

MDH* series

HYDRAULIC CYLINDER



Specification

Model	MDHB, MDHD	
Tube I.D. (mm)	40, 50, 63	80, 100, 125, 150
Standard stroke (mm)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500	
The range of stroke (mm)	Max.1500	Max.1900
Power fluid	Filtered oil	
Material of cylinder barrel	Carbon steel STKM 13C	
The range of pressure (MPa)	14 (140 kgf/cm ²)	
The range of temperature (°C)	-10~+60	

Double acting cylinders

MDHB Double acting - Standard type



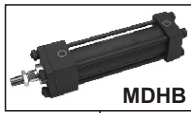
MDHD Double acting - Double end rod type



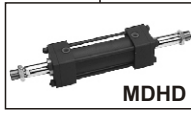
Order example:

1 - MDHB - 50 - N - 100 - LB - Y

MODEL



MDHB



MDHD

TUBE I.D.

50

CUSHION

R: Rod end with cushion
H: End end with cushion
B: Both end with cushion
N: No cushion

STROKE

100

ACCESSORIES

	FA
	FB
	LA
	LB
	CA
	CB
	TC
	Y
	I

SEAL MATERIAL

Symbol	Seal material	Kind of fluid				
		Petroleum - based fluid	Water - glycol fluid	Phosphate ester fluid	Water in oil fluid	Oil in water fluid
1	NBR Nitrile rubber	○	○	×	○	○
2	PU Polyurethane rubber	○	×	×	△	△
3	VITON Fluoro elastomer	○	×	○	○	○

Note: ○ allowable × unallowable △ consult us

Standard stroke

unit: mm

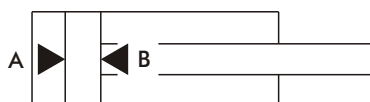
Bore	50	100	150	200	250	300	350	400	450	500
φ 40	●	●	●	●	●	●	-	-	-	-
φ 50	●	●	●	●	●	●	-	-	-	-
φ 63	●	●	●	●	●	●	●	●	●	●
φ 80	●	●	●	●	●	●	●	●	●	●
φ 100	●	●	●	●	●	●	●	●	●	●
φ 125	●	●	●	●	●	●	●	●	●	●
φ 150	●	●	●	●	●	●	●	●	●	●

Note: May to order of unstandard stroke

Stroke tolerance

unit: mm

stroke	~100	101~250	251~630	631~1000	1001~1600	1601~2000
Tolerance	+0.8 0	+1.0 0	+1.25 0	+1.4 0	+1.6 0	+1.8 0



Theoretic force

unit: KN

Bore (mm)	Rod (mm)	Area (mm ²)	Operating pressure (MPa)									
			6	7	8	9	10	11	12	13	14	
φ 40	φ 20	A	1256	7.54	8.79	10.05	11.30	12.56	13.82	15.07	16.33	17.58
		B	942	5.65	6.59	7.54	8.48	9.42	10.36	11.30	12.25	13.19
φ 50	φ 25	A	1963	11.78	13.74	15.70	17.67	19.63	21.59	23.56	25.52	27.48
		B	1472	8.83	10.30	11.78	13.25	14.72	16.19	17.66	19.14	20.61
φ 63	φ 35	A	3116	18.70	21.81	24.93	28.06	31.18	34.28	37.39	40.51	43.62
		B	2154	12.92	15.08	17.23	19.39	21.54	23.69	25.85	28.00	30.16
φ 80	φ 40	A	5024	30.14	35.17	40.19	45.22	50.24	55.26	60.29	65.31	70.34
		B	3768	22.61	26.38	30.14	33.91	37.68	41.45	45.22	48.98	52.75
φ 100	φ 50	A	7850	47.10	54.95	62.80	70.65	78.50	86.35	94.20	102.05	109.90
		B	5887	35.32	41.21	47.10	52.98	58.87	64.76	70.64	76.53	82.42
φ 125	φ 60	A	12266	73.60	85.86	98.13	110.39	122.66	134.93	147.19	159.46	171.72
		B	9440	56.64	66.08	75.52	84.96	94.40	103.84	113.28	122.72	132.16
φ 150	φ 80	A	17662	105.97	123.63	141.30	158.96	176.62	194.28	211.94	229.61	247.27
		B	12638	75.83	88.47	101.10	113.74	126.38	139.02	151.66	164.29	176.93

The method of calculation (Hydraulic cylinders' force)

$$F = P \times A - f$$

F: Cylinders' force (N)

P: Operating pressure (MPa)

A: Piston area (mm²)

f: Friction drag (N)

How to order the seal kit

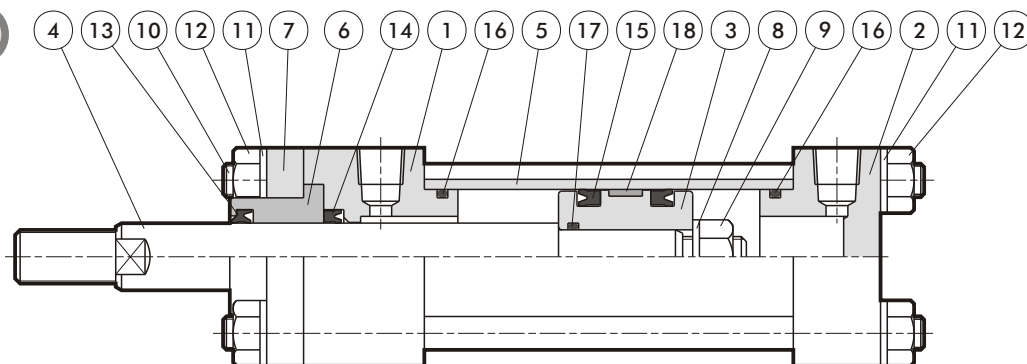
MDHBSK

Bore	Seal kit
40	MDHBSK40 - Including No.13,14,15,16,17,18
50	MDHBSK50 - Including No.13,14,15,16,17,18
63	MDHBSK63 - Including No.13,14,15,16,17,18
80	MDHBSK80 - Including No.13,14,15,16,17,18
100	MDHBSK100 - Including No.13,14,15,16,17,18
125	MDHBSK125 - Including No.13,14,15,16,17,18
150	MDHBSK150 - Including No.13,14,15,16,17,18

MDHDSK

Bore	Seal kit
40	MDHDSK40 - Including No.10,11,12,13,14,15
50	MDHDSK50 - Including No.10,11,12,13,14,15
63	MDHDSK63 - Including No.10,11,12,13,14,15
80	MDHDSK80 - Including No.10,11,12,13,14,15
100	MDHDSK100 - Including No.10,11,12,13,14,15
125	MDHDSK125 - Including No.10,11,12,13,14,15
150	MDHDSK150 - Including No.10,11,12,13,14,15

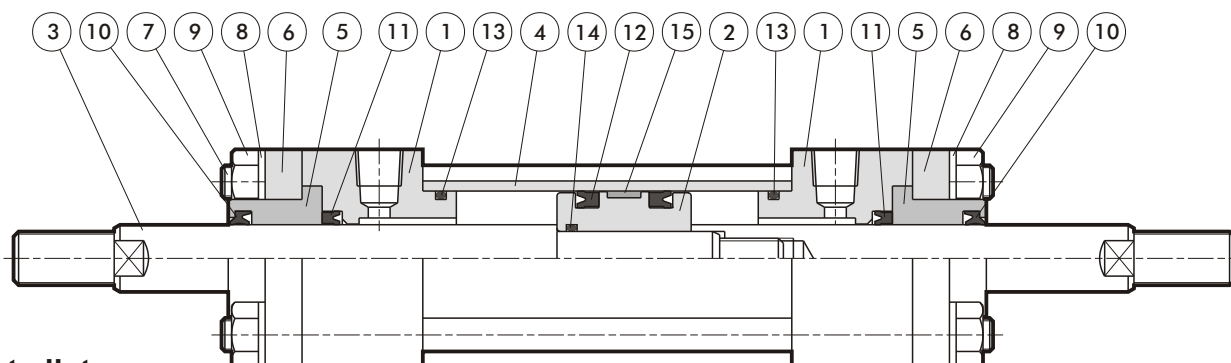
MDHB



Parts list

No.	Part name	Quantity	No.	Part name	Quantity	No.	Part name	Quantity
1	Rod cover	1	7	End plate	1	13	Dust wiper	1
2	Head cover	1	8	Spring washer	1	14	Rod packing	1
3	Piston	1	9	Piston nut	1	15	Piston packing	2
4	Piston rod	1	10	Tie bolt	4	16	Cylinder gasket	2
5	Cylinder tube	1	11	Spring washer	8	17	Piston gasket	1
6	Rod bush	1	12	Nut	8	18	Wearing ring	1

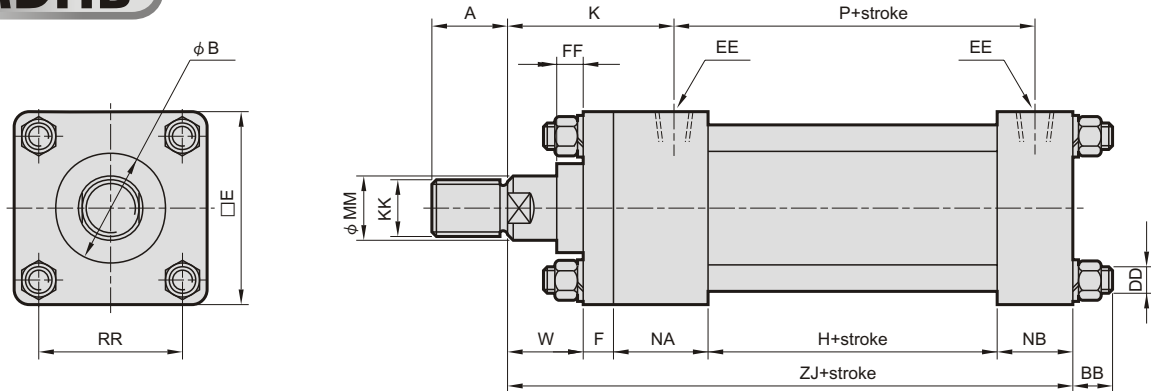
MDHD



Parts list

No.	Part name	Quantity	No.	Part name	Quantity	No.	Part name	Quantity
1	Rod cover	2	6	End plate	2	11	Rod packing	2
2	Piston	1	7	Tie bolt	4	12	Piston packing	2
3	Piston rod	1	8	Spring washer	8	13	Cylinder gasket	2
4	Cylinder tube	1	9	Nut	8	14	Piston gasket	1
5	Rod bush	2	10	Dust wiper	2	15	Wearing ring	1

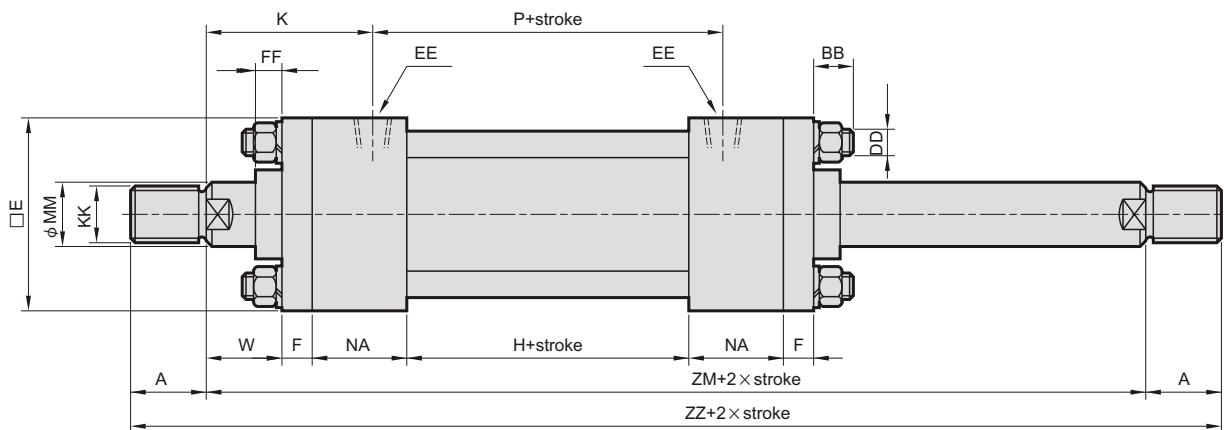
MDHB



Dimensional table

Code Tube I.D.	A	B	BB	DD	E	EE	F	FF	H	K	KK	MM	NA	NB	P	RR	W	ZJ
$\phi 40$	30	35	16	M10 \times 1.25	65	PT 1/4	11	11	60	60	M16 \times 1.5	20	36	26	84	45	25	158
$\phi 50$	35	40	16	M10 \times 1.25	75	PT 3/8	13	9	60	66	M22 \times 1.5	25	42	34	88	52	25	174
$\phi 63$	40	50	18	M12 \times 1.5	90	PT 3/8	15	9	65	73	M30 \times 1.5	35	42	34	93	63	30	186
$\phi 80$	45	55	18	M16 \times 1.5	110	PT 1/2	18	7	65	79	M30 \times 1.5	40	46	39	95	80	30	198
$\phi 100$	50	65	25	M18 \times 1.5	135	PT 1/2	20	7	74	95	M40 \times 2.0	50	50	40	104	102	40	224
$\phi 125$	60	75	30	M22 \times 1.5	165	PT 3/4	25	7	74	109	M48 \times 2.0	60	58	47	112	122	45	249
$\phi 150$	70	95	30	M26 \times 1.5	195	PT 3/4	30	7	90	119	M72 \times 2.0	80	58	48	128	148	50	276

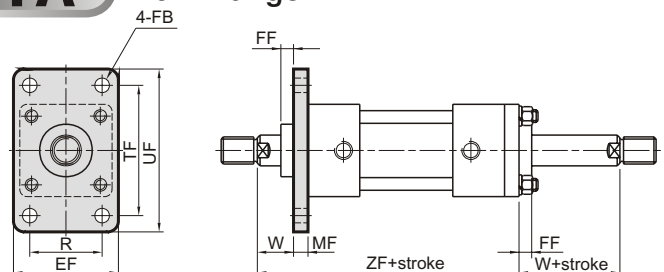
MDHD



Dimensional table

Code Tube I.D.	A	B	BB	DD	E	EE	F	FF	H	K	KK	MM	NA	P	RR	W	W	ZJ
$\phi 40$	30	35	16	M10 \times 1.25	65	PT 1/4	11	11	60	60	M16 \times 1.5	20	36	84	45	25	204	264
$\phi 50$	35	40	16	M10 \times 1.25	75	PT 3/8	13	9	60	66	M22 \times 1.5	25	42	88	52	25	220	290
$\phi 63$	40	50	18	M12 \times 1.5	90	PT 3/8	15	9	65	73	M30 \times 1.5	35	42	93	63	30	239	319
$\phi 80$	45	55	18	M16 \times 1.5	110	PT 1/2	18	7	65	79	M30 \times 1.5	40	46	95	80	30	253	343
$\phi 100$	50	65	25	M18 \times 1.5	135	PT 1/2	20	7	74	95	M40 \times 2.0	50	50	104	102	40	294	394
$\phi 125$	60	75	30	M22 \times 1.5	165	PT 3/4	25	7	74	109	M48 \times 2.0	60	58	112	122	45	330	450
$\phi 150$	70	95	30	M26 \times 1.5	195	PT 3/4	30	7	90	119	M72 \times 2.0	80	58	128	148	50	366	506

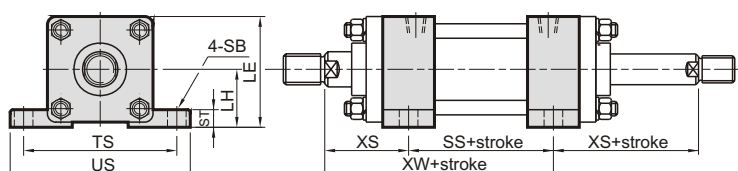
FA Front flange



Dimensional table

Code Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
φ 40	69	11	11	11	46	95	118	25	179
φ 50	85	11	9	13	58	115	145	25	195
φ 63	98	14	9	15	65	132	165	30	209
φ 80	118	18	7	18	87	155	190	30	223
φ 100	150	22	7	20	109	190	230	40	254
φ 125	175	24	7	25	130	224	272	45	285
φ 150	210	28	7	30	155	270	320	50	316

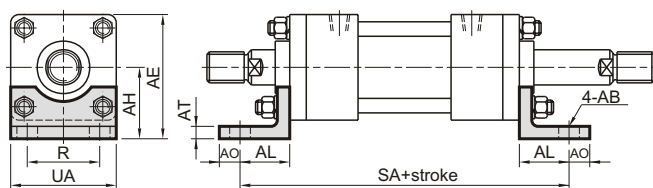
LA Side lugs



Dimensional table

Code Tube I.D.	LE	LH	SB	SS	ST	TS	XS	XW	US
φ 40	70	37.5	11	96	14	95	54	150	118
φ 50	80	45	11	102	17	115	59	161	145
φ 63	95	50	14	107	19	132	66	173	165
φ 80	115	60	18	111	25	155	71	182	190
φ 100	140	71	22	124	27	190	85	209	230
φ 125	172	85	24	132	32	224	99	231	272
φ 150	200	106	28	148	37	270	109	257	320

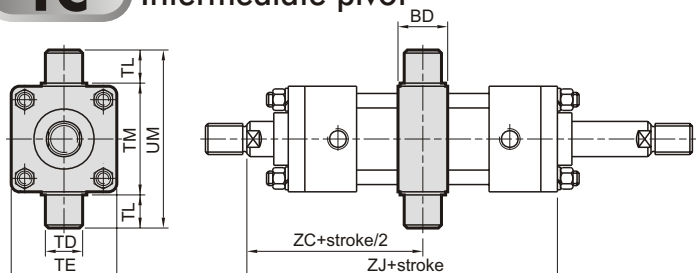
LB Foot mouting



Dimensional table

Code Tube I.D.	AB	AE	AH	AL	AO	AT	R	SA	UA
φ 40	11	77.5	45	32.5	13	8	46	219	65
φ 50	11	87.5	50	32.5	15	8	58	235	75
φ 63	14	105	60	37	18	10	65	253	90
φ 80	18	125	72	49	20	12	87	291	110
φ 100	22	157.5	85	58	23	12	109	330	135
φ 125	24	192.5	105	68.5	29	15	130	377	165
φ 150	28	222.5	123	74.5	30	18	155	415	195

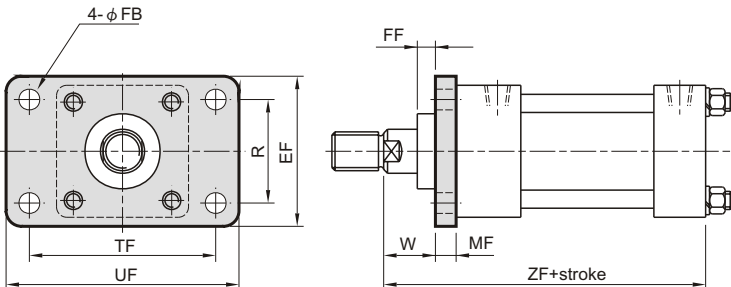
TC Intermediate pivot



Dimensional table

Code Tube I.D.	BD	TE	TD	TL	TM	UM	ZC	ZJ
φ 40	28	65	20	20	69	109	102	179
φ 50	33	75	25	25	85	135	110	195
φ 63	38	90	30	30	98	158	119.5	209
φ 80	38	110	30	30	118	178	126.5	223
φ 100	48	135	40	40	145	225	147	254
φ 125	58	165	50	50	175	275	165	285
φ 150	73	195	60	63	205	331	183	316

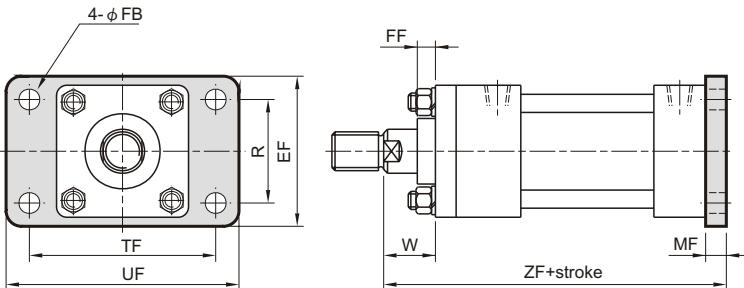
FA Front flange



Dimensional table

Code Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
φ 40	69	11	11	11	46	95	118	25	158
φ 50	85	11	9	13	58	115	145	25	174
φ 63	98	14	9	15	65	132	165	30	186
φ 80	118	18	7	18	87	155	190	30	198
φ 100	150	22	7	20	109	190	230	40	224
φ 125	175	24	7	25	130	224	272	45	249
φ 150	210	28	7	30	155	270	320	50	276

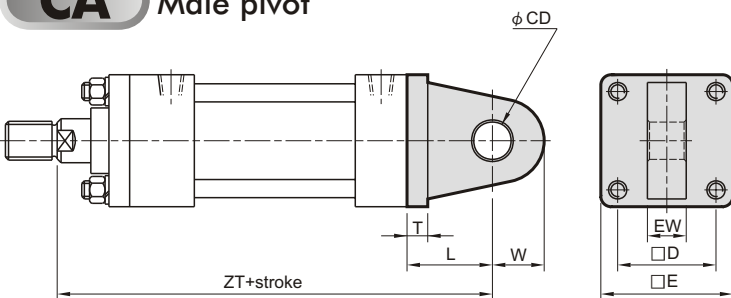
FB Rear flange



Dimensional table

Code Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
φ 40	69	11	11	11	46	95	118	25	169
φ 50	85	11	9	13	58	115	145	25	187
φ 63	98	14	9	15	65	132	165	30	201
φ 80	118	18	7	18	87	155	190	30	216
φ 100	150	22	7	20	109	190	230	40	244
φ 125	175	24	7	25	130	224	272	45	274
φ 150	210	28	7	30	155	270	320	50	306

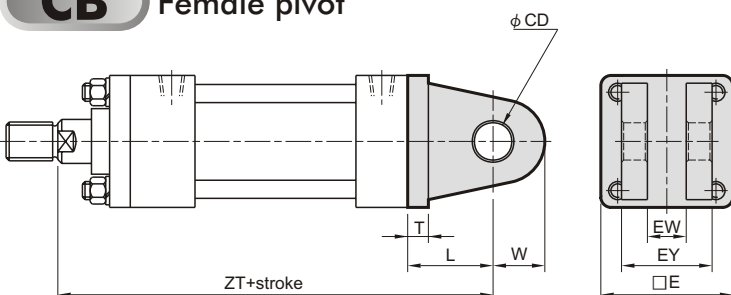
CA Male pivot



Dimensional table

Code Tube I.D.	CD	D	E	EW	L	T	W	ZT
φ 40	16	45	65	20	38	11	25	196
φ 50	20	52	75	25	45	13	25	219
φ 63	25	63	90	30	54	15	30	240
φ 80	30	80	110	35	71	18	30	269
φ 100	40	102	135	40	86	20	40	310
φ 125	50	122	165	50	110	25	45	359
φ 150	60	148	195	60	109	30	50	385

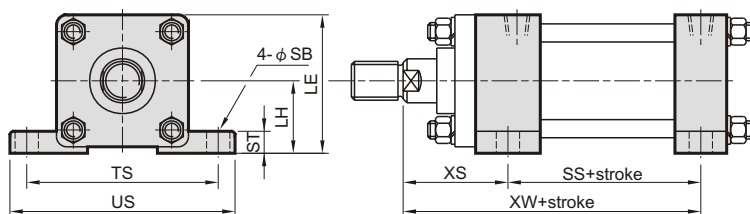
CB Female pivot



Dimensional table

Code Tube I.D.	CD	E	EW	EY	L	T	W	ZT
φ 40	16	65	20	50	38	11	25	196
φ 50	20	75	25	57	45	13	25	219
φ 63	25	90	30	70	54	15	30	240
φ 80	30	110	35	80	71	18	30	269
φ 100	40	135	40	100	86	20	40	310
φ 125	50	165	50	126	110	25	45	359
φ 150	60	195	60	160	109	30	50	385

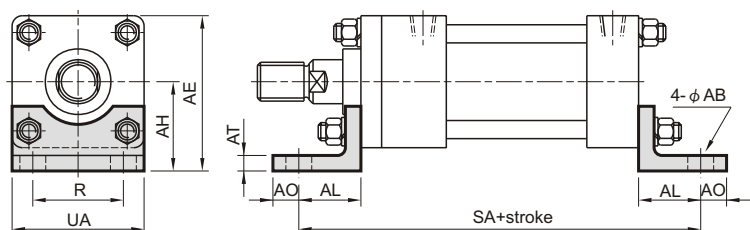
LA Side lugs



Dimensional table

Code Tube I.D.	LE	LH	SB	SS	ST	TS	XS	XW	US
φ 40	70	37.5	11	91	14	95	54	145	118
φ 50	80	45	11	98	17	115	59	157	145
φ 63	95	50	14	103	19	132	66	169	165
φ 80	115	60	18	107.5	25	155	71	178.5	190
φ 100	140	71	22	119	27	190	85	204	230
φ 125	172	85	24	127	32	224	99	226	272
φ 150	200	106	28	143	37	270	109	252	320

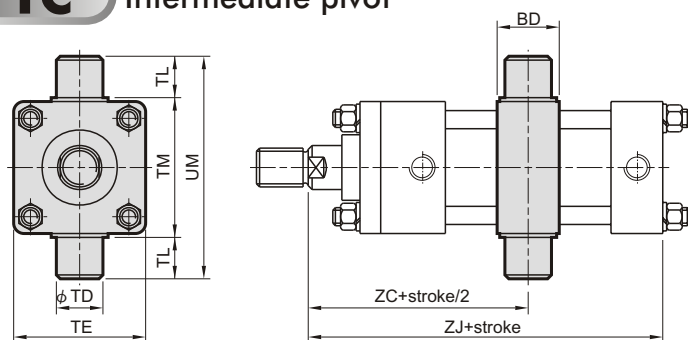
LB Foot mouting



Dimensional table

Code Tube I.D.	AB	AE	AH	AL	AO	AT	R	SA	UA
φ 40	11	77.5	45	32.5	13	8	46	198	65
φ 50	11	87.5	50	32.5	15	8	58	214	75
φ 63	14	105	60	37	18	10	65	230	90
φ 80	18	125	72	49	20	12	87	266	110
φ 100	22	157.5	85	58	23	12	109	300	135
φ 125	24	192.5	105	68.5	29	15	130	341	165
φ 150	28	222.5	123	74.5	30	18	155	375	195

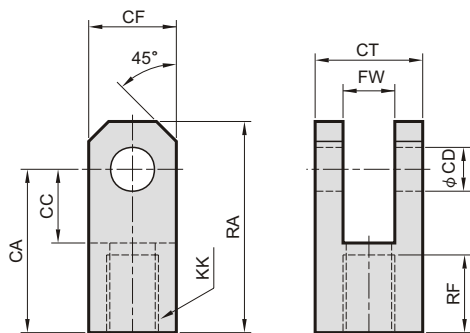
TC Intermediate pivot



Dimensional table

Code Tube I.D.	BD	TE	TD	TL	TM	UM	ZC	ZJ
φ 40	28	65	20	20	69	109	102	158
φ 50	33	75	25	25	85	135	110	174
φ 63	38	90	30	30	98	158	119.5	186
φ 80	38	110	30	30	118	178	126.5	198
φ 100	48	135	40	40	145	225	147	224
φ 125	58	165	50	50	175	275	165	249
φ 150	73	195	60	63	205	331	183	276

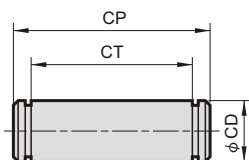
Y connector



Dimensional table

Model	Bore	CA	CC	CD	CF	CT	FW	KK	RA	RF
Y-M16×1.5	φ 40	50	26	16	35	45	20	M16×1.5	66	24
Y-M22×1.5	φ 50	60	30	20	40	50	25	M22×1.5	80	30
Y-M30×1.5	φ 63	80	40	25	50	60	30	M30×1.5	105	40
Y-M30×1.5	φ 80	80	40	30	60	65	35	M30×1.5	110	40
Y-M40×2.0	φ 100	90	50	40	80	90	40	M40×2.0	130	40
Y-M48×2.0	φ 125	110	60	50	100	100	50	M48×2.0	160	50
Y-M72×2.0	φ 150	130	70	60	120	120	60	M72×2.0	190	60

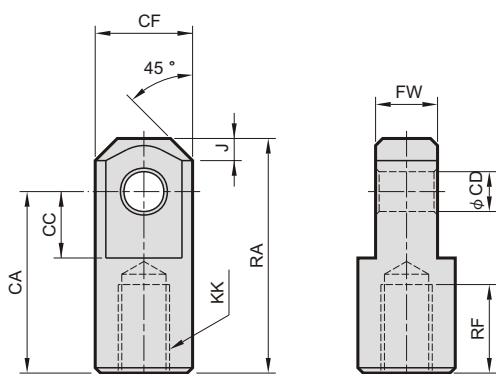
Pin



Dimensional table

Model	Bore	CD	CP	CT
P1659	φ 40	16	59	46
P2066	φ 50	20	66	51
P2576	φ 63	25	76	61
P3081	φ 80	30	81	66
P40114	φ 100	40	114	91
P50124	φ 125	50	124	101
P60156	φ 150	60	156	121

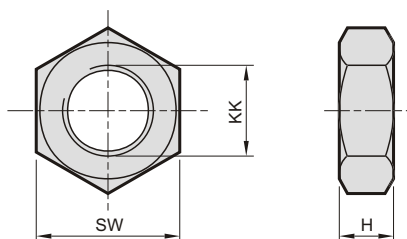
I connector



Dimensional table

Model	Bore	CA	CC	CD	CF	FW	J	KK	RA	RF
I-M16×1.5	φ 40	55	30	16	40	20	8	M16×1.5	75	20
I-M22×1.5	φ 50	65	35	20	50	25	10	M22×1.5	90	25
I-M30×1.5	φ 63	80	40	25	55	30	12.5	M30×1.5	110	35
I-M30×1.5	φ 80	90	45	30	60	35	15	M30×1.5	125	35
I-M40×2.0	φ 100	105	55	40	80	40	20	M40×2.0	145	40
I-M48×2.0	φ 125	120	65	50	100	50	30	M48×2.0	170	50
I-M72×2.0	φ 150	140	75	60	120	60	30	M72×2.0	200	55

Mounting nut



Dimensional table

Model	Bore	H	KK	SW
N-M16×1.5	φ 40	13	M16×1.5	24
N-M22×1.5	φ 50	10	M22×1.5	32
N-M30×1.5	φ 63	13	M30×1.5	41
N-M30×1.5	φ 80	13	M30×1.5	41
N-M40×2.0	φ 100	15	M40×2.0	57
N-M48×2.0	φ 125	15	M48×2.0	65
N-M72×2.0	φ 150	20	M72×2.0	95