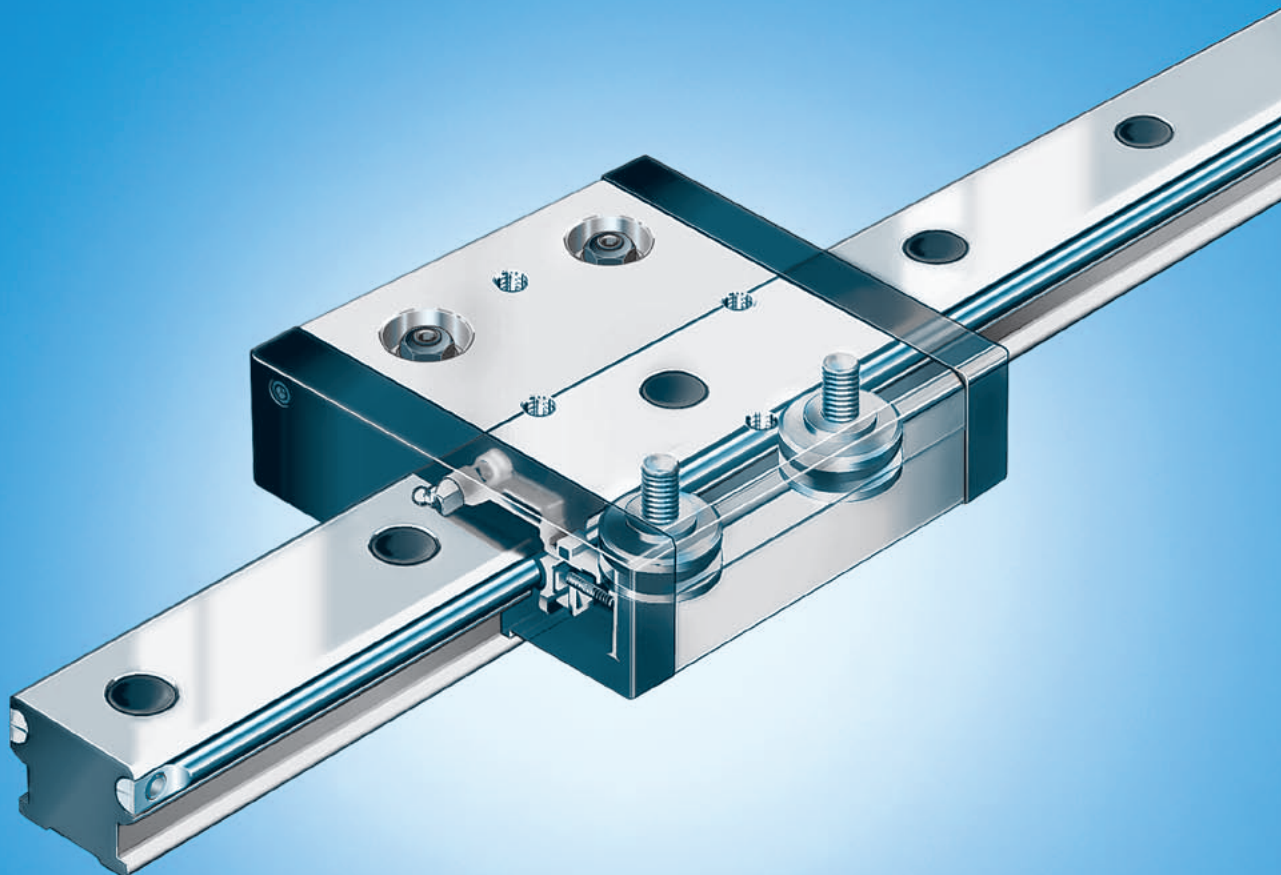


# Cam Roller Guides

R310EN 2101 (2004-09)

The Drive & Control Company





# Cam Roller Guides

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## Product Overview

**Rexroth Cam Roller Guides have been specially developed for use in handling and automation applications.**

**Features:**

- High permissible speeds
- Compact design
- Light weight
- Easy mounting
- Low friction and extremely low-noise operation
- Complete guideway systems
- Interchangeability
- Elements can be individually ordered and separately stocked

**Runner blocks**

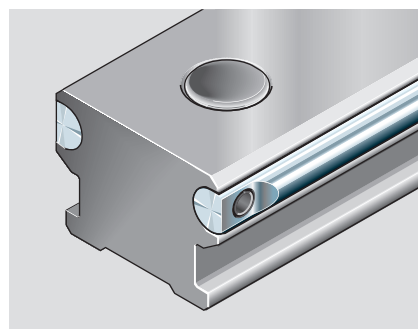
- High load capacity in all planes of load application. High moment capacity about all axes
- Oil applicator/wiper unit with large oil reservoir at both ends
- Lube nipple port at either end
- The runner block can be simply adjusted to zero clearance by means of eccentric pins
- 2-row angular contact thrust ball bearing, sealed and lubricated for life

**Profile Runner Block**

- The runner block is adjusted to zero clearance before leaving the factory
- Oil applicator/wiper unit available as an accessory

**Standard guide rail**

- Guide shaft support made of anodized aluminum
- Optional mounting hole plugs
- Integrated running tracks made of corrosion-resistant precision steel shafts



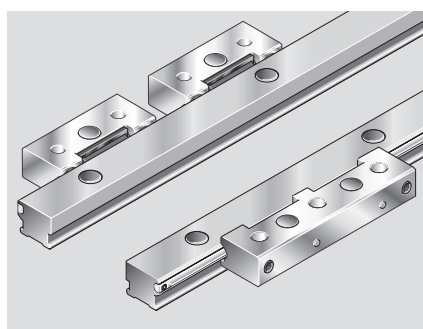
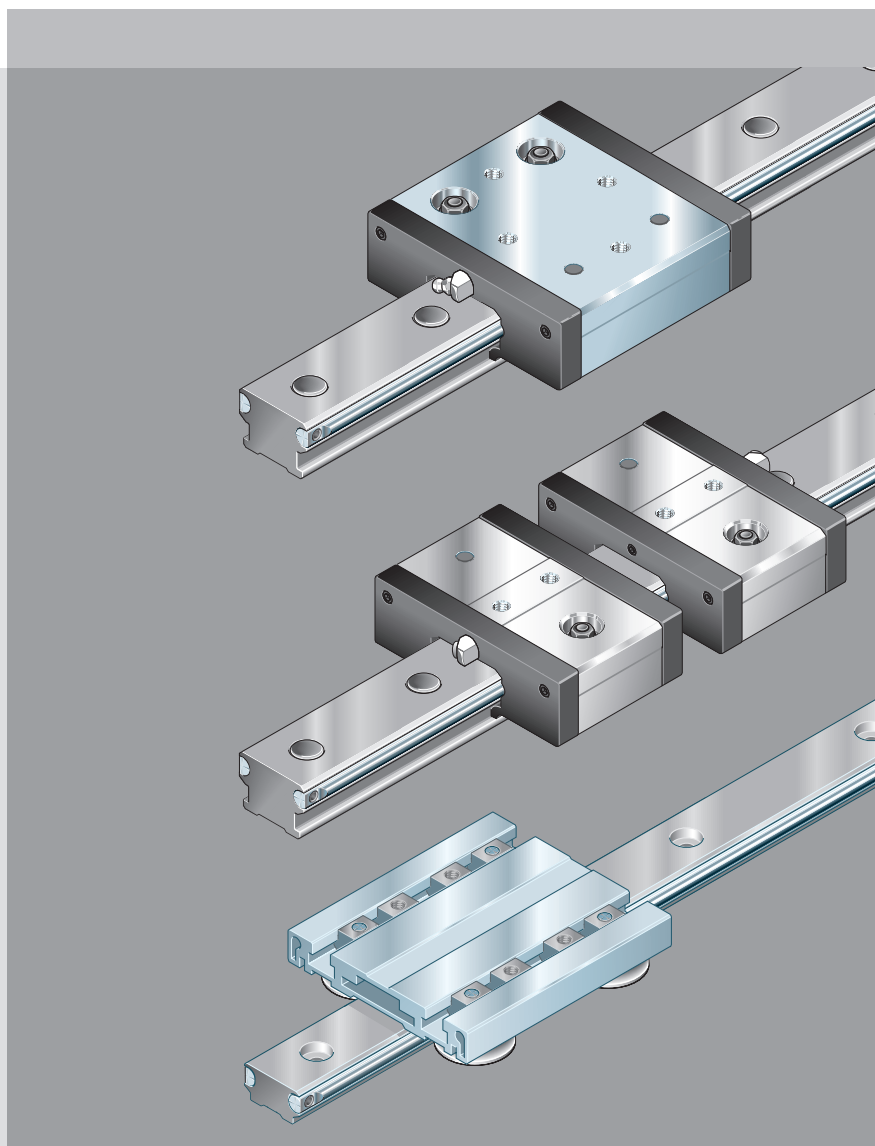
**Standard guide rail**

Integrated running tracks made of corrosion-resistant precision steel shafts

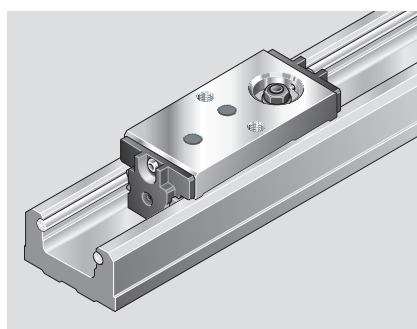
**Standard Runner Blocks**

**Super Runner Blocks**

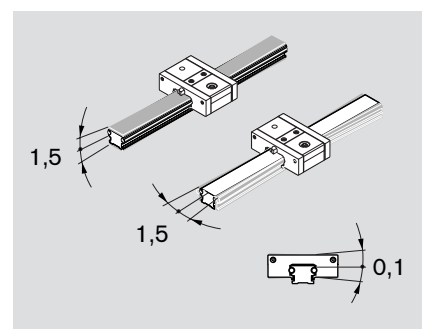
**Profile Runner Block**



**Single Bearing Runner Blocks, Double Bearing Runner Blocks**  
On two half-rails



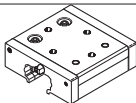
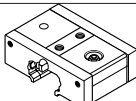
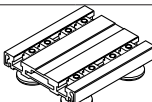
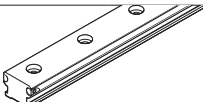
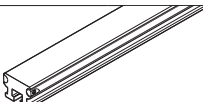
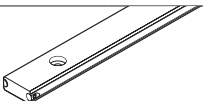
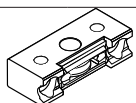
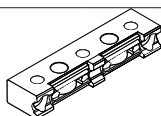
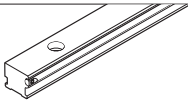
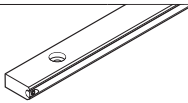
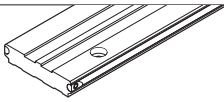
**U-type Cam Roller Guides**



**Super Runner Blocks**  
For uneven mounting surfaces or other alignment errors:

# Product Overview

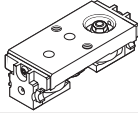
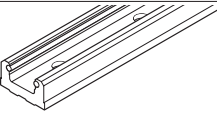
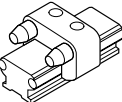
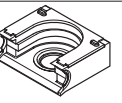
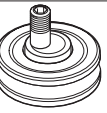
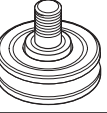
## Combination options

| Combination options                                     |                                                                                                           |      | 20                           |  |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|------|------------------------------|--|
|                                                         |                                                                                                           | Page | Part number / Size - Version |  |
| Standard Runner Block                                   |                          | 24   | 1902-119-00                  |  |
| Super Runner Block                                      |                          | 26   | 1906-119-00                  |  |
| Profile Runner Block                                    |                          | 28   |                              |  |
| Guide Rails                                             |  Standard                | 30   | 1921-119-31                  |  |
|                                                         |  With T-Slot             | 32   |                              |  |
|                                                         |  Low-Profile            | 34   |                              |  |
| Single Bearing Runner Block                             |                        | 36   |                              |  |
| Double Bearing Runner Block                             |                        | 38   |                              |  |
| Guide Rails for Single/<br>Double Bearing Runner Blocks |  Standard half-rail    | 40   |                              |  |
|                                                         |  Low-Profile half-rail | 42   |                              |  |
|                                                         |  Wide                  | 44   |                              |  |

|  |             | Size        |                                                          |             |             |                                                          |                                                               |
|--|-------------|-------------|----------------------------------------------------------|-------------|-------------|----------------------------------------------------------|---------------------------------------------------------------|
|  | 25          | 32          |                                                          | 42          | 52          |                                                          |                                                               |
|  | 1902-125-00 | 1902-132-00 |                                                          |             | 1902-152-00 | 1902-252-00<br>52-h<br>(high loads)                      | 1902-352-00<br>52-sh<br>(extreme loads)                       |
|  | 1906-125-00 |             |                                                          |             |             |                                                          |                                                               |
|  |             |             |                                                          | 1907-142-00 |             |                                                          |                                                               |
|  | 1921-125-31 | 1921-132-31 | 1921-232-31<br>32-2<br>(twice as many<br>mounting holes) | 1921-142-31 | 1921-152-31 | 1921-252-31<br>52-2<br>(twice as many<br>mounting holes) | 1921-452-31<br>52-4<br>(four times as many<br>mounting holes) |
|  | 1922-025-31 | 1922-032-31 |                                                          |             | 1922-052-31 |                                                          |                                                               |
|  |             | 1924-132-31 | 1924-323-31<br>32-2<br>(twice as many<br>mounting holes) |             | 1924-152-31 | 1924-252-31<br>52-2<br>(twice as many<br>mounting holes) | 1924-452-31<br>52-4<br>(four times as many<br>mounting holes) |
|  |             | 1903-132-10 |                                                          |             | 1903-152-10 | 1903-252-10<br>52-h<br>(high load)                       | 1903-352-10<br>52-sh<br>(extreme loads)                       |
|  |             | 1904-132-10 |                                                          |             | 1904-152-31 | 1904-252-10<br>52-h<br>(high load)                       | 1904-352-10<br>52-sh<br>(extreme loads)                       |
|  |             | 1925-132-31 | 1925-232-31<br>32-2<br>(twice as many<br>mounting holes) |             | 1925-152-31 | 1925-252-31<br>52-2<br>(twice as many<br>mounting holes) | 1925-452-31<br>52-4<br>(four times as many<br>mounting holes) |
|  |             | 1926-132-31 | 1926-232-31<br>32-2<br>(twice as many<br>mounting holes) |             | 1926-152-31 | 1926-252-31<br>52-2<br>(twice as many<br>mounting holes) | 1926-252-31<br>52-4<br>(four times as many<br>mounting holes) |
|  |             |             |                                                          |             |             | 1927-152-31                                              |                                                               |

# Product Overview

## Combination options

|                                                 |                                                                                                                         |      | 20                           |  |
|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------|------------------------------|--|
|                                                 |                                                                                                                         | Page | Part number / Size - Version |  |
| U-type Runner Block                             |                                        | 46   | 1905-119-00                  |  |
| U-type Guide Rail                               |  U-type                                | 48   | 1923-119-31                  |  |
| Accessories                                     |  Dead stop                             | 50   |                              |  |
|                                                 |  Oiling unit for Profile Runner Blocks | 51   |                              |  |
| Cam Roller with eccentric spigot, assembly kits |                                        | 52   | R1900 119 00                 |  |
| Cam Roller with centric spigot, assembly kits   |                                       | 54   | R1900 119 01                 |  |



| Size |              |              |              |              |                      |                       |
|------|--------------|--------------|--------------|--------------|----------------------|-----------------------|
|      | 25           | 32           | 42           | 52           |                      |                       |
|      |              |              |              |              |                      |                       |
|      |              |              |              |              |                      |                       |
|      |              | 1910-532-00  |              | 1910-552-00  |                      |                       |
|      |              |              | R1910 442 00 |              |                      |                       |
|      | R1900 125 00 | R1900 132 00 |              | R1900 152 00 | R1900 152 10<br>52-h | R1900 152 20<br>52-sh |
|      | R1900 125 01 | R1900 132 01 |              | R1900 152 01 | R1900 152 11<br>52-h | R1900 152 21<br>52-sh |

# Product Overview

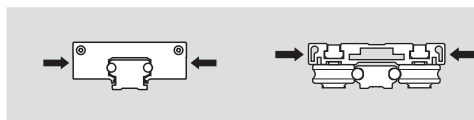
## Maximum Permissible Loads

Important: Not to be used for calculating service life!

For service life calculations use the load capacities and moments given in the tables relating to the individual versions.

### Maximum permissible force loads

#### Standard Runner Block 1902-, 1907-



$F_{\max y}$  (N)\*

20

700

$F_{\max y0}$  (N)\*

700



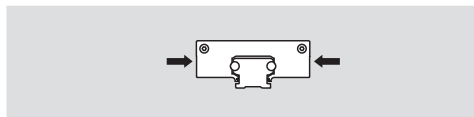
$F_{\max z}$  (N)

400

$F_{\max z0}$  (N)

600

#### Super Runner Block RH1906

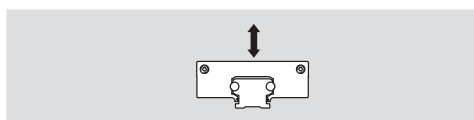


$F_{\max y}$  (N)\*

350

$F_{\max y0}$  (N)\*

350



$F_{\max z}$  (N)

200

$F_{\max z0}$  (N)

300

### Maximum permissible moment loads

#### Standard Runner Block R1902-, R1907-

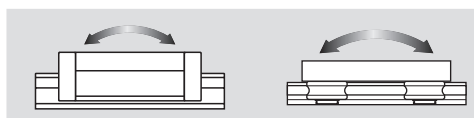


$M_{\max x}$  (Nm)

3,2

$M_{\max x0}$  (Nm)

4,8

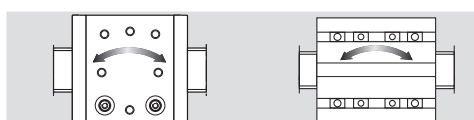


$M_{\max y}$  (Nm)

6,8

$M_{\max y0}$  (Nm)

10,2



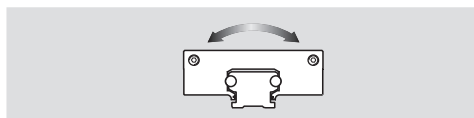
$M_{\max z}$  (Nm)

12

$M_{\max z0}$  (Nm)

12

#### Runner Block RH1906



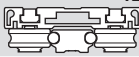
$M_{\max x}$  (Nm)

1,6

$M_{\max x0}$  (Nm)

2,4

\* Observe permissible side force on the rail (see Mounting Instructions).

| Size - Version |     |      |            |                                                                                      |      |            |              |               |
|----------------|-----|------|------------|--------------------------------------------------------------------------------------|------|------------|--------------|---------------|
|                | 25  | 32   | 32<br>32-2 |  42 | 52   | 52<br>52-2 | 52-h<br>52-2 | 52-sh<br>52-4 |
|                | 700 | 1000 | 1400       | 3000                                                                                 | 2500 | 3500       | 4500         | 8000          |
|                | 700 | 1000 | 1400       | 3000                                                                                 | 2500 | 3500       | 4500         | 8000          |
|                | 400 | 850  | 850        | 1500                                                                                 | 1500 | 1500       | 2400         | 4800          |
|                | 660 | 1400 | 1400       | 2500                                                                                 | 2500 | 2500       | 4000         | 7900          |
|                | 350 |      |            |                                                                                      |      |            |              |               |
|                | 350 |      |            |                                                                                      |      |            |              |               |
|                | 200 |      |            |                                                                                      |      |            |              |               |
|                | 330 |      |            |                                                                                      |      |            |              |               |
|                | 3,8 | 11   | 11         | 27                                                                                   | 32   | 32         | 50           | 101           |
|                | 6   | 18   | 18         | 42                                                                                   | 52   | 52         | 84           | 166           |
|                | 9   | 26   | 26         | 63                                                                                   | 45   | 45         | 126          | 288           |
|                | 15  | 42   | 42         | 106                                                                                  | 75   | 75         | 210          | 474           |
|                | 16  | 30   | 42         | 127                                                                                  | 75   | 105        | 236          | 480           |
|                | 16  | 30   | 42         | 127                                                                                  | 75   | 105        | 236          | 480           |
|                | 1,9 |      |            |                                                                                      |      |            |              |               |
|                | 3   |      |            |                                                                                      |      |            |              |               |

# Product Overview

## Maximum Permissible Loads

Important: Not to be used for calculating service life!

For service life calculations use the load capacities and moments given in the tables relating to the individual versions.

### Maximum permissible force loads

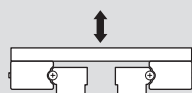
#### Four Single/Two Double Bearing Runner Blocks



$F_{\max y}$  (N)

$F_{\max y0}$  (N)

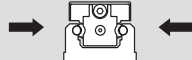
20



$F_{\max z}$  (N)

$F_{\max z0}$  (N)

#### U-type Runner Block

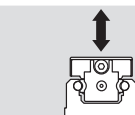


$F_{\max y}$  (N)

$F_{\max y0}$  (N)

350

350



$F_{\max z}$  (N)

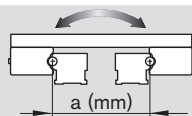
$F_{\max z0}$  (N)

200

300

### Maximum permissible moment loads

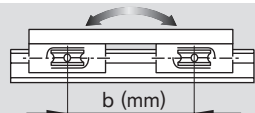
#### Four Single/Two Double Bearing Runner Blocks



$M_{\max x}$  (Nm)

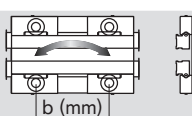
$M_{\max x0}$  (Nm)

#### Four Single Bearing Runner Blocks



$M_{\max y}$  (Nm)

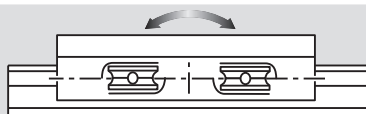
$M_{\max y0}$  (Nm)



$M_{\max z}$  (Nm)

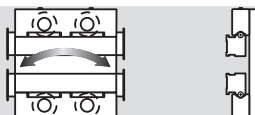
$M_{\max z0}$  (Nm)

#### Two Double Bearing Runner Blocks



$M_{\max y}$  (Nm)

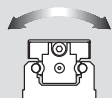
$M_{\max y0}$  (Nm)



$M_{\max z}$  (Nm)

$M_{\max z0}$  (Nm)

#### U-type Runner Block

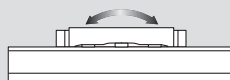


$M_{\max x}$  (Nm)

$M_{\max x0}$  (Nm)

1,4

2,2

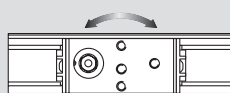


$M_{\max y}$  (Nm)

$M_{\max y0}$  (Nm)

3,4

5,1



$M_{\max z}$  (Nm)

$M_{\max z0}$  (Nm)

6,1

6,1

| Size - Version |    |          |            |          |            |              |               |
|----------------|----|----------|------------|----------|------------|--------------|---------------|
|                | 25 | 32       | 32<br>32-2 | 52       | 52<br>52-2 | 52-h<br>52-2 | 52-sh<br>52-4 |
|                |    | 1000     | 1400       | 2500     | 3500       | 4500         | 8000          |
|                |    | 1000     | 1400       | 2500     | 3500       | 4500         | 8000          |
|                |    | 850      | 850        | 1500     | 1500       | 2400         | 4800          |
|                |    | 1400     | 1400       | 2500     | 2500       | 4000         | 7900          |
|                |    |          |            |          |            |              |               |
|                |    |          |            |          |            |              |               |
|                |    |          |            |          |            |              |               |
|                |    |          |            |          |            |              |               |
|                |    | 0,42 · a | 0,42 · a   | 0,75 · a | 0,75 · a   | 1,2 · a      | 2,4 · a       |
|                |    | 0,7 · a  | 0,7 · a    | 1,2 · a  | 1,2 · a    | 2 · a        | 3,9 · a       |
|                |    | 0,42 · b | 0,42 · b   | 0,75 · b | 0,75 · b   | 1,2 · b      | 2,4 · b       |
|                |    | 0,7 · b  | 0,7 · b    | 1,2 · b  | 1,2 · b    | 2 · b        | 3,9 · b       |
|                |    | 0,5 · b  | 0,7 · b    | 1,2 · b  | 1,7 · b    | 2,2 · b      | 4 · b         |
|                |    | 0,5 · b  | 0,7 · b    | 1,2 · b  | 1,7 · b    | 2,2 · b      | 4 · b         |
|                |    | 21       | 21         | 49       | 49         | 91           | 194           |
|                |    | 35       | 35         | 83       | 83         | 152          | 320           |
|                |    | 25       | 35         | 83       | 116        | 171          | 324           |
|                |    | 25       | 35         | 83       | 116        | 171          | 324           |
|                |    |          |            |          |            |              |               |
|                |    |          |            |          |            |              |               |
|                |    |          |            |          |            |              |               |
|                |    |          |            |          |            |              |               |
|                |    |          |            |          |            |              |               |

## Technical Data

### Maximum travel speed at medium loads

$$v_{\max} = 10 \text{ m/s}$$

### Permissible operating temperature

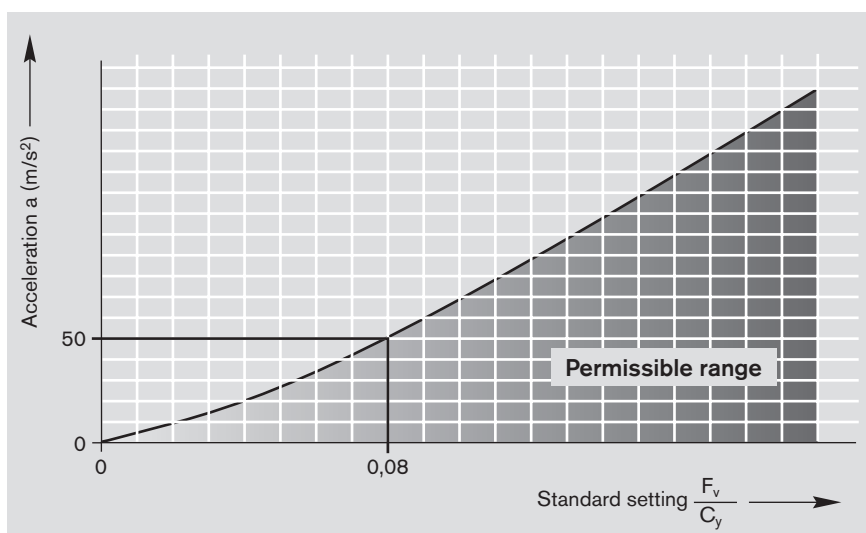
$$t = -20 \text{ °C up to } +80 \text{ °C}$$

### Acceleration

Higher acceleration rates are permissible as long as slip is avoided. To do this, adjust preload  $F_v$  using the eccentric rollers, see chart.

**⚠ Increasing the preload will reduce the maximum permissible load.**

$$a_{\max} = 50 \text{ m/s}^2$$



### Rigidity

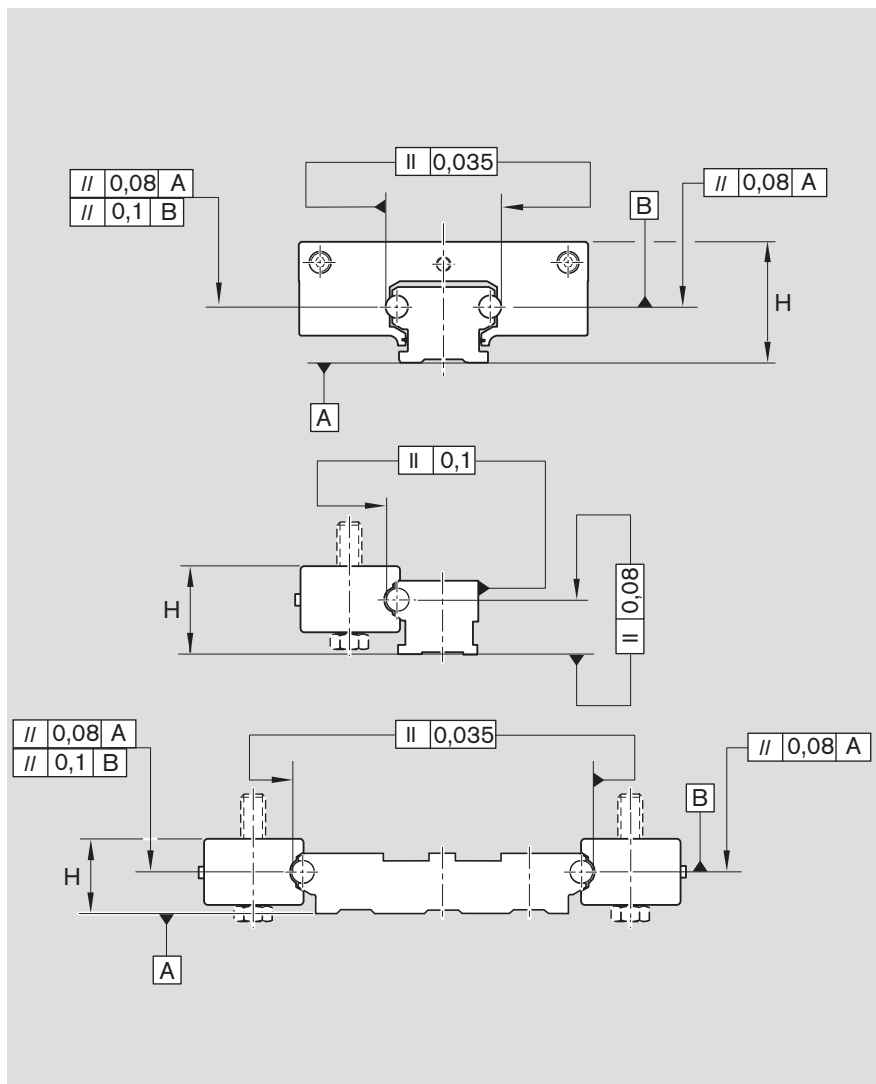
The rigidity can be improved by increasing the preload using the eccentric rollers.

## Accuracy

Rexroth Guide Rails are manufactured to very high precision standards. Higher accuracies are available on request.

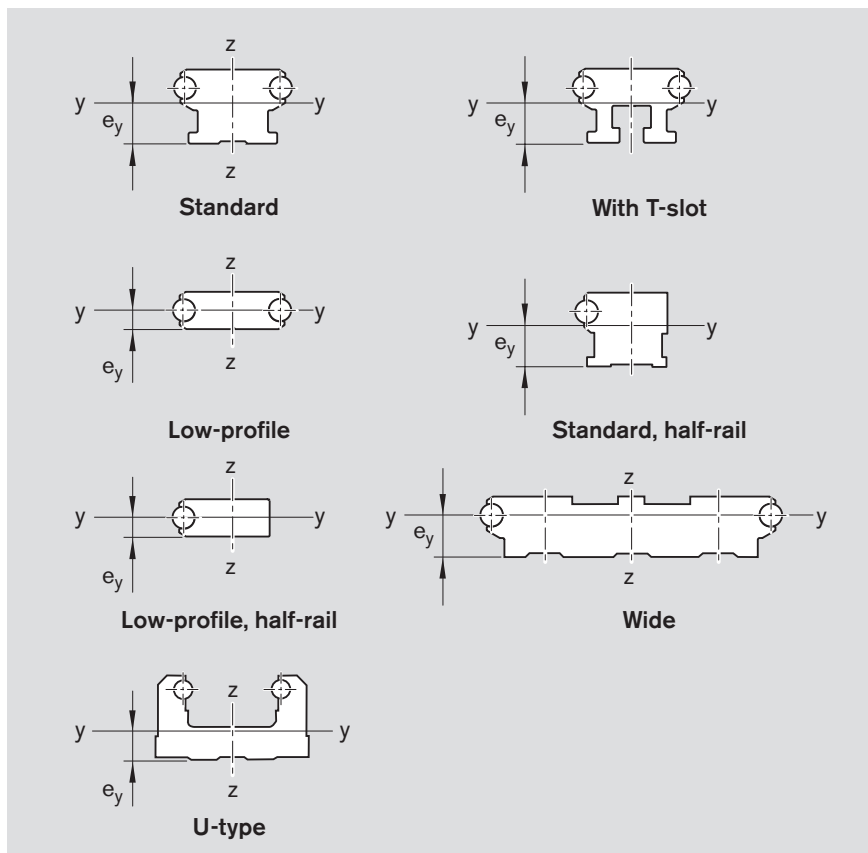
Tolerance for H:  $\pm 0.2$  mm

Maximum difference in H  
on the same guide rail: 0.1 mm



## Technical Data

### Sectional characteristics of guide rails



$e_y$ : Centroid distance  
 $I_{yz}$ : Second moment of inertia  
 $W_{yz}$ : Section modulus

|                               | Size | Cross-sectional area<br>A<br>(mm <sup>2</sup> ) | Neutral axis  |                             |                                    |                             |                                    |
|-------------------------------|------|-------------------------------------------------|---------------|-----------------------------|------------------------------------|-----------------------------|------------------------------------|
|                               |      |                                                 | $e_y$<br>(mm) | $I_y$<br>(mm <sup>4</sup> ) | y-y<br>$W_y$<br>(mm <sup>3</sup> ) | $I_z$<br>(mm <sup>4</sup> ) | z-z<br>$W_z$<br>(mm <sup>3</sup> ) |
| <b>Standard</b>               | 20   | 168                                             | 6,0           | 2060                        | 343                                | 3090                        | 364                                |
|                               | 25   | 244                                             | 7,4           | 4738                        | 623                                | 6432                        | 613                                |
|                               | 32   | 435                                             | 10,4          | 14551                       | 1399                               | 19272                       | 1357                               |
|                               | 42   | 685                                             | 11,4          | 19628                       | 1722                               | 78534                       | 4363                               |
|                               | 52   | 1222                                            | 17,6          | 117945                      | 6701                               | 148971                      | 6477                               |
| <b>With T-slot</b>            | 25   | 194                                             | 8,1           | 4155                        | 513                                | 6191                        | 590                                |
|                               | 32   | 355                                             | 11,4          | 12295                       | 1079                               | 18666                       | 1315                               |
|                               | 52   | 913                                             | 17,6          | 82725                       | 4596                               | 140984                      | 6130                               |
| <b>Low-profile</b>            | 32   | 234                                             | 5,0           | 2163                        | 433                                | 11412                       | 804                                |
|                               | 52   | 690                                             | 9,0           | 20750                       | 2306                               | 91104                       | 3961                               |
| <b>Standard, half-rail</b>    | 32   | 397                                             | 10,5          | 13182                       | 1255                               | 14724                       | 1115                               |
|                               | 52   | 1116                                            | 17,7          | 105926                      | 5985                               | 111856                      | 5251                               |
| <b>Low-profile, half-rail</b> | 32   | 217                                             | 5,0           | 1913                        | 383                                | 8841                        | 665                                |
|                               | 52   | 633                                             | 9,0           | 18142                       | 2016                               | 68209                       | 3202                               |
| <b>Wide</b>                   | 52   | 2492                                            | 12,4          | 119636                      | 2099                               | 2378777                     | 41733                              |
| <b>U-type</b>                 | 20   | 360                                             | 7,0           | 8604                        | 782                                | 42000                       | 2545                               |



## Life Expectancy and Static Load Safety Factor

### Life Expectancy of one Cam Roller

The nominal service life expectancy  $L$  in meters or  $L_h$  in hours is attained or

exceeded by at least 90% of a large number of identical rollers.

#### when subject to force loads

If the Cam Roller Guide is subject to a centrally-acting force  $F_y$  or  $F_z$ , calculate the nominal travel life using formulas (1) and (2):

The force  $F$  must not exceed the maximum permissible force given in the "Maximum Permissible Loads" tables.

$$(1) \quad L = \left( \frac{C_{y,z}}{F} \right)^3 \cdot 10^5$$

$$(2) \quad L_h = \frac{L}{2 \cdot s \cdot n \cdot 60}$$

$L$  = nominal life expectancy (m)  
 $L_h$  = nominal life expectancy (h)  
 $C_{y,z}$  = dynamic load capacity (N)  
 $F$  = equivalent dynamic load (N)  
 $s$  = length of stroke (m)  
 $n$  = stroke repetition rate (min<sup>-1</sup>) (complete cycles)

#### when subject to moment loads

If the Cam Roller Guide is subject to a moment  $M$  acting about the x, y or z axis only, calculate the nominal travel life using formulas (3) and (4):

The moment  $M$  must not exceed the maximum permissible moment load given in the "Maximum Permissible Loads" tables.

$$(3) \quad L = \left( \frac{M_{x,y,z}}{M} \right)^3 \cdot 10^5$$

$$(4) \quad L_h = \frac{L}{2 \cdot s \cdot n \cdot 60}$$

$L$  = nominal life expectancy (m)  
 $L_h$  = nominal life expectancy (h)  
 $M_{x,y,z}$  = dynamic moment (Nm)  
 $M$  = equivalent dynamic moment load (Nm)  
 $s$  = length of stroke (m)  
 $n$  = stroke repetition rate (min<sup>-1</sup>) (complete cycles)

### Note

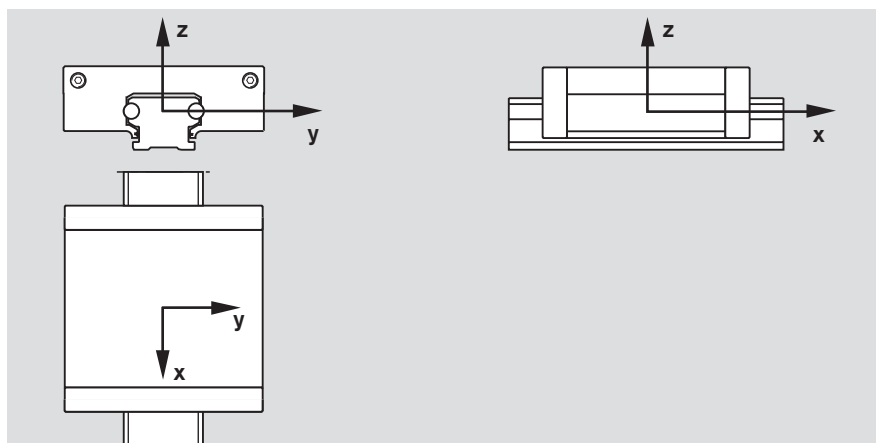
The above formulas for calculation of life expectancy apply only in applications subject to a single force acting centrally in the y or z axis, or a single moment acting about the x, y or z axis.

For applications subject to a combination of forces from different directions or moments about different axes, or any combination of forces and moments, please consult us.

### Coordinate system

The following coordinate system is used to define the direction of action of forces

and moments:



# Life Expectancy and Static Load Safety Factor

## Static Load Safety Factor

### when subject to force loads

If the Cam Roller Guide is subject to a centrally-acting force  $F_{y0}$  or  $F_{z0}$ , calculate the static load safety factor using formula (5):

$$(5) \quad S_0 = \frac{C_{y0, z0}}{F_0}$$

The force  $F_0$  must not exceed the maximum permissible force given in the "Maximum Permissible Loads" tables.

$S_0$  = static load safety factor (-)  
 $C_{y0, z0}$  = static load capacity (N)  
 $F_0$  = equivalent static load (N)

### when subject to moment loads

If the Cam Roller Guide is subject to a moment  $M_0$  acting about the x, y or z axis only, calculate the static load safety factor using formula (6):

$$(6) \quad S_0 = \frac{M_{x0, y0, z0}}{M_0}$$

The moment  $M_0$  must not exceed the maximum permissible moment load given in the "Maximum Permissible Loads" tables.

$S_0$  = static load safety factor (-)  
 $M_{x0, y0, z0}$  = static moment (Nm)  
 $M_0$  = equivalent static moment load (Nm)

### Note

The above formulas for calculation of the static load safety factor apply only in applications subject to a single force acting centrally in the y or z axis, or a single moment acting about the x, y or z axis.

For applications subject to a combination of forces from different directions or moments about different axes, or any combination of forces and moments, please consult us.

# Mounting Instructions

## General Instructions

Rexroth Cam Roller Guides are high-quality products and should be treated with the utmost care during transportation and mounting.

All steel parts are coated with preservative oil. The preservative coating need not be removed provided the recommended lubricants are used in the application. Unfavorable environmental conditions

(vibrations, major temperature fluctuations, etc.) can cause a relative shift between the aluminum frame and the rolled-in (or pressed-in) steel shafts of all guide rails. To prevent this phenomenon we recommend a positive-locking axial retention.

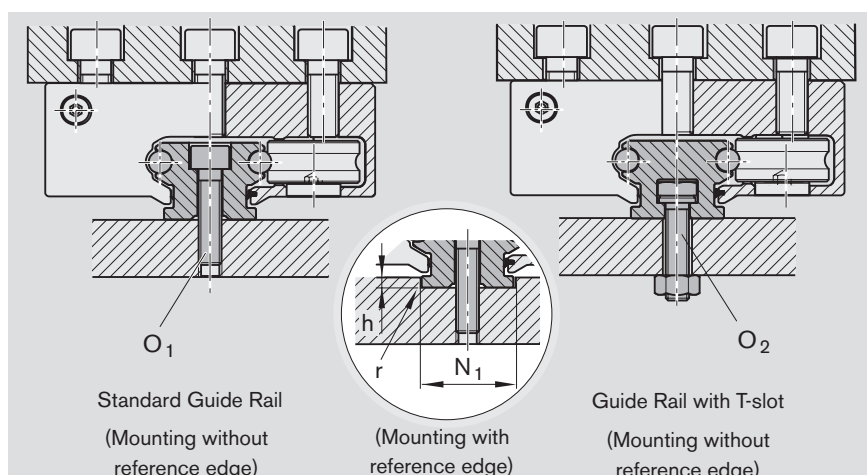
## Guide Rail Mounting

### To mount the guide rail:

- Slightly tighten screws.
- Align guide rail.
- Tighten screws to torque as shown in the table.

Standard Guide Rail (R1921-...):  
If the maximum permissible load is to be utilized, install washers to ISO 7092.

Guide Rail with T-slot (R1922-...):  
Washers are supplied with the rail.



## Screw sizes for guide rails

| Size - Version                                      | 20    | 25    | 32    | 32-2  | 42    | 52     | 52-2   | 52-4   |
|-----------------------------------------------------|-------|-------|-------|-------|-------|--------|--------|--------|
| Standard O <sub>1</sub> (ISO 4762)                  | M4x16 | M5x20 | M6x25 | M6x25 | M8x25 | M10x40 | M10x40 | M12x40 |
| With T-slot O <sub>2</sub> (ISO 4014) (DIN EN 2417) | –     | M5    | M6    | –     | –     | M10    | –      | –      |
| N <sub>1</sub> min. (mm)                            | 17,1  | 21,1  | 24,1  | 24,1  | –     | 40,1   | 40,1   | 40,1   |
| h max. (mm)                                         | 1,0   | 1,5   | 3,0   | 3,0   | –     | 5,0    | 5,0    | 5,0    |
| r max. (mm)                                         | 0,2   | 0,2   | 0,2   | 0,2   | –     | 0,2    | 0,2    | 0,2    |

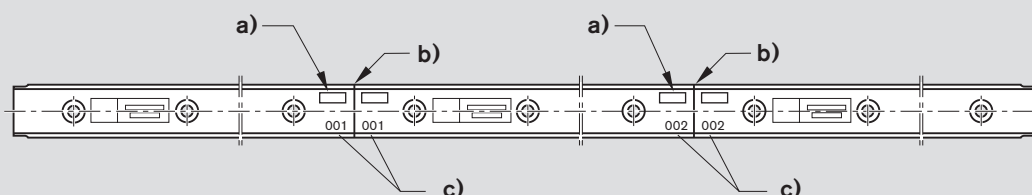
## Permissible side loads

Recommended values for permissible side forces without additional lateral retention of the rail.

| Size - Version       | 20  | 25  | 32  | 32-2 | 42   | 52   | 52-2 | 52-4 |
|----------------------|-----|-----|-----|------|------|------|------|------|
| F <sub>per</sub> (N) | 200 | 330 | 450 | 900  | 1000 | 1000 | 1600 | 4000 |

## Composite Guide Rails made up of several sections

- a) Rail number  
b) Joint  
c) Joint number



## Mounting Instructions

### Instructions for mounting Standard and Super Runner Blocks to the Guide Rail

To mount the runner block:

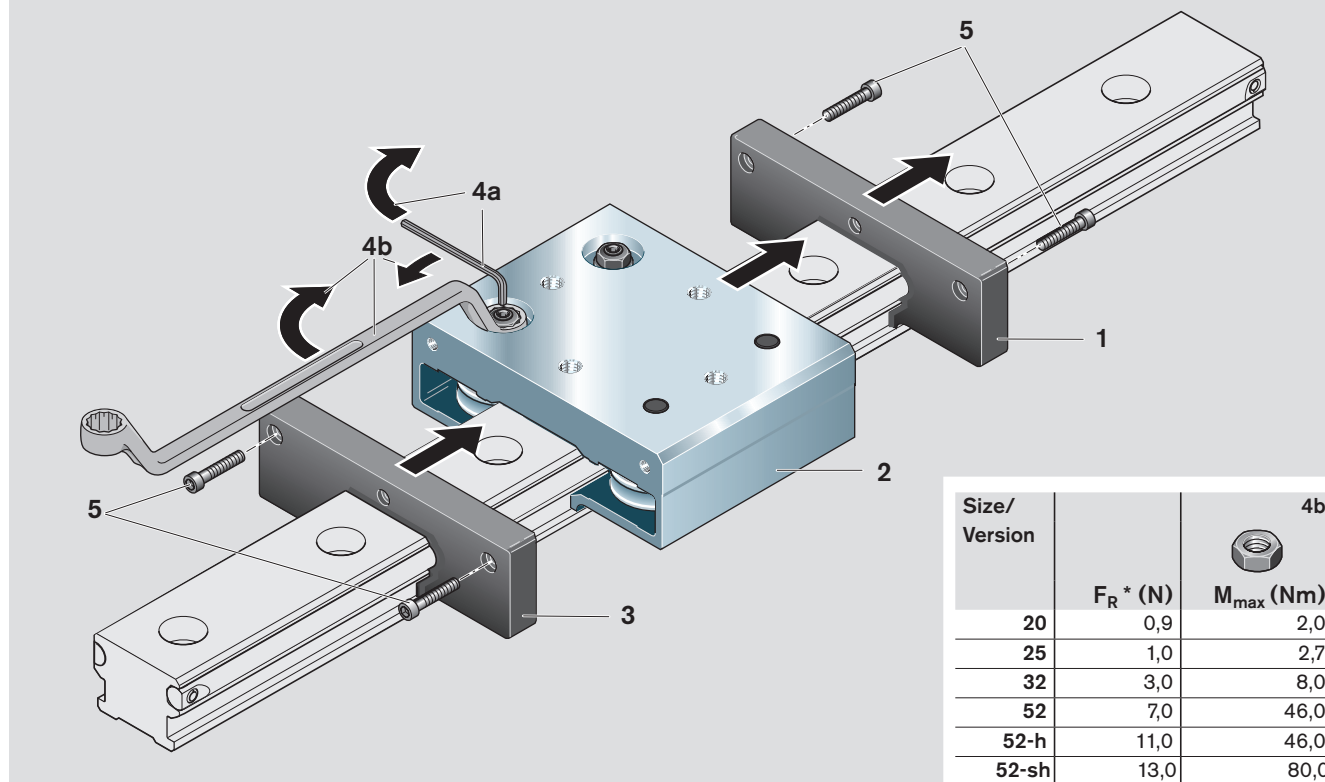
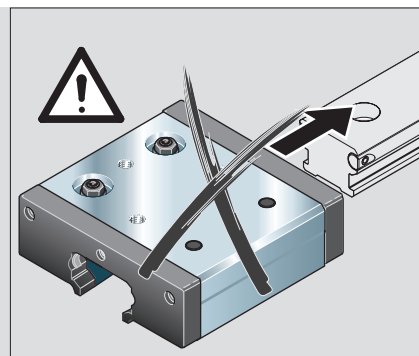
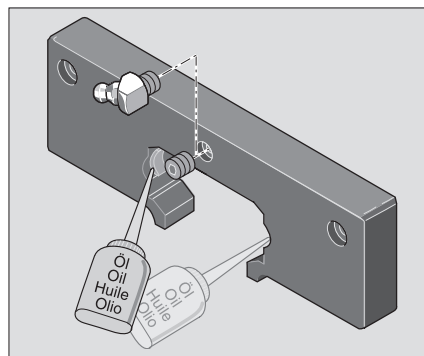
The oil applicator and wiper units ("oiling units" for short) are delivered separate to facilitate installation work.

- Before pushing on the oiling units, wet them with oil (for the type of oil, see "Lubrication").
- Push on the first oiling unit (1): The felt wiper strips are automatically pressed in by the chamfers on the steel shafts.
- Carefully slide the runner block (2) onto the guide rail.
- Adjust the eccentric rollers (4a), until a slight shifting force  $F_R$  is felt (see table for recommended values).

- Tighten the hex nut to torque as shown in the table using a hex wrench to stop the pin from turning (4b).
- Mount the second oiling unit (3).
- Screw the two oiling units to the runner block (5).

**⚠ After mounting, the runner block should move freely when pushed.**

- Fill the oiling unit with oil after it has been mounted.



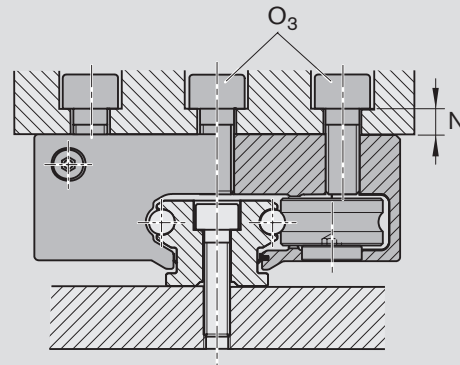
| Size/<br>Version | $F_R^*$ (N) | $M_{max}$ (Nm) |
|------------------|-------------|----------------|
| 20               | 0,9         | 2,0            |
| 25               | 1,0         | 2,7            |
| 32               | 3,0         | 8,0            |
| 52               | 7,0         | 46,0           |
| 52-h             | 11,0        | 46,0           |
| 52-sh            | 13,0        | 80,0           |

\* Computed average shifting force of the runner block for standard adjustment 0.08 C

## Mounting Superstructures on Runner Blocks:

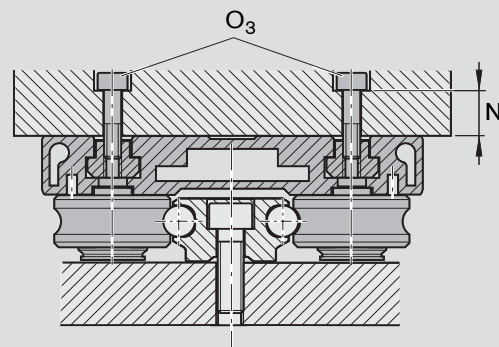
### Standard Runner Block R1902, R1906

- Use screws as per table. Do not use overlong screws! Observe the minimum material strength N!
- Align the superstructure.
- Torque up the screws to the values given in the table.



### Profile Runner Block R1907-

- Use screws as per table. Do not use overlong screws! Observe the minimum material strength N!
- Align the superstructure.
- Torque up the screws to the values given in the table.



### Runner Blocks

| Size - Version                | 20    | 25    | 32    | 32-2  | 42     | 52     | 52-2   |
|-------------------------------|-------|-------|-------|-------|--------|--------|--------|
| O <sub>3</sub> (DIN ISO 4762) | M5x16 | M5x16 | M8x25 | M8X20 | M10x30 | M10x35 | M12x35 |
| N (mm)                        | 8     | 7     | 7     | 7     | 12     | 12     | 12     |

### Tightening torques for mounting screws

|  | 8.8  | M4  | M5  | M6  | M8 | M10 | M12 |
|--|------|-----|-----|-----|----|-----|-----|
|  | (Nm) | 2,7 | 5,5 | 9,5 | 23 | 46  | 80  |

### Design of mounting surface

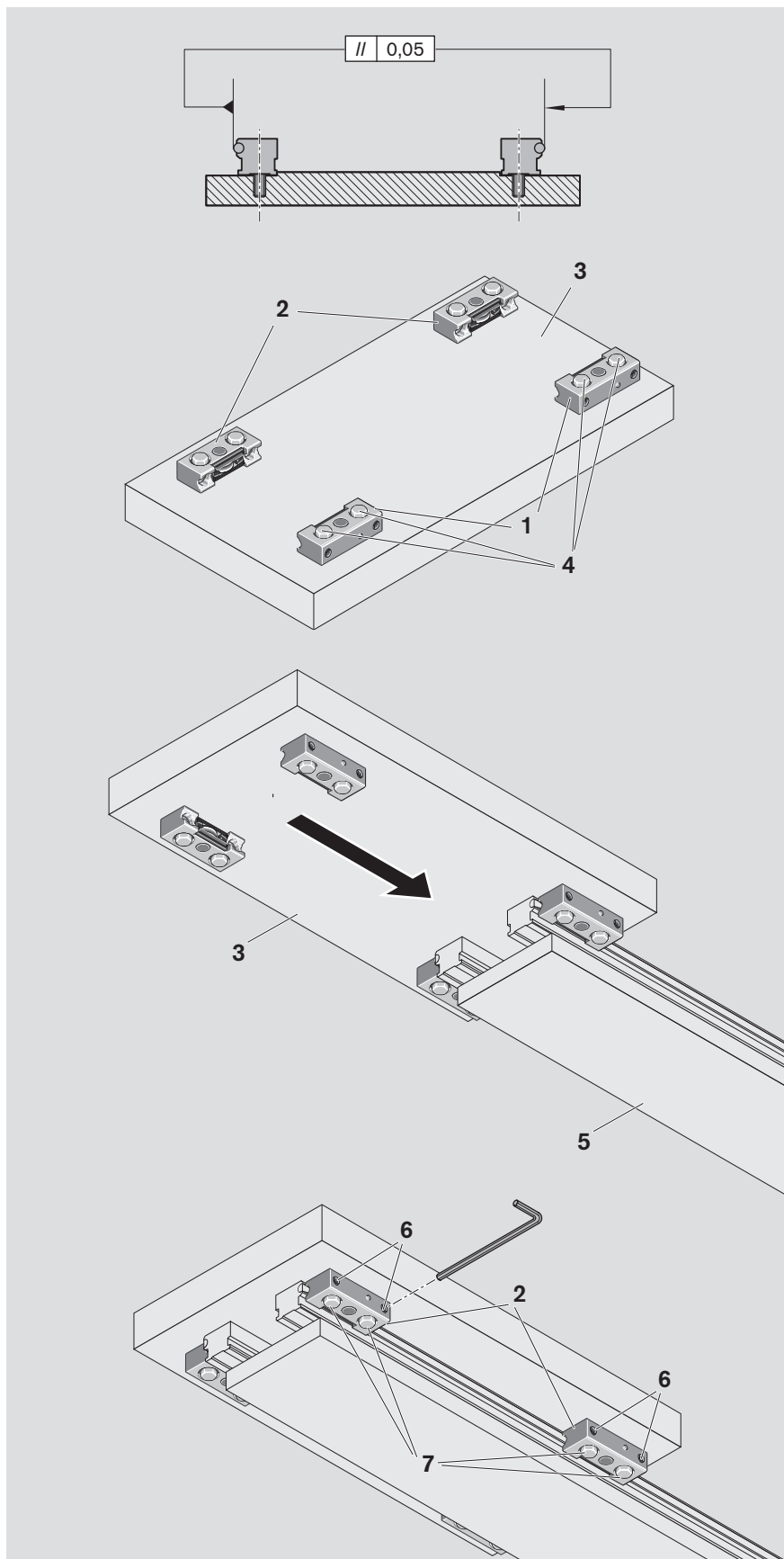
Unevenness or distortion of mounting surfaces (adjoining structures) will impair the accuracy of the guideway and should be kept to a minimum.

## Mounting Instructions

### Mounting Single/Double Bearing Run- ner Blocks with Adjustment Screws

#### 1. Mounting

- Align and mount the rails.
- Preassemble runner blocks (1+2) on the carriage (3). Do not yet tighten the screws.
- Align the runner blocks on one side (1) of the carriage (3) and tighten the mounting screws (4) alternately until tightening torque  $M_A$  is reached.
- Slide the carriage (3) onto the rails (5).
- Adjust the runner blocks on the opposite side (2) to zero clearance against the guide rail using adjustment screws (6). Adjust the preload.
- Alternately tighten the mounting screws (7) on the runner blocks (2) until tightening torque  $M_A$  is reached.



| Size -Version | 32 | 52 | 52-h | 52-sh |
|---------------|----|----|------|-------|
| $M_A$ (Nm)    | 23 | 46 | 80   | 80    |

# Lubrication

## Lubrication

The runner blocks have an oiling unit at each end.

Apply oil to the felt wiper strips before installing runner blocks..

The lubricating plate contains a large oil chamber designed for long relubrication intervals.

### Oiling unit with large oil reservoir R1910-4..

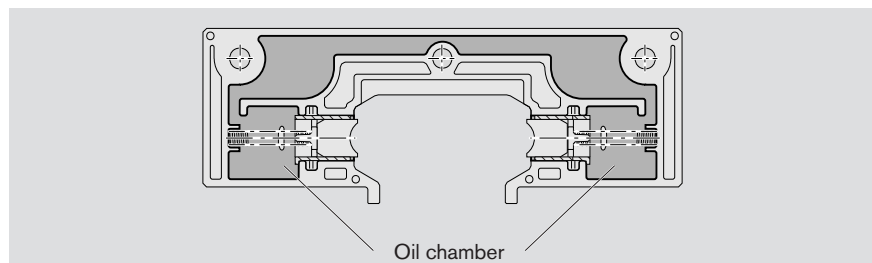
- Longer travel until in-service lubrication required:  $15 \cdot 10^5$  m stroke.
- Dual function: simultaneous lubricating and wiping.
- Targeted shaft lubrication.
- Lubrication even at  $90^\circ$  orientation.
- Introduce the oil slowly and at low pressure for both initial lubrication and relubrication.

Initial lubrication:

- For sizes 20 to 32, slowly introduce the entire volume of oil in one stroke and at low pressure. For size 52, introduce the oil volume in three equal partial quantities. Refer to the table for the required oil volume.

Relubrication:

- Fill the oil chamber until excess emerges



| Size - Version | Part Number  | Oil volume for initial lubrication (cm³) |
|----------------|--------------|------------------------------------------|
| 20             | R1910 419 00 | 2,5                                      |
| 25             | R1910 425 00 | 3,0                                      |
| 32             | R1910 432 00 | 6,5                                      |
| 52             | R1910 452 00 | 18,0                                     |
| 52-h           | R1910 452 10 | 20,0                                     |
| 52-sh          | R1910 452 20 | 20,0                                     |

### Lubricant:

Oil lubrication of runner blocks (including U-type)

We recommend lubricating oil CLP, CGLP per DIN 51517 with a viscosity ISO VG 220 approx.  $680 \text{ mm}^2/\text{s}$  at  $40^\circ\text{C}$  per DIN 51519.

### Grease lubrication of bearing runner blocks

We recommend grease lubricants to DIN 51825 - K P2 K20.

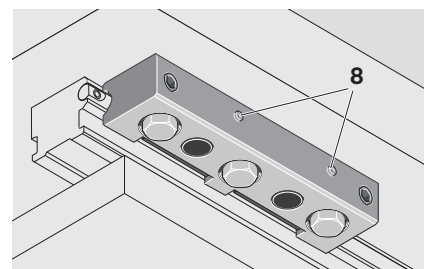
A grease of this type, Dynalub 510, is available in a 400 g cartridge.

Part number: R3416 037 00

**Caution: Do not use greases containing solid lubricant particles (e.g., graphite or  $\text{MoS}_2$ ).**

In-service lubricating intervals will depend on the application and the ambient conditions.

- Lubricate S/D bearing runner blocks until excess grease emerges.
- For double bearing runner blocks, use both lube nipples (8)!



### Minimum stroke length

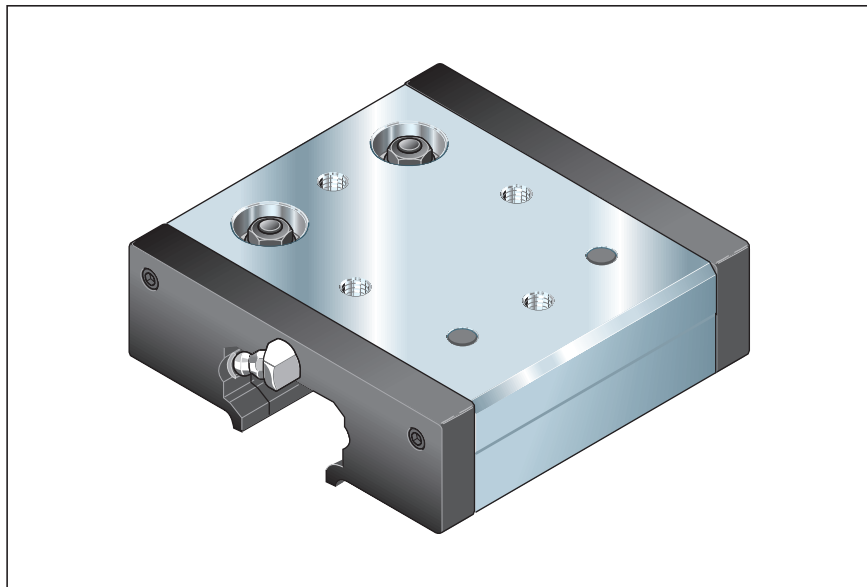
As a rule, the stroke length should not be less than the length of the runner block. For applications with shorter stroke lengths, please consult us.

### Angular contact bearings

The angular contact ball bearings in the roller elements are sealed and lubricated for life.

## Standard Runner Blocks

### Runner Block R1902



Part numbers,  
load capacities and moments for  
calculating service life

| Size<br>-Version | Part number  | Load capacities |                 |              |                 | Moment loads  |                  |               |                  |               |                  |
|------------------|--------------|-----------------|-----------------|--------------|-----------------|---------------|------------------|---------------|------------------|---------------|------------------|
|                  |              |                 |                 |              |                 |               |                  |               |                  |               |                  |
|                  |              | $C_y$<br>(N)    | $C_{y0}$<br>(N) | $C_z$<br>(N) | $C_{z0}$<br>(N) | $M_x$<br>(Nm) | $M_{xo}$<br>(Nm) | $M_y$<br>(Nm) | $M_{yo}$<br>(Nm) | $M_z$<br>(Nm) | $M_{zo}$<br>(Nm) |
| 20               | R1902 119 00 | 2300            | 1600            | 1336         | 783             | 10,7          | 6,3              | 22,7          | 13,3             | 39            | 27               |
| 25               | R1902 125 00 | 2550            | 1780            | 1357         | 803             | 13,0          | 7,6              | 30,5          | 18,0             | 57            | 40               |
| 32               | R1902 132 00 | 7335            | 4560            | 4300         | 2200            | 56,0          | 29,0             | 129,0         | 66,0             | 220           | 137              |
| 52               | R1902 152 00 | 17150           | 10200           | 10050        | 4900            | 211,0         | 103,0            | 301,0         | 147,0            | 515           | 306              |
| 52-h             | R1902 252 00 | 27900           | 15400           | 16775        | 7630            | 352,0         | 160,0            | 880,0         | 400,0            | 1465          | 808              |
| 52-sh            | R1902 352 00 | 31000           | 18200           | 18400        | 8750            | 390,0         | 184,0            | 1100,0        | 520,0            | 1860          | 1100             |

#### Important:

Observe maximum permissible  
loads due to forces and moments  
as shown in the "Maximum  
Permissible Loads" tables!

The part numbers refer to runner blocks with oiling units.

Part numbers for runner blocks without oiling units:

Size R1901 ... 00 (otherwise as shown in table)

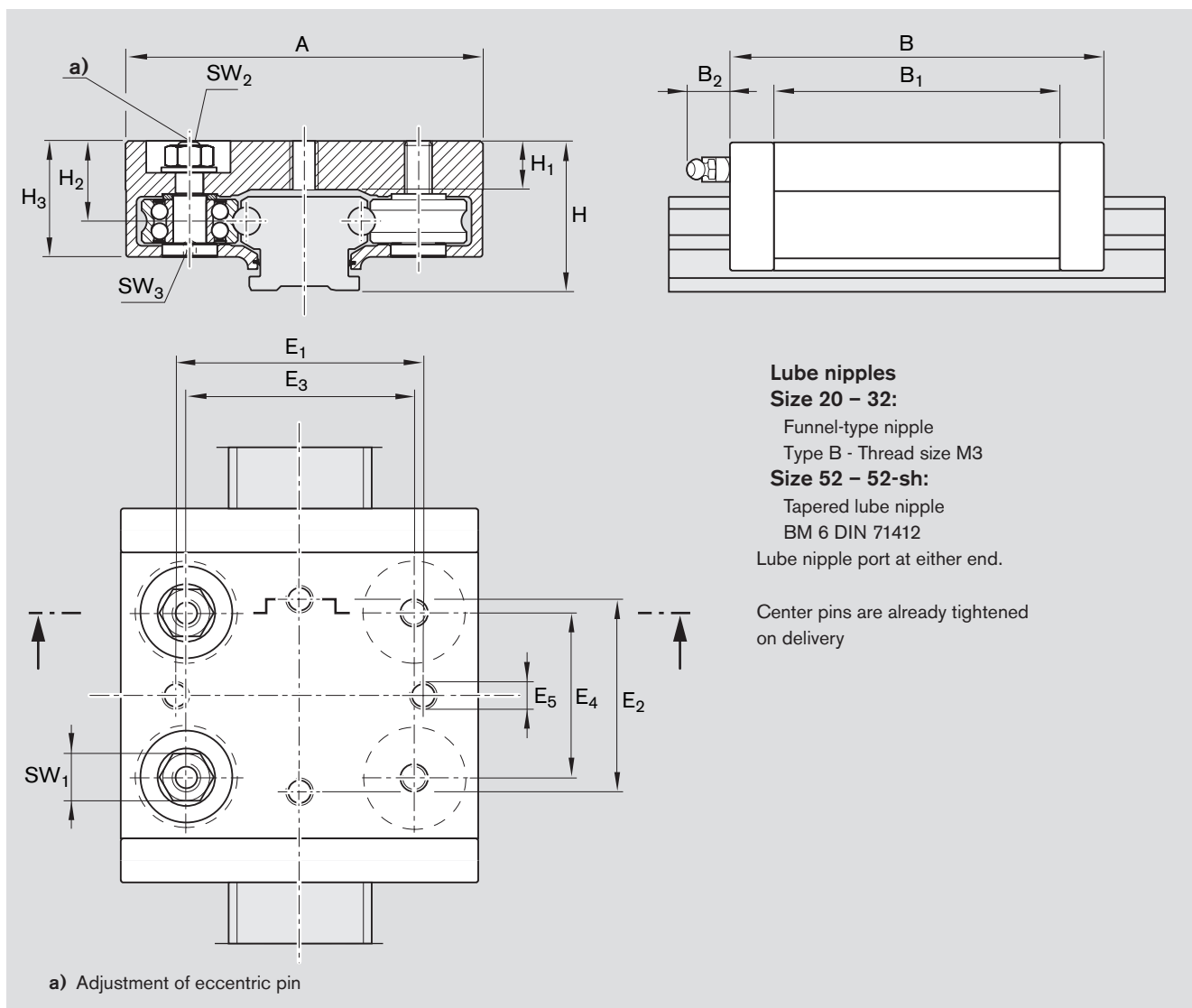
Part numbers for oiling units without runner blocks:

Size 20-52 R1910 4.. 00 (otherwise as shown in table)

Size 52-h R1910 452 10

Size 52-sh R1910 452 20

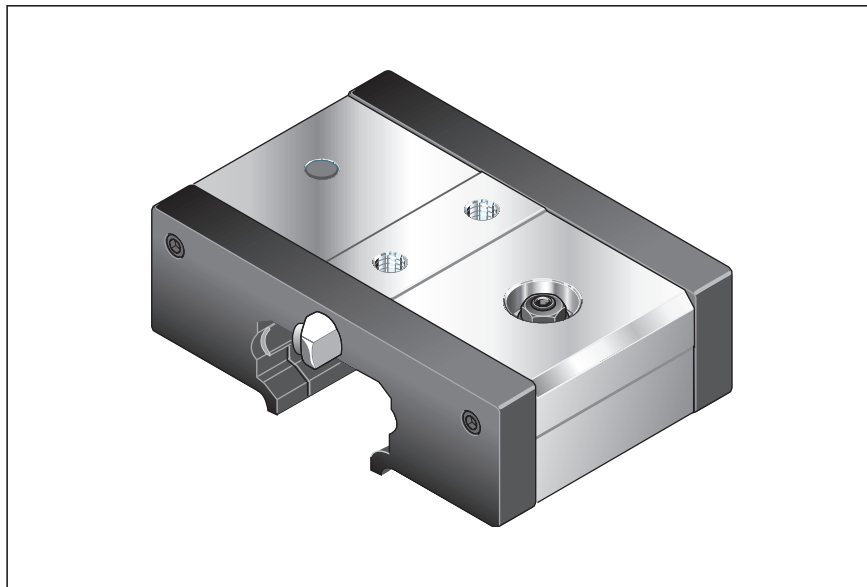




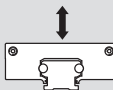
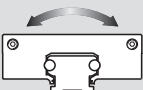
| Size<br>-Version | Dimensions (mm) |     |                |                |      |                |                |                |                |                |                |                |                |                 |                 |                 | Mass<br>(kg) |
|------------------|-----------------|-----|----------------|----------------|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|--------------|
|                  | A               | B   | B <sub>1</sub> | B <sub>2</sub> | H    | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | E <sub>1</sub> | E <sub>2</sub> | E <sub>3</sub> | E <sub>4</sub> | E <sub>5</sub> | SW <sub>1</sub> | SW <sub>2</sub> | SW <sub>3</sub> |              |
| 20               | 56              | 79  | 59             | 7              | 22,0 | 8,5            | 13,0           | 20,0           | 39             | 49             | 34,0           | 34             | M5             | 7               | 2               | 2               | 0,20         |
| 25               | 65              | 95  | 75             | 7              | 25,0 | 9,0            | 14,4           | 22,3           | 50             | 60             | 40,0           | 45             | M5             | 7               | 2               | 2               | 0,25         |
| 32               | 86              | 112 | 92             | 7              | 35,5 | 13,0           | 20,5           | 29,5           | 59             | 70             | 54,0           | 60             | M8             | 10              | 3               | 4               | 0,56         |
| 52               | 130             | 136 | 104            | 16             | 54,3 | 19,4           | 29,2           | 42,2           | 90             | 70             | 83,3           | 60             | M10            | 16              | 4               | 6               | 1,50         |
| 52-h             | 145             | 186 | 154            | 16             | 60,4 | 24,0           | 35,3           | 51,0           | 105            | 110            | 90,0           | 105            | M10            | 16              | 4               | 6               | 2,60         |
| 52-sh            | 155             | 205 | 173            | 16             | 60,4 | 24,0           | 35,3           | 51,0           | 115            | 140            | 95,0           | 120            | M12            | 18              | 6               | 8               | 3,30         |

# Super Runner Blocks

## Runner Block R1906



Part numbers,  
load capacities and moments for  
calculating service life

|                  |              | Load capacities                                                                    |                 |                                                                                    |                 | Moment loads                                                                         |                  |
|------------------|--------------|------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------|------------------|
|                  |              |  |                 |  |                 |  |                  |
| Size<br>-Version | Part number  | $C_y$<br>(N)                                                                       | $C_{y0}$<br>(N) | $C_z$<br>(N)                                                                       | $C_{z0}$<br>(N) | $M_x$<br>(Nm)                                                                        | $M_{x0}$<br>(Nm) |
| 20               | R1906 119 00 | 1150                                                                               | 800             | 660                                                                                | 390             | 5,4                                                                                  | 3,1              |
| 25               | R1906 125 00 | 1275                                                                               | 890             | 670                                                                                | 400             | 6,5                                                                                  | 3,8              |

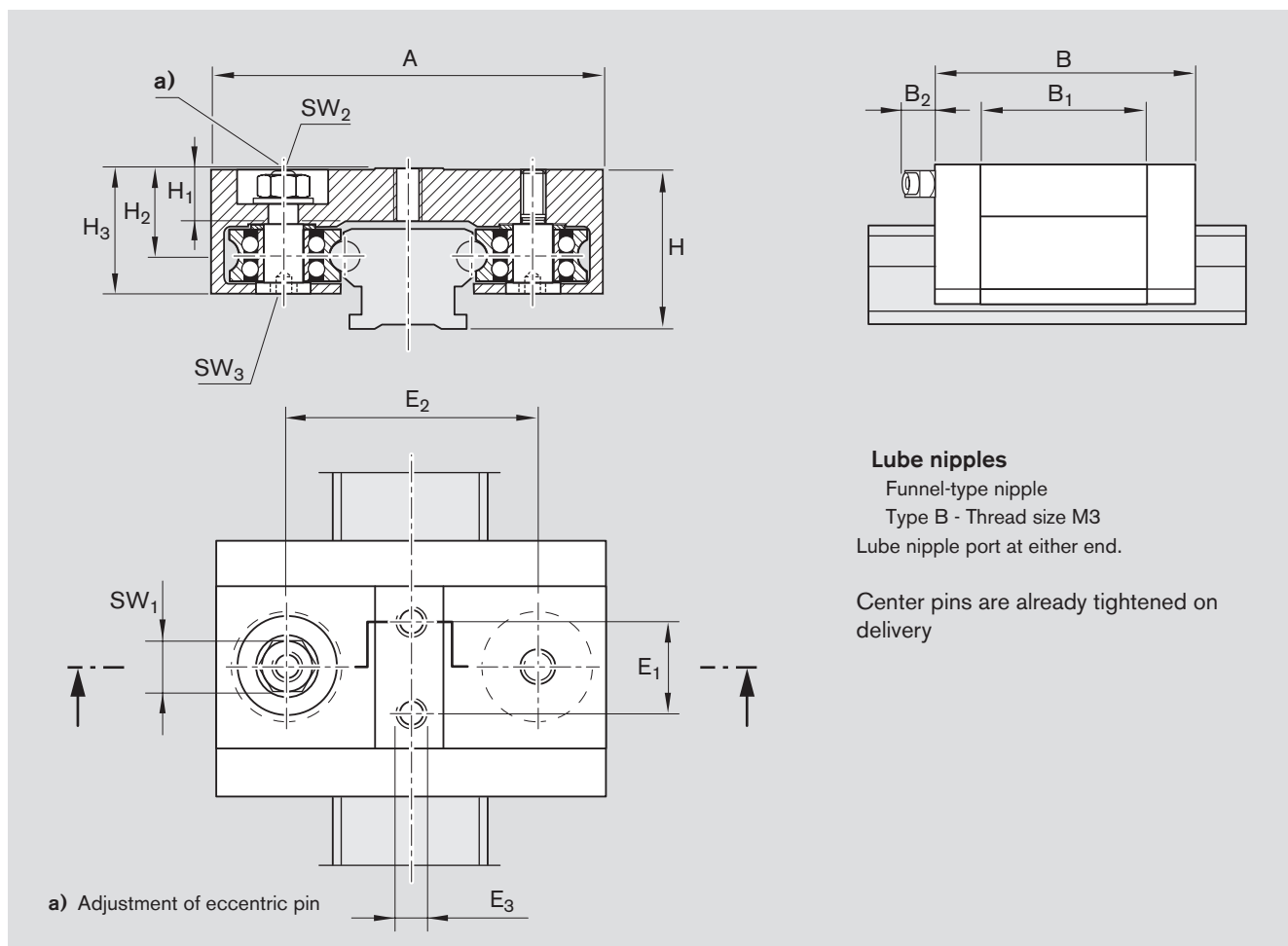
### Important:

Observe maximum permissible  
loads due to forces and moments  
as shown in the "Maximum  
Permissible Loads" tables!

The part numbers refer to runner blocks with oiling units.

Part numbers for runner blocks without oiling units:  
R1906 1.. 30 (otherwise as shown in table)

Part numbers for oiling units without runner blocks:  
R1910 4.. 00 (otherwise as shown in table)



| Size<br>-Version | Dimensions (mm) |    |                |                |      |                |                |                |                |                |                |                 |                 |                 | Mass<br>(kg) |
|------------------|-----------------|----|----------------|----------------|------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|--------------|
|                  | A               | B  | B <sub>1</sub> | B <sub>2</sub> | H    | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | E <sub>1</sub> | E <sub>2</sub> | E <sub>3</sub> | SW <sub>1</sub> | SW <sub>2</sub> | SW <sub>3</sub> |              |
| 20               | 56              | 50 | 30             | 7              | 22,0 | 8,5            | 13,0           | 20,0           | 17             | 34             | M5             | 7               | 2               | 2               | 0,10         |
| 25               | 65              | 50 | 30             | 7              | 25,0 | 9,0            | 14,4           | 22,3           | 20             | 40             | M5             | 7               | 2               | 2               | 0,10         |

## Profile Runner Blocks

### Profile Runner Block R1907

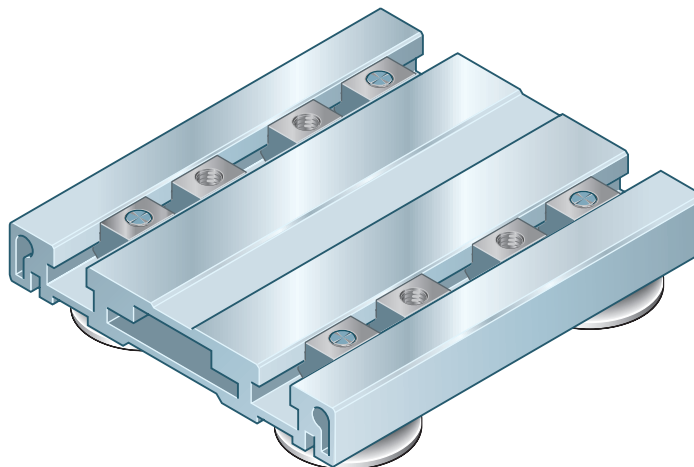
#### Accessories:

A separate oil applicator unit can be ordered for each cam roller of the profile runner block.

Part number: R1910 442 00

We recommend full lubrication with four oiling units.

For more information, see "Accessories".

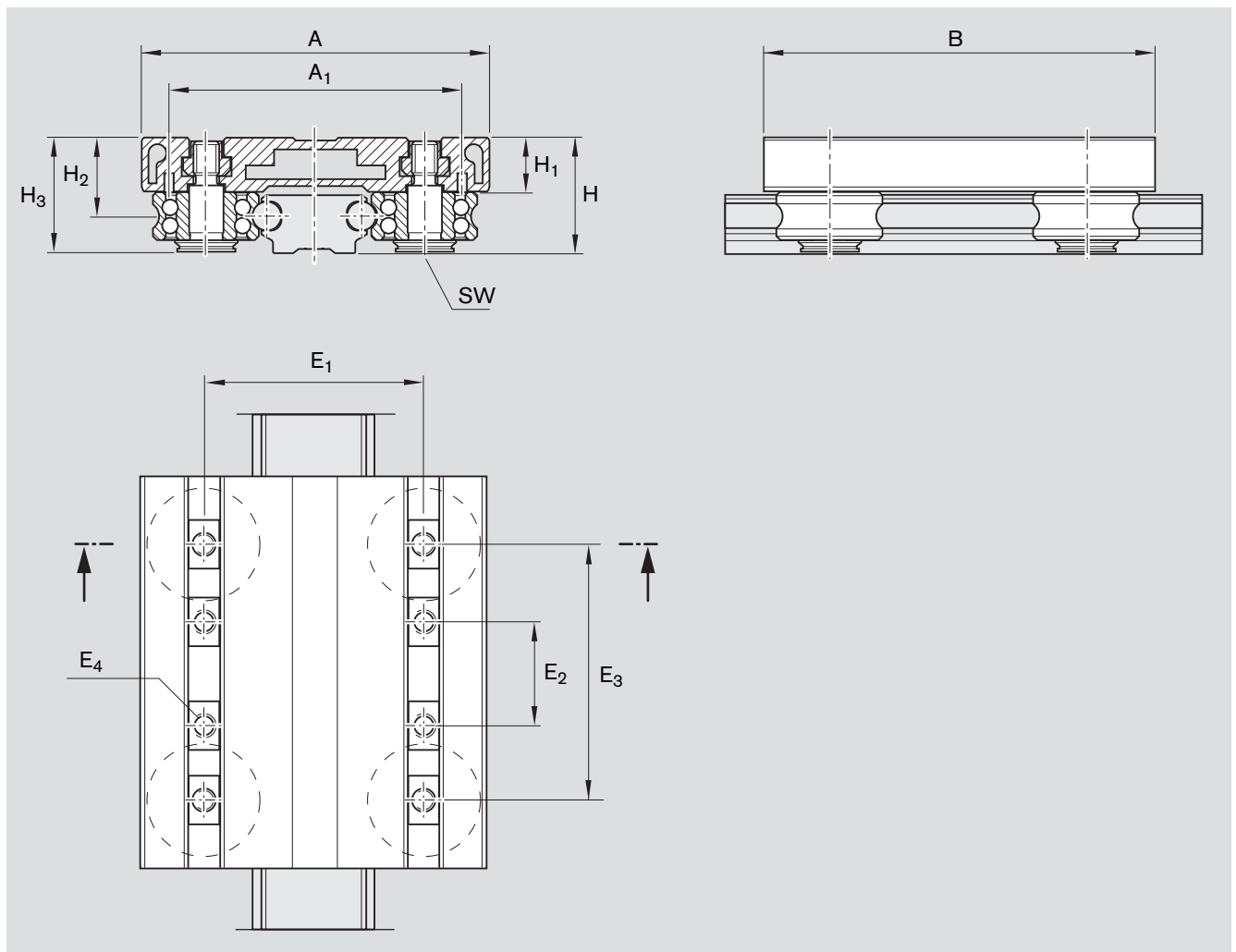


Part numbers,  
load capacities and moments for  
calculating service life

|      |              | Load capacities |                 |              |                 | Moment loads  |                  |               |                  |               |                  |
|------|--------------|-----------------|-----------------|--------------|-----------------|---------------|------------------|---------------|------------------|---------------|------------------|
|      |              |                 |                 |              |                 |               |                  |               |                  |               |                  |
| Size | Part number  | $C_y$<br>(N)    | $C_{y0}$<br>(N) | $C_z$<br>(N) | $C_{z0}$<br>(N) | $M_x$<br>(Nm) | $M_{x0}$<br>(Nm) | $M_y$<br>(Nm) | $M_{y0}$<br>(Nm) | $M_z$<br>(Nm) | $M_{z0}$<br>(Nm) |
| 42   | R1907 142 00 | 17150           | 10200           | 10050        | 4900            | 162           | 97               | 430           | 258              | 729           | 433              |

#### Important:

Observe maximum permissible  
loads due to forces and moments  
as shown in the "Maximum  
Permissible Loads" tables!

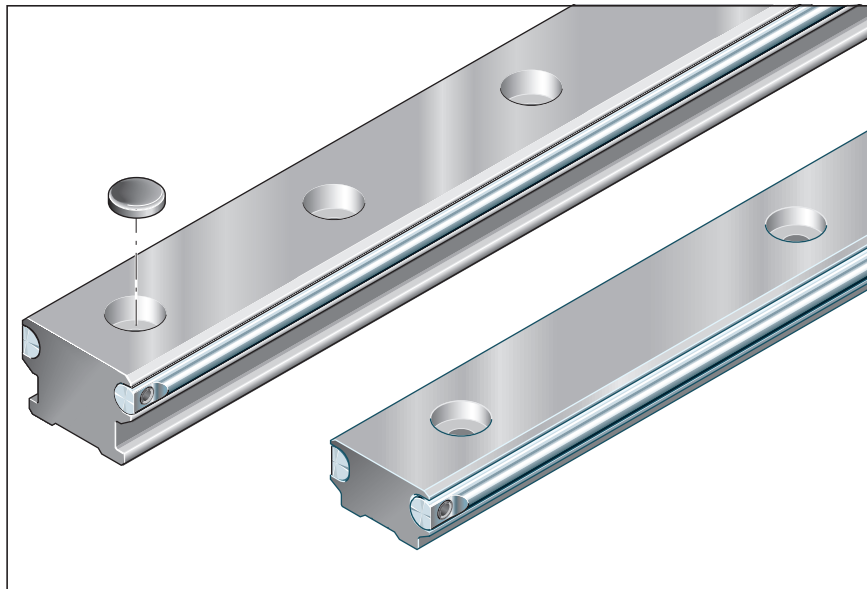


| Size<br>-Version | Dimensions (mm) |                |     |    |                |                |                |                |                |                |                |                 | Mass<br>(kg) |
|------------------|-----------------|----------------|-----|----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|--------------|
|                  | A               | A <sub>1</sub> | B   | H  | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | E <sub>1</sub> | E <sub>2</sub> | E <sub>3</sub> | E <sub>4</sub> | SW <sub>1</sub> |              |
| 42               | 116             | 98,5           | 150 | 39 | 18             | 26,4           | 38,1           | 73             | 15 - 55        | 85             | M8             | 6               | 1,03         |

## Guide Rails

### Guide Rail standard R1921

- For mounting from above
- Optional mounting hole plugs (to be ordered separately)
- Corrosion resistant steel shafts to DIN EN ISO 683-17 / EN 10088



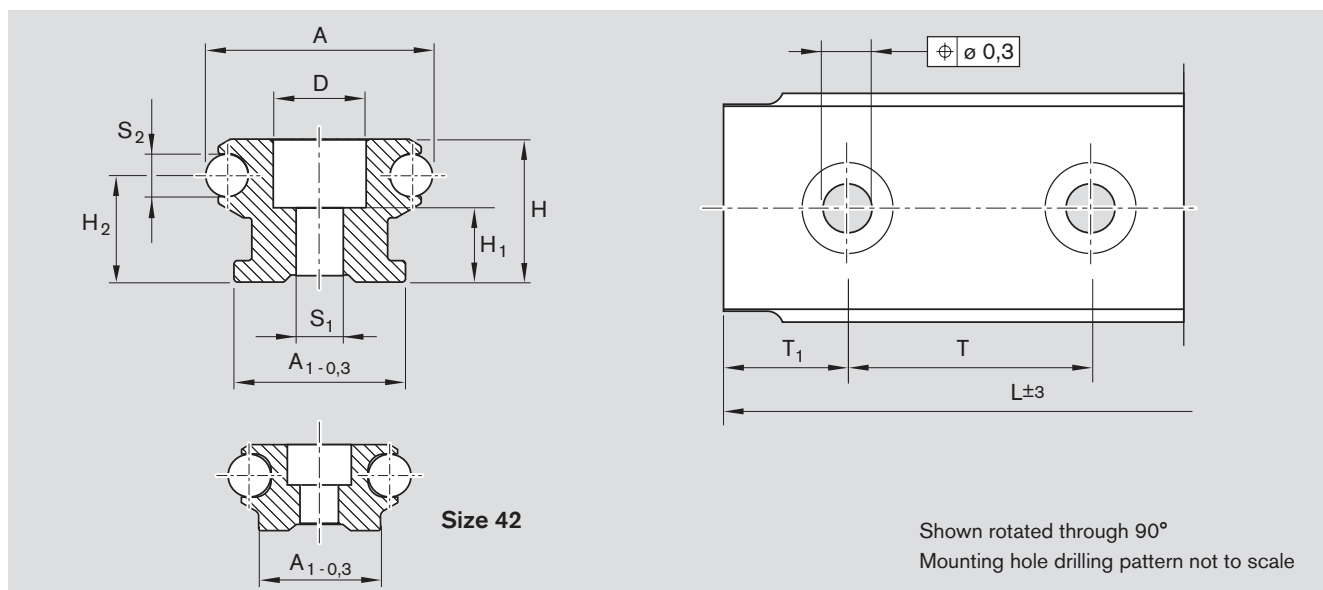
### Part numbers, lengths

| Size<br>-Version | Standard length <sup>1)</sup><br>(mm) | L <sub>max</sub><br>(mm) | without holes<br>Part number<br>Length:,...(mm) | with holes<br>Part number<br>Length:,...(mm) | Abdeckkappen<br>Part number<br>Quantity:,... | Holes<br>per meter <sup>1)</sup> |
|------------------|---------------------------------------|--------------------------|-------------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------|
| 20               | 3500                                  | 7000                     | R1921 019 31,...                                | R1921 119 31,...                             | R1605 800 80,...                             | 16                               |
| 25               | 3500                                  | 7000                     | R1921 025 31,...                                | R1921 125 31,...                             | R1605 800 80,...                             | 16                               |
| 32               | 3500                                  | 7000                     | R1921 032 31,...                                | R1921 132 31,...                             | R1605 200 80,...                             | 8                                |
| 32-2             | 3500                                  | 7000                     | —                                               | R1921 232 31,...                             | R1605 200 80,...                             | 16                               |
| 42               | 3500                                  | 7000                     | R1921 042 31,...                                | R1921 142 31,...                             | R1605 300 80,...                             | 8                                |
| 52               | 3500                                  | 7000                     | R1921 052 31,...                                | R1921 152 31,...                             | R1605 400 90,...                             | 4                                |
| 52-2             | 3500                                  | 7000                     | —                                               | R1921 252 31,...                             | R1605 400 90,...                             | 8                                |
| 52-4             | 3500                                  | 7000                     | —                                               | R1921 452 31,...                             | R1605 500 90,...                             | 16                               |

1) Running tracks up to 3500 mm are made of one-piece precision steel shafts.

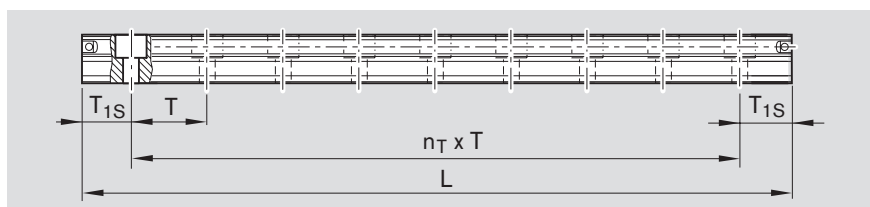
2) Number for one meter at preferred length T<sub>1S</sub>

| Size<br>-Version   | Hole spacing T<br>(mm) | Recommended rail lengths<br>Number of holes/Rail length L (mm) |         |         |         |
|--------------------|------------------------|----------------------------------------------------------------|---------|---------|---------|
| 20, 25, 32-2, 52-4 | 62,5                   | 2/121                                                          | 10/621  | 18/1121 | 40/2496 |
|                    |                        | 4/246                                                          | 12/746  | 20/1246 | 50/3125 |
|                    |                        | 6/371                                                          | 14/871  | 24/1496 | 56/3496 |
|                    |                        | 8/496                                                          | 16/996  | 30/1871 |         |
| 32, 42, 52-2       | 125                    | 2/246                                                          | 10/1246 | 18/2246 | 28/3496 |
|                    |                        | 4/496                                                          | 12/1496 | 20/2496 |         |
|                    |                        | 6/746                                                          | 14/1746 | 22/2746 |         |
|                    |                        | 8/996                                                          | 16/1996 | 24/2996 |         |
| 52                 | 250                    | 2/496                                                          | 6/1496  | 14/3496 |         |
|                    |                        | 3/746                                                          | 8/1996  |         |         |
|                    |                        | 4/996                                                          | 10/2496 |         |         |
|                    |                        | 5/1246                                                         | 12/2996 |         |         |



| Size<br>-Version | Dimensions (mm) |                |    |                |                |      |                |                |       |                 |                     | Mass<br>(kg) |
|------------------|-----------------|----------------|----|----------------|----------------|------|----------------|----------------|-------|-----------------|---------------------|--------------|
|                  | A               | A <sub>1</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | D    | S <sub>1</sub> | S <sub>2</sub> | T     | T <sub>1S</sub> | T <sub>1 min.</sub> |              |
| 20               | 20              | 17             | 12 | 5,0            | 9,0            | 9,4  | 4,5            | 4              | 62,5  | 29,25           | 13                  | 0,60         |
| 25               | 25              | 21             | 15 | 6,0            | 10,6           | 9,4  | 5,5            | 6              | 62,5  | 29,25           | 13                  | 1,00         |
| 32               | 32              | 24             | 20 | 9,5            | 15,0           | 11,0 | 6,5            | 6              | 125,0 | 60,50           | 13                  | 1,60         |
| 32-2             | 32              | 24             | 20 | 9,5            | 15,0           | 11,0 | 6,5            | 6              | 62,5  | 29,25           | 13                  | 1,60         |
| 42               | 42              | 28             | 20 | 9,0            | 12,6           | 15,0 | 9,0            | 10             | 125,0 | 60,50           | 13                  | 2,68         |
| 52               | 52              | 40             | 34 | 19,0           | 25,1           | 20,0 | 11,0           | 10             | 250,0 | 123,00          | 20                  | 4,40         |
| 52-2             | 52              | 40             | 34 | 19,0           | 25,1           | 20,0 | 11,0           | 10             | 125,0 | 60,50           | 20                  | 4,40         |
| 52-4             | 52              | 40             | 34 | 17,0           | 25,1           | 24,0 | 13,0           | 10             | 62,5  | 29,25           | 20                  | 4,40         |

#### Ordering a guide rail



#### Calculating guide rail length

Recommendation:

Use preferred length T<sub>1S</sub>.

- Observe minimum spacing T<sub>1 min</sub>! (see table)
- T<sub>1</sub> is the same at either end of the rail.

$$L = n_B \cdot T - 4$$

or

$$L = n_T \cdot T + 2 \cdot T_{1S}$$

L = rail length (mm)  
T = hole spacing\*) (mm)  
T<sub>1S</sub> = preferred dimension\*) (mm)  
n<sub>B</sub> = number of holes  
n<sub>T</sub> = number of spaces  
\*) see table for values

#### Ordering example

Guide rail: size 25

Desired length: 620 to 625 mm

$$n_B = 620/T = 620/62.5 = 9.92$$

rounded to whole numbers  
= 10 holes,

$$n_T = n_B - 1 = 9$$

Rail ordering data:

Part number, length (mm)

T<sub>1</sub> / n<sub>T</sub> x T / T<sub>1</sub> (mm)

**R1921 125 31, 621**

**29,25 / 9 x 62,5 / 29,25**

Mounting hole plug ordering data:

Part number, quantity

**R1605 800 90, 10**

#### Length to be ordered

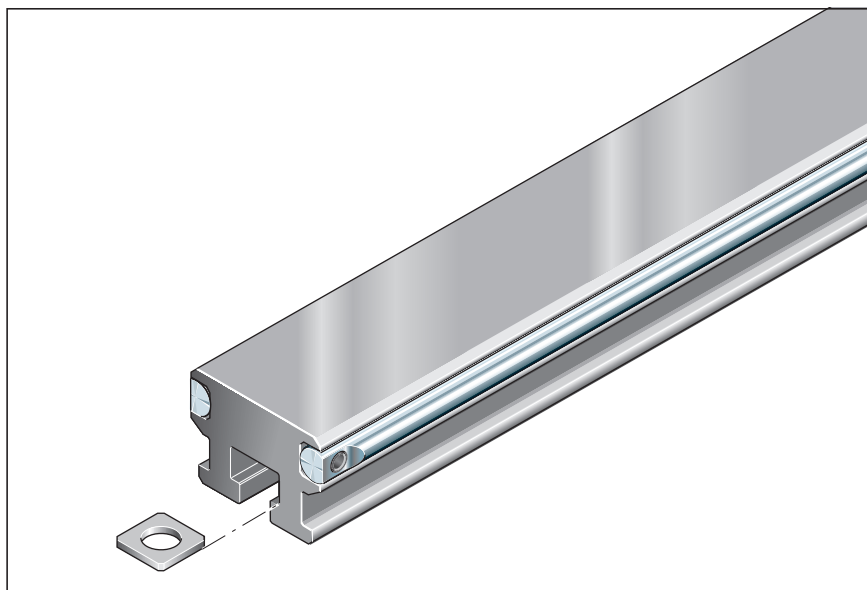
$$L = 10 \cdot 62.5 - 4 = 621 \text{ mm} \quad \text{or}$$

$$L = 9 \cdot 62.5 + 2 \cdot 29.25 = 621 \text{ mm}$$

## Guide Rails

### Guide Rail with T-slot R1922

- For mounting from below
- Washers supplied (quantity according to spacing T)
- Corrosion resistant steel shafts to DIN EN ISO 683-17 / EN 10088

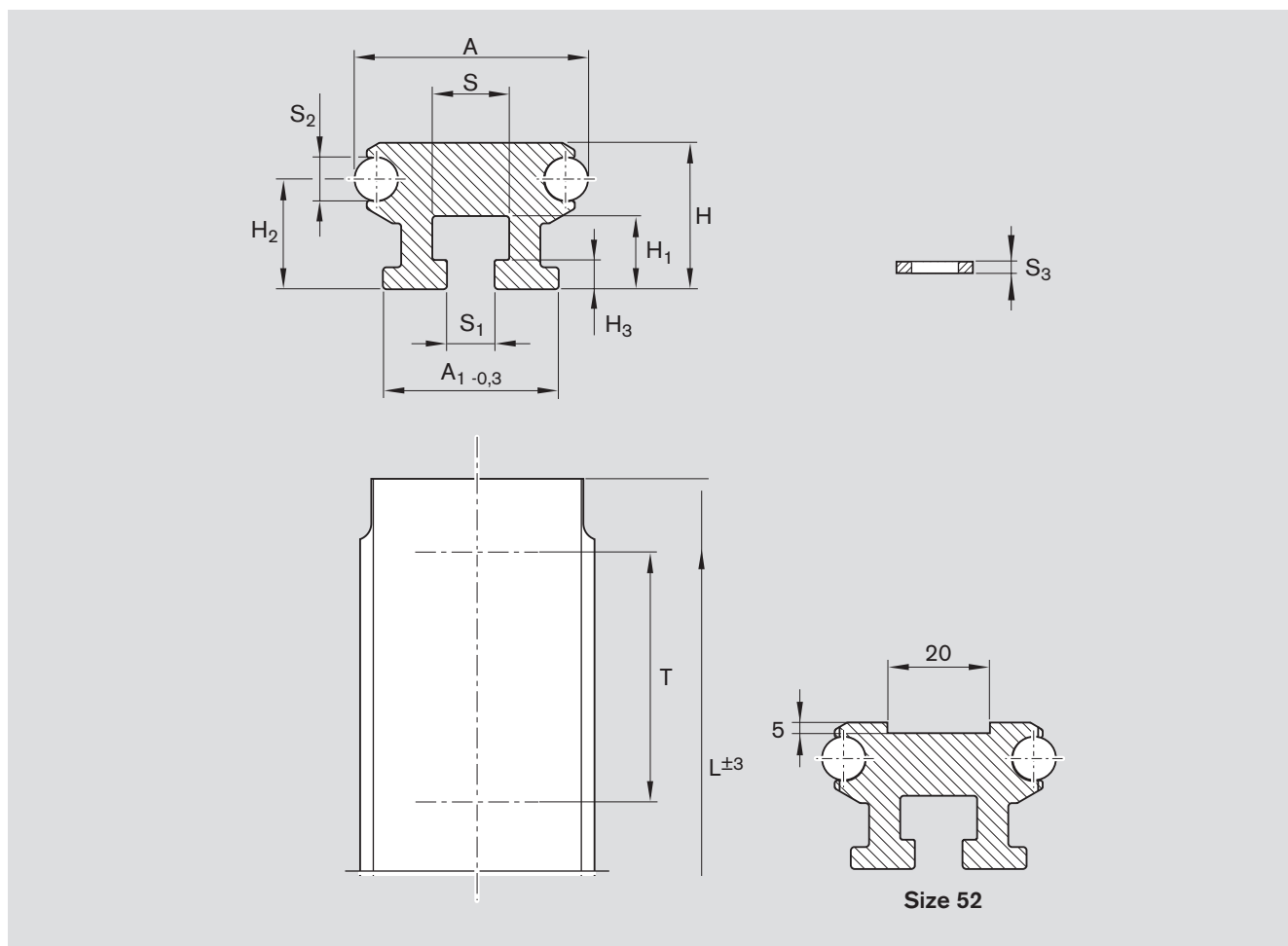


### Part numbers, lengths

| Guide Rail with T-slot |                               |                          |                               |
|------------------------|-------------------------------|--------------------------|-------------------------------|
| Size                   | Standard length <sup>1)</sup> | L <sub>max</sub><br>(mm) | Part number<br>Length;...(mm) |
| 25                     | 3500                          | 7000                     | R1922 025 31,...              |
| 32                     | 3500                          | 7000                     | R1922 032 31,...              |
| 52                     | 3500                          | 7000                     | R1922 052 31,...              |

1) Running tracks up to 3500 mm are made of one-piece precision steel shafts.





**Note**

See "Mounting Instructions, Guide Rail Mounting".

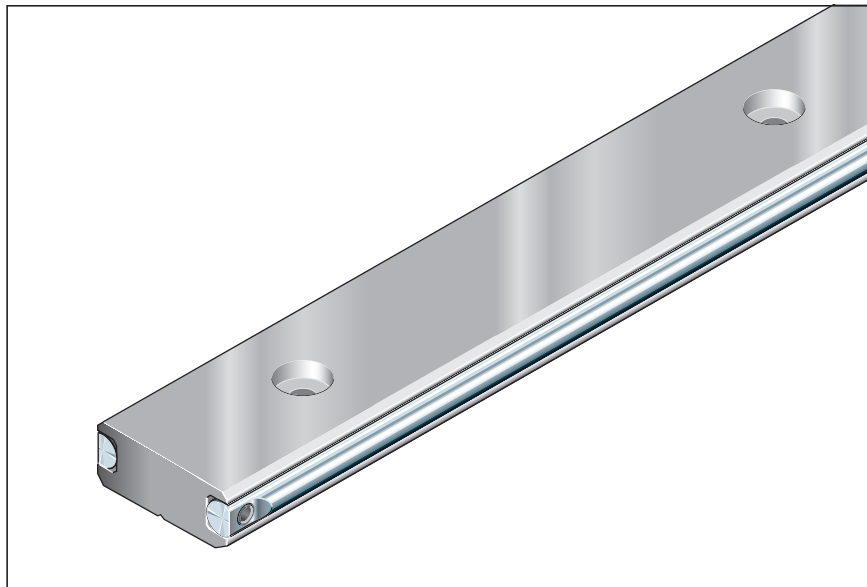
| Dimensions (mm) |    |                |    |                |                |                |      |                |                |                |       | Mass   |
|-----------------|----|----------------|----|----------------|----------------|----------------|------|----------------|----------------|----------------|-------|--------|
| Size            | A  | A <sub>1</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | S    | S <sub>1</sub> | S <sub>2</sub> | S <sub>3</sub> | T     | (kg/m) |
| 25              | 25 | 21             | 15 | 8,0            | 10,6           | 3,0            | 8,2  | 5,5            | 6              | 1,0            | 62,5  | 0,95   |
| 32              | 32 | 24             | 20 | 10,0           | 15,0           | 4,0            | 10,5 | 6,5            | 6              | 1,6            | 125,0 | 1,60   |
| 52              | 52 | 40             | 34 | 15,4           | 25,1           | 6,4            | 18,5 | 11,0           | 10             | 1,6            | 250,0 | 3,60   |

T = Maximum distance between mounting screws

## Guide Rails

### Guide Rail, low profile R1924

- Corrosion resistant steel shafts to  
DIN EN ISO 683-17 / EN 10088

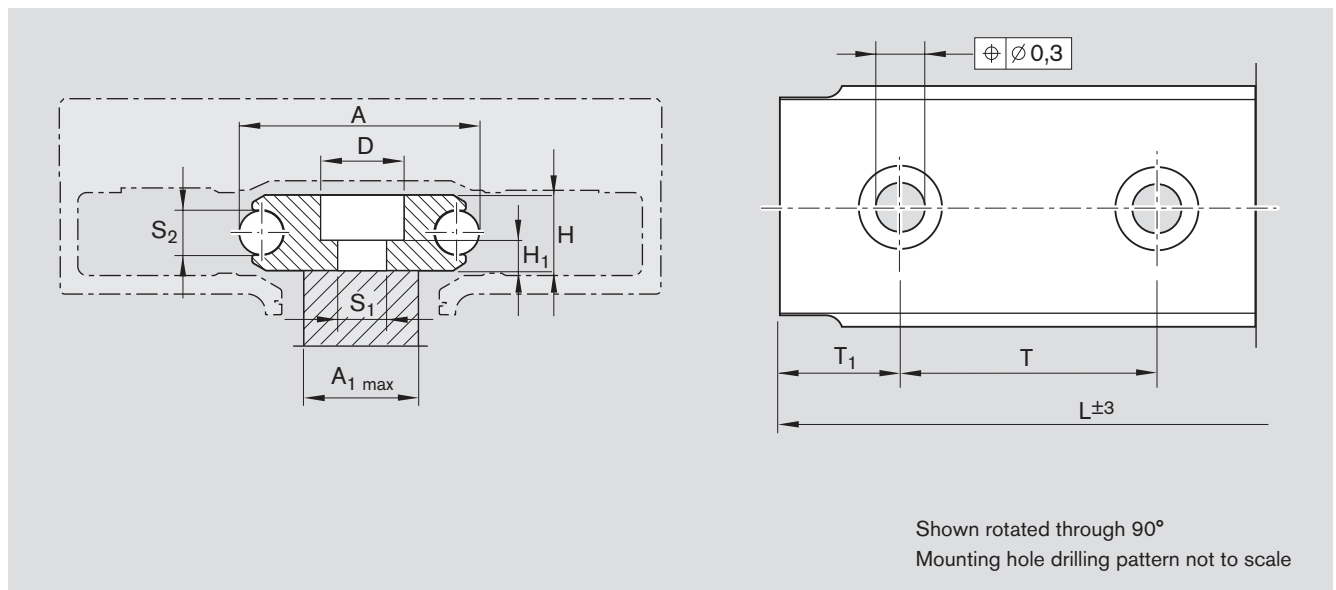


### Part numbers, lengths

| Guide Rail, low profile |                                       |                          | without holes                  | with holes                     |
|-------------------------|---------------------------------------|--------------------------|--------------------------------|--------------------------------|
| Size                    | Standard length <sup>1)</sup><br>(mm) | L <sub>max</sub><br>(mm) | Part number<br>Length:,...(mm) | Part number<br>Length:,...(mm) |
| 32                      | 3500                                  | 7000                     | R1924 032 31,...               | R1924 132 31,...               |
| 32-2                    | 3500                                  | 7000                     | –                              | R1924 232 31,...               |
| 52                      | 3500                                  | 7000                     | R1924 052 31,...               | R1924 152 31,...               |
| 52-2                    | 3500                                  | 7000                     | –                              | R1924 252 31,...               |
| 52-4                    | 3500                                  | 7000                     | –                              | R1924 452 31,...               |

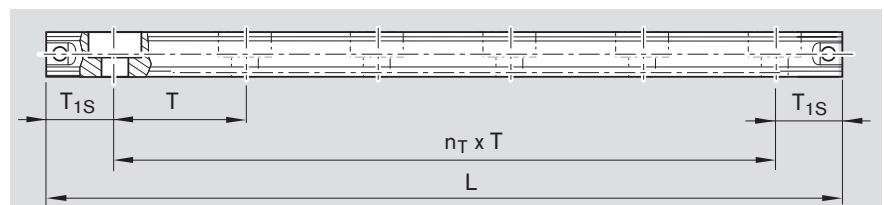
1) Running tracks up to 3500 mm are made of one-piece precision steel shafts.

| Size<br>-Version | Hole spacing T<br>(mm) | Recommended rail lengths           |         |         |         |
|------------------|------------------------|------------------------------------|---------|---------|---------|
|                  |                        | Number of holes/Rail length L (mm) |         |         |         |
| 32-2, 52-4       | 62,5                   | 2/121                              | 10/621  | 18/1121 | 40/2496 |
|                  |                        | 4/246                              | 12/746  | 20/1246 | 50/3125 |
|                  |                        | 6/371                              | 14/871  | 24/1496 | 56/3496 |
|                  |                        | 8/496                              | 16/996  | 30/1871 |         |
| 32, 52-2         | 125                    | 2/246                              | 10/1246 | 18/2246 | 28/3496 |
|                  |                        | 4/496                              | 12/1496 | 20/2496 |         |
|                  |                        | 6/746                              | 14/1746 | 22/2746 |         |
|                  |                        | 8/996                              | 16/1996 | 24/2996 |         |
| 52               | 250                    | 2/496                              | 6/1496  | 14/3496 |         |
|                  |                        | 3/746                              | 8/1996  |         |         |
|                  |                        | 4/996                              | 10/2496 |         |         |
|                  |                        | 5/1246                             | 12/2996 |         |         |



| Size<br>-Version | Dimensions (mm) |                    |    |                |                |    |                |                |        |                 |                     | Mass<br>(kg) |
|------------------|-----------------|--------------------|----|----------------|----------------|----|----------------|----------------|--------|-----------------|---------------------|--------------|
|                  | A               | A <sub>1 max</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | D  | S <sub>1</sub> | S <sub>2</sub> | T      | T <sub>1S</sub> | T <sub>1 min.</sub> |              |
| 32               | 32              | 19                 | 10 | 3,5            | 5              | 11 | 6,5            | 6              | 125,00 | 60,50           | 13                  | 1,1          |
| 32-2             | 32              | 19                 | 10 | 3,5            | 5              | 11 | 6,5            | 6              | 62,50  | 29,25           | 13                  | 1,1          |
| 52               | 52              | 32                 | 18 | 7,0            | 9              | 20 | 11,0           | 10             | 250,00 | 123,00          | 20                  | 3,1          |
| 52-2             | 52              | 32                 | 18 | 7,0            | 9              | 20 | 11,0           | 10             | 125,00 | 60,50           | 20                  | 3,1          |
| 52-4             | 52              | 32                 | 18 | 7,0            | 9              | 20 | 11,0           | 10             | 62,50  | 29,25           | 20                  | 3,1          |

## Ordering a guide rail



## Calculating guide rail length

Recommendation:

Use preferred length T<sub>1S</sub>.

- Observe minimum spacing T<sub>1 min</sub>! (see table)
- T<sub>1</sub> is the same at either end of the rail.

$$L = n_B \cdot T - 4$$

or

$$L = n_T \cdot T + 2 \cdot T_{1S}$$

L = rail length (mm)  
T = hole spacing\*) (mm)  
T<sub>1S</sub> = preferred dimension\*) (mm)  
n<sub>B</sub> = number of holes  
n<sub>T</sub> = number of spaces  
\*) see table for values

## Ordering example

Guide rail: size 25  
Desired length: 620 to 625 mm  
 $n_B = 620/T = 620/62.5 = 9.92$   
rounded to whole numbers  
= 10 holes,  
 $n_T = n_B - 1 = 9$

Rail ordering data:  
Part number, length (mm)  
T<sub>1</sub> / n<sub>T</sub> x T / T<sub>1</sub> (mm))  
**R1924 232 31, 621**  
**29,25 / 9 x 62,5 / 29,25**

## Length to be ordered

$$L = 10 \cdot 62.5 - 4 = 621 \text{ mm} \quad \text{or}$$

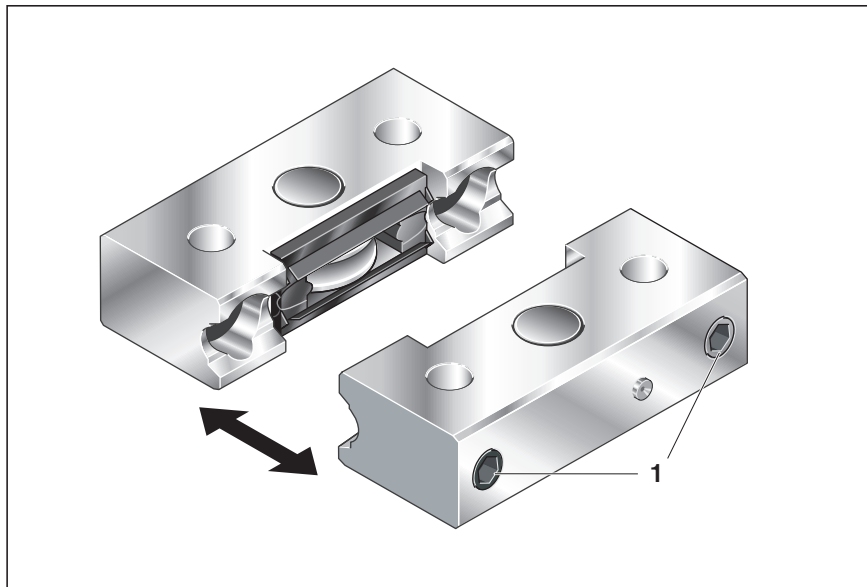
$$L = 9 \cdot 62.5 + 2 \cdot 29.25 = 621 \text{ mm}$$

## Single/Double Bearing Runner Blocks with Adjustment Screws

### Single Bearing Runner Blocks R1903

Special features:

- Freely selectable carriage structure spacing.
- Zero-clearance adjustment using socket hex screws (1) on the rear side of the runner blocks.
- Tough all-round sealing gives excellent wiper performance.
- Grease lubricant recommended.



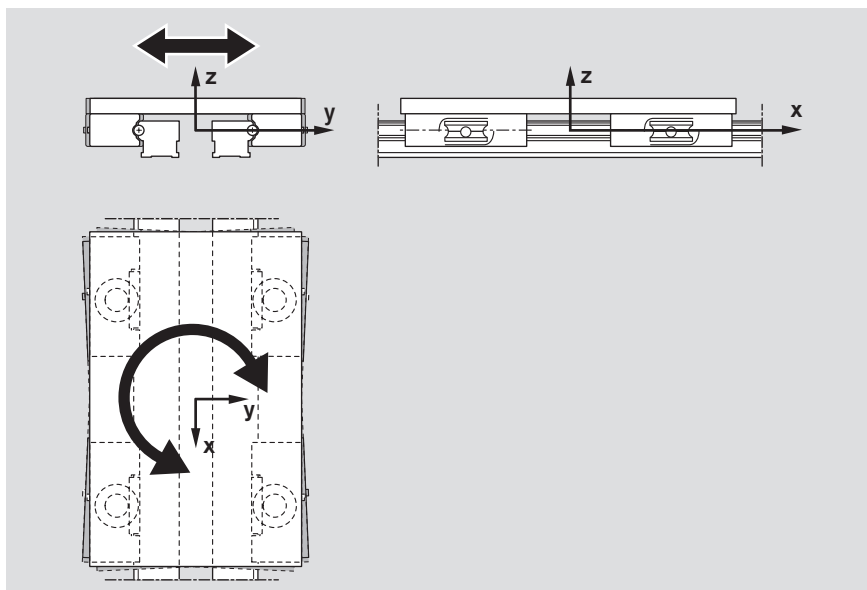
Part numbers,  
Load capacities and moment loads for  
calculating service life  
when using four single bearing  
runner blocks

| Size<br>-Version | Part number  | Load capacities |                 |              |                 | Moment loads  |                  |               |                  |                |                  |
|------------------|--------------|-----------------|-----------------|--------------|-----------------|---------------|------------------|---------------|------------------|----------------|------------------|
|                  |              |                 |                 |              |                 |               |                  |               |                  |                |                  |
|                  |              | $C_y$<br>(N)    | $C_{y0}$<br>(N) | $C_z$<br>(N) | $C_{z0}$<br>(N) | $M_x$<br>(Nm) | $M_{x0}$<br>(Nm) | $M_y$<br>(Nm) | $M_{y0}$<br>(Nm) | $M_z$<br>(Nm)  | $M_{z0}$<br>(Nm) |
| 32               | R1903 132 10 | 7335            | 4560            | 4300         | 2200            | $2,1 \cdot a$ | $1,1 \cdot a$    | $2,1 \cdot b$ | $1,1 \cdot b$    | $3,6 \cdot b$  | $2,2 \cdot b$    |
| 52               | R1903 152 10 | 17150           | 10200           | 10050        | 4900            | $5,0 \cdot a$ | $2,4 \cdot a$    | $5,0 \cdot b$ | $2,4 \cdot b$    | $8,5 \cdot b$  | $5,1 \cdot b$    |
| 52-h             | R1903 252 10 | 27900           | 15400           | 16775        | 7630            | $8,3 \cdot a$ | $3,8 \cdot a$    | $8,3 \cdot b$ | $3,8 \cdot b$    | $13,9 \cdot b$ | $7,6 \cdot b$    |
| 52-sh            | R1903 352 10 | 31000           | 18200           | 18400        | 8750            | $9,3 \cdot a$ | $4,4 \cdot a$    | $9,2 \cdot b$ | $4,3 \cdot b$    | $15,5 \cdot b$ | $9,1 \cdot b$    |

### Advantage

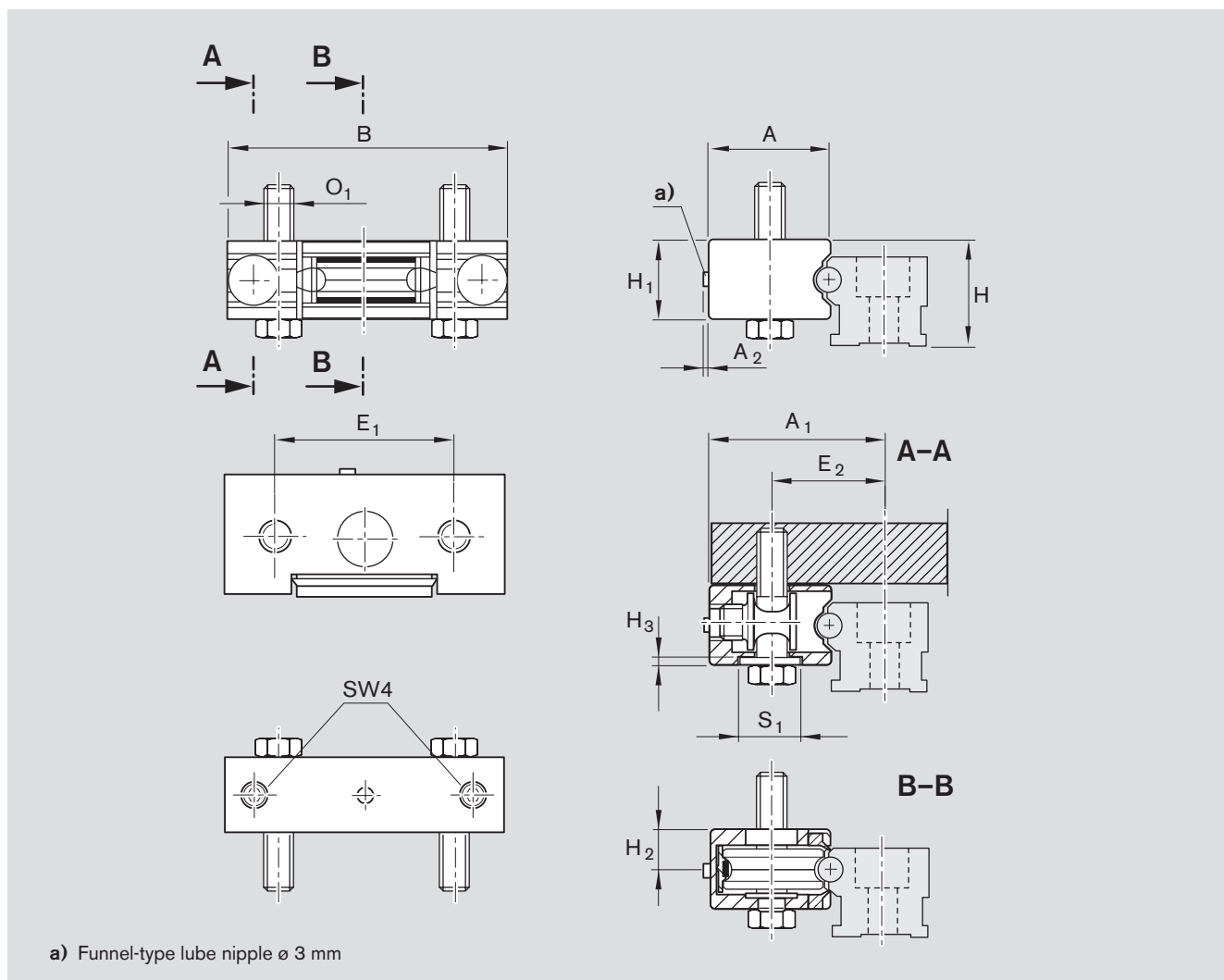
The adjustment screws provide for zero-clearance running.

These screws can be used to rotate the runner block slightly about the z axis or shift it along the y axis to obtain optimal alignment.



### Important:

Observe maximum permissible loads  
due to forces and moments as shown  
in the "Maximum Permissible Loads"  
tables!



| Size-Version | Dimensions (mm) |                |                |       |    |                |                |                |                |                |                |                              | Mass<br>(kg) |
|--------------|-----------------|----------------|----------------|-------|----|----------------|----------------|----------------|----------------|----------------|----------------|------------------------------|--------------|
|              | A               | A <sub>1</sub> | A <sub>2</sub> | B     | H  | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | E <sub>1</sub> | E <sub>2</sub> | S <sub>1</sub> | O <sub>1</sub> <sup>1)</sup> |              |
| <b>32</b>    | 31,0            | 43,0           | 2              | 87,0  | 26 | 20,5           | 11,0           | 2,5            | 54             | 27,0           | 18             | M8                           | 0,13         |
| <b>52</b>    | 44,5            | 65,0           | 2              | 104,0 | 40 | 29,5           | 14,9           | 2,5            | 66             | 42,0           | 22             | M10                          | 0,34         |
| <b>52-h</b>  | 52,0            | 72,5           | 2              | 118,5 | 42 | 33,5           | 16,9           | 3,0            | 76             | 45,0           | 26             | M12                          | 0,51         |
| <b>52-sh</b> | 57,0            | 77,5           | 2              | 123,5 | 42 | 33,5           | 16,9           | 3,0            | 81             | 47,5           | 26             | M12                          | 0,61         |

1) Mounting screws are not included in the supply.

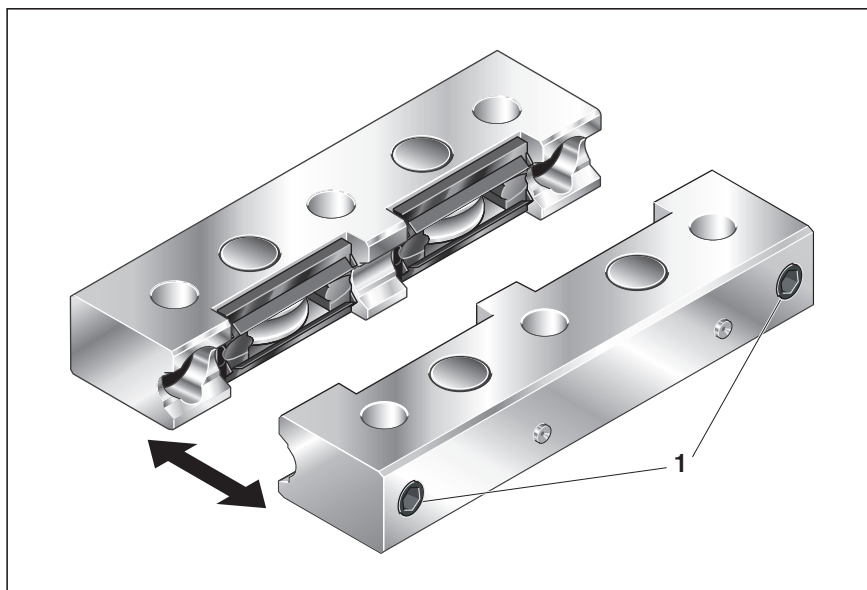
For screws to ISO 4014 8.8, install a washer to ISO 7089

## Single/Double Bearing Runner Blocks with Adjustment Screws

### Double Bearing Runner Blocks R1904

Special features:

- Freely selectable carriage structure spacing.
- Zero-clearance adjustment using socket hex screws (1) on the rear side of the runner blocks.
- Tough all-round sealing gives excellent wiper performance.  
Grease lubricant recommended.



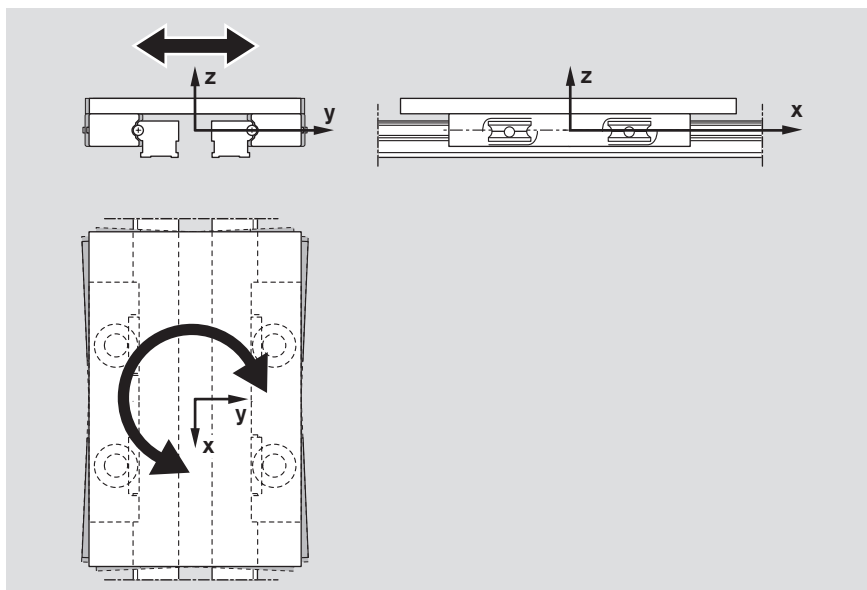
Part numbers,  
Load capacities and moment loads for  
calculating service life  
when using two double bearing run-  
ner blocks

| Size<br>-Version | Part number  | Load capacities |                 |              |                 | Moment loads  |                  |               |                  |               |                  |
|------------------|--------------|-----------------|-----------------|--------------|-----------------|---------------|------------------|---------------|------------------|---------------|------------------|
|                  |              |                 |                 |              |                 |               |                  |               |                  |               |                  |
|                  |              | $C_y$<br>(N)    | $C_{y0}$<br>(N) | $C_z$<br>(N) | $C_{z0}$<br>(N) | $M_x$<br>(Nm) | $M_{x0}$<br>(Nm) | $M_y$<br>(Nm) | $M_{y0}$<br>(Nm) | $M_z$<br>(Nm) | $M_{z0}$<br>(Nm) |
| 32               | R1904 132 10 | 7335            | 4560            | 4300         | 2200            | $2,1 \cdot a$ | $1,1 \cdot a$    | 105           | 55               | 180           | 110              |
| 52               | R1904 152 10 | 17150           | 10200           | 10050        | 4900            | $5,0 \cdot a$ | $2,4 \cdot a$    | 330           | 158              | 561           | 337              |
| 52-h             | R1904 252 10 | 27900           | 15400           | 16775        | 7630            | $8,3 \cdot a$ | $3,8 \cdot a$    | 631           | 289              | 1056          | 578              |
| 52-sh            | R1904 352 10 | 31000           | 18200           | 18400        | 8750            | $9,3 \cdot a$ | $4,4 \cdot a$    | 740           | 350              | 1260          | 740              |

### Advantage

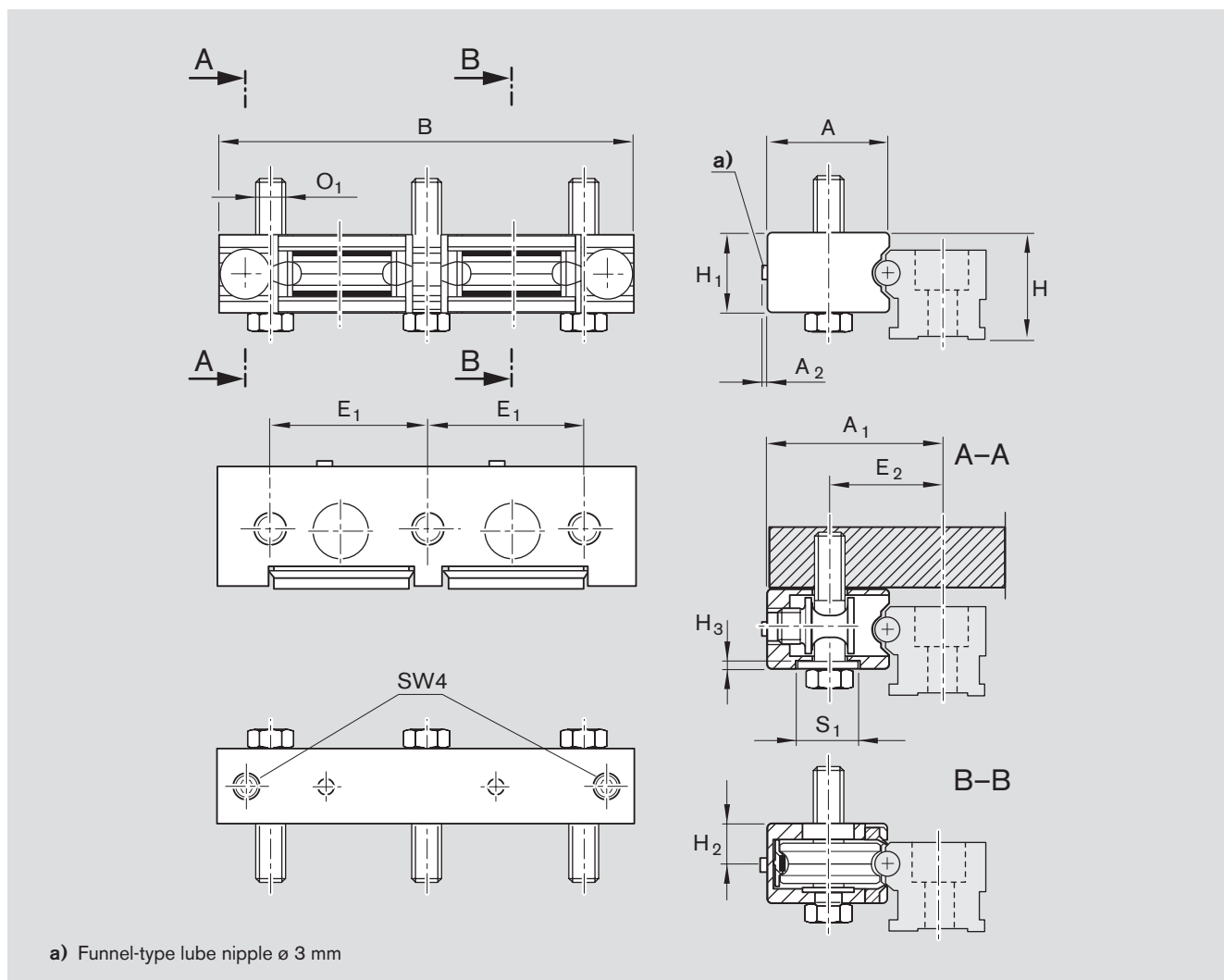
The adjustment screws provide for zero-clearance running.

These screws can be used to rotate the runner block slightly about the z axis or shift it along the y axis to obtain optimal alignment.



### Important:

Observe maximum permissible loads  
due to forces and moments as shown  
in the "Maximum Permissible Loads"  
tables!



| Size-Version | Dimensions (mm) |                |                |       |    |                |                |                |                |                |                |                              | Mass (kg) |
|--------------|-----------------|----------------|----------------|-------|----|----------------|----------------|----------------|----------------|----------------|----------------|------------------------------|-----------|
|              | A               | A <sub>1</sub> | A <sub>2</sub> | B     | H  | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | E <sub>1</sub> | E <sub>2</sub> | S <sub>1</sub> | O <sub>1</sub> <sup>1)</sup> |           |
| 32           | 31,0            | 43,0           | 2              | 129,0 | 26 | 20,5           | 11,0           | 2,5            | 48,0           | 27,0           | 18             | M8                           | 0,20      |
| 52           | 44,5            | 65,0           | 2              | 159,0 | 40 | 29,5           | 14,9           | 2,5            | 60,5           | 42,0           | 22             | M10                          | 0,53      |
| 52-h         | 52,0            | 72,5           | 2              | 184,5 | 42 | 33,5           | 16,9           | 3,0            | 71,0           | 45,0           | 26             | M12                          | 0,82      |
| 52-sh        | 57,0            | 77,5           | 2              | 194,5 | 42 | 33,5           | 16,9           | 3,0            | 76,0           | 47,5           | 26             | M12                          | 1,01      |

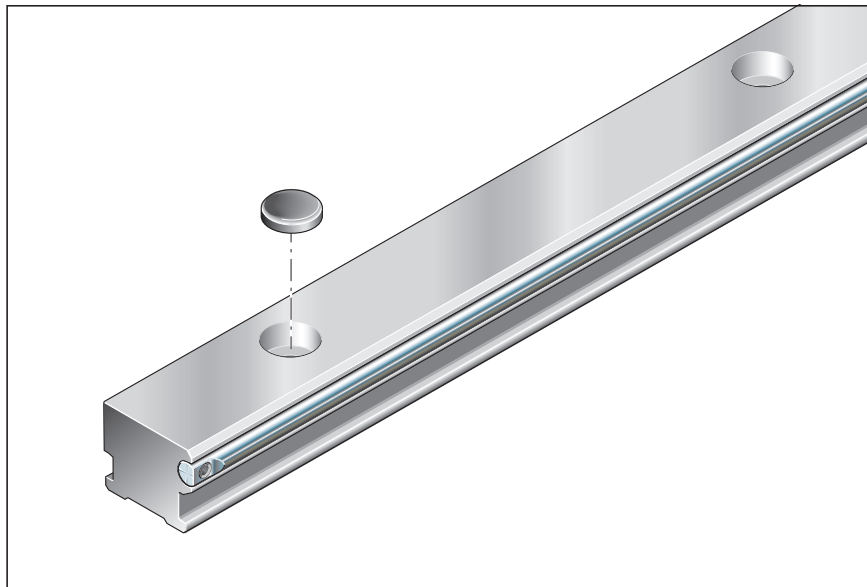
1) Mounting screws are not included in the supply.

For screws to ISO 4014 8.8, install a washer to ISO 7089

## Guide Rails for Single/Double Bearing Runner Blocks

### Guide Rail standard half-rail R1925

- For mounting from above
- Optional mounting hole plugs
- Corrosion resistant steel shafts  
to DIN EN ISO 683-17 / EN 10088



### Part numbers, lengths

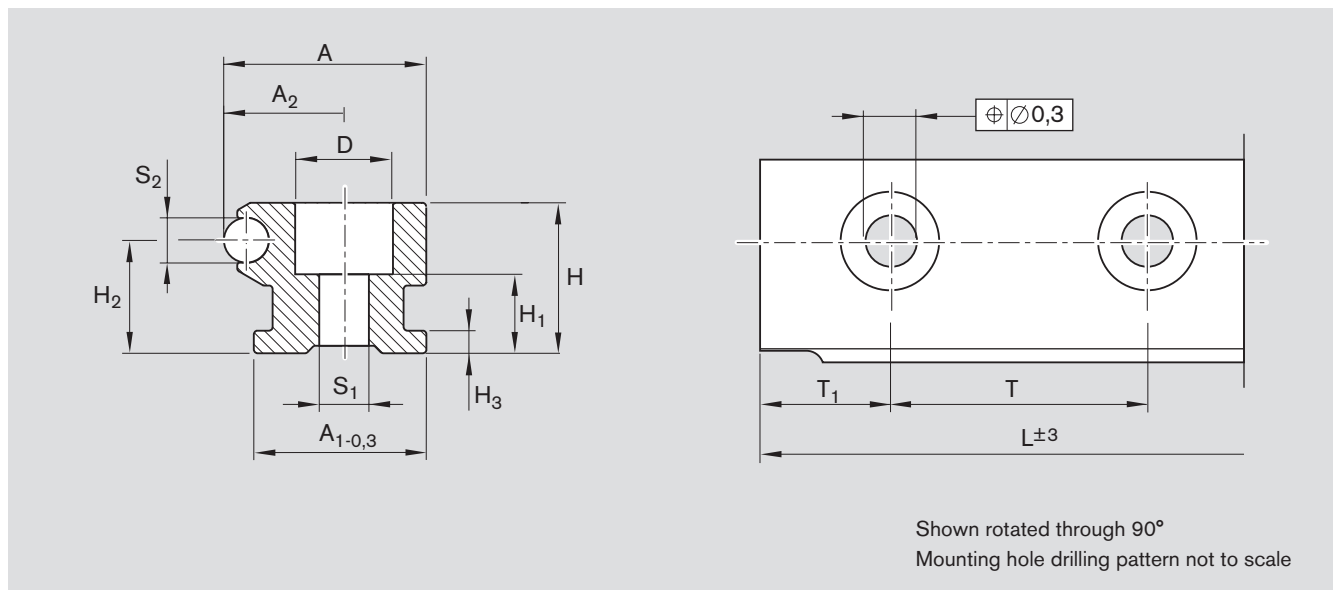
| Guide rail: standard half-rail |                               |                  | without holes    | with holes       | Mounting hole plugs (optional) |                         |
|--------------------------------|-------------------------------|------------------|------------------|------------------|--------------------------------|-------------------------|
| Size                           | Standard length <sup>1)</sup> | L <sub>max</sub> | Part number      | Part number      | Part number                    | Holes                   |
| -Version                       | (mm)                          | (mm)             | Length;... (mm)  | Length;... (mm)  | Quantity;...                   | per meter <sup>2)</sup> |
| 32                             | 3500                          | 7000             | R1925 032 31,... | R1925 132 31,... | R1605 200 80,...               | 8                       |
| 32-2                           | 3500                          | 7000             | –                | R1925 232 31,... | R1605 200 80,...               | 16                      |
| 52                             | 3500                          | 7000             | R1925 052 31,... | R1925 152 31,... | R1605 400 90,...               | 4                       |
| 52-2                           | 3500                          | 7000             | –                | R1925 252 31,... | R1605 400 90,...               | 8                       |
| 52-4                           | 3500                          | 7000             | –                | R1925 452 31,... | R1605 500 90,...               | 16                      |

1) Running tracks up to 3500 mm are made of one-piece precision steel shafts.

2) Number for one meter at preferred length T<sub>15</sub>

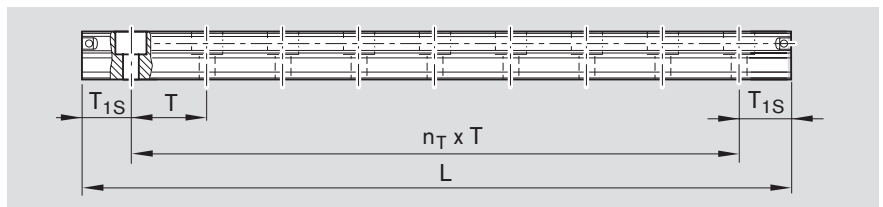
| Size       | Hole spacing T | Recommended rail length            |         |         |         |
|------------|----------------|------------------------------------|---------|---------|---------|
|            |                | Number of holes/Rail length L (mm) |         |         |         |
| 32-2, 52-4 | 62,5           | 2/121                              | 10/621  | 18/1121 | 40/2496 |
|            |                | 4/246                              | 12/746  | 20/1246 | 50/3125 |
|            |                | 6/371                              | 14/871  | 24/1496 | 56/3496 |
|            |                | 8/496                              | 16/996  | 30/1871 |         |
| 32, 52-2   | 125            | 2/246                              | 10/1246 | 18/2246 | 28/3496 |
|            |                | 4/496                              | 12/1496 | 20/2496 |         |
|            |                | 6/746                              | 14/1746 | 22/2746 |         |
|            |                | 8/996                              | 16/1996 | 24/2996 |         |
| 52         | 250            | 2/496                              | 6/1496  | 14/3496 |         |
|            |                | 3/746                              | 8/1996  |         |         |
|            |                | 4/996                              | 10/2496 |         |         |
|            |                | 5/1246                             | 12/2996 |         |         |





| Size<br>-Version | Dimensions (mm) |                |                |    |                |                |                |      |                |                |       |                 |                     |  | Mass<br>(kg/m) |
|------------------|-----------------|----------------|----------------|----|----------------|----------------|----------------|------|----------------|----------------|-------|-----------------|---------------------|--|----------------|
|                  | A               | A <sub>1</sub> | A <sub>2</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | D    | S <sub>1</sub> | S <sub>2</sub> | T     | T <sub>1S</sub> | T <sub>1 min.</sub> |  |                |
| 32               | 26              | 22             | 16             | 20 | 9,5            | 15,0           | 3              | 11,0 | 6,5            | 6              | 125,0 | 60,50           | 13                  |  | 1,3            |
| 32-2             | 26              | 22             | 16             | 20 | 9,5            | 15,0           | 3              | 11,0 | 6,5            | 6              | 62,5  | 29,25           | 13                  |  | 1,3            |
| 52               | 42              | 36             | 26             | 34 | 19,0           | 25,1           | 5              | 20,0 | 11,0           | 10             | 250,0 | 123,00          | 20                  |  | 3,5            |
| 52-2             | 42              | 36             | 26             | 34 | 19,0           | 25,1           | 5              | 20,0 | 11,0           | 10             | 125,0 | 60,50           | 20                  |  | 3,5            |
| 52-4             | 42              | 36             | 26             | 34 | 17,0           | 25,1           | 5              | 24,0 | 13,0           | 10             | 62,5  | 29,25           | 20                  |  | 3,5            |

## Ordering a guide rail



## Calculating guide rail length

Recommendation:

Use preferred length T<sub>1S</sub>.

- Observe minimum spacing T<sub>1 min</sub>! (see table)
- T<sub>1</sub> is the same at either end of the rail.

$$L = n_B \cdot T - 4$$

or

$$L = n_T \cdot T + 2 \cdot T_{1S}$$

L = rail length (mm)  
T = hole spacing\*) (mm)  
T<sub>1S</sub> = preferred dimension\*) (mm)  
n<sub>B</sub> = number of holes  
n<sub>T</sub> = number of spaces  
) see table for values

## Ordering example

Guide rail: size 25

Desired length: 620 to 625 mm

$$n_B = 620/T = 620/62.5 = 9.92$$

rounded to whole numbers  
= 10 holes,

$$n_T = n_B - 1 = 9$$

Rail ordering data:

Part number, length (mm)

$$T_1 / n_T \times T / T_1 \text{ (mm)}$$

**R1925 232 31, 621**

**29,25 / 9 x 62,5 / 29,25**

Mounting hole plug ordering data:

Part number, quantity

**R1605 200 90, 10**

## Length to be ordered

$$L = 10 \cdot 62.5 - 4 = 621 \text{ mm} \quad \text{or}$$

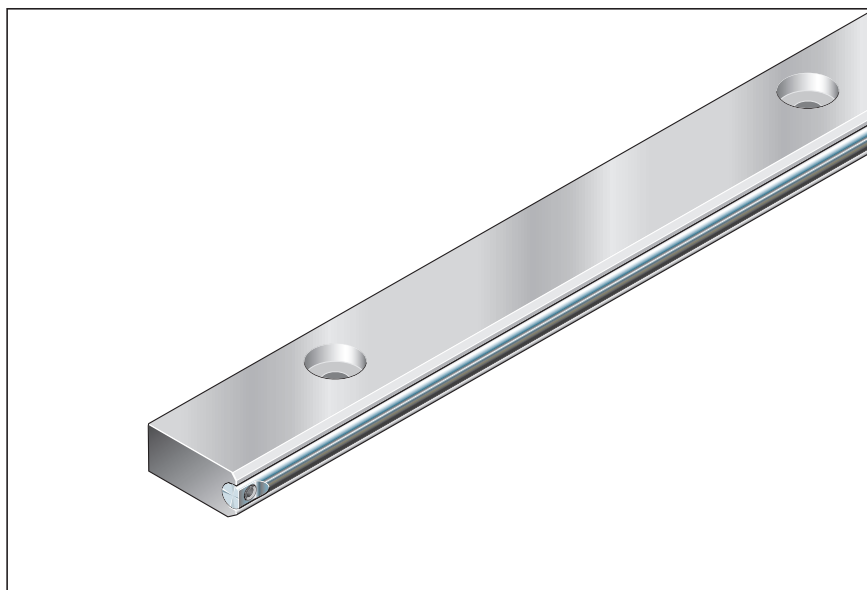
$$L = 9 \cdot 62.5 + 2 \cdot 29.25 = 621 \text{ mm}$$

## Guide Rails for Single/Double Bearing Runner Blocks

### Guide Rail

#### low-profile, half-rail R1926

- For mounting from above
- Corrosion resistant steel shafts to  
DIN EN ISO 683-17 / EN 10088

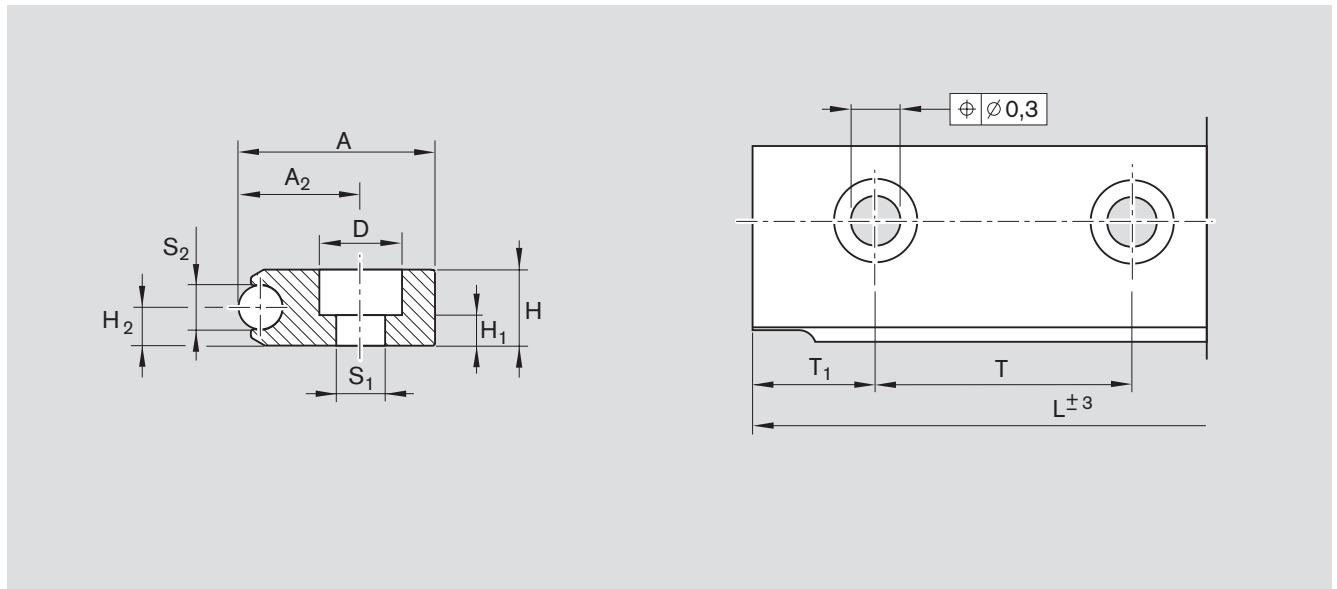


### Part numbers, lengths

| Guide rail: low-profile, half-rail |                               |                  | without holes    | with holes       |
|------------------------------------|-------------------------------|------------------|------------------|------------------|
| Size                               | Standard length <sup>1)</sup> | L <sub>max</sub> | Part number      | Part number      |
| -Version                           | (mm)                          | (mm)             | Length:...(mm)   | Length:...(mm)   |
| 32                                 | 3500                          | 7000             | R1926 032 31,... | R1926 132 31,... |
| 32-2                               | 3500                          | 7000             | –                | R1926 232 31,... |
| 52                                 | 3500                          | 7000             | R1926 052 31,... | R1926 152 31,... |
| 52-2                               | 3500                          | 7000             | –                | R1926 252 31,... |
| 52-4                               | 3500                          | 7000             | –                | R1926 452 31,... |

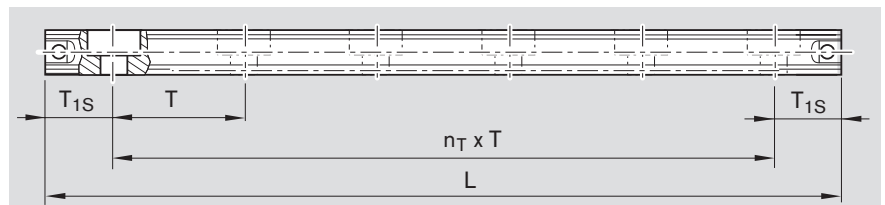
1) Running tracks up to 3500 mm are made of one-piece precision steel shafts.

| Size       | Hole spacing T | Recommended rail length            |         |         |         |
|------------|----------------|------------------------------------|---------|---------|---------|
|            |                | Number of holes/Rail length L (mm) |         |         |         |
| 32-2, 52-4 | 62,5           | 2/121                              | 10/621  | 18/1121 | 40/2496 |
|            |                | 4/246                              | 12/746  | 20/1246 | 50/3125 |
|            |                | 6/371                              | 14/871  | 24/1496 | 56/3496 |
|            |                | 8/496                              | 16/996  | 30/1871 |         |
| 32, 52-2   | 125            | 2/246                              | 10/1246 | 18/2246 | 28/3496 |
|            |                | 4/496                              | 12/1496 | 20/2496 |         |
|            |                | 6/746                              | 14/1746 | 22/2746 |         |
|            |                | 8/996                              | 16/1996 | 24/2996 |         |
| 52         | 250            | 2/496                              | 6/1496  | 14/3496 |         |
|            |                | 3/746                              | 8/1996  |         |         |
|            |                | 4/996                              | 10/2496 |         |         |
|            |                | 5/1246                             | 12/2996 |         |         |



| Size<br>-Version | Dimensions (mm) |                |    |                |                |      |                |                |       |                 |                     | Mass<br>(kg/m) |
|------------------|-----------------|----------------|----|----------------|----------------|------|----------------|----------------|-------|-----------------|---------------------|----------------|
|                  | A               | A <sub>2</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | D    | S <sub>1</sub> | S <sub>2</sub> | T     | T <sub>1S</sub> | T <sub>1 min.</sub> |                |
| 32               | 26              | 16             | 10 | 3,5            | 5              | 11,0 | 6,5            | 6              | 125,0 | 60,50           | 13                  | 0,8            |
| 32-2             | 26              | 16             | 10 | 3,5            | 5              | 11,0 | 6,5            | 6              | 62,5  | 29,25           | 13                  | 0,8            |
| 52               | 42              | 26             | 18 | 7,0            | 9              | 20,0 | 11,0           | 10             | 250,0 | 123,00          | 20                  | 2,3            |
| 52-2             | 42              | 26             | 18 | 7,0            | 9              | 20,0 | 11,0           | 10             | 125,0 | 60,50           | 20                  | 2,3            |
| 52-4             | 42              | 26             | 18 | 7,0            | 9              | 24,0 | 13,0           | 10             | 62,5  | 29,25           | 20                  | 2,3            |

### Ordering a guide rail



### Calculating guide rail length

Recommendation:

Use preferred length T<sub>1S</sub>.

- Observe minimum spacing T<sub>1 min</sub>! (see table)
- T<sub>1</sub> is the same at either end of the rail.

$$L = n_B \cdot T - 4$$

or

$$L = n_T \cdot T + 2 \cdot T_{1S}$$

L = rail length (mm)  
T = hole spacing\*) (mm)  
T<sub>1S</sub> = preferred dimension\*) (mm)  
n<sub>B</sub> = number of holes  
n<sub>T</sub> = number of spaces  
\*) see table for values

### Ordering example

Guide rail: size 25  
Desired length: 620 to 625 mm  
 $n_B = 620/T = 620/62.5 = 9.92$   
rounded to whole numbers  
= 10 holes,  
 $n_T = n_B - 1 = 9$

Rail ordering data:  
Part number, length (mm)  
T<sub>1</sub> / n<sub>T</sub> x T / T<sub>1</sub> (mm)  
**R1926 232 31, 621**  
**29,25 / 9 x 62,5 / 29,25**

### Length to be ordered

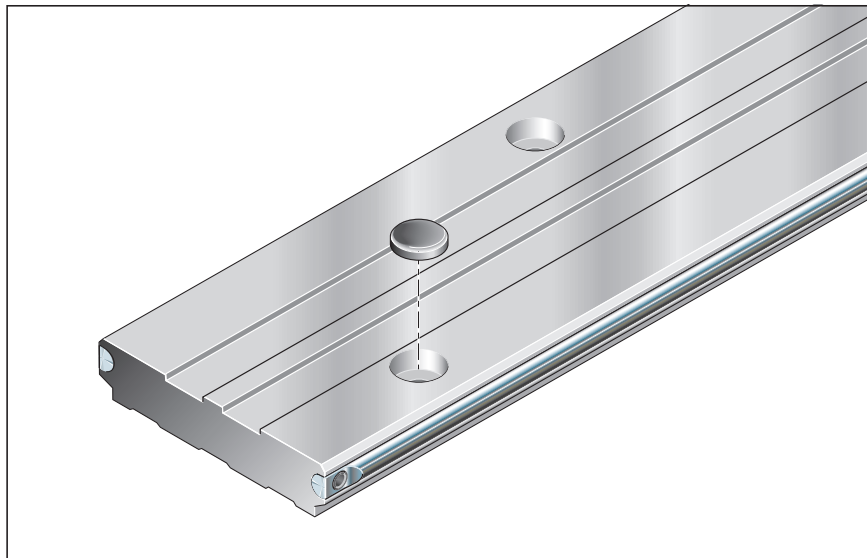
$$L = 10 \cdot 62.5 - 4 = 621 \text{ mm} \quad \text{or}$$

$$L = 9 \cdot 62.5 + 2 \cdot 29.25 = 621 \text{ mm}$$

## Guide Rails for Single/Double Bearing Runner Blocks

### Guide Rail wide R1927

- For mounting from above
- Optional mounting hole plugs
- Corrosion resistant steel shafts  
to DIN EN ISO 683-17 / EN 10088



### Part numbers, lengths

| Guide rail: wide |                               |                  | without holes    | with holes       | Optional mounting hole plugs |                         |
|------------------|-------------------------------|------------------|------------------|------------------|------------------------------|-------------------------|
| Size             | Standard length <sup>1)</sup> | L <sub>max</sub> | Part number      | Part number      | Part number                  | Holes                   |
| -Version         | (mm)                          | (mm)             | Length;... (mm)  | Length;... (mm)  | Quantity;...                 | per meter <sup>2)</sup> |
| 52/120           | 3500                          | 7000             | R1927 052 31,... | R1927 152 31,... | R1605 400 90,...             | 8                       |

1) Running tracks up to 3500 mm are made of one-piece precision steel shafts

2) Number for one meter at preferred length

### Ordering a guide rail

Wherever possible, use the recommended rail lengths (1.).

Intermediate lengths (2.) or special lengths (3.) may also be manufactured on request.

For  $T_1 > T$  please ask.

L = rail length (mm)

$n_B$  = number of holes  
(both rows)

$n_T$  = number of spaces between holes  
( $n_T = n_B - 1$ )

$T_1, T_2$  = end spaces, see drawings (mm)

T = hole spacing (125 mm)

### Ordering data

1. Recommended rail length:

Odd number of holes  $n_B$

$T_1 \neq T_2$

Preferred dimensions  $T_1$ : 60.5 mm,  
 $T_2$ : 185.5 mm

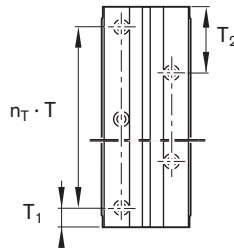
By turning the rail over it is possible to alternate between mounting hole pattern 1a) and 1b). When this is done,  $T_1$  becomes  $T_2$  and vice versa.

Rail ordering data:

**Part number, length L (mm)**

$T_1 / n_T \times T / T_2$  (mm)

1 a)

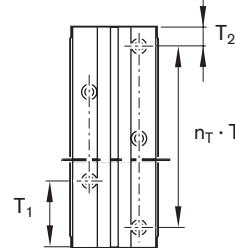


Mounting hole plug ordering data:

**Part number, quantity =  $n_B$**

**Example: R1605 400 90, 11**

1 b)



### Calculating the rail length

- Observe minimum spacing  $T_{1,2 \min}$ !  
(see table)

$$(1) \quad L = n_B \cdot 125 - 4$$

or

$$(2) \quad L = n_T \cdot 125 + 121$$

Example:

$$(1) \quad L = 11 \cdot 125 - 4 = 1371 \text{ mm or}$$

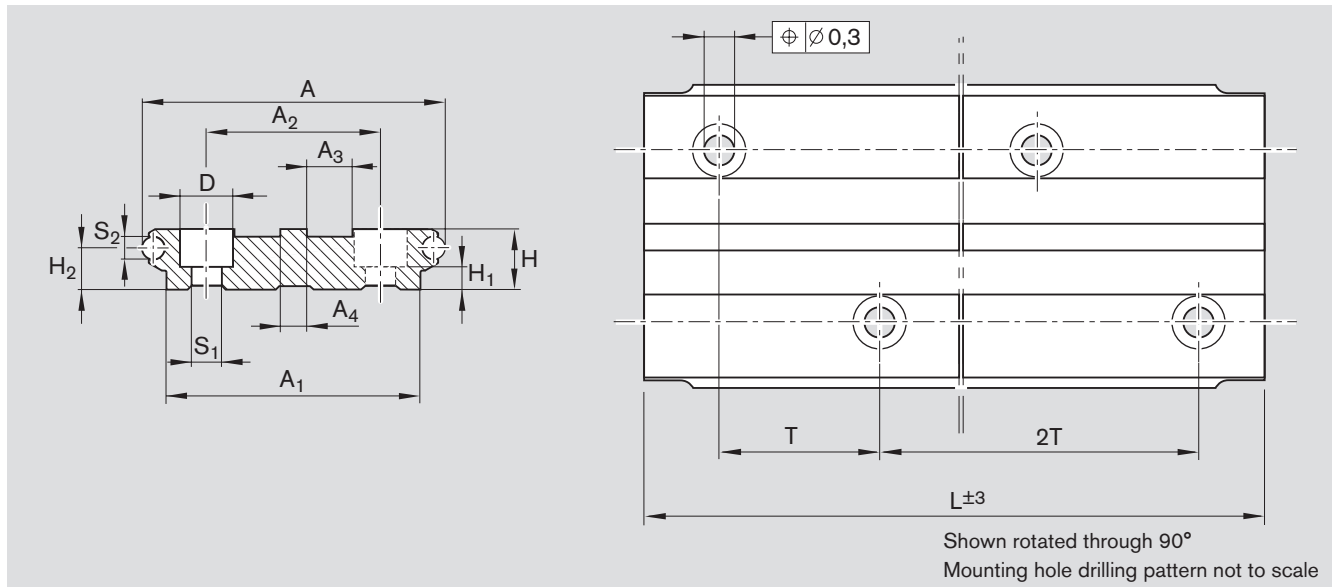
$$(2) \quad L = 10 \cdot 125 + 121 = 1371 \text{ mm}$$

Ordering example for recommended rail length

**R1927 152 31, 1371**  
**60,5 / 10 x 125 / 185,5**

Number of holes  $n_B = 11$

Number of spaces between holes  $n_T = 10$



| Size     | Dimensions (mm) |                |                |                |                |    |                |                |    |                |                |     |                       | Mass   |
|----------|-----------------|----------------|----------------|----------------|----------------|----|----------------|----------------|----|----------------|----------------|-----|-----------------------|--------|
| -Version | A               | A <sub>1</sub> | A <sub>2</sub> | A <sub>3</sub> | A <sub>4</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | D  | S <sub>1</sub> | S <sub>2</sub> | T   | T <sub>1,2 min.</sub> | (kg/m) |
| 52/120   | 120             | 100            | 68             | 18             | 10             | 25 | 10             | 16,1           | 20 | 11             | 10             | 125 | 13                    | 7,8    |

## 2. Intermediate length:

### Even number of holes $n_B$

The mounting hole drilling pattern remains the same when the rail is turned over.

Dimensions  $T_1$  and  $T_2$  remain the same and can therefore not be matched to a different pre-drilled hole pattern.

$T_1 = T_2 = 60.5$  mm or

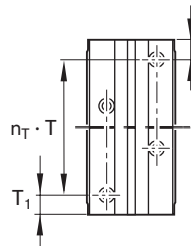
$T_1 = T_2 = 185.5$  mm

(preferred dimensions)

Calculate the length according to item 1.

"Recommended rail length"

### 2 a)

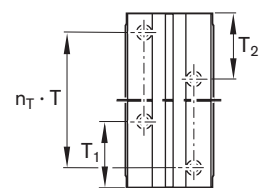


Ordering example: Rail 2a:

R1927 152 31, 1496 mm

60,5 / 11 x 125 / 60,5

### 2 b)



Ordering example: Rail 2b:

R1927 152 31, 1496 mm

185,5 / 11 x 125 / 185,5

## 3. Special length:

### Odd (3a) or even (3b)

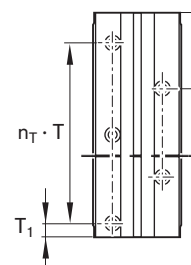
#### number of holes $n_B$

If the preferred dimensions  $T_1$  and  $T_2$  cannot be used (neither the recommended rail lengths nor intermediate lengths), determine  $T_1$  and  $T_2$  as required.

$T_1$  and  $T_2$  must not fall within the following ranges:

0 to 13 and 112 to 139 mm

### 3 a)

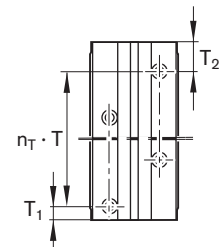


Ordering example: Rail 3a:

R1927 152 31, 1305 mm

20 / 10 x 125 / 160

### 3 b)



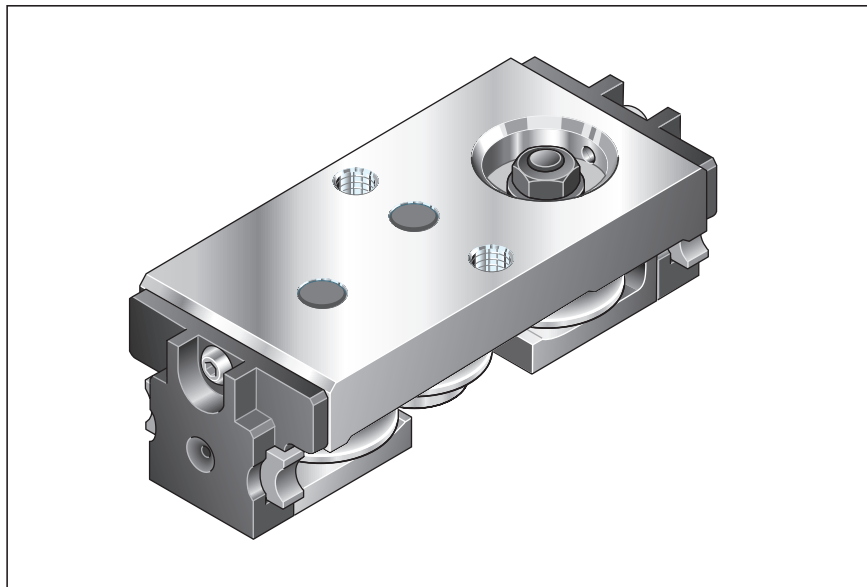
Ordering example: Rail 3b:

R1927 152 31, 1435 mm

20 / 11 x 125 / 40

## U-type Runner Blocks

### U-type Runner Block R1905

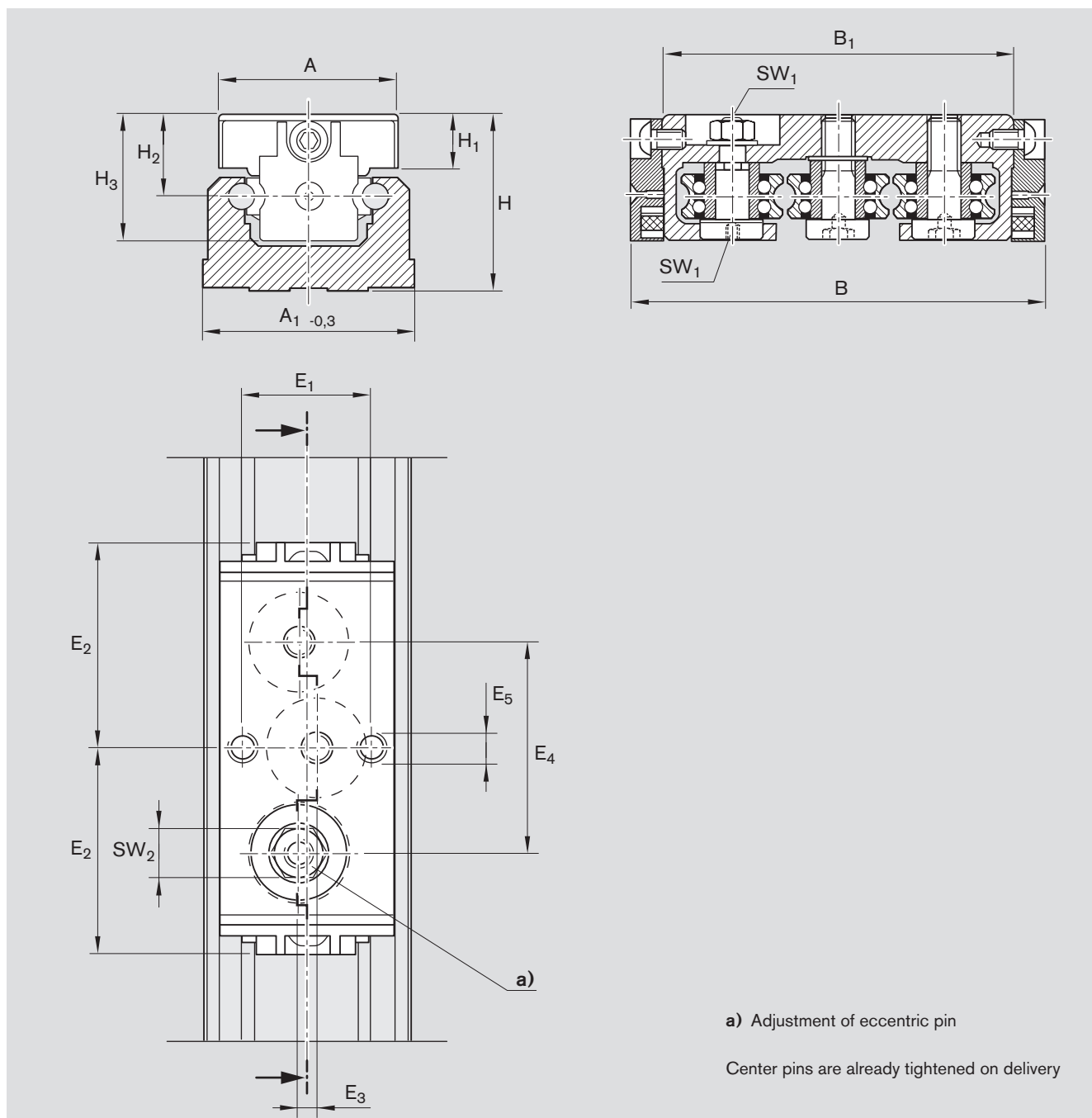


Part numbers,  
Load capacities and moment loads for  
calculating service life

|          |              | Load capacities |                 |              |                 | Moment loads  |                  |               |                  |               |                  |
|----------|--------------|-----------------|-----------------|--------------|-----------------|---------------|------------------|---------------|------------------|---------------|------------------|
|          |              |                 |                 |              |                 |               |                  |               |                  |               |                  |
| Size     | Part number  | $C_y$<br>(N)    | $C_{y0}$<br>(N) | $C_z$<br>(N) | $C_{z0}$<br>(N) | $M_x$<br>(Nm) | $M_{x0}$<br>(Nm) | $M_y$<br>(Nm) | $M_{y0}$<br>(Nm) | $M_z$<br>(Nm) | $M_{z0}$<br>(Nm) |
| -Version |              |                 |                 |              |                 |               |                  |               |                  |               |                  |
| 20       | R1905 119 00 | 1150            | 800             | 668          | 392             | 4,8           | 2,8              | 11,3          | 6,6              | 19,5          | 13,5             |

#### Important:

Observe maximum permissible loads  
due to forces and moments as shown  
in the "Maximum Permissible Loads"  
tables!

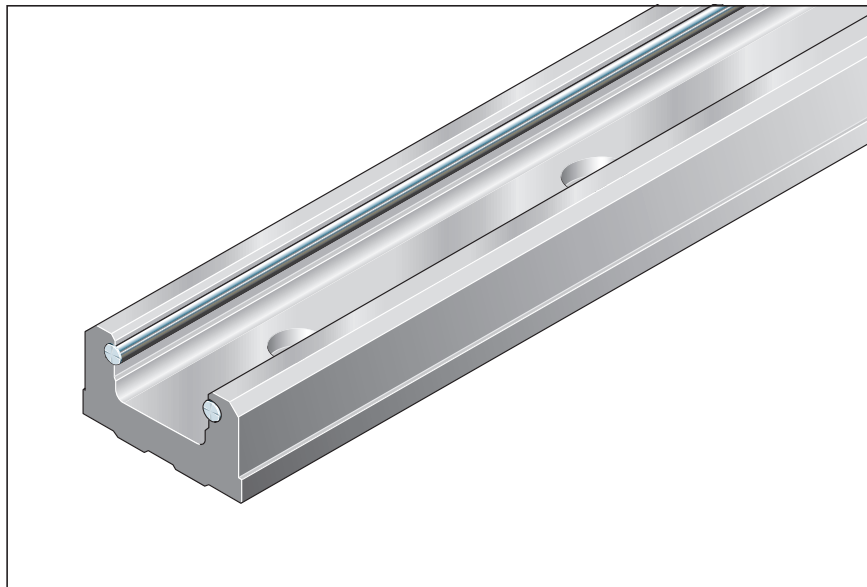


| Size<br>-Version | Dimensions (mm) |                |    |                |    |                |                |                |                |                |                |                |                |                 |                 | Mass<br>(kg) |
|------------------|-----------------|----------------|----|----------------|----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|--------------|
|                  | A               | A <sub>1</sub> | B  | B <sub>1</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | E <sub>1</sub> | E <sub>2</sub> | E <sub>3</sub> | E <sub>4</sub> | E <sub>5</sub> | SW <sub>1</sub> | SW <sub>2</sub> |              |
| 20               | 28              | 33             | 66 | 56             | 28 | 8,5            | 13             | 20             | 20             | 33             | 3              | 34             | M5             | 2               | 7               | 0,08         |

## U-type Guide Rails

### U-type Guide Rail R1923

- For mounting from above
- Corrosion resistant steel shafts to  
DIN EN ISO 683-17 / EN 10088



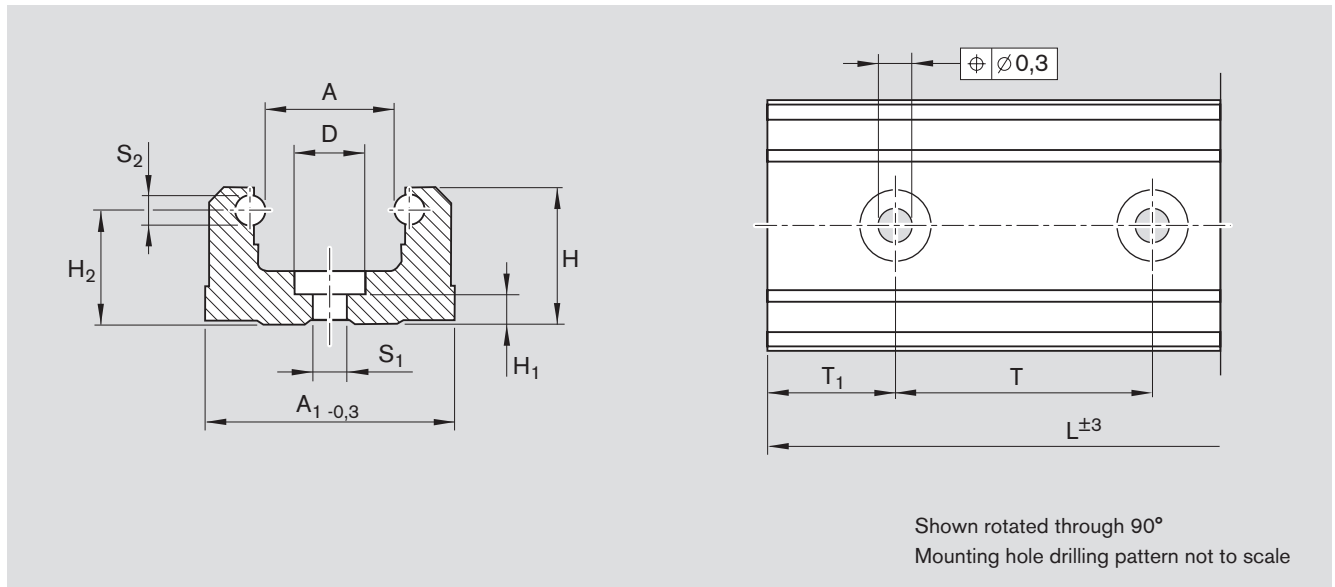
### Part numbers, lengths

| Guide Rail: U-type |                                       |                          | without holes                 | with holes                    |
|--------------------|---------------------------------------|--------------------------|-------------------------------|-------------------------------|
| Size               | Standard length <sup>1)</sup><br>(mm) | L <sub>max</sub><br>(mm) | Part number<br>Length:...(mm) | Part number<br>Length:...(mm) |
| 20                 | 3500                                  | 7000                     | R1923 019 31,...              | R1923 119 31,...              |

1) Running tracks up to 3500 mm are made of one-piece precision steel shafts

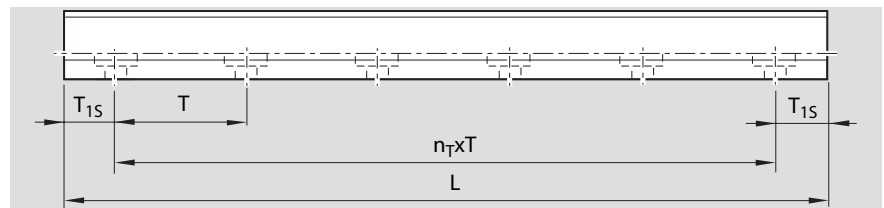
| size<br>-Version | Hole spacing T<br>(mm) | Recommended rail length            |        |         |         |
|------------------|------------------------|------------------------------------|--------|---------|---------|
|                  |                        | Number of holes/Rail length L (mm) |        |         |         |
| 20               | 62,5                   | 2/121                              | 10/621 | 18/1121 | 40/2496 |
|                  |                        | 4/246                              | 12/746 | 20/1246 | 50/3125 |
|                  |                        | 6/371                              | 14/871 | 24/1496 | 56/3496 |
|                  |                        | 8/496                              | 16/996 | 30/1871 |         |





| Size<br>-Version | Dimensions (mm) |                |    |                |                |     |                |                |      |                 |                     | Mass<br>(kg/m) |
|------------------|-----------------|----------------|----|----------------|----------------|-----|----------------|----------------|------|-----------------|---------------------|----------------|
|                  | A               | A <sub>1</sub> | H  | H <sub>1</sub> | H <sub>2</sub> | D   | S <sub>1</sub> | S <sub>2</sub> | T    | T <sub>1S</sub> | T <sub>1 min.</sub> |                |
| 20               | 17              | 33             | 18 | 3,4            | 15             | 9,4 | 4              | 6              | 62,5 | 29,25           | 13                  | 1,10           |

#### Ordering a guide rail



#### Calculating guide rail length

Recommendation:

Use preferred length T<sub>1S</sub>.

- Observe minimum spacing T<sub>1 min</sub>! (see table)
- T<sub>1</sub> is the same at either end of the rail.

$$L = n_B \cdot T - 4$$

or

$$L = n_T \cdot T + 2 \cdot T_{1S}$$

L = rail length (mm)  
T = hole spacing\*) (mm)  
T<sub>1S</sub> = preferred dimension\*) (mm)  
n<sub>B</sub> = number of holes  
n<sub>T</sub> = number of spaces  
\*) see table for values

#### Ordering example

Guide rail: size 25

Desired length: 620 to 625 mm

$$n_B = 620/T = 620/62.5 = 9.92$$

rounded to whole numbers  
= 10 holes,

$$n_T = n_B - 1 = 9$$

Rail ordering data:

Part number, length (mm)

T<sub>1</sub> / n<sub>T</sub> x T / T<sub>1</sub> (mm)

**R1923 119 31, 621**

**29,25 / 9 x 62,5 / 29,25**

#### Length to be ordered

$$L = 10 \cdot 62.5 - 4 = 621 \text{ mm} \quad \text{or}$$

$$L = 9 \cdot 62.5 + 2 \cdot 29.25 = 621 \text{ mm}$$

## Accessories

### Dead stop R1910 5.. 00

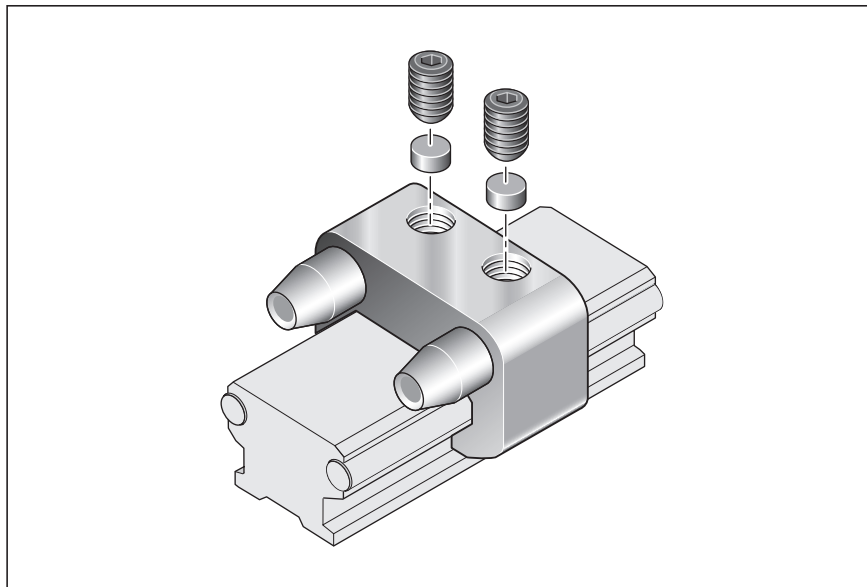
The dead stop can be used with guide rails 1921- (standard), 1922- (with T-slot) and 1924 (low-profile).

Holding force: 1500 N

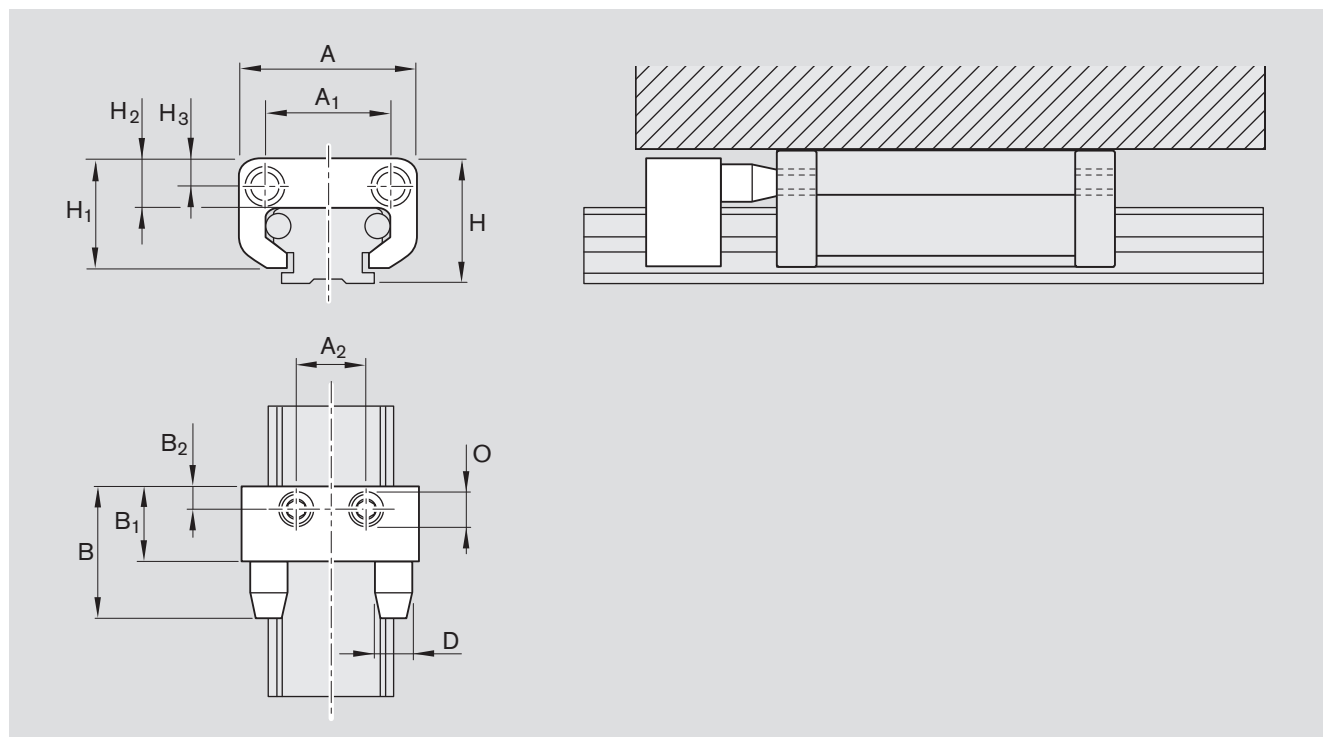
If a set screw to ISO 7434 is used without a soft-metal pin, there will be a pressure point in the guide rail.

The resulting contour locking effect will increase the holding force.

The lubrication unit is reinforced in the area corresponding to the dead stop.



| Dead stop Size | For guide rails Part number | Part number         |
|----------------|-----------------------------|---------------------|
| 32             | R1910 532 00,...            | R1921, R1922, R1924 |
| 52             | R1910 552 00,...            | R1921, R1922, R1924 |

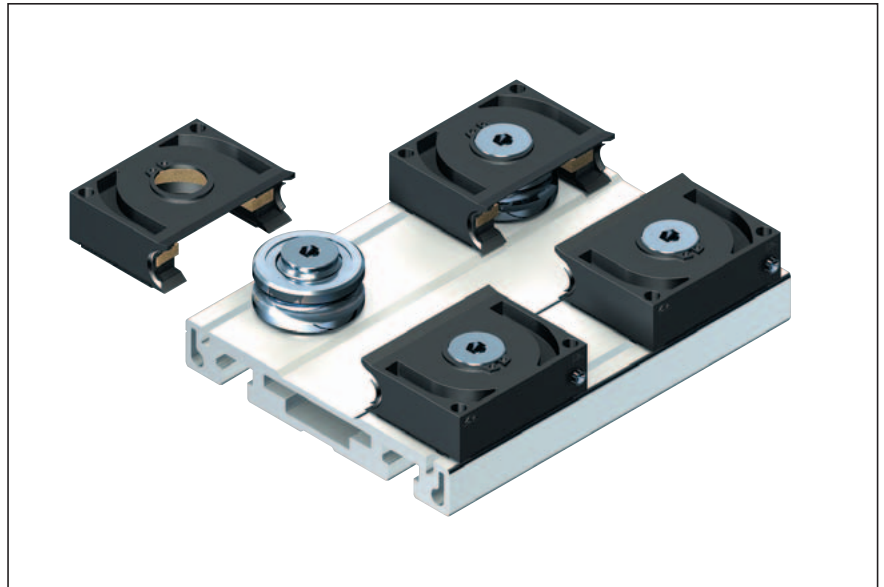


| Size -Version | Dimensions (mm) |                |                |    |                |                |    |      |                |                |                |    | Mass (kg) |
|---------------|-----------------|----------------|----------------|----|----------------|----------------|----|------|----------------|----------------|----------------|----|-----------|
|               | A               | A <sub>1</sub> | A <sub>2</sub> | B  | B <sub>1</sub> | B <sub>2</sub> | D  | H    | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | O  |           |
| 32            | 46              | 33             | 18             | 35 | 20             | 5,5            | 10 | 33,5 | 29             | 13             | 7,5            | M8 | 0,05      |
| 52            | 70              | 46             | 32             | 43 | 23             | 5,5            | 16 | 53,0 | 42             | 18             | 9,0            | M8 | 0,11      |

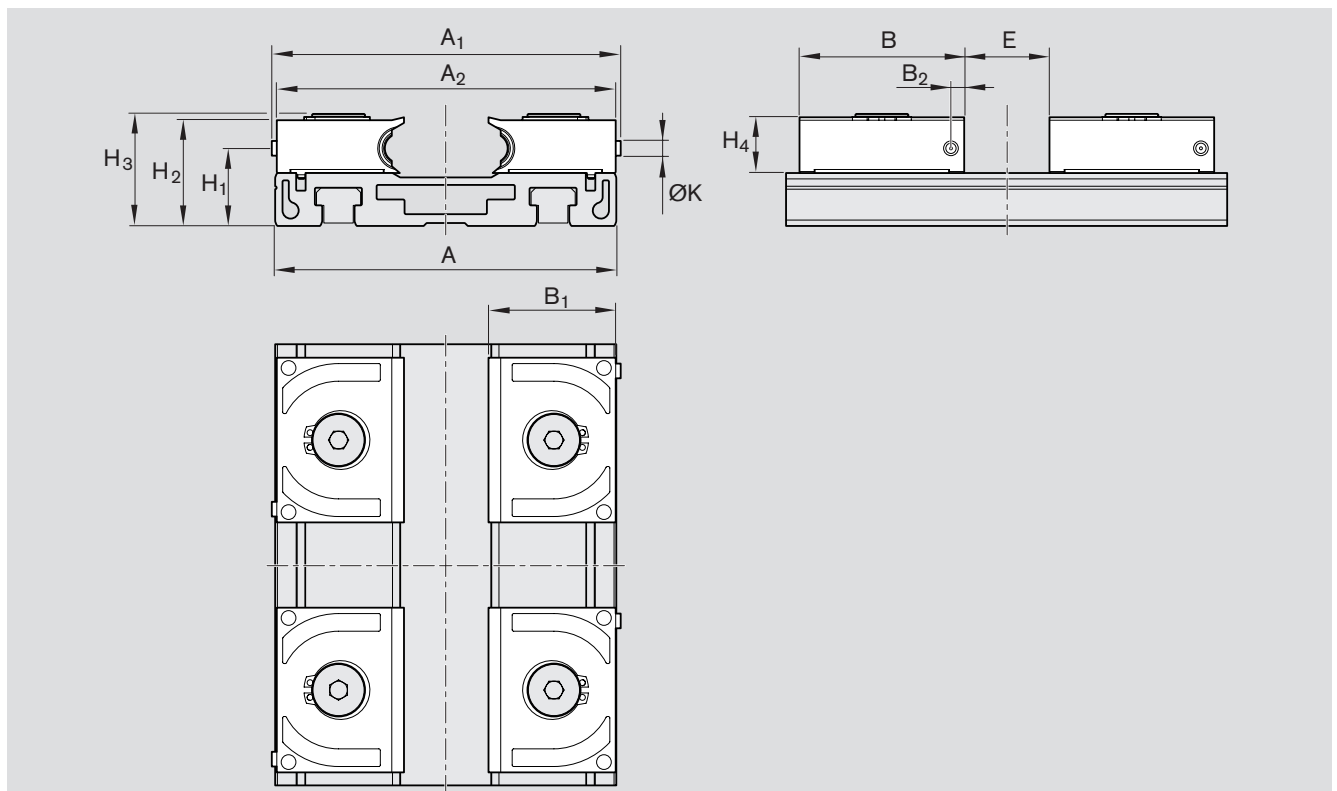
### Oiling unit R1910 442 00 for profile runner block

The oiling unit R1910 442 00 has been specially developed for the cam roller of the profile runner block R1907 142 00. The oiling unit must be filled with a lube oil CLP, CGLP per DIN 51517 with a viscosity VG 220 680–1000 mm<sup>2</sup>/s per DIN 51519.

- For each oiling unit, introduce a total of 3 cm<sup>3</sup> lube oil via the lube nipple in two partial quantities of 1.5 cm<sup>3</sup>, waiting 30 min between each application. Four oiling units are required for full lubrication of the profile runner block R1907 142 00.



| Oiling unit | For profile runner block |              |
|-------------|--------------------------|--------------|
| Size        | Part number              | Part number  |
| 42          | R1910 442 00             | R1907 142 00 |



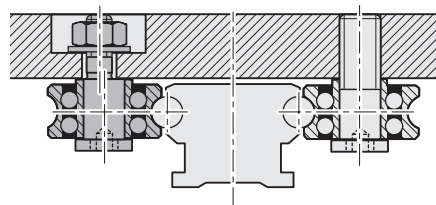
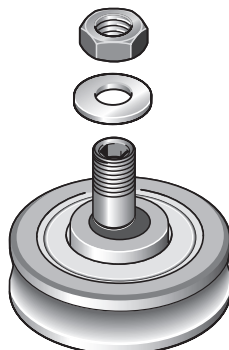
| Size | Dimensions (mm) |                |                |    |                |                |                |                |                |                |    |   |
|------|-----------------|----------------|----------------|----|----------------|----------------|----------------|----------------|----------------|----------------|----|---|
|      | A               | A <sub>1</sub> | A <sub>2</sub> | B  | B <sub>1</sub> | B <sub>2</sub> | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | H <sub>4</sub> | E  | K |
| 42   | 116             | 118,65         | 115,25         | 56 | 43,25          | 4,5            | 26,25          | 35,8           | 38,1           | 18,8           | 29 | 5 |

## Cam Rollers with Spigots, Assembly Kits

### Cam Roller with eccentric spigot R1900 ... 0

For mounting customer-built carriages, with central and eccentric spigots for zero-clearance adjustment to the guide rail.

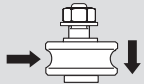
For applications where even the versatile standard range does not offer the optimum solution to your problem.



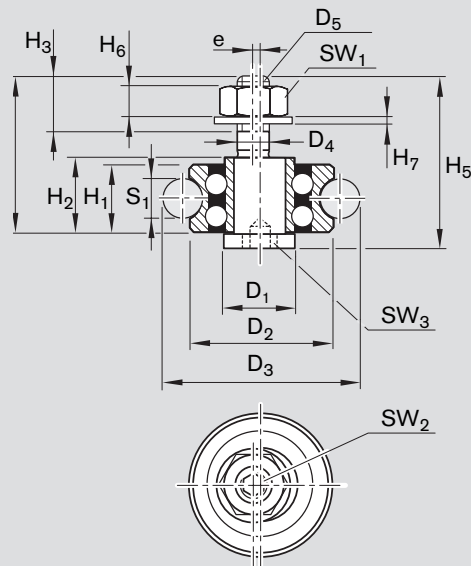
#### Part numbers

Load capacities for calculating service life

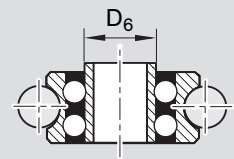
Maximum permissible loads

|                  |              | Load capacities                                                                   |                 |                                                                                   |                 | Maximum permissible loads                                                            |                     |
|------------------|--------------|-----------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------|---------------------|
| Size<br>-Version | Part number  |  |                 |  |                 |  |                     |
|                  |              | $C_y$<br>(N)                                                                      | $C_{y0}$<br>(N) | $C_z$<br>(N)                                                                      | $C_{z0}$<br>(N) | $F_{y \max}$<br>(N)                                                                  | $F_{z \max}$<br>(N) |
| 20               | R1900 119 00 | 1150                                                                              | 800             | 330                                                                               | 190             | 350                                                                                  | 100                 |
| 25               | R1900 125 00 | 1280                                                                              | 890             | 340                                                                               | 200             | 350                                                                                  | 100                 |
| 32               | R1900 132 00 | 3670                                                                              | 2280            | 1080                                                                              | 550             | 550                                                                                  | 180                 |
| 52               | R1900 152 00 | 8580                                                                              | 5100            | 2510                                                                              | 1230            | 2500                                                                                 | 700                 |
| 52-h             | R1900 152 10 | 13950                                                                             | 7700            | 4190                                                                              | 1910            | 2600                                                                                 | 800                 |
| 52-sh            | R1900 152 20 | 15500                                                                             | 9100            | 4600                                                                              | 2190            | 5300                                                                                 | 1600                |

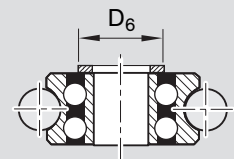
## Dimensions



### Size 20, 25, 32



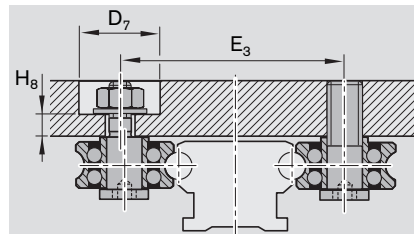
### Size 52, 52-h, 52-sh



| Size<br>-Version | Dimensions (mm)      |                |                |                      |                |                |                |                |                |                |                |                |                |                 |                 |                 |      |                |
|------------------|----------------------|----------------|----------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|------|----------------|
|                  | D <sub>1</sub><br>g6 | D <sub>2</sub> | D <sub>3</sub> | D <sub>4</sub><br>g6 | D <sub>5</sub> | D <sub>6</sub> | H <sub>1</sub> | H <sub>2</sub> | H <sub>3</sub> | H <sub>4</sub> | H <sub>5</sub> | H <sub>6</sub> | H <sub>7</sub> | SW <sub>1</sub> | SW <sub>2</sub> | SW <sub>3</sub> | e    | S <sub>1</sub> |
| 20               | 10                   | 16             | 22,0           | 4                    | M4             | 9,0            | 7,0            | 8,5            | 4,6            | 16,0           | 19,5           | 3,2            | 0,8            | 7               | 2               | 2               | 0,45 | 4              |
| 25               | 10                   | 17             | 27,0           | 4                    | M4             | 9,0            | 7,0            | 8,5            | 5,5            | 17,4           | 21,4           | 3,2            | 0,8            | 7               | 2               | 2               | 0,45 | 6              |
| 32               | 14                   | 24             | 34,0           | 6                    | M6             | 11,8           | 11,0           | 12,5           | 7,0            | 25,5           | 29,0           | 5,2            | 1,6            | 10              | 3               | 4               | 0,90 | 6              |
| 52               | 20                   | 35             | 51,3           | 10                   | M10            | 19,0           | 15,9           | 17,9           | 11,0           | 36,5           | 41,5           | 8,4            | 2,0            | 16              | 4               | 6               | 0,90 | 10             |
| 52-h             | 20                   | 42             | 58,0           | 10                   | M10            | 19,0           | 19,0           | 21,0           | 11,0           | 44,3           | 50,3           | 8,4            | 2,0            | 16              | 4               | 6               | 0,90 | 10             |
| 52-sh            | 25                   | 47             | 63,3           | 12                   | M12x1          | 24,0           | 19,0           | 21,0           | 13,0           | 44,3           | 50,3           | 10,8           | 2,5            | 18              | 6               | 8               | 0,90 | 10             |

## Recommended hole spacing when using the following Cam Roller Guide Rails:

- Standard R1921
- With T-slot R1922
- Low-profile R1924-



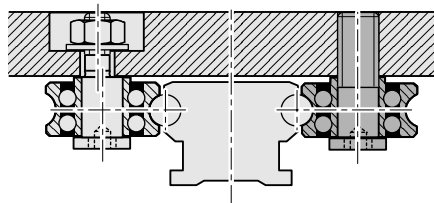
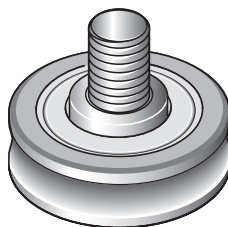
| Size<br>-Version | E <sub>3</sub><br>± 0,2 | D <sub>7</sub> | H <sub>8</sub> |
|------------------|-------------------------|----------------|----------------|
| 20               | 33,8                    | 15             | 3,0            |
| 25               | 39,8                    | 15             | 3,6            |
| 32               | 54,0                    | 18             | 5,5            |
| 52               | 83,3                    | 30             | 7,3            |
| 52-h             | 90,0                    | 30             | 11,8           |
| 52-sh            | 95,0                    | 34             | 9,3            |

## Cam Rollers with Spigots, Assembly Kits

### Cam Roller with central spigot R1900 ... 0

For mounting customer-built carriages, with central and eccentric spigots for zero-clearance adjustment to the guide rail.

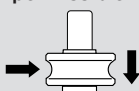
For applications where even the versatile standard range does not offer the optimum solution to your problem.



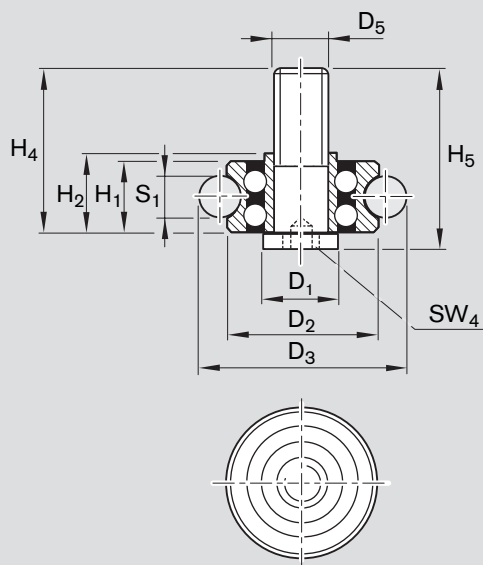
#### Part numbers

Load capacities for calculating service life

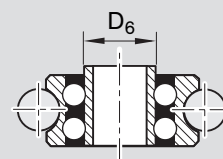
Maximum permissible loads

|                  |              | Load capacities                                                                   |                 |                                                                                   |                 | Maximum permissible load                                                             |                     |
|------------------|--------------|-----------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------|---------------------|
| Size<br>-Version | Part number  |  |                 |  |                 |  |                     |
|                  |              | $C_y$<br>(N)                                                                      | $C_{y0}$<br>(N) | $C_z$<br>(N)                                                                      | $C_{z0}$<br>(N) | $F_{y \max}$<br>(N)                                                                  | $F_{z \max}$<br>(N) |
| 20               | R1900 119 01 | 1150                                                                              | 800             | 330                                                                               | 190             | 350                                                                                  | 100                 |
| 25               | R1900 125 01 | 1280                                                                              | 890             | 340                                                                               | 200             | 350                                                                                  | 100                 |
| 32               | R1900 132 01 | 3670                                                                              | 2280            | 1080                                                                              | 550             | 550                                                                                  | 180                 |
| 52               | R1900 152 01 | 8580                                                                              | 5100            | 2510                                                                              | 1230            | 2500                                                                                 | 700                 |
| 52-h             | R1900 152 11 | 13950                                                                             | 7700            | 4190                                                                              | 1910            | 2600                                                                                 | 800                 |
| 52-sh            | R1900 152 21 | 15500                                                                             | 9100            | 4600                                                                              | 2190            | 5300                                                                                 | 1600                |

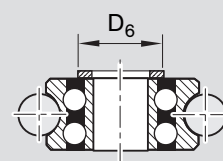
## Dimensions



### Size 20, 25, 32



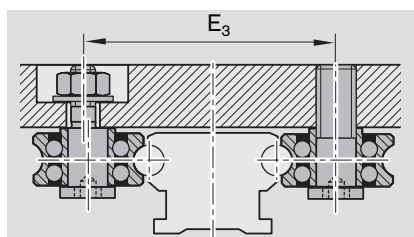
### Size 52, 52-h, 52-sh



| Size-<br>Version | Dimensions (mm)      |                |                |                |                |                |                |                |                |                 |                |
|------------------|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|
|                  | D <sub>1</sub><br>g6 | D <sub>2</sub> | D <sub>3</sub> | D <sub>5</sub> | D <sub>6</sub> | H <sub>1</sub> | H <sub>2</sub> | H <sub>4</sub> | H <sub>5</sub> | SW <sub>4</sub> | S <sub>1</sub> |
| 20               | 10                   | 16             | 22,0           | M5             | 9,0            | 7,0            | 8,5            | 16,0           | 19,5           | 4               | 4              |
| 25               | 10                   | 17             | 27,0           | M5             | 9,0            | 7,0            | 8,5            | 17,4           | 21,4           | 4               | 6              |
| 32               | 14                   | 24             | 34,0           | M8             | 11,8           | 11,0           | 12,5           | 25,5           | 29,0           | 5               | 6              |
| 52               | 20                   | 35             | 51,3           | M10            | 19,0           | 15,9           | 17,9           | 36,5           | 41,5           | 8               | 10             |
| 52-h             | 20                   | 42             | 58,0           | M12            | 19,0           | 19,0           | 21,0           | 44,3           | 50,3           | 8               | 10             |
| 52-sh            | 25                   | 47             | 63,3           | M12            | 24,0           | 19,0           | 21,0           | 44,3           | 50,3           | 10              | 10             |

## Recommended hole spacing when using the following Cam Roller Guide Rails:

- Standard R1921
- With T-slot R1922
- Low-profile R1924-



| Size-Version | E <sub>3</sub><br>± 0,2 |
|--------------|-------------------------|
| 20           | 33,8                    |
| 25           | 39,8                    |
| 32           | 54,0                    |
| 52           | 83,3                    |
| 52-h         | 90,0                    |
| 52-sh        | 95,0                    |



Bosch Rexroth AG  
Ernst-Sachs-Straße 100  
97424 Schweinfurt, Germany  
Tel. +49 9721 937-0  
Fax +49 9721 937-275  
[www.boschrexroth.com](http://www.boschrexroth.com)

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Printed in Germany  
R310EN 2101 (2004-09)  
EN • DC-IA/MKT