

M/146000, M/146100, M/146200, LINTRA®PLUS rodless cylinder Magnetic & Non-magnetic piston, double acting



- > \varnothing 16 ... 80 mm
- > New lightweight design extrusion with universal mounting grooves
- > Proved and patented sealing system
- > Dust protection as standard (\varnothing 25 ... 63 mm)

- > Interchangeability with series M/46000



Technical features

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

M/146000, M/146100, M/146200

Double acting, with adjustable cushioning

M/146000/M, M/146100/M, M/146200/M

Double acting with adjustable cushioning and magnetic piston

Models:

M/146000 with internal guide

M/146100 with external adjustable guide

M/146200 with precision roller guide

Operating pressure:

1 ... 8 bar (14 ... 116 psi)

Cylinder diameters:

16, 20, 25, 32, 40, 50, 63, 80 mm

Max strokes:

\varnothing 16 ... 40 mm 8500 mm

\varnothing 50 and 63 mm 8000 mm

\varnothing 80 mm 5500 mm

Operating temperature:

-30 ... +80°C max.

(-22 ... +176°F)

Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

Materials:

End covers: aluminium diecast, moulded plastic (\varnothing 16) and anodised aluminium (\varnothing 20 & 80)

Yoke: anodised aluminium, moulded plastic (\varnothing 16 & 20)

Carriage, closer & cover: aluminium diecast

Guiding bridge and profile barrel: anodised aluminium

Seal strip, wiper and piston seal: PUR

Cover strip: PA

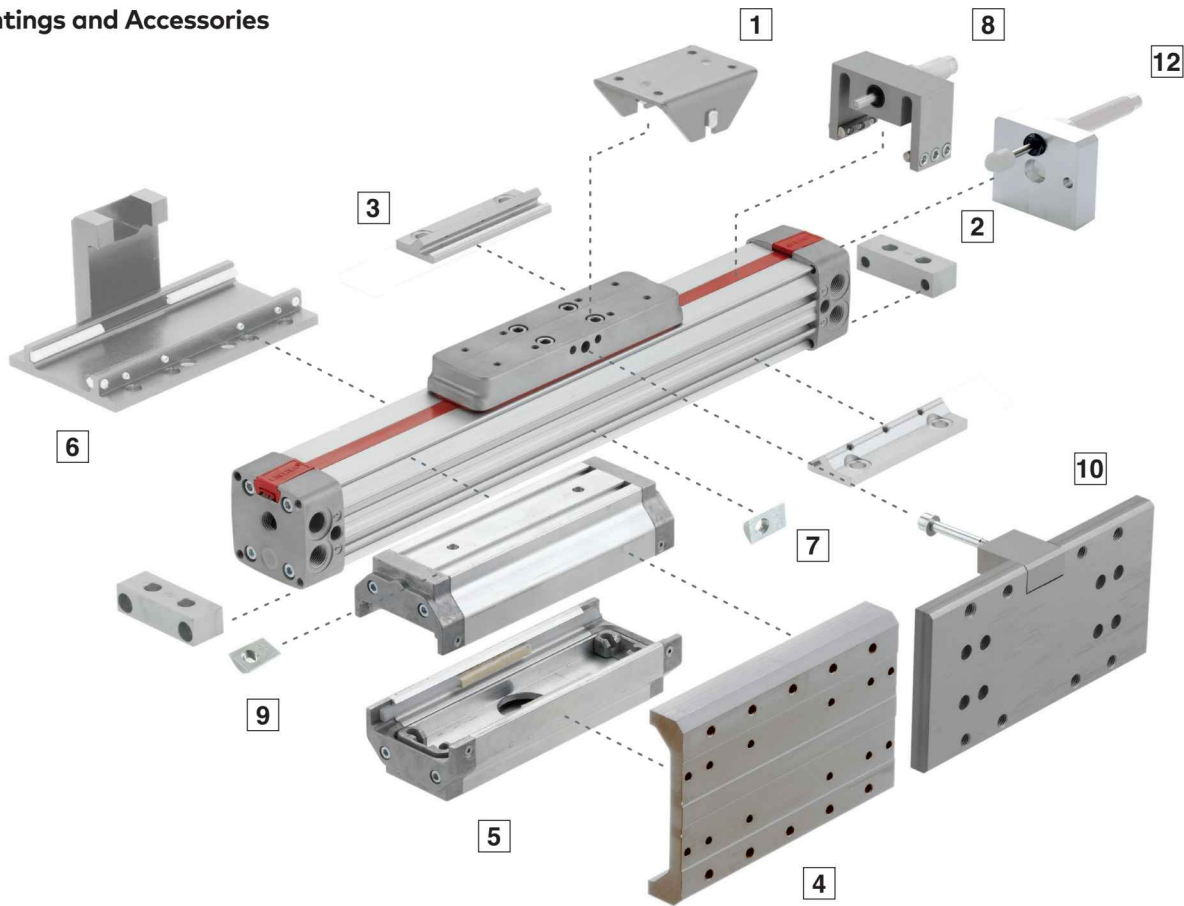
Other seals: NBR




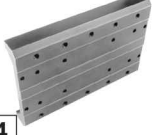


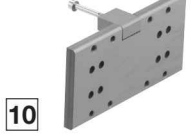





Mounting screws: A2E

Shim ring: stainless steel (A2)

Technical data

Cylinder \varnothing (mm)	16	20	25	32	40	50	63	80
Port size	M5	G1/8	G1/8	G1/4	G1/4	G3/8	G1/2	G1/2
Cushion length (mm)	12	26	26	35	50	60	70	75
Theoretical thrusts at 6 bar outstroke (N)	120	188	294	482	754	1178	1870	3016
Air consumption at 6 bar outstroke (l/cm stroke)	0,014	0,022	0,035	0,056	0,088	0,137	0,218	0,35
Holding forces (N) of brake (on dry braking surface)								
Activ (L1 + L3) at 6 bar	—	—	500	900	1500	2500	4000	—
Passive (L2 + L4)	—	—	220	375	630	1000	1650	—

Mountings and Accessories


	C	S *1)	UV	UW *2)	V	W *2)
						
	2	1	6	4	3	5
	Page 17	Page 18	Page 17	Page 18	Page 17	Page 18
Ø mm						
16	QM/146016/21	QM/146016/37	QM/146016/34	—	QM/146016/32	QM/146116/35
20	QM/146020/21	QM/146020/37	QM/146020/34	QM/146120/36	QM/146020/32	QM/146120/35
25	QM/146025/21	QM/146025/37	QM/146025/34	QM/146125/36	QM/146025/32	QM/146125/35
32	QM/146032/21	QM/146032/37	QM/146032/34	QM/146132/36	QM/146032/32	QM/146132/35
40	QM/146040/21	QM/146032/37	QM/146040/34	QM/146140/36	QM/146040/32	QM/146140/35
50	QM/146050/21	QM/146050/37	QM/146050/34	QM/146150/36	QM/146050/32	QM/146150/35
63	QM/146063/21	QM/146050/37	QM/146063/34	QM/146163/36	QM/146063/32	QM/146163/35
80	QM/146080/21	QM/146080/37	QM/146080/34	—	QM/146080/32	QM/146180/35
						
	10	8	12	7	9	
	Page 11	Page 18	Page 19	Page 17	Page 17	Page 20 & 21
	Assembly kit for caged ball linear motion guide	Adjustable stop	Assembly kit for shock absorbers	Groove key for profile barrel	Groove key for guiding bridge	Magnetically operated switches
16	—	—	—	—	—	—
20	—	QM/146120/75	—	—	—	—
25	QM/146225/P/70	QM/146125/75	QM/146125/67	M/P74065	M/P74065	—
32	QM/146232/P/70	QM/146132/75	QM/146132/67	M/P74065	M/P74065	—
40	QM/146240/P/70	QM/146140/75	QM/146140/67	M/P74065	M/P74066	—
50	QM/146250/P/70	—	QM/146150/67	M/P74065	M/P41858	—
63	QM/146263/P/70	—	QM/146163/67	M/P74065	M/P41858	—
80	—	—	—	M/P74065	—	—

*1) Suitable for internally guided models only (M/146000), *2) Suitable for external guided models only (M/146100)

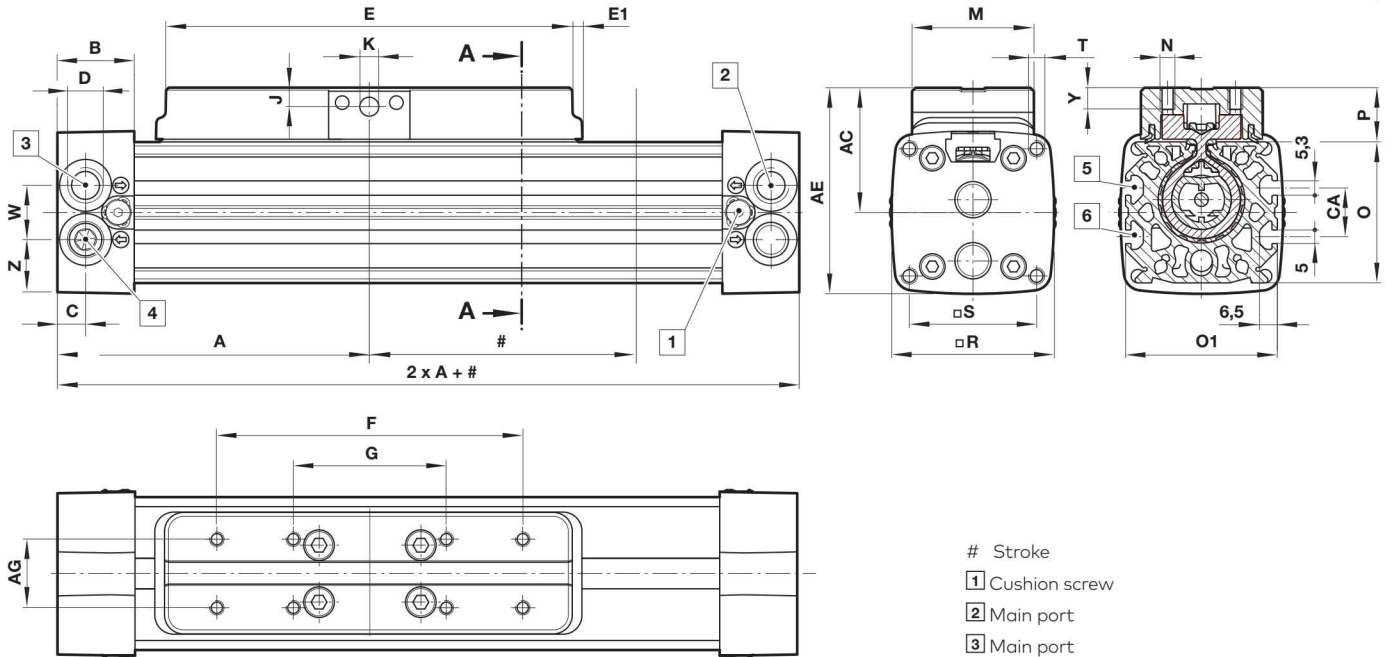
Service kit (seal and cover strip included)

Guiding systems	ø 16	ø 20	ø 25	ø 32	ø 40	ø 50	ø 63	ø 80
Internal	M/146016, .../M	M/146020, .../M	M/146025, .../M	M/146032, .../M	M/146040, .../M	M/146050, .../M	M/146063, .../M	M/146080, .../M
	-	-	-	M/146032/F1	M/146040/F1	M/146050/F1	M/146063/F1	-
	-	-	M/146025/L1, .../L2	M/146032/L1, .../L2	M/146040/L1, .../L2	M/146050/L1, .../L2	M/146063/L1, .../L2	-
External	M/146116, .../M	M/146120, .../M	M/146125, .../M	M/146132, .../M	M/146140, .../M	M/146150, .../M	M/146163, .../M	M/146180, .../M
	-	-	M/146125/L3, .../L4	M/146132/L3, .../L4	M/146140/L3, .../L4	M/146150/L3, .../L4	M/146163/L3, .../L4	-
	-	-	-	M/146132/F1	M/146140/F1	M/146150/F1	M/146163/F1	-
Roller guide	-	-	M/146225/M	M/146232/M	M/146240/M	M/146250/M	M/146263/M	-
	-	-	-	M/146232/F1	M/146240/F1	M/146250/F1	M/146263/F1	-
	-	-	M/146225/P, .../PM	M/146232/P, .../PM	M/146240/P, .../PM	M/146250/P, .../PM	M/146263/P, .../PM	-

Model	Stroke [mm]	suitable for			Ø							
		internal	external	roller guide	16	20	25	32	40	50	63	80
QA/1460**/88/1000	0 - 1000	x	x	x	x	x	x	x	x	x	x	x
QA/1460**/88/3000	1001 - 3000	x	x	x	x	x	x	x	x	x	x	x
QA/1460**/88/8500	3001 - 8500	x	x	x	x	x	x	x				
QA/146050/88/8000	3001 - 8000	x	x	x						x		
QA/146063/88/8000	3001 - 8000	x	x	x							x	
QA/146080/88/5500	3001 - 5500	x	x	x								x

M/146000 – cylinder with internal guide (∅ 25 ... 63 mm)

 Dimensions in mm
 Projection/First angle

A-A 


Stroke

1 Cushion screw

2 Main port

3 Main port

4 One alternative port with plug inserted

5 M/50 – switches and groove key

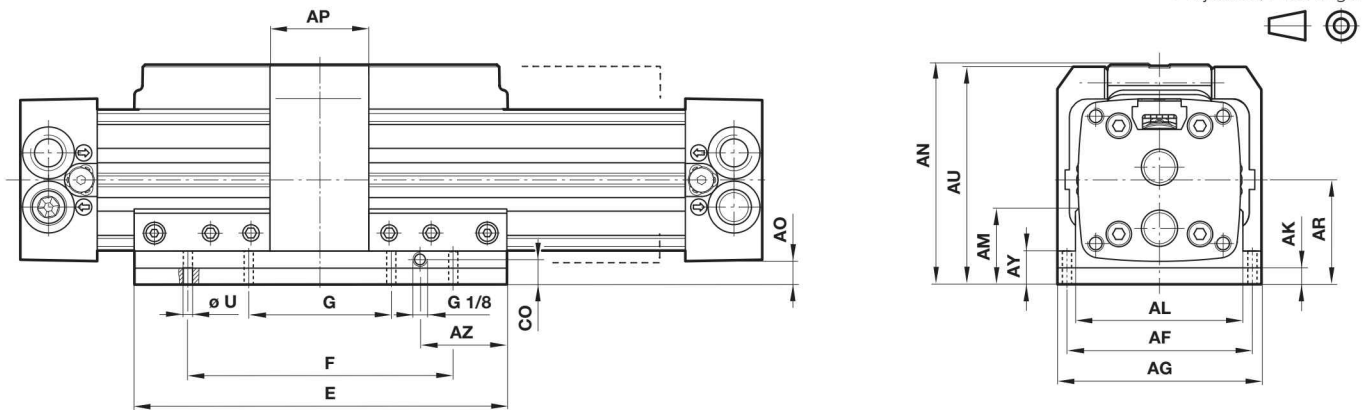
can be mounted flush with the profile

6 For groove key only

∅	A	AC	AE	AG	B	C	CA	D	E	E1	F	G	J	∅ KD7
25	100	36	60	20	23	8,5	–	G1/8	130	–	90	45	4,7	5
32	120	46	76	25	28,5	10,5	18	G1/4	160	3,5	120	60	7	7
40	150	52,5	90	25	28,5	11,5	18	G1/4	215	–	160	80	7	7
50	180	65,5	110	25	38	15	24	G3/8	250	–	190	95	9,5	9
63	215	82,5	125	25	38	17	24	G1/2	320	–	240	120	9,5	9
∅	M	N	O	O1	P	R	S	T	W	Y	Z	Weight at 0 mm	Weight per 100 mm	Model
25	32	M5	40	46	16	48	37	M5 - 13*1)	16	7	16	0,7 kg	0,25 kg	M/146025/...
32	45	M5	52	56	20	60	47	M6 - 17*1)	20	8	20	1,40 kg	0,30 kg	M/146032/...
40	45	M6	65	68	20	74,5	58	M8 - 20*1)	25	8	25	2,50 kg	0,42 kg	M/146040/...
50	50	M8	80	84	25,5	89	70	M8 - 20*1)	30	11	29,5	4,40 kg	0,62 kg	M/146050/...
63	50	M8	95	97	25	105	84	M10 - 24*1)	35	11	35	6,90 kg	0,9 kg	M/146063/...

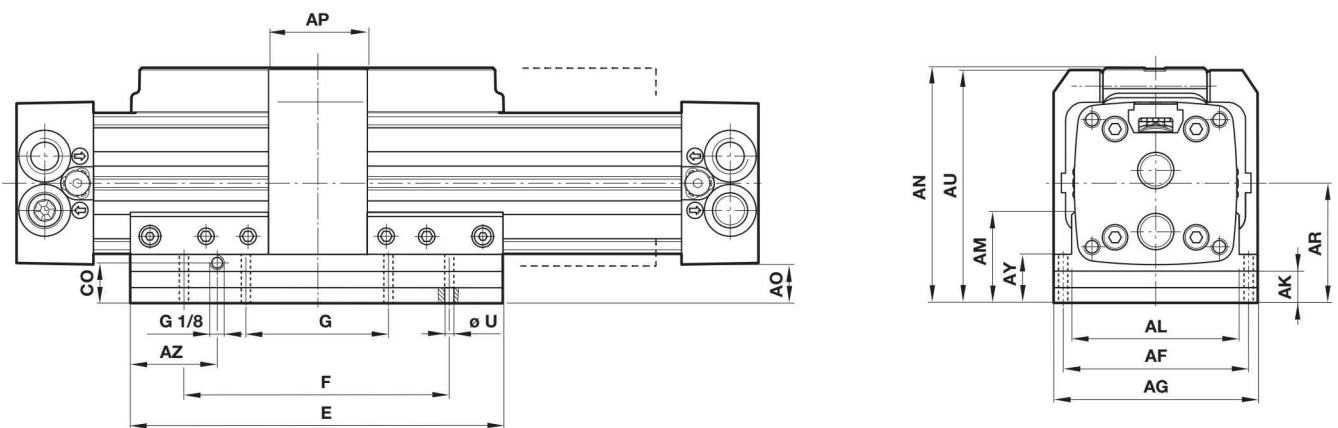
*) deep

M/146000/L1, M/146000/L3 – cylinder with active brake (ø 25 ... 63 mm)

 Dimensions in mm
 Projection/First angle


Missing cylinder dimensions, see previous page 8

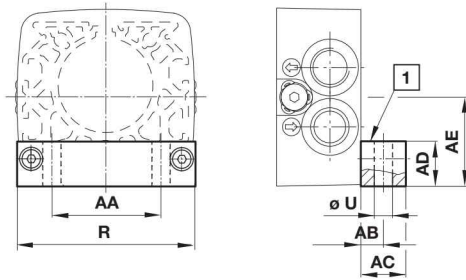
Ø	AF	AG	AK	AL	AM	AN	AO	AP	AR	AU	AY	AZ	CO	E	F	G	Ø U	Weight at 0 mm	Weight per 100 mm	Model
25	62	75	12	52	28,5	73,5	13,5	45	37,5	73	16,5	30	6	130	90	45	6,6	1,60 kg	0,2 kg	M/146025/L/...
32	78	92	12	64	29	90	14	55	44	89,5	17,5	32,5	6	160	120	60	9	2,50 kg	0,35 kg	M/146032/L/...
40	94	112	12	81	34,5	103,5	13,5	65	51	103	18	52,5	6	215	160	80	9	4,20 kg	0,50 kg	M/146040/L/...
50	112	132	12	94	35,5	124,5	14,5	75	59,5	124	18,5	65	6	250	190	95	11	6,90 kg	0,75 kg	M/146050/L/...
63	113	150	12	112	42,5	140,5	15,5	90	68	140	20,5	115	6	320	240	120	13	11,5 kg	1,0 kg	M/146063/L/...

M/146000/L2, M/146000/L4 – cylinder with passive brake (ø 25 ... 63 mm)


Missing cylinder dimensions, see previous page 8

Ø	AF	AG	AK	AL	AM	AN	AO	AP	AR	AU	AY	AZ	CO	E	F	G	Ø U	Weight at 0 mm	Weight per 100 mm	Model
25	62	75	22	52	38,5	83,5	23,5	45	47,5	83	26,5	30	16	130	90	45	6,6	1,90 kg	0,2 kg	M/146025/L/...
32	78	92	24	64	41	102	26	55	56	101,5	29,5	32,5	18	160	120	60	9	2,60 kg	0,35 kg	M/146032/L/...
40	94	112	24	81	46,5	115,5	25,5	65	63	115	30	52,5	18	215	160	80	9	4,70 kg	0,50 kg	M/146040/L/...
50	112	132	30	94	53,5	142,5	32,5	75	77,5	142	36,5	65	24	250	190	95	11	7,20 kg	0,75 kg	M/146050/L/...
63	132	150	30	112	60,5	158,5	33,5	90	86	158	38,5	115	42	320	240	120	13	12,40 kg	1,0 kg	M/146063/L/...

Foot mounting C



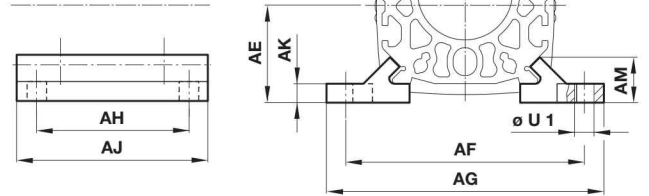
1
TOP

Ø	AA	AB	AC	AD	AE	R	Ø U	(kg)	Model
16	16	10	15	3	16	27	5,5	0,01	QM/146016/21
20	17	5	10	10	21,5	40	5,5	0,03	QM/146020/21
25	18	7	15	13,5	24 (26,5)	48	7	0,1	QM/146025/21
32	26	11	22	16,5	30,5 (33)	60	9	0,1	QM/146032/21
40	30	11	22	19,5	37,5 (40,5)	75	9	0,2	QM/146040/21
50	42	12	25	24	45 (49)	90	11	0,3	QM/146050/21
63	48	13	25	27,5	54 (57,5)	105	13	0,4	QM/146063/21
80	64	12,5	25	35	70	130	14	0,4	QM/146080/21

Attention: Foot mounts can be attached to give different distances AE.

When used together with a centre support mounting the word TOP should be visible on the top face of the mount.

Centre support V

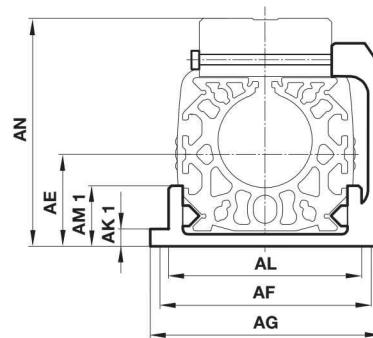
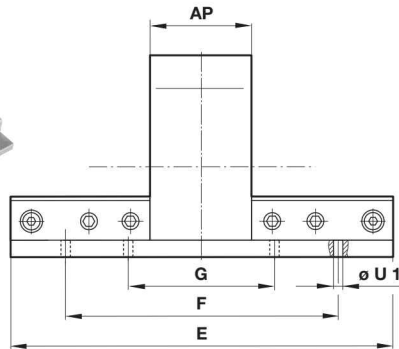


Dimensions in mm
Projection/First angle



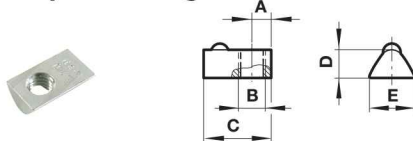
Ø	AE	AF	AG	AH	AJ	AK	AM	Ø U1	(kg)	Model
16	16	40	50	20	30	3,5	9	5,5	0,01	QM/146016/32
20	21,5	52	62	45	60	4,5	12	5,5	0,03	QM/146020/32
25	26,5	60	72	60	80	5,5	13	6,6	0,04	QM/146025/32
32	30,5	76	92	70	100	6,5	13,5	9	0,07	QM/146032/32
40	37,5	92	108	90	120	7,5	18,5	9	0,2	QM/146040/32
50	45	110	128	110	140	7,5	18,5	11	0,2	QM/146050/32
63	54	132	154	120	160	9	25	13	0,3	QM/146063/32
80	70	155	180	140	180	12	28,3	14	0,4	QM/146080/32

Carriage plate mounting UV



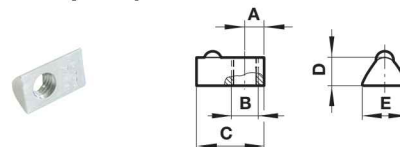
Ø	AE	AF	AG	AK1	AL	AM1	AN	AP	E	F	G	ØU1	(kg)	Model
16	16	40	50	3,5	31	8,5	40,5	30	80	60	-	5,5	0,1	QM/146016/34
20	21,5	52	62	5,5	42	14,5	56	36	110	80	40	5,5	0,2	QM/146020/34
25	26,5	60	75	5,5	52	17,5	62,5	45	130	90	45	6,6	0,3	QM/146025/34
32	33	78	92	6,5	64	18	79	55	160	120	60	9	0,4	QM/146032/34
40	40,5	94	112	7,5	81	24	93	65	215	160	80	9	0,8	QM/146040/34
50	49	112	132	8	94	25	114	75	250	190	95	11	1,2	QM/146050/34
63	57,5	132	150	10	112	32	130	90	320	240	120	13	2,0	QM/146063/34
80	70	155	180	10	132	32	159	100	390	300	150	14	2,9	QM/146080/34

Groove key for carriage



Ø	A	B	C	D	E	(kg)	Model
25	4	M5	12	4,25	8	0,01	M/P74065
32	4	M5	12	4,25	8	0,01	M/P74065
40	4,5	M6	17	6,25	10,5	0,02	M/P74066
50	7,5	M8	23	7,5	13,5	0,03	M/P41858
63	7,5	M8	23	7,5	13,5	0,03	M/P41858

Groove key for profile barrel



Ø	A	B	C	D	E	(kg)	Model
16...80	4	M5	12	4,25	8	0,01	M/P74065