FDX series Standard Cylinder (Aluminum Tube)

Product features

CHELIC

Feature

- Use oil-impregnated bearings so that the piston rod does not need to be lubricated.
- The front and rear covers of the cylinder body are anodized, which is wear-resistant, corrosion-resistant and durable.
- High temperature resistant sealing materials can be selected to make the cylinder work in a high temperature environment of 150° C (customization).
- Various installation accessories are available.

Specification

Item \ Bore size (mm)		Ø20	Ø25	Ø32	Ø40	Ø50
Type of operation	FDX, FDXL, FDXL-C, FDXD, FDXD-C	Double acting				
	FDXI, FDXO	Single acting				—
Fluid		Air (Filtered through a 40μm filter)				
Pressure range	Double acting	0.15 ~1.0 Mpa (22 ~145 Psi)(1.5 ~10.0 Bar)				
	Single acting	0.20 ~1.0 Mpa (28 ~145 Psi)(2.0 ~10.0 Bar)				—
Proof pressure		1.5 Mpa (215 Psi)(15Bar)				
Ambient and fluid temperature (℃)		-20 ~ 80				
Piston speed (mm / s)		Double acting: 30 ~ 800 / Single acting: 50 ~ 800				
Stroke tolerance (mm)		0 ~ 150 $^{+1.0}_{-0}$ >150 $^{+1.5}_{-0}$				
Cushion device		Adjustable Cushion: FDX-C, FDXD-C, FDXL-C / Cushion gasket: FDX, FDXI, FDXO, FDXD, FDXL				
Port size		PT 1/8			PT 1/4	

Standard stroke

Unit: mm

Model	Bore size	Standard stroke	Maximum
FDX, FDX-C	Ø20, Ø25, Ø32, Ø40, Ø50	10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 125, 150, 160, 175, 200, 250, 300	800
FDXI	Ø20, Ø25, Ø32, Ø40	10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 125, 150	150
FDXO	Ø20, Ø25, Ø32, Ø40	10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 125, 150	150
FDXD, FDXD-C	Ø20	10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 125, 150, 160, 175, 200	200
	Ø25, Ø32, Ø40, Ø50	10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 125, 150, 160, 175, 200, 250	250
FDXL, FDXL-C	Ø20	10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 125, 150, 160, 175, 200	200
	Ø25, Ø32, Ø40, Ø50	10, 15, 20, 25, 30, 40, 50, 60, 75, 80, 100, 125, 150, 160, 175, 200, 250	250

Symbol

FDX FDXI FDXO FDXD FDXL

Code of order

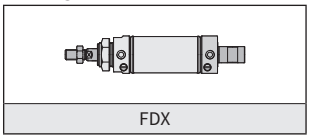
FDX 20 x 50 – K – C – A – FA – Y – 9D – 20A 2

1 2 3 4 5 6 7 8 9 10 11

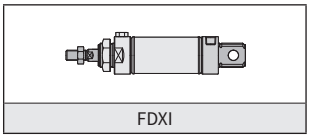
1

Mark	Model
FDX	Double acting
FDXI	Single acting & Normal out
FDXO	Single acting & Normal in
FDXD	Double acting & Double-rod
FDXL	Adjustable & Double-rod

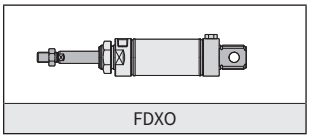
● Image



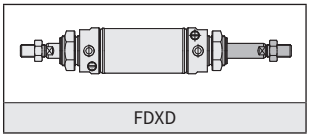
FDX



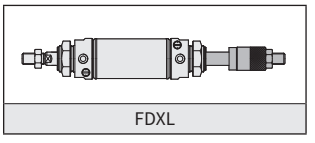
FDXI



FDXO



FDXD



FDXL

2

Mark	Bore size (mm)
20	Ø20
25	Ø25
32	Ø32
40	Ø40
50	Ø50

● No Ø50 cylinder for FDXI & FDXO Series.

3

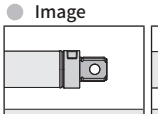
Sroke (mm)	Bore size(mm)
10 ~ 300	Ø20
	Ø25
	Ø32
	Ø40
	Ø50

● Refer to stroke list

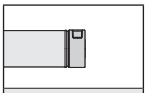
4

Mark	Head cover shape
None	Standard
K	Short head

● Image



Standard



Short head

● FDXD, FDXL without short head

5

Mark	Cushion device
None	Without air cushion
C	With cushion device

● Available only for double-acting types

6

Mark	Adjustable stroke (mm)
A	25
B	50

● Only FDXL series has this option

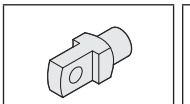
7

Mark	Mounting type
None	Without mounting accessory
FA	Front flange
LB	Foot mounting
CB	Double clevis

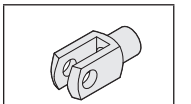
8

Mark	Accessory
None	Without Accessory
I	I joint
Y	Y joint
G	Rod end
CJ	Floating joint

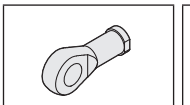
● Image



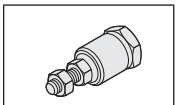
I: I joint



Y: Y joint



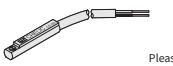
G: Rod end



CJ : Floating joint

9

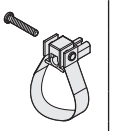
Mark	Sensor switch
None	Without sensor switch
9D	CS-9D



Please refer to P.8-2.10

10

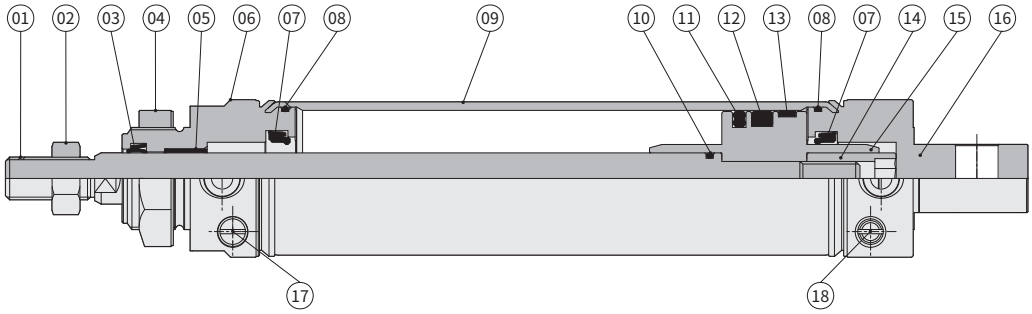
Mark	Mounting bracket
20A	Ø20
25A	Ø25
32A	Ø32
40A	Ø40
50A	Ø50



11

Mark	Sensor/ Bracket q'ty
1	1 Pc
2	2 Pcs

Internal structure



Components and material list

No.	Item	Material	No.	Item	Material
01	Piston rod	Carbon steel	10	Axial ring	NBR
02	Nut for Piston rod	Carbon steel	11	Piston ring	NBR
03	Anti dust seals	NBR	12	Magnetic ring	Plastic magnet
04	Front cover nut	Carbon steel	13	Wear ring	POM
05	Oil bearing	Steel based powder alloy	14	Piston nut	Carbon steel
06	Front end cover	Aluminum alloy	15	Single piston	Aluminum alloy
07	Buffer ring	NBR	16	Rear end cover	Aluminum alloy
08	Pipe wall ring	NBR	17	Needle valve O-ring	NBR
09	Cylinder	Aluminum alloy	18	Needle valve	Copper alloy

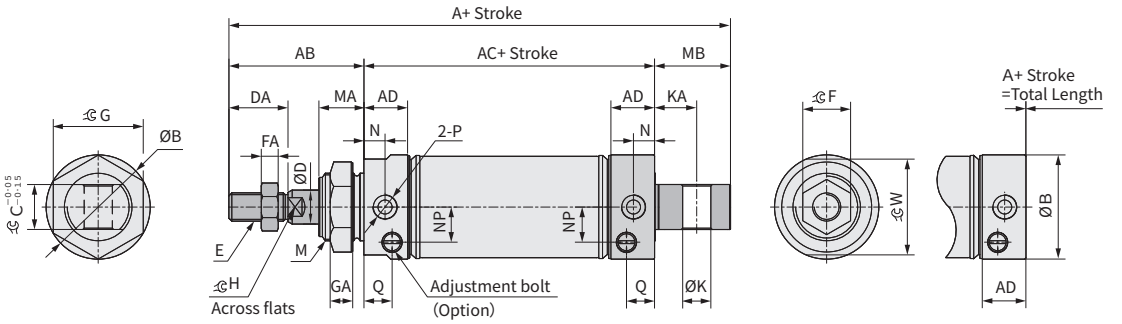
Theoretical Output

Unit: Kgf

Bore size (mm)	Piston Rod Diameter (mm)	Operating		Piston area (mm^2)	Air pressure (Mpa)						
					0.1	0.2	0.3	0.4	0.5	0.6	0.7
Ø20	Ø8	Single acting & Normal out		314.0	—	1.26	4.40	7.54	10.68	13.82	19.96
		Single acting & Normal in		263.8	—	0.57	3.20	5.84	8.48	11.12	13.75
		Double acting	Push	314.0	2.14	6.28	9.42	12.56	15.70	18.84	21.98
			Pull	263.8	2.64	5.28	7.92	10.56	13.19	15.83	18.47
Ø25	Ø10	Single acting & Normal out		490.6	—	2.91	7.81	12.71	17.61	22.51	27.41
		Single acting & Normal in		412.1	—	0.89	5.01	9.14	13.26	17.38	21.50
		Double acting	Push	490.6	4.90	9.80	14.70	19.60	24.50	29.40	34.30
			Pull	412.1	4.12	8.24	12.36	16.48	20.60	24.72	28.84
Ø32	Ø12	Single acting & Normal out		803.0	—	7.66	15.70	23.74	31.78	39.82	47.86
		Single acting & Normal in		690.8	—	1.76	8.66	15.57	22.48	29.39	36.30
		Double acting	Push	803.0	8.03	16.06	24.09	32.12	40.15	48.18	56.21
			Pull	690.8	6.90	13.80	20.70	27.60	34.50	41.40	48.30
Ø40	Ø16	Single acting & Normal out		1256.0	3.75	16.31	28.87	41.43	53.99	66.55	79.11
		Single acting & Normal in		1055.0	—	2.6	12.81	23.36	33.91	44.46	55.01
		Double acting	Push	1256.0	12.56	25.12	37.68	50.24	62.80	75.36	87.92
			Pull	1055.0	10.55	21.10	31.65	42.20	52.75	63.30	73.85
Ø50	Ø16	Double acting	Push	1962.5	19.62	39.24	58.86	78.48	98.10	117.72	137.34
			Pull	1761.5	17.61	35.22	52.83	70.44	88.05	105.66	123.27

Double acting

FDX / FDX-C



Standard

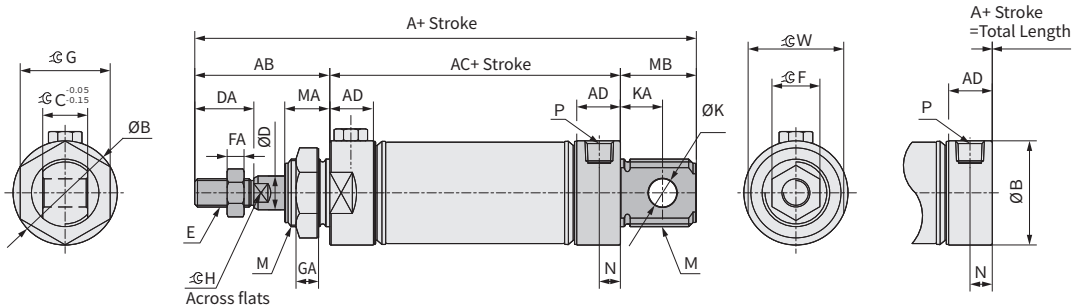
Short head
- K

Unit: mm

Mark	A		AB	AC	AD	ØB	C	ØD	DA	E	F	FA	G	GA	H	ØK	KA	M	P	N	MA	MB	Q	NP	W
Head cover shape	Standard	Short head																							
Ø20	131	110	40	70	15.5	27	16	8	20	M8x1.25	12	6	29	7	6	8	12	M22x1.5	PT-1/8	7.5	14	21	10	8.5	24
Ø25	135	114	44	70	15.5	30	16	10	21	M10x1.25	17	6	29	7	8	8	12	M22x1.5	PT-1/8	7.5	14	21	10	9.5	27
Ø32	141	114	44	70	15.5	37	16	12	21	M10x1.25	17	6	32	8	10	10	15	M24x2.0	PT-1/8	7.5	16	27	10	12.5	34
Ø40	165	138	46	92	22	45	20	16	22.5	M12x1.25	17	7	41	9	14	12	15	M30x2.0	PT-1/4	11	16	27	15	16	42
Ø50	173	146	54	92	22	55	20	16	24	M14x1.5	19	8	46	11	14	12	15	M36x2.0	PT-1/4	11	22	27	15	19	52

Single acting

FDXI Normal out



Standard

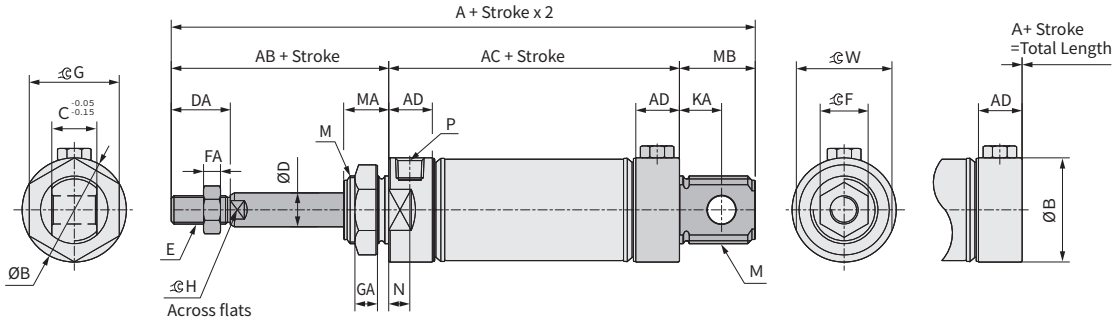
Short head
- K

Unit: mm

Mark	A						AB	AC			AD	ØB	C	ØD	E	F	FA	G	GA	H	ØK	KA	M	P	N	MA	MB	W
Head cover shape	Standard			Short head																								
Bore/Strok	≦ 50	51~100	≧ 101	≦ 50	51~100	≧ 101		≦ 50	51~100	≧ 101																		
Ø20	156	181	206	135	160	185	40	95	120	145	15.5	27	16	8	M8x1.25	12	6	29	7	6	8	12	M22x1.5	PT-1/8	7.5	14	21	24
Ø25	160	185	210	139	164	189	44	95	120	145	15.5	30	16	10	M10x1.25	17	6	29	7	8	8	12	M22x1.5	PT-1/8	7.5	14	21	27
Ø32	166	191	216	139	164	189	44	95	120	145	15.5	37	16	12	M10x1.25	17	6	32	8	10	10	15	M24x1.5	PT-1/8	7.5	16	27	34
Ø40	190	215	240	163	188	213	46	117	142	167	22	45	20	16	M12x1.25	17	7	41	9	14	12	15	M30x1.5	PT-1/4	11	16	27	42

Single acting

FDXO Normal in



Standard

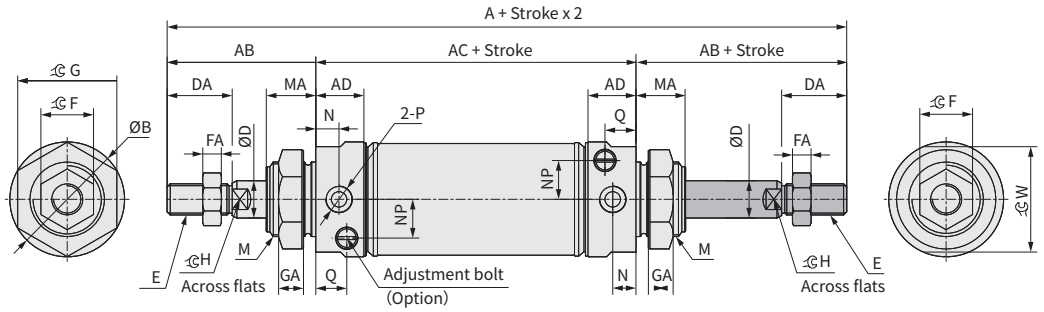
Short head
- K

Unit: mm

Mark	A						AB	AC			AD	ØB	C	ØD	E	F	FA	G	GA	H	ØK	KA	M	P	N	MA	MB	W
Head cover shape	Standard			Short head																								
Bore/Strok	≦ 50	51~100	≧ 101	≦ 50	51~100	≧ 101		≦ 50	51~100	≧ 101																		
Ø20	156	181	206	135	160	185	40	95	120	145	15.5	27	16	8	M8x1.25	12	6	29	7	6	8	12	M22x1.5	PT-1/8	7.5	14	21	24
Ø25	160	185	210	139	164	189	44	95	120	145	15.5	30	16	10	M10x1.25	17	6	29	7	8	8	12	M22x1.5	PT-1/8	7.5	14	21	27
Ø32	166	191	216	139	164	189	44	95	120	145	15.5	37	16	12	M10x1.25	17	6	32	8	10	10	15	M24x1.5	PT-1/8	7.5	16	27	34
Ø40	190	215	240	163	188	213	46	117	142	167	22	45	20	16	M12x1.25	17	7	41	9	14	12	15	M30x1.5	PT-1/4	11	16	27	42

Double acting

FDXD, FDXD-C Double-rod



Unit: mm

Mark	A	AB	AC	AD	ØB	ØD	DA	E	F	FA	G	GA	H	M	P	Q	NP	N	MA	W
Ø20	150	40	70	15.5	27	8	20	M8x1.25	12	6	29	7	6	M22x1.5	PT-1/8	10	8.5	7.5	14	24
Ø25	158	44	70	15.5	30	10	21	M10x1.25	17	6	29	7	8	M22x1.5	PT-1/8	10	9.5	7.5	14	27
Ø32	158	44	70	15.5	37	12	21	M10x1.25	17	6	32	8	10	M24x2.0	PT-1/8	10	12.5	7.5	16	34
Ø40	184	46	92	22	45	16	22.5	M12x1.25	17	7	41	9	14	M30x2.0	PT-1/4	15	16	11	16	42
Ø50	200	54	92	22	55	16	24	M14x1.5	19	8	46	11	14	M36x2.0	PT-1/4	15	19	11	22	52

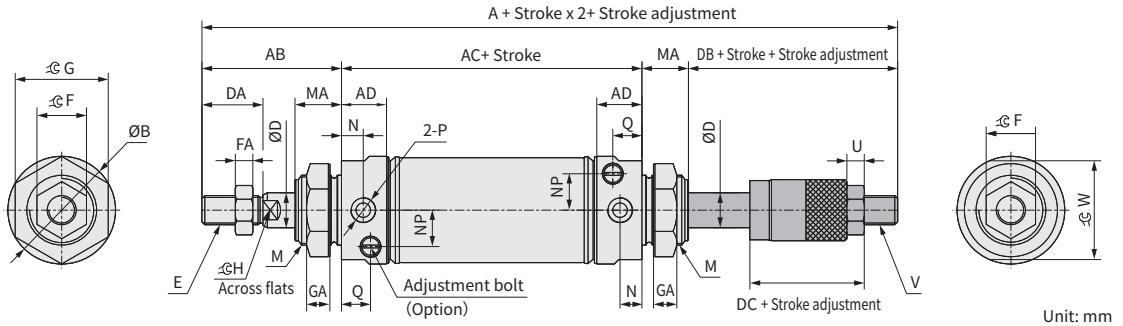
FDX series Standard Cylinder (Aluminum Tube)

Dimensions / Double acting, Single acting

CHELIC

Double acting

FDXL, FDXL-C Adjustable & Double-rod



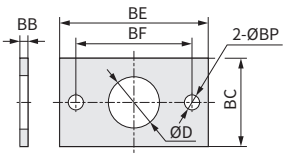
Unit: mm

Mark	A	AB	AC	AD	ØB	ØD	DA	E	F	FA	G	GA	H	M	P	Q	NP	N	MA	DB	DC	U	V	W
Ø20	147	40	70	15.5	27	8	20	M8x1.25	12	6	29	7	6	M22x1.5	PT-1/8	10	8.5	7.5	14	23	20	6	M8x1.25	24
Ø25	154	44	70	15.5	30	10	21	M10x1.25	17	6	29	7	8	M22x1.5	PT-1/8	10	9.5	7.5	14	26	23	6	M10x1.25	27
Ø32	156	44	70	15.5	37	12	21	M10x1.25	17	6	32	8	10	M24x2.0	PT-1/8	10	12.5	7.5	16	26	23	6	M10x1.25	34
Ø40	181	46	92	22	45	16	22.5	M12x1.25	17	7	41	9	14	M30x2.0	PT-1/4	15	16	11	16	27	25	7	M12x1.25	42
Ø50	196	54	92	22	55	16	24	M14x1.5	19	8	46	11	14	M36x2.0	PT-1/4	15	19	11	22	28	25	7	M12x1.25	52

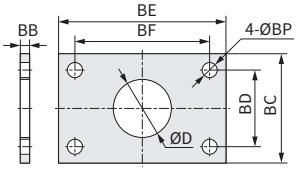
Bracket dimensions

Front flange - FA

Ø20 ~ Ø25



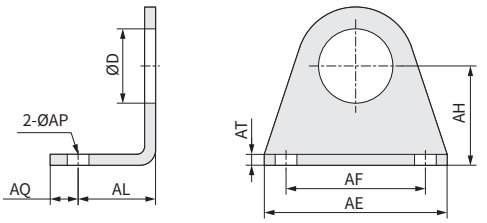
Ø32 ~ Ø50



Unit: mm

Bore \ Mark	BB	BE	BF	BC	BD	ØD	BP
Ø20	3.5	64	50	38	—	Ø22	Ø7
Ø25	3.5	64	50	38	—	Ø22	Ø7
Ø32	4	72	58	47	33	Ø24	Ø6.5
Ø40	4	84	70	50	36	Ø30	Ø6.5
Ø50	4.5	104	86	65	47	Ø36	Ø9

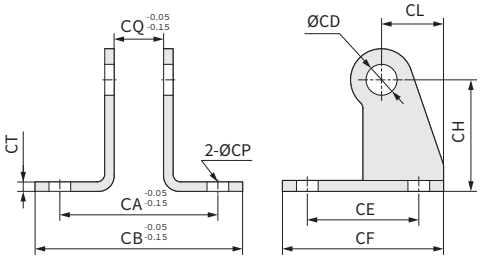
Foot mounting - LB



Unit: mm

Bore \ Mark	AE	AF	AH	AL	AQ	AT	ØAP	ØD
Ø20	54	40	25	15	8	3	Ø6.5	Ø22
Ø25	54	40	25	15	8	3	Ø6.5	Ø22
Ø32	59	45	32	25	8	3.5	Ø7	Ø24
Ø40	64	50	36	25	8	3.5	Ø7	Ø30
Ø50	86	66	40	28	12	4.5	Ø11	Ø36

Double clevis - CB

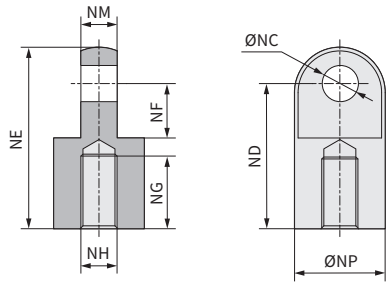


Unit: mm

Bore \ Mark	CA	CB	CL	CE	CF	CH	CT	CQ	ØCP	ØCD
Ø20	51	67	21	32	48	32	2.5	16	Ø7	Ø8
Ø25	51	67	21	32	48	32	2.5	16	Ø7	Ø8
Ø32	51	67	27	36	52	36	3	16	Ø7	Ø10
Ø40	55	71	27	40	56	40	3	20	Ø7	Ø12

Accessory

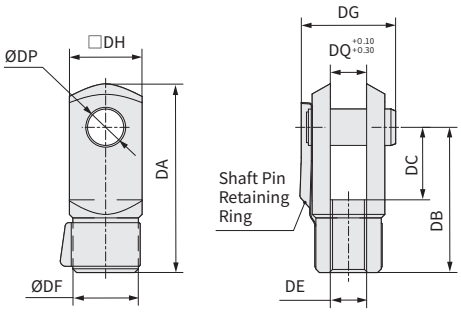
I joint



Unit: mm

Bore \ Mark	ØNC	ND	NE	NF	NG	NH	NM	ØNP
Ø20	8	30	40	11	15	M8x1.25	8	16
Ø25 ~ Ø32	10	40	50	15	20	M10x1.25	10	20
Ø40	12	45	57	16	23	M12x1.25	14	25

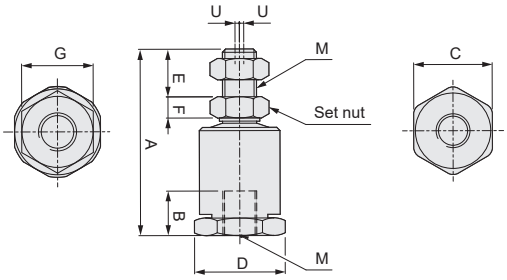
Y joint



Unit: mm

Bore \ Mark	DA	DB	DC	DE	ØDF	DH	DG	CQ	ØDP
Ø20	72	32	16	M8x1.25	14	16	21	8	Ø8
Ø25 ~ Ø32	52	40	20	M10x1.25	18	20	26	10	Ø10
Ø40	62	48	24	M12x1.25	20	24	30	12	Ø12

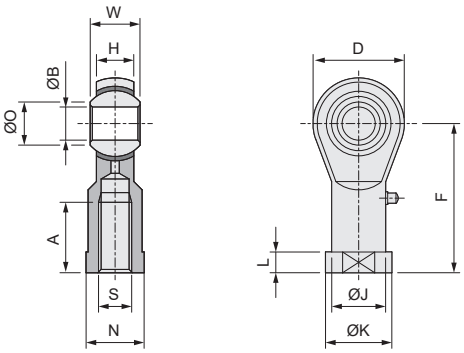
Floating joint



Unit: mm

Mark / Bore	M	A	B	C	D	E	F	G	Allowable eccentricity / A.E
									U
Ø20	M8x1.25	47	11	19	20	12.6	5	12	0.75
Ø25 ~ Ø32	M10x1.25	54	13	24	25.5	14.4	6	17	1
Ø40	M12x1.25	71	17	29	31	20.8	7	19	1.15

Rod end



Unit: mm

Bore \ Mark	S	A	B	O	H	W	F	D	J	K	L	N
Ø20	M8x1.25	17	8	10.4	9	12	36	22	13	16	5	14
Ø25 ~ Ø32	M10x1.25	21	10	12.9	11	14	43	26	15	19	6.5	17
Ø40	M12x1.25	24	12	15.4	12	16	50	30	18	22	6.5	19

- Please read this safety notice carefully, pay attention to safety item while using this product, in order to prevent injury to human body and damage of property.
- Pay attention to the individual caution for various model series (read the cautions and safety notice in P. 2 ~ P.3 for common cautions and safety notice).

Caution for design, selection

⚠ CAUTION

- When the load changes during operation, the cylinder with sufficient output force shall be selected.
- Under high temperature or corrosive conditions, corresponding high temperature or corrosion resistant cylinders shall be selected.
- Necessary protective measures shall be taken for cylinders in case of high humidity, dust or water drops, oil dust and welding slag.
- Before the cylinder is connected to the pipe, the dirt in the pipe must be removed to prevent the debris from entering the cylinder.
- The medium used for the cylinder shall pass 40 μ The filter element above can be used after filtering.
- In low temperature environment, anti freezing measures shall be taken to prevent moisture freezing in the system.
- Avoid lateral load, otherwise the piston rod will be bent and deformed and the rod end thread will be damaged. Load when the single action type cannot be returned.
- If the cylinder is removed and not used for a long time, pay attention to rust prevention on the surface, and add plugs at the air inlet and outlet.
- Special note: The front and rear covers cannot be removed.