



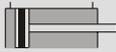
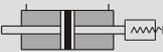
Features:

- Hydraulic cylinder with magnetic piston allows sensors to be used.
- Large range of mounting accessories.
- Adjustable stroke available.
- Magnetic as standard.

Specification:

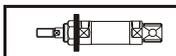
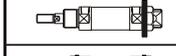
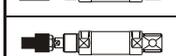
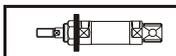
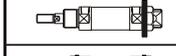
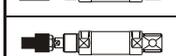
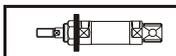
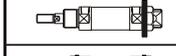
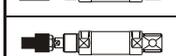
Model	MDO*	
Tube I.D. (mm)	20	32
Power fluid	Filtered oil	
Material of cylinder barrel	Anodised aluminium	Stainless steel
The range of pressure	3.5 MPa (35 kgf/cm ²)	
Proof pressure	5 MPa (50 kgf/cm ²)	
Speed range	0.5~300 mm/sec	
The range of temperature	-10~+60 °C (No freezing)	
Sensor switch	LN01H	LN01G

Double acting hydraulic cylinders

MDOC	Pivot type	
MDOA	Front nose mounting type	
MDOD	Double end rod type	
MDON	Adjustable forward stroke type	

Order example:

MDON - 32 - 100 - A - LB - Y

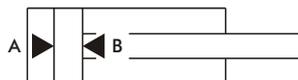
MODEL	TUBE I.D.	STROKE	ADJUSTABLE STROKE	MOUNTING TYPE										
 MDOC	32	100	Blank : Standard type A : Adjustable 25mm B : Adjustable 50mm (Only for MDON type)	<table border="1"> <tbody> <tr> <td></td> <td>FA</td> </tr> <tr> <td></td> <td>FB</td> </tr> <tr> <td></td> <td>LB</td> </tr> <tr> <td></td> <td>Y</td> </tr> <tr> <td></td> <td>I</td> </tr> </tbody> </table>		FA		FB		LB		Y		I
	FA													
	FB													
	LB													
	Y													
	I													
 MDOA														
 MDOD														
 MDON														

Standard stroke

unit: mm

Tube I.D.	25	50	75	100	125	150	200	250	300
$\phi 20$	●	●	●	●	●	●	●	—	—
$\phi 32$	●	●	●	●	●	●	●	●	●

Note: May to order of unstandard stroke.



Theoretic force

unit: N

Tube I.D. (mm)	Rod (mm)	Area (mm ²)	Operating pressure (MPa)							
			0.5	1.0	1.5	2.0	2.5	3.0	3.5	
$\phi 20$	$\phi 12$	A	314	157	314	471	628	785	942	1099
		B	201	101	201	302	402	503	603	704
$\phi 32$	$\phi 16$	A	707	354	707	1061	1414	1768	2121	2475
		B	506	253	506	759	1012	1265	1518	1771

The method of calculation (Hydraulic cylinders' force)

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

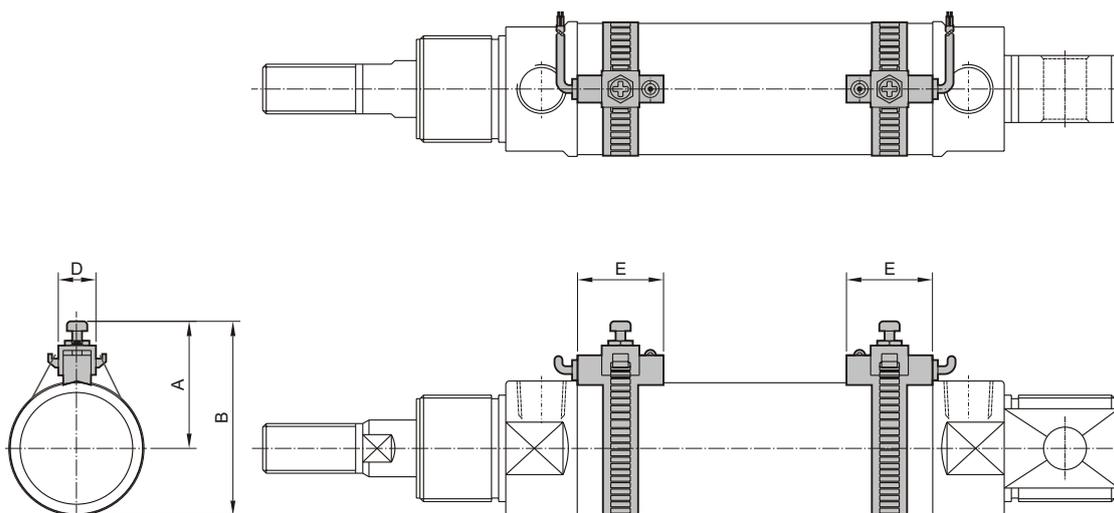
F: Cylinders' force (N)

P: Operating pressure (MPa)

A: Piston area (mm²)

f: Friction drag (N)

Installation of sensor switches



Tube I.D.	Sensor switch	A	B	D	E
20	LN01H	28	40.5	7	22
32	LN01G	33	49.5	7	22

How to order the seal kit

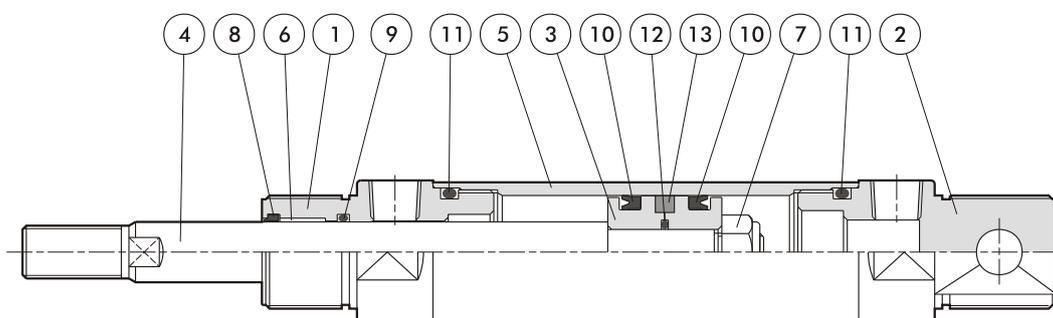
MDOSK

Tube I.D.	Seal kit
20	MDOSK20 - Including No.8,9,10,11,12
32	MDOSK32 - Including No.8,9,10,11,12

MDODSK

Tube I.D.	Seal kit
20	MDODSK20 - Including No.6,7,8,9,10
32	MDODSK32 - Including No.6,7,8,9,10

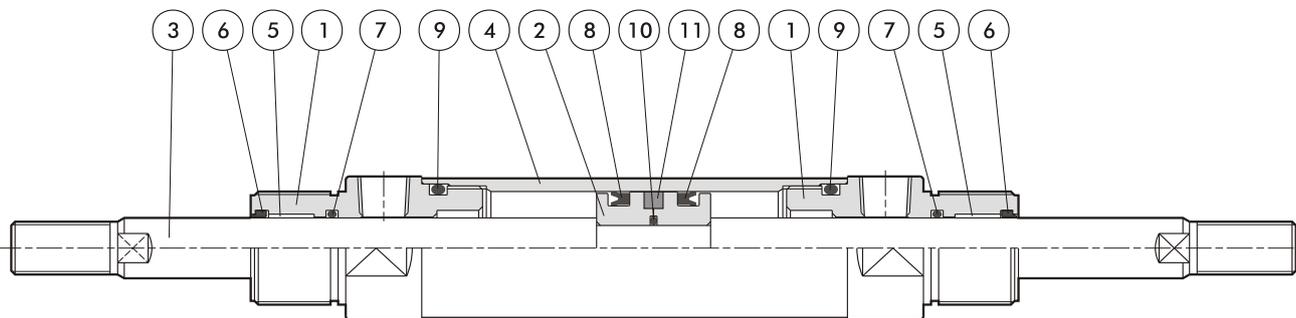
MDOA/MDOC



Parts list

No.	Part name	Quantity	No.	Part name	Quantity	No.	Part name	Quantity
1	Rod cover	1	6	Oilless bearing	1	11	Cylinder gasket	2
2	Head cover	1	7	Nut	1	12	Piston gasket	1
3	Piston	1	8	Dust wiper	1	13	Magnet	1
4	Piston rod	1	9	Rod packing	1			
5	Cylinder tube	1	10	Piston packing	2			

MDOD



Parts list

No.	Part name	Quantity	No.	Part name	Quantity	No.	Part name	Quantity
1	Rod cover	2	5	Oilless bearing	2	9	Cylinder gasket	2
2	Piston	1	6	Dust wiper	2	10	Piston gasket	1
3	Piston rod	1	7	Rod packing	2	11	Magnet	1
4	Cylinder tube	1	8	Piston packing	2			

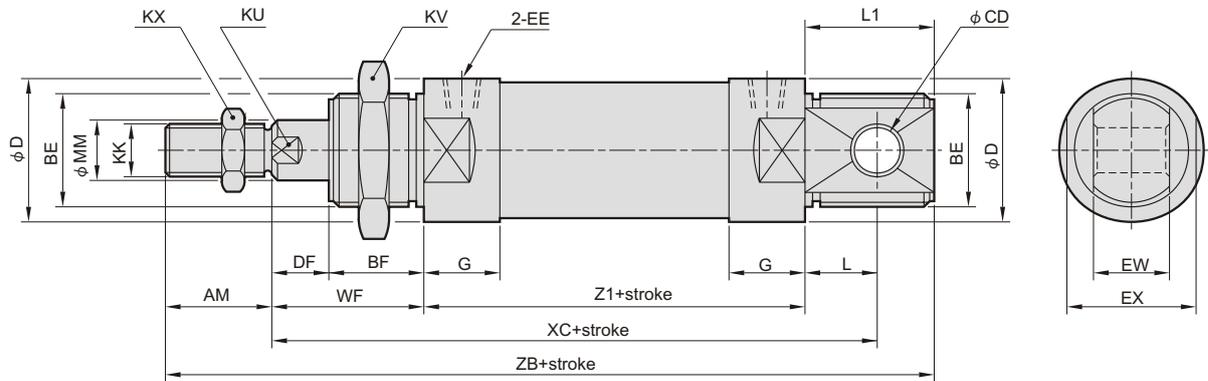
MDO* Dimensions $\phi 20, \phi 32$



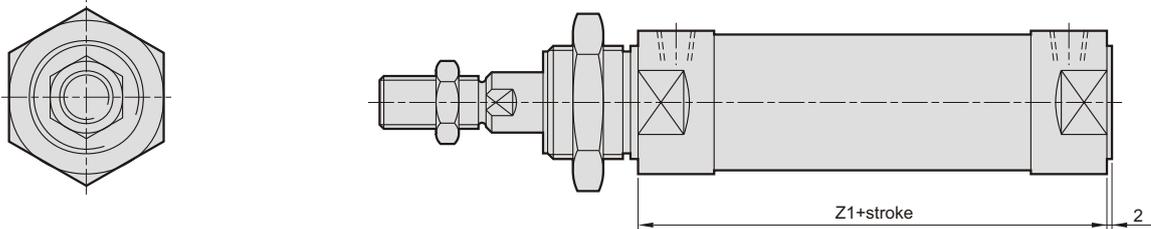
HYDRAULIC WITH PISTON SENSING CYLINDERS

Mindman

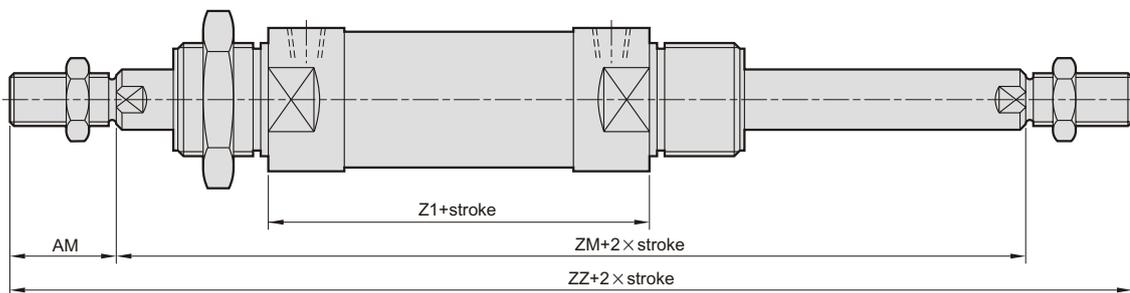
MDOC



MDOA



MDOD



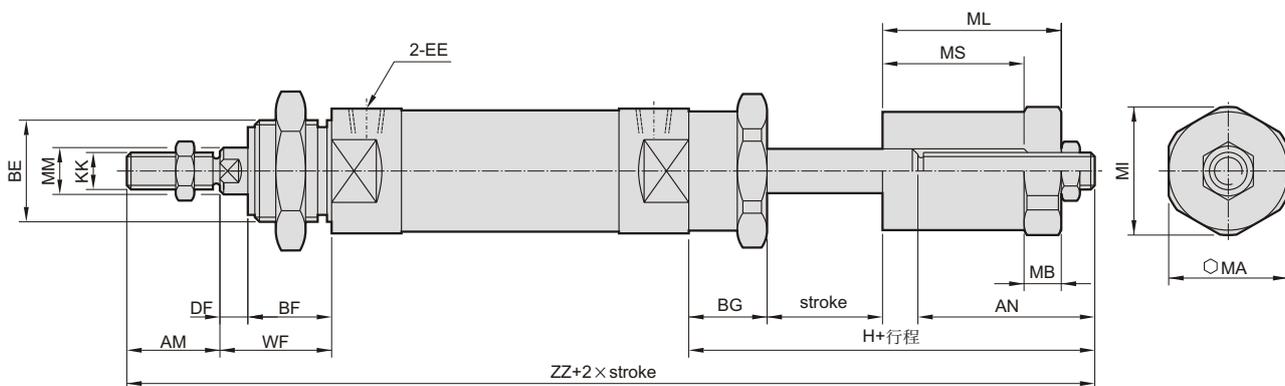
Code Tube I.D.	AM	BE	BF	CD	D	DF	EE	EX	EW	G	KK	KU	KV	KX	L	L1	MM	WF	XC	Z1	ZB	ZM	ZZ
$\phi 20$	20	M22×1.5	20	10	28	8	PT 1/8	25	12	16	M10×1.25	10	27	17	15	25	12	28	130	87	160	143	183
$\phi 32$	28	M30×1.5	25	12	38	15	PT 1/4	35	20	20	M14×1.5	14	41	22	17	32	16	40	159	102	202	182	238

MDO* Adjustable stroke / Dimensions $\phi 20, \phi 32$



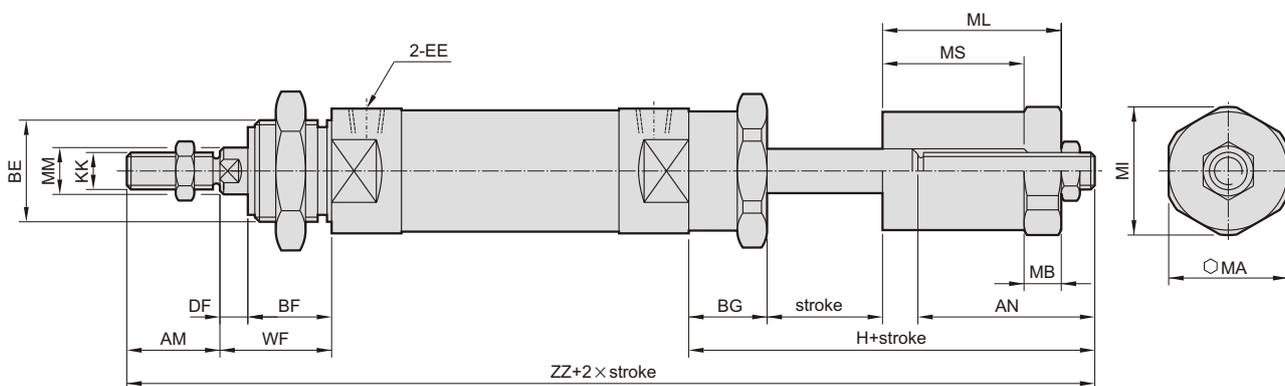
HYDRAULIC WITH PISTON SENSING CYLINDERS

MDON (A: Adjustable stroke 25mm)



Code Tube I.D.	AN	AM	BE	BF	BG	DF	EE	H	KK	MA	MB	MI	ML	MM	MS	WF	ZZ
$\phi 20$	48	20	M22 \times 1.5	20	25	8	G 1/8	81	M10 \times 1.25	27	10	29	47	12	35	28	216
$\phi 32$	48	28	M30 \times 1.5	25	30	15	G 1/4	88	M14 \times 1.5	32	10	44	47	16	37	40	258

MDON (B: Adjustable stroke 50mm)



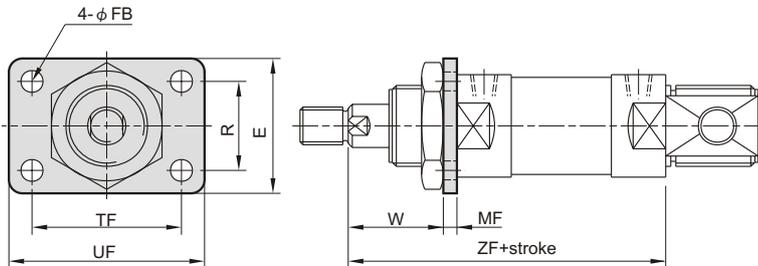
Code Tube I.D.	AN	AM	BE	BF	BG	DF	EE	H	KK	MA	MB	MI	ML	MM	MS	WF	ZZ
$\phi 20$	73	20	M22 \times 1.5	20	25	8	G 1/8	106	M10 \times 1.25	27	10	29	72	12	60	28	241
$\phi 32$	73	28	M30 \times 1.5	25	30	15	G 1/4	113	M14 \times 1.5	32	10	44	72	16	62	40	283

MDO* Mounting accessories $\phi 20, \phi 32$

HYDRAULIC WITH PISTON SENSING CYLINDERS

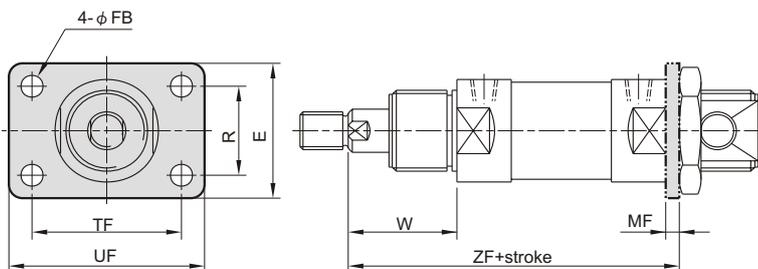


FA



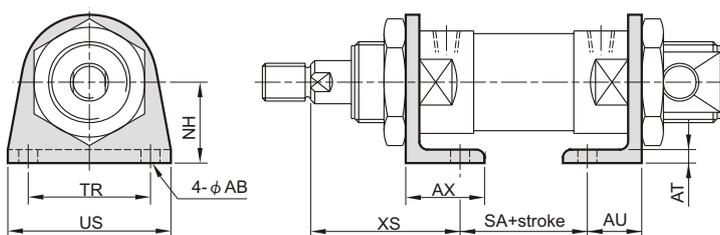
Code	E	FB	MF	R	TF	UF	W	ZF
Tube I.D.								
$\phi 20$	38	7	6	21	51	68	22	115
$\phi 32$	50	7	9	33	55	72	31	142

FB



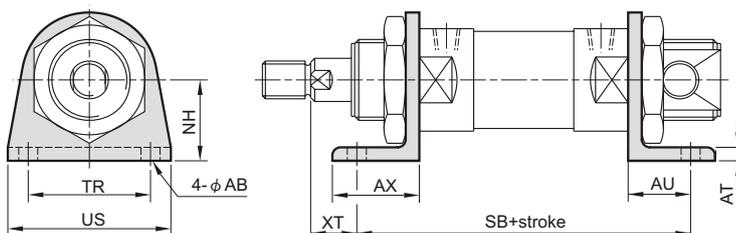
Code	E	FB	MF	R	TF	UF	W	ZF
Tube I.D.								
$\phi 20$	38	7	6	21	51	68	28	121
$\phi 32$	50	7	9	33	55	72	40	151

LA



Code	AB	AT	AU	AX	NH	SA	TR	US	XS
Tube I.D.									
$\phi 20$	7	5	17	25	25	63	40	54	40
$\phi 32$	7	5	20	30	35	72	40	55	55

LB

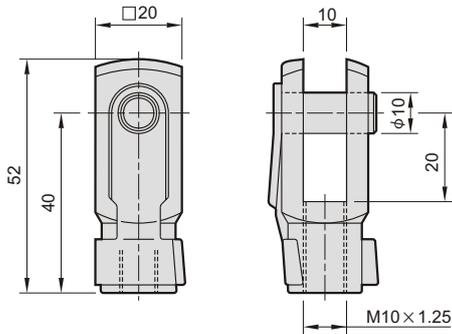


Code	AB	AT	AU	AX	NH	SB	TR	US	XT
Tube I.D.									
$\phi 20$	7	5	17	25	25	121	40	54	11
$\phi 32$	7	5	20	30	35	142	40	55	20

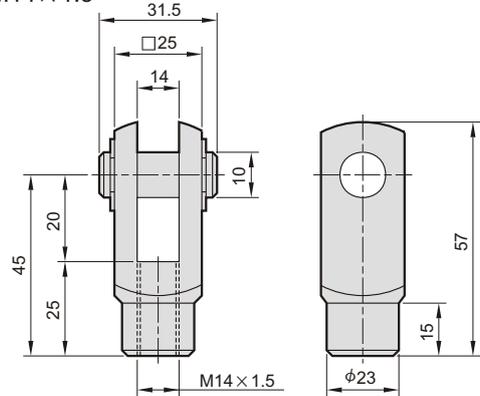
Y connector

Pin (Extra purchase)

Type Y - M10 \times 1.25

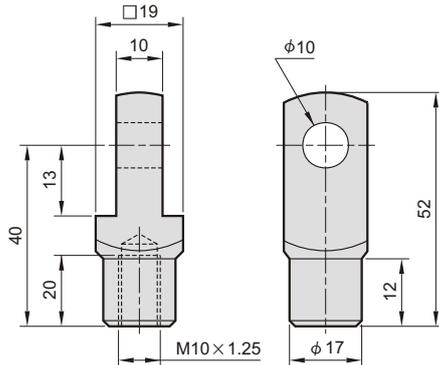


Type Y - M14 \times 1.5

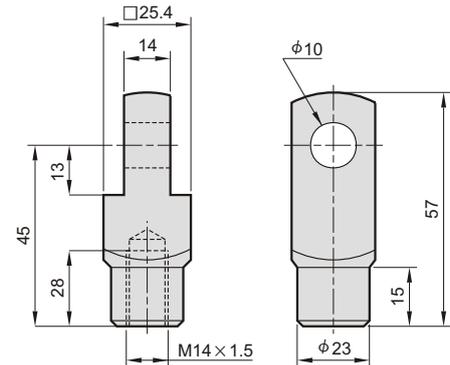


I connector

Type I - M10 \times 1.25

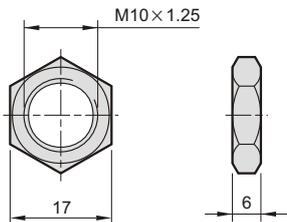


Type I - M14 \times 1.5

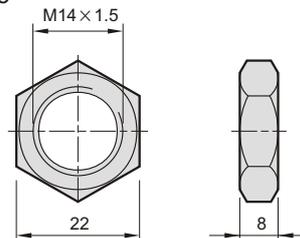


Mounting nut

Type N - M10 \times 1.25

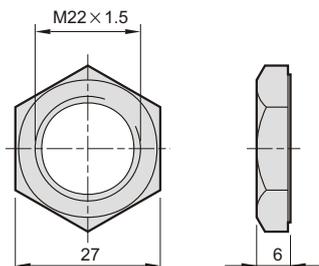


Type N - M14 \times 1.5



Mounting nut

Type N - M22 \times 1.5



Type N - M30 \times 1.5B

