

Mini cuna, Serie MSC-HG-EE

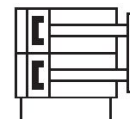
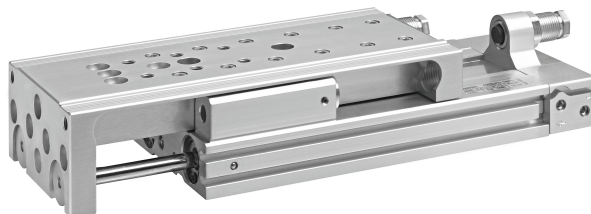
R412019175

Cilindros
de guído
AVENTICS
serie MSC

2024-04-06

Cilindros de guído AVENTICS serie MSC

Las mini guías de AVENTICS serie MSC tienen un diseño compacto, apenas necesitan espacio de instalación y se pueden configurar de forma óptima para prácticamente cualquier tarea de manipulación automatizada. {1} La versatilidad de sus posibilidades de configuración convierten a la mini guía en un componente de manipulación auténticamente universal. {1} El funcionamiento preciso y fiable acompañado de una configuración y personalización para cada aplicación: estas propiedades hacen que las mini placas deslizantes asuman el papel de actuador en una manipulación eficiente. La serie MSC aporta absorción de par elevada y máxima estabilidad. Además, presenta unas características técnicas que garantizan funciones óptimamente adaptadas y procesos de fácil mantenimiento. Rápido, seguro y conectado de forma eficiente con la Interfaz especial Easy-2-Combine, las mini placas deslizantes se pueden combinar con los otros componentes de un sistema de manipulación sin placas de montaje adicionales.



Datos técnicos

| | |
|--|---------------------|
| Sector | Industria |
| Ø del émbolo | 16 mm |
| Carrera | 125 mm |
| Principio activo | de efecto doble |
| Easy2Combine | compatible |
| émbolo doble | con émbolo doble |
| Orificio | M5 |
| Amortiguación | elástico |
| Presión de funcionamiento mín. | 1 bar |
| Presión de funcionamiento máx. | 10 bar |
| Temperatura ambiente mín. | 0 °C |
| Temperatura ambiente máx. | 60 °C |
| Fluido | Aire comprimido |
| Fuerza de émbolo durante retracción, teórica | 218 N |
| Fuerza de émbolo durante extracción, teórica | 253 N |
| Velocidad máx. | 0.8 m/s |
| Longitud de amortiguación | 1 mm |
| Energía de amortiguación | 0.3 J |
| Contenido de aceite del aire comprimido min. | 0 mg/m ³ |

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| | |
|---|--|
| Contenido de aceite del aire comprimido máx. | 1 mg/m ³ |
| Tamaño de partículas máx. | 5 µm |
| Presión para determinar las fuerzas de émbolo con guía de bolas integrada | 6,3 bar Con patín de bolas sobre raíles integrado de alto rendimiento |
| Peso | 1.94 kg |

Material

| | |
|------------------------------|------------------|
| Material carcasa | Aluminio |
| Superficie Carcasa | anodizado |
| Material vástago | Acero inoxidable |
| Material placa frontal | Aluminio |
| Superficie Placa frontal | anodizado |
| Material juntas | Poliuretano |
| Material mesa de guía | Aluminio |
| Superficie Mesa de guía | anodizado |
| Material riel de guía | Acero, cromado |
| Superficie Riel de guía | templado |
| Material anillos de centraje | Acero inoxidable |
| Nº de material | R412019175 |

Información técnica

Precisión de repetición después de 100 carreras consecutivas: 0,3 mm

Versión de la base con conexiones de aire detrás y en el lateral

Las carreras intermedias pueden configurarse.

Volumen de entrega: incl. anillos de centraje

R1 = gama de ajuste de carrera para el avance

R2 = gama de ajuste de carrera para el retorno

Ø 8 tiene otra superficie de referencia.

El punto de condensación de presión se debe situar como mínimo 15 °C por debajo de la temperatura ambiental y del medio, y debe ser como máx. de 3 °C .

El contenido de aceite del aire comprimido debe permanecer constante durante toda la vida útil.

Utilice solo aceites permitidos por AVENTICS. Encontrará más información en el documento "Información técnica" (disponible en el <https://www.emerson.com/en-us/support>).

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Dimensiones



R*: versión de la base con conexiones de aire solo detrás
S*: versión de la base con conexiones de aire detrás y en el lateral
** Ø 8 tiene otra superficie de referencia.

Dimensiones

| Ø del émbolo | Ø D1 | Ø D2 | H1 | H2 | H3 | H4-R | H4-S | H5 | H6-R |
|--------------|-------|---------|----|------|------|------|------|------|------|
| 8 | M5 | M10x1 | 28 | 9.6 | 20.5 | - | 7.5 | 19.5 | - |
| 12 | M5 | M12x1 | 34 | 5.7 | 25 | 11.2 | 11.2 | 24.5 | 5.7 |
| 16 | M5 | M12x1 | 40 | 7.2 | 29 | 12.2 | 12.2 | 31 | 7.7 |
| 20 | G 1/8 | M16x1,5 | 50 | 11.2 | 37.5 | 17.3 | 17.3 | 38.2 | 11.7 |
| 25 | G 1/8 | M18x1,5 | 60 | 14.2 | 44 | 15.5 | 22.9 | 46.5 | 13.2 |

| Ø del émbolo | H6-S | H7 | H8 | H9 | H10 | L3 máx. | L4 | L5 2) | L6 |
|--------------|------|------|-----|-----|-----|---------|-----|-------|-----|
| 8 | 5.5 | 18 | - | - | - | 16 | 9.8 | - | 1.9 |
| 12 | 5.7 | 8.3 | - | - | - | 20.2 | 7.2 | 22.5 | 2 |
| 16 | 7.7 | 11.2 | - | - | - | 18.4 | 6.5 | 17.7 | 2 |
| 20 | 12.2 | 11.7 | 5.5 | 4.2 | 1 | 27.9 | 8 | 30 | 2.1 |
| 25 | 21.7 | 16.2 | 6.9 | 5.2 | 1.5 | 29.2 | 9 | 31 | 2.1 |

| Ø del émbolo | L7 | R2 máx. | W1 | W2-R | W2-S | W3-R | W3-S | W4 | W5 |
|--------------|----|---------|------|------|------|------|------|------|------|
| 8 | 6 | 9.1 | 50.2 | - | 19.3 | - | 30.5 | 18 | W1/2 |
| 12 | 8 | 14 | 66 | 28.8 | 28.8 | 53 | 53 | 24.5 | W1/2 |

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| Ø del bolo | L7 | R2 mx. | W1 | W2-R | W2-S | W3-R | W3-S | W4 | W5 |
|-------------|----|---------|-----|------|------|------|------|----|------|
| 16 | 10 | 12.4 | 76 | 31 | 31 | 60.5 | 60.5 | 30 | W1/2 |
| 20 | 10 | 19.9 | 92 | 10 | 21 | 74 | 74 | 35 | W1/2 |
| 25 | 12 | 22.2 | 112 | 11 | 14 | 92 | 92 | 44 | W1/2 |

| Ø del bolo | W6 | W7 |
|-------------|-----|-----|
| 8 | - | - |
| 12 | - | - |
| 16 | - | - |
| 20 | 2 | 4 |
| 25 | 2.5 | 4.8 |

Medidas en funcin de la carrera

| Ø del bolo | S=10 EB | S=20 EB | S=30 EB | S=40 EB | S=50 EB | S=80 EB | S=100 EB | S=125 EB | S=150 EB |
|-------------|---------|---------|---------|---------|---------|---------|----------|----------|----------|
| 8 | 12 | 2 | 2 | 2 | 2 | 2 | - | - | - |
| 12 | 22 | 12 | 2 | 2 | 2 | 2 | 2 | - | - |
| 16 | 22 | 12 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 20 | 22 | 12 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 25 | 22 | 12 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

| Ø del bolo | S=200 EB | S=10 L1-R | S=20 L1-R | S=30 L1-R | S=40 L1-R | S=50 L1-R | S=80 L1-R | S=100 L1-R | S=125 L1-R |
|-------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| 8 | - | - | - | - | - | - | - | - | - |
| 12 | - | 101 | 101 | 101 | 111 | 126 | 172 | 192 | - |
| 16 | - | 103.5 | 103.5 | 103.5 | 113.5 | 128.5 | 174.5 | 194.5 | 283 |
| 20 | 2 | 115 | 115 | 115 | 125 | 140 | 185 | 205 | 289.5 |
| 25 | 2 | 128.5 | 128.5 | 128.5 | 138.5 | 151.5 | 197.5 | 217.5 | 294.5 |

| Ø del bolo | S=150 L1-R | S=200 L1-R | S=10 L1-S | S=20 L1-S | S=30 L1-S | S=40 L1-S | S=50 L1-S | S=80 L1-S | S=100 L1-S |
|-------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| 8 | - | - | 81.7 | 81.7 | 91.7 | 101.7 | 121.7 | 171.7 | - |
| 12 | - | - | 117.9 | 117.9 | 117.9 | 127.9 | 142.9 | 188.9 | 208.9 |
| 16 | 308 | - | 114.4 | 114.4 | 114.4 | 124.4 | 139.4 | 185.4 | 205.4 |
| 20 | 329.5 | 404.5 | 139.9 | 139.9 | 139.9 | 149.9 | 164.9 | 209.9 | 229.9 |
| 25 | 334.5 | 409.5 | 152.2 | 152.2 | 152.2 | 162.2 | 175.2 | 221.2 | 241.2 |

| Ø del bolo | S=125 L1-S | S=150 L1-S | S=200 L1-S | S=10 L2 | S=20 L2 | S=30 L2 | S=40 L2 | S=50 L2 | S=80 L2 |
|-------------|------------|------------|------------|---------|---------|---------|---------|---------|---------|
| 8 | - | - | - | 73.5 | 73.5 | 83.5 | 93.5 | 113.5 | 163.5 |
| 12 | - | - | - | 88.8 | 88.8 | 88.8 | 98.8 | 113.8 | 159.8 |
| 16 | 293.9 | 318.9 | - | 90.4 | 90.4 | 90.4 | 100.4 | 115.4 | 161.4 |
| 20 | 314.4 | 354.4 | 429.4 | 100.5 | 100.5 | 100.5 | 110.5 | 125.5 | 170.5 |
| 25 | 318.2 | 358.2 | 433.2 | 111.5 | 111.5 | 111.5 | 121.5 | 134.5 | 180.5 |

| Ø del bolo | S=100 L2 | S=125 L2 | S=150 L2 | S=200 L2 | S=10 R1 mx. | S=20 R1 mx. | S=30 R1 mx. | S=40 R1 mx. | S=50 R1 mx. |
|-------------|----------|----------|----------|----------|--------------|--------------|--------------|--------------|--------------|
| 8 | - | - | - | - | 9.2 | 9.2 | 9.2 | 9.2 | 9.2 |
| 12 | 179.8 | - | - | - | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 |
| 16 | 181.4 | 269.9 | 294.9 | - | 10.7 | 10.7 | 10.7 | 10.7 | 10.7 |
| 20 | 190.5 | 275 | 315 | 390 | 18.4 | 18.4 | 18.4 | 18.4 | 18.4 |

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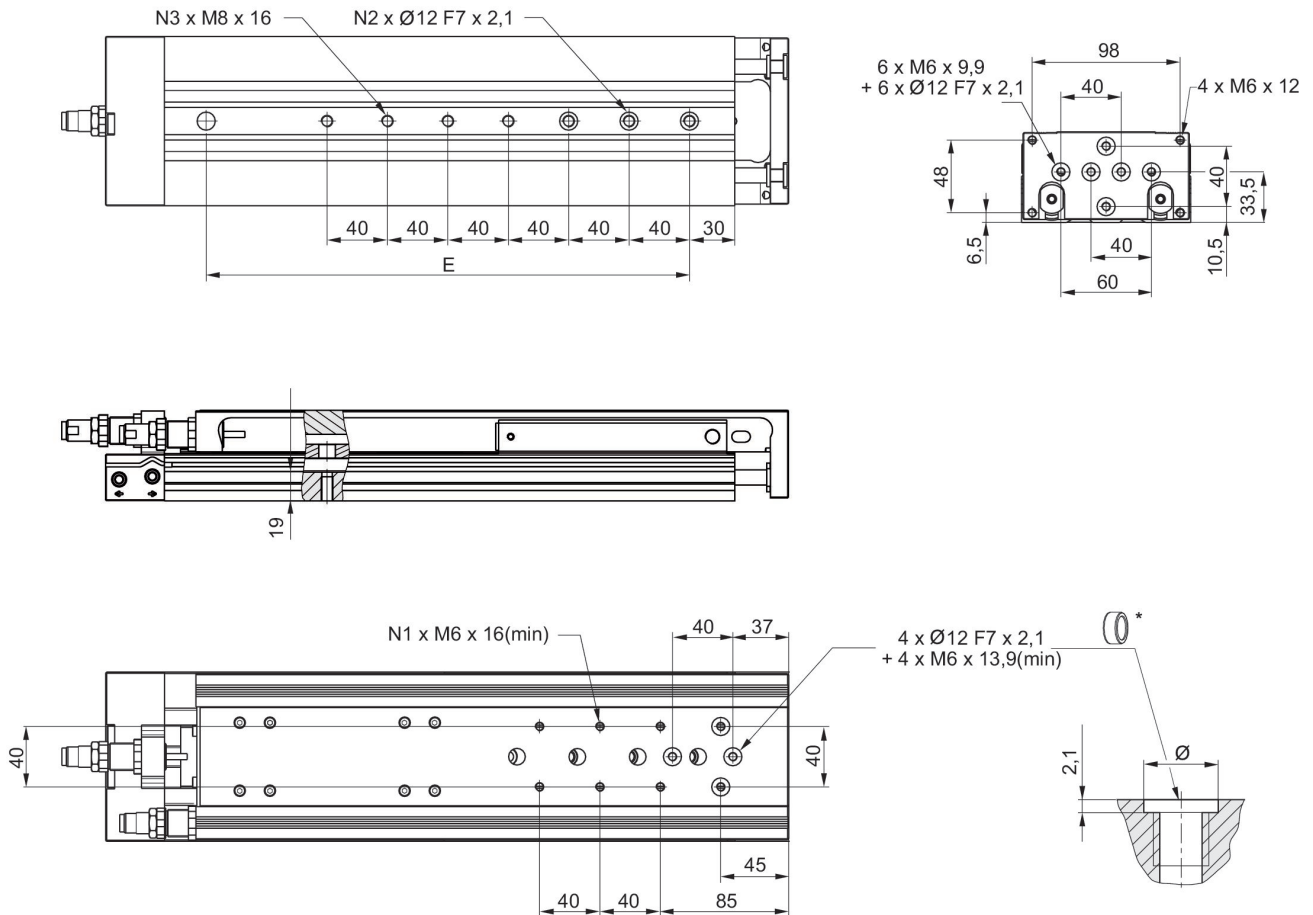
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| Ø del émbolo | S=100 L2 | S=125 L2 | S=150 L2 | S=200 L2 | S=10 R1 máx. | S=20 R1 máx. | S=30 R1 máx. | S=40 R1 máx. | S=50 R1 máx. |
|--------------|----------|----------|----------|----------|--------------|--------------|--------------|--------------|--------------|
| 25 | 200.5 | 277.5 | 317.5 | 392.5 | 17.5 | 17.5 | 17.5 | 17.5 | 17.5 |

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| Ø del émbolo | S=80 R1 máx. | S=100 R1 máx. | S=125 R1 máx. | S=150 R1 máx. | S=200 R1 máx. |
|--------------|--------------|---------------|---------------|---------------|---------------|
| 8 | 9.2 | - | - | - | - |
| 12 | 7.7 | 7.7 | - | - | - |
| 16 | 10.7 | 10.7 | 10.7 | 10.7 | - |
| 20 | 18.4 | 18.4 | 18.4 | 18.4 | 18.4 |
| 25 | 17.5 | 17.5 | 17.5 | 17.5 | 17.5 |

Dimensiones MSC-25



* = anillos de centrado

| N° de material | Ø del émbolo | Carrera | E | N1 | N2 | N3 |
|----------------|--------------|---------|-----|----|----|----|
| R412019030 | 25 | 125 | 200 | 4 | 4 | 5 |
| R480643827 | 25 | 125 | 200 | 4 | 4 | 5 |
| R412019041 | 25 | 125 | 200 | 4 | 4 | 5 |

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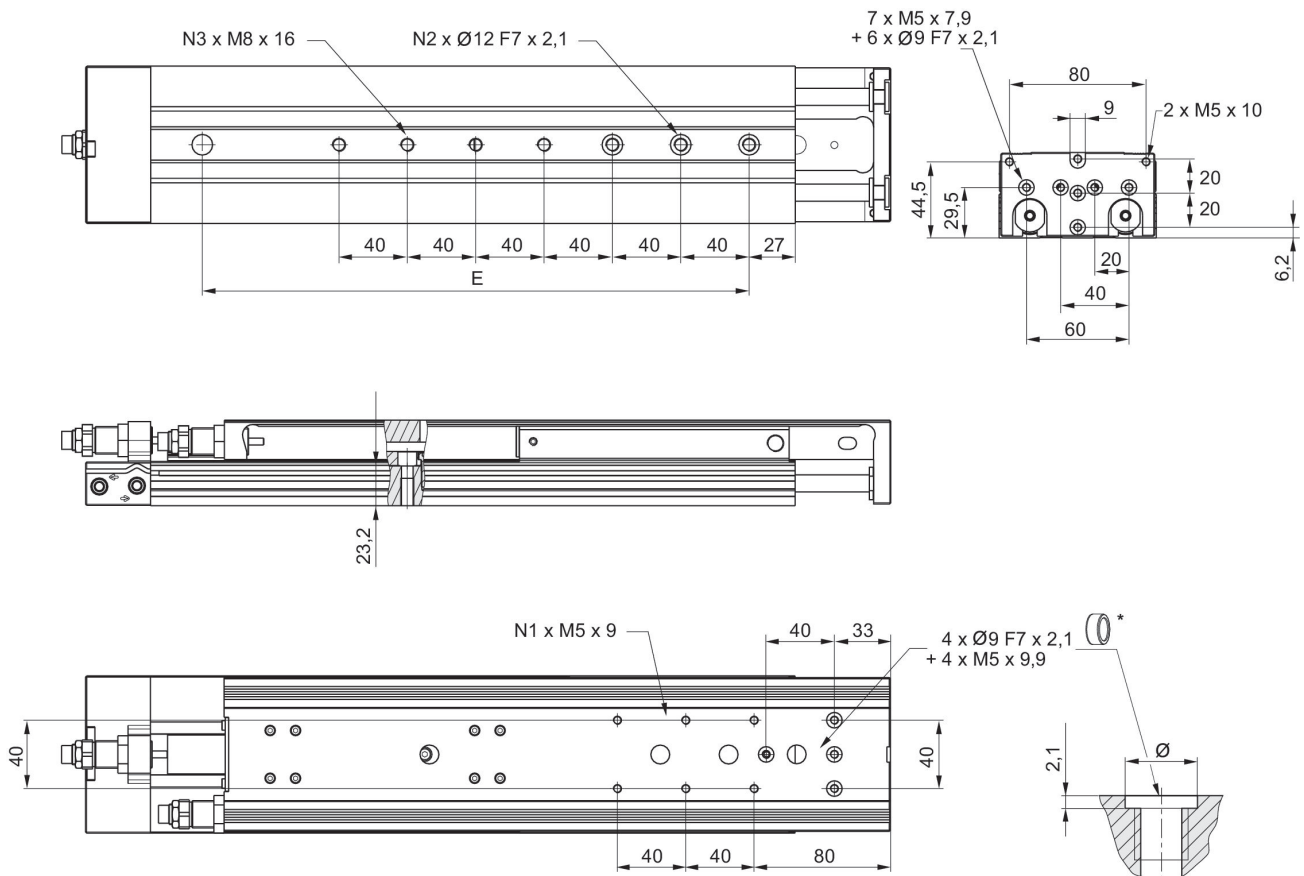
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| N° de material | Ø del émbolo | Carrera | E | N1 | N2 | N3 |
|----------------|--------------|---------|-----|----|----|----|
| R480640211 | 25 | 125 | 200 | 4 | 4 | 5 |
| R412019031 | 25 | 150 | 240 | 6 | 4 | 5 |
| R480643828 | 25 | 150 | 240 | 6 | 4 | 5 |
| R412019042 | 25 | 150 | 240 | 6 | 4 | 5 |
| R480640212 | 25 | 150 | 240 | 6 | 4 | 5 |
| R412019032 | 25 | 200 | 320 | 6 | 4 | 7 |
| R480643829 | 25 | 200 | 320 | 6 | 4 | 7 |
| R412019043 | 25 | 200 | 320 | 6 | 4 | 7 |
| R480640213 | 25 | 200 | 320 | 6 | 4 | 7 |

Dimensiones MSC-20



* = anillos de centrado

| N° de material | Ø del émbolo | Carrera | E | N1 | N2 | N3 |
|----------------|--------------|---------|-----|----|----|----|
| R412018917 | 20 | 125 | 200 | 6 | 4 | 5 |
| R480643817 | 20 | 125 | 200 | 6 | 4 | 5 |
| R412019005 | 20 | 125 | 200 | 6 | 4 | 5 |
| R480640205 | 20 | 125 | 200 | 6 | 4 | 5 |

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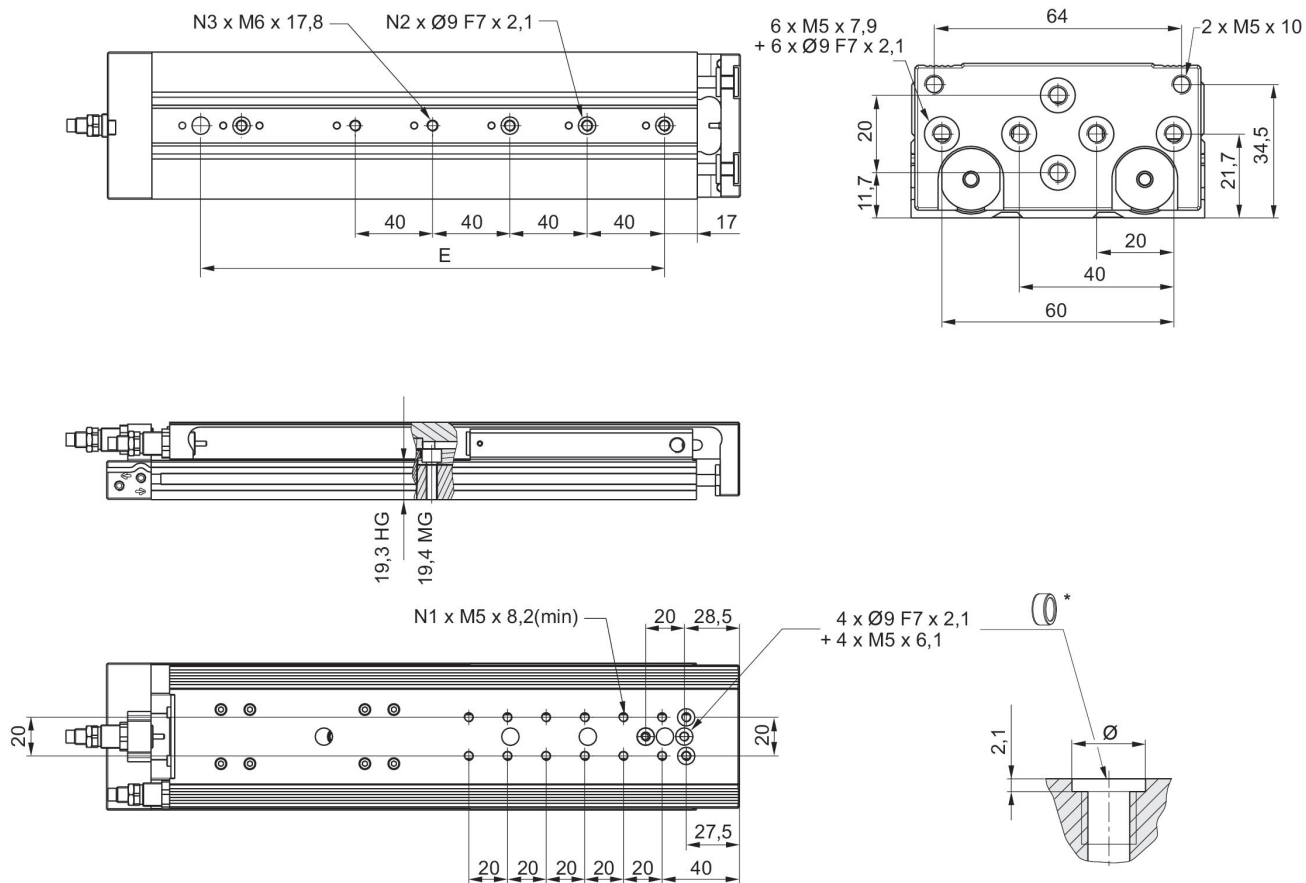
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| N de material | ∅ del bolo | Carrera | E | N1 | N2 | N3 |
|----------------|-------------|---------|-----|----|----|----|
| R412018918 | 20 | 150 | 240 | 6 | 4 | 5 |
| R480643818 | 20 | 150 | 240 | 6 | 4 | 5 |
| R412019006 | 20 | 150 | 240 | 6 | 4 | 5 |
| R480640206 | 20 | 150 | 240 | 6 | 4 | 5 |
| R412018919 | 20 | 200 | 320 | 6 | 4 | 7 |
| R480643819 | 20 | 200 | 320 | 6 | 4 | 7 |
| R412019007 | 20 | 200 | 320 | 6 | 4 | 7 |
| R480640207 | 20 | 200 | 320 | 6 | 4 | 7 |

Dimensiones

MSC-16



* = anillos de centrado

| N de material | ∅ del bolo | Carrera | E | N1 | N2 | N3 |
|----------------|-------------|---------|-----|----|----|----|
| R412019175 | 16 | 125 | 200 | 12 | 4 | 5 |
| R480643808 | 16 | 125 | 200 | 12 | 4 | 5 |
| R412019188 | 16 | 125 | 200 | 12 | 4 | 5 |
| R480640200 | 16 | 125 | 200 | 12 | 4 | 5 |

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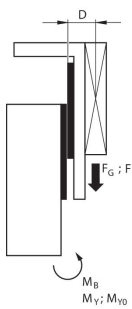
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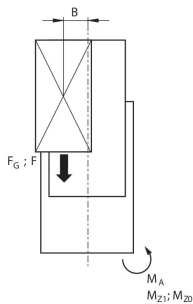
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| N° de material | Ø del émbolo | Carrera | E | N1 | N2 | N3 |
|----------------|--------------|---------|-----|----|----|----|
| R412019176 | 16 | 150 | 240 | 12 | 4 | 5 |
| R480643809 | 16 | 150 | 240 | 12 | 4 | 5 |
| R412019189 | 16 | 150 | 240 | 12 | 4 | 5 |
| R480640201 | 16 | 150 | 240 | 12 | 4 | 5 |

factor de corrección (a, d) vertical



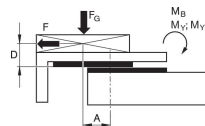
| | |
|-------|------------------------------|
| stat. | $M_{B0} = (F_G + F) \cdot D$ |
| dyn. | $M_B = F_G \cdot D$ |



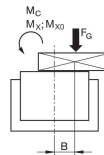
| | |
|-------|------------------------------|
| stat. | $M_{A0} = (F_G + F) \cdot B$ |
| dyn. | $M_A = F_G \cdot B$ |

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

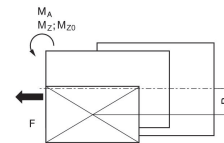
factor de corrección (a, d) horizontal



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

$F = m \cdot a$ $F_G = m \cdot g$ $a = 1250 \cdot V^2 / H$

F = fuerza de retardo [N] F_G = fuerza de peso [N] m = masa de carga [kg] a = retardo [m/s²] g = aceleración de la gravedad 9,81 [m/s²] V = velocidad H = longitud de carrera de amortiguador [mm]

$F = m \cdot a$ $F_G = m \cdot g$ $a = 1250 \cdot V^2 / H$

F = fuerza de retardo [N] F_G = fuerza de peso [N] m = masa de carga [kg] a = retardo [m/s²] g = aceleración de la gravedad 9,81 [m/s²] V = velocidad H = longitud de carrera de amortiguador [mm]

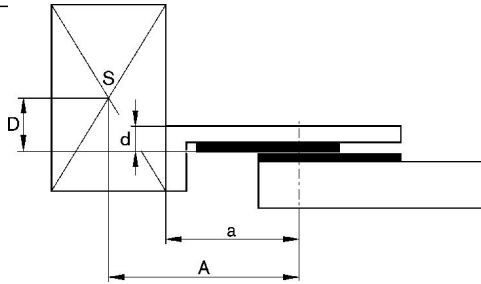
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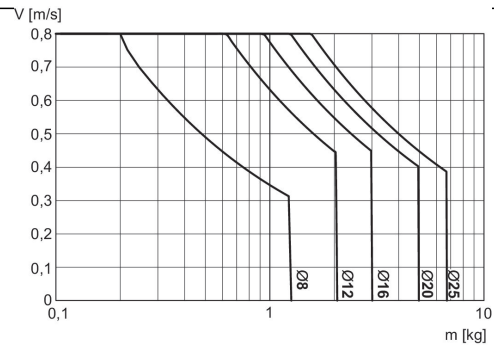
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factor de corrección (a, d)

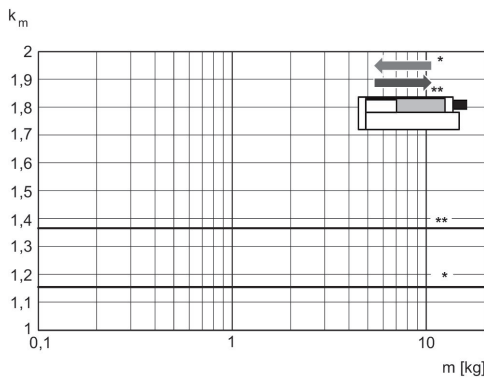


Masa móvil máxima

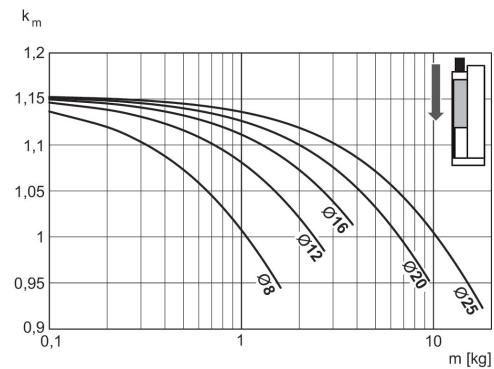


V = velocidad [m/s]
m = masa

Factor de corrección velocidad
necesaria de retracción y
extracción, horizontal



Factor de corrección velocidad
necesaria de extracción, vertical,
hacia abajo



* en retracción
** en extracción
 $V = s/1000 \cdot t \cdot km$
V = velocidad [m/s]
S = carrera

$V = s/1000 \cdot t \cdot km$
V = velocidad [m/s]
S = carrera [mm]
t = tiempo [s] para una carrera
m = masa

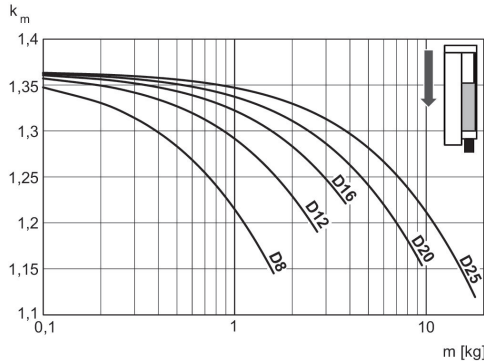
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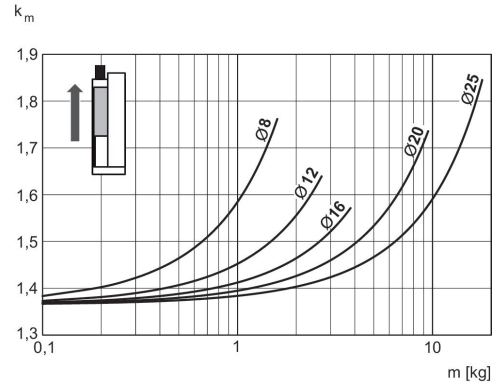
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Factor de corrección velocidad
necesaria de retracción, vertical,
hacia abajo



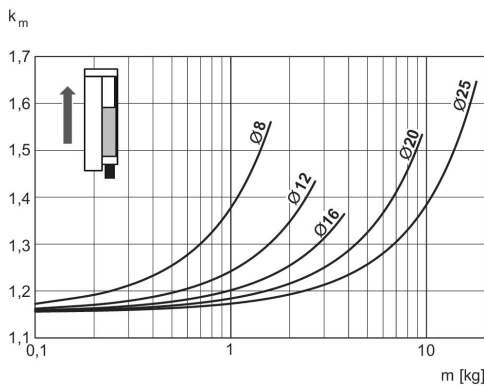
$V = s/1000 \cdot t \cdot km$
V = velocidad [m/s]
S = carrera [mm]
t = tiempo [s] para una carrera
m = masa

Factor de corrección velocidad
necesaria de retracción, vertical,
hacia arriba



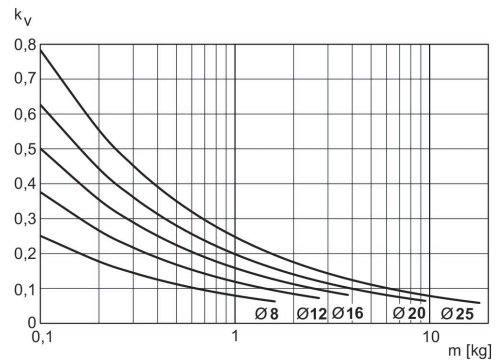
$V = s/1000 \cdot t \cdot km$
V = velocidad [m/s]
S = carrera [mm]
t = tiempo [s] para una carrera
m = masa

Factor de corrección velocidad
necesaria de extracción, vertical,
hacia arriba



$V = s/1000 \cdot t \cdot km$
V = velocidad [m/s]
S = carrera [mm]
t = tiempo [s] para una carrera
m = masa

Velocidad de extracción máx.



$V = \sqrt{s \cdot kv}$
V = velocidad [m/s]
S = carrera [mm]
m = masa

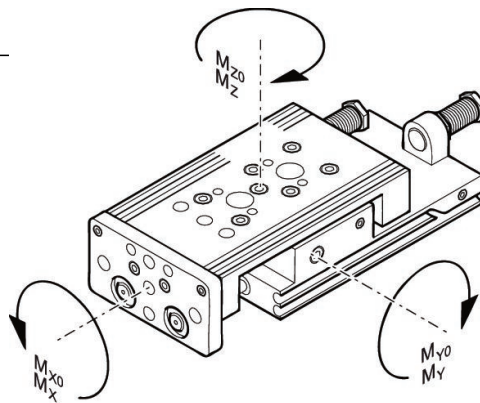
Capacidad de carga

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M = par de giro max. admisible

factor de correccion (a)

| No de material | ∅ del ebolo | Carrera | a [mm] | d [mm] | Mx0 par estatico M [Nm] | My0 par estatico M [Nm] | Mz0 par estatico M [Nm] | Mx par dinamico M [Nm] | My par dinamico M [Nm] |
|-----------------|--------------|---------|--------|--------|--------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| R412019204 | 8 | 10 | 45 | 14 | 7 | 7 | 7 | 1.1 | 1.9 |
| R412019205 | 8 | 20 | 50 | 14 | 7 | 7 | 7 | 1.1 | 1.9 |
| R412019206 | 8 | 30 | 60 | 14 | 7 | 7 | 7 | 1.1 | 1.9 |
| R412019207 | 8 | 40 | 70 | 14 | 7 | 7 | 7 | 1.1 | 1.9 |
| R412019208 | 8 | 50 | 80 | 14 | 9 | 13 | 13 | 1.3 | 2.9 |
| R412019209 | 8 | 80 | 125 | 14 | 13 | 25 | 25 | 1.3 | 3.8 |
| R412019190 | 12 | 10 | 54.5 | 16 | 20 | 14 | 14 | 4.2 | 4.4 |
| R412019191 | 12 | 20 | 59.5 | 16 | 20 | 14 | 14 | 4.2 | 4.4 |
| R412019192 | 12 | 30 | 64.5 | 16 | 20 | 14 | 14 | 4.2 | 4.4 |
| R412019193 | 12 | 40 | 74.5 | 16 | 20 | 14 | 14 | 4.2 | 4.4 |
| R412019194 | 12 | 50 | 84.5 | 16 | 23 | 19 | 19 | 4.6 | 5.6 |
| R412019195 | 12 | 80 | 125 | 16 | 33 | 32 | 32 | 5.2 | 8.2 |
| R412019196 | 12 | 100 | 145 | 16 | 33 | 32 | 32 | 5.2 | 8.2 |
| R412019168 | 16 | 10 | 55.5 | 15 | 35 | 25 | 25 | 6.5 | 6.6 |
| R412019169 | 16 | 20 | 60.5 | 15 | 35 | 25 | 25 | 6.5 | 6.6 |
| R412019170 | 16 | 30 | 65.5 | 15 | 35 | 25 | 25 | 6.5 | 6.6 |
| R412019171 | 16 | 40 | 75.5 | 15 | 35 | 25 | 25 | 6.5 | 6.6 |
| R412019172 | 16 | 50 | 85.5 | 15 | 38 | 29 | 29 | 7 | 7.6 |
| R412019173 | 16 | 80 | 126 | 15 | 74 | 58 | 58 | 8.7 | 12.8 |
| R412019174 | 16 | 100 | 146 | 15 | 74 | 58 | 58 | 8.7 | 12.8 |
| R412019175 | 16 | 125 | 198.5 | 15 | 88 | 118 | 118 | 15.2 | 31.2 |
| R412019176 | 16 | 150 | 223.5 | 15 | 88 | 119 | 119 | 15.2 | 31.2 |
| R412018910 | 20 | 10 | 60.5 | 20 | 87 | 57 | 57 | 9.6 | 12 |
| R412018911 | 20 | 20 | 65.5 | 20 | 87 | 57 | 57 | 9.6 | 12 |
| R412018912 | 20 | 30 | 70.5 | 20 | 87 | 57 | 57 | 9.6 | 12 |
| R412018913 | 20 | 40 | 80.5 | 20 | 87 | 57 | 57 | 9.6 | 12 |
| R412018914 | 20 | 50 | 90.5 | 20 | 93 | 65 | 65 | 10 | 13.3 |
| R412018915 | 20 | 80 | 130.5 | 20 | 116 | 99 | 99 | 11.7 | 19 |
| R412018916 | 20 | 100 | 150.5 | 20 | 116 | 99 | 99 | 11.7 | 19 |

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R412019175

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| N° de material | Ø del émbolo | Carrera | a [mm] | d [mm] | Mx0 par estático M [Nm] | My0 par estático M [Nm] | Mz0 par estático M [Nm] | Mx par dinámico M [Nm] | My par dinámico M [Nm] |
|----------------|--------------|---------|--------|--------|-------------------------|-------------------------|-------------------------|------------------------|------------------------|
| R412018917 | 20 | 125 | 201 | 20 | 126 | 136 | 136 | 19 | 40.6 |
| R412018918 | 20 | 150 | 233.5 | 20 | 126 | 152 | 152 | 19 | 45.4 |
| R412018919 | 20 | 200 | 296 | 20 | 126 | 179 | 179 | 19 | 53.4 |
| R412019023 | 25 | 10 | 67.5 | 24 | 100 | 90 | 90 | 22.9 | 19.5 |
| R412019024 | 25 | 20 | 72.5 | 24 | 100 | 90 | 90 | 22.9 | 19.5 |
| R412019025 | 25 | 30 | 77.5 | 24 | 100 | 90 | 90 | 22.9 | 19.5 |
| R412019026 | 25 | 40 | 87.5 | 24 | 100 | 90 | 90 | 22.9 | 19.5 |
| R412019027 | 25 | 50 | 96.5 | 24 | 100 | 90 | 90 | 15.3 | 13 |
| R412019028 | 25 | 80 | 137 | 24 | 110 | 129 | 129 | 18.8 | 20.8 |
| R412019029 | 25 | 100 | 157 | 24 | 110 | 129 | 129 | 18.8 | 20.8 |
| R412019030 | 25 | 125 | 201 | 24 | 145 | 180 | 180 | 20.4 | 44.1 |
| R412019031 | 25 | 150 | 236.5 | 24 | 145 | 201 | 201 | 20.4 | 49.2 |
| R412019032 | 25 | 200 | 299 | 24 | 145 | 236 | 236 | 20.4 | 57.8 |

| N° de material | Mz par dinámico M [Nm] |
|----------------|------------------------|
| R412019204 | 1.9 |
| R412019205 | 1.9 |
| R412019206 | 1.9 |
| R412019207 | 1.9 |
| R412019208 | 2.9 |
| R412019209 | 3.8 |
| R412019190 | 4.4 |
| R412019191 | 4.4 |
| R412019192 | 4.4 |
| R412019193 | 4.4 |
| R412019194 | 5.6 |
| R412019195 | 8.2 |
| R412019196 | 8.2 |
| R412019168 | 6.6 |
| R412019169 | 6.6 |
| R412019170 | 6.6 |
| R412019171 | 6.6 |
| R412019172 | 7.6 |
| R412019173 | 12.8 |
| R412019174 | 12.8 |
| R412019175 | 31.2 |
| R412019176 | 31.2 |
| R412018910 | 12 |
| R412018911 | 12 |
| R412018912 | 12 |
| R412018913 | 12 |
| R412018914 | 13.3 |
| R412018915 | 19 |
| R412018916 | 19 |
| R412018917 | 40.6 |
| R412018918 | 45.4 |

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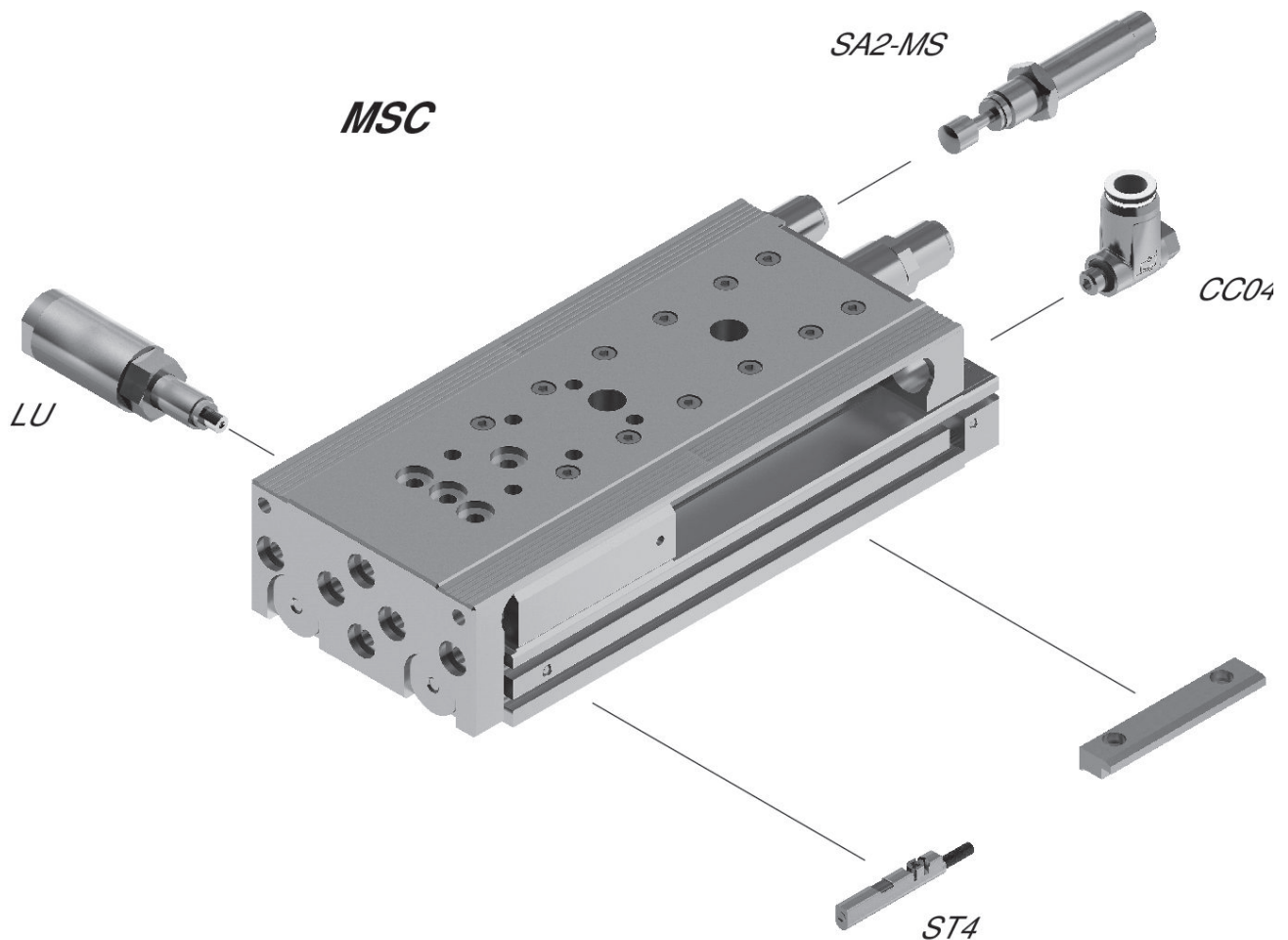
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Cilindros
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| N de material | Mz par dinmico M [Nm] |
|----------------|------------------------|
| R412018919 | 53.4 |
| R412019023 | 19.5 |
| R412019024 | 19.5 |
| R412019025 | 19.5 |
| R412019026 | 19.5 |
| R412019027 | 13 |
| R412019028 | 20.8 |
| R412019029 | 20.8 |
| R412019030 | 44.1 |
| R412019031 | 49.2 |
| R412019032 | 57.8 |

Plano de vista general



INDICACIN: Este plano de vista general sirve como orientacin para saber en qu lugares pueden fijarse al cilindro los diferentes accesorios. Para ello se ha simplificado la representacin. En consecuencia, no est permitido hacer deducciones concretas sobre datos de medidas.

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Peso de las piezas móviles [kg]

| Ø del émbolo | S=10 | S=20 | S=30 | S=40 | S=50 | S=80 | S=100 | S=125 | S=150 |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 8 | 0.14 | 0.14 | 0.155 | 0.165 | 0.195 | 0.265 | – | – | – |
| 12 | 0.255 | 0.255 | 0.26 | 0.28 | 0.315 | 0.403 | 0.46 | – | – |
| 16 | 0.375 | 0.375 | 0.375 | 0.4 | 0.45 | 0.615 | 0.65 | 0.725 | 0.765 |
| 20 | 0.655 | 0.655 | 0.655 | 0.69 | 0.765 | 0.985 | 1.035 | 1.2 | 1.29 |
| 25 | 1 | 1 | 1 | 1.1 | 1.225 | 1.45 | 1.625 | 1.885 | 2.085 |

| Ø del émbolo | S=200 |
|--------------|-------|
| 8 | – |
| 12 | – |
| 16 | – |
| 20 | 1.54 |
| 25 | 2.445 |