

Selection aid

1) Clamping cartridge KP

- For in-house assembly of clamping units
- Not certified for use in safety-related control systems



2) Clamping unit KPE

- Ready-to-install combination of clamping cartridge KP and housing
- Wide range of mounting options → 9
- Not certified for use in safety-related control systems



Characteristics: At a glance

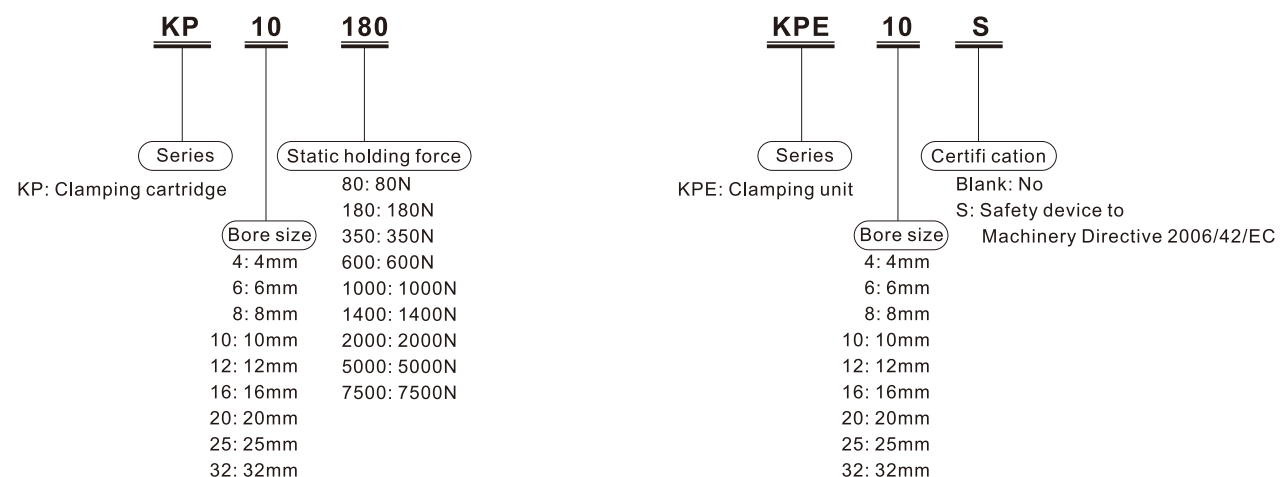
- The clamping cartridges/units use spring force to hold round material in any required position.
- They can stop and hold material for long periods, even in applications with varying loads, fluctuating operating pressure and system leaks.
- The clamping force is released by pressurising the clamping cartridge.
- The clamping cartridges/units can be mounted in any position.
- Clamping cartridges/units are not suitable for positioning.
- The clamping cartridge KP and the clamping units KPE, KEC, KEC-S are standalone components.
- Cylinders with integrated clamping unit
 - ADNKP
 - DSNU-...-KP
 - DSBC-...-C
 - DNCKE/DNCKE-S
- Zero backlash in clamped condition with varying loads on the piston rod:
 - Clamping cartridge/unit KP/KPE: no
 - Clamping unit KEC/KECS: yes

Requirements for the round material to be clamped

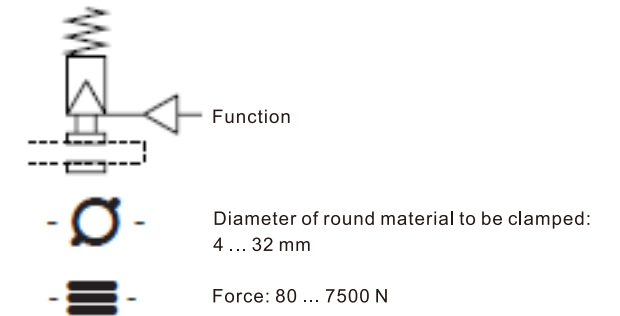
In combination with clamping cartridge KP or clamping unit KPE

- Material:
 - Hard-chrome-plated steel
 - Hardened steel
 - Rolled steel: Tensile strength > 650 N/mm², hardness (HB30) > 175
- Diameter tolerance: h8
- Surface roughness: R_{max} = 4 μm
- The specified holding forces refer to a static load. If these values are exceeded, slippage may occur.
- Clamping cartridge KP and clamping unit KPE are not suitable for dynamic operation.

Ordering Code



Symbol



Note

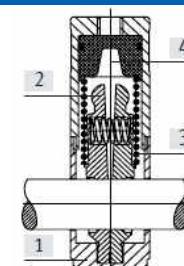
Additional measures are required for use in safety-related applications; in Europe, for example, the standards listed under the EC Machinery Directive must be observed. Without additional measures in accordance with statutory minimum requirements, the product is not suitable as a safety-related part of control systems.

General technical data

For round material diameter	4	6	8	10	12	16	20	25	32
Pneumatic connection	M5 x 0.8				G1/8				
Design	Tilting plates								
Type of mounting	Via self-configured housing								
Type of clamping with active direction	At both ends, Clamping via spring force, compressed air to release								
Static holding force [N]	80	180	350	350	600	1000	1400/2000	5000	7500
Axial play under load [mm]	0.2	0.3		0.5		0.8		1.8	
Min. release pressure [bar]				3					
Mounting position	Any								
Product weight [g]	10	15	50	50	50	90	170	700	1600
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]								
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)								
Operating pressure [bar]	≤10								
Ambient temperature 1) [°C]	-10 ~ +80								
Corrosion resistance class CRC*	2								

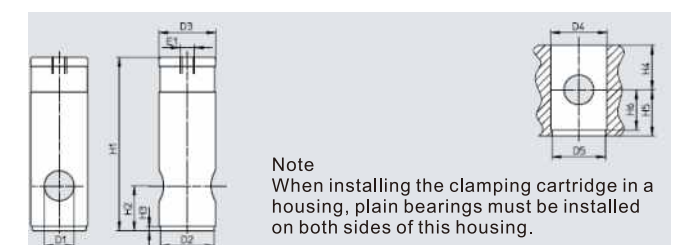
* Corrosion resistance class CRC 2 to Festo standard FN 940070 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Materials



No.	Name	Material
1	Housing	Anodised aluminium
2	Clamping jaws	Brass
3	Spring	Spring steel
4	Piston	POM
-	Seals	NBR, TPE-U(PU)

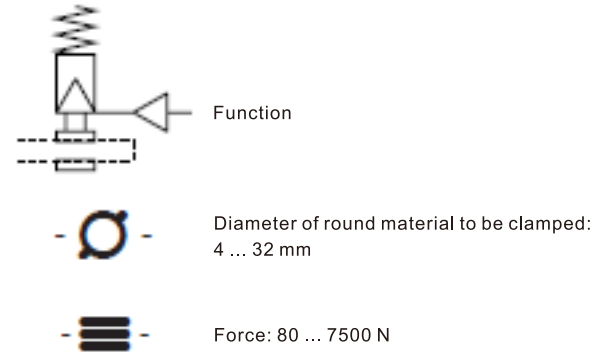
Dimensions and ordering data



Bore size mm	D1	D2 h12	D3 f9	D4 D9	D5	E1	H1	H2	H3	H4 min.	H5 min.	H6	Weight (g)	Type
4	4	10	12	12	11	M5	28	7	2	9	7.5	6	10	KP-4-80
6	6	14	16	16	15	M5	35	10	3	10	11	8	15	KP-6-180
8	8	18	20	20	19	M5	62	17.5	3	18	18.5	15.5	50	KP-8-350
10	10	18	20	20	19	M5	62	17.5	3	18	18.5	15.5	50	KP-10-350
12	12	18	20	20	19	G1/8	62	17.5	3	18	18.5	15.5	50	KP-12-600
16	16	22	24	24	23	G1/8	83	22	3	22	23	20	90	KP-16-1000
20	20	28	30	30	29	G1/8	100	25	3	25	26	23	170	KP-20-1400
	20	36	38	38	37	G1/8	115.5	30	3	30	31	28	170	KP-20-2000
25	25	46	48	48	47	G1/8	155	36	3	36	37	34	700	KP-25-5000
32	32	63	65	65	64	G1/8	195	55	3	55	56	53	1600	KP-32-7500



Symbol

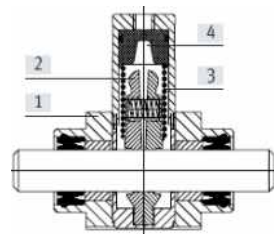


Note
Additional measures are required for use in safety-related applications; in Europe, for example, the standards listed under the EC Machinery Directive must be observed. Without additional measures in accordance with statutory minimum requirements, the product is not suitable as a safety-related part of control systems.

General technical data									
For round material diameter	4	6	8	10	12	16	20	25	32
Pneumatic connection	M5 x 0.8					G1/8			
Design	Tilting plates								
Type of mounting	With mounting thread, With through-hole								
Type of clamping with active direction	At both ends, Clamping via spring force, compressed air to release								
Static holding force [N]	80	180	350	350	600	1000	2000	5000	7500
Axial play under load [mm]	0.2	0.3		0.5		0.8			1.8
Min. release pressure [bar]	3								
Mounting position	Any								
Product weight [g]	100	150	240	260	270	410	930	2000	4600
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]								
Note on operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)								
Operating pressure [bar]	≤10								
Ambient temperature1) [°C]	-10 ~ +80								
Corrosion resistance class CRC*	2								

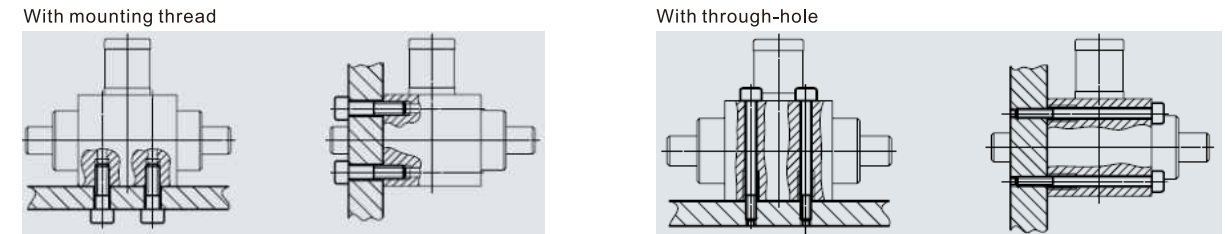
* Corrosion resistance class CRC 2 to Festo standard FN 940070 Moderate corrosion stress.
Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Materials

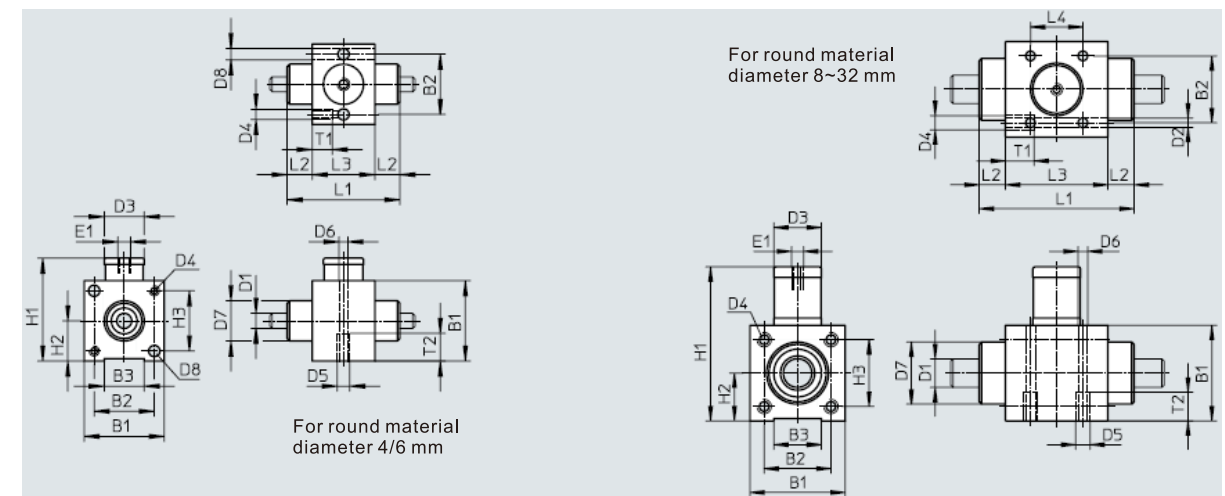


No.	Name	Material
1	Retaining bracket	Anodised aluminium
2	Clamping jaws	Brass
3	Spring	Spring steel
4	Piston	POM
-	Seals	NBR, TPE-U(PU)

Mounting options



Dimensions and ordering data



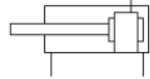
Bore size mm	B1	B2	B3	D1	D2	D3	D4	D5	D6	D7 d11	D8	E1	H1	H2	H3	L1	L2	L3	L4	T1	T2	Weight (g)	Type
4	27	19.5	12	4	-	12	-	M5	4.2	12	4.5	M5	34.5	13.5	19.5	33	7.5	18	-	9	11	100	KPE-4
6	32	24	16	6	-	16	-	M5	4.2	16	4.5	M5	41	16	24	45	10	25	-	9	11	150	KPE-6
8	36	27	20	8	4.2	20	M5	M5	4.2	22	-	M5	62.5	18	27	58	10	38	20	10	11	240	KPE-8
10	36	27	20	10	4.2	20	M5	M5	4.2	22	-	M5	62.5	18	27	62	12	38	20	10	11	260	KPE-10
12	40	28	20	12	5.2	20	M6	M6	5.2	28	-	G1/8	64.5	20	28	65	11	43	22	12	12	270	KPE-12
16	45	32.5	25	16	5.2	24	M6	M6	5.2	32	-	G1/8	83.5	22.5	32.5	69	12.5	44	22	12	12	410	KPE-16
20	65	50	38	20	6.5	38	M8	M8	6.5	45	-	G1/8	118	32.5	50	83	12.5	58	30	16	16	930	KPE-20
25	88	65	50	25	8.5	48	M10	M10	8.5	55	-	G1/8	163	44	65	100	15	70	34	20	20	2000	KPE-25
32	118	90	70	32	10.3	65	M12	M12	10.3	60	-	G1/8	199	59	90	154	25	104	60	24	24	4600	KPE-32



Specifications					
Bore size (mm)	25	32	40	50	63
Action	Double acting, Single rod				
Fluid	Air				
Proof pressure	1.05 MPa				
Maximum operating pressure	0.7 MPa				
Minimum operating pressure	0.05 MPa				
Ambient and fluid temperature	-10 to 60°C				
Lubrication	Not required (Non-lube)				
Piston speed	50 to 500 mm/s				
Stroke length tolerance	+1.4 0				
Cushion	Rubber bumper				
Mounting	Foot, Rod flange, Head flange, Single clevis, Double clevis				
Rod end configuration	Rod end male thread, Rod end female thread				
Allowable rotational torque	0.25 N·m		0.55 N·m		2.0 N·m
Rod non-rotating accuracy	±1°	±0.8°		±0.5°	

Symbol

Rubber bumper (Oval piston)

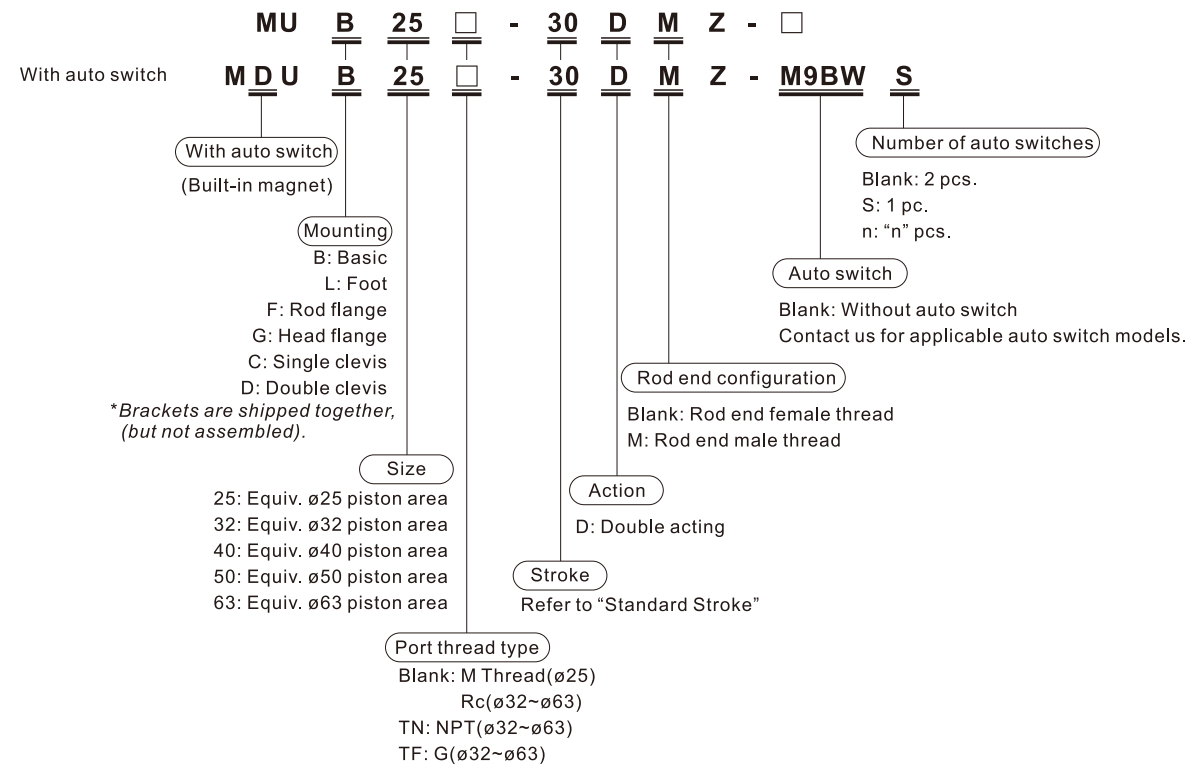


Standard Stroke

Bore size (mm)	Standard stroke (mm)	Maximum manufacturable stroke
25, 32, 40, 50, 63	5, 10, 15, 20, 25, 30, 35, 40, 45, 50 75, 100, 125, 150, 175, 200, 250, 300	300

*Other intermediate strokes can be manufactured upon receipt of order. Please contact us.
**Strokes longer than 300 mm are not available.

Ordering Code



Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) MDUL32-30DZ

Accessory (Option)

For details about the single knuckle joint, double knuckle joint, clevis pin, and knuckle pin, please contact us.

Mounting Bracket/Part No.

Mounting bracket/Bore size	25	32	40	50	63
Foot ^{Note 1)}	MU-L02	MU-L03	MU-L04	MU-L05	MU-L06
Flange	MU-F02	MU-F03	MU-F04	MU-F05	MU-F06
Single clevis	MU-C02	MU-C03	MU-C05	MU-C05	MU-C06
Double clevis ^{Note 3)}	MU-D02	MU-D03	MU-D04	MU-D05	MU-D06

Note 1) When ordering foot bracket, order 2 pieces per cylinder.

Note 2) Accessories for each mounting bracket are as follows.

Foot/Flange/Single clevis: Body mounting bolt

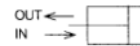
Double clevis: Clevis pin, Type C retaining ring for axis, Body mounting bolt

Note 3) Clevis pin and retaining ring are shipped together with double clevis.

Note 4) The tightening torque for body mounting bolts is shown in the below table.

Note 5) The application of a locking agent

(Example: Loctite 242) to body mounting bolts is recommended.



Theoretical Output

Bore size	Rod size	Operating direction	Piston area (mm ²)	Operating pressure (MPa)					
				0.2	0.3	0.4	0.5	0.6	0.7
25	12	OUT	491	98	147	196	246	295	344
		IN	378	76	113	151	189	227	265
32	14	OUT	804	161	241	322	402	482	563
		IN	650	130	195	260	325	390	455
40	16	OUT	1257	251	377	503	629	754	880
		IN	1056	211	317	422	528	634	739
50	20	OUT	1963	393	589	785	982	1178	1374
		IN	1946	330	495	660	824	989	1154
63	20	OUT	3117	623	935	1247	1559	1870	2182
		IN	2803	561	841	1121	1402	1682	1962

Weight

Bore size		25	32	40	50	63
Basic weight	Basic	0.17	0.27	0.39	0.75	1.16
	Foot	0.24	0.41	0.60	1.09	1.79
	Flange/Rod end, Head end	0.27	0.41	0.52	1.21	1.99
	Single clevis	0.23	0.39	0.61	1.15	1.84
	Double clevis (With pin)	0.24	0.43	0.65	1.22	1.92
Additional weight per each 50 mm of stroke		0.09	0.14	0.19	0.28	0.38
Mounting bracket weight	Single clevis (Double clevis pivot bracket)	0.06	0.12	0.22	0.40	0.68
	Double clevis (With pin) (Single clevis pivot bracket)	0.07	0.16	0.26	0.47	0.76
	Single knuckle joint	0.03	0.04	0.07	0.16	0.16
	Double knuckle joint (With pin)	0.05	0.09	0.14	0.29	0.29

Additional Weight

Bore size		25	32	40	50	63
Rod end male thread	Male thread	12	23	27	53	53
	Nut	8	10	17	32	32

Note) Weight of single clevis and double clevis includes 2 bolts for mounting bracket.

Calculation:

(Example) MUL32-100DZ

Basic weight 0.41 (Foot, Equivalent to ø32)

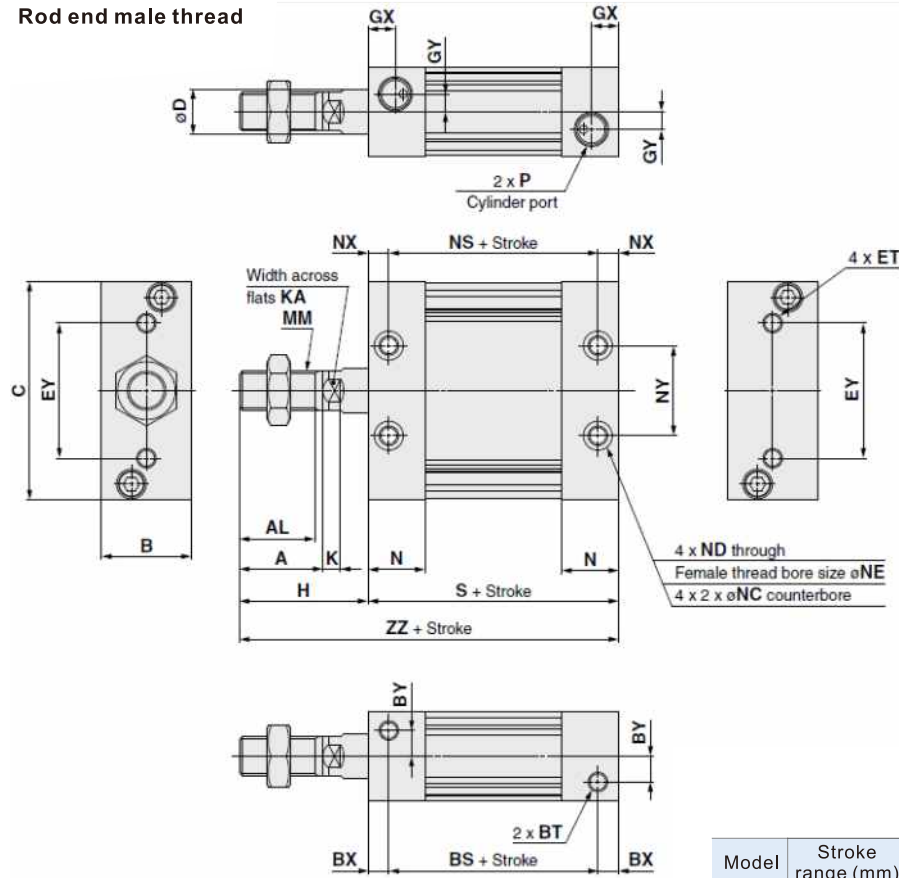
Additional weight 0.14/50 stroke

Stroke 100 stroke

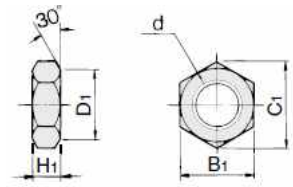
0.41 + 100/50 x 0.14 = 0.69 kg

Dimensions of Basic: MUB

Rod end male thread



Rod end nut



Part no.	Bore size	d	H1	B1	C1	D1
NT-03	25	M10 x 1.25	6	17	19.6	16.5
NT-MU03	32	M12 x 1.25	7	19	21.9	18
NT-04	40	M14 x 1.5	8	22	25.4	21
NT-05	50/63	M18 x 1.5	11	27	31.2	26

*A nut is attached to the rod end male thread as standard.
Rod end nut material: Carbon steel
Surface treatment: Chromated

Model	Stroke range (mm)	A	AL	B	BS	BT	BX
MUB25	5 to 300	22	19.5	24	37	M5 x 0.8 depth 7.5	9
MUB32	5 to 300	26	23.5	28	45	M6 x 1 depth 12	6.5
MUB40	5 to 300	30	27	32	44	M8 x 1.25 depth 13	8
MUB50	5 to 300	35	32	39	54	M10 x 1.5 depth 14.5	10
MUB63	5 to 300	35	32	50	53	M12 x 1.75 depth 18	11

Model	Stroke range (mm)	BX	BY	C	D	ET	EY
MUB25	5 to 300	9	7	54	12	M5 x 0.8 depth 11	26
MUB32	5 to 300	6.5	8	68	14	M6 x 1 depth 11	42
MUB40	5 to 300	8	9	86	16	M8 x 1.25 depth 11	54
MUB50	5 to 300	10	9	104	20	M10 x 1.5 depth 15	64
MUB63	5 to 300	11	12	124	20	M12 x 1.75 depth 15	72

*Dimensions except mentioned on the right are the same as male thread type. However, K and KA dimensions are the same as male thread type.

Model	GX	GY	H	K	KA	MM	N	NC	ND	NE	NS	NX	NY	P			S	ZZ
														-	TN	TF		
MUB25	10	5	36	5.5	10	M10 x 1.25	16.5	7.5 depth 4.5	M5 x 0.8	4.3	43	6	26	M5 x 0.8	-	-	55	91
MUB32	8.5	5.5	40	5.5	12	M12 x 1.25	18	9 depth 5.5	M6 x 1	5.1	45	6.8	28	Rc1/8	NPT1/8	G1/8	58	98
MUB40	9	7	45	6	14	M14 x 1.5	18.5	10.5 depth 6.5	M8 x 1.25	6.9	44	8	36	Rc1/8	NPT1/8	G1/8	60	105
MUB50	11.5	8	53	7	18	M18 x 1.5	24	13.5 depth 8.5	M10 x 1.5	8.7	54	10	42	Rc1/4	NPT1/8	G1/4	74	127
MUB63	11.5	10	56	7	18	M18 x 1.5	24	17 depth 10.5	M12 x 1.75	10.5	53	11	46	Rc1/4	NPT1/8	G1/4	75	131

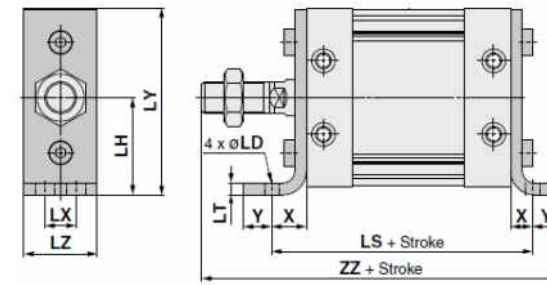
*The position of the 4 flats of the piston rod is $\pm 3^\circ$ in relation to the cylinder side surface.

Rod end female thread

Model	H	MM	ZZ
MUB25	14	M6 x 1 depth 12	69
MUB32	15	M8 x 1.25 depth 13	72
MUB40	15	M8 x 1.25 depth 13	75
MUB50	18	M10 x 1.5 depth 15	92
MUB63	21	M10 x 1.5 depth 15	96

Dimensions with Mounting Bracket: MUL

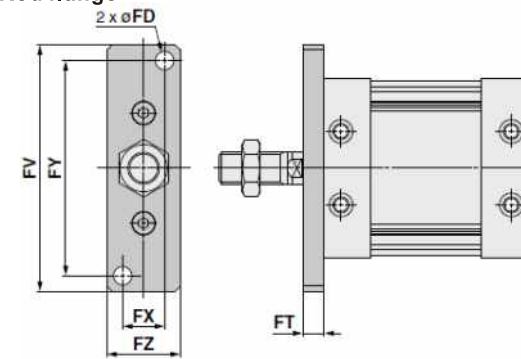
Foot



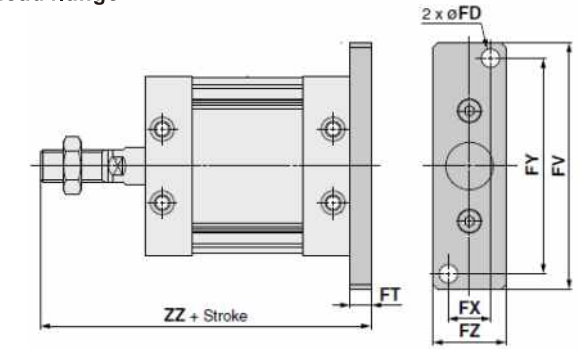
Model	LD	LH	LS	LT	LX	LY	LZ	X	Y	ZZ
MUL25	5.5	29	79	3.2	11	56	23	12	6	109
MUL32	6.6	37	90	4.5	12	71	27	16	8	122
MUL40	9	46	96	4.5	15	89	31	18	10	133
MUL50	11	57	116	5	18	109	37	21	11	159
MUL63	13.5	67	123	6	22	129	48	24	14	169

Foot bracket material: Rolled steel
Surface treatment: Nickel plated

Rod flange



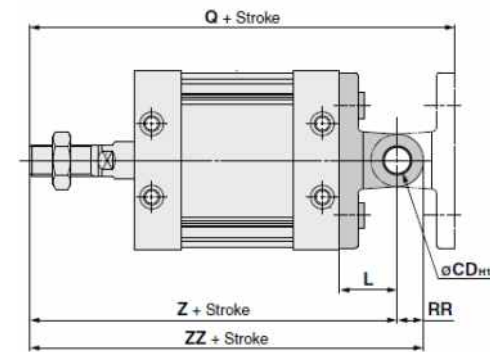
Head flange



Model	FD	FT	FV	FX	FY	FZ	ZZ
MUF25, MUG25	5.5	8	76	14	66	24	99
MUF32, MUG32	7	8	94	16	82	28	106
MUF40, MUG40	9	9	118	18	102	32	114
MUF50, MUG50	11	12	144	22	126	39	139
MUF63, MUG63	13	14	168	30	148	50	145

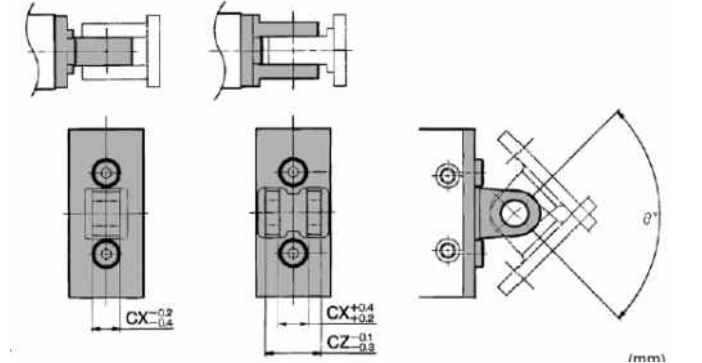
Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Single clevis Double clevis



Single clevis

Double clevis



Model	CDH10	CX	CZ	L	Q	RR	Z	ZZ	Rotation range (°θ)
MUC25, MUD25	8 ^{+0.058} ₀	9	18	17	125	8	108	116	100
MUC32, MUD32	10 ^{+0.058} ₀	11	22	22	142	10	120	130	90
MUC40, MUD40	10 ^{+0.058} ₀	13	26	27	159	10	132	142	80
MUC50, MUD50	14 ^{+0.070} ₀	16	32	32	191	14	159	173	80
MUC63, MUD63	14 ^{+0.070} ₀	16	32	38	207	16	169	185	80

Clevis pin and retaining ring are shipped together with double clevis.
Single/Double clevis material: Cast iron
Surface treatment: Painted