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Mini slide, Series MSC-MG-EE

- Ø 8 mm
- double-acting
- with magnetic piston
- Cushioning elastic
- Easy2Combine capable
- with double piston
- With integrated “Medium Performance” ball rail system
- Scope of delivery: incl. centering rings

Working pressure min./max.	See table
Ambient temperature min./max.	0 ... 60 °C
Medium	Compressed air
Max. particle size	5 µm
Oil content of compressed air	0 ... 1 mg/m³
Pressure for determining piston forces	6.3 bar
Repetitive precision	0,3 mm
Weight	See table

Technical data

Piston Ø	8 mm	12 mm	16 mm	20 mm	25 mm
Stroke 10	R480640120	R480640126	R480640133	R480640140	R480640147
20	R480640121	R480640127	R480640134	R480640141	R480640148
30	R480640122	R480640128	R480640135	R480640142	R480640149
40	R480640123	R480640129	R480640136	R480640143	R480640150
50	R480640124	R480640130	R480640137	R480640144	R480640151
80	R480640125	R480640131	R480640138	R480640145	R480640152
100	-	R480640132	R480640139	R480640146	R480640153

Technical information

The pressure dew point must be at least 15 °C under ambient and medium temperature and may not exceed 3 °C .
The oil content of compressed air must remain constant during the life cycle.
Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in the MediaCentre).

Repetitive precision after 100 consecutive strokes: 0,3 mm

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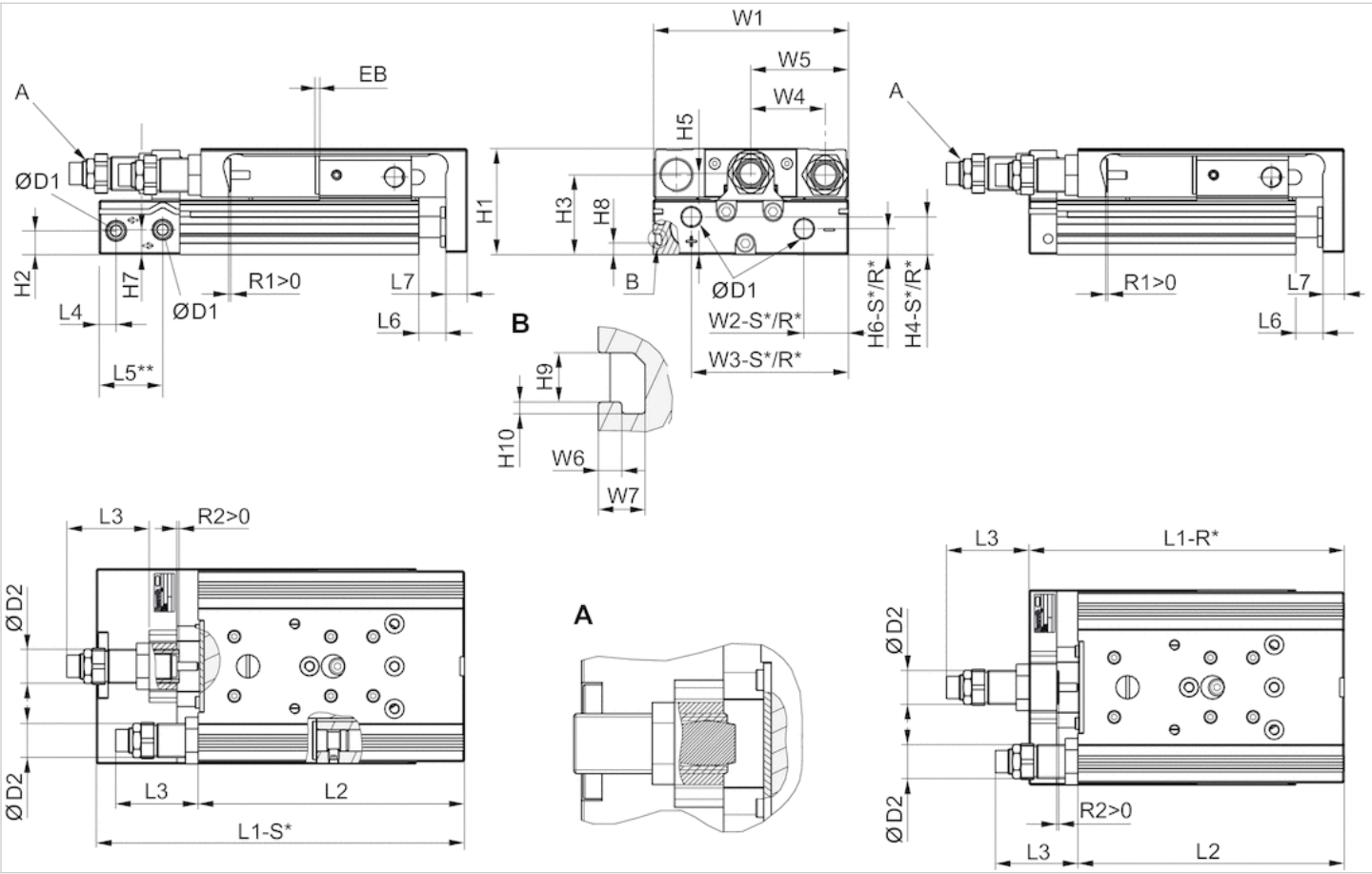
Technical information

Material				
Housing		Aluminum, anodized		
Piston rod		Stainless steel		
Front plate	Retracting piston force, theoretical	48 N	107 N	218 N	297 N
Seal		Polyurethane		
Ball rail table	Cushioning length	0,3 mm	Aluminum, anodized 0,75 mm	1 mm	1,2 mm
Guide rail		Steel, hardened		
Centering rings		Stainless steel		

Piston Ø 2x	25 mm
Working pressure min./max.	1 ... 10 bar
Retracting piston force, theoretical	520 N
Extracting piston force, theoretical	619 N
Speed max.	0,8 m/s
Cushioning length	1,6 mm
Cushioning energy	0,5 J

Dimensions

Dimensions



R*: base with air connections only at the back
S*: base with air connections at the back and sides

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** Ø 8 has a different reference plane.

Stroke-dependent dimensions

Piston Ø	S=10EB	S=20EB	S=30EB	S=40EB	S=50EB	S=80EB	S=100EB	S=10L1-R	S=20L1-R	S=30L1-R
8 mm	32	22	12	2	2	2	–	–	–	–
8 mm	-	-	-	-	-	-	-	-	-	-
8 mm	32	22	12	2	2	2	–	–	–	–
12 mm	-	-	-	-	-	-	-	-	-	-
16 mm	-	-	-	-	-	-	-	-	-	-
20 mm	-	-	-	-	-	-	-	-	-	-
25 mm	-	-	-	-	-	-	-	-	-	-

Piston Ø	S=40L1-R	S=50L1-R	S=80L1-R	S=100L1-R	S=10L1-S	S=20L1-S	S=30L1-S	S=40L1-S
8 mm	–	–	–	–	101.7	101.7	101.7	101.7
8 mm	-	-	-	-	-	-	-	-
8 mm	–	–	–	–	101.7	101.7	101.7	101.7
12 mm	-	-	-	-	-	-	-	-
16 mm	-	-	-	-	-	-	-	-
20 mm	-	-	-	-	-	-	-	-
25 mm	-	-	-	-	-	-	-	-

Piston Ø	S=50L1-S	S=80L1-S	S=100L1-S	S=10L2	S=20L2	S=30L2	S=40L2	S=50L2	S=80L2	S=100L2
8 mm	121.7	171.7	–	93.5	93.5	93.5	93.5	113.5	163.5	–
8 mm	-	-	-	-	-	-	-	-	-	-
8 mm	121.7	171.7	–	93.5	93.5	93.5	93.5	113.5	163.5	–
12 mm	-	-	-	-	-	-	-	-	-	-
16 mm	-	-	-	-	-	-	-	-	-	-
20 mm	-	-	-	-	-	-	-	-	-	-
25 mm	-	-	-	-	-	-	-	-	-	-

Piston Ø	S=10R1 1)	S=20R1 1)	S=30R1 1)	S=40R1 1)	S=50R1 1)	S=80R1 1)	S=100R1 1)
8 mm	9.2	9.2	9.2	9.2	9.2	9.2	–
8 mm	-	-	-	-	-	-	-
8 mm	9.2	9.2	9.2	9.2	9.2	9.2	–
12 mm	-	-	-	-	-	-	-
16 mm	-	-	-	-	-	-	-
20 mm	-	-	-	-	-	-	-
25 mm	-	-	-	-	-	-	-

S = stroke

R1 = stroke setting range for forward stroke

R2 = stroke setting range for return stroke

1) max.

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Dimensions

Piston Ø	Ø D1	Ø D2	H1	H2	H3	H4-R	H4-S	H5	H6-R	H6-S	H7	H8	H9	H10	L3 1)	L4	L5 2)
8 mm	M5	M10x1	28	9.6	20.5	-	7.5	19.5	-	5.5	18	-	-	-	16	9.8	–
8 mm	M5	M10x1	28	9.6	20.5	-	7.5	19.5	-	5.5	18	-	-	-	16	9.8	–
12 mm	M5	M12x1	34	5.7	25	11.2	11.2	24.5	5.7	5.7	8.3	-	-	-	20.2	7.2	22.5
16 mm	M5	M12x1	40	7.2	29	12.2	12.2	31	7.7	7.7	11.2	-	-	-	18.4	6.5	17.7
20 mm	G 1/8	M16x1,5	50	11.2	37.5	17.3	17.3	38.2	11.7	12.2	11.7	5.5	4.2	1	27.9	8	30
25 mm	G 1/8	M18x1,5	60	14.2	44	15.5	22.9	46.5	13.2	21.7	16.2	6.9	5.2	1.5	29.2	9	31

Piston Ø	L6	L7	W1	W2-R	W2-S	W3-R	W3-S	W4	W5	W6	W7
8 mm	1.9	6	50.2	–	19.3	–	30.5	18	W1/2	–	–
8 mm	1.9	6	50.2	–	19.3	–	30.5	18	W1/2	–	–
12 mm	2	8	66	28.8	28.8	53	53	24.5	W1/2	–	–
16 mm	2	10	76	31	31	60.5	60.5	30	W1/2	–	–
20 mm	2.1	10	92	10	21	74	74	35	W1/2	2	4
25 mm	2.1	12	112	11	14	92	92	44	W1/2	2.5	4.8

S = stroke

1) max.

2) Ø 8 has a different reference plane.

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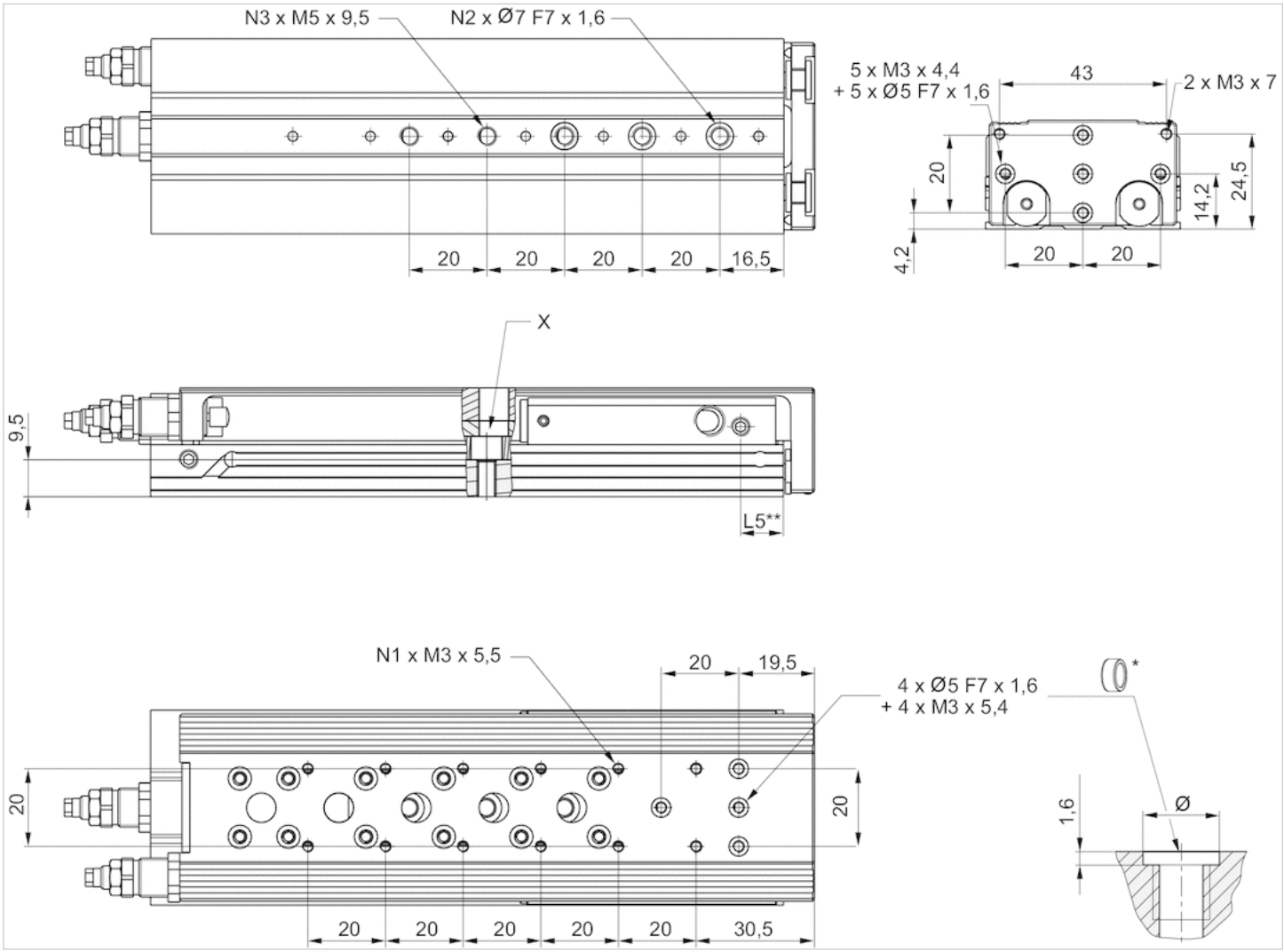
Dimensions

MSC-08



* = centering rings
** Ø 8 has a different reference plane.

Dimensions

Piston Ø	S	N1	N2	N3	L5	X
8 mm	10	4	2	2	11	-
8 mm	20	4	2	2	11	-
8 mm	30	4	2	2	11	-
8 mm	40	4	2	2	11	-
8 mm	50	4	3	3	11	1)
8 mm	80	8	3	5	11	-

S = stroke

1) Access to the through hole only after removal of the stroke limitation bolts

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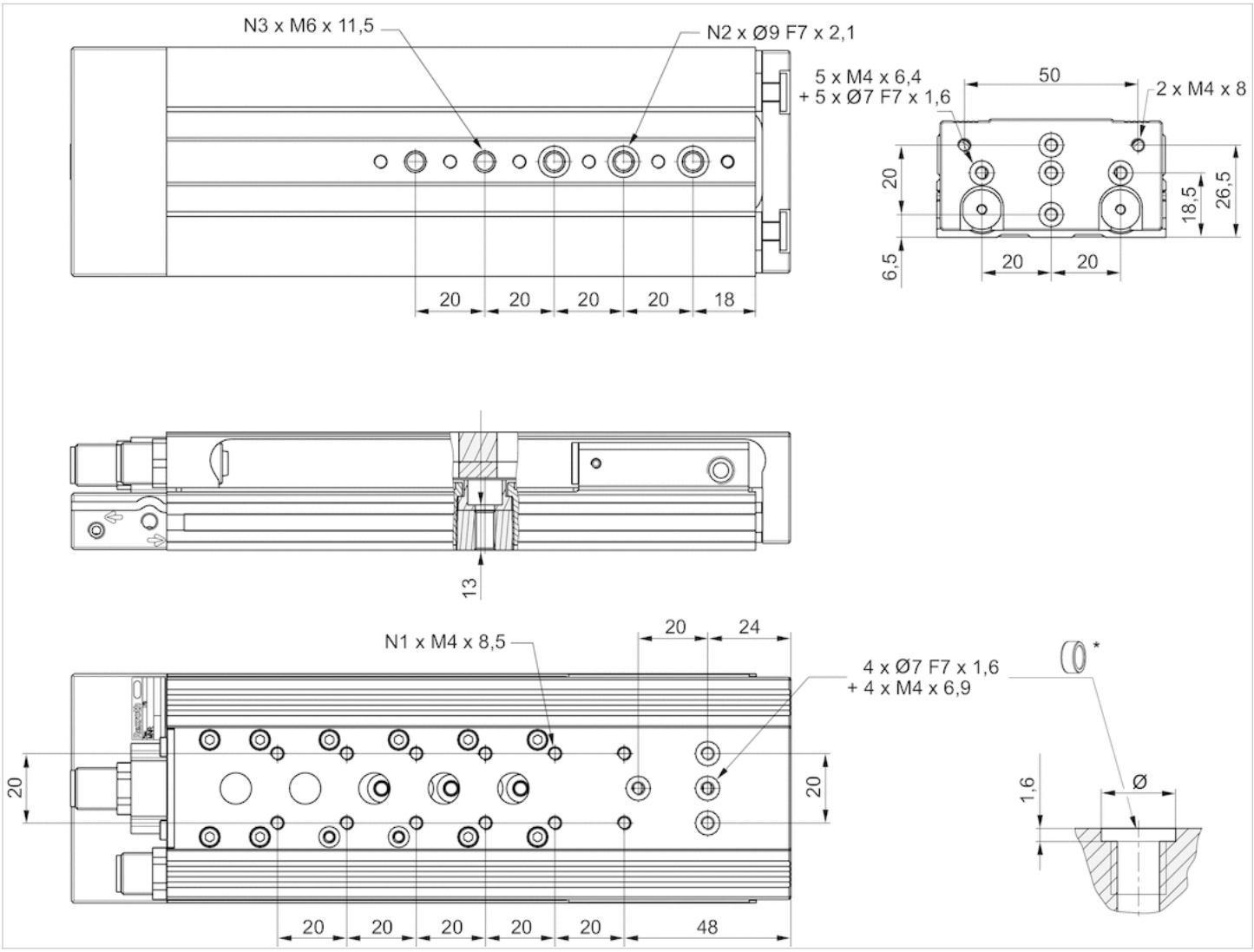
Dimensions

MSC-12



* = centering rings

Dimensions

Piston Ø	S	N1	N2	N3
12 mm	10	2	2	2
12 mm	20	2	2	2
12 mm	30	2	2	2
12 mm	40	2	2	2
12 mm	50	4	3	3
12 mm	80	6	3	5
12 mm	100	8	3	5

S = stroke

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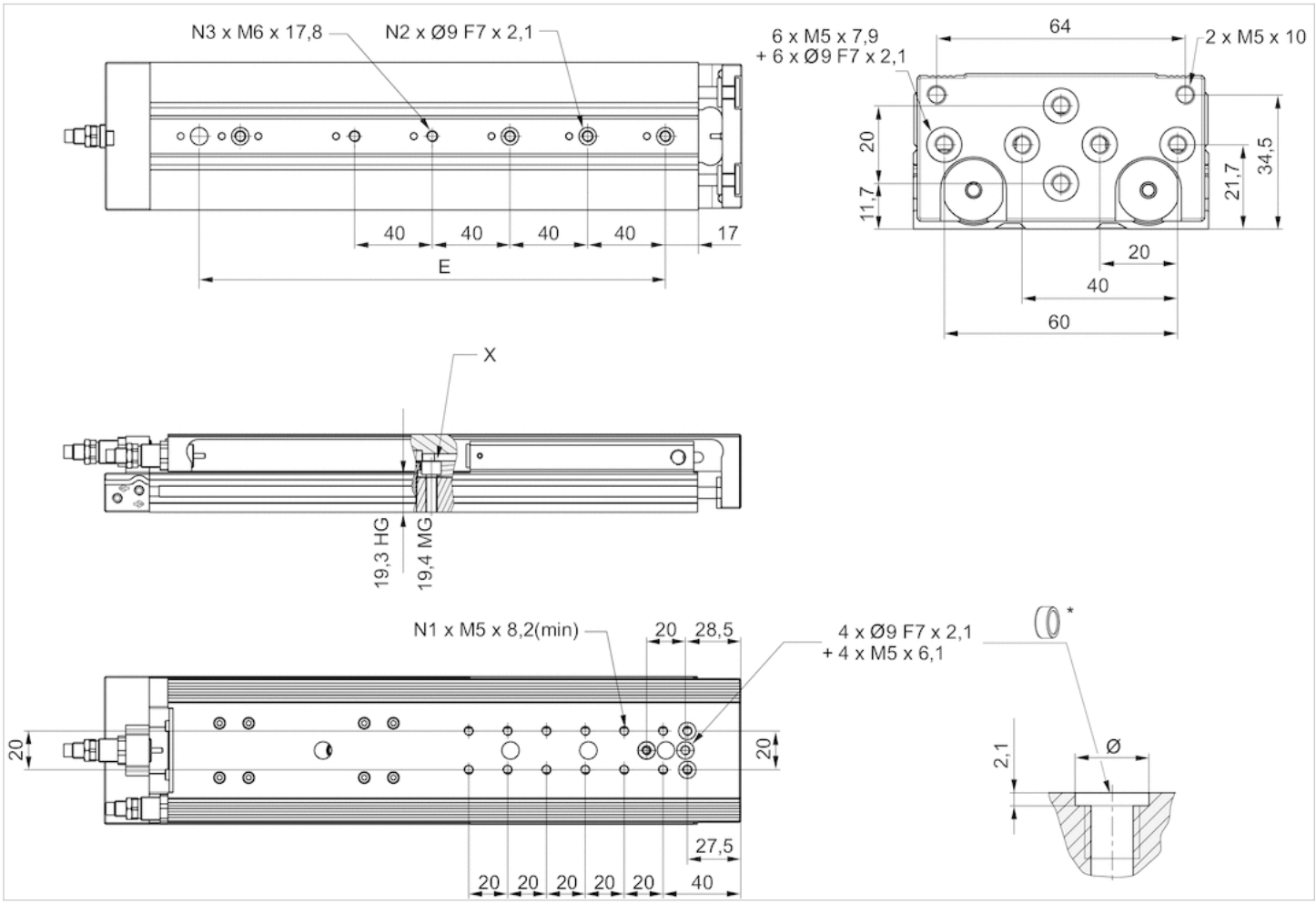
Dimensions

MSC-16



* = centering rings

Dimensions

Piston Ø	S	N1	N2	N3	X
16 mm	10	2	2	2	1)
16 mm	20	2	2	2	1)
16 mm	30	2	2	2	-
16 mm	40	4	2	2	-
16 mm	50	4	2	2	-
16 mm	80	6	3	3	-
16 mm	100	8	3	3	-

S = stroke

1) Access to the through hole only after removal of the stroke limitation bolts

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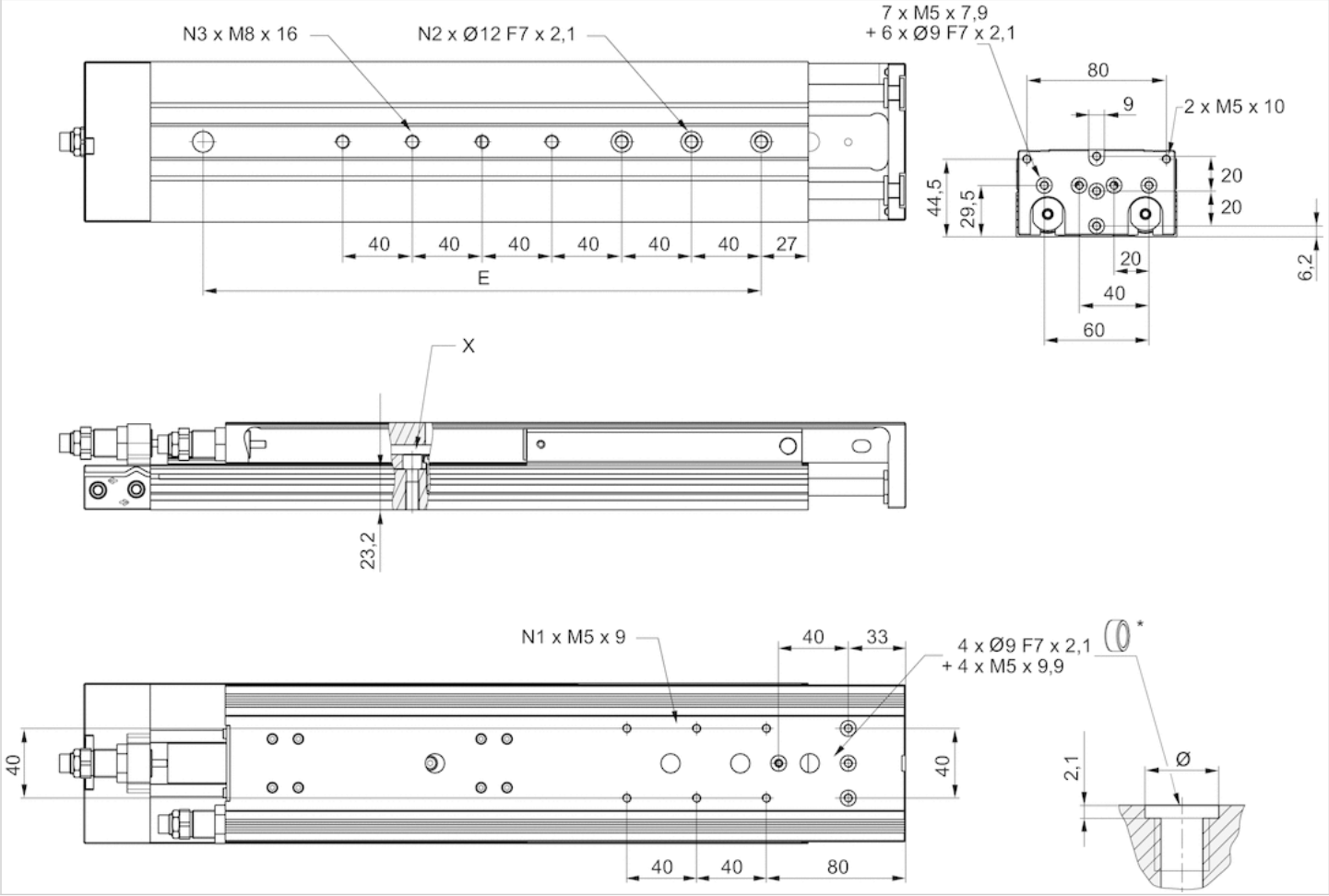
Dimensions

MSC-20



* = centering rings

Dimensions

Piston Ø	S	N1	N2	N3	X
20 mm	10	2	2	2	1)
20 mm	20	2	2	2	1)
20 mm	30	2	2	2	-
20 mm	40	2	2	2	-
20 mm	50	2	2	2	-
20 mm	80	4	3	3	-
20 mm	100	4	3	3	-

S = stroke

1) Access to the through hole only after removal of the stroke limitation bolts

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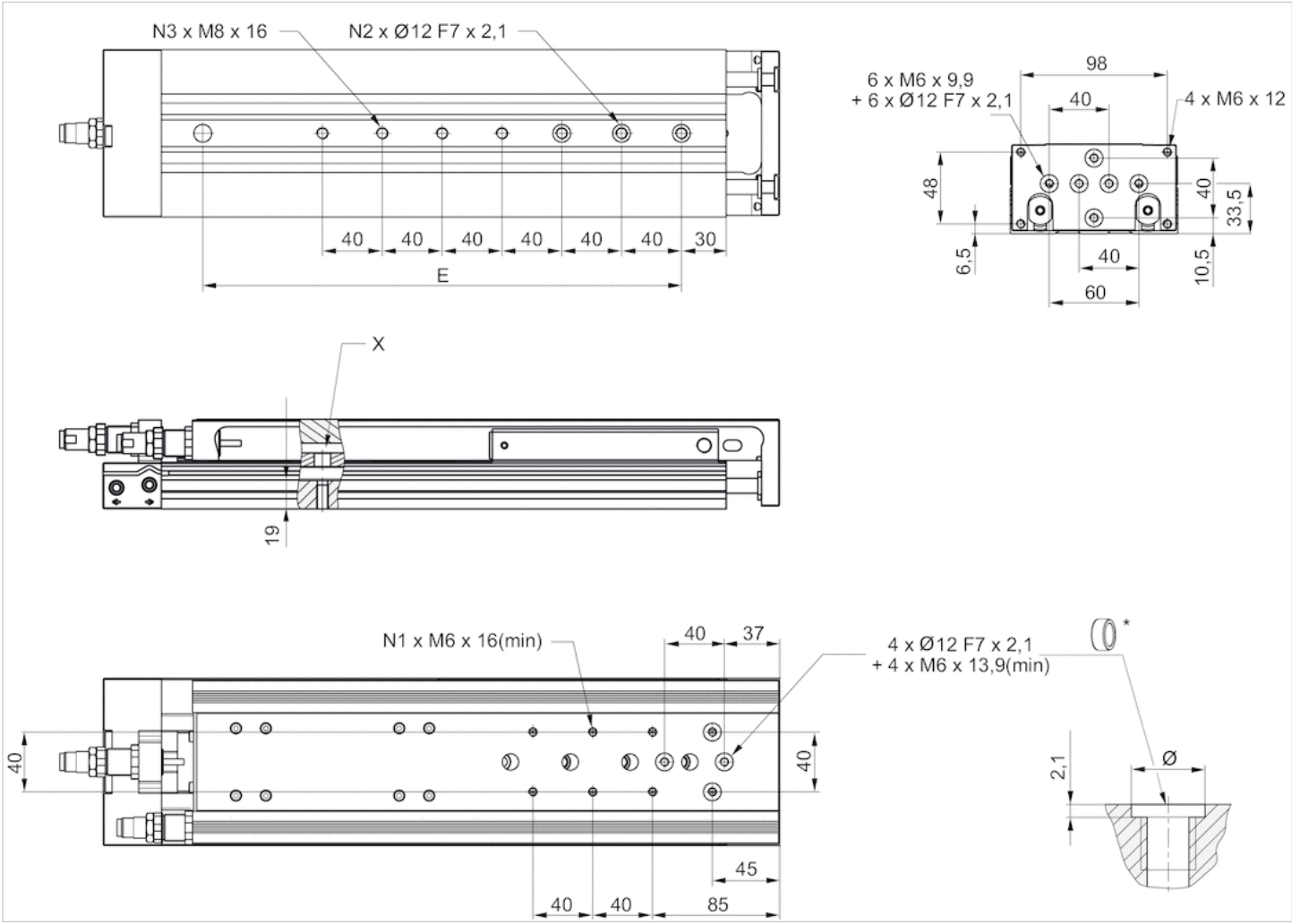
Dimensions

MSC-25



* = centering rings

Weight of moving parts [kg]

Piston Ø	S=10	S=20	S=30	S=40	S=50	S=80	S=100	S=125	S=150	S=200
8 mm	0.165	0.165	0.165	0.165	0.195	0.265	–	–	–	–
8 mm	0.165	0.165	0.165	0.165	0.195	0.265	–	–	–	–
12 mm	0.28	0.28	0.28	0.28	0.315	0.403	0.46	–	–	–
12 mm	0.28	0.28	0.28	0.280	0.315	0.403	0.46	–	–	–
16 mm	0.375	0.375	0.375	0.4	0.45	0.615	0.65	0.725	0.765	–
20 mm	0.655	0.655	0.655	0.69	0.765	0.985	1.035	1.2	1.29	1.54
25 mm	1.1	1.1	1.1	1.1	1.225	1.45	1.625	1.885	2.085	2.445

S = stroke

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Dimensions

Piston Ø	S	N1	N2	N3	X
25 mm	10	2	2	2	1)
25 mm	20	2	2	2	1)
25 mm	30	2	2	2	1)
25 mm	40	2	2	2	-
25 mm	50	4	2	2	-
25 mm	80	4	3	3	-
25 mm	100	4	3	3	-

S = stroke

1) Access to the through hole only after removal of the stroke limitation bolts

Weight [kg]

Part No.	Piston Ø	S	Weight kg
R480640120	8 mm	10	0,37 kg
R480640121	8 mm	20	0,36 kg
R480640122	8 mm	30	0,35 kg
R480640123	8 mm	40	0,34 kg
R480640124	8 mm	50	0,41 kg
R480640125	8 mm	80	0,56 kg
R480640126	12 mm	10	0,62 kg
R480640127	12 mm	20	0,61 kg
R480640128	12 mm	30	0,6 kg
R480640129	12 mm	40	0,59 kg
R480640130	12 mm	50	0,67 kg
R480640131	12 mm	80	0,92 kg
R480640132	12 mm	100	0,99 kg
R480640133	16 mm	10	0,81 kg
R480640134	16 mm	20	0,79 kg
R480640135	16 mm	30	0,76 kg
R480640136	16 mm	40	0,82 kg
R480640137	16 mm	50	1,29 kg
R480640138	16 mm	80	1,37 kg
R480640139	16 mm	100	1,94 kg
R480640140	20 mm	10	1,36 kg
R480640141	20 mm	20	1,42 kg
R480640142	20 mm	30	1,38 kg
R480640143	20 mm	40	1,45 kg
R480640144	20 mm	50	1,61 kg
R480640145	20 mm	80	2,1 kg
R480640146	20 mm	100	2,23 kg
R480640147	25 mm	10	2,5 kg
R480640148	25 mm	20	2,46 kg
R480640149	25 mm	30	2,42 kg
R480640150	25 mm	40	2,38 kg
R480640151	25 mm	50	2,64 kg

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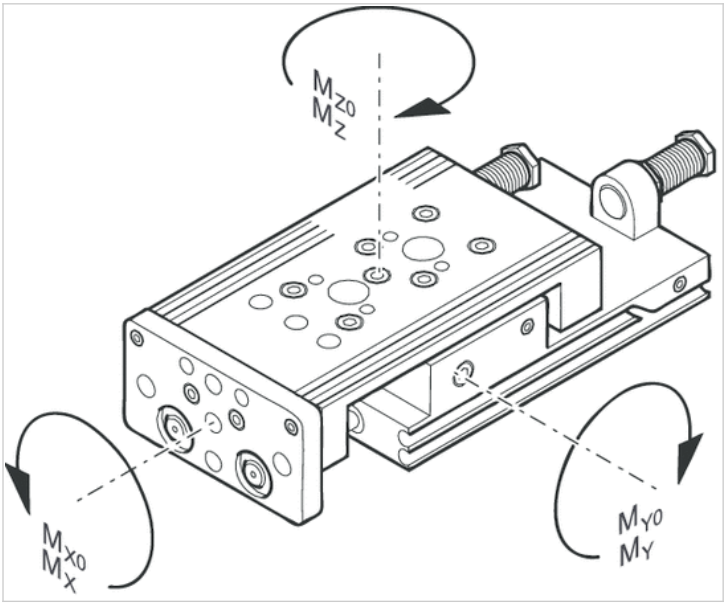
Part No.	Piston Ø	S	Weight kg
R480640152	25 mm	80	3,29 kg
R480640153	25 mm	100	3,56 kg

S = stroke

Dimensions

Load capacity



M = max. permissible torque

Dimensions

Piston Ø	S	a [mm] 1)	d [mm] 2)	Mx0 3)	My0 3)	Mz0 3)	Mx 4)	My 4)	Mz 4)
8 mm	10	69.5	12	5.8	5.9	5.9	1.1	1.7	1.7
8 mm	20	69.5	12	5.8	5.9	5.9	1.1	1.7	1.7
8 mm	30	69.5	12	5.8	5.9	5.9	1.1	1.7	1.7
8 mm	40	69.5	12	5.8	5.9	5.9	1.1	1.7	1.7
8 mm	50	83	12	5.8	5.9	5.9	1.3	1.7	1.7
8 mm	80	121	12	8	14.6	14.6	1.3	3.7	3.7
12 mm	10	77	15	13.8	6.45	6.45	3.5	1.6	1.6
12 mm	20	77	15	13.8	6.45	6.45	3.5	1.6	1.6
12 mm	30	77	15	13.8	6.45	6.45	3.5	1.6	1.6
12 mm	40	77	15	13.8	6.45	6.45	3.5	1.6	1.6
12 mm	50	81	15	13.8	6.45	6.45	3.5	1.6	1.6
12 mm	80	117	15	17.3	15.6	15.6	5.2	3.5	3.5
12 mm	100	137	15	17.3	15.6	15.6	5.2	3.5	3.5
16 mm	10	65	15	31.6	11.95	11.95	6.5	3.2	3.2
16 mm	20	65	15	31.6	11.95	11.95	6.5	3.2	3.2
16 mm	30	65	15	31.6	11.95	11.95	6.5	3.2	3.2
16 mm	40	75	15	31.6	11.95	11.95	6.5	3.2	3.2
16 mm	50	86	15	31.6	11.95	11.95	7	3.2	3.2
16 mm	80	123	15	45	27.3	27.3	8.7	6.3	6.3

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Piston Ø	S	a [mm] 1)	d [mm] 2)	Mx0 3)	My0 3)	Mz0 3)	Mx 4)	My 4)	Mz 4)
16 mm	100	144	15	45	27.3	27.3	8.7	6.3	6.3
20 mm	10	75	20	31.6	11.95	11.95	9.6	4	4
20 mm	20	75	20	31.6	11.95	11.95	9.6	4	4
20 mm	30	75	20	31.6	11.95	11.95	9.6	4	4
20 mm	40	75	20	31.6	11.95	11.95	9.6	4	4
20 mm	50	92	20	31.6	11.95	11.95	10	4	4
20 mm	80	125	20	45	27.3	27.3	11.7	8	8
20 mm	100	143	20	45	27.3	27.3	11.7	8	8
25 mm	10	85	24	87	24.5	24.5	22.9	6.6	6.6
25 mm	20	85	24	87	24.5	24.5	22.9	6.6	6.6
25 mm	30	85	24	87	24.5	24.5	22.9	6.6	6.6
25 mm	40	85	24	87	24.5	24.5	22.9	6.6	6.6
25 mm	50	102	24	87	24.5	24.5	15.3	6.6	6.6
25 mm	80	134	24	110	62.5	62.5	18.8	14.5	14.6
25 mm	100	152	24	110	62.5	62.5	18.8	14.5	14.6

S = stroke

1) correction factor (a)

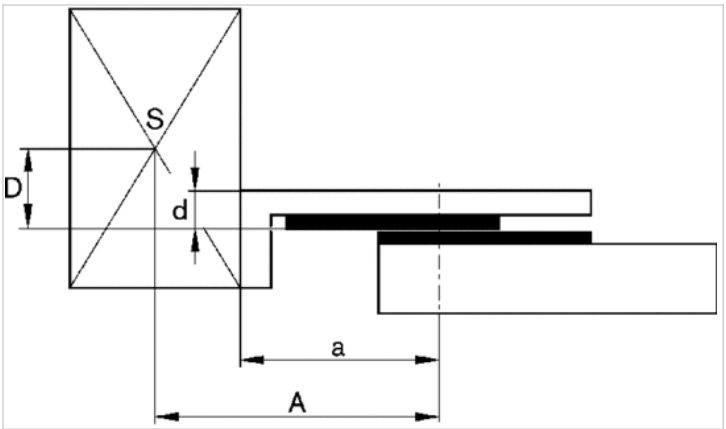
2) Correction factor (b)

3) Static moment M [Nm]

4) Dynamic moment M [Nm]

Dimensions

correction factor (a d)



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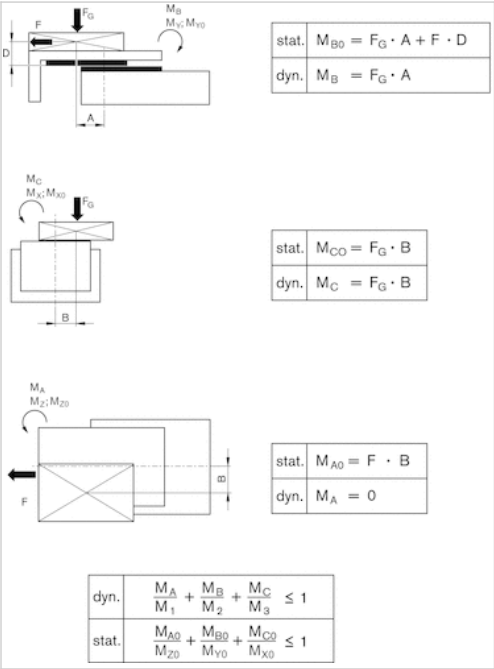
horizontal



stat.	$M_{B0} = F_G \cdot A + F \cdot D$
dyn.	$M_B = F_G \cdot A$

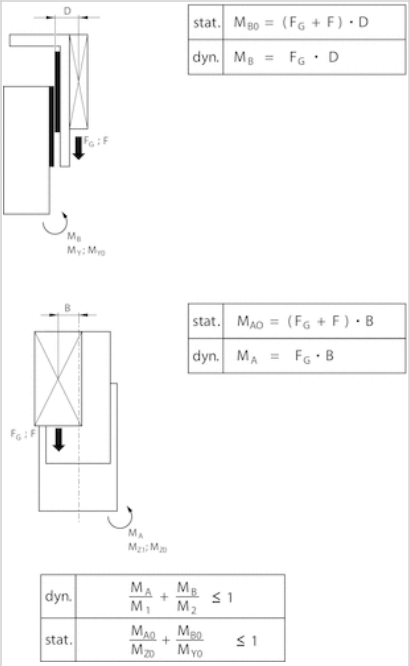
stat.	$M_{C0} = F_G \cdot B$
dyn.	$M_C = F_G \cdot B$

stat.	$M_{A0} = F \cdot B$
dyn.	$M_A = 0$

dyn.	$\frac{M_A}{M_1} + \frac{M_B}{M_2} + \frac{M_C}{M_3} \leq 1$
stat.	$\frac{M_{A0}}{M_{Z0}} + \frac{M_{B0}}{M_{Y0}} + \frac{M_{C0}}{M_{X0}} \leq 1$

F = m • aFG = m • ga = 1250•V²/H
F = deceleration force [N]F= force due to weight [N]m = load mass [kg]a = deceleration [m/s²]g = gravitational acceleration 9,81 [m/s²]V = velocity [m/s]H = stroke length of shock absorber [mm]

vertical



stat.	$M_{B0} = (F_G + F) \cdot D$
dyn.	$M_B = F_G \cdot D$

stat.	$M_{A0} = (F_G + F) \cdot B$
dyn.	$M_A = F_G \cdot B$

dyn.	$\frac{M_A}{M_1} + \frac{M_B}{M_2} \leq 1$
stat.	$\frac{M_{A0}}{M_{Z0}} + \frac{M_{B0}}{M_{Y0}} \leq 1$

F = m • aFG = m • ga = 1250•V²/H
F = deceleration force [N]F= force due to weight [N]m = load mass [kg]a = deceleration [m/s²]g = gravitational acceleration 9,81 [m/s²]V = velocity [m/s]H = stroke length of shock absorber [mm]

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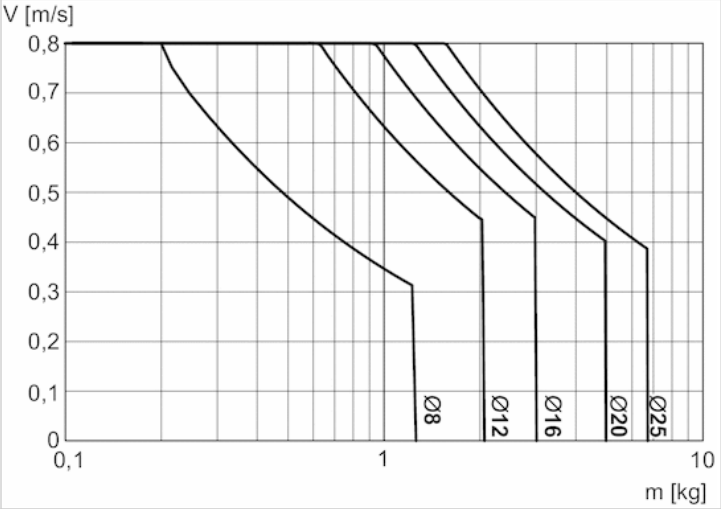
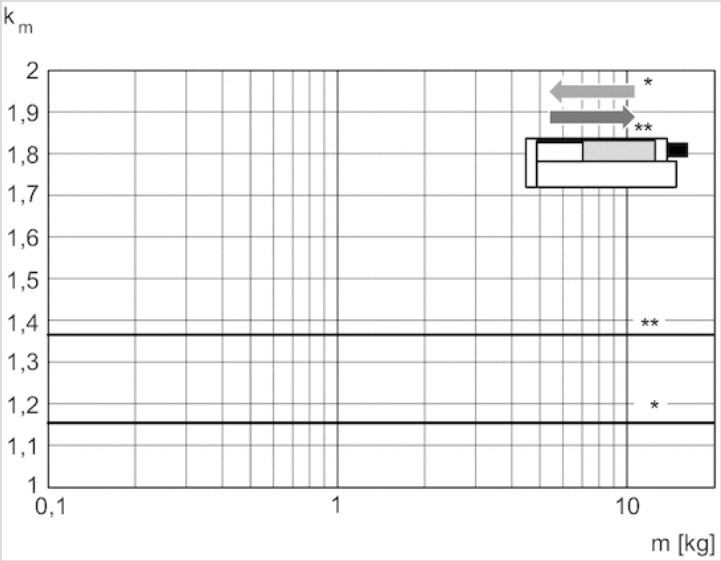
Diagrams

Maximum moving mass



V = velocity [m/s]
m = mass

Correction factor for required speed: retracting and extending horizontal



* retracting
** extracting
V = s/1000 • t • km
V = velocity [m/s]
S = stroke

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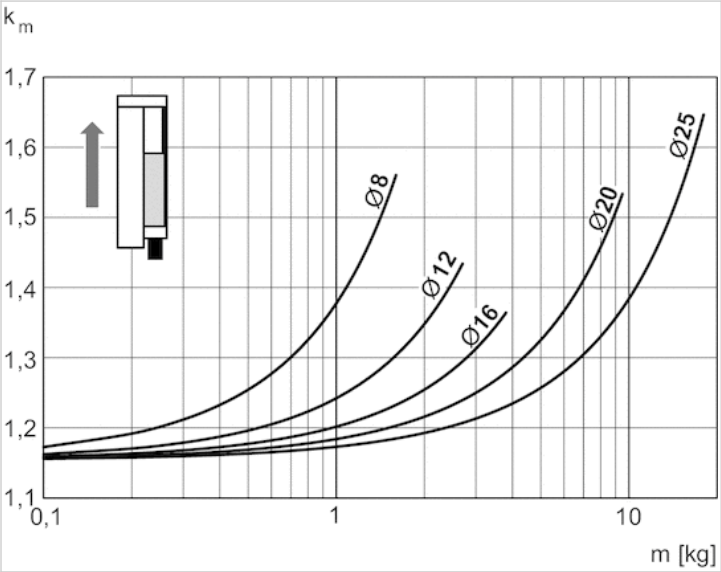
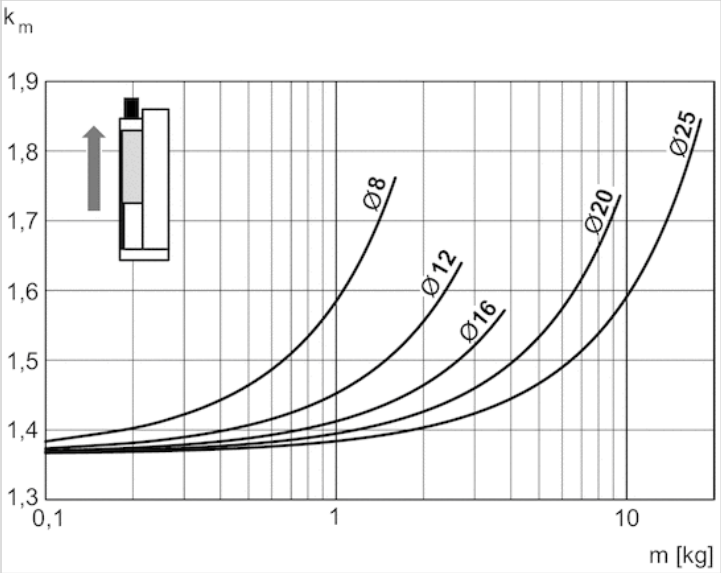
Correction factor for required speed: extending vertical upwards



V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

Correction factor for required speed: retracting vertical upwards



V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

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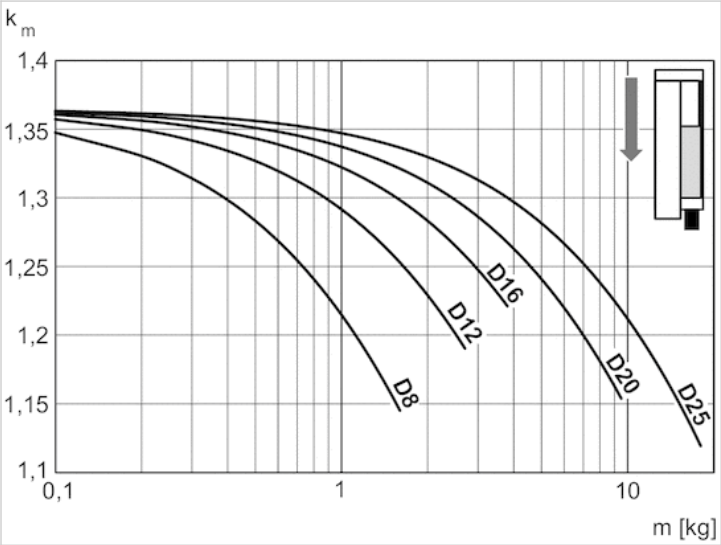
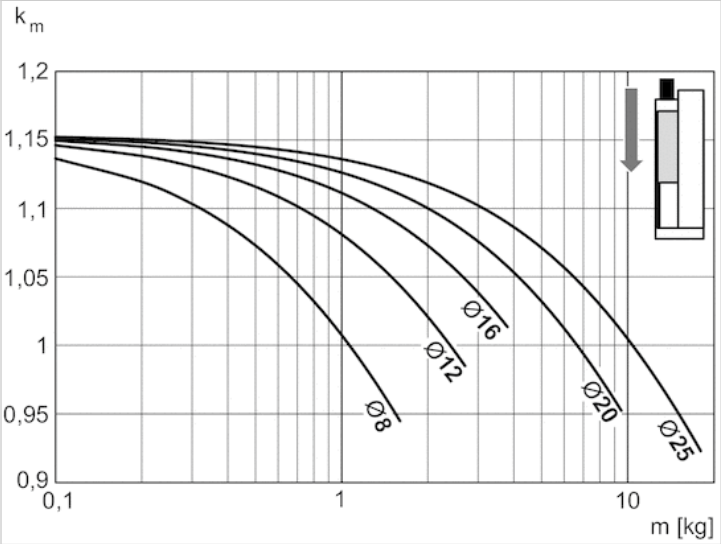
Correction factor for required speed: retracting vertical downwards



V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

Correction factor for required speed: extending vertical downwards



V = s/1000 • t • km
V = velocity [m/s]
S = stroke [mm]
t = time [s] for one stroke
m = mass

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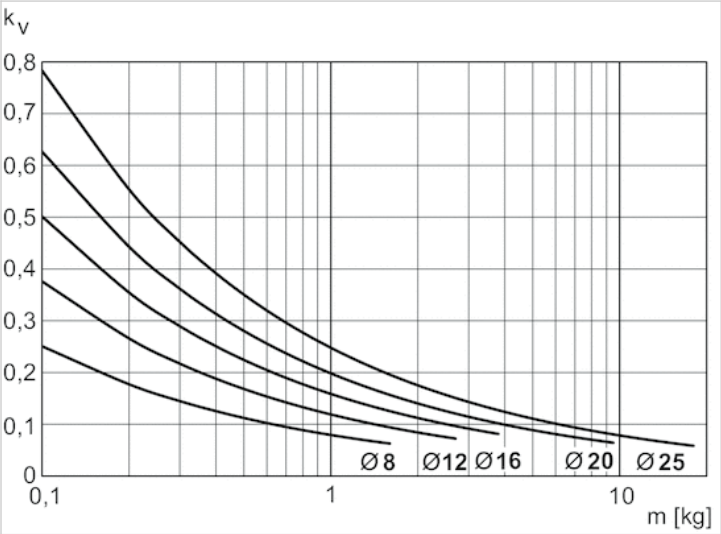
Extracting speed max.



V = √s • kv
V = velocity [m/s]
S = stroke [mm]
m = mass