

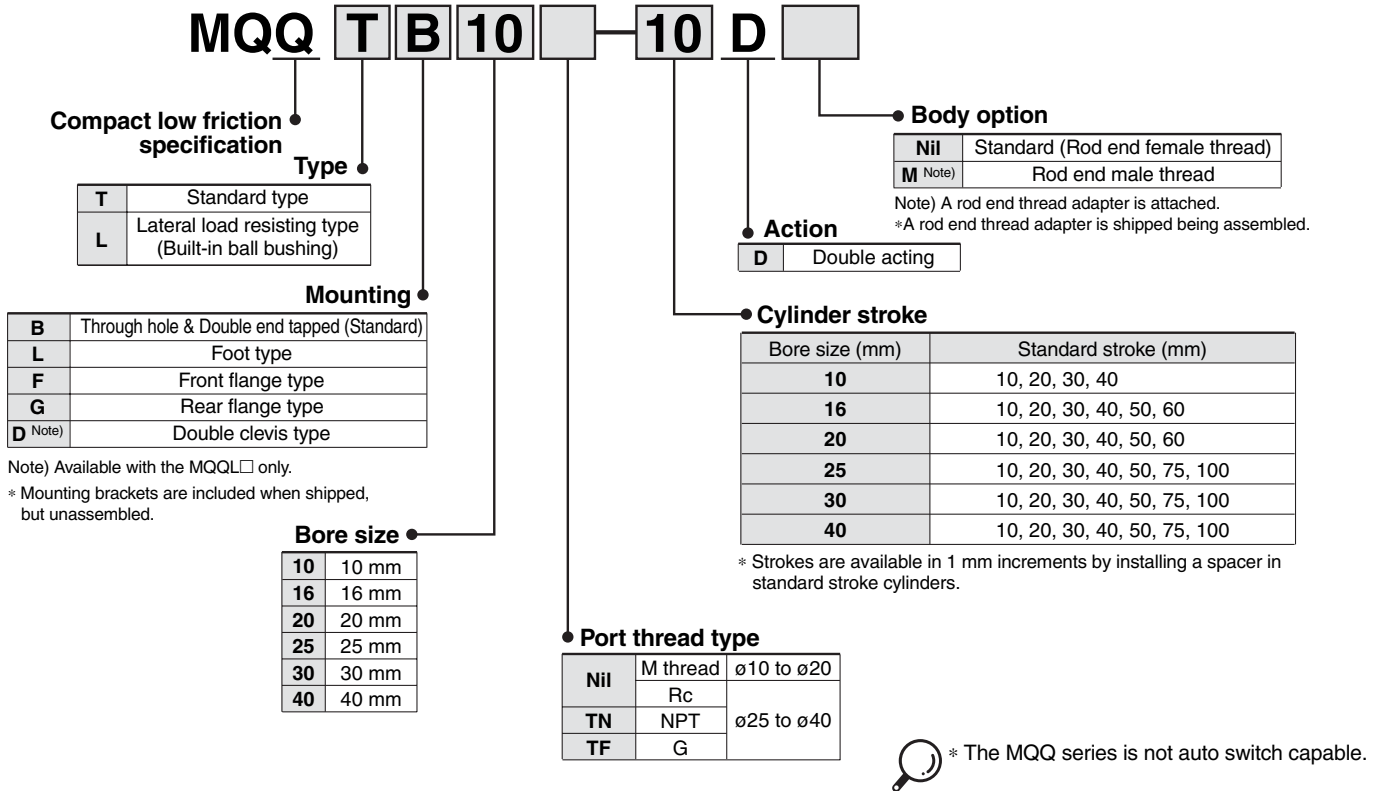
Metal Seal

Compact Low Friction Cylinder

Series *MQQ*

ø10, ø16, ø20, ø25, ø30, ø40

How to Order



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 snap 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 80C					
Cushion		Rubber bumper (Standard)					
Lubrication <small>Note 2)</small>		Not required (Non-lube)					
Rod end thread		Female thread					
Rod end thread tolerance		JIS class 2					
Stroke length tolerance		+1.0 0					
Piston speed <small>Note 3)</small>		0.3 to 300 mm/s (Refer to page 19.)					
Total allowable leakage	Supply pressure 0.1 MPa	150 cm ³ /min or less	200 cm ³ /min or less	300 cm ³ /min or less	400 cm ³ /min or less	600 cm ³ /min or less	800 cm ³ /min or less
	Supply pressure 0.3 MPa	800 cm ³ /min or less	1000 cm ³ /min or less	1200 cm ³ /min or less	1600 cm ³ /min or less	2000 cm ³ /min or less	2400 cm ³ /min or less
	Supply pressure 0.5 MPa	1500 cm ³ /min or less	2000 cm ³ /min or less	3000 cm ³ /min or less	4000 cm ³ /min or less	6000 cm ³ /min or less	8000 cm ³ /min or less

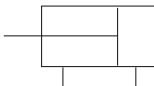
Note 1) Value when horizontal. (Use clean, dry, and nonfreezing air) However, as the stroke increases, it will likely be affected by the weight of its moving parts and the pressure will likely increase by approx. 0.003 to 0.005 MPa due to an offset load from the weight of the rod.

Note 2) Refer to precautions on page 18 regarding lubrication.

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

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 80C					
Cushion		Rubber bumper (Standard)					
Lubrication <small>Note 2)</small>		Not required (Non-lube)					
Rod end thread		Female thread					
Rod end thread tolerance		JIS class 2					
Stroke length tolerance		+1.0 0					
Piston speed <small>Note 3)</small>		0.5 to 500 mm/s (Refer to page 19.)					
Total allowable leakage	Supply pressure 0.1 MPa	150 cm ³ /min or less	200 cm ³ /min or less	300 cm ³ /min or less	400 cm ³ /min or less	600 cm ³ /min or less	800 cm ³ /min or less
	Supply pressure 0.3 MPa	800 cm ³ /min or less	1000 cm ³ /min or less	1200 cm ³ /min or less	1600 cm ³ /min or less	2000 cm ³ /min or less	2400 cm ³ /min or less
	Supply pressure 0.5 MPa	1500 cm ³ /min or less	2000 cm ³ /min or less	3000 cm ³ /min or less	4000 cm ³ /min or less	6000 cm ³ /min or less	8000 cm ³ /min or less

Note 1) Value when horizontal. (Use clean, dry, and nonfreezing air) However, as the stroke increases, it will likely be affected by the weight 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 weight of the rod.

Note 2) Refer to precautions on page 18 regarding lubrication.

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

Weight: Standard Type/MQQT

Unit: g

Bore size (mm)	Cylinder stroke (mm)							
	10	20	30	40	50	60	75	100
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)

Unit: g

Bore size (mm)	Cylinder stroke (mm)							
	10	20	30	40	50	60	75	100
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	2399

Theoretical Output

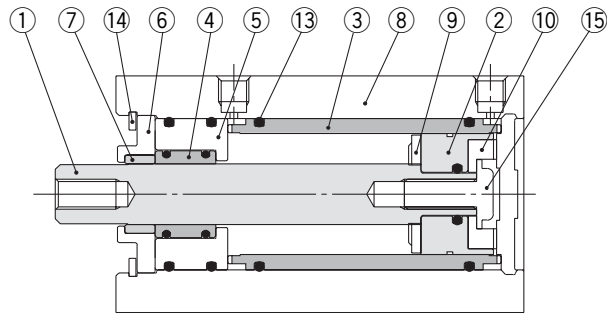
Unit: N

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	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	20	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

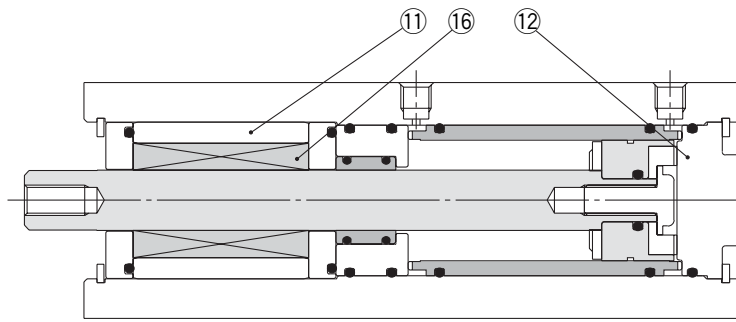
Series MQQ

Construction

Standard type: MQQT



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



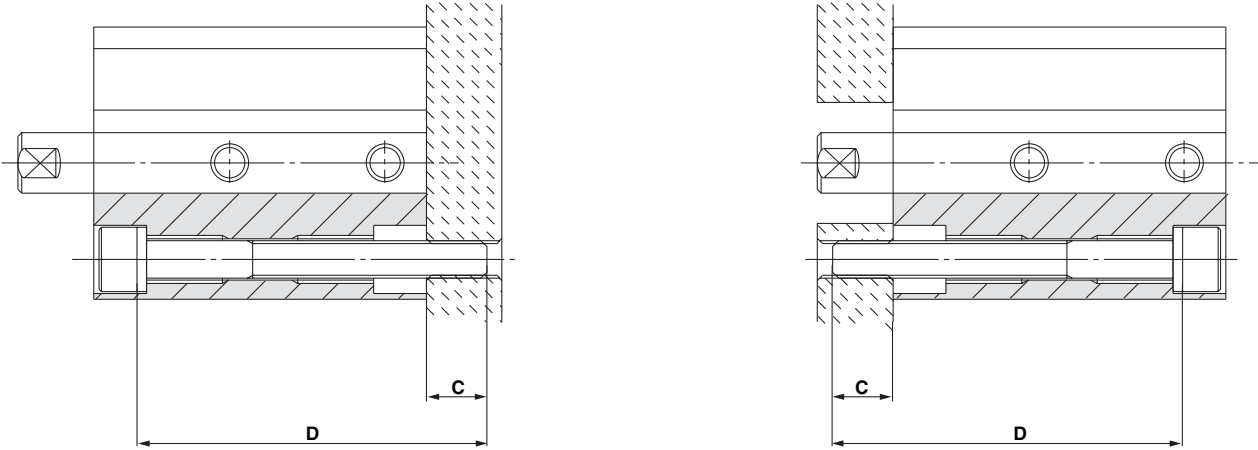
Component Parts

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	Nickel plated
15	Bolt	Carbon tool steel	Nickel plated
16	Ball bushing		

Mounting

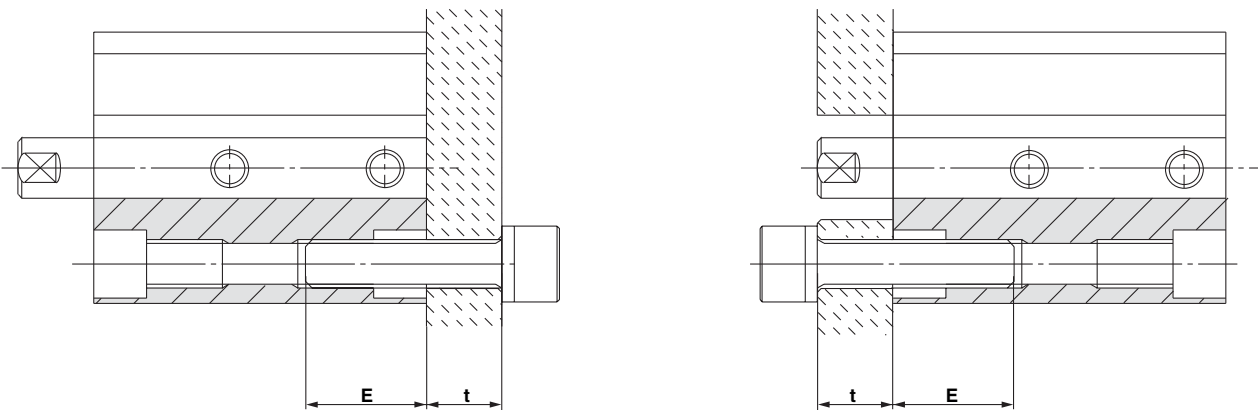
Mounting bolts

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)



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	MQQTB10-□D	M3 x 0.5	7	35 + Stroke	M4 x 0.7	8 to 11
	MQQTB16-□D	M5 x 0.8	7	35 + Stroke	M6 x 1	13 to 17
	MQQTB20-□D		8.5	40 + Stroke		
	MQQTB25-□D		9	45 + Stroke		
	MQQTB30-□D		7.5	50 + Stroke		
	MQQTB40-□D		6	50 + Stroke		
Lateral load resisting type MQQL (Built-in ball bushing)	MQQLB10-□D	M6 x 1	6	50 + Stroke	M8 x 1.25	16 to 22
	MQQLB16-□D	M3 x 0.5	7	65 + Stroke	M4 x 0.7	8 to 11
	MQQLB20-□D	M5 x 0.8	5.5	70 + Stroke	M6 x 1	13 to 17
	MQQLB25-□D		8	80 + Stroke		
	MQQLB30-□D		6.5	85 + Stroke		
	MQQLB40-□D		7	105 + Stroke		
	M6 x 1	7	105 + Stroke	M8 x 1.25	16 to 22	

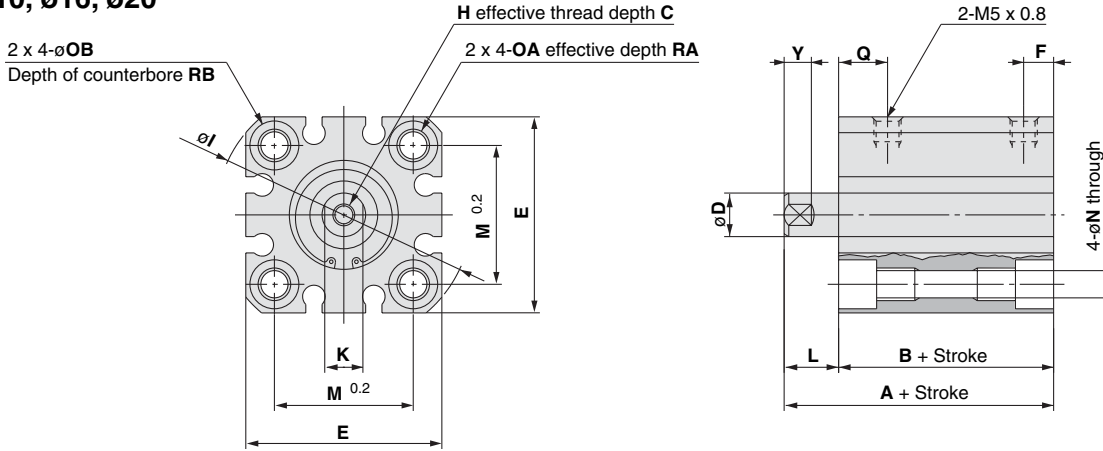
□: Stroke

Series MQQ

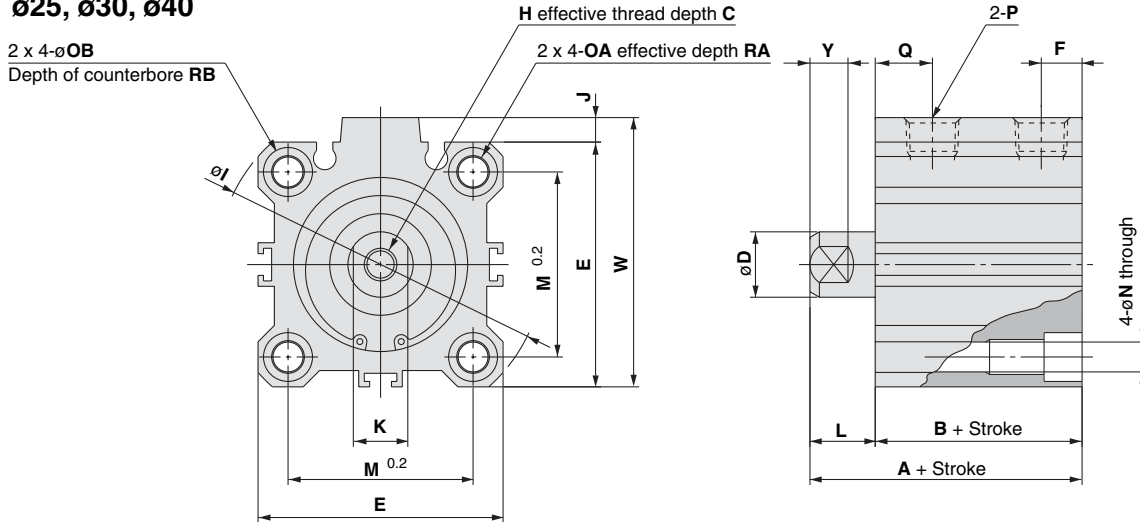
Dimensions

Standard/Basic type (Through hole & Double end tapped): MQQT_B

ø10, ø16, ø20



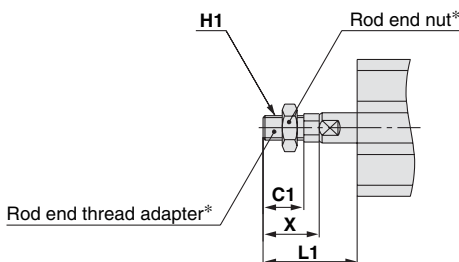
ø25, ø30, ø40



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	Rc1/8	NPT1/8	G1/8	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	Rc1/8	NPT1/8	G1/8	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	Rc1/4	NPT1/4	G1/4	26	14	8	71	10

Note) Figures in () are the dimensions for applying a wrench.

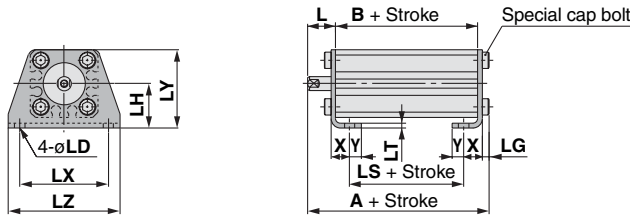
With rod end male thread: MQQ□-□DM



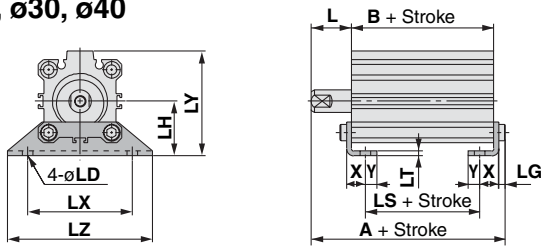
Bore size (mm)	L1	C1	H1	X
10	23.5	10.5	M5 x 0.8	15.5
16	26.5	11.5	M6 x 1.0	16.5
20	28.5	13.5	M8 x 1.25	18.5
25	34.5	16.5	M10 x 1.25	22.5
30	40.5	22.5	M14 x 1.5	28.5
40	40.5	22.5	M14 x 1.5	28.5

* Refer to page 9 for details regarding the rod end thread adapter and the rod end nut.

Foot type: MQQTL
ø10, ø16, ø20



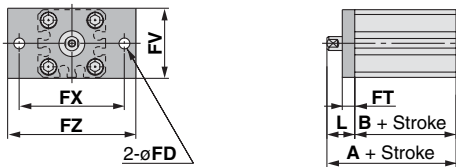
ø25, ø30, ø40



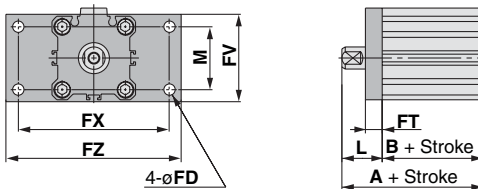
Bore size (mm)	Stroke range (mm)	A	B	L	LD	LG	LH
10	10 to 40	44.3	31.5	8	4.5	2.8	19
16	10 to 60	51.2	34	10	6.6	4	24
20	10 to 60	54.7	37.5	10	6.6	4	26
25	10 to 50,75,100	61.2	42	12	6.6	4	30
30	10 to 50,75,100	67.7	48.5	12	6.6	4	33
40	10 to 50,75,100	70.2	50	12	9	5	39

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

Front flange type: MQQTF
ø10, ø16, ø20



ø25, ø30, ø40

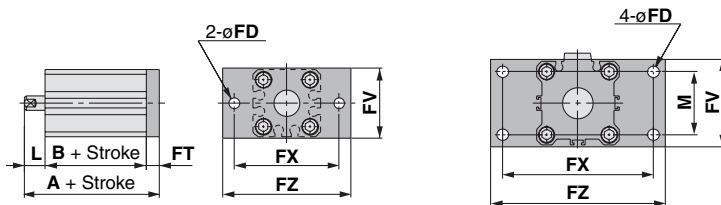


Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX
10	10 to 40	49.5	31.5	4.5	5.5	30	45
16	10 to 60	54	34	6.6	8	39	48
20	10 to 60	57.5	37.5	6.6	8	42	52
25	10 to 50,75,100	64	42	5.5	8	48	56
30	10 to 50,75,100	70.5	48.5	5.5	8	54	62
40	10 to 50,75,100	72	50	6.6	9	67	76

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

Rear flange type: MQQTG
ø10, ø16, ø20

ø25, ø30, ø40



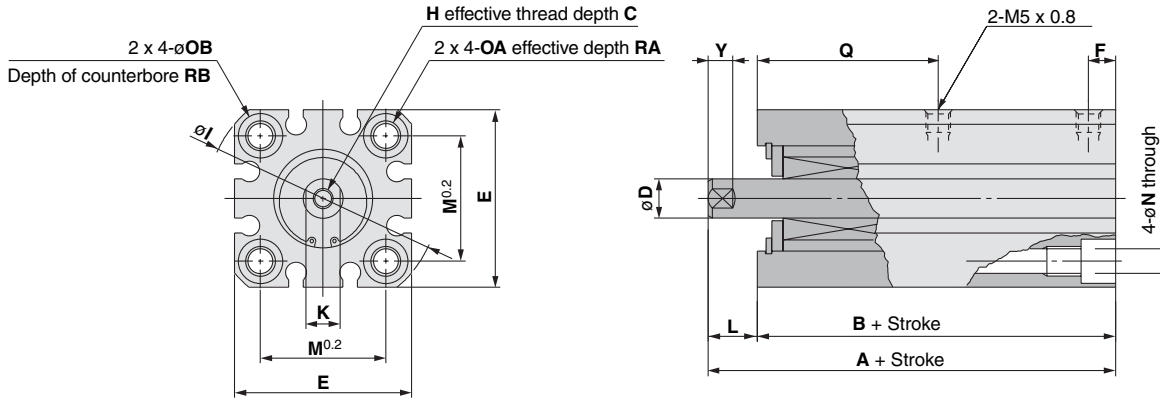
Bore size (mm)	Stroke range (mm)	A	L
10	10 to 40	45	8
16	10 to 60	52	10
20	10 to 60	55.5	10
25	10 to 50,75,100	62	12
30	10 to 50,75,100	68.5	12
40	10 to 50,75,100	70	12

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

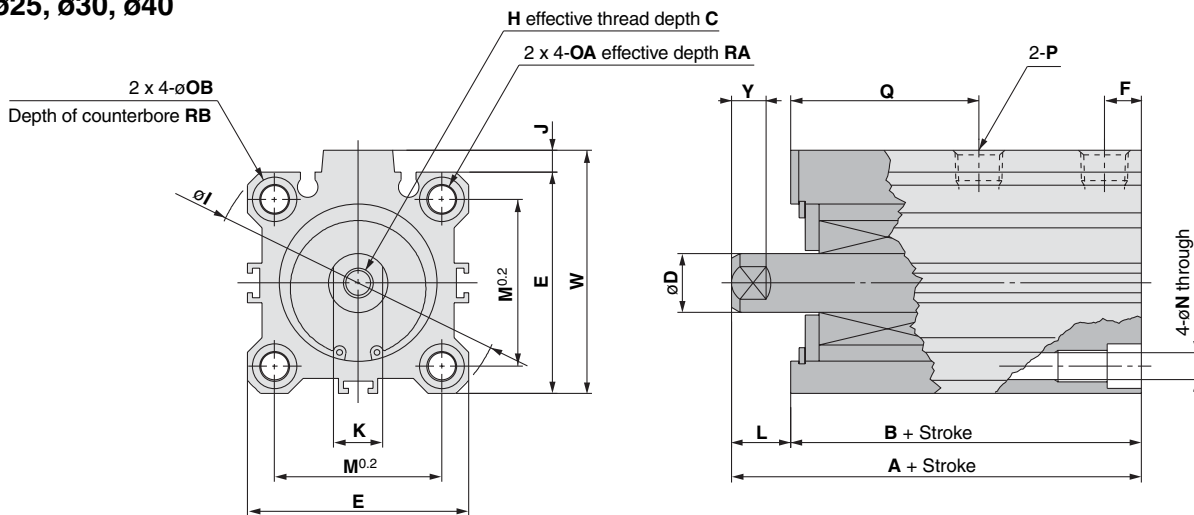
MQQ Series

Dimensions

Lateral load resisting/Basic type (Through hole & Double end tapped): MQQLB $\phi 10, \phi 16, \phi 20$



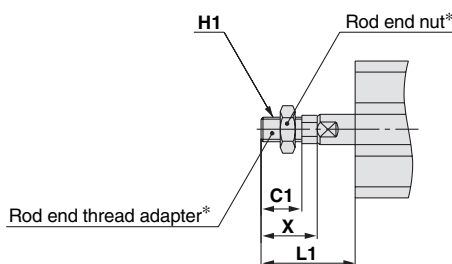
$\phi 25, \phi 30, \phi 40$



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	11.5	M4 x 0.7	47	—	7	10	25.5	5.4	M6 x 1.0	9	—	—	—	48.5	10	7	—	5
	10 to 60	89	79	10	10 (9.8)	40	12	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	Rc1/8	NPT1/8	G1/8	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	Rc1/8	NPT1/8	G1/8	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	Rc1/4	NPT1/4	G1/4	71	14	8	71	10

Note) Figures in () are the dimensions for applying a wrench.

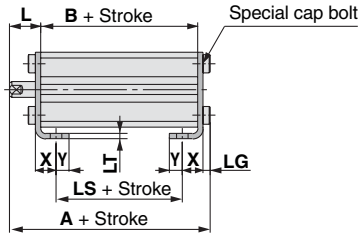
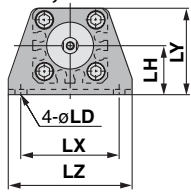
With rod end male thread: MQQ□-□DM



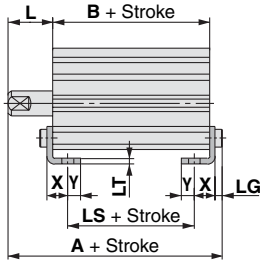
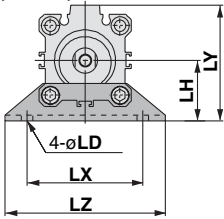
Bore size (mm)	L1	C1	H1	X
10	23.5	10.5	M5 x 0.8	15.5
16	26.5	11.5	M6 x 1.0	16.5
20	28.5	13.5	M8 x 1.25	18.5
25	34.5	16.5	M10 x 1.25	22.5
30	40.5	22.5	M14 x 1.5	28.5
40	40.5	22.5	M14 x 1.5	28.5

* Refer to page 9 for details regarding the rod end thread adapter and the rod end nut.

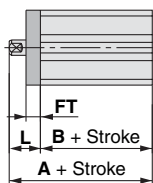
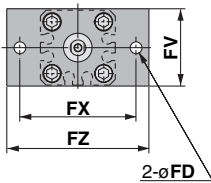
Foot type: MQQLL
ø10, ø16, ø20



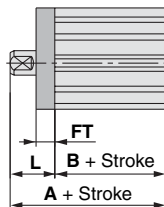
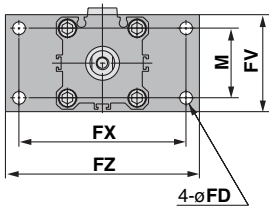
ø25, ø30, ø40



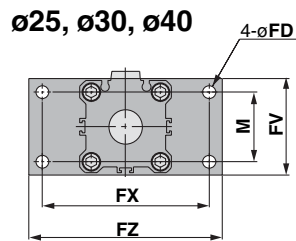
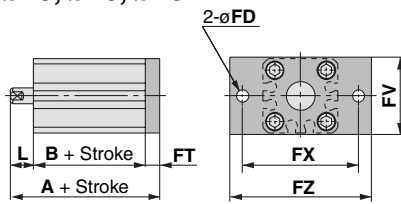
Front flange type: MQQLF
ø10, ø16, ø20



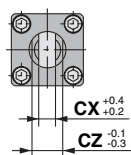
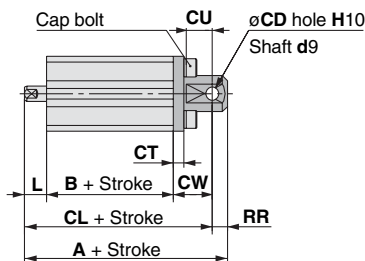
ø25, ø30, ø40



Rear flange type: MQQLG
ø10, ø16, ø20



Double clevis type: MQQLD



(mm)

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

(mm)

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

(mm)

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	124	12

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

(mm)

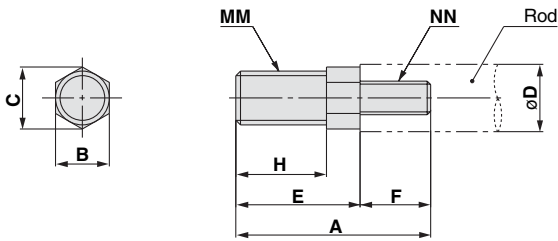
Bore size (mm)	Stroke range (mm)	A	B	CD	CL	CT	CU
10	10 to 40	90.5	61.5	5	84.5	4	10
16	10 to 60	107.5	70.5	8	98.5	5	12
20	10 to 60	119	79	10	109	5	14
25	10 to 50,75,100	126.5	84.5	10	116.5	5	14
30	10 to 50,75,100	148	104	10	138	6	14
40	10 to 50,75,100	158	104	14	144	7	20

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

Series MQQ

Accessory Dimensions

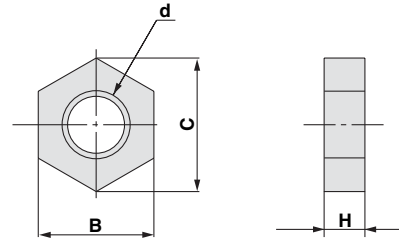
Rod end thread adapter



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

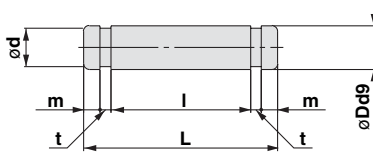
Part no.	Applicable bore size (mm)	H	MM	NN
MQ10-M	10	10.5	M5 x 0.8	M3 x 0.5
MQ16-M	16	11.5	M6 x 1.0	M4 x 0.7
MQ20-M	20	13.5	M8 x 1.25	M5 x 0.8
MQ25-M	25	16.5	M10 x 1.25	M6 x 1.0
MQ28-M	30, 40	22.5	M14 x 1.5	M8 x 1.25

Rod end nut



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

Clevis pin



Part no.	Applicable bore size (mm)	Dd9	L	d	l	m	t	Applicable snap 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