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EMERSON | AVENTICS

Mini slide, Series MSC-MG-PM/PE

- Ø 16 mm
- double-acting
- with magnetic piston
- Cushioning Pneumatically
- 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	16 mm	20 mm	25 mm
Stroke 50	R480640154	R480640157	R480640160
80	R480640155	R480640158	R480640161
100	R480640156	R480640159	R480640162

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: 0,02 mm
Repeatability with variant with elastomer end stop: 0.3 mm
Cushioning length for variant with elastomer end stop: 10.5 mm

Technical information

Material	
Housing	Aluminum, anodized
Piston rod	Stainless steel
Front plate	Aluminum, anodized

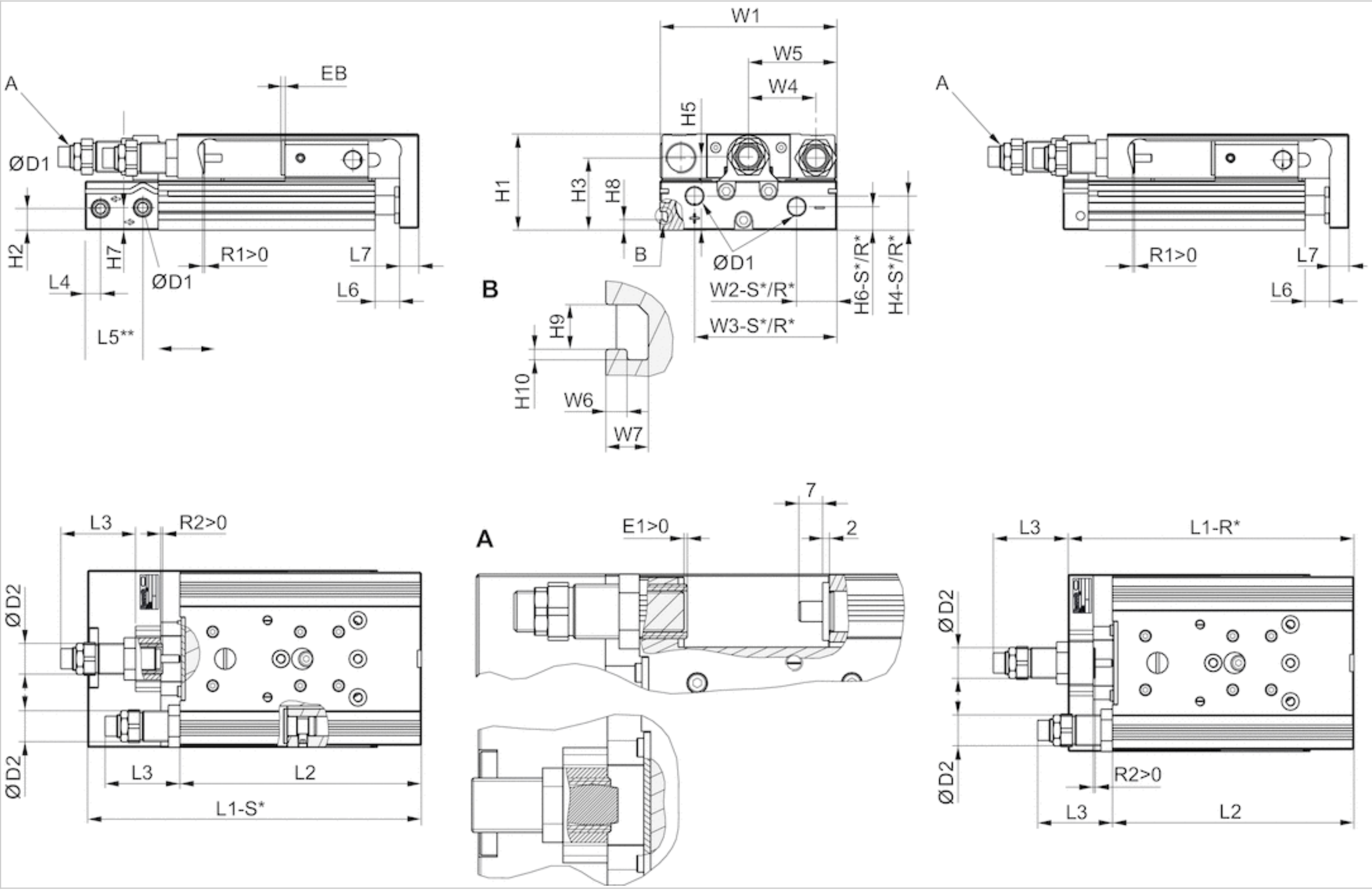
Retracting piston force, theoretical	218 N	297 N	520 N
Extracting piston force, theoretical	182 N	269 N	421 N

Material	
Seal	Polyurethane
Ball rail table	Aluminum, anodized
Guide rail	Steel, hardened
Centering rings	Stainless steel

Speed max.	0,8 m/s	0,8 m/s	0,8 m/s
Cushioning energy	0,5 J	1,2 J	1,6 J

Dimensions

Dimensions



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

Stroke-dependent dimensions

Piston Ø	S=50EB	S=80EB	S=100EB	S=50L1-R	S=80L1-R	S=100L1-R	S=50L1-S	S=80L1-S	S=100L1-S
16 mm	2	2	2	126.8	172.8	192.8	137.7	183.7	203.7
16 mm	2	2	2	126.8	172.8	192.8	137.7	183.7	203.7
20 mm	2	2	2	137.9	182.9	202.9	162.8	207.8	227.8
25 mm	2	2	2	149.1	195.1	215.1	172.8	218.8	238.8

Piston Ø	S=50L2	S=80L2	S=100L2	S=50R1 1)	S=80R1 1)	S=100R1 1)
16 mm	115.4	161.4	181.4	8.7	8.7	8.7
16 mm	115.4	161.4	181.4	8.7	8.7	8.7

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Piston Ø	S=50L2	S=80L2	S=100L2	S=50R1 1)	S=80R1 1)	S=100R1 1)
20 mm	125.5	170.5	190.5	12.4	12.4	12.4
25 mm	134.5	180.5	200.5	10.5	11.5	11.5

S = stroke

R1 = stroke setting range for forward stroke

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)*	L3 2)*
16 mm	M5	M12x1	40	7.2	29	12.2	12.2	31	7.7	7.7	11.2	-	-	-	12	47
16 mm	M5	M12x1	40	7.2	29	12.2	12.2	31	7.7	7.7	11.2	-	-	-	12	47
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	15	57
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	15	62

Piston Ø	L4	L5 3)	L6	L7	R2	W1	W2-R	W2-S	W3-R	W3-S	W4	W5	W6	W7
16 mm	6.5	17.7	2	10	3	76	31	31	60.5	60.5	30	W1/2	–	–
16 mm	6.5	17.7	2	10	3	76	31	31	60.5	60.5	30	W1/2	–	–
20 mm	8	30	2.1	10	3	92	10	21	74	74	35	W1/2	2	4
25 mm	9	31	2.1	12	3	112	11	14	92	92	44	W1/2	2.5	4.8

S = stroke

1) PE: cushioning: pneumatic, end stop: elastomer

2) PM: cushioning: pneumatic, end stop: metal

R2 = return-stroke setting range for variant with elastomeric end stop

* max.

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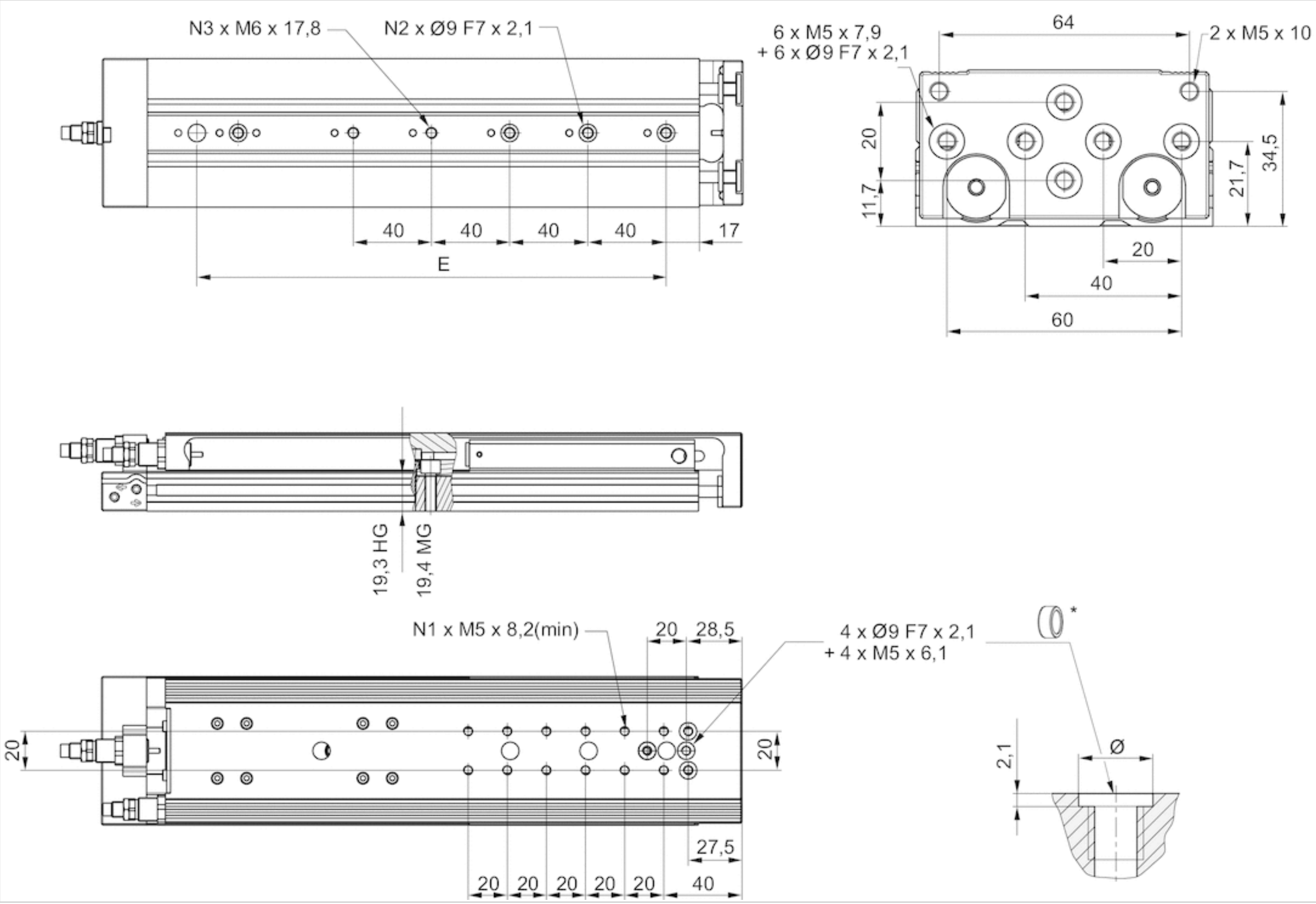
Dimensions

MSC-16



* = centering rings

Dimensions

Piston Ø	S	N1	N2	N3
25 mm	50	4	2	2
25 mm	80	4	3	3
25 mm	100	4	3	3

S = stroke

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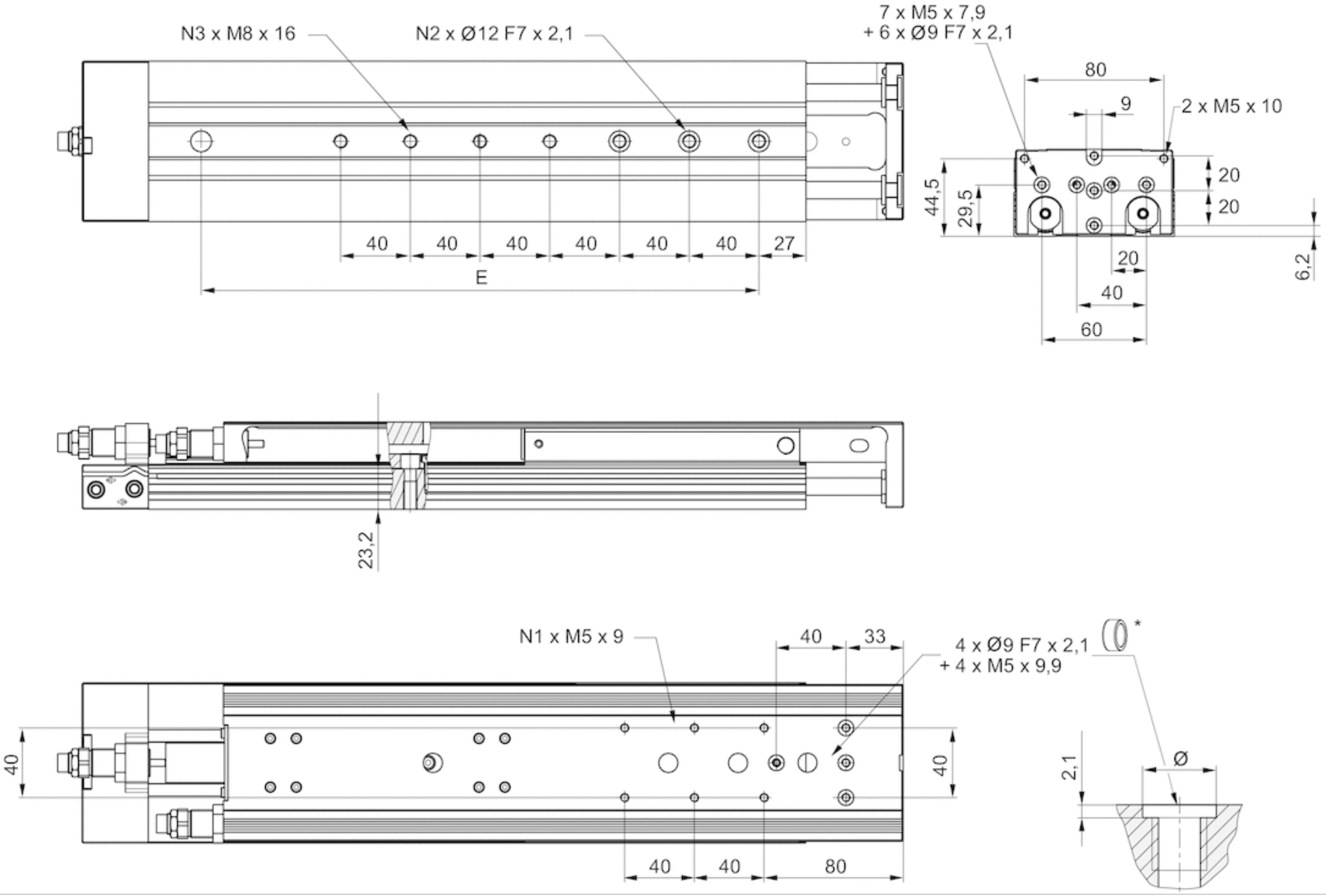
Dimensions

MSC-20



* = centering rings

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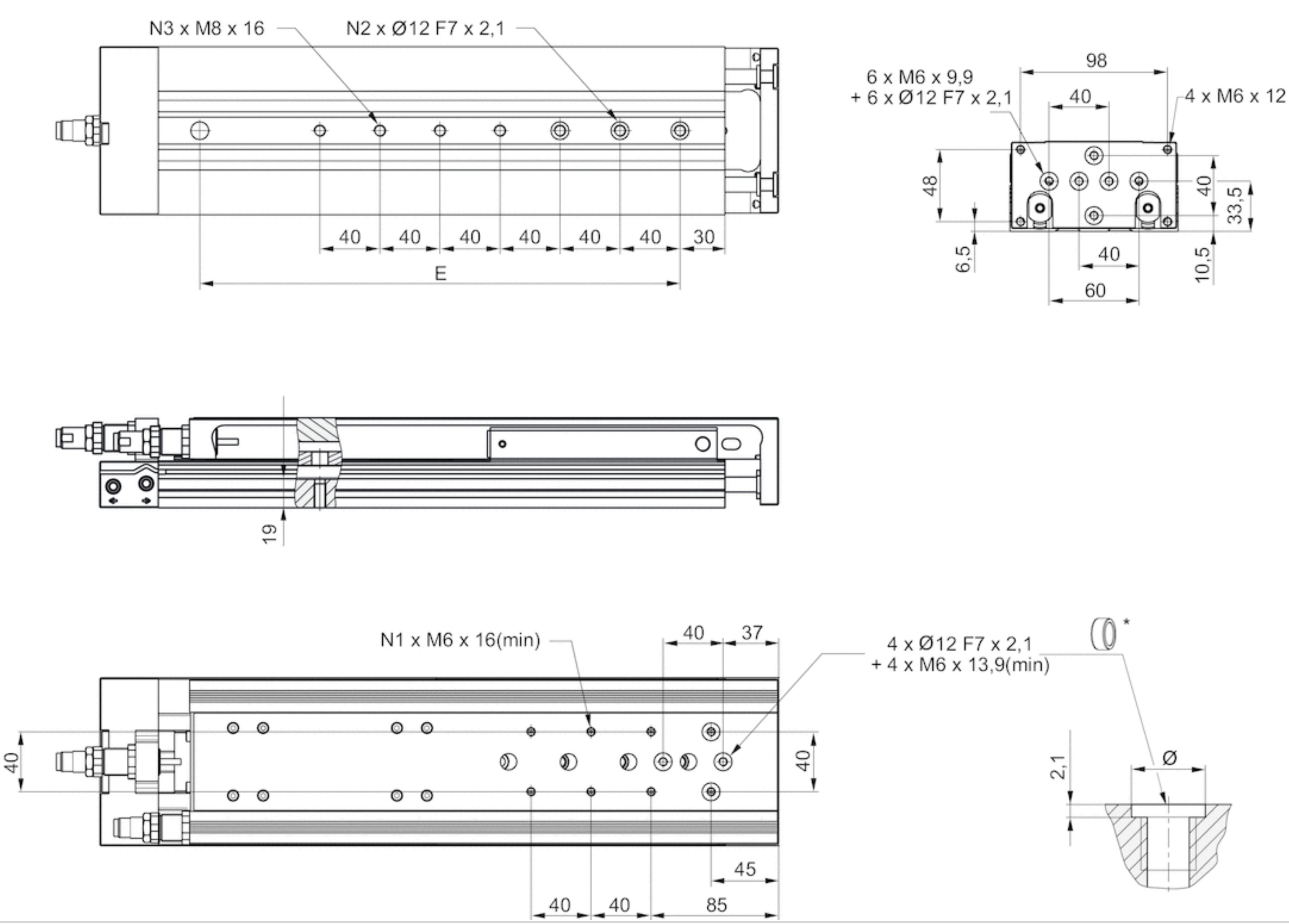
MSC-25



* = 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
16 mm	0.375	0.375	0.375	0.4	0.45	0.615	0.65	0.725	0.765	–
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	1.0345	1.2	1.29	1.54
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

Weight [kg]

Piston Ø	S	Weight kg
16 mm	50	1,29 kg
16 mm	80	1,37 kg
16 mm	100	1,94 kg
20 mm	50	1,61 kg
20 mm	80	2,1 kg

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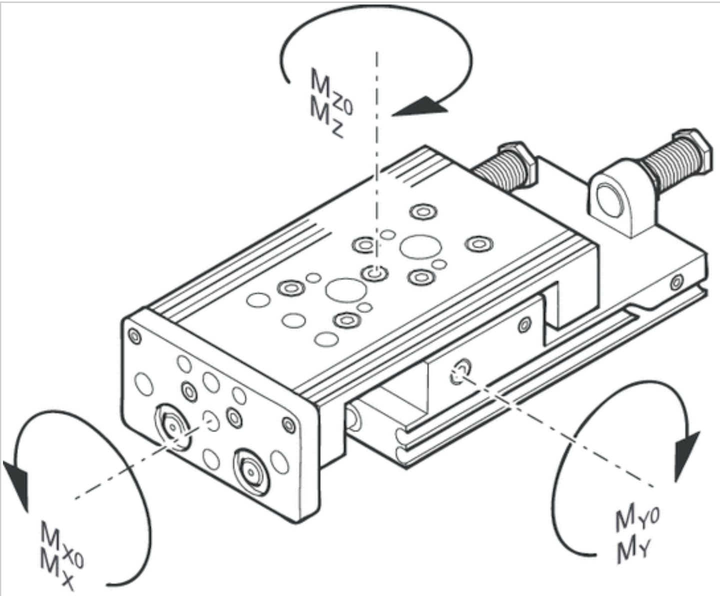
Piston Ø	S	Weight kg
20 mm	100	2,23 kg
25 mm	50	2,64 kg
25 mm	80	3,29 kg
25 mm	100	3,56 kg

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)
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
16 mm	100	144	15	45	27,3	27,3	8,7	6,3	6,3
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	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	14,6	14,6
25 mm	100	152	24	110	62,5	62,5	18,8	14,6	14,6

S = stroke

1) correction factor (a)

2) Correction factor (b)

3) Static moment M [Nm]

4) Dynamic moment M [Nm]

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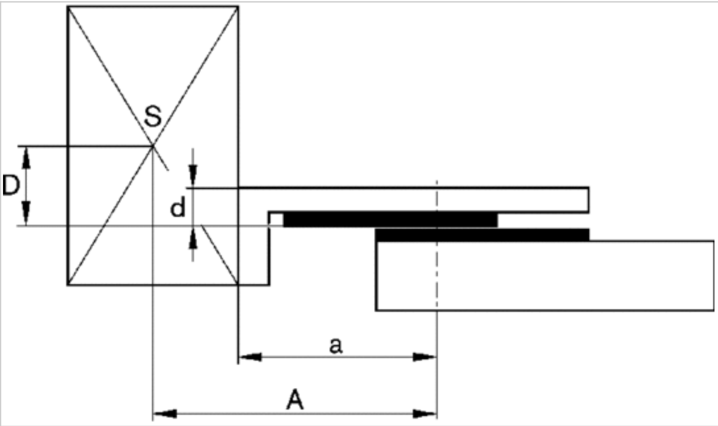
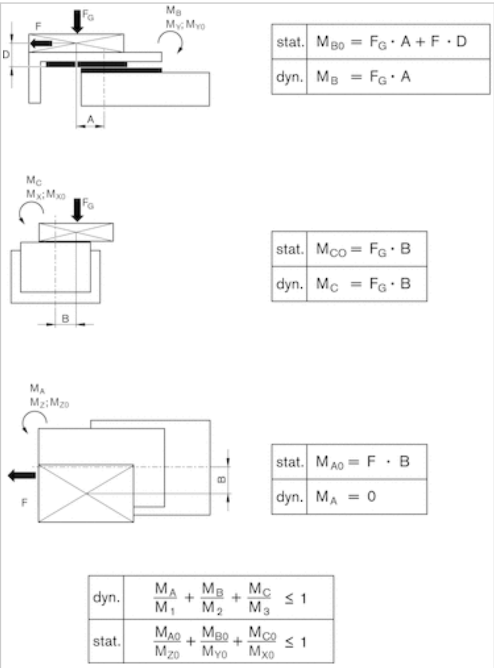
Dimensions

correction factor (a d)



horizontal



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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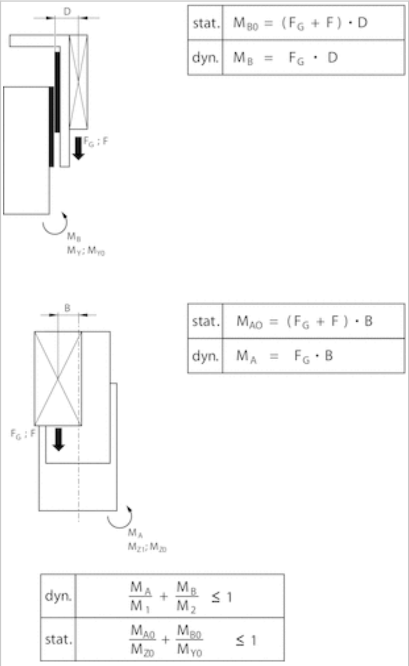
vertical

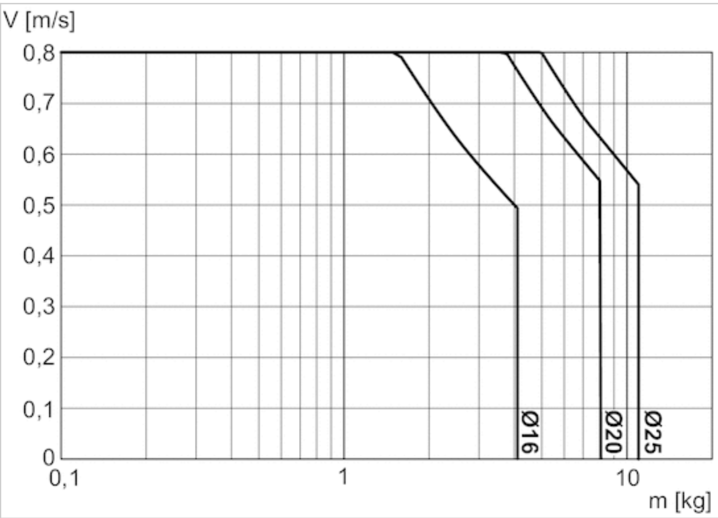


F = m • aFG = m • ga = 1250•V²/H

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]

Diagrams

Maximum moving mass



V = velocity [m/s]
m = mass

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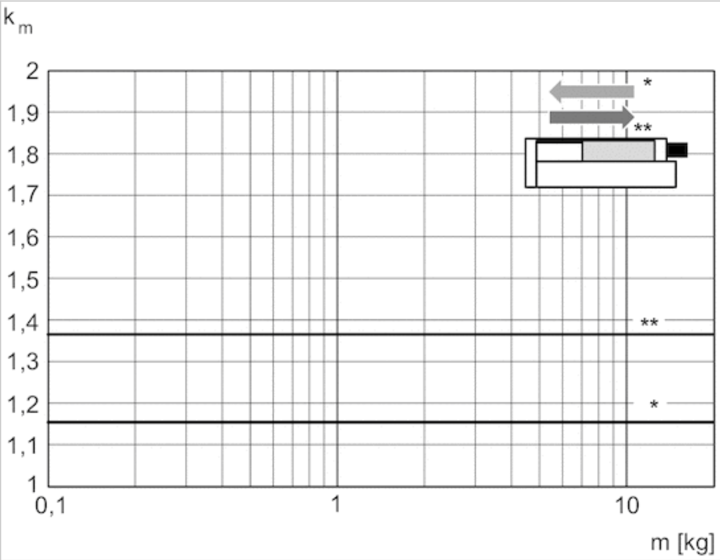
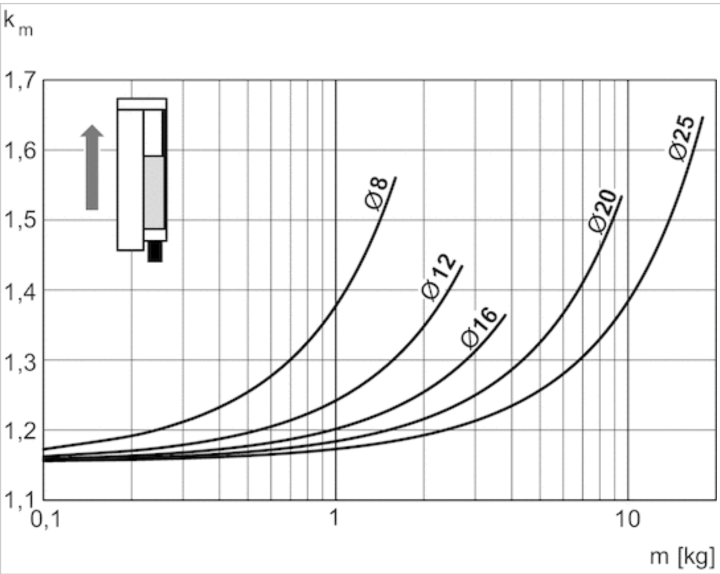
Correction factor for required speed: retracting and extending horizontal



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

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

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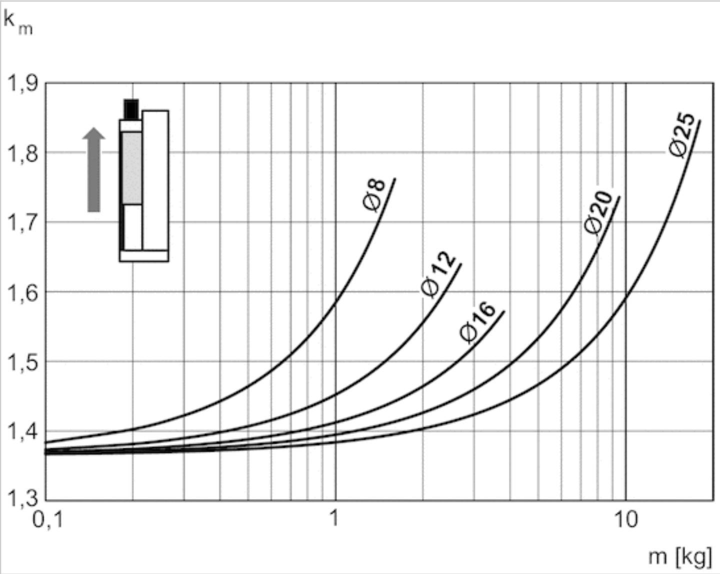
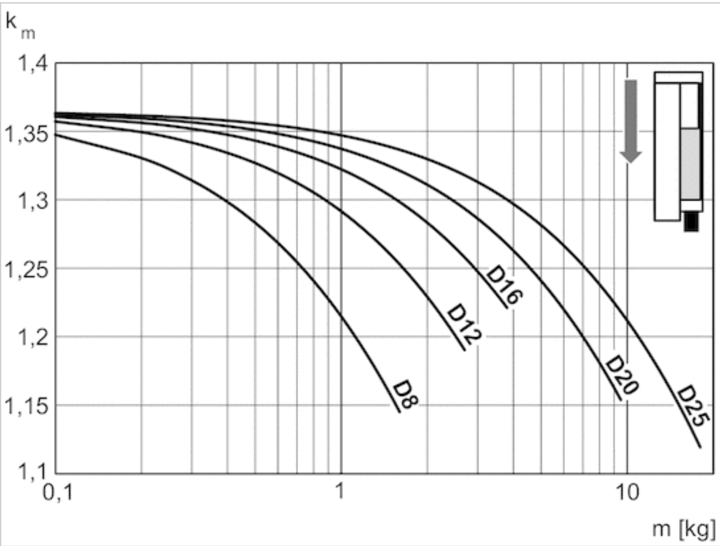
Correction factor for required speed: retracting vertical upwards



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

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

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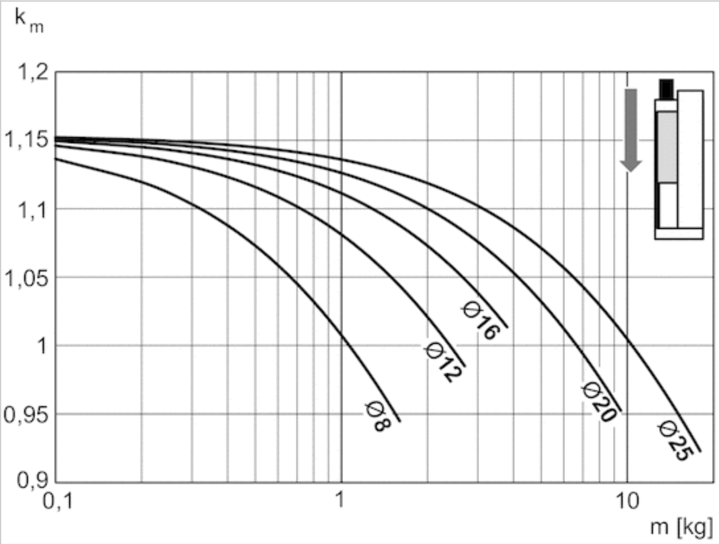
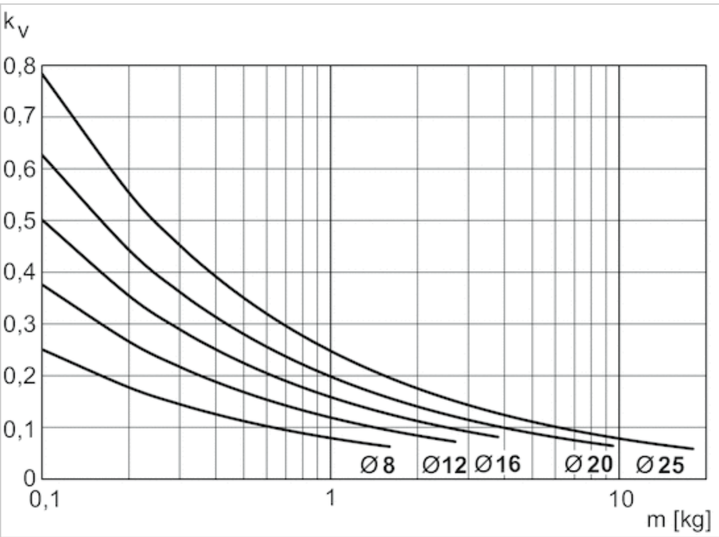
Correction factor for required speed: extending vertical downwards



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

Extracting speed max.



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