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Mini slide, Series MSC-HG-EM

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

Working pressure min./max.	3 ... 10 bar
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
Weight	See table

Technical data

Piston Ø	8 mm	12 mm	16 mm	20 mm	25 mm
Stroke 10	R480643788	R480643794	R480643801	R480643810	R480643820
20	R480643789	R480643795	R480643802	R480643811	R480643821
30	R480643790	R480643796	R480643803	R480643812	R480643822
40	R480643791	R480643797	R480643804	R480643813	R480643823
50	R480643792	R480643798	R480643805	R480643814	R480643824
80	R480643793	R480643799	R480643806	R480643815	R480643825
100	-	R480643800	R480643807	R480643816	R480643826
125	-	-	R480643808	R480643817	R480643827
150	-	-	R480643809	R480643818	R480643828
200	-	-	-	R480643819	R480643829

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

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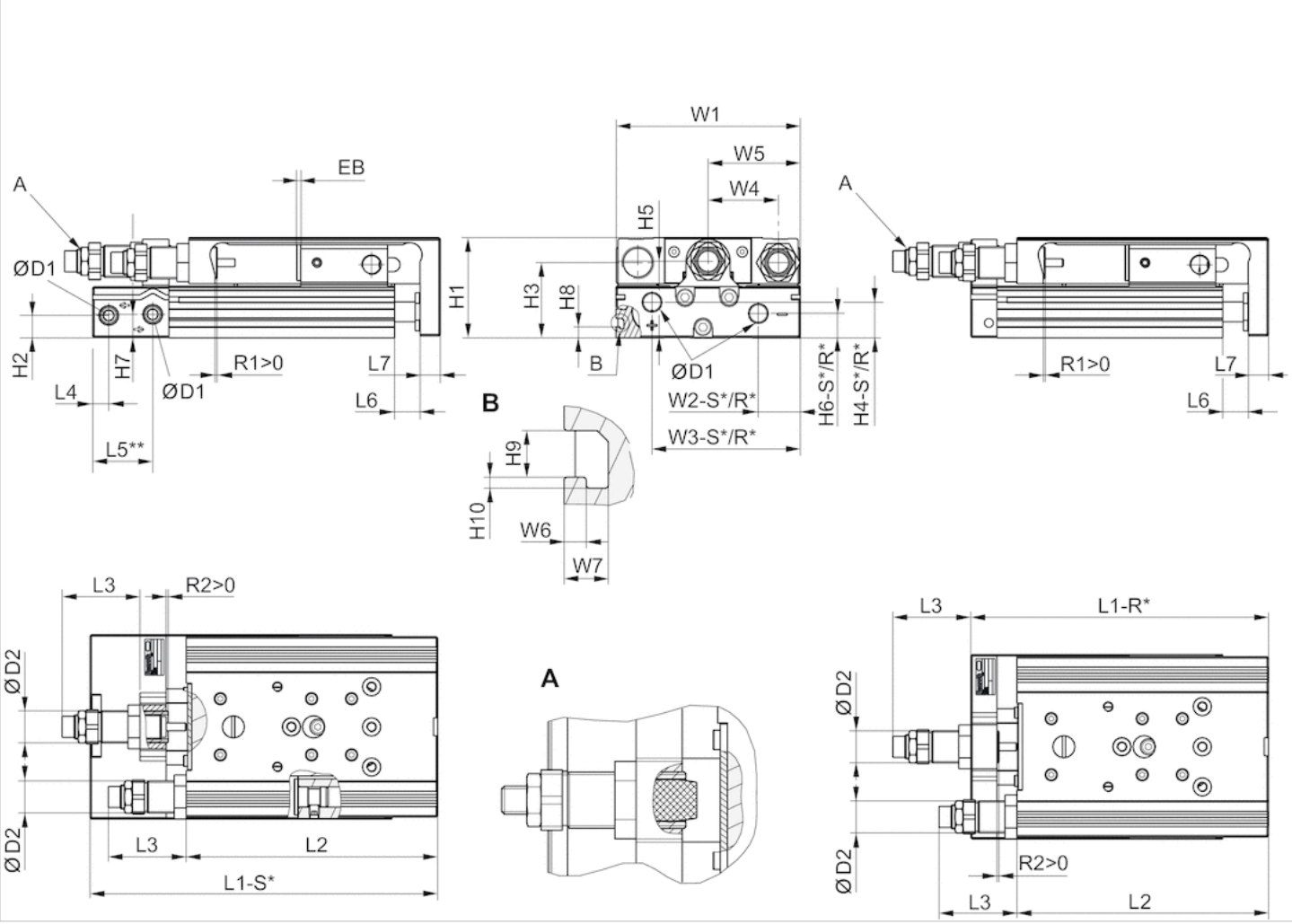
Technical information

Material						
Housing			Aluminum, anodized			
Piston rod			Stainless steel			
Front plate	Extracting piston force, theoretical	63 N	143 N	253 N	396 N	619 N
Seal			Polyurethane			
Ball rail table	Cushioning energy	0,03 J	Aluminum, anodized	0,12 J	0,3 J	0,4 J
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
** Ø 8 has a different reference plane.

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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	-	-	-	27.8	9.8	–
8 mm	M5	M10x1	28	9.6	20.5	-	7.5	19.5	-	5.5	18	-	-	-	27.8	9.8	–
12 mm	M5	M12x1	34	5.7	25	11.2	11.2	24.5	5.7	5.7	8.3	-	-	-	31.8	7.2	22.5
16 mm	M5	M12x1	40	7.2	29	12.2	12.2	31	7.7	7.7	11.2	-	-	-	30	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	43.7	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	41.9	9	31

Piston Ø	L6	L7	R2 1)	W1	W2-R	W2-S	W3-R	W3-S	W4	W5	W6	W7
8 mm	1.9	6	4.1	50.2	–	19.3	–	30.5	18	W1/2	–	–
8 mm	1.9	6	4.1	50.2	–	19.3	–	30.5	18	W1/2	–	–
12 mm	2	8	12	66	28.8	28.8	53	53	24.5	W1/2	–	–
16 mm	2	10	10.4	76	31	31	60.5	60.5	30	W1/2	–	–
20 mm	2.1	10	14	92	10	21	74	74	35	W1/2	2	4
25 mm	2.1	12	16.2	112	11	14	92	92	44	W1/2	2.5	4.8

S = stroke

1) max.

2) Ø 8 has a different reference plane.

R2 = stroke setting range for return stroke

Stroke-dependent dimensions

Piston Ø	S=10EB	S=20EB	S=30EB	S=40EB	S=50EB	S=80EB	S=100EB	S=125EB	S=150EB	S=200EB
8 mm	12	2	2	2	2	2	–	–	–	–
8 mm	12	2	2	2	2	2	–	–	–	–
12 mm	22	12	2	2	2	2	2	–	–	–
16 mm	22	12	2	2	2	2	2	2	2	–
20 mm	22	12	2	2	2	2	2	2	2	2
25 mm	22	12	2	2	2	2	2	2	2	2

Piston Ø	S=10L1-R	S=20L1-R	S=30L1-R	S=40L1-R	S=50L1-R	S=80L1-R	S=100L1-R	S=125L1-R
8 mm	–	–	–	–	–	–	–	–
8 mm	–	–	–	–	–	–	–	–
12 mm	101	101	101	111	126	172	192	–
16 mm	103.5	103.5	103.5	113.5	128.5	174.5	194.5	283
20 mm	115	115	115	125	140	185	205	289.5
25 mm	128.5	128.5	128.5	138.5	151.5	197.5	217.5	294.5

Piston Ø	S=150L1-R	S=200L1-R	S=10L1-S	S=20L1-S	S=30L1-S	S=40L1-S	S=50L1-S	S=80L1-S
8 mm	–	–	81.7	81.7	91.7	101.7	121.7	171.7
8 mm	–	–	81.7	81.7	91.7	101.7	121.7	171.7
12 mm	–	–	117.9	117.9	117.9	127.9	142.9	188.9
16 mm	308	–	114.4	114.4	114.4	124.4	139.4	185.4
20 mm	329.5	404.5	139.9	139.9	139.9	149.9	164.9	209.9
25 mm	334.5	409.5	152.2	152.2	152.2	162.2	175.2	221.2

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Piston Ø	S=100L1-S	S=125L1-S	S=150L1-S	S=200L1-S	S=10L2	S=20L2	S=30L2	S=40L2	S=50L2
8 mm	–	–	–	–	73.5	73.5	83.5	93.5	113.5
8 mm	–	–	–	–	73.5	73.5	83.5	93.5	113.5
12 mm	208.9	-	-	–	88.8	88.8	88.8	98.8	113.8
16 mm	205.4	293.9	318.9	–	90.4	90.4	90.4	100.4	115.4
20 mm	229.9	314.4	354.4	429.4	100.5	100.5	100.5	110.5	125.5
25 mm	241.2	318.2	358.2	433.2	111.5	111.5	111.5	121.5	134.5

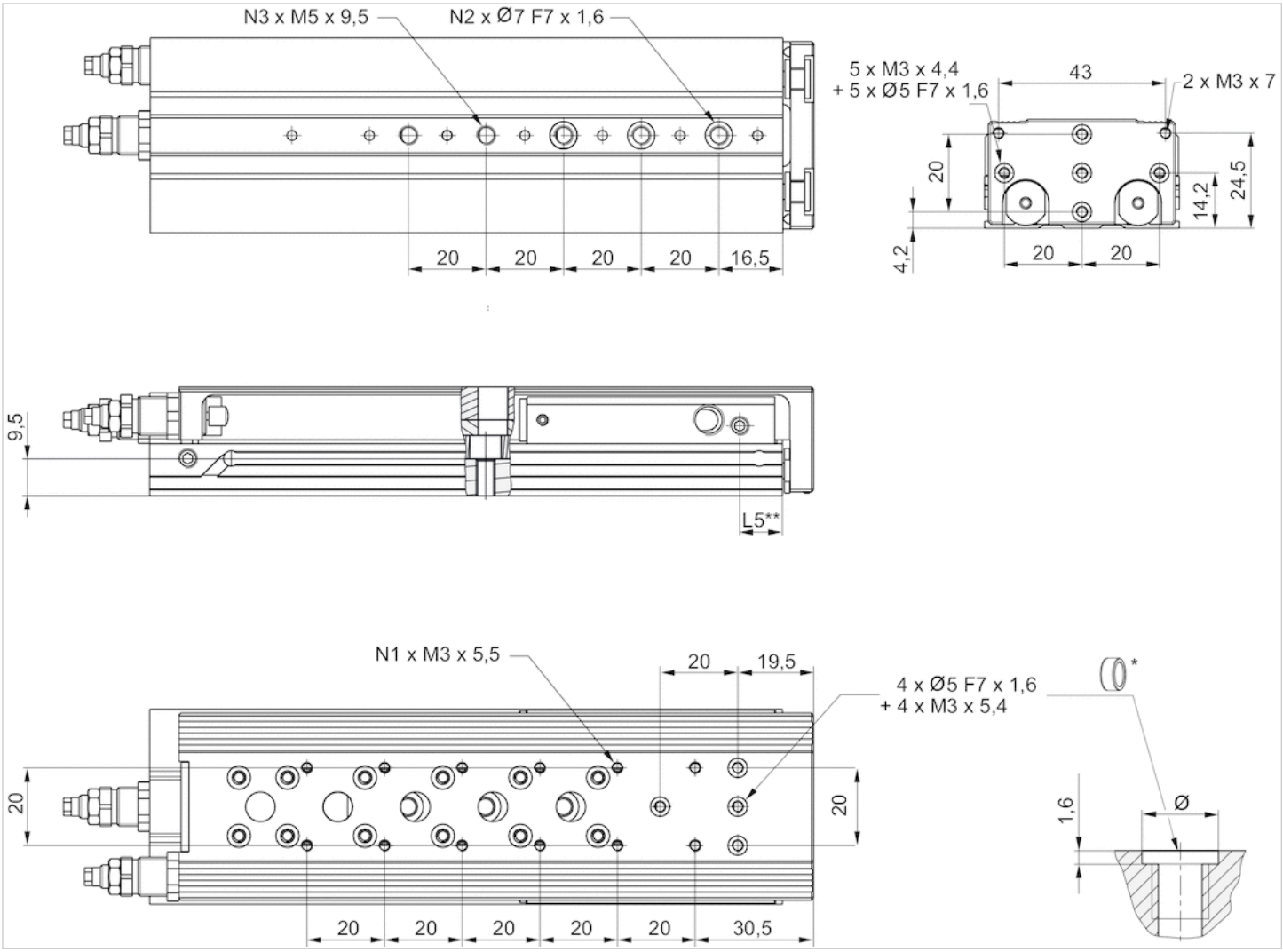
S = stroke

R1 = stroke setting range for forward stroke

1) max.

Dimensions

MSC-08



* = centering rings

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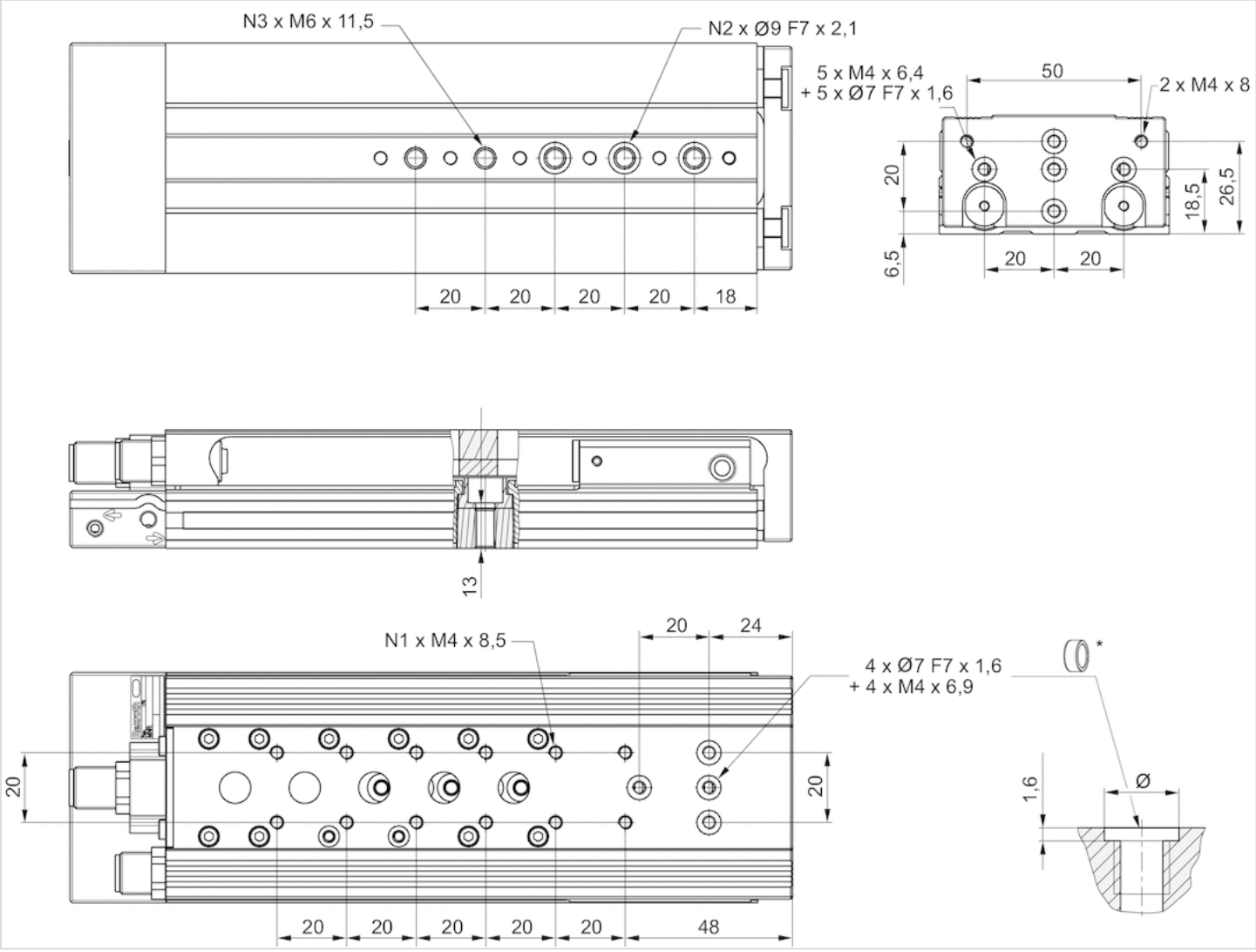
Dimensions

Piston Ø	S	N1	N2	N3	L5
8 mm	10	4	2	2	11
8 mm	20	4	2	2	11
8 mm	30	4	2	2	11
8 mm	40	6	2	2	11
8 mm	50	8	3	3	11
8 mm	80	12	3	5	11

S = stroke

Dimensions

MSC-12



* = centering rings

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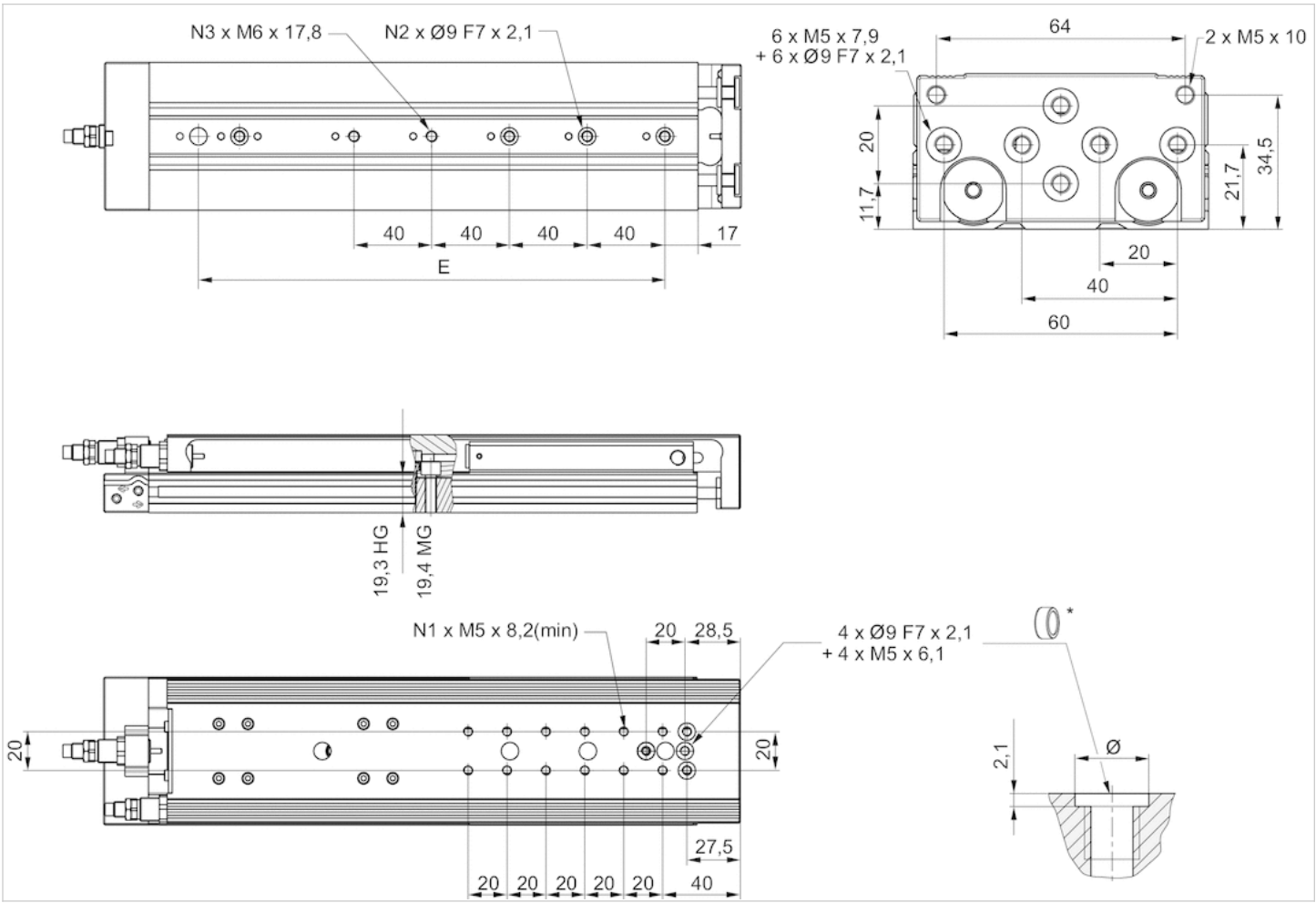
Dimensions

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

S = stroke

Dimensions

MSC-16



* = centering rings

Dimensions

Piston Ø	S	E	N1	N2	N3
16 mm	10	–	4	2	2

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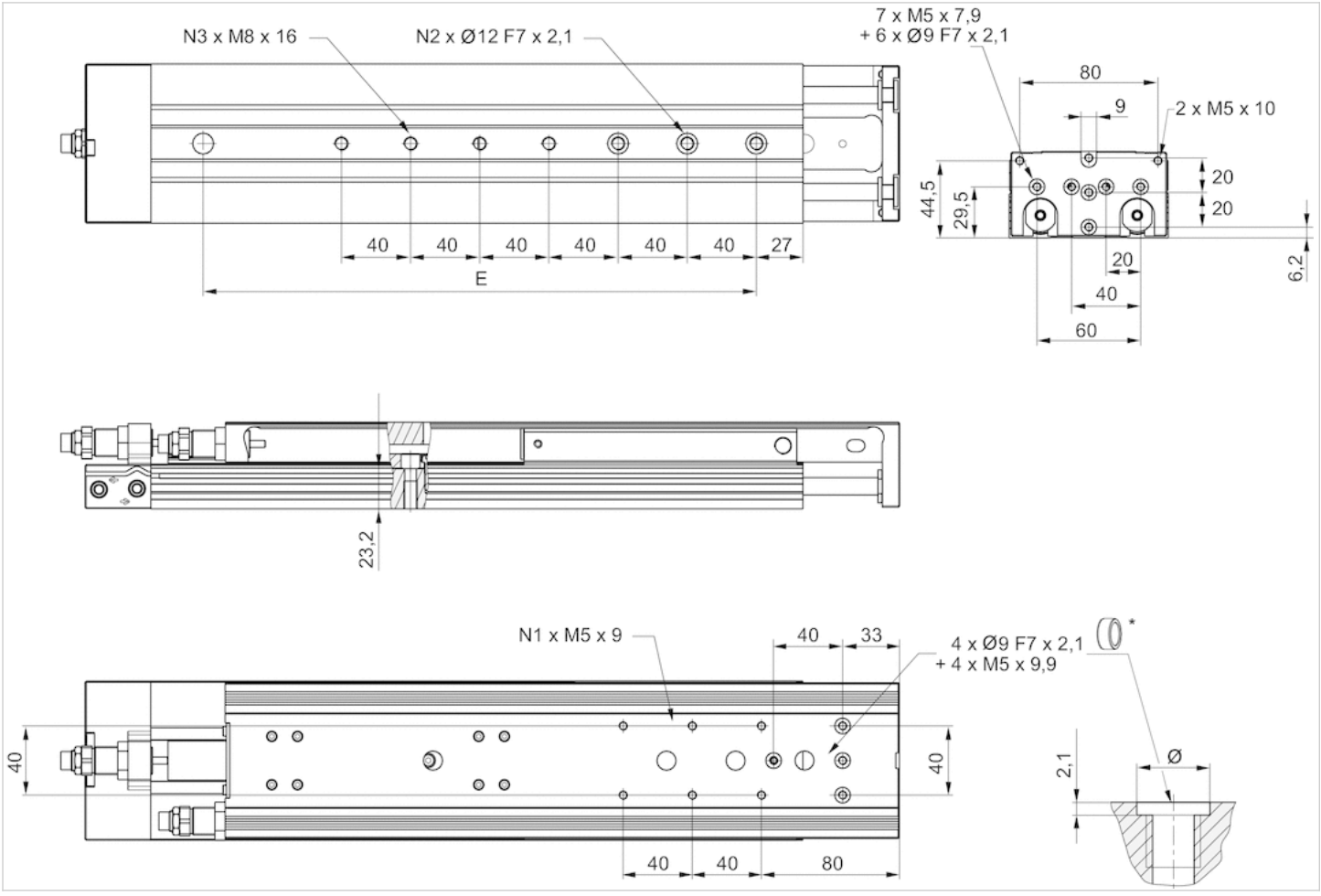
Piston Ø	S	E	N1	N2	N3
16 mm	20	–	4	2	2
16 mm	30	–	4	2	2
16 mm	40	–	4	2	2
16 mm	50	–	6	2	2
16 mm	80	–	6	3	3
16 mm	100	–	8	3	3
16 mm	125	200	12	4	5
16 mm	150	240	12	4	5

S = stroke

Dimensions

MSC-20



* = centering rings

Dimensions

Piston Ø	S	E	N1	N2	N3
20 mm	10	–	2	2	2
20 mm	20	–	2	2	2
20 mm	30	–	2	2	2

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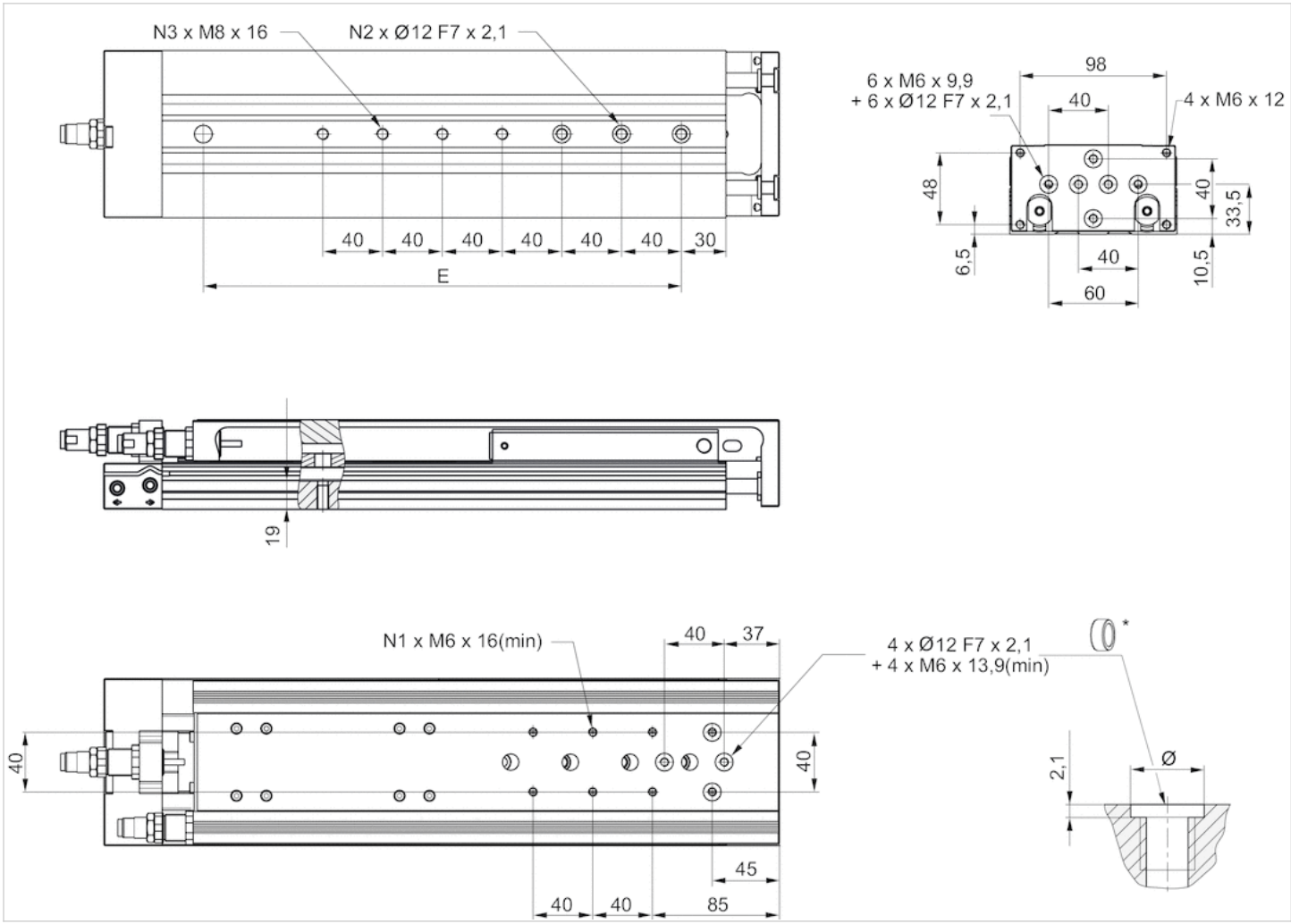
Piston Ø	S	E	N1	N2	N3
20 mm	40	–	2	2	2
20 mm	50	–	2	2	2
20 mm	80	–	4	3	3
20 mm	100	–	4	3	3
20 mm	125	200	6	4	5
20 mm	150	240	6	4	5
20 mm	200	320	6	4	7

S = stroke

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	0.14	0.14	0.155	0.165	0.195	0.265	–	–	–	–
8 mm	0.14	0.14	0.155	0.165	0.195	0.265	–	–	–	–
12 mm	0.255	0.255	0.26	0.28	0.315	0.403	0.46	–	–	–

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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	0.7655	–
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

Dimensions

Piston Ø	S	E	N1	N2	N3
25 mm	10	–	2	2	2
25 mm	20	–	2	2	2
25 mm	30	–	2	2	2
25 mm	40	–	2	2	2
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 [kg]

Piston Ø	S	Weight kg
8 mm	10	0,3 kg
8 mm	20	0,29 kg
8 mm	30	0,32 kg
8 mm	40	0,34 kg
8 mm	50	0,41 kg
8 mm	80	0,56 kg
12 mm	10	0,59 kg
12 mm	20	0,57 kg
12 mm	30	0,56 kg
12 mm	40	0,59 kg
12 mm	50	0,67 kg
12 mm	80	0,92 kg
12 mm	100	0,99 kg
16 mm	10	0,81 kg
16 mm	20	0,79 kg
16 mm	30	0,76 kg
16 mm	40	0,82 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	10	1,36 kg

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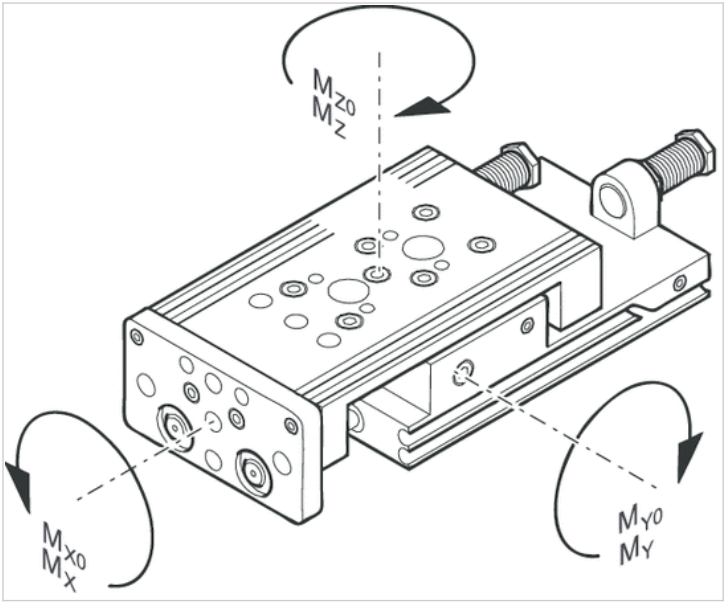
Piston Ø	S	Weight kg
20 mm	20	1,42 kg
20 mm	30	1,38 kg
20 mm	40	1,45 kg
20 mm	50	1,61 kg
20 mm	80	2,1 kg
20 mm	100	2,23 kg
20 mm	125	3,02 kg
20 mm	150	3,36 kg
20 mm	200	4,12 kg
25 mm	10	2,32 kg
25 mm	20	2,26 kg
25 mm	30	2,22 kg
25 mm	40	2,38 kg
25 mm	50	2,64 kg
25 mm	80	3,29 kg
25 mm	100	3,56 kg
25 mm	125	4,75 kg
25 mm	150	5,37 kg
25 mm	200	6,46 kg

S = stroke

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	45	14	7	7	7	1.1	1.9	1.9
8 mm	20	50	14	7	7	7	1.1	1.9	1.9

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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)
8 mm	30	60	14	7	7	7	1.1	1.9	1.9
8 mm	40	70	14	7	7	7	1.1	1.9	1.9
8 mm	50	80	14	9	13	13	1.3	2.9	2.9
8 mm	80	125	14	13	25	25	1.3	3.8	3.8
12 mm	10	54.5	16	20	14	14	4.2	4.4	4.4
12 mm	20	59.5	16	20	14	14	4.2	4.4	4.4
12 mm	30	64.5	16	20	14	14	4.2	4.4	4.4
12 mm	40	74.5	16	20	14	14	4.2	4.4	4.4
12 mm	50	84.5	16	23	19	19	4.6	5.6	5.6
12 mm	80	125	16	33	32	32	5.2	8.2	8.2
12 mm	100	145	16	33	32	32	5.2	8.2	8.2
16 mm	10	55.5	15	35	25	25	6.5	6.6	6.6
16 mm	20	60.5	15	35	25	25	6.5	6.6	6.6
16 mm	30	65.5	15	35	25	25	6.5	6.6	6.6
16 mm	40	75.5	15	35	25	25	6.5	6.6	6.6
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	10	60.5	20	87	57	57	9.6	12	12
20 mm	20	65.5	20	87	57	57	9.6	12	12
20 mm	30	70.5	20	87	57	57	9.6	12	12
20 mm	40	80.5	20	87	57	57	9.6	12	12
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	10	67.5	24	100	90	90	22.9	19.5	19.5
25 mm	20	72.5	24	100	90	90	22.9	19.5	19.5
25 mm	30	77.5	24	100	90	90	22.9	19.5	19.5
25 mm	40	87.5	24	100	90	90	22.9	19.5	19.5
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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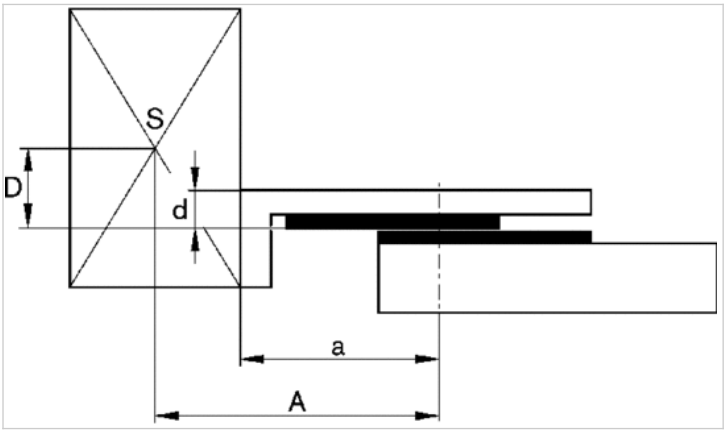
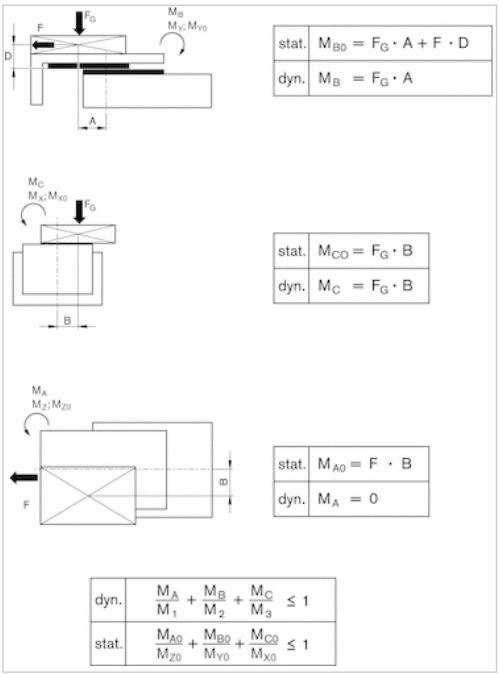
correction factor (a d)



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]

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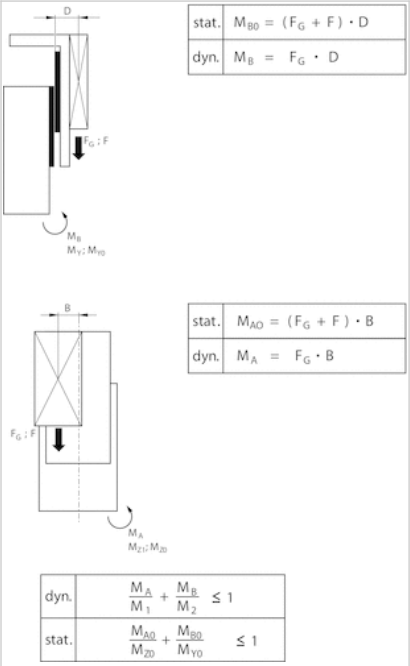
vertical



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

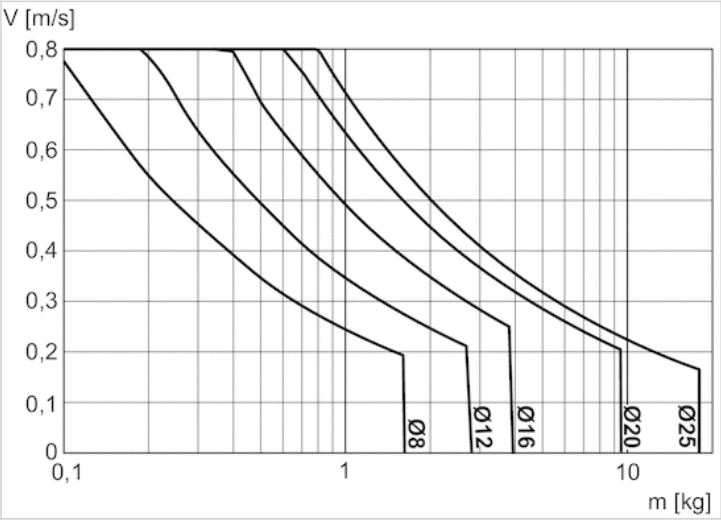
stat.	$M_{A0} = (F_G + F) \cdot B$
dyn.	$M_A = F_G \cdot B$

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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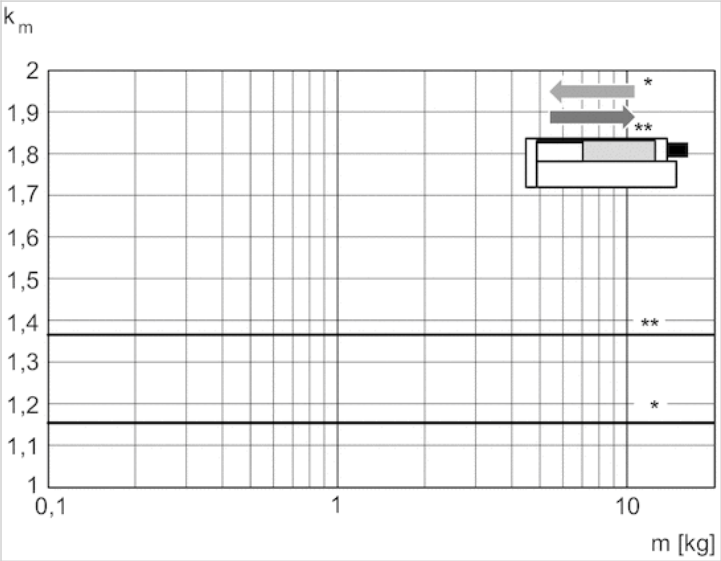
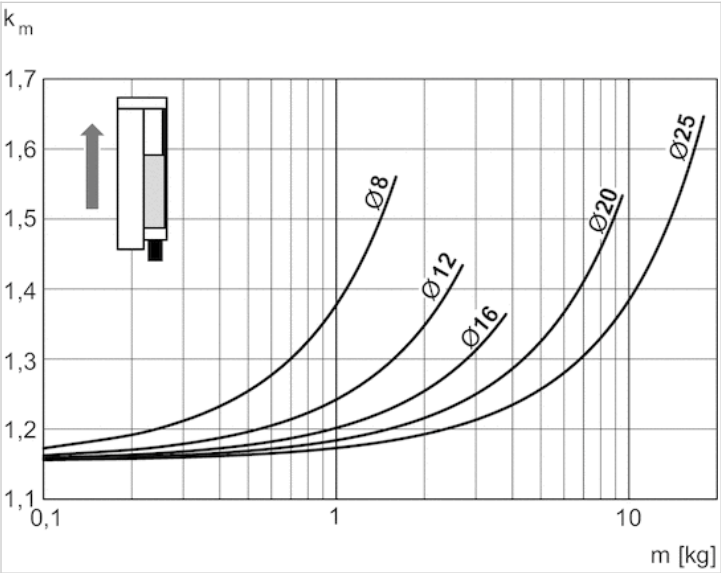
Correction factor for required speed: retracting and extending horizontal



* 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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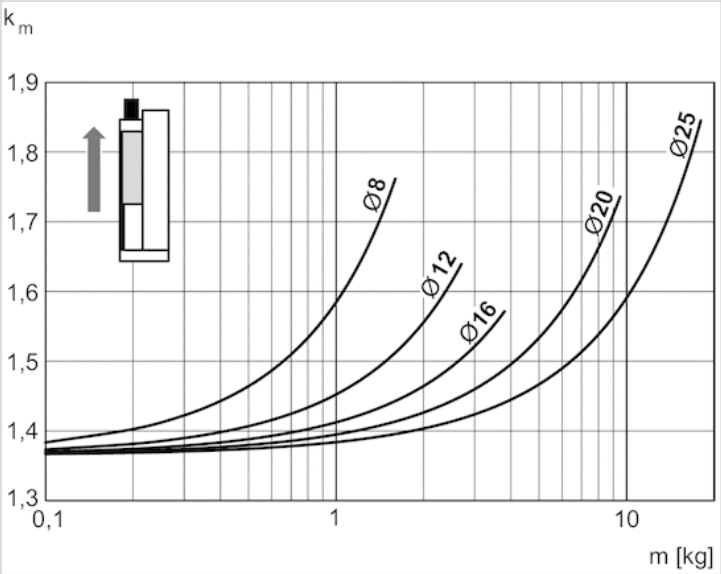
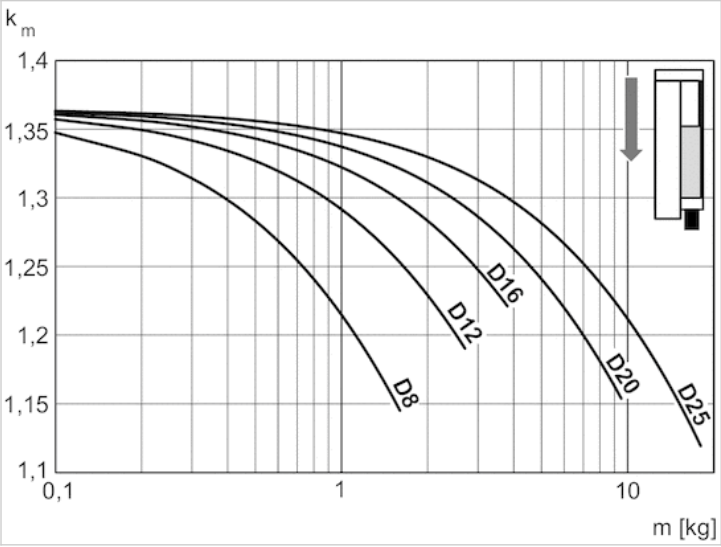
Correction factor for required speed: retracting vertical upwards



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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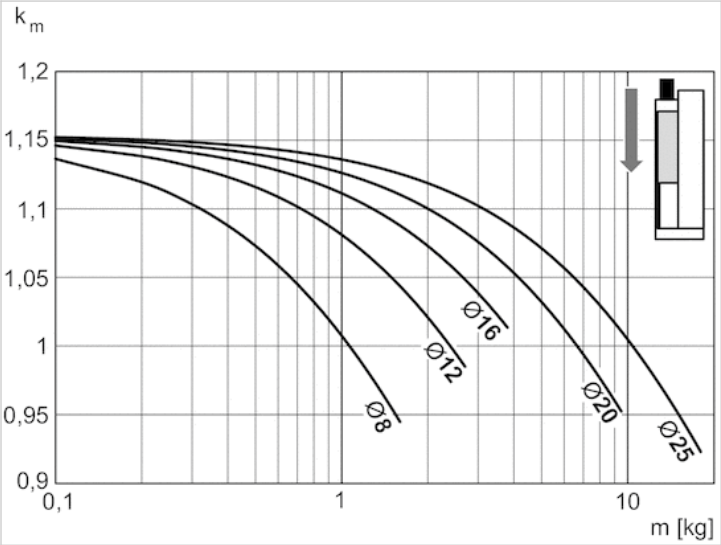
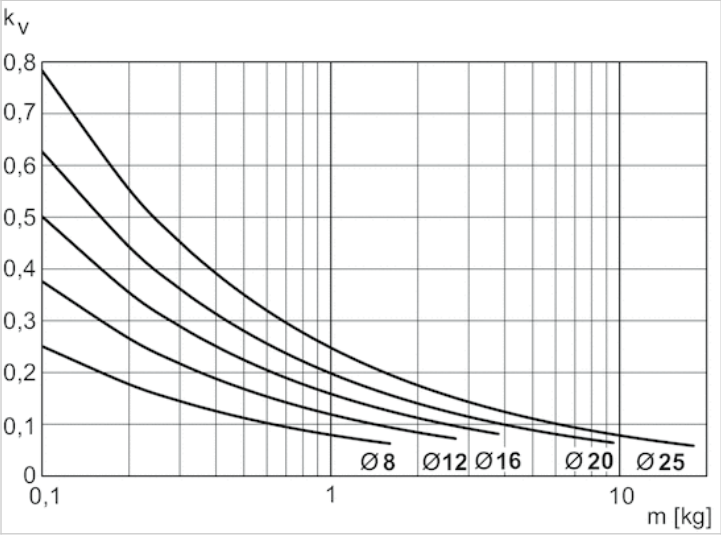
Correction factor for required speed: extending vertical downwards



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