

02 | Hydraulic cylinder



KP140H	Hydraulic Cylinder	[-2
KP210H	High-Pressure Hydraulic Cylinde	[-22
KPC140HT	Mill type Hydraulic Cylinder	[-35
KPC210HR	Mill type High-Pressure Hydraulic Cylinder	[-46
KTC70HP	Telescopic Cylinder	[-56
KP140HS	Steel Compact Cylinder	[-69
KP125/160A	Aluminum Compact Cylinder	[-77
KP35R	Rotary Cylinder (3.5MPa)	[-86
KP70R	Rotary Cylinder (7.0MPa)	[-91
KH	Industrial Dual Hook Cylinder	[-96
KP35H	Round Low Hydraulic Cylinder	[-100
HTC	High Temperature Compact Cylinder	[-108

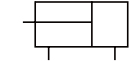
KP140H series



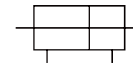
Features

- Standard tie rod type hydraulic cylinder
- Double acting hydraulic cylinder for 70 kgf/cm² or 140kgf/cm² with bore sizes from Ø32 to Ø250.
- High performance cushion to reduce shock when stopping.
- Various mounting styles (SD, LA, LB, FA, FB, FY, FZ, FC, FD, CA, CB, TC, TA)

Symbol

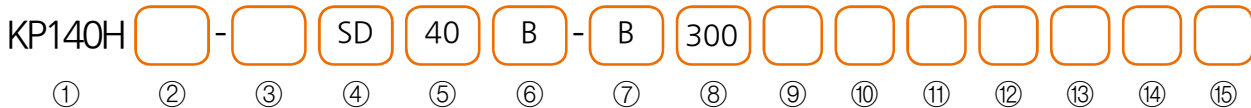


Double Acting / Single Rod



Double Acting / Double Rod

How to Order



① Series

KP140H	Single rod
KP140H W	Double rod
KP140HL	With auto switch (Single)
KP140HL W	With auto switch (Double)

② Seal

C	Compact seal (Standard)
B	Seal for booster cylinder
Nil	Basic seal

③ Seal Material

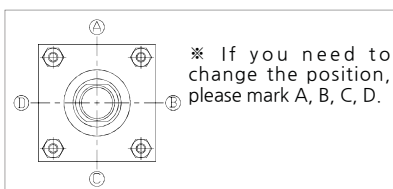
Nil	Nitrile urethane (standard)
1	Nitrile rubber
2	Urethane rubber
3	Fluoric rubber

※ When using a compact seal, the only standard type is available.

④ Mounting style

SD	Standard	FC	Rod side square flange
LA	Axial angle of foot	FD	Head side square flange
LB	Axial foot	CA	Single clevis
FA	Rod side rectangular flange	CB	Double clevis
FB	Head side rectangular flange	TC	Center trunnion
FY	Rod side rectangular flange	TA	Rod side trunnion
FZ	Head side rectangular flange		

※ LB, FA and FB are for 70kgf / cm² pressure.



⑤ Bore size

Bore size		B (Strong)	C (Standard)
32	Ø32	Ø18	-
40	Ø40	Ø22	Ø18
50	Ø50	Ø28	Ø22
63	Ø63	Ø35	Ø28
80	Ø80	Ø45	Ø35
100	Ø100	Ø55	Ø45
125	Ø125	Ø70	Ø55
140	Ø140	Ø80	Ø65
150	Ø150	Ø85	Ø65
160	Ø160	Ø90	Ø70
180	Ø180	Ø100	Ø80
200	Ø200	Ø110	Ø90
250	Ø250	Ø140	Ø110

⑦ Cushion

N	Without cushion
B	Cushions on both ends
R	Cushion on the rod side
H	Cushion on the head side

⑧ Cylinder stroke

Bore size	Max. stroke
Ø32, Ø40, Ø50	1200
Ø63, Ø80	1600
Ø100	2000
Ø125~Ø250	2000

※ Check buckling, as it varies depending on mounting style.

※ Contact us for longer stroke.

⑨ Port position

Nil	A (Standard)
B, C, D	Refer to the next figure

※ It can be changed depending on the support type.

⑩ Cushion valve position

Nil	B (Standard)
A, C, D	Refer to the next figure

※ It can be changed depending on the support type.

⑪ Bellows

	Material	Max. ambient temperature
Nil	Without bellows	
J	Nylon Tarpaulin	60 °C
K	Neoprene Cloth	110 °C

⑫ Rod end attachment

Nil	Rod end nut (Standard)
I	Single knuckle joint
Y	Double knuckle joint

⑬ Auto switch

Reed A/S	Model	Solid state A/S	Model
A54	D-A54K	F59	D-F59K
A56	D-A56K	F5P	D-F5PK
A64	D-A64K	J59	D-J59K
A90(V)	D-A90(V)K	J51	D-J51K
A93(V)	D-A93(V)K	F9N	D-F9N(V)K
A96(V)	D-A96(V)K	F9P	D-F9P(V)K
		F9B	D-F9B(V)K

※ Only for single rod auto switch attached type.

※ For more information, refer to Auto Switch Catalogue.

⑭ Number of auto switch

Nil	2 pcs
1	1 pc
N	N pcs (N:3,4,5...)

※ Only for single rod auto switch attached type.

⑮ Special order

Nil	None
ASJ	Adjustable when advancing 25mm
BSJ	Adjustable when advancing 50mm

※ Only Ø40 ~ Ø125 can be produced (B type rod)

Specifications

Type	Standard (H*)				Auto switch attached (HL*)			
	C Rod		B Rod		C Rod		B Rod	
Bore size	Ø32, Ø40, Ø50, Ø63, Ø80, Ø100, Ø125, Ø140, Ø150, Ø160, Ø180, Ø200, Ø250				Ø32, Ø40, Ø50, Ø63, Ø80, Ø100			
Operating pressure	70kgf/cm ² (7.1MPa)		140kgf/cm ² (14.3MPa)		70kgf/cm ² (7.1MPa)		140kgf/cm ² (14.3MPa)	
Max. operating pressure	Head side:90kgf/cm ² (9.2MPa) Rod side:110kgf/cm ² (11.2MPa)		Head side:180kgf/cm ² (18.4MPa) Rod side:180kgf/cm ² (18.4MPa)		Head side:90kgf/cm ² (9.2MPa) Rod side:110kgf/cm ² (11.2MPa)		Head side:180kgf/cm ² (18.4MPa) Rod side:180kgf/cm ² (18.4MPa)	
Proof pressure	105kgf/cm ² (10.7MPa)		210kgf/cm ² (21.4MPa)		105kgf/cm ² (10.7MPa)		210kgf/cm ² (21.4MPa)	
Min. operating pressure	Head side ≤3kgf/cm ² (0.31MPa), Rod side: B Rod ≤4.5kgf/cm ² (0.46MPa), C Rod ≤ 4kgf/cm ² (0.41MPa)							
Operating piston speed	Ø32 ~ Ø63 : 8~400mm/sec Ø80 ~ Ø125 : 8~300mm/sec Ø140 ~ Ø250 : 8~200mm/sec				Ø32 ~ Ø63 : 8~400mm/sec Ø80 ~ Ø100 : 8~300mm/sec			
Ambient & fluid temperature	-10 ~ 80°C				-10 ~ 70°C			
Cushion	Metal fitting type							
Working oil	Petroleum-based fluid							
Tolerance of thread	KS class 2							
Tolerance of stroke	ST	≤ 100mm	101~250mm	251~630mm	631~1000mm	1001~1600mm	1601~2000mm	
	limit	+0.8 0	+1.0 0	+1.25 0	+1.4 0	+1.6 0	+1.8 0	
Tube material	Carbon steel for machine structural use				Stainless steel			
Mounting style	SD, LA, (LB), (FA), (FB), FY, FZ, FC, FD, CA, CB, TC, TA							

- * Operating pressure: Max. allowable setting pressure for a relief valve while cylinder is operating.
- * Max. operating pressure: Maximum allowable pressure generated in a cylinder (surge pressure, etc.).
- * Proof pressure: Test pressure for a cylinder can withstand without unreliable performance when returning to operating pressure.
- * Min. operating pressure: Minimum pressure for cylinder installed horizontally and operating without load.
- * Operating pressure for the mounting styles in () are 70kgf/cm².
- * A longer thread length (A) is required when lock nut is applied on the end of the piston rod.

Cushion Length

Unit:mm

Bore size	Ø32 ~ Ø80	Ø100 ~ Ø160	Ø180 ~ Ø250
Cushion length	20	25	30

Mounting Style

Bore size	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø150	Ø160	Ø180	Ø200	Ø250
Mounting	LA (Hyd.)32	LA (Hyd.)40	LA (Hyd.)50	LA (Hyd.)63	LA (Hyd.)80	LA (Hyd.)100	LA (Hyd.)125	LA (Hyd.)140	LA (Hyd.)150	LA (Hyd.)160	LA (Hyd.)180	LA (Hyd.)200	LA (Hyd.)250
Axial angle of foot	LA (Hyd.)32	LA (Hyd.)40	LA (Hyd.)50	LA (Hyd.)63	LA (Hyd.)80	LA (Hyd.)100	LA (Hyd.)125	LA (Hyd.)140	LA (Hyd.)150	LA (Hyd.)160	LA (Hyd.)180	LA (Hyd.)200	LA (Hyd.)250
Axial foot	LB (Hyd.)32	LB (Hyd.)40	LB (Hyd.)50	LB (Hyd.)63	LB (Hyd.)80	LB (Hyd.)100	LB (Hyd.)125	LB (Hyd.)140	LB (Hyd.)150	LB (Hyd.)160	LB (Hyd.)180	LB (Hyd.)200	LB (Hyd.)250
Flange	FA/FB (Hyd.)32	FA/FB (Hyd.)40	FA/FB (Hyd.)50	FA/FB (Hyd.)63	FA/FB (Hyd.)80	FA/FB (Hyd.)100	FA/FB (Hyd.)125	FA/FB (Hyd.)140	FA/FB (Hyd.)150	FA/FB (Hyd.)160	FA/FB (Hyd.)180	FA/FB (Hyd.)200	FA/FB (Hyd.)250
Reinforced square flange	FY/FZ (Hyd.)32	FY/FZ (Hyd.)40	FY/FZ (Hyd.)50	FY/FZ (Hyd.)63	FY/FZ (Hyd.)80	FY/FZ (Hyd.)100	FY/FZ (Hyd.)125	FY/FZ (Hyd.)140	FY/FZ (Hyd.)150	FY/FZ (Hyd.)160	FY/FZ (Hyd.)180	FY/FZ (Hyd.)200	FY/FZ (Hyd.)250
Square flange	FC/FD (Hyd.)32	FC/FD (Hyd.)40	FC/FD (Hyd.)50	FC/FD (Hyd.)63	FC/FD (Hyd.)80	FC/FD (Hyd.)100	FC/FD (Hyd.)125	FC/FD (Hyd.)140	FC/FD (Hyd.)150	FC/FD (Hyd.)160	FC/FD (Hyd.)180	FC/FD (Hyd.)200	FC/FD (Hyd.)250
Single clevis	CA (Hyd.)32	CA (Hyd.)40	CA (Hyd.)50	CA (Hyd.)63	CA (Hyd.)80	CA (Hyd.)100	CA (Hyd.)125	CA (Hyd.)140	CA (Hyd.)150	CA (Hyd.)160	CA (Hyd.)180	CA (Hyd.)200	CA (Hyd.)250
Double clevis	CB (Hyd.)32	CB (Hyd.)40	CB (Hyd.)50	CB (Hyd.)63	CB (Hyd.)80	CB (Hyd.)100	CB (Hyd.)125	CB (Hyd.)140	CB (Hyd.)150	CB (Hyd.)160	CB (Hyd.)180	CB (Hyd.)200	CB (Hyd.)250
Trunnion	TA/TC (Hyd.)32	TA/TC (Hyd.)40	TA/TC (Hyd.)50	TA/TC (Hyd.)63	TA/TC (Hyd.)80	TA/TC (Hyd.)100	TA/TC (Hyd.)125	TA/TC (Hyd.)140	TA/TC (Hyd.)150	TA/TC (Hyd.)160	TA/TC (Hyd.)180	TA/TC (Hyd.)200	TA/TC (Hyd.)250
Double clevis pin	CB PIN (Hyd.)32	CB PIN (Hyd.)40	CB PIN (Hyd.)50	CB PIN (Hyd.)63	CB PIN (Hyd.)80	CB PIN (Hyd.)100	CB PIN (Hyd.)125	CB PIN (Hyd.)140	CB PIN (Hyd.)150	CB PIN (Hyd.)160	CB PIN (Hyd.)180	CB PIN (Hyd.)200	CB PIN (Hyd.)250

Rod End Attachment

Bore size		Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø150	Ø160
Accessory	B Rod	I (Hyd.)32B	I (Hyd.)40B	I (Hyd.)50B	I (Hyd.)63B	I (Hyd.)80B	I (Hyd.)100B	I (Hyd.)125B	I (Hyd.)140B	I (Hyd.)150B	I (Hyd.)160B
	C Rod	-	I (Hyd.)40C	I (Hyd.)50C	I (Hyd.)63C	I (Hyd.)80C	I (Hyd.)100C	I (Hyd.)125C	I (Hyd.)140C	I (Hyd.)150C	I (Hyd.)160C
Single knuckle joint	B Rod	Y (Hyd.)32B	Y (Hyd.)40B	Y (Hyd.)50B	Y (Hyd.)63B	Y (Hyd.)80B	Y (Hyd.)100B	Y (Hyd.)125B	Y (Hyd.)140B	Y (Hyd.)150B	Y (Hyd.)160B
	C Rod	-	Y (Hyd.)40C	Y (Hyd.)50C	Y (Hyd.)63C	Y (Hyd.)80C	Y (Hyd.)100C	Y (Hyd.)125C	Y (Hyd.)140C	Y (Hyd.)150C	Y (Hyd.)160C
Double knuckle joint	B Rod	Y (Hyd.)32B	Y (Hyd.)40B	Y (Hyd.)50B	Y (Hyd.)63B	Y (Hyd.)80B	Y (Hyd.)100B	Y (Hyd.)125B	Y (Hyd.)140B	Y (Hyd.)150B	Y (Hyd.)160B
	C Rod	-	Y (Hyd.)40C	Y (Hyd.)50C	Y (Hyd.)63C	Y (Hyd.)80C	Y (Hyd.)100C	Y (Hyd.)125C	Y (Hyd.)140C	Y (Hyd.)150C	Y (Hyd.)160C
Double knuckle joint pin		Y PIN (Hyd.)32	Y PIN (Hyd.)40	Y PIN (Hyd.)50	Y PIN (Hyd.)63	Y PIN (Hyd.)80	Y PIN (Hyd.)100	Y PIN (Hyd.)125	Y PIN (Hyd.)140	Y PIN (Hyd.)150	Y PIN (Hyd.)160
Rod end nut		RN (Hyd.)32	RN (Hyd.)40	RN (Hyd.)50	RN (Hyd.)63	RN (Hyd.)80	RN (Hyd.)100	RN (Hyd.)125	RN (Hyd.)140	RN (Hyd.)150	RN (Hyd.)160

Mass

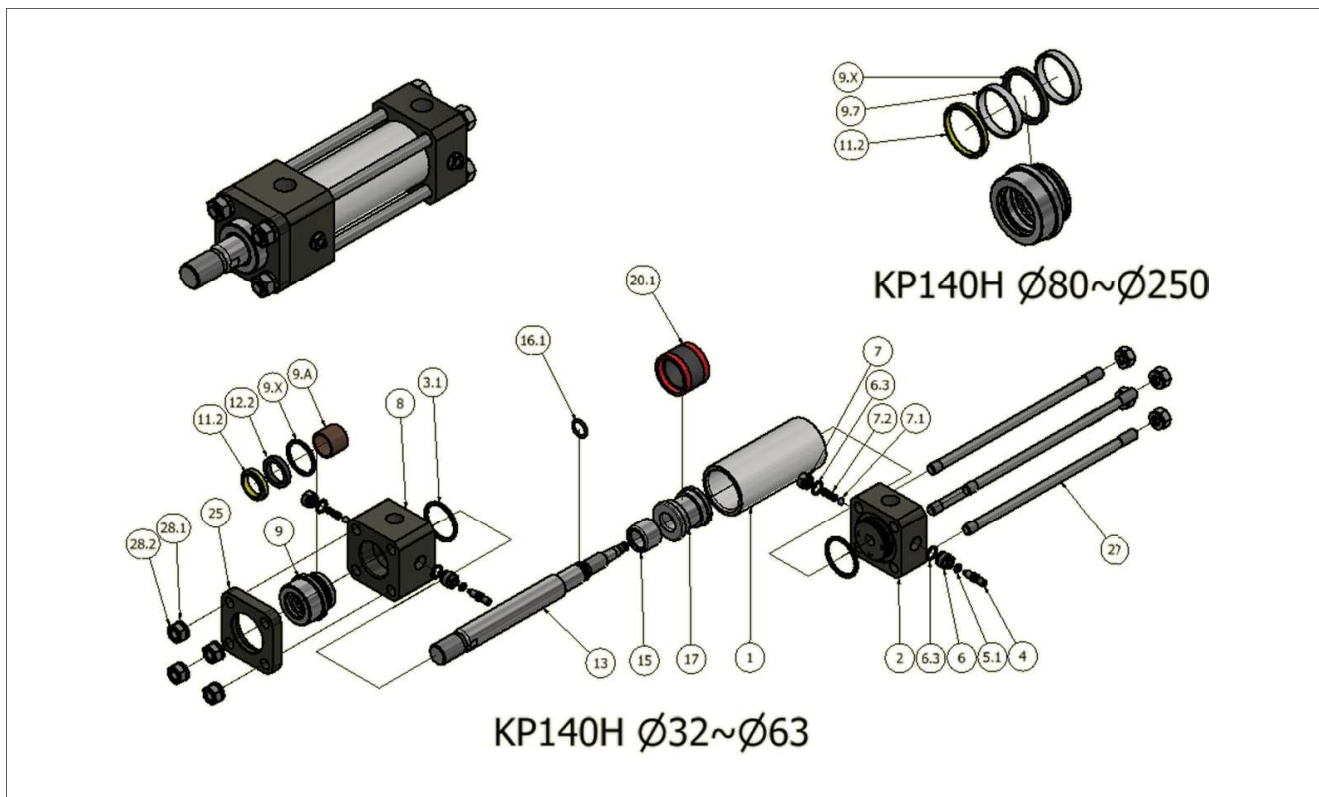
Unit : kg

Bore size	Rod type	Basic mass (SD)		Mounting mass												Accessory mass		Additional mass for each 1mm of stroke	
		Standard type	Double rod type	LA	LB	FA	FB	FC	FD	FY	FZ	CA	CB	TA	TC	Single knuckle joint	Double knuckle joint	Standard type	Double rod type
Ø32	B	3.3	4.1	0.3	0.3	0.1	0.6	0.6	0.9	0.2	0.7	0.4	0.5	0.1	0.5	0.5	0.7	0.006	0.008
	C	3.5	4.4	0.5	0.5	0.2	0.7	0.7	1.1	0.3	0.8	0.5	0.6	0.1	0.6	0.5	0.7	0.011	0.014
Ø40	B	3.4	4.3															0.010	0.012
	C	5.0	6.4	0.9	0.7	0.7	1.2	1.5	2.0	1.1	1.6	1.0	1.2	0.4	1.0	1.0	1.2	0.014	0.019
Ø50	B	4.9	6.2															0.012	0.014
	C	7.9	10.2	1.0	1.2	1.0	1.8	2.2	3.1	1.6	2.4	2.0	2.6	0.6	1.2	2.7	3.9	0.019	0.027
Ø63	B	7.6	9.8															0.017	0.022
	C	16.2	20.3	1.8	2.0	1.1	3.0	2.8	4.7	2.1	4.0	3.0	3.6	0.6	2.1	2.7	3.7	0.032	0.045
Ø80	B	15.5	19.4															0.027	0.035
	C	26.0	32.7	2.1	2.9	1.8	4.8	4.6	7.4	3.9	6.9	5.5	6.7	1.0	3.8	4.2	7.7	0.048	0.067
Ø100	B	24.9	31.1															0.042	0.055
	C	42.9	53.6	3.2	5.5	2.9	8.4	8.0	13.0	6.2	12.1	9.9	12.1	2.1	6.2	8.0	14.6	0.077	0.107
Ø125	B	42.5	52.7															0.065	0.084
	C	59.6	73.9	3.8	7.7	3.2	11.1	9.2	17.1	8.2	16.1	16.7	21.0	4.1	11.1	19.0	28.8	0.100	0.140
Ø140	B	56.0	69.6															0.085	0.111
	C	66.9	86.5	4.8	9.6	4.9	13.7	16.6	22.4	10.7	19.5	18.2	26.8	4.6	10.9	18.9	28.3	0.118	0.162
Ø150	B	67.9	83.6															0.101	0.127
	C	84.3	114.6	5.4	10.0	5.3	16.5	19.0	25.2	11.3	22.5	22.9	28.4	5.2	14.8	22.7	34.2	0.121	0.171
Ø160	B	79.9	99.1															0.102	0.132
	C	115.1	-	7.9	13.8	7.7	22.7	25.0	33.6	17.5	32.5	33.8	42.9	-	19.4	-	-	0.179	0.241
Ø180	B	108.5	-															0.157	0.197
	C	155.2	-	11.4	21.0	10.6	31.6	28.8	48.7	22.6	43.6	51.4	65.4	-	27.2	-	-	0.220	0.295
Ø200	B	147.3	-															0.192	0.242
	C	283.7	-	18.3	46.7	17.5	55.1	48.2	88.3	42.5	80.1	74.5	91.6	-	43.3	-	-	0.333	0.454
Ø250	B	264.1	-															0.290	0.365
	C																		

Calculation:

Ex.) KP140H-LA80B-N200
 Basic mass: 16.2 / Additional mass: 0.032 / Cylinder stroke: 200mm /
 LA type:1.8
 $16.2 + (0.032 \times 200) + 1.8 = 24.4\text{kg}$

Structure



Part List

Part no.	Parts	Material	Part no.	Parts	Material
1	TUBE	STM13C	9	BUSH	SM45C
2	HEAD COVER	SS400	13	ROD(B)	SM45C
4	CUSHION NEEDLE	SUM24L	15	CUSHION RING	SM45C
6	CUSHION BODY	SUM24L	17	PISTON	SM45C
7	CHECK BODY	SUM24L	25	RETAINER	SS400
7.1	STEEL BALL	SUJ2	27	TIE ROD	SM45C
7.2	COIL SPRING	SUM24L	28.1	S/WASHER	SWRH
8	ROD COVER	SS400	28.2	HEX NUT	SM45C

Packing List

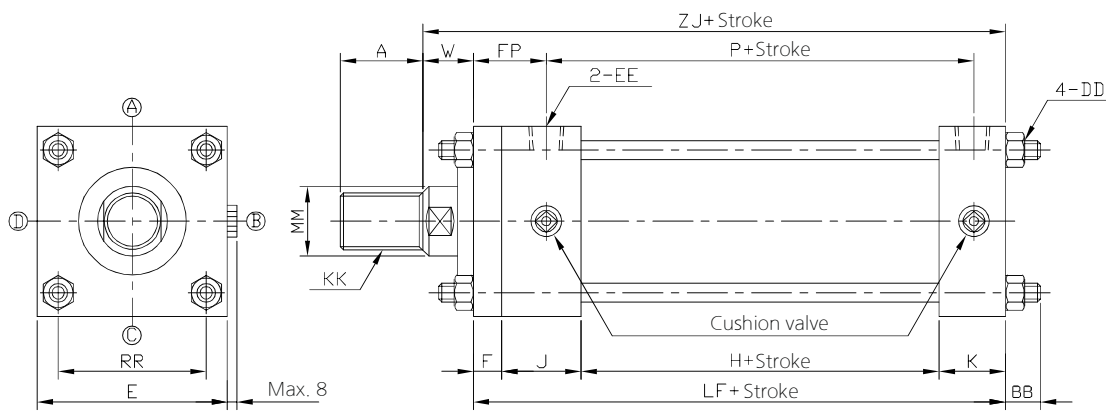
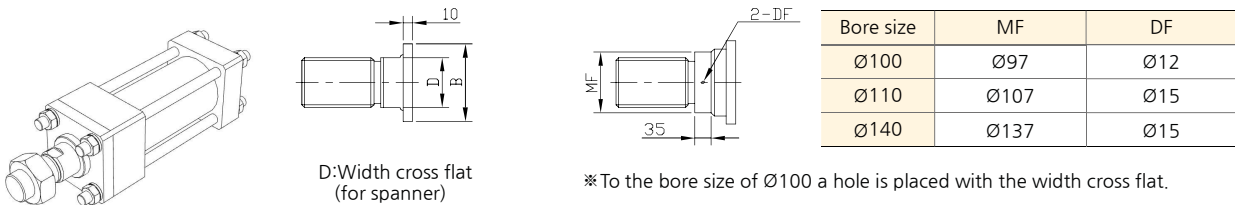
Part no.	Parts	Rod type	Material	Tube Bore Size (mm)														
				32	40	50	63	80	100	125	140	150	160	180	200	250		
3.1	TUBE O-RING	B / C	N.B.R	1B-P26/1B-G30	1B-G35	1B-G45	1B-G58	1B-G75	1B-G95	1B-G120	1B-G135	1B-G145	1B-G150	1B-G170	1B-G190	1B-G240		
5.1	NEEDLE O-RING	B / C	N.B.R	1B-P5	1B-P5	1B-P5	1B-P5	1B-P6	1B-P6	1B-P9	1B-P9	1B-P9	1B-P9	1B-P9	1B-P9	1B-P9		
6.3	C.B O-RING	B / C	N.B.R	1B-P10	1B-P10	1B-P10	1B-P10	1B-P11	1B-P11	1B-P15	1B-P15	1B-P15	1B-P15	1B-P15	1B-P15	1B-P15		
9.7	WEARING	B	PHENOL	-	-	-	-	45x50x10	55x60x10	70x75x10	80x85x10	85x90x10	90x95x10	100x105x10	110x115x10	140x145x10		
		C	PHENOL	-	-	-	-	35x40x10	45x50x10	55x60x10	65x70x10	65x70x10	70x75x10	80x85x10	90x95x10	90x95x10		
9.A	DU BUSH	B	SPCC	-	DUB2220	DUB2820	DUB3520	-	-	-	-	-	-	-	-	-		
		C	N.B.R	-	DUB1820	DUB2220	DUB2820	-	-	-	-	-	-	-	-	-		
9.X	BUSH O-RING	B / C	N.B.R	1B-G25	1B-G30	1B-G35	1B-G45	1B-G55	1B-G65	1B-G80	1B-G95	1B-G95	1B-G100	1B-G110	1B-G125	1B-G150		
11.2	DUST SEAL	B	URETHANE	-	LBI-22x30x4.5/6	LBI-28x36x4.5/6	LBI-35x43x5/6.5	LBI-45x53x5/6.5	LBI-55x63x5/6.5	LBI-70x80x6/8	LBI-80x90x6/8	LBI-85x95x6/8	LBI-100x110x6/8	LBI-100x110x6/8	LBI-110x120x6/8	LBI-140x153x7/9.5		
		C	URETHANE	-	LBI-18x26x4.5/6	LBI-22x30x4.5/6	LBI-28x36x4.5/6	LBI-35x43x5/6.5	LBI-45x53x5/6.5	LBI-55x63x5/6.5	LBI-70x80x6/8	LBI-80x90x6/8	LBI-85x95x6/8	LBI-100x110x6/8	LBI-100x110x6/8	LBI-110x120x6/8		
12.2	ROD PACKING	B	N.B.R	UHR-18	USI-22	UHR-28	UHS-35	UHR-45A	UHS-55	UHS-70	UHR-80	UHR-85	UHR-90	UHR-100	ISI-110	UHR-140		
		C	N.B.R		UHR-18	USI-22	UHR-28	UHS-35	UHR-45A	UHS-55	UHS-65	UHS-65	UHS-70	UHR-80	UHR-90	ISI-110		
16.1	ROD O-RING	B / C	N.B.R	1B-S12.5	1B-P14	1B-P18	1B-P22A	1B-P29	1B-G40	1B-G50	1B-G60	1B-G60	1B-G65	1B-G75	1B-G85	1B-G105		
20.1	PISTON PACKING	B / C	N.B.R	OMK	C/	C/	C/	C/	C/	C/	C/	KDS®	C/	KDS®	C/	C/		
				MR32x24.5x3.2	P-40x30x16.4	P-40x30x16.4	P-63x47x18.4	P-80x60x22.4	P-100x75x22.4	P-125x100x25.4	140x115x25.4	P-150x125x25.4	P-150x125x25.4	160x135x25.4	P-180x155x25.4	P-200x175x25.4		

※ (B): B Rod, (C): C Rod type.

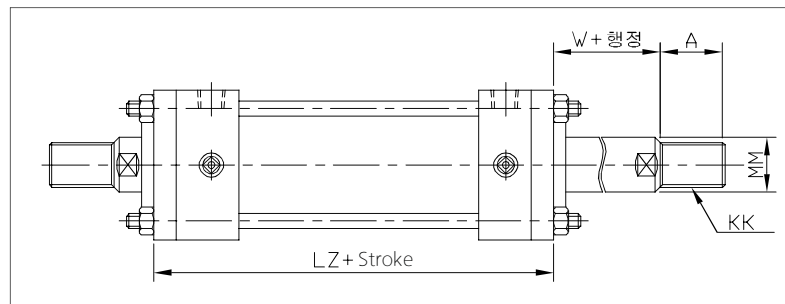
※ Port and cushion position available upon customer request.

Dimensions-Standard (SD)

70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.



Double rod type (Ø32 ~ Ø160)



Cylinder cover fixing method according to stroke
Unit:mm

Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

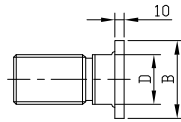
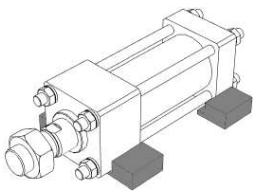
Unit : mm

Bore size	B Rod type					C Rod type					BB	DD	E	EE	F	FP	H	J	K	LF	LZ	P	RR	W	ZJ
	A	B	D	KK	MM	A	B	D	KK	MM															
Ø32	25	Ø34	16	M16X1.5	Ø18	-	-	-	-	-	14	M10x1.25	□58	Rc(PT)3/8	11	38	44	50	36	141	166	90	38	30	171
Ø40	30	Ø40	21	M20X1.5	Ø22	25	Ø36	17	M16X1.5	Ø18	15	M10x1.25	□65	Rc(PT)3/8	11	38	54	45	31	141	166	90	45	30	171
Ø50	35	Ø45	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	15	M10x1.25	□76	Rc(PT)1/2	13	42	58	49	35	155	182	98	52	30	185
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø45	24	M24X1.5	Ø28	17	M12x1.5	□90	Rc(PT)1/2	15	46	62	51	35	163	194	102	63	35	198
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	23	M16x1.5	□110	Rc(PT)3/4	18	56	64	61	41	184	222	110	80	35	219
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	26	M18x1.5	□135	Rc(PT)3/4	20	58	70	61	41	192	232	116	102	40	232
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	30	M22x1.5	□165	Rc(PT)1	24	67	82	67	47	220	264	130	122	45	265
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	35	M24x1.5	□185	Rc(PT)1	26	67	96	64	44	230	276	142.5	138	50	280
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	35	M27x1.5	□196	Rc(PT)1	28	68	104	64	44	240	288	152	148	50	290
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	35	M27x1.5	□210	Rc(PT)1	31	74	106	68	48	253	304	156	160	55	308
Ø180	140	Ø125	-	M95X2	Ø100	110	Ø105	75	M72X2	Ø80	40	M30x1.5	□235	Rc(PT)1 1/4	33	75	116	70	56	275	-	172	182	55	330
Ø200	150	Ø140	-	M100X2	Ø110	120	Ø115	85	M80X2	Ø90	40	M33x1.5	□262	Rc(PT)1 1/2	37	85	115	83	66	301	-	185	200	55	356
Ø250	195	Ø170	-	M130X2	Ø140	150	Ø140	-	M100X2	Ø110	50	M42x1.5	□325	Rc(PT)2	46	106	126	97	77	346	-	200	250	65	411

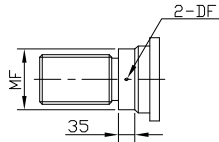
Dimensions-Axial Angle of Foot (LA)

70kgf/cm² • 140kgf/cm²

※ Shape varies depending on bore sizes.

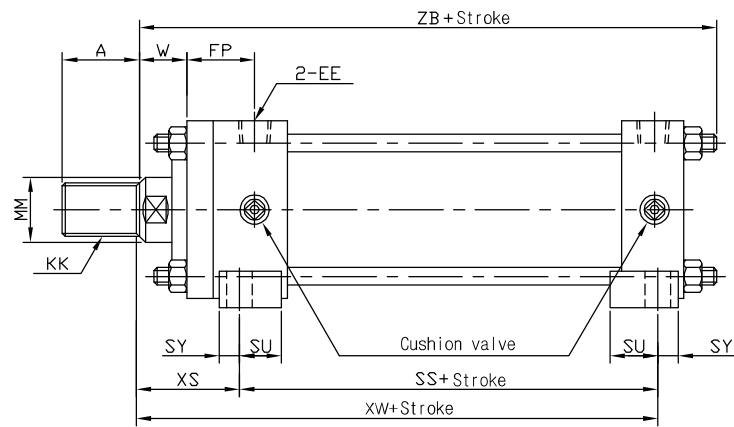
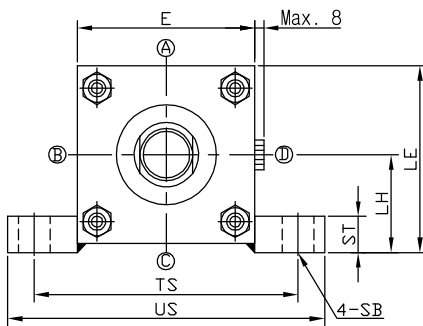


D: Width cross flat (for spanner)

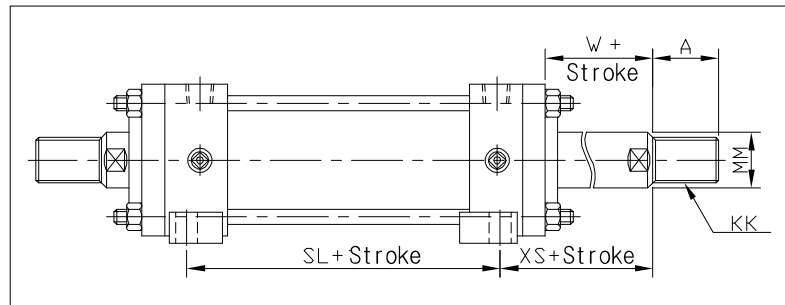


※ To the bore size of $\varnothing 100$ a hole is placed with the width cross flat.

Bore size	MF	DF
$\varnothing 100$	$\varnothing 97$	$\varnothing 12$
$\varnothing 110$	$\varnothing 107$	$\varnothing 15$
$\varnothing 140$	$\varnothing 137$	$\varnothing 15$



Double rod type ($\varnothing 32 \sim \varnothing 160$)



※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit:mm

Bore size	~1500	1501~2000
$\varnothing 80 \sim \varnothing 250$	Tie rod type	Tube flange type

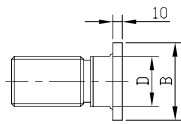
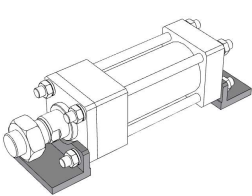
Unit : mm

Bore size	B Rod type					C Rod type					E	EE	FP	LE	LH	SB	SL	SS	ST	SU	SY	TS	US	W	XS	XW	ZB
	A	B	D	KK	MM	A	B	D	KK	MM																	
$\varnothing 32$	25	$\varnothing 34$	16	M16X1.5	$\varnothing 18$	-	-	-	-	-	$\square 58$	Rc(PT)3/8	38	64	35±0.15	$\varnothing 11$	112	98	12	31	13	88	109	30	56	155	185
$\varnothing 40$	30	$\varnothing 40$	21	M20X1.5	$\varnothing 22$	25	$\varnothing 36$	17	M16X1.5	$\varnothing 18$	$\square 65$	Rc(PT)3/8	38	70	37.5±0.15	$\varnothing 11$	112	98	14	31	13	95	118	30	57	155	186
$\varnothing 50$	35	$\varnothing 45$	24	M24X1.5	$\varnothing 28$	30	$\varnothing 40$	20	M20X1.5	$\varnothing 22$	$\square 76$	Rc(PT)1/2	42	83	45±0.15	$\varnothing 14$	122	108	17	34	14	115	145	30	60	168	200
$\varnothing 63$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	35	$\varnothing 46$	24	M24X1.5	$\varnothing 28$	$\square 90$	Rc(PT)1/2	46	95	50±0.15	$\varnothing 18$	122	106	19	32	18	132	165	35	71	177	215
$\varnothing 80$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	$\square 110$	Rc(PT)3/4	56	115	60±0.25	$\varnothing 18$	144	124	25	42	18	155	190	35	74	198	242
$\varnothing 100$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	$\square 135$	Rc(PT)3/4	58	138.5	71±0.25	$\varnothing 22$	142	122	27	38	22	190	230	40	85	207	252
$\varnothing 125$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	$\square 165$	Rc(PT)1	67	167.5	85±0.25	$\varnothing 26$	156	136	32	41	25	224	272	45	99	235	295
$\varnothing 140$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	80	$\varnothing 85$	60	M56X2	$\varnothing 65$	$\square 185$	Rc(PT)1	67	187.5	95±0.25	$\varnothing 26$	164	144	35	41	25	250	300	50	106	250	315
$\varnothing 150$	115	$\varnothing 110$	80	M76X2	$\varnothing 85$	85	$\varnothing 90$	60	M60X2	$\varnothing 65$	$\square 196$	Rc(PT)1	68	204	106±0.25	$\varnothing 30$	166	146	37	38	28	270	320	50	111	257	325
$\varnothing 160$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	$\square 210$	Rc(PT)1	74	217	112±0.25	$\varnothing 33$	170	150	42	40	31	285	345	55	122	272	343
$\varnothing 180$	140	$\varnothing 125$	-	M95X2	$\varnothing 100$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	$\square 235$	Rc(PT)1 1/4	75	242.5	125±0.25	$\varnothing 33$	-	172	47	50	35	315	375	55	123	295	370
$\varnothing 200$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	$\square 262$	Rc(PT)1 1/2	85	271	140±0.25	$\varnothing 36$	-	186	52	-	38	355	425	55	131	317	396
$\varnothing 250$	195	$\varnothing 170$	-	M130X2	$\varnothing 140$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	$\square 325$	Rc(PT)2	106	332.5	170±0.25	$\varnothing 45$	-	206	57	-	46	425	515	65	158	364	464

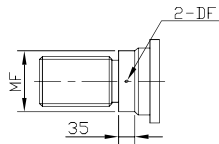
Dimensions-Axial Foot (LB)

70kgf/cm²

※ Shape varies depending on bore sizes.

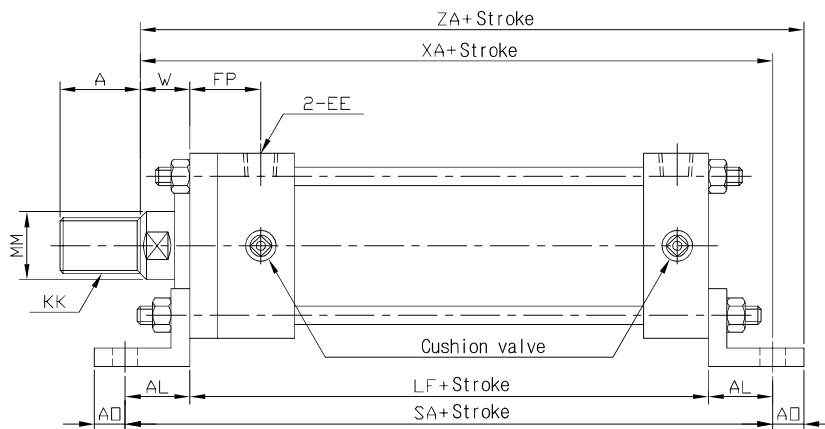
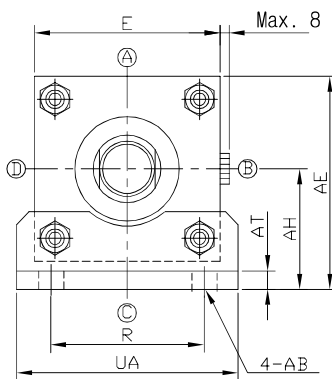


D: Width cross flat
(for spanner)

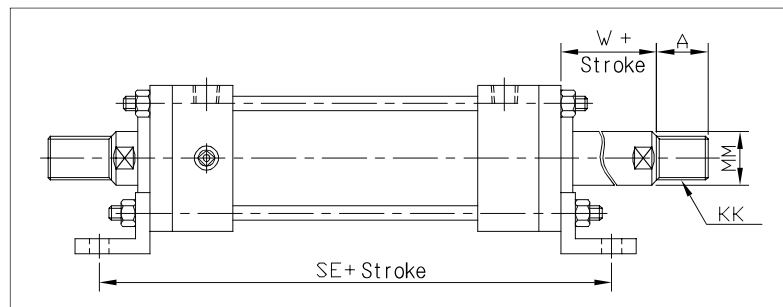


※ To the bore size of $\varnothing 100$ a hole is placed with the width cross flat.

Bore size	MF	DF
$\varnothing 100$	$\varnothing 97$	$\varnothing 12$
$\varnothing 110$	$\varnothing 107$	$\varnothing 15$
$\varnothing 140$	$\varnothing 137$	$\varnothing 15$



Double rod type ($\varnothing 32 \sim \varnothing 160$)



※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit:mm

Bore size	~1500	1501~2000
$\varnothing 80 \sim \varnothing 250$	Tie rod type	Tube flange type

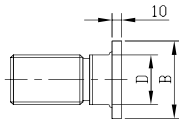
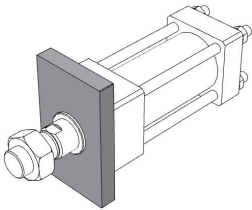
Unit : mm

Bore size	B Rod type					C Rod type					AB	AE	AH	AL	AO	AT	E	EE	FP	LF	R	SA	SE	UA	W	XA	ZA
	A	B	D	KK	MM	A	B	D	KK	MM																	
$\varnothing 32$	25	$\varnothing 34$	16	M16X1.5	$\varnothing 18$	-	-	-	-	-	$\varnothing 11$	69	40 ± 0.15	32	13	8	$\square 58$	Rc(PT)3/8	38	141	40	205	230	62	30	203	216
$\varnothing 40$	30	$\varnothing 40$	21	M20X1.5	$\varnothing 22$	25	$\varnothing 36$	17	M16X1.5	$\varnothing 18$	$\varnothing 11$	75.5	43 ± 0.15	32	13	9	$\square 65$	Rc(PT)3/8	38	141	46	205	230	69	30	203	216
$\varnothing 50$	35	$\varnothing 45$	24	M24X1.5	$\varnothing 28$	30	$\varnothing 40$	20	M20X1.5	$\varnothing 22$	$\varnothing 14$	88	50 ± 0.15	35	15	9	$\square 76$	Rc(PT)1/2	42	155	58	225	252	85	30	220	235
$\varnothing 63$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	35	$\varnothing 46$	24	M24X1.5	$\varnothing 28$	$\varnothing 18$	105	60 ± 0.15	42	18	12	$\square 90$	Rc(PT)1/2	46	163	65	247	278	98	35	240	258
$\varnothing 80$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	$\varnothing 18$	127	72 ± 0.25	50	20	13	$\square 110$	Rc(PT)3/4	56	184	87	284	322	118	35	269	289
$\varnothing 100$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	$\varnothing 22$	152.5	85 ± 0.25	55	23	13	$\square 135$	Rc(PT)3/4	58	192	109	302	342	150	40	287	310
$\varnothing 125$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	$\varnothing 26$	187.5	105 ± 0.25	66	29	15	$\square 165$	Rc(PT)1	67	220	130	352	396	175	45	331	360
$\varnothing 140$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	80	$\varnothing 85$	60	M56X2	$\varnothing 65$	$\varnothing 26$	207.5	115 ± 0.25	70	30	18	$\square 185$	Rc(PT)1	67	230	145	370	416	195	50	350	380
$\varnothing 150$	115	$\varnothing 110$	80	M76X2	$\varnothing 85$	85	$\varnothing 90$	60	M60X2	$\varnothing 65$	$\varnothing 30$	221	123 ± 0.25	75	30	18	$\square 196$	Rc(PT)1	68	240	155	390	438	210	50	365	395
$\varnothing 160$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	$\varnothing 33$	237	132 ± 0.25	75	35	18	$\square 210$	Rc(PT)1	74	253	170	403	454	225	55	383	418
$\varnothing 180$	140	$\varnothing 125$	-	M95X2	$\varnothing 100$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	$\varnothing 33$	265.5	148 ± 0.25	85	40	20	$\square 235$	Rc(PT)1 1/4	75	275	185	445	-	243	55	415	455
$\varnothing 200$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	$\varnothing 36$	296	165 ± 0.25	98	40	25	$\square 262$	Rc(PT)1 1/2	85	301	206	497	-	272	55	454	494
$\varnothing 250$	195	$\varnothing 170$	-	M130X2	$\varnothing 140$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	$\varnothing 45$	370.5	208 ± 0.25	130	50	35	$\square 325$	Rc(PT)2	106	346	250	606	-	335	65	541	591

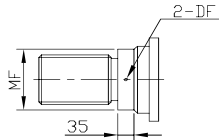
Dimensions-Rod Side Rectangular Flange (FA)

70kgf/cm²

※ Shape varies depending on bore sizes.

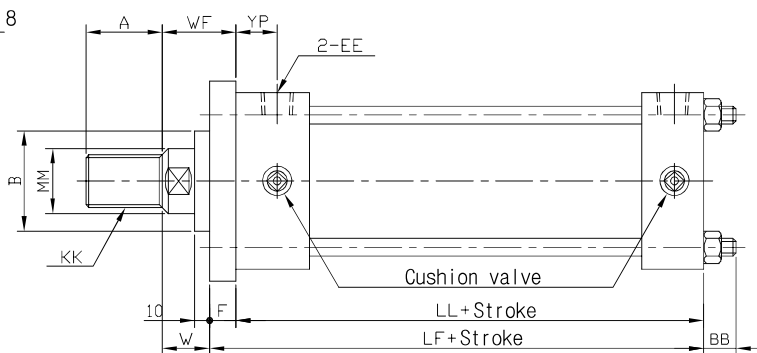
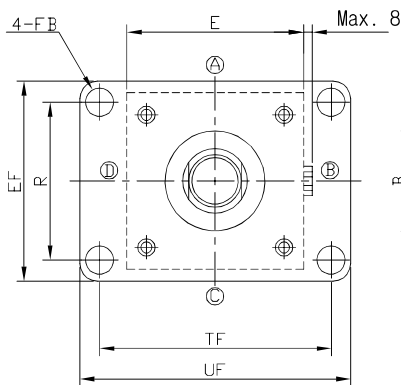


D:Width cross flat
(for spanner)

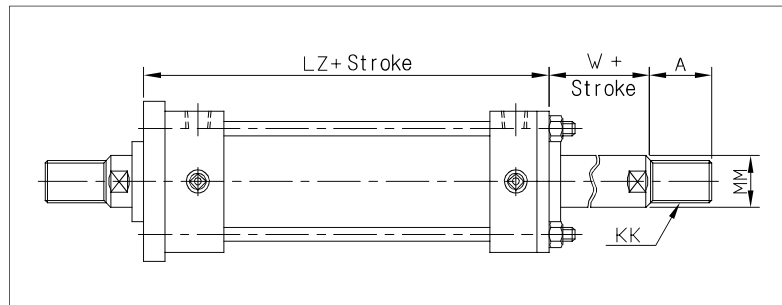


※ To the bore size of $\varnothing 100$ a hole is placed with the width cross flat.

Bore size	MF	DF
$\varnothing 100$	$\varnothing 97$	$\varnothing 12$
$\varnothing 110$	$\varnothing 107$	$\varnothing 15$
$\varnothing 140$	$\varnothing 137$	$\varnothing 15$



Double rod type ($\varnothing 32 \sim \varnothing 160$)



※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit:mm

Bore size	~1500	1501~2000
$\varnothing 80 \sim \varnothing 250$	Tie rod type	Tube flange type

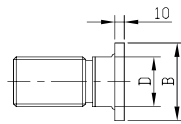
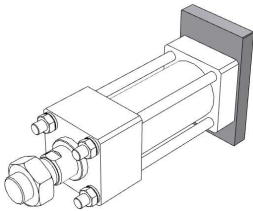
Unit : mm

Bore size	B Rod type					C Rod type					BB	E	EE	EF	F	FB	LF	LL	LZ	R	TF	UF	W	WF	YP
	A	B	D	KK	MM	A	B	D	KK	MM															
$\varnothing 32$	25	$\varnothing 34$	16	M16X1.5	$\varnothing 18$	-	-	-	-	-	14	$\square 58$	Rc(PT)3/8	62	11	$\varnothing 11$	141	130	166	40	88	109	30	41	27
$\varnothing 40$	30	$\varnothing 40$	21	M20X1.5	$\varnothing 22$	25	$\varnothing 36$	17	M16X1.5	$\varnothing 18$	15	$\square 65$	Rc(PT)3/8	69	11	$\varnothing 11$	141	130	166	46	95	118	30	41	27
$\varnothing 50$	35	$\varnothing 46$	24	M24X1.5	$\varnothing 28$	30	$\varnothing 40$	20	M20X1.5	$\varnothing 22$	15	$\square 76$	Rc(PT)1/2	85	13	$\varnothing 14$	155	142	182	58	115	145	30	43	29
$\varnothing 63$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	35	$\varnothing 46$	24	M24X1.5	$\varnothing 28$	17	$\square 90$	Rc(PT)1/2	98	15	$\varnothing 18$	163	148	194	65	132	165	35	50	31
$\varnothing 80$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	23	$\square 110$	Rc(PT)3/4	118	18	$\varnothing 18$	184	166	222	87	155	190	35	53	38
$\varnothing 100$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	26	$\square 135$	Rc(PT)3/4	150	20	$\varnothing 22$	192	172	232	109	190	230	40	60	38
$\varnothing 125$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	30	$\square 165$	Rc(PT)1	175	24	$\varnothing 26$	220	196	264	130	224	272	45	69	43
$\varnothing 140$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	80	$\varnothing 85$	60	M56X2	$\varnothing 65$	35	$\square 185$	Rc(PT)1	195	26	$\varnothing 26$	230	204	276	145	250	300	50	76	41
$\varnothing 150$	115	$\varnothing 110$	80	M76X2	$\varnothing 85$	85	$\varnothing 90$	60	M60X2	$\varnothing 65$	35	$\square 196$	Rc(PT)1	210	28	$\varnothing 30$	240	212	288	155	270	320	50	78	43
$\varnothing 160$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	35	$\square 210$	Rc(PT)1	225	31	$\varnothing 33$	253	222	304	170	285	345	55	86	43
$\varnothing 180$	140	$\varnothing 125$	-	M95X2	$\varnothing 100$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	40	$\square 235$	Rc(PT)1 1/4	243	33	$\varnothing 33$	275	242	-	185	315	375	55	88	42
$\varnothing 200$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	40	$\square 262$	Rc(PT)1 1/2	272	37	$\varnothing 36$	301	264	-	206	355	425	55	92	48
$\varnothing 250$	195	$\varnothing 170$	-	M130X2	$\varnothing 140$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	50	$\square 325$	Rc(PT)2	335	46	$\varnothing 45$	346	300	-	250	425	515	65	111	60

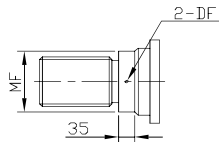
Dimensions-Head Side Rectangular Flange (FB)

70kgf/cm²

※ Shape varies depending on bore sizes.

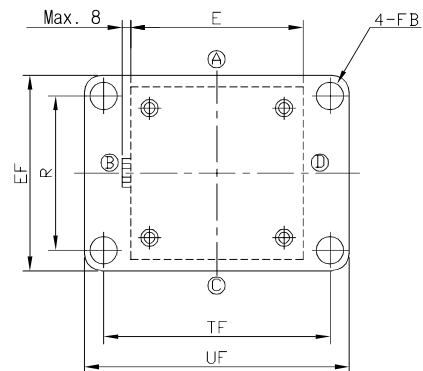
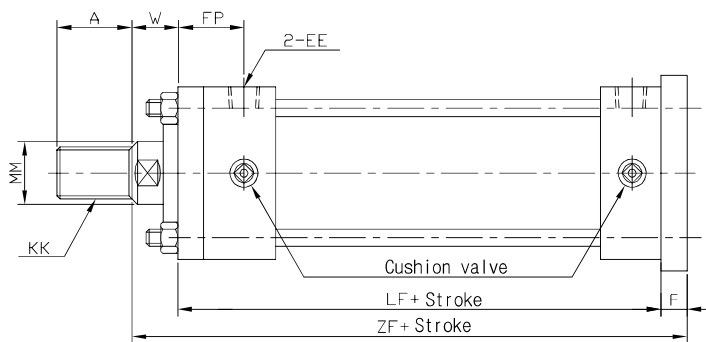


D: Width cross flat
(for spanner)



※ To the bore size of $\varnothing 100$ a hole is placed with the width cross flat.

Bore size	MF	DF
$\varnothing 100$	$\varnothing 97$	$\varnothing 12$
$\varnothing 110$	$\varnothing 107$	$\varnothing 15$
$\varnothing 140$	$\varnothing 137$	$\varnothing 15$

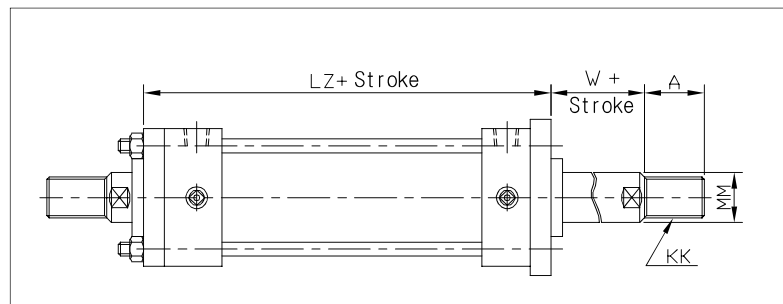


Double rod type ($\varnothing 32 \sim \varnothing 160$)

※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit: mm

Bore size	~1500	1501~2000
$\varnothing 80 \sim \varnothing 250$	Tie rod type	Tube flange type

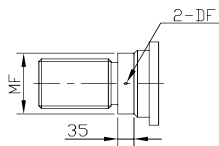
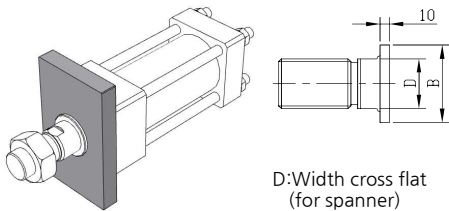


Unit : mm

Bore size	B Rod type					C Rod type					E	EE	EF	F	FB	FP	LF	LZ	R	TF	UF	W	ZF
	A	B	D	KK	MM	A	B	D	KK	MM													
$\varnothing 32$	25	$\varnothing 34$	16	M16X1.5	$\varnothing 18$	-	-	-	-	-	$\square 58$	Rc(PT)3/8	62	11	$\varnothing 11$	38	141	166	40	88	109	30	182
$\varnothing 40$	30	$\varnothing 40$	21	M20X1.5	$\varnothing 22$	25	$\varnothing 36$	17	M16X1.5	$\varnothing 18$	$\square 65$	Rc(PT)3/8	69	11	$\varnothing 11$	38	141	166	46	95	118	30	182
$\varnothing 50$	35	$\varnothing 46$	24	M24X1.5	$\varnothing 28$	30	$\varnothing 40$	20	M20X1.5	$\varnothing 22$	$\square 76$	Rc(PT)1/2	85	13	$\varnothing 14$	42	155	182	58	115	145	30	198
$\varnothing 63$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	35	$\varnothing 46$	24	M24X1.5	$\varnothing 28$	$\square 90$	Rc(PT)1/2	98	15	$\varnothing 18$	46	163	194	65	132	165	35	213
$\varnothing 80$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	$\square 110$	Rc(PT)3/4	118	18	$\varnothing 18$	56	184	222	87	155	190	35	237
$\varnothing 100$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	$\square 135$	Rc(PT)3/4	150	20	$\varnothing 22$	58	192	232	109	190	230	40	252
$\varnothing 125$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	$\square 165$	Rc(PT)1	175	24	$\varnothing 26$	67	220	264	130	224	272	45	289
$\varnothing 140$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	80	$\varnothing 85$	60	M56X2	$\varnothing 65$	$\square 185$	Rc(PT)1	195	26	$\varnothing 26$	67	230	276	145	250	300	50	306
$\varnothing 150$	115	$\varnothing 110$	80	M76X2	$\varnothing 85$	85	$\varnothing 90$	60	M60X2	$\varnothing 65$	$\square 196$	Rc(PT)1	210	28	$\varnothing 30$	68	240	288	155	270	320	50	318
$\varnothing 160$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	$\square 210$	Rc(PT)1	225	31	$\varnothing 33$	74	253	304	170	285	345	55	339
$\varnothing 180$	140	$\varnothing 125$	-	M95X2	$\varnothing 100$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	$\square 235$	Rc(PT)1/4	243	33	$\varnothing 33$	75	275	-	185	315	375	55	363
$\varnothing 200$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	$\square 262$	Rc(PT)1/2	272	37	$\varnothing 36$	85	301	-	206	355	425	55	393
$\varnothing 250$	195	$\varnothing 170$	-	M130X2	$\varnothing 140$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	$\square 325$	Rc(PT)2	335	46	$\varnothing 45$	106	346	-	250	425	515	65	457

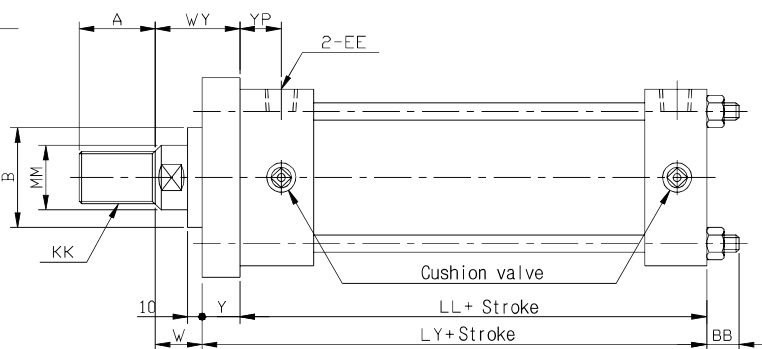
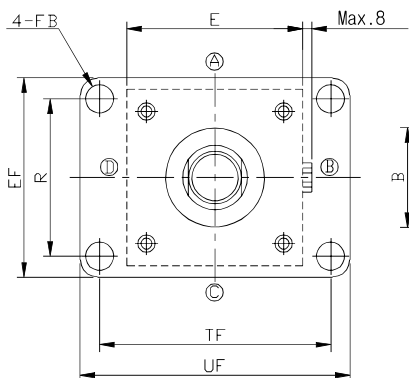
Dimensions-Reinforced Type Rod Side Rectangular Flange (FY)

70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.



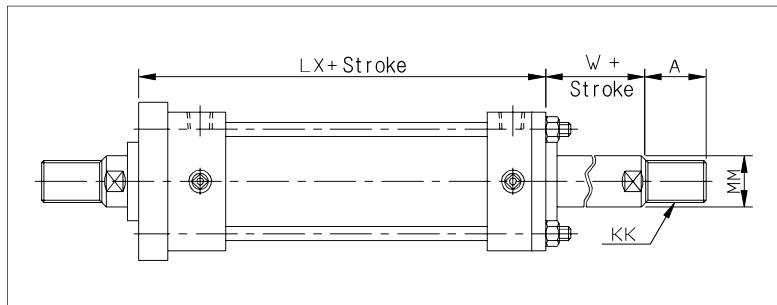
Bore size	MF	DF
Ø100	Ø97	Ø12
Ø110	Ø107	Ø15
Ø140	Ø137	Ø15

※ To the bore size of Ø100 a hole is placed with the width cross flat.



※ For not shown dimensions, refer to SD type (standard type).
 ※ FY type has high mounting rigidity with its reinforced flange thickness compare with FA flange.

Double rod type (Ø32 ~ Ø160)



Cylinder cover fixing method according to stroke
 Unit:mm

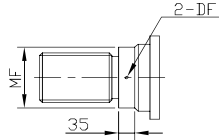
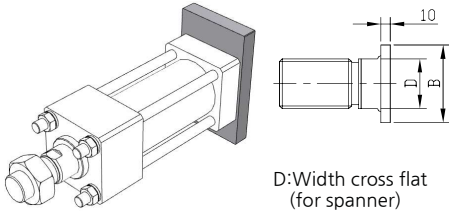
Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

Unit : mm

Bore size	B Rod type					C Rod type					BB	E	EE	EF	FB	LL	LX	LY	R	TF	UF	W	WY	Y	YP
	A	B	D	KK	MM	A	B	D	KK	MM															
Ø32	30	Ø34	16	M16X1.5	Ø18	-	-	-	-	-	14	□58	Rc(PT)3/8	62	Ø11	130	168	143	40	88	109	30	43	13	27
Ø40	30	Ø40	21	M20X1.5	Ø22	25	Ø36	17	M16X1.5	Ø18	15	□65	Rc(PT)3/8	69	Ø11	130	168	143	46	95	118	30	43	13	27
Ø50	35	Ø45	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	15	□76	Rc(PT)1/2	85	Ø14	142	187	160	58	115	145	30	48	18	29
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø46	24	M24X1.5	Ø28	17	□90	Rc(PT)1/2	98	Ø18	148	199	168	65	132	165	35	55	20	31
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	23	□110	Rc(PT)3/4	118	Ø18	166	228	190	87	155	190	35	59	24	38
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	26	□135	Rc(PT)3/4	150	Ø22	172	240	200	109	190	230	40	68	28	38
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	30	□165	Rc(PT)1	175	Ø26	196	273	229	130	224	272	45	78	33	43
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	35	□185	Rc(PT)1	195	Ø26	204	287	241	145	250	300	50	87	37	41
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	35	□196	Rc(PT)1	210	Ø30	212	299	251	155	270	320	50	89	39	40
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	35	□210	Rc(PT)1	225	Ø33	222	314	263	170	285	345	55	96	41	43
Ø180	140	Ø125	-	M95X2	Ø100	110	Ø105	75	M72X2	Ø80	40	□235	Rc(PT)1/4	243	Ø33	242	-	288	185	315	375	55	101	46	42
Ø200	150	Ø140	-	M100X2	Ø110	120	Ø115	85	M80X2	Ø90	40	□262	Rc(PT)1/2	272	Ø36	264	-	315	206	355	425	55	106	51	48
Ø250	195	Ø170	-	M130X2	Ø140	150	Ø140	-	M100X2	Ø110	50	□325	Rc(PT)2	335	Ø45	300	-	365	250	425	515	65	130	65	60

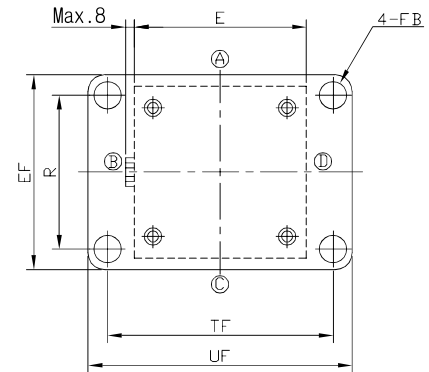
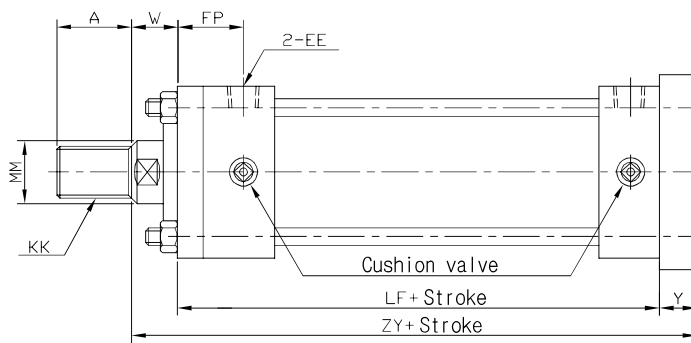
Dimensions-Reinforced Type Head Side Rectangular Flange (FZ)

70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.



Bore size	MF	DF
Ø100	Ø97	Ø12
Ø110	Ø107	Ø15
Ø140	Ø137	Ø15

※ To the bore size of Ø100 a hole is placed with the width cross flat.

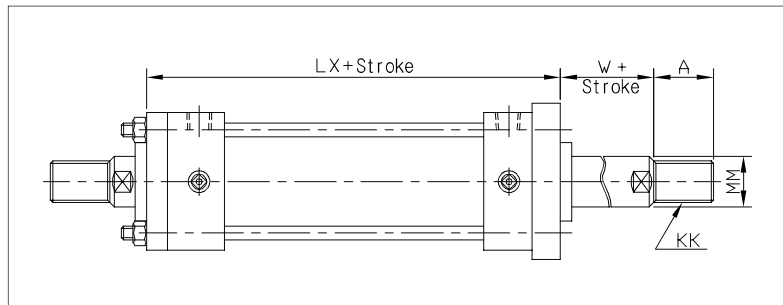


Double rod type (Ø32 ~ Ø160)

- ※ For not shown dimensions, refer to SD type (standard type).
- ※ FZ type has high mounting rigidity with its reinforced flange thickness compare with FB flange.

Cylinder cover fixing method according to stroke
Unit:mm

Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

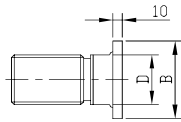
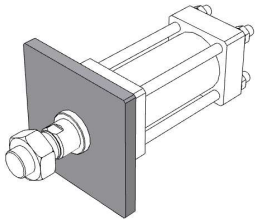


Unit : mm

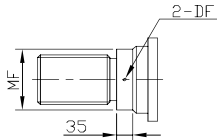
Bore size	B Rod type					C Rod type					E	EE	EF	FB	FP	LF	LX	R	TF	UF	W	Y	ZY
	A	B	D	KK	MM	A	B	D	KK	MM													
Ø32	25	Ø34	16	M16X1.5	Ø18	-	-	-	-	-	□58	Rc(PT)3/8	62	Ø11	38	141	168	40	88	109	30	13	184
Ø40	30	Ø40	21	M20X1.5	Ø22	25	Ø36	17	M16X1.5	Ø18	□65	Rc(PT)3/8	69	Ø11	38	141	168	46	95	118	30	13	184
Ø50	35	Ø45	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	□76	Rc(PT)1/2	85	Ø14	42	155	187	58	115	145	30	18	203
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø46	24	M24X1.5	Ø28	□90	Rc(PT)1/2	98	Ø18	46	163	199	65	132	165	35	20	218
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	□110	Rc(PT)3/4	118	Ø18	56	184	228	87	155	190	35	24	243
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	□135	Rc(PT)3/4	150	Ø22	58	192	240	109	190	230	40	28	260
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	□165	Rc(PT)1	175	Ø26	67	220	273	130	224	272	45	33	298
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	□185	Rc(PT)1	195	Ø26	67	230	287	145	250	300	50	37	317
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	□196	Rc(PT)1	210	Ø30	68	240	299	155	270	320	50	39	329
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	□210	Rc(PT)1	225	Ø33	74	253	314	170	285	345	55	41	349
Ø180	140	Ø125	-	M95X2	Ø100	110	Ø105	75	M72X2	Ø80	□235	Rc(PT)1 1/4	243	Ø33	75	275	-	185	315	375	55	46	376
Ø200	150	Ø140	-	M100X2	Ø110	120	Ø115	85	M80X2	Ø90	□262	Rc(PT)1 1/2	272	Ø36	85	301	-	206	355	425	55	51	407
Ø250	195	Ø170	-	M130X2	Ø140	150	Ø140	-	M100X2	Ø110	□325	Rc(PT)2	335	Ø45	106	346	-	250	425	515	65	65	476

Dimensions-Rod Side Square Flange (FC)

70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.

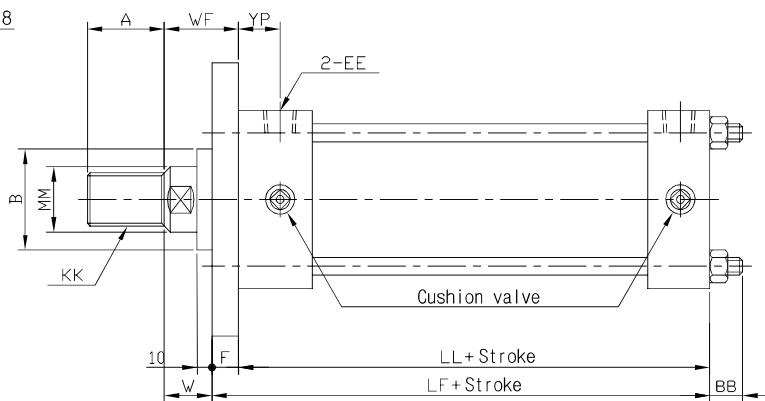
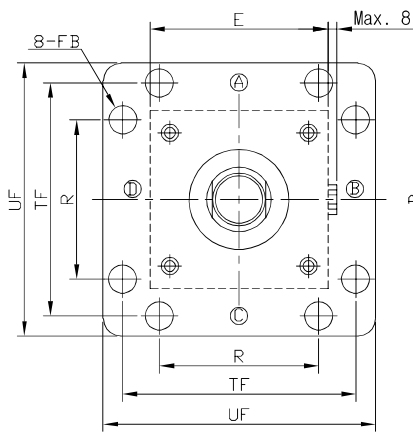


D:Width cross flat (for spanner)

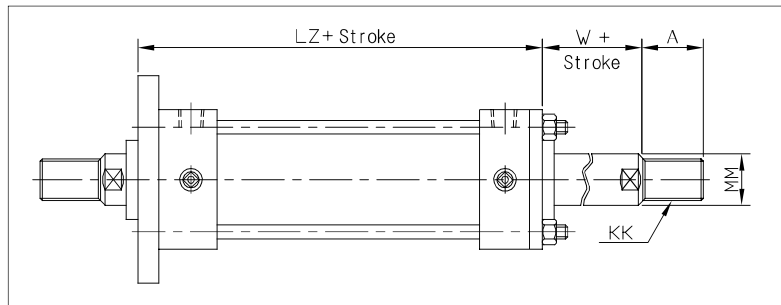


※ To the bore size of Ø100 a hole is placed with the width cross flat.

Bore size	MF	DF
Ø100	Ø97	Ø12
Ø110	Ø107	Ø15
Ø140	Ø137	Ø15



Double rod type (Ø32 ~ Ø160)



※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit:mm

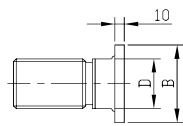
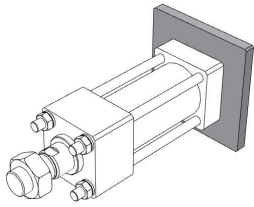
Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

Unit : mm

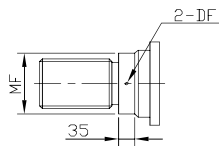
Bore size	B Rod type					C Rod type					BB	E	EE	F	FB	LF	LL	LZ	R	TF	UF	W	WF	YP
	A	B	D	KK	MM	A	B	D	KK	MM														
Ø32	25	Ø34	16	M16X1.5	Ø18	-	-	-	-	-	14	□58	Rc(PT)3/8	11	Ø11	141	130	166	40	88	109	30	41	27
Ø40	30	Ø40	21	M20X1.5	Ø22	25	Ø36	17	M16X1.5	Ø18	15	□65	Rc(PT)3/8	11	Ø11	141	130	166	46	95	118	30	41	27
Ø50	35	Ø45	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	15	□76	Rc(PT)1/2	13	Ø14	155	142	182	58	115	145	30	43	29
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø46	24	M24X1.5	Ø28	17	□90	Rc(PT)1/2	15	Ø18	163	148	194	65	132	165	35	50	31
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	23	□110	Rc(PT)3/4	18	Ø18	184	166	222	87	155	190	35	53	38
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	26	□135	Rc(PT)3/4	20	Ø22	192	172	232	109	190	230	40	60	38
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	30	□165	Rc(PT)1	24	Ø26	220	196	264	130	224	272	45	69	43
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	35	□185	Rc(PT)1	26	Ø26	230	204	276	145	250	300	50	76	41
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	35	□196	Rc(PT)1	28	Ø30	240	212	288	155	270	320	50	78	40
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	35	□210	Rc(PT)1	31	Ø33	253	222	304	170	285	345	55	86	43
Ø180	140	Ø125	-	M95X2	Ø100	110	Ø105	75	M72X2	Ø80	40	□235	Rc(PT)1 1/4	33	Ø33	275	242	-	185	315	375	55	88	42
Ø200	150	Ø140	-	M100X2	Ø110	120	Ø115	85	M80X2	Ø90	40	□262	Rc(PT)1 1/2	37	Ø36	301	264	-	206	355	425	55	92	48
Ø250	195	Ø170	-	M130X2	Ø140	150	Ø140	-	M100X2	Ø110	50	□325	Rc(PT)2	46	Ø45	346	300	-	250	425	515	65	111	60

Dimensions-Head Side Square Flange (FD)

70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.

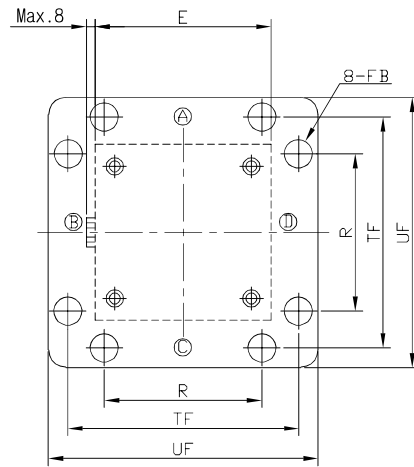
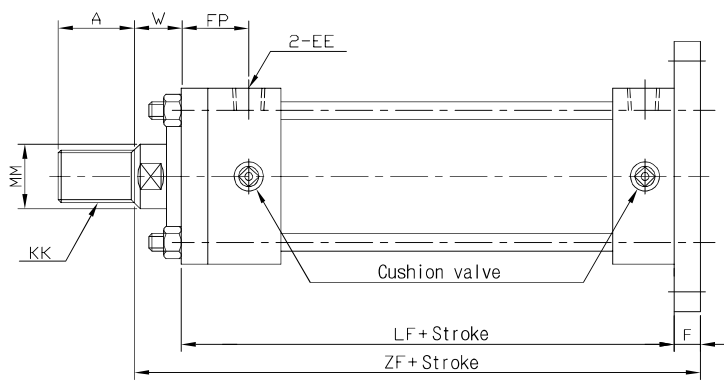


D:Width cross flat
(for spanner)

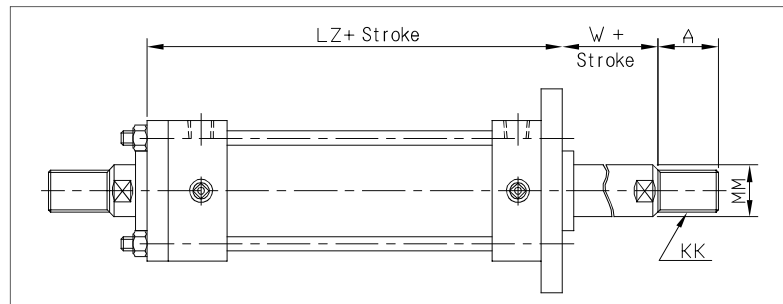


※ To the bore size of $\varnothing 100$ a hole is placed with the width cross flat.

Bore size	MF	DF
$\varnothing 100$	$\varnothing 97$	$\varnothing 12$
$\varnothing 110$	$\varnothing 107$	$\varnothing 15$
$\varnothing 140$	$\varnothing 137$	$\varnothing 15$



Double rod type ($\varnothing 32 \sim \varnothing 160$)



※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit:mm

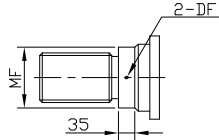
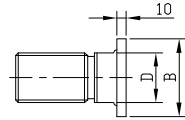
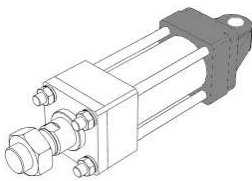
Bore size	~1500	1501~2000
$\varnothing 80 \sim \varnothing 250$	Tie rod type	Tube flange type

Unit : mm

Bore size	B Rod type					C Rod type					E	EE	F	FB	FP	LF	LZ	R	TF	UF	W	ZF
	A	B	D	KK	MM	A	B	D	KK	MM												
$\varnothing 32$	25	$\varnothing 34$	16	M16X1.5	$\varnothing 18$	-	-	-	-	-	$\square 58$	Rc(PT)3/8	11	$\varnothing 11$	38	141	166	40	88	109	30	182
$\varnothing 40$	30	$\varnothing 40$	21	M20X1.5	$\varnothing 22$	25	$\varnothing 36$	17	M16X1.5	$\varnothing 18$	$\square 65$	Rc(PT)3/8	11	$\varnothing 11$	38	141	166	46	95	118	30	182
$\varnothing 50$	35	$\varnothing 45$	24	M24X1.5	$\varnothing 28$	30	$\varnothing 40$	20	M20X1.5	$\varnothing 22$	$\square 76$	Rc(PT)1/2	13	$\varnothing 14$	42	155	182	58	115	145	30	198
$\varnothing 63$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	35	$\varnothing 46$	24	M24X1.5	$\varnothing 28$	$\square 90$	Rc(PT)1/2	15	$\varnothing 18$	46	163	194	65	132	165	35	213
$\varnothing 80$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	45	$\varnothing 55$	30	M30X1.5	$\varnothing 35$	$\square 110$	Rc(PT)3/4	18	$\varnothing 18$	56	184	222	87	155	190	35	237
$\varnothing 100$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	60	$\varnothing 65$	41	M39X1.5	$\varnothing 45$	$\square 135$	Rc(PT)3/4	20	$\varnothing 22$	58	192	232	109	190	230	40	252
$\varnothing 125$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	75	$\varnothing 80$	50	M48X1.5	$\varnothing 55$	$\square 165$	Rc(PT)1	24	$\varnothing 26$	67	220	264	130	224	272	45	289
$\varnothing 140$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	80	$\varnothing 85$	60	M56X2	$\varnothing 65$	$\square 185$	Rc(PT)1	26	$\varnothing 26$	67	230	276	145	250	300	50	306
$\varnothing 150$	115	$\varnothing 110$	80	M76X2	$\varnothing 85$	85	$\varnothing 90$	60	M60X2	$\varnothing 65$	$\square 196$	Rc(PT)1	28	$\varnothing 30$	68	240	288	155	270	320	50	318
$\varnothing 160$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	95	$\varnothing 95$	65	M64X2	$\varnothing 70$	$\square 210$	Rc(PT)1	31	$\varnothing 33$	74	253	304	170	285	345	55	339
$\varnothing 180$	140	$\varnothing 125$	-	M95X2	$\varnothing 100$	110	$\varnothing 105$	75	M72X2	$\varnothing 80$	$\square 235$	Rc(PT)1/4	33	$\varnothing 33$	75	275	-	185	315	375	55	363
$\varnothing 200$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	120	$\varnothing 115$	85	M80X2	$\varnothing 90$	$\square 262$	Rc(PT)1/2	37	$\varnothing 36$	85	301	-	206	355	425	55	393
$\varnothing 250$	195	$\varnothing 170$	-	M130X2	$\varnothing 140$	150	$\varnothing 140$	-	M100X2	$\varnothing 110$	$\square 325$	Rc(PT)2	46	$\varnothing 45$	106	346	-	250	425	515	65	457

Dimensions-Single Clevis (CA)

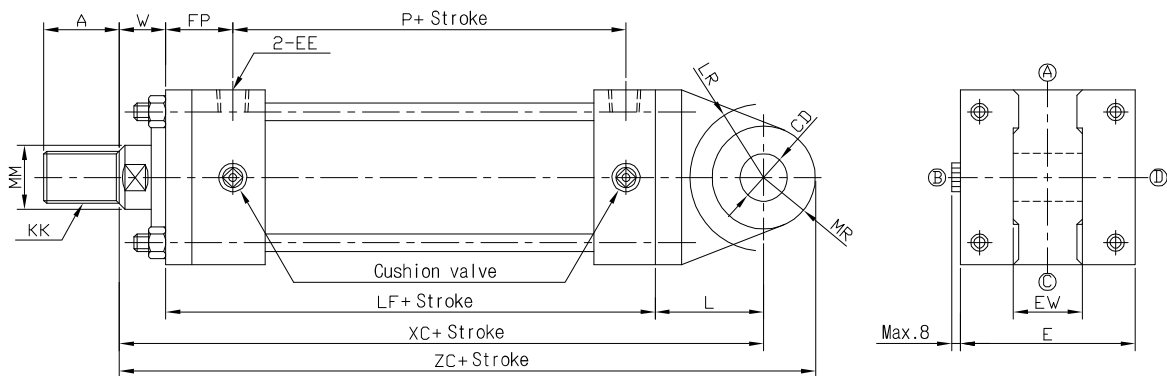
70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.



Bore size	MF	DF
Ø100	Ø97	Ø12
Ø110	Ø107	Ø15
Ø140	Ø137	Ø15

D:Width cross flat
(for spanner)

※ To the bore size of Ø100 a hole is placed with the width cross flat.



※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit:mm

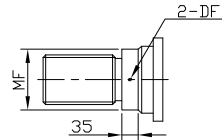
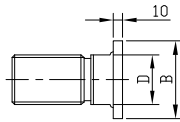
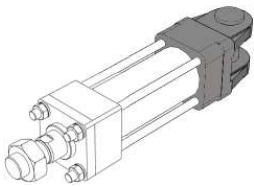
Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

Unit : mm

Bore size	B Rod type					C Rod type					CD	E	EE	EW	FP	L	LF	LR	MR	P	W	XC	ZC
	A	B	D	KK	MM	A	B	D	KK	MM													
Ø32	25	Ø34	16	M16X1.5	Ø18	-	-	-	-	-	Ø16	□58	Rc(PT)3/8	25 ^{-0.1} _{-0.4}	38	38	141	R20	R16	90	30	209	225
Ø40	30	Ø40	21	M20X1.5	Ø22	25	Ø36	17	M16X1.5	Ø18	Ø16	□65	Rc(PT)3/8	25 ^{-0.1} _{-0.4}	38	38	141	R20	R16	90	30	209	225
Ø50	35	Ø45	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	Ø20	□76	Rc(PT)1/2	31.5 ^{-0.1} _{-0.4}	42	45	155	R25	R20	98	30	230	250
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø46	24	M24X1.5	Ø28	Ø31.5	□90	Rc(PT)1/2	40 ^{-0.1} _{-0.4}	46	63	163	R46	R31.5	102	35	261	292.5
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	Ø31.5	□110	Rc(PT)3/4	40 ^{-0.1} _{-0.4}	56	72	184	R52	R31.5	106	35	291	322.5
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	Ø40	□135	Rc(PT)3/4	50 ^{-0.1} _{-0.4}	58	84	192	R62	R40	116	40	316	356
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	Ø50	□165	Rc(PT)1	63 ^{-0.1} _{-0.4}	67	100	220	R73	R50	130	45	365	415
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	Ø63	□185	Rc(PT)1	80 ^{-0.1} _{-0.6}	67	120	230	R91	R63	142.5	50	400	463
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	Ø63	□196	Rc(PT)1	80 ^{-0.1} _{-0.6}	68	122	240	R91	R63	151.5	50	412	475
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	Ø71	□210	Rc(PT)1	80 ^{-0.1} _{-0.6}	74	137	253	R103	R71	156	55	445	516
Ø180	140	Ø125	-	M95X2	Ø100	110	Ø105	75	M72X2	Ø80	Ø80	□235	Rc(PT)1/4	100 ^{-0.1} _{-0.6}	75	150	275	R100	R80	172	55	480	560
Ø200	150	Ø140	-	M100X2	Ø110	120	Ø115	85	M80X2	Ø90	Ø90	□262	Rc(PT)1/2	125 ^{-0.1} _{-0.6}	85	170	301	R115	R90	185	55	526	616
Ø250	195	Ø170	-	M130X2	Ø140	150	Ø140	-	M100X2	Ø110	Ø100	□325	Rc(PT)2	125 ^{-0.1} _{-0.6}	106	185	346	R125	R100	200	65	596	696

Dimensions-Double Clevis (CB)

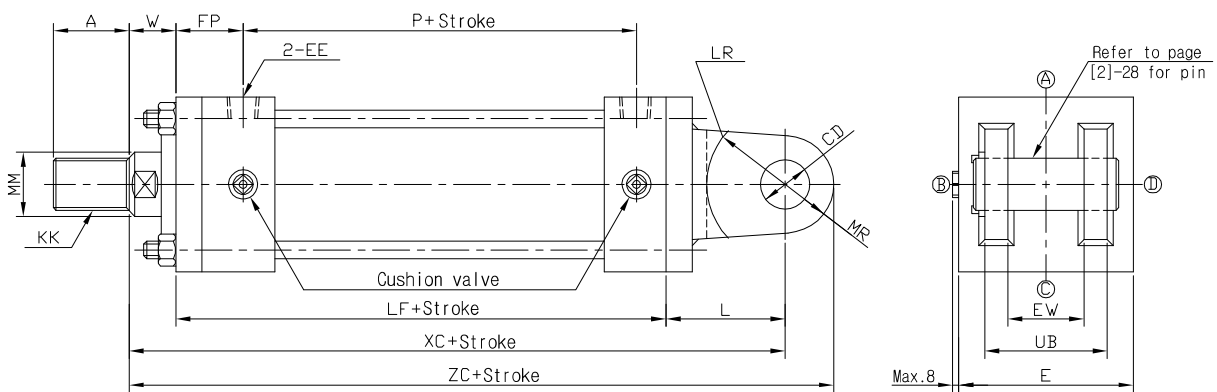
70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.



Bore size	MF	DF
Ø100	Ø97	Ø12
Ø110	Ø107	Ø15
Ø140	Ø137	Ø15

D:Width cross flat
(for spanner)

※ To the bore size of Ø100 a hole is placed with the width cross flat.



※ For not shown dimensions, refer to SD type(standard type).

Cylinder cover fixing method according to stroke
Unit:mm

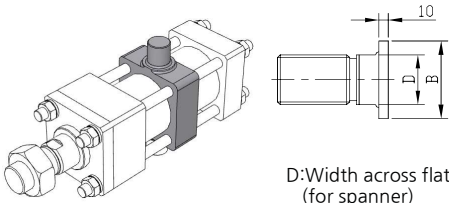
Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

Unit : mm

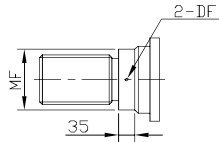
Bore size	B Rod type					C Rod type					CD	E	EE	EW	FP	L	LF	LR	MR	P	UB	W	XC	ZC
	A	B	D	KK	MM	A	B	D	KK	MM														
Ø32	25	Ø34	16	M16X1.5	Ø18	-	-	-	-	-	Ø16	□58	Rc(PT)3/8	25 ^{+0.4} _{+0.1}	38	38	141	R20	R16	90	50	30	209	225
Ø40	30	Ø40	21	M20X1.5	Ø22	25	Ø36	17	M16X1.5	Ø18	Ø16	□65	Rc(PT)3/8	25 ^{+0.4} _{+0.1}	38	38	141	R20	R16	90	50	30	209	225
Ø50	35	Ø45	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	Ø20	□76	Rc(PT)1/2	31.5 ^{+0.4} _{+0.1}	42	45	155	R25	R20	98	63.5	30	230	250
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø46	24	M24X1.5	Ø28	Ø31.5	□90	Rc(PT)1/2	40 ^{+0.4} _{+0.1}	46	63	163	R40	R31.5	102	80	35	261	292.5
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	Ø31.5	□110	Rc(PT)3/4	40 ^{+0.4} _{+0.1}	56	72	184	R40	R31.5	110	80	35	291	322.5
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	Ø40	□135	Rc(PT)3/4	50 ^{+0.4} _{+0.1}	58	84	192	R50	R40	116	100	40	316	356
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	Ø50	□165	Rc(PT)1	63 ^{+0.4} _{+0.1}	67	100	220	R62	R50	130	126	45	365	415
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	Ø63	□185	Rc(PT)1	80 ^{+0.6} _{+0.1}	67	120	230	R79	R63	142.5	160	50	400	463
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	Ø63	□196	Rc(PT)1	80 ^{+0.6} _{+0.1}	68	122	240	R82	R63	151.5	160	50	412	475
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	Ø71	□210	Rc(PT)1	80 ^{+0.6} _{+0.1}	74	137	253	R89	R71	156	160	55	445	516
Ø180	140	Ø125	-	M95X2	Ø100	110	Ø105	75	M72X2	Ø80	Ø80	□235	Rc(PT)1 1/4	100 ^{+0.6} _{+0.1}	75	150	275	R100	R80	172	200	55	480	560
Ø200	150	Ø140	-	M100X2	Ø110	120	Ø115	85	M80X2	Ø90	Ø90	□262	Rc(PT)1 1/2	125 ^{+0.6} _{+0.1}	85	170	301	R115	R90	185	251	55	526	616
Ø250	195	Ø170	-	M130X2	Ø140	150	Ø140	-	M100X2	Ø110	Ø100	□325	Rc(PT)2	125 ^{+0.6} _{+0.1}	106	185	346	R125	R100	200	251	65	596	696

Dimensions-Center Trunnion (TC)

70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.

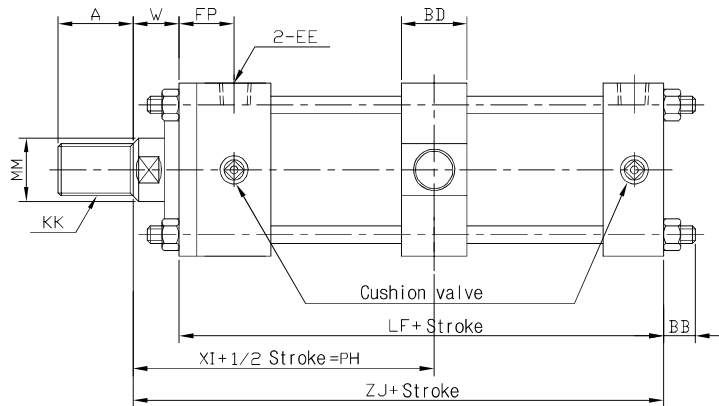
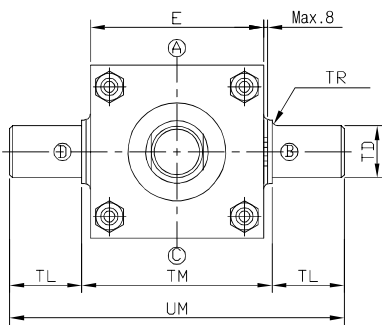


D:Width across flat
(for spanner)

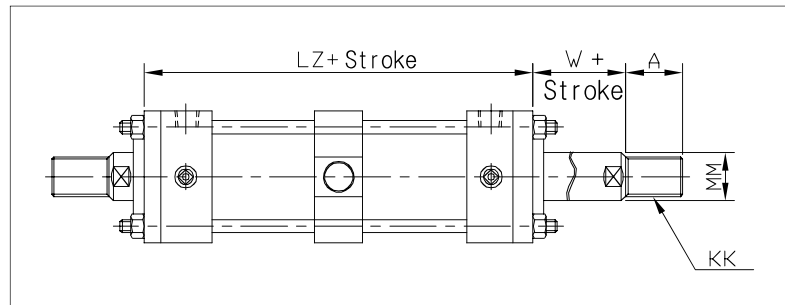


※ To the bore size of Ø100 a hole is placed with the width cross flat.

Bore size	MF	DF
Ø100	Ø97	Ø12
Ø110	Ø107	Ø15
Ø140	Ø137	Ø15



Double rod type (Ø32 ~ Ø160)



※ For not shown dimensions, refer to SD type (standard type).

Cylinder cover fixing method according to stroke
Unit:mm

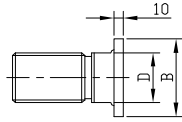
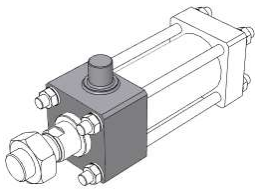
Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

Unit : mm

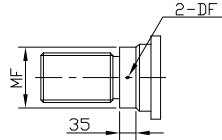
Bore size	B Rod type					C Rod type					BB	BD	E	EE	FP	LF	LZ	Min. PH	TD	TL	TM	TR	UM	W	XI	ZJ
	A	B	D	KK	MM	A	B	D	KK	MM																
Ø32	25	Ø34	16	M16X1.5	Ø18	-	-	-	-	-	14	28	□58	Rc(PT)3/8	38	141	166	105	Ø20	20	58 ⁰ _{-0.30}	2	98	30	113	171
Ø40	30	Ø40	21	M20X1.5	Ø22	25	Ø36	17	M16X1.5	Ø18	15	28	□65	Rc(PT)3/8	38	141	166	105	Ø20	20	69 ⁰ _{-0.30}	2	109	30	113	171
Ø50	35	Ø45	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	15	33	□76	Rc(PT)1/2	42	155	182	113.5	Ø25	25	85 ⁰ _{-0.35}	2.5	135	30	121	185
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø46	24	M24X1.5	Ø28	17	43	□90	Rc(PT)1/2	46	163	194	127.5	Ø31.5	31.5	98 ⁰ _{-0.35}	2.5	161	35	132	198
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	23	43	□110	Rc(PT)3/4	56	184	222	140.5	Ø31.5	31.5	118 ⁰ _{-0.35}	2.5	181	35	146	219
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	26	53	□135	Rc(PT)3/4	58	192	232	152.5	Ø40	40	145 ⁰ _{-0.40}	3	225	40	156	232
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	30	58	□165	Rc(PT)1	67	220	264	174	Ø50	50	175 ⁰ _{-0.40}	3	275	45	177	265
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	35	78	□185	Rc(PT)1	67	230	276	191	Ø63	63	195 ⁰ _{-0.46}	4	321	50	188	280
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	35	78	□196	Rc(PT)1	68	240	288	193	Ø63	63	206 ⁰ _{-0.46}	4	332	50	194	290
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	35	88	□210	Rc(PT)1	74	253	304	211	Ø71	71	218 ⁰ _{-0.46}	4	360	55	207	308
Ø180	140	Ø125	-	M95X2	Ø100	110	Ø105	75	M72X2	Ø80	40	98	□235	Rc(PT)1 1/4	75	275	-	222	Ø80	80	243 ⁰ _{-0.46}	4	403	55	216	330
Ø200	150	Ø140	-	M100X2	Ø110	120	Ø115	85	M80X2	Ø90	40	108	□262	Rc(PT)1 1/2	85	301	-	241	Ø90	90	272 ⁰ _{-0.52}	5	452	55	232	356
Ø250	195	Ø170	-	M130X2	Ø140	150	Ø140	-	M100X2	Ø110	50	117	□325	Rc(PT)2	106	346	-	284.5	Ø100	100	335 ⁰ _{-0.57}	5	535	65	271	411

Dimensions-Rod Side Trunnion (TA)

70kgf/cm² · 140kgf/cm² ※ Shape varies depending on bore sizes.

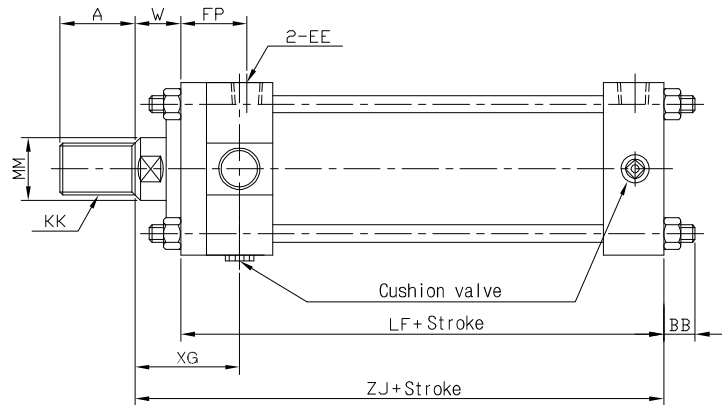
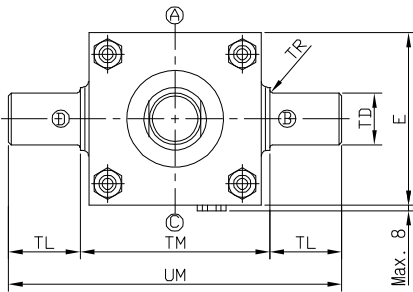


D:Width cross flat (for spanner)

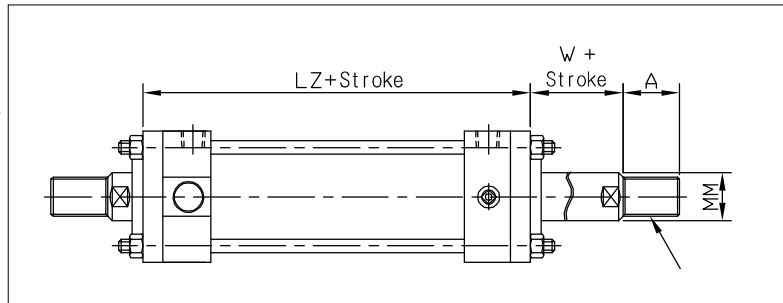


Bore size	MF	DF
Ø100	Ø97	Ø12
Ø110	Ø107	Ø15
Ø140	Ø137	Ø15

※ To the bore size of Ø100 a hole is placed with the width cross flat.



Double rod type (Ø32 ~ Ø160)



- ※ For not shown dimensions, refer to SD type (standard type).
- ※ Cushion valve and air vent location of TA type is C. (Rod cover)

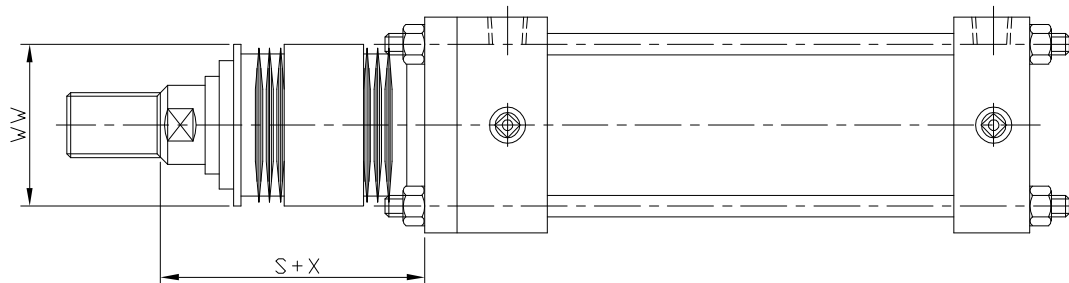
Cylinder cover fixing method according to stroke
Unit:mm

Bore size	~1500	1501~2000
Ø80~Ø250	Tie rod type	Tube flange type

Unit : mm

Bore size	B Rod type					C Rod type					BB	E	EE	FP	LF	LZ	TD	TL	TM	TR	UM	W	XG	ZJ
	A	B	D	KK	MM	A	B	D	KK	MM														
Ø32	25	Ø34	14	M16X1.5	Ø18	-	-	-	-	-	11	□58	Rc(PT)3/8	38	141	166	Ø20e9	20	58 ⁰ _{-0.7}	2	98	30	62	171
Ø40	30	Ø40	20	M20X1.5	Ø22	25	Ø36	16	M16X1.5	Ø18	15	□65	Rc(PT)3/8	38	141	166	Ø20e9	20	69 ⁰ _{-0.3}	2	109	30	62	171
Ø50	35	Ø46	24	M24X1.5	Ø28	30	Ø40	20	M20X1.5	Ø22	15	□76	Rc(PT)1/2	42	155	182	Ø25e9	25	85 ⁰ _{-0.35}	2.5	135	30	66	185
Ø63	45	Ø55	30	M30X1.5	Ø35	35	Ø46	24	M24X1.5	Ø28	17	□90	Rc(PT)1/2	46	163	194	Ø31.5e9	31.5	98 ⁰ _{-0.35}	2.5	161	35	74	198
Ø80	60	Ø65	41	M39X1.5	Ø45	45	Ø55	30	M30X1.5	Ø35	23	□110	Rc(PT)3/4	56	184	222	Ø31.5e9	31.5	118 ⁰ _{-0.35}	2.5	181	35	82	219
Ø100	75	Ø80	50	M48X1.5	Ø55	60	Ø65	41	M39X1.5	Ø45	26	□135	Rc(PT)3/4	58	192	232	Ø40e9	40	145 ⁰ _{-0.4}	3	225	40	89	232
Ø125	95	Ø95	65	M64X2	Ø70	75	Ø80	50	M48X1.5	Ø55	30	□165	Rc(PT)1	67	220	264	Ø50e9	50	175 ⁰ _{-0.46}	3	275	45	103	265
Ø140	110	Ø105	75	M72X2	Ø80	80	Ø85	60	M56X2	Ø65	35	□185	Rc(PT)1	69	230	276	Ø63e9	63	195 ⁰ _{-0.46}	4	321	50	112	280
Ø150	115	Ø110	80	M76X2	Ø85	85	Ø90	60	M60X2	Ø65	35	□196	Rc(PT)1	71	240	288	Ø63e9	63	206 ⁰ _{-0.46}	4	332	50	112	290
Ø160	120	Ø115	85	M80X2	Ø90	95	Ø95	65	M64X2	Ø70	35	□210	Rc(PT)1	74	253	304	Ø71e9	71	218 ⁰ _{-0.46}	4	360	55	126	308

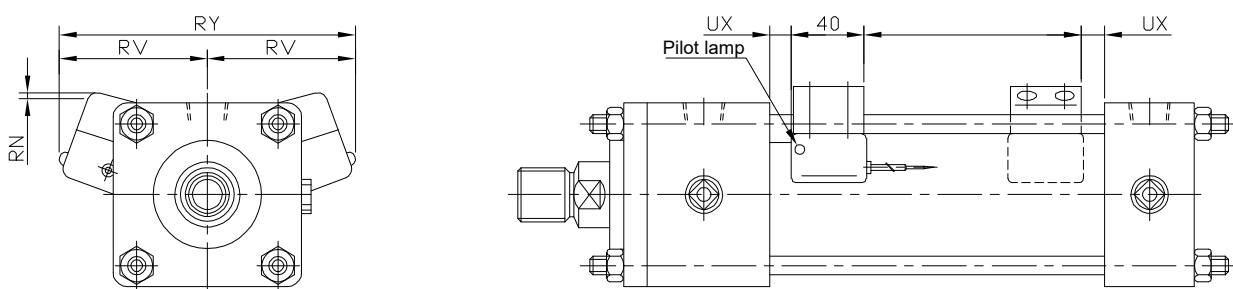
Dimensions-Bellows Attached Type (J, K)



Type	J	K	Bore size	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø150	Ø160	Ø180	Ø200	Ø250	
Material	Nylon Tarpaulin	Neoprene Cloth	X	40	45	45	55	55	55	65	65	65	65	65	65	80	
Temperature	60°C	110°C	WW	B type	40	50	63	71	80	100	125	140	140	140	160	180	200
				C type	-	50	50	63	71	80	125	125	125	125	125	140	180
			S	1/3× stroke	1/3.5× stroke	1/4×stroke			1/5×stroke						1/6× stroke		

- ※ For not shown dimensions, refer to SD type (standard type).
- ※ Dimensions remain the same even when tube flange type mounting is applied.
- ※ When calculating with decimals, please round up.
- ※ SUS band is mounted at bellows at delivery.

Dimensions-Auto Switch Attached Type



- ※ For not shown dimensions, refer to KP140H series according to cylinder mounting type.

Applicable Auto Switch

D-A54K, D-A56K, D-A64K, D-A90(V)K, DA93(V)K, D-A96(V)K, D-F59K, D-F5PK, D-J59K, D-J51K, D-F9N(V)K, D-F9P(V)K, D-F9B(V)K

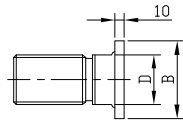
- ※ For more information, refer to Auto Switch Catalogue.

Bore size	RN	RY	RV	UX
Ø32	3	99	49.5	28
Ø40	3	99	49.5	28
Ø50	3	110	55	30
Ø63	2	120	60	35
Ø80	6	144	72	37
Ø100	5	159	79.5	45

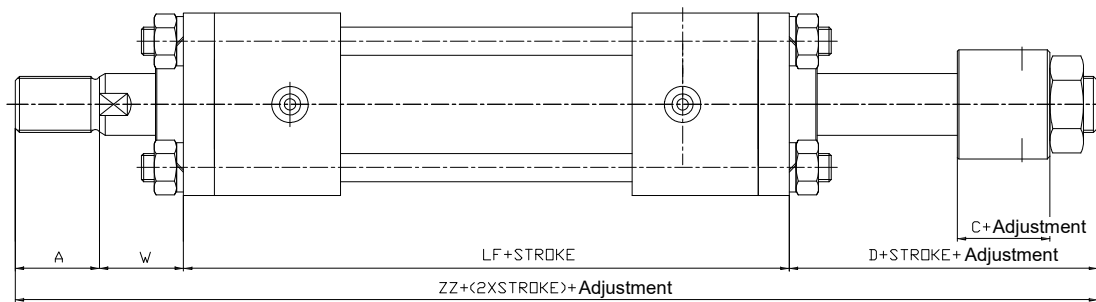
- ※ Tube material : SUS
- ※ Magnet: Metal magnet

Dimensions - Adjustable Stroke Type (SJ)

70kgf/cm² · 140kgf/cm²



D:Width cross flat
(for spanner)



Unit : mm

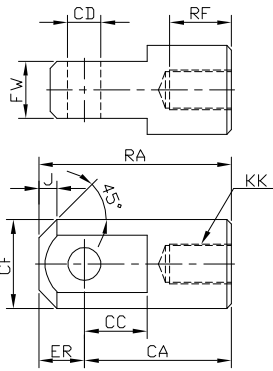
Bore size	B Rod type					
	A	C	D	LF	W	ZZ
Ø40	30	33	60	166	30	286
Ø50	35	35	65	182	30	312
Ø63	45	54	80	194	35	354
Ø80	60	59	90	222	35	407
Ø100	75	70	105	232	40	452
Ø125	95	84	130	264	45	534

※ For not shown dimensions, refer to SD type (standard type).

Dimensions-Accessory

Unit : mm

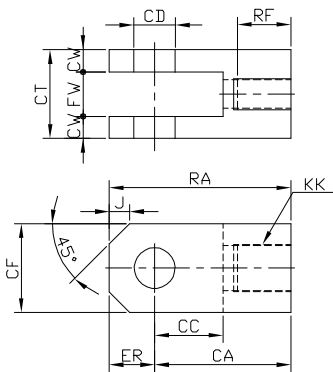
Single Knuckle Joint (I)



Part no.		CA	CC	CD	CF	ER	FW	J	KK		RA	RF	
B Rod	C Rod								B Rod	C Rod		B Rod	C Rod
I(Hyd.)32B	-	60	23	Ø16H10	39	20	25 ^{-0.1} _{-0.4}	8	M16×1.5	-	80	27	-
I(Hyd.)40B	I(Hyd.)40C	60	23	Ø16H10	39	20	25 ^{-0.1} _{-0.4}	8	M20×1.5	M16×1.5	80	32	27
I(Hyd.)50B	I(Hyd.)50C	70	28	Ø20H10	49	25	31.5 ^{-0.1} _{-0.4}	10	M24×1.5	M20×1.5	95	37	32
I(Hyd.)63B	I(Hyd.)63C	115	43	Ø31.5H10	62	35	40 ^{-0.1} _{-0.4}	15	M30×1.5	M24×1.5	150	47	37
I(Hyd.)80B	I(Hyd.)80C	115	43	Ø31.5H10	62	35	40 ^{-0.1} _{-0.4}	15	M39×1.5	M30×1.5	150	62	47
I(Hyd.)100B	I(Hyd.)100C	145	55	Ø40H10	79	40	50 ^{-0.1} _{-0.4}	20	M48×1.5	M39×1.5	185	77	62
I(Hyd.)125B	I(Hyd.)125C	180	65	Ø50H10	100	50	63 ^{-0.1} _{-0.4}	30	M64×2	M48×1.5	230	97	77
I(Hyd.)140B	I(Hyd.)140C	225	85	Ø63H10	130	65	80 ^{-0.1} _{-0.4}	30	M72×2	M56×2	290	112	82
I(Hyd.)150B	I(Hyd.)150C	225	85	Ø63H10	130	65	80 ^{-0.1} _{-0.4}	30	M76×2	M60×2	290	117	87
I(Hyd.)160B	I(Hyd.)160C	240	90	Ø71H10	140	70	80 ^{-0.1} _{-0.4}	40	M80×2	M64×2	310	122	97

Unit : mm

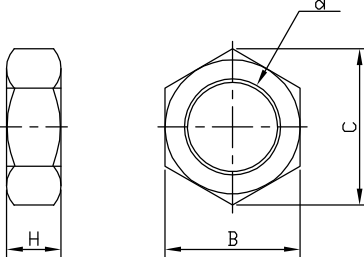
Double Knuckle Joint (Y)



Part no.		CA	CC	CD	CF	CT	CW	ER	FW	J	KK		RA	RF	
B Rod	C Rod										B Rod	C Rod		B Rod	C Rod
Y(Hyd.)32B	-	60	27	Ø16 ^{H10} _{RB}	32	50	12.5	16	25 ^{+0.4} _{+0.1}	8	M16×1.5	-	76	27	-
Y(Hyd.)40B	Y(Hyd.)40C	60	27	Ø16 ^{H10} _{RB}	32	50	12.5	16	25 ^{+0.4} _{+0.1}	8	M20×1.5	M16×1.5	76	32	27
Y(Hyd.)50B	Y(Hyd.)50C	70	32	Ø20 ^{H10} _{RB}	40	63.5	16	20	31.5 ^{+0.4} _{+0.1}	10	M24×1.5	M20×1.5	90	37	32
Y(Hyd.)63B	Y(Hyd.)63C	115	50	Ø31.5 ^{H10} _{RB}	60	80	20	30	40 ^{+0.4} _{+0.1}	15	M30×1.5	M24×1.5	145	47	37
Y(Hyd.)80B	Y(Hyd.)80C	115	50	Ø31.5 ^{H10} _{RB}	60	80	20	30	40 ^{+0.4} _{+0.1}	15	M39×1.5	M30×1.5	145	62	47
Y(Hyd.)100B	Y(Hyd.)100C	145	60	Ø40 ^{H10} _{RB}	80	100	25	40	50 ^{+0.4} _{+0.1}	20	M48×1.5	M39×1.5	185	77	62
Y(Hyd.)125B	Y(Hyd.)125C	180	70	Ø50 ^{H10} _{RB}	100	126	31.5	50	63 ^{+0.4} _{+0.1}	30	M64×2	M48×1.5	230	97	77
Y(Hyd.)140B	Y(Hyd.)140C	225	90	Ø63 ^{H10} _{RB}	120	160	40	65	80 ^{+0.6} _{+0.1}	30	M72×2	M56×2	290	112	82
Y(Hyd.)150B	Y(Hyd.)150C	225	90	Ø63 ^{H10} _{RB}	120	160	40	65	80 ^{+0.6} _{+0.1}	30	M76×2	M60×2	290	117	87
Y(Hyd.)160B	Y(Hyd.)160C	240	100	Ø71 ^{H10} _{RB}	140	160	40	70	80 ^{+0.6} _{+0.1}	40	M80×2	M64×2	310	122	97

Unit : mm

Rod End Nut



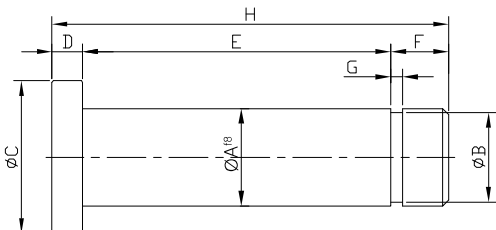
※ For rod end nut attached type, longer thread length (dimension A) is required.

Part no.		B type rod end nut				C type rod end nut			
B Rod	C Rod	d	B	C	H	d	B	C	H
RN(Hyd.)32B	-	M16×1.5	22	25.4	10	-	-	-	-
RN(Hyd.)40B	RN(Hyd.)40C	M20×1.5	30	34.6	12	M16×1.5	24	27.5	10
RN(Hyd.)50B	RN(Hyd.)50C	M24×1.5	36	41.6	14	M20×1.5	30	34.6	12
RN(Hyd.)63B	RN(Hyd.)63C	M30×1.5	46	53.1	18	M24×1.5	36	41.6	14
RN(Hyd.)80B	RN(Hyd.)80C	M39×1.5	60	69.3	23	M30×1.5	46	53.1	18
RN(Hyd.)100B	RN(Hyd.)100C	M48×1.5	75	86.5	29	M39×1.5	60	69.3	23
RN(Hyd.)125B	RN(Hyd.)125C	M64×2	95	110	38	M48×1.5	75	86.5	29
RN(Hyd.)140B	RN(Hyd.)140C	M72×2	Ø100	-	38	M56×2	Ø85	-	30
RN(Hyd.)150B	RN(Hyd.)150C	M76×2	Ø105	-	40	M60×2	Ø90	-	33
RN(Hyd.)160B	RN(Hyd.)160C	M80×2	Ø110	-	43	M64×2	Ø95	110	38

※ For cylinder Ø140 or more, use the round nut.

Unit : mm

Knuckle Joint Pin / Clevis Pin



Part no.		A	B	C	D	E	F	G	H
Clevis pin	Knuckle joint pin								
CB PIN(Hyd.)32	Y PIN(Hyd.)32	16	15.2 ⁰ _{-0.11}	25	5	50.5	6.5	2	65
CB PIN(Hyd.)40	Y PIN(Hyd.)40	16	15.2 ⁰ _{-0.11}	25	5	50.5	9.5	2	65
CB PIN(Hyd.)50	Y PIN(Hyd.)50	20	19 ⁰ _{-0.21}	30	5	64	10	2	79
CB PIN(Hyd.)63	Y PIN(Hyd.)63	31.5	30 ⁰ _{+0.25}	40	5	80.5	9.5	2.5	95
CB PIN(Hyd.)80	Y PIN(Hyd.)80	31.5	30 ⁰ _{+0.25}	40	5	80.5	9.5	2.5	95
CB PIN(Hyd.)100	Y PIN(Hyd.)100	40	38 ⁰ _{+0.25}	50	5	100.5	9.5	2.5	115
CB PIN(Hyd.)125	Y PIN(Hyd.)125	50	47 ⁰ _{+0.25}	60	5	126.5	9.5	3	141
CB PIN(Hyd.)140	Y PIN(Hyd.)140	63	60 ⁰ _{+0.3}	70	10	161	9	3	180
CB PIN(Hyd.)150	Y PIN(Hyd.)150	63	60 ⁰ _{+0.3}	70	10	161	9	3	180
CB PIN(Hyd.)160	Y PIN(Hyd.)160	71	68 ⁰ _{+0.3}	80	10	161	9	3	180

KP210H series

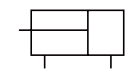


KP210HC-FA80B-N100

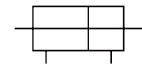
Features

- High-pressure tie rod type cylinder.
- Double acting hydraulic cylinder for 210kgf/cm² with bore from Ø40 to Ø160.
- High performance cushion to reduce shock when stopping
- Various mounting styles (SD, LA, FA, FB, CA, CB, TC, TA)

Symbol



Double Acting / Single Rod



Double Acting / Double Rod

How to Order

KP210H - SD 40 B - B 300

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

① Series

KP210H	Single rod	210kgf/cm ²
KP210H W	Double rod	

② Seal Material

Nil	Nitrile rubber (Standard)
1	Nitrile rubber
2	Fluoric rubber

③ Mounting style

SD	Standard	CA	Single clevis
LA	Axial angle of foot	CB	Double clevis
FA	Rod side flange	TC	Center trunnion
FB	Head side flange	TA	Rod side trunnion

⑤ Bore size

40	Ø40
50	Ø50
63	Ø63
80	Ø80
100	Ø100
125	Ø125
140	Ø140
160	Ø160

⑥ Cushion

N	Without cushion
B	With cushions on both ends
R	With cushion on the rod side
H	With cushion on the head side

⑦ Cylinder stroke

Bore size	Stroke
Ø40, Ø50	1200
Ø63, Ø80	1600
Ø100~Ø160	2000

- * Check buckling, as it varies depending on the mounting style.
- * Contact us for longer stroke.
- * Mounting style for stroke over 801mm at tube size Ø140~Ø160 is flange mounting.

⑧ Port position

Nil	A (Standard)
B,C,D	Refer to figure right

⑨ Cushion valve position

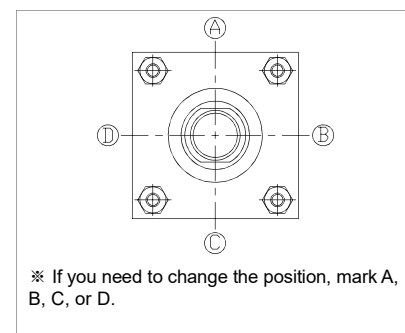
Nil	B (Standard)
A,C,D	Refer to figure right

⑩ Bellows

	Material	Max. ambient temperature
Nil	Without bellows	
J	Nylon Tarpaulin	60 °C
K	Neoprene Cloth	110 °C

⑪ Rod end attachment

Nil	Rod end nut (Standard)
I	Single knuckle joint
Y	Double knuckle joint



Specifications

Type		Standard					
		KP210H					
Bore size		Ø40, Ø50, Ø63, Ø80, Ø100, Ø125, Ø140, Ø160					
Operating pressure		210kgf/cm ² (21.4MPa)					
Max. operating pressure		Head side 245kgf/cm ² (25.0MPa) Rod side 265kgf/cm ² (27.0MPa)					
Proof pressure		315kgf/cm ² (32.1MPa)					
Min. operating pressure		Head side ≤3.0kgf/cm ² (0.31MPa), Rod side ≤4.5kgf/cm ² (0.46MPa)					
Operating piston speed		8~300mm/sec					
Ambient & fluid temperature		-10 ~ 80 °C (Ambient temperature)					
Cushion		Metal fitting type					
Working oil		Petroleum-based fluid					
Tolerance of thread		KS class 2					
Tolerance of stroke	ST	≤100mm	101~250mm	251~630mm	631~1000mm	1001~1600mm	1601~2000mm
	Limit	+0.8 0	+1.0 0	+1.25 0	+1.4 0	+1.6 0	+1.8 0
Tube material		Carbon steel for machine structural use					
Mounting style		SD, LA, FA, FB, CA, CB, TA, TC					

Cushion Length

Unit:mm		
Bore size	Ø40 ~ Ø63	Ø80 ~ Ø100
Cushion length	22	25
Bore size	Ø125 ~ Ø150	Ø160
Cushion length	30	35

- * Operating pressure: Max. allowable setting pressure for a relief valve while cylinder is operating.
- * Max. operating pressure: Maximum allowable pressure generated in a cylinder (surge pressure, etc.).
- * Proof pressure: Test pressure for a cylinder can withstand without unreliable performance when returning to operating pressure.
- * Min. operating pressure: Minimum pressure for cylinder installed horizontally and operating without load.
- * A longer thread length (A) is required when lock nut is applied on the end of the piston rod.

Mounting Style

Bore size	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø160
Mounting	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø160
Axial angle of foot	KP210H LA(Hdy.)40	KP210H LA(Hdy.)50	KP210H LA(Hdy.)63	KP210H LA(Hdy.)80	KP210H LA(Hdy.)100	KP210H LA(Hdy.)125	KP210H LA(Hdy.)140	KP210H LA(Hdy.)160
Flange	KP210H FA/FB(Hdy.)40	KP210H FA/FB(Hdy.)50	KP210H FA/FB(Hdy.)63	KP210H FA/FB(Hdy.)80	KP210H FA/FB(Hdy.)100	KP210H FA/FB(Hdy.)125	KP210H FA/FB(Hdy.)140	KP210H FA/FB(Hdy.)160
Single clevis	KP210H CA(Hdy.)40	KP210H CA(Hdy.)50	KP210H CA(Hdy.)63	KP210H CA(Hdy.)80	KP210H CA(Hdy.)100	KP210H CA(Hdy.)125	KP210H CA(Hdy.)140	KP210H CA(Hdy.)160
Double clevis	KP210H CB(Hdy.)40	KP210H CB(Hdy.)50	KP210H CB(Hdy.)63	KP210H CB(Hdy.)80	KP210H CB(Hdy.)100	KP210H CB(Hdy.)125	KP210H CB(Hdy.)140	KP210H CB(Hdy.)160
Trunnion	KP210H CB(Hdy.)40	KP210H TA/TC(Hdy.)50	KP210H TA/TC(Hdy.)63	KP210H CB(Hdy.)80	KP210H TA/TC(Hdy.)100	KP210H TA/TC(Hdy.)125	KP210H TA/TC(Hdy.)140	KP210H TA/TC(Hdy.)160
Pin of double clevis	KP210H CB PIN(Hdy.)40	KP210H CB PIN(Hdy.)50	KP210H CB PIN(Hdy.)63	KP210H CB PIN(Hdy.)80	KP210H CB PIN(Hdy.)100	KP210H CB PIN(Hdy.)125	KP210H CB PIN(Hdy.)140	KP210H CB PIN(Hdy.)160

Accessory

Bore size	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø160
Accessory	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø160
Single knuckle joint	KP210H I(Hdy.)40	KP210H I(Hdy.)50	KP210H I(Hdy.)63	KP210H I(Hdy.)80	KP210H I(Hdy.)100	KP210H I(Hdy.)125	KP210H I(Hdy.)140	KP210H I(Hdy.)160
Double knuckle joint	KP210H Y(Hdy.)40	KP210H Y(Hdy.)50	KP210H Y(Hdy.)63	KP210H Y(Hdy.)80	KP210H Y(Hdy.)100	KP210H Y(Hdy.)125	KP210H Y(Hdy.)140	KP210H Y(Hdy.)160
Pin of double knuckle joint	KP210H Y PIN(Hdy.)40	KP210H Y PIN(Hdy.)50	KP210H Y PIN(Hdy.)63	KP210H Y PIN(Hdy.)80	KP210H Y PIN(Hdy.)100	KP210H Y PIN(Hdy.)125	KP210H Y PIN(Hdy.)140	KP210H Y PIN(Hdy.)160
Rod end nut	KP210H RN(Hdy.)40	KP210H RN(Hdy.)50	KP210H RN(Hdy.)63	KP210H RN(Hdy.)80	KP210H RN(Hdy.)100	KP210H RN(Hdy.)125	KP210H RN(Hdy.)140	KP210H RN(Hdy.)160

Mass

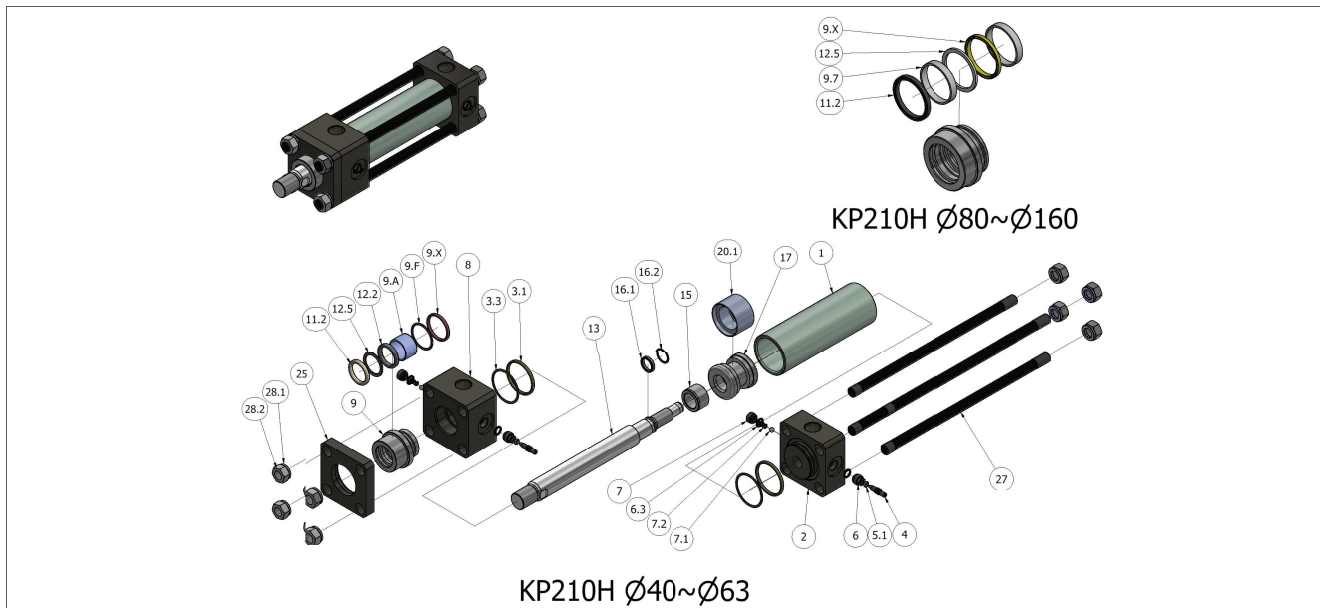
Unit : kg

Bore size	Basis mass (SD)	Mounting mass							Accessory			Additional mass per each 1mm of stroke
		LA	FA	FB	CA	CB	TA	TC	Single knuckle joint	Double knuckle joint	Rod end nut	
Ø40	4.44	0.964	0.7	1.0	0.7	0.7	0.4	0.969	1.0	1.2	0.03	0.0122
Ø50	8.06	1.11	1.2	1.9	1.3	1.3	0.4	1.49	1.4	2.2	0.05	0.0202
Ø63	13.2	1.27	1.9	3.7	2.0	2.0	0.6	2.03	2.2	3.7	0.11	0.0293
Ø80	23.6	1.91	2.0	4.7	3.4	3.4	1.0	2.91	4.2	7.7	0.24	0.0451
Ø100	39.6	5.11	4.4	9.7	6.4	6.4	2.1	7.61	8.0	14.6	0.52	0.0738
Ø125	68.5	8.5	10.0	18.6	13.2	13.2	4.0	13.0	31.1	20.5	1.10	0.121
Ø140	92.4	5.2	8.6	21.8	16.5	16.5	5.2	15.1	36.7	24.4	1.44	0.164
Ø160	126	4.7	13.7	30.0	25.6	25.6	7.1	23.7	58.8	41.1	1.93	0.192

Calculation:

Ex.) KP210H-LA100B-N500 A B
 Basis mass: 39.6
 Additional mass: 0.0738
 Stroke: 500mm / LA type: 5.11
 39.6+(0.0738 X 500) + 5.11 = 81.61kg

Structure



Part List

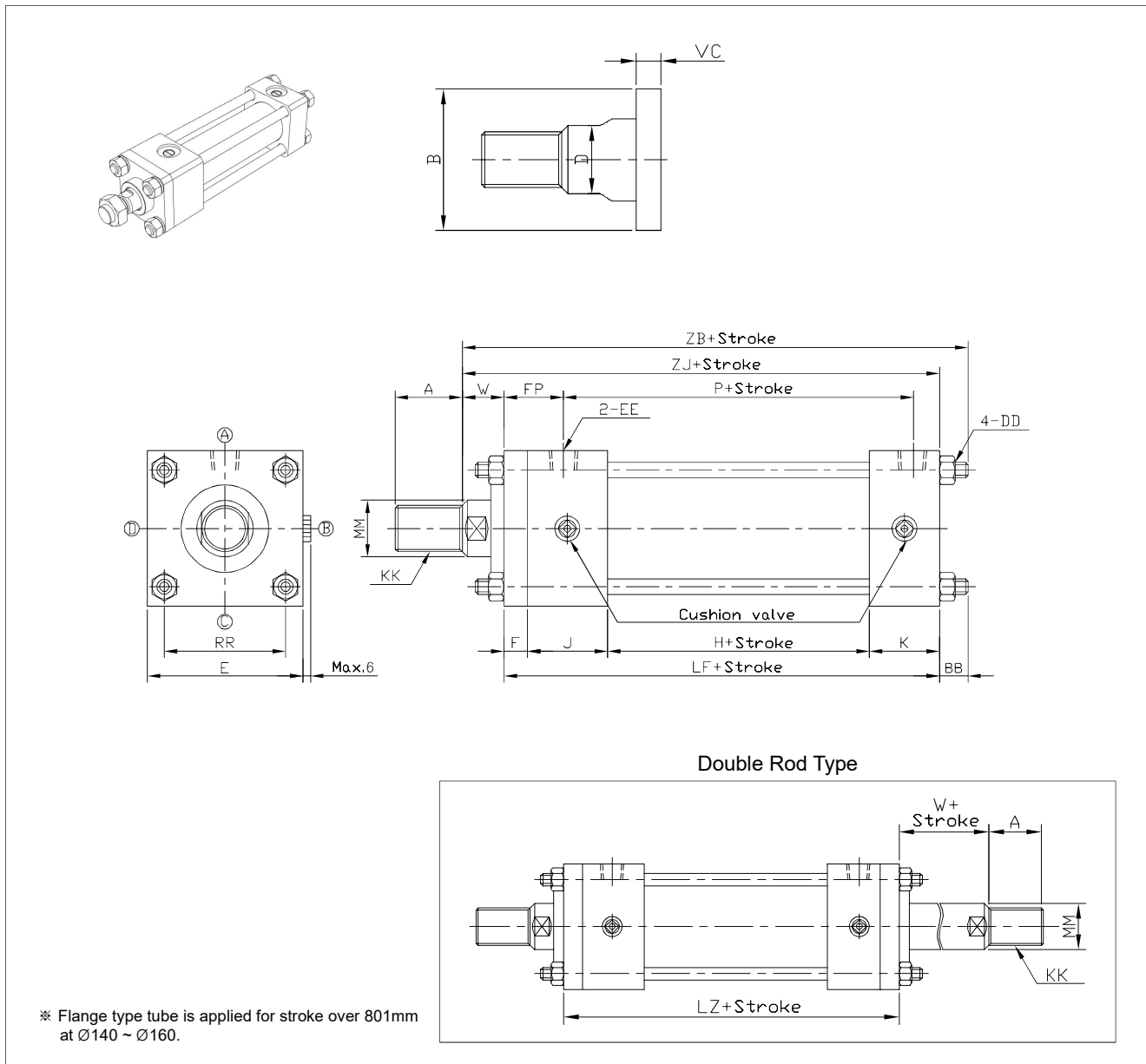
Part no.	Parts	Material
1	TUBE	STM13C
2	HEAD COVER	SS400
4	CUSHION NEEDLE	SUM24L
6	CUSHION BODY	SUM24L
7	CHECK BODY	SUM24L
7.1	STEEL BALL	SUJ2
7.2	COIL SPRING	SUM24L
8	ROD COVER	SS400

Part no.	Parts	Material
9	BUSH	SM45C
13	ROD(B)	SM45C
15	CUSHION RING	SM45C
17	PISTION	SM45C
25	RETAINER	SS400
27	TIE ROD	SM45C
28.1	S/WASHER	SWRH
28.2	HEX NUT	SM45C

Packing List

Part no.	Part	Material	Bore size (mm)							
			40	50	63	80	100	125	140	160
31	TUBE O-RING	NBR	1B-G35	1B-G45	1B-G58	1B-G75	1B-G95	1B-G120	1B-G135	1B-G150
33	TUBE O-RING(BUR)	NBR	-	-	-	-	-	-	-	-
51	NEEDLE O-RING	NBR	1B-P5	1B-P5	1B-P6	1B-P6	1B-P9	1B-P9	1B-P9	1B-P9
63	CB O-RING	NBR	1B-P10	1B-P10	1B-P10	1B-P11	1B-P11	1B-P15	1B-P15	1B-P15
97	WEARING	PHENOL				45x50x10	55x60x10	70x75x10	80x85x10	90x95x10
9A	DU BUSH	SPCC	DUB2220	DUB2820	DUB3520	-	-	-	-	-
9F	BUSH O-RING(BUR)	PTFE	-	-	-	-	-	-	-	-
9X	BUSH O-RING	NBR	1B-G30	1B-G35	1B-G45	1B-G55	1B-G65	1B-G80	1B-G80	1B-G100
112	DUST SEAL	URETHANE	LBI-22	LBI-28	LBI-35	LBI-45	LBI-55	LBI-70	LBI-80	LBI-90
122	ROD PACKING	NBR	USI-22	UHR-28	UHS-35	UHR-45A	UHS-55	UHS-70	UHR-80	UHR-90
125	ROD PACKING(BUR)	PTFE	-	-	-	-	-	-	-	-
161	ROD O-RING	NBR	1B-P14	1B-P18	1B-P22A	1B-P29	1B-G40	1B-G50	1B-G60	1B-G65
162	ROD O-RING(BUR)	PTFE	-	-	-	-	-	Z	-	-
201	PISTON PACKING	NBR	C/P-40x30x164	C/P-50x34x184	C/P-63x47x184	C/P-80x60x224	C/P-100x75x224	C/P-125x115x254x95	C/P-140x115x254x95	C/P-160x135x254

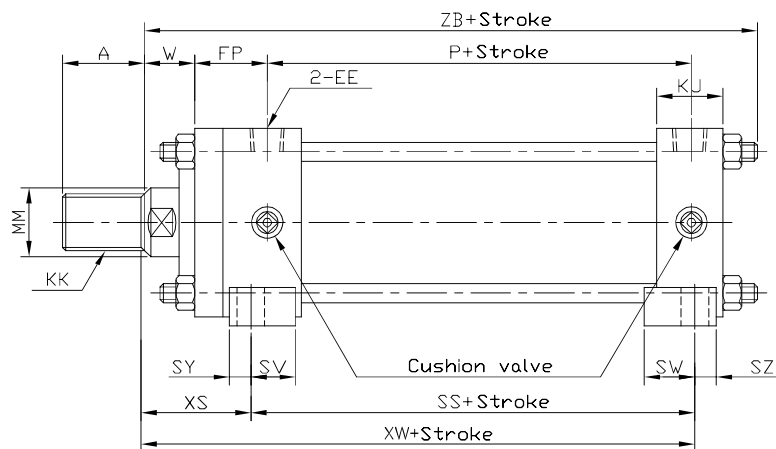
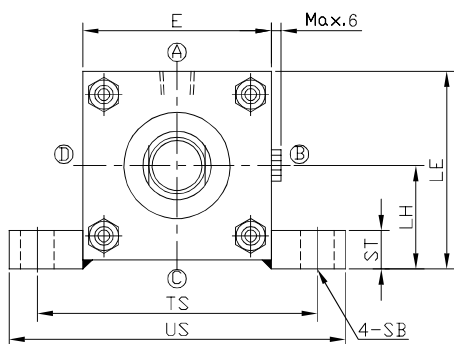
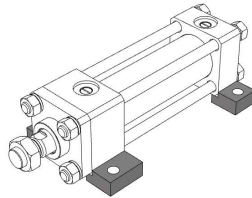
Dimensions-Standard (SD)



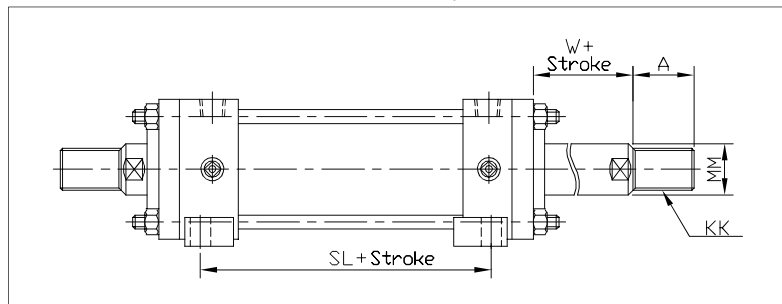
Unit : mm

Bore size	A	B	BB	D	DD	E	EE	F	FP	H	J	K	KK	LF	LZ	MM	P	RR	VC	W	ZB	ZJ
Ø40	25	Ø40	17	20	M12×1.5	□70	Rc(PT)3/8	13	43	64	47	32	M20×1.5	156	184	Ø22	98	□50	11	30	203	186
Ø50	30	Ø46	18	25	M14×1.5	□85	Rc(PT)1/2	15	48	68	52	37	M24×1.5	172	202	Ø28	106	□62	14	30	220	202
Ø63	35	Ø55	21	30	M16×1.5	□100	Rc(PT)1/2	18	56	75	57	37	M30×1.5	187	225	Ø35	113	□74	15	35	243	222
Ø80	45	Ø65	23	41	M18×1.5	□125	Rc(PT)3/4	24	69	85	67	42	M39×1.5	218	267	Ø45	129	□92	9	35	276	253
Ø100	55	Ø80	30	50	M22×1.5	□160	Rc(PT)3/4	26	71	95	67	42	M48×1.5	230	281	Ø55	139	□120	14	40	300	270
Ø125	75	Ø95	35	65	M27×1.5	□190	Rc(PT)1	33	83	105	77	52	M64×2	267	325	Ø70	159	□145	13	45	347	312
Ø140	80	Ø105	39	75	M30×1.5	□215	Rc(PT)1	36	86	110	77	52	M72×2	275	336	Ø80	164	□165	14	50	364	325
Ø160	90	Ø120	40	85	M33×1.5	□240	Rc(PT)1	41	94	124	80	59	M80×2	304	366	Ø90	186	□185	14	55	399	359

Dimensions-Axial Angle of Foot (LA)



Double Rod Type

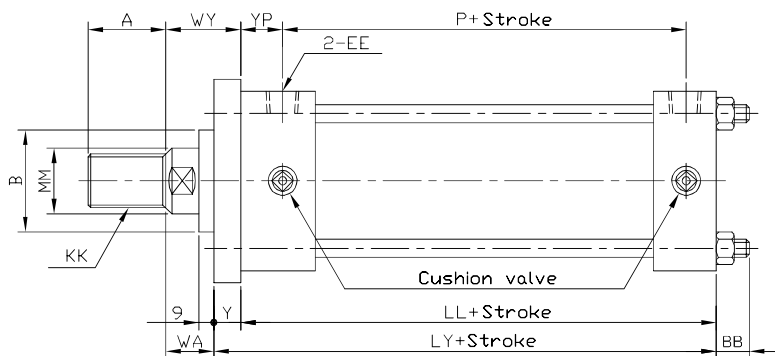
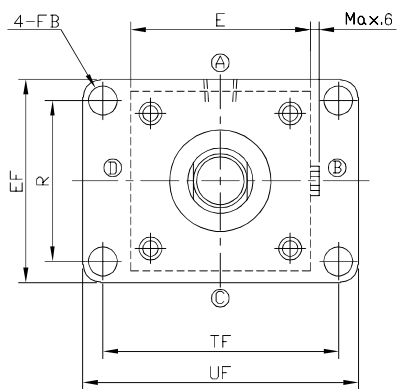
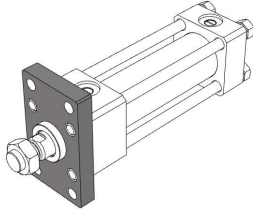


※ For not shown dimensions, refer to SD type (standard type).
 ※ Flange type tube is applied for stroke over 80mm at $\varnothing 140 \sim \varnothing 160$.

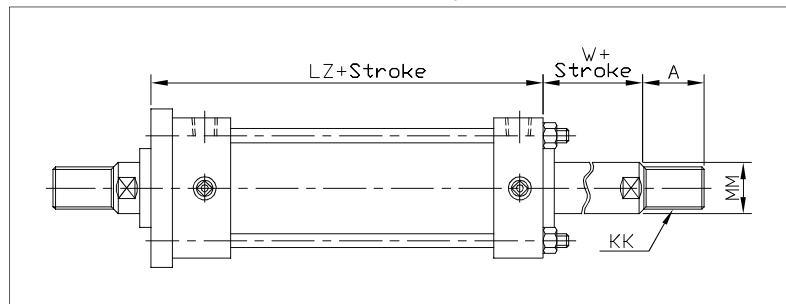
Unit : mm

Bore size	A	E	EE	FP	KK	K	LE	LH	MM	P	SB	SL	SS	ST	SV	SW	SY	SZ	TS	US	W	XS	XW	ZB
$\varnothing 40$	25	$\square 70$	Rc(PT)3/8	43	M20×1.5	32	77	42±0.15	$\varnothing 22$	98	$\varnothing 11$	126	111	15	31	16	16	16	98	122	30	59	170	203
$\varnothing 50$	30	$\square 85$	Rc(PT)1/2	48	M24×1.5	37	97.5	55±0.15	$\varnothing 28$	106	$\varnothing 14$	136	120	20	34	18	18	19	118	145	30	63	183	220
$\varnothing 63$	35	$\square 100$	Rc(PT)1/2	56	M30×1.5	37	113	63±0.15	$\varnothing 35$	113	$\varnothing 18$	153	132	25	39	18	18	19	140	175	35	71	203	243
$\varnothing 80$	45	$\square 125$	Rc(PT)3/4	69	M39×1.5	42	137.5	75±0.25	$\varnothing 45$	129	$\varnothing 22$	177	152	30	46	21	21	21	175	210	35	80	232	276
$\varnothing 100$	55	$\square 160$	Rc(PT)3/4	71	M48×1.5	42	165	85±0.25	$\varnothing 55$	139	$\varnothing 26$	183	162	35	44	23	23	24	215	260	40	89	251	300
$\varnothing 125$	75	$\square 190$	Rc(PT)1	83	M64×2	52	200	105±0.25	$\varnothing 70$	159	$\varnothing 33$	203	182	45	49	28	28	29	270	330	45	106	288	347
$\varnothing 140$	80	$\square 215$	Rc(PT)1	86	M72×2	52	219.5	112±0.25	$\varnothing 80$	164	$\varnothing 33$	208	187	45	49	28	28	29	280	335	50	114	301	364
$\varnothing 160$	90	$\square 240$	Rc(PT)1	94	M80×2	59	245	125±0.25	$\varnothing 90$	186	$\varnothing 36$	222	212	50	49	31	31	31	315	375	55	127	339	399

Dimensions-Rod Side Flange (FA)



Double Rod Type

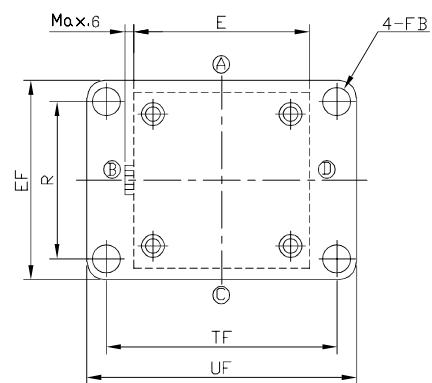
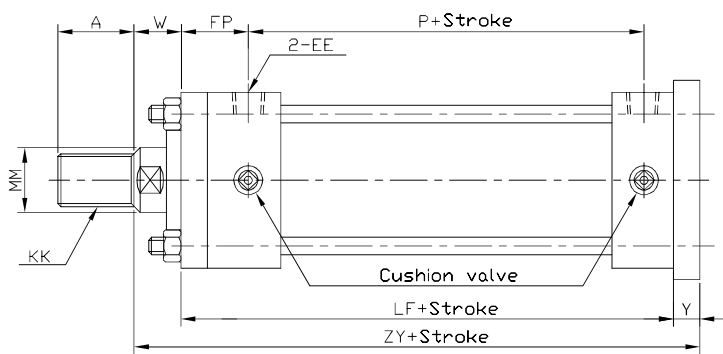
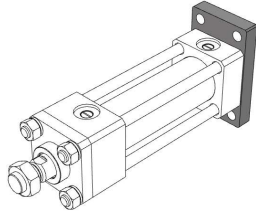


※ For not shown dimensions, refer to SD type (standard type).
 ※ Flange type tube is applied for stroke over 80mm at Ø140 ~ Ø160.

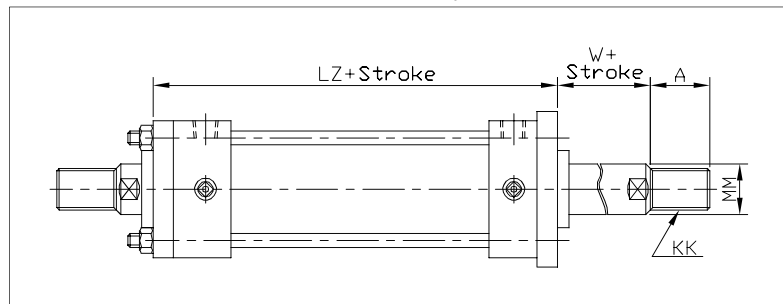
Unit : mm

Bore size	A	B	BB	E	EE	EF	FB	KK	LL	LY	LZ	MM	P	R	TF	UF	W	WA	WY	Y	YP
Ø40	25	Ø40	17	□70	Rc(PT)3/8	73	Ø11	M20×1.5	143	158	186	Ø22	98	50	98	122	30	28	43	15	30
Ø50	30	Ø46	18	□85	Rc(PT)1/2	88	Ø14	M24×1.5	157	177	207	Ø28	106	60	118	145	30	25	45	20	33
Ø63	35	Ø55	21	□100	Rc(PT)1/2	106	Ø18	M30×1.5	169	193	231	Ø35	113	73	140	175	35	29	53	24	38
Ø80	45	Ø65	23	□125	Rc(PT)3/4	130	Ø22	M39×1.5	194	218	267	Ø45	129	90	175	210	35	35	59	24	45
Ø100	55	Ø80	30	□160	Rc(PT)3/4	165	Ø26	M48×1.5	204	235	286	Ø55	139	115	215	260	40	35	66	31	45
Ø125	75	Ø95	35	□190	Rc(PT)1	205	Ø33	M64×2	234	271	329	Ø70	159	145	270	330	45	41	78	37	50
Ø140	80	Ø105	39	□215	Rc(PT)1	218	Ø33	M72×2	239	280	341	Ø80	164	160	280	335	50	45	86	41	50
Ø160	90	Ø120	40	□240	Rc(PT)1	243	Ø36	M80×2	263	309	371	Ø90	186	180	315	375	55	50	96	46	53

Dimensions-Head Side Flange (FB)



Double Rod Type

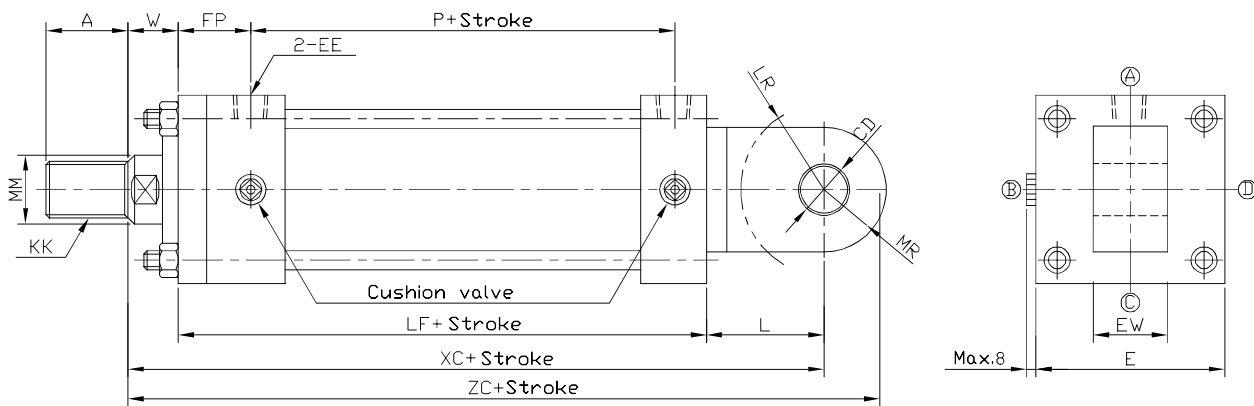
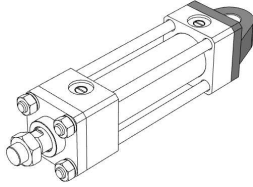


※ For not shown dimensions, refer to SD type (standard type).
 ※ Flange type tube is applied for stroke over 80mm at Ø140 ~ Ø160.

Unit : mm

Bore size	A	E	EE	EF	FB	FP	KK	LF	LZ	MM	P	R	TF	UF	W	Y	ZY
Ø40	25	□70	Rc(PT)3/8	73	Ø11	43	M20×1.5	156	186	Ø22	98	50	98	122	30	15	201
Ø50	30	□85	Rc(PT)1/2	88	Ø14	48	M24×1.5	172	207	Ø28	106	60	118	145	30	20	222
Ø63	35	□100	Rc(PT)1/2	106	Ø18	56	M30×1.5	187	231	Ø35	113	73	140	175	35	24	246
Ø80	45	□125	Rc(PT)3/4	130	Ø22	69	M39×1.5	218	267	Ø45	129	90	175	210	35	24	277
Ø100	55	□160	Rc(PT)3/4	165	Ø26	71	M48×1.5	230	286	Ø55	139	115	215	260	40	31	301
Ø125	75	□190	Rc(PT)1	205	Ø33	83	M64×2	267	329	Ø70	159	145	270	330	45	37	349
Ø140	80	□215	Rc(PT)1	218	Ø33	86	M72×2	275	341	Ø80	164	160	280	335	50	41	366
Ø160	90	□240	Rc(PT)1	243	Ø36	94	M80×2	304	371	Ø90	186	180	315	375	55	46	405

Dimensions-Single Clevis (CA)

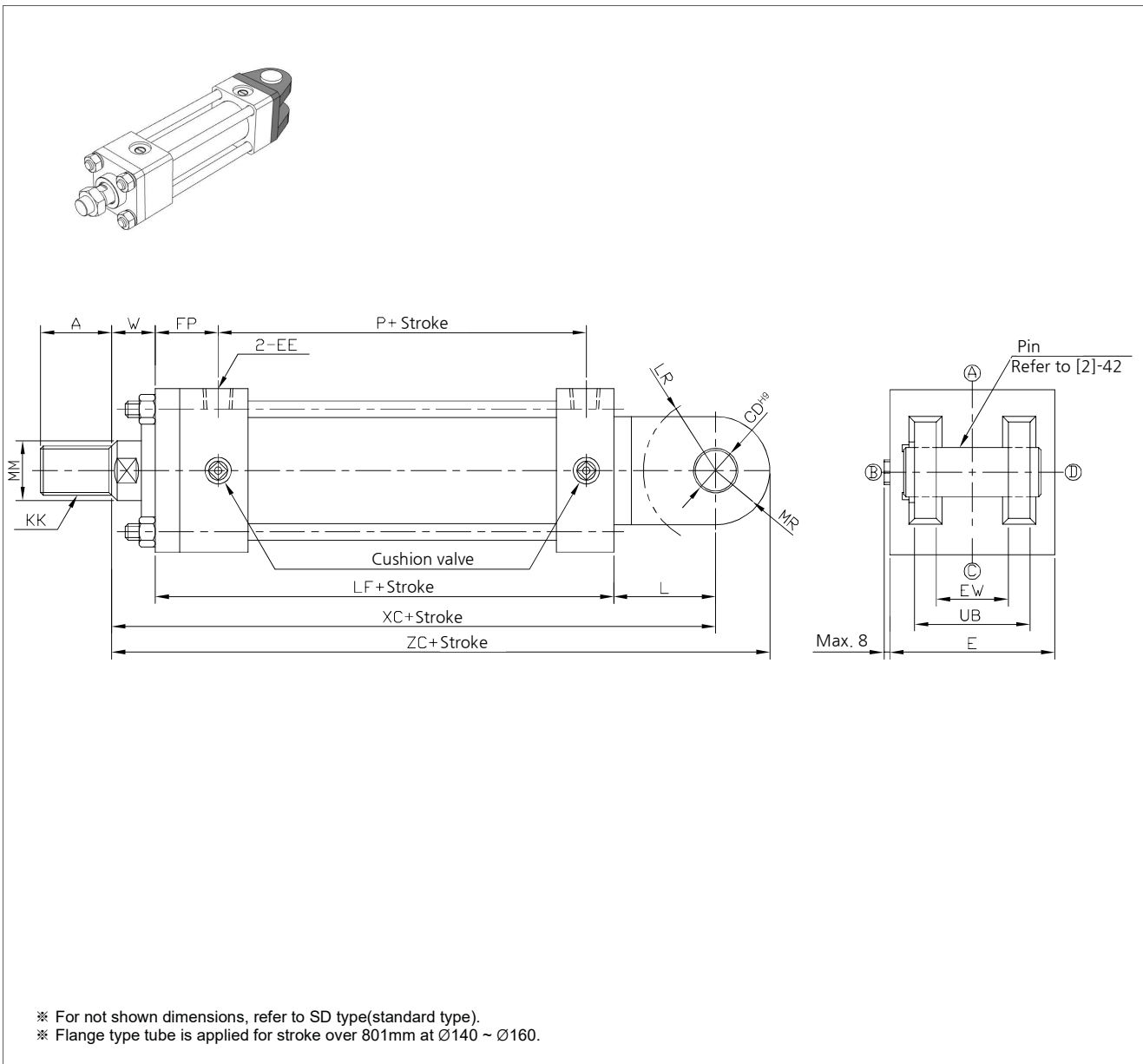


※ For not shown dimensions, refer to SD type (standard type).
 ※ Flange type tube is applied for stroke over 801mm at Ø140 ~ Ø160.

Unit : mm

Bore size	A	CD	E	EE	EW	FP	KK	L	LF	LR	MM	MR	P	W	XC	ZC
Ø40	25	Ø20	□70	Rc(PT)3/8	32 ^{-0.1} _{-0.4}	43	M20×1.5	35	156	R25	Ø22	R25	98	30	221	246
Ø50	30	Ø25	□85	Rc(PT)1/2	36 ^{-0.1} _{-0.4}	48	M24×1.5	45	172	R32	Ø28	R30	106	30	247	277
Ø63	35	Ø31.5	□100	Rc(PT)1/2	40 ^{-0.1} _{-0.4}	56	M30×1.5	55	187	R40	Ø35	R35	113	35	277	312
Ø80	45	Ø40	□125	Rc(PT)3/4	50 ^{-0.1} _{-0.4}	69	M39×1.5	70	218	R50	Ø45	R40	129	35	323	363
Ø100	55	Ø50	□160	Rc(PT)3/4	63 ^{-0.1} _{-0.4}	71	M48×1.5	80	230	R63	Ø55	R50	139	40	350	400
Ø125	75	Ø63	□190	Rc(PT)1	80 ^{-0.1} _{-0.6}	83	M64×2	105	267	R79	Ø70	R63	159	45	417	480
Ø140	80	Ø71	□215	Rc(PT)1	80 ^{-0.1} _{-0.6}	86	M72×2	115	275	R89	Ø80	R71	164	50	440	511
Ø160	90	Ø80	□240	Rc(PT)1	100 ^{-0.1} _{-0.6}	94	M80×2	125	304	R100	Ø90	R80	186	55	484	564

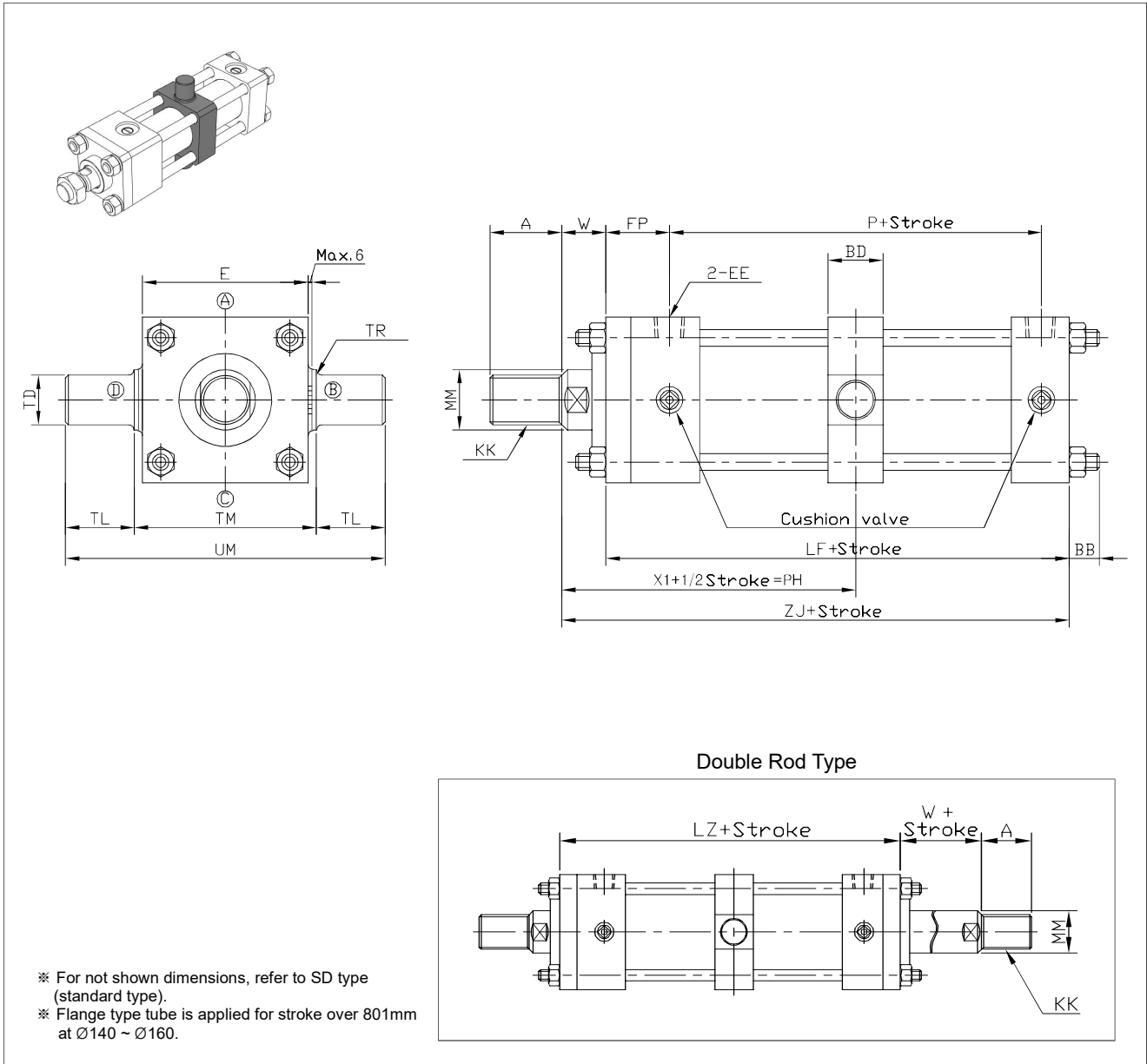
Dimensions-Double Clevis (CB)



Unit : mm

Bore size	A	CD	E	EE	EW	FP	KK	L	LF	LR	MM	MR	P	UB	W	XC	ZC
Ø40	25	Ø20	□70	Rc(PT)3/8	32 ^{+0.4} _{+0.1}	43	M20×1.5	35	156	R25	Ø22	R25	98	64	30	221	246
Ø50	30	Ø25	□85	Rc(PT)1/2	36 ^{+0.4} _{+0.1}	48	M24×1.5	45	172	R32	Ø28	R30	106	72	30	247	277
Ø63	35	Ø31.5	□100	Rc(PT)1/2	40 ^{+0.4} _{+0.1}	56	M30×1.5	55	187	R40	Ø35	R35	113	80	35	277	312
Ø80	45	Ø40	□125	Rc(PT)3/4	50 ^{+0.4} _{+0.1}	69	M39×1.5	70	218	R50	Ø45	R40	129	100	35	323	363
Ø100	55	Ø50	□160	Rc(PT)3/4	63 ^{+0.4} _{+0.1}	71	M48×1.5	80	230	R63	Ø55	R50	139	126	40	350	400
Ø125	75	Ø63	□190	Rc(PT)1	80 ^{+0.6} _{+0.1}	83	M64×2	105	267	R79	Ø70	R63	159	160	45	417	480
Ø140	80	Ø71	□215	Rc(PT)1	80 ^{+0.6} _{+0.1}	86	M72×2	115	275	R89	Ø80	R71	164	160	50	440	511
Ø160	90	Ø80	□240	Rc(PT)1	100 ^{+0.6} _{+0.1}	94	M80×2	125	304	R100	Ø90	R80	186	200	55	484	564

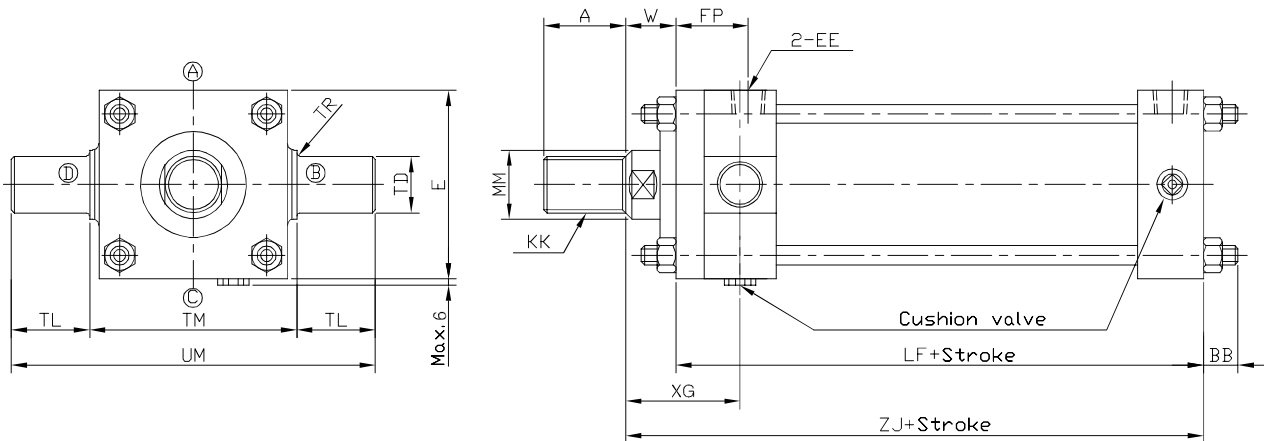
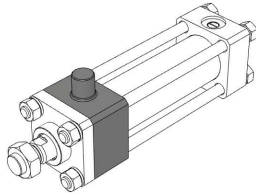
Dimensions-Center Trunnion (TC)



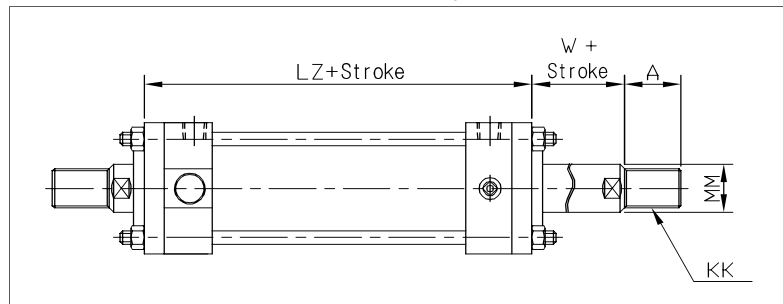
Unit : mm

Bore size	A	BB	BD	E	EE	FP	KK	LF	LZ	MM	P	최소PH	TL	TM	TD	TR	UM	W	X1	ZJ
Ø40	25	17	33	□70	Rc(PT)3/8	43	M20×1.5	156	184	Ø22	98	107	25	73 ⁰ _{-0.3}	Ø25 ⁶⁹	2.5	123	30	122	186
Ø50	30	18	33	□85	Rc(PT)1/2	48	M24×1.5	172	202	Ø28	106	114	25	88 ⁰ _{-0.35}	Ø25 ⁶⁹	2.5	138	30	131	202
Ø63	35	21	43	□100	Rc(PT)1/2	56	M30×1.5	187	225	Ø35	113	132	31.5	106 ⁰ _{-0.35}	Ø31.5 ⁶⁹	2.5	169	35	148	222
Ø80	45	23	53	□125	Rc(PT)3/4	69	M39×1.5	218	267	Ø45	129	153	40	128 ⁰ _{-0.4}	Ø40 ⁶⁹	3	208	35	169	253
Ø100	55	30	63	□160	Rc(PT)3/4	71	M48×1.5	230	281	Ø55	139	165	50	170 ⁰ _{-0.4}	Ø50 ⁶⁹	3	270	40	181	270
Ø125	75	35	78	□190	Rc(PT)1	83	M64×2	267	325	Ø70	159	209	63	205 ⁰ _{-0.46}	Ø63 ⁶⁹	4	331	45	208	312
Ø140	80	39	88	□215	Rc(PT)1	86	M72×2	275	336	Ø80	164	222	71	225 ⁰ _{-0.46}	Ø71 ⁶⁹	4	367	50	218	325
Ø160	90	40	98	□240	Rc(PT)1	94	M80×2	304	366	Ø90	186	243	80	255 ⁰ _{-0.52}	Ø80 ⁶⁹	4	415	55	242	359

Dimensions-Rod Side Trunnion (TA)



Double Rod Type

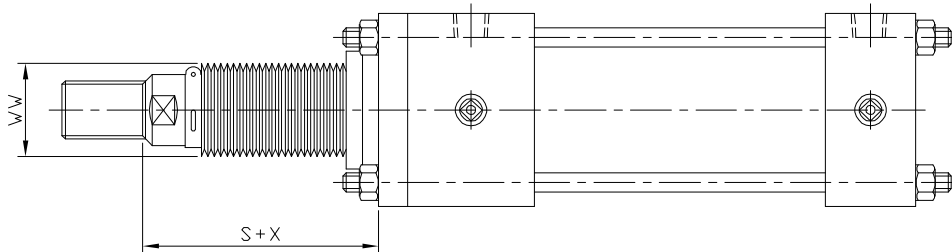


- ※ For not shown dimensions, refer to SD type (standard type).
- ※ Flange type tube is applied for stroke over 801mm at $\varnothing 140 \sim \varnothing 160$.
- ※ Cushion valve and bleeding air are located C due to TA type construction.

Unit : mm

Bore size	A	BB	E	EE	FP	KK	LF	LZ	MM	TD	TL	TM	TR	UM	W	XG	ZJ
Ø40	25	17	□70	Rc(PT)3/8	43	M20×1.5	156	183	Ø22	Ø25	25	73 ⁰ _{-0.3}	2.5	123	30	66	186
Ø50	30	18	□85	Rc(PT)1/2	48	M24×1.5	172	202	Ø28	Ø25	25	88 ⁰ _{-0.35}	2.5	138	30	71	202
Ø63	35	21	□100	Rc(PT)1/2	56	M30×1.5	187	225	Ø35	Ø31.5	31.5	106 ⁰ _{-0.35}	2.5	169	35	81	222
Ø80	45	23	□125	Rc(PT)3/4	69	M39×1.5	218	267	Ø45	Ø40	40	128 ⁰ _{-0.4}	3	208	35	92	253
Ø100	55	30	□160	Rc(PT)3/4	71	M48×1.5	230	281	Ø55	Ø50	50	170 ⁰ _{-0.4}	3	270	40	99	270
Ø125	75	35	□190	Rc(PT)1	83	M64×2	267	325	Ø70	Ø63	63	205 ⁰ _{-0.46}	4	331	45	116	312
Ø140	80	39	□215	Rc(PT)1	86	M72×2	288	349	Ø80	Ø71	71	225 ⁰ _{-0.46}	4	367	50	131	338
Ø160	90	40	□240	Rc(PT)1	94	M80×2	324	386	Ø90	Ø80	80	255 ⁰ _{-0.52}	4	415	55	146	379

Dimensions- Bellows Attached Type (J, K)

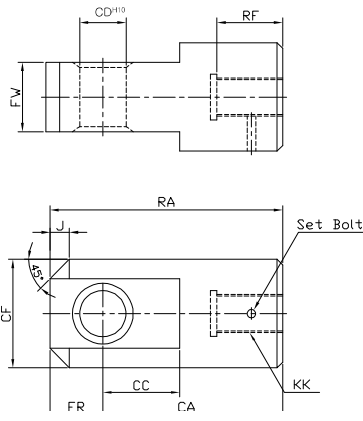


Type	J	K	Bore size	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø160	
Material	Nylon Tarpaulin	Neoprene Cloth	WW	Ø50	Ø63	Ø71	Ø80	Ø100	Ø125	Ø125	Ø140	
Temperature	60°C	110°C	X	FA type	45	45	55	55	55	65	65	65
				All types accept FA	47	50	61	55	60	69	70	70
			S	1/3.5 × Stroke			1/4 × Stroke			1/5 × Stroke		

- ※ For dimensions other than this figure, refer to SD Type (Standard Type).
- ※ The mounting dimensions do not change even when the tube is flanged.
- ※ If the decimal point comes out by calculation, round up.
- ※ The SUS band is attached to the bellows.

Dimensions-Accessory

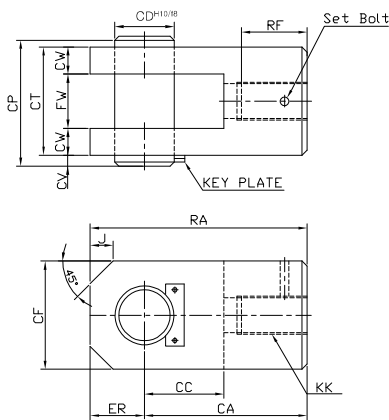
Single Knuckle Joint



Unit : mm

Part no.	CA	CC	CD	CF	ER	FW	KK	RA	RF	J
KP210H I(Hdy.)40	70	28	Ø20	Ø49	25	31.5 ^{+0.1} _{-0.4}	M20×1.5	95	32	10
KP210H I(Hdy.)50	85	35	Ø25	Ø55	30	35.5 ^{+0.1} _{-0.4}	M24×1.5	115	35	12
KP210H I(Hdy.)63	115	43	Ø31.5	Ø62	35	40 ^{+0.1} _{-0.4}	M30×1.5	150	47	15
KP210H I(Hdy.)80	145	55	Ø40	Ø79	40	50 ^{+0.1} _{-0.4}	M39×1.5	185	62	20
KP210H I(Hdy.)100	180	65	Ø50	Ø100	50	63 ^{+0.1} _{-0.4}	M48×1.5	230	77	30
KP210H I(Hdy.)125	225	85	Ø63	Ø130	65	80 ^{+0.1} _{-0.6}	M64×2.0	290	82	30
KP210H I(Hdy.)140	225	85	Ø71	Ø130	65	80 ^{+0.1} _{-0.6}	M72×2.0	290	87	30
KP210H I(Hdy.)160	270	100	Ø80	Ø160	80	100 ^{+0.1} _{-0.6}	M80×2.0	350	112	50

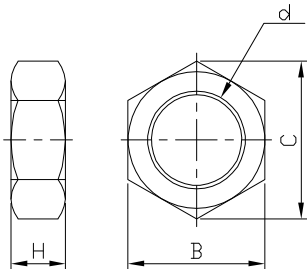
Double Knuckle Joint



Unit : mm

Part no.	CA	CC	CD	CF	CP	CT	CW	CV	ER	FW	KK	RA	RF	J
KP210H Y(Hdy.)40	70	32	Ø20	40	76.5	63.5	16	8	20	31.5 ^{+0.4} _{+0.1}	M20×1.5	90	32	10
KP210H Y(Hdy.)50	85	45	Ø25	50	85	71.5	18	8	25	35.5 ^{+0.4} _{+0.1}	M24×1.5	110	35	12
KP210H Y(Hdy.)63	115	50	Ø31.5	60	93	80	20	8	30	40 ^{+0.4} _{+0.1}	M30×1.5	145	47	15
KP210H Y(Hdy.)80	145	60	Ø40	80	117	100	25	12	40	50 ^{+0.4} _{+0.1}	M39×1.5	185	62	20
KP210H Y(Hdy.)100	180	70	Ø50	100	143	126	31.5	12	50	63 ^{+0.4} _{+0.1}	M48×1.5	230	77	30
KP210H Y(Hdy.)125	225	90	Ø63	120	183	160	40	18	65	80 ^{+0.6} _{+0.1}	M64×2	290	82	30
KP210H Y(Hdy.)140	240	100	Ø71	140	183	160	40	18	70	80 ^{+0.6} _{+0.1}	M72×2	310	97	40
KP210H Y(Hdy.)160	270	110	Ø80	160	225	200	50	20	80	100 ^{+0.6} _{+0.1}	M80×2	350	112	40

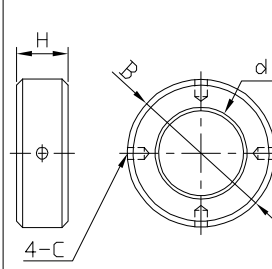
Rod End Nut
Ø40~Ø63



Part no.	d	B	C	H
KP210H RN(Hdy.)40	M20×P1.5	30	34.6	12
KP210H RN(Hdy.)50	M24×P1.5	36	41.6	14
KP210H RN(Hdy.)63	M30×P1.5	46	53.1	18

* For rod end nut attached type, longer thread length (dimension A) is required.

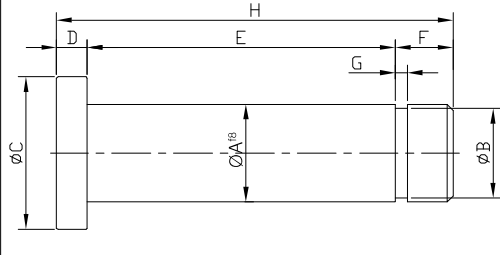
Rod End Nut
Ø80~Ø160



Part no.	d	B	C	H
KP210H RN(Hdy.)80	M39×P1.5	Ø58	Ø8	20
KP210H RN(Hdy.)100	M48×P1.5	Ø70	Ø8	26
KP210H RN(Hdy.)125	M64×P2	Ø84	Ø8	35
KP210H RN(Hdy.)140	M72×P2	Ø108	Ø10	38
KP210H RN(Hdy.)160	M80×P2	Ø115	Ø10	43

Unit : mm

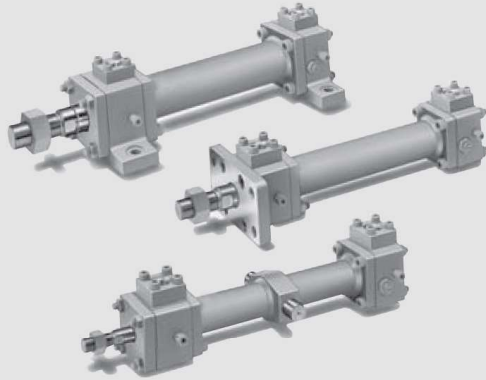
Knuckle Joint / Clevis Pin



Part no.		A	B	C	D	E	F	G	H
Clevis Pin	Knuckle Joint Pin								
KP210H CB PIN(Hdy.)40	KP210H Y PIN(Hdy.)40	20	19 ⁰ _{-0.21}	30	5	64	10	2	79
KP210H CB PIN(Hdy.)50	KP210H Y PIN(Hdy.)50	25	23.9 ⁰ _{-0.21}	32	5	72	10	1.5	87
KP210H CB PIN(Hdy.)63	KP210H Y PIN(Hdy.)63	31.5	30 ⁰ _{-0.25}	40	5	80.5	9.5	2.5	95
KP210H CB PIN(Hdy.)80	KP210H Y PIN(Hdy.)80	40	38 ⁰ _{-0.25}	50	5	100.5	9.5	2.5	115
KP210H CB PIN(Hdy.)100	KP210H Y PIN(Hdy.)100	50	47 ⁰ _{-0.25}	60	5	126.5	9.5	3	141
KP210H CB PIN(Hdy.)125	KP210H Y PIN(Hdy.)125	63	60 ⁰ _{-0.3}	70	10	161	9	3	180
KP210H CB PIN(Hdy.)140	KP210H Y PIN(Hdy.)140	71	68 ⁰ _{-0.3}	70	10	161	9	3	180
KP210H CB PIN(Hdy.)160	KP210H Y PIN(Hdy.)160	80	76.5 ⁰ _{-0.3}	90	10	201	9	3	220

Unit : mm

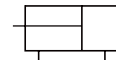
KPC140HT series



Features

- Heavy machinery (Mill type)
- Double acting hydraulic cylinder for 70kgf/cm² or 140kgf/cm² with bore sizes from Ø40 to Ø250.
- Heavy-duty type resistant to surge pressure, vibration and impact.
- Various mounting styles. (SD, LA, FA, FB, CA, TC)

Symbol



Double Acting / Single Rod

How to Order



① Series

KPC140H	Single rod	140kgf/cm ²
---------	------------	------------------------

② Seal material

Nil	Nitrile urethane
1	Nitrile rubber
2	Fluoric rubber

③ Mounting style

SD	Standard
LA	Axial angle of foot
FA	Rod side flange
FB	Head side flange
CA	Single clevis
TC	Center trunnion

④ Bore size ⑤ Rod type

Bore size	A	B
40	Ø28	Ø22
50	Ø35	Ø28
63	Ø45	Ø35
80	Ø55	Ø45
100	Ø70	Ø55
125	Ø90	Ø70
140	Ø100	Ø80
160	Ø110	Ø90
180	Ø125	Ø100
200	Ø140	Ø110
224	Ø160	Ø125
250	Ø180	Ø140

⑥ Cushion

N	Without cushion
B	Cushions on both ends
R	Rod side cushion
H	Head side cushion

⑦ Cylinder stroke

All mounting styles accept TC mounting type		TC mounting style	
Bore size	Max. stroke	Bore size	Max. stroke
Ø40~Ø63	0~2000	Ø40~Ø80	101~2000
Ø80~Ø160	51~2000	Ø100, Ø125	151~2000
Ø180~Ø250	101~2000	Ø140~Ø200	201~2000
		Ø224, Ø250	251~2000

* Contact us for longer stroke.

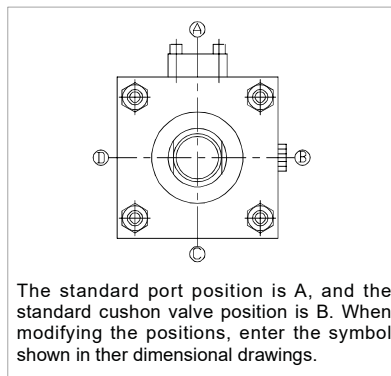
* Check buckling, it varies depending on mounting style.

⑧ Port position

Nil	A (Standard)
B,C,D	Refer to the figure below

⑨ Cushion valve position

Nil	B (Standard)
A,C,D	Refer to the figure below



⑩ Bellows

	Material	Max. ambient temperature
Nil	Without bellows	
J	Nylon Tarpaulin	60 °C
K	Neoprene Cloth	110 °C

⑪ Rod end attachment type

Nil	None
I	Single knuckle joint
Y	Double knuckle joint

⑫ Rod end thread type

Nil	Type 1 (Standard)	
2	Type 2	

* The rod end thread of type 2 is longer than that of type 1 and has a lock nut.

⑬ Port type

Nil	Type X (Standard)	
		Weld flange
Y	Type Y	
		Thread flange
Z	Type Z	
		Cover screw

* The cylinder with type X port will be provided if the customer does not specify the port type.

Specifications

Type	KPC70HT		KPC140HT	
Bore size	Ø40, Ø50, Ø63, Ø80, Ø100, Ø125, Ø140, Ø160, Ø200, Ø224, Ø250			
Operating pressure	70kgf/cm ² (7.1MPa)		140kgf/cm ² (14.3MPa)	
Max. operating pressure	140kgf/cm ² (14.3MPa)		230kgf/cm ² (23.5MPa)	
Proof pressure	170kgf/cm ² (17.3MPa)		280kgf/cm ² (28.6MPa)	
Min. operating pressure	Ø40~Ø140	3kgf/cm ² (0.31MPa)		
	Ø160~Ø250	5kgf/cm ² (0.51MPa)		
Operating piston speed	Ø40~Ø140	10~500mm/sec		
	Ø160~Ø250	20~500mm/sec		
Ambient & fluid temperature	-10 ~ 80 °C (No freezing)			
Cushion	Metal pressure reducing type			
Working oil	Petroleum-based fluid			
Tolerance of thread	KS class 2			
Tolerance of stroke	≤100mm	^{+0.8} ₀	≤101~250mm	^{+1.0} ₀
	≤631~1000mm	^{+1.4} ₀	≤1001~1600mm	^{+1.6} ₀
			≤251~630mm	^{+1.25} ₀
			≤1601~2000mm	^{+1.8} ₀
Mounting style	SD, LA, FA, FB, CA, TC			
Accessory	Bellows	J : Nylon Tarpaulin, K : Neoprene Cloth		
	Rod end attachment	Single knuckle joint (I-type), Double knuckle joint (Y-type)		
	Other	Rod end nut		

* Operating pressure: Max. allowable setting pressure for a relief valve while cylinder is operating.
 * The minimum working pressure does not apply to the cushion area.

Cushion Length

Unit:mm

Bore size	Ø40 ~ Ø50	Ø63 ~ Ø160	Ø180 ~ Ø224	Ø250
Cushion length	20	25	30	35

* Cushion is not applied to the following type.
 A type bore size: Ø40, Ø50, Ø63 rod side
 B type bore size: Ø40 rod side

Mass

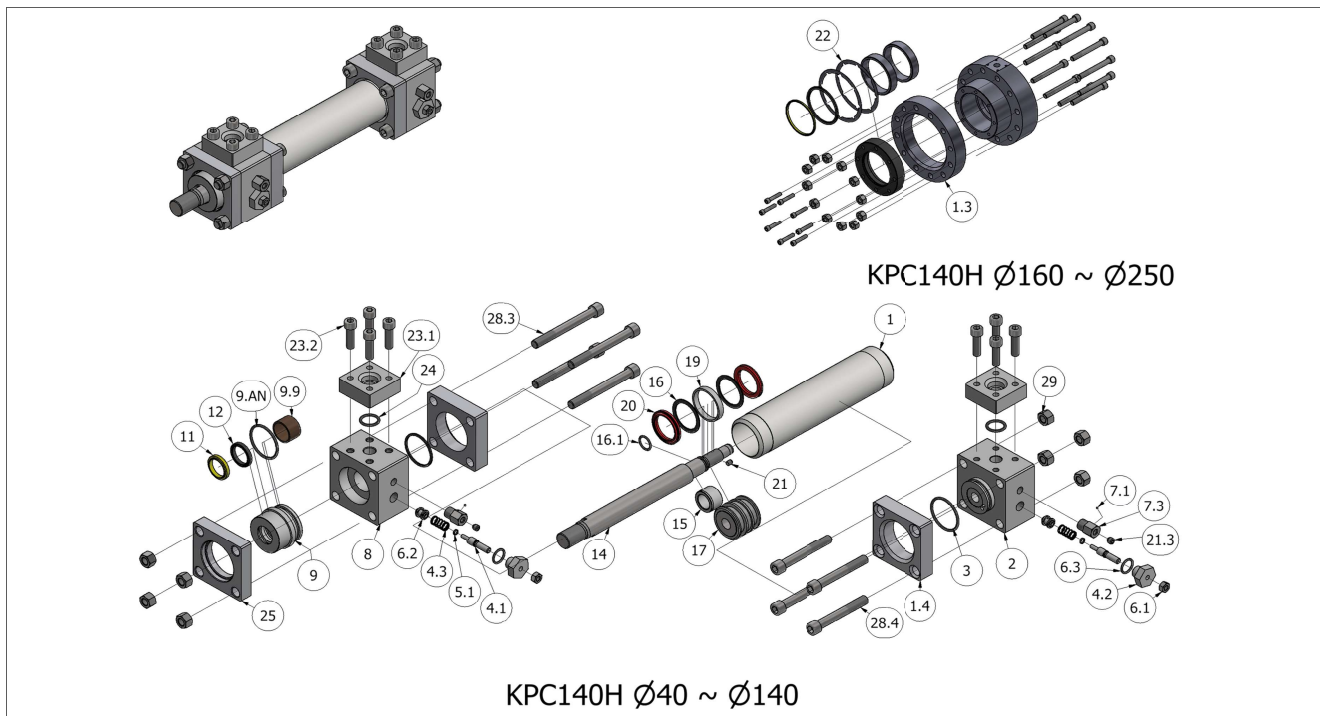
Unit : kg

Bore size	Rod type	Basic mass (SD)	Mass of mounting					Accessory		Lock nut	Additional mass per each 1mm of stroke
			LA	FA	FB	CA	TC	Single knuckle Joint	Double knuckle Joint		
Ø40	A	10.55	1.29	0.49	1.55	1.35	0.75	0.99	1.14	0.11	0.0103
	B	10.5						1.05	1.08	0.04	0.0086
Ø50	A	13.15	1.46	1.25	2.61	1.99	0.85	1.27	1.81	0.22	0.0146
	B	13.14						1.40	1.63	0.11	0.0116
Ø63	A	20.57	1.90	1.99	4.10	3.29	1.55	2.29	3.63	0.47	0.0209
	B	20.35						2.57	3.23	0.22	0.0162
Ø80	A	34.07	2.85	1.98	5.61	6.00	2.66	4.61	6.21	0.92	0.0332
	B	33.76						5.06	5.71	0.47	0.0264
Ø100	A	57.15	4.33	3.35	9.99	11.16	6.09	8.95	11.73	1.85	0.0524
	B	55.76						10.21	11.43	0.92	0.0406
Ø125	A	96.9	7.58	7.24	18.13	21.33	10.42	18.36	25.70	3.24	0.0832
	B	94.15						16.01	23.64	1.85	0.0644
Ø140	A	126.47	9.18	10.76	25.21	28.52	14.62	27.40	32.88	5.2	0.1087
	B	121.52						22.51	31.08	2.49	0.0865
Ø160	A	163.55	10.46	34.72	35.77	42.12	18.43	39.88	48.48	6.07	0.1305
	B	147.52		37.71				33.76	39.01	3.24	0.1031
Ø180	A	236.58	13.44	44.11	48.91	64.77	26.11	65.06	78.86	10.55	0.1925
	B	212.05		48.27				54.20	72.24	5.2	0.1579
Ø200	A	322.46	19.34	57.84	63.87	77.88	36.88	82.0	94.55	14.57	0.2347
	B	295.01		63.67				68.93	87.11	6.07	0.1912
Ø224	A	412.07	24.17	75.01	88.56	108.49	47.92	114.7	138.05	22.24	0.2893
	B	373.86		82.74				98.66	129.54	10.55	0.2278
Ø250	A	549.29	28.41	103.85	114.40	152.91	66.34	166.9	189.96	32.20	0.3638
	B	487.94		111.27				136.4	175.95	14.57	0.2848

Calculation:

Ex.) KPC70H-FA200A-N300
 Basic mass: 322.46
 Additional mass: 0.2347
 Cylinder stroke: 200mm / FA type: 57.84
 322.46+57.84+(0.2347 X 200) = 450.71kg

Structure



Part List

Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity
1	TUBE	STKM13	1	7.1	STEEL BALL	SUJ2	2	21	SET SCREW	SCM435	1
1.3	ROD FLANGE	SS41	1	7.3	AIRVENT PLUG	SS41	2	21.3	SET SCREW	SCM435	2
1.4	TUBE FLANGE	SS400	2	8	ROD COVER	SS400	1	22	SHIN	SS41	2
2	HEAD COVER	SS400	1	9	BUSH(B)	SM45C	1	23.1	PORT FLANGE	SS400	2
4.1	VLAVE SPOOL	SM45C	2	14	ROD(B)	SMC45C	1	23.2	SOCKET BOLT	SCM435	8
4.2	VALVE NEEDLE	SM45C	2	15	CUSHION RING	FC25	1	28.3	SOCKET BOLT	SCM435	4
4.3	SPRING	PW-1	2	17	PISTON(B)	SM45C	1	28.4	SOCKET BOLT	SCM435	4
6.1	HEX NUT	SM45C	2	19	WEAR RING	PTFE	1	29	HEX NUT	SM45C	8
6.2	VALVE GUIDE	SM45C	2								

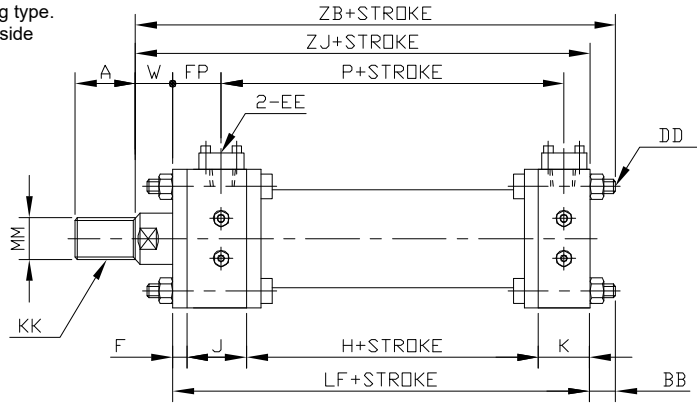
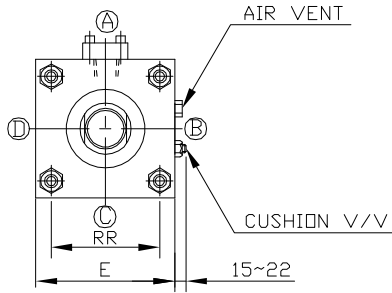
Packing List

Part no.	3	5.1	6.3	9.AN	11	12	16	16.1	20	24	22				
Parts	T/O-RING	BACK UP RING	O-RING	O-RING	DUST SEAL	R/PACKING	BACK UP RING	R/O-RING	P/PACKING	P/O-RING	V-PACKING				
Type	A/B	A/B	A/B	A/B	A type B type	A type B type	A/B	A type B type	A/B	A/B	A type B type				
Material	NBR	PTFE	PTFE	NBR	URETHANE	URETHANE	PTFE	NBR	URETHANE	NBR	NBR				
Quantity	2	2	2	1	1	1	2	2	1	2	1				
Bore size	2	2	2	1	1	1	2	2	1	2	1				
Ø40	1B-G35	1B-P7	1B-P18	1B-G40	1B-LBI28	1B-LBI22	1B-IAI28	1B-ISI22	40X30X1.25t	1B-P18	1B-P14	40x30x6	1B-G25	-	-
Ø50	1B-G45	1B-P7	1B-P18	1B-G50	1B-LBI35	1B-LBI28	1B-ISI35	1B-ISI28	50X40X1.25t	1B-P22A	1B-P18	50x40x6	1B-G25	-	-
Ø63	1B-G58	-	-	-	1B-LBI45	1B-LBI35	1B-ISI45	1B-ISI35	-	1B-P29.5	1B-P22A	63x53x6	1B-G25	-	-
Ø80	1B-G75	-	-	-	1B-LBI55	1B-LBI45	1B-ISI55	1B-ISI45	-	1B-G40	1B-P29.5	80x65x9	1B-G30	-	-
Ø100	1B-G95	-	-	-	1B-LBI70	1B-LBI55	1B-ISI70	1B-ISI55	-	1B-G50	1B-G40	100x85x9	1B-G30	-	-
Ø125	1B-G120	-	-	-	1B-LBI90	1B-LBI70	1B-ISI90	1B-ISI70	-	1B-G65	1B-G50	125x100x9	1B-G35	-	-
Ø140	1B-G135	-	-	-	1B-LBI100	1B-LBI80	1B-ISI100	1B-ISI80	-	1B-G75	1B-G65	140x125x9	1B-G35	-	-
Ø160	1B-G150	-	-	-	1B-LBI110	1B-LBI90	1B-ISI110	1B-ISI90	-	1B-G85	1B-G75	160x140x12	1B-G35	Ø110	Ø90
Ø180	1B-G170	-	-	-	1B-LBI125	1B-LBI100	1B-ISI125	1B-ISI100	-	1B-G95	1B-G85	180x160x12	1B-G40	Ø125	Ø100
Ø200	1B-G190	-	-	-	1B-LBI140	1B-LBI112	1B-ISI140	1B-ISI112	-	1B-G107	1B-G95	200x180x12	1B-G50	Ø140	Ø112
Ø224	1B-G214	-	-	-	1B-SDR160	1B-LBI125	1B-ISI160	1B-ISI125	-	1B-G120	1B-G107	224x204x12	1B-G50	Ø160	Ø125
Ø250	1B-G240	-	-	-	1B-LBI160	1B-LBI140	1B-ISI180	1B-ISI140	-	1B-G135	1B-G120	250x230x12	1B-G60	Ø180	Ø140

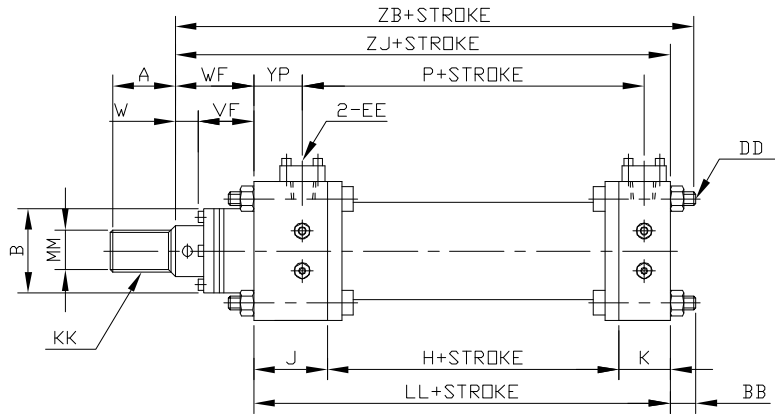
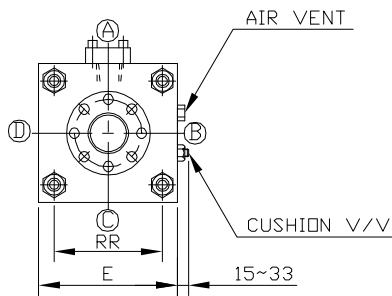
Dimensions-Standard (SD)

Ø40 ~ Ø140

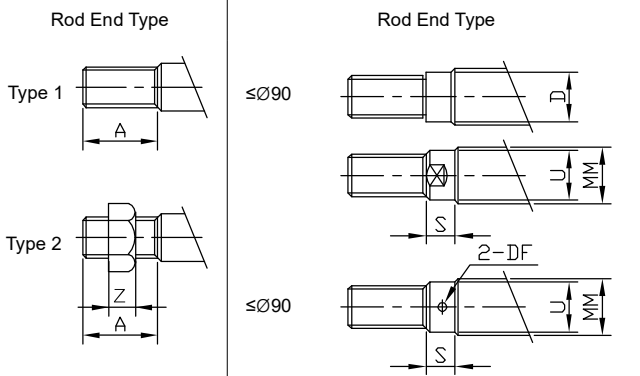
* Cushion is not applied to the following type.
A type bore size: Ø40, Ø50, Ø63 rod side
B type bore size: Ø40 rod side



Ø160 ~ Ø250



Unit : mm

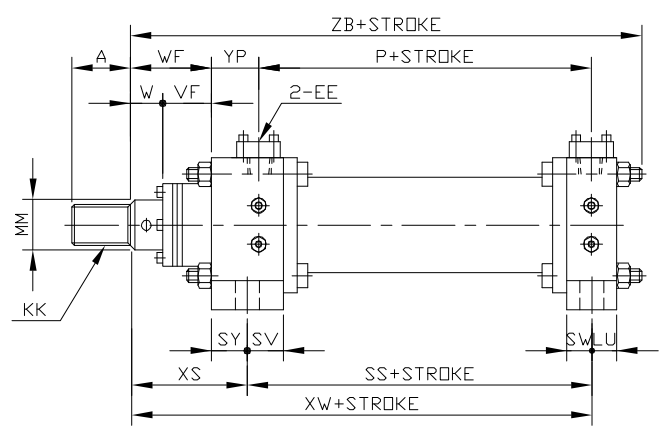
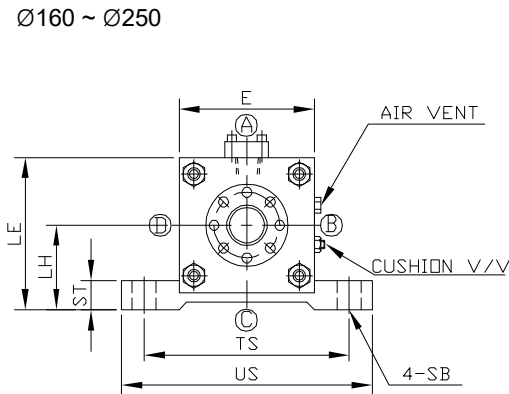
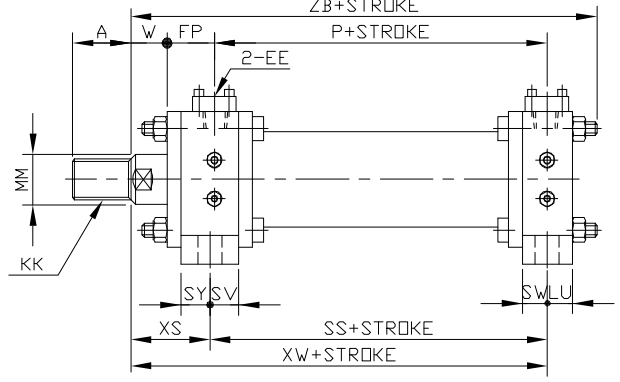
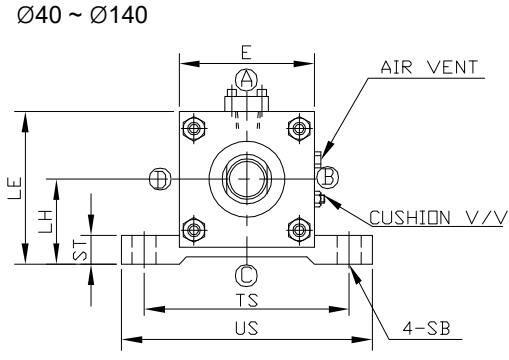


Bore size	A type rod					B type rod				
	D	DF	MM	S	U	D	DF	MM	S	U
Ø40	24	-	Ø28	-	-	19	-	Ø22	-	-
Ø50	30	-	Ø35	-	-	24	-	Ø28	-	-
Ø63	41	-	Ø45	25	Ø44	30	-	Ø35	25	Ø34
Ø80	50	-	Ø55	28	Ø54	41	-	Ø45	28	Ø44
Ø100	65	-	Ø70	34	Ø69	50	-	Ø55	34	Ø54
Ø125	85	-	Ø90	39	Ø89	65	-	Ø70	39	Ø69
Ø140	-	Ø12	Ø100	35	Ø99	75	-	Ø80	40	Ø79
Ø160	-	Ø15	Ø110	30	Ø109	85	-	Ø90	30	Ø89
Ø180	-	Ø15	Ø125	35	Ø124	-	Ø12	Ø100	35	Ø99
Ø200	-	Ø15	Ø140	33	Ø139	-	Ø15	Ø110	33	Ø109
Ø224	-	Ø15	Ø160	35	Ø159	-	Ø15	Ø125	35	Ø124
Ø250	-	Ø15	Ø180	35	Ø179	-	Ø15	Ø140	35	Ø139

Unit : mm

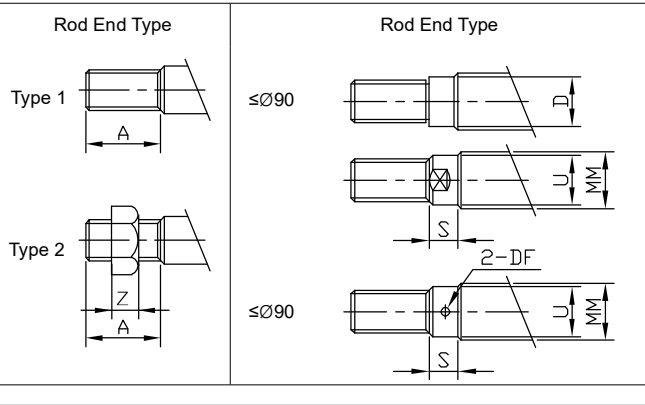
Bore size	A type rod					B type rod					BB	DD	E	EE	F	FP	H	J	K	LF	LL	P	RR	VF	W	WF	YP	ZB	ZJ
	A		KK	Z	A		B	KK	Z																				
	Typ.1	Typ.2			Typ.1	Typ.2																							
Ø40	35	55	-	M24X1.5	19	30	45	-	M20X1.5	16	11	M10x1.5	Ø80	SSA15	18	47	64	56	54	192	-	118	Ø60	-	29	-	-	232	221
Ø50	45	65	-	M30X1.5	24	35	55	-	M24X1.5	19	16	M12x1.75	Ø90	SSA15	18	47	68	56	54	196	-	122	Ø68	-	29	-	-	241	225
Ø63	60	85	-	M39X1.5	31	45	65	-	M30X1.5	24	14	M14x2	Ø110	SSA15	20	61	87	68	54	229	-	141	Ø80	-	40	-	-	283	269
Ø80	75	105	-	M48X1.5	38	60	85	-	M39X1.5	31	16	M16x2	Ø127	SSA20	26	70	97	73	58	254	-	155	Ø98	-	33	-	-	303	287
Ø100	95	140	-	M64X2	51	75	105	-	M48X1.5	38	19	M20x2.5	Ø154	SSA20	31	87	96	85	58	270	-	154	Ø120	-	39	-	-	328	309
Ø125	120	175	-	M80X2	64	95	140	-	M64X2	51	22	M24x2	Ø188	SSA25	36	105	106	103	68	313	-	174	Ø144	-	44	-	-	379	357
Ø140	140	210	-	M95X2	76	110	160	-	M72X2	58	26	M27x2	Ø212	SSA25	36	105	116	103	68	323	-	184	Ø162	-	49	-	-	398	372
Ø160	150	220	Ø191	M100X2	80	120	175	162	M80X2	64	28	M30x2	Ø238	SSA25	-	-	132	74	72	-	278	204	Ø184	92	35	127	38	433	405
Ø180	180	265	Ø208	M120X2	96	140	210	172	M95X2	76	30	M33x2	Ø272	SSA32	-	-	142	84	82	-	308	224	Ø214	92	40	132	43	470	440
Ø200	195	285	Ø229	M130X2	104	150	220	191	M100X2	80	33	M36x2	Ø298	SSA40	-	-	152	102	102	-	356	254	Ø232	102	38	140	51	529	496
Ø224	225	330	Ø253	M150X2	120	180	265	208	M120X2	96	35	M39x2	Ø328	SSA40	-	-	162	102	102	-	366	264	Ø256	112	42	154	51	555	520
Ø250	255	375	Ø280	M170X3	136	195	285	229	M130X2	104	38	M42x2	Ø362	SSA40	-	-	172	111	102	-	385	274	Ø286	127	48	175	60	598	560

Dimensions-Axial Angle of Foot (LA)



※ Cushion is not applied to the following type.
 A type bore size: Ø40, Ø50, Ø63 rod side
 B type bore size: Ø40 rod side
 ※ For not shown dimensions, refer to SD type (standard type).

Unit : mm



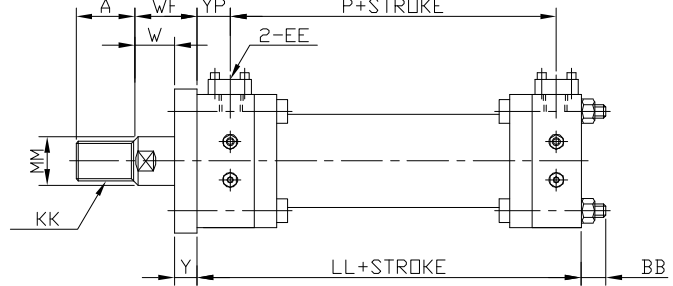
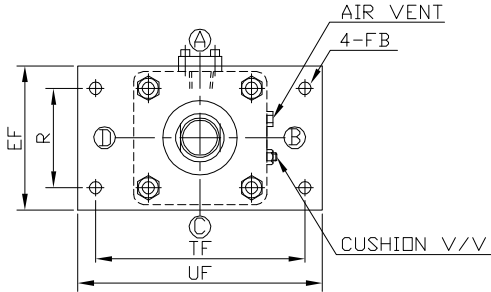
Bore size	A type rod					B type rod				
	D	DF	MM	S	U	D	DF	MM	S	U
Ø40	24	-	Ø28	-	-	19	-	Ø22	-	-
Ø50	30	-	Ø35	-	-	24	-	Ø28	-	-
Ø63	41	-	Ø45	25	Ø44	30	-	Ø35	25	Ø34
Ø80	50	-	Ø55	28	Ø54	41	-	Ø45	28	Ø44
Ø100	65	-	Ø70	34	Ø69	50	-	Ø55	34	Ø54
Ø125	85	-	Ø90	39	Ø89	65	-	Ø70	39	Ø69
Ø140	-	Ø12	Ø100	35	Ø99	75	-	Ø80	40	Ø79
Ø160	-	Ø15	Ø110	30	Ø109	85	-	Ø90	30	Ø89
Ø180	-	Ø15	Ø125	35	Ø124	-	Ø12	Ø100	35	Ø99
Ø200	-	Ø15	Ø140	33	Ø139	-	Ø15	Ø110	33	Ø109
Ø224	-	Ø15	Ø160	35	Ø159	-	Ø15	Ø125	35	Ø124
Ø250	-	Ø15	Ø180	35	Ø179	-	Ø15	Ø140	35	Ø139

Unit : mm

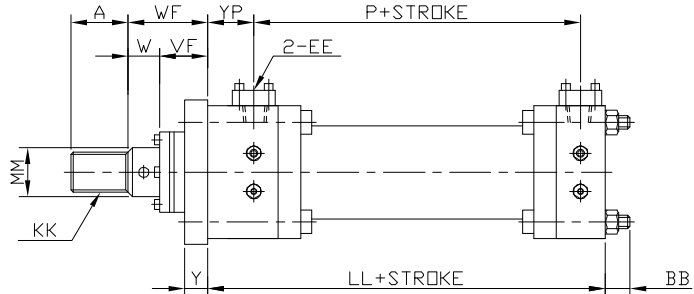
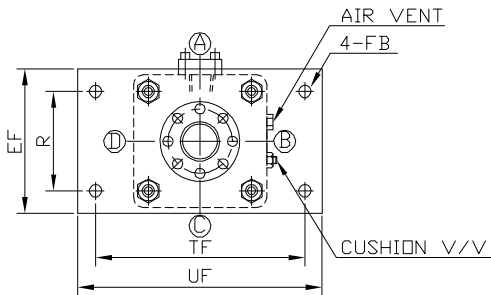
Bore size	A type rod			B type rod			E	EE	FP	LE	LH	LU	P	SB	SS	ST	SV	SW	SY	TS	US	VF	W	WF	XS	XW	YP	ZB		
	A		Z	A		Z																								
	Typ.1	Typ.2		Typ.1	Typ.2																									
Ø40	35	55	M24X1.5	19	30	45	M20X1.5	16	□80	SSA15	47	100	60±0.15	26	118	Ø14	120	20	28	28	28	125±0.5	155	-	29	-	75	195	-	232
Ø50	45	65	M30X1.5	24	35	55	M24X1.5	19	□90	SSA15	47	110	65±0.15	30	122	Ø16	120	20	28	24	28	140±0.5	175	-	29	-	75	195	-	241
Ø63	60	85	M39X1.5	31	45	65	M30X1.5	24	□110	SSA15	61	125	70±0.25	24	141	Ø18	150	25	33	30	35	155±0.5	190	-	40	-	95	145	-	283
Ø80	75	105	M48X1.5	38	60	85	M39X1.5	31	□127	SSA20	70	143.5	80±0.25	27	155	Ø20	165	30	37	31	36	180±0.5	220	-	33	-	95	260	-	303
Ø100	95	140	M64X2	51	75	105	M48X1.5	38	□154	SSA20	87	172	95±0.25	29	154	Ø24	165	35	40	29	45	220±0.5	265	-	39	-	115	280	-	328
Ø125	120	175	M80X2	64	95	140	M64X2	51	□188	SSA25	105	209	115±0.25	32	174	Ø30	195	40	53	36	50	275±0.8	330	-	44	-	130	325	-	379
Ø140	140	210	M95X2	76	110	160	M72X2	58	□212	SSA25	105	231	125±0.25	37	184	Ø33	200	45	53	31	50	305±0.8	365	-	49	-	135	335	-	398
Ø160	150	220	M100X2	80	120	175	M80X2	64	□238	SSA25	-	264	145±0.25	34	204	Ø36	206	55	36	38	38	340±0.8	405	92	35	127	165	371	38	433
Ø180	180	265	M120X2	96	140	210	M95X2	76	□272	SSA32	-	296	160±0.25	40	224	Ø39	225	60	41	42	43	375±0.8	445	92	40	132	175	400	43	470
Ø200	195	285	M130X2	104	150	220	M100X2	80	□298	SSA40	-	324	175±0.25	51	254	Ø42	250	65	47	51	55	410±0.8	485	102	38	140	195	445	51	529
Ø224	225	330	M150X2	120	180	265	M120X2	96	□328	SSA40	-	359	195±0.25	50	264	Ø48	265	70	51	52	51	460±0.8	545	112	42	154	205	470	51	555
Ø250	255	375	M170X3	136	195	285	M130X2	104	□362	SSA40	-	396	215±0.25	48	274	Ø52	282	75	56	54	55	500±0.8	590	127	48	175	230	512	60	598

Dimensions-Rod Side Flange (FA)

Ø40 ~ Ø140

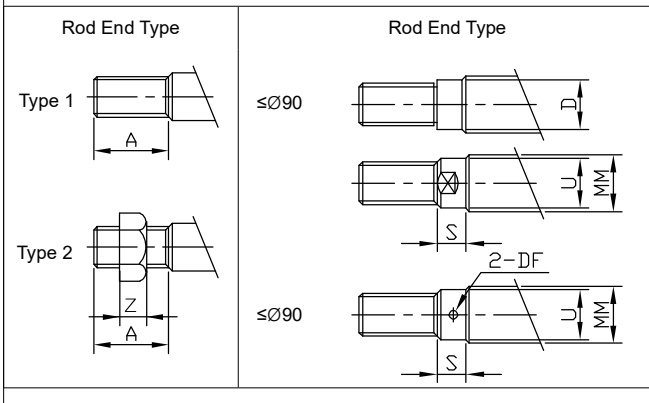


Ø160 ~ Ø250



※ Cushion is not applied to the following type.
 A type bore size: Ø40, Ø50, Ø63 rod side
 B type bore size: Ø40 rod side
 ※ For not shown dimensions, refer to SD type (standard type).

Unit : mm



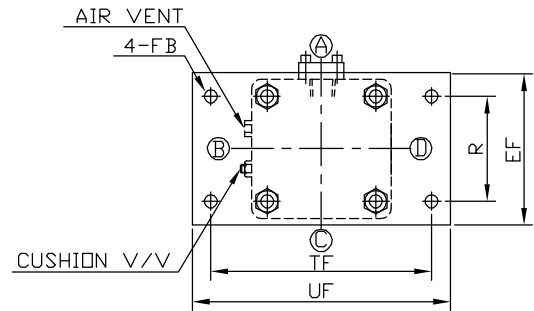
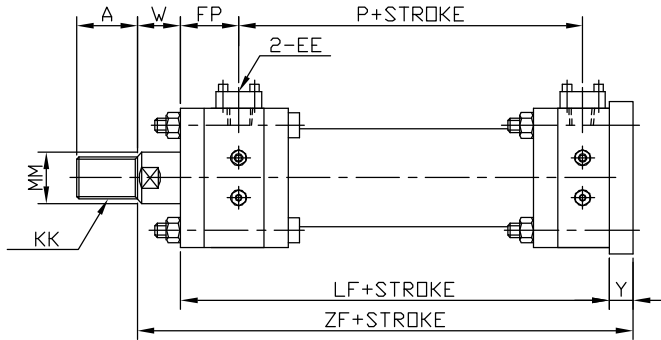
Bore size	A type rod					B type rod				
	D	DF	MM	S	U	D	DF	MM	S	U
Ø40	24	-	Ø28	-	-	19	-	Ø22	-	-
Ø50	30	-	Ø35	-	-	24	-	Ø28	-	-
Ø63	41	-	Ø45	25	Ø44	30	-	Ø35	25	Ø34
Ø80	50	-	Ø55	28	Ø54	41	-	Ø45	28	Ø44
Ø100	65	-	Ø70	34	Ø69	50	-	Ø55	34	Ø54
Ø125	85	-	Ø90	39	Ø89	65	-	Ø70	39	Ø69
Ø140	-	Ø12	Ø100	35	Ø99	75	-	Ø80	40	Ø79
Ø160	-	Ø15	Ø110	30	Ø109	85	-	Ø90	30	Ø89
Ø180	-	Ø15	Ø125	35	Ø124	-	Ø12	Ø100	35	Ø99
Ø200	-	Ø15	Ø140	33	Ø139	-	Ø15	Ø110	33	Ø109
Ø224	-	Ø15	Ø160	35	Ø159	-	Ø15	Ø125	35	Ø124
Ø250	-	Ø15	Ø180	35	Ø179	-	Ø15	Ø140	35	Ø139

Unit : mm

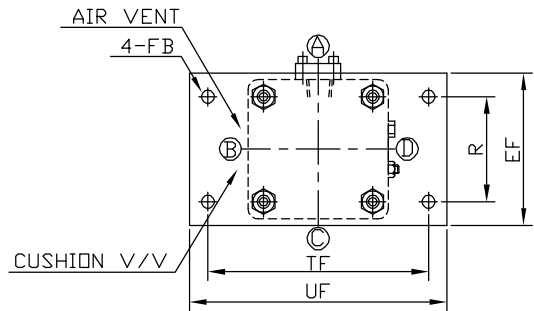
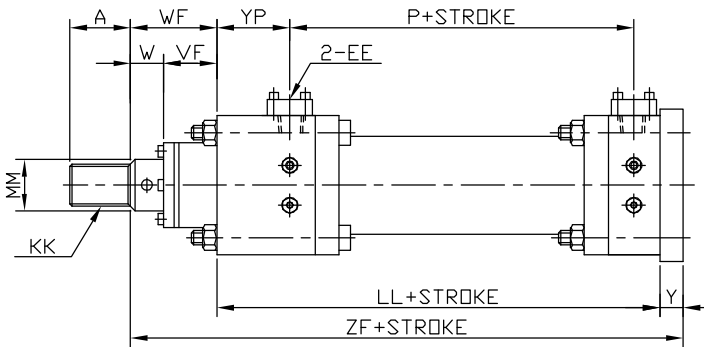
Bore size	A type rod				B type rod				BB	EE	EF	FB	LL	P	R	TF	UF	VF	W	WF	Y	YP
	A		KK	Z	A		KK	Z														
	Typ.1	Typ.2			Typ.1	Typ.2																
Ø40	35	55	M24X1.5	19	30	45	M20X1.5	16	11	SSA15	85	Ø14	174	118	55±0.3	125±0.5	155	-	29	-	15	-
Ø50	45	65	M30X1.5	24	35	55	M24X1.5	19	16	SSA15	95	Ø16	178	122	60±0.3	140±0.5	175	-	29	-	20	-
Ø63	60	85	M39X1.5	31	45	65	M30X1.5	24	14	SSA15	110	Ø18	209	141	75±0.5	155±0.5	190	-	40	-	25	-
Ø80	75	105	M48X1.5	38	60	85	M39X1.5	31	16	SSA20	130	Ø20	228	155	90±0.5	180±0.5	220	-	33	-	25	-
Ø100	95	140	M64X2	51	75	105	M48X1.5	38	19	SSA20	160	Ø24	239	154	115±0.5	220±0.5	265	-	39	-	30	-
Ø125	120	175	M80X2	64	95	140	M64X2	51	22	SSA25	200	Ø30	277	174	145±0.5	275±0.8	330	-	44	-	35	-
Ø140	140	210	M95X2	76	110	160	M72X2	58	26	SSA25	220	Ø33	287	184	160±0.5	305±0.8	365	-	49	-	40	-
Ø160	150	220	M100X2	80	120	175	M80X2	64	28	SSA25	330	Ø36	278	204	185±0.5	340±0.8	405	92	35	127	45	38
Ø180	180	265	M120X2	96	140	210	M95X2	76	30	SSA32	340	Ø39	308	224	210±0.5	375±0.8	445	92	40	132	50	43
Ø200	195	285	M130X2	104	150	220	M100X2	80	33	SSA40	380	Ø42	356	254	230±0.5	410±0.8	485	102	38	140	55	51
Ø224	225	330	M150X2	120	180	265	M120X2	96	35	SSA40	430	Ø48	366	264	255±0.8	460±0.8	545	112	42	154	60	51
Ø250	255	375	M170X3	136	195	285	M130X2	104	38	SSA40	465	Ø52	385	274	285±0.8	500±0.8	590	127	48	175	65	60

Dimensions-Head Side Flange (FB)

Ø40 ~ Ø140

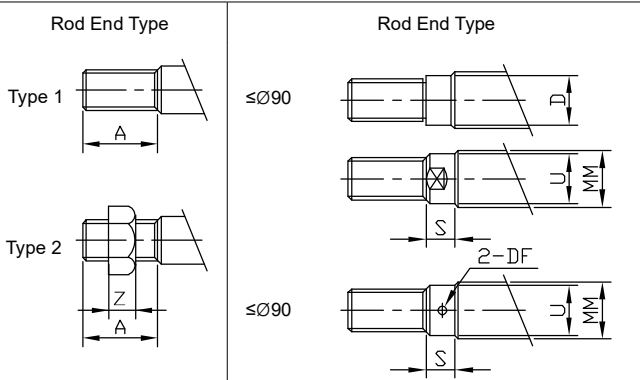


Ø160 ~ Ø250



- * Cushion is not applied to the following type.
A type bore size: Ø40, Ø50, Ø63 rod side
B type bore size: Ø40 rod side
- * For not shown dimensions, refer to SD type (standard type).

Unit : mm



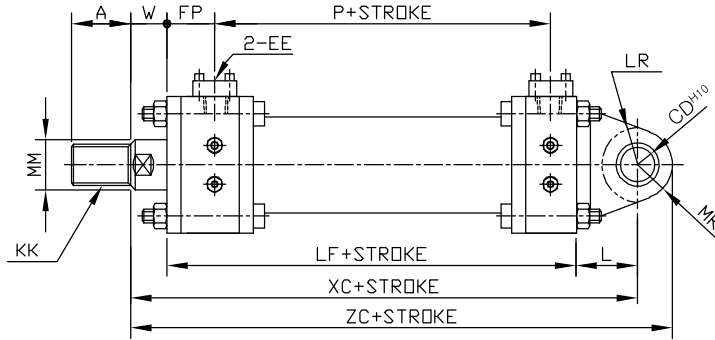
Bore size	A type rod					B type rod				
	D	DF	MM	S	U	D	DF	MM	S	U
Ø40	24	-	Ø28	-	-	19	-	Ø22	-	-
Ø50	30	-	Ø35	-	-	24	-	Ø28	-	-
Ø63	41	-	Ø45	25	Ø44	30	-	Ø35	25	Ø34.5
Ø80	50	-	Ø55	28	Ø55	41	-	Ø45	28	Ø44
Ø100	65	-	Ø70	34	Ø70	50	-	Ø55	34	Ø55
Ø125	85	-	Ø90	39	Ø89	65	-	Ø70	39	Ø70
Ø140	-	Ø12	Ø100	35	Ø99	75	-	Ø80	40	Ø79
Ø160	-	Ø15	Ø110	30	Ø111	85	-	Ø90	30	Ø89
Ø180	-	Ø15	Ø125	35	Ø124	-	Ø12	Ø100	35	Ø99
Ø200	-	Ø15	Ø140	33	Ø139	-	Ø15	Ø110	33	Ø111
Ø224	-	Ø15	Ø160	35	Ø159	-	Ø15	Ø125	35	Ø124
Ø250	-	Ø15	Ø180	35	Ø179	-	Ø15	Ø140	35	Ø139

Unit : mm

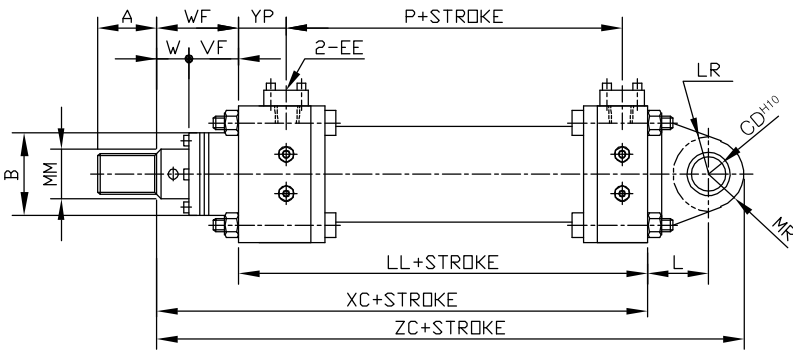
Bore size	A type rod			B type rod			EE	EF	FB	FP	LF	LL	P	R	TF	UF	VF	W	WF	Y	YP	ZF		
	A		Z	A		Z																		
	Typ.1	Typ.2		Typ.1	Typ.2																			
Ø40	35	55	M24X1.5	19	30	45	M20X1.5	16	SSA15	85	Ø14	47	192	-	118	55±0.3	125±0.5	155	-	29	-	15	-	233
Ø50	45	65	M30X1.5	24	35	55	M24X1.5	19	SSA15	95	Ø16	47	196	-	122	60±0.3	140±0.5	175	-	29	-	20	-	243
Ø63	60	85	M39X1.5	31	45	65	M30X1.5	24	SSA15	110	Ø18	61	229	-	141	75±0.5	155±0.5	190	-	40	-	25	-	299
Ø80	75	105	M48X1.5	38	60	85	M39X1.5	31	SSA20	130	Ø20	70	254	-	155	90±0.5	180±0.5	220	-	33	-	25	-	313
Ø100	95	140	M64X2	51	75	105	M48X1.5	38	SSA20	160	Ø24	87	270	-	154	115±0.5	220±0.5	265	-	39	-	30	-	399
Ø125	120	175	M80X2	64	95	140	M64X2	51	SSA25	200	Ø30	105	313	-	174	145±0.5	275±0.8	330	-	44	-	35	-	392
Ø140	140	210	M95X2	76	110	160	M72X2	58	SSA25	220	Ø33	105	323	-	184	160±0.5	305±0.8	365	-	49	-	40	-	412
Ø160	150	220	M100X2	80	120	175	M80X2	64	SSA25	330	Ø36	-	-	278	204	185±0.5	340±0.8	405	92	35	127	45	38	456
Ø180	180	265	M120X2	96	140	210	M95X2	76	SSA32	340	Ø39	-	-	308	224	210±0.5	375±0.8	445	92	40	132	50	43	496
Ø200	195	285	M130X2	104	150	220	M100X2	80	SSA40	380	Ø42	-	-	356	254	230±0.5	410±0.8	485	102	38	140	55	51	555
Ø224	225	330	M150X2	120	180	265	M120X2	96	SSA40	430	Ø48	-	-	366	264	255±0.8	460±0.8	545	112	42	154	60	51	584
Ø250	255	375	M170X3	136	195	285	M130X2	104	SSA40	465	Ø52	-	-	385	274	285±0.8	500±0.8	590	127	48	175	65	60	638

Dimensions-Single Clevis (CA)

Ø40 ~ Ø140

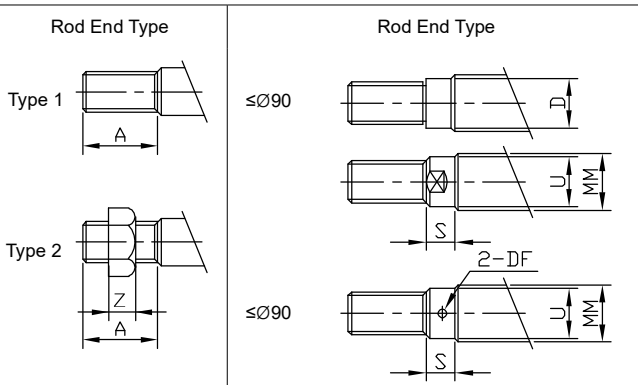


Ø160 ~ Ø250



- * Cushion is not applied to the following type.
A type bore size: Ø40, Ø50, Ø63 rod side
B type bore size: Ø40 rod side
- * For not shown dimensions, refer to SD type (standard type).

Unit : mm



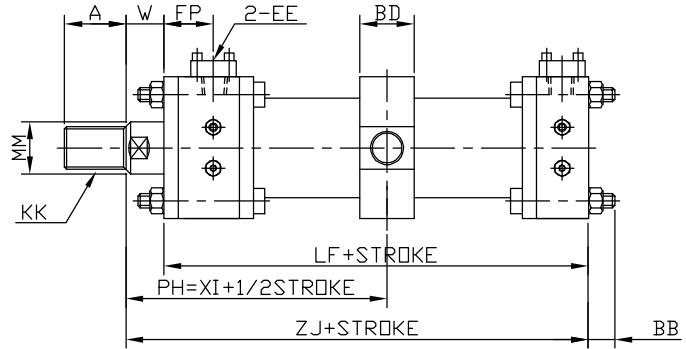
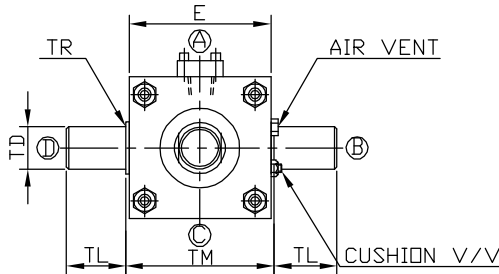
Bore size	A type rod					B type rod				
	D	DF	MM	S	U	D	DF	MM	S	U
Ø40	24	-	Ø28	-	-	19	-	Ø22	-	-
Ø50	30	-	Ø35	-	-	24	-	Ø28	-	-
Ø63	41	-	Ø45	25	Ø44	30	-	Ø35	25	Ø34
Ø80	50	-	Ø55	28	Ø54	41	-	Ø45	28	Ø44
Ø100	65	-	Ø70	34	Ø69	50	-	Ø55	34	Ø54
Ø125	85	-	Ø90	39	Ø89	65	-	Ø70	39	Ø69
Ø140	-	Ø12	Ø100	35	Ø99	75	-	Ø80	40	Ø79
Ø160	-	Ø15	Ø110	30	Ø109	85	-	Ø90	30	Ø89
Ø180	-	Ø15	Ø125	35	Ø124	-	Ø12	Ø100	35	Ø99
Ø200	-	Ø15	Ø140	33	Ø139	-	Ø15	Ø110	33	Ø109
Ø224	-	Ø15	Ø160	35	Ø159	-	Ø15	Ø125	35	Ø124
Ø250	-	Ø15	Ø180	35	Ø179	-	Ø15	Ø140	35	Ø139

Unit : mm

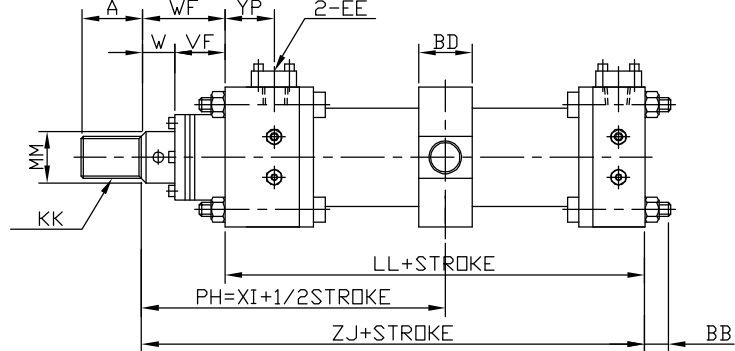
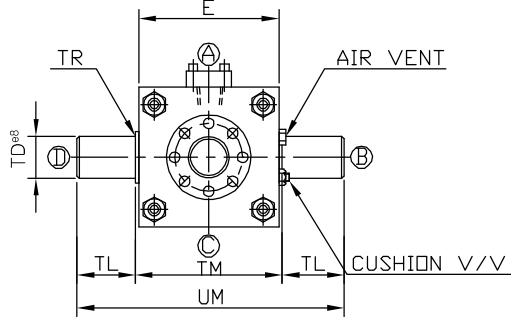
Bore size	A type rod					B type rod					CD	E	EE	EW	FP	L	LF	LL	LR	MR	P	VF	W	WF	XC	YP	ZC	
	A		B	KK	Z	A		B	KK	Z																		
	Typ.1	Typ.2				Typ.1	Typ.2																					
Ø40	35	55	-	M24X1.5	19	30	45	-	M20X1.5	16	Ø20	□80	SSA15	31.5	^{-0.1} _{-0.4}	47	56	192	-	R30	R24	118	-	29	-	277	-	301
Ø50	45	65	-	M30X1.5	24	35	55	-	M24X1.5	19	Ø25	□90	SSA15	35.5	^{-0.1} _{-0.4}	47	66	196	-	R40	R30	122	-	29	-	291	-	321
Ø63	60	85	-	M39X1.5	31	45	65	-	M30X1.5	24	Ø31.5	□110	SSA15	40	^{-0.1} _{-0.4}	61	72	229	-	R43	R38	141	-	40	-	341	-	379
Ø80	75	105	-	M48X1.5	38	60	85	-	M39X1.5	31	Ø40	□127	SSA20	50	^{-0.1} _{-0.4}	70	86	254	-	R50	R48	155	-	33	-	373	-	421
Ø100	95	140	-	M64X2	51	75	105	-	M48X1.5	38	Ø50	□154	SSA20	63	^{-0.1} _{-0.4}	87	105	270	-	R65	R60	154	-	39	-	414	-	474
Ø125	120	175	-	M80X2	64	95	140	-	M64X2	51	Ø63	□188	SSA25	80	^{-0.1} _{-0.6}	105	129	313	-	R82	R75	174	-	44	-	486	-	561
Ø140	140	210	-	M95X2	76	110	160	-	M72X2	58	Ø71	□212	SSA25	80	^{-0.1} _{-0.6}	105	147	323	-	R93	R85	184	-	49	-	519	-	604
Ø160	150	220	Ø191	M100X2	80	120	175	Ø162	M80X2	64	Ø80	□238	SSA25	100	^{-0.1} _{-0.6}	-	162	-	278	R105	R96	204	92	35	127	567	38	663
Ø180	180	265	Ø208	M120X2	96	140	210	Ø172	M95X2	76	Ø90	□272	SSA32	125	^{-0.1} _{-0.6}	-	183	-	308	R120	R108	224	92	40	132	623	43	731
Ø200	195	285	Ø229	M130X2	104	150	220	Ø191	M100X2	80	Ø100	□298	SSA40	125	^{-0.1} _{-0.6}	-	189	-	356	R125	R120	254	102	38	140	685	51	805
Ø224	225	330	Ø253	M150X2	120	180	265	Ø208	M120X2	96	Ø112	□328	SSA40	140	^{-0.1} _{-0.6}	-	214	-	366	R145	R135	264	112	42	154	734	51	869
Ø250	255	375	Ø280	M170X3	136	195	285	Ø229	M130X2	104	Ø125	□362	SSA40	160	^{-0.1} _{-0.6}	-	240	-	385	R160	R150	274	127	48	175	800	60	950

Dimensions-Center Trunnion (TC)

Ø40 ~ Ø140

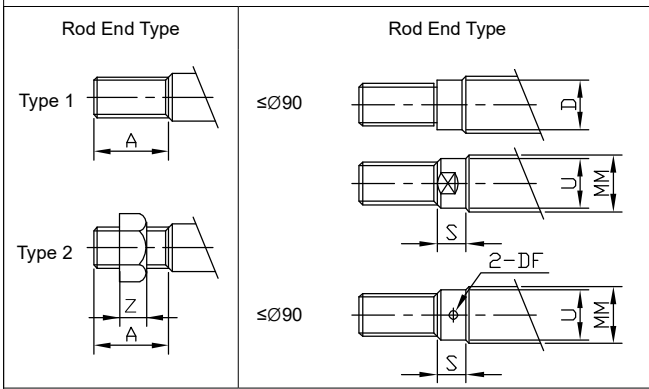


Ø160 ~ Ø250



※ Cushion is not applied to the following type.
 A type bore size: Ø40, Ø50, Ø63 rod side
 B type bore size: Ø40 rod side
 ※ For not shown dimensions, refer to SD type (standard type).

Unit : mm



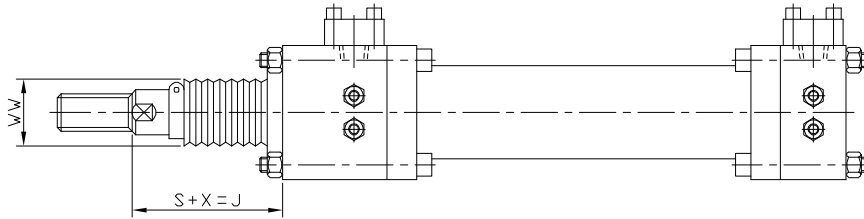
Bore size	A type rod					B type rod				
	D	DF	MM	S	U	D	DF	MM	S	U
Ø40	24	-	Ø28	-	-	19	-	Ø22	-	-
Ø50	30	-	Ø35	-	-	24	-	Ø28	-	-
Ø63	41	-	Ø45	25	Ø44	30	-	Ø35	25	Ø34
Ø80	50	-	Ø55	28	Ø54	41	-	Ø45	28	Ø44
Ø100	65	-	Ø70	34	Ø69	50	-	Ø55	34	Ø54
Ø125	85	-	Ø90	39	Ø89	65	-	Ø70	39	Ø69
Ø140	-	Ø12	Ø100	35	Ø99	75	-	Ø80	40	Ø79
Ø160	-	Ø15	Ø110	30	Ø109	85	-	Ø90	30	Ø89
Ø180	-	Ø15	Ø125	35	Ø124	-	Ø12	Ø100	35	Ø99
Ø200	-	Ø15	Ø140	33	Ø139	-	Ø15	Ø110	33	Ø109
Ø224	-	Ø15	Ø160	35	Ø159	-	Ø15	Ø125	35	Ø124
Ø250	-	Ø15	Ø180	35	Ø179	-	Ø15	Ø140	35	Ø139

Unit : mm

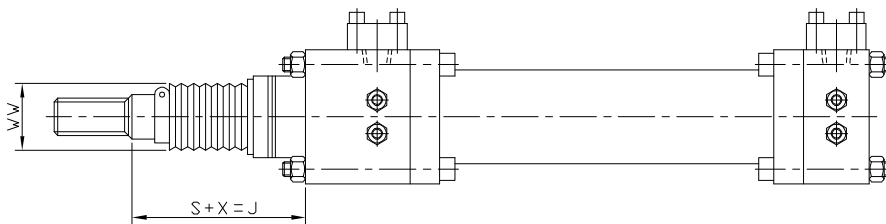
Bore size	A type rod				B type rod				BB	BD	E	EE	FP	LF	LL	최소 PH	TD	TL	TM	TR	UM	VF	W	WF	XI	YP	ZJ
	A Typ.1	A Typ.2	KK	Z	A Typ.1	A Typ.2	KK	Z																			
Ø40	35	55	M24X1.5	19	30	45	M20X1.5	16	11	33	□80	SSA15	47	192	-	166	Ø25	25	90 ^{-0.1/-0.5}	R2.5	140	-	29	-	135	-	221
Ø50	45	65	M30X1.5	24	35	55	M24X1.5	19	16	33	□90	SSA15	47	196	-	169	Ø25	25	100 ^{-0.1/-0.5}	R2.5	150	-	29	-	137	-	225
Ø63	60	85	M39X1.5	31	45	65	M30X1.5	24	14	43	□110	SSA15	61	229	-	202	Ø31.5	31.5	115 ^{-0.1/-0.5}	R2.5	178	-	40	-	171.5	-	269
Ø80	75	105	M48X1.5	38	60	85	M39X1.5	31	16	53	□127	SSA20	70	254	-	227	Ø40	40	135 ^{-0.1/-0.5}	R3.0	215	-	33	-	180.5	-	287
Ø100	95	140	M64X2	51	75	105	M48X1.5	38	19	63	□154	SSA20	87	270	-	260	Ø50	50	165 ^{-0.1/-0.5}	R3.0	265	-	39	-	203	-	309
Ø125	120	175	M80X2	64	95	140	M64X2	51	22	78	□188	SSA25	105	313	-	300	Ø63	63	205 ^{-0.1/-0.5}	R4.0	331	-	44	-	236	-	357
Ø140	140	210	M95X2	76	110	160	M72X2	58	26	88	□212	SSA25	105	323	-	315	Ø71	71	225 ^{-0.1/-0.5}	R4.0	367	-	49	-	246	-	372
Ø160	150	220	M100X2	80	120	175	M80X2	64	28	98	□238	SSA25	-	-	278	338	Ø80	80	255 ^{-0.1/-0.5}	R4.0	415	92	35	127	267	38	405
Ø180	180	265	M120X2	96	140	210	M95X2	76	30	108	□272	SSA32	-	-	308	363	Ø90	90	285 ^{-0.1/-0.8}	R5.0	465	92	40	132	287	43	440
Ø200	195	285	M130X2	104	150	220	M100X2	80	33	118	□298	SSA40	-	-	356	404	Ø100	100	310 ^{-0.1/-0.8}	R5.0	510	102	38	140	318	51	496
Ø224	225	330	M150X2	120	180	265	M120X2	96	35	137	□328	SSA40	-	-	366	433	Ø112	112	350 ^{-0.1/-0.8}	R5.0	574	112	42	154	337	51	520
Ø250	255	375	M170X3	136	195	285	M130X2	104	38	147	□362	SSA40	-	-	385	478	Ø125	125	385 ^{-0.1/-0.8}	R5.0	636	127	48	175	372	60	560

Dimensions-Bellows Attached Type (J, K)

Ø40 ~ Ø140



Ø160 ~ Ø250



Type	J	K
Material	Nylon Tarpaulin	Neoprene Cloth
Temperature	60 °C	110 °C

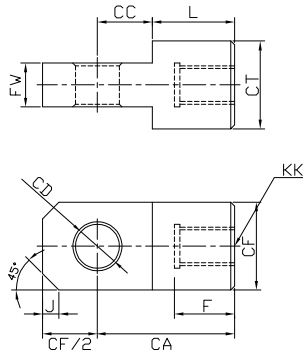
Bore size	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø160	Ø180	Ø200	Ø224	Ø250	
WW	Rod A	Ø63	Ø71	Ø80	Ø100	Ø125	Ø140	Ø160	Ø180	Ø180	Ø200	Ø220	Ø240
	Rod B	Ø50	Ø63	Ø71	Ø80	Ø100	Ø125	Ø125	Ø140	Ø160	Ø180	Ø180	Ø200
X	42	57	60	54	64	64	69	60	80	78	82	78	
S	1/3.5 × Stroke		1/4 × Stroke			1/5 × Stroke				1/6 × Stroke			

- ※ For not shown dimensions, refer to SD type (standard type).
- ※ When calculating with decimals, please round up.
- ※ SUS band is mounted at bellows at delivery.

Dimensions-Accessory

Unit : mm

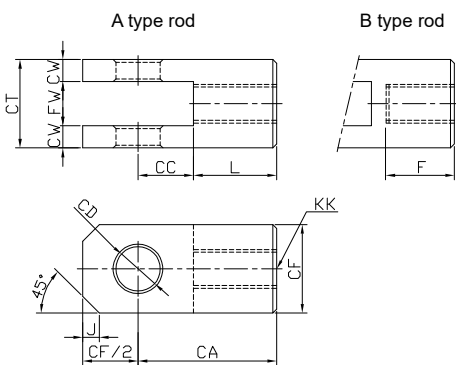
Single Knuckle Joint (I Type)



Bore size	CA	CC	CD	CF	CT	CW	F		FW	J	KK		L
							Rod A	Rod B			Rod A	Rod B	
							Ø40	80					
Ø50	95	35	Ø25 ^{H10}	60	50	17.5	50	40	35.5 ^{-0.4 -0.1}	15	M30X1.5	M24X1.5	60
Ø63	115	40	Ø31.5 ^{H10}	70	60	20	65	50	40 ^{-0.4 -0.1}	15	M39X1.5	M30X1.5	75
Ø80	140	50	Ø40 ^{H10}	90	70	25	80	65	50 ^{-0.4 -0.1}	20	M48X1.5	M39X1.5	90
Ø100	180	65	Ø50 ^{H10}	110	90	30	100	80	63 ^{-0.4 -0.1}	25	M64X2	M48X1.5	115
Ø125	220	80	Ø63 ^{H10}	140	110	40	125	100	80 ^{-0.1 -0.6}	30	M72X2	M64X2	140
Ø140	255	90	Ø71 ^{H10}	160	130	40	145	115	80 ^{-0.1 -0.6}	30	M80X2	M72X2	165
Ø160	275	100	Ø80 ^{H10}	180	140	50	155	125	100 ^{-0.1 -0.6}	40	M95X2	M80X2	175
Ø180	325	115	Ø90 ^{H10}	210	170	62.5	185	145	125 ^{-0.1 -0.6}	40	M100X2	M95X2	210
Ø200	355	125	Ø100 ^{H10}	230	190	62.5	200	155	125 ^{-0.1 -0.6}	40	M120X2	M100X2	230
Ø224	405	140	Ø112 ^{H10}	250	220	70	230	185	140 ^{-0.1 -0.6}	50	M130X2	M120X2	265
Ø250	455	160	Ø125 ^{H10}	280	250	80	260	200	160 ^{-0.1 -0.6}	60	M170X2	M130X2	295

Unit : mm

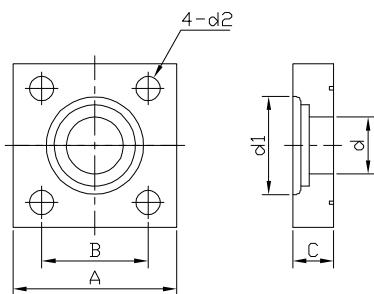
Double Knuckle Joint (Y Type)



Bore size	CA	CC	CD	CF	CT	CW	F	FW	J	KK		L
										Rod A	Rod B	
										Ø40	65	
Ø50	80	35	Ø25 ^{H10}	60	75	17.5	40	40 ^{+1.0 +0.1}	15	M30X1.5	M24X1.5	45
Ø63	100	40	Ø31.5 ^{H10}	70	85	20	50	45 ^{+1.0 +0.1}	15	M39X1.5	M30X1.5	60
Ø80	125	50	Ø40 ^{H10}	80	105	25	65	55 ^{+2.0 +0.1}	15	M48X1.5	M39X1.5	75
Ø100	160	65	Ø50 ^{H10}	100	130	30	80	70 ^{+2.0 +0.1}	20	M64X2	M48X1.5	95
Ø125	200	80	Ø63 ^{H10}	130	170	40	100	90 ^{+2.0 +0.1}	25	M72X2	M64X2	120
Ø140	230	90	Ø71 ^{H10}	150	170	40	115	90 ^{+2.0 +0.1}	30	M80X2	M72X2	140
Ø160	250	100	Ø80 ^{H10}	160	210	50	125	110 ^{+2.0 +0.1}	30	M95X2	M80X2	150
Ø180	295	115	Ø90 ^{H10}	180	260	62.5	145	135 ^{+3.0 +0.1}	40	M100X2	M95X2	180
Ø200	320	125	Ø100 ^{H10}	200	260	62.5	155	135 ^{+3.0 +0.1}	40	M120X2	M100X2	195
Ø224	365	140	Ø112 ^{H10}	230	290	70	185	150 ^{+3.0 +0.1}	50	M130X2	M120X2	225
Ø250	415	160	Ø125 ^{H10}	250	330	80	200	170 ^{+4.0 +0.1}	60	M170X2	M130X2	255

Unit : mm

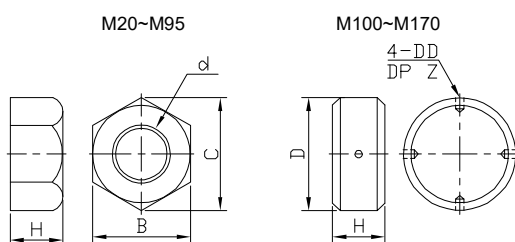
Flange



Bore size	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø160	Ø180	Ø200	Ø224	Ø250
JIS Symbol	SSA 15		SSA 20			SSA 25		SSA 32		SSA 40		SSA 50
Port size	Rc(PT)1/2		Rc(PT)3/4			Rc(PT)1		Rc(PT)1 1/4		Rc(PT)1 1/2		Rc(PT) 2
A	54		58			68		76		92		106
B	36		40			48		56		65		73
C	22		22			28		28		36		36
d	Ø16		Ø20			Ø25		Ø31.5		Ø37.5		Ø47.5
d1	Ø22.2 ^{+0.2 0}		Ø27.7 ^{+0.2 0}			Ø34.5 ^{+0.3 0}		Ø43.2 ^{+0.3 0}		Ø49.1 ^{+0.3 0}		Ø61.1 ^{+0.3 0}
d2	Ø11		Ø11			Ø13		Ø13		Ø18		Ø18
Bolt	M10		M10			M12		M12		M16		M16
O-Ring	G25		G30			G35		G40		G50		G60

Unit : mm

Rod End Nut

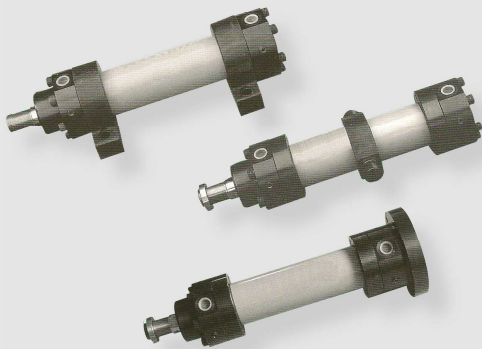


Symbol	H	B	C	Symbol	H	D	DD	Z
M20xP1.5	16	30 ^{0 -0.8}	34.6	M100xP2	80	Ø150	Ø15	18
M24xP1.5	19	36 ^{0 -1.0}	41.6	M120xP2	96	Ø180	Ø15	18
M30xP1.5	24	46 ^{0 -1.0}	53.1	M130xP2	104	Ø200	Ø20	25
M39xP1.5	31	60 ^{0 -1.2}	69.3	M150xP2	120	Ø230	Ø20	25
M48xP1.5	38	75 ^{0 -1.2}	86.5	M170xP3	136	Ø260	Ø20	25
M64xP2	51	95 ^{0 -1.4}	110					
M72xP2	58	105 ^{0 -1.4}	121					
M80xP2	64	115 ^{0 -1.4}	133					
M95xP2	76	135 ^{0 -1.6}	156					

Unit : mm

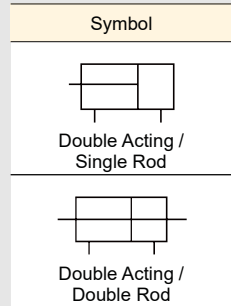
* In case of rod end nut attached type, longer thread length (dimension A) is required.

KPC210HR series

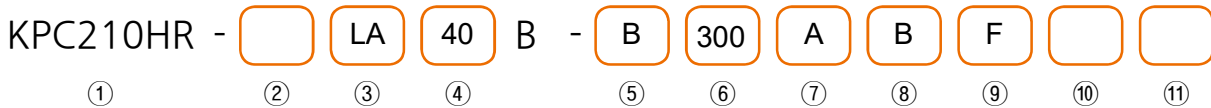


Features

- High-pressure heavy machinery (Mill type)
- Double acting hydraulic cylinder for 210kgf/cm² with bore sizes from Ø40 to Ø250.
- It can apply to heavy machinery and steel mills.
- Heavy-duty type resistant to surge pressure, vibration and impact.
- Various mounting styles. (LA, FA, FB, CA, TC)



How to Order



① Series

KPC210HR	Single rod	210kgf/cm ²
KPC210HW	Double rod	

② Seal material

Nil	Nitrile Urethane (Standard)
1	Nitrile rubber
2	Fluoric rubber

③ Mounting style

LA	Axial angle of foot
FA	Rod side flange
FB	Head side flange
CA	Single clevis
TC	Center trunnion

④ Bore size

40	Ø40
50	Ø50
63	Ø63
80	Ø80
100	Ø100
125	Ø125
140	Ø140
160	Ø160
180	Ø180
200	Ø200
250	Ø250

⑤ Cushion

N	Without cushion
B	Cushions on both ends
R	Rod side cushion
H	Head side cushion

⑥ Cylinder stroke

Bore size	Max. stroke
Ø40, Ø50	1200
Ø63, Ø80	1600
Ø100~Ø250	2000

※ Check buckling, it varies depending on mounting style.
 ※ Contact us for longer stroke.

⑦ Port position

Nil	A (Standard)
B,C,D,E,F	Refer to the figure below

⑧ Cushion valve position

Nil	B (Standard)
A,C,D,E,F	Refer to the figure below

⑨ Check valve position

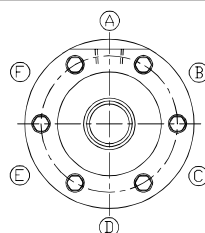
Nil	F (Standard)
A,B,C,D,E	Refer to the figure below

⑩ Bellows

	Material	Max. ambient temperature
Nil	Without bellows	
J	Nylon Tarpaulin	60℃
K	Neoprene Cloth	110℃

⑪ Accessory

Nil	None
I	Single knuckle joint



The standard port position is A, check valve position is F and the standard cushion valve position is B. When modifying the positions, enter the symbol shown in their dimensional drawings.

Specifications

Model	KPC210HR		
Bore size	Ø40, Ø50, Ø63, Ø80, Ø100, Ø125, Ø140, Ø160, Ø180, Ø200, Ø250		
Operating pressure	210kgf/cm ² (21.4MPa)		
Proof pressure	315kgf/cm ² (32.1MPa)		
Min. operating pressure	12~18kgf/cm ² (1.22~1.84MPa)		
Operating piston speed	10~300mm/sec		
Ambient & fluid temperature	-10~80℃ (Use Viton seal when temperature is over 100℃)		
Working oil	Petroleum-based fluid		
Tolerance of thread	KS class 2		
Tolerance of stroke	≤100mm	≤101~250mm	≤251~650mm
	$^{+0.8}_0$	$^{+1.0}_0$	$^{+1.25}_0$
	≤651~1000mm	≤1001~1500mm	≤1501~2000mm
	$^{+1.4}_0$	$^{+1.6}_0$	$^{+1.8}_0$
Accessory	Bellows	J : Nylon Tarpaulin, K : Neoprene Cloth	
	Rod end attachment	Single knuckle joint (I-type)	

※ Operating pressure: Max. allowable setting pressure for a relief valve while cylinder is operating.

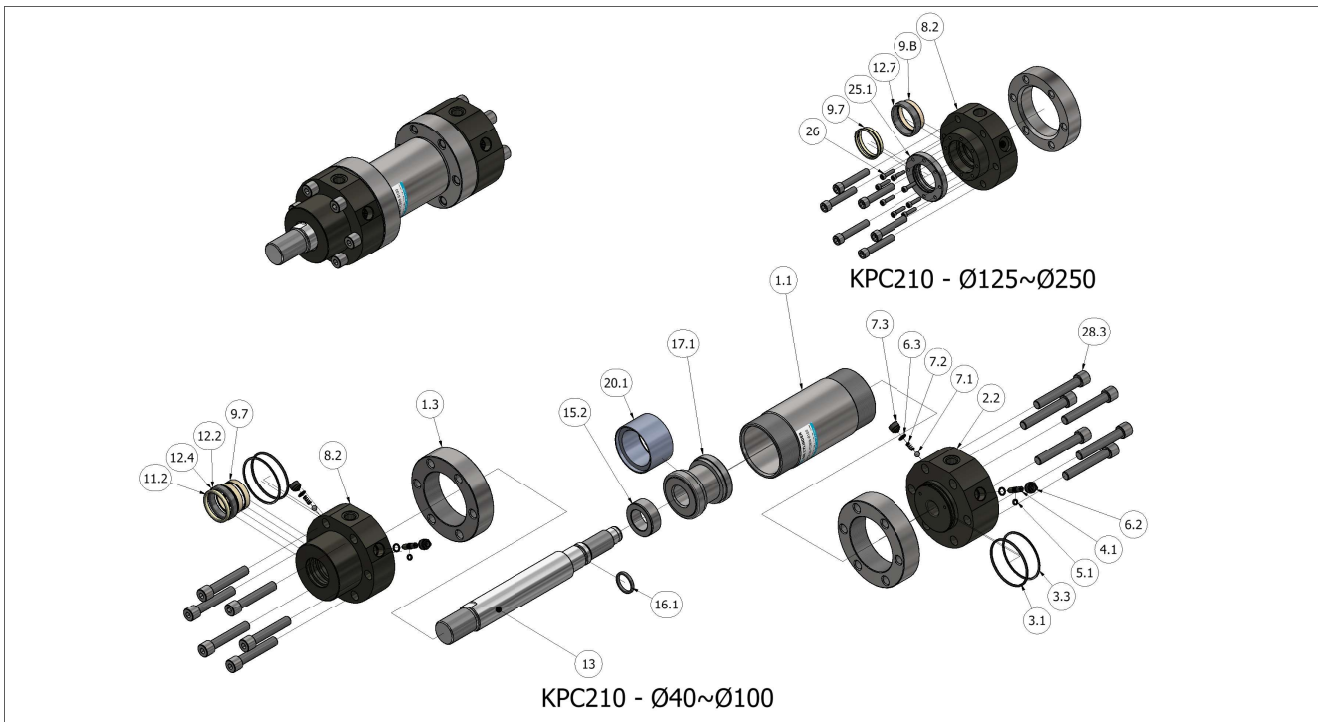
※ The minimum working pressure does not apply to the cushion area.

Cushion Length

Unit : mm

Bore size	Ø40 ~ Ø63	Ø80~Ø160	Ø180~Ø200	Ø250
Cushion length	20	25	30	35

Structure



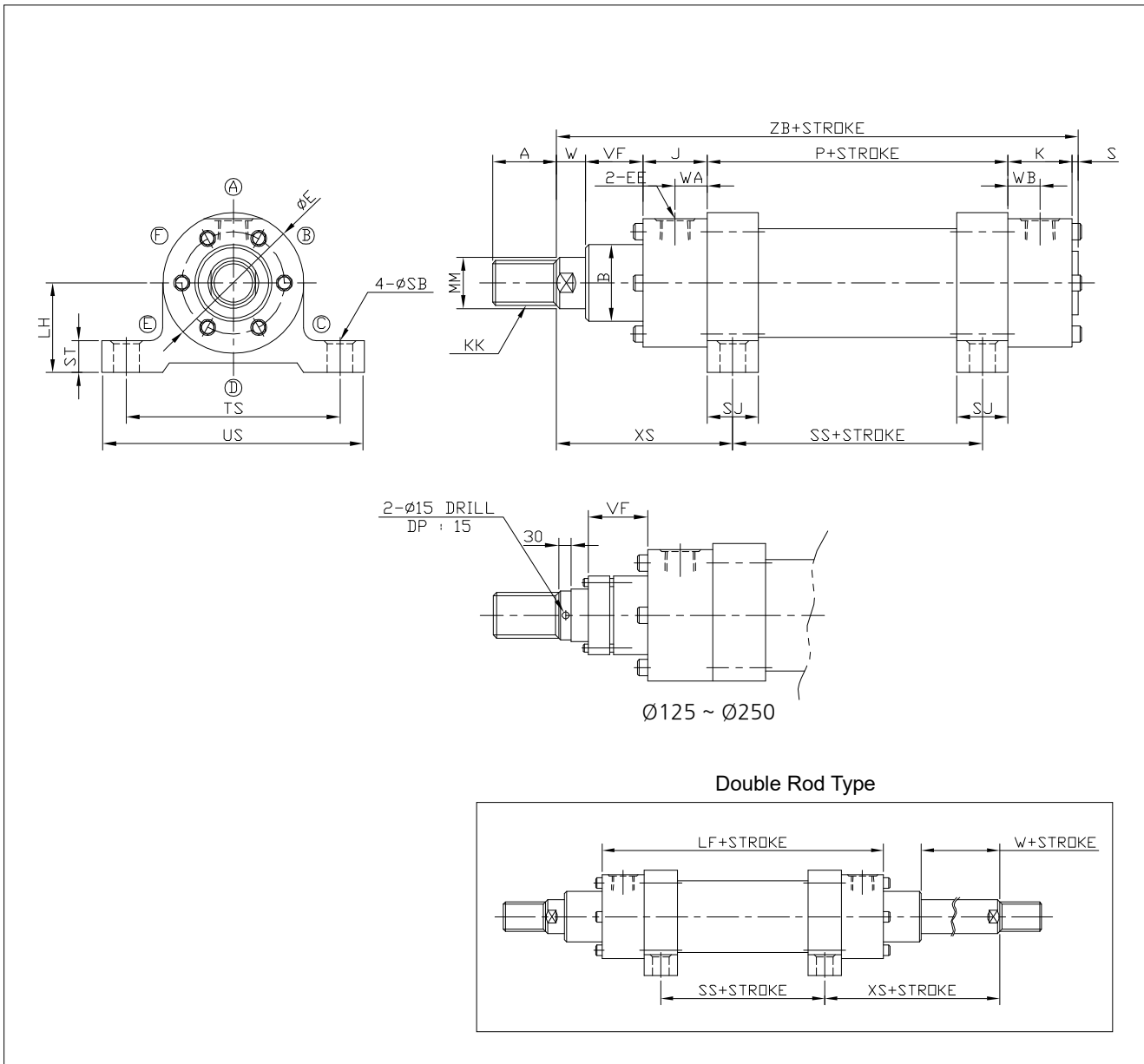
Part List

Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity
1.1	Tube	STKM13C	1	7.3	Check Body	SUM24L	2	13	Piston Rod	SM45C	1
1.3	Tube Flange	SS400	1	8.2	Rod Cover (Ø40~Ø100)	SM45C	1	15.2	Cushion Ring	SM45C	1
2.2	Head Cover	SM45C	1		Rod Cover (Ø125~Ø100)	SM45C	1	17.1	Piston	SM45C	1
4.1	Cushion Needle	SM45C	2	9.7	Wearing (Ø40~Ø100)	Phenol	2	25.1	Retainer	SM45C	1
6.2	Cushion Body	SUM24L	2		Wearing (Ø125~Ø250)	Phenol	1	28.3	Socket Bolt	SCM435	1
7.1	Steel Ball	SUJ2	2	9.8	Wearing (Ø125~Ø250)	Phenol	1	26	Socket Bolt	SCM435	1
7.2	Spring For Check	SUP	2								

Packing List

Part no.	3.1	3.3	5.1	6.3	11.2	12.2	12.4	12.7	16.1	20.1
Parts	O-Ring For Tube	B.U.R For Tube O-Ring	O-Ring For NEEDIE	O-Ring For C.B	Dust Seal	Rod Packing	B.U.R For Packing	V-Packing	O-Ring For Rod	Piston Packing
Material	NBR	PTFE	NBR	NBR	Urethane	Urethane	PTFE	NBR	NBR	NBR
Quantity	2	2	2	2	2	1	1	1	1	1
Bore size										
Ø40	1B-G35	G35	1B-P5	1B-P10	LBI 20	ISI 20	For ISI 20		1B-P12	KDSB 40x30x16.4
Ø50	1B-G45	For G45	"	"	LBI 28	ISI 28	For ISI 28		1B-P20	KDSB 50x34x18.4
Ø63	1B-G58	For G58	"	"	LBI 35	ISI 35	For ISI 35		1B-P25	KDSB 63x47x18.4
Ø80	1B-G75	For G75	1B-P6	1B-P11	LBI 45	ISI 45	For ISI 45		1B-P35	KDSB 80x60x22.4
Ø100	1B-G95	For G95	"	"	LBI 55	ISI 55	For ISI 55		1B-P45	KDSB 100x75x22.4
Ø125	1B-G120	For G120	1B-P9	1B-P15	LBI 70	ISI 70		ES-70x85x22.5	1B-P55	KDSB 125x100x25.4
Ø140	1B-G135	For G135	"	"	LBI 90	ISI 90		ES-90x105x22.5	1B-P65	KDSB 140x115x25.4
Ø150	1B-G145	For G145	"	"	LBI 90	ISI 90		ES-90x105x22.5	1B-P65	KDSB 150x125x25.4
Ø160	1B-G150	For G150	"	"	LBI 100	ISI 100		ES-100x120x40	1B-P70	KDSB 160x135x25.4
Ø180	1B-G170	For G170	"	"	LBI 110	ISI 110		ES-110x130x40	1B-P75	KDSB 180x155x25.4
Ø200	1B-G190	For G190	"	"	LBI 125	ISI 125		ES-125x150x46	1B-P95	KDSB 200x175x25.4
Ø250	1B-G240	For G240	"	"	LBI 160	ISI 160		ES-160x190x60	1B-P115	KDSB 250x225x25.4

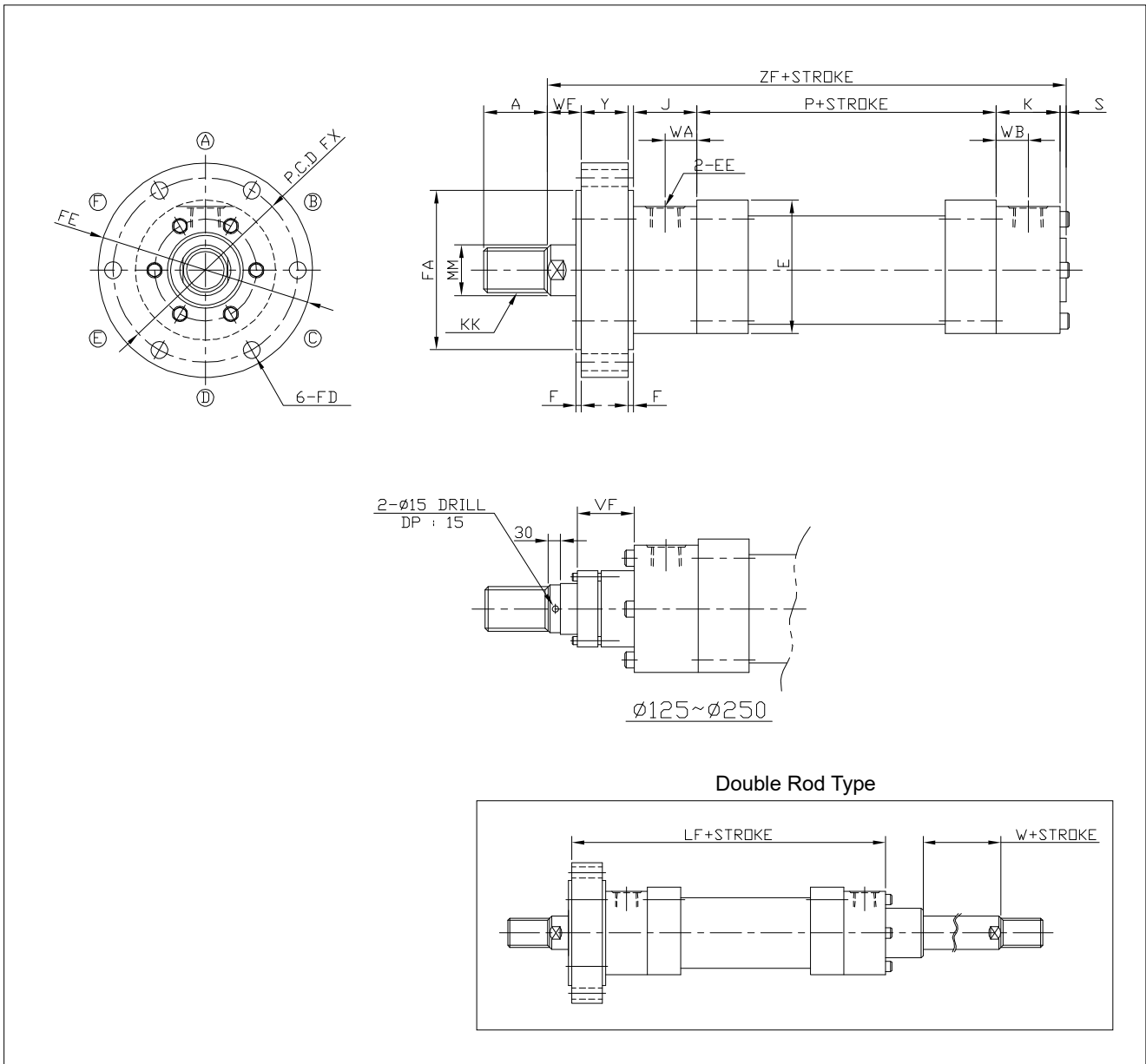
Dimensions-Axial Angle of Foot (LA)



Unit : mm

Bore size	A	B	E	EE	J	K	KK	LF	LH	MM	P	S	SB	ST	SS	SJ	TS	US	VF	W	WA	WB	XS	ZB
Ø40	30	Ø55	Ø90	PF 1/2	40	45	M18x1.5	160	45±0.2	Ø20	80	7	Ø11	26	55	30	110±0.2	135	37	17	18	25	106.5	226
Ø50	35	Ø68	Ø110	PF 1/2	40	47.5	M24x1.5	162	55±0.2	Ø28	82	6.5	Ø11	31	57	34	130±0.2	155	37	21	18	27	110.5	234
Ø63	45	Ø75	Ø122	PF 3/4	45	45	M30x1.5	190	65±0.2	Ø35	100	5	Ø14	37	70	38	150±0.2	180	42	25	22.5	22.5	127	262
Ø80	55	Ø95	Ø145	PF 3/4	45	55	M39x1.5	195	75±0.2	Ø45	105	5	Ø18	42	55	54	176±0.2	216	49.5	15.5	22.5	27.5	135	275
Ø100	75	Ø115	Ø174	PF 1	55	55	M48x1.5	235	90±0.2	Ø55	125	5	Ø22	52	75	64	210±0.2	255	52	33	27.5	27.5	165	325
Ø125	95	Ø135	Ø230	PF 1 1/4	65	60	M64x2	280	115±0.2	Ø70	150	5	Ø25	60	90	58	275±0.2	320	55	42	30	30	192	377
Ø140	110	Ø155	Ø250	PF 1 1/4	70	70	M80x2	310	125±0.2	Ø90	170	5	Ø28	65	105	64	305±0.2	360	58	47	30	30	207.5	420
Ø150	110	Ø170	Ø278	PF 1 1/4	75	75	M80x2	330	145±0.2	Ø90	180	5	Ø28	65	110	68	335±0.2	390	60	50	35	35	220	445
Ø160	120	Ø180	Ø288	PF 1 1/2	75	75	M90x2	345	145±0.2	Ø100	195	10	Ø31	70	120	74	345±0.2	410	68	52	35	35	232.5	475
Ø180	140	Ø200	Ø312	PF 1 1/2	80	80	M100x2	375	160±0.2	Ø110	215	10	Ø37	80	135	78	380±0.2	455	78	52	35	40	250	515
Ø200	150	Ø215	Ø348	PF 1 1/2	80	80	M110x2	396	180±0.2	Ø125	236	5	Ø37	85	145	90	415±0.2	490	83	52	35	40	260.5	536
Ø250	160	Ø280	Ø432	PF 1 1/2	105	105	M120x2	484	220±0.2	Ø160	274	10	Ø52	110	174	100	530±0.2	635	124	41	40	40	320	659

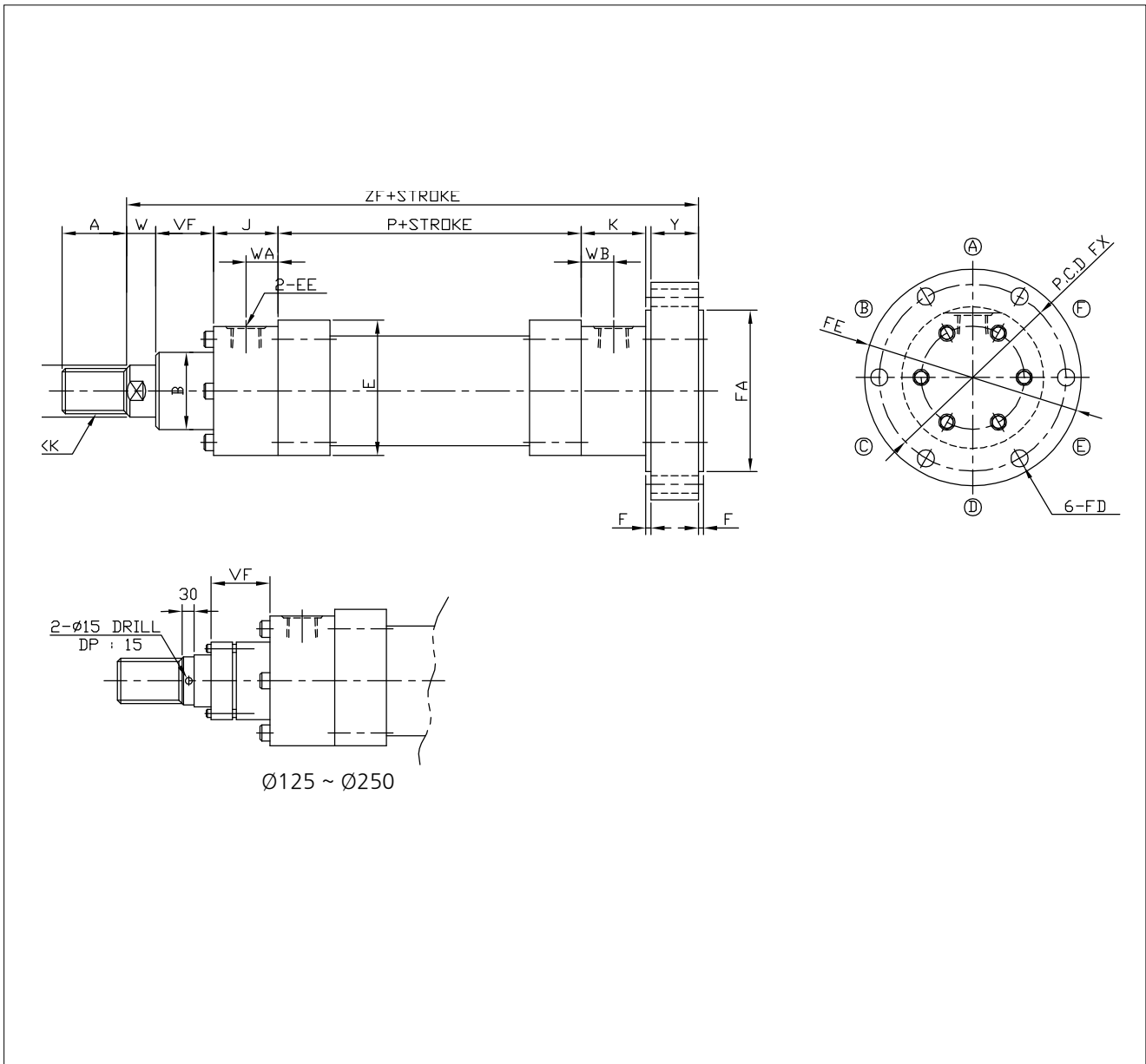
Dimensions-Rod Side Flange (FA)



Unit : mm

Bore size	A	E	EE	F	FA	FD	FE	FX	J	K	KK	LF	MM	P	S	VF	W	WA	WB	WF	Y	ZF
Ø40	30	Ø90	PF 1/2	5	Ø90 ^{eb}	Ø9	Ø130	Ø108	40	45	M18x1.5	195	Ø20	80	7	37	17	18	25	19	30	226
Ø50	35	Ø110	PF 1/2	5	Ø110 ^{eb}	Ø11	Ø160	Ø130	40	47.5	M24x1.5	197	Ø28	82	6.5	37	21	18	27	23	30	234
Ø63	45	Ø122	PF 3/4	5	Ø130 ^{eb}	Ø14	Ø185	Ø155	45	45	M30x1.5	230	Ø35	100	5	42	25	22.5	22.5	27	35	262
Ø80	55	Ø145	PF 3/4	5	Ø145 ^{eb}	Ø14	Ø200	Ø170	45	55	M39x1.5	235	Ø45	105	5	49.5	15.5	22.5	27.5	25	35	275
Ø100	75	Ø174	PF 1	5	Ø175 ^{eb}	Ø18	Ø245	Ø205	55	55	M48x1.5	285	Ø55	125	5	52	33	27.5	27.5	35	45	325
Ø125	95	Ø230	PF 1 1/4	5(10)	Ø230 ^{eb}	Ø22	Ø305	Ø265	65	60	M64x2	340	Ø70	150	5	55	42	30	30	37	50	377
Ø140	110	Ø250	PF 1 1/4	10	Ø250 ^{eb}	Ø22	Ø325	Ø285	70	70	M80x2	370	Ø90	170	5	58	47	30	30	45	50	420
Ø150	110	Ø278	PF 1 1/4	10	Ø278 ^{eb}	Ø26	Ø370	Ø320	75	75	M80x2	395	Ø90	180	5	60	50	35	35	45	55	445
Ø160	120	Ø288	PF 1 1/2	10	Ø290 ^{eb}	Ø28	Ø390	Ø335	75	75	M90x2	415	Ø100	195	10	68	52	35	35	50	60	475
Ø180	140	Ø312	PF 1 1/2	10	Ø315 ^{eb}	Ø30	Ø420	Ø360	80	80	M100x2	455	Ø110	215	10	78	52	35	40	50	70	515
Ø200	150	Ø348	PF 1 1/2	10	Ø350 ^{eb}	Ø33	Ø460	Ø400	80	80	M110x2	481	Ø125	236	5	83	52	35	40	50	75	536
Ø250	160	Ø432	PF 1 1/2	10	Ø435 ^{eb}	Ø40	Ø575	Ø500	105	105	M120x2	579	Ø160	274	10	124	41	40	40	70	85	659

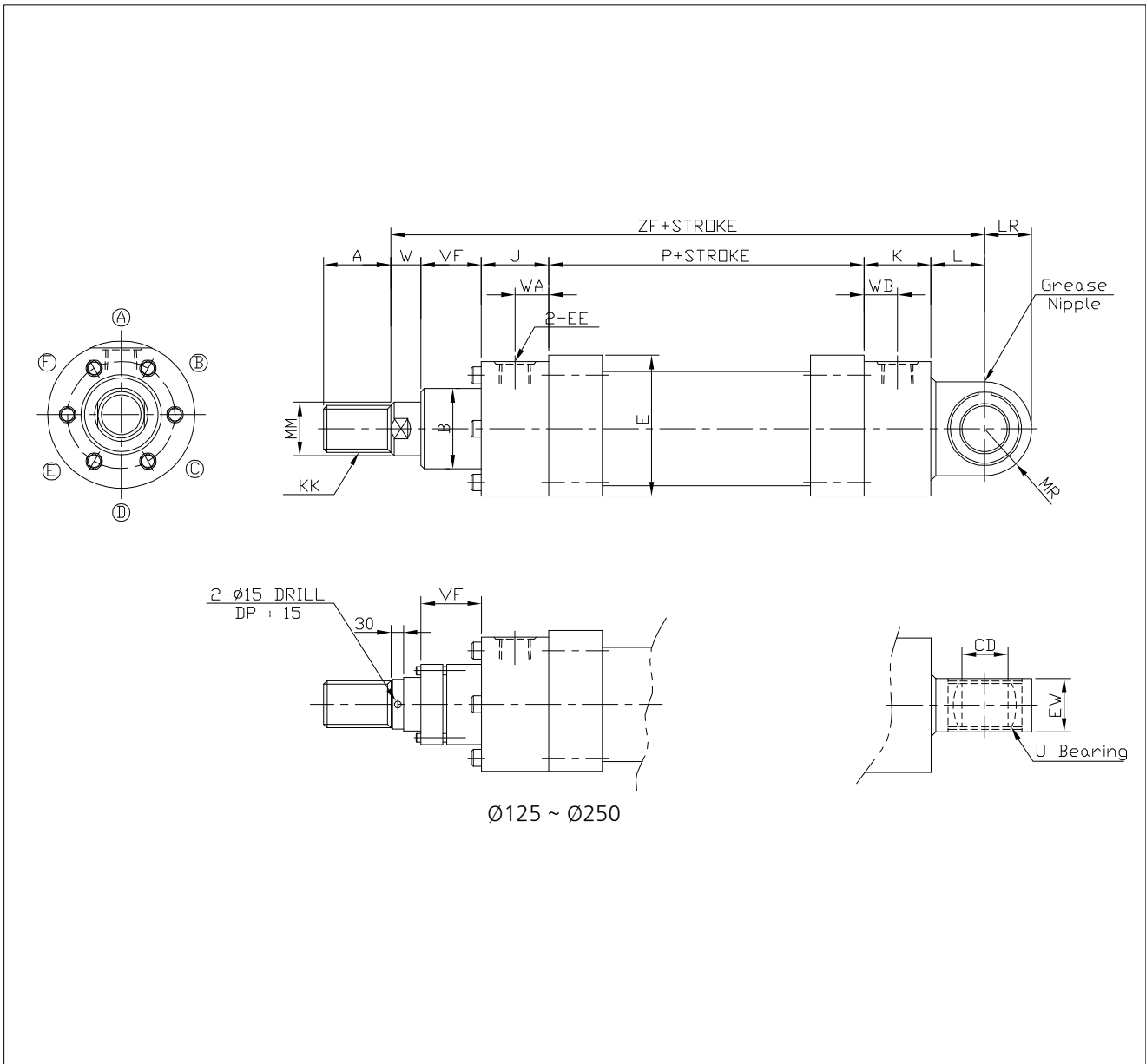
Dimensions-Head Side Flange (FB)



Unit : mm

Bore size	A	B	E	EE	F	FA	FD	FE	FX	J	K	KK	MM	P	VF	W	WA	WB	Y	ZF
Ø40	30	Ø55	Ø90	PF 1/2	5	Ø90 ^{e8}	Ø9	Ø130	Ø108	40	45	M18x1.5	Ø20	80	37	17	18	25	30	254
Ø50	35	Ø68	Ø110	PF 1/2	5	Ø110 ^{e8}	Ø11	Ø160	Ø130	40	47.5	M24x1.5	Ø28	82	37	21	18	27	30	262.5
Ø63	45	Ø75	Ø122	PF 3/4	5	Ø130 ^{e8}	Ø14	Ø185	Ø155	45	45	M30x1.5	Ø35	100	42	25	22.5	22.5	35	297
Ø80	55	Ø95	Ø145	PF 3/4	5	Ø145 ^{e8}	Ø14	Ø200	Ø170	45	55	M39x1.5	Ø45	105	49.5	15.5	22.5	27.5	35	310
Ø100	75	Ø115	Ø174	PF 1	5	Ø175 ^{e8}	Ø18	Ø245	Ø205	55	55	M48x1.5	Ø55	125	52	33	27.5	27.5	45	370
Ø125	95	Ø135	Ø230	PF 1 1/4	5(10)	Ø230 ^{e8}	Ø22	Ø305	Ø265	65	60	M64x2	Ø70	150	55	42	30	30	50	432
Ø140	110	Ø155	Ø250	PF 1 1/4	10	Ø250 ^{e8}	Ø22	Ø325	Ø285	70	70	M80x2	Ø90	170	58	47	30	30	50	475
Ø150	110	Ø170	Ø278	PF 1 1/4	10	Ø278 ^{e8}	Ø26	Ø370	Ø320	75	75	M80x2	Ø90	180	60	50	35	35	55	505
Ø160	120	Ø180	Ø288	PF 1 1/2	10	Ø290 ^{e8}	Ø28	Ø390	Ø335	75	75	M90x2	Ø100	195	68	52	35	35	60	535
Ø180	140	Ø200	Ø312	PF 1 1/2	10	Ø315 ^{e8}	Ø30	Ø420	Ø360	80	80	M100x2	Ø110	215	78	52	35	40	70	585
Ø200	150	Ø215	Ø348	PF 1 1/2	10	Ø350 ^{e8}	Ø33	Ø460	Ø400	80	80	M110x2	Ø125	236	83	52	35	40	75	616
Ø250	160	Ø280	Ø432	PF 1 1/2	10	Ø435 ^{e8}	Ø40	Ø575	Ø500	105	105	M120x2	Ø160	274	124	41	40	40	85	744

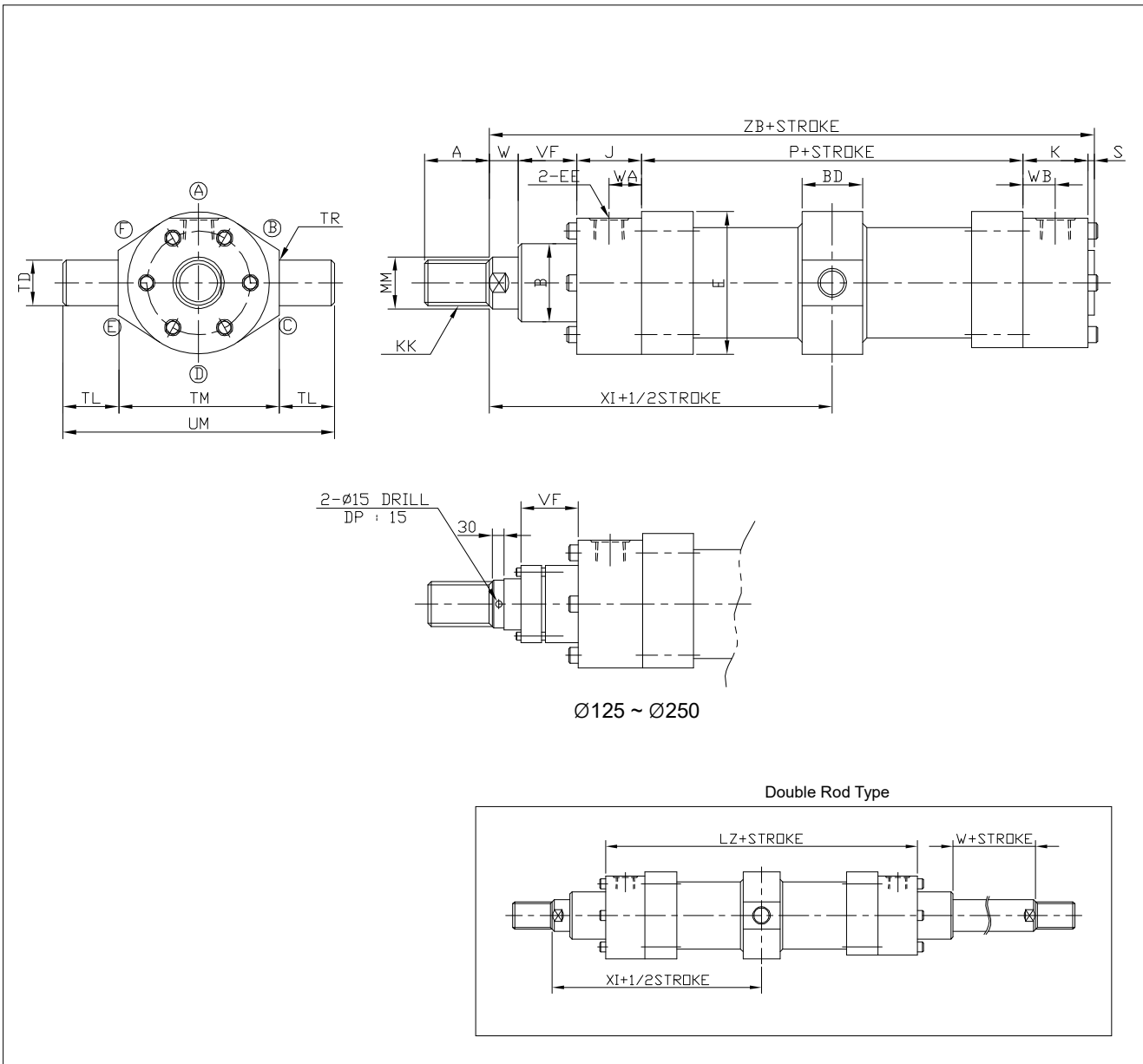
Dimensions-Single Clevis (CA)



Unit : mm

Bore size	A	B	CD	E	EE	EW	J	K	KK	L	LR	MR	MM	P	U	VF	W	WA	WB	ZF
Ø40	30	Ø55	Ø25	Ø90	PF 1/2	23 ⁰ _{-0.3}	40	45	M18x1.5	33	-	R27.5	Ø20	80	GE25ES	37	17	18	25	252
Ø50	35	Ø68	Ø30	Ø110	PF 1/2	28 ⁰ _{-0.3}	40	47.5	M24x1.5	37.5	-	R32.5	Ø28	82	GE30ES	37	21	18	27	265
Ø63	45	Ø75	Ø35	Ø122	PF 3/4	30 ⁰ _{-0.3}	45	45	M30x1.5	45	-	R40	Ø35	100	GE35ES	42	25	22.5	22.5	302
Ø80	55	Ø95	Ø40	Ø145	PF 3/4	35 ⁰ _{-0.3}	45	55	M39x1.5	60	-	R50	Ø45	105	GE40ES	49.5	15.5	22.5	27.5	330
Ø100	75	Ø115	Ø50	Ø174	PF 1	40 ⁰ _{-0.3}	55	55	M48x1.5	65	-	R62.5	Ø55	125	GE50ES	52	33	27.5	27.5	385
Ø125	95	Ø135	Ø60	Ø230	PF 1 1/4	50 ⁰ _{-0.3}	65	60	M64x2	75	70	R65	Ø70	150	GE60ES	55	42	30	30	447
Ø140	110	Ø155	Ø70	Ø250	PF 1 1/4	55 ⁰ _{-0.3}	70	70	M80x2	75	82	R77	Ø90	170	GE70ES	58	47	30	30	490
Ø150	110	Ø170	Ø70	Ø278	PF 1 1/4	60 ⁰ _{-0.3}	75	75	M80x2	80	82	R77	Ø90	180	GE70ES	60	50	35	35	520
Ø160	120	Ø180	Ø80	Ø288	PF 1 1/2	60 ⁰ _{-0.3}	75	75	M90x2	85	95	R90	Ø100	195	GE80ES	68	52	35	35	550
Ø180	140	Ø200	Ø90	Ø312	PF 1 1/2	65 ⁰ _{-0.3}	80	80	M100x2	105	113	R105	Ø110	215	GE90ES	78	52	35	40	610
Ø200	150	Ø215	Ø100	Ø348	PF 1 1/2	70 ⁰ _{-0.3}	80	80	M110x2	114	125	R115	Ø125	236	GE100ES	83	52	35	40	645
Ø250	160	Ø280	Ø110	Ø432	PF 1 1/2	80 ⁰ _{-0.3}	105	105	M120x2	140	160	R150	Ø160	274	GE110ES	124	41	40	40	789

Dimensions-Center Trunnion (TC)

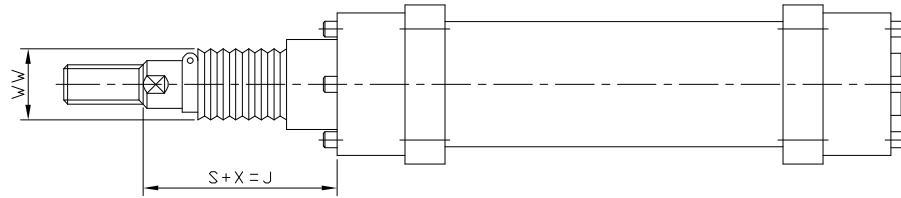


Unit : mm

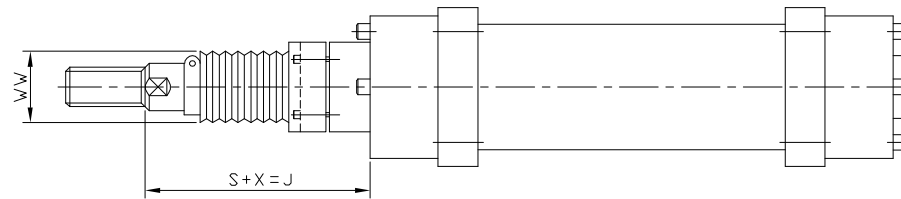
Bore size	A	B	BD	E	EE	J	K	KK	LZ	MM	P	S	TD	TM	TL	TR	UM	VF	XI	W	WA	WB	ZB
Ø40	30	Ø55	38	Ø90	PF 1/2	40	45	M18x1.5	160	Ø20	80	7	Ø30 ^{±0.2}	95±0.2	20	R2	135	37	136	17	18	25	226
Ø50	35	Ø68	38	Ø110	PF 1/2	40	47.5	M24x1.5	162	Ø28	82	6.5	Ø30 ^{±0.2}	115±0.2	20	R2	155	37	143.5	21	18	27	234
Ø63	45	Ø75	43	Ø122	PF 3/4	45	45	M30x1.5	190	Ø35	100	5	Ø35 ^{±0.2}	130±0.2	20	R2	170	42	162	25	22.5	22.5	262
Ø80	55	Ø95	48	Ø145	PF 3/4	45	55	M39x1.5	195	Ø45	105	5	Ø40 ^{±0.2}	145±0.2	25	R2	195	49.5	170	15.5	22.5	27.5	275
Ø100	75	Ø115	58	Ø174	PF 1	55	55	M48x1.5	235	Ø55	125	5	Ø50 ^{±0.2}	175±0.2	30	R2.5	235	52	201	33	27.5	27.5	325
Ø125	95	Ø135	68	Ø230	PF 1 1/4	65	60	M64x2	280	Ø70	150	5	Ø60 ^{±0.2}	210±0.2	40	R2.5	290	55	237	42	30	30	377
Ø140	110	Ø155	73	Ø250	PF 1 1/4	70	70	M80x2	310	Ø90	170	5	Ø65 ^{±0.2}	230±0.2	42.5	R2.5	315	58	260	47	30	30	420
Ø150	110	Ø170	78	Ø278	PF 1 1/4	75	75	M80x2	330	Ø90	180	5	Ø71 ^{±0.2}	260±0.2	50	R2.5	360	60	270	50	35	35	445
Ø160	120	Ø180	83	Ø288	PF 1 1/2	75	75	M90x2	345	Ø100	195	10	Ø75 ^{±0.2}	275±0.2	52.5	R2.5	380	68	292.5	52	35	35	475
Ø180	140	Ø200	96	Ø312	PF 1 1/2	80	80	M100x2	375	Ø110	215	10	Ø85 ^{±0.2}	300±0.2	55	R2.5	410	78	317.5	52	35	40	515
Ø200	150	Ø215	96	Ø348	PF 1 1/2	80	80	M110x2	396	Ø125	236	5	Ø90 ^{±0.2}	320±0.2	55	R2.5	430	83	332.5	52	35	40	536
Ø250	160	Ø280	126	Ø432	PF 1 1/2	105	105	M120x2	484	Ø160	274	10	Ø110 ^{±0.2}	410±0.2	65	R2.5	540	124	407	41	40	40	659

Dimensions-Bellows Attached Type (J, K)

Ø40 ~Ø100



Ø125 ~Ø250



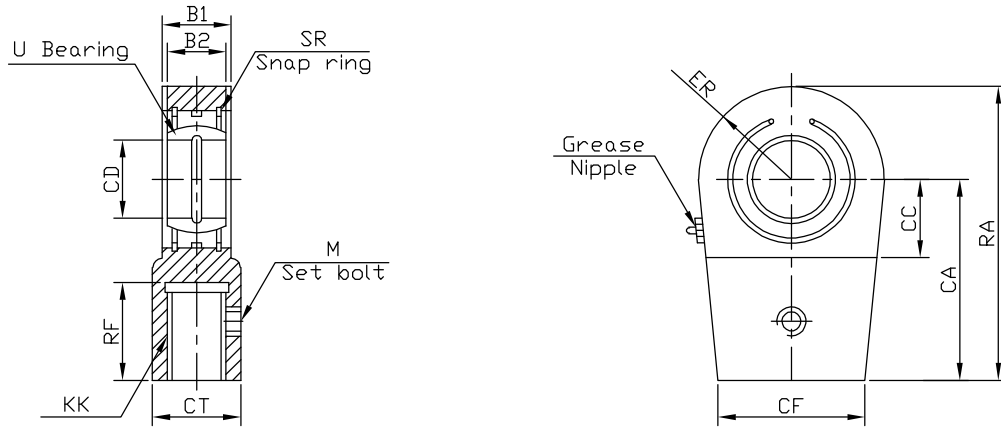
Type	J	K
Material	Nylon Tarpaulin	Neoprene Cloth
Temperature	80 °C	130 °C

Bore size	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125	Ø140	Ø150	Ø160	Ø180	Ø200	Ø250
WW	Ø50	Ø63	Ø71	Ø80	Ø100	Ø125	Ø140	Ø140	Ø160	Ø180	Ø180	Ø200
X	75	75	85	95	95	110	115	115	125	135	140	190
S	1/3.5 × Stroke		1/4 × Stroke			1/5 × Stroke					1/6 × Stroke	

- ※ For not shown dimensions, refer to standard type.
- ※ When calculating with decimals, please round up.
- ※ SUS band is mounted at bellows at delivery.

Dimensions-Accessory

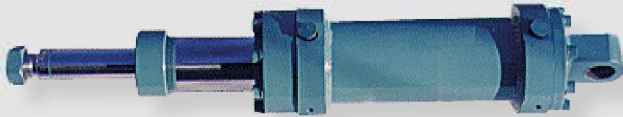
Single Knuckle Joint



Unit : mm

Bore size	B1	B2	CA	CC	CD	CF	CT	ER	KK	M	RF	RA	SR	U
Ø40	23	20	65	25	Ø25	48	28	R28	M18x1.5	M8	32	95	R42	G25ES
Ø50	28	22	75	30	Ø30	54	34	R32	M24x1.5	M8	37	109	R47	G30ES
Ø63	30	25	90	40	Ø35	66	44	R39	M30x1.5	M8	47	132	R55	G35ES
Ø80	35	28	105	45	Ø40	78	55	R47	M39x1.5	M8	57	155	R62	G40ES
Ø100	40	35	135	55	Ø50	90	70	R58	M48x1.5	M10	77	198	R75	G50ES
Ø125	50	44	170	65	Ø60	118	87	R65	M64x2	M10	98	240	R90	G60ES
Ø140	55	49	195	75	Ø70	130	105	R77	M80x2	M12	113	278	R105	G70ES
Ø150	55	49	195	75	Ø70	130	105	R77	M80x2	M12	113	278	R105	G70ES
Ø160	60	55	210	80	Ø80	152	125	R88	M90x2	M16	123	305	R120	G80ES
Ø180	65	60	250	90	Ø90	162	150	R103	M100x2	M16	143	363	R130	G90ES
Ø200	70	70	275	105	Ø100	172	170	R115	M110x2	M20	155	400	R150	G100ES
Ø250	80	70	300	115	Ø110	194	180	R132.5	M120x2	M20	165	442.5	R160	G110ES

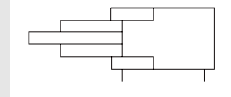
KTC70HP series



Features

- Telescopic single acting constant speed cylinder.
- 2-room stroke cylinder requires less room for installation in the axial direction.
- Both stroke ends are provided with fixed cushions.

Symbol



How to Order

KTC 70HP - LA 20 - A 1500

①
 ②
 ③
 ④
 ⑤
 ⑥
 ⑦

① Series

KTC 70HP	Telescopic cylinder
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② Mounting style

LA	Axial angle of foot	CA	Single clevis
LT	Base mounting axial angle of foot	TA	Rod side trunnion
FA	Rod side flange	TB	Head side trunnion
FB	Head side flange		

③ Type

Type	Type	Bore size	
		1 room	2 room
10	Type 10	Ø63	Ø45
20	Type 20	Ø90	Ø65
30	Type 30	Ø110	Ø80
40	Type 40	Ø125	Ø90
50	Type 50	Ø140	Ø100

④ Rod end thread length(dimension A)

Type	A	B
	(Standard)	(Semi-standard)
Type 10	25mm	35mm
Type 20	35mm	45mm
Type 30	40mm	55mm
Type 40	45mm	60mm
Type 50	52mm	72mm

⑤ Cylinder stroke

Type	Stroke
Type 10	50~1700
Type 20	50~2500
Type 30	50~3100
Type 40	50~3100
Type 50	50~3100

- ※ Check buckling, as it varies depending on mounting style.
- ※ Contact us for longer stroke.
- ※ Max. stroke is 50mm.

⑥ Port position

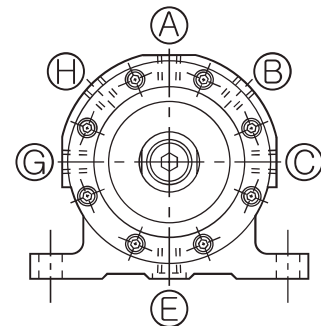
Nil	C, G (Standard)
A,B,D,E,F,H	Refer to figure below according to mounting style.

⑦ Air vent position

Nil	A (Standard)
B,C,D,E,F,G,H	Refer to figure below according to mounting style.

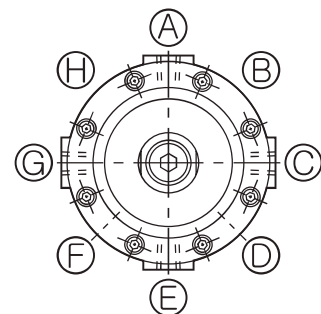
Mounting style LA, LT

The standard port positions are C and G, and the standard air vent position is A.



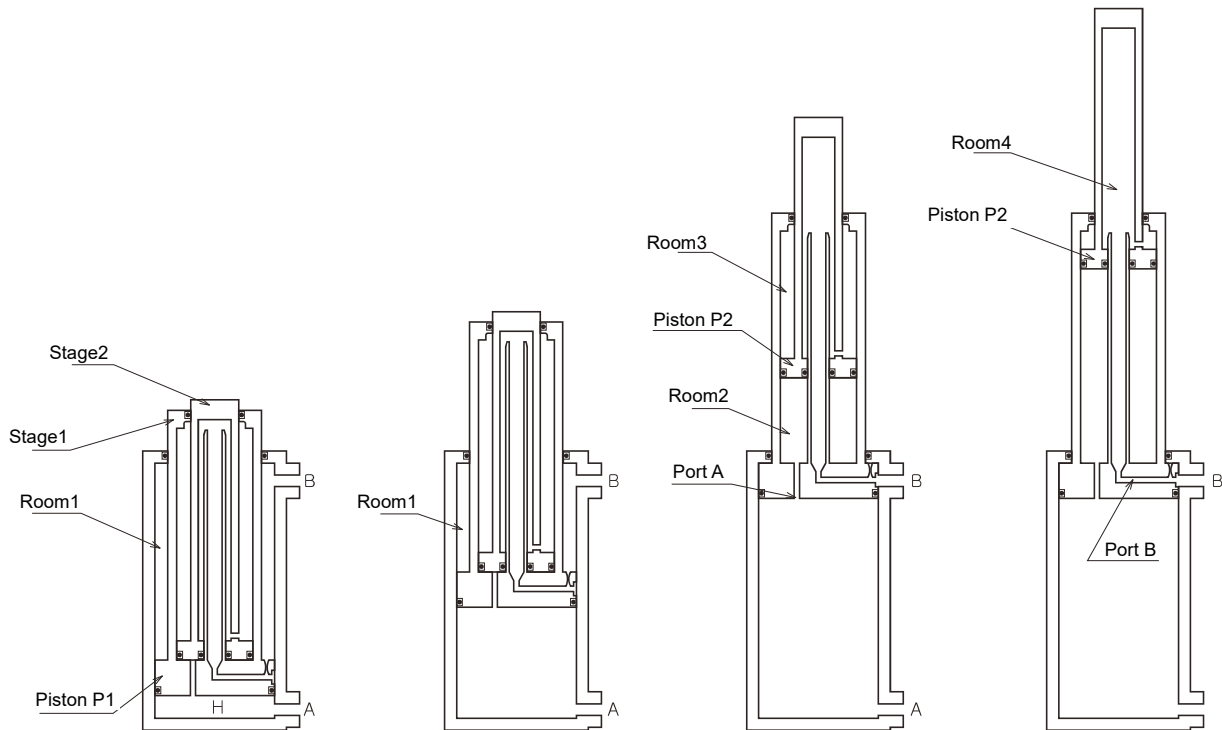
Mounting style FA, FB, CA, TA, TB

The standard port positions are A and E, and the standard air vent position is C.



Note) Locate the ports and air vent at a distance of 90° or 180° from one another.

Performance property



Cylinder forward

Hydraulic oil flowing from A port enters chamber X and pushes piston P1 to the room1.

At the same time, the oil of room1 is discharged to port B. When the piston P1 reaches the end of the rod cover side, the hydraulic oil enters the room2 from port A of the piston P1 to force the piston P2 to operate the room2. At the same time, the oil in the room3 flows from the rod hole connected to the piston P2 to the room4 and returns from the port B of the piston P1 to the oil.

Cylinder reverse

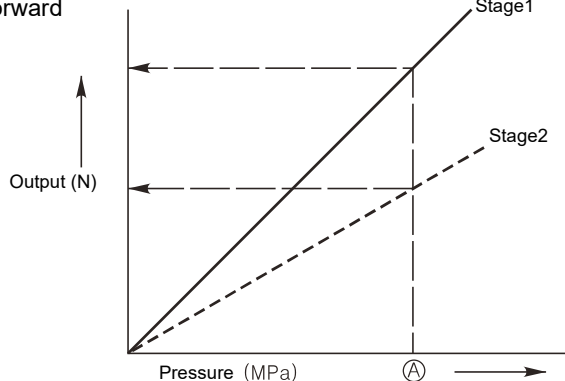
Hydraulic oil flowing from port B flows into the room4 from port B of piston P1 and into the room3 through the hole in the rod connected to piston P2. The hydraulic fluid flowing into the room3 gives a force to the rod cover side of the piston P2 and operates in stage2. At the same time, the oil in the room2 is discharged through port A to A port. When the piston P2 reaches the headcover side, the hydraulic oil enters the room1 and applies force to the rod cover side of the piston P1 to operate the stage1. At the same time, oil in room X is discharged from A port.

Characteristics of the output

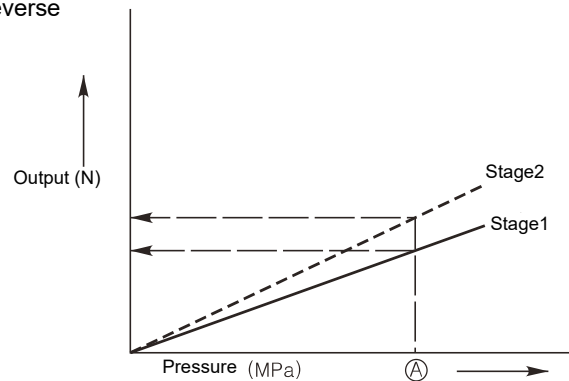
The figure below shows the characteristics of stage1 output, stage2 output and stage1 output, stage2 output on the reverse side. At any pressure A point, the output gap between the first and second stages is visible. This is due to the difference in cross-sectional area.

Since the forward is stage1 larger and the reverse is stage2 larger, you can check the sequential movement of the cylinder. The forward is that stage1 works first, then stage2 works. The reverse is that stage2 works and then stage1 works.

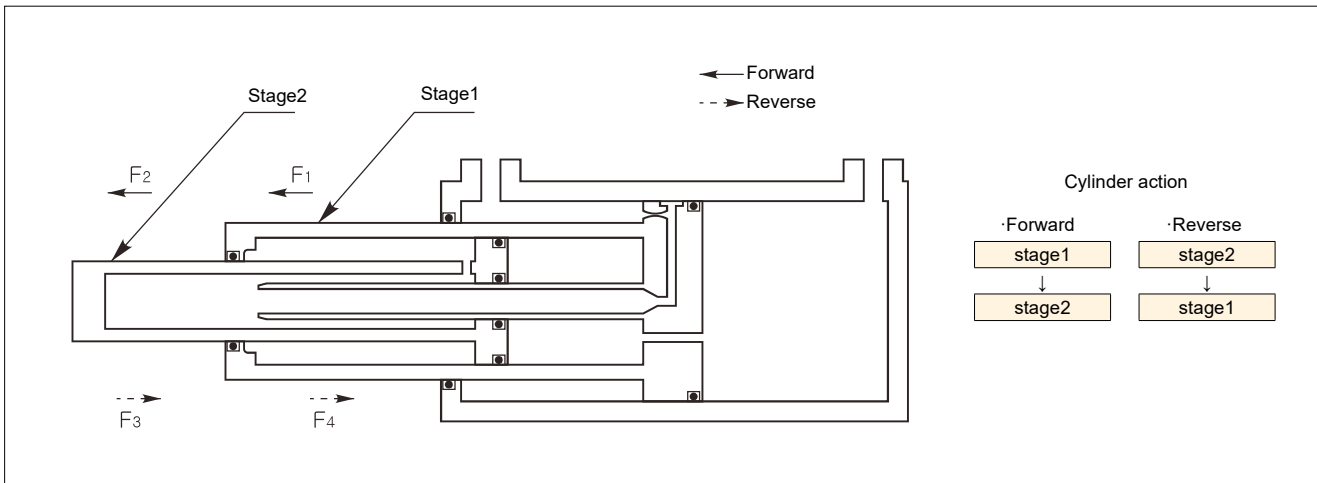
Cylinder forward



Cylinder reverse



Cylinder output calculation method



- Output of forward cylinder
- stage1: $F_1 = A_1 \times P \times \beta$ (kgf)
- stage2: $F_2 = A_2 \times P \times \beta$ (kgf)

- Output of reverse cylinder
- stage1: $F_3 = A_3 \times P \times \beta$ (kgf)
- stage2: $F_4 = A_4 \times P \times \beta$ (kgf)

A1: Forward stage1 effective area(cm^2)
 A2: Forward stage2 effective area(cm^2)
 A3: Reverse stage1 effective area(cm^2)
 A4: Reverse stage2 effective area(cm^2)
 P : Working pressure (kgf/ cm^2)
 β : Load factor

The actual output value of the cylinder needs to be determined in consideration of the resistance part of the cylinder sliding part and the pressure loss of the device.

The load ratio is the ratio between the actual force loaded on the cylinder and the theoretical output calculated from the circuit setting pressure. In general, the following values are used as standard values.

Low inertia : 60~80%
 Large inertia : 25~35%

(Calculations for this catalog are based on 80% load factor.)

Effective area by model

Unit: cm^2

Model	Forward		Reverse	
	stage1	stage2	stage1	stage2
10	31.17	15.12	9.11	9.39
20	63.62	31.42	19.44	20.07
30	95.03	47.72	31.42	31.82
40	122.72	61.07	39.40	39.84
50	153.94	76.00	48.25	48.66

<Example>

When 10 types double acting telescopic cylinder is used with working pressure 70kgf/ cm^2 , calculate the output values of 1st and 2nd stage cylinders on the forward and reverse sides.

<Answer>

Output of forward cylinder(kgf)

$$\text{-stage1} = \text{Set pressure(kgf/cm}^2\text{)} \times \text{Forward stage1 effective area(cm}^2\text{)} \times \text{Load factor}$$

$$= 70 \times 31.2 \times 0.8 = 1.747(\text{kgf})$$

$$\text{-stage2} = \text{Set pressure(kgf/cm}^2\text{)} \times \text{Forward stage2 effective area(cm}^2\text{)} \times \text{Load factor}$$

$$= 70 \times 15.1 \times 0.8 = 845(\text{kgf})$$

Output of reverse cylinder(kgf)

$$\text{-stage2} = \text{Set pressure(kgf/cm}^2\text{)} \times \text{Reverse stage2 effective area(cm}^2\text{)} \times \text{Load factor}$$

$$= 70 \times 9.4 \times 0.8 = 526(\text{kgf})$$

$$\text{-stage1} = \text{Set pressure(kgf/cm}^2\text{)} \times \text{Reverse stage1 effective area(cm}^2\text{)} \times \text{Load factor}$$

$$= 70 \times 9.1 \times 0.8 = 509(\text{kgf})$$

<Example>

Which model should be set when the reverse side first stage cylinder output requires 1000kgf using the double-acting telescopic cylinder at the set pressure of 70kgf/ cm^2 ? Then find the output of the cylinder for the 1st and 2nd stages on the forward and reverse sides at that time.

<Answer>

$$\text{effective area(cm}^2\text{)} = \frac{\text{Output of cylinder(kgf/cm}^2\text{)}}{\text{Set pressure(kgf/cm}^2\text{)} \times \text{Load factor}}$$

$$= \frac{1,000}{70 \times 0.8} \approx 17.86$$

Model 20 can be selected by selecting the cylinder bore diameter larger than 17.86 from the first stage of the rod cover side of the model table.

Output of each cylinder

Forward: stage1 output of cylinder= $70 \times 63.62 \times 0.8 = 3,562.72\text{kgf}$
 stage2 output of cylinder= $70 \times 31.42 \times 0.8 = 1,759.52\text{kgf}$

Reverse: stage2 output of cylinder= $70 \times 19.44 \times 0.8 = 1,088.64\text{kgf}$
 stage1 output of cylinder= $70 \times 20.07 \times 0.8 = 1,123.92\text{kgf}$

How to Use Buckling Tables

How to find the maximum load for each model of telescopic cylinder

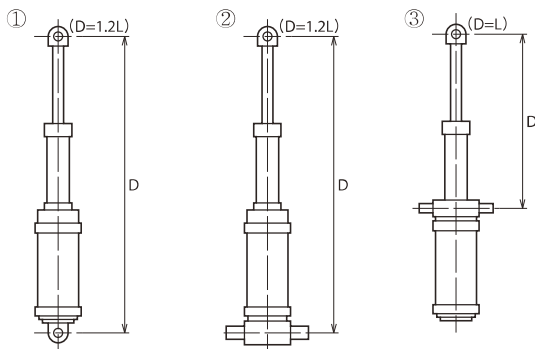
1. Determine whether the telescopic cylinder is in use with the following conditions ① through ⑨.
2. When the support condition is determined, calculate the value of L accordingly.
3. From the buckling table, find the maximum working load for the L dimension and the telescopic cylinder type.

How to get the maximum stroke for each model of a telescopic cylinder

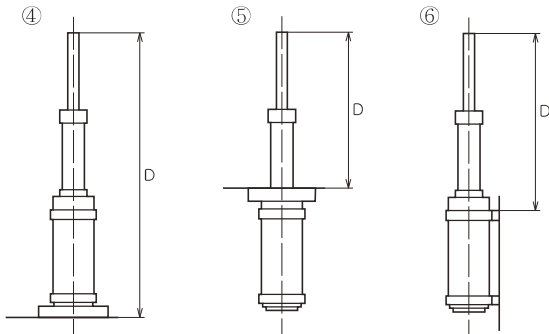
1. Determine whether the telescopic cylinder is in use with the following conditions ① through ⑨.
2. From the buckling table, find the L value from the maximum working load and the model of the telescopic cylinder.
3. After determining the support condition, obtain the stroke from the L value.

Cylinder support

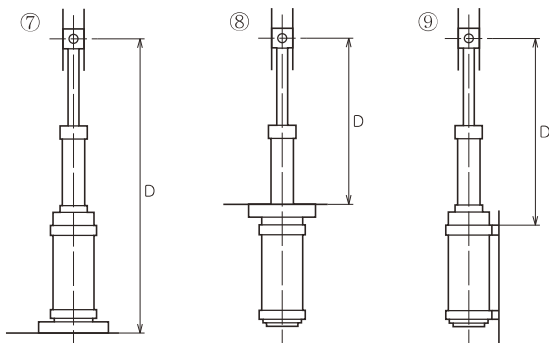
Both End Pin Coupling



Cylinder fixing, rod end free end (D=L/1.45)



Cylinder fixing, rod end pin coupling guide (D = 1.6L)

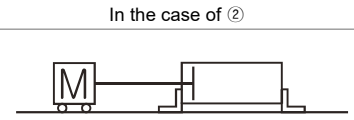
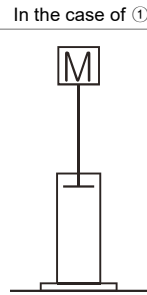


Precautions for Buckling Piston Rods

Before starting the buckling calculation of the piston rod, it is necessary to consider how to stop the cylinder.

There are two methods of stopping the cylinder: the cylinder stop method that stops at the stroke end of the cylinder body and the external stop method that stops at the external stopper.

Load determination method by cylinder stop method



It means to stop at the end of cylinder stroke as shown above.

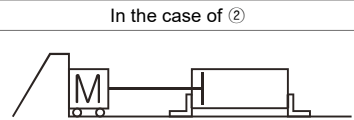
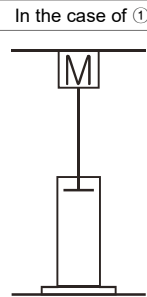
The weight required for the buckling calculation can be considered as follows.

Load in case of ①=W

Load in case of ②=μW

μ: coefficient of friction

Load determination method by external stop method

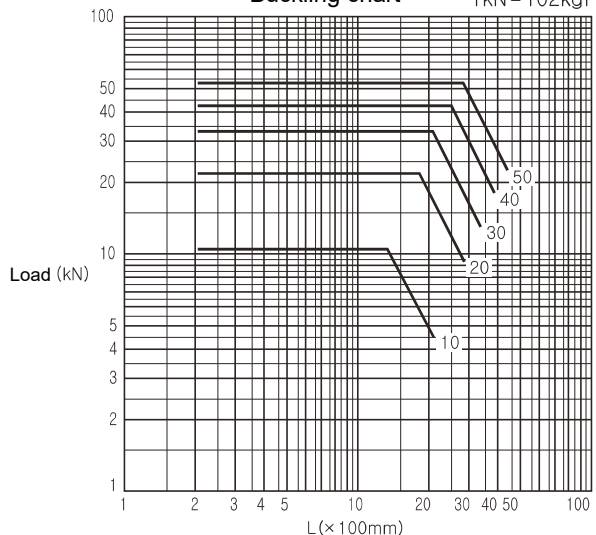


As shown in the figure, the operation is stopped by the external stopper.

In this case, the weight required for buckling calculation is not W, but the theoretical cylinder force is [Relief Set pressure (kgf / cm²) x Piston section area (cm²)].

Buckling chart

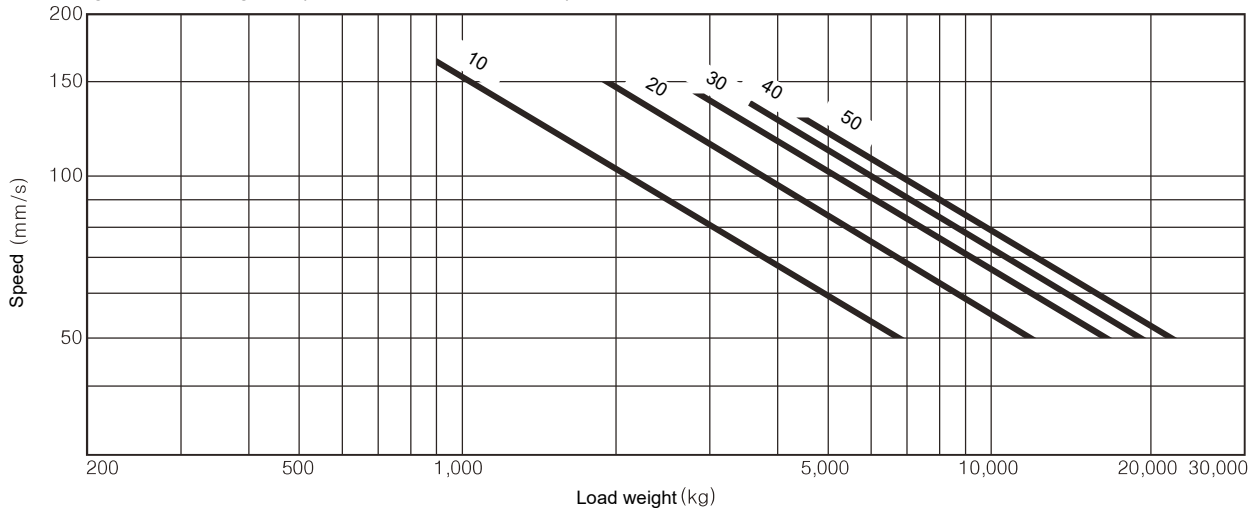
1 kN = 102 kgf



Series velocity diagram for load weight (cushioning performance)

Coordinates are a measure of speed in the forward constant velocity circuit (see valve unit for circuits).
 In the inconstant speed circuit, the speed of the two-stage piston rod becomes the coordinate.
 On the reverse side, the load weight can be up to 1.5 times at the speed of the stage1 piston rod.

Load weight-speed diagram (for horizontal movement)



When selecting a hydraulic cylinder, the relationship between load weight and speed becomes an important point.
 The trademark is a speed diagram based on the performance characteristics of the rod cover side (ISO head side) cushion built into the telescopic cylinder.

How to calculate cylinder stroke and minimum length

The cylinder stroke and shaft length (cylinder minimum length) dimensions can be calculated from the telescopic cylinder maximum length (cylinder maximum length) dimensions.

<Calculation Formula>

- (Number of newest devices-Fixed length) ÷ 3+ (fixed length) = number of shortest devices (mm)
- (Number of Shortening Units-Fixed Length) x2 = Cylinder stroke (mm)

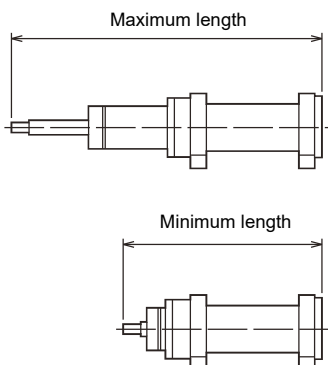
Fixed length

Unit:mm

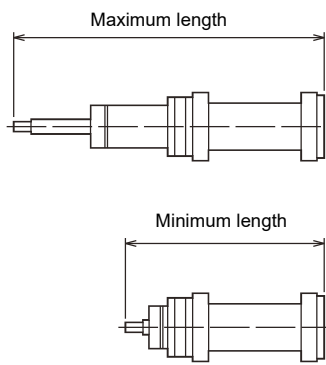
Type of support Model	LA, LT, FA, TA	FB	TB	CA
10	170	180	191	222
20	235	250	260	310
30	275	295	305	368
40	315	335	355	425
50	355	377	399	475

* Fixed length is the maximum external dimension with the cylinder retracted minus stroke / 2.

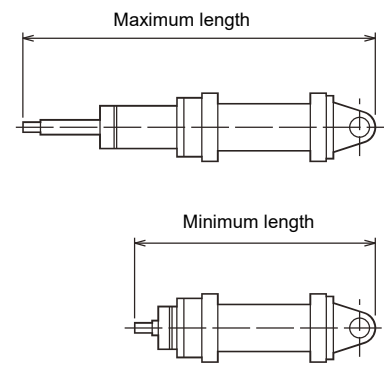
LA



FA



CA



Calculate LT, FB, TA, TB in the same way.

Air port specification check by cylinder speed

Since the cylinder speed is determined by the flow rate flowing into the cylinder, it is necessary to check whether the standard port diameter can be used. The cylinder speed V is obtained from the following equation.

$$V = 1.67 \times 10^4 \times QC / A \text{ (mm/s)}$$

Qc: Flow rate into the cylinder (l/min)
 A: Piston effective area(mm²) Forward stage1
 Reverse stage2

<Example>

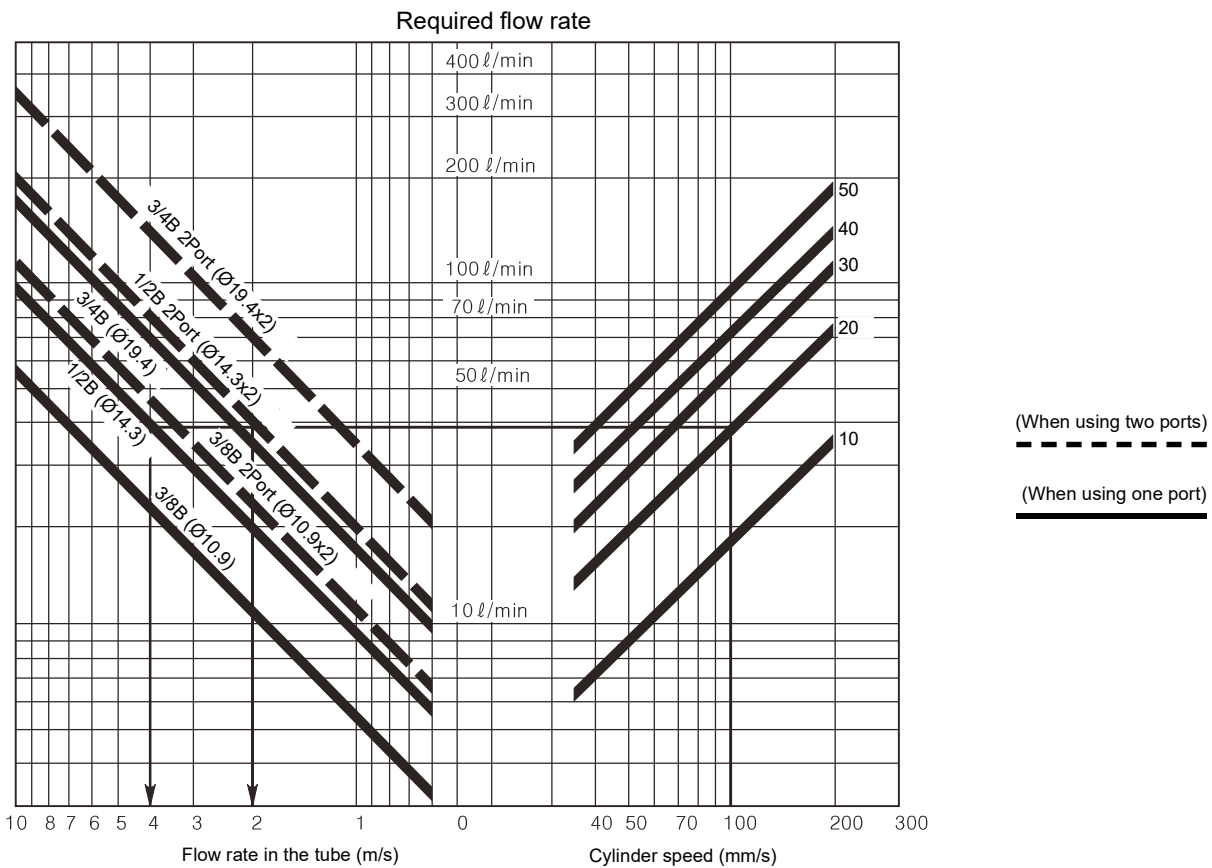
Is it possible to use the standard port diameter when the 20 type cylinder forward speed is 100mm / s in a double-acting telescopic cylinder? What about the reverse side 100 mm / s?

<Answer>

In the graph, it is connected to port 1 / 2B (double acting telescopic cylinder, a standard port diameter of type 20) reaching lateral parallel at the intersection with cylinder speed 100mm / s type 20.

The intersection of port diameter, cylinder speed, and model is within the range of use. Also, the pipe velocity reaching the longitudinal axis at the intersection of the port diameter is 40m / s. On the reverse side, it is 20m / s by using two ports.

Cylinder Speed-Required Flow-Flow Rate Chart



The figure above is a graph showing the relationship between the speed and the required flow rate for each size of a double-acting telescopic cylinder, and the relationship between the required flow rate and the pipe flow rate for each port diameter.

To reduce the pressure loss, increasing the pipe to the cylinder port is effective.

(※ Flow rate was calculated in steel pipe Sch80.)

Cylinder Minimum Required Flow Unit: l

Model	Final required flow rate
10	$1.39 \times 10^{-3} \times \text{Stroke(mm)}$
20	$2.78 \times 10^{-3} \times \text{Stroke(mm)}$
30	$3.98 \times 10^{-3} \times \text{Stroke(mm)}$
40	$5.23 \times 10^{-3} \times \text{Stroke(mm)}$
50	$6.65 \times 10^{-3} \times \text{Stroke(mm)}$

Telescopic Cylinder Port Diameter

Series	10	20	30	40	50
Port Rc(PT)	3/8	1/2	1/2	3/4	3/4

·The minimum required a flow rate of the cylinder is the flow rate obtained by subtracting the flow rate on the discharge side from the flow rate on the cylinder supply side at the maximum stroke of the cylinder.

·The flow rate within the pipe is 7 m / s or less. In general, if the flow rate in the pipe exceeds 7m / s, the piping resistance is high and the pressure loss is large.

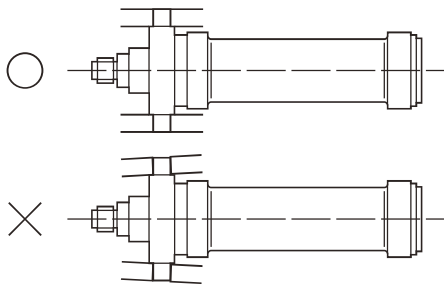
·When using in reverse 60kgf / cm², the discharge flow rate of the headcover (ISO cap side) should be within 3.5m / s. For the reverse side 140kgf / cm², it is possible within 5.5m / s.

·When using a 30-cylinder reverse speed of 80 mm / s or more, specify the head side port size as Rc (PT) 3/4.

Handling precautions

Cautions for Use

- Make sure that no load is applied to the end of the ram tube in Stage 1. It may cause malfunction.
- In principle, avoid using the piston rod with large lateral loads.
- The piston rod of the telescopic cylinder has great rigidity, so make sure to center it correctly. Unsafe centering can cause malfunction and damage to the cylinder. Be sure to align the center of the piston rod shaft center with the direction of the load movement.
- When mounting TA type, TB type, or CA type, make sure the sliding shaft center and the other side's center are correct.
- Install the mounting brackets of the TA and TC types correctly as shown below.



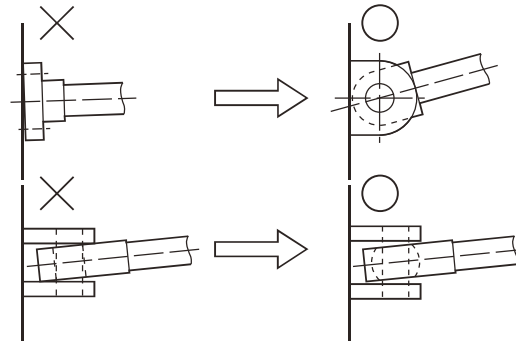
- Mounting should be sufficiently rigid to prevent shake from the cylinder thrust.
- For the strength classification of bolts used for mounting, use JIS8.8 or higher, and refer to the table below for the torque for mounting.

Tightening Torque Table

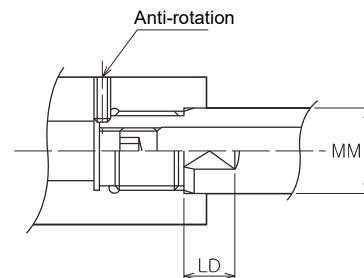
Unit: N·m

Screw diameter	Strength	M8	M10	M12	M14	M16
Tightening Torque	10.9	36	72	125	198	305
	8.8	25	51	89	141	216
Screw diameter	Strength	M18	M20	M22	M24	
Tightening Torque	10.9	420	590	800	1020	
	8.8	290	410	560	720	

- Make sure that the connecting part between the end bracket and the load is not subjected to an uneven load on the piston rod.



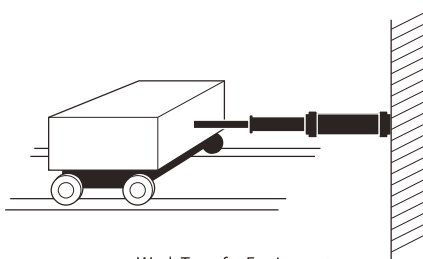
- Since the piston rod is made of hollow pipes, be sure to prevent rotation when mounting the end bracket as shown in the figure.



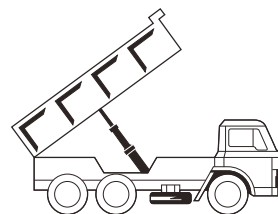
Cautions when installing piping

- When using the rod side (ISOhead side) as a meta-out, set the internal pressure of the piping (rubber hose, etc.) used on the rod side (ISO-head side) at 3 times the maximum working pressure on the head side (ISO-cap side). Make sure that no air accumulates during piping.
- **Acid clean the inside of the pipe before use and clean it with compressed air.**
- Do not accumulate air while the air is being discharged.

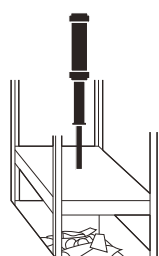
Application example



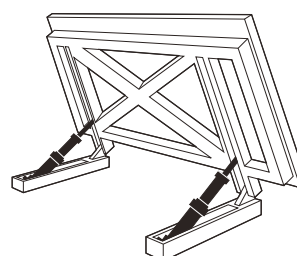
Work Transfer Equipment



Platform Hoisting Machine



Pressing Machine



Building Material Hoisting Machine

Specifications

Type		Type 10	Type 20	Type 30	Type 40	Type 50
Bore size	1 Stage	Ø63	Ø90	Ø110	Ø125	Ø140
	2 Stage	Ø45	Ø65	Ø80	Ø90	Ø100
Operating pressure		70kgf/cm ² (7MPa)				
Max. operating pressure		Rod side:150kgf/cm ² (15.3MPa)			Head side:90kgf/cm ² (9.2MPa)	
Proof pressure		Rod side:210kgf/cm ² (21.4MPa)			Head side:140kgf/cm ² (14.3MPa)	
Min. operating pressure		Rod side:6kgf/cm ² (0.61MPa)			Head side:3kgf/cm ² (0.31MPa)	
Operating piston speed		10m/min	9m/min	8.4m/min	7.7m/min	7.1m/min
Min.operating piston speed		0.06m/min				
Fluid temperature		-5 ~ 80℃ (No freezing)				
Ambient temperature		-10 ~ 50℃				
Working oil		Petroleum-based fluid				
Tolerance of thread		KS class 2				
Tolerance of stroke		0~1000 $\begin{smallmatrix} +2.8 \\ 0 \end{smallmatrix}$	1001~1600 $\begin{smallmatrix} +3.2 \\ 0 \end{smallmatrix}$	1601~2500 $\begin{smallmatrix} +3.6 \\ 0 \end{smallmatrix}$	2501~3100 $\begin{smallmatrix} +4.0 \\ 0 \end{smallmatrix}$	
Mounting style		LA, LT, FA, FB, CA, TA, TB				

- ※ 60kgf/cm² is standard pressure when cylinder is in reverse operation with common speed.
- ※ Operating pressure: Max. allowable setting pressure for a relief valve while cylinder is operating.
- ※ Max. operating pressure: Maximum allowable pressure generated in a cylinder (surge pressure, etc.)
- ※ Proof pressure: Test pressure a cylinder can withstand without unreliable performance when returning to operating pressure.
- ※ Min. operating pressure: Minimum pressure for a cylinder installed horizontally and operating without load.

Mass

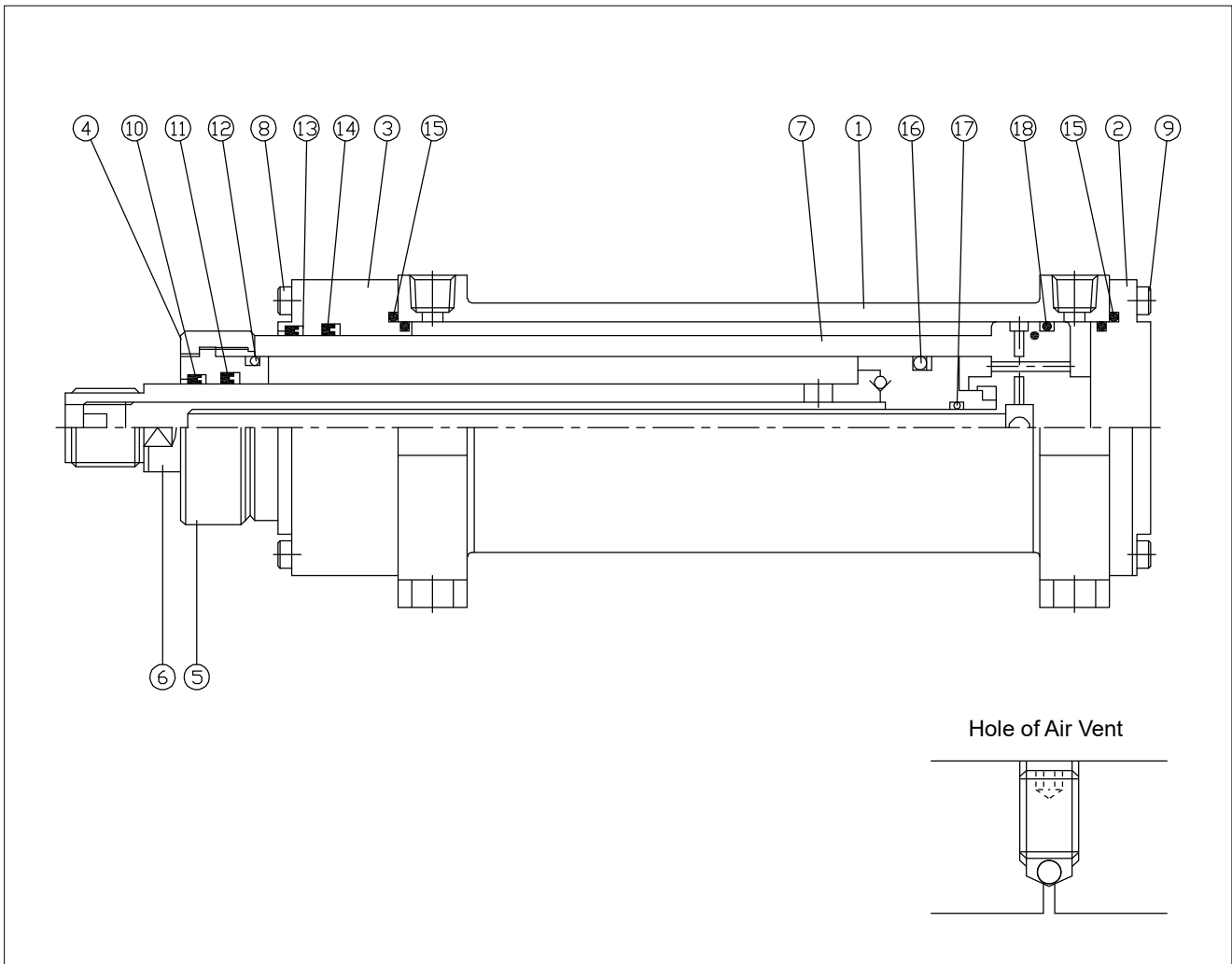
Unit : kg

Type	Basic mass (SD)	Mounting mass							Additional mass for each 1mm stroke
		LA	LT	TA	TB	FA	FB	CA	
Type 10	5.7	0.44	0.37	1.08	1.08	0.93	0.93	0.32	0.0084
Type 20	15.4	1.25	1.05	3.06	3.06	2.85	2.85	0.91	0.0169
Type 30	27.0	2.29	1.93	5.61	5.61	4.88	4.88	1.66	0.0212
Type 40	41.4	3.52	2.22	8.64	8.64	7.43	7.43	2.56	0.0313
Type 50	57.2	4.92	4.14	11.99	11.99	10.24	10.24	3.55	0.0431

Calculation:

Ex) KTC70HP-FB30-A1500
 Basic mass: 27.0 / Additional mass: 0.0212 / Cylinder stroke: 1,500mm / FB type: 4.88
 $27.0 + (0.0212 \times 1500) + 4.88 = 63.68 \text{ kg}$

Structure



Part List

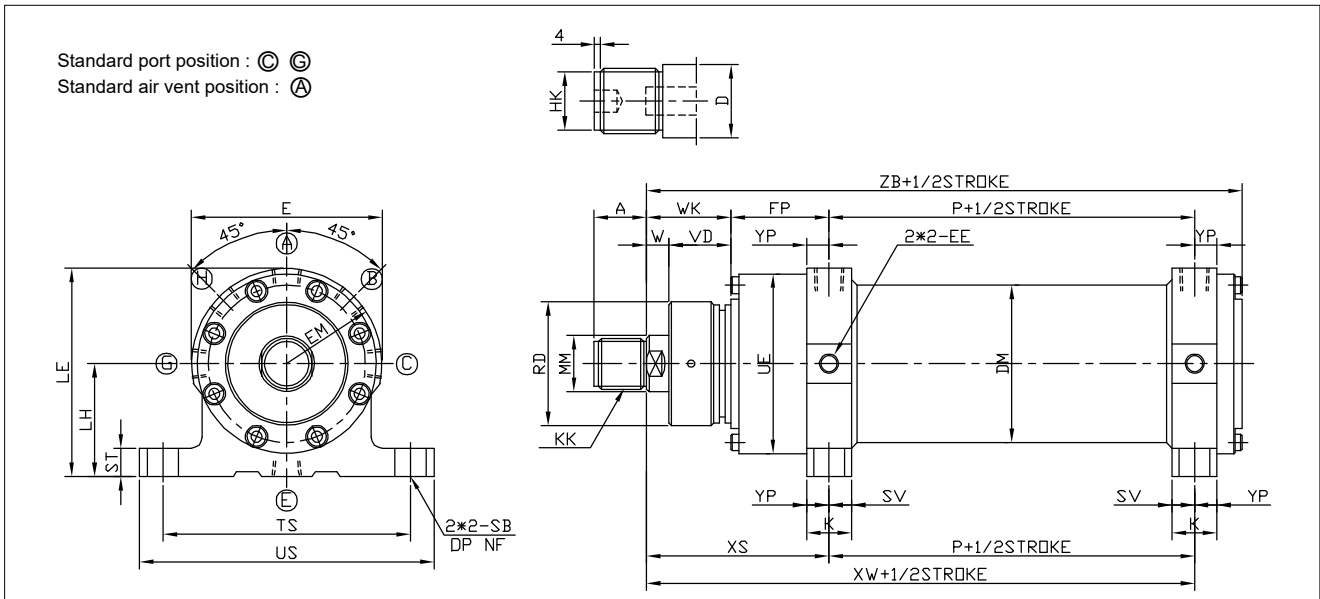
Part no.	Parts	Material	Quantity
1	Tube	STKM13C	1
2	Head Cover	S45C	1
3	Rod Cover	S45C	1
4	Bush	BC3	1
5	Bush Cover	S45C	1

Part no.	Parts	Material	Quantity
6	Piston & Rod	S45C	1
7	Piston & Rod	S45C(STPG38)	1
8	Socket Bolt	SCM440	8
9	Socket Bolt	SCM440	8

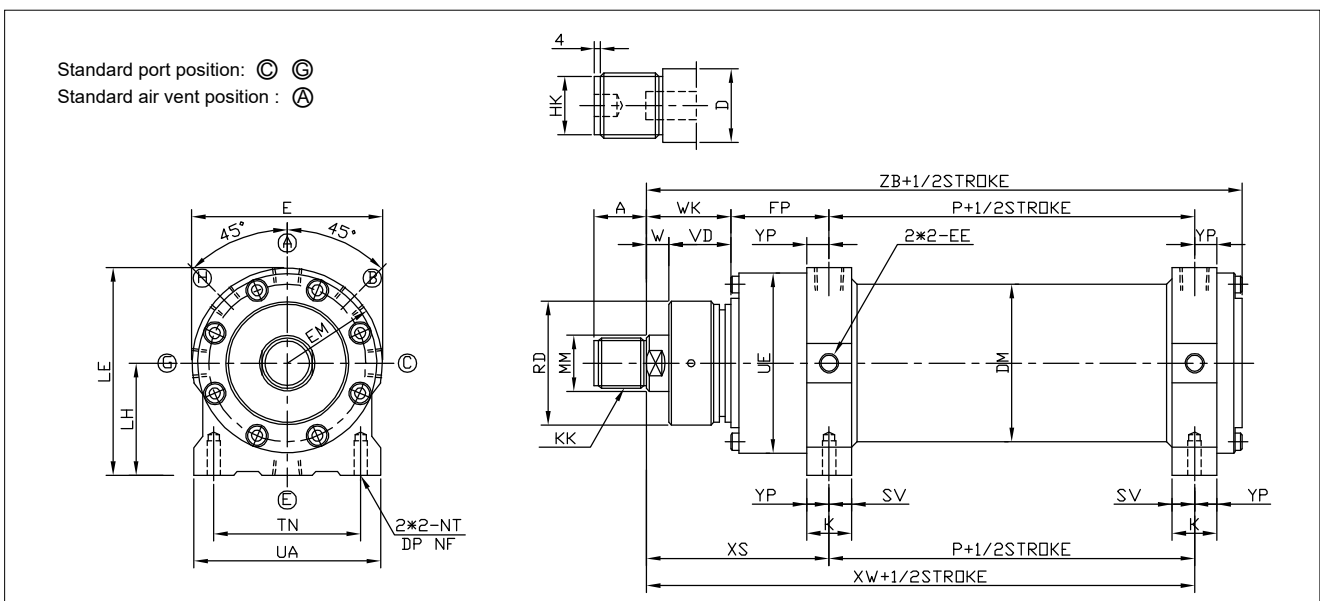
Packing List

Part no.	10	11	12	13	14	15	16	17	18
Parts	DUST SEAL	R/PACKING	O-RING	DUST SEAL	R/PACKING	O-RING	O-RING & PACKING	R/PACKING	O-RING & PACKING
Material	N.B.R	N.B.R	N.B.R	N.B.R	N.B.R	N.B.R	N.B.R	N.B.R	N.B.R
Quantity	1	1	1	1	1	2	1	2	1
Type									
Type 10	SDR28	SKY28	G40	SDR53	SKY53	G58/G63	P39	16x24x5	P53
Type 20	SDR40	SKY40	G60	SDR75	SKY75	G85/G90	65x49x20.5	16x24x5	90x70x22.4
Type 30	SDR45	SKY45	G75	SDR90	SKY90	G105/G110	80x60x22.4	16x24x5	110x85x22.4
Type 40	SDR53	SKY53	G85	SDR106	SKY106	G120/G115	90x70x22.4	16x24x5	125x100x25.4
Type 50	SDR60	SKY60	G95	SDR118	SKY118	G135/G140	100x75x22.4	16x24x5	140x115x22.4

Dimensions-Axial Angle of Foot (LA)



Dimensions-Base Mounting Axial Angle of Foot (LT)

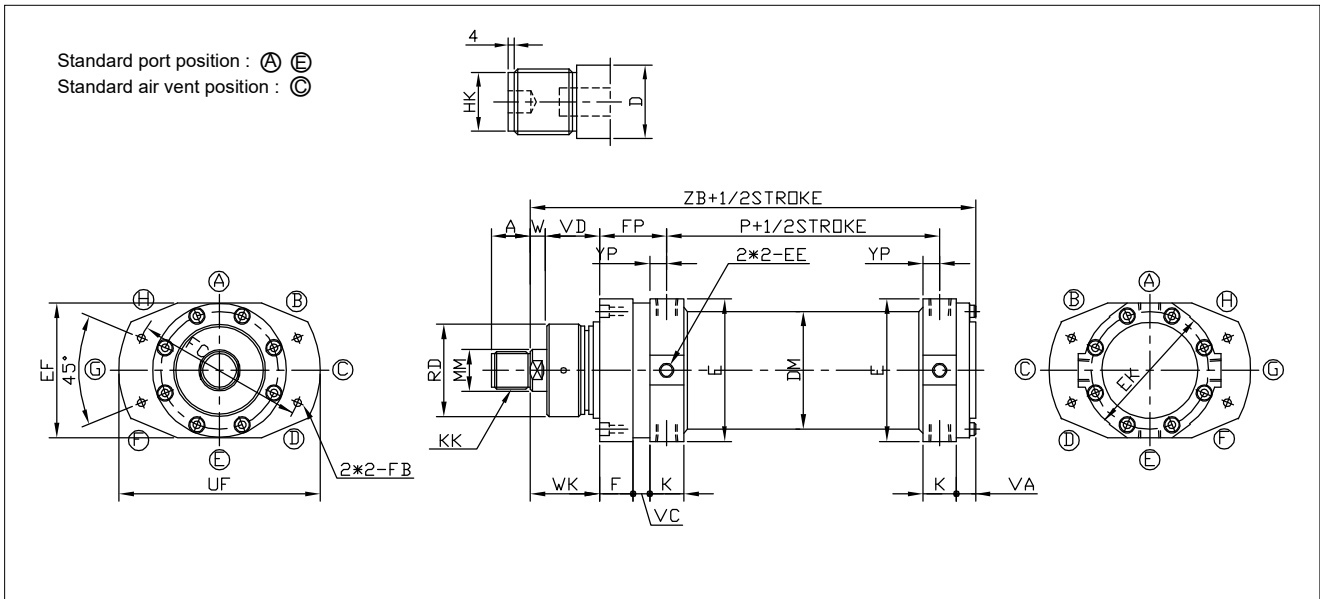


Unit : mm

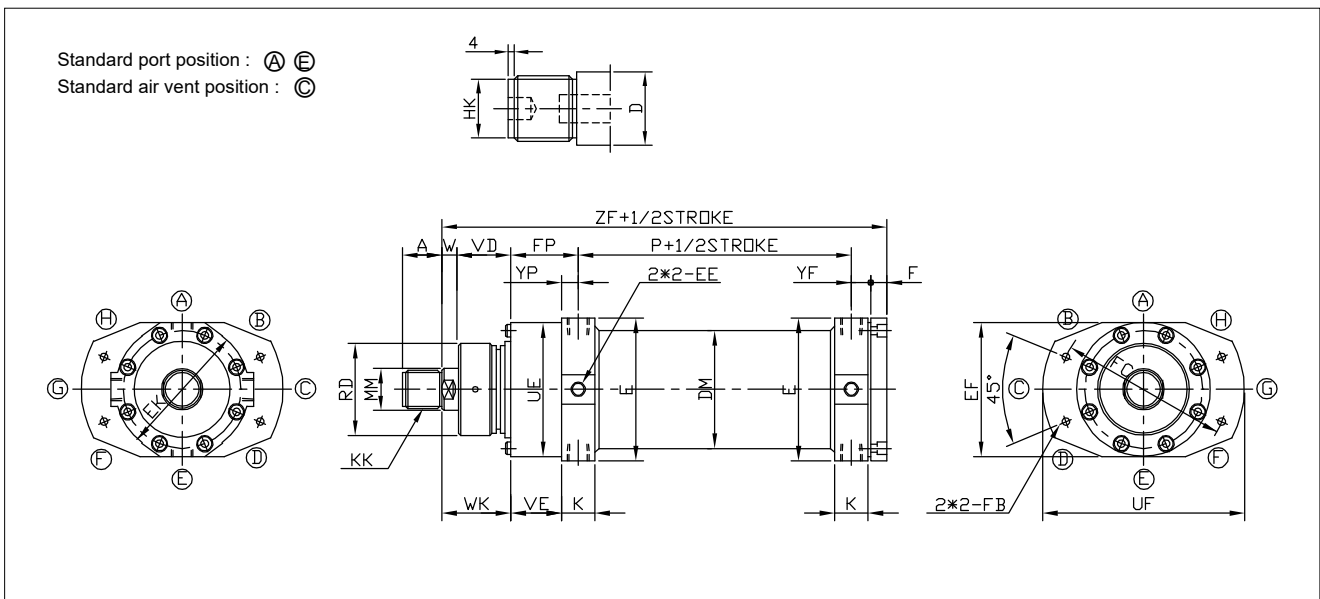
Type	A	D	DM	E	EE	EM	FP	HK	K	KK	LE	LH	MM	NF	NT	P
Type 10	25	24	Ø73	98	Rc(PT)3/8	51	48	Ø21 ^{H9}	26 ⁰ _{-0.1}	M24×2	99	50 ^{±0.2}	Ø28	18	M12	25
Type 20	35	32	Ø105	138	Rc(PT)1/2	71	67	Ø30 ^{H9}	34 ⁰ _{-0.1}	M33×2	139	70 ^{±0.2}	Ø40	24	M16	38
Type 30	40	41	Ø125	158	Rc(PT)1/2	81	80	Ø36 ^{H9}	42 ⁰ _{-0.1}	M39×2	164	85 ^{±0.2}	Ø45	30	M20	40
Type 40	45	46	Ø145	178	Rc(PT)3/4	92	93	Ø42 ^{H9}	47 ⁰ _{-0.1}	M45×2	184	95 ^{±0.2}	Ø53	36	M24	45
Type 50	52	55	Ø165	196	Rc(PT)3/4	100	107	Ø49 ^{H9}	48 ⁰ _{-0.1}	M52×2	203	105 ^{±0.2}	Ø60	36	M24	50

Type	RD	SB	ST	SV	TN	TS	UA	UE	US	VD	W	WK	XS	XW	YP	ZB
Type 10	Ø59	Ø13.5	10	13	75	110	98	Ø89.5	130	32	13	45	93	118	13	145
Type 20	Ø84	Ø18	16	17	105	150	138	Ø129	180	43	17	60	127	162	17	200
Type 30	Ø100	Ø22	20	22	115	175	158	Ø155	210	50	20	70	150	190	20	235
Type 40	Ø112	Ø24	22	23	130	205	178	Ø177	240	57	23	80	173	218	24	270
Type 50	Ø128	Ø26	24	23	150	230	196	Ø193	270	65	25	90	197	247	25	303

Dimensions-Rod Side Flange (FA)



Dimensions-Head Side Flange (FB)

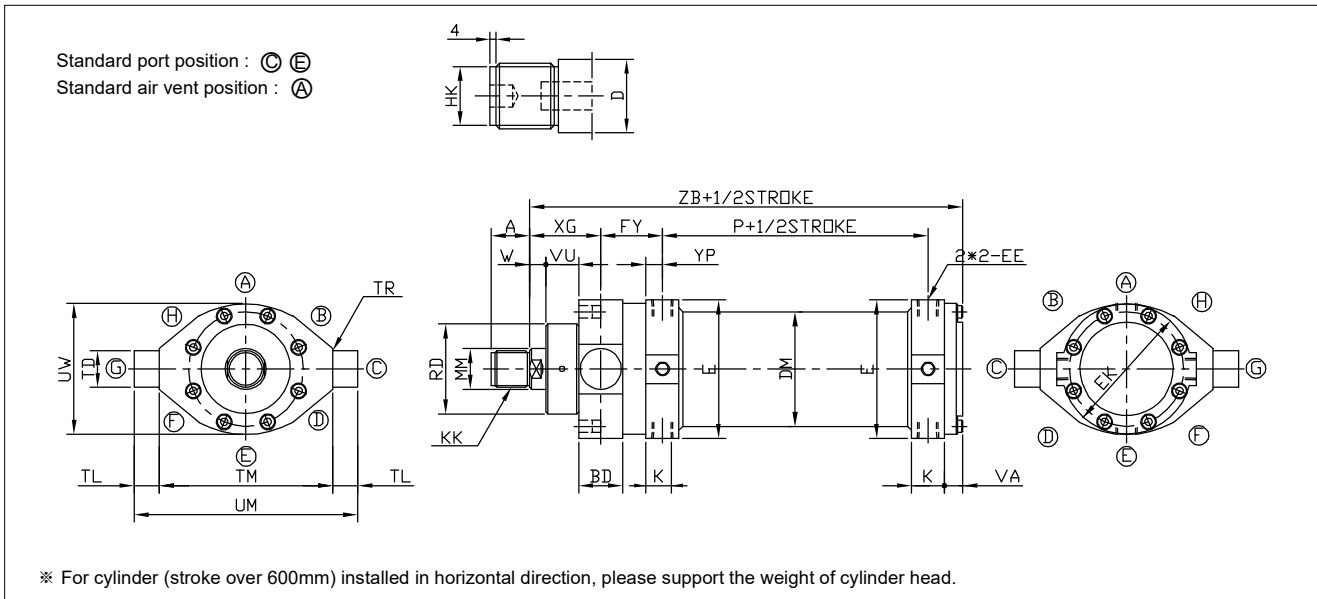


Unit : mm

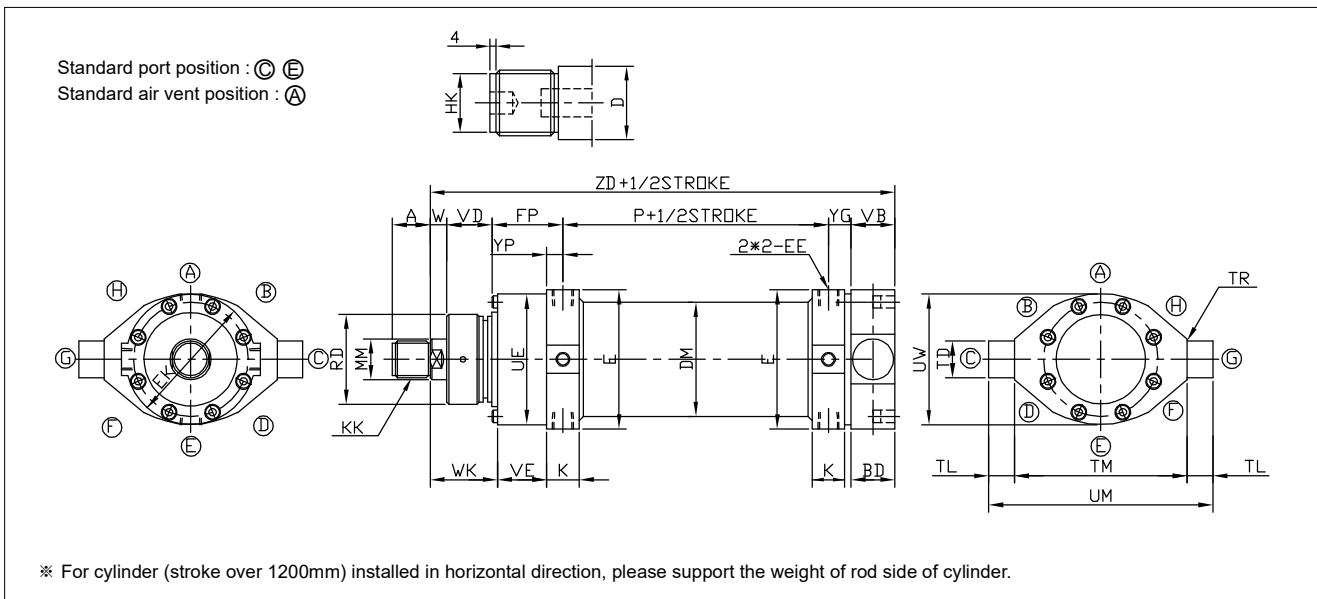
Type	A	D	DM	E	EE	EF	EK	F	FB	FC	FP	HK	K	KK	MM	P	RD
Type 10	25	24	Ø73	98	Rc(PT)3/8	98	95	20	Ø9	Ø120	48	Ø21 ^{H9}	26 ⁰ _{-0.1}	M24×2	Ø28	25	Ø59
Type 20	35	32	Ø105	138	Rc(PT)1/2	138	136	30	Ø13.5	Ø170	67	Ø30 ^{H9}	34 ⁰ _{-0.1}	M33×2	Ø40	35	Ø84
Type 30	40	41	Ø125	158	Rc(PT)1/2	165	161	35	Ø16	Ø195	80	Ø36 ^{H9}	42 ⁰ _{-0.1}	M39×2	Ø45	40	Ø100
Type 40	45	46	Ø145	178	Rc(PT)3/4	190	183	40	Ø18	Ø225	93	Ø42 ^{H9}	47 ⁰ _{-0.1}	M45×2	Ø53	45	Ø112
Type 50	52	55	Ø165	196	Rc(PT)3/4	205	200	45	Ø20	Ø245	107	Ø49 ^{H9}	48 ⁰ _{-0.1}	M52×2	Ø60	50	Ø128

Type	UE	UF	VA	VC	VD	VE	W	WK	YF	YP	ZB	ZF
Type 10	Ø89.5	135	14	15	32	35	13	45	17	13	145	155
Type 20	Ø129	195	21	20	43	50	17	60	23	17	200	215
Type 30	Ø155	225	25	25	50	60	20	70	32	20	235	255
Type 40	Ø177	260	28	29	57	69	23	80	32	24	270	290
Type 50	Ø193	285	31	37	65	82	25	90	33	25	303	325

Dimensions-Rod Side Trunnion (TA)



Dimensions-Head Side Trunnion (TB)

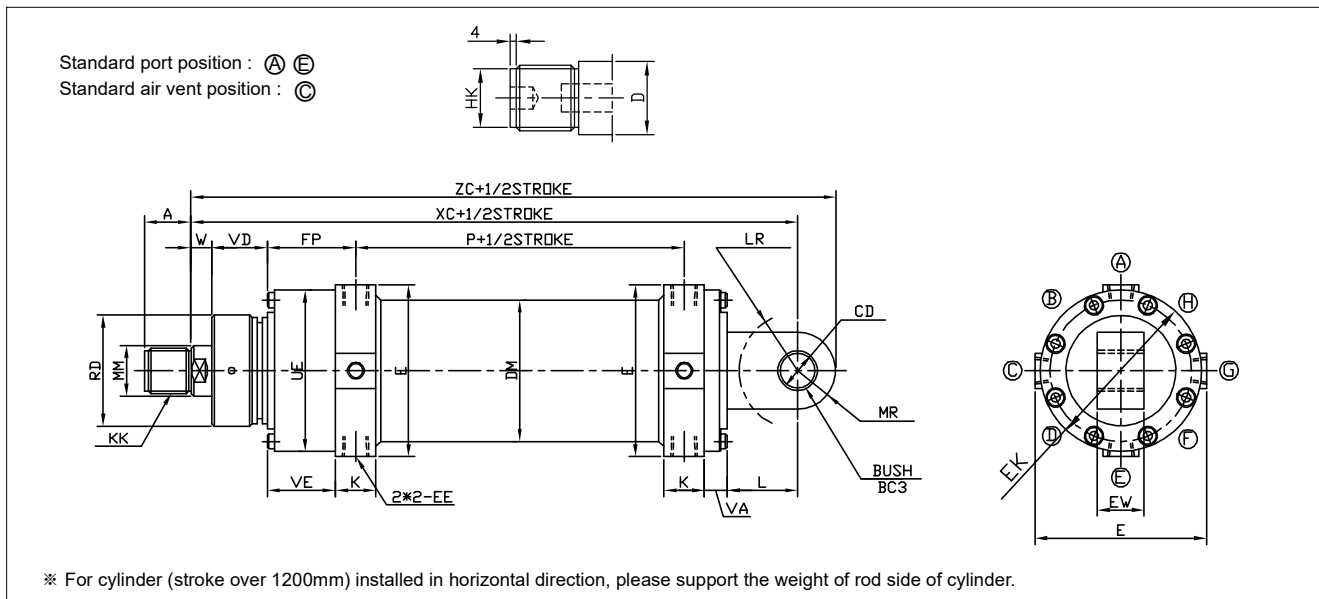


Unit : mm

Type	A	BD	D	DM	E	EE	EK	FY	FP	HK	K	KK	MM	P	RD	TD	TL
Type 10	25	31	24	Ø73	98	Rc(PT)3/8	95	43	48	Ø21 ^{H9}	26 ⁰ _{-0.1}	M24×2	Ø28	25	Ø59	Ø28 ^{±0.09}	20
Type 20	35	38	32	Ø105	138	Rc(PT)1/2	136	55	67	Ø30 ^{H9}	34 ⁰ _{-0.1}	M33×2	Ø40	35	Ø84	Ø35 ^{±0.09}	25
Type 30	40	48	41	Ø125	158	Rc(PT)1/2	161	68	80	Ø36 ^{H9}	42 ⁰ _{-0.1}	M39×2	Ø45	40	Ø100	Ø45 ^{±0.09}	30
Type 40	45	58	46	Ø145	178	Rc(PT)3/4	183	81	93	Ø42 ^{H9}	47 ⁰ _{-0.1}	M45×2	Ø53	45	Ø112	Ø55 ^{±0.09}	30
Type 50	52	63	55	Ø165	196	Rc(PT)3/4	200	93	107	Ø49 ^{H9}	48 ⁰ _{-0.1}	M52×2	Ø60	50	Ø128	Ø60 ^{±0.09}	35

Type	TM	TR	UE	UM	UW	VA	VB	VD	VE	VU	W	WK	XC	XG	YG	YP	ZB	ZD
Type 10	100 ⁰ _{-0.35}	R3	Ø89.5	140	95	14	16	32	35	21	13	45	150	50	32	13	145	166
Type 20	145 ⁰ _{-0.4}	R3	Ø129	195	135	21	20	43	50	35	17	60	205	72	43	17	200	225
Type 30	175 ⁰ _{-0.4}	R3	Ø155	235	160	25	25	50	60	37	20	70	240	82	50	20	235	265
Type 40	200 ⁰ _{-0.46}	R3	Ø177	260	185	28	30	57	69	39	23	80	280	92	62	24	270	310
Type 50	220 ⁰ _{-0.46}	R3	Ø193	290	205	31	32	65	82	47	25	90	315	104	68	25	303	347

Dimensions-Single Clevis (CA)

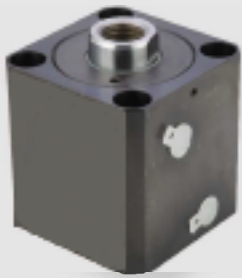


Unit : mm

Type	A	CD	D	DM	E	EE	EK	EW	FP	HK	K	KK	L	LR	MM	MR	P
Type 10	25	Ø25 ^{H10}	24	Ø73	98	Rc(PT)3/8	95	28 ⁰ _{-0.1}	48	Ø21 ^{H9}	26 ⁰ _{-0.1}	M24×2	30	R27	Ø28	R22	25
Type 20	35	Ø35 ^{H10}	32	Ø105	138	Rc(PT)1/2	136	40 ⁰ _{-0.1}	67	Ø30 ^{H9}	34 ⁰ _{-0.1}	M33×2	45	R44	Ø40	R30	35
Type 30	40	Ø45 ^{H10}	41	Ø125	158	Rc(PT)1/2	161	50 ⁰ _{-0.1}	80	Ø36 ^{H9}	42 ⁰ _{-0.1}	M39×2	55	R54	Ø45	R38	40
Type 40	45	Ø55 ^{H10}	46	Ø145	178	Rc(PT)3/4	183	55 ⁰ _{-0.1}	93	Ø42 ^{H9}	47 ⁰ _{-0.1}	M45×2	65	R64	Ø53	R45	45
Type 50	52	Ø60 ^{H10}	55	Ø165	196	Rc(PT)3/4	200	63 ⁰ _{-0.1}	107	Ø49 ^{H9}	48 ⁰ _{-0.1}	M52×2	70	R69	Ø60	R50	50

Type	RD	UE	VA	VD	VE	W	XC	ZC
Type 10	Ø59	Ø89.5	14	32	35	13	175	197
Type 20	Ø84	Ø129	21	43	50	17	245	275
Type 30	Ø100	Ø155	25	50	60	20	290	328
Type 40	Ø112	Ø177	28	57	69	23	335	380
Type 50	Ø128	Ø193	31	65	82	25	373	423

KP140HS series



KP140HS-SD80-S40

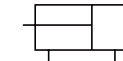


KP140HS-LA50-S30N

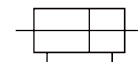
Features

- Compact hydraulic cylinder with steel tube.
- Double acting hydraulic cylinder for 140kgf/cm² with bore sizes from Ø20 to Ø125.
- Appropriate for pressing, clamping and short-stroke operations.
- Cylinder designed with a shorter length than a conventional cylinder.

Symbol



Double Acting / Single Rod



Double Acting / Double Rod

How to Order

KP140HS SD 40 - S 40 N

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Series

Series	Type	Tube material	Operating pressure
KP140HS	Single rod	Steel	140 kgf/cm ²
KP140HS W	Double rod		
KP140HS.HL	Auto switch attached type (Single rod)	SUS	
KP140HS HL W	Auto switch attached type (Double rod)		

③ Seal material

Nil	Nitrile Urethane (Standard)
1	Nitrile rubber
2	FPM rubber

④ Mounting style

SD	Standard
LA	Axial angle of foot

⑤ Bore size

32	Ø30
40	Ø40
50	Ø50
63	Ø63
80	Ø80
100	Ø100
125	Ø125

⑥ Cylinder stroke

Bore size	Standard stroke	Max. stroke
Ø32	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	50
Ø40		100
Ø50		
Ø63		
Ø80		
Ø100	-	
Ø125		

※ Check buckling, as it varies depending on mounting style.

※ Contact us for longer stroke.

※ We have inventory only for standard administration. (Female thread standard type, small quantity)

※ Intermediate stroke production (55, 60, 65 ...) is made with 5, 10, 20mm space.

⑦ Rod end attachment

Nil	Rod end female thread
N	Rod end male thread

⑧ Auto switch

Reed A/S	Model	Solid state A/S	Model
Z72	D-Z72K	Y59A	D-Y59AK
Z73	D-Z73K	Y7PK	D-Y7PK
Z76	D-Z76K	Y59B	D-Y59BK
Z80	D-Z80K		
Z82	D-Z82K		

※ Only for auto switch attached type.

※ For more information, refer to Auto Switch Catalogue.

⑨ Number of auto switch

Nil	2 pcs
1	1 pc
N	N pcs (N:3,4,5...)

※ Only for auto switch attached type.

Specifications

Model	KP140HS
Bore size	Ø32, Ø40, Ø50, Ø63, Ø80, Ø100, Ø125
Max. operating pressure	140kgf/cm ² (14.3MPa)
Proof pressure	210kgf/cm ² (21.4MPa)
Min. operating pressure	3kgf/cm ² (0.31MPa)
Operating piston speed	8~100mm/sec
Ambient & fluid temperature	-10 ~ 70 °C
Working oil	Petroleum-based fluid
Tolerance of thread	KS class 2
Tolerance of stroke	0~+0.8mm

* Contact us for delivery of auto switch attached type.

Mass

KP140HS

Unit : kg

Bore size	Standard Type (SD)				Foot Type(LA)				Additional mass of male thread
	Double acting single rod		Double acting double rod		Double acting single rod		Double acting double rod		
	Basic mass	Additional mass per each 1mm of stroke	Basic mass	Additional mass per each 1mm of stroke	Basic mass	Additional mass per each 1mm of stroke	Basic mass	Additional mass per each 1mm of stroke	
Ø32	1.4	0.025	1.6	0.024	1.4	0.027	1.9	0.028	0.057
Ø40	1.8	0.030	2.1	0.032	1.8	0.034	2.4	0.036	0.114
Ø50	2.5	0.037	2.7	0.036	2.6	0.044	3.3	0.048	0.201
Ø63	3.8	0.047	4.1	0.041	4.1	0.062	5.0	0.068	0.435
Ø80	6.6	0.067	7.6	0.083	-	-	-	-	0.798
Ø100	12.5	0.102	14.9	0.121	-	-	-	-	-
Ø125	21.5	0.152	29	0.222	-	-	-	-	-

KP140HS HL

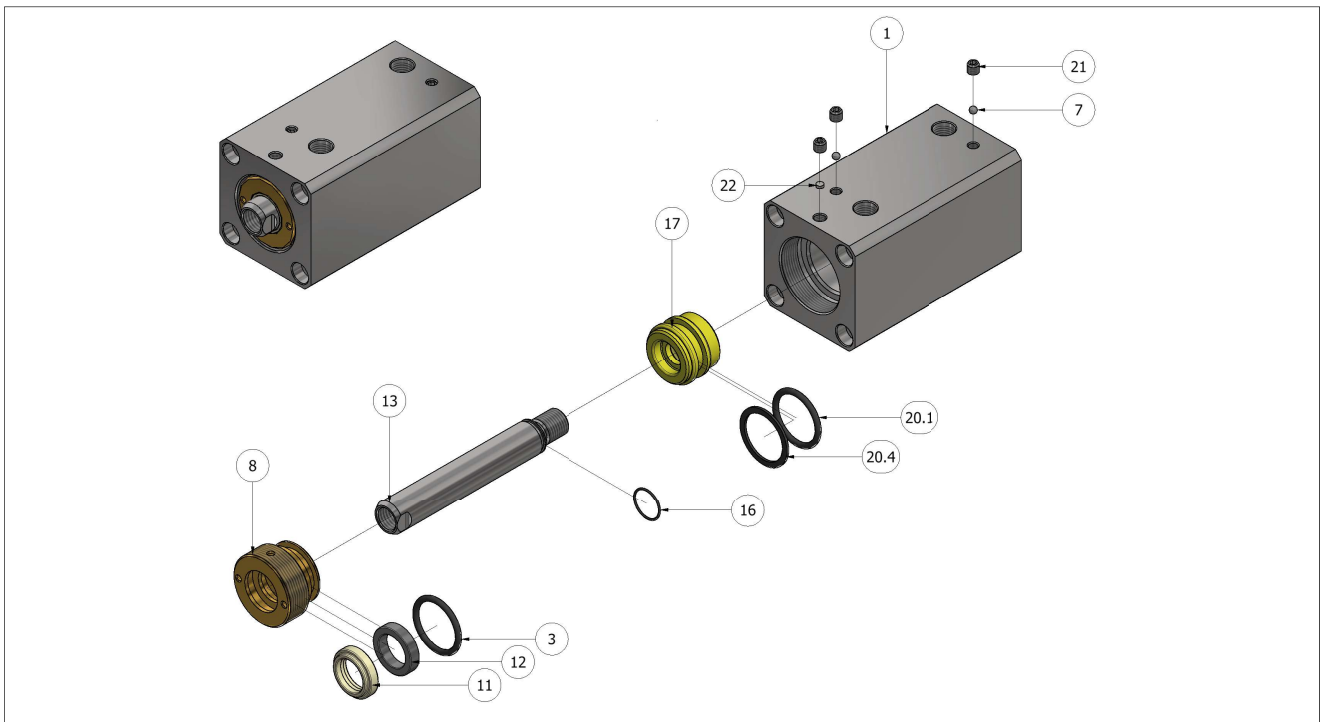
Unit : kg

Bore size	Standard Type (SD)				Foot Type(LA)		Additional mass of male thread
	Double acting single rod		Double acting double rod		Double acting single rod		
	Basic mass	Additional mass per each 1mm of stroke	Basic mass	Additional mass per each 1mm of stroke	Basic mass	Additional mass per each 1mm of stroke	
Ø32	1.2	0.022	1.3	0.024	1.2	0.022	0.057
Ø40	1.6	0.028	1.7	0.031	1.6	0.028	0.114
Ø50	2.2	0.036	2.4	0.041	2.3	0.036	0.201
Ø63	3.3	0.049	3.7	0.057	3.6	0.049	0.435
Ø80	6.2	0.071	7.2	0.084	-	-	0.0798

Calculation:

Ex) KP140HS-SD40-S50
 Basic mass: 1.8
 Additional mass: 0.030
 Cylinder stroke: 50mm
 $1.8 + (0.030 \times 50) = 3.3\text{kg}$

Structure



Part List

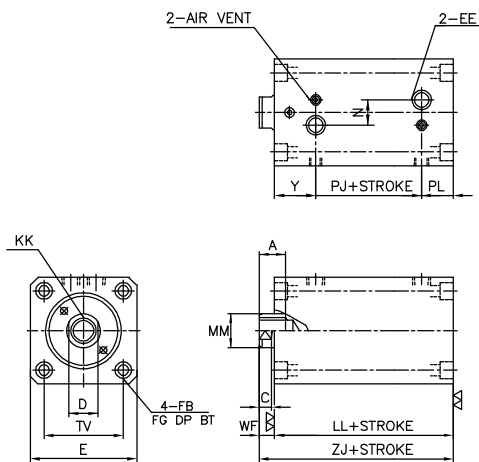
Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity
1	TUBE	SM45C	1	17	PISTON	GC250	1
7	STEEL BALL	SUJ2	2	21	SET SCREW	SCM435	3
8	ROD COVER	GC250	1	22	SHIM	C3604	1
13	ROD	SM45C	1				

Packing List

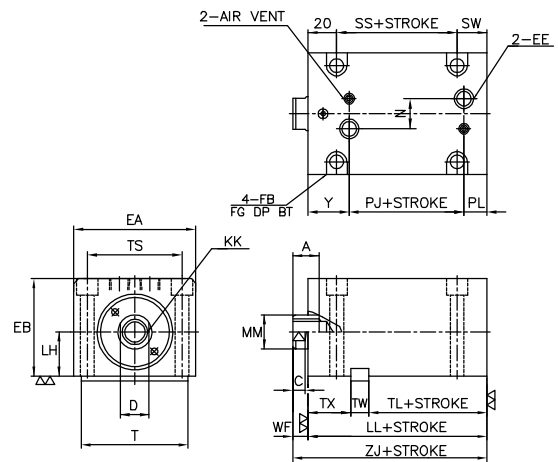
Part no.	3	11	12	16	20.1	20.4
Parts	O-RING FOR TUBE	DUST SEAL	ROD PACKING	O-RING FOR ROD	PISTON PACKING	B.U.R
Material	NBR	NBR	NBR	NBR	NBR	PTFE
Quantity	1	1	1	1	1	1
Bore size						
32	1B-P26	LBH-18	USH-18	1B-S16	1B-P26	FOR P26
40	1B-G35	LBH-22	USH-22	1B-S20	1B-P34	FOR P34
50	1B-G45	LBH-28	USH-28	1B-S25	1B-P44	FOR P44
63	1B-G58	LBH-35	USH-35	1B-S32	1B-P53	FOR P53
80	1B-G75	LBH-45	USH-45	1B-S42	1B-P70	FOR P70
100	1B-G95	LBH-55	USH-55	1B-G40	1B-P90	FOR P90
125	1B-G120	LBH-70	USH-70	1B-G60	1B-P115	FOR P115

Dimensions-Single Rod Female Thread Standard Type, Axial Angle of Foot (SD, LA)

SD type
Bore size Ø32, Ø40, Ø50, Ø63, Ø80



LA type
Bore size Ø32, Ø40, Ø50, Ø63



Unit : mm

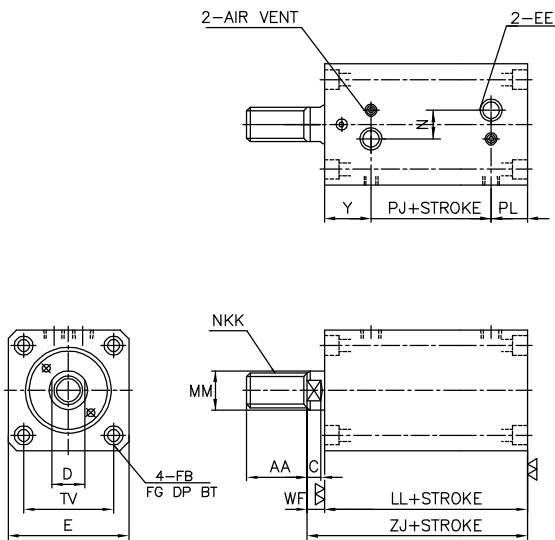
Bore size	A	BT		C	D	E	EA	EB	EE	FB		FG		KK	LH	LL
		SD type	LA type							SD type	LA type	SD type	LA type			
Ø32	15	6.5	8.6	7	16	□62	70	56	Rc(PT)1/4	Ø6.8	Ø9	Ø11	Ø14	M12×1.75	25 ^{±0.06}	54
Ø40	20	8.6	10.8	7	19	□70	80	64	Rc(PT)1/4	Ø9	Ø11	Ø14	Ø17.5	M16×2	29 ^{±0.06}	55
Ø50	24	10.8	13	8	25	□80	94	74	Rc(PT)1/4	Ø11	Ø14	Ø17.5	Ø20	M20×2.5	34 ^{±0.06}	60
Ø63	33	13	15.5	10	31	□94	114	89	Rc(PT)1/4	Ø14	Ø16	Ø20	Ø23	M27×3	42 ^{±0.06}	67
Ø80	33	15.2	18	14	41	□114	142	110	Rc(PT)3/8	Ø16	Ø18	Ø23	Ø26	M30×3.5	52 ^{±0.06}	78
Ø100	45	21.5	-	20	50	□145	-	-	Rc(PT)3/8	Ø22	-	Ø32	-	M39×4.0	-	95
Ø125	50	25.5	-	25	65	□185	-	-	Rc(PT)1/2	Ø26	-	Ø39	-	M42×4.5	-	105

Bore size	MM	N	PJ	PL	SS	SW	T	TL	TS	TV	TW	TX	WF	Y	ZJ
Ø32	Ø18	20	14	12	24	10	70	14	56	□47	12	28	10	28	64
Ø40	Ø22	20	16	12	23	12	70	15	62	□52	12	28	10	27	65
Ø50	Ø28	20	19	13	27	13	80	17	74	□58	14	29	11	28	71
Ø63	Ø35	20	21	13	32	15	100	20	90	□69	16	31	13	33	80
Ø80	Ø45	30	25	18	40	18	100	26	116	□86	16	36	17	35	95
Ø100	Ø55	36	39	21	-	-	-	-	-	□105	-	-	26	35	121
Ø125	Ø70	56	44	26	-	-	-	-	-	□140	-	-	31	35	136

Dimensions-Single Rod Male Thread Standard Type, Axial Angle of Foot (SD, LA)

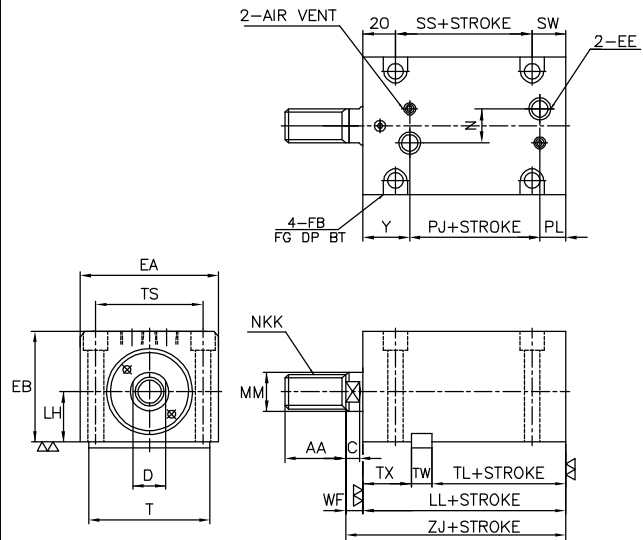
SD type

Bore size Ø32, Ø40, Ø50, Ø63, Ø80



LA type

Bore size Ø32, Ø40, Ø50, Ø63



Unit : mm

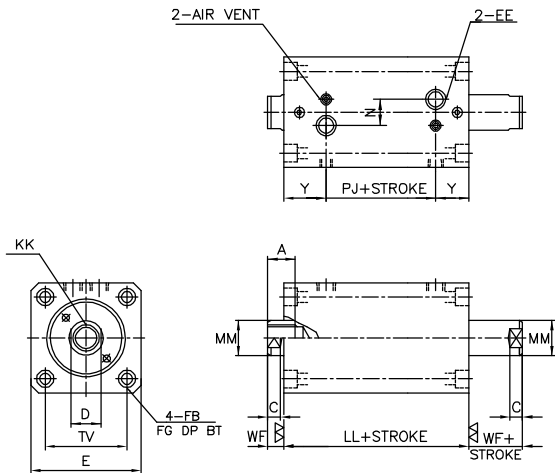
Bore size	AA	BT		C	D	E	EA	EB	EE	FB		FG		NKK	LH	LL
		SD type	LA type							SD type	LA type	SD type	LA type			
Ø32	20	6.5	8.6	7	16	□62	70	56	Rc(PT)1/4	Ø6.8	Ø9	Ø11	Ø14	M16×1.5	25 ^{±0.06}	54
Ø40	20	8.6	10.8	7	20	□70	80	64	Rc(PT)1/4	Ø9	Ø11	Ø14	Ø17.5	M20×1.5	29 ^{±0.06}	55
Ø50	35	10.8	13	8	25	□80	94	74	Rc(PT)1/4	Ø11	Ø14	Ø17.5	Ø20	M24×1.5	34 ^{±0.06}	60
Ø63	35	13	15.5	9	31	□94	114	89	Rc(PT)1/4	Ø14	Ø16	Ø20	Ø23	M30×1.5	42 ^{±0.06}	67
Ø80	60	15.2	18	14	41	□114	142	110	Rc(PT)3/8	Ø16	Ø18	Ø23	Ø26	M39×1.5	52 ^{±0.06}	78
Ø100	75	21.5	-	20	50	□145	-	-	Rc(PT)3/8	Ø22	-	Ø32	-	M48×1.5	-	95
Ø125	95	25.5	-	25	65	□185	-	-	Rc(PT)1/2	Ø26	-	Ø39	-	M64×2.0	-	105

Bore size	MM	N	PJ	PL	SS	SW	T	TL	TS	TV	TW	TX	WF	Y	ZJ
Ø32	Ø18	20	14	12	24	10	70	14	56	□47	12	28	10	28	64
Ø40	Ø22	20	16	12	23	12	70	15	62	□52	12	28	10	27	65
Ø50	Ø28	20	19	13	27	13	80	17	74	□58	14	29	11	28	71
Ø63	Ø35	20	21	13	32	15	100	20	90	□69	16	31	13	33	80
Ø80	Ø45	30	25	18	40	18	100	26	116	□86	16	36	17	35	95
Ø100	Ø55	36	39	21	-	-	-	-	-	□105	-	-	26	35	121
Ø125	Ø70	56	44	26	-	-	-	-	-	□140	-	-	31	35	136

Dimensions-Double Rod Female Thread Standard Type, Axial Angle of Foot (SD, LA)

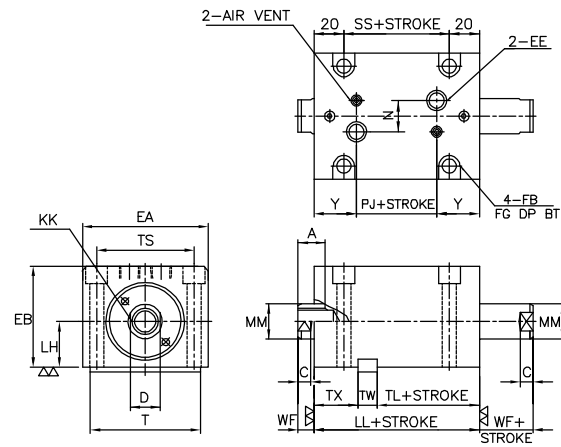
SD type

Bore size Ø32, Ø40, Ø50, Ø63, Ø80



LA type

Bore size Ø32, Ø40, Ø50, Ø63



Unit : mm

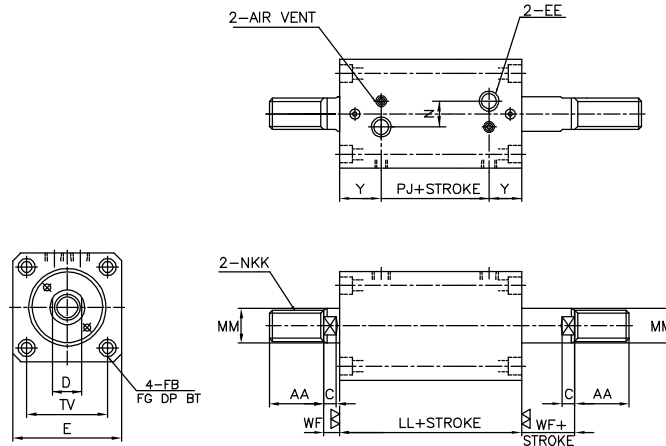
Bore size	A	BT		C	D	E	EA	EB	EE	FB		FG		KK	LH	LL
		SD type	LA type							SD type	LA type	SD type	LA type			
Ø32	15	6.5	8.6	7	16	□62	70	56	Rc(PT)1/4	Ø6.8	Ø9	Ø11	Ø14	M12×1.75	25 ^{±0.06}	72
Ø40	20	8.6	10.8	7	19	□70	80	64	Rc(PT)1/4	Ø9	Ø11	Ø14	Ø17.5	M16×2	29 ^{±0.06}	72
Ø50	24	10.8	13	8	25	□80	94	74	Rc(PT)1/4	Ø11	Ø14	Ø17.5	Ø20	M20×2.5	34 ^{±0.06}	75
Ø63	33	13	15.5	10	31	□94	114	89	Rc(PT)1/4	Ø14	Ø16	Ø20	Ø23	M27×3	42 ^{±0.06}	82
Ø80	33	15.2	18	14	41	□114	142	110	Rc(PT)3/8	Ø16	Ø18	Ø23	Ø26	M30×3.5	52 ^{±0.06}	95
Ø100	45	21.5	-	20	50	□145	-	-	Rc(PT)3/8	Ø22	-	Ø32	-	M39×4.0	-	112
Ø125	50	25.5	-	25	65	□185	-	-	Rc(PT)1/2	Ø26	-	Ø39	-	M42×4.5	-	117

Unit : mm

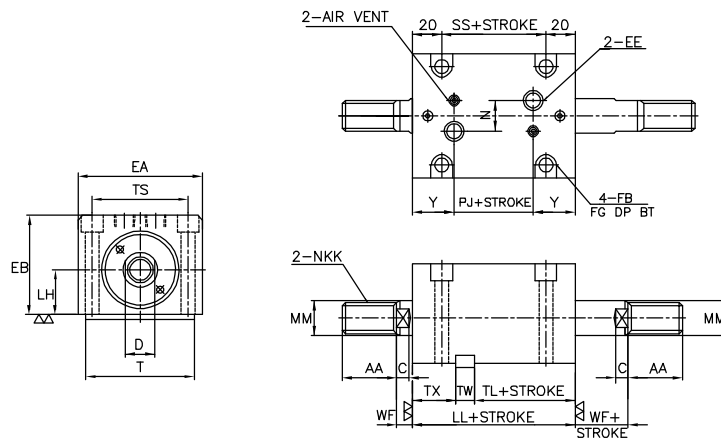
Bore size	MM	N	PJ	SS	T	TL	TS	TV	TW	TX	WF	Y
Ø32	Ø18	20	16	32	70	32	56	□47	12	28	10	28
Ø40	Ø22	20	18	32	70	32	62	□52	12	28	10	27
Ø50	Ø28	20	19	35	80	32	74	□58	14	29	11	28
Ø63	Ø35	20	16	42	100	35	90	□69	16	31	13	33
Ø80	Ø45	30	25	55	100	43	116	□86	16	36	17	35
Ø100	Ø55	36	42	-	-	-	-	□105	-	-	26	35
Ø125	Ø70	56	47	-	-	-	-	□140	-	-	31	35

Dimensions-Double Rod Male Thread Standard Type, Axial Angle of Foot (SD, LA)

SD type / Bore size Ø32, Ø40, Ø50, Ø63, Ø80



LA type / Bore size Ø32, Ø40, Ø50, Ø63



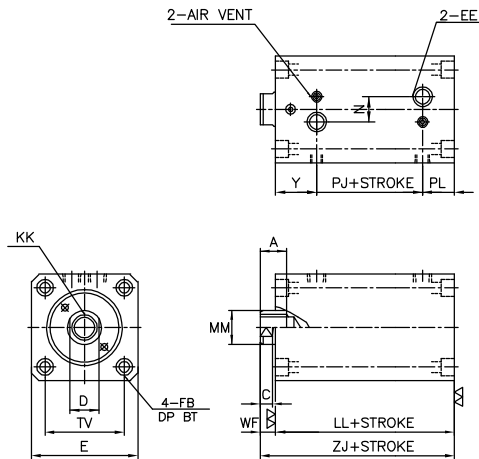
Unit : mm

Bore size	AA	BT		C	D	E	EA	EB	EE	FB		FG		NKK	LH	LL
		SD type	LA type							SD type	LA type	SD type	LA type			
Ø32	20	6.5	8.6	7	16	□62	70	56	Rc(PT)1/4	Ø6.8	Ø9	Ø11	Ø14	M16×1.5	25 ^{±0.06}	72
Ø40	20	8.6	10.8	7	20	□70	80	64	Rc(PT)1/4	Ø9	Ø11	Ø14	Ø17.5	M20×1.5	29 ^{±0.06}	72
Ø50	35	10.8	13	8	25	□80	94	74	Rc(PT)1/4	Ø11	Ø14	Ø17.5	Ø20	M24×1.5	34 ^{±0.06}	75
Ø63	35	13	15.5	9	31	□94	114	89	Rc(PT)1/4	Ø14	Ø16	Ø20	Ø23	M30×1.5	42 ^{±0.06}	82
Ø80	60	15.2	18	14	41	□114	142	110	Rc(PT)3/8	Ø16	Ø18	Ø23	Ø26	M39×1.5	52 ^{±0.06}	95
Ø100	75	21.5	-	20	50	□145	-	-	Rc(PT)3/8	Ø22	-	Ø32	-	M48×1.5	-	112
Ø125	95	25.5	-	25	65	□185	-	-	Rc(PT)1/2	Ø26	-	Ø39	-	M64×2.0	-	117

Bore size	MM	N	PJ	SS	T	TL	TS	TV	TW	TX	WF	Y
Ø32	Ø18	20	16	32	70	32	56	□47	12	28	10	28
Ø40	Ø22	20	18	32	70	32	62	□52	12	28	10	27
Ø50	Ø28	20	19	35	80	32	74	□58	14	29	11	28
Ø63	Ø35	20	16	42	100	35	90	□69	16	31	13	33
Ø80	Ø45	30	25	55	100	43	116	□86	16	36	17	35
Ø100	Ø55	36	42	-	-	-	-	□105	-	-	26	35
Ø125	Ø70	56	47	-	-	-	-	□140	-	-	31	35

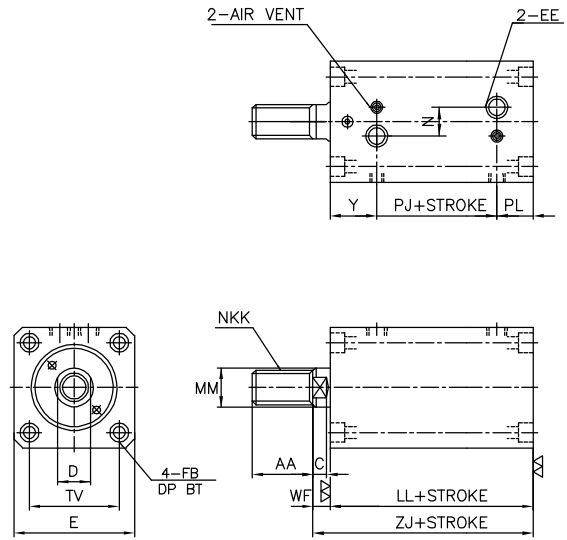
Dimensions-Single Long Stroke Type (SD)

Female Thread /Bore size Ø32, Ø40, Ø50, Ø63, Ø80



Administrative limit
 Ø32 = 101 ~ 200mm
 Ø40, Ø50, Ø63, Ø80 = 101 to 250mm

Male Thread /Bore size Ø32, Ø40, Ø50, Ø63, Ø80



Administrative limit
 Ø32 = 101 ~ 200mm
 Ø40, Ø50, Ø63, Ø80 = 101 to 250mm

Unit : mm

Bore size	Stroke	A	AA	BT	C	D	□E	EE	FB	KK	LL	N	PJ	PL	MM	NKK	□TV	WF	Y	ZJ
Ø32	101~200	15	20	12	7	16	□62	Rc(PT)1/4	M6xP1.0	M12xP1.75	72	20	16	28	Ø18	M16xP1.5	□47	10	28	82
Ø40	101~250	20	20	16	7	20	□70	Rc(PT)1/4	M8xP1.25	M16xP2.0	72	20	18	27	Ø22	M20xP1.5	□52	10	27	82
Ø50	101~250	24	35	20	8	24	□80	Rc(PT)1/4	M10xP1.5	M20xP2.5	75	20	19	28	Ø28	M24xXP1.5	□58	11	28	86
Ø63	101~250	33	35	24	9	30	□94	Rc(PT)1/4	M12xP1.75	M27xP3.0	82	20	16	33	Ø35	M30xP1.5	□69	13	33	95
Ø80	101~250	33	60	28	14	41	□114	Rc(PT)3/8	M14xP2.0	M30xP3.5	95	30	25	35	Ø45	M39xP1.5	□86	17	35	112

KP125/160A series

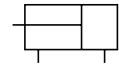


KP125A-H SD63-S20

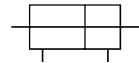
Features

- Compact hydraulic cylinder with Aluminium tube.
- Double acting hydraulic cylinder for 125kgf/cm² or 160kgf/cm² with a bore from Ø20 to Ø80.
- Easy to equip with auto switch.
- Excellent appearance and identical dimensions as KP140HS.

Symbol



Double Acting / Single Rod



Double Acting / Double Rod

How to Order

KP125A W H SD 63 - S 20 N Z72 S -

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪

① Series

KP125A	Working pressure 125kgf/cm ²
KP160A	Working pressure 160kgf/cm ²

② Cylinder operating type

Nil	Single type
W	Double type

※ Double rod type is not available for KP160A.

③ Seal material

Nil	Nitril urethane (Standard)
1	Nitril rubber
2	Fluoro Rubber
3	Urethane Rubber

④ Magnet

Nil	Without magnet
H	With built-in magnet

※ Cylinder with built-in magnet and without built-in magnet have the same dimensions.

⑤ Mounting type

SD	Standard
LA	Axial angle of foot
FA	Rod side rectangular flange

⑥ Bore size

20	Ø20
25	Ø25
32	Ø32
N0	Ø40
50	Ø50
63	Ø63
80	Ø80

⑦ Cylinder stroke (mm)

Bore size	Standard stroke	Max. stroke
Ø20	10, 15, 20,	50
Ø25	25, 30, 40, 50	
Ø32	10, 15, 20, 25, 30, 40, 50, 75, 100	200
Ø40		250
Ø50		
Ø63		
Ø80		-

※ Check buckling, as it varies depending on mounting style.

※ Contact us for longer stroke.

⑧ Rod end thread

Nil	Female thread (Standard)
N	Male thread

⑨ Auto switch

Reed A/ S	Model	Solid state A/ S	Model
Z72	D-Z72K	Y59A	D-Y59AK
Z73	D-Z73K	Y7PK	D-Y7PK
Z76	D-Z76K	Y59B	D-Y59BK
Z80	D-Z80K		
Z82	D-Z82K		

※ Only for auto switch attached type.

※ For more information, refer to Auto Switch Catalogue.

⑩ Number of auto switches

Nil	2 pcs
1	1 pc
N	N pcs (N:3,4,5...)

※ Only for auto switch attached type.

⑪ Custom made specifications

KA**	Change rod end shape
KC8	Stroke adjustable type (10mm,20mm)

Specifications

Type	KP125A	KP160A
Bore size (mm)	Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80	
Max. operating pressure	125kgf/cm ² (12.8MPa)	160kgf/cm ² (16.3MPa)
Proof pressure	188kgf/cm ² (19.2MPa)	240kgf/cm ² (24.5MPa)
Min. operating pressure	3kgf/cm ² (0.31MPa)	
Operating piston speed	8~100mm/s	
Ambient & fluid temperature	-10 ~ 70°C	
Working oil	Petroleum-based fluid	
Tolerance of thread	KS class 2	
Tolerance of stroke	0~+0.8mm	

Mass

Double Acting Single Rod Type

Unit : kg

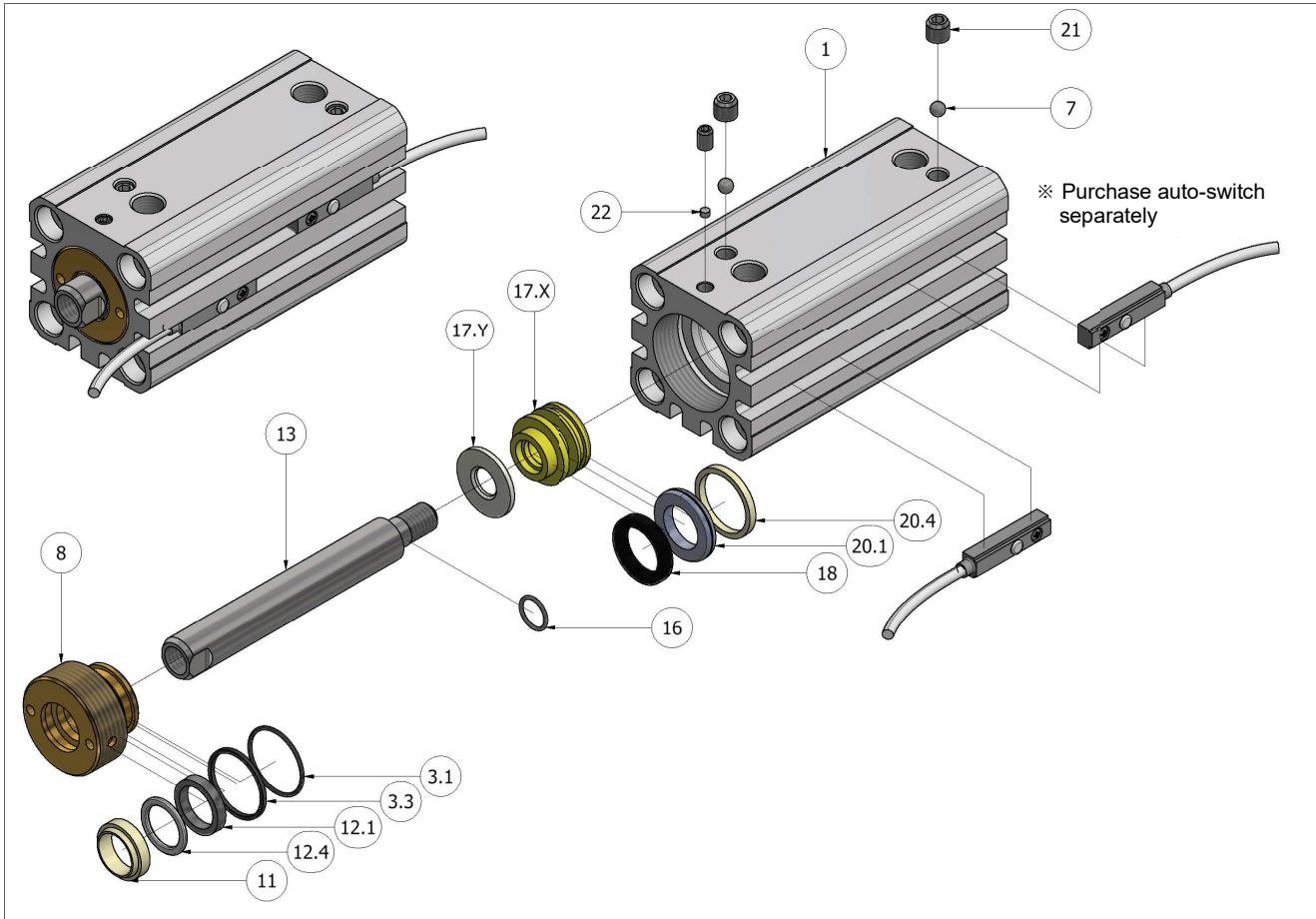
Type	Bore size	Stroke(mm)										Additional mass of male thread
		5	10	15	20	25	30	35	40	45	50	
Standard type	Ø20	0.29	0.28	0.30	0.32	0.35	0.37	0.39	0.41	0.43	0.45	0.02
	Ø25	0.41	0.40	0.43	0.45	0.48	0.51	0.54	0.56	0.59	0.62	0.03
	Ø32	0.68	0.72	0.77	0.81	0.86	0.90	0.94	0.99	1.03	1.08	0.05
	Ø40	0.90	0.95	1.01	1.07	1.12	1.18	1.24	1.29	1.35	1.41	0.10
	Ø50	1.35	1.43	1.50	1.58	1.65	1.73	1.81	1.88	1.96	2.03	0.18
	Ø63	2.10	2.21	2.31	2.42	2.52	2.63	2.74	2.84	2.95	3.05	0.40
	Ø80	3.87	4.02	4.18	4.34	4.49	4.65	4.81	4.96	5.12	5.28	0.76
With auto switch	Ø20	0.30	0.29	0.31	0.33	0.36	0.38	0.40	0.42	0.44	0.46	0.02
	Ø25	0.42	0.41	0.44	0.46	0.49	0.52	0.55	0.57	0.60	0.63	0.03
	Ø32	0.70	0.75	0.80	0.84	0.89	0.93	0.98	1.02	1.07	1.11	0.05
	Ø40	0.93	0.99	1.05	1.11	1.16	1.22	1.28	1.33	1.39	1.45	0.10
	Ø50	1.14	1.49	1.57	1.64	1.72	1.79	1.87	1.94	2.02	2.09	0.18
	Ø63	2.20	2.30	2.40	2.51	2.61	2.72	2.82	2.93	3.03	3.14	0.40
	Ø80	3.98	4.13	4.28	4.44	4.60	4.75	4.91	5.07	5.22	5.38	0.76

Double Acting Double Rod Type

Unit : kg

Type	Bore size	Stroke(mm)										Additional mass of male thread
		5	10	15	20	25	30	35	40	45	50	
Standard type	Ø20	0.40	0.40	0.43	0.45	0.48	0.50	0.53	0.55	0.58	0.60	0.04
	Ø25	0.57	0.56	0.59	0.62	0.65	0.70	0.72	0.75	0.78	0.81	0.06
	Ø32	1.06	1.11	1.17	1.22	1.28	1.33	1.39	1.44	1.50	1.55	0.10
	Ø40	1.37	1.44	1.51	1.58	1.65	1.72	1.79	1.86	1.93	2.00	0.20
	Ø50	2.00	2.09	2.19	2.29	2.39	2.49	2.59	2.69	2.79	2.89	0.36
	Ø63	3.03	3.17	3.32	3.46	3.61	3.75	3.90	4.04	4.19	4.33	0.80
	Ø80	5.58	5.79	6.01	6.23	6.44	6.66	6.88	7.09	7.31	7.53	1.52
With auto switch	Ø20	0.40	0.41	0.44	0.46	0.48	0.51	0.53	0.56	0.58	0.61	0.04
	Ø25	0.58	0.56	0.60	0.63	0.66	0.69	0.72	0.76	0.79	0.82	0.06
	Ø32	1.09	1.14	1.19	1.25	1.30	1.36	1.41	1.47	1.52	1.58	0.10
	Ø40	1.39	1.46	1.53	1.60	1.67	1.74	1.81	1.88	1.95	2.02	0.20
	Ø50	2.02	2.12	2.22	2.32	2.42	2.52	2.61	2.71	2.81	2.91	0.36
	Ø63	3.05	3.20	3.34	3.49	3.63	3.78	3.92	4.07	4.21	4.35	0.80
	Ø80	5.60	5.82	6.03	6.25	6.47	6.69	6.90	7.12	7.34	7.55	1.52

Structure



Part List

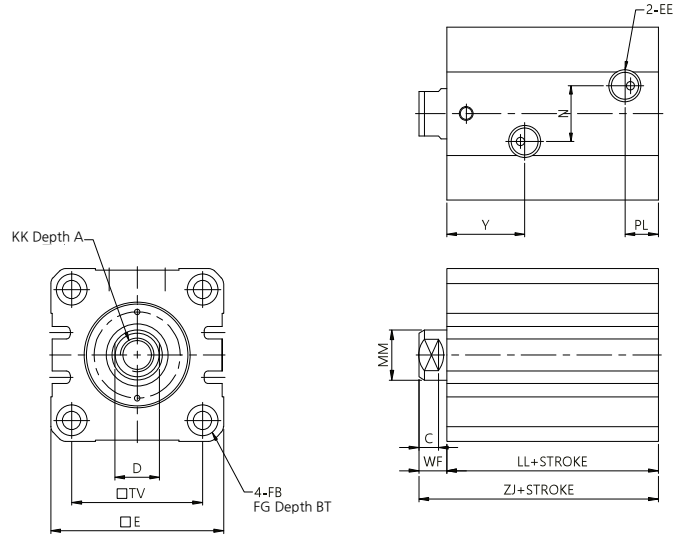
Part no.	Parts	Material	Quantity
1	TUBE	A2014	1
7	STEEL BALL	SUJ2	2
8	ROD COVER	C3604	1
13	ROD	SM45C	1
17.X	PISTON	STS304	1
17.Y	MAGNET HOLDER	STS304	1
21	SET SCREW	SCM435	3
22	SHIM	C3604	1

Packing List

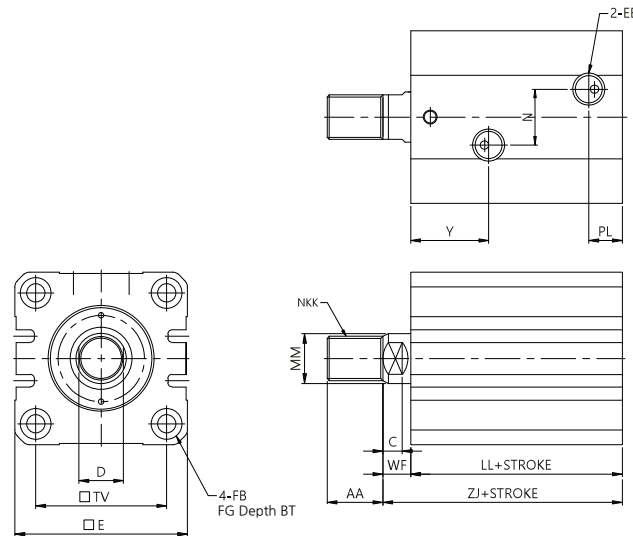
Part no.	3.1	3.3	11	12.1	12.4	16	18	20.1	20.4
Parts	O-RING FOR TUBE	B.U.R	DUST SEAL	ROD PACKING	B.U.R	O-RING FOR ROD	MAGNET	PISTON PACKING	WEAR RING
Material	NBR	PTFE	NBR	NBR	PTFE	NBR	SINTERD ALNICO	URETHANE +POLYKETON	POLYKETON
Quantity	1	1	1	1	1	1	1	1	1
Bore size									
20	1B-S18	FOR S18	SER-12	NMY-12	Ø12x16x1.2t	1B-S8	Ø19xØ14x3.5t	PSO-20	20x17x2t
25	1B-S22.4	FOR S22.4	SER-14	NMY-14	Ø14x18x1.2t	1B-S10	Ø24xØ18x3t	PSO-25	25x22x2t
32	1B-S29	FOR S29	LBH-18	NMY-18(KP125A) USH-18(KP160A)	Ø18x22x1.2t	1B-S12.5	Ø31.5xØ22x3t	PSO-32	32x29x3t
40	1B-G35	FOR G35	LBH-22	USH-22	FOR USH-22	1B-S18	Ø39.5x30x3t	PSQ-40	40x37x3t
50	1B-G45	FOR G45	LBH-28	USH-28	FOR USH-28	1B-S24	Ø49.5x38x3t	PSQ-50	50x47x4t
63	1B-G58	FOR G58	LBH-35	USH-35	FOR USH-35	1B-S28	Ø62.5xØ48x3t	PSQ-63	63x59x4t
80	1B-G75	FOR G75	LBH-45	USH-45	FOR USH-45	1B-S36	Ø79.5xØ68x3t	PSQ-80	80x76x5t

Dimensions-KP125A, 160A (Standard, Single)

Single(Female thread) / Bore size $\varnothing 20 \sim \varnothing 80$



Single(Male thread) / Bore size $\varnothing 20 \sim \varnothing 80$

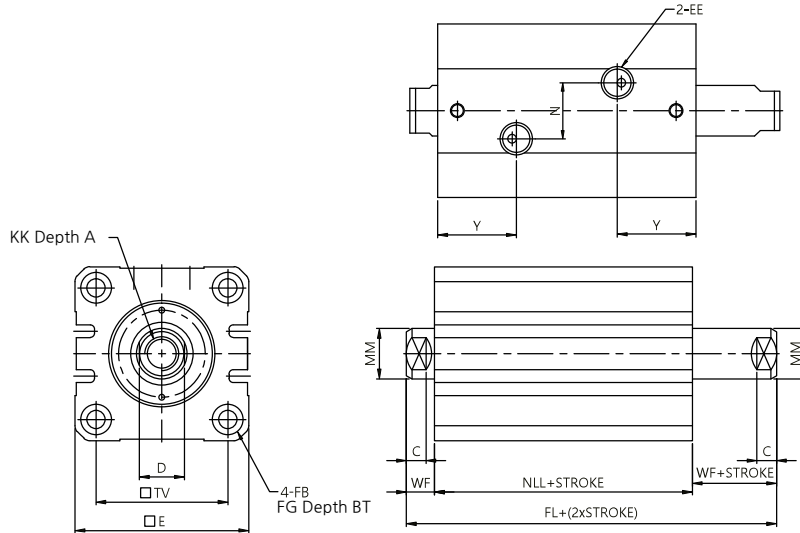


Unit : mm

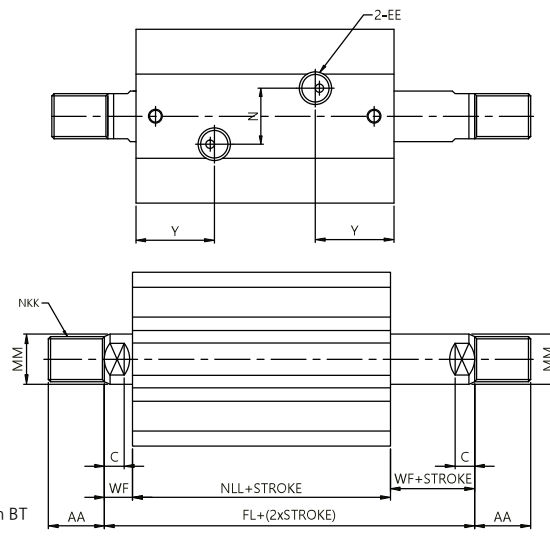
Bore size	Series	A	AA	BT	C	D	□E	EE	FB	FG	KK	LL	N	PL	MM	NKK	□TV	WF	Y	ZJ
φ20	KP125A	10	15	5.4	6	10	□44	Rc(PT)1/8	φ5.5	φ9.5	M8x1.25	43	6	10.5	φ12	M10x1.25	□30	8	18	51
	KP160A																			
φ25	KP125A	12	18	5.4	6	12	□50	Rc(PT)1/8	φ5.5	φ9.5	M10x1.5	45	12	12	φ14	M12x1.25	□36	8	20.5	53
	KP160A																			
φ32	KP125A	15	20	6.5	7	16	□62	Rc(PT)1/4	φ6.6	φ11	M12x1.75	54	20	12	φ18	M16x1.5	□47	10	28	64
	KP160A											56								66
φ40	KP125A	20	20	8.6	7	20	□70	Rc(PT)1/4	φ9	φ14	M16x2	55	20	12	φ22	M20x1.5	□52	10	27	65
	KP160A											65								15
φ50	KP125A	24	35	10.8	8	24	□80	Rc(PT)1/4	φ11	φ17.5	M20x2.5	60	20	12.5	φ28	M24x1.5	□58	11	28	71
	KP160A											70		17.5						34
φ63	KP125A	33	45	13	9	30	□94	Rc(PT)1/4	φ14	φ20	M27x3	67	20	13	φ35	M30x1.5	□69	13	30	80
	KP160A											77		18						90
φ80	KP125A	36	60	15.2	14	41	□114	Rc(PT)3/8	φ16	φ23	M30x3.5	78	30	18	φ45	M39x1.5	□86	17	35	95
	KP160A											88		25.5						105

Dimensions-KP125A (Standard, Double)

Double(Female thread) / Bore size $\varnothing 20 \sim \varnothing 80$



Double(Male thread) / Bore size $\varnothing 20 \sim \varnothing 80$

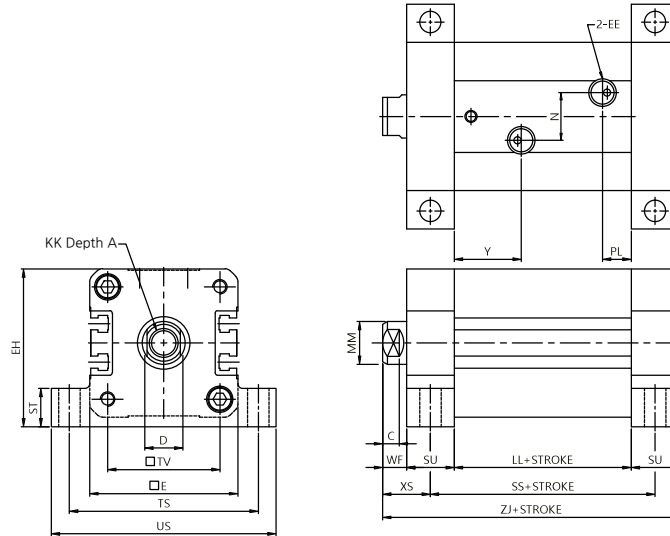


Unit : mm

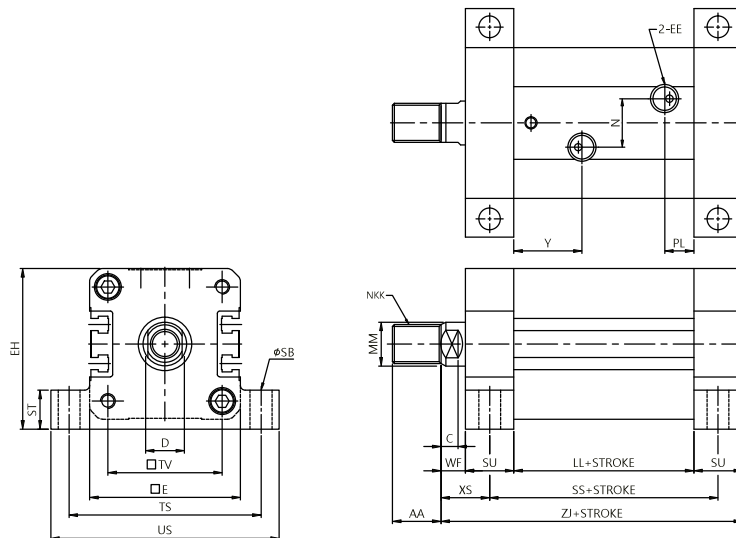
Bore size	A	AA	BT	C	D	□E	EE	FB	FG	KK	N	NLL	MM	NKK	□TV	WF	Y	FL
Φ20	10	15	5.4	6	10	□44	Rc(PT)1/8	Φ5.5	Φ9.5	M8x1.25	6	54	Φ12	M10x1.25	□30	8	18	70
Φ25	12	18	5.4	6	12	□50	Rc(PT)1/8	Φ5.5	Φ9.5	M10x1.5	12	56	Φ14	M12x1.25	□36	8	20.5	72
Φ32	15	20	6.5	7	16	□62	Rc(PT)1/4	Φ6.6	Φ11	M12x1.75	20	72	Φ18	M16x1.5	□47	10	28	92
Φ40	20	20	8.6	7	20	□70	Rc(PT)1/4	Φ9	Φ14	M16x2	20	72	Φ22	M20x1.5	□52	10	27	92
Φ50	24	35	10.8	8	24	□80	Rc(PT)1/4	Φ11	Φ17.5	M20x2.5	20	75	Φ28	M24x1.5	□58	11	28	97
Φ63	33	45	13	9	30	□94	Rc(PT)1/4	Φ14	Φ20	M27x3	20	82	Φ35	M30x1.5	□69	13	30	108
Φ80	36	60	15.2	14	41	□114	Rc(PT)3/8	Φ16	Φ23	M30x3.5	30	95	Φ45	M39x1.5	□86	17	35	129

Dimensions-KP125A, 160A (LA, Single)

Single(Female thread) / Bore size $\varnothing 20 \sim \varnothing 80$



Single(Male thread) / Bore size $\varnothing 20 \sim \varnothing 80$

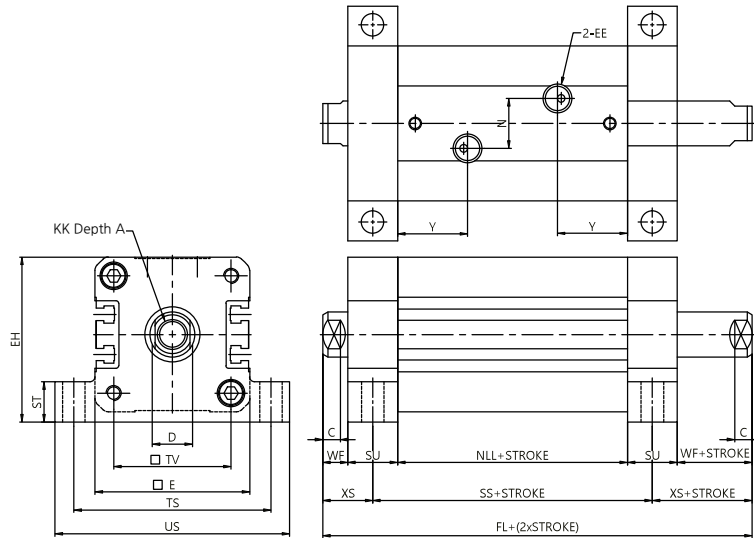


Unit : mm

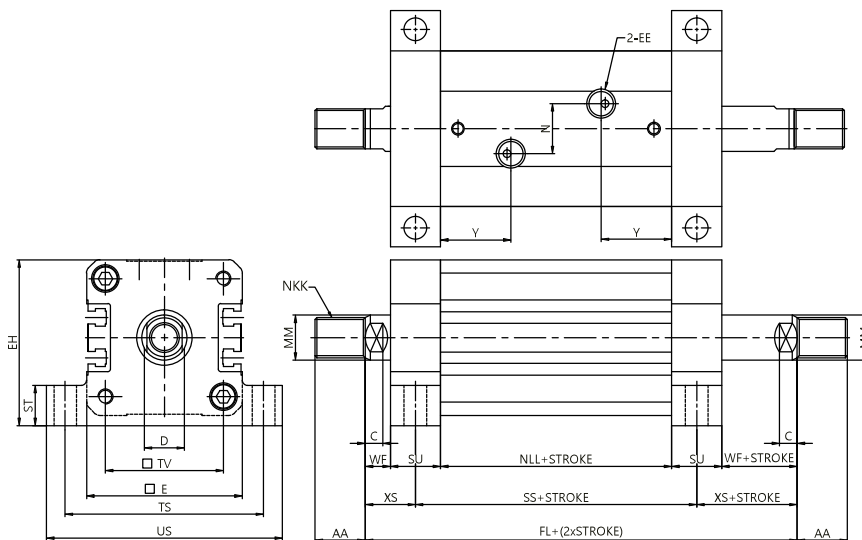
Bore size	Series	A	AA	C	D	□E	EE	KK	LL	N	PL	MM	NKK	□TV	WF	Y	ZJ	TS	US	SS	SU	XS	SB	ST	EH
ϕ20	KP125A	10	15	6	10	□44	Rc(PT)1/8	M8x1.25	43	6	10.5	ϕ12	M10x1.25	□30	8	18	81	58	70	58	15	15.5	6.6	12	46
	KP160A																								
ϕ25	KP125A	12	18	6	12	□50	Rc(PT)1/8	M10x1.5	45	12	12	ϕ14	M12x1.25	□36	8	20.5	83	64	76	60	15	15.5	6.6	12	52
	KP160A																								
ϕ32	KP125A	15	20	7	16	□62	Rc(PT)1/4	M12x1.75	54	20	12	ϕ18	M16x1.5	□47	10	28	104	79	94	74	20	20	9	16	66
	KP160A							56																	
ϕ40	KP125A	20	20	7	20	□70	Rc(PT)1/4	M16x2	55	20	12	ϕ22	M20x1.5	□52	10	27	105	90	108	75	20	20	11	20	72.5
	KP160A							65			15														
ϕ50	KP125A	24	35	8	24	□80	Rc(PT)1/4	M20x2.5	60	20	12.5	ϕ28	M24x1.5	□58	11	28	121	104	126	85	25	23.5	14	24	85
	KP160A							70			17.5														
ϕ63	KP125A	33	45	9	30	□94	Rc(PT)1/4	M27x3	67	20	13	ϕ35	M30x1.5	□69	13	30	130	121	146	92	25	25.5	16	30	97
	KP160A							77			18														
ϕ80	KP125A	36	60	14	41	□114	Rc(PT)3/8	M30x3.5	78	30	18	ϕ45	M39x1.5	□86	17	35	155	144	172	108	30	32	18	35	117
	KP160A							88			25.5														

Dimensions-KP125A (LA, Double)

Double(Female thread) / Bore size $\varnothing 20 \sim \varnothing 80$



Double(Male thread) / Bore size $\varnothing 20 \sim \varnothing 80$

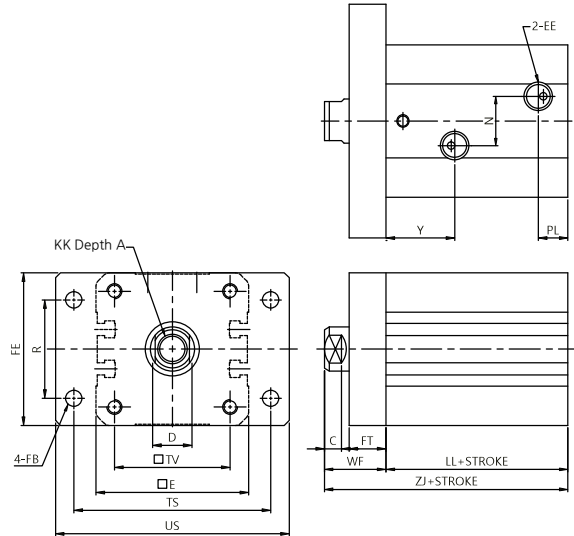


Unit : mm

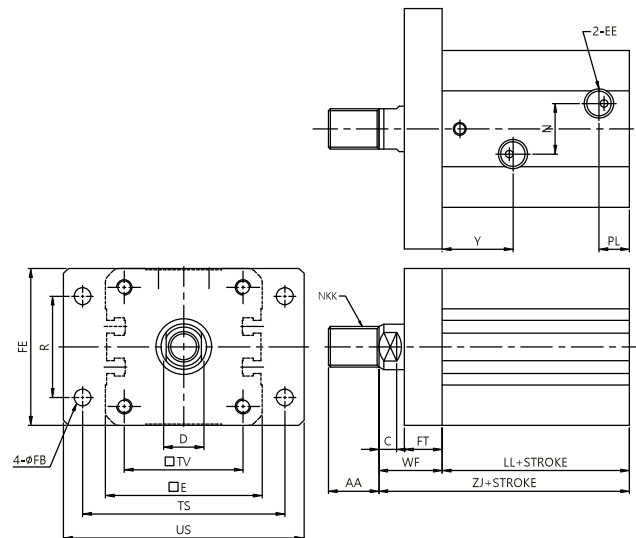
Bore size	A	AA	C	D	□E	EE	KK	N	NLL	MM	NKK	□TV	WF	Y	FL	ST	EH	SU	SS	XS
Φ20	10	15	6	10	□44	Rc(PT)1/8	M8x1.25	6	54	Φ12	M10x1.25	□30	8	18	100	12	46	15	69	15.5
Φ25	12	18	6	12	□50	Rc(PT)1/8	M10x1.5	12	56	Φ14	M12x1.25	□36	8	20.5	102	12	52	15	71	15.5
Φ32	15	20	7	16	□62	Rc(PT)1/4	M12x1.75	20	72	Φ18	M16x1.5	□47	10	28	132	16	66	20	92	20
Φ40	20	20	7	20	□70	Rc(PT)1/4	M16x2	20	72	Φ22	M20x1.5	□52	10	27	132	20	72.5	20	92	20
Φ50	24	35	8	24	□80	Rc(PT)1/4	M20x2.5	20	75	Φ28	M24x1.5	□58	11	28	147	24	85	25	100	23.5
Φ63	33	45	9	30	□94	Rc(PT)1/4	M27x3	20	82	Φ35	M30x1.5	□69	13	30	158	30	97	25	107	23.5
Φ80	36	60	14	41	□114	Rc(PT)3/8	M30x3.5	30	95	Φ45	M39x1.5	□86	17	35	189	35	117	30	125	32

Dimensions-KP125A, 160A (FA, Single)

Single(Female thread) / Bore size Ø20 ~ Ø80



Single(Male thread) / Bore size Ø20 ~ Ø80

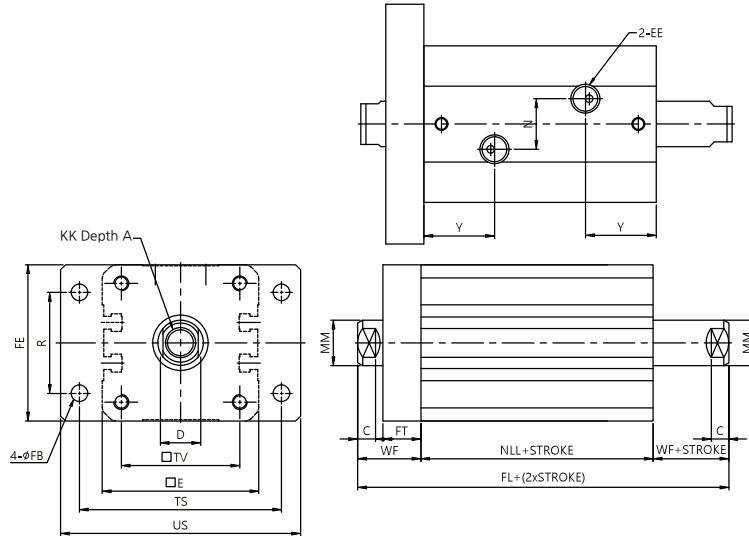


Unit : mm

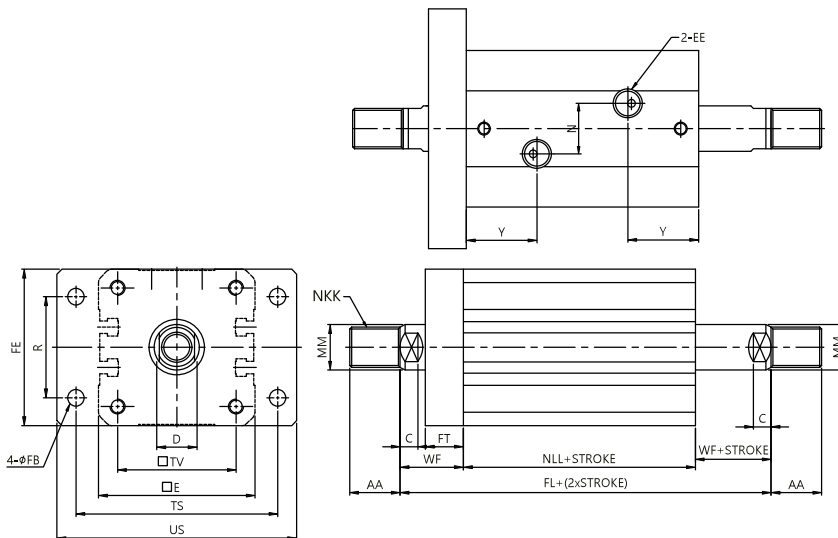
Bore size	Series	A	AA	C	D	□E	EE	KK	LL	N	PL	MM	NKK	□TV	WF	Y	ZJ	TS	US	FB	FT	R	FE
Ø20	KP125A	10	15	6	10	□44	Rc(PT)1/8	M8x1.25	43	6	10.5	Φ12	M10x1.25	□30	8	18	61	60	75	5.5	10	30	46
	KP160A																						
Ø25	KP125A	12	18	6	12	□50	Rc(PT)1/8	M10x1.5	45	12	12	Φ14	M12x1.25	□36	8	20.5	63	66	80	5.5	10	36	52
	KP160A																						
Ø32	KP125A	15	20	7	16	□62	Rc(PT)1/4	M12x1.75	54	20	12	Φ18	M16x1.5	□47	10	28	79	80	95	6.6	15	40	62
	KP160A							56	81														
Ø40	KP125A	20	20	7	20	□70	Rc(PT)1/4	M16x2	55	20	12	Φ22	M20x1.5	□52	10	27	85	96	118	11	20	46	70
	KP160A							65	15		95												
Ø50	KP125A	24	35	8	24	□80	Rc(PT)1/4	M20x2.5	60	20	12.5	Φ28	M24x1.5	□58	11	28	91	108	135	14	20	58	85
	KP160A							70	17.5		101												
Ø63	KP125A	33	45	9	30	□94	Rc(PT)1/4	M27x3	67	20	13	Φ35	M30x1.5	□69	13	30	100	124	150	14	20	65	98
	KP160A							77	18		110												
Ø80	KP125A	36	60	14	41	□114	Rc(PT)3/8	M30x3.5	78	30	18	Φ45	M39x1.5	□86	17	35	120	154	185	18	25	87	118
	KP160A							88	25.5		130												

Dimensions-KP125A (FA, Double)

Double(Female thread) / Bore size $\varnothing 20 \sim \varnothing 80$



Double(Male thread) / Bore size $\varnothing 20 \sim \varnothing 80$



Unit : mm

Bore size	A	AA	C	D	□E	EE	KK	N	NLL	MM	NKK	□TV	WF	Y	FL	TS	US	R	FE	FB	FT
φ20	10	15	6	10	□44	Rc(PT)1/8	M8x1.25	6	54	φ12	M10x1.25	□30	8	18	70	60	75	30	46	5.5	10
φ25	12	18	6	12	□50	Rc(PT)1/8	M10x1.5	12	56	φ14	M12x1.25	□36	8	20.5	72	66	80	36	52	5.5	10
φ32	15	20	7	16	□62	Rc(PT)1/4	M12x1.75	20	72	φ18	M16x1.5	□47	10	28	92	80	95	40	62	6.6	15
φ40	20	20	7	20	□70	Rc(PT)1/4	M16x2	20	72	φ22	M20x1.5	□52	10	27	92	96	118	46	70	11	20
φ50	24	35	8	24	□80	Rc(PT)1/4	M20x2.5	20	75	φ28	M24x1.5	□58	11	28	97	108	135	58	85	14	20
φ63	33	45	9	30	□94	Rc(PT)1/4	M27x3	20	82	φ35	M30x1.5	□69	13	30	108	124	150	65	98	14	20
φ80	36	60	14	41	□114	Rc(PT)3/8	M30x3.5	30	95	φ45	M39x1.5	□86	17	35	129	154	185	87	118	18	25

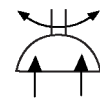
KP35R series



Features

- Rack-and-pinion rotary cylinder.
- Rotary cylinder for 35kgf/cm² with bore sizes from Ø32 to Ø80.
- The rotating angle can be adjusted with a range of ±5°
- Various mounting styles available. (SD, FA, FB)

Symbol



How to Order

KP35R - ① ② ③ ④ - ⑤ ⑥ ⑦

① Series

KP35R	Rotary cylinder (35kgf/cm ²)
-------	--

④ Bore size

32	Ø32
40	Ø40
50	Ø50
63	Ø63
80	Ø80

⑦ Cushion valve position

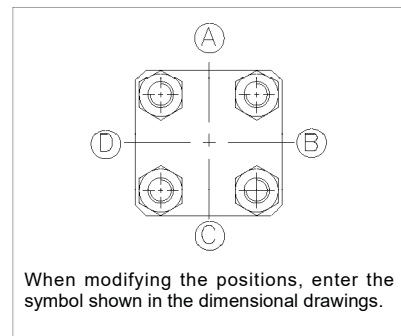
Nil	B (Standard)
A,C,D	Refer to figure below

② Type

Nil	Standard
H	With magnet

⑤ Rotating angle

90	90°
180	180°



③ Mounting style

SD	Standard
FA	Top flange
FB	Bottom flange

⑥ Port position

Nil	A (Standard)
B,C,D	Refer to figure below

Specifications

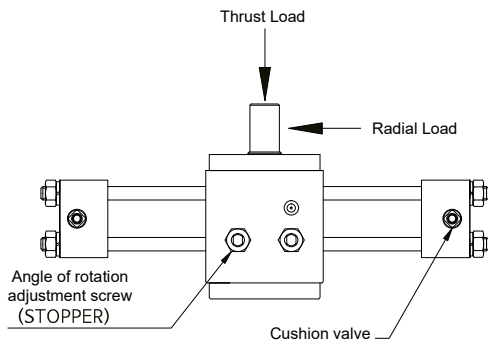
Type	KP35R
Bore size	Ø32, Ø40, Ø50, Ø63, Ø80
Variation	Rack and pinion type
Rotating angle	90°, 180°
Angle adjustment	±5°
Rated torque (at 35kgf/cm ²)	Ø32:60N·m, Ø40:106N·m, Ø50:220N·m, Ø63:436N·m, Ø80:840N·m,
Max. operating pressure	35kgf/cm ² (3.6MPa)
Proof pressure	50kgf/cm ² (5.1MPa)
Min. operating pressure	5kgf/cm ² (0.51MPa)
Ambient & fluid temperature	10 ~ 60°C
Working oil	Petroleum-based fluid
Tolerance of thread	KS class 2
Mounting style	SD, FA, FB

Volume of Fluid Required for Rotation

Unit : ml

Rotating angle / Bore size (mm)	90°	180°
Ø32	28.3	53.4
Ø40	51.9	99.5
Ø50	104.3	202.6
Ø63	203.8	399.9
Ø80	410.5	788.3

Precautions



Allowable Radial and Thrust Loads

Bore size(mm)	Radial Load	Thrust Load
Ø32	70	40
Ø40	145	80
Ø50	190	110
Ø63	250	150
Ø80	300	180

- ※ Avoid from applying a greater load (than those listed above) directly to the rod.
- ※ At the rotating end of the rotary actuator, bring the shaft into contact with the rotation angle adjusting screw under the condition of sufficient cushioning effect.
- ※ If the cushion is not effective, the rotation angle adjusting screw may be damaged.
- ※ When using without shock absorber, be sure to use a cushion and shock absorber as the rack, pinion or stop key may be damaged.
- ※ Remove the low-pressure air from the cylinder and slowly increase the pressure to the operating pressure.

Mass

Unit : kg

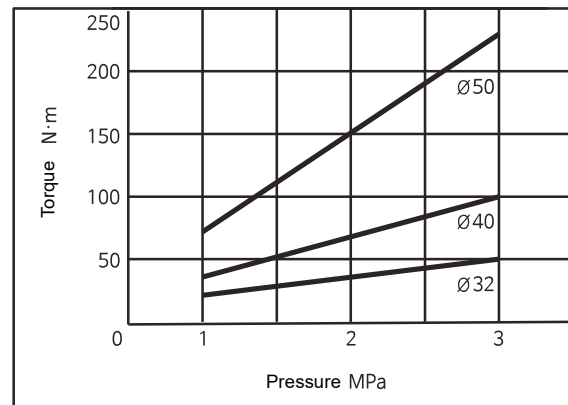
Bore size	Basic mass(SD)	Mounting mass
	Standard	FA, FB
Ø32-90°	5.0	0.94
Ø32-180°	5.2	
Ø40-90°	8.8	1.57
Ø40-180°	9.2	
Ø50-90°	13.9	2.09
Ø50-180°	14.7	
Ø63-90°	24.2	3.56
Ø63-180°	25.8	
Ø80-90°	41.0	6.54
Ø80-180°	44.1	

<Calculation>

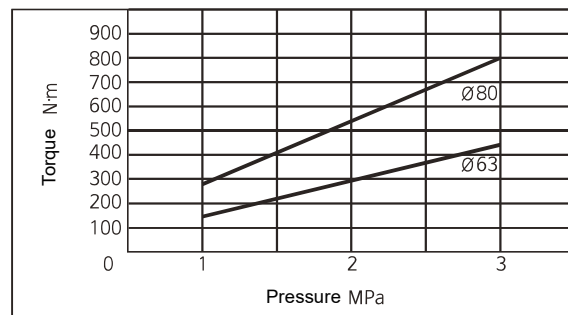
Ex.) KP35R-1 FA40-180
 Basic mass: 9.2
 FA mounting: 1.57
 9.2 + 1.57 = 10.77kg

Theoretical Output Torque Charts

Bore size Ø32, Ø40, Ø50



Bore size Ø63, Ø80



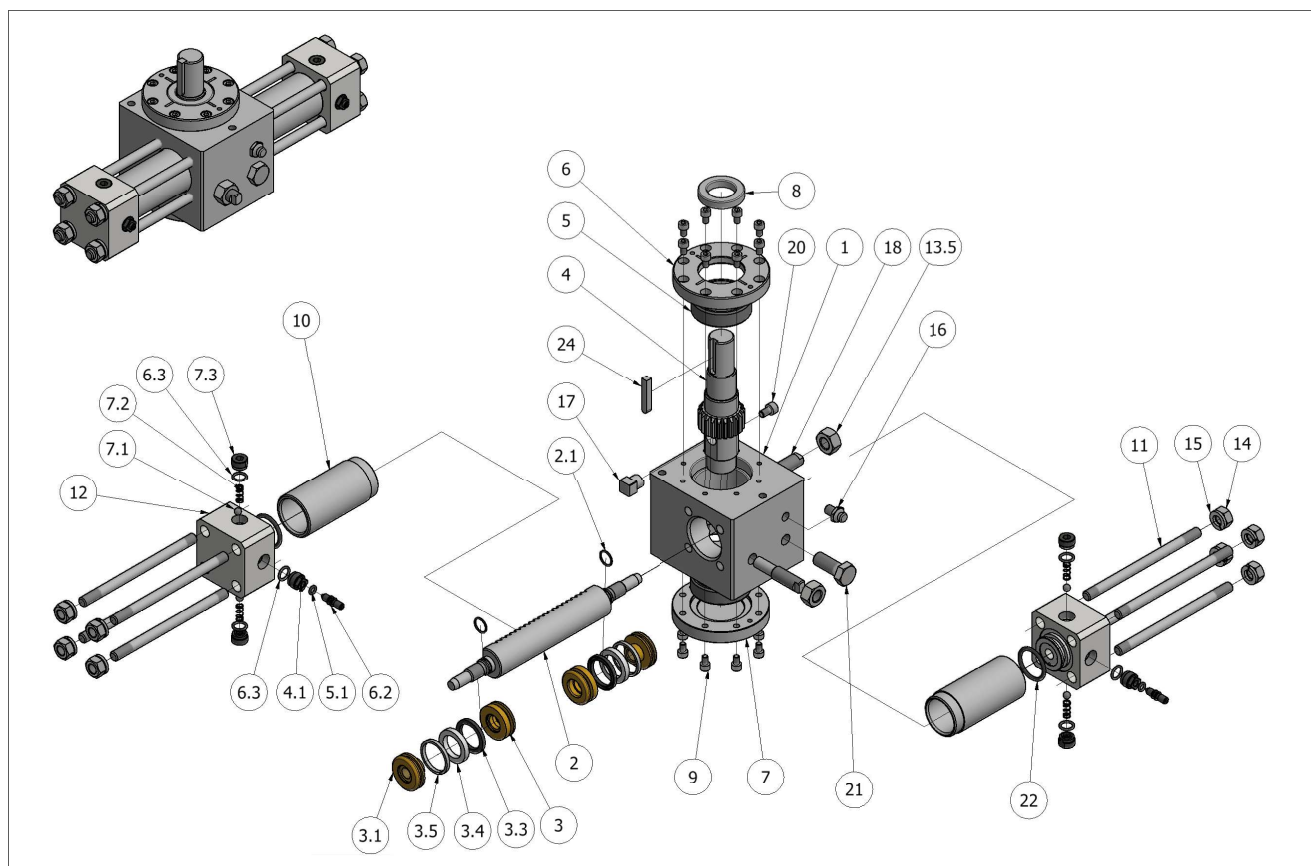
※ 1MPa=10.2kgf/cm², 100N·m=10.2kgf·m

How to Read the Graph

If the operating pressure is 2MPa and the required torque is 400N·m, find the point where the pressure intersects the vertical axis and the horizontal axis of the torque. Select the cylinder Ø80 (cylinder bore) above the intersection.

Note) Determine the effective torque based on the following data.
 When the inertia force is low: 60-80%
 When the inertia force is high: 25-35%

Structure



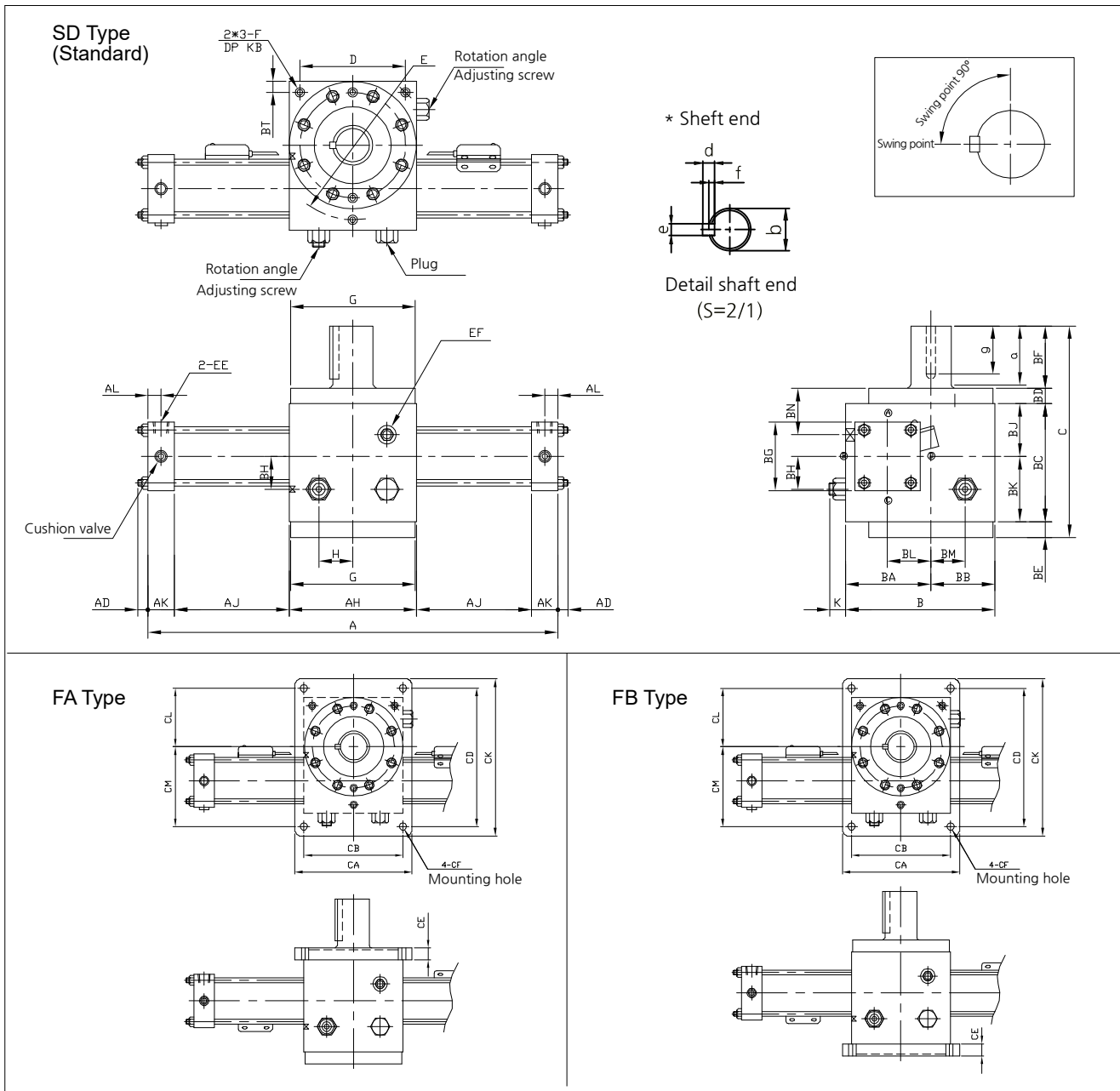
Part List

Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity
1	BASE	SS400	1	8	OIL SEAL	NBR	1
2	RACK GEAR	SCM440	1	9	WRENCH BOLT	SCM435	16
3	PISTON	BC6	2	10	TUBE	STKM13C / STS304	2
3.1	MAGNET HOLDER	BC6	2	11	TIE ROD	SM45C	8
3.2	PISTON (ALL-IN-ONE)	SM45C	1	12	HEAD COVER	SS400	2
3.4	MAGNET	PLASTIC	2	13.5	HEX NUT	SM45C	2
4	PINION GEAR	SCM440	1	14	NUT for TIE ROD	SM45C	8
4.1	CUSHION NEEDLE	SUM24L	2	15	WASHER for COVER	SWRH	8
5	BEARING	-	2	16	GREASE NIPPLE	BRASS	1
6	TOP COVER	SM45C	1	17	STOPPER KEY	SM45C	1
6.2	CUSHION BODY	SUM24L	2	18	90° ADJUSTING BOLT	SM45C	2
7	CAP COVER	SM45C	1	20	WRENCH BOLT	SCM435	1
7.1	STEEL BALL	SUJ2	4	21	HEX BOLT	SCM435	1
7.2	SPRING for CHEAK	SUP	4	24	KEY	SM45C	1
7.3	CHECK BODY	SUM42L	4				

Packing List

Part no.	Parts	Material	Quantity	Bore size				
				Ø32	Ø40	Ø50	Ø63	Ø80
2.1	O-RING for RACK GEAR	NBR	2	1A-S12.5	1A-P14	1A-P18	1B-P22A	1A-P29
3.3	PISTON PACKING	NBR	2	OMKMR(32×24.5×3.2)	USH30×40×6	USH 40×50×6	USH 53×63×6	USH 70×80×6
3.5	WEAR RING	NBR	2	-	40×35×10W	50×45×10W	63×58×10W	80×75×10W
5.1	O-RING for CUSHION NEEDLE	NBR	2	1B-P5	1B-P5	1B-P5	1B-P5	1B-P6
6.3	O-RING for C.B	NBR	6	1B-P10	1B-P10	1B-P10	1B-P10	1B-P11
22	O-RING for TUBE	NBR	2	1B-P26/1B-G30	1B-G35	1B-G45	1B-G58	1B-G75

Dimensions-Rotating Angle 90°

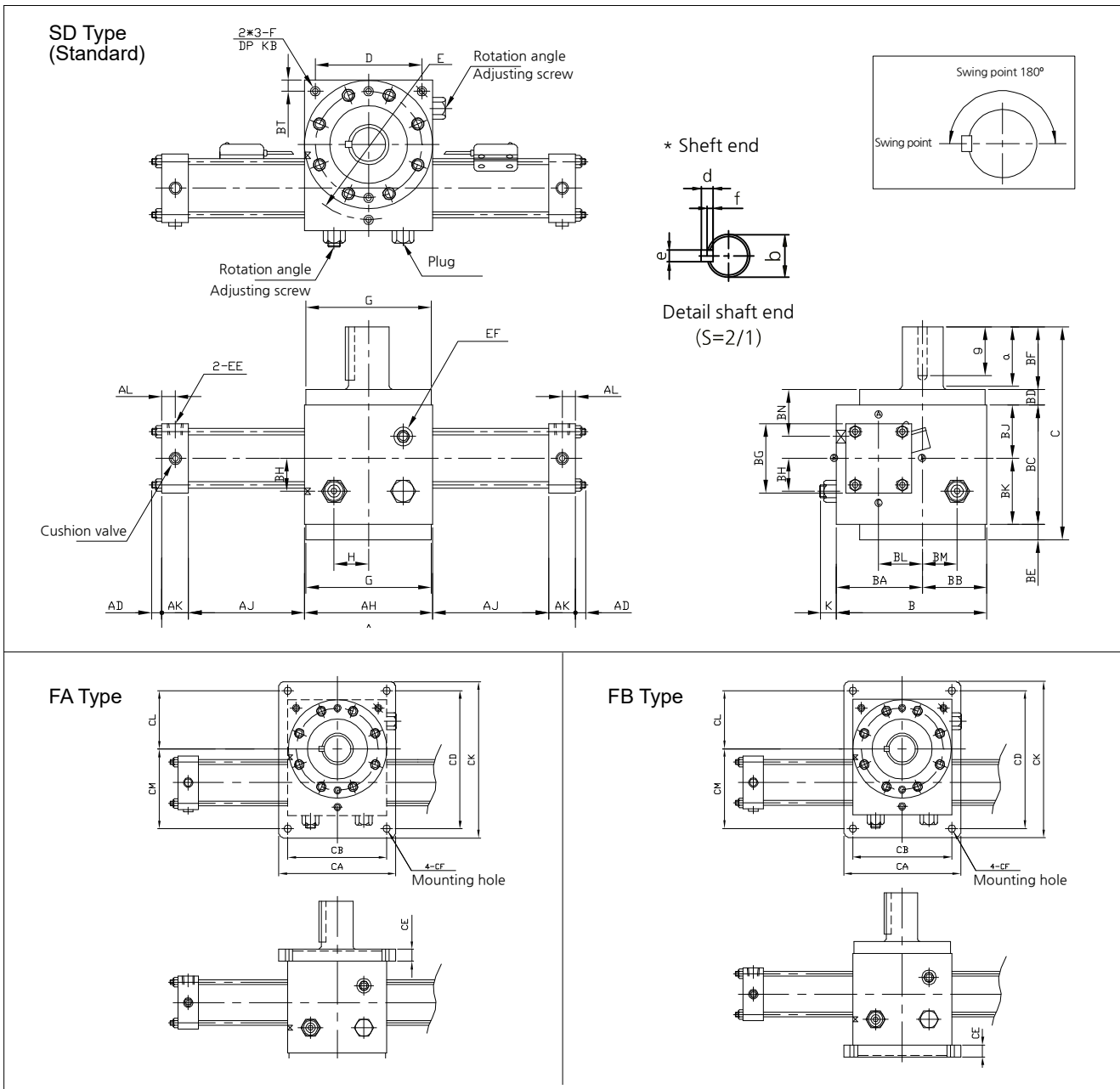


Unit : mm

Bore size	A	AD	AH	AJ	AK	AL	B	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL	BM	BN	BT	C	CA	CB	CD
Ø32	307	14	88	73.5	36	13	102	58	44	84	12	12	38	□58	16	36	48	24	20	28	8.2	146	105	85	125
Ø40	324	15	106	78	31	13	125	72	53	97	13	14	60	□65	21	43	54	30	27	30	9.9	184	125	100	150
Ø50	377	15	120	93.5	35	15	140	80	60	112	15	15	60	□76	33	50	62	40	33	35	10.9	202	145	120	170
Ø63	446	17	144	116	35	15	168	96	72	133	14	16	84	□90	38	60	73	50	40	40	13.7	247	175	140	210
Ø80	504	23	168	127	41	18	200	116	84	156	18	20	84	□110	48	68	88	59	43	40	15	278	210	170	250

Bore size	CE	CF	CK	CL	CM	D	E	EE	EF	F	G	H	K	KB	Shaft end					
															a	b	d	e	f	g
Ø32	12	Ø9	145	55	70	71.4	101	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø83h7	20	10	20	36	Ø22h7	6	6	3	32
Ø40	15	Ø9	180	65	85	86.2	122	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø104h7	27	12	20	58	Ø30h7	7	8	4	50
Ø50	16	Ø11	195	75	95	98.3	139	Rc(PT)1/2	Rc(PT)1/4	M10×P1.5	Ø117h7	33	14	18	58	Ø38h7	8	10	5	50
Ø63	18	Ø14	240	90	120	116.7	165	Rc(PT)1/2	Rc(PT)1/4	M12×P1.75	Ø140h7	40	16	18	82	Ø50h7	9	14	5.5	70
Ø80	22	Ø16	290	110	140	137.9	195	Rc(PT)3/4	Rc(PT)1/4	M16×P2.0	Ø164h7	43	19	21	82	Ø55h7	10	16	6	70

Dimensions-Rotating Angle 180°

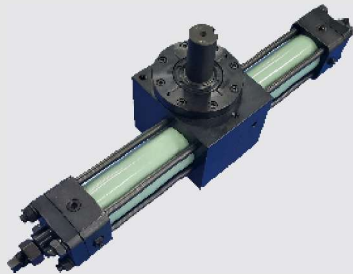


Unit : mm

Bore size	A	AD	AH	AJ	AK	AL	B	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL	BM	BN	BT	C	CA	CB	CD
Ø32	382	14	88	111	36	13	102	58	44	84	12	12	38	□58	16	36	48	24	20	28	8.2	146	105	85	125
Ø40	405	15	106	120.5	31	13	125	72	53	97	13	14	60	□65	21	43	54	30	27	30	9.9	184	125	100	150
Ø50	482	15	120	146	35	15	140	80	60	112	15	15	60	□76	33	50	62	40	33	35	10.9	202	145	120	170
Ø63	578	17	144	182	35	15	168	96	72	133	14	16	84	□90	38	60	73	50	40	40	13.7	247	175	140	210
Ø80	644	23	168	197	41	18	200	116	84	156	18	20	84	□110	48	68	88	59	43	40	15	278	210	170	250

Bore size	CE	CF	CK	CL	CM	D	E	EE	EF	F	G	H	K	KB	RN	UX	Shaft end					
																	a	b	d	e	f	g
Ø32	12	Ø9	145	55	70	71.4	101	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø83h7	20	10	20	7	23	36	Ø22h7	6	6	3	32
Ø40	15	Ø9	180	65	85	86.2	122	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø104h7	27	12	20	6	27	58	Ø30h7	7	8	4	50
Ø50	16	Ø11	195	75	95	98.3	139	Rc(PT)1/2	Rc(PT)1/4	M10×P1.5	Ø117h7	33	14	18	6	30	58	Ø38h7	8	10	5	50
Ø63	18	Ø14	240	90	120	116.7	165	Rc(PT)1/2	Rc(PT)1/4	M12×P1.75	Ø140h7	40	16	18	4	39	82	Ø50h7	9	14	5.5	70
Ø80	22	Ø16	290	110	140	137.9	195	Rc(PT)3/4	Rc(PT)1/4	M16×P2.0	Ø164h7	43	19	21	3	40	82	Ø55h7	10	16	6	70

KP70R series



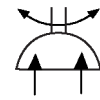
Features

- Rack-and-pinion rotary cylinder.
- Improved stopper durability by side stopper method.
- It can use for high output with commercial pressure increase (35bar -> 70bar).
- Applicable in a compact space.

ex) KP35R-Ø40 Output: 440Kgf
 KP70R-Ø32 Output: 563Kgf

It is possible to design compact in space compared to output.

Symbol



How to Order

KP70R - H FA 40 - 90

① ② ③ ④ ⑤ ⑥ ⑦

① Series

KP70R	Rotary cylinder	70kgf/cm ²
-------	-----------------	-----------------------

② Type

Nil	Standard
H	With magnet

③ Mounting style

SD	Standard
FA	Top flange
FB	Bottom flange

④ Bore size

32	Ø32
40	Ø40
50	Ø50
63	Ø63
80	Ø80

⑤ Rotating angle

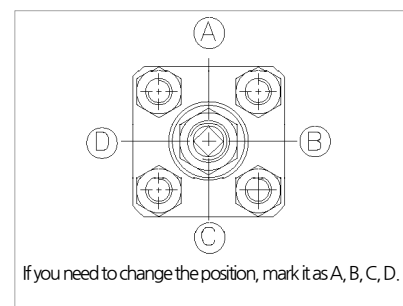
90	90°
180	180°

⑥ Port position

Nil	A (Standard)
B,C,D	Refer to figure below

⑦ Cushion valve position

Nil	B (Standard)
A,C,D	Refer to figure below



Specifications

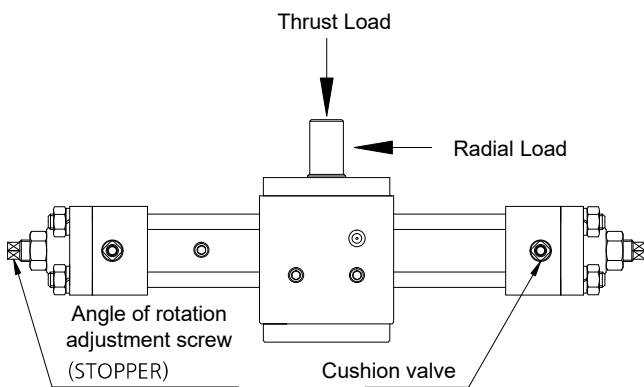
Type	KP70R
Bore size	Ø32, Ø40, Ø50, Ø63, Ø80
Variation	Rack and pinion type
Rotating angle	90°, 180°
Angle adjustment	±5°
Rated torque (at 70kgf/cm ²)	Ø32:210N·m, Ø40:490N·m, Ø50:1020N·m, Ø63:2000N·m, Ø80:3700N·m
Max. operating pressure	69.8kgf/cm ² (7MPa)
Proof pressure	99.8kgf/cm ² (10MPa)
Min. operating pressure	5kgf/cm ² (0.5MPa)
Ambient & fluid temperature	10 ~ 60°C
Working oil	Petroleum-based fluid
Tolerance of thread	KS class 2
Mounting style	SD, FA, FB

Volume of Fluid Required for Rotation

Unit : ml

Rotating angle Bore size (mm)	90°	180°
Ø32	28.3	53.4
Ø40	51.9	99.5
Ø50	104.3	202.6
Ø63	203.8	399.9
Ø80	410.5	788.3

Precautions



Allowable Radial and Thrust Loads

Load(kgf)	Radial Load	Thrust Load
Bore size(mm)		
Ø32	70	40
Ø40	145	80
Ø50	190	110
Ø63	250	150
Ø80	300	180

- ※ Avoid from applying a greater load (than those listed above) directly to the rod.
- ※ At the rotating end of the rotary actuator, bring the shaft into contact with the rotation angle adjusting screw under the condition of sufficient cushioning effect.
- ※ If the cushion is not effective, the rotation angle adjusting screw may be damaged.
- ※ When using without shock absorber, be sure to use a cushion and shock absorber as the rack, pinion or stop key may be damaged.
- ※ Remove the low-pressure air from the cylinder and slowly increase the pressure to the operating pressure.

Mass

Unit : kg

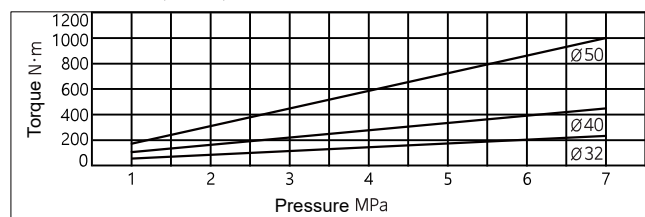
Bore size	Basic mass(SD)	Mounting mass
	Standard	FA, FB
Ø32-90°	6.4	0.94
Ø32-180°	6.6	
Ø40-90°	10.3	1.57
Ø40-180°	10.7	
Ø50-90°	16.6	2.09
Ø50-180°	17.4	
Ø63-90°	28.8	3.56
Ø63-180°	30.4	
Ø80-90°	47.5	6.54
Ø80-180°	50.6	

<Calculation>

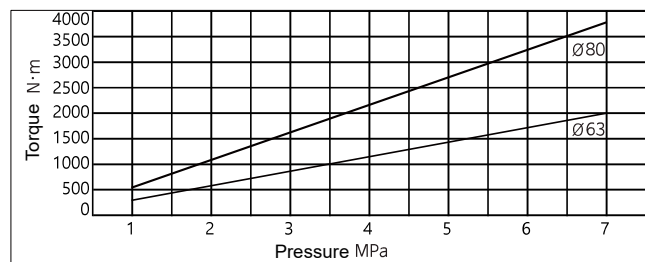
例) KP70R-1FA40-180
 Basic mass: 10.7
 FA mounting: 1.57
 10.7 + 1.57 = 12.27kg

Theoretical Output Torque Charts

Bore size Ø32, Ø40, Ø50



Bore size Ø63, Ø80



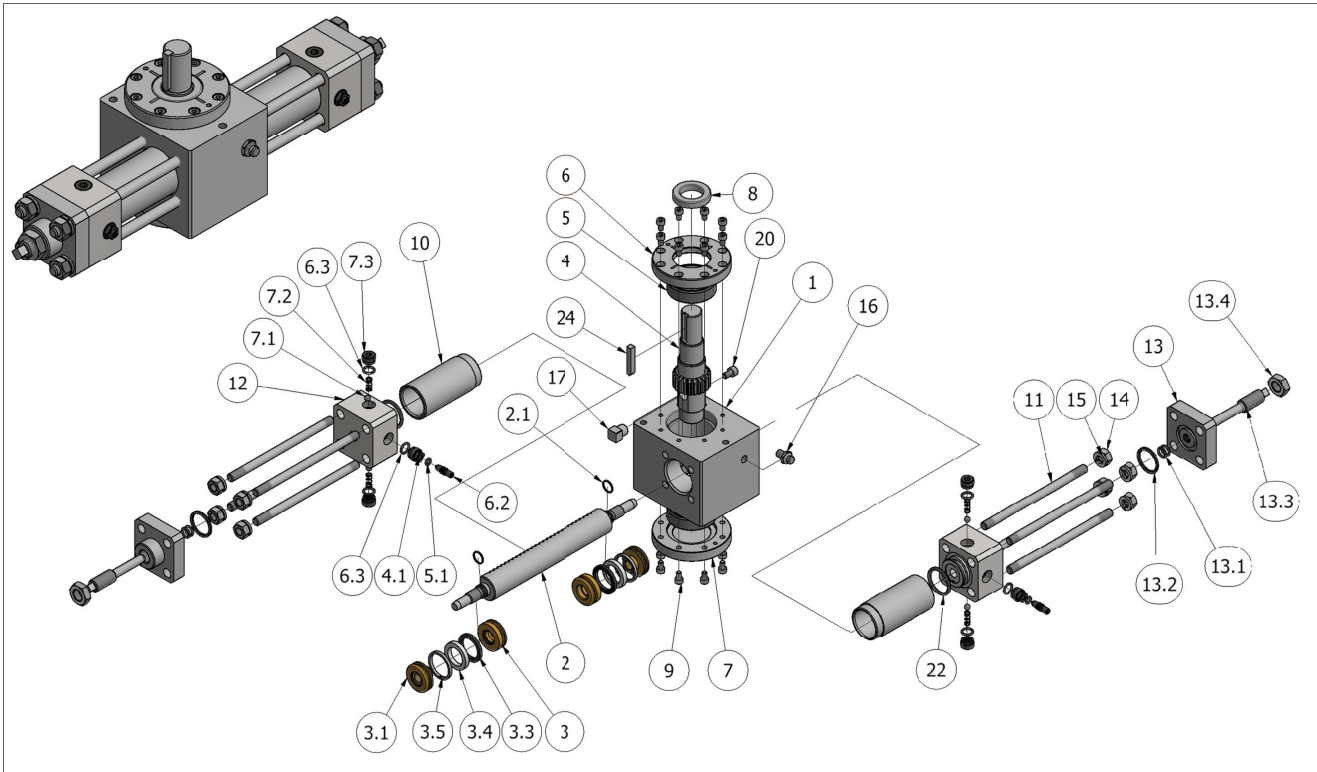
※ 1MPa=10.2kgf/cm², 100N·m=10.2kgf·m

How to Read the Graph

If the operating pressure is 2MPa and the required torque is 400N·m, find the point where the pressure intersects the vertical axis and the horizontal axis of the torque. Select the cylinder Ø80 (cylinder bore) above the intersection.

Note) Determine the effective torque based on the following data.
 When the inertia force is low: 60-80%
 When the inertia force is high: 25-35%

Structure



Part List

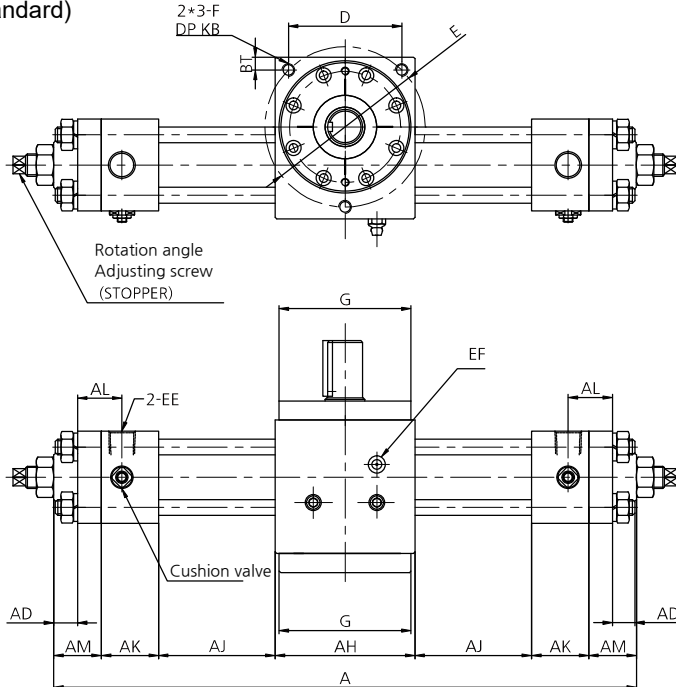
Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity
1	BASE	SS400	1	8	OIL SEAL	NBR	1
2	RACK GEAR	SCM440	1	9	WRENCH BOLT	SCM435	16
3	PISTON	BC6	2	10	TUBE	STKM13C / STS304	2
3.1	MAGNET HOLDER	BC6	2	11	TIE ROD	SM45C	8
3.2	PISTON (일체형)	SM45C	1	12	HEAD COVER	SS400	2
3.4	MAGNET	PLASTIC	2	13	STOPPER COVER	SS400	2
4	PINION GEAR	SCM440	1	13.3	STOPPER	SM45C	2
4.1	CUSHION NEEDLE	SUM24L	2	13.4	HEX NUT for STOPPER	SM45C	2
5	BEARING	-	2	14	NUT for TIE ROD	SM45C	8
6	TOP COVER	SM45C	1	15	WASHER for COVER	SWRH	8
6.2	CUSHION BODY	SUM24L	2	16	GREASE NIPPLE	BRASS	1
7	CAP COVER	SM45C	1	17	STOPPER KEY	SM45C	1
7.1	STEEL BALL	SUJ2	4	20	WRENCH BOLT	SCM435	1
7.2	SPRING for CHEAK	SUP	4	24	KEY	SM45C	1
7.3	CHECK BODY	SUM42L	4				

Packing List

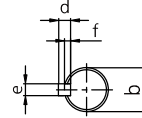
Part no.	Parts	Material	Quantity	Bore size				
				Ø32	Ø40	Ø50	Ø63	Ø80
2.1	O-RING for RACK GEAR	NBR	2	1A-S12.5	1A-P14	1A-P18	1B-P22A	1A-P29
3.3	PISTON PACKING	NBR	2	OMKMR(32x24.5x3.2)	USH30x40x6	USH 40x50x6	USH 53x63x6	USH 70x80x6
3.5	WEAR RING	NBR	2	-	40x35x10W	50x45x10W	63x58x10W	80x75x10W
5.1	O-RING for CUSHION NEEDLE	NBR	2	1B-P5	1B-P5	1B-P5	1B-P5	1B-P6
6.3	O-RING for C.B	NBR	6	1B-P10	1B-P10	1B-P10	1B-P10	1B-P11
13.1	O-RING(IN) for STOPPER	NBR	2	1B-P9	1B-P9	1B-P14	1B-P16	1B-P20
13.2	O-RING(SIDE) for STOPPER	NBR	2	1B-G25	1B-G30	1B-G30	1B-G30	1B-G35
22	O-RING for TUBE	NBR	2	1B-P26/1B-G30	1B-G35	1B-G45	1B-G58	1B-G75

Dimensions-Rotating Angle 90°

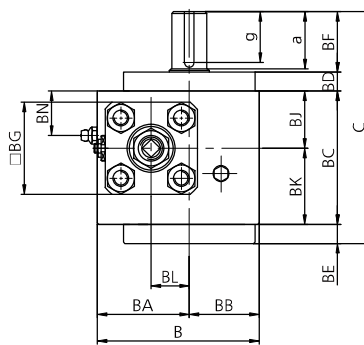
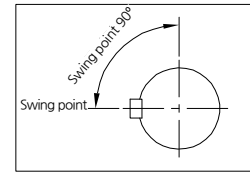
SD Type (Standard)



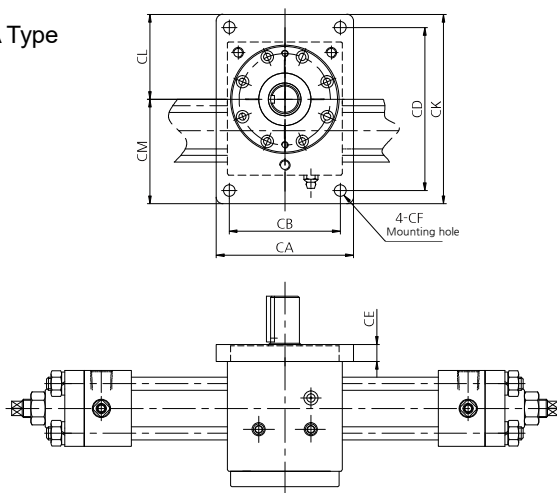
* Sheft end



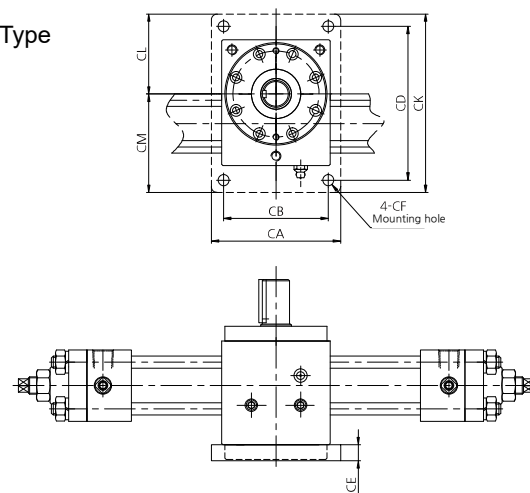
Detail shaft end (S=2/1)



FA Type



FB Type



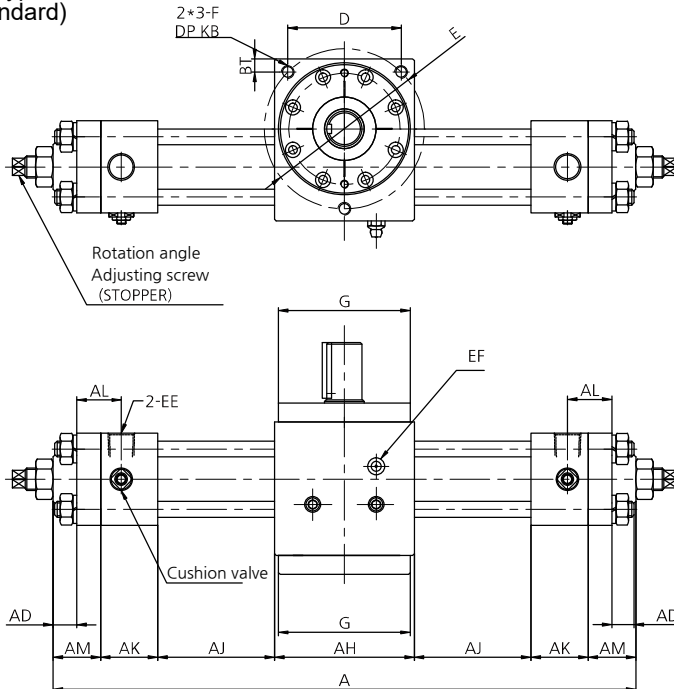
Unit : mm

Bore size	A	AD	AH	AJ	AK	AL	AM	B	BA	BB	BC	BD	BE	BF	BG	BJ	BK	BL	BN	BT	C	CA	CB	CD
Ø32	367	14	88	73.5	36	28	30	102	58	44	84	12	12	38	□58	36	48	24	28	8.2	146	105	85	125
Ø40	388	15	106	78	31	28	32	125	72	53	97	13	14	60	□65	43	54	30	30	9.9	184	125	100	150
Ø50	453	15	120	93.5	35	38	38	140	80	60	112	15	15	60	□76	50	62	40	35	10.9	202	145	120	170
Ø63	550	17	144	116	35	49	58	168	96	72	133	14	16	84	□90	60	73	50	40	13.7	247	175	140	210
Ø80	603	23	168	127	41	49.5	49.5	200	116	84	156	18	20	84	□110	68	88	59	40	15	278	210	170	250

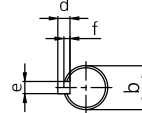
Bore size	CE	CF	CK	CL	CM	D	E	EE	EF	F	G	KB	Shaft end					
													a	b	d	e	f	g
Ø32	12	Ø9	145	55	70	71.4	101	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø83h7	20	36	Ø22h7	6	6	3	32
Ø40	15	Ø9	180	65	85	86.2	122	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø104h7	20	58	Ø30h7	7	8	4	50
Ø50	16	Ø11	195	75	95	98.3	139	Rc(PT)1/2	Rc(PT)1/4	M10×P1.5	Ø117h7	18	58	Ø38h7	8	10	5	50
Ø63	18	Ø14	240	90	120	116.7	165	Rc(PT)1/2	Rc(PT)1/4	M12×P1.75	Ø140h7	18	82	Ø50h7	9	14	5.5	70
Ø80	22	Ø16	290	110	140	137.9	195	Rc(PT)3/4	Rc(PT)1/4	M16×P2.0	Ø164h7	21	82	Ø55h7	10	16	6	70

Dimensions-Rotating Angle 180°

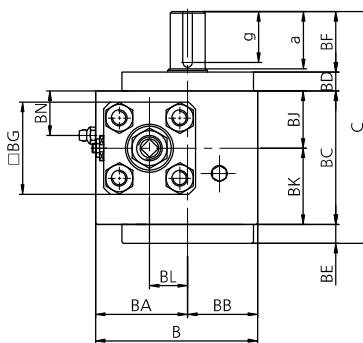
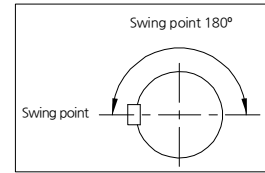
SD Type
(Standard)



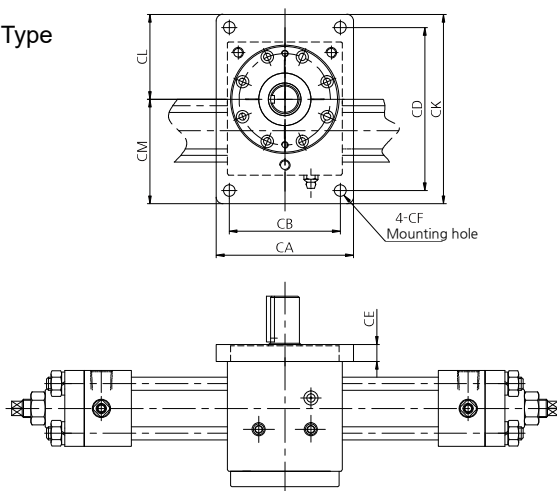
* Shaft end



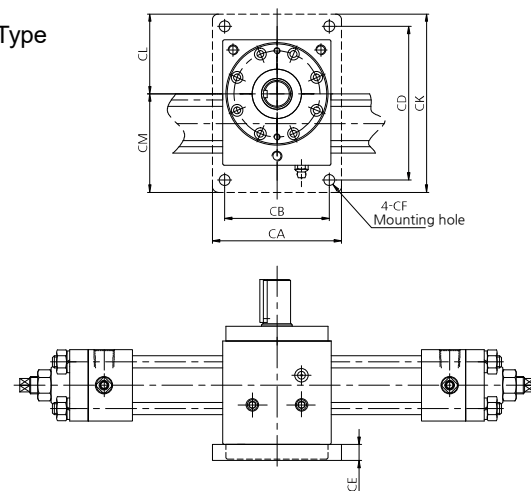
Detail shaft end
(S=2/1)



FA Type



FB Type



Unit : mm

Bore size	A	AD	AH	AJ	AK	AL	AM	B	BA	BB	BC	BD	BE	BF	BG	BJ	BK	BL	BN	BT	C	CA	CB	CD
Ø32	442	14	88	111	36	28	30	102	58	44	84	12	12	38	□58	36	48	24	28	8.2	146	105	85	125
Ø40	473	15	106	120.5	31	28	32	125	72	53	97	13	14	60	□65	43	54	30	30	9.9	184	125	100	150
Ø50	558	15	120	146	35	38	38	140	80	60	112	15	15	60	□76	50	62	40	35	10.9	202	145	120	170
Ø63	682	17	144	182	35	49	52	168	96	72	133	14	16	84	□90	60	73	50	40	13.7	247	175	140	210
Ø80	743	23	168	197	41	49.5	49.5	200	116	84	156	18	20	84	□110	68	88	59	40	15	278	210	170	250

Bore size	CE	CF	CK	CL	CM	D	E	EE	EF	F	G	KB	Shaft end					
													a	b	d	e	f	g
Ø32	12	Ø9	145	55	70	71.4	101	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø83h7	20	36	Ø22h7	6	6	3	32
Ø40	15	Ø9	180	65	85	86.2	122	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø104h7	20	58	Ø30h7	7	8	4	50
Ø50	16	Ø11	195	75	95	98.3	139	Rc(PT)1/2	Rc(PT)1/4	M10×P1.5	Ø117h7	18	58	Ø38h7	8	10	5	50
Ø63	18	Ø14	240	90	120	116.7	165	Rc(PT)1/2	Rc(PT)1/4	M12×P1.75	Ø140h7	18	82	Ø50h7	9	14	5.5	70
Ø80	22	Ø16	290	110	140	137.9	195	Rc(PT)3/4	Rc(PT)1/4	M16×P2.0	Ø164h7	21	82	Ø55h7	10	16	6	70

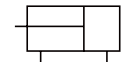
KH series



Features

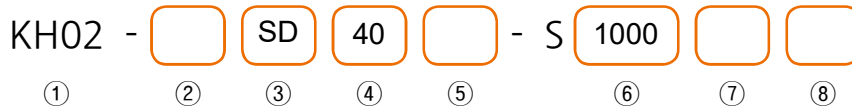
- Standard agricultural and industrial hydraulic cylinder
- Hydraulic cylinder with bore sizes from Ø40 to Ø400.
- One side installation is possible depending on piping.
- Various mounting styles.
(Both end ring mounting, CA ring mouting, FA, FB)

Symbol



Double Acting / Single Rod

How to Order



① Series

KH01	Both end ring mounting cylinder (For agricultural machine)
KH001	CA ring mounting cylinder (For industry)
KH02	General industry cylinder
KH03	General industry large cylinder

② Seal material

※ For KH01, KH001 series

Nil	Urethane rubber (Standard)
1	Nitrile rubber

※ For KH02, KH03 series

Nil	U Packing (Standard)
1	V Packing

③ Mounting style

SD	Both end ring mounting	For KH01
	CA ring mounting	For KH001
FA1	Rod side flange (Rectangular)	For KH02
FA2	Rod side flange (Circular plate)	
FB1	Head side flange (Rectangular)	For KH03
FB2	Head side flange (Circular plate)	
FA	Rod side flange	
FB	Head side flange	

④ Bore Size

Bore Size	KH01 KH001	KH02	KH03
40	•	•	
50	•	•	
60	•	•	
70	•	•	
80	•	•	
90	•	•	
100	•	•	
110	•	•	
125	•	•	
140	•	•	
150	•	•	
160	•	•	
180		•	
200		•	•
220			•
250			•
280			•
300			•
350			•
400			•

⑤ Tube type

Nil	Drawing tube (Standard Ø40~Ø100)
H	Honing pipe

※ Only available for Ø40~Ø100.

※ Honing pipe is used as standard type for cylinder over Ø125.

⑥ Cylinder Stroke (mm)

Bore size	Max. stroke
Ø40~Ø400	3000

※ Check buckling, as it varies depending on mounting style.
※ Contact us for longer stroke.

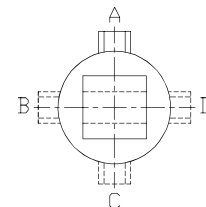
⑦ Air port type

Nil	A: Both side port (Standard)
B	Head side port

※ Only available for KH01, KH001, KH03 series.

⑧ Air port position

Nil	A (Standard)
B, C, D	Refer to figure below



Specifications

Type	Refer to cylinder inner diameter
Max. operating pressure	100kgf/cm ² (10.0MPa)
Proof pressure	200kgf/cm ² (20.0MPa)
Min. operating pressure	5kgf/cm ² (0.5MPa)
Temperature range	-10 ~ 60℃
Working oil	Petroleum-based fluid
Tolerance of thread	KS class 2
Tolerance of stroke	0 ~ 0.8mm (KH02, KH03)

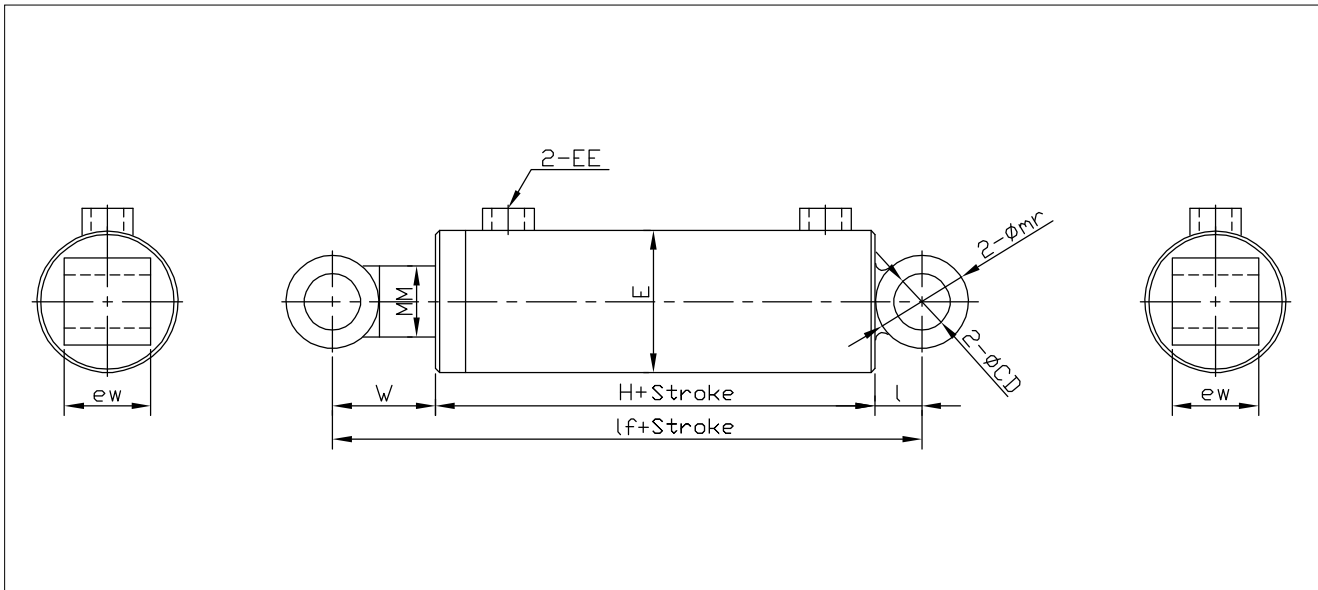
Stroke Tolerance

Unit : mm

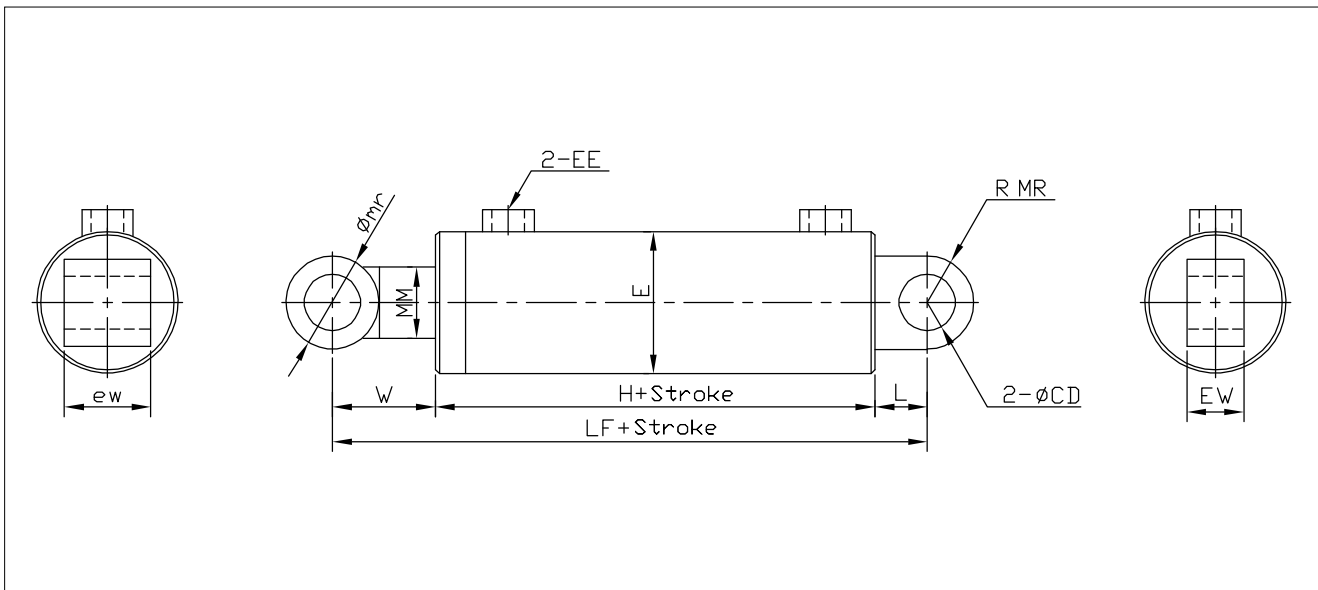
Bore Size	40	50	60	70	80	90	100
Tolerance	-	+6	-1	-5	-5	-10	-10

※ Available for KH01, KH001 series.

Dimensions-Both End Ring Mounting Cylinder (KH01: Agricultural Machine)



Dimensions-CA Ring Mounting Cylinder (KH001: Industry)

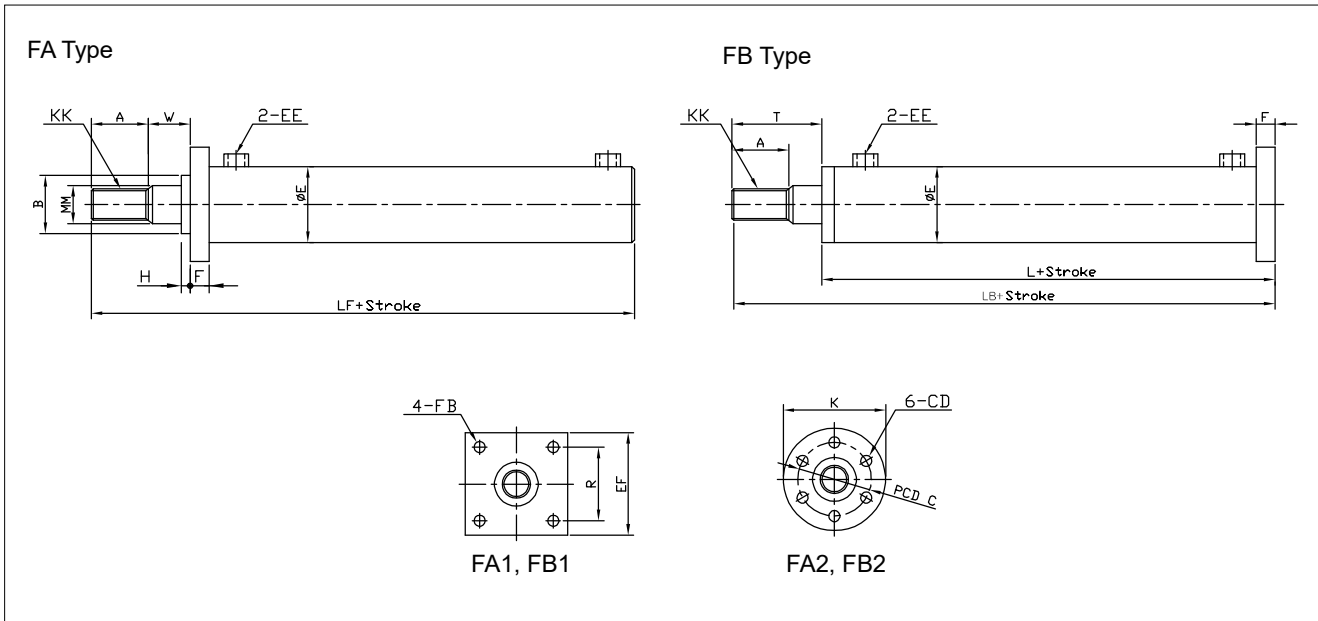


Unit : mm

Bore size	ØCD	ØE	EE	EW	H	L	LF	ØMM	R MR	W	Ømr	l	ff	ew
Ø40	Ø25.5	Ø50	3/8	30	125	49	226	Ø25	25	52	44	22	199	40
Ø50	Ø25.5	Ø60	3/8	30	163	49	266	Ø30	25	54	44	22	239	40
Ø60	Ø25.5	Ø70	3/8	30	163	49	266	Ø40	25	54	44	22	239	*45/40
Ø70	Ø25.5	Ø80	1/2	35	163	39	256	Ø40	27	54	44	22	239	45
Ø80	Ø25.5	Ø90	1/2	35	163	39	256	Ø40	27	54	44	22	239	45
Ø90	Ø35.5	Ø100	1/2	40	163	49	271.5	Ø50	37	59.5	55	27.5	250	55
Ø100	Ø35.5	Ø110	1/2	40	163	49	271.5	Ø50	37	59.5	55	27.5	250	55
Ø110	Ø35.5	Ø130	1/2	40	183	49	297	Ø55	37	65	60	30	278	60
Ø125	Ø35.5	Ø145	1/2	45	184	60	314	Ø60	40	70	70	35	289	65
Ø140	Ø38.5	Ø160	1/2	50	189	60	324	Ø65	40	75	80	40	304	70
Ø150	Ø38.5	Ø168	1/2	50	194	60	329	Ø65	40	75	80	40	309	70
Ø160	Ø40.5	Ø180	1/2	60	195	70	345	Ø70	40	80	90	45	320	80

* For Ø60, front ring ew=45 and back ring ew=40 are the basic dimensions.

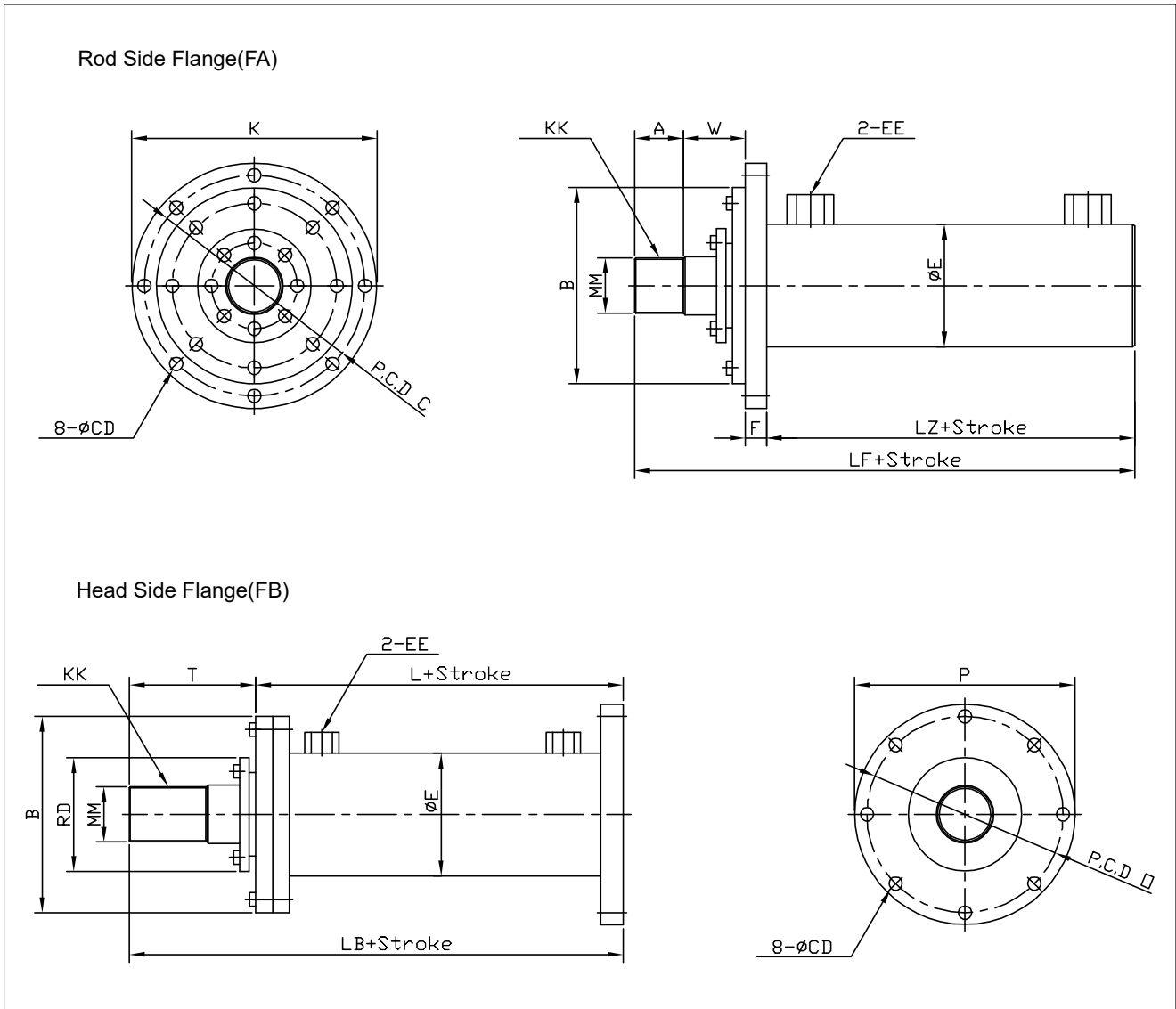
Dimensions-General Industry Cylinder (KH02)



Unit : mm

Bore size	A	ØB	C	ØCD	ØE	EE	□EF	F	ØFB	H	ØK	L	LB	LF	ØMM	□R	T	KK	W
Ø40	40	50	95	14.5	50	3/8	90	15	14.5	10	120	130	190	185	Ø25	65	60	M22×P1.5	30
Ø50	45	60	95	14.5	60	3/8	90	15	14.5	13	120	162	227	222	Ø30	65	65	M25×P1.5	33
Ø60	50	70	105	14.5	70	3/8	110	15	14.5	13	130	169	239	234	Ø40	80	70	M36×P1.5	33
Ø70	50	80	115	14.5	80	1/2	110	18	14.5	13	140	176	246	238	Ø40	80	70	M36×P1.5	33
Ø80	50	90	130	14.5	90	1/2	135	20	14.5	13	160	176	246	238	Ø40	102	70	M36×P1.5	43
Ø90	50	100	150	17.5	100	1/2	135	20	17.5	13	180	183	263	253	Ø45	102	80	M40×P1.5	43
Ø100	50	110	160	17.5	110	1/2	150	20	17.5	13	190	183	263	253	Ø50	115	80	M45×P1.5	43
Ø125	50	140	195	17.5	145	1/2	165	25	17.5	13	220	194	274	264	Ø60	134	80	M56×P2.0	43
Ø140	50	160	210	17.5	160	1/2	196	25	17.5	13	240	194	274	265	Ø65	148	80	M56×P2.0	43
Ø150	50	170	220	17.5	168	1/2	196	25	17.5	13	250	199	279	275	Ø65	148	80	M56×P2.0	43
Ø160	60	180	230	17.5	180	1/2	210	30	20.0	13	260	200	300	285	Ø70	170	90	M64×P2.0	43
Ø180	60	200	254	17.5	202	3/4	220	30	20.0	15	285	236	336	331	Ø80	180	100	M72×P2.0	53
Ø200	80	220	290	20.0	230	3/4	260	35	20.0	15	330	245	365	363	Ø90	220	120	M80×P2.0	53

Dimensions-General Industry Large Size Cylinder (KH03)



Unit : mm

Bore size	A	ØB	C	ØCD	ØE	EE	F	ØK	KK	L	LB	LF	LZ	MM	O	ØP	ØRD	T	W
Ø200	80	320	360	Ø22	245	1	35	400	M90×P2.0	265	445	415	200	Ø95	300	340	160	180	100
Ø220	80	350	390	Ø22	260	1	35	440	M100×P2.0	265	445	415	200	Ø105	310	360	170	180	100
Ø250	90	390	440	Ø22	300	1	40	490	M110×P2.0	309	499	452	222	Ø115	360	410	180	190	100
Ø280	90	430	470	Ø25	330	1 1/4	45	520	M120×P2.0	354	544	492	257	Ø125	400	450	200	190	100
Ø300	100	450	520	Ø25	350	1 1/4	45	580	M125×P3.0	359	579	522	257	Ø130	420	470	210	220	120
Ø350	120	550	620	Ø25	410	1 1/4	50	680	M150×P3.0	374	614	552	262	Ø160	500	560	240	240	120
Ø400	120	620	700	Ø25	480	1 1/2	55	760	M150×P3.0	389	659	592	267	Ø160	580	640	240	270	150

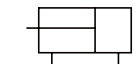
KP35H series



Features

- Tube material: Aluminum
- Magnet Standard built-in
- Working pressure: 3.5MPa

Symbol



Double Acting /
Single Rod

How to Order

① KP35H - ② LB ③ 32 - S ④ 100 - ⑤ Y - ⑥ C73 - ⑦

① Series

KP35H	Low-pressure Hydraulic Cylinder
KP35HL	Low-pressure Hydraulic Cylinder (With auto switch)

② Mounting style

B	Standard	FB	Head side flange
LB	Axial angle of foot	CA	Single Clevis
FA	Rod side flange		

③ Bore Size

20	25	32	40
Ø20	Ø25	Ø32	Ø40

④ Cylinder stroke

Bore size	Stroke
Ø20	50, 100, 150, 200, 250, 300, 400, 500, 600, 700, 800
Ø25	
Ø32	
Ø40	

※ Refer to [1] -140PAGE for the rod end shape change made to order.

⑤ Rod end

Nil	Rod end nut(Standard):1 pcs
I	Single knuckle joint
Y	Double knuckle joint

⑥ Auto switch

C72	D-C72K	H7A1	D-H7A1K
C73	D-C73K	H7A2	D-H7A2K
C76	D-C76K	H7B	D-H7BK
C80	D-C80K		

- ※ Only for auto switch attached type.
- ※ For details, refer to [10] -10, 19 PAGE.

⑦ Number of auto switch

Nil	2 pcs
S	1 pcs
N	N pcs (N: 3, 4, 5...)

※ Only for auto switch type.

Specifications

Bore size(mm)	Ø20	Ø25	Ø32	Ø40
Fluid	Petroleum-based fluid			
Max. proof pressure	50.9kgf/cm ² (5.0MPa)			
Max. operating pressure	35.7kgf/cm ² (3.5MPa)			
Min. operating pressure	3kgf/cm ² (0.3MPa)			
Ambient & fluid temperature	-10~80°C (Without auto switch) -10~60°C (With Auto switch)			
Operating piston speed	8~300mm/sec			
Cushion	None			
Tolerance of thread	KS class 2			
Tolerance of stroke length	~250 ST : +1.0 ₀		251~800 ST : +1.4 ₀	
Mounting style	Standard, Axial angle of foot, Rod side flange, Head side flange, Single Clevis			

※ Rod end is used in the same way as ACS2 series (Ø40 is thread size M16x1.5)

Mounting type and accessories

Mounting type	Standard	Axial angle of foot	Rod side flange	Head side flange	Single Clevis	
Standard	Mounting screw	●(1 pcs)	●(2 pcs)	●(1 pcs)	●(1 pcs)	-
	Rod end nut	●	●	●	●	●
	Clevis pin	-	-	-	-	-
Option	Single knuckle joint	●	●	●	●	●
	Note1) Double knuckle joint	●	●	●	●	●

Note1) Double knuckle joints are shipped with pins and snap rings.

Mounting part No.

Mounting type	Minimum Order Quantity	Bore size(mm)				Description (Minimum order quantity)
Axial angle of foot	1 set (2 pcs)	LB20	LB25	LB32	LB40	Foot 2 pcs, Mounting screw 1 pcs
Flange	1 pcs	FA/FB20	FA/FB25	FA/FB32	FA/FB40	Flange 1 pcs, Mounting screw 1 pcs
Single Clevis	1 pcs	CA20	CA25	CA32	CA40	Single Clevis 1 pcs

Rod end part No.

Rod end	Bore size(mm)	Ø20	Ø25	Ø32	Ø40
Single knuckle joint		I20	I25	I40	I2-40
Double knuckle joint		Y20	Y25	Y40	Y2-20

Compatibility with hydraulic fluid

General mineral hydraulic oil	●
W / O hydraulic oil	●
O/W hydraulic oil	●
Water-glycol based hydraulic oil	x
Phosphoric ester-based hydraulic oil	x

Theoretical output

Unit: N

Bore size(mm)	Rod diameter(mm)	Operating direction	Water pressure area (mm ²)	Working pressure MPa					
				1	1.5	2	2.5	3	3.5
20	10	OUT	314	314	471	628	785	942	1099
		IN	235	235	352	470	587	705	822
25	12	OUT	490	490	735	980	1225	1470	1715
		IN	377	377	565	754	942	1131	1319
32	16	OUT	804	804	1206	1608	2010	2412	2814
		IN	603	603	904	1206	1507	1809	2110
40	18	OUT	1256	1256	1884	2512	3140	3768	4396
		IN	1002	1002	1503	2004	2505	3006	3507

※ Theoretical output (N) = Working pressure (MPa) x Water pressure area (mm²)

Weight

Unit: kgf

Bore size (mm)		Double Single			
		Ø20	Ø25	Ø32	Ø40
Standard weight	Standard	0.1454	0.238	0.5	0.82
	Foot	0.228	0.316	0.88	1.36
	Flange	0.198	0.290	0.69	1.03
	Single Clevis	0.134	0.208	0.64	0.77
Increased weight per 50 strokes		0.064	0.080	0.12	0.16
Option	Single knuckle joint	0.056	0.056	0.166	0.226
	Double knuckle joint (With pin)	0.074	0.072	0.220	0.296
	Rod nut	0.002	0.008	0.016	0.032

Calculation method

1. Double Single

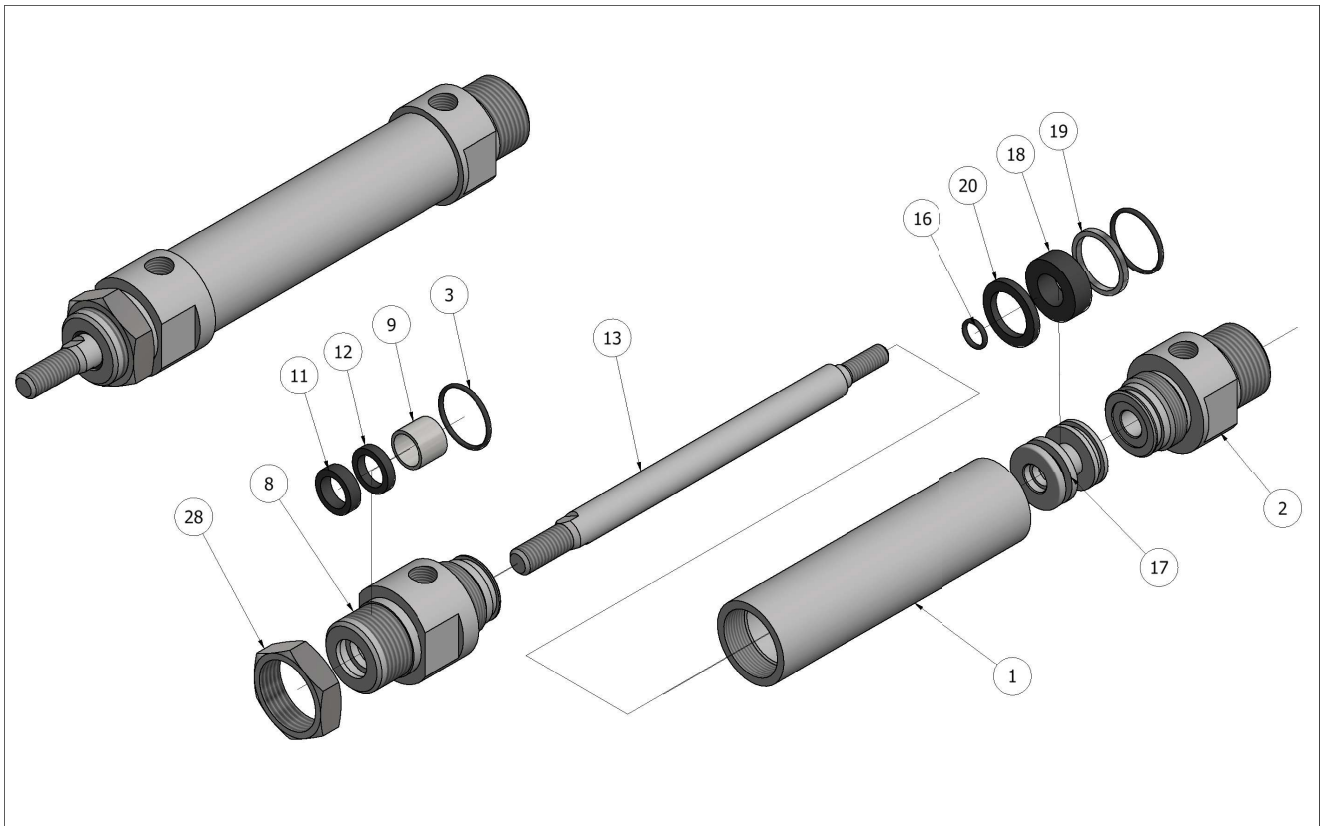
Example KP35H LB32-S100

Standard weight: 0.88 (Foot type Ø32) / Increased weight: 0.12 / 50 /

Cylinder stroke: 100mm

$$0.88 + 0.12 / 50 \times 100 = 1.18 \text{ kg}$$

Structure



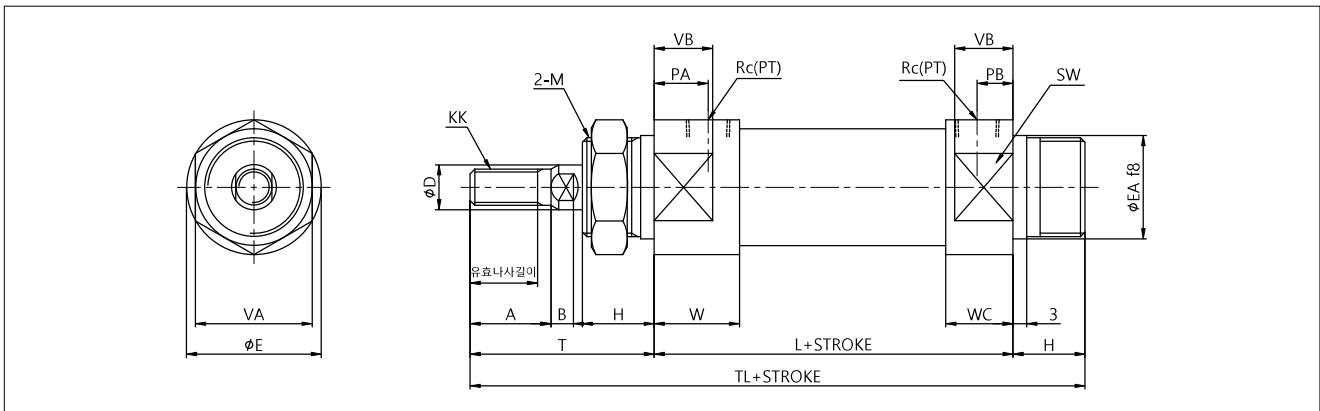
Part List

Part no.	Parts	Material	Quantity
1	TUBE	A6063	1
2	HEAD COVER	A2024	1
6	ROD	SM45C	1
8	ROD COVER	A2024	1
17	PISTON	A2024	1
18	MAGNET	NBR	1
28	COVER NUT	SS400	1

Packing List

Part no.	Parts	Material	Bore size			
			Ø20	Ø25	Ø32	Ø40
3	TUBE O-RING	NBR	1B-S18	1B-S22.4	1B-S29	1B-G35
9	DU BUSH	SPCC	DUB1010	DUB1210	DUB1610	DUB2010
11	DUST SEAL	NBR	SER-10A	SER-12	LBH-16	LBH-20
12	ROD PACKING	NBR	NMY-10A	NMY-12	USH-16	USH-20
16	ROD O-RING	NBR	1A-S7	1A-S7	1A-S9	1A-S14
19	WEARING	POLYKETON	20x17x2	25x22x2	32x29x3	40x37x3
20	PISTON PACKING	NBR	HSD-20	HSD-25	HSD-32	HSD-40

Dimensions-Standard (B)



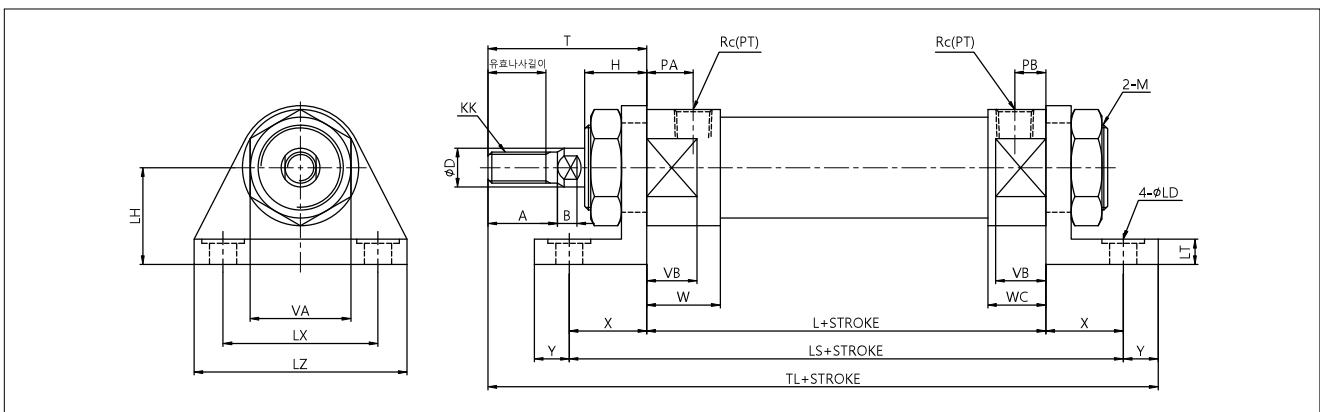
Unit:mm

Bore size	Effective screw length	A	B	ØD	ØE	ØEA	H	KK	L	M	PA	PB	Rc(PT)
Ø20	15	18	5	10	30	23	16	M8xP1.25	81	M22xP1.5	12	8	1/8
Ø25	20	22	5.5	12	32	25	16	M10xP1.25	81	M24xP1.5	12	8	1/8
Ø32	21	24	7.5	16	40	31	19	M14xP1.5	87	M30xP1.5	12	8	1/8
Ø40	21	24	7.5	20	48	34	21	M16xP1.5	108	M33xP2.0	14	11	1/4

Unit:mm

Bore size	T	TL	VA	VB	W	WC	SW
Ø20	41	138	26	13	19	15	26
Ø25	46	143	32	13	19	15	28
Ø32	53	159	38	13	19	15	36
Ø40	54	183	41	19	24	21	44

Dimensions-Foot (LB)



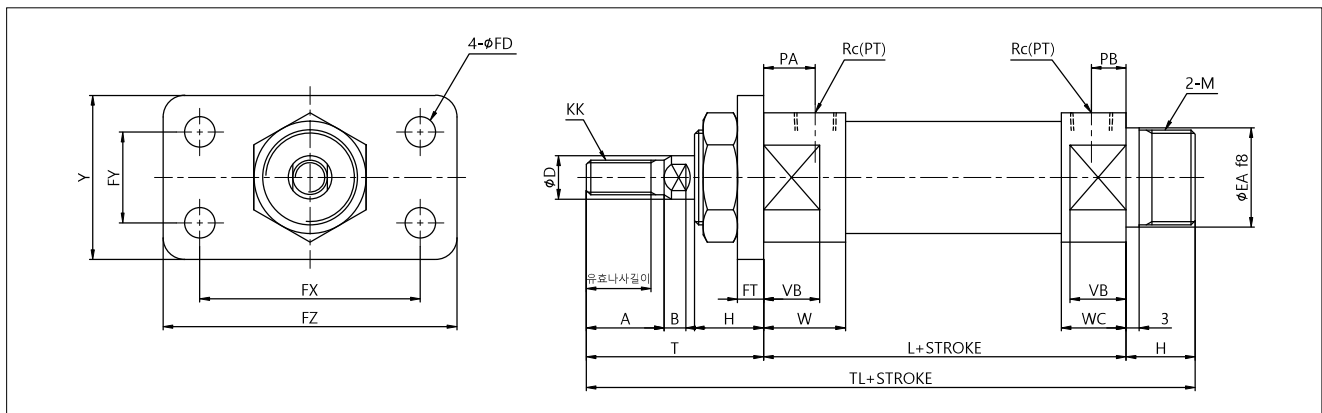
Unit:mm

Bore size	Effective screw length	A	B	ØD	H	KK	L	ØLD	LH	LS	LT	LX
Ø20	15	18	5	10	16	M8xP1.25	81	7	25	121	6.5	40
Ø25	20	22	5.5	12	16	M10xP1.25	81	7	28	121	6.5	40
Ø32	21	24	7.5	16	19	M14xP1.5	87	7	30	133	7	45
Ø40	21	24	7.5	20	21	M16xP1.5	108	9	35	158	7	55

Unit:mm

Bore size	LZ	M	PA	PB	Rc(PT)	T	TL	VA	VB	W	WC	X	Y
Ø20	55	M22xP1.5	12	8	1/8	41	151	26	13	19	15	20	9
Ø25	55	M24xP1.5	12	8	1/8	46	156	32	13	19	15	20	9
Ø32	60	M30xP1.5	12	8	1/8	53	172	38	13	19	15	23	9
Ø40	75	M33xP2.0	14	11	1/4	54	198	41	19	24	21	25	11

Dimensions-Rod side flange (FA)



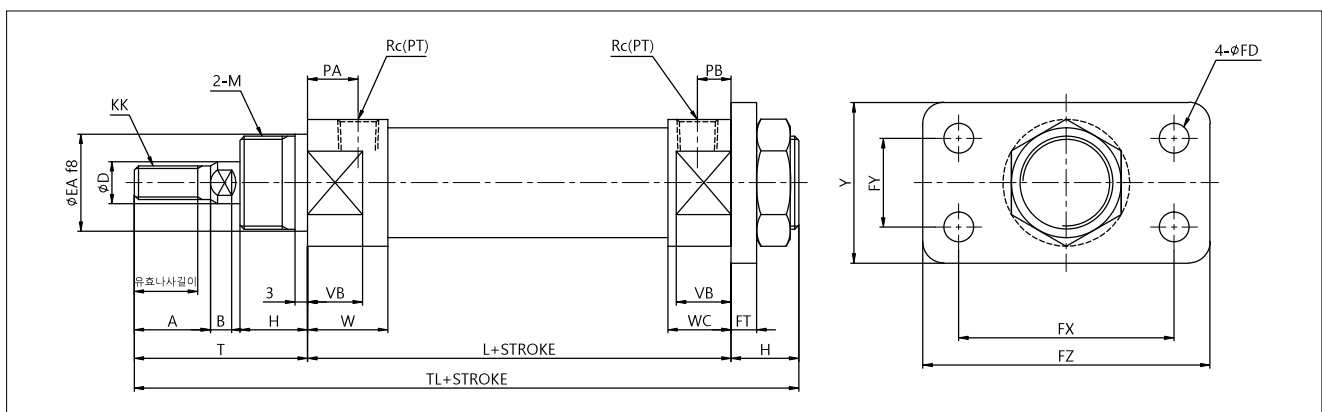
Unit:mm

Bore size	Effective screw length	A	B	ØD	ØEA	W	WC	H	KK	L	M	PA
Ø20	15	18	5	10	23	19	15	16	M8xP1.25	81	M22xP1.5	12
Ø25	20	22	5.5	12	25	19	15	16	M10xP1.25	81	M24xP1.5	12
Ø32	21	24	7.5	16	31	19	15	19	M14xP1.5	87	M30xP1.5	12
Ø40	21	24	7.5	20	34	24	21	21	M16xP1.5	108	M33xP2.0	14

Unit:mm

Bore size	PB	Rc(PT)	T	TL	VB	ØFD	Y	FY	FT	FX	FZ
Ø20	8	1/8	41	138	13	7	38	21	6	51	68
Ø25	8	1/8	46	143	13	7	44	27	9	53	70
Ø32	8	1/8	53	159	13	7	50	33	9	55	72
Ø40	11	1/4	54	183	19	9	60	36	9	66	84

Dimensions-Head side flange (FB)



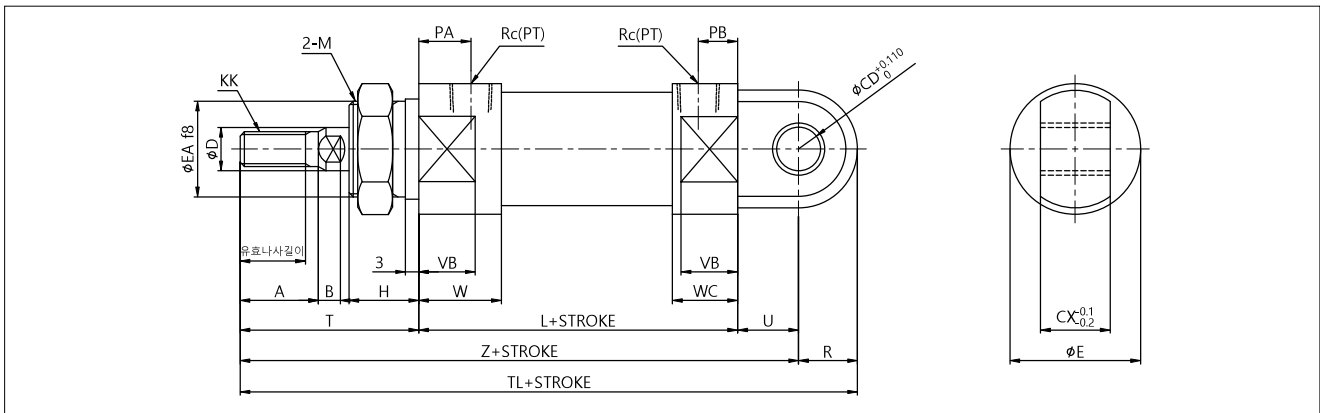
Unit:mm

Bore size	Effective screw length	A	B	ØD	ØEA	W	WC	H	KK	L	M	PA
Ø20	15	18	5	10	23	19	15	16	M8xP1.25	81	M22xP1.5	12
Ø25	20	22	5.5	12	25	19	15	16	M10xP1.25	81	M24xP1.5	12
Ø32	21	24	7.5	16	31	19	15	19	M14xP1.5	87	M30xP1.5	12
Ø40	21	24	7.5	20	34	24	21	21	M16xP1.5	108	M33xP2.0	14

Unit:mm

Bore size	PB	Rc(PT)	T	TL	VB	ØFD	Y	FY	FT	FX	FZ
Ø20	8	1/8	41	138	13	7	38	21	6	51	68
Ø25	8	1/8	46	143	13	7	44	27	9	53	70
Ø32	8	1/8	53	159	13	7	50	33	9	55	72
Ø40	11	1/4	54	183	19	9	60	36	9	66	84

Dimensions-Single Clevis (CA)



Unit:mm

Bore size	Effective screw length	A	B	ØD	ØEA	W	WC	H	KK	L	M	PA
Ø20	15	18	5	10	23	19	15	16	M8xP1.25	81	M22xP1.5	12
Ø25	20	22	5.5	12	25	19	15	16	M10xP1.25	81	M24xP1.5	12
Ø32	21	24	7.5	16	31	19	15	19	M14xP1.5	87	M30xP1.5	12
Ø40	21	24	7.5	20	34	24	21	21	M16xP1.5	108	M33xP2.0	14

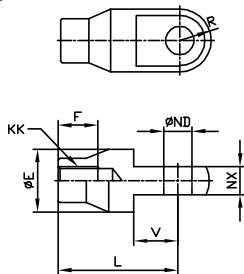
Unit:mm

Bore size	PB	Rc(PT)	T	U	R	Z	TL	VB	CD	CX	ØE
Ø20	8	1/8	41	14	13.5	136	149.5	13	10	16	30
Ø25	8	1/8	46	15	14.5	142	156.5	13	10	16	32
Ø32	8	1/8	53	20	18.5	160	178.5	13	12	16	40
Ø40	11	1/4	54	20	22.5	182	204.5	19	12	24	48

Dimensions-Option

Single knuckle joint

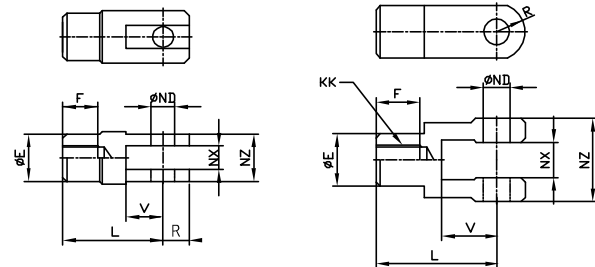
Material: Free cutting steel



Part No.	Bore size	øE	F	L	KK	øND ^{H10}	NX	R	V
I20	Ø20	20	16	36	M8X1.25	9 ^{+0.06} ₀	9 ^{-0.1} _{-0.2}	10	14
I25/32	Ø25, 32	20	18	38	M10X1.25	9 ^{+0.06} ₀	9 ^{-0.1} _{-0.2}	10	14
I40	Ø40	24	22	55	M14X1.50	12 ^{+0.07} ₀	16 ^{-0.1} _{-0.3}	15.5	20

Double knuckle joint

Y20, Y25/32 Material: Free cutting steel Y40 Material: Cast iron

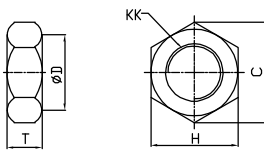


Unit:mm

Part No.	Bore size	øE	F	L	KK	øND ^{H10}	NX	NZ	R	V
Y20	Ø20	18	16	36	M8X1.25	9 ^{+0.06} ₀	9 ^{+0.2} _{+0.1}	18	12	14
Y25/32	Ø25, 32	18	18	38	M10X1.25	9 ^{+0.06} ₀	9 ^{+0.2} _{+0.1}	18	10	14
Y40	Ø40	24	30	55	M14X1.50	12 ^{+0.07} ₀	16 ^{+0.3} _{+0.1}	38	13	25

Rod end nut

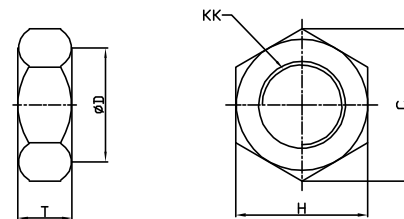
Material: Carbon steel



Part No.	Bore size	C	øD	H	KK	T
RN-02	Ø20	15.0	12.5	13	M8X1.25	5
RN-03	Ø25, 32	19.6	16.5	17	M10X1.25	6
RN-04	Ø40	25.4	21.0	22	M14X1.50	8

Mounting nut

Material: Carbon steel

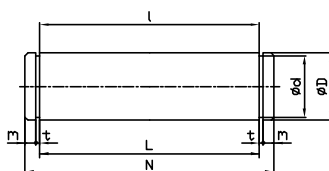


Unit:mm

Part No.	Bore size	C	øD	H	KK	T
SN-02	Ø20	30	25.5	26	M20X1.5	8
SN-03	Ø25, 32	37	31.5	32	M26X1.5	8
SN-04	Ø40	47.3	40.5	41	M32X2.0	10

Clevis pin

Material: Carbon steel



Unit:mm

Part No.	Bore size	øD ^{H9}	ød	L	N	m	t	Remark
CPS-02	Ø20	9 ^{-0.040} _{-0.076}	8.6 ⁰ _{-0.06}	19.2	25	1.75	1.15 ^{+0.14} ₀	For Y+CB
CPS-03	Ø25, 32	9 ^{-0.040} _{-0.076}	8.6 ⁰ _{-0.06}	19.2	25	1.75	1.15 ^{+0.14} ₀	For Y+CB
CPS-04	Ø40	10 ^{-0.040} _{-0.076}	9.6 ⁰ _{-0.09}	30.2	36.2	1.85	1.15 ^{+0.14} ₀	For CB
CPM-04	Ø40	12 ^{-0.050} _{-0.093}	11.5 ⁰ _{-0.11}	38.2	44.2	1.85	1.15 ^{+0.14} ₀	Y (ACM400 common)

HTC series

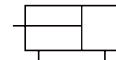


HTCHL-SD32-S30

Features

- Applicable for high ambient temperature up to 150°C.
- D-HT150D, heat resistant type auto switch applicable for temperature up to 130°C
- Ideal for resin molding, die-cast, various casting molds.

Symbol



Double Acting / Single Rod

How to Order

HTC - SD 32 - S 40

① ② ③ ④ ⑤ ⑥ ⑦

① Series

Series	Type	Tube material	Pressure
HTC	Standard	Steel	140 kgf/cm ²
HTCHL	Auto switch attached type	SUS	

② Mounting style

SD	Standard
LA	Axial angle of foot
FA	Rod side flange

③ Bore size

32	Ø32
40	Ø40
50	Ø50
63	Ø63
80	Ø80

④ Cylinder stroke

Bore size	Standard stroke	Max. stroke
Ø32	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	50
Ø40		100
Ø50		
Ø63		
Ø80		
Ø100	-	-
Ø125		

- ※ Check buckling, as it varies depending on mounting style.
- ※ The middle stroke (55, 60, 65 ...) is produced by putting space of 5, 10, 20 mm.

⑥ Rod end

Nil	Rod end female thread (Standard)
N	Rod end male thread

⑥ Auto switch

D-HT150D	Heat resistant type
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- ※ Only for auto switch attached type.
- ※ For more information, refer to Auto Switch Catalogue.

⑦ Number of auto switch

Nil	2 pcs
1	1 pc
N	N pcs (N:3,4,5...)

- ※ Only for auto switch attached type.

Specifications

Model	HTC (Standard)	HTCHL (Auto switch attached type)
Tube	Steel	SUS
Bore size (mm)	Ø32, Ø40, Ø50, Ø63, Ø80	
Max. operating pressure	140kgf/cm ² (14.0MPa)	
Proof pressure	210kgf/cm ² (21.0MPa)	
Min. operating pressure	3kgf/cm ² (0.3MPa)	
Operating piston speed	10~300mm/sec	
Ambient & fluid temperature	-10 ~ 150°C	-10 ~ 130°C
Oil	Petroleum-based fluid, Phosphoric Ester oil	

※ This product is made to order specifications. please contact us for delivery and outer size.