
SUF



# Standard cylinder(Profile)

## Accessories

### Ordering code



① The listed accessories are for SU cylinder. Accessories that are adaptable to other cylinders are not shown. Please refer to accessory list for selection and ordering information.

### Accessory selection

Cylinder model	SU, SUF	SUD	SUJ
Accessories	Standard With magnet	Standard With magnet	Standard With magnet
Mounting accessory			
LB	●	●	●
FA	●	●	●
FB	●	×	×
CA	●	×	×
CB	●	×	×
TC	●	●	●
TCM1	●	●	●
Knuckle			
I	●	●	●
Y	●	●	●
U	●	●	●
① F	●	●	●
Sensor switch <sup>②</sup>			
CS1-B	×	×	×
DS1-B	×	×	×
CS1-F	×	×	×
DS1-F	×	×	×
CS1-U	×	×	×
DS1-U	×	×	×

① Please refer to P415~418 for knuckle detail.

② Please refer to P419~442 for detail of sensor switch.

### Material of accessories

Accessories	Mounting accessories	Knuckle
Bore size	LB FA FB CA CB TC TCM1 I Y F U	
32~100	□ ● ● ◇ ◇ ◇ ◇ □ □ □ □	

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

### List for ordering code of accessories

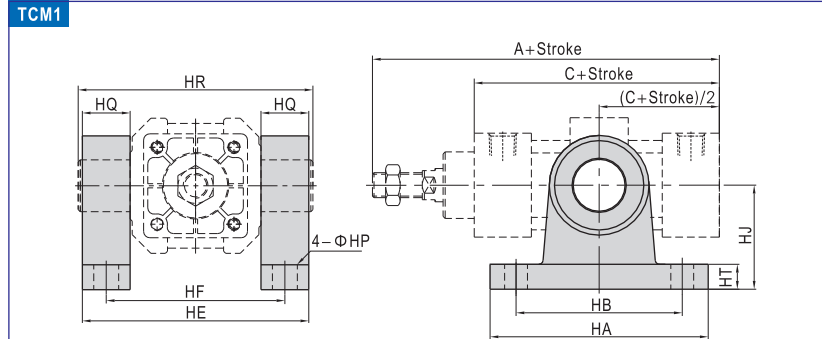
Accessories	Mounting accessory
Bore size	LB FA FB CA
32	F-SC32LB F-SC32FA F-SC32CA
40	F-SC40LB F-SC40FA F-SC40CA
50	F-SC50LB F-SC50FA F-SC50CA
63	F-SC63LB F-SC63FA F-SC63CA
80	F-SC80LB F-SC80FA F-SC80CA
100	F-SC100LB F-SC100FA F-SC100CA

Accessories	Mounting accessory
Bore size	CB TC TCM1
32	F-SC32CB F-SU32TC F-SI32TCM1
40	F-SC40CB F-SU40TC F-SC40TCM1
50	F-SC50CB F-SU50TC F-SC40TCM1
63	F-SC63CB F-SU63TC F-SC40TCM1
80	F-SC80CB F-SU80TC F-SC80TCM1
100	F-SC100CB F-SU100TC F-SC80TCM1

Accessories	Knuckle
Bore size	I: I Knuckle Y: Y Knuckle F: F Knuckle U: U Knuckle
32	F-M10X125I F-M10X125Y F-M10X125F F-M10X125U
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

Accessories	Sensor switch
Bore size	CS1-B □ DS1-B □ CS1-F DS1-F CS1-U DS1-U
32	CS1-B1 DS1-B1
40	CS1-B1 DS1-B1
50	CS1-B1 DS1-B1
63	CS1-B2 DS1-B2 CS1-F DS1-F CS1-U DS1-U
80	CS1-B3 DS1-B3
100	CS1-B4 DS1-B4

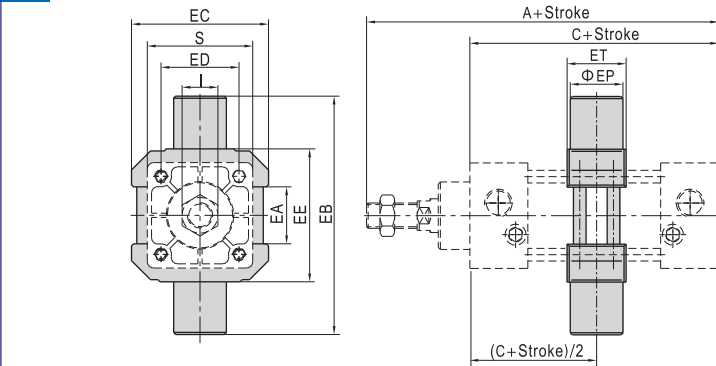
### Dimensions



Bore size/Item	A	C	HA	HB	HE	HF	HP	HQ	HR	HT	HJ
32	140	93	80	60	72	62	9	12	74	11	40
40	142	93	103	80	109	86	11	23	113	12	50
50	150	93	103	80	122	99	11	23	126	12	50
63	153	96	103	80	134	111	11	23	138	12	50
80	182	107	110	85	160	137	13	23	164	12	70
100	188	113	110	85	178	155	13	23	182	12	70

Note) The installation position of the accessories can not be adjusted arbitrarily.

### TC



Bore size/Item	A	C	EA	EB	EC	ED	EE	EP	ET	I	S
32	140	93	20	74	52	33	50	12	22	17	45
40	142	93	27	113	65	37	63	25	28	17	50
50	150	93	31	126	75	47	76	25	28	23	62
63	153	96	42	138	90	56	88	25	30	23	75
80	182	107	54	164	112	70	114	25	32	26	94
100	188	113	68	182	135	84	132	25	38	26	112

Note) The installation position of the accessories can not be adjusted arbitrarily.

The others accessories are the same as SC series's accessories, please refer to P203~206 for details.

