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Mini slide, Series MSC-HG-PM/PE

- Ø 16 mm
- double-acting
- with magnetic piston
- Cushioning Pneumatically
- Easy2Combine capable
- with double piston
- With integrated “High 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	R480640197	R480640202	R480640208
80	R480640198	R480640203	R480640209
100	R480640199	R480640204	R480640210
125	R480640200	R480640205	R480640211
150	R480640201	R480640206	R480640212
200	-	R480640207	R480640213

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

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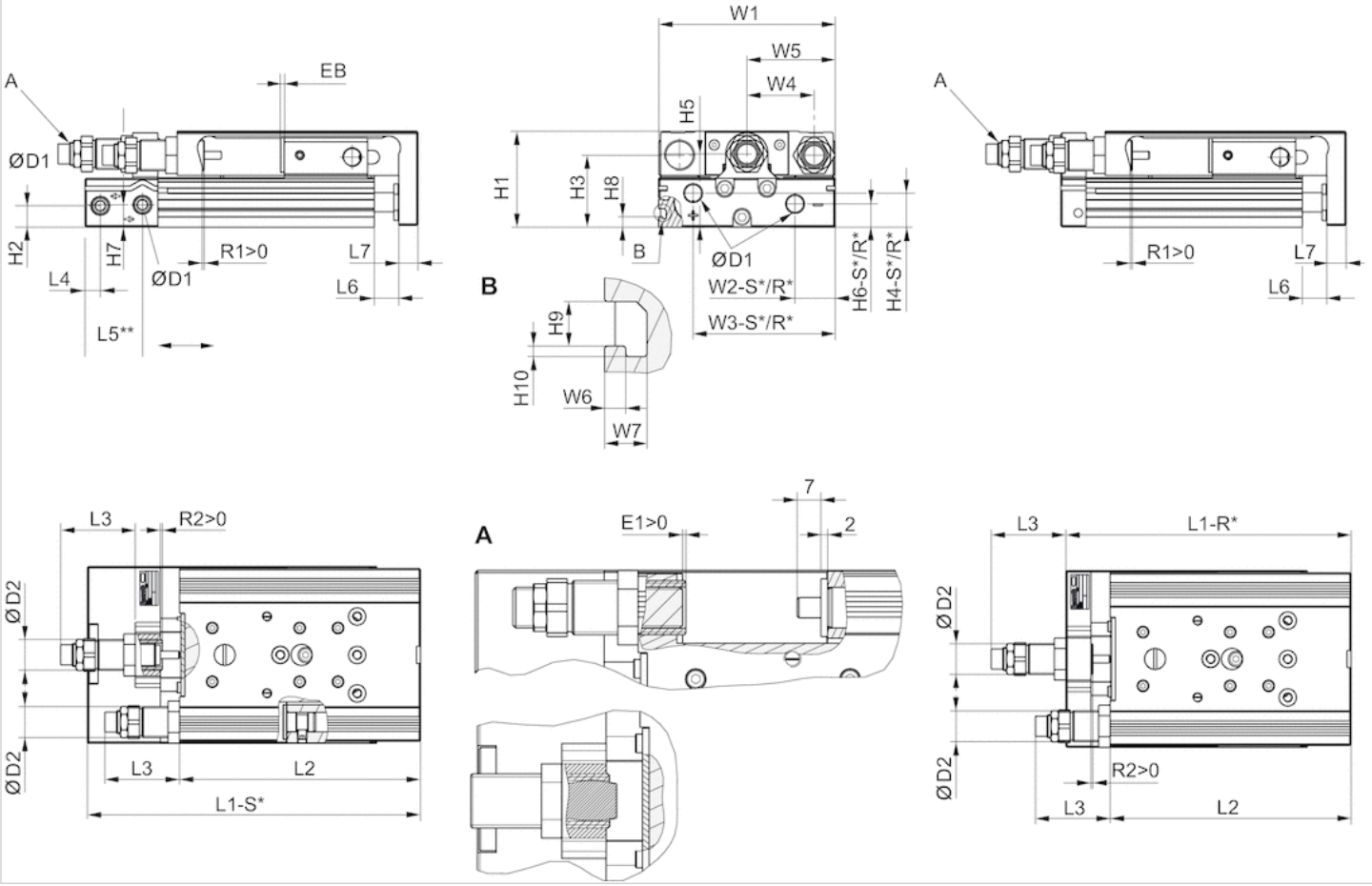
Technical information

Material				
Housing		Aluminum, anodized		
Piston rod		Stainless steel		
Front plate	Retracting piston force, theoretical	218 N	297 N	520 N
Seal		Polyurethane		
Ball rail table	Cushioning length	Aluminum, anodized 7 mm	7 mm	7 mm
Guide rail		Steel, hardened		
Centering rings		Stainless steel		

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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Stroke-dependent dimensions

Piston Ø	S=50EB	S=80EB	S=100EB	S=125EB	S=150EB	S=200EB	S=50L1-R	S=80L1-R	S=100L1-R
16 mm	2	2	2	2	2	–	126.8	172.8	192.8
16 mm	2	2	2	2	2	–	126.8	172.8	192.8
20 mm	2	2	2	2	2	2	137.9	182.9	202.9
25 mm	2	2	2	2	2	2	149.1	195.1	215.1

Piston Ø	S=125L1-R	S=150L1-R	S=200L1-R	S=50L1-S	S=80L1-S	S=100L1-S	S=125L1-S	S=150L1-S
16 mm	281.3	306.3	–	137.7	183.7	203.7	292.2	317.2
16 mm	281.3	306.3	–	137.7	183.7	203.7	292.2	317.2
20 mm	287.4	327.4	402.4	162.8	207.8	227.8	312.3	352.3
25 mm	292.1	332.1	407.1	172.8	218.8	238.8	315.8	355.8

Piston Ø	S=200L1-S	S=50L2	S=80L2	S=100L2	S=125L2	S=150L2	S=200L2	S=50R1 1)	S=80R1 1)
16 mm	–	115.4	161.4	181.4	269.9	294.9	–	8.7	8.7
16 mm	–	115.4	161.4	181.4	269.9	294.9	–	8.7	8.7
20 mm	427.3	125.5	170.5	190.5	275	315	390	12.4	12.4
25 mm	430.8	134.5	180.5	200.5	277.5	317.5	392.5	10.5	11.5

Piston Ø	S=100R1 1)	S=125R1 1)	S=150R1 1)	S=200R1 1)
16 mm	8.7	8.7	8.7	–
16 mm	8.7	8.7	8.7	–
20 mm	12.4	12.4	12.4	12.4
25 mm	11.5	11.5	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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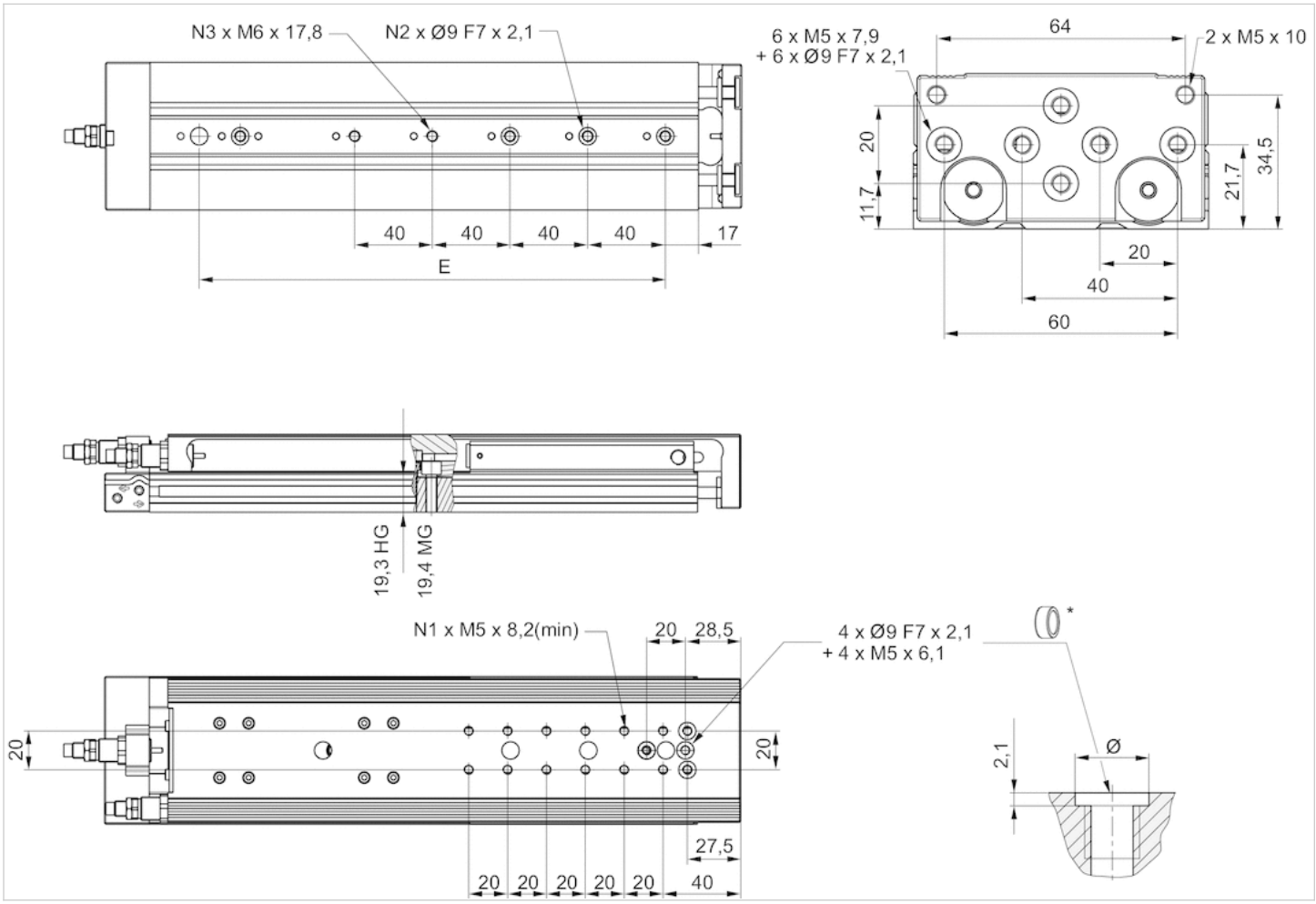
Dimensions

MSC-16



* = centering rings

Dimensions

Piston Ø	S	E	N1	N2	N3
16 mm	50	–	6	2	2
16 mm	80	–	6	3	3
16 mm	100	–	8	3	3
16 mm	125	200	12	4	5
16 mm	150	240	12	4	5

S = stroke

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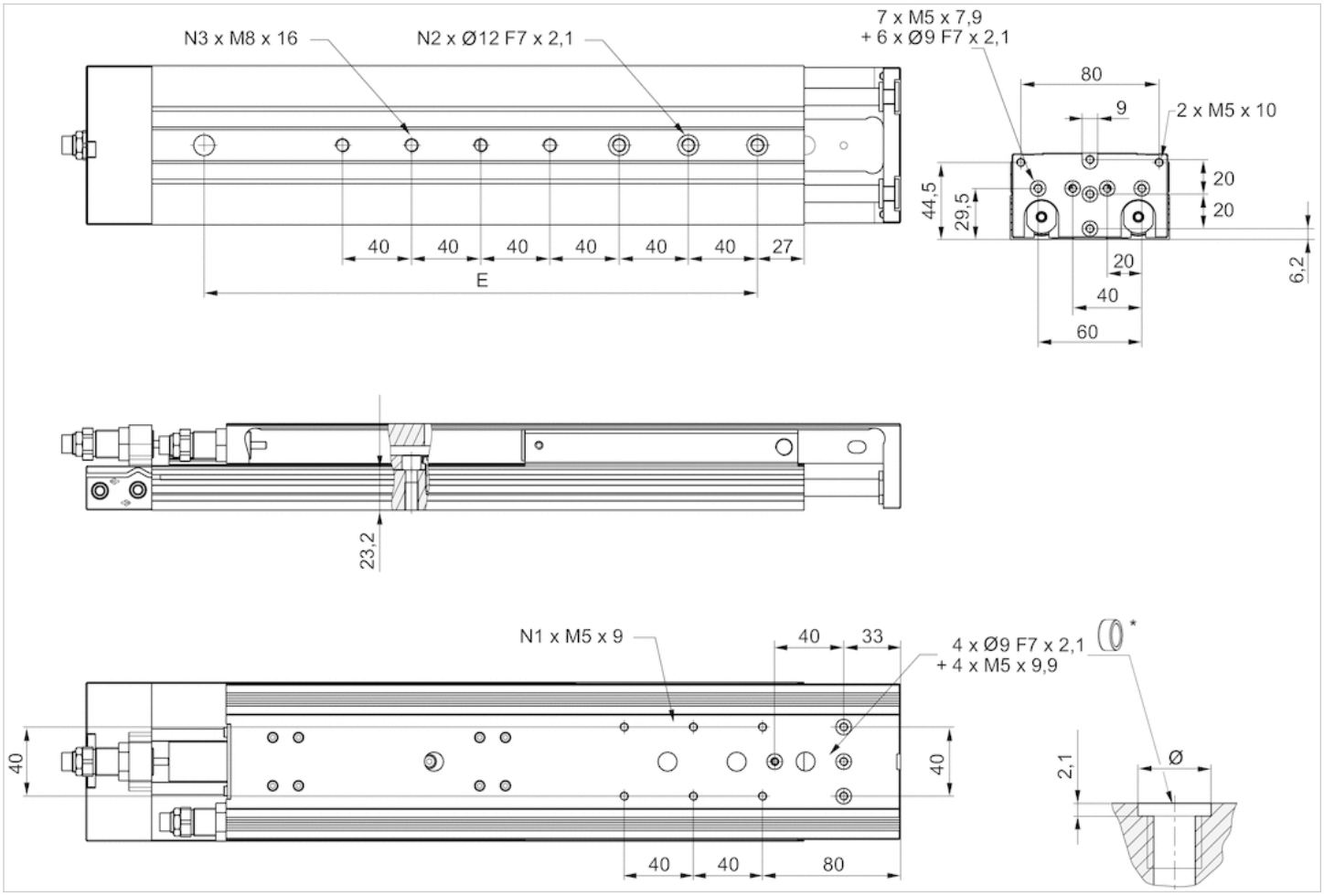
Dimensions

MSC-20



* = centering rings

Dimensions

Piston Ø	S	E	N1	N2	N3
20 mm	50	–	2	2	2
20 mm	80	–	4	3	3
20 mm	100	–	4	3	3
20 mm	125	200	6	4	5
20 mm	150	240	6	4	5
20 mm	200	320	6	4	7

S = stroke

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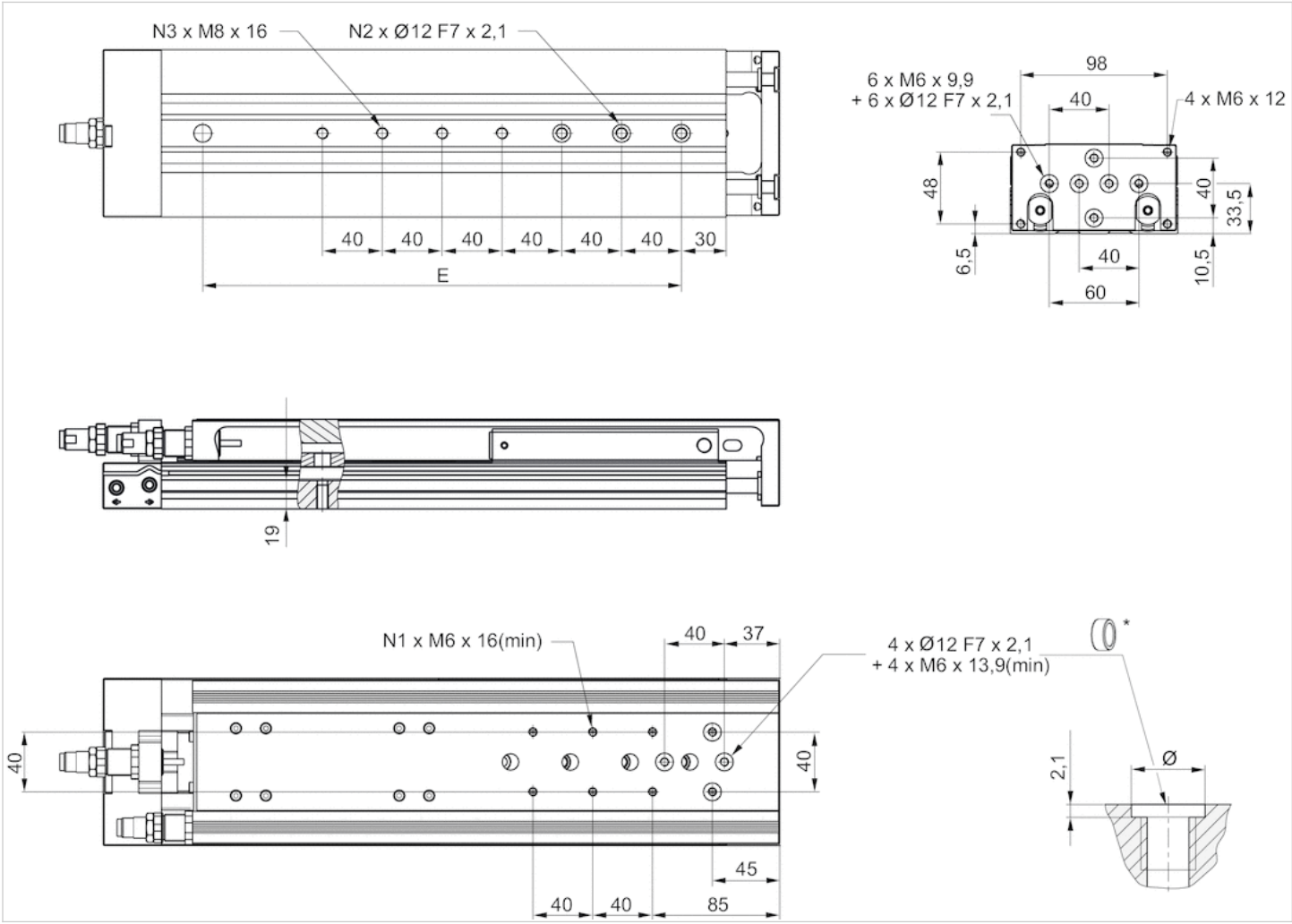
Dimensions

MSC-25



* = centering rings

Dimensions

Piston Ø	S	E	N1	N2	N3
25 mm	50	–	4	2	2
25 mm	80	–	4	3	3
25 mm	100	–	4	3	3
25 mm	125	200	4	4	5
25 mm	150	240	6	4	5
25 mm	200	320	6	4	7

S = stroke

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	–

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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	–
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	1.225	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
16 mm	125	1,94 kg
16 mm	150	2,08 kg
20 mm	50	1,61 kg
20 mm	80	2,1 kg
20 mm	100	2,23 kg
20 mm	125	3,02 kg
20 mm	150	3,36 kg
20 mm	200	4,12 kg
25 mm	50	2,64 kg
25 mm	80	3,29 kg
25 mm	100	3,56 kg
25 mm	125	4,75 kg
25 mm	150	5,37 kg
25 mm	200	6,46 kg

S = stroke

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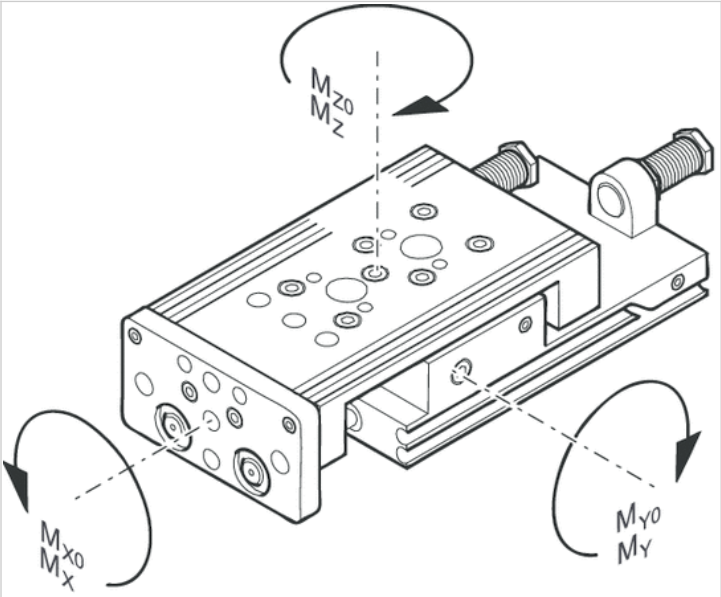
Dimensions

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	85,5	15	38	29	29	7	7,6	7,6
16 mm	80	126	15	74	58	58	8,7	12,8	12,8
16 mm	100	146	15	74	58	58	8,7	12,8	12,8
16 mm	125	198.5	15	88	118	118	15.2	31.2	31.2
16 mm	150	223.5	15	88	119	119	15.2	31.2	31.2
20 mm	50	90.5	20	93	65	65	10	13.3	13.3
20 mm	80	130.5	20	116	99	99	11.7	19	19
20 mm	100	150.5	20	116	99	99	11.7	19	19
20 mm	125	201	20	126	136	136	19	40.6	40.6
20 mm	150	233.5	20	126	152	152	19	45.4	45.4
20 mm	200	296	20	126	179	179	19	53.4	53.4
25 mm	50	96.5	24	100	90	90	15.3	13	13
25 mm	80	137	24	110	129	129	18.8	20.8	20.8
25 mm	100	157	24	110	129	129	18.8	20.8	20.8
25 mm	125	201	24	145	180	180	20.4	44.1	44.1
25 mm	150	236.5	24	145	201	201	20.4	49.2	49.2
25 mm	200	299	24	145	236	236	20.4	57.8	57.8

S = stroke

1) correction factor (a)

2) Correction factor (b)

3) Static moment M [Nm]

4) Dynamic moment M [Nm]

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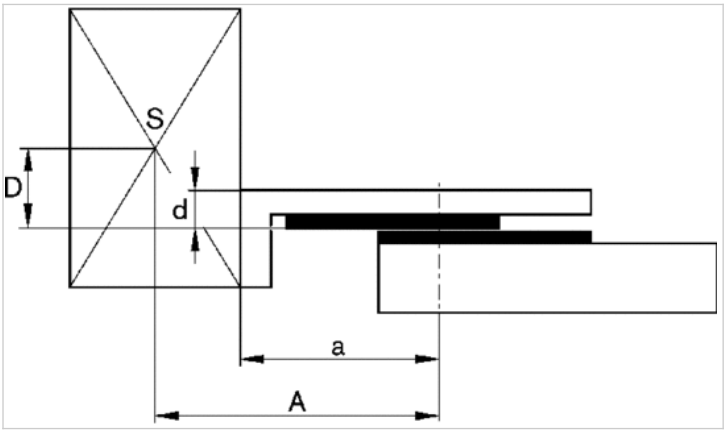
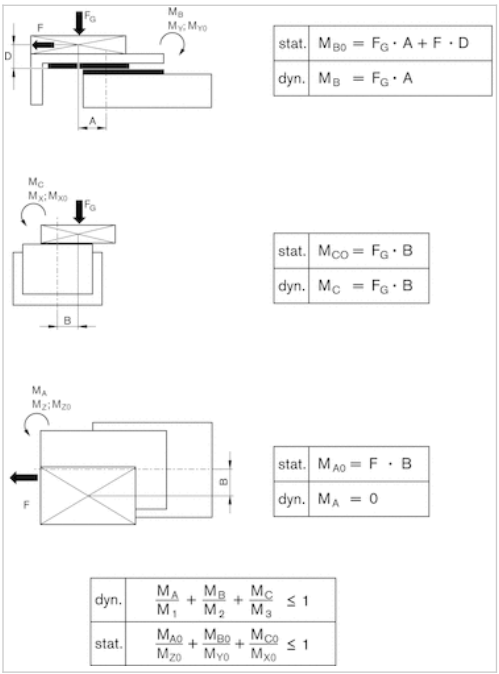
Dimensions

correction factor (a d)



horizontal



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

stat.	$M_{CO} = F_G \cdot B$
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]

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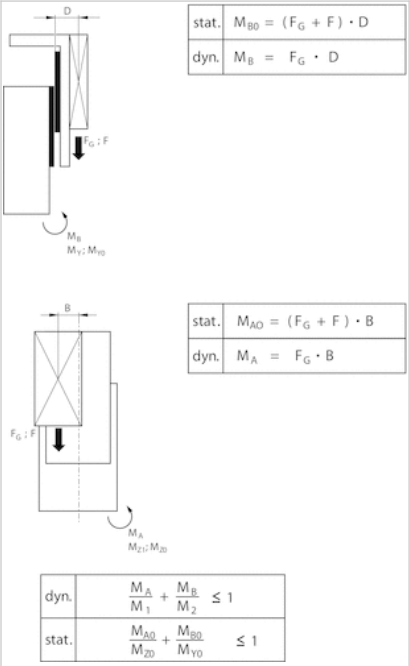
vertical



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

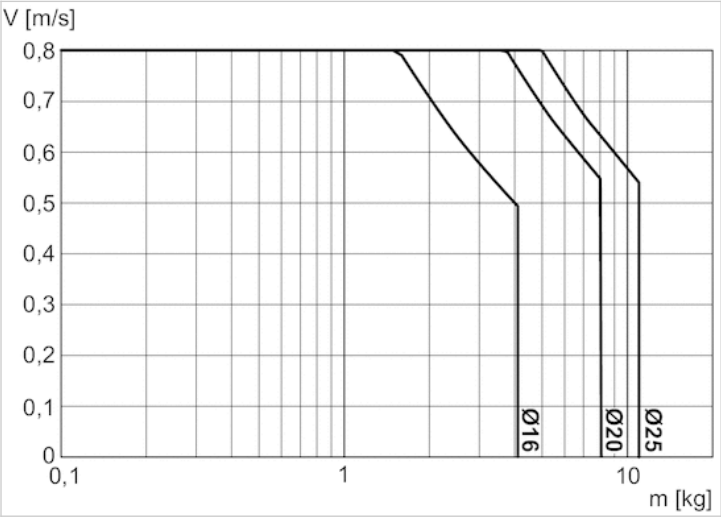
stat.	$M_{A0} = (F_G + F) \cdot B$
dyn.	$M_A = F_G \cdot B$

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]

Diagrams

Maximum moving mass



V = velocity [m/s]
m = mass

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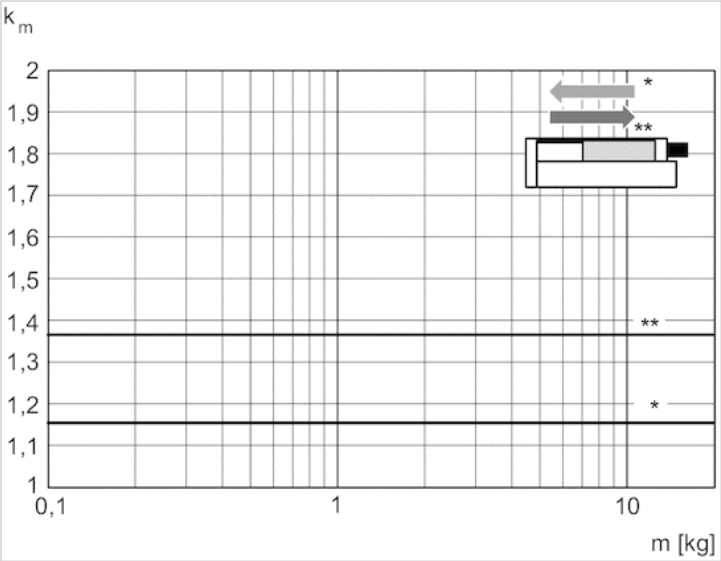
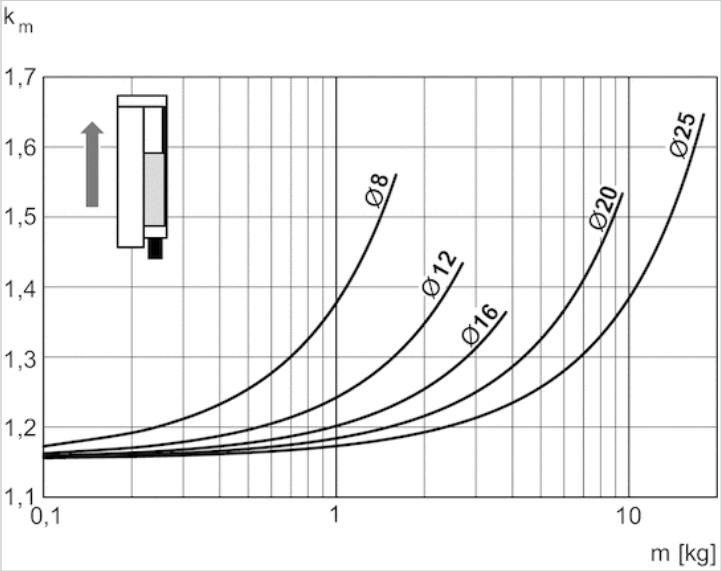
Correction factor for required speed: retracting and extending horizontal



* 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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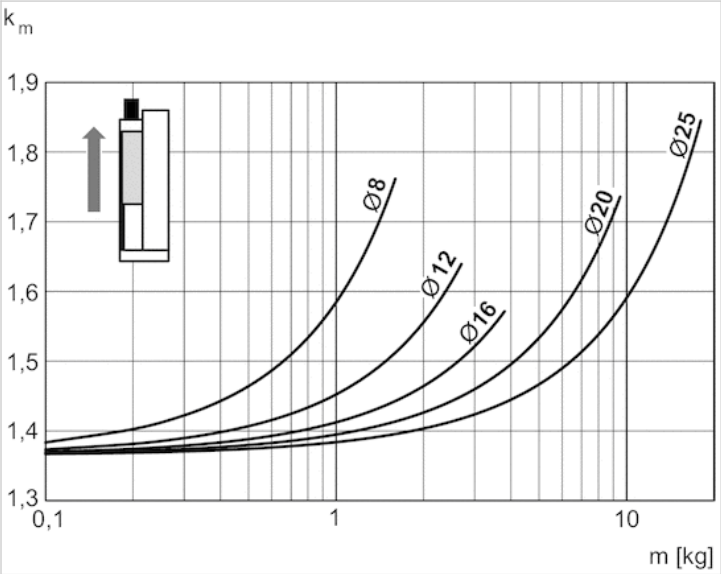
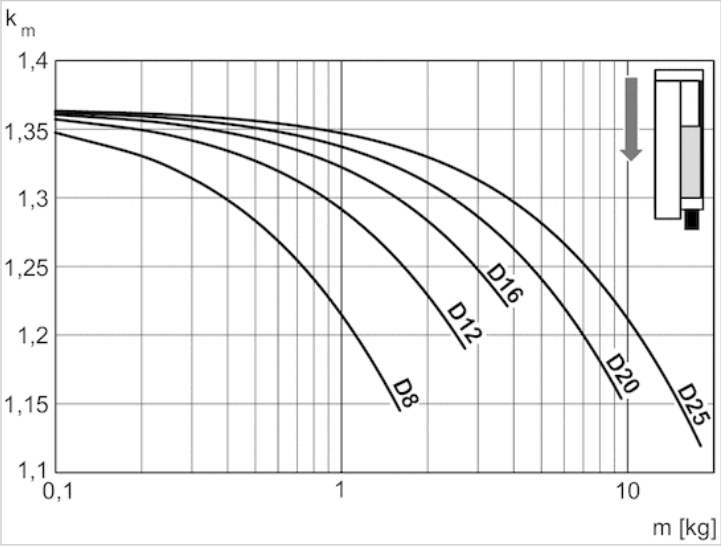
Correction factor for required speed: retracting vertical upwards



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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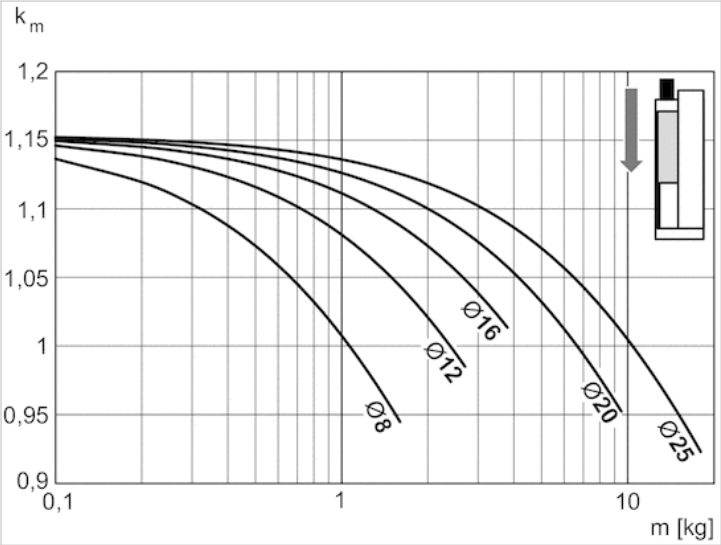
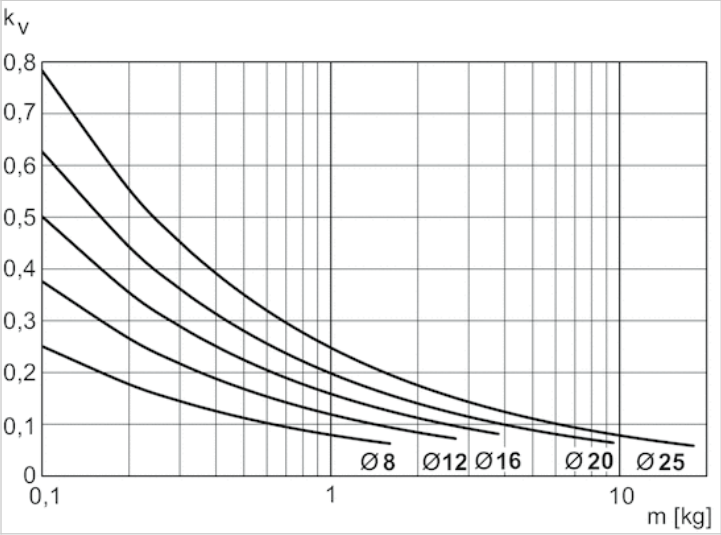
Correction factor for required speed: extending vertical downwards



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