

# Rodless cylinders, Series CKP-CL

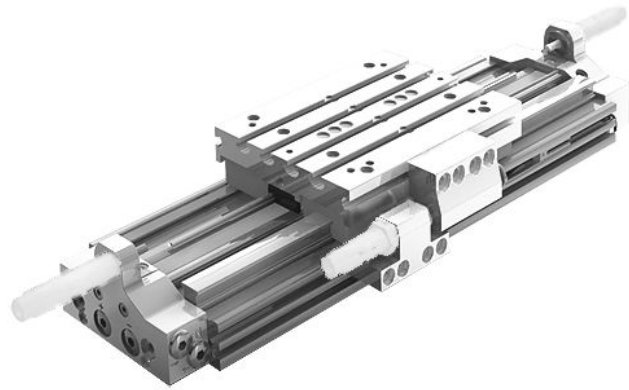
R480163993

AVENTICS  
Series CKP  
Rodless  
cylinders

2024-03-19

## AVENTICS Series CKP Rodless cylinders

The AVENTICS Series CKP cylinders provide sturdy, ultra-precise guiding with excellent repeatability and are ideal for applications requiring the movement of heavy loads in space-critical machine environments.



## Technical data

|  |   |
|--|---|
| Industry                               | Industrial                                |
| Piston Ø                               | 32 mm                                     |
| Stroke                                 | 800 mm                                    |
| Ports                                  | G 1/8                                     |
| Functional principle                   | Double-acting                             |
| Magnetic piston                        | with magnetic piston                      |
| Guide                                  | ball rail guide                           |
| Easy2Combine                           | Easy2Combine capable with electrical axes |
| Piston force                           | 507 N                                     |
| Pressure for determining piston forces | 6,3 bar                                   |
| Cushioning length                      | 20 mm                                     |
| Cushioning energy                      | 7 J                                       |
| Cushioning                             | Pneumatically                             |
| Cushioning                             | adjustable                                |
| Max. speed                             | 2 m/s                                     |
| Stroke max.                            | 1400 mm                                   |
| Min. working pressure                  | 3 bar                                     |
| Max. working pressure                  | 8 bar                                     |
| Min. ambient temperature               | -10 °C                                    |

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|                          |                |
|--------------------------|----------------|
| Max. ambient temperature | 60 °C          |
| Min. medium temperature  | -10 °C         |
| Max. medium temperature  | 60 °C          |
| Medium                   | Compressed air |
| Max. particle size       | 5 µm           |
| Weight                   | 16.39 kg       |

## Material

|                         |                                 |
|-------------------------|---------------------------------|
| Material front cover    | Aluminum                        |
| Surface cover           | anodized                        |
| Seal material           | Polyurethane                    |
| Material sealing strips | Polyurethane<br>Stainless Steel |
| Material guide rail     | Aluminum                        |
| Surface ball rail table | anodized                        |
| Material guide rail     | Steel, chrome-plated            |
| Surface guide rail      | hardened                        |
| Part No.                | R480163993                      |

## 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 delivered product is lubricated for lifetime.

This product may only be operated with oil-free, dry compressed air.

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>).

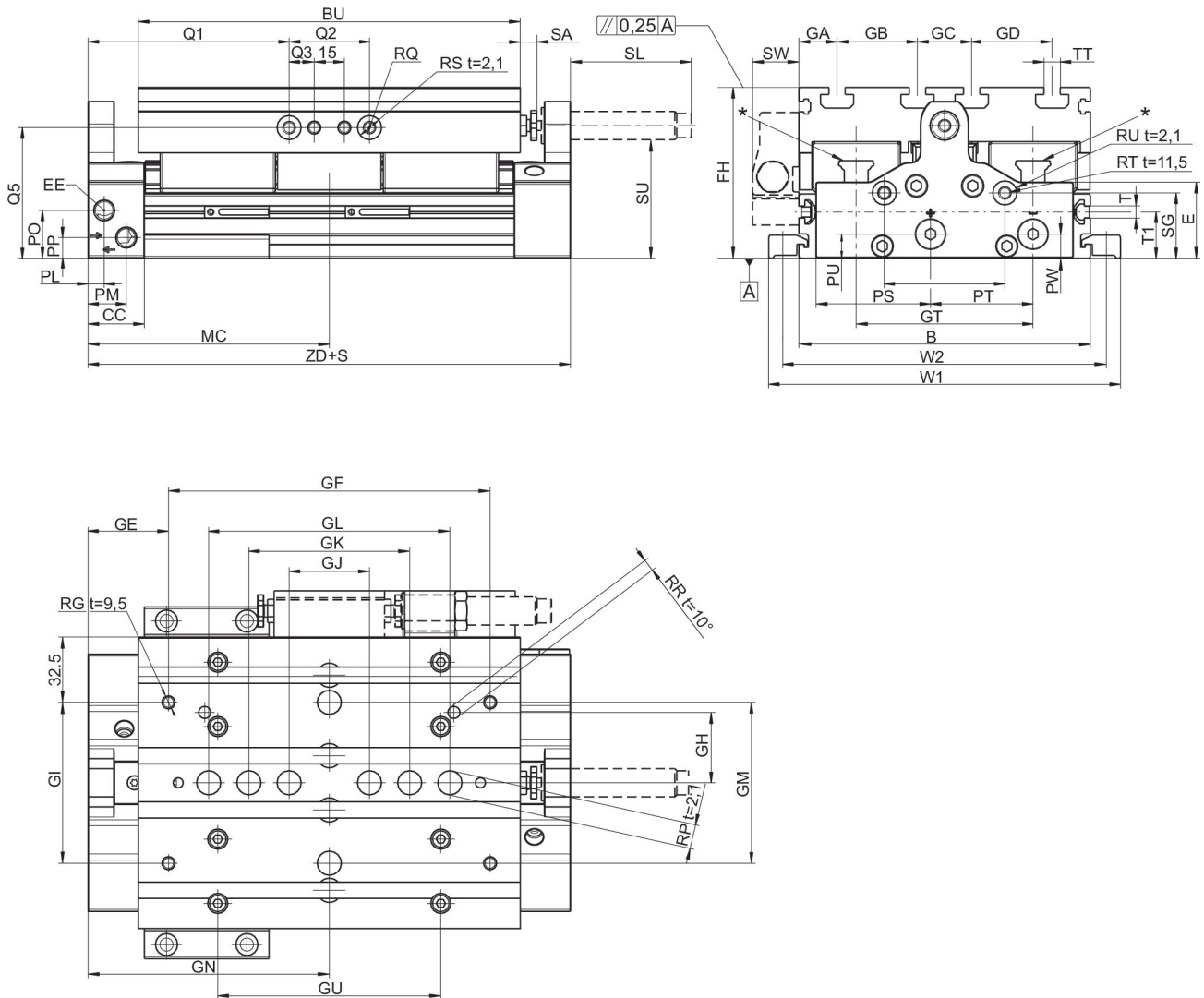
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## Dimensions



t = depth

\* CKP 16: 2x Lube ports on each runner block, CKP 25 / 30: Lube nipple of funnel type with thread connection M3

| Piston Ø | B   | Ø RW t =<br>depth of thread | RX t = depth<br>of thread | GX | E    | BU  | CC | EE    | FH |
|----------|-----|-----------------------------|---------------------------|----|------|-----|----|-------|----|
| 16       | 90  | 9 H7 t=2,1                  | M4 t=7,5                  | 38 | 27.3 | 125 | 28 | M7    | 56 |
| 25       | 110 | 9 H7 t=2,1                  | M5 t=9                    | 46 | 31.4 | 155 | 28 | G 1/8 | 66 |
| 32       | 145 | 12 H7 t=2,1                 | M6 t=13                   | 62 | 37.8 | 190 | 28 | G 1/8 | 85 |

| Piston Ø | GA | GB | GC | GD | GN    | GE   | GF  | GH | GI |
|----------|----|----|----|----|-------|------|-----|----|----|
| 16       | 15 | 20 | 20 | 20 | 93.5  | 38.5 | 110 | 20 | 40 |
| 25       | 25 | 20 | 20 | 20 | 107.5 | 47.5 | 120 | 42 | 80 |
| 32       | 19 | 40 | 27 | 40 | 120   | 40   | 160 | 35 | 80 |

| Piston Ø | GJ | GK | GL | GM | GT | GU | MC   | PL | PM |
|----------|----|----|----|----|----|----|------|----|----|
| 16       | 40 | 60 | 80 | -  | 57 | 80 | 93.5 | 8  | 21 |

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| Piston Ø | GJ | GK | GL  | GM | GT | GU  | MC    | PL | PM |
|----------|----|----|-----|----|----|-----|-------|----|----|
| 25       | 40 | 60 | 80  | –  | 66 | 106 | 107.5 | 8  | 20 |
| 32       | 40 | 80 | 120 | 80 | 88 | 111 | 120   | 8  | 19 |

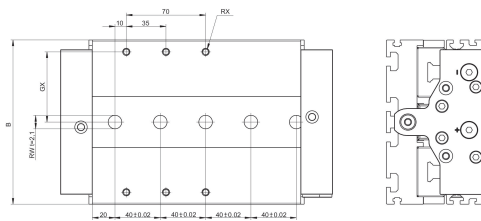
| Piston Ø | PO   | PP   | PS   | PT   | PU   | PW   | Q1   | Q2 | Q3   |
|----------|------|------|------|------|------|------|------|----|------|
| 16       | 12.8 | 6.8  | 33   | 29.8 | 6.8  | 6    | 73.5 | 40 | –    |
| 25       | 22   | 10.5 | 37.5 | 24   | 10.5 | 10.5 | 87.5 | 40 | 12.5 |
| 32       | 23.8 | 10.3 | 57   | 51   | 12   | 12   | 100  | 40 | 12.5 |

| Piston Ø | RG | Ø RP  | RQ t = depth of thread | Ø RR | Ø RS  | RT | Ø RU  | SG   | SL |
|----------|----|-------|------------------------|------|-------|----|-------|------|----|
| 16       | M5 | 9 F7  | M5 t=10,5              | 4 F7 | 9 F7  | M6 | 12 F7 | 20.3 | 43 |
| 25       | M5 | 9 F7  | M6 t=14,5              | 5 F7 | 12 F7 | M6 | 12 F7 | 14   | 60 |
| 32       | M6 | 12 F7 | M6 t=14,5              | 6 F7 | 12 F7 | M6 | 12 F7 | 32.5 | 60 |

| Piston Ø | SU | SW | T  | TT | W1  | W2  | T1 | ZD  | SA   |
|----------|----|----|----|----|-----|-----|----|-----|------|
| 16       | 37 | 20 | M4 | N6 | 112 | 102 | 16 | 187 | 0–10 |
| 25       | 43 | 23 | N6 | N6 | 140 | 126 | 20 | 215 | 0–10 |
| 32       | 59 | 23 | N6 | N8 | 175 | 161 | 23 | 240 | 0–10 |

| Piston Ø | Moving mass kg |
|----------|----------------|
| 16       | 0.64           |
| 25       | 1.11           |
| 32       | 2.62           |

## Additional Easy2Combine interface on CKP-CL



## Permissible forces Fx, Fy, Fz and torques Mx, My, Mz

$$\frac{M_x}{M_{x_{\max}}} + \frac{M_y}{M_{y_{\max}}} + \frac{M_z}{M_{z_{\max}}} \leq 1$$

With simultaneously moments on the cylinder this equation must be used in addition to the maximum moments check. In the cushioning phase of the movement additional forces occur and must be considered. Please use our calculation tool for rodless cylinders on the <http://www.aventics.com>.

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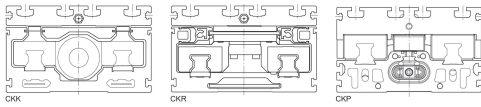
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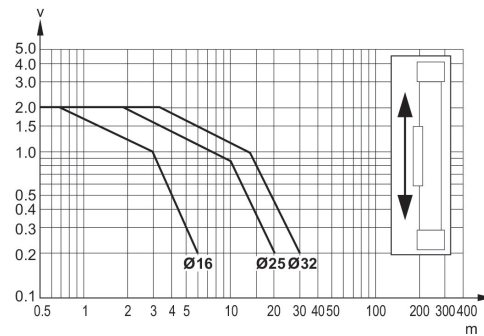
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CKP is part of the compact module family.

Vertically mounted  
with pneumatic cushioning



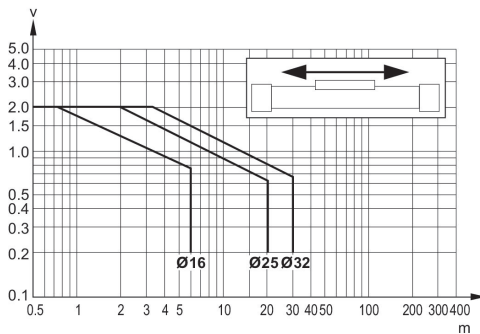
Further information can be found in the operating instructions.



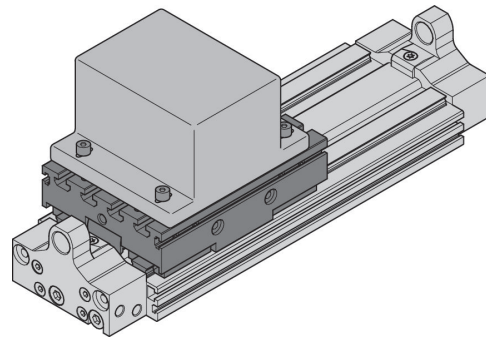
$v_t$  = Piston velocity [m/s]  $m$  = Cushionable mass [kg]

Horizontally mounted  
with pneumatic cushioning

fastening a customer attachment onto  
the CKP with T-groove nuts.

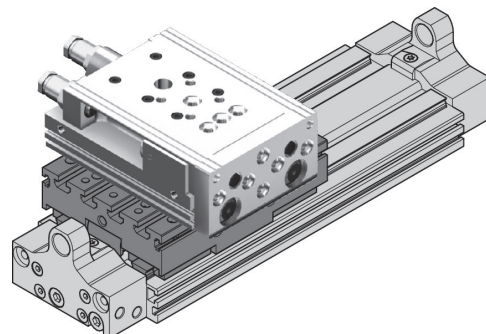
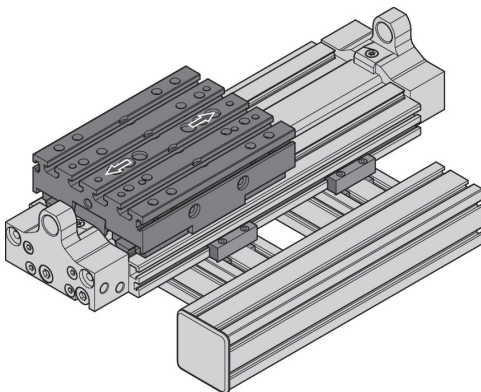


$v_t$  = Piston velocity [m/s]  $m$  = Cushionable mass [kg]



fastening of CKP on BME (Basic  
mechanical elements) profile  
construction via connection plates  
and clamping fixtures

fastening of automation system  
Easy2Combine to CKP using center  
rings and T-groove nuts (example:  
mini slide MSC)



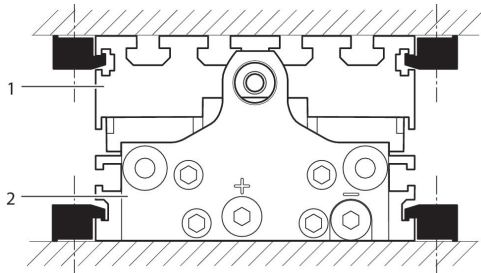
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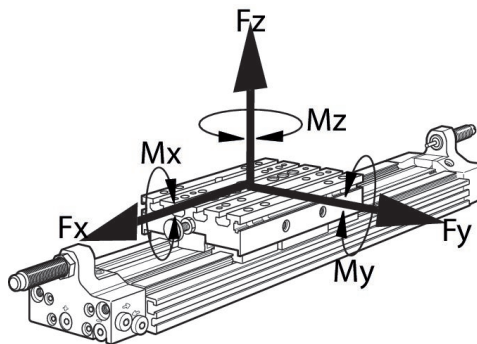
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## fastening of CKP to customer-built mounting base via clamping fixtures



## Permissible forces $F_x$ , $F_y$ , $F_z$ and torques $M_x$ , $M_y$ , $M_z$



With simultaneously moments on the cylinder this equation must be used in addition to the maximum moments check. In the cushioning phase of the

movement additional forces occur and must be considered. Please use our calculation tool for rodless cylinders on the <http://www.aventics.com>.

## Max. dynamic forces and torques

| Piston $\varnothing$ | $F_x$ [N] | $F_y$ [N] | $F_z$ [N] | $M_x$ [Nm] | $M_y$ [Nm] | $M_z$ [Nm] |
|----------------------|-----------|-----------|-----------|------------|------------|------------|
| 16                   | 2912      | 2912      | 2912      | 83         | 116        | 143        |
| 25                   | 3280      | 3280      | 8568      | 283        | 454        | 205        |
| 32                   | 5280      | 5280      | 15620     | 687        | 867        | 374        |

Recommended values for an expected lifetime of 3200 km