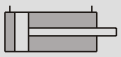
MDH* series

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 (℃)	-10~+60	

Double acting cylinders

MDHB Double acting - Standard type 

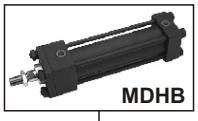
MDHD Double acting - Double end rod type 

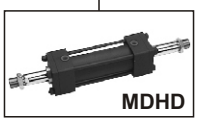
Order example:

1 – MDHB – 50 – N – 100 – LB – Y

1: SEAL MATERIAL

MDHB: MODEL



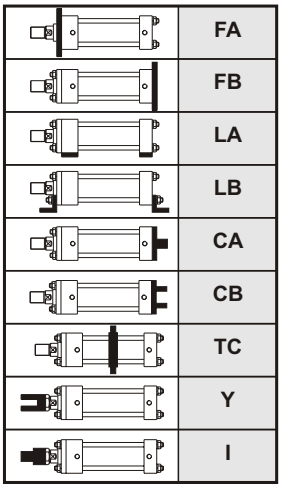


50: TUBE I.D.

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

100: STROKE

LB: ACCESSORIES



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 Polyurethone rubber	○	×	×	△	△
3	VITON Fluoro elastomer	○	×	○	○	○

Note: ○allowable ×unallowable △consult us

MDH*

HYDRAULIC CYLINDER

Mindman

Standard stroke

unit: mm

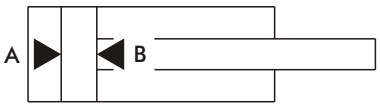
Bore	50	100	150	200	250	300	350	400	450	500
ϕ40	●	●	●	●	●	●	–	–	–	–
ϕ50	●	●	●	●	●	●	–	–	–	–
ϕ63	●	●	●	●	●	●	●	●	●	●
ϕ80	●	●	●	●	●	●	●	●	●	●
ϕ100	●	●	●	●	●	●	●	●	●	●
ϕ125	●	●	●	●	●	●	●	●	●	●
ϕ150	●	●	●	●	●	●	●	●	●	●

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	+1.0	+1.25	+1.4	+1.6	+1.8
	0	0	0	0	0	0



Theoretic force

unit: KN

Bore (mm)	Rod (mm)		Area (mm^2)	Operating pressure (MPa)								
				6	7	8	9	10	11	12	13	14
ϕ40	ϕ20	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
ϕ50	ϕ25	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
ϕ63	ϕ35	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
ϕ80	ϕ40	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	42.22	48.98	52.75
ϕ100	ϕ50	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
ϕ125	ϕ60	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
ϕ150	ϕ80	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	(mm^2)
f:	Friction drag	(N)

MDH* Inside structure and parts list

HYDRAULIC CYLINDER

How to order the seal kit

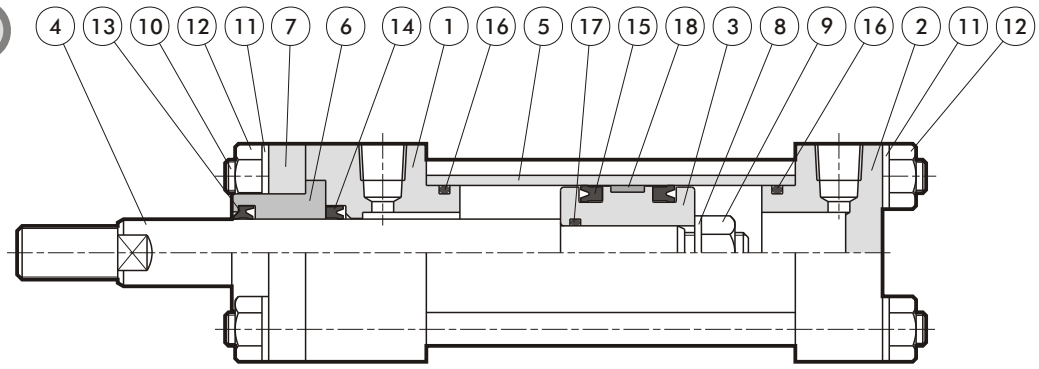
MDHBSK ☐

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

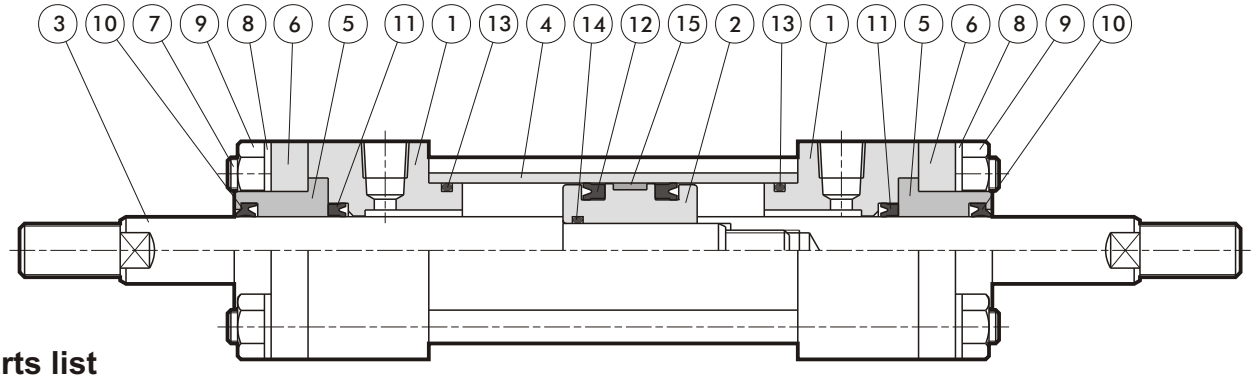
MDHB



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

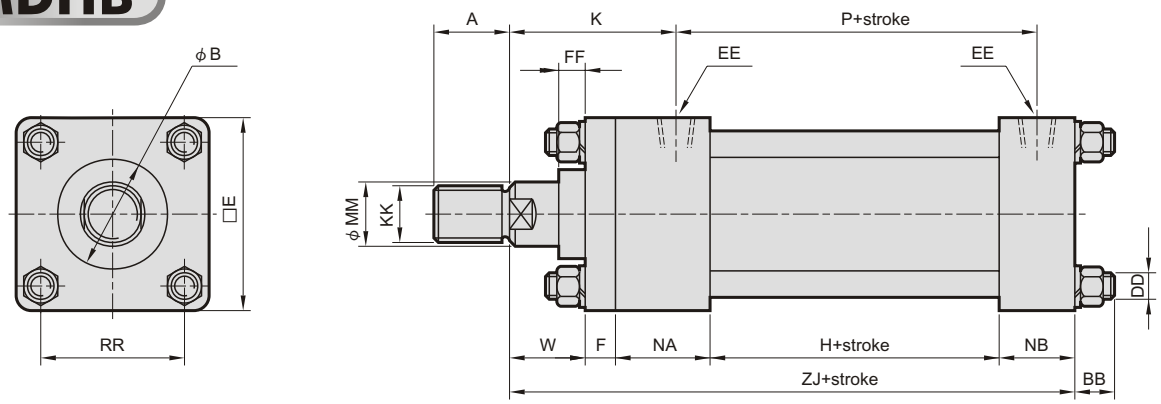
MDHD



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

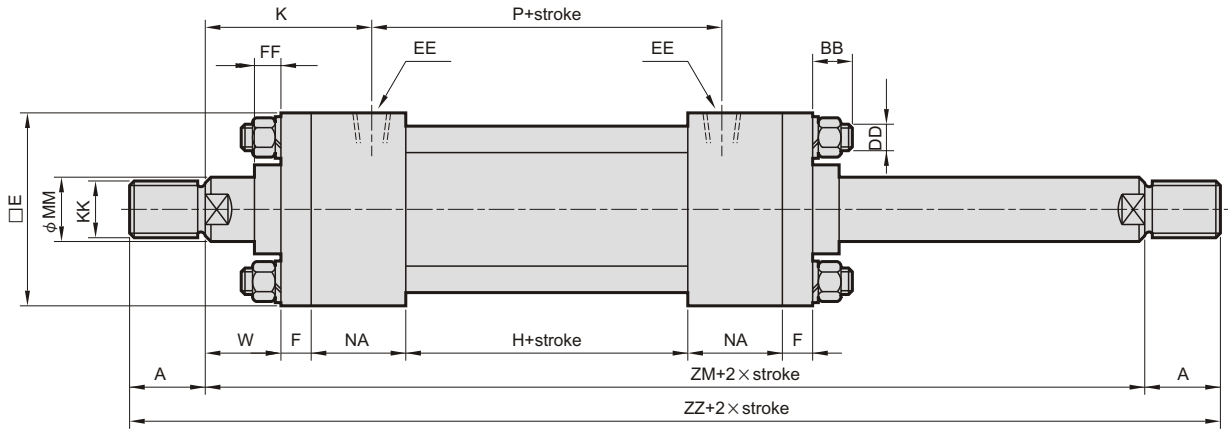
MDHB



Dimensional table

Code / Tube I.D.	A	B	BB	DD	E	EE	F	FF	H	K	KK	MM	NA	NB	P	RR	W	ZJ
ϕ40	30	35	16	M10×1.25	65	PT 1/4	11	11	60	60	M16×1.5	20	36	26	84	45	25	158
ϕ50	35	40	16	M10×1.25	75	PT 3/8	13	9	60	66	M22×1.5	25	42	34	88	52	25	174
ϕ63	40	50	18	M12×1.5	90	PT 3/8	15	9	65	73	M30×1.5	35	42	34	93	63	30	186
ϕ80	45	55	18	M16×1.5	110	PT 1/2	18	7	65	79	M30×1.5	40	46	39	95	80	30	198
ϕ100	50	65	25	M18×1.5	135	PT 1/2	20	7	74	95	M40×2.0	50	50	40	104	102	40	224
ϕ125	60	75	30	M22×1.5	165	PT 3/4	25	7	74	109	M48×2.0	60	58	47	112	122	45	249
ϕ150	70	95	30	M26×1.5	195	PT 3/4	30	7	90	119	M72×2.0	80	58	48	128	148	50	276

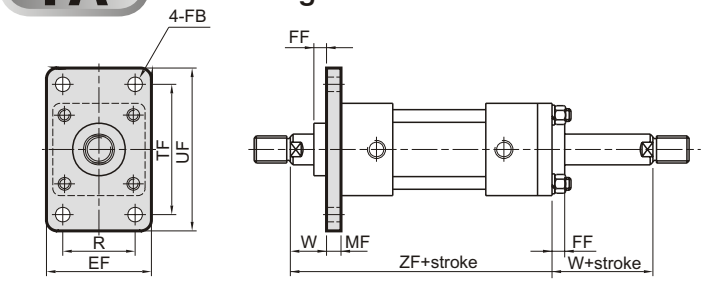
MDHD



Dimensional table

Code / Tube I.D.	A	B	BB	DD	E	EE	F	FF	H	K	KK	MM	NA	P	RR	W	W	ZJ
ϕ40	30	35	16	M10×1.25	65	PT 1/4	11	11	60	60	M16×1.5	20	36	84	45	25	204	264
ϕ50	35	40	16	M10×1.25	75	PT 3/8	13	9	60	66	M22×1.5	25	42	88	52	25	220	290
ϕ63	40	50	18	M12×1.5	90	PT 3/8	15	9	65	73	M30×1.5	35	42	93	63	30	239	319
ϕ80	45	55	18	M16×1.5	110	PT 1/2	18	7	65	79	M30×1.5	40	46	95	80	30	253	343
ϕ100	50	65	25	M18×1.5	135	PT 1/2	20	7	74	95	M40×2.0	50	50	104	102	40	294	394
ϕ125	60	75	30	M22×1.5	165	PT 3/4	25	7	74	109	M48×2.0	60	58	112	122	45	330	450
ϕ150	70	95	30	M26×1.5	195	PT 3/4	30	7	90	119	M72×2.0	80	58	128	148	50	366	506

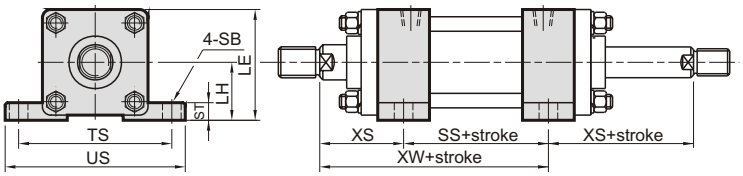
FA Front flange



Dimensional table

Code / Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
ϕ40	69	11	11	11	46	95	118	25	179
ϕ50	85	11	9	13	58	115	145	25	195
ϕ63	98	14	9	15	65	132	165	30	209
ϕ80	118	18	7	18	87	155	190	30	223
ϕ100	150	22	7	20	109	190	230	40	254
ϕ125	175	24	7	25	130	224	272	45	285
ϕ150	210	28	7	30	155	270	320	50	316

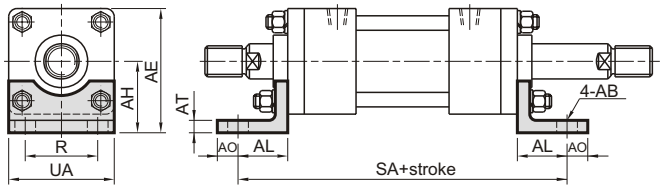
LA Side lugs



Dimensional table

Code / Tube I.D.	LE	LH	SB	SS	ST	TS	XS	XW	US
ϕ40	70	37.5	11	96	14	95	54	150	118
ϕ50	80	45	11	102	17	115	59	161	145
ϕ63	95	50	14	107	19	132	66	173	165
ϕ80	115	60	18	111	25	155	71	182	190
ϕ100	140	71	22	124	27	190	85	209	230
ϕ125	172	85	24	132	32	224	99	231	272
ϕ150	200	106	28	148	37	270	109	257	320

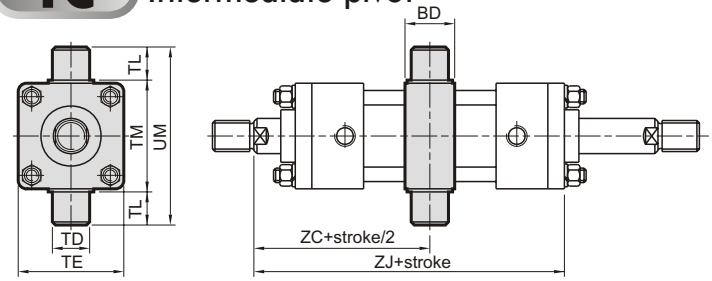
LB Foot mouting



Dimensional table

Code / Tube I.D.	AB	AE	AH	AL	AO	AT	R	SA	UA
ϕ40	11	77.5	45	32.5	13	8	46	219	65
ϕ50	11	87.5	50	32.5	15	8	58	235	75
ϕ63	14	105	60	37	18	10	65	253	90
ϕ80	18	125	72	49	20	12	87	291	110
ϕ100	22	157.5	85	58	23	12	109	330	135
ϕ125	24	192.5	105	68.5	29	15	130	377	165
ϕ150	28	222.5	123	74.5	30	18	155	415	195

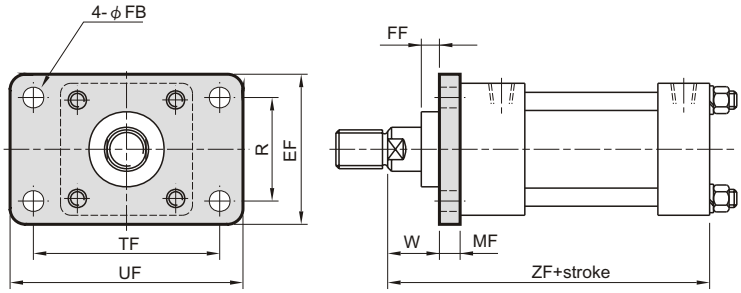
TC Intermediate pivot



Dimensional table

Code / Tube I.D.	BD	TE	TD	TL	TM	UM	ZC	ZJ
ϕ40	28	65	20	20	69	109	102	179
ϕ50	33	75	25	25	85	135	110	195
ϕ63	38	90	30	30	98	158	119.5	209
ϕ80	38	110	30	30	118	178	126.5	223
ϕ100	48	135	40	40	145	225	147	254
ϕ125	58	165	50	50	175	275	165	285
ϕ150	73	195	60	63	205	331	183	316

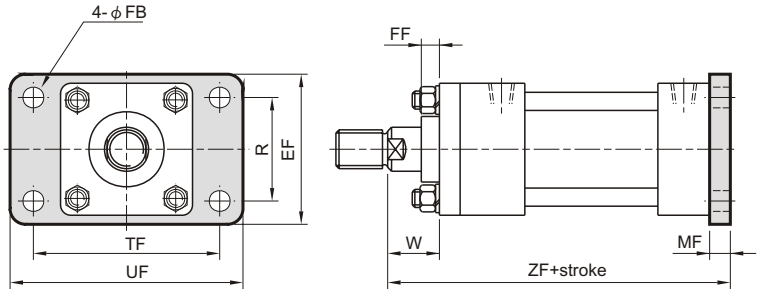
FA Front flange



Dimensional table

Code / Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
ϕ40	69	11	11	11	46	95	118	25	158
ϕ50	85	11	9	13	58	115	145	25	174
ϕ63	98	14	9	15	65	132	165	30	186
ϕ80	118	18	7	18	87	155	190	30	198
ϕ100	150	22	7	20	109	190	230	40	224
ϕ125	175	24	7	25	130	224	272	45	249
ϕ150	210	28	7	30	155	270	320	50	276

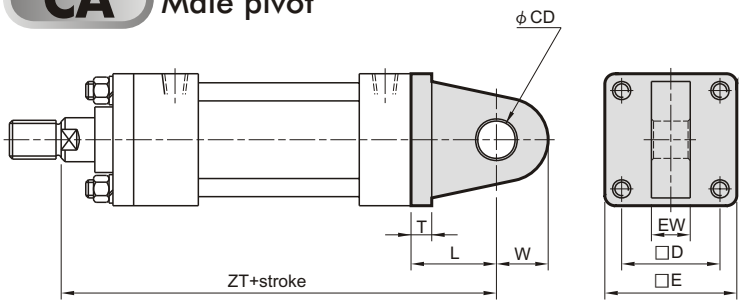
FB Rear flange



Dimensional table

Code / Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
ϕ40	69	11	11	11	46	95	118	25	169
ϕ50	85	11	9	13	58	115	145	25	187
ϕ63	98	14	9	15	65	132	165	30	201
ϕ80	118	18	7	18	87	155	190	30	216
ϕ100	150	22	7	20	109	190	230	40	244
ϕ125	175	24	7	25	130	224	272	45	274
ϕ150	210	28	7	30	155	270	320	50	306

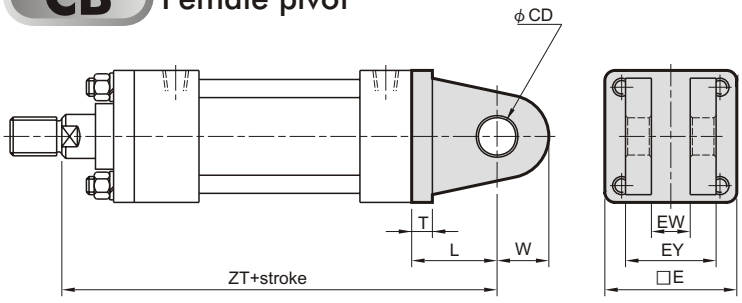
CA Male pivot



Dimensional table

Code / Tube I.D.	CD	D	E	EW	L	T	W	ZT
ϕ40	16	45	65	20	38	11	25	196
ϕ50	20	52	75	25	45	13	25	219
ϕ63	25	63	90	30	54	15	30	240
ϕ80	30	80	110	35	71	18	30	269
ϕ100	40	102	135	40	86	20	40	310
ϕ125	50	122	165	50	110	25	45	359
ϕ150	60	148	195	60	109	30	50	385

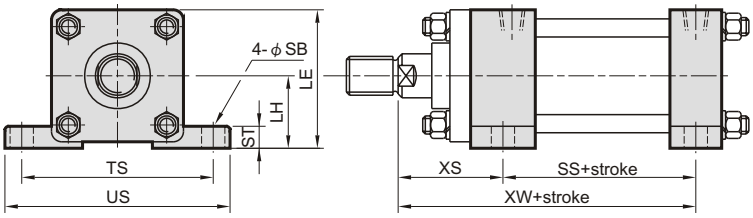
CB Female pivot



Dimensional table

Code / Tube I.D.	CD	E	EW	EY	L	T	W	ZT
ϕ40	16	65	20	50	38	11	25	196
ϕ50	20	75	25	57	45	13	25	219
ϕ63	25	90	30	70	54	15	30	240
ϕ80	30	110	35	80	71	18	30	269
ϕ100	40	135	40	100	86	20	40	310
ϕ125	50	165	50	126	110	25	45	359
ϕ150	60	195	60	160	109	30	50	385

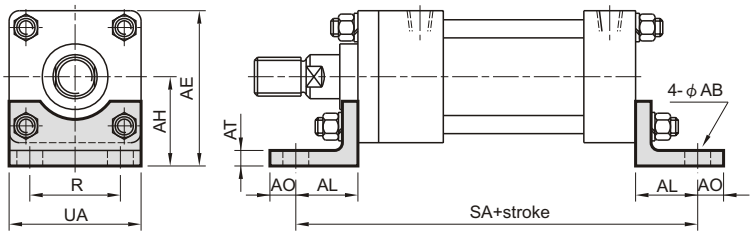
LA Side lugs



Dimensional table

Code / Tube I.D.	LE	LH	SB	SS	ST	TS	XS	XW	US
ϕ40	70	37.5	11	91	14	95	54	145	118
ϕ50	80	45	11	98	17	115	59	157	145
ϕ63	95	50	14	103	19	132	66	169	165
ϕ80	115	60	18	107.5	25	155	71	178.5	190
ϕ100	140	71	22	119	27	190	85	204	230
ϕ125	172	85	24	127	32	224	99	226	272
ϕ150	200	106	28	143	37	270	109	252	320

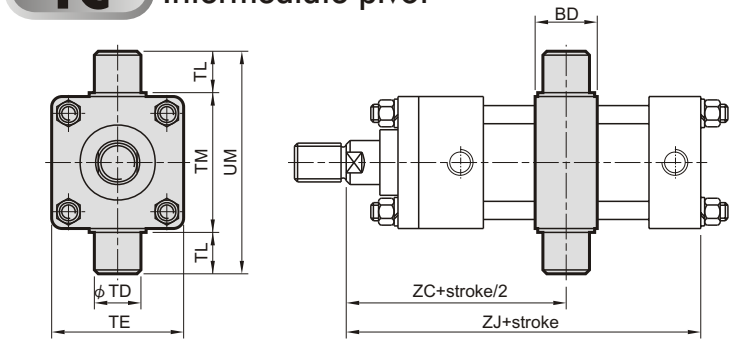
LB Foot mouting



Dimensional table

Code / Tube I.D.	AB	AE	AH	AL	AO	AT	R	SA	UA
ϕ40	11	77.5	43	32.5	13	8	46	198	65
ϕ50	11	87.5	50	32.5	15	8	58	214	75
ϕ63	14	105	60	37	18	10	65	230	90
ϕ80	18	125	72	49	20	12	87	266	110
ϕ100	22	157.5	85	58	23	12	109	300	135
ϕ125	24	192.5	105	68.5	29	15	130	341	165
ϕ150	28	222.5	123	74.5	30	18	155	375	195

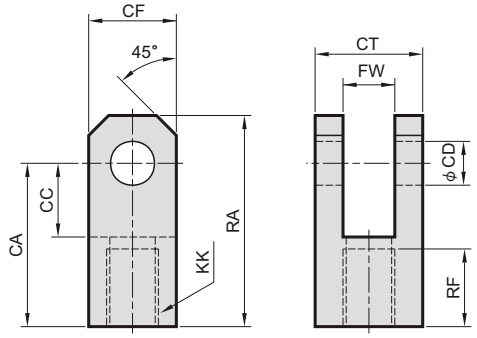
TC Intermediate pivot



Dimensional table

Code / Tube I.D.	BD	TE	TD	TL	TM	UM	ZC	ZJ
ϕ40	28	65	20	20	69	109	102	158
ϕ50	33	75	25	25	85	135	110	174
ϕ63	38	90	30	30	98	158	119.5	186
ϕ80	38	110	30	30	118	178	126.5	198
ϕ100	48	135	40	40	145	225	147	224
ϕ125	58	165	50	50	175	275	165	249
ϕ150	73	195	60	63	205	331	183	276

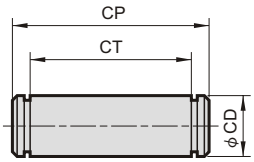
Y connector



Dimensional table

Model	Bore	CA	CC	CD	CF	CT	FW	KK	RA	RF
Y-M16×1.5	ϕ40	50	26	16	35	45	20	M16×1.5	66	24
Y-M22×1.5	ϕ50	60	30	20	40	50	25	M22×1.5	80	30
Y-M30×1.5	ϕ63	80	40	25	50	60	30	M30×1.5	105	40
Y-M30×1.5	ϕ80	80	40	30	60	65	35	M30×1.5	110	40
Y-M40×2.0	ϕ100	90	50	40	80	90	40	M40×2.0	130	40
Y-M48×2.0	ϕ125	110	60	50	100	100	50	M48×2.0	160	50
Y-M72×2.0	ϕ150	130	70	60	120	120	60	M72×2.0	190	60

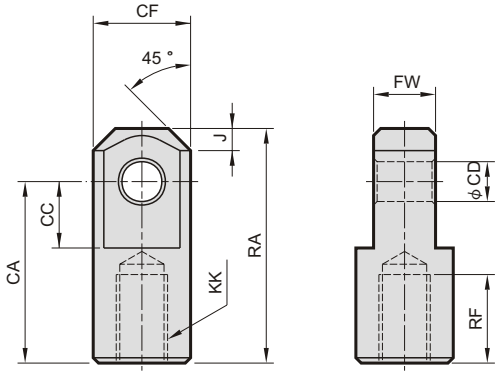
Pin



Dimensional table

Model	Bore	CD	CP	CT
P1659	ϕ40	16	59	46
P2066	ϕ50	20	66	51
P2576	ϕ63	25	76	61
P3081	ϕ80	30	81	66
P40114	ϕ100	40	114	91
P50124	ϕ125	50	124	101
P60156	ϕ150	60	156	121

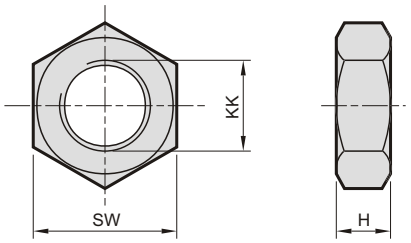
I connector



Dimensional table

Model	Bore	CA	CC	CD	CF	FW	J	KK	RA	RF
I-M16×1.5	ϕ40	55	30	16	40	20	8	M16×1.5	75	20
I-M22×1.5	ϕ50	65	35	20	50	25	10	M22×1.5	90	25
I-M30×1.5	ϕ63	80	40	25	55	30	12.5	M30×1.5	110	35
I-M30×1.5	ϕ80	90	45	30	60	35	15	M30×1.5	125	35
I-M40×2.0	ϕ100	105	55	40	80	40	20	M40×2.0	145	40
I-M48×2.0	ϕ125	120	65	50	100	50	30	M48×2.0	170	50
I-M72×2.0	ϕ150	140	75	60	120	60	30	M72×2.0	200	55

Mounting nut



Dimensional table

Model	Bore	H	KK	SW
N-M16×1.5	ϕ40	13	M16×1.5	24
N-M22×1.5	ϕ50	10	M22×1.5	32
N-M30×1.5	ϕ63	13	M30×1.5	41
N-M30×1.5	ϕ80	13	M30×1.5	41
N-M40×2.0	ϕ100	15	M40×2.0	57
N-M48×2.0	ϕ125	15	M48×2.0	65
N-M72×2.0	ϕ150	20	M72×2.0	95