

Mini slide, Series MSN

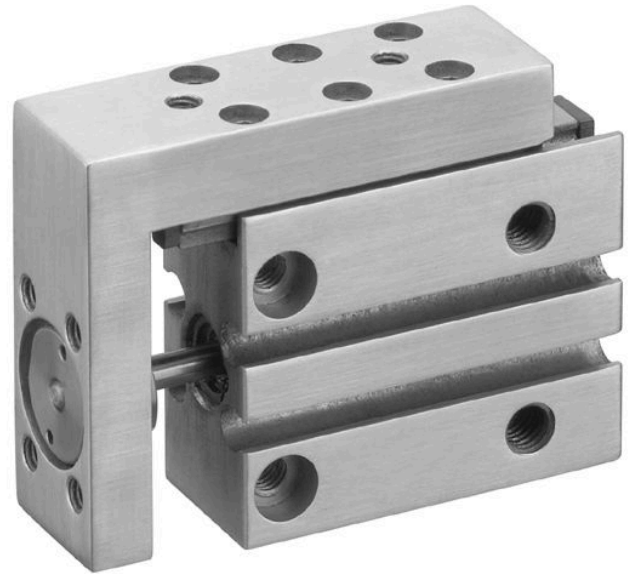
0821406507

AVENTICS
Series
MSN Guide
cylinders

2024-04-06

AVENTICS Series MSN Guide cylinders

The AVENTICS Series MSN mini slides offer precise guidance without play in a very narrow package. With their wide variety of mounting and air supply options the Series allows for applications in virtually any position and location.



Technical data

| | |
|--|---|
| Industry | Industrial |
| Note | narrow version |
| Piston Ø | 10 mm |
| Stroke | 10 mm |
| Functional principle | Double-acting |
| Port | M5 |
| Cushioning | elastic |
| Min. working pressure | 1 bar |
| Max. working pressure | 10 bar |
| Min. ambient temperature | 0 °C |
| Max. ambient temperature | 60 °C |
| Medium | Compressed air |
| Retracting piston force, theoretical | 42 N |
| Extracting piston force, theoretical | 49 N |
| Max. speed | 0.8 m/s |
| Cushioning energy | 0.05 J |
| Min. oil content of compressed air | 0 mg/m ³ |
| Max. oil content of compressed air | 1 mg/m ³ |
| Max. particle size | 5 µm |
| Pressure for determining piston forces with integrated ball rail guide | 6,3 bar with integrated ball rail guide |

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Weight 0.122 kg

Material

| | |
|--------------------------|----------------------|
| Housing material | Aluminum |
| Surface housing | anodized |
| Material piston rod | Stainless Steel |
| Seal material | Polyurethane |
| Material ball rail table | Aluminum |
| Surface ball rail table | anodized |
| Material guide rail | Steel, chrome-plated |
| Surface guide rail | hardened |
| Part No. | 0821406507 |

Technical information

The pressure dew point must be at least 15 °C less than ambient and medium temperature and may not exceed 3 °C.

The oil content of compressed air must remain constant during the life cycle.

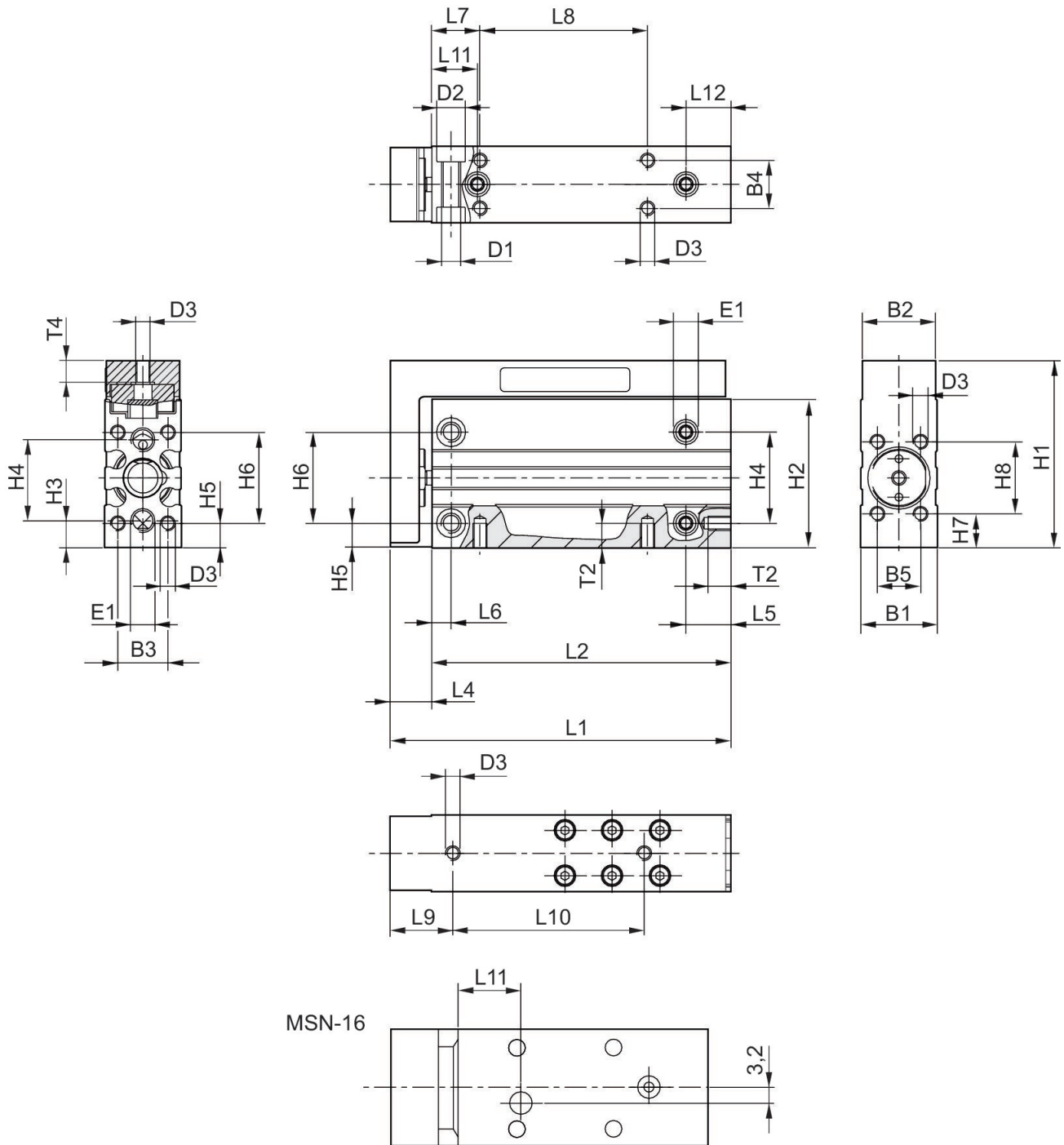
Use only the approved oils from AVENTICS. Further information can be found in the “Technical information” document (available in <https://www.emerson.com/en-us/support>).

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MSN-6/-10/-16

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MSN-16

| Part No. | Piston Ø | Stroke | L1 | L2 | L4 | L5 | L6 | L7 | L8 |
|------------|----------|--------|----|----|----|------|----|----|----|
| 0821406512 | 16 | 5 | 66 | 52 | 14 | 12.5 | 5 | 12 | 20 |
| 0821406513 | 16 | 10 | 66 | 52 | 14 | 12.5 | 5 | 12 | 20 |
| 0821406514 | 16 | 15 | 76 | 62 | 14 | 12.5 | 5 | 12 | 30 |

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| Part No. | Piston Ø | Stroke | L1 | L2 | L4 | L5 | L6 | L7 | L8 |
|------------|----------|--------|----|----|----|------|----|----|----|
| 0821406515 | 16 | 20 | 76 | 62 | 14 | 12.5 | 5 | 12 | 30 |
| 0821406516 | 16 | 25 | 86 | 72 | 14 | 12.5 | 5 | 12 | 40 |
| 0821406517 | 16 | 30 | 91 | 77 | 14 | 12.5 | 5 | 12 | 45 |

| Part No. | L9 | L10 | L11 | L12 | T2 | T4 |
|------------|----|-----|------|------|----|----|
| 0821406512 | 18 | 24 | 13 | 12.5 | 6 | 6 |
| 0821406513 | 18 | 35 | 13 | 12.5 | 6 | 6 |
| 0821406514 | 18 | 45 | 13.5 | 12.5 | 6 | 6 |
| 0821406515 | 18 | 50 | 13.5 | 12.5 | 6 | 6 |
| 0821406516 | 18 | 50 | 17.5 | 12.5 | 6 | 6 |
| 0821406517 | 18 | 55 | 17.5 | 12.5 | 6 | 6 |

MSN-10

| Part No. | Piston Ø | Stroke | L1 | L2 | L4 | L5 | L6 | L7 | L8 |
|------------|----------|--------|------|----|------|------|----|----|----|
| 0821406506 | 10 | 5 | 51.5 | 40 | 11.5 | 12.5 | 5 | 12 | 10 |
| 0821406507 | 10 | 10 | 56.5 | 45 | 11.5 | 12.5 | 5 | 12 | 14 |
| 0821406508 | 10 | 15 | 61.5 | 50 | 11.5 | 12.5 | 5 | 12 | 18 |
| 0821406509 | 10 | 20 | 66.5 | 55 | 11.5 | 12.5 | 5 | 12 | 24 |
| 0821406510 | 10 | 25 | 73.5 | 62 | 11.5 | 12.5 | 5 | 12 | 32 |
| 0821406511 | 10 | 30 | 78.5 | 67 | 11.5 | 12.5 | 5 | 12 | 35 |

| Part No. | L9 | L10 | L11 | L12 | T2 | T4 |
|------------|----|-----|-----|------|----|-----|
| 0821406506 | 15 | 14 | 11 | 9.5 | 6 | 5.5 |
| 0821406507 | 15 | 19 | 11 | 9.5 | 6 | 5.5 |
| 0821406508 | 15 | 25 | 11 | 9.5 | 6 | 5.5 |
| 0821406509 | 15 | 30 | 11 | 9.5 | 6 | 5.5 |
| 0821406510 | 15 | 40 | 12 | 10.5 | 6 | 5.5 |
| 0821406511 | 15 | 45 | 12 | 10.5 | 6 | 5.5 |

MSN-6

| Part No. | Piston Ø | Stroke | L1 | L2 | L4 | L5 | L6 | L7 | L8 |
|------------|----------|--------|----|------|-----|----|----|----|----|
| 0821406500 | 6 | 5 | 46 | 37.5 | 8.5 | 10 | 4 | 10 | 10 |
| 0821406501 | 6 | 10 | 51 | 42.5 | 8.5 | 10 | 4 | 10 | 15 |
| 0821406502 | 6 | 15 | 56 | 47.5 | 8.5 | 10 | 4 | 10 | 20 |
| 0821406503 | 6 | 20 | 61 | 52.5 | 8.5 | 10 | 4 | 10 | 25 |
| 0821406504 | 6 | 25 | 66 | 57.5 | 8.5 | 10 | 4 | 10 | 30 |
| 0821406505 | 6 | 30 | 71 | 62.5 | 8.5 | 10 | 4 | 10 | 35 |

| Part No. | L9 | L10 | L11 | L12 | T2 | T4 |
|------------|----|-----|-----|-----|-----|----|
| 0821406500 | 13 | 20 | 9.5 | 9.5 | 4.8 | 5 |
| 0821406501 | 13 | 20 | 9.5 | 9.5 | 4.8 | 5 |
| 0821406502 | 13 | 25 | 9.5 | 9.5 | 4.8 | 5 |

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| Part No. | L9 | L10 | L11 | L12 | T2 | T4 |
|------------|----|-----|-----|-----|-----|----|
| 0821406503 | 13 | 30 | 9.5 | 9.5 | 4.8 | 5 |
| 0821406504 | 13 | 40 | 9.5 | 9.5 | 4.8 | 5 |
| 0821406505 | 13 | 40 | 9.5 | 9.5 | 4.8 | 5 |

MSN-6/-10/-16

| Part No. | Piston Ø | B1 | B2 | B3 | B4 | B5 | D1 | D2 | D3 |
|------------|----------|----|------|------|----|----|----|-----|----|
| 0821406500 | 6 | 16 | 15.3 | 10.5 | 10 | 9 | M4 | 6 | M3 |
| 0821406501 | 6 | 16 | 15.3 | 10.5 | 10 | 9 | M4 | 6 | M3 |
| 0821406502 | 6 | 16 | 15.3 | 10.5 | 10 | 9 | M4 | 6 | M3 |
| 0821406503 | 6 | 16 | 15.3 | 10.5 | 10 | 9 | M4 | 6 | M3 |
| 0821406504 | 6 | 16 | 15.3 | 10.5 | 10 | 9 | M4 | 6 | M3 |
| 0821406505 | 6 | 16 | 15.3 | 10.5 | 10 | 9 | M4 | 6 | M3 |
| 0821406506 | 10 | 20 | 19.3 | 13 | 13 | 11 | M5 | 7.5 | M4 |
| 0821406507 | 10 | 20 | 19.3 | 13 | 13 | 11 | M5 | 7.5 | M4 |
| 0821406508 | 10 | 20 | 19.3 | 13 | 13 | 11 | M5 | 7.5 | M4 |
| 0821406509 | 10 | 20 | 19.3 | 13 | 13 | 11 | M5 | 7.5 | M4 |
| 0821406510 | 10 | 20 | 19.3 | 13 | 13 | 11 | M5 | 7.5 | M4 |
| 0821406511 | 10 | 20 | 19.3 | 13 | 13 | 11 | M5 | 7.5 | M4 |
| 0821406512 | 16 | 24 | 23.3 | 17 | 17 | 16 | M5 | 7.5 | M4 |
| 0821406513 | 16 | 24 | 23.3 | 17 | 17 | 16 | M5 | 7.5 | M4 |
| 0821406514 | 16 | 24 | 23.3 | 17 | 17 | 16 | M5 | 7.5 | M4 |
| 0821406515 | 16 | 24 | 23.3 | 17 | 17 | 16 | M5 | 7.5 | M4 |
| 0821406516 | 16 | 24 | 23.3 | 17 | 17 | 16 | M5 | 7.5 | M4 |
| 0821406517 | 16 | 24 | 23.3 | 17 | 17 | 16 | M5 | 7.5 | M4 |

| Part No. | E1 Compressed air connection | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 |
|------------|------------------------------|----|----|-----|----|-----|----|-----|----|
| 0821406500 | M5 | 39 | 31 | 5.5 | 17 | 5 | 19 | 7 | 15 |
| 0821406501 | M5 | 39 | 31 | 5.5 | 17 | 5 | 19 | 7 | 15 |
| 0821406502 | M5 | 39 | 31 | 5.5 | 17 | 5 | 19 | 7 | 15 |
| 0821406503 | M5 | 39 | 31 | 5.5 | 17 | 5 | 19 | 7 | 15 |
| 0821406504 | M5 | 39 | 31 | 5.5 | 17 | 5 | 19 | 7 | 15 |
| 0821406505 | M5 | 39 | 31 | 5.5 | 17 | 5 | 19 | 7 | 15 |
| 0821406506 | M5 | 45 | 36 | 6.5 | 20 | 5 | 23 | 7.5 | 18 |
| 0821406507 | M5 | 45 | 36 | 6.5 | 20 | 5 | 23 | 7.5 | 18 |
| 0821406508 | M5 | 45 | 36 | 6.5 | 20 | 5 | 23 | 7.5 | 18 |
| 0821406509 | M5 | 45 | 36 | 6.5 | 20 | 5 | 23 | 7.5 | 18 |
| 0821406510 | M5 | 45 | 36 | 6.5 | 20 | 5 | 23 | 7.5 | 18 |
| 0821406511 | M5 | 45 | 36 | 6.5 | 20 | 5 | 23 | 7.5 | 18 |
| 0821406512 | M5 | 51 | 41 | 6 | 25 | 5.5 | 27 | 6 | 26 |
| 0821406513 | M5 | 51 | 41 | 6 | 25 | 5.5 | 27 | 6 | 26 |
| 0821406514 | M5 | 51 | 41 | 6 | 25 | 5.5 | 27 | 6 | 26 |
| 0821406515 | M5 | 51 | 41 | 6 | 25 | 5.5 | 27 | 6 | 26 |
| 0821406516 | M5 | 51 | 41 | 6 | 25 | 5.5 | 27 | 6 | 26 |

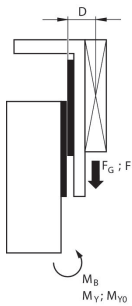
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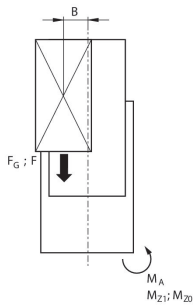
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| Part No. | E1 Compressed air connection | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 |
|------------|------------------------------|----|----|----|----|-----|----|----|----|
| 0821406517 | M5 | 51 | 41 | 6 | 25 | 5.5 | 27 | 6 | 26 |

Correction factor (a, d) vertical



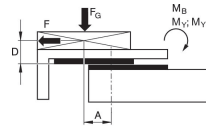
| | |
|-------|------------------------------|
| stat. | $M_{B0} = (F_G + F) \cdot D$ |
| dyn. | $M_B = F_G \cdot D$ |



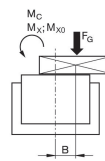
| | |
|-------|------------------------------|
| stat. | $M_{A0} = (F_G + F) \cdot B$ |
| dyn. | $M_A = F_G \cdot B$ |

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

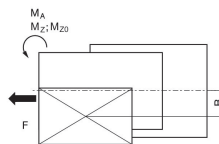
Correction factor (a, d) horizontal



| | |
|-------|------------------------------------|
| 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. | $\frac{M_{A0}}{M_{Z0}} + \frac{M_{B0}}{M_{Y0}} + \frac{M_{C0}}{M_{X0}} \leq 1$ |

$F = m \cdot a$ $FG = m \cdot g$ $a = 1250 \cdot V^2 / H$
 F = deceleration force [N] F_G = 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]

$F = m \cdot a$ $FG = m \cdot g$ $a = 1250 \cdot V^2 / H$
 F = deceleration force [N] F_G = 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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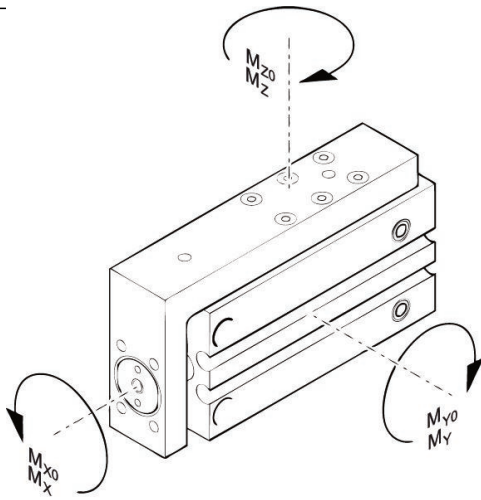
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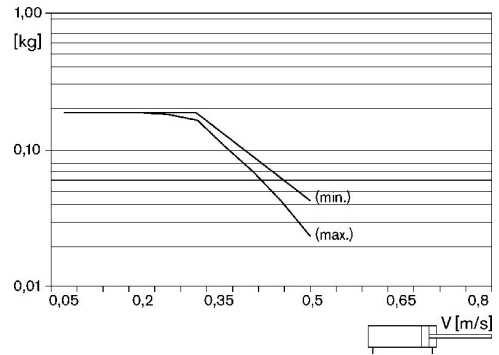
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M = max. permissible torque

Maximum additionally moving mass
(min. stroke, max. stroke)

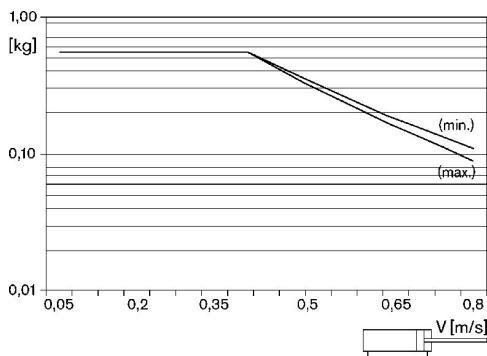


MSN - 6



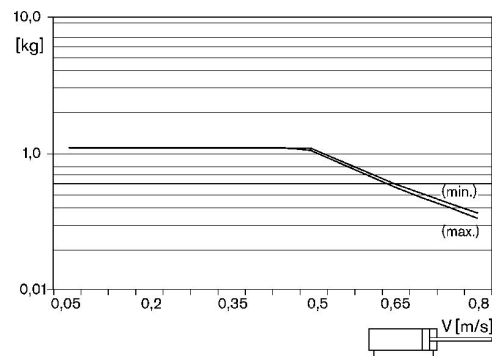
Maximum additionally moving mass
(min. stroke, max. stroke)

MSN - 10



Maximum additionally moving mass
(min. stroke, max. stroke)

MSN-16



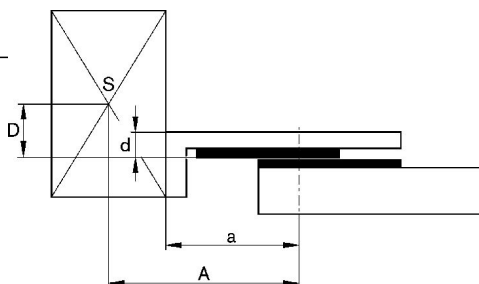
Correction factor (a, d)

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Correction factor (a, d)

| Part No. | Piston Ø | Stroke | a [mm] | d [mm] | Mx0 Static moment M [Nm] | My0 Static moment M [Nm] | Mz0 Static moment M [Nm] | Mx Dynam-ic moment M [Nm] | My Dynam-ic moment M [Nm] |
|------------|----------|--------|--------|--------|--------------------------|--------------------------|--------------------------|---------------------------|---------------------------|
| 0821406500 | 6 | 5 | 27 | 6 | 3 | 3.2 | 3.2 | 0.6 | 0.9 |
| 0821406501 | 6 | 10 | 32 | 6 | 3 | 3.2 | 3.2 | 0.6 | 0.9 |
| 0821406502 | 6 | 15 | 32 | 6 | 3 | 3.2 | 3.2 | 0.6 | 0.9 |
| 0821406503 | 6 | 20 | 37 | 6 | 3 | 3.2 | 3.2 | 0.6 | 0.9 |
| 0821406504 | 6 | 25 | 42 | 6 | 3 | 3.2 | 3.2 | 0.6 | 0.9 |
| 0821406505 | 6 | 30 | 47 | 6 | 3 | 3.2 | 3.2 | 0.6 | 0.9 |
| 0821406506 | 10 | 5 | 31 | 6.8 | 2.3 | 2.4 | 2.4 | 0.6 | 0.8 |
| 0821406507 | 10 | 10 | 36 | 6.8 | 2.3 | 2.4 | 2.4 | 0.6 | 0.8 |
| 0821406508 | 10 | 15 | 41 | 6.8 | 2.3 | 2.4 | 2.4 | 0.6 | 0.8 |
| 0821406509 | 10 | 20 | 41 | 6.8 | 3.2 | 3.3 | 3.3 | 0.7 | 1.2 |
| 0821406510 | 10 | 25 | 48 | 6.8 | 3.2 | 3.3 | 3.3 | 0.7 | 1.2 |
| 0821406511 | 10 | 30 | 53 | 6.8 | 3.2 | 3.3 | 3.3 | 0.7 | 1.2 |
| 0821406512 | 16 | 5 | 40 | 7.5 | 6.8 | 6.9 | 6.9 | 1.7 | 2.1 |
| 0821406513 | 16 | 10 | 40 | 7.5 | 6.8 | 6.9 | 6.9 | 1.7 | 2.1 |
| 0821406514 | 16 | 15 | 50 | 7.5 | 6.8 | 6.9 | 6.9 | 1.7 | 2.1 |
| 0821406515 | 16 | 20 | 50 | 7.5 | 6.8 | 6.9 | 6.9 | 1.7 | 2.1 |
| 0821406516 | 16 | 25 | 55 | 7.5 | 10 | 12.3 | 12.3 | 1.9 | 2.7 |
| 0821406517 | 16 | 30 | 60 | 7.5 | 10 | 12.3 | 12.3 | 1.9 | 2.7 |

| Part No. | Mz Dynam-ic moment M [Nm] |
|------------|---------------------------|
| 0821406500 | 0.9 |
| 0821406501 | 0.9 |
| 0821406502 | 0.9 |
| 0821406503 | 0.9 |
| 0821406504 | 0.9 |
| 0821406505 | 0.9 |
| 0821406506 | 0.8 |
| 0821406507 | 0.8 |
| 0821406508 | 0.8 |
| 0821406509 | 1.2 |
| 0821406510 | 1.2 |
| 0821406511 | 1.2 |

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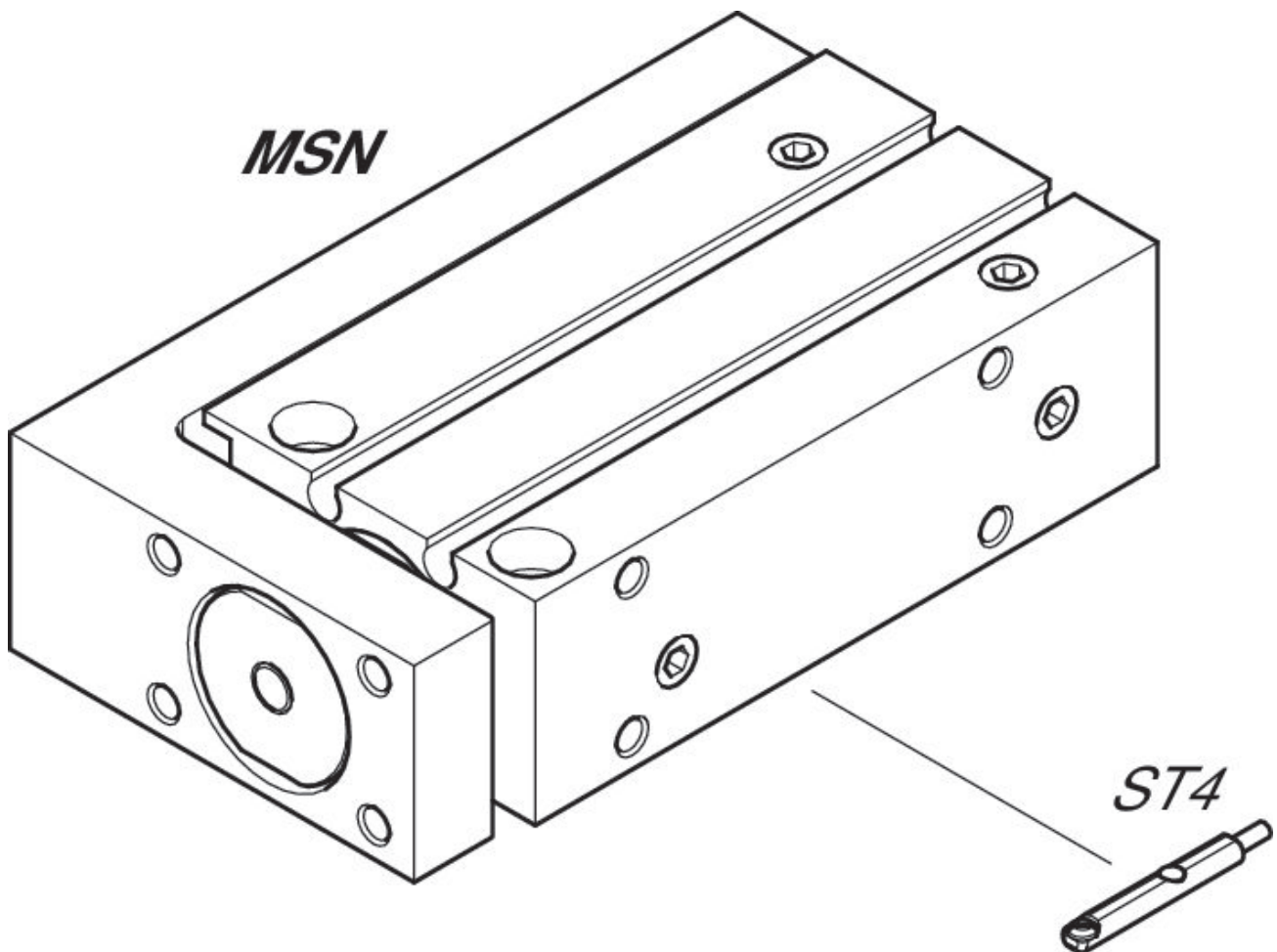
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| Part No. | Mz Dynamic moment M [Nm] |
|------------|--------------------------|
| 0821406512 | 2.1 |
| 0821406513 | 2.1 |
| 0821406514 | 2.1 |
| 0821406515 | 2.1 |
| 0821406516 | 2.7 |
| 0821406517 | 2.7 |

Overview drawing



NOTE: This overview drawing is only for orientation to indicate where the various accessory parts can be fastened to the cylinder. The illustration has been simplified for this purpose. It is thus not possible to derive the dimensions from this overview.