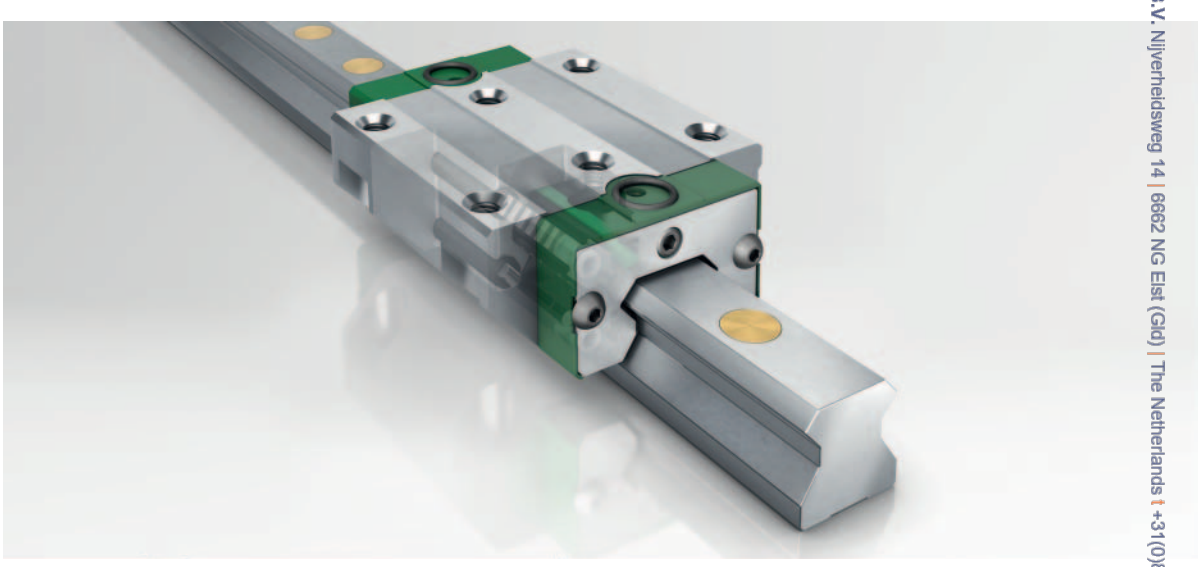
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Linear recirculating roller bearing and guideway assemblies

Carriages
Guideways

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Linear recirculating roller bearing and guideway assemblies

		Page
Product overview	Linear recirculating roller bearing and guideway assemblies	96
Features	Full complement	99
	Carriages	99
	Guideways	99
	Standard accessories	99
	Load carrying capacity	100
	Acceleration and velocity	100
	Interchangeability	101
	Sealing	101
	Lubrication	102
	Operating temperature	103
	Corrosion-resistant design	103
	Designs	103
Design and safety guidelines	Preload	104
	Friction	105
	Rigidity	105
	Hole patterns of guideways	108
	Demands on the adjacent construction	110
Accuracy	Accuracy classes	114
	Height sorting 2S	116
	Positional and length tolerances of guideways	117
Ordering example, ordering designation		118
Dimension tables	Linear recirculating roller bearing and guideway assemblies, full complement, standard and L carriages	120
	Linear recirculating roller bearing and guideway assemblies, full complement, H, HL and SL carriages	124
	Guideways and closing methods	128

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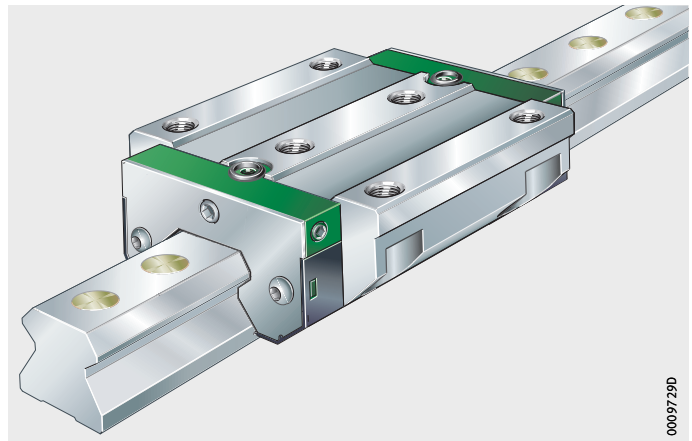
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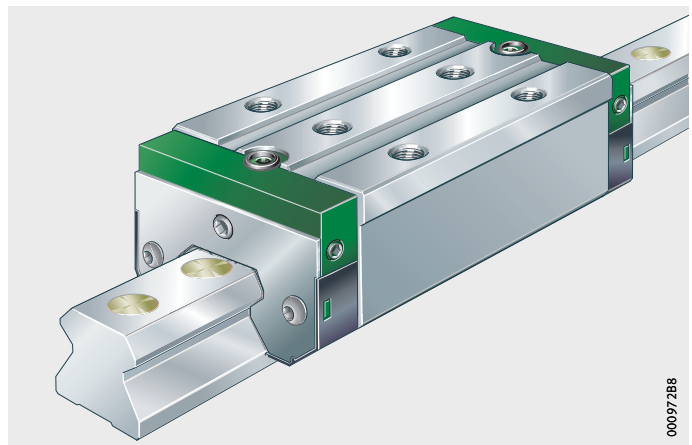
Full complement

For oil and grease lubrication

RUE..-E, RUE..-E-L



RUE..-E-H, RUE..-E-HL, RUE..-E-SL

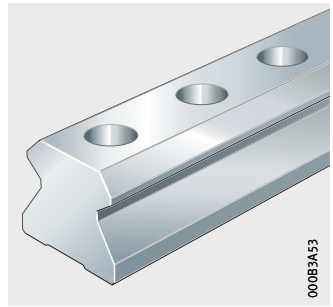


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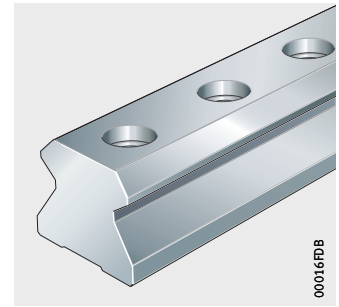
Guideways

Standard
or
for steel closing plugs

TSX..-E, TSX25-D

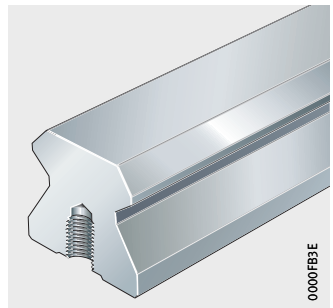


TSX..-E-KA-ST/A

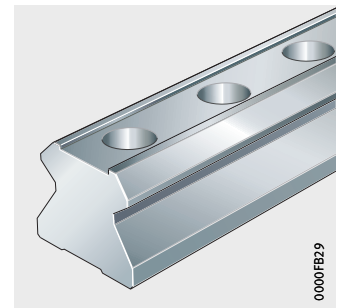


For screw mounting from below
or
with slot for covering strip

TSX..-E-U, TSX25-D-U



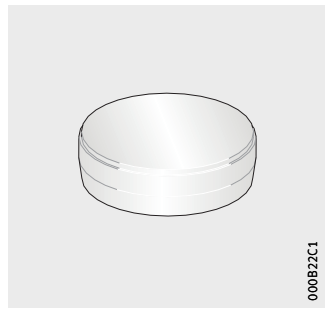
TSX..-E-ADB, TSX..-E-ADK, TSX25-D-ADB, TSX25-D-ADK



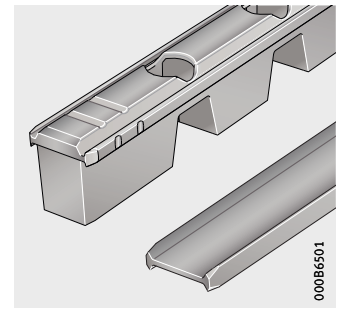
Standard accessories

Plastic closing plugs
Dummy guideway

KA..-TN

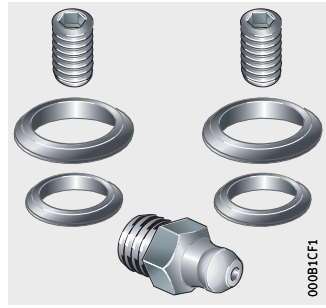


MSX..-E



Mounting set

M-Satz



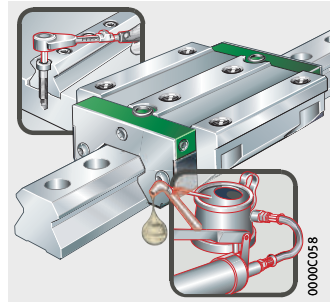
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Product overview

Linear recirculating roller bearing and guideway assemblies

Mounting manual

MON 30



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Linear recirculating roller bearing and guideway assemblies



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Features

Linear recirculating roller bearing and guideway assemblies are used in applications with very high loads and very high requirements for rigidity and precision.

These preloaded units for long, unlimited stroke lengths are particularly suitable for use in machine tools.

A guidance system comprises at least one carriage, one guideway, one dummy guideway, plastic closing plugs and one mounting set per carriage.

Full complement

Since they have the maximum possible number of rolling elements, full complement guidance systems have extremely high load carrying capacity and particularly high rigidity.

Carriages

The carriages have saddle plates made from hardened steel and the rolling element raceways are precision ground. The cylindrical rollers are recirculated in enclosed channels with plastic return elements.

Guideways

The guideways are made from hardened steel and are ground on all faces, the rolling element raceways are precision ground.

Location from above or below

Guideways TSX..-E (-ADB, -ADK) and TSX25-D (-ADB, -ADK) are located from above and have through holes with counterbores for the fixing screws. Guideways TSX..-E-U and TSX25-D-U are located from below and have threaded blind holes.

Slot for covering strip

Guideways TSX..-E-ADB and TSX25-D-ADB have a slot for the adhesive bonded steel covering strip ADB, while guideways TSX..-E-ADK and TSX25-D-ADK have a slot with undercut for the clip fit steel covering strip ADK, see dimension tables.

Multi-piece guideways

If the required guideway length l_{max} is greater than the value in the dimension tables, the guideways are supplied in several segments, see page 109.

Standard accessories

The scope of delivery includes various accessory parts as standard.

Dummy guideway

The dummy guideway prevents damage to the rolling element set and prevents the rolling elements from falling out while the carriage is separated from the guideway.

Carriages are always pushed directly from the guideway onto the dummy guideway and must remain there until they are remounted.

Linear recirculating roller bearing and guideway assemblies

Plastic closing plugs

The closing plugs close off the counterbores of the guideway holes flush with the surface of the guideway, see dimension tables.

Optionally, two-piece plastic plugs and closing plugs made from brass or steel are also available, see page 180.

Mounting set M-Satz

The delivery of RUE..-E includes the mounting set M-Satz. This comprises:

- one lubrication connector for grease lubrication
- O rings for sealing purposes if relubrication is carried out from above via the adjacent construction
- grub screws for closing off the relubrication hole from above.

Load carrying capacity

The cylindrical rollers are in an X arrangement on the raceways.

The units can support loads from all directions, except in the direction of motion, and moments about all axes, *Figure 1*.

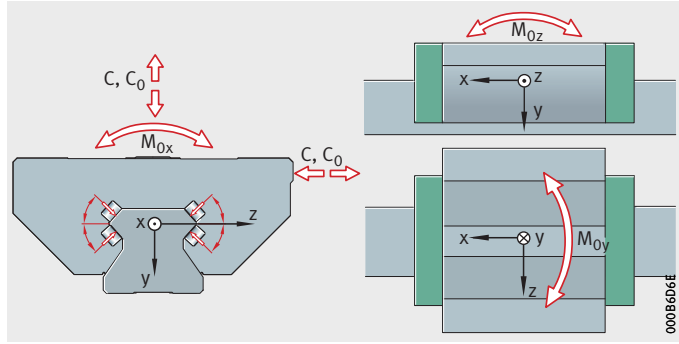


Figure 1
Load carrying capacity and contact angle

Acceleration and velocity

Linear recirculating roller bearing and guideway assemblies RUE..-E permit accelerations up to 100 m/s^2 and velocities up to 4 m/s, see table.

Operating limits

Designation	Acceleration[1] up to m/s^2	Travel velocity[1] up to m/s
RUE25-E	100	3
RUE35-E	100	4
RUE45-E	100	3,5
RUE55-E	100	3
RUE65-E	50	2,5
RUE100-E	5	1,5

[1] The values apply, within each size, for all available carriages.

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Interchangeability

The interchangeability of carriages and guideways is dependent on the accuracy class and the size, see table. Interchangeability as required is valid only for the accuracy classes G2 and G3. When ordering individual components in the accuracy classes G0 and G1 the following postscript must be added to the order: “Interchangeable as required”.

Interchangeability of carriages and guideways

Designation	Carriage interchangeable[1)]	Guideway interchangeable
RUE25-E	as required	as required
RUE35-E	as required	as required
RUE45-E	as required	as required
RUE55-E	as required	as required
RUE65-E[2)]	restricted	restricted
RUE100-E[2)]	restricted	restricted

1) Where the carriages are interchangeable, this applies within one bearing size irrespective of the design of the carriage.

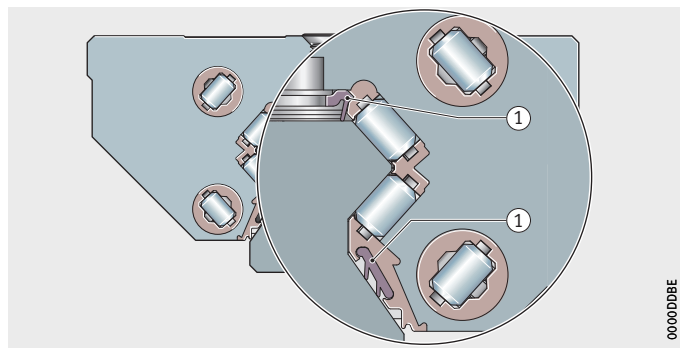
2) If necessary, please contact us.

Sealing

The end pieces of the carriages are fitted on both sides with non-contact, corrosion-resistant end plates and elastic end wipers that retain the lubricant in the system.

Standard sealing strips ensure reliable sealing and protect the rolling element system against contamination, even in critical environmental conditions, *Figure 2*.

Under extremely heavy contamination load, additional wipers can be fitted, see page 135. Where necessary, additional covers must be used.



① Standard sealing strips

Figure 2
Upper and lower sealing strips

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Linear recirculating roller bearing and guideway assemblies

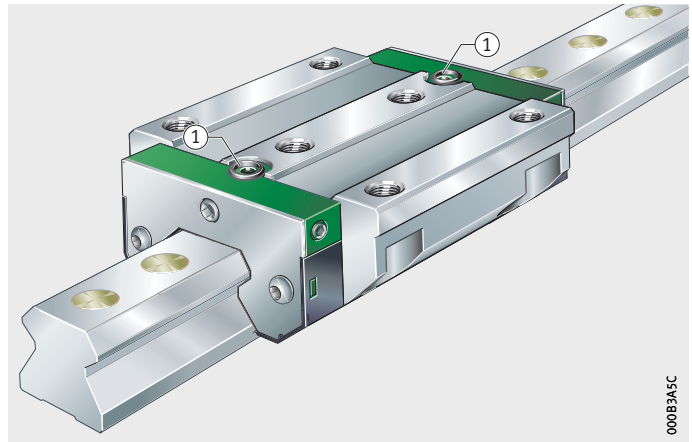
Lubrication

Linear recirculating roller bearing and guideway assemblies RUE..-E are suitable for oil and grease lubrication. A lubrication connector for grease is included in the mounting set M-Satz with the delivery. Optionally, other lubrication connectors are available, see page 164. Lubrication is optimised by accessories such as lubricant quantity metering valves (SMDS), long term lubrication units (KIT series 400) and the lubricant quantity metering unit (KIT series 500).

In the case of size 35 to 100, the lubrication connectors can be screw mounted into the end piece on the left, right or end face, while this is only possible on the end face in the case of size 25. The relubrication holes in the end faces and the sides are closed off by means of grub screws. Before the lubrication connector is screwed in, the corresponding grub screw must be removed.
In the case of RUE100-E-L, an area of flash must be pierced using a hot pointed object, in accordance with the mounting manual MON 30.

If relubrication is carried out from above, it must be ensured that the adjacent construction completely covers the carriage (including the end pieces) and the O rings for sealing off the relubrication hole from above are inserted, *Figure 3*. Otherwise, lubricant may escape through the upper lubrication hole.

If the upper relubrication holes are not used, these can be closed off using grub screws. Grub screws GSTI for closing off the upper relubrication hole are included with the mounting set M-Satz.



① Upper relubrication hole with O ring

Figure 3
Relubrication hole

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If lubrication connectors are fitted on the end or side, the maximum permissible screw depth must be observed, see dimension tables. If additional sealing elements KIT are used, the screw depth is increased for the end relubrication facility. The standard lubrication connector is then no longer usable. Suitable lubrication connectors must additionally be taken into consideration when ordering, see page 164.

Operating temperature

As standard, linear recirculating roller bearing and guideway assemblies can be used at operating temperatures from –10 °C to +80 °C.

Corrosion-resistant design

Linear recirculating roller bearing and guideway assemblies RUE..-E are also available in the accuracy class G2 and preload class V3 in a corrosion-resistant design with the special coatings Corrotect and Protect A, see page 56.

Designs

Linear recirculating roller bearing and guideway assemblies are available in five designs, see table.

Available designs

Design	Description
–	Standard carriage
H	High carriage
HL	High, long carriage
L	Long carriage
SL	Narrow, long carriage

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Linear recirculating roller bearing and guideway assemblies

Design and safety guidelines

Preload

Linear recirculating roller bearing and guideway assemblies are available in the preload classes V1 to V5, see table.

Optimum rigidity of the elements is impaired by any deviation in the preload force. Linear recirculating roller bearing and guideway assemblies are therefore supplied as a preassembled unit; this means that the elements are sorted and matched to each other.

For interchangeability of the guideway and carriage, see page 101.

Preload class

Preload class	Preload setting
V1	0,04 · C
V2	0,08 · C
V3[1)]	0,1 · C
V4	0,13 · C
V5	0,15 · C

1) Standard preload class.

Influence of preload on the linear guidance system

The preload of a linear guidance system defines the rigidity of the system. The linear recirculating roller bearing and guideway assembly RUE..-E can be obtained in the preload classes V1 to V5, where the preload class V3 is the standard preload class. This preload class can be used in numerous applications (including machine tools). If special requirements are present, the alternative preload classes may be used.

Increasing the preload increases the rigidity of the guidance system. The preload influences not only the rigidity but also the displacement force of the guidance system. The higher the preload, the larger the displacement force. Furthermore, preload also influences the operating life of the guidance system.

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Friction

The coefficient of friction is dependent on the ratio C/P, see table.

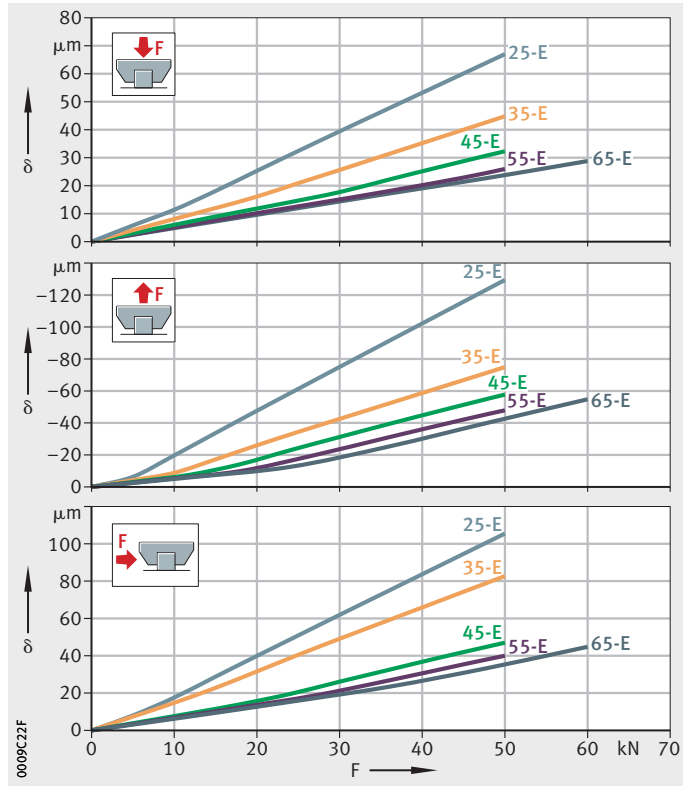
Coefficient of friction

Load C/P		Coefficient of friction μ_{RUE}	
from	to	from	to
4	20	0,002	0,004

Rigidity

The deflection curves show the deformation of the linear recirculating roller bearing and guideway assemblies including the deformation of the screw connections to the adjacent construction, *Figure 4*, page 105, to *Figure 7*, page 107.

The rigidity curves are valid only for screw mounting in accordance with the mounting manual MON 30 and the standard preload class V3.

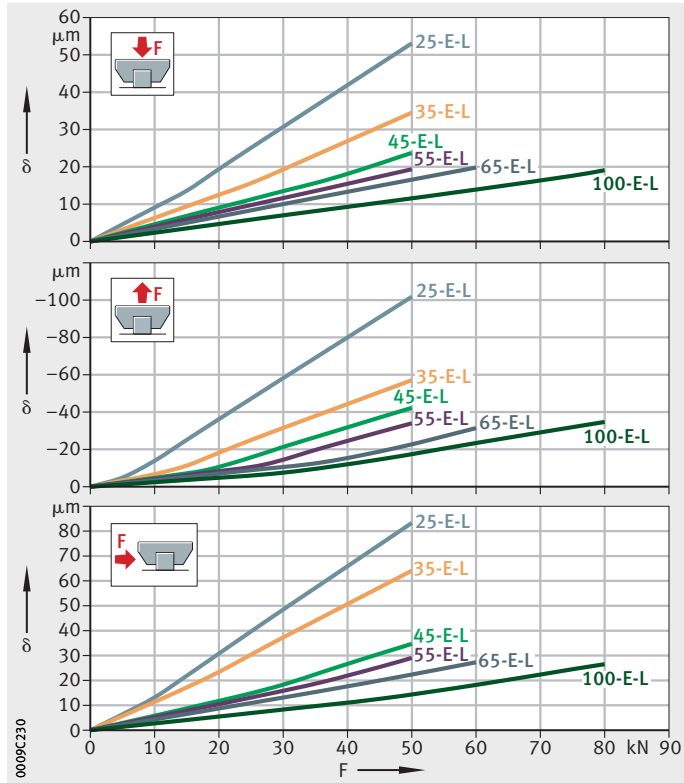


RUE25-E
RUE35-E
RUE45-E
RUE55-E
RUE65-E

δ = deflection
F = load

Figure 4
Deflection curves for compressive, tensile and lateral load

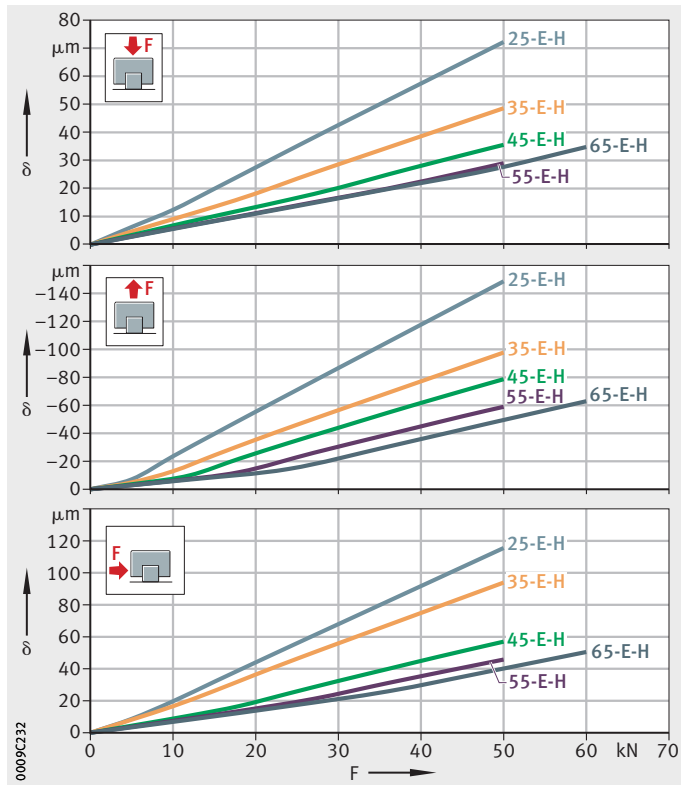
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RUE25-E-L
RUE35-E-L
RUE45-E-L
RUE55-E-L
RUE65-E-L
RUE100-E-L

δ = deflection
F = load

Figure 5
Deflection curves for compressive, tensile and lateral load

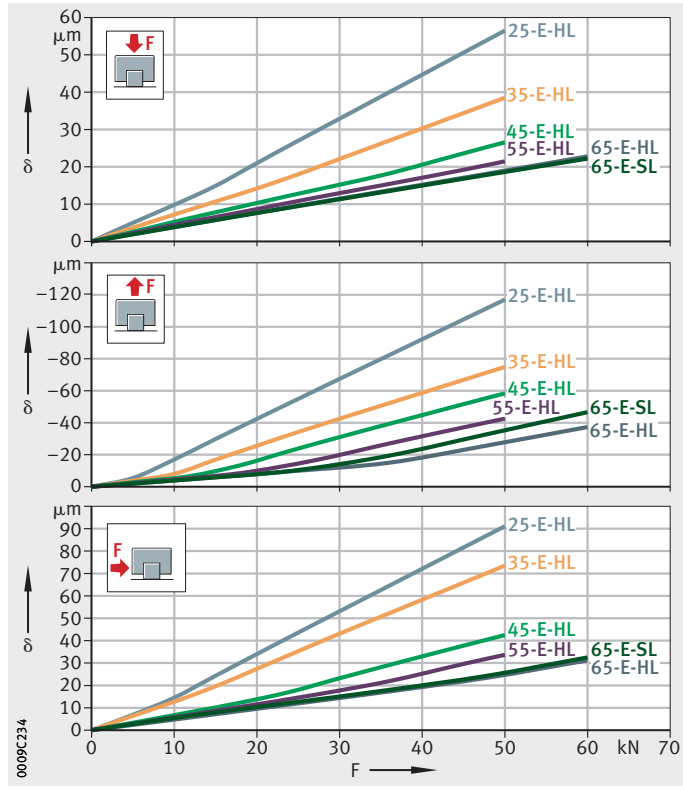


RUE25-E-H
RUE35-E-H
RUE45-E-H
RUE55-E-H
RUE65-E-H

δ = deflection
F = load

Figure 6
Deflection curves for compressive, tensile and lateral load

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RUE25-E-HL
RUE35-E-HL
RUE45-E-HL
RUE55-E-HL
RUE65-E-HL
RUE65-E-SL

δ = deflection
F = load

Figure 7
Deflection curves for compressive, tensile and lateral load

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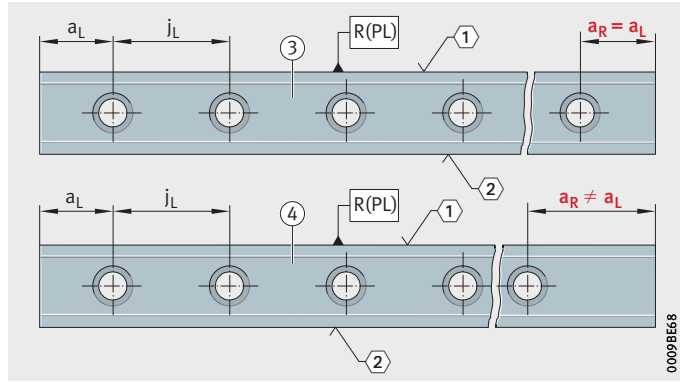
Linear recirculating roller bearing and guideway assemblies

Hole patterns of guideways

Unless specified otherwise, the guideways have a symmetrical hole pattern where $a_L = a_R$, *Figure 8*.

An asymmetrical hole pattern may also be available upon request. In this case, $a_L \geqq a_{L\,min}$ and $a_R \geqq a_{R\,min}$, *Figure 8*.

Irrespective of the orientation of the locating face, a_L is on the left and a_R on the right, *Figure 8*. When ordering, the required orientation of the locating face (top or bottom) must be indicated.



① Locating face
② Marking
③ Symmetrical hole pattern
④ Asymmetrical hole pattern

Figure 8
Hole patterns of guideways with one row of holes

Maximum number of pitches between holes

The number of pitches between holes is the whole number equivalent to:

$$n = \frac{l - 2 \cdot a_{L\,min}}{j_L}$$

The spacings a_L and a_R are generally determined as follows:

$$a_L + a_R = l - n \cdot j_L$$

For guideways with a symmetrical hole pattern:

$$a_L = a_R = \frac{1}{2} \cdot (l - n \cdot j_L)$$

Number of holes:

$$x = n + 1$$

a_L, a_R mm
Spacing between start or end of guideway and nearest hole, *Figure 8*

$a_{L\,min}$, $a_{R\,min}$ mm
Minimum values for a_L, a_R, see dimension tables

l mm
Guideway length

n –
Maximum possible number of pitches between holes

j_L mm
Spacing between holes

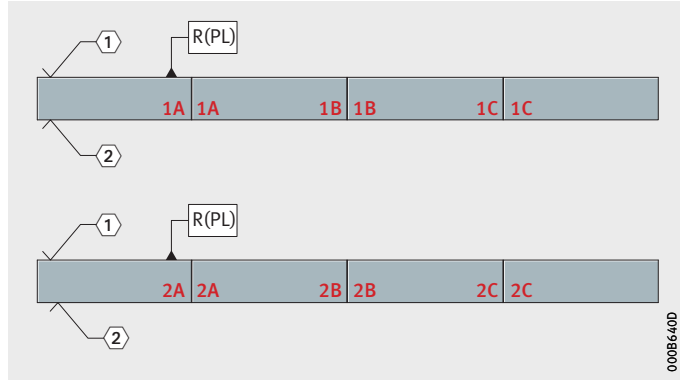
x –
Number of holes.

If the minimum values for a_L and a_R are not observed, the counterbores of the holes may be intersected. Risk of injury.

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Multi-piece guideways

If the guideway length required is greater than l_{max}, see dimension tables, or joined guideways are required, these guideways are made up from segments that together comprise the total required length. The segments are matched to each other and marked, *Figure 9*. The pitch is always located centrally between the fixing holes.



1 Locating face
2 Marking

Guideway segments:
1A, 1A 1B, 1B 1C, 1C
2A, 2A 2B, 2B 2C, 2C

Figure 9
Marking of multi-piece guideways

In the case of multi-piece guideways, the gap at the end faces between two segments must be $< 0{,}05$ mm.

Guideways suitable for joining as required

If partial guideway lengths ($l < l_{max}$) are to be combined with each other to form a guideway set as requested by the customer, the following postscript must be added to the order for the relevant guideway segment: “Guideway suitable for joining as required”.

If the guideway segment is an end segment, it is recommended that the guideway end has a chamfer, in order to make it easier to slide the carriages onto the guideway and protect the seals against damage. In this case, the position of the chamfer (left or right) and the position of the locating face (top or bottom) must be taken into consideration when ordering.

This design facilitates easier logistics.

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Linear recirculating roller bearing and guideway assemblies

Demands on the adjacent construction

The running accuracy is essentially dependent on the straightness, accuracy and rigidity of the fit and mounting surfaces.

The straightness of the system can be achieved most easily when the guideway is pressed against a locating face.

If the guideway cannot be aligned as recommended by means of locating faces or very high requirements are placed on the running accuracy, the guideway straightness must be restricted.
The following postscript must be added to the order: “Restricted guideway straightness”.

Geometrical and positional accuracy of the adjacent surfaces

The higher the requirements for accuracy and smooth running of the guidance system, the more attention must be paid to the geometrical and positional accuracy of the mounting surfaces.

Tolerances of mounting surfaces and parallelism of mounted guideways must be observed, *Figure 10*, page 112, and table, page 113.

Surfaces should be ground or precision milled with the objective of achieving a mean roughness value Ramax 1,6.

Any deviations from the stated tolerances will impair the overall accuracy, alter the preload and reduce the operating life of the guidance system.

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Height difference ΔH

For ΔH, permissible values are in accordance with the following equation.

$$\Delta H = a \cdot b$$

ΔH μm
Maximum permissible deviation from the theoretically precise position, *Figure 10*, page 112
a –
Factor, as a function of the preload class, see table
b mm
Centre distances between guidance elements.

Factor a

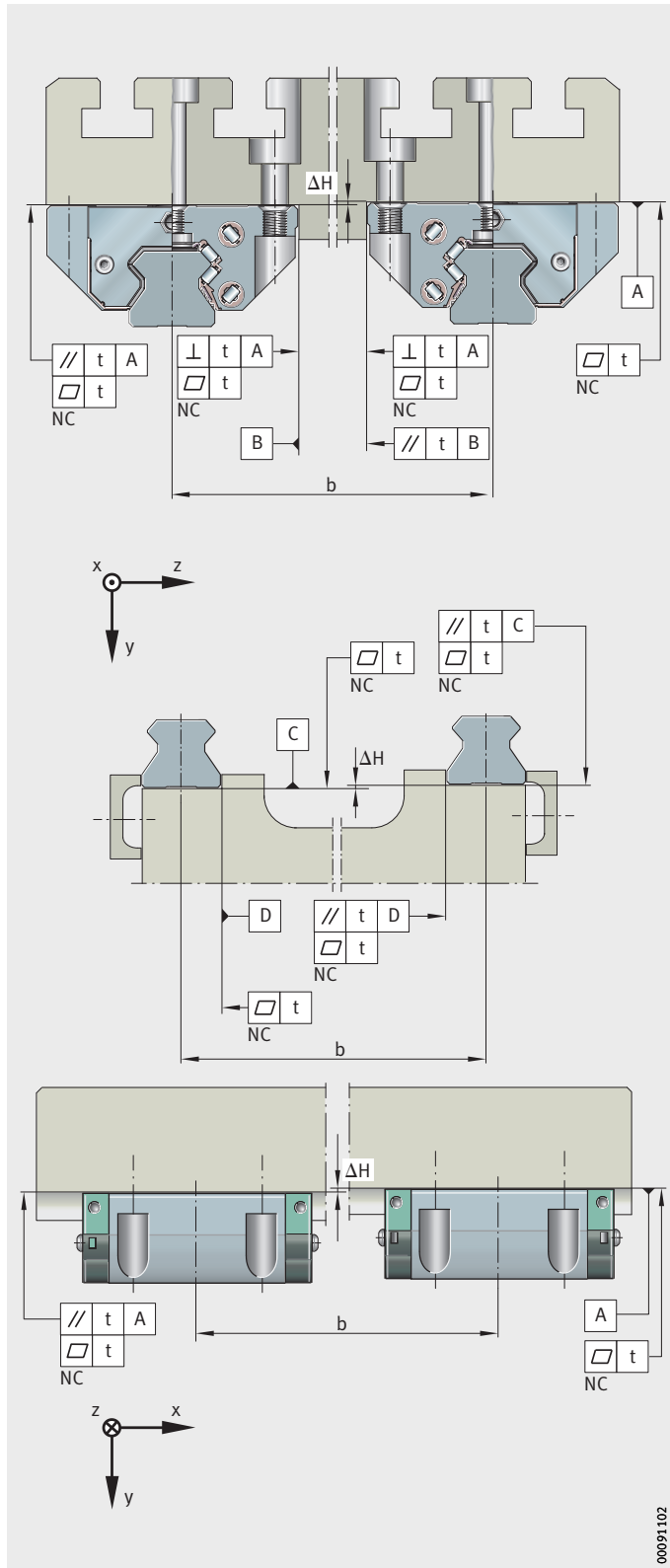
Preload class	Factor a
V1	0,15
V2	0,09
V3[1)]	0,075
V4	0,06
V5	0,06

1) Standard preload class.

Observe the guidelines in the mounting manual MON 30 for RUE.

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Linear recirculating roller bearing and guideway assemblies



NC = not convex

b = spacing between guidance elements
ΔH = height difference
t = parallelism, flatness and perpendicularity tolerance

Figure 10
Tolerances of mounting surfaces and parallelism of mounted guideways and carriages

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Parallelism of mounted guideways

For guideways arranged in parallel, the values for t are in accordance with *Figure 10*, page 112 and the table. If the maximum values are used, this may increase the displacement resistance.

Values for geometry and position

Guideway	Preload class	
	V1, V2	V3[1], V4, V5
	Parallelism, flatness and perpendicularity t µm	
TSX25-D (-U, -ADB, -ADK)	11	7
TSX35-E (-U, -ADB, -ADK)	15	10
TSX45-E (-U, -ADB, -ADK)	17	10
TSX55-E (-U, -ADB, -ADK)	20	10
TSX65-E (-U, -ADB, -ADK)	20	10
TSX100-E	20	10

1) Standard preload class.

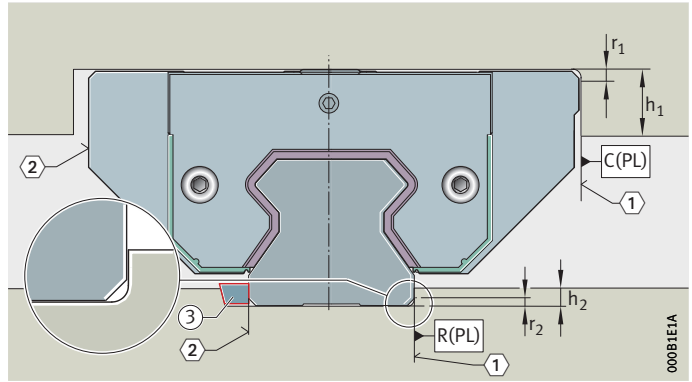
Locating heights and corner radii

For the design of locating heights and corner radii, see table and *Figure 11*.

Locating heights, corner radii

Designation	Locating heights		Corner radii	
	h_1 mm	h_2 mm max.	r_1 mm max.	r_2 mm max.
RUE25-E (-L, -H, -HL)[1]	7,5	4,5	0,8	0,3
RUE35-E (-L, -H, -HL)	8	6	1	0,8
RUE45-E (-L, -H, -HL)	10	8	1	0,8
RUE55-E (-L, -H, -HL)	12	9,5	1	0,8
RUE65-E (-L, -H, -HL, -SL)	15	10,5	1	0,8
RUE100-E-L	25	13	1	0,8

1) The linear recirculating roller bearing and guideway assembly RUE25-E is used in conjunction with the guideway TSX25-D.



① Locating face
② Marking
③ Vee strip

Figure 11
Locating heights and corner radii

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Linear recirculating roller bearing and guideway assemblies

Accuracy

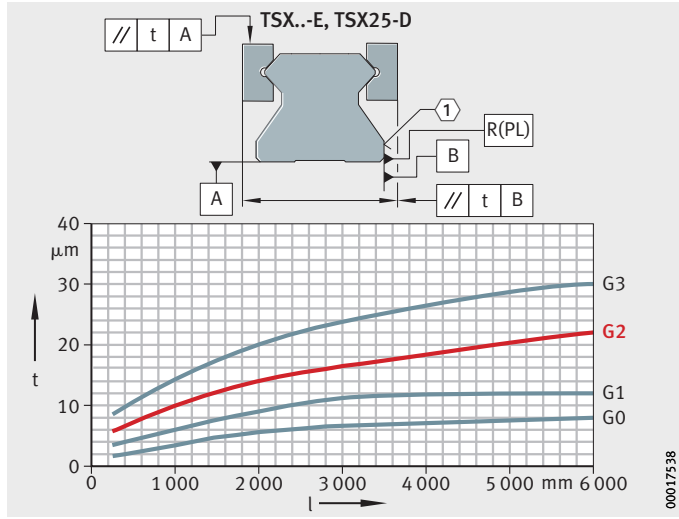
Accuracy classes

Linear recirculating roller bearing and guideway assemblies are available in the accuracy classes G0 to G3, *Figure 12*. The standard is class G2.

Parallelism of raceways to locating surfaces

The parallelism tolerance of the guideways is dependent on the accuracy class, *Figure 12*.

In coated systems, there may be deviations in tolerances compared with uncoated units.



t = parallelism tolerance
l = total guideway length

1 Locating face

Figure 12
Accuracy classes and parallelism tolerances of guideways

Running accuracy

The running accuracy is influenced by the accuracy of the adjacent construction.

Tolerances

The tolerances are arithmetic mean values, see table and *Figure 13*, page 115. They are relative to the centre point of the screw mounting or locating faces of the carriage.

The dimensions H and A_1 should always remain within the tolerance irrespective of the position of the carriage on the guideway, see table, page 115.

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Tolerances for height H and spacing A_1

Tolerance		Accuracy			
		G0	G1	G2[1]	G3
		µm	µm	µm	µm
Tolerance for height	H	±5	±10	±20	±25
Difference in height[2]	ΔH	3	5	10	15
Tolerance for spacing	A_1	±5	±10	±15	±20
Difference in spacing[2]	ΔA_1	3	7	15	22

1) Standard accuracy class.

2) Difference between several carriages on one guideway, measured at the same point on the guideway.

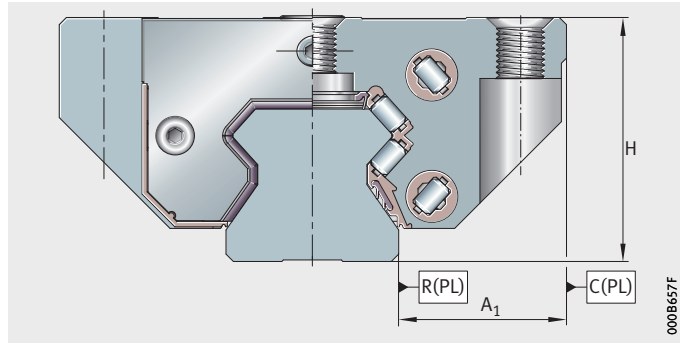


Figure 13
Datum dimensions for accuracy

Units with coating

For these units, the values for the appropriate accuracy class must be increased by the values for the coating, see table.

Coated systems are only available in the accuracy class G2.

Tolerances for coated parts

Tolerance[1]		Corrotect RROC µm	Protect A KD µm
Tolerance for height	H	+6	+6
Difference in height[2]	ΔH	+3	+3
Tolerance for spacing	A_1	+3	+3
Difference in spacing[2]	ΔA_1	+3	+3

1) Displacement in tolerance zone (guideway and carriage with coating).

2) Difference between several carriages on one guideway, measured at the same point on the guideway.

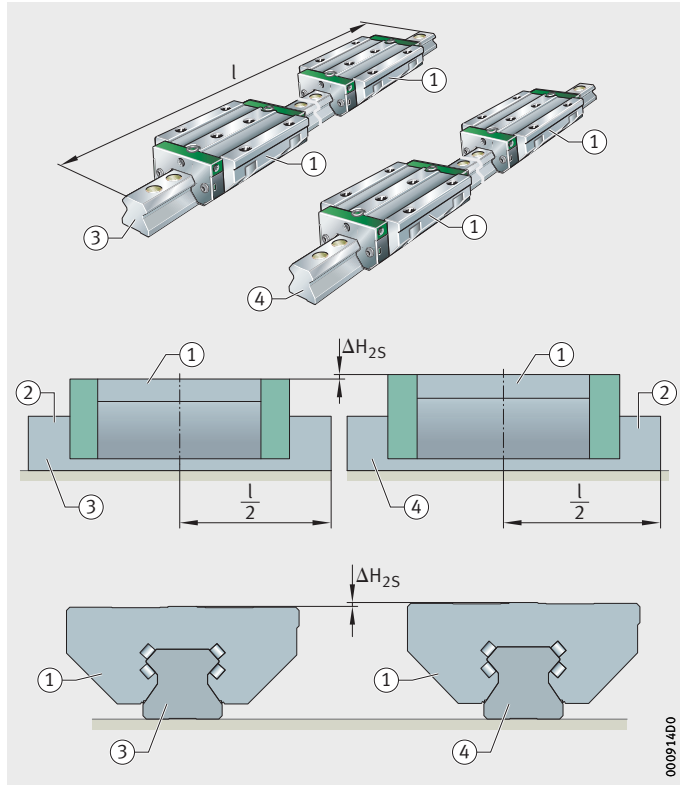
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Linear recirculating roller bearing and guideway assemblies

Height sorting 2S

If there are particular requirements for the accuracy of parallel systems, it is possible to restrict the height tolerance by specific sorting.

The height difference ΔH_{2S} is measured at the centre of the guideway (l/2). At this point, the height difference between all carriages of linear recirculating roller bearing and guideway assemblies supplied as a set is max. ΔH_{2S}, *Figure 14* and table.



l = guideway length

① Any carriage
② Guideway
③ Linear recirculating roller bearing and guideway assembly 1
④ Linear recirculating roller bearing and guideway assembly 2

Figure 14
Height sorting 2S

Height difference in 2S

Height difference	Accuracy			
	G0 µm	G1 µm	G2 µm	G3 µm
ΔH_{2S} [1)]	6	8	15	20

1) Measured at the centre of the guideway.

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Positional and length tolerances of guideways

The positional tolerances are not dependent on the guideway length, *Figure 15* and tables.

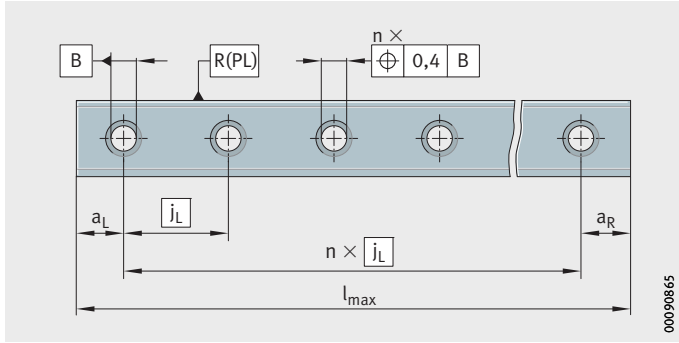


Figure 15
Positional and length tolerances of guideways

Length tolerances of guideways

Length tolerance			
Dependent on guideway length l mm			Multi-piece guideways mm
≦ 1000	1000 – 3000	> 3000	
–1	–1,5	±0,1% of guideway length	±3 over total length

If the ordering designation does not specify delivery of the guideway as a single piece, the guideway can optionally be supplied as several segments. Permissible pitch, see table.

Segments for multi-piece guideways

Guideway length[1)] mm	Maximum permissible number of segments
< 3 000	2
3 000– 4 000	3
4 000– 6 000	4
> 6 000	4 plus 1 segment each of 1 500 mm above 6 000 mm guideway length

1) Minimum length of one segment = 600 mm.

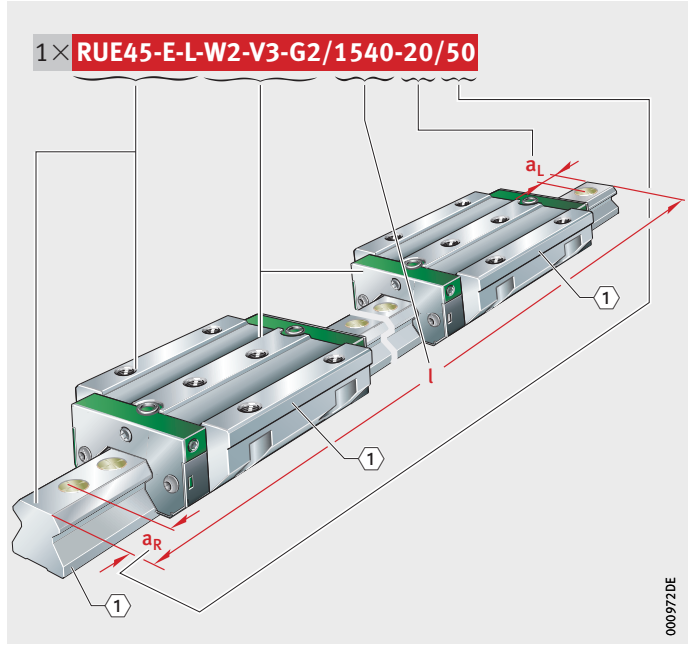
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Linear recirculating roller bearing and guideway assemblies

Ordering example, ordering designation

Unit, guideway with asymmetrical hole pattern:

Unit	Linear recirculating roller bearing and guideway assembly	RUE-E
	Size	45
	Carriage type	L
	Number of carriages per unit	W2
	Preload	V3
	Accuracy class	G2
	Length of guideway	1 540 mm
	a_L	20 mm
	a_R	50 mm
Ordering designation	1×**RUE45-E-L-W2-V3-G2/1540-20/50**, *Figure 16*	



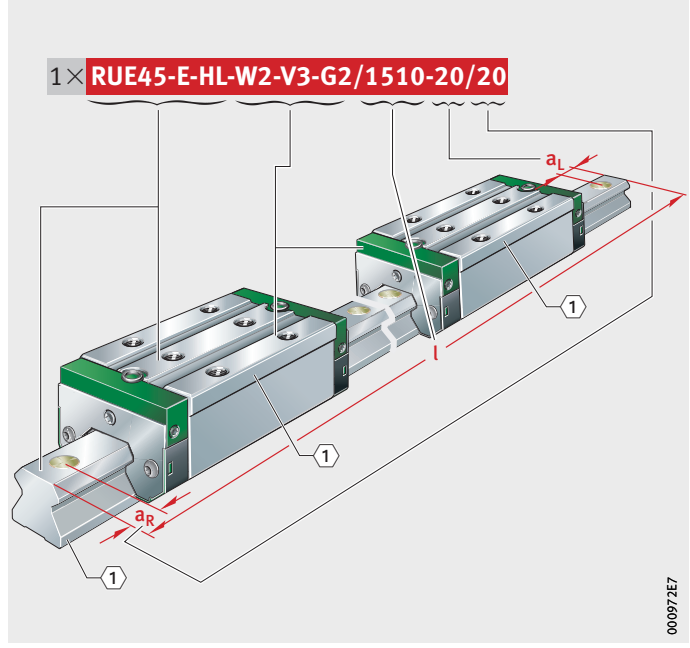
① Locating face

Figure 16
Ordering example, ordering designation

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Unit, guideway with symmetrical hole pattern:

Unit	Linear recirculating roller bearing and guideway assembly	RUE-E
	Size	45
	Carriage type	HL
	Number of carriages per unit	W2
	Preload	V3
	Accuracy class	G2
	Length of guideway	1 510 mm
	a_L	20 mm
	a_R	20 mm
Ordering designation	1×**RUE45-E-HL-W2-V3-G2/1510-20/20**, *Figure 17*	



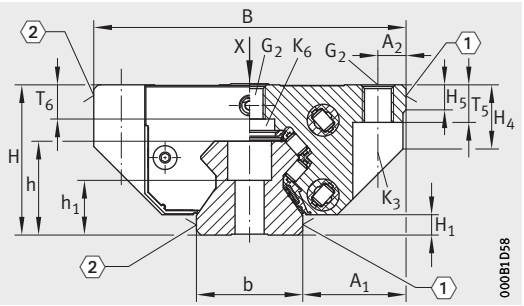
① Locating face

Figure 17
Ordering example, ordering designation

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Linear recirculating roller bearing and guideway assemblies

Full complement
Standard and L carriages



RUE..-E, RUE..-E-L

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions											
	l_{max} [2]	H	B	L [3]	A_1	J_B	b $^{-0,005}_{-0,035}$	A_2	L_1	L_S	J_L	J_{LZ}	j_L	a_L, a_R [4]	
														min.	max.
RUE25-E	3 930	36	70	91	23,5	57	23	6,5	65,6	2,2	45	40	30	20	23
RUE25-E-L				107					82,2						
RUE35-E	5 900	48	100	122,9	33	82	34	9	85,2	2,2	62	52	40	20	31
RUE35-E-L				148,8					111						
RUE45-E	5 888	60	120	145,9	37,5	100	45	10	104,2	2,2	80	60	52,5	20	41
RUE45-E-L				178,3					136,6						
RUE55-E	5 880	70	140	172,7	43,5	116	53	12	127	2,75	95	70	60	20	47
RUE55-E-L				210,7					165						
RUE65-E	5 865	90	170	195,5	53,5	142	63	14	141,2	2,75	110	82	75	20	61
RUE65-E-L				261,9					207,6						
RUE100-E-L	2 730	120	250	372,2	75	200	100	25	306,5	3,3	230	–	105	30	83

For further table values, see page 122 and page 123.

① Locating face. ② Marking. ③ Fixing screw.

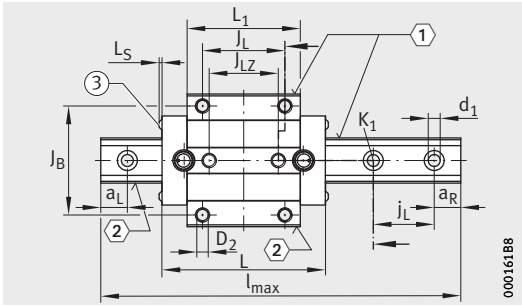
1) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications ($S_0 = 1$). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific to the application and operation, observing the information in VDI Guideline 2230 Part 1 (2015) and the information in this description, see page 69 and page 26.

2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 117.

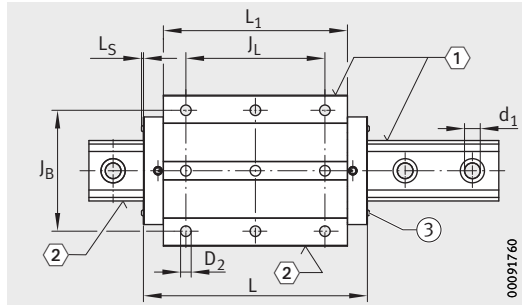
3) Minimum covered length for sealing the upper lubrication connectors.

4) a_L and a_R are dependent on the guideway length.

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RUE..-E, RUE..-E-L
View X rotated 90°



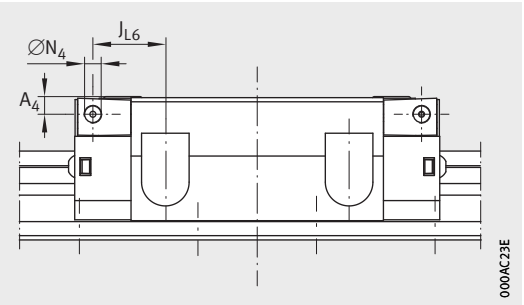
RUE100-E-L

							Fixing screws[1]									
H_1	H_5	H_4	T_5	T_6	h	h_1	G_2		K_1		K_3		K_6		d_1	D_2
							DIN ISO 4762-12.9						DIN 7984-8.8			
						±0,5		M_A Nm		M_A Nm		M_A Nm		M_A Nm		
6,5	5,25	17,8	10	8,5	22,3	11,8	M8	24	M6	17	M6	17	M6	10	6,8	6,7
6,5	8	20,5	12	10,9	30	17,5	M10	41	M8	41	M8	41	M8	24	9	8,6
8,5	8	26	15	13,2	38	19,5	M12	83	M12	140	M10	83	M10	48	13,4	10,6
11	12	32	18	14,8	45	22,5	M14	140	M14	220	M12	140	M12	83	15,4	12,5
11,5	15	39,2	23,3	23,3	53,8	28,8	M16	220	M16	340	M14	220	M14	130	18	14,5
15	25	52,5	29	26,6	80	48	M20	470	M24	1100	M16	340	M16	220	26	17,5

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Linear recirculating roller bearing and guideway assemblies

Full complement
Standard and L carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		Lubrication connectors				
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	N_3 [1]	A_4	N_4 [1]	J_{L6}
RUE25-E	RWU25-E	0,68	TSX25-D	2,9	7,5	M6	–	–	–
RUE25-E-L	RWU25-E-L	0,86							
RUE35-E	RWU35-E	1,75	TSX35-E	5,9	6,6	M6	5,6	M6	24,4
RUE35-E-L	RWU35-E-L	2,29							37,4
RUE45-E	RWU45-E	3,07	TSX45-E	9,4	6,6	M6	6,6	M6	27
RUE45-E-L	RWU45-E-L	4,05							43,2
RUE55-E	RWU55-E	5,24	TSX55-E	13,1	8,1	M6	8,1	M6	32,9
RUE55-E-L	RWU55-E-L	6,83							51,9
RUE65-E	RWU65-E	9,32	TSX65-E	19,5	19,6	M6	19,6	M6	34,8
RUE65-E-L	RWU65-E-L	13,8							68,1
RUE100-E-L	RWU100-E-L	35,7	TSX100-E	45,3	10,6	M6	10,6	∅5,6	65,1

1) Maximum screw depth in end piece 6 mm.

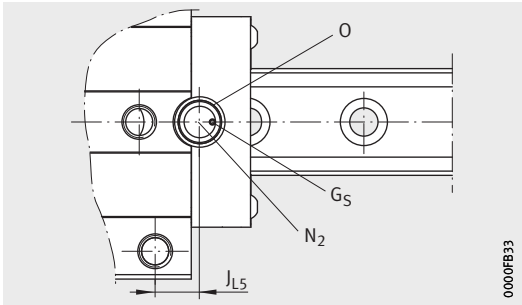
2) Maximum diameter of lubrication hole in adjacent construction.

3) Position of lubrication hole in adjacent construction.

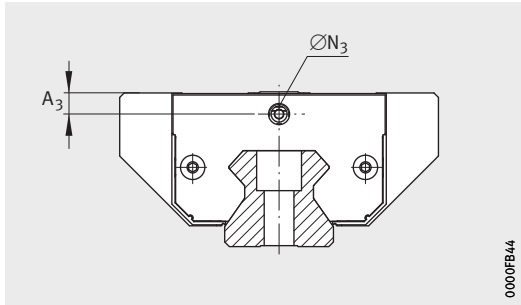
4) The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

5) Supplied loose with the M-Satz.

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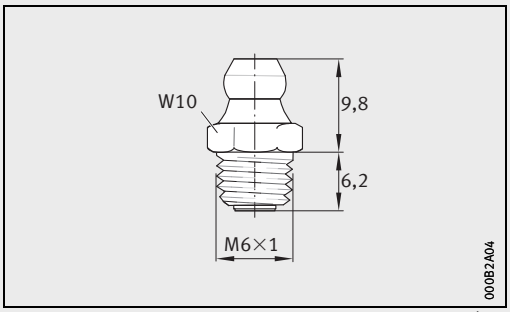


Lubrication connector on top face

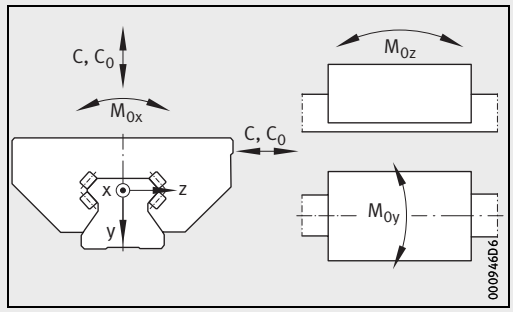


Dimensioning of lubrication connector on end face

				Load carrying capacity				
N_2[2]	J_{L5}[3]	G_S DIN EN ISO 4027	O DIN 3771	Basic load ratings[4]		Moment ratings		
				dyn. C N	stat. C_0 N	M_{0x} Nm	M_{0y} Nm	M_{0z} Nm
3	14,5	M4×4	10×1,5	28 000	65 000	350	760	680
	22,8			33 500	82 000	440	1 200	1 080
6	14,3	M4×4	10×1,5	59 000	140 000	1 200	2 150	1 950
	27,2			70 000	175 000	1 500	3 350	3 000
6	15,7	M4×4	10×1,5	92 000	215 000	1 899	4 255	3 821
	31,9			114 000	285 000	2 503	7 263	6 536
6	21,6	M4×4	10×1,5	136 000	320 000	3 287	7 404	6 667
	40,6			167 000	415 000	4 226	12 214	11 010
6	15,6	M4×4	18×1,5	200 000	435 000	5 450	12 100	10 900
	48,8			270 000	640 000	7 600	24 000	21 500
6	47,15	M4×4	10×1,5	630 000	1 490 000	33 780	80 250	72 280



Lubrication connector S25 to DIN 71412-A-M6[5]



Load directions

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Linear recirculating roller bearing and guideway assemblies

Full complement
H, HL and SL carriages

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions									
	l_{max} [2]	H	B	L [3]	A_1	J_B	b $^{-0,005}_{-0,035}$	A_2	L_1	L_S	J_L	j_L	a_L, a_R [4] min.	a_L, a_R [4] max.
RUE25-E-H	3 930	40	48	91	12,5	35	23	6,5	65,6	2,2	35	30	20	23
RUE25-E-HL				107					82,2		50			
RUE35-E-H	5 900	55	70	122,9	18	50	34	10	85,2	2,2	50	40	20	31
RUE35-E-HL				148,7					111		72			
RUE45-E-H	5 888	70	86	145,9	20,5	60	45	13	104,2	2,2	60	52,5	20	41
RUE45-E-HL				178,3					136,6		80			
RUE55-E-H	5 880	80	100	172,7	23,5	75	53	12,5	127	2,75	75	60	20	47
RUE55-E-HL				210,7					165		95			
RUE65-E-H	5 865	100	126	195,5	31,5	76	63	25	141,2	2,75	70	75	20	61
RUE65-E-HL				261,9					207,6		120			
RUE65-E-SL	2 730	90	126	261,9	31,5	76	63	25	207,6	2,75	120	75	20	61

For further table values, see page 126 and page 127.

① Locating face. ② Marking. ③ Fixing screw.

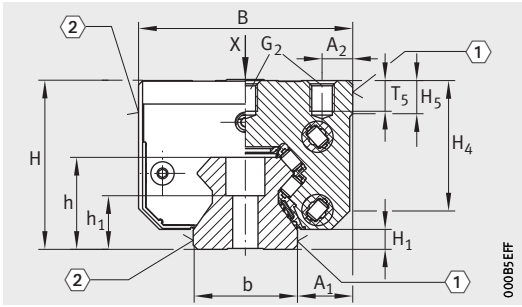
1) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications (S_0 = 1). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific to the application and operation, observing the information in VDI Guideline 2230 Part 1 (2015) and the information in this description, see page 69 and page 26.

2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 117.

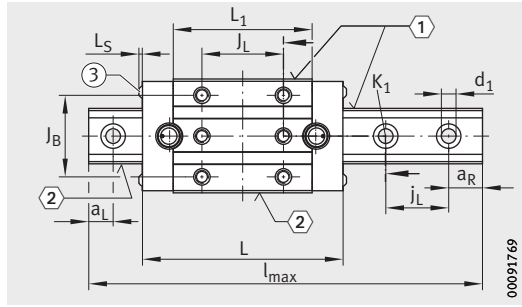
3) Minimum covered length for sealing the upper lubrication connectors.

4) a_L and a_R are dependent on the guideway length.

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RUE..-E-H, RUE..-E-HL, RUE..-E-SL



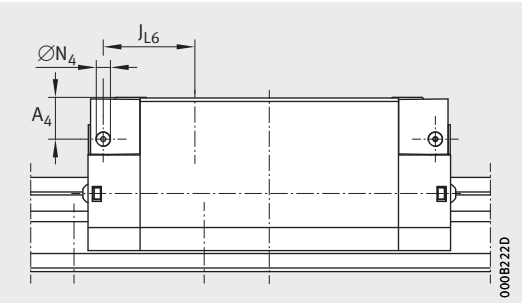
RUE..-E-H, RUE..-E-HL, RUE..-E-SL
View X rotated 90°

						Fixing screws[1]				
H_1	H_5	H_4	T_5	h	h_1	G_2		K_1		d_1
						DIN ISO 4762-12.9				
							M_A Nm		M_A Nm	
					±0,5					
6,5	5,25	32,5	7,5	22,3	11,8	M6	17	M6	17	6,8
6,5	10,8	41,9	10	30	17,5	M8	41	M8	41	9
8,5	13,7	52,4	12,5	38	19,5	M10	83	M12	140	13,4
11	16	61,4	15	45	22,5	M12	140	M14	220	15,4
11,5	15	71,2	20	53,8	28,8	M14	220	M16	340	18
11,5	15	61,2	12,5	53,8	28,8	M16	340	M16	340	18

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Linear recirculating roller bearing and guideway assemblies

Full complement
H, HL and SL carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		Lubrication connectors				
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	N_3 [1]	A_4	N_4 [1]	J_{L6}
RUE25-E-H	RWU25-E-H	0,58	TSX25-D	2,9	11,5	M6	–	–	–
RUE25-E-HL	RWU25-E-HL	0,72							
RUE35-E-H	RWU35-E-H	1,67	TSX35-E	5,9	13,6	M6	12,6	M6	30,4
RUE35-E-HL	RWU35-E-HL	2,14							32,4
RUE45-E-H	RWU45-E-H	3,05	TSX45-E	9,4	16,6	M6	16,6	M6	37
RUE45-E-HL	RWU45-E-HL	3,95							43,2
RUE55-E-H	RWU55-E-H	4,94	TSX55-E	13,1	18,1	M6	18,1	M6	42,9
RUE55-E-HL	RWU55-E-HL	6,34							51,9
RUE65-E-H	RWU65-E-H	8,9	TSX65-E	19,5	29,6	M6	29,6	M6	54,8
RUE65-E-HL	RWU65-E-HL	12,89							63,1
RUE65-E-SL	RWU65-E-SL	10,8	TSX65-E	19,5	19,6	M6	19,6	M6	63,1

1) Maximum screw depth in end piece 6 mm.

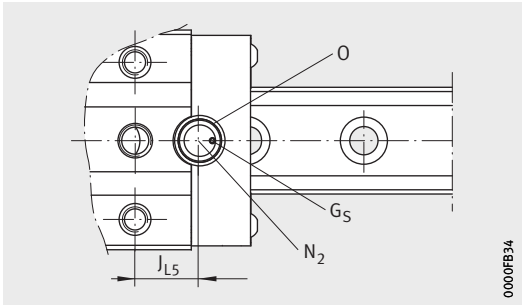
2) Maximum diameter of lubrication hole in adjacent construction.

3) Position of lubrication hole in adjacent construction.

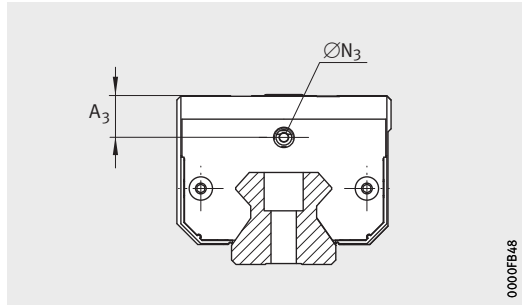
4) The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

5) Supplied loose with the M-Satz.

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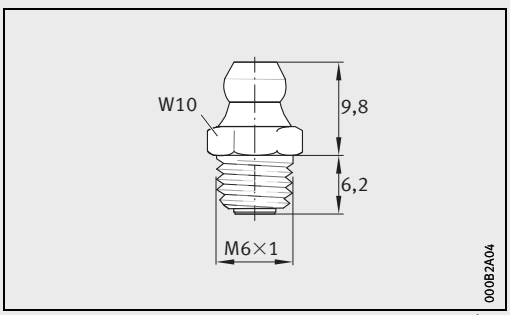


Lubrication connector on top face

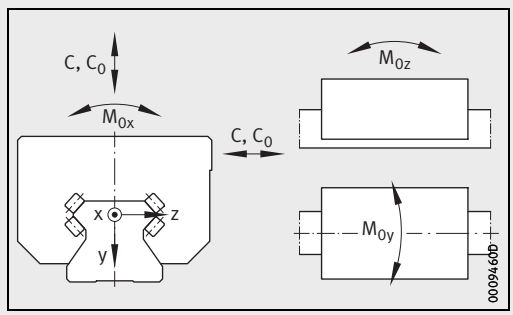


Dimensioning of lubrication connector on end face

				Load carrying capacity				
N_2[2]	J_{L5}[3]	G_S DIN EN ISO 4027	O DIN 3771	Basic load ratings[4]		Moment ratings		
				dyn. C	stat. C_0	M_{0x}	M_{0y}	M_{0z}
				N	N	Nm	Nm	Nm
3	19,5	M4×4	10×1,5	28 000	65 000	350	760	680
	20,3			33 500	82 000	440	1 200	1 080
6	20,3	M4×4	10×1,5	59 000	140 000	1 200	2 150	1 950
	22,2			70 000	175 000	1 500	3 350	3 000
6	25,7	M4×4	10×1,5	92 000	215 000	1 899	4 255	3 821
	31,9			114 000	285 000	2 503	7 263	6 536
6	31,6	M4×4	10×1,5	136 000	320 000	3 287	7 404	6 667
	40,6			167 000	415 000	4 226	12 214	11 010
6	35,6	M4X4	18×1,5	200 000	435 000	5 450	12 100	10 900
	43,8			270 000	640 000	7 600	24 000	21 500
6	43,8	M4X4	18×1,5	270 000	640 000	7 600	24 000	21 500



Lubrication connector S25 to DIN 71412-A-M6[5]

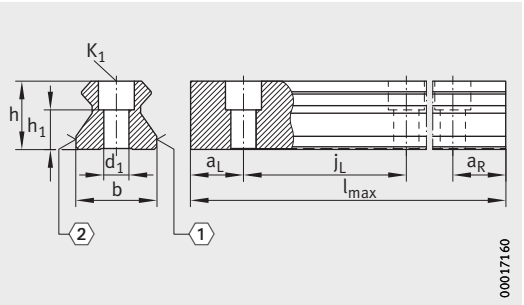


Load directions

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Linear recirculating roller bearing and guideway assemblies

Guideways and closing methods



TSX..-D, TSX..-E

Dimension table · Dimensions in mm

Designation	For linear guidance system	Mass m ≈ kg/m	Closing plug[1]						Covering strip[2]	
			Plastic[4]		Brass			Steel		
			one-piece	two-piece	one-piece	two-piece	conical	two-piece	Adhesive bonded	Clip fit
TSX25-D	RUE25-E	2,9	KA11-TN	KA11-TN/A	KA11-M	KA11-M/A	KA11-M-konisch	–	–	–
TSX25-D-U			–	–	–	–	–			
TSX25-D-ADB									ADB13	
TSX25-D-ADK									–	ADK12
TSX35-E	RUE35-E	5,9	KA15-TN	KA15-TN/A	KA15-M	KA15-M/A	KA15-M-konisch	–	–	–
TSX35-E-KA+ST			–	–	–	–	–	KA16-ST/A		
TSX35-E-U										
TSX35-E-ADB								–	ADB18	
TSX35-E-ADK									–	ADK16
TSX45-E	RUE45-E	9,4	KA20-TN	KA20-TN/A	KA20-M	KA20-M/A	KA20-M-konisch	–	–	–
TSX45-E-KA+ST			–	–	–	–	–	KA21-ST/A		
TSX45-E-U										
TSX45-E-ADB								–	ADB23	
TSX45-E-ADK									–	ADK21

① Locating face. ② Marking.

1) Closing plugs, see page 180.

2) Covering strips, see page 183.

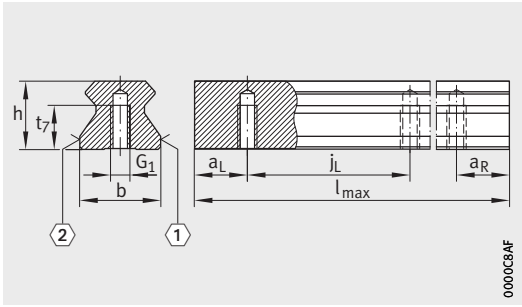
3) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications ($S_0 = 1$). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific to the application and operation, observing the information in VDI Guideline 2230 Part 1 (2015) and the information in this description, see page 69 and page 26.

4) Standard.

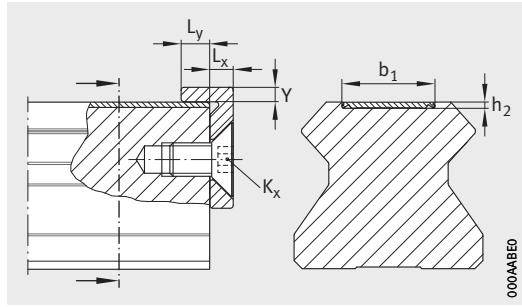
5) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 117.

6) a_L and a_R are dependent on the guideway length.

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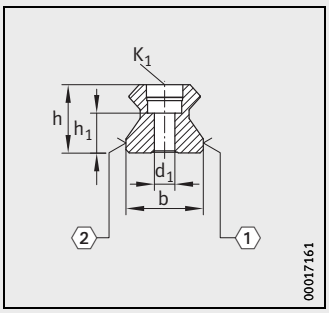


TSX..-D-U, TSX..-E-U

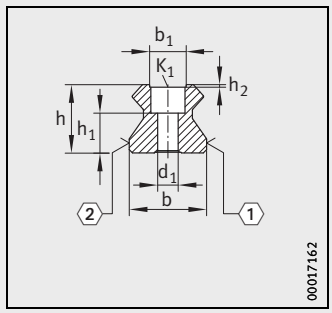


Retaining plate and covering strip

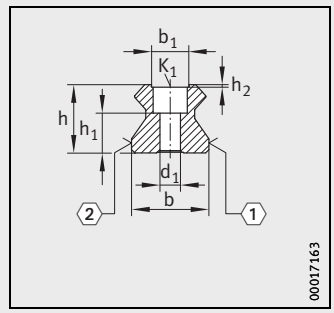
Retaining plate	Dimensions				Dimensions										Fixing screws[3]				
	K_x	L_x	L_y	Y	l_{max}[5]	h	b $^{-0,005}_{-0,035}$	a_L, a_R[6] min.	a_L, a_R[6] max.	j_L	h_1 $\pm 0,5$	h_2	t_7	b_1	G_1 DIN ISO 4762-12.9	M_A Nm	K_1 DIN ISO 4762-12.9	M_A Nm	d_1
–	–	–	–	–	3 930	22,3	23	20	23	30	11,8	–	–	–	–	–	M6	17	6,8
													12,5		M6	17	–	–	–
HPL.ADB9-B	M5	4	5	2								0,5	–	13	–	–	M6	17	6,8
												1,1		12,6					
–	–	–	–	–	5 900	30	34	20	31	40	17,5	–	15	–	–	–	M8	41	9
													–		M8	41	–	–	–
HPL.ADB17-B	M6	4	5	2,5								0,5		18	–	–	M8	41	9
												1,1		16,6					
–	–	–	–	–	5 888	38	45	20	41	52,5	19,5	–	–	–	–	–	M12	140	13,4
													20		M12	140	–	–	–
HPL.ADB17-B	M6	4	5	2,5								0,5	–	23	–	–	M12	120	13,4
												1,1		21,7					



TSX..-E-KA+ST



TSX..-D-ADB, TSX..-E-ADB

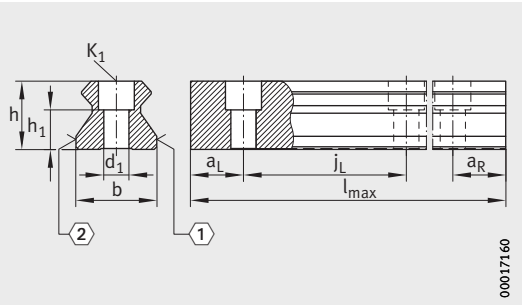


TSX..-D-ADK, TSX..-E-ADK

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Linear recirculating roller bearing and guideway assemblies

Guideways and closing methods



TSX..-E

Dimension table (continued) · Dimensions in mm

Designation	For linear guidance system	Mass m ≈ kg/m	Closing plug[1]						Covering strip[2]	
			Plastic[4]		Brass			Steel		
			one-piece	two-piece	one-piece	two-piece	conical	two-piece	Adhesive bonded	Clip fit
TSX55-E	RUE55-E	13,1	KA24-TN	KA24-TN/A	KA24-M	KA24-M/A	KA24-M-konisch	–	–	–
TSX55-E-KA+ST			–	–	–	–	–	KA25-ST/A		
TSX55-E-U										
TSX55-E-ADB								–	ADB27	
TSX55-E-ADK									–	ADK25
TSX65-E	RUE65-E	19,5	KA26-TN	–	KA26-M	–	KA26-M-konisch	–	–	–
TSX65-E-KA+ST			–		–		–	KA27-ST/A		
TSX65-E-U										
TSX65-E-ADB								–	ADB29	
TSX65-E-ADK									–	ADK27
TSX100-E	RUE100-E-L	45,3	–	–	KA40-M	–	–	–	–	–

① Locating face. ② Marking.

1) Closing plugs, see page 180.

2) Covering strips, see page 183.

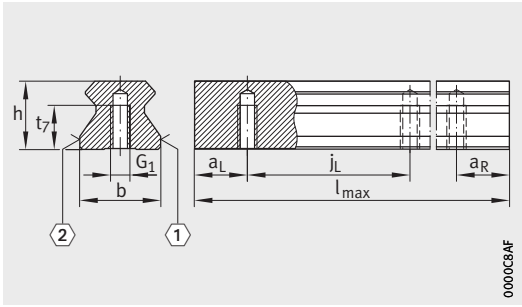
3) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications ($S_0 = 1$). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific to the application and operation, observing the information in VDI Guideline 2230 Part 1 (2015) and the information in this description, see page 69 and page 26.

4) Standard.

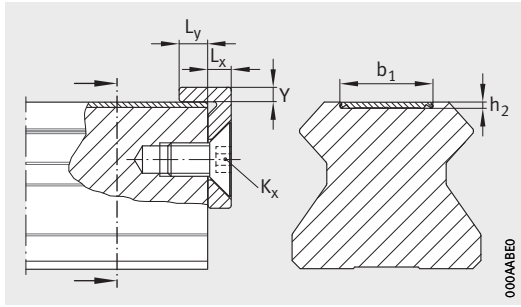
5) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 117.

6) a_L and a_R are dependent on the guideway length.

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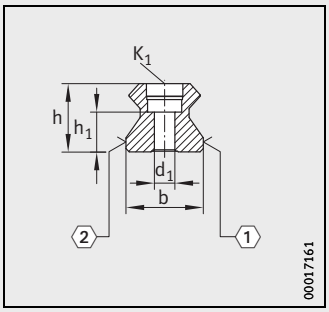


TSX..-E-U

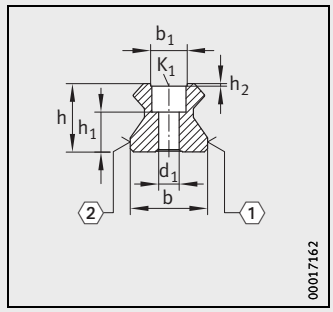


Retaining plate and covering strip

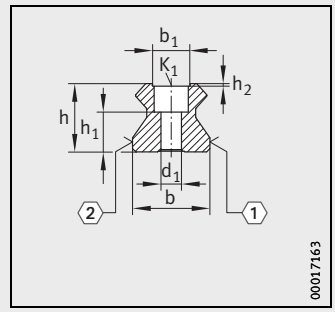
Retaining plate	Dimensions				Dimensions										Fixing screws[3]				
	K_x	L_x	L_y	Y	l_{max}[5]	h	b −0,005 −0,035	a_L, a_R [6] min.	 max.	j_L	h_1 ±0,5	h_2	t_7	b_1	G_1 DIN ISO 4762-12.9	M_A Nm	K_1 DIN ISO 4762-12.9	M_A Nm	d_1
–	–	–	–	–	5 880	45	53	20	47	60	22,5	–	–	–	–	–	M14	220	15,4
													22		M14	220	–	–	–
HPL.ADB17-B	M6	4	5	2,5								0,5	–	27	–	–	M14	220	15,4
												1,1		25,7					
–	–	–	–	–	5 865	53,8	63	20	61	75	28,8	–	–	–	–	–	M16	340	18
													25		M16	340	–	–	–
HPL.ADB17-B	M6	4	5	2,5								0,5	–	29	–	–	M16	340	18
												1,1		27,7					
–	–	–	–	–	2 730	80	100	30	83	105	48	–	–	–	–	–	M24	1 100	26



TSX..-E-KA+ST

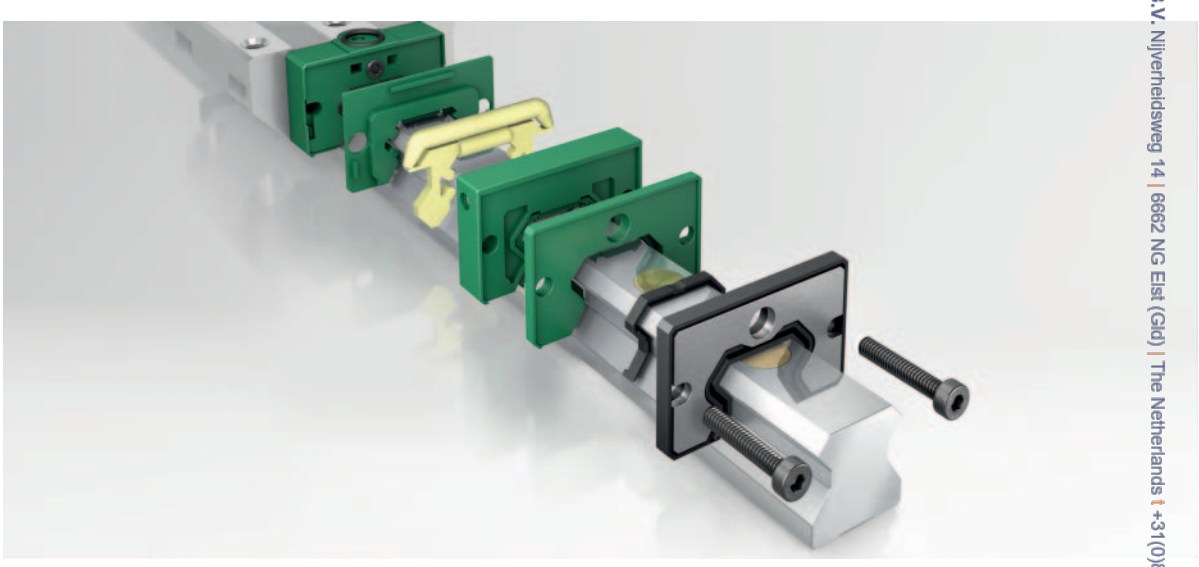


TSX..-E-ADB



TSX..-E-ADK

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Sealing and lubrication elements – system KIT

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Sealing and lubrication elements

		Page
Product overview	Sealing and lubrication elements	134
Sealing and lubrication elements – system KIT	Application-oriented complete package	135
	Degree of contamination	135
Sealing elements	End plates	136
	End wipers	137
	Additional wipers	138
	Sealing strips	139
Lubrication elements	End piece with closed off upper relubrication hole	140
	Long term lubrication unit KIT series 400	140
	Minimal lubricant quantity metering unit KIT series 500	142
	Lubricant quantity metering valves	144
	Lubrication adapter plate KIT series 600	145
Configuration of KIT.RWU		146
	Retrofitting by the customer	146
Matrix Kit RUE	Sealing and lubrication elements KIT for RUE..-E	148
Combination matrix	Possible combinations – KIT allocation (left) to KIT right	162
	Possible combinations – KIT allocation (left or right) to KIT centre	162
Lubrication connectors		164
Dimension tables	Minimal lubricant quantity metering unit	168
	Lubrication adapter plate	172

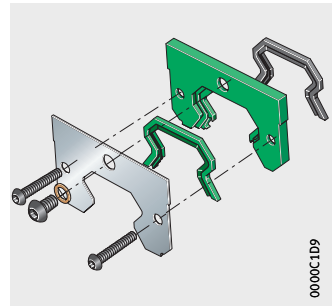


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Sealing elements – system KIT

End plate with end wiper – example KIT

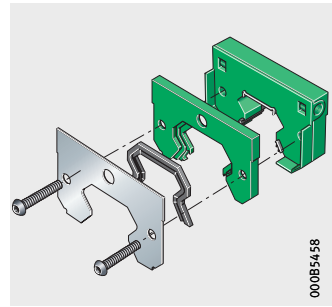
KIT



Lubrication elements – system KIT

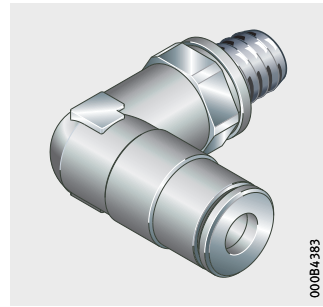
Long term lubrication unit – example KIT

KIT



Lubrication connectors

S



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Sealing and lubrication elements

Sealing and lubrication elements – system KIT

With their extensive range of standard accessories, the linear guidance systems can be easily used in numerous areas.
Since the guidance systems are used in an extremely wide variety of applications, however, additional requirements are often placed on the sealing and lubrication components.

Application-oriented complete package

If the standard components are not adequate for reliable operation and a long operating life, it is possible to draw on a finely graduated system of sealing and lubrication elements. These special accessories protect the rolling element system of the guidance systems against contamination and ensure long lubrication intervals even under the most demanding operating conditions.

KIT structure

The elements are configured as the system KIT and are designed for various application conditions.

Starting from the degree of contamination, the best combination in each case can be quickly and easily compiled:

- Possible combinations, see page 162 and page 162
- Description of sealing elements, see page 136
- Overview of sealing elements, see page 148
- Description of lubrication elements, see page 140
- Overview of lubrication elements, see page 140.

Only a proportion of the KITs can be retrofitted. Parts that cannot be retrofitted must be ordered together with the linear recirculating roller bearing and guideway assembly and are supplied already fitted.

Degree of contamination

The degree of contamination will vary depending on the market sector, the application and the environmental conditions.

The definitions at this point, see table, are therefore only an initial aid in the selection of KITs.

Definition of the degree of contamination

Degree of contamination			
Very slight	Slight	Moderate	Heavy [1]
Clean environment	Coarse (large) metal swarf Clean environment No cooling lubricants	Coarse (large) metal swarf Slight exposure to, for example, cooling lubricants	Hot swarf (metal, aluminium) of widely varying size and shape, including very small swarf from HSC machining Aggressive media and dust as well as cooling lubricants

[1] If this degree of contamination is present, a KIT can give only a restricted level of protection. Additional measures implemented by the customer, such as additional covers on the guidance system, will give a considerable increase in the operating life.

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Sealing elements

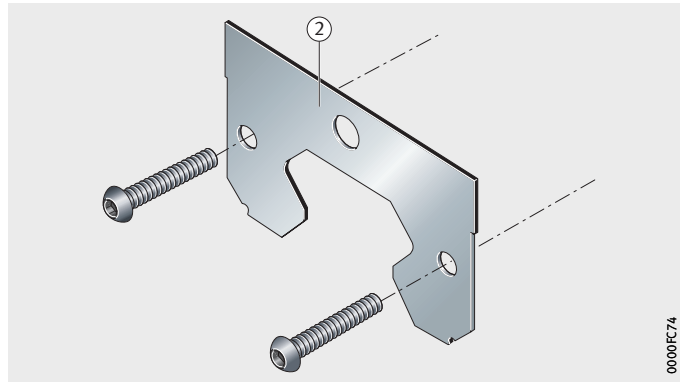
Additional sealing elements are available both for open upper lubrication holes as well as for closed upper lubrication holes:

- End plates, see page 136
- End wipers, see page 137
- Additional wipers, see page 138
- Sealing strips, see page 139.

End plates

End plates are corrosion-resistant, non-contact components, *Figure 1*. They protect the end wipers located behind them against, for example, coarse contaminants and hot swarf. There is a narrow gap between the guideway and the seal.

A KIT.RWU..-E always contains an end plate.



② End plate, non-contact

Figure 1
End plate
KIT.RWU..-210

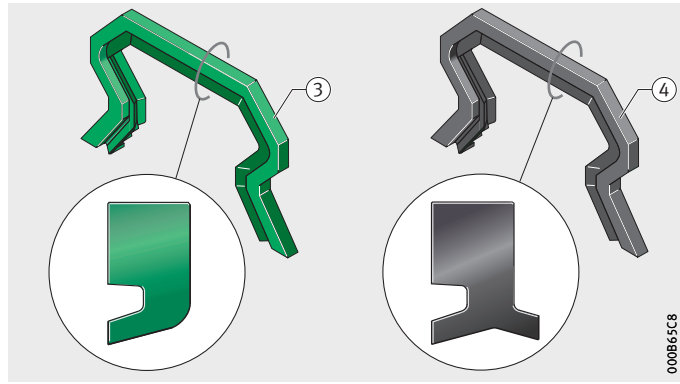
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End wipers

End wipers are contact seals that are fixed to the end faces of the carriages. End wipers protect the guidance system against the ingress of contaminant particles and can extend the relubrication intervals. The selection of the suitable sealing system is based on the application of the guidance system. End wipers are available in single lip and double lip designs (double lip as standard) and are made from special high performance materials, *Figure 2*.

Single lip end wipers have a seal lip oriented outwards that protects the carriage against the ingress of contaminant particles. In combination with oil lubrication, the single lip end wiper facilitates the rinsing out of contaminant particles (flushing effect).

Double lip end wipers have one seal lip oriented outwards and one seal lip oriented inwards. The seal lip oriented inwards prevents the escape of lubricant from the carriage, which means that an increase in the relubrication interval can be achieved. Double lip end wipers are recommended for use with grease lubrication (reservoir lubrication).



③ End wiper, single lip, green
④ End wiper, double lip, black

Figure 2
End wiper
Example
KIT.RWU..-100, -200

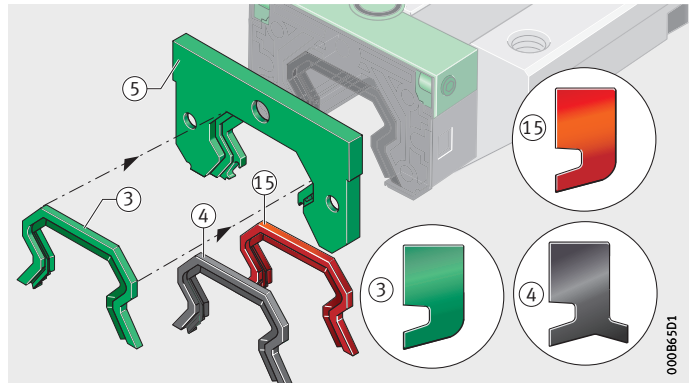
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Additional wipers

Additional wipers with carrier plate

In addition to the standard seal, other additional wipers may be used behind each other (cascading arrangement). These are screw mounted with a carrier plate in front of the first wiper on the carriage, *Figure 3*.

The additional wipers are of a single or double lip design and are made from special high performance seal material. For protection against aggressive media (for example acids, alkalis), special end wipers made from FPM are available, *Figure 3*.



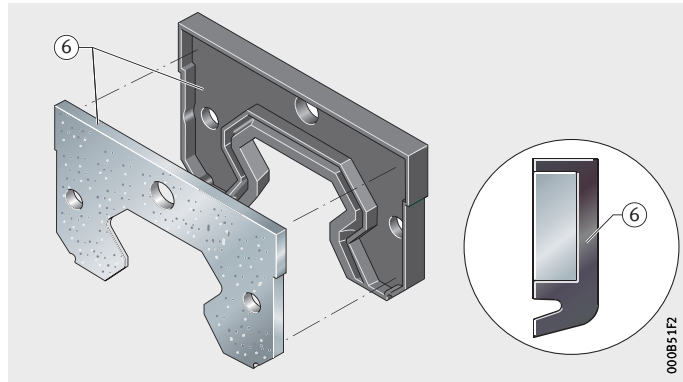
③ End wiper, single lip, green
④ End wiper, double lip, black
⑤ Carrier plate
⑮ End wiper, single lip, red (FPM)

Figure 3
Additional wipers
Example
KIT.RWU..-130, -140, -350

Additional wipers with squeeze plate

Additional wipers for heavy contamination, such as dust or liquids, are used in combination with further seals and with a metallic squeeze plate.

Additional wipers are of a single lip design and are made from NBR, *Figure 4*.



⑥ Additional wiper with squeeze plate, single lip

Figure 4
Additional wiper
Example
KIT.RWU..-340

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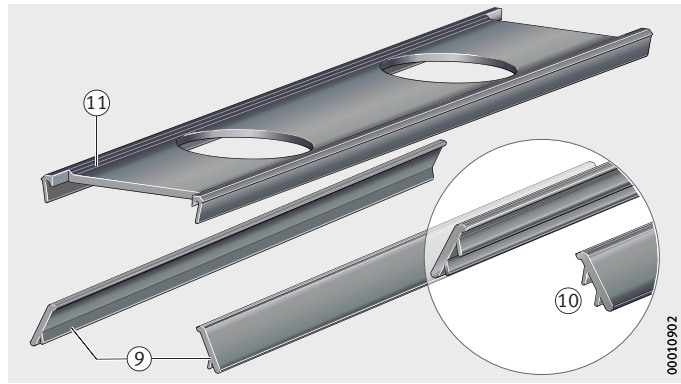
Sealing strips

Sealing strips are contact components that are fitted to the upper and lower longitudinal sides of the carriage, *Figure 5*. They protect the rolling element system against contamination and loss of lubricant.

Single lip and double lip

Linear recirculating roller bearing and guideway assemblies are supplied with a single lip upper sealing strip as well as a double lip lower sealing strip.

Sealing strips should be used in addition to end wipers especially in applications where contamination is critical, such as those involving fine dust or aggressive coolants.



⑨ Lower sealing strip, single lip
⑩ Double lower sealing strip, double lip
⑪ Upper sealing strip

Figure 5
Sealing strips
KIT.RWU..-910, -920, -930

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Lubrication elements

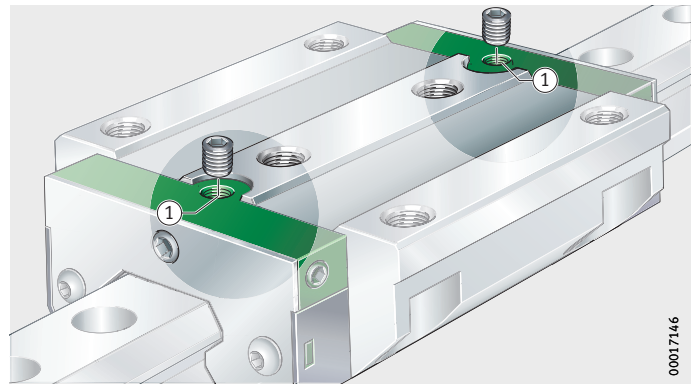
The following components are available:

- End piece with closed off upper relubrication hole, *Figure 6*
- Long term lubrication unit KIT series 400, see page 140
- Minimal lubricant quantity metering unit, KIT series 500, see page 142
- Lubricant quantity metering valves SMDS, see page 144
- Lubrication adapter plate KIT series 600, see page 145

End piece with closed upper relubrication hole

The designation of the KITs can also be used to order end pieces of the carriage with a closed upper relubrication hole (end number -..3), *Figure 6*.

KITs for minimal lubricant quantity metering units do not have an upper relubrication hole. At the time of ordering, it should be determined which KITs are required.



① Closed off upper relubrication hole in the end piece

Figure 6
End piece with closed off upper relubrication hole KIT.RWU..-..3

Long term lubrication unit KIT series 400

For linear recirculating roller bearing and guideway assemblies RUE..-E, KITs with a long term lubrication unit are available.

Operating life of the linear guidance system

The operating life is defined as the life actually achieved by a linear guidance system. This may deviate significantly, however, from the basic rating life.

A sufficiently long operating life is only achieved, assuming the bearing arrangement is correctly designed, through optimum lubrication and sealing. This can be achieved using the long term lubrication unit, *Figure 7*, page 141.

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Grease operating life and relubrication interval

If guidance systems cannot be relubricated, the grease operating life becomes the decisive factor, see page 50. This indicates the length of time for which a grease can be used without its function being impaired.

As the load increases, the grease is subjected to increasing strain. As a result, it ages more quickly. Premature destruction of the grease structure has an adverse effect on the performance characteristics of the grease. The grease operating life declines and relubrication must be carried out earlier.

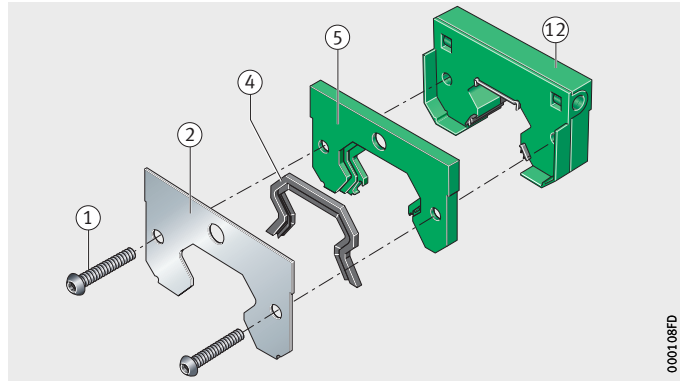
If the shortened relubrication intervals are not observed, the guidance system will fail before the end of the expected operating life. With decreasing grease operating life, the operating life of the linear guidance system is thus reduced.

Longer operating life by means of a long term lubrication unit

The volume of grease in the carriage is increased by the lubrication pockets in the saddle plate. If a long term lubrication unit of KIT series 400 is also fitted, this gives an additional improvement in the lubricant balance, *Figure 7*. The lubricant is stored in a high capacity reservoir and continuously released to the raceways via a transfer medium. Depending on the operating and environmental conditions, it is possible to achieve long relubrication intervals or even complete freedom from maintenance.

Function irrespective of position

Long term lubrication units are particularly suitable in applications where lubrication is of critical importance. They are screw mounted between the end piece and the wiper and function with equal reliability in either a horizontal or vertical mounting position.



① Fixing screws
② End plate
④ End wiper, double lip
⑤ Carrier plate
⑫ Long term lubrication unit

Figure 7
Long term lubrication unit

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With initial greasing

Due to their initial greasing, long term lubrication units are ready for immediate operation. If they are ordered together with an RUE, the RUE and long term lubrication unit are greased.

If the long term lubrication unit is retrofitted, it is absolutely essential that the carriage has an initial greasing.
Initial grease quantities, see page 47.

The long term lubrication unit must always be used on both sides of the carriage, in order to achieve the stated bearing factor K_{LF} and thus the maximum operating life.

Double lip end seal

Integrated double lip end seals give protection against grease loss and contamination.

Long term lubrication units should not be used with Corrotect-coated guideways.

Minimal lubricant quantity metering unit KIT series 500

The lubricant metering device is screw mounted to the end face of the carriage and can be connected to all conventional central lubrication systems, *Figure 8* and dimension table.

The piston distributors in the aluminium body lubricate all four raceways evenly, irrespective of position, economically and with the smallest possible quantities of precisely metered lubricant.

The lubrication is fed in from the side via one line. The pressure must be measured directly at the metering unit:

Pressure ranges for oil

- p_{min} = 6 bar
  (minimum pressure for initiation of a lubrication impulse)
- p_{max} = 38 bar.

In idle mode, the pressure level present must not exceed 0,5 bar.

Pressure ranges for flowable grease

- p_{min} = 12 bar
  (minimum pressure for initiation of a lubrication impulse)
- p_{max} = 38 bar.

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Coupling piece

The coupling piece for connection to the central lubrication system has a union nut similar to DIN 3871-A, is fitted on the left or right side of the metering unit and is suitable for connecting pipes with an outside diameter of 4 mm.

In the case of RUE..-E-H and RUE..-E-HL, the lubrication connector protrudes laterally approx. 9 mm from the carriage.

KIT series 500

⑭ Minimal lubricant quantity metering unit

⑮ The lateral relubrication hole in the end piece must not be used

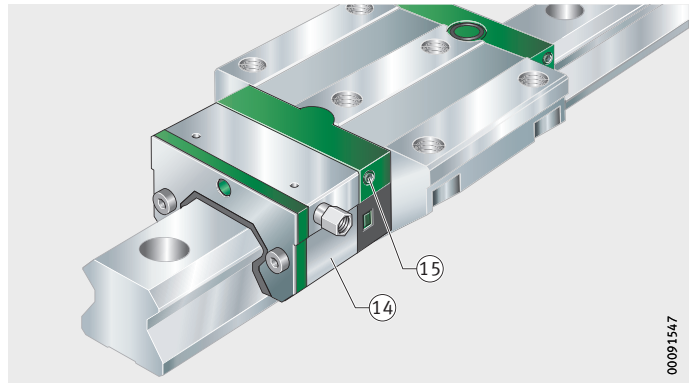


Figure 8
Minimal lubricant quantity metering unit KIT.RWU..-500

End piece

The lubrication adapter plate SMVT for the minimal lubricant quantity metering unit differs from the lubrication adapter plate for a carriage of standard design.

If the minimal lubricant quantity metering unit is to be fitted by the customer, the lubrication adapter plate included in the scope of delivery must always be replaced. The lubrication adapter plate must be replaced very carefully, taking account of the mounting manual MON 41.

Lubricant and metering quantities

The lubricant quantity is determined by the number of lubrication impulses. The metering unit is supplied with metering quantities of 0,03 cm^3 per impulse and metering unit. A metering unit contains four metering elements.

Suitable lubricants

Oils CLP to DIN 55517 and HLP to DIN 51524 should be used in preference.

At operating temperatures between 0 °C and +70 °C, the viscosity should be between ISO VG 32 and ISO VG 68.

When using oil, the permissible viscosity range is from 20 to 2 000 mm^2/s (cSt). A 25 µm oil filter is recommended.

Flowable greases of the NLGI grade 00 and 000 are used for operation of the minimal lubricant quantity metering unit.

The maximum operating temperature is +80 °C.

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Lubricant quantity metering valves

Lubricant quantity metering valves for oil lubrication

The lubricant quantity metering valves SMDS are, when supplied with oil as the lubricant, an economical solution for reducing lubricant consumption while also achieving high functional security. Comparison of oil quantities for RUE..-E with SMDS, see table, page 44.

Optimum lubricant supply

The lubricant quantity metering valves replace the conventional O rings in the return guides of the rolling element return channels. The lubricant quantity metering valves exactly fit the position of the O rings and replace these while retaining the design envelope of the carriage, *Figure 9*.

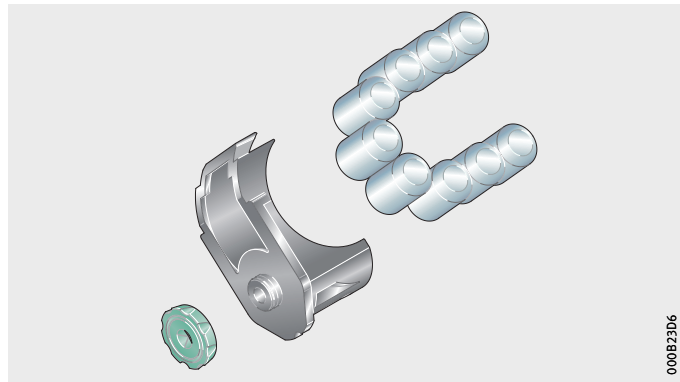


Figure 9
Lubricant quantity metering valves SMDS

The metering valves seal off the lubrication ducts and only open during the lubrication impulse. Between the lubrication impulses, the lubricant quantity metering valves prevent the lubrication ducts from running dry irrespective of position. This and the uniform opening pressure facilitate an optimum supply of lubricant.

Lubricant distribution

Where the mounting position is at an angle of 90° (wall mounting), the lubricant quantity metering valves offer an optimum supply of lubricant.

If the lubrication ducts are initially filled with oil, the lubricant quantity metering valves seal off the lubrication ducts, thus preventing the ducts from running dry, and support the optimum and uniform supply of lubricant to the rows of rolling elements. The lubricant quantity metering valves give effective prevention of damage to the raceways and rolling elements up to failure of the guidance system.

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Lubricant consumption

A linear recirculating roller bearing and guideway assembly RUE35-E with a load ratio C/P = 4 and a velocity of 2 m/s can, with the aid of the lubricant quantity metering valves, save approx. 0,025 cm^3 of lubricant per hour in comparison with the standard design while using an identical design envelope.

Design

The guidance systems must be ordered for delivery with the lubricant quantity metering valves, for example RUE35-E-SMDS-L. Retrofitting by the customer is not possible. The delivery of RUE..-E includes a mounting set M-Satz. This M-Satz contains one lubrication connector. The use of SMDS does not require a further lubrication connector. One lubrication connector per carriage is sufficient. Optionally, other lubrication connectors are available, see page 140.

Lubrication adapter plate KIT series 600

The lubrication adapter plate is screwed to the end face of the carriage. It comprises an aluminium body with integrated lubrication ducts and, on each side, 2 lateral threads M6. The useful thread length is max. 8 mm for accommodating the lubrication connectors. Depending on the design, connectors for manual lubricators or central lubrication systems and screw plugs are already fitted.

Contact surface for bellows

The screw heads for locating the lubrication adapter plate and the screw plug for sealing off the end face relubrication adapter plate are arranged countersunk in the body of the lubrication adapter plate. This gives a flat contact surface on the end face of the carriage, which can be used as an interface for the location of fasteners such as bellows.

① Fixing screw
② Grub screw for closing off the relubrication hole
③ Aluminium body
④ Lubrication connector to DIN 71412-A
⑤ Central lubrication connector with sealing ring
⑥ Screw plug with sealing ring

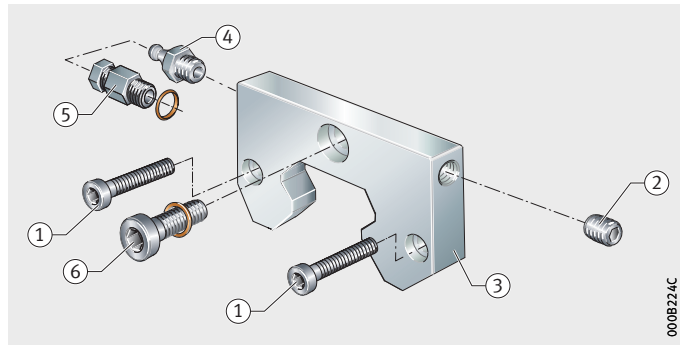


Figure 10
Lubrication adapter plate KIT series 600

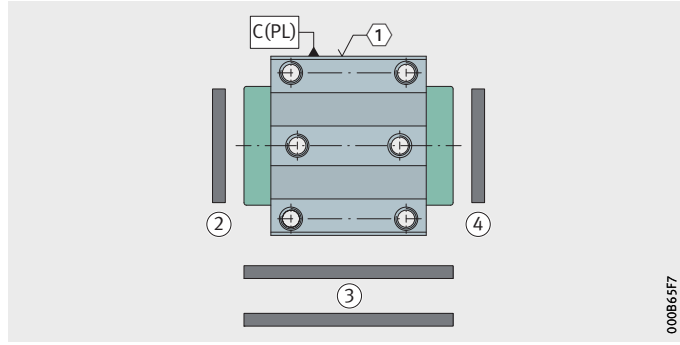
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Configuration of KIT.RWU

Unless indicated otherwise, the locating face is defined as being at the top. The KIT designation is given in the sequence left/centre/right. If no KIT numbers are indicated, the standard version will be supplied, see page 148.

KIT components can be fitted on the left, centre and right of the carriage, *Figure 11*.

RWU..-E-130/900/120



① Locating face
② KIT.RWU..-E-130
③ KIT.RWU..-E-900
④ KIT.RWU..-E-120

Figure 11
Example of KIT configuration

Retrofitting by the customer

The KITs available for retrofitting by the customer are indicated accordingly as retrofittable in the KIT tables, see page 148.

KIT left, right

The KIT components are identical for all carriage designs, with the exception of KIT series 500. The KIT end number -..3 describes the closed upper relubrication hole in the end piece, *Figure 6*, page 140.
The end piece (lubrication distributor plate) is not a KIT component, so the KIT end number -..3 is not taken into consideration in retrofitting by the customer.

KIT components for retrofitting by the customer must be ordered for all types and designs using the designation KIT.RWU..-E as well as the suffix -OS and the KIT end number -..0.

The scope of delivery includes the wear components and fixing screws required for retrofitting.

Example: **KIT.RWU35-E-OS-340**.

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This procedure excludes the lubrication elements KIT series 500 and KIT series 600.

In the case of KIT series 500, there is no upper relubrication hole. The height of the carriage must be taken into consideration and the end piece must be replaced, see page 142 and dimension tables.

In the case of KIT series 600, the upper relubrication hole is not taken into consideration and the suffix -OS must be added, see dimension tables.

KIT centre

If retrofitting is to be carried out by the customer, attention must be paid to the carriage length.

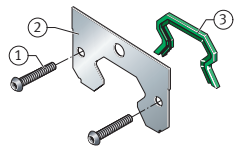
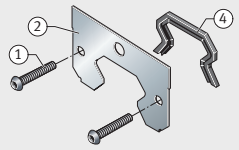
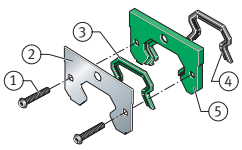
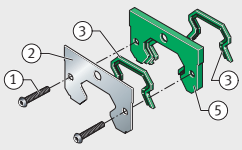
KIT components for retrofitting by the customer of long carriages must be ordered using the designation KIT.RWU..-E-L.

Example: **KIT.RWU35-E-L-930**.

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Sealing and lubrication elements

Sealing and lubrication elements KIT (left, right) for RUE..-E

Designation and KIT end number KIT.RWU..-E[2]		Image	Description
Upper lubrication hole open			
yes	no		
100	**103**		① Fixing screw K_1 ② End plate, non-contact ③ End seal, single lip
120[3]	**123**		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip
130	**133**		① Fixing screw K_1 ② End plate, non-contact ③ End seal, single lip ④ End seal, double lip ⑤ Carrier plate
140	**143**		① Fixing screw K_1 ② End plate, non-contact ③ End seal, single lip ⑤ Carrier plate

⑴ Locating face

Attention!
The table is only intended as a guide.
Specific application conditions must be taken into consideration when selecting the elements.

The sealing and lubrication elements KIT can be combined flexibly.
Recommended and possible combinations of the KITs, see page 162.
Recommended lubrication connectors, see page 164.

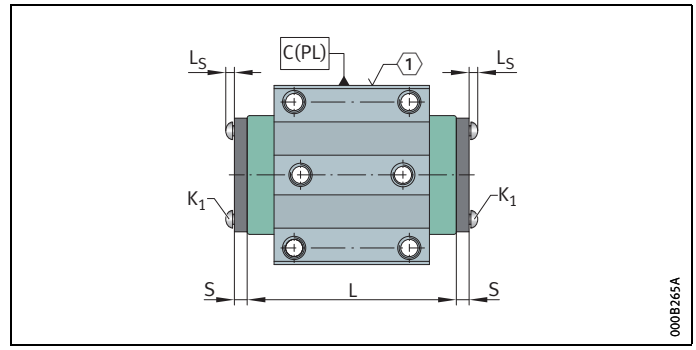
1) Definition, see page 135.

2) In the case of retrofitting by the customer, the suffix OS must be stated. The condition of the upper relubrication hole is not taken into consideration. The KIT end number is always -..0. See Retrofitting by the customer, page 146. Ordering example: KIT.RWU35-E-OS-100.

3) Standard for RUE..-E.

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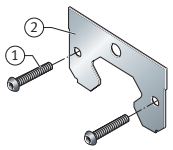
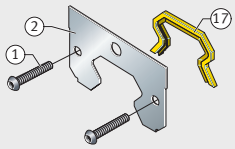
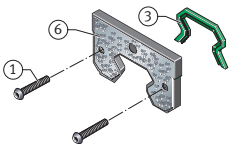
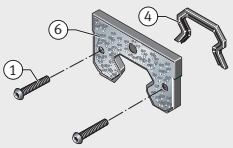
Degree of contamination[1]			Size	Retrofit-table	Tolerances			Increase in displacement force				Designation and KIT end number KIT.RWU..-E[2]	
Slight	Moder-ate	Heavy			K_1	L_S mm	S mm	None	Slight	Moder-ate	Heavy	Upper lubrication hole open	
												yes	no
■	■	–	–	■	–	–	–	–	–	■	–	**100**	**103**
			35		M4×25	2,2	0						
			45		M4×30	2,2							
			55		M5×30	2,75							
			–		–	–	–						
			–		–	–	–						
■	■	–	25	■	M4×20	2,2	0	–	–	■	–	**120**[3]	**123**
			35		M4×25	2,2							
			45		M4×30	2,2							
			55		M5×30	2,75							
			65		M5×35	2,75							
			100		M6×40	4,5							
■	■	■	25	■	M4×20	2,2	4,2	–	–	–	■	**130**	**133**
			35		M4×30	2,2	5,8						
			45		M4×35	2,2							
			55		M5×35	2,75							
			–		–	–	–						
			–		–	–	–						
■	■	■	25	■	M4×20	2,2	0	–	–	–	■	**140**	**143**
			35		M4×30	2,2	5,8						
			45		M4×35	2,2							
			55		M5×35	2,75							
			–		–	–	–						
			–		–	–	–						



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Sealing and lubrication elements

Sealing and lubrication elements KIT (left, right) for RUE..-E (continued)

Designation and KIT end number KIT.RWU..-E[2]		Image	Description
Upper lubrication hole open			
yes	no		
210	**213**		① Fixing screw K_1 ② End plate, non-contact
220	**223**		① Fixing screw K_1 ② End plate, non-contact ⑰ End seal, single lip, smooth running
300	**303**		① Fixing screw K_1 ③ End seal, single lip ⑥ End seal, single lip, NBR, with squeeze plate
340	**343**		① Fixing screw K_1 ④ End seal, double lip ⑥ End seal, single lip, NBR, with squeeze plate

⟨1⟩ Locating face

Attention!
The table is only intended as a guide.
Specific application conditions must be taken into consideration when selecting the elements.

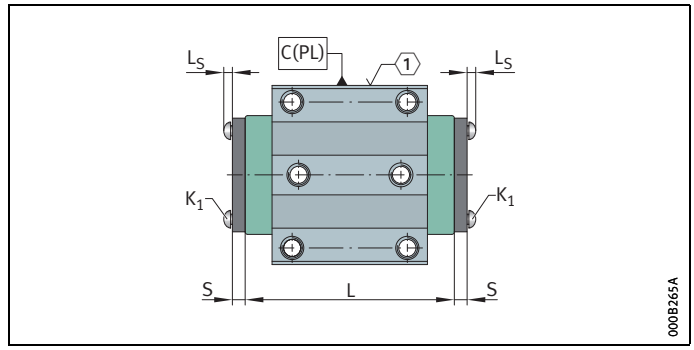
The sealing and lubrication elements KIT can be combined flexibly.
Recommended and possible combinations of the KITs, see page 162.
Recommended lubrication connectors, see page 164.

1) Definition, see page 135.

2) In the case of retrofitting by the customer, the suffix OS must be stated. The condition of the upper relubrication hole is not taken into consideration. The KIT end number is always -..0. See Retrofitting by the customer, page 146. Ordering example: KIT.RWU35-E-OS-220.

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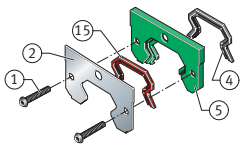
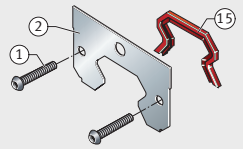
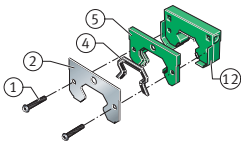
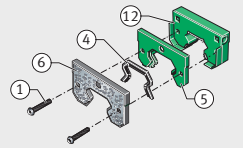
Degree of contamination[1]			Size	Retrofit-table	Tolerances			Increase in displacement force				Designation and KIT end number KIT.RWU..-E[2]	
Slight	Moder-ate	Heavy			K_1	L_S	S	None	Slight	Moder-ate	Heavy	Upper lubrication hole open	
						mm	mm					yes	no
■	–	–	25	■	M4×20	2,2	0	■	–	–	–	**210**	**213**
			35		M4×25	2,2							
			45		M4×30	2,2							
			55		M5×30	2,75							
			65		M5×35	2,75							
			100		M6×40	4,5							
■	■	–	–	■	–	–	–	–	■	–	–	**220**	**223**
			35		M4×25	2,2	0						
			45		M4×30	2,2							
			55		M5×30	2,75							
			–		–	–	–						
			–		–	–	–						
■	■	–	–	■	–	–	–	–	–	–	■	**300**	**303**
			35		M4×30	2,2	5,4						
			45		M4×35	2,2							
			55		M5×35	2,75							
			–		–	–	–						
			–		–	–	–						
■	■	■	25	■	M4×20	2,2	4,2	–	–	–	■	**340**	**343**
			35		M4×30	2,2	5,4						
			45		M4×35	2,2							
			55		M5×35	2,75							
			65		M5×45	2,75							
			100		M5×50	4,5							



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Sealing and lubrication elements

Sealing and lubrication elements KIT (left, right) for RUE..-E (continued)

Designation and KIT end number KIT.RWU..-E[2]		Image	Description
Upper lubrication hole open			
yes	no		
350	**353**		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip ⑤ Carrier plate ⑮ End seal, single lip, FPM
380	**383**		① Fixing screw K_1 ② End plate, non-contact ⑮ End seal, single lip, FPM
410	**413**		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip ⑤ Carrier plate ⑫ LZU housing unit
420	**423**		① Fixing screw K_1 ④ End seal, double lip ⑤ Carrier plate ⑥ End seal, single lip, NBR, with squeeze plate ⑫ LZU housing unit

〈1〉 Locating face

Attention!
The table is only intended as a guide.
Specific application conditions must be taken into consideration when selecting the elements.

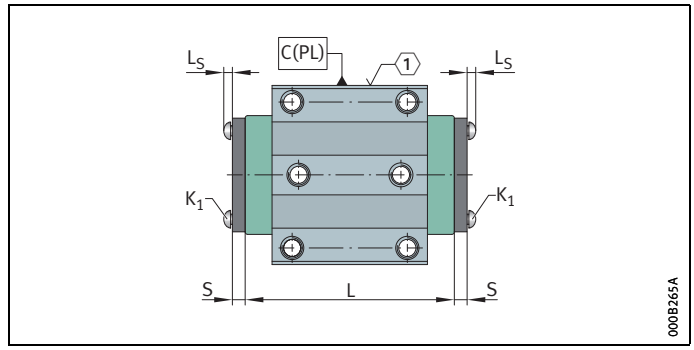
The sealing and lubrication elements KIT can be combined flexibly.
Recommended and possible combinations of the KITs, see page 162.
Recommended lubrication connectors, see page 164.

1) Definition, see page 135.

2) In the case of retrofitting by the customer, the suffix OS must be stated. The condition of the upper relubrication hole is not taken into consideration. The KIT end number is always -..0. See Retrofitting by the customer, page 146. Ordering example: KIT.RWU35-E-OS-350.

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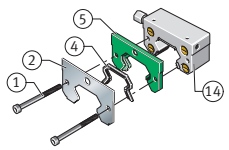
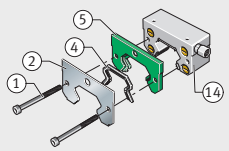
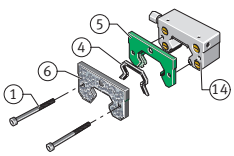
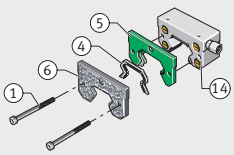
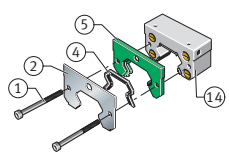
Degree of contamination[1]			Size	Retrofit-table	Tolerances			Increase in displacement force				Designation and KIT end number KIT.RWU..-E[2]	
Slight	Moder-ate	Heavy			K_1	L_S	S	None	Slight	Moder-ate	Heavy	Upper lubrication hole open	
						mm	mm					yes	no
■	■	■	25	■	M4×20	2,2	4,2	–	–	–	■	**350**	**353**
			35		M4×30	2,2	5,8						
			45		M4×35	2,2							
			55		M5×35	2,75							
			65		M5×40	2,75							
			–		–	–	–						
■	■	–	–	■	–	–	–	–	–	■	–	**380**	**383**
			35		M4×25	2,2	0						
			45		M4×30	2,2							
			55		M5×30	2,75							
			65		M5×35	2,75							
			100		M6×40	4,5							
■	■	–	25	■	M4×30	2,2	13,2	–	–	–	■	**410**	**413**
			35		M4×45	2,2	17,5						
			45		M4×45	2,2	17,5						
			55		M5×45	2,75	18,2						
			65		M5×50	2,75	18,4						
			–		–	–	–						
■	■	■	25	■	M4×30	2,2	13,2	–	–	–	■	**420**	**423**
			35		M4×45	2,2	20,25						
			45		M4×45	2,2	20,25						
			55		M5×45	2,75	21,2						
			65		M5×50	2,75	21,4						
			–		–	–	–						



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Sealing and lubrication elements

Sealing and lubrication elements KIT (left, right) for RUE..-E (continued)

Designation and KIT end number KIT.RWU..-E[2]	Image	Description
510		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip ⑤ Carrier plate ⑭ SMDE unit, lubrication connector on right
511		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip ⑤ Carrier plate ⑭ SMDE unit, lubrication connector on left
530		① Fixing screw K_1 ④ End seal, double lip ⑤ Carrier plate ⑥ End seal, single lip, NBR, with squeeze plate ⑭ SMDE unit, lubrication connector on right
531		① Fixing screw K_1 ④ End seal, double lip ⑤ Carrier plate ⑥ End seal, single lip, NBR, with squeeze plate ⑭ SMDE unit, lubrication connector on left
540		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip ⑤ Carrier plate ⑭ SMDE unit, lubrication connector closed off on both sides

〈1〉 Locating face

Attention!
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Specific application conditions must be taken into consideration when selecting the elements.

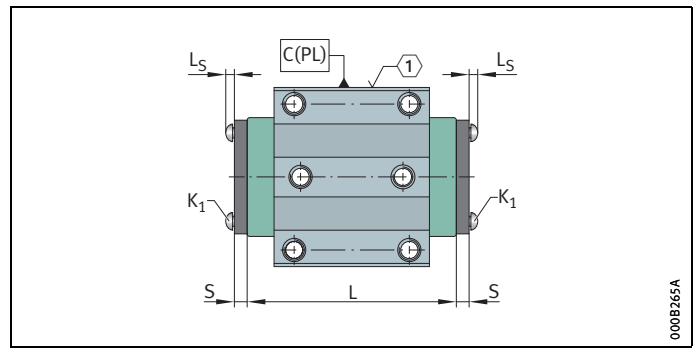
The sealing and lubrication elements KIT can be combined flexibly.
Recommended and possible combinations of the KITs, see page 162.
Recommended lubrication connectors, see page 164.

1) Definition, see page 135.

2) In the KIT series 500, there is no upper relubrication hole. These KITs are supplied together with special end pieces (lubrication adapter plate), see mounting manual MON 41. The carriage can only be lubricated by means of the minimal lubricant quantity metering unit.
If retrofitting is to be carried out by the customer, see page 146.

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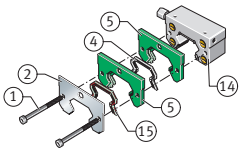
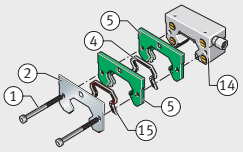
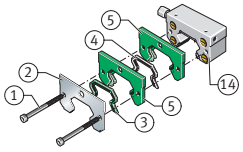
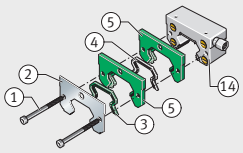
Degree of contamination[1]			Size	Retrofit-table	Tolerances			Increase in displacement force				Designation and KIT end number
Slight	Moder-ate	Heavy			K_1	L_S mm	S mm	None	Slight	Moder-ate	Heavy	KIT.RWU..-E[2]
			–		–	–	–					**510**
			35		M4×55	4						
			45		M4×60	4						
■	■	–	55	■	M5×60	5	31,8	–	–	■	–	
			65		M5×65	5						
			–		–	–	–					
			–		–	–	–					**511**
			35		M4×55	4						
			45		M4×60	4						
■	■	–	55	■	M5×60	5	31,8	–	–	■	–	
			65		M5×65	5						
			–		–	–	–					
			–		–	–	–					**530**
			35		M4×55	4						
			45		M4×60	4						
■	■	■	55	■	M5×60	5	37,2	–	–	–	■	
			65		M5×65	5						
			–		–	–	–					
			–		–	–	–					**531**
			35		M4×55	4						
			45		M4×60	4						
■	■	■	55	■	M5×60	5	37,2	–	–	–	■	
			65		M5×65	5						
			–		–	–	–					
			–		–	–	–					**540**
			35		M4×55	4						
			45		M4×60	4						
■	■	–	55	■	M5×60	5	31,8	–	–	■	–	
			65		M5×65	5						
			–		–	–	–					



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Sealing and lubrication elements

Sealing and lubrication elements KIT (left, right) for RUE..-E (continued)

Designation and KIT end number KIT.RWU..-E[2]	Image	Description
550		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip ⑤ Carrier plate ⑭ SMDE unit, lubrication connector on right ⑮ End seal, single lip, FPM
551		① Fixing screw K_1 ② End plate, non-contact ④ End seal, double lip ⑤ Carrier plate ⑭ SMDE unit, lubrication connector on left ⑮ End seal, single lip, FPM
560		① Fixing screw K_1 ② End plate, non-contact ③ End seal, single lip ④ End seal, double lip ⑤ Carrier plate ⑭ SMDE unit, lubrication connector on right
561		① Fixing screw K_1 ② End plate, non-contact ③ End seal, single lip ④ End seal, double lip ⑤ Carrier plate ⑭ SMDE unit, lubrication connector on left

〈1〉 Locating face

Attention!
The table is only intended as a guide.
Specific application conditions must be taken into consideration when selecting the elements.

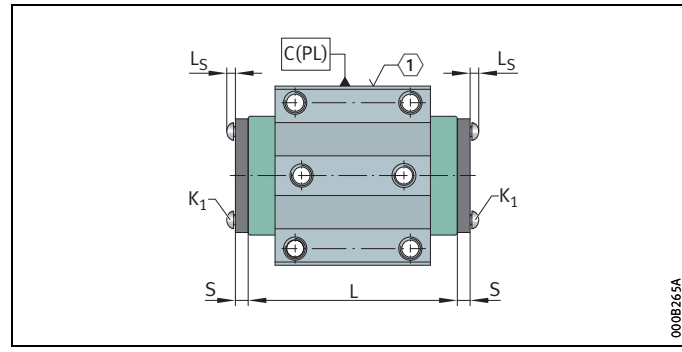
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Recommended lubrication connectors, see page 164.

1) Definition, see page 135.

2) In the KIT series 500, there is no upper relubrication hole. These KITs are supplied together with special end pieces (lubrication adapter plate), see mounting manual MON 41. The carriage can only be lubricated by means of the minimal lubricant quantity metering unit. If retrofitting is to be carried out by the customer, see page 146.

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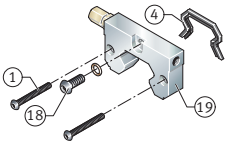
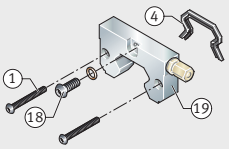
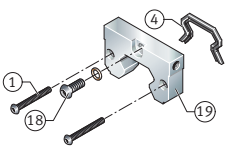
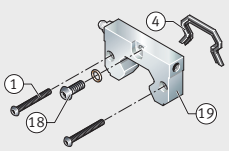
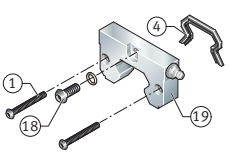
Degree of contamination[1]			Size	Retrofit-table	Tolerances			Increase in displacement force				Designation and KIT end number
Slight	Moder-ate	Heavy			K_1	L_S mm	S mm	None	Slight	Moder-ate	Heavy	KIT.RWU..-E[2]
			–		–	–	–					**550**
			35		M4×55	4	37,2					
			45		M4×60	4						
■	■	■	55	■	M5×60	5		–	–	–	■	
			65		M5×65	5						
			–		–	–	–					
			–		–	–	–					**551**
			35		M4×55	4	37,2					
			45		M4×60	4						
■	■	■	55	■	M5×60	5		–	–	–	■	
			65		M5×65	5						
			–		–	–	–					
			–		–	–	–					**560**
			35		M4×55	4	37,2					
			45		M4×60	4						
■	■	■	55	■	M5×60	5		–	–	■	–	
			–		–	–	–					
			–		–	–	–					
			–		–	–	–					**561**
			35		M4×55	4	37,2					
			45		M4×60	4						
■	■	■	55	■	M5×60	5		–	–	■	–	
			–		–	–	–					
			–		–	–	–					



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Sealing and lubrication elements

Sealing and lubrication elements KIT (left, right) for RUE..-E (continued)

Designation and KIT end number KIT.RWU..-E[2]	Image	Description
610		(1) Fixing screw K_1 (4) End seal, double lip (18) Screw plug with sealing washer (19) Lubrication adapter plate, lubrication connector on right side for connection to central lubrication system
611		(1) Fixing screw K_1 (4) End seal, double lip (18) Screw plug with sealing washer (19) Lubrication adapter plate, lubrication connector on left side for connection to central lubrication system
614		(1) Fixing screw K_1 (4) End seal, double lip (18) Screw plug with sealing washer (19) Lubrication adapter plate, lubrication connectors closed off on both sides
615		(1) Fixing screw K_1 (4) End seal, double lip (18) Screw plug with sealing washer (19) Lubrication adapter plate, lubrication connector on right side for connection to manual lubricators
616		(1) Fixing screw K_1 (4) End seal, double lip (18) Screw plug with sealing washer (19) Lubrication adapter plate, lubrication connector on left side for connection to manual lubricators

(1) Locating face

Attention!
The table is only intended as a guide.
Specific application conditions must be taken into consideration when selecting the elements.

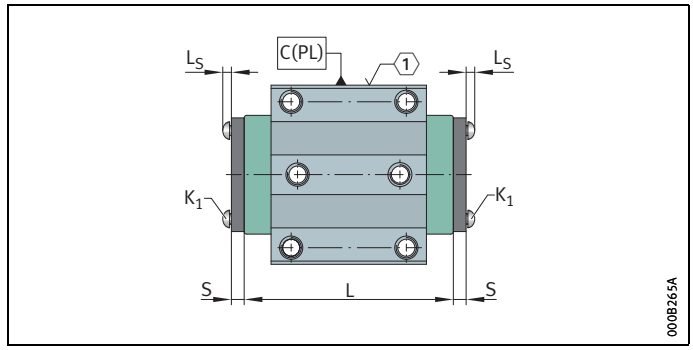
The sealing and lubrication elements KIT can be combined flexibly.
Recommended and possible combinations of the KITs, see page 162.
Recommended lubrication connectors, see page 164.

1) Definition, see page 135.

2) In the case of retrofitting by the customer, the suffix OS must be stated.
The condition of the upper relubrication hole is not taken into consideration.
The KIT end number is always -..0. See Retrofitting by the customer, page 146.
Ordering example: KIT.RWU35-E-OS-616.

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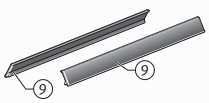
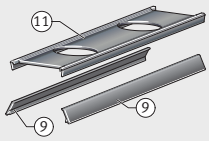
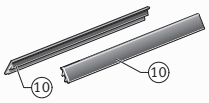
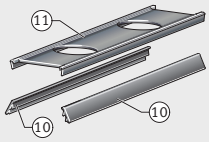
Degree of contamination[1]			Size	Retrofit-table	Tolerances			Increase in displacement force				Designation and KIT end number
Slight	Moder-ate	Heavy			K_1	L_S	S	None	Slight	Moder-ate	Heavy	KIT.RWU..-E[2]
			–		–	–	–					**610**
			35		M4×35		14,6					
			45		M4×40		15,6					
■	■	–	55	■	M5×40	0	14,6	–	–	■	–	
			65		M5×45		14					
			–		–	–	–					
			–		–	–	–					**611**
			35		M4×35		14,6					
			45		M4×40		15,6					
■	■	–	55	■	M5×40	0	14,6	–	–	■	–	
			65		M5×45		14					
			–		–	–	–					
			–		–	–	–					**614**
			35		M4×35		14,6					
			45		M4×40		15,6					
■	■	–	55	■	M5×40	0	14,6	–	–	■	–	
			65		M5×45		14					
			–		–	–	–					
			–		–	–	–					**615**
			35		M4×35		14,6					
			45		M4×40		15,6					
■	■	–	55	■	M5×40	0	14,6	–	–	■	–	
			65		M5×45		14					
			–		–	–	–					
			–		–	–	–					**616**
			35		M4×35		14,6					
			45		M4×40		15,6					
■	■	–	55	■	M5×40	0	14,6	–	–	■	–	
			65		M5×45		14					
			–		–	–	–					



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Sealing and lubrication elements

Sealing and lubrication elements KIT (centre) for RUE..-E

Designation and KIT end number KIT.RWU..-E[4]	Image	Description
900		⑨ Lower sealing strip, single lip
910[2]		⑨ Lower sealing strip, single lip ⑪ Upper sealing strip, single lip
920		⑩ Lower sealing strip, double lip
930[3]		⑩ Lower sealing strip, double lip ⑪ Upper sealing strip, single lip

Attention!
The table is only intended as a guide.
Specific application conditions must be taken into consideration when selecting the elements.

The sealing and lubrication elements KIT can be combined flexibly.
Recommended and possible combinations of the KITs, see page 162.
Recommended lubrication connectors, see page 164.

1) Definition, see page 135.
2) Standard for RUE25-E.
3) Standard for RUE35-E to RUE100-E.
4) If retrofitting is to be carried out by the customer, attention must be paid to the carriage length. See Retrofitting by the customer, page 146. Ordering example: KIT.RWU35-E-L-930.

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Degree of contamination[1]			Size	Retrofit-table	Tolerances			Increase in displacement force				Designation and KIT end number
Slight	Moder-ate	Heavy			K_1	L_S mm	S mm	None	Slight	Moder-ate	Heavy	KIT.RWU..-E[4]
■	–	–	–	■	–	–	–	–	■	–	–	**900**
			35									
			45									
			55									
			–									
			–									
■	■	–	25	–	–	–	–	–	–	■	–	**910**[2]
			35	■								
			45									
			55									
			–									
			–									
■	■	–	–	■	–	–	–	–	■	–	–	**920**
			35									
			45									
			55									
			–									
			–									
■	■	■	–	■	–	–	–	–	–	■	–	**930**[3]
			35									
			45									
			55									
			65	–								
			100	–								

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Sealing and lubrication elements

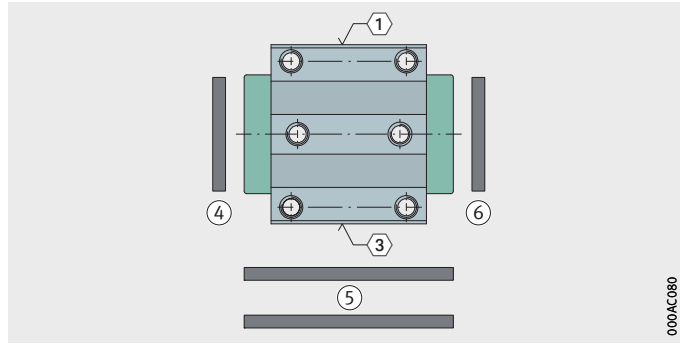
Possible combinations – KIT allocation (left) to KIT right																											
Designation and KIT end numbers KIT.RWU..-E	100, 103	120, 123	130, 133	140, 143	210, 213	220, 223	300, 303	340, 343	350, 353	380, 383	410, 413	420, 423	510	511	530	531	540	550	551	560	561	610	611	614	615	616
100, 103	●	●	●	●	–	–	●	●	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
120, 123	●	●	●	●	–	–	●	●	–	–	–	–	●	●	●	●	●	–	–	●	●	●	●	●	●	●
130, 133	●	●	●	●	–	–	●	●	–	–	–	–	●	●	●	●	●	–	–	●	●	●	●	●	●	●
140, 143	●	●	●	●	–	–	●	●	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
210, 213	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
220, 223	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
300, 303	●	●	●	●	–	–	●	●	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
340, 343	●	●	●	●	–	–	●	●	–	–	–	–	●	●	●	●	●	–	–	●	●	●	●	●	●	●
350, 353	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	●	●	–	–	●	●	●	●	●
380, 383	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
410, 413	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
420, 423	–	–	–	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–
510	–	●	●	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
511	–	●	●	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
530	–	●	●	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
531	–	●	●	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
540	–	●	●	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
550	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
551	–	–	–	–	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
560	–	●	●	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
561	–	●	●	–	–	–	–	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
610	●	●	●	●	–	–	●	●	●	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●	–	–
611	●	●	●	●	–	–	●	●	●	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●	–	–
614	●	●	●	●	–	–	●	●	●	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
615	●	●	●	●	–	–	●	●	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●
616	●	●	●	●	–	–	●	●	●	–	–	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●

● Possible combination.

Possible combinations – KIT allocation (left or right) to KIT centre																											
Designation and KIT end numbers KIT.RWU..-E	100, 123	120, 123	130, 133	140, 143	210, 213	220, 223	300, 303	340, 343	350, 353	380, 383	410, 413	420, 423	510	511	530	531	540	550	551	560	561	610	611	614	615	616
900	●	●	●	●	–	●	●	●	●	–	–	–	–	–	–	–	–	–	–	–	–	●	●	●	●	●
910	●	●	●	●	▲	●	●	●	●	–	❍	❍	–	–	–	–	–	–	–	–	–	●	●	●	●	●
920	●	●	●	●	–	●	●	●	●	–	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
930	●	●	●	●	▲	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

● Possible combination.
▲ For RUE25, only 910 is available, for RUE65 and RUE100 only 930 is available.
For all other sizes, these combinations are not available.
❍ Only size 25.

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① Locating face top
or
③ Locating face bottom
④ Left
⑤ Centre
⑥ Right

Figure 12
Definition of side allocation

The side allocation of the KIT (left, centre, right) is independent of the orientation of the locating face. When ordering, the required orientation of the locating face (top or bottom) must be indicated.

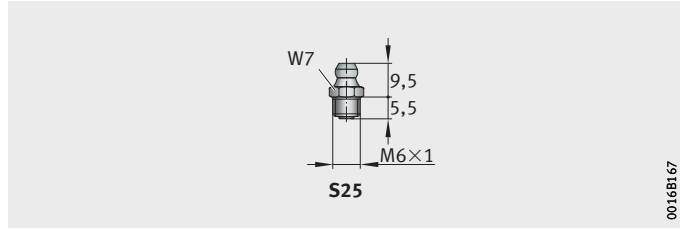
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Lubrication connectors

Linear recirculating roller bearing and guideway assemblies must be lubricated with grease or oil. Depending on the position of the lubrication connector and the other accessories, suitable lubrication connectors are available as special accessories.

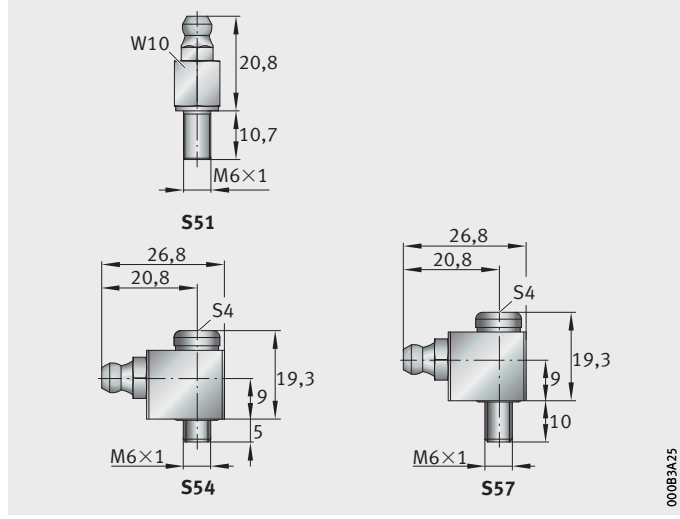
Lubrication connectors:

- Standard lubrication connector, *Figure 13*
- Lubrication connectors for manual lubricators, *Figure 14* and table, page 165
- Lubrication connectors for central lubrication, *Figure 16*, page 166, and table, page 167.



W = hexagon

Figure 13
Standard lubrication connector



W = hexagon
S = hexagon socket

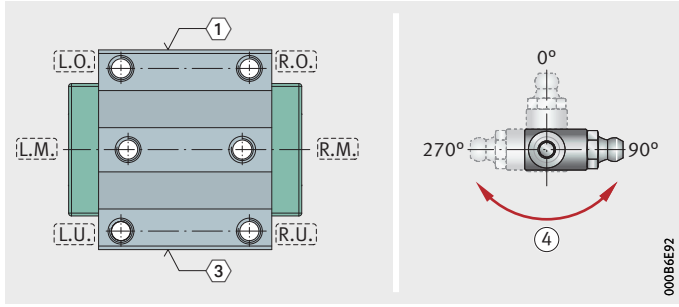
Figure 14
Lubrication connectors for manual lubricators

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Lubrication connectors for manual lubricators

Size	Thread	Positions: L.M., R.M.				Positions: L.U., L.O., R.U., R.O.	
		Straight KIT		Angled (90°) KIT		Straight KIT	
		100 103 120 123 210 213 220 223 380 383	130 133 140 143 300 303 340 343 350 353	100 103 120 123 210 213 220 223 380 383	130 133 140 143 300 303 340 343 350 353	100 103 120 123 130 133 140 143 210 213	220 223 300 303 340 343 350 353 380 383
25	M6	S25[1)]	S51	S54	S57	–	–
35	M6	S25[1)]	S51	S54	S57	S25[1)]	S25[1)]
45	M6	S25[1)]	S51	S54	S57	S25[1)]	S25[1)]
55	M6	S25[1)]	S51	S54	S57	S25[1)]	S25[1)]
65	M6	S25[1)]	S51	S54	S57	S25[1)]	S25[1)]
100	M6	S25[1)]	S51	S54	S57	S25[1)]	S25[1)]

[1)] Standard.

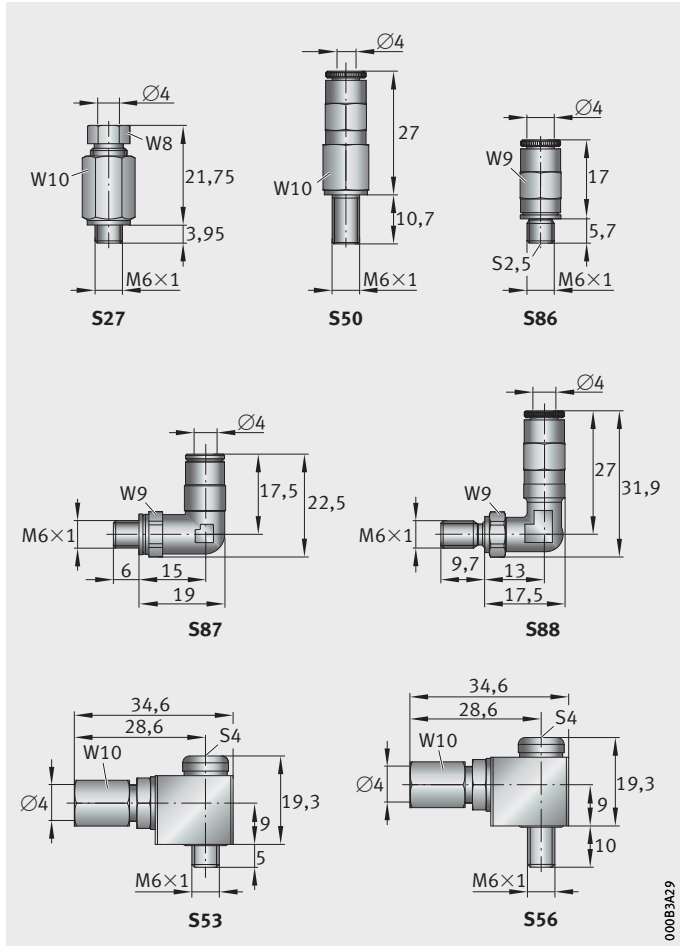


① Locating face top
or
③ Locating face bottom
④ Alignment of the angled lubrication connectors from viewpoint of carriage

Figure 15
Definition of lubrication connectors

The position and alignment of the lubrication connectors is independent of the orientation of the locating face. When ordering, the required orientation of the locating face (top or bottom) must be indicated.

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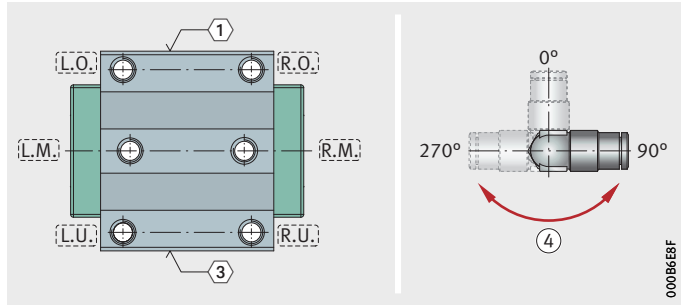
W = hexagon
S = hexagon socket

Figure 16
Lubrication connectors
for central lubrication

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Lubrication connectors for central lubrication

Size	Thread	Positions: L.M., R.M.				Positions: L.U., L.O., R.U., R.O.	
		Straight KIT		Angled (90°) KIT		Straight KIT	
		100 103 120 123 210 213 220 223 380 383	130 133 140 143 300 303 340 343 350 353	100 103 120 123 210 213 220 223 380 383	130 133 140 143 300 303 340 343 350 353	100 103 120 123 130 133 140 143 210 213	220 223 300 303 340 343 350 353 380 383
25	M6	S27 S86	S50	S53 S87	S56 S88	–	–
35	M6	S27 S86	S50	S53 S87	S56 S88	S27 S86	S27 S86
45	M6	S27 S86	S50	S53 S87	S56 S88	S27 S86	S27 S86
55	M6	S27 S86	S50	S53 S87	S56 S88	S27 S86	S27 S86
65	M6	S27 S86	S50	S53 S87	S56 S88	S27 S86	S27 S86
100	M6	S27 S86	S50	S53 S87	S56 S88	S27 S86	S27 S86



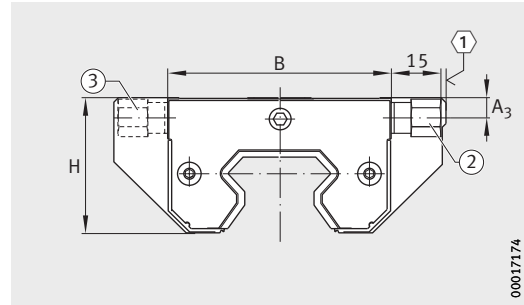
① Locating face top
or
③ Locating face bottom
④ Alignment of the angled lubrication connectors from viewpoint of carriage

Figure 17
Definition of lubrication connectors

The position and alignment of the lubrication connectors is independent of the orientation of the locating face. When ordering, the required orientation of the locating face (top or bottom) must be indicated.

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Minimal lubricant quantity metering unit



KIT.RWU..-E for RUE..-E, RUE..-E-L

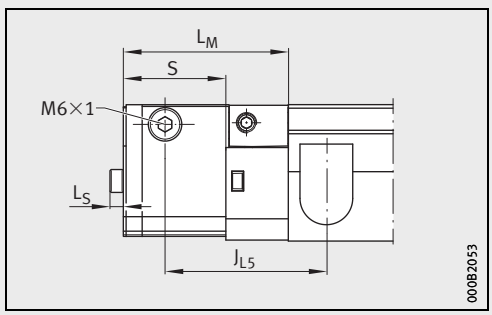
Dimension table · Dimensions in mm

Designation[1]	Mass m ≈ g	Dimensions B	A_3	H	L_M	J_{L5}	S	L_S	For linear guidance system
KIT.RWU35-E-510 (-511)	170	66,7	6,15	41,3	49,9	48,7	30,9	4	RUE35-E
						61,7			RUE35-E-L
KIT.RWU35-E-H-510 (-511)			13,15			54,7			RUE35-E-H
						56,7			RUE35-E-HL
KIT.RWU35-E-530 (-531)	170	66,7	6,15	41,3	54,6	48,7	35,6	4	RUE35-E
						61,7			RUE35-E-L
KIT.RWU35-E-H-530 (-531)			13,15			54,7			RUE35-E-H
						56,7			RUE35-E-HL
KIT.RWU35-E-540[2]	170	66,7	6,15	41,3	49,9	48,7	30,9	4	RUE35-E
						61,7			RUE35-E-L
KIT.RWU35-E-H-540[2]			13,15			54,7			RUE35-E-H
						56,7			RUE35-E-HL
KIT.RWU35-E-550 (-551)	170	66,7	6,15	41,3	54,9	48,7	35,9	4	RUE35-E
						61,7			RUE35-E-L
KIT.RWU35-E-H-550 (-551)			13,15			54,7			RUE35-E-H
						56,7			RUE35-E-HL
KIT.RWU35-E-560 (-561)	170	66,7	6,15	41,3	54,9	48,7	35,9	4	RUE35-E
						61,7			RUE35-E-L
KIT.RWU35-E-H-560 (-561)			13,15			54,7			RUE35-E-H
						56,7			RUE35-E-HL

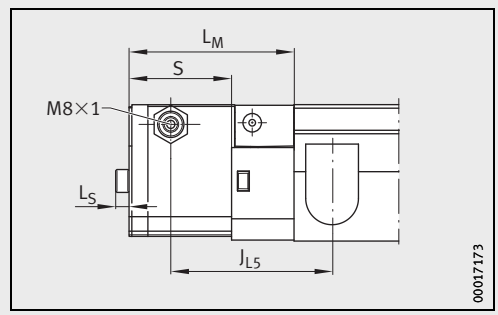
① Locating face. ② Lubrication connector, KIT end number 1. ③ Lubrication connector, KIT end number 0.

1) In the case of retrofitting by the customer, the designation corresponds to the ordering designation, see page 146.

2) The lubrication connectors are closed off using screws. The screw heads protrude by 5 mm.



KIT.RWU..-E-540 for RUE..-E, RUE..-E-L

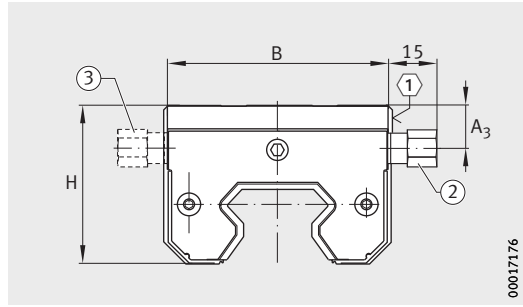


KIT.RWU..-E for RUE..-E, RUE..-E-L

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ALMOTION

Minimal lubricant quantity metering unit



KIT.RWU..-E-H for RUE..-E-H, RUE..-E-HL

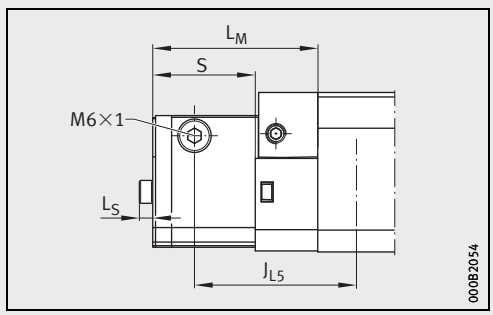
Dimension table (continued) · Dimensions in mm

Designation[1]	Mass m ≈ g	Dimensions B	A_3	H	L_M	J_{L5}	S	L_S	For linear guidance system
KIT.RWU45-E-510 (-511)	200	83	6,15	51,3	51,9	51,3	30,9	4	RUE45-E
						67,5			RUE45-E-L
KIT.RWU45-E-H-510 (-511)			16,15			61,3			RUE45-E-H
						67,5			RUE45-E-HL
KIT.RWU45-E-530 (-531)	200	83	6,15	51,3	56,6	51,3	35,6	4	RUE45-E
						67,5			RUE45-E-L
KIT.RWU45-E-H-530 (-531)			16,15			61,3			RUE45-E-H
						67,5			RUE45-E-HL
KIT.RWU45-E-540[2]	200	83	6,15	51,3	51,9	51,3	30,9	4	RUE45-E
						67,5			RUE45-E-L
KIT.RWU45-E-H-540[2]			16,15			61,3			RUE45-E-H
						67,5			RUE45-E-HL
KIT.RWU45-E-550 (-551)	200	83	6,15	51,3	56,9	51,3	35,9	4	RUE45-E
						67,5			RUE45-E-L
KIT.RWU45-E-H-550 (-551)			16,15			61,3			RUE45-E-H
						67,5			RUE45-E-HL
KIT.RWU45-E-560 (-561)	200	83	6,15	51,3	56,9	51,3	35,9	4	RUE45-E
						67,5			RUE45-E-L
KIT.RWU45-E-H-560 (-561)			16,15			61,3			RUE45-E-H
						67,5			RUE45-E-HL

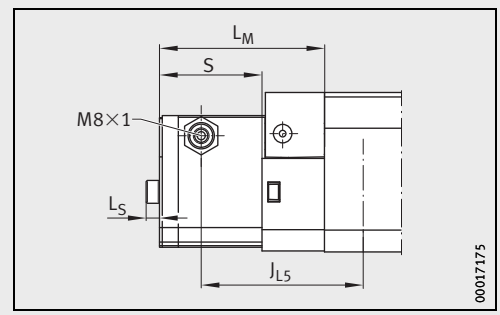
① Locating face. ② Lubrication connector, KIT end number 1. ③ Lubrication connector, KIT end number 0.

1) In the case of retrofitting by the customer, the designation corresponds to the ordering designation, see page 146.

2) The lubrication connectors are closed off using screws. The screw heads protrude by 5 mm.



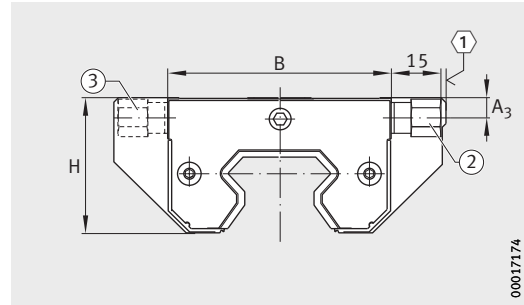
KIT.RWU..-E-H-540 for RUE..-E-H, RUE..-E-HL



KIT.RWU..-E-H for RUE..-E-H, RUE..-E-HL

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Minimal lubricant quantity metering unit



KIT.RWU..-E for RUE..-E, RUE..-E-L

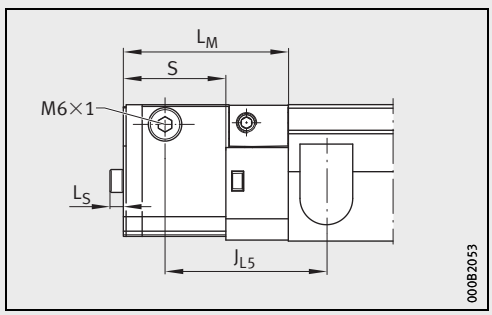
Dimension table (continued) · Dimensions in mm

Designation[1]	Mass m ≈ g	Dimensions B	A_3	H	L_M	J_{L5}	S	L_S	For linear guidance system
KIT.RWU55-E-510 (-511)	240	97	7,9	58,8	53,9	56,4	30,9	5	RUE55-E
						75,4			RUE55-E-L
KIT.RWU55-E-H-510 (-511)			17,9			66,4			RUE55-E-H
						75,4			RUE55-E-HL
KIT.RWU55-E-530 (-531)	240	97	7,9	58,8	58,6	56,4	35,6	5	RUE55-E
						75,4			RUE55-E-L
KIT.RWU55-E-H-530 (-531)			17,9			66,4			RUE55-E-H
						75,4			RUE55-E-HL
KIT.RWU55-E-540[2]	240	97	7,9	58,8	53,9	56,4	30,9	5	RUE55-E
						75,4			RUE55-E-L
KIT.RWU55-E-H-540[2]			17,9			66,4			RUE55-E-H
						75,4			RUE55-E-HL
KIT.RWU55-E-550 (-551)	240	97	7,9	58,8	58,9	56,4	35,9	5	RUE55-E
						75,4			RUE55-E-L
KIT.RWU55-E-H-550 (-551)			17,9			66,4			RUE55-E-H
						75,4			RUE55-E-HL
KIT.RWU55-E-560 (-561)	240	97	7,9	58,8	58,9	56,4	35,9	5	RUE55-E
						75,4			RUE55-E-L
KIT.RWU55-E-H-560 (-561)			17,9			66,4			RUE55-E-H
						75,4			RUE55-E-HL

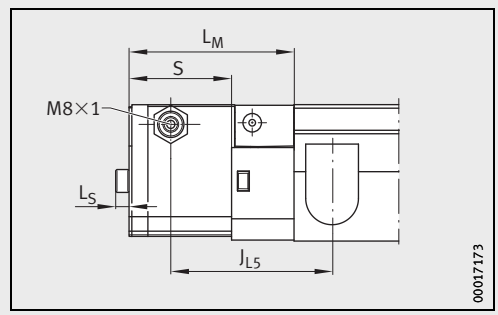
① Locating face. ② Lubrication connector, KIT end number 1. ③ Lubrication connector, KIT end number 0.

1) In the case of retrofitting by the customer, the designation corresponds to the ordering designation, see page 146.

2) The lubrication connectors are closed off using screws. The screw heads protrude by 5 mm.



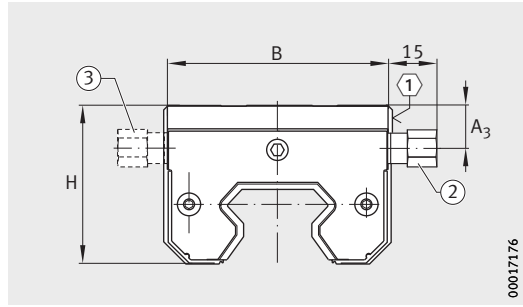
KIT.RWU..-E-540 for RUE..-E, RUE..-E-L



KIT.RWU..-E for RUE..-E, RUE..-E-L

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Minimal lubricant quantity metering unit



KIT.RWU..-E-H for RUE..-E-H, RUE..-E-HL

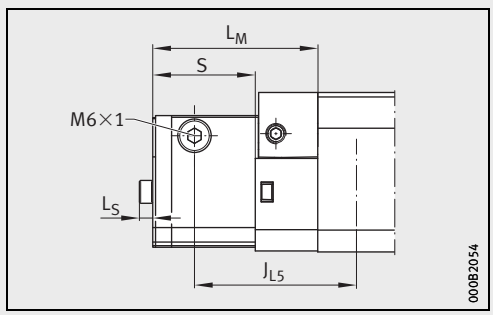
Dimension table (continued) · Dimensions in mm

Designation[1]	Mass m ≈g	Dimensions B	A_3	H	L_M	J_{L5}	S	L_S	For linear guidance system
KIT.RWU65-E-510 (-511)	500	125	7,9	78,3	58,1	60	30,8	5	RUE65-E
						93,2			RUE65-E-L
KIT.RWU65-E-H-510 (-511)			17,9			80			RUE65-E-H
						88,2			RUE65-E-HL (-SL)
KIT.RWU65-E-530 (-531)	500	125	7,9	78,3	62,8	60	35,5	5	RUE65-E
						93,2			RUE65-E-L
KIT.RWU65-E-H-530 (-531)			17,9			80			RUE65-E-H
						88,2			RUE65-E-HL (-SL)
KIT.RWU65-E-540[2]	500	125	7,9	78,3	58,1	60	30,8	5	RUE65-E
						93,2			RUE65-E-L
KIT.RWU65-E-H-540[2]			17,9			80			RUE65-E-H
						88,2			RUE65-E-HL (-SL)
KIT.RWU65-E-550 (-551)	500	125	7,9	78,3	62,9	60	35,6	5	RUE65-E
						93,2			RUE65-E-L
KIT.RWU65-E-H-550 (-551)			17,9			80			RUE65-E-H
						88,2			RUE65-E-HL (-SL)
KIT.RWU65-E-560 (-561)	500	125	7,9	78,3	62,9	60	35,6	5	RUE65-E
						93,2			RUE65-E-L
KIT.RWU65-E-H-560 (-561)			17,9			80			RUE65-E-H
						88,2			RUE65-E-HL (-SL)

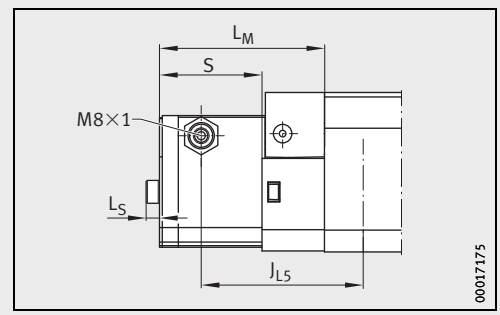
① Locating face. ② Lubrication connector, KIT end number 1. ③ Lubrication connector, KIT end number 0.

1) In the case of retrofitting by the customer, the designation corresponds to the ordering designation, see page 146.

2) The lubrication connectors are closed off using screws. The screw heads protrude by 5 mm.



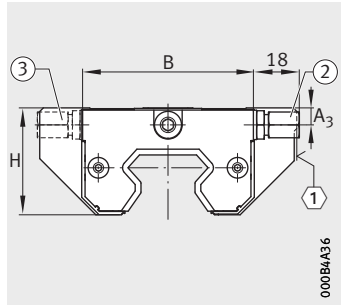
KIT.RWU..-E-H-540 for RUE..-E-H, RUE..-E-HL



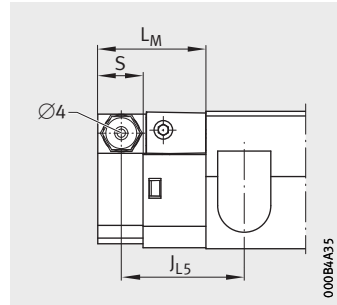
KIT.RWU..-E-H for RUE..-E-H, RUE..-E-HL

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Lubrication adapter plate



KIT.RWU..-E-610(-611)
for RUE..-E, RUE..-E-L



KIT.RWU..-E-610(-611)
for RUE..-E, RUE..-E-L

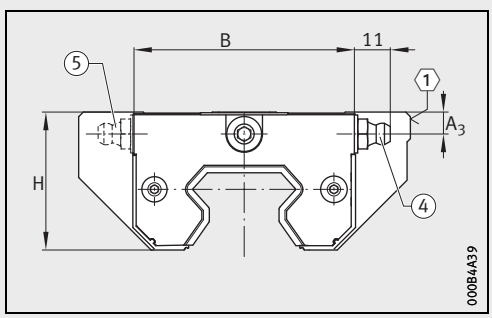
Dimension table · Dimensions in mm

Designation[1]	Mass m ≈ g	Dimensions B	A_3	H	L_M	J_{L5}	S	L_S	For linear guidance system
KIT.RWU35-E-610 (-611)	122	66,3	6,6	39,6	32,6	37,1	14,75	0	RUE35-E
						50,1			RUE35-E-L
			13,6			43,1			RUE35-E-H
						45,1			RUE35-E-HL
KIT.RWU35-E-614[2]	122	66,3	6,6	39,6	32,6	37,1	14,75	0	RUE35-E
						50,1			RUE35-E-L
			13,6			43,1			RUE35-E-H
						45,1			RUE35-E-HL
KIT.RWU35-E-615 (-616)	122	66,3	6,6	39,6	32,6	37,1	14,75	0	RUE35-E
						50,1			RUE35-E-L
			13,6			43,1			RUE35-E-H
						45,1			RUE35-E-HL

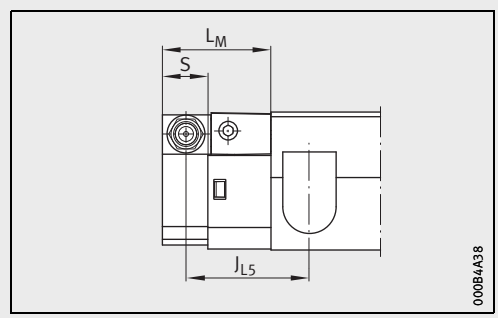
① Locating face. ② Lubrication connector for central lubrication, KIT end number 1. ③ Lubrication connector for central lubrication, KIT end number 0. ④ Lubrication connector for manual lubricators, KIT end number 6. ⑤ Lubrication connector for manual lubricators, KIT end number 5.

1) In the case of retrofitting by the customer, the suffix OS must be stated.
The condition of the upper relubrication hole is not taken into consideration.
See Retrofitting by the customer, page 146. Ordering example: KIT.RWU35-E-OS-616.

2) Lubrication connectors closed off flush on both sides by grub screws.



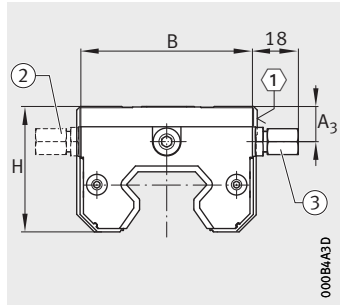
KIT.RWU..-E-615(-616)
for RUE..-E, RUE..-E-L



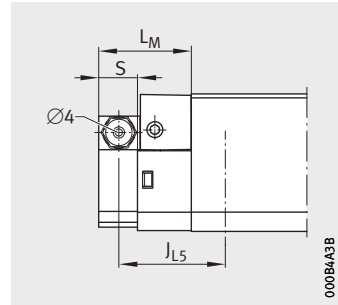
KIT.RWU..-E-615(-616)
for RUE..-E, RUE..-E-L

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Lubrication adapter plate



KIT.RWU..-E-610(-611)
for RUE..-E-H, RUE..-E-HL



KIT.RWU..-E-610(-611)
for RUE..-E-H, RUE..-E-HL

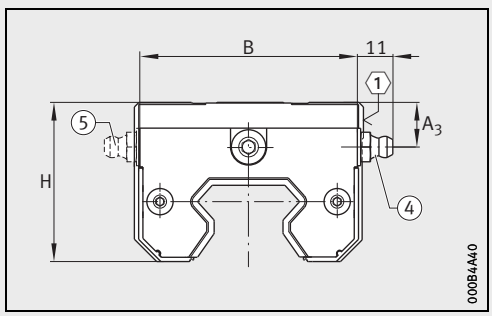
Dimension table (continued) · Dimensions in mm

Designation[1]	Mass	Dimensions							For linear guidance system
	m ≈ g	B	A_3	H	L_M	J_{L5}	S	L_S	
KIT.RWU45-E-610 (-611)	168	83	6,6	35,6	32,6	39,7	14,75	0	RUE45-E
						55,9			RUE45-E-L
			16,6			49,7			RUE45-E-H
						55,9			RUE45-E-HL
KIT.RWU45-E-614[2]	168	83	6,6	35,6	32,6	39,7	14,75	0	RUE45-E
						55,9			RUE45-E-L
			16,6			49,7			RUE45-E-H
						55,9			RUE45-E-HL
KIT.RWU45-E-615 (-616)	168	83	6,6	35,6	32,6	39,7	14,75	0	RUE45-E
						55,9			RUE45-E-L
			16,6			49,7			RUE45-E-H
						55,9			RUE45-E-HL

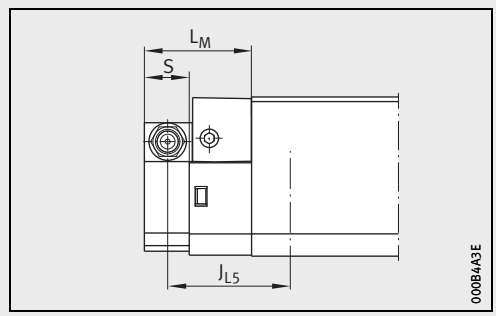
① Locating face. ② Lubrication connector for central lubrication, KIT end number 1. ③ Lubrication connector for central lubrication, KIT end number 0. ④ Lubrication connector for manual lubricators, KIT end number 6. ⑤ Lubrication connector for manual lubricators, KIT end number 5.

1) In the case of retrofitting by the customer, the suffix OS must be stated.
The condition of the upper relubrication hole is not taken into consideration.
See Retrofitting by the customer, page 146. Ordering example: KIT.RWU45-E-OS-616.

2) Lubrication connectors closed off flush on both sides by grub screws.



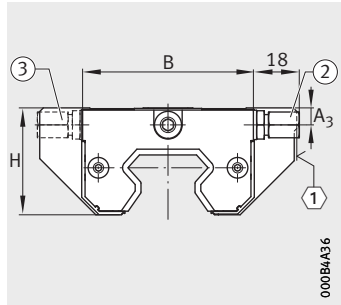
KIT.RWU..-E-615(-616)
for RUE..-E-H, RUE..-E-HL



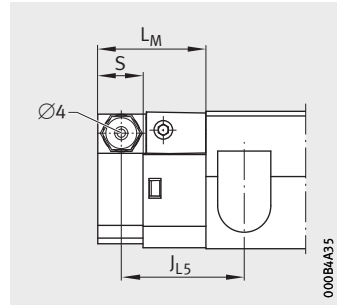
KIT.RWU..-E-615(-616)
for RUE..-E-H, RUE..-E-HL

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Lubrication adapter plate



KIT.RWU..-E-610(-611)
for RUE..-E, RUE..-E-L



KIT.RWU..-E-610(-611)
for RUE..-E, RUE..-E-L

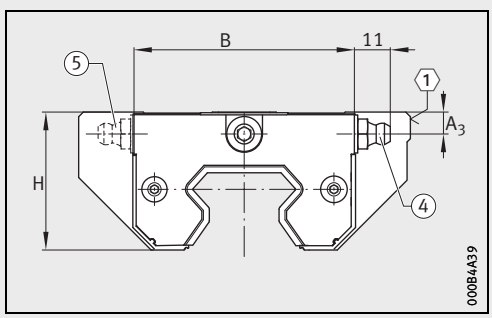
Dimension table (continued) · Dimensions in mm

Designation[1]	Mass	Dimensions							For linear guidance system
	m ≈ g	B	A_3	H	L_M	J_{L5}	S	L_S	
KIT.RWU55-E-610 (-611)	217	97	8,1	36,6	32,6	44,6	14,75	0	RUE55-E
						63,6			RUE55-E-L
			18,1			54,6			RUE55-E-H
						63,6			RUE55-E-HL
KIT.RWU55-E-614[2]	217	97	8,1	36,6	32,6	44,6	14,75	0	RUE55-E
						63,6			RUE55-E-L
			18,1			54,6			RUE55-E-H
						63,6			RUE55-E-HL
KIT.RWU55-E-615 (-616)	217	97	8,1	36,6	32,6	44,6	14,75	0	RUE55-E
						63,6			RUE55-E-L
			18,1			54,6			RUE55-E-H
						63,6			RUE55-E-HL

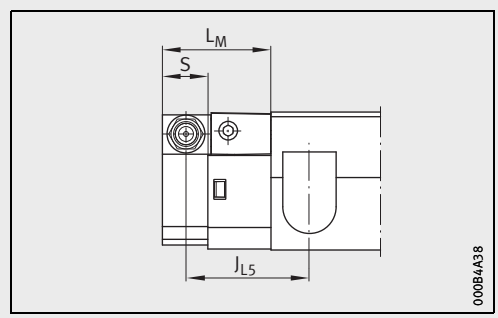
① Locating face. ② Lubrication connector for central lubrication, KIT end number 1. ③ Lubrication connector for central lubrication, KIT end number 0. ④ Lubrication connector for manual lubricators, KIT end number 6. ⑤ Lubrication connector for manual lubricators, KIT end number 5.

1) In the case of retrofitting by the customer, the suffix OS must be stated.
The condition of the upper relubrication hole is not taken into consideration.
See Retrofitting by the customer, page 146. Ordering example: KIT.RWU55-E-OS-616.

2) Lubrication connectors closed off flush on both sides by grub screws.



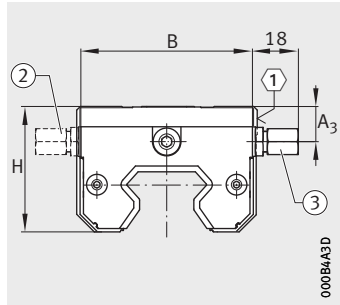
KIT.RWU..-E-615(-616)
for RUE..-E, RUE..-E-L



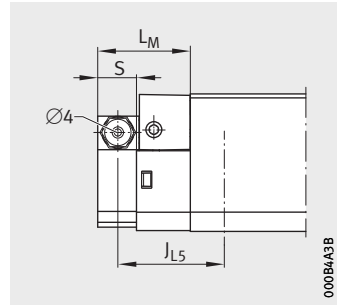
KIT.RWU..-E-615(-616)
for RUE..-E, RUE..-E-L

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Lubrication adapter plate



KIT.RWU..-E-610(-611)
for RUE..-E-H, RUE..-E-HL



KIT.RWU..-E-610(-611)
for RUE..-E-H, RUE..-E-HL

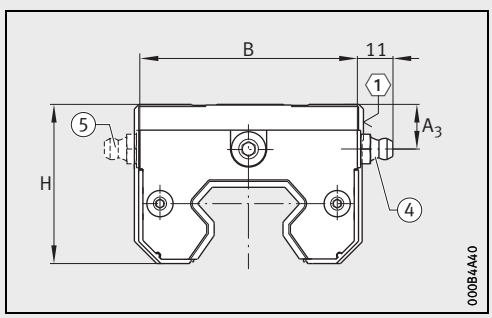
Dimension table (continued) · Dimensions in mm

Designation[1]	Mass m ≈ g	Dimensions B	A_3	H	L_M	J_{L5}	S	L_S	For linear guidance system
KIT.RWU65-E-610 (-611)	362	125	19,6	40,2	32,6	48,1	14,75	0	RUE65-E
						81,4			RUE65-E-L
			29,6			68,1			RUE65-E-H
						76,4			RUE65-E-HL (-SL)
KIT.RWU65-E-614[2]	362	125	19,6	40,2	32,6	48,1	14,75	0	RUE65-E
						81,4			RUE65-E-L
			29,6			68,1			RUE65-E-H
						76,4			RUE65-E-HL (-SL)
KIT.RWU65-E-615 (-616)	362	125	19,6	40,2	32,6	48,1	14,75	0	RUE65-E
						81,4			RUE65-E-L
			29,6			68,1			RUE65-E-H
						76,4			RUE65-E-HL (-SL)

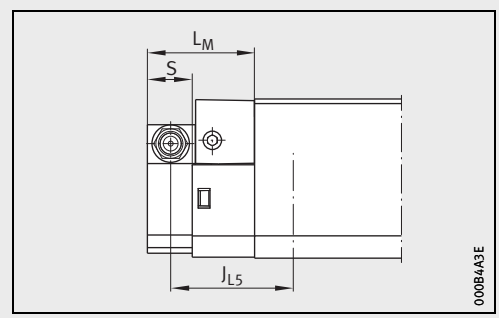
① Locating face. ② Lubrication connector for central lubrication, KIT end number 1. ③ Lubrication connector for central lubrication, KIT end number 0. ④ Lubrication connector for manual lubricators, KIT end number 6. ⑤ Lubrication connector for manual lubricators, KIT end number 5.

1) In the case of retrofitting by the customer, the suffix OS must be stated.
The condition of the upper relubrication hole is not taken into consideration.
See Retrofitting by the customer, page 146. Ordering example: KIT.RWU65-E-OS-616.

2) Lubrication connectors closed off flush on both sides by grub screws.



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for RUE..-E-H, RUE..-E-HL



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