OBSOLETE DOCUMENT Technical Reference Only

- **Rugged, compact units**
- **Integral rear eye mounting**
- **Corrosion resistant construction**
- **Synthetic rubber buffers at end of stroke**

Double Acting
∅10 - 25 mm bore

Technical Data

Medium:
Compressed air, filtered and lubricated

Operation:
Double acting

Operating Pressure:
2 - 10 bar

Operating Temperature:
–20˚C* to +60˚C 10 and 16 mm bore models
–20˚C* to +80˚C 20 and 25 mm bore models
*Consult our Technical Service for use below +2˚C

Stock Strokes:
15, 25, 50 mm M/6010
15, 25, 50, 75, 100 mm M/6016 and M/6020
25, 50, 75, 100 mm M/6025
Stock strokes are not available for M/6020/J and M/6025/J.

Non-stock Strokes:
Non-stock strokes are available up to 300 mm for 20 mm bore models and up to 400 mm for 25 mm bore models.

Cylinder Diameters

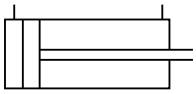
10, 16, 20, 25 mm

Alternative Models

-/J Double ended piston rod on 20 mm and 25 mm bore models

Materials

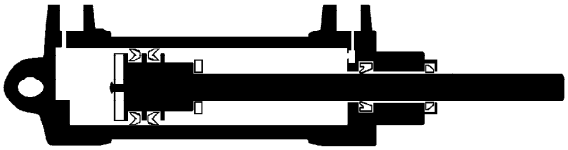
Stainless steel (Austenitic) piston rod, aluminium barrel, brass piston, glass filled nylon end covers on 10 and 16 mm bore models, die cast aluminium end covers on 20 and 25 mm bore models, nitrile rubber seals.



Ordering Information

To order a 16 mm bore cylinder with a 50 mm stroke without mounting brackets quote:
M/6016/50.

To order mounting brackets refer to appropriate cylinder mounting table.



Theoretical Forces/Air Consumption

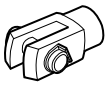
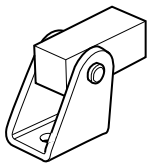
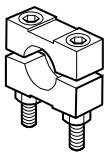
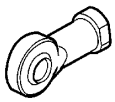
Bar		2	3	4	5	6	7	8	9	10
M/6010	F1	15	23	31	39	47	54	62	70	78
∅10	Q1	0,00235	0,00314	0,00392	0,00471	0,00549	0,00628	0,00706	0,00785	0,00864
	F2	13	19	26	32	39	46	52	59	65
	Q2	0,0019	0,0026	0,0032	0,0039	0,0046	0,0052	0,0059	0,0065	0,0072
M/6016	F1	40	60	80	100	120	140	160	180	201
∅16	Q1	0,00603	0,00804	0,01005	0,01206	0,01407	0,01608	0,01809	0,02010	0,02211
	F2	34	51	69	86	103	120	138	155	172
	Q2	0,0051	0,0069	0,0086	0,0103	0,0120	0,0138	0,0155	0,0172	0,0190
M/6020	F1	62	94	125	157	188	219	251	282	314
∅20	Q1	0,00942	0,01256	0,01571	0,01885	0,02199	0,02513	0,02827	0,03142	0,03456
	F2	52	79	105	131	158	184	211	237	263
	Q2	0,0079	0,0103	0,0131	0,0158	0,0184	0,0211	0,0237	0,0263	0,0290
M/6025	F1	98	147	196	245	294	343	392	441	490
∅25	Q1	0,01472	0,01963	0,02454	0,02945	0,03436	0,03927	0,04418	0,04909	0,05400
	F2	82	123	164	206	247	288	329	371	412
	Q2	0,0123	0,0164	0,0206	0,0247	0,0288	0,0329	0,0371	0,0412	0,0453

F1 - Force (N) outstroke Q1 - Air consumption (l/cm) outstroke
F2 - Force (N) instroke Q1 - Air consumption (l/cm) instroke

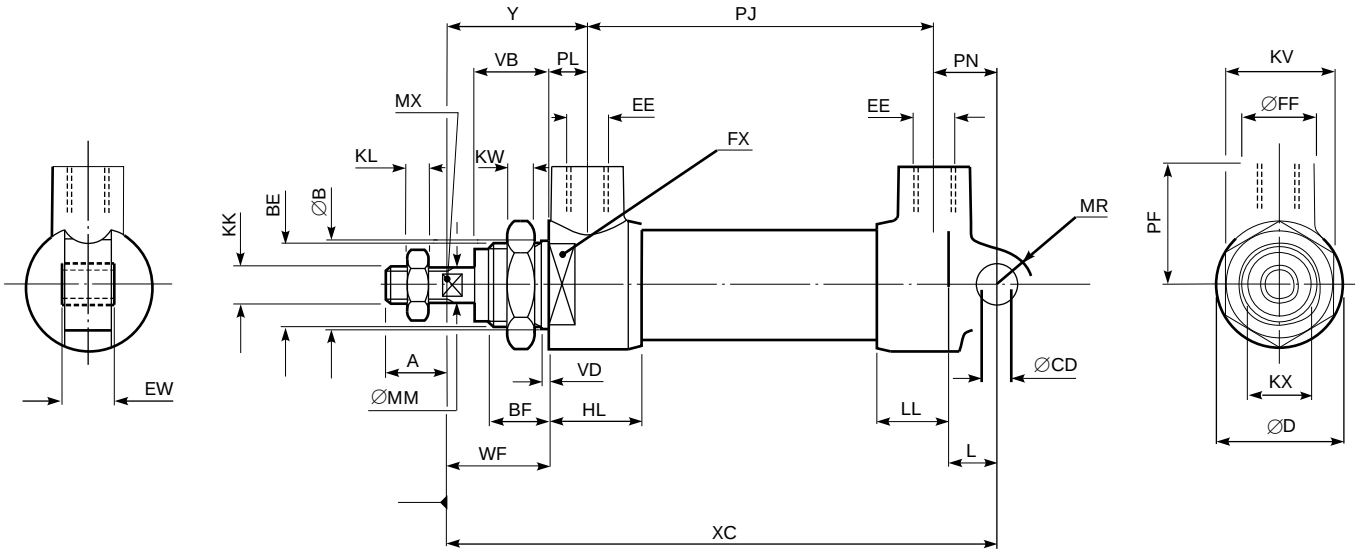
Weights of Cylinders and Mountings (kg)

∅	Weight 0mm	Weight per 25 mm	WeightofMountings					
			C	F	L	M	T	UF
10	0,020	0,014	0,010	0,010	0,006	0,015	0,025	0,015
16	0,045	0,030	0,018	0,015	0,012	0,026	0,045	0,021
20	0,170	0,040	0,040	0,020	0,020	0,040	–	0,045
25	0,270	0,050	0,055	0,050	0,035	0,080	–	0,070

Mountings

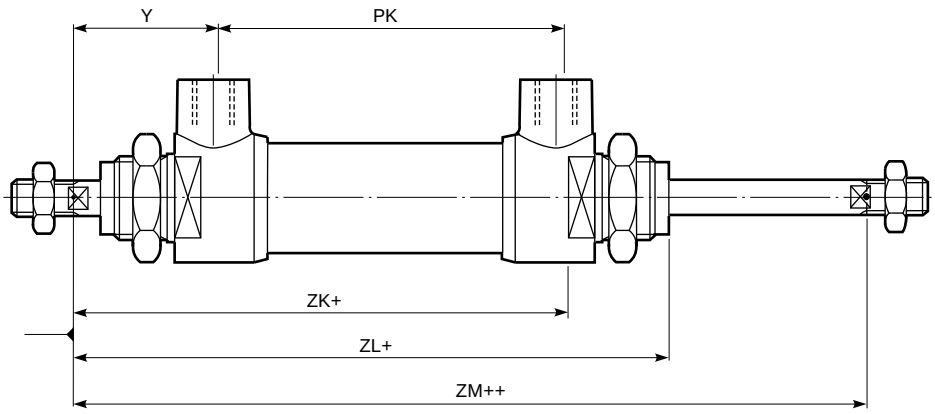
							
C	**F**	**L**	**M**	**T**	**UF**		

Basic Cylinder Dimensions



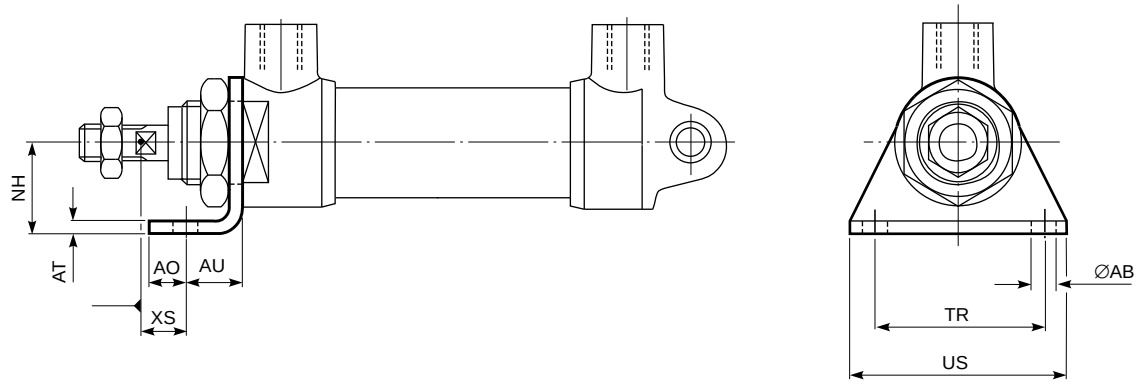
Model		M/6010	M/6016	M/6020	M/6025
∅		10	16	20	25
A		8^{+1}	12^{+1}	$15^{+0,5}$	$20^{+0,5}$
B		$11^{-0,02}_{-0,15}$	$17^{-0,02}_{-0,15}$	19h11	23h11
D		16,6	25,4	28	33
L		5,5	7	8	9
Y		21,5	25	31	34
BE		M10x1,25 - 6g	M16x1,5 - 6g	M18x1,5	M22x1,5
BF		10,5	12	13	16
CD		4,10 4,02	5,10 5,02	5,01 5,00	6,01 5,99
EE		M5x0,8 - 6H	M5x0,8 - 6H	G⅛	G⅛
EW		8,3	10	12,1 11,8	16,1 15,8
FF		8	8	16	16
FX A/F		–	–	22,0	27,0
HL		16,5	18,5	21,5	21,5
KK		M4x0,7 - 6g	M6x1 - 6g	M8x1,25 - 6g	M10x1,5 - 6g
KL		2	3	5	6
KV A/F		14,0	22,0	24,0	27,0
KW		4,5	5	5	8
KX A/F		7,00	10,00	13,00	17,00
LL		8,5	11	15,5	15,5
MM		4h9	6h9	8h9	10h9
MR		4,5	6	8	9
MX A/F		–	–	6,0	8,0
PF		13	14	26	28
PJ	⩽12 mm stroke	34,2	–	–	–
	⩽15 mm stroke	–	39,6	–	–
	⩽25 mm stroke	–	–	44,2	44,2
	>12 mm stroke	22,9	–	–	–
	>15 mm stroke	–	24,7	–	–
	>25 mm stroke	–	–	19,2	19,2
PL		5,5	5,5	9	9
PN		3,5	5,5	11	12
VB		–	–	16	19
VD		1	1	1	1,5
WF		16	19,5	$22,9^{+0,88}_{-2,38}$	$25,9^{+1,13}_{-2,13}$
XC	⩽12 mm stroke	$58^{\pm 1,4}$	–	–	–
	⩽15 mm stroke	–	$69^{\pm 1,4}$	–	–
	⩽25 mm stroke	–	–	$85,5^{+0,8}_{-1,3}$	$89,5^{\pm 1}$
	>12 mm stroke	$46^{\pm 1,4}$	–	–	–
	>15 mm stroke	–	$54^{\pm 1,4}$	–	–
	>25 mm stroke	–	–	$60,5^{+0,8}_{-1,3}$	$64,5^{\pm 1}$

Basic Cylinder Dimensions - M/6000/J



Model		M/6020/J	M/6025/J
∅		20	25
Y		31	34
PK	⩽25 mm stroke	44,2	44,2
	>25 mm stroke	19,2	19,2
ZK	⩽25 mm stroke	$83^{\pm 2}$	$86^{\pm 1}$
ZK+	>25 mm stroke	$58^{\pm 2}$	$68^{\pm 1}$
ZL	⩽25 mm stroke	$100^{\pm 2}$	$105^{\pm 1}$
ZL+	>25 mm stroke	$75^{\pm 2}$	$81^{\pm 1}$
ZM	⩽25 mm stroke	$106^{\pm 0,1}$	$112^{\pm 1}$
ZM++	>25 mm stroke	$81^{\pm 0,2}$	$87^{\pm 1}$

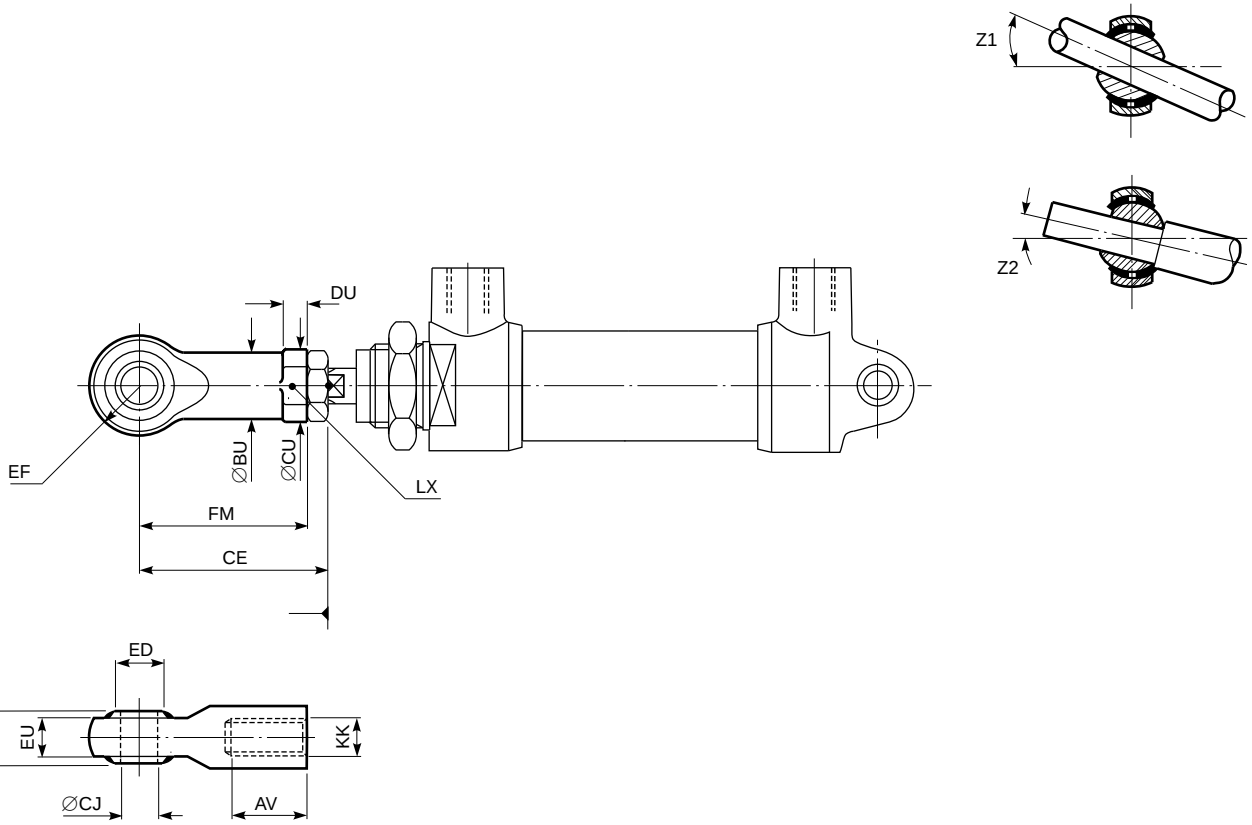
Foot Mounting Style ‘C’



Model	M/6010	M/6016	M/6020	M/6025
Reference	M/P13849	M/P13855	M/P13746	M/P13747
AB	$4,8^{\pm 0,2}$	$4,8^{\pm 0,2}$	$5,8^{\pm 0,2}$	$7^{\pm 0,2}$
AO	5	5	8	9
AT	1,5	2	3	3
AU	$7^{\pm 0,2}$	$9^{\pm 0,2}$	$12,5^{\pm 0,2}$	$13^{\pm 0,3}$
NH	$12^{\pm 0,3}$	$16^{\pm 0,3}$	$20^{\pm 0,5}$	$22^{\pm 0,5}$
TR	$22^{\pm 0,2}$	$30^{\pm 0,2}$	$38^{\pm 0,2}$	$44^{\pm 0,25}$
US	$32^{\pm 0,5}$	$40^{\pm 0,5}$	$49^{\pm 0,5}$	$57^{\pm 0,5}$
XS	9	10,4	10,4	12,9

To order a Foot Mounting Style ‘C’, quote Reference, e.g. M/P13849 for M/6010.

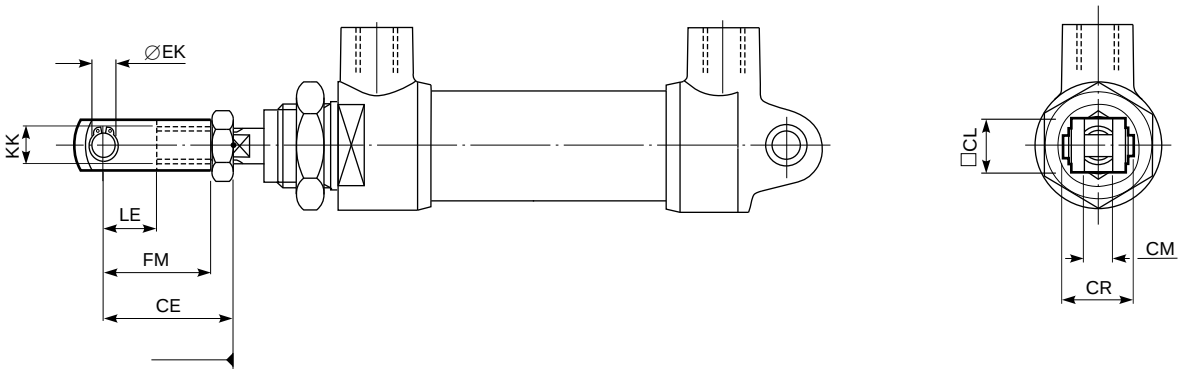
Universal Piston Rod Eye Mounting Style ‘UF’



Model	M/6020	M/6025
Reference	QM/1147	QM/1148
AV	16	20
BU	14	17
CE	41	49
CJ	$8^{+0,05}_{-0,00}$	$10^{+0,05}_{-0,00}$
CU	16	19
DU	5	6,5
ED	10,4	12,9
EF	11	13
EN	12	14
EU	9	10,5
FM	36	43
KK	M8x1,25 - 6H	M10x1,5 - 6H
LX A/F	14	17
Z1	24°	24°
Z2	13°	13°

To order a Universal Piston Rod Eye Mounting Style ‘UF’, quote Reference, e.g. QM/1148 for M/6025.

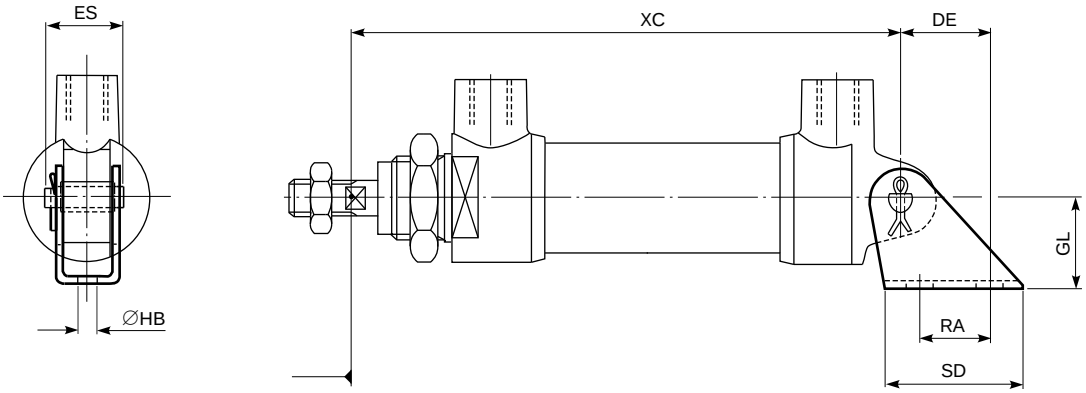
Piston Rod Clevis Mounting Style ‘F’



Model	M/6010	M/6016	M/6020	M/6025
Reference	QM/8010/25	QM/8012/25	QM/375	QM/376
CE	16	22	29	36
CL	8	10	12	16
CM	4	5	6	7
CR	12,5	14,5	16,5	21,5
EK $^{h8}_{G9}$	4	5	5	6
FM	14	19	24	30
LE	8	10	12	14
KK	M4x0,7 - 6H	M6x1 - 6H	M8x1,25 - 6H	M10x1,5 - 6H

To order a Piston Rod Clevis Mounting Style ‘F’, quote Reference, e.g. QM/8012/25 for M/6016.

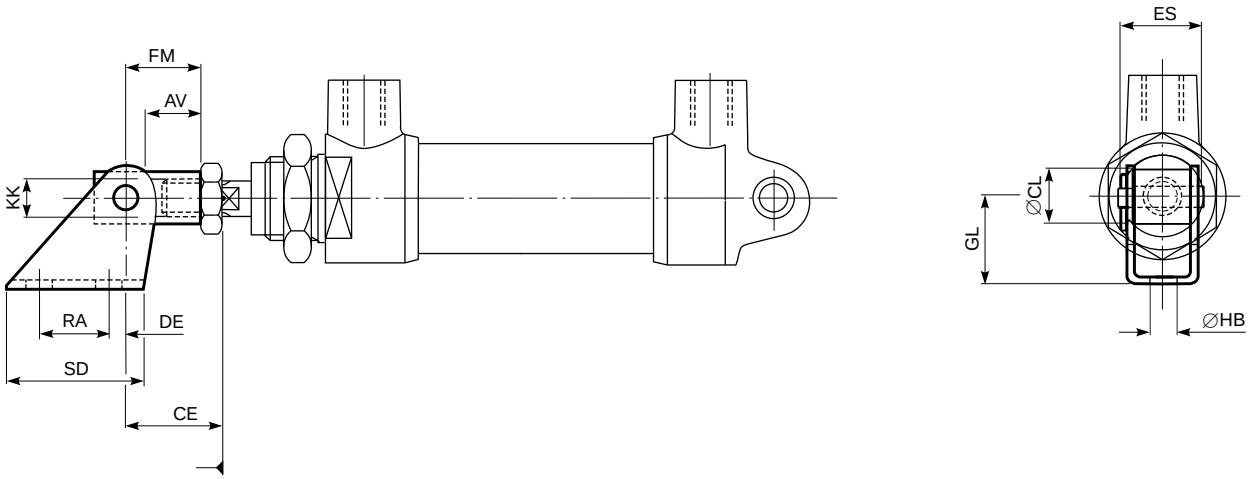
Rear Hinge Mounting Style ‘L’



Model		M/6010	M/6016	M/6020	M/6025
Reference		QM/947	QM/946	QM/377	QM/378
DE		6,5	13	19	20
ES		13,5	16	19	24
GL		12	16,05	20	22
HB		4,8	4,8	6	7
RA		–	10	15	15
SD		15	22	30	33
XC	⩽12 mm stroke	57,7	–	–	–
	⩽15 mm stroke	–	68,7	–	–
	⩽25 mm stroke	–	–	86,25	90,5
	>12 mm stroke	45,7	–	–	–
	>15 mm stroke	–	53,7	–	–
	>25 mm stroke	–	–	60,75	65,5

To order a Rear Hinge Mounting Style ‘L’, quote Reference, e.g. QM/378 for M/6025.

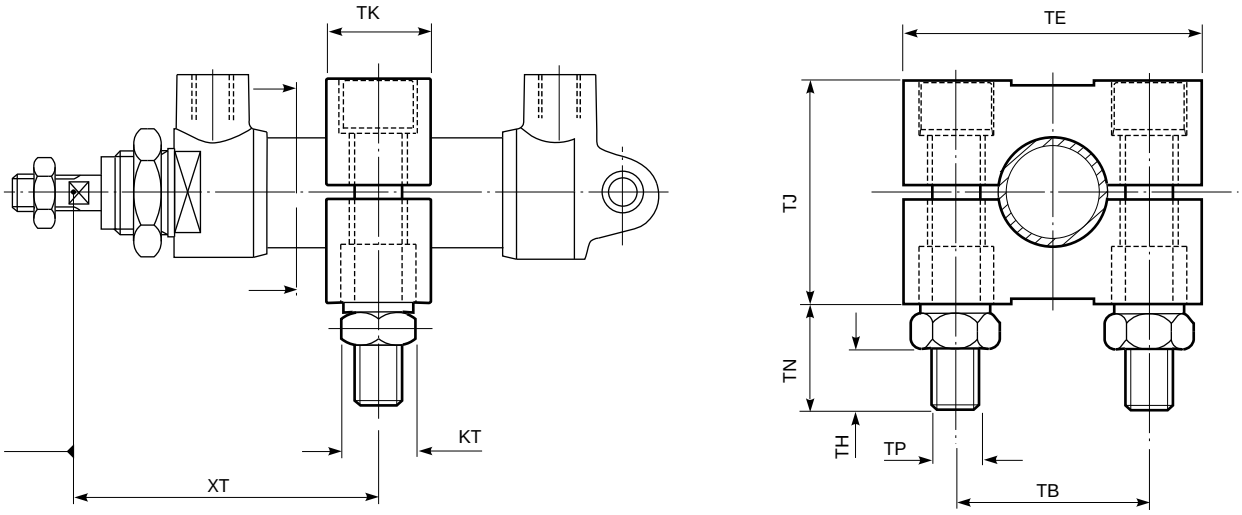
Front Hinge Mounting Style ‘M’



Model	M/6010	M/6016	M/6020	M/6025
Reference	QM/949	QM/948	QM/978	QM/979
AV	6	9	12	16
CE	$16^{\pm 8}$	$22^{\pm 8}$	$21^{\pm 8}$	$27^{\pm 8}$
CL	8	10	12	16
DE	$6{,}5^{\pm 0{,}2}$	$3^{\pm 0{,}2}$	$4^{\pm 0{,}2}$	$5^{\pm 0{,}2}$
ES	13,5	16	19	24
FM	14	19	16	21
GL	$11^{\pm 0{,}3}$	$14{,}8^{\pm 0{,}3}$	$20^{\pm 0{,}3}$	$22^{\pm 0{,}3}$
HB	$4{,}8^{+0{,}2}$	$4{,}8^{+0{,}2}$	$6^{+0{,}2}$	$7^{+0{,}2}$
KK	M4x0,7 - 6H	M6x1 - 6H	M8x1,25 - 6H	M10x1,5 - 6H
RA	–	$10^{\pm 0{,}2}$	$15^{\pm 0{,}2}$	$15^{\pm 0{,}2}$
SD	15	22	30	33

To order a Front Hinge Mounting Style ‘M’, quote Reference, e.g. QM/978 for M/6020

Side Clamp Mounting Style ‘T’



Model		M/6010	M/6016
Reference		QM/1045	QM/1046
KT		8	10
TB		21	30
TE		33	43
TH		6	8
TJ		24	32
TK		12	13
TN		11,5	16,5
TP		M5x0,8	M6x1,0
XT	⩽12 mm stroke, min.	36,3	–
	⩽12 mm stroke, max.	37,3	–
	⩽15 mm stroke, min.	37,5	45,5
	⩽15 mm stroke, mid.	39	–
	⩽15 mm stroke, max.	40,8	46,3
	>25 mm stroke, min.	37,5	45,7
	>25 mm stroke, mid.	44	50,5
	>25 mm stroke, max.	50,8	75,3
	>50 mm stroke, min.	37,5	45,7
	>50 mm stroke, mid.	56	63
	>50 mm stroke, max.	75,8	80,3
	>75 mm stroke, min.	–	45,7
	>75 mm stroke, mid.	–	75,5
	>75 mm stroke, max.	–	105,3
	>100 mm stroke, min.	–	45,7
	>100 mm stroke, mid.	–	88
	>100 mm stroke, max.	–	130,3

To order a Side Clamp Mounting Style ‘T’, quote Reference, e.g. QM/1045 for M/6010.

Spares

Model	Barrel	Piston & Piston rod Assembly	Spares kits
M/6010	N/A	N/A	N/A
M/6016	N/A	N/A	N/A
M/6020/⩽25	M/P13560	QM/6020/⩽25/05	QM/6020/00
M/6020/>25	M/P13559/*	QM/6020/*/05	QM/6020/00
M/6020/J/⩽25	M/P13560	QM/6020/J/⩽25/05	QM/6020/J/00
M/6020/J/>25	M/P13559/*	QM/6020/J/*/05	QM/6020/J/00
M/6025/⩽25	M/P13574	QM/6025/<25/05	QM/6025/00
M/6025/>25	M/P13573/*	QM/6025/*/05	QM/6025/00
M/6025/J/⩽25	M/P13574	QM/6025/J/⩽25/05	QM/6025/J/00
M/6025/J/>25	M/P13573/*	QM/6025/J/*/05	QM/6025/J/00

*Insert stroke length

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where *pressures* and *temperatures* can exceed those listed under **'Technical Data'**.
Before using these products with fluids other than those specified, for non-industrial applications, life-support systems, or other applications not within published specifications, consult NORGREN MARTONAIR.
Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.
System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.
System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.