

Metal Seal

Compact Low Friction Cylinder

MQQ Series

ø10, ø16, ø20, ø25, ø30, ø40



How to Order

MQQ **T** **B** **10** **-** **10** **D**

Compact low friction specification

T	Standard type
L	Lateral load resisting type (Built-in ball bushing)

Type

Mounting

B	Through hole & Double end tapped (Standard)
L	Foot type
F	Rod side flange type
G	Head side flange type
D (Note)	Double clevis type

Note) Available with the MQQL□ only.
* Mounting brackets are included when shipped, but unassembled.

Bore size

10	10 mm
16	16 mm
20	20 mm
25	25 mm
30	30 mm
40	40 mm

Body option

Nil	Standard (Rod end female thread)
M (Note)	Rod end male thread

Note) A rod end thread adapter is attached.
* A rod end thread adapter is shipped being assembled.

Action

D	Double acting
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Cylinder stroke

Bore size (mm)	Standard stroke (mm)
10	10, 20, 30, 40
16	10, 20, 30, 40, 50, 60
20	10, 20, 30, 40, 50, 60
25	10, 20, 30, 40, 50, 75, 100
30	10, 20, 30, 40, 50, 75, 100
40	10, 20, 30, 40, 50, 75, 100

* Strokes are available in 1 mm increments by installing a spacer in standard stroke cylinders.
Example: MQQTB10-15D
(5 mm width spacer is installed in MQQTB10-20D to adjust the stroke.)

Port thread type

Nil	M thread	ø10 to ø20
	Rc	
TN	NPT	ø25 to ø40
TF	G	

* The MQQ series is not auto switch capable.

Mounting Bracket Part No.

Bore size (mm)	Foot (Note 1)	Flange	Double clevis	Rod end thread adapter (with nut)
10	CQS-L016	CQS-F016	CQS-D016	MQ10-M
16	CQS-L020	CQS-F020	CQS-D020	MQ16-M
20	CQS-L025	CQS-F025	CQS-D025	MQ20-M
25	MQ-L032	MQ-F032	MQ-D032	MQ25-M
30	MQ-L040	MQ-F040	MQ-D040	MQ28-M
40	CQ-L050	CQ-F050	MQ-D050	

Note 1) When ordering a foot bracket, order 2 pcs. for each cylinder.

Note 2) The following parts are included with a bracket respectively.

Foot, Flange Body mounting bolts
Double clevis Clevis pin, C type retaining ring for shaft, Body mounting bolts

Specifications: Standard Type/MQQT



Bore size (mm)	10	16	20	25	30	40
Seal construction	Metal seal					
Action	Double acting, Single rod					
Fluid	Air					
Proof pressure	1.05 MPa					
Maximum operating pressure	0.5 MPa					
Minimum operating pressure <small>Note 1)</small>	0.005 MPa					
Ambient and fluid temperature	-10 to 80°C					
Cushion	Rubber bumper (Standard)					
Lubrication <small>Note 2)</small>	Not required (Non-lube)					
Rod end thread	Female thread					
Stroke length tolerance	+1.0 0					
Piston speed <small>Note 3)</small>	0.3 to 300 mm/s (Refer to page 340.)					
Total leakage <small>Note 4)</small>	Supply pressure 0.1 MPa	150 cm ³ /min	200 cm ³ /min	300 cm ³ /min	400 cm ³ /min	
	Supply pressure 0.3 MPa	800 cm ³ /min	1000 cm ³ /min	1200 cm ³ /min	1600 cm ³ /min	
	Supply pressure 0.5 MPa	1500 cm ³ /min	2000 cm ³ /min	3000 cm ³ /min	4000 cm ³ /min	

Note 1) Value when horizontal. (Use clean, dry, and nonfreezing air) However, as the stroke increases, it will likely be affected by the mass of its moving parts and the pressure will likely increase by approx. 0.003 to 0.005 MPa due to an offset load from the mass of the rod.

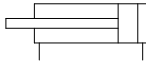
Note 2) Refer to precautions on page 339 regarding lubrication. This product uses turbine oil as an initial lubricant. Lubricant may seep out of the rod or the piping port.

Note 3) Control low speed actuation with differential pressure and a speed controller, etc. (Refer to recommended circuit examples on page 319 for further details.)

Note 4) The values are only for reference and are not guaranteed.

Symbol

Double acting, Single rod



Specifications: Lateral Load Resisting Type/MQQL

Bore size (mm)	10	16	20	25	30	40
Seal construction	Metal seal					
Action	Double acting, Single rod					
Fluid	Air					
Proof pressure	1.05 MPa					
Maximum operating pressure	0.7 MPa					
Minimum operating pressure <small>Note 1)</small>	0.005 MPa					
Ambient and fluid temperature	-10 to 80°C					
Cushion	Rubber bumper (Standard)					
Lubrication <small>Note 2)</small>	Not required (Non-lube)					
Rod end thread	Female thread					
Stroke length tolerance	+1.0 0					
Piston speed <small>Note 3)</small>	0.5 to 500 mm/s (Refer to page 340.)					
Total leakage <small>Note 4)</small>	Supply pressure 0.1 MPa	150 cm ³ /min	200 cm ³ /min	300 cm ³ /min	400 cm ³ /min	
	Supply pressure 0.3 MPa	800 cm ³ /min	1000 cm ³ /min	1200 cm ³ /min	1600 cm ³ /min	
	Supply pressure 0.5 MPa	1500 cm ³ /min	2000 cm ³ /min	3000 cm ³ /min	4000 cm ³ /min	

Note 1) Value when horizontal. (Use clean, dry, and nonfreezing air) However, as the stroke increases, it will likely be affected by the mass of its moving parts and the pressure will likely increase by approx. 0.003 to 0.005 MPa due to an offset load from the mass of the rod.

Note 2) Refer to precautions on page 339 regarding lubrication. This product uses turbine oil as an initial lubricant. Lubricant may seep out of the rod or the piping port.

Note 3) Control low speed actuation with differential pressure and a speed controller, etc. (Refer to recommended circuit examples on page 319 for further details.)

Note 4) The values are only for reference and are not guaranteed.

Weight: Standard Type/MQQT

Bore size (mm)	Cylinder stroke (mm)							Unit: g
	10	20	30	40	50	60	75	
10	94	118	142	166	—	—	—	—
16	166	206	246	286	326	366	—	—
20	228	290	352	414	476	538	—	—
25	395	487	579	671	763	—	993	1223
30	479	567	655	743	831	—	1052	1272
40	728	846	964	1082	1200	—	1495	1790

Weight: Lateral Load Resisting Type/MQQL (Built-in Ball Bushing)

Bore size (mm)	Cylinder stroke (mm)							Unit: g
	10	20	30	40	50	60	75	
10	148	172	196	220	—	—	—	—
16	284	324	364	404	444	484	—	—
20	383	445	507	569	631	693	—	—
25	552	644	736	828	920	—	1150	1380
30	911	999	1087	1175	1263	—	1485	1705
40	1337	1455	1573	1691	1809	—	2104	2339

* Refer to page 340 for moving parts mass.

Theoretical Output (Guide)



Bore size (mm)	Rod size (mm)	Direction	Piston area (mm ²)	Operating pressure (MPa)						
				0.1	0.2	0.3	0.4	0.5	0.6	0.7
10	6	IN	50.3	5.0	10.1	15.1	20.1	25.2	30.2	35.2
		OUT	78.5	7.9	15.7	23.6	31.4	39.3	47.1	55.0
16 (15.8)	8	IN	145.8	14.9	29.2	43.7	58.3	72.9	87.5	102.1
		OUT	196.1	19.6	39.2	58.9	78.4	98.1	117.7	137.3
20	10	IN	235.6	23.6	47.1	70.7	94.2	117.8	141.4	164.9
		OUT	314.2	31.4	62.8	94.3	125.7	157.1	188.5	219.9
25	12	IN	377.8	37.8	75.6	113.3	151.1	188.9	226.7	262.5
		OUT	490.9	49.1	98.2	147.3	196.4	245.5	294.5	343.6
30	16	IN	505.8	50.6	101.2	151.8	202.4	253.0	303.6	354.2
		OUT	706.9	70.7	141.4	212.1	282.8	353.5	424.2	494.9
40	16	IN	1055.6	105.6	211.2	316.8	422.4	528.0	633.6	739.2
		OUT	1256.6	125.7	251.4	377.1	502.8	628.5	754.2	879.9

REA

REB

REC

Smooth

Low Speed

MQ

RHC

RZQ

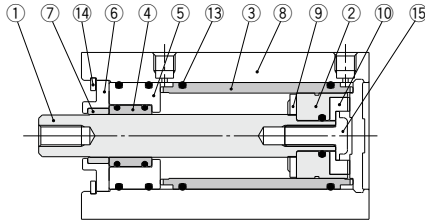
D-□

X-□

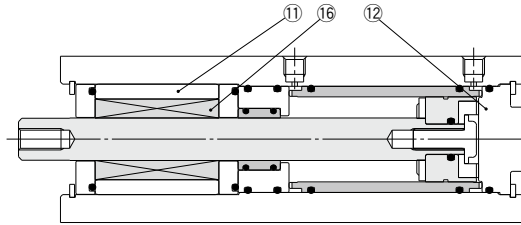
MQQ Series

Construction

Standard type: MQQT



Lateral load resisting type: MQQL (Built-in ball bushing)



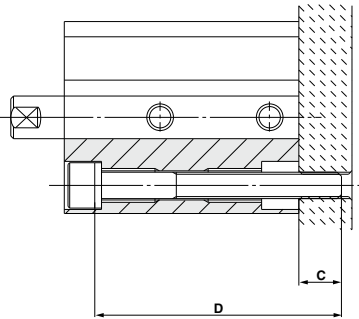
Component Parts

No.	Description	Material	Note
1	Rod	Carbon steel	Hard chrome plated
2	Piston	Special stainless steel	
3	Liner	Special stainless steel	
4	Sleeve	Special stainless steel	
5	Sleeve retainer	Aluminum alloy	
6	Plate	Aluminum alloy	Hard anodized
7	Guide	Fluororesin	
8	Cylinder tube	Aluminum alloy	Hard anodized
9	Bumper A	Polyurethane	
10	Bumper B	Polyurethane	
11	Bushing	Aluminum alloy	
12	Bottom plate	Aluminum alloy	Hard anodized
13	O-ring	NBR	
14	Retaining ring	Carbon tool steel	Phosphate coated
15	Bolt	Carbon tool steel	Chromated
16	Ball bushing		

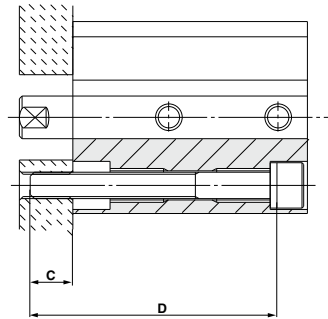
Mounting

Mounting bolts

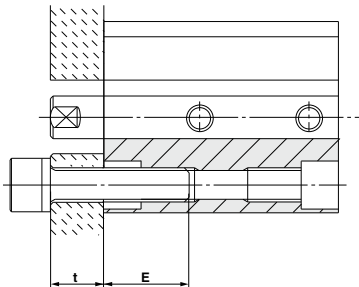
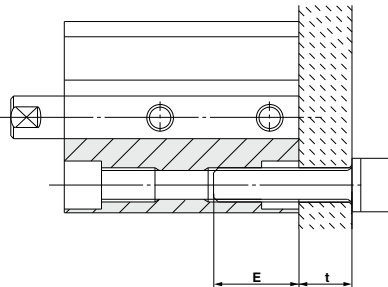
a) Mounting type A (when using the mounting plate threads)



Note) Be sure to use a flat washer for the A type mounting.



b) Mounting type B (when using the cylinder tube threads)



REA
REB
REC
Smooth
Low Speed
MQ
RHC
RZQ

Compatible Mounting Bolt Dimensions

Model	Mounting type A			Mounting type B		
	Mounting bolt size	C (mm)	D: Bolt length (mm)	Mounting bolt size	E (mm)	
Standard type MQQT	MQQT \square B10- \square D	M3 x 0.5	7	35 + Stroke	M4 x 0.7	8 to 11
	MQQT \square B16- \square D		7	35 + Stroke		
	MQQT \square B20- \square D	M5 x 0.8	8.5	40 + Stroke	M6 x 1	13 to 17
	MQQT \square B25- \square D		9	45 + Stroke		
	MQQT \square B30- \square D		7.5	50 + Stroke		
MQQT \square B40- \square D	M6 x 1	6	50 + Stroke	M8 x 1.25	16 to 22	
Lateral load resisting type MQQL (Built-in ball bushing)	MQQL \square B10- \square D	M3 x 0.5	7	65 + Stroke	M4 x 0.7	8 to 11
	MQQL \square B16- \square D		5.5	70 + Stroke	M6 x 1	13 to 17
	MQQL \square B20- \square D	M5 x 0.8	8	80 + Stroke		
	MQQL \square B25- \square D		6.5	85 + Stroke		
	MQQL \square B30- \square D		7	105 + Stroke		
	MQQL \square B40- \square D	M6 x 1	7	105 + Stroke	M8 x 1.25	16 to 22

\square : Stroke

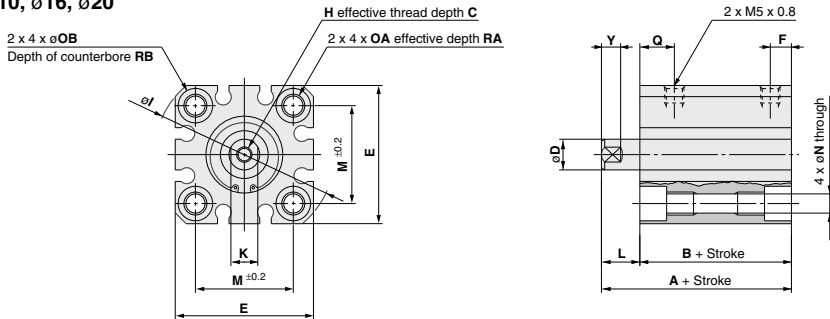
D- \square
-X \square

MQQ Series

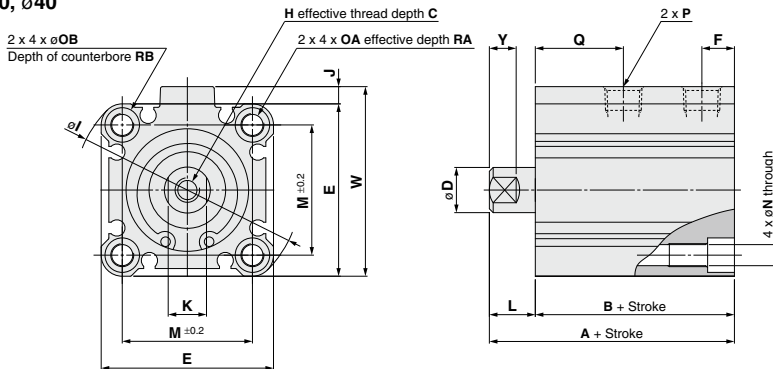
Dimensions

Standard type (Through hole & Double end tapped): MQQT^B

ø10, ø16, ø20



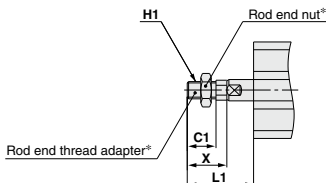
ø25, ø30, ø40



Bore size (mm)	Stroke range (mm)	A	B	C	D (Note)	E	F	H	I	J	K	L	M	N	OA	OB	P			Q	RA	RB	W	Y
																	—	TN	TF					
10	10 to 40	39.5	31.5	6	6 (5.8)	29	5.5	M3 x 0.5	38	—	5	8	20	3.5	M4 x 0.7	6.5	—	—	—	14.5	7	4	—	5
16	10 to 60	44	34	8	8 (7.8)	36	5.5	M4 x 0.7	47	—	7	10	25.5	5.4	M6 x 1.0	9	—	—	—	18	10	7	—	5
20	10 to 60	47.5	37.5	10	10 (9.8)	40	5.5	M5 x 0.8	52	—	8	10	28	5.4	M6 x 1.0	9	—	—	—	19.5	10	7	—	6
25	10 to 50, 75, 100	54	42	12	12 (11.8)	45	8.5	M6 x 1.0	60	4.5	10	12	34	5.5	M6 x 1.0	9	Rc 1/8	NPT 1/8	G 1/8	23	10	7	49.5	7
30	10 to 50, 75, 100	60.5	48.5	13	16 (15.8)	52	8.5	M8 x 1.25	69	5	14	12	40	5.5	M6 x 1.0	9	Rc 1/8	NPT 1/8	G 1/8	26	10	7	57	10
40	10 to 50, 75, 100	62	50	13	16 (15.8)	64	12	M8 x 1.25	86	7	14	12	50	6.6	M8 x 1.25	11	Rc 1/4	NPT 1/4	G 1/4	26	14	8	71	10

Note () : Rod end dimensions

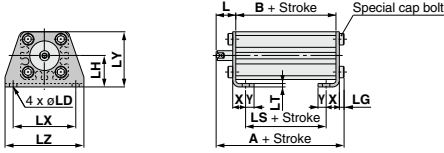
With rod end male thread: MQQ□-□DM



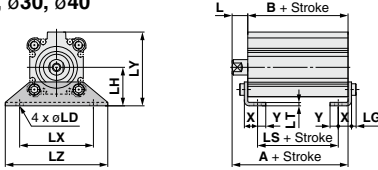
Bore size (mm)	L1	C1	H1	X
10	23.5	10.5	M5 x 0.8	15.5
16	26.5	11.5	M6 x 1.0	16.5
20	28.5	13.5	M8 x 1.25	18.5
25	34.5	16.5	M10 x 1.25	22.5
30	40.5	22.5	M14 x 1.5	28.5
40	40.5	22.5	M14 x 1.5	28.5

* Refer to page 330 for details regarding the rod end thread adapter and the rod end nut.

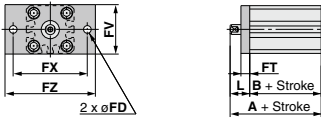
Foot type: MQQTL
ø10, ø16, ø20



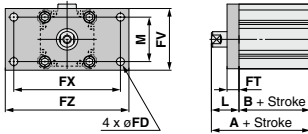
ø25, ø30, ø40



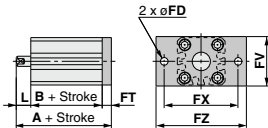
Rod side flange type: MQQTF
ø10, ø16, ø20



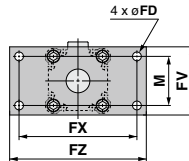
ø25, ø30, ø40



Head side flange type: MQQTG
ø10, ø16, ø20



ø25, ø30, ø40



Bore size (mm)	Stroke range (mm)	A	B	L	LD	LG	LH
10	10 to 40	44.3	31.5	8	4.5	2.8	19
16	10 to 60	51.2	34	10	6.6	4	24
20	10 to 60	54.7	37.5	10	6.6	4	26
25	10 to 50,75,100	61.2	42	12	6.6	4	30
30	10 to 50,75,100	67.7	48.5	12	6.6	4	33
40	10 to 50,75,100	70.2	50	12	9	5	39

Bore size (mm)	LS	LT	LX	LY	LZ	X	Y
10	19.5	2	38	33.5	48	8	5
16	22	3.2	48	42	62	9.2	5.8
20	22.5	3.2	52	46	66	10.7	5.8
25	26	3.2	57	57	71	11.2	5.8
30	32.5	3.2	64	64	78	11.2	7
40	27	3.2	79	78	95	14.7	8

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX
10	10 to 40	49.5	31.5	4.5	5.5	30	45
16	10 to 60	54	34	6.6	8	39	48
20	10 to 60	57.5	37.5	6.6	8	42	52
25	10 to 50,75,100	64	42	5.5	8	48	56
30	10 to 50,75,100	70.5	48.5	5.5	8	54	62
40	10 to 50,75,100	72	50	6.6	9	67	76

Bore size (mm)	FZ	L	M
10	55	18	—
16	60	20	—
20	64	20	—
25	65	22	34
30	72	22	40
40	89	22	50

Head side flange type: MQQTG
ø10, ø16, ø20

Bore size (mm)	Stroke range (mm)	A	L
10	10 to 40	45	8
16	10 to 60	52	10
20	10 to 60	55.5	10
25	10 to 50,75,100	62	12
30	10 to 50,75,100	68.5	12
40	10 to 50,75,100	71	12

(Dimensions other than A and L are the same as the rod side flange type.)

REA

REB

REC

Smooth

Low Speed

MQ

RHC

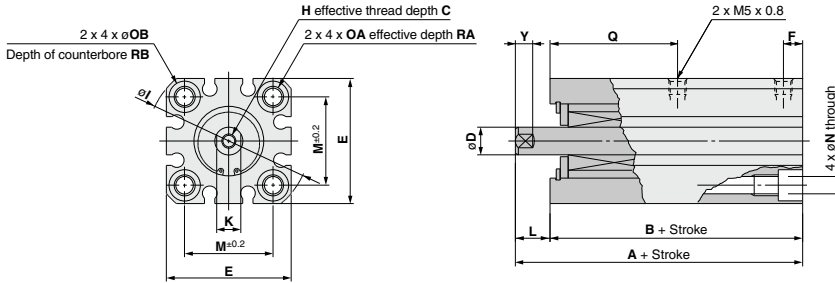
RZQ

MQQ Series

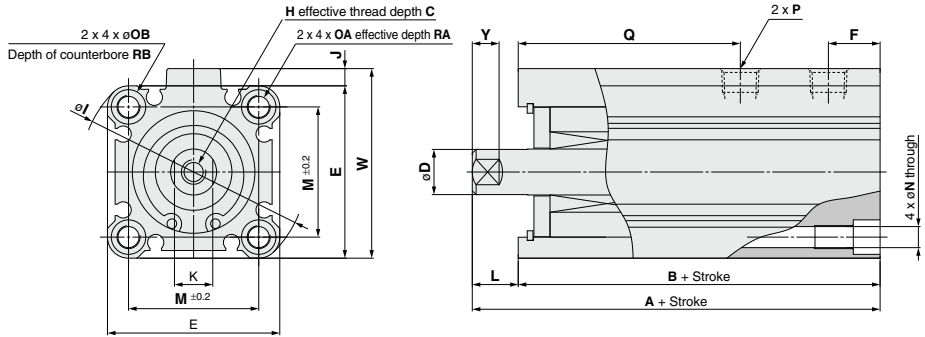
Dimensions

Lateral load resisting type (Through hole & Double end tapped): MQQLB

ø10, ø16, ø20



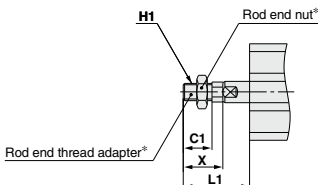
ø25, ø30, ø40



Bore size (mm)	Stroke range (mm)	A	B	C	D (Note)	E	F	H	I	J	K	L	M	N	OA	OB	P			Q	RA	RB	W	Y
																	—	TN	TF					
10	10 to 40	69.5	61.5	6	6 (5.8)	29	9	M3 x 0.5	38	—	5	8	20	3.5	M4 x 0.7	6.5	—	—	—	39.5	7	4	—	5
16	10 to 60	80.5	70.5	8	8 (7.8)	36	11	M4 x 0.7	47	—	7	10	25.5	5.4	M6 x 1.0	9	—	—	—	48.5	10	7	—	5
20	10 to 60	89	79	10	10 (9.8)	40	11.5	M5 x 0.8	52	—	8	10	28	5.4	M6 x 1.0	9	—	—	—	55	10	7	—	6
25	10 to 50, 75, 100	96.5	84.5	12	12 (11.8)	45	13.5	M6 x 1.0	60	4.5	10	12	34	5.5	M6 x 1.0	9	Rc 1/8	NPT 1/8	G 1/8	58	10	7	49.5	7
30	10 to 50, 75, 100	116	104	13	16 (15.8)	52	17.5	M8 x 1.25	69	5	14	12	40	5.5	M6 x 1.0	9	Rc 1/8	NPT 1/8	G 1/8	71	10	7	57	10
40	10 to 50, 75, 100	116	104	13	16 (15.8)	64	17.5	M8 x 1.25	86	7	14	12	50	6.6	M8 x 1.25	11	Rc 1/4	NPT 1/4	G 1/4	71	14	8	71	10

Note () : Rod end dimensions

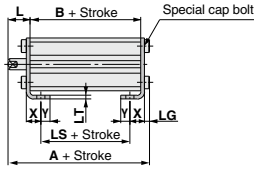
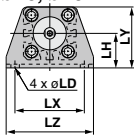
With rod end male thread: MQQ□-DM



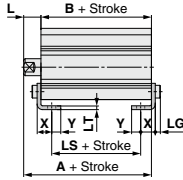
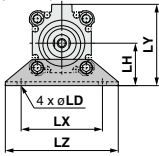
Bore size (mm)	(mm)			
	L1	C1	H1	X
10	23.5	10.5	M5 x 0.8	15.5
16	26.5	11.5	M6 x 1.0	16.5
20	28.5	13.5	M8 x 1.25	18.5
25	34.5	16.5	M10 x 1.25	22.5
30	40.5	22.5	M14 x 1.5	28.5
40	40.5	22.5	M14 x 1.5	28.5

* Refer to page 330 for details regarding the rod end thread adapter and the rod end nut.

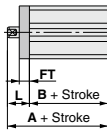
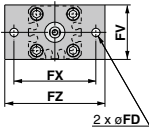
Foot type: MQQL
ø10, ø16, ø20



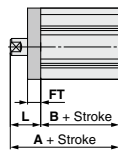
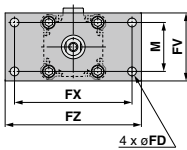
ø25, ø30, ø40



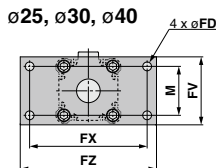
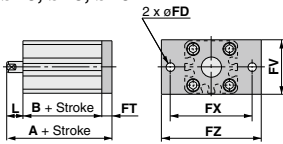
Rod side flange type: MQQLF
ø10, ø16, ø20



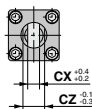
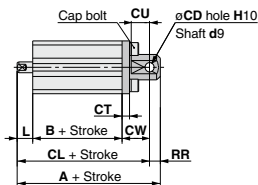
ø25, ø30, ø40



Head side flange type: MQQLG
ø10, ø16, ø20



Double clevis type: MQQLD



Bore size (mm)	Stroke range (mm)	A	B	L	LD	LG	LH
10	10 to 40	74.3	61.5	8	4.5	2.8	19
16	10 to 60	87.7	70.5	10	6.6	4	24
20	10 to 60	96.2	79	10	6.6	4	26
25	10 to 50,75,100	103.7	84.5	12	6.6	4	30
30	10 to 50,75,100	123.2	104	12	6.6	4	33
40	10 to 50,75,100	124.2	104	12	9	5	39

Bore size (mm)	LS	LT	LX	LY	LZ	X	Y
10	49.5	2	38	33.5	48	8	5
16	58.5	3.2	48	42	62	9.2	5.8
20	64	3.2	52	46	66	10.7	5.8
25	68.5	3.2	57	57	71	11.2	5.8
30	88	3.2	64	64	78	11.2	7
40	81	3.2	79	78	95	14.7	8

Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX
10	10 to 40	79.5	61.5	4.5	5.5	30	45
16	10 to 60	90.5	70.5	6.6	8	39	48
20	10 to 60	99	79	6.6	8	42	52
25	10 to 50,75,100	106.5	84.5	5.5	8	48	56
30	10 to 50,75,100	126	104	5.5	8	54	62
40	10 to 50,75,100	126	104	6.6	9	67	76

Bore size (mm)	FZ	L	M
10	55	18	—
16	60	20	—
20	64	20	—
25	65	22	34
30	72	22	40
40	89	22	50

Bore size (mm)	Stroke range (mm)	A	L
10	10 to 40	75	8
16	10 to 60	88.5	10
20	10 to 60	97	10
25	10 to 50,75,100	104.5	12
30	10 to 50,75,100	124	12
40	10 to 50,75,100	125	12

(Dimensions other than A and L are the same as the rod side flange type.)

Bore size (mm)	Stroke range (mm)	A	B	CD	CL	CT	CU
10	10 to 40	90.5	61.5	5	84.5	4	10
16	10 to 60	107.5	70.5	8	98.5	5	12
20	10 to 60	119	79	10	109	5	14
25	10 to 50,75,100	126.5	84.5	10	116.5	5	14
30	10 to 50,75,100	148	104	10	138	6	14
40	10 to 50,75,100	158	104	14	144	7	20

Bore size (mm)	CW	CX	CZ	L	RR
10	15	6.5	12	8	6
16	18	8	16	10	9
20	20	10	20	10	10
25	20	18	36	12	10
30	22	18	36	12	10
40	28	22	44	12	14

REA

REB

REC

Smooth

Low Speed

MQ

RHC

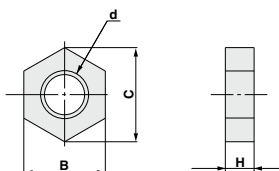
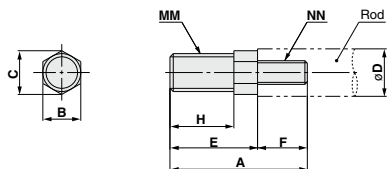
RZQ

MQQ Series

Accessory Dimensions

Rod end thread adapter (With rod end nut shown in the right figure)

Rod end nut



Material: Stainless steel

Part no.	Applicable bore size (mm)	A	B	C	D	E	F
MQ10-M	10	20.5	8	9.2	6	15.5	5
MQ16-M	16	22.5	8	9.2	8	16.5	6
MQ20-M	20	24.5	8	9.2	10	18.5	6
MQ25-M	25	33.5	10	11.5	12	22.5	11
MQ28-M	30, 40	40.5	14	16	16	28.5	12

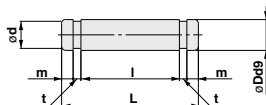
Material: Carbon steel

Part no.	Applicable bore size (mm)	B	C	d	H	Weight
NTJ-015C	10	8	9.2	M5 x 0.8	4	1.5 g
NT-015A	16	10	11.5	M6 x 1.0	5	2.5 g
NT-02	20	13	15	M8 x 1.25	5	4.0 g
NT-03	25	17	19.6	M10 x 1.25	6	8.0 g
NT-04	30, 40	22	25.4	M14 x 1.5	8	17.0 g

Part no.	Applicable bore size (mm)	H	MM	NN	Weight (Note)
MQ10-M	10	10.5	M5 x 0.8	M3 x 0.5	5.5 g
MQ16-M	16	11.5	M6 x 1.0	M4 x 0.7	7.5 g
MQ20-M	20	13.5	M8 x 1.25	M5 x 0.8	11.5 g
MQ25-M	25	16.5	M10 x 1.25	M6 x 1.0	22.5 g
MQ28-M	30, 40	22.5	M14 x 1.5	M8 x 1.25	52.0 g

Note) Rod end nut is included

Clevis pin



Material: Carbon steel

Part no.	Applicable bore size (mm)	Dd9	L	d	l	m	t	Applicable retaining ring
IY-J015	10	5 ^{-0.030} _{-0.040}	16.6	4.8	12.2	1.5	0.7	C type 5 for shaft
IY-G02	16	8 ^{-0.040} _{-0.076}	21	7.6	16.2	1.5	0.9	C type 8 for shaft
IY-G03	20	10 ^{-0.040} _{-0.076}	25.6	9.6	20.2	1.55	1.15	C type 10 for shaft
IY-G04	25, 30	10 ^{-0.040} _{-0.076}	41.6	9.6	36.2	1.55	1.15	C type 10 for shaft
IY-G05	40	14 ^{-0.050} _{-0.093}	50.6	13.4	44.2	2.05	1.15	C type 14 for shaft

* C-type retaining ring for shaft is included.