

# Linear recirculating roller bearing and guideway assemblies

full complement or with chain guidance system



**New series,  
including roller chain**

The full complement linear recirculating roller bearing and guideway assemblies RUE..D are the heavy duty designs in the range of INA linear recirculating guidance systems. It is with good reason that they are used wherever linear guidance systems must support extremely heavy loads, where particularly high rigidity is required and where very precise travel is also necessary. It is quite clear: machine tools are their domain. They are at home here and this is where they have proved extremely successful in many applications. In order to make this series of guidance systems even more attractive to the user, it has been completely revised. The result: the new series RUE..E and RUE..E L KT.

## Series RUE..E

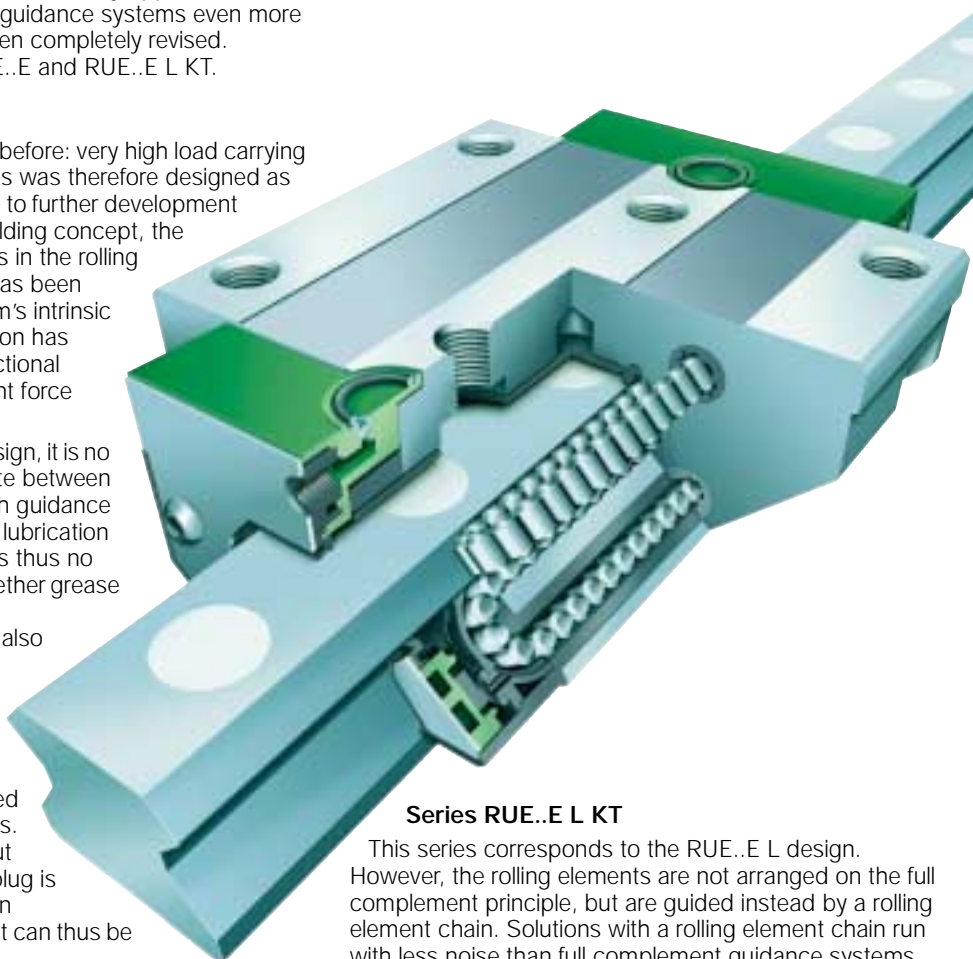
The focus here is the same as before: very high load carrying capacity and rigidity. This series was therefore designed as a full complement system. Due to further development of the innovative injection moulding concept, the number of joints between parts in the rolling element recirculation system has been further reduced and the system's intrinsic protection against contamination has been improved (increased functional reliability, reduced displacement force pulsation).

With the new lubricant duct design, it is no longer necessary to differentiate between oil and grease lubrication. Each guidance system is now supplied with a lubrication nipple or oil connector. There is thus no longer any need to indicate whether grease or oil lubrication is to be used.

The relubrication options have also been substantially expanded. Lubrication is carried out from the side, from the end or from above via the end piece. For lubrication from the side, the end piece has threaded holes for lubrication connectors. If lubrication is to be carried out from the end face, the screw plug is simply replaced by a lubrication connector. The lubrication point can thus be quickly defined on site.

If large quantities of contamination are present in operation, additional sealing of carriages is often required. As in the case of RUE..D, the end seal can be replaced without removing the carriage from the guideway. Optimum protection against contamination is completed by upper and twin lower sealing strips. This saves on set-up time and ensures reliable operation under demanding conditions.

RUE..E guidance systems run on the same guideways as the established RUE..D series. Changing to the higher performance E versions does not therefore require duplicate stockholding. This simplifies logistical processing and saves on storage costs.








## Series RUE..E L KT

This series corresponds to the RUE..E L design. However, the rolling elements are not arranged on the full complement principle, but are guided instead by a rolling element chain. Solutions with a rolling element chain run with less noise than full complement guidance systems. Due to the rolling element chain, there are fewer load-bearing rolling elements in the load zone. Since the longer saddle plate variant is used in the chain version, however, the basic load ratings and rigidity values are similar to those of the full complement standard version.

Guidance systems with an integral rolling element chain are available in the series RUE..E L KT and RUE..E HL KT.

# Linear recirculating roller bearing and guideway assemblies

full complement

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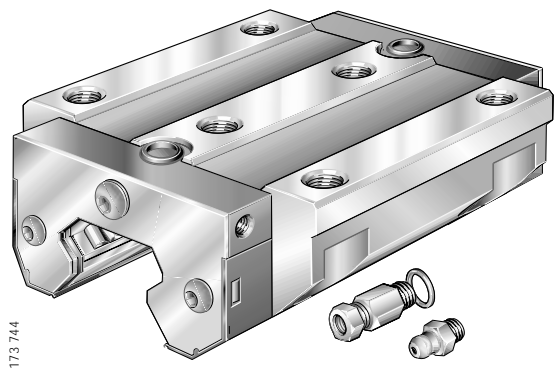
## Features

### Linear recirculating roller bearing and guideway assemblies

- are complete units comprising:
  - at least one carriage RWU..E with a full complement cylindrical roller system
  - a guideway TSX..E (U) with two locating edges
  - integral elastic wipers on the end faces of the carriage and upper as well as twin lower sealing strips
  - plastic closing plugs
- can support loads from all directions – apart from the direction of motion – and moments about all axes
- are preloaded
  - the preload is determined by the carriage
- have, due to further development of the patented injection moulding technology
  - fewer joints and transitions
  - precise guidance of the rolling elements by ribs and therefore very high running accuracy
  - a device for retaining the rollers in order to allow easy fitting of the carriage
- are supplied with lubrication nipples and oil connectors
  - the lubrication nipples can be screwed into the right, the left or the end face of the end piece; before they are screwed in, the lateral lubrication hole in the end piece must first be opened using a pointed object
- are supplied with multi-piece guideways if the required guideway length is in excess of the maximum length  $l_{max}$  according to the *dimension table*
- are suitable for:
  - accelerations up to  $100 \text{ m/s}^2$
  - speeds up to  $180 \text{ m/min}$
  - operating temperatures from  $-10 \text{ }^\circ\text{C}$  to  $+100 \text{ }^\circ\text{C}$
- are used in applications with:
  - long, unlimited stroke lengths
  - high and very high loads
  - high and very high rigidity.

## Carriage

### RWU..E

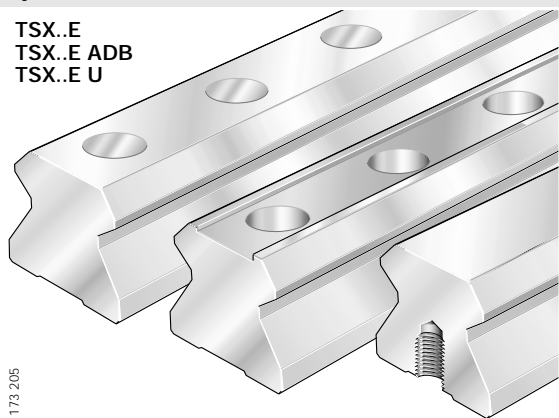


- RWU..E for grease lubrication and oil lubrication
- hardened steel saddle plate, precision ground rolling element raceways
  - cylindrical rollers are recirculated in enclosed channels with plastic return elements
- sealed on all sides by elastic wipers and sealing strips
- supplied with lubrication nipple or oil connector



## Guideways

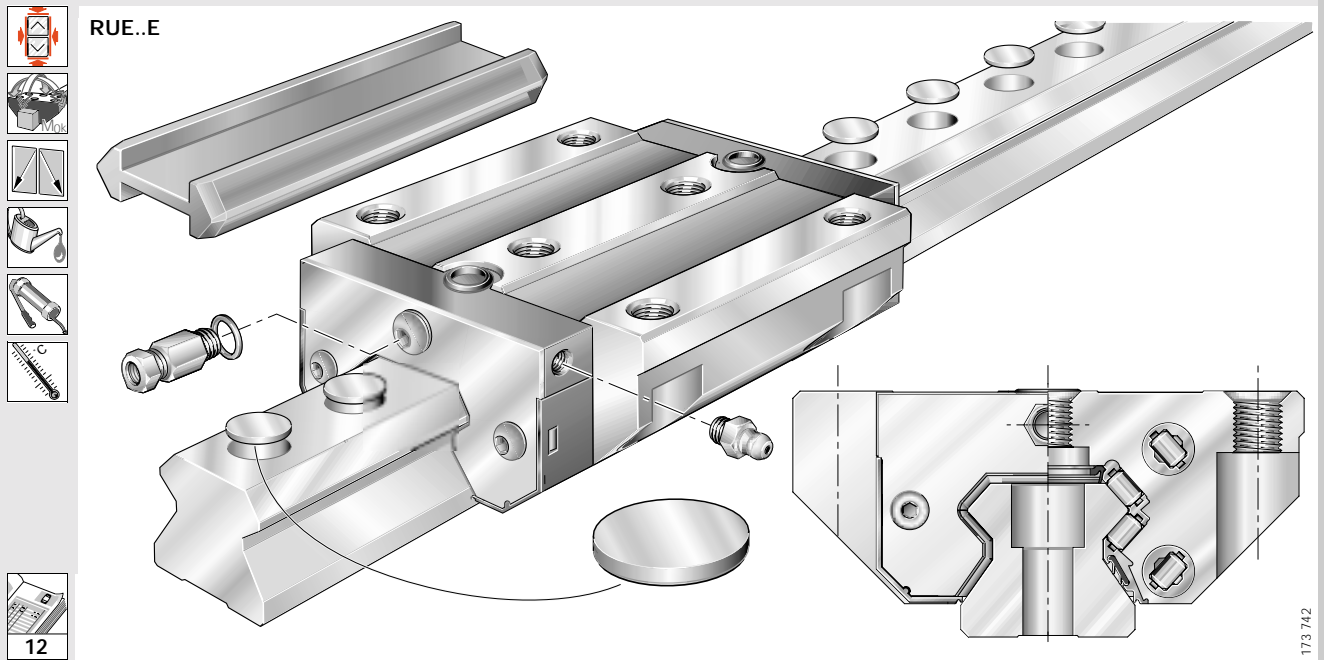
### TSX..E TSX..E ADB TSX..E U



- hardened steel, all surfaces ground
  - precision ground raceways for rolling elements
- TSX..E located from above, TSX..E U located from below
  - counterbored through holes for fixing screws or threaded blind holes
- TSX..E ADB with groove for steel covering strip fixed by adhesive

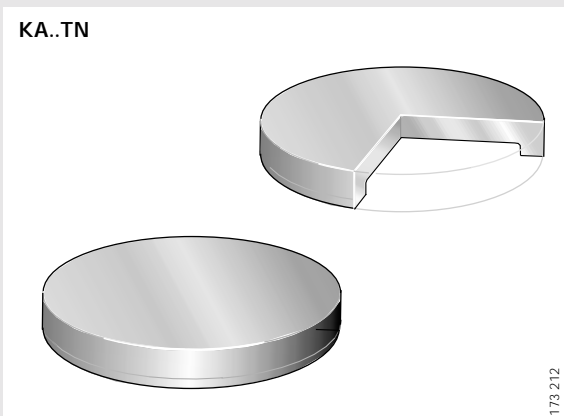


Linear recirculating roller bearing and guideway assembly – scope of basic delivery



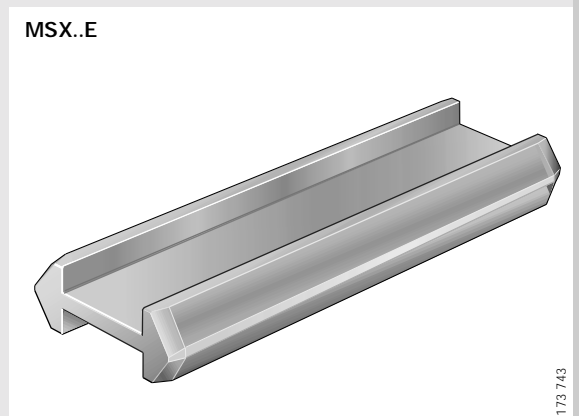
Standard accessories

KA..TN



- plastic closing plugs
  - close off the counterbores of the guideway holes flush with the top surface of the guideway
- two-piece closing plugs also available as an option

MSX..E



- plastic dummy guideway
  - prevents damage to the rolling element set while the carriage is separated from the guideway. The carriage is always pushed direct from the guideway onto the dummy guideway



# Linear recirculating roller bearing and guideway assemblies

full complement



## Features

### Interchangeability

The carriage and guideway of a linear recirculating roller bearing and guideway assembly are matched to each other as a standard system due to their closely toleranced preload. It may be possible, after consultation, to use carriages and guideways in different combinations.

### Contact angle

The cylindrical rollers are in an X arrangement and can support compressive, tensile and lateral loads.

### Corrosion-resistant designs

Linear recirculating roller bearing and guideway assemblies RUE..E are also available with Corrotect® plating.

If carriages and guideways are ordered separately, the following applies:

- carriage and guideway with anti-corrosion protection – suffix RRF

If systems are supplied preassembled, the following applies:

- carriage and guideway with anti-corrosion protection – suffix RRF
- guideway with anti-corrosion protection only – suffix RRFT.

If applications using Corrotect® plating are planned, please consult INA.

 Guideways with Corrotect® plating must not be used in conjunction with the clamping element RUKS..D.

If such an application is planned, please consult INA.

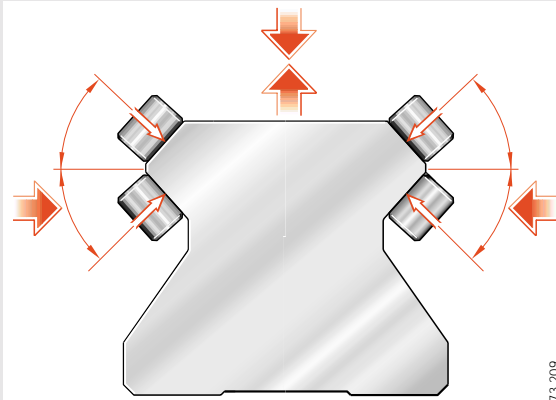
### Sealing

The carriage is sealed on all sides by means of wipers, gap seals and upper and twin lower sealing strips ①. These sealing elements protect the rolling element system from contamination even under demanding environmental conditions.

The standard carriage has a double lip end wiper as standard that retains the lubricant in the system.

If the contamination conditions are exceptionally severe, please consult INA.

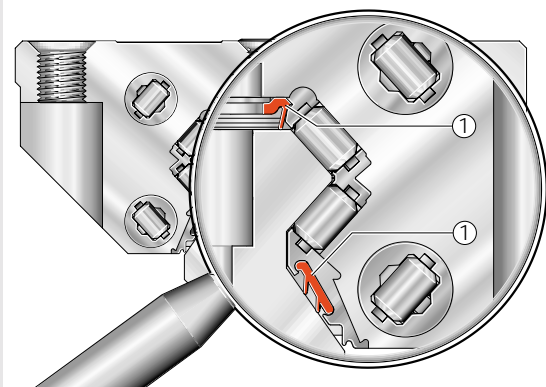
## Contact angle



- contact angles of row of cylindrical rollers
- X arrangement

173 209

## Sealing



- standard sealing strips ①
- elastic double lip wipers on end faces

173 745



### Preload

Linear recirculating roller bearing and guideway assemblies RUE..E are available in preload class V3 (see Table 1).

Optimum rigidity of the elements is achieved with the smallest possible deviation in the preload force. Linear recirculating roller bearing and guideway assemblies are therefore supplied as preassembled units; the elements are sorted and matched to each other.

#### Influence of preload on the linear guidance system

Increasing the preload increases the rigidity.

However, preload also influences the displacement resistance and operating life of linear guidance systems.

Table 1 · Preload class

Preload class	Preload setting	Suitable applications
V3	0,1 · C	<ul style="list-style-type: none"> <li>■ high alternating loads</li> <li>■ particularly high rigidity</li> <li>■ moment loads</li> </ul>



### Friction

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

For a guidance system without seals and with a load ratio of between C/P = 4 to C/P = 20, it is:

■  $\mu_{RUE} = 0,002$  to  $0,004$ .



### Accuracy

#### Accuracy classes of linear recirculating roller bearing and guideway assemblies

Linear recirculating roller bearing and guideway assemblies are available in accuracy classes G0 to G3 (Figure 1).

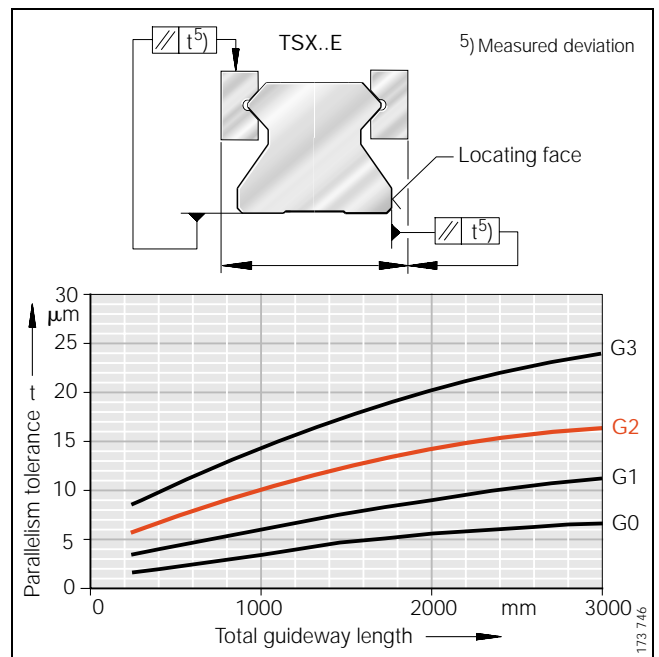


Figure 1 · Accuracy classes and parallelism tolerances of guideways

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For accuracy class tolerances see Table 2, for reference dimensions see Figure 2.

The tolerances are arithmetic mean values. They relate to the centre point of the screw mounting or locating surfaces of the carriage. The dimensions H and A<sub>1</sub> (Table 2) should always remain within the tolerance irrespective of the position of the carriage on the guideway.

### Units with Corrotect® plating

For these units, the values for the appropriate accuracy class must be increased by the values for RRF or RRFT (for values see Table 2).

Table 2 · Accuracy class tolerances

Tolerance		Accuracy classes					Corrotect® plating
		G0 μm	G1 μm	G2 <sup>4)</sup> μm	G3 μm	RRF <sup>2)</sup> μm	
Height tolerance	H	±5	±10	±20	±25	+6	+3
Height difference <sup>1)</sup>	ΔH	3	5	10	15	+3	0
Distance tolerance	A <sub>1</sub>	±5	±10	±15	±20	+3	+3
Distance difference <sup>1)</sup>	ΔA <sub>1</sub>	3	7	15	22	+3	0

- 1) Dimensional difference between several carriages on one guideway, measured at the same point on the guideway.
- 2) Displacement in tolerance zone (guideway and carriage plated).
- 3) Displacement in tolerance zone (guideway only plated).
- 4) Standard accuracy class.

### Parallelism of raceways to locating surfaces

The parallelism tolerances of the guideways are shown in Figure 1.

For systems with Corrotect® plating, there may be deviations in tolerances compared with unplated units.

### Positional tolerances of guideways

The positional tolerances are shown in Figure 3.

### Length tolerances of guideways

For length tolerances see Figure 3 and Table 3.

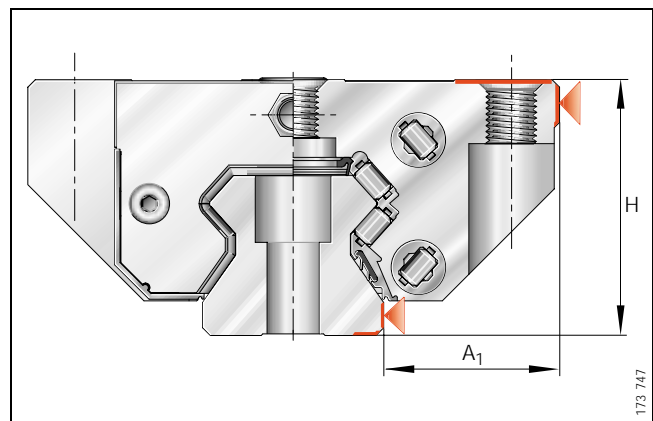


Figure 2 · Reference dimensions for accuracy

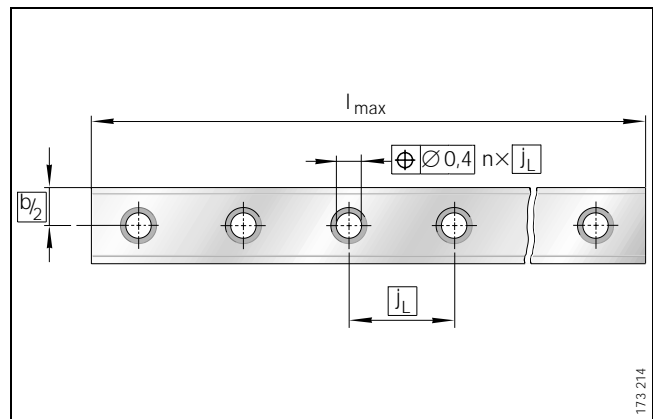


Figure 3 · Positional and length tolerances of guideways - hole pattern to ISO 1101

Table 3 · Length tolerances of guideways

Linear roller bearing and guideway assembly	Tolerances of guideways, as a function of length $l_{max}$ <sup>1)</sup>			Multi-piece guideways
	$l_{max}$			
Designation	≤1000 mm	>1000 mm <3000 mm	>3000 mm	
RUE..E	-1 mm	-1,5 mm	±0,1% of guideway length	±3 mm over total length

1) Length  $l_{max}$  see: *dimension table*.

### Hole patterns of guideways

Unless specified otherwise, the guideways have a symmetrical hole pattern. For an asymmetrical hole pattern (customer request), the following must apply:

- $a_L \geq a_{L\min}$  and  $a_R \geq a_{R\min}$  (Figure 4).

### Maximum number of pitches between holes

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

$$n = \frac{l_{\max} - (2 \cdot a_{L\min})}{j_L}$$

The distances  $a_L$  and  $a_R$  are generally determined by:

$$a_L + a_R = l_{\max} - n \cdot j_L$$

For guideways with a symmetrical hole pattern:

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

Number of holes:

$$x = n + 1$$

$a_L, a_R$  mm  
Distance between start or end of guideway and nearest hole

$a_{L\min}, a_{R\min}$  mm  
Minimum values for  $a_L, a_R$  according to the *dimension table*

$l_{\max}$  mm  
Guideway length

$n$  -  
Maximum number of pitches between holes

$j_L$  mm  
Distance between holes

$x$  -  
Number of holes.

**!** The minimum and maximum values for  $a_{L\min}$  and  $a_{R\min}$  must be observed (*dimension table*), otherwise the counterbores may be intersected by the end of the guideway.

### Multi-piece guideways

If the guideway length required is greater than  $l_{\max}$  according to the *dimension table*, a guideway of the total length is made up from individual sections. The individual sections are matched to each other and marked accordingly (Figure 5).

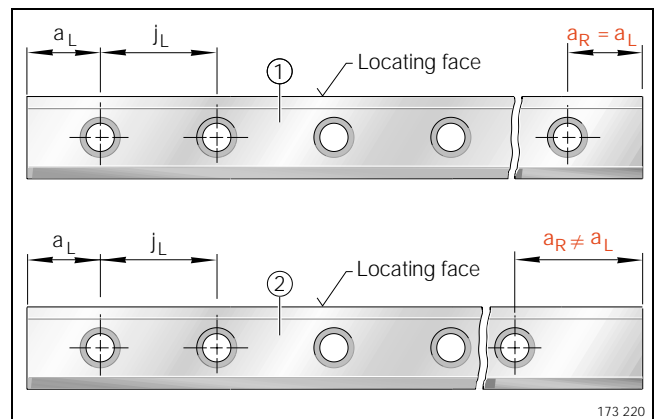


Figure 4 · Symmetrical ① and asymmetrical ② hole patterns for guideways with one row of holes

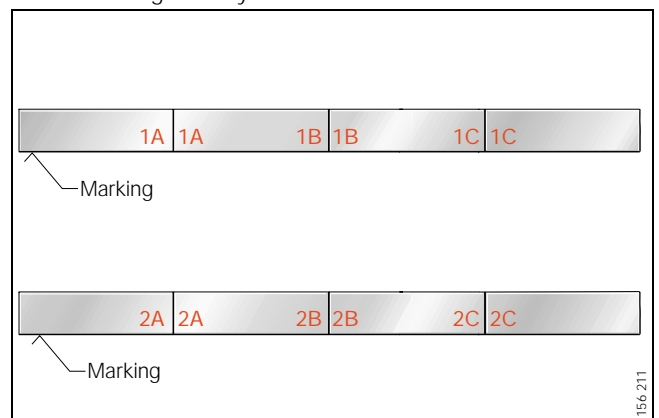


Figure 5 · Marking of multi-piece guideways

# Linear recirculating roller bearing and guideway assemblies

full complement



## Demands on the adjacent construction

### Running accuracy of linear guidance systems

The running accuracy is essentially dependent on the straightness, accuracy and rigidity of the fit and mounting surfaces. The straightness of the system is only achieved when a guideway is pressed against the datum surface.

If high demands are to be made on the running accuracy and/or if soft substructures and/or movable guideways are used, please consult INA.

### Geometrical and positional accuracy of the mounting 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.

- The tolerances in Figure 6 and Table 5 must be adhered to
- Surfaces should be ground or precision milled with the aim of achieving a mean roughness value of  $R_a1,6$ .

- ⚠ Deviations from the specified tolerances:**
- will impair the overall accuracy of the guidance system
  - will change the preload
  - will reduce the operating life of the guidance system.

### Height difference $\Delta H$

The permissible values for  $\Delta H$  (Figure 6) are given by the formula below. If larger deviations are present, please consult INA.

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

$\Delta H$              $\mu\text{m}$   
Maximum permissible deviation from the theoretically precise position

a                -  
Factor dependent on preload class (Table 4)

b                mm  
Centre distance between guidance elements.

Table 4 · Factor a – dependent on preload class

Preload class	Factor a
V	
V3	0,075

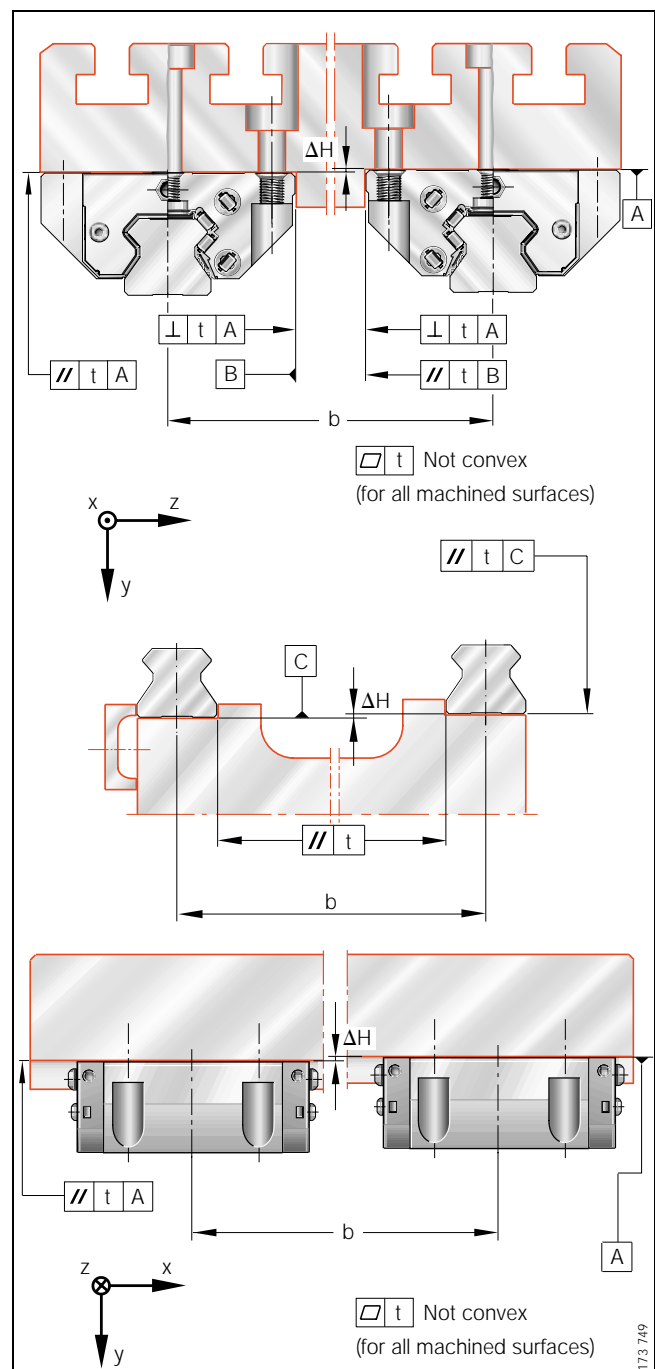


Figure 6 · Tolerances of mounting surfaces and parallelism of mounted guideways



### Parallelism of mounted guideways

For guideways arranged parallel to each other, the parallelism value  $t$  in Figure 6 and Table 5 should be adhered to.

If the maximum values are used, this may increase the displacement resistance. If larger tolerances are present, please consult INA.

Table 5 · Values for parallelism tolerances  $t$

Guideway Designation	Preload class V3 Parallelism tolerance $t$ $\mu\text{m}$
TSX 35 E (U)	10
TSX 45 E (U)	10

### Locating heights and corner radii

Locating heights and corner radii should be in accordance with Figure 7 and Table 6.

Table 6 · Locating heights and corner radii

Linear roller bearing and guideway assembly Designation	$h_1$	$h_2$ max.	$r_1$ max.	$r_2$ max.
RUE 35 E (L, H, HL)	8	6	1	0.8
RUE 45 E (L, H, HL)	10	8	1	0.8

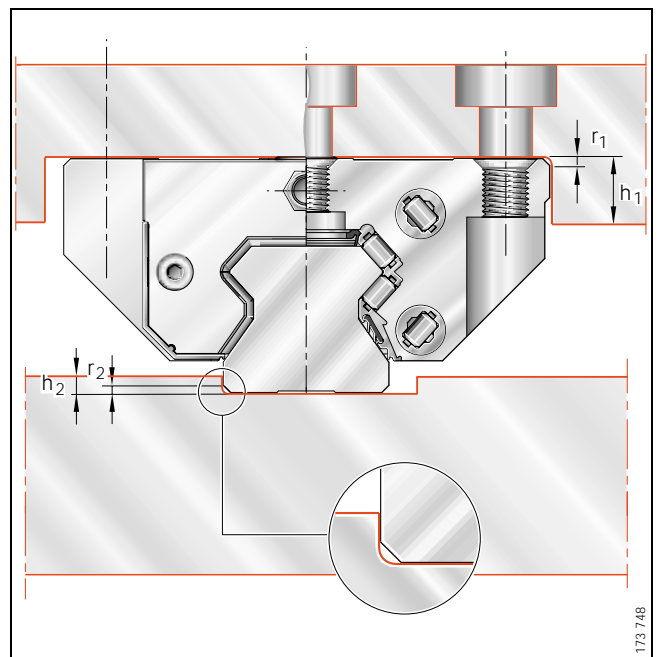


Figure 7 · Locating heights and corner radii

# Linear recirculating roller bearing and guideway assemblies

full complement



## Ordering example and ordering designation

### Ordering example 1

Asymmetrical hole pattern

Linear recirculating roller bearing and guideway assembly RUE

Size 45

Carriage type E L

Number of carriages per unit W2

Guideway length 1540 mm

■  $a_L$  50 mm

■  $a_R$  20 mm

Ordering designation:

1 off RUE 45 E L W2/1540-50/20 (Figure 8).

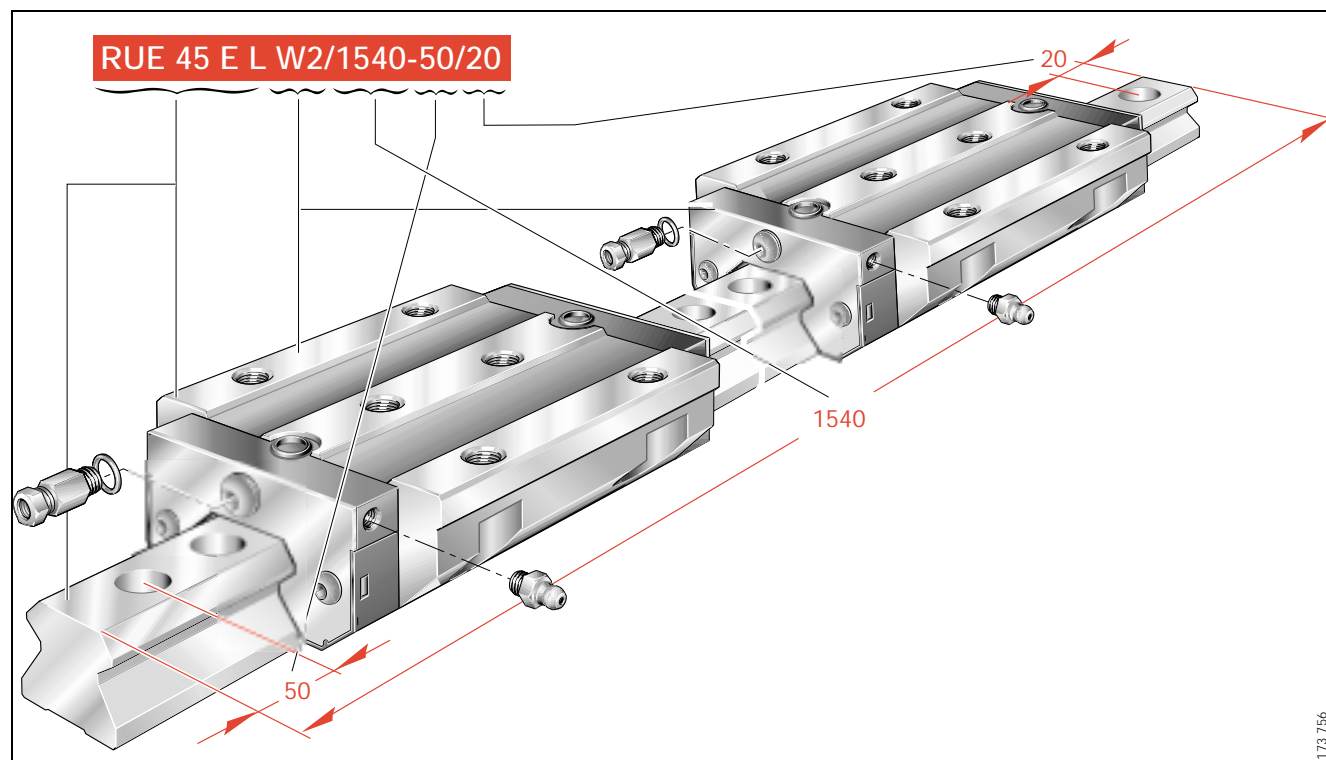


Figure 8 · Ordering example, ordering designation

### Ordering example 2

Symmetrical hole pattern

Linear recirculating roller bearing and guideway RUE assembly

Size	45
Carriage type	E HL
Number of carriages per unit	W2
Guideway length	1510 mm
■ $a_L$	20 mm
■ $a_R$	20 mm

Ordering designation:

1 off RUE 45 E HL W2/1510-20/20 (Figure 9).

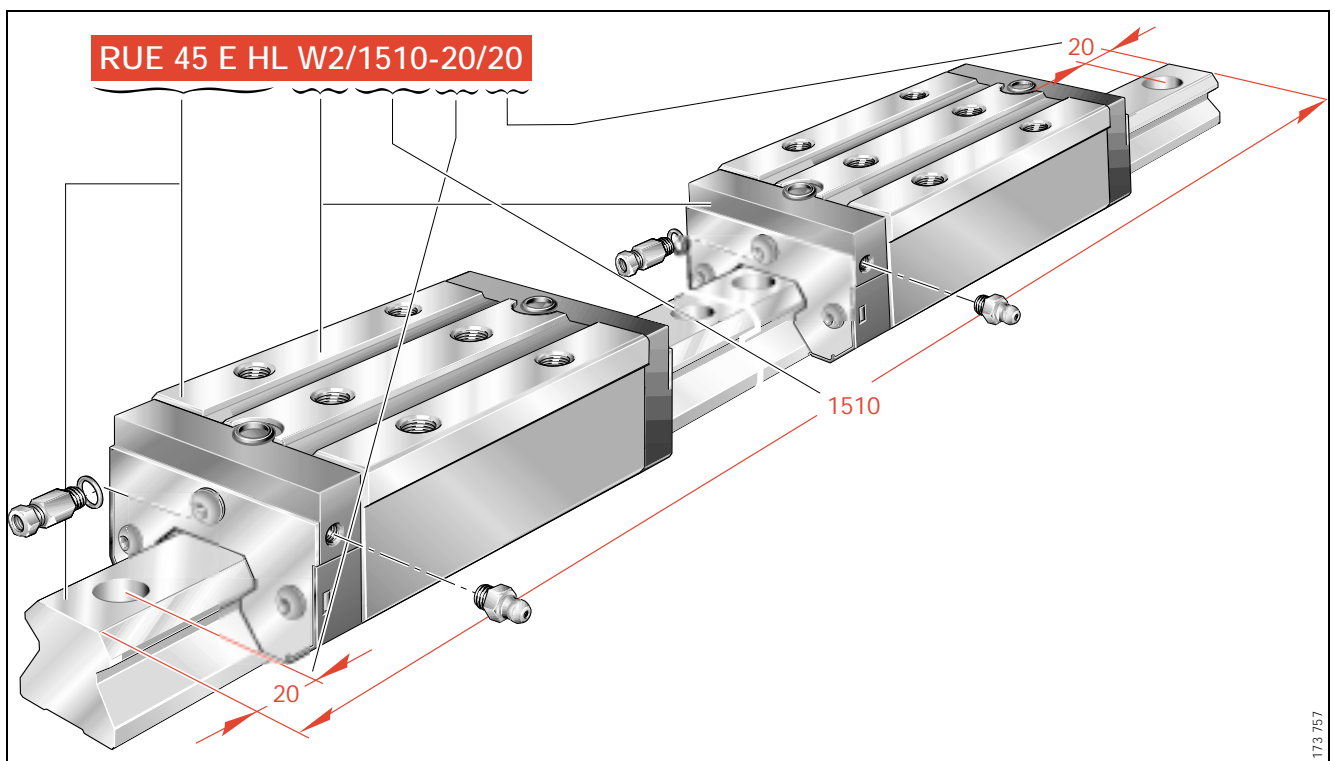
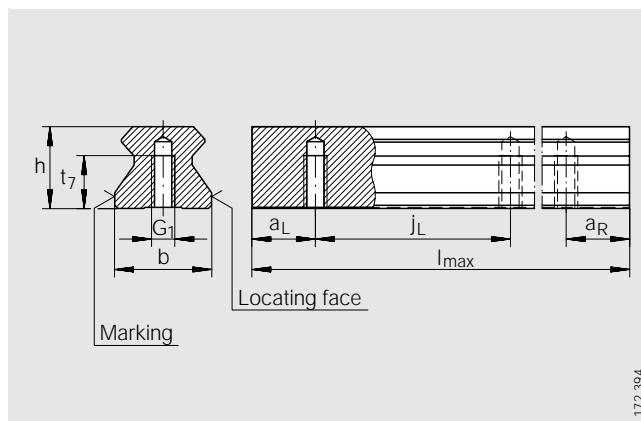


Figure 9 · Ordering example, ordering designation

# Linear recirculating roller bearing and guideway assemblies

full complement

Series RUE..E  
RUE..E L



TSX..E U

**Dimension table** · Dimensions in mm

Designation	Carriage		Guideway				Dimensions				Mounting dimensions		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug <sup>1)</sup>	Covering strip	$l_{max}^{2)}$	H	B	$L^{3)}$	$A_1$	$J_B$	b ±0,015
<b>RUE 35 E</b>	RWU 35 E	1,75	TSX 35 E (U)	5,9	KA 15 TN	ADB 18	2 960	48	99,8	123,15	33	82	33,98
<b>RUE 35 E L</b>	RWU 35 E L	2,29	TSX 35 E (U)	5,9	KA 15 TN	ADB 18	2 960	48	99,8	149	33	82	33,98
<b>RUE 45 E</b>	RWU 45 E	3,07	TSX 45 E (U)	9,4	KA 20 TN	ADB 23	2 940	60	119,8	146,2	37,5	100	44,98
<b>RUE 45 E L</b>	RWU 45 E L	4,05	TSX 45 E (U)	9,4	KA 20 TN	ADB 23	2 940	60	119,8	178,6	37,5	100	44,98

1) Closing plugs KA..TN are included in the delivery.


2) Maximum length of single-piece guideways; longer guideways are supplied in several sections and are marked accordingly. Maximum single-piece guideway length of 6 m by agreement.

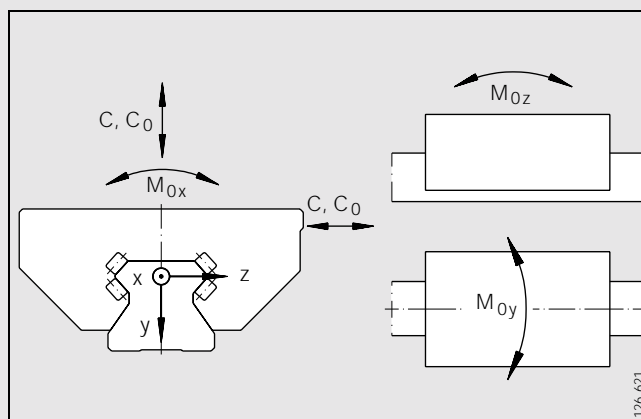
3) Minimum covered length for sealing the lubrication connectors.

4)  $a_L$  and  $a_R$  are dependent on the guideway length. *Calculation*, page 7.

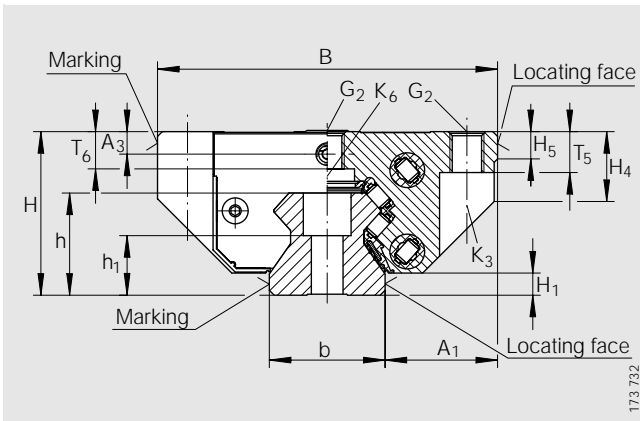
5) Position of the lubrication hole in the adjacent construction.

6) Maximum diameter of the lubrication hole in the adjacent construction.

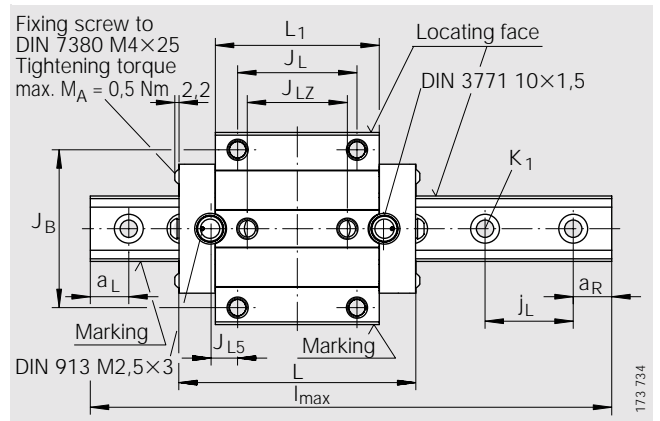
7)  For information on fixing screws see *INA Catalogue 605, Fixing screws*.



Load directions



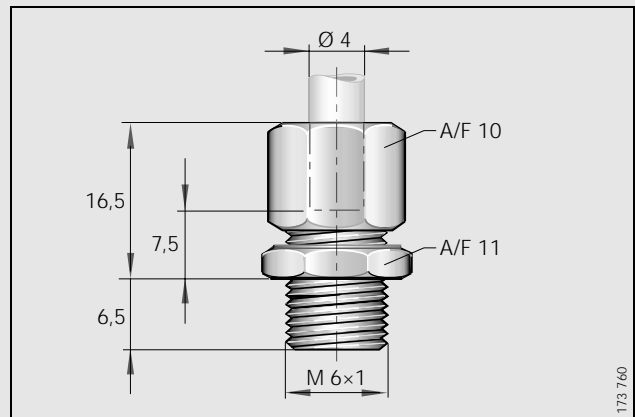
RUE..E (L)



RUE..E (L) · View X (rotated 90°)

L <sub>1</sub>	J <sub>L</sub>	J <sub>LZ</sub>	j <sub>L</sub>	a <sub>L</sub> /a <sub>R</sub> <sup>4)</sup>		J <sub>L5</sub> <sup>5)</sup>	N <sub>2</sub> <sup>6)</sup>	H <sub>1</sub>	H <sub>5</sub>	A <sub>3</sub>	H <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	t <sub>7</sub>	h	h <sub>1</sub>	Fixing screws <sup>7)</sup>				
				ISO 4762-12.9													G1	G2	K1	K3	K6
				min.	max.																
85,15	62	52	40	20	31	13,8	6	6,8	8	6,6	19,69	12	10,92	15	30	17,5	M 8	M10	M 8	M 8	M 8
111	62	52	40	20	31	26,73	6	6,8	8	6,6	19,69	12	10,92	15	30	17,5	M 8	M10	M 8	M 8	M 8
104,2	80	60	52,5	20	41	15,13	6	8,7	8	6,6	25,22	15	13,25	20	38	21,5	M12	M12	M12	M10	M10
136,6	80	60	52,5	20	41	31,33	6	8,7	8	6,6	25,22	15	13,25	20	38	21,5	M12	M12	M12	M10	M10

Load carrying capacity (for definition of basic load ratings, see INA Catalogue 605)					
Unit Designation	Basic load ratings		Moment ratings		
	C N	C <sub>0</sub> N	M <sub>0x</sub> Nm	M <sub>0y</sub> Nm	M <sub>0z</sub> Nm
<b>RUE 35 E</b>	59 000	140 000	1200	2150	1950
<b>RUE 35 E L</b>	70 000	175 000	1500	3350	3000
<b>RUE 45 E</b>	92 000	205 000	1805	3870	3485
<b>RUE 45 E L</b>	115 000	275 000	2410	6770	6095

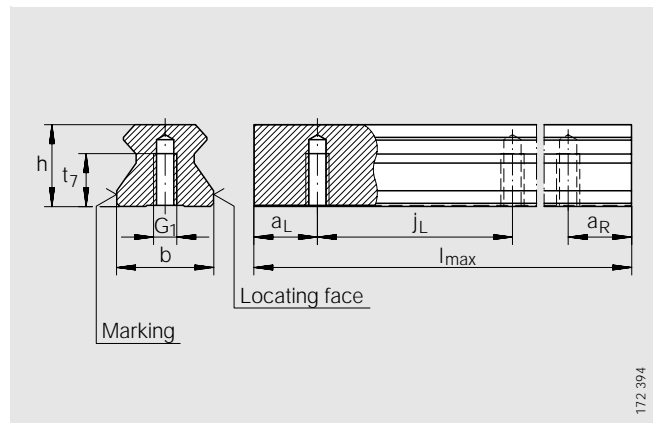


Connector with union nut

# Linear recirculating roller bearing and guideway assemblies

full complement

Series RUE..E H  
RUE..E HL



TSX..E U

Dimension table · Dimensions in mm

Designation	Carriage		Guideway				Dimensions				Mounting dimensions		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug <sup>1)</sup>	Covering strip	$l_{max}^{2)}$	H	B	$L^{3)}$	$A_1$	$J_B$	b ±0,015
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<b>RUE 35 E HL</b>	RWU 35 E HL	2,14	TSX 35 E (U)	5,9	KA 15 TN	ADB 18	2 960	55	69,8	149	18	50	33,98
<b>RUE 45 E H</b>	RWU 45 E H	3,05	TSX 45 E (U)	9,4	KA 20 TN	ADB 23	2 940	70	85,8	146,2	20,5	60	44,98
<b>RUE 45 E HL</b>	RWU 45 E HL	3,95	TSX 45 E (U)	9,4	KA 20 TN	ADB 23	2 940	70	85,8	178,6	20,5	60	44,98

1) Closing plugs KA..TN are included in the delivery.

2) Maximum length of single-piece guideways; longer guideways are supplied in several sections and are marked accordingly. Maximum single-piece guideway length of 6 m by agreement.

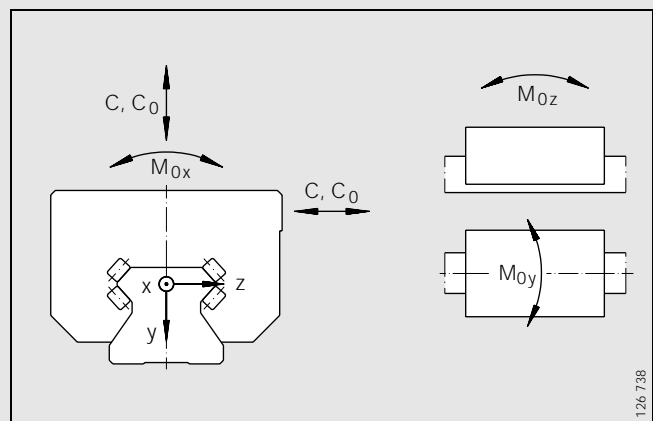
3) Minimum covered length for sealing the lubrication connectors.

4)  $a_L$  and  $a_R$  are dependent on the guideway length. *Calculation*, page 7.

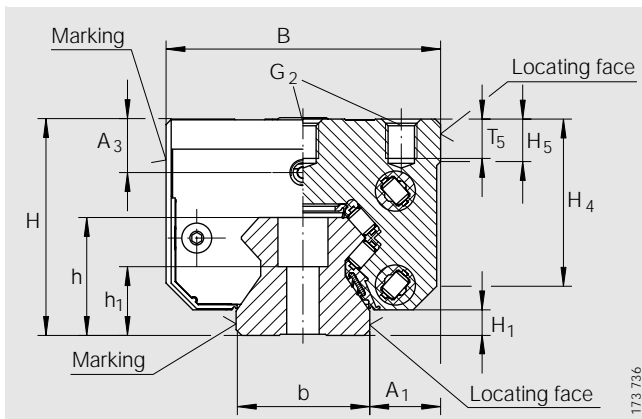
5) Position of the lubrication hole in the adjacent construction.

6) Maximum diameter of the lubrication hole in the adjacent construction.

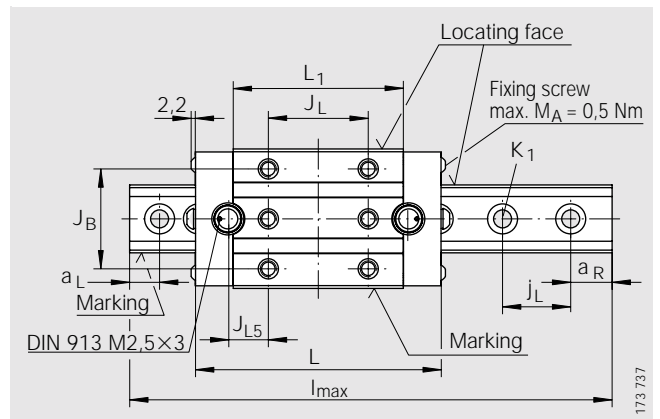
7)  For information on fixing screws see *INA Catalogue 605, Fixing screws*.



Load directions



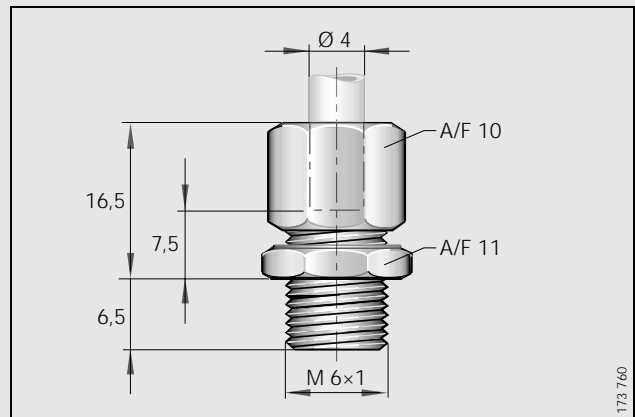
RUE..E H (HL)



RUE..E H (HL) · View X (rotated 90°)

L <sub>1</sub>	J <sub>L</sub>	j <sub>L</sub>	a <sub>L</sub> /a <sub>R</sub> <sup>4)</sup>		J <sub>L5</sub> <sup>5)</sup>	N <sub>2</sub> <sup>6)</sup>	H <sub>1</sub>	H <sub>5</sub>	A <sub>3</sub>	H <sub>4</sub>	T <sub>5</sub>	t <sub>7</sub>	h	h <sub>1</sub>	Fixing screws <sup>7)</sup>		
			min.	max.											G1	G2	K1
85,15	50	40	20	31	19,8	6	6,8	10,8	13,6	41,69	10	15	30	17,5	M 8	M 8	M 8
111	72	40	20	31	21,73	6	6,8	10,8	13,6	41,69	10	15	30	17,5	M 8	M 8	M 8
104,2	60	52,5	20	41	25,13	6	8,7	8	16,6	52,22	12,5	20	38	21,5	M12	M12	M12
136,6	80	52,5	20	41	31,33	6	8,7	8	16,6	52,22	12,5	20	38	21,5	M12	M12	M12






Load carrying capacity (for definition of basic load ratings, see INA Catalogue 605)					
Unit Designation	Basic load ratings		Moment ratings		
	C N	C <sub>0</sub> N	M <sub>0x</sub> Nm	M <sub>0y</sub> Nm	M <sub>0z</sub> Nm
RUE 35 E H	59 000	140 000	1200	2150	1950
RUE 35 E HL	70 000	175 000	1500	3350	3000
RUE 45 E H	92 000	205 000	1805	3870	3485
RUE 45 E HL	115 000	275 000	2410	6770	6095



Connector with union nut

# Linear recirculating roller bearing and guideway assemblies

with chain guidance system

	Page
 Preload .....	5
 Friction .....	5
 Accuracy .....	5
 Demands on the adjacent construction .....	8
 Ordering example and ordering designation .....	10



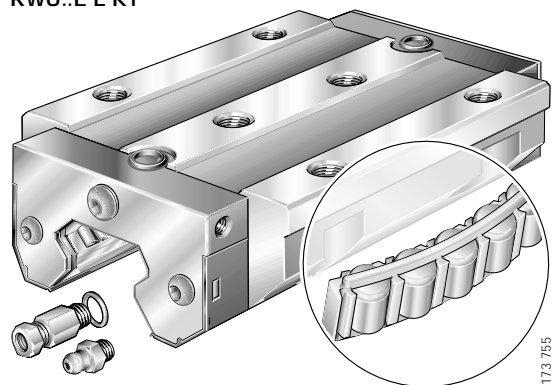
## Features

### Linear recirculating roller bearing and guideway assemblies

- are complete units comprising:
  - at least one carriage RWU..E L KT with a rolling element chain
  - a guideway TSX..E (U) with two locating edges
  - integral elastic wipers on the end faces of the carriage and upper as well as twin lower sealing strips
  - plastic closing plugs
- can support loads from all directions – apart from the direction of motion – and moments about all axes
- are preloaded
  - the preload is determined by the carriage
- have, due to further development of the patented injection moulding technology
  - fewer joints and individual parts
  - precise guidance of the rolling elements by ribs and therefore very high running accuracy
  - a device for retaining the rollers in order to allow easy fitting of the carriage
- are supplied with lubrication nipples and oil connectors
  - the lubrication nipples can be screwed into the right, the left or the end face of the end piece; before they are screwed in, the lateral lubrication hole in the end piece must first be opened using a pointed object
- can only be used with each other in strictly defined and limited combinations (see *Interchangeability*, page 4)
- are supplied with multi-piece guideways if the required guideway length is in excess of the maximum length  $l_{max}$  according to the *dimension table*
- are suitable for:
  - accelerations up to  $100 \text{ m/s}^2$
  - speeds up to  $180 \text{ m/min}$
  - operating temperatures from  $-10 \text{ }^\circ\text{C}$  to  $+100 \text{ }^\circ\text{C}$
- are used in applications with:
  - long, unlimited stroke lengths
  - high and very high loads
  - high and very high rigidity
  - high requirements for low-noise running.

## Carriage

### RWU..E L KT

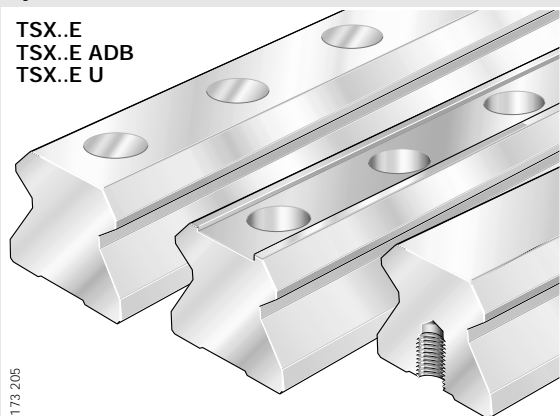


- RWU..E L KT with rolling element chain for grease and oil lubrication
- hardened steel saddle plate, precision ground rolling element raceways
  - cylindrical rollers are recirculated in enclosed channels with plastic return elements
- sealed on all sides by elastic wipers and sealing strips
- supplied with lubrication nipple or oil connector



## Guideways

### TSX..E TSX..E ADB TSX..E U

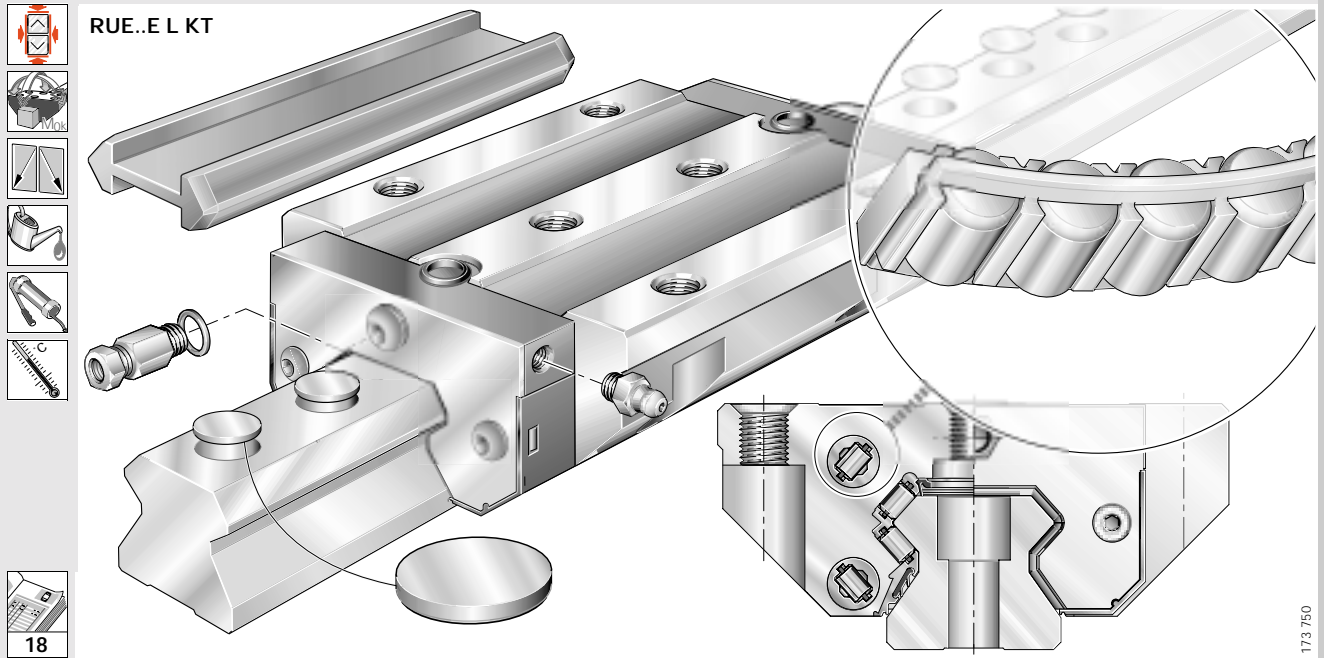


- hardened steel, all surfaces ground
  - precision ground raceways for rolling elements
- TSX..E located from above, TSX..E U located from below
  - counterbored through holes for fixing screws or threaded blind holes
- TSX..E ADB with groove for steel covering strip fixed by adhesive





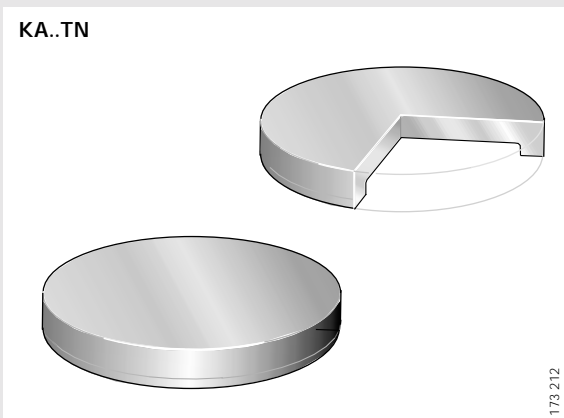
Linear recirculating roller bearing and guideway assembly – scope of basic delivery



173 750

Standard accessories

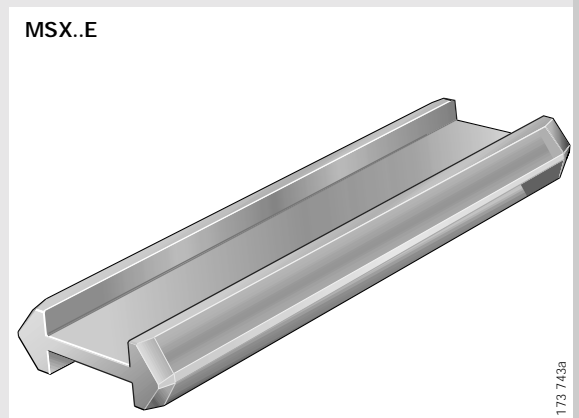
KA..TN



173 212

- plastic closing plugs
  - close off the counterbores of the guideway holes flush with the top surface of the guideway
- two-piece closing plugs also available as an option

MSX..E



173 743a

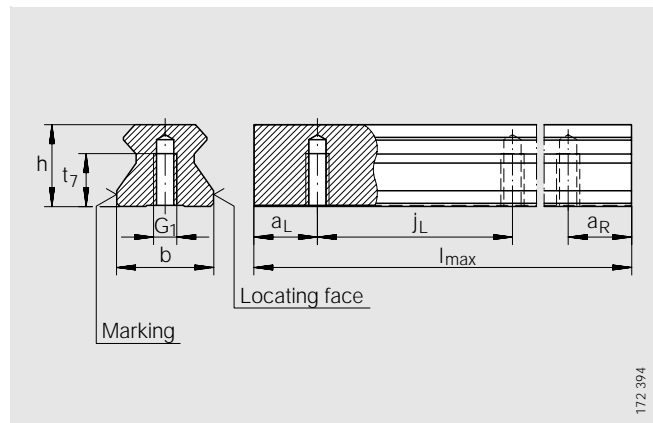
- plastic dummy guideway
  - prevents damage to the rolling element set while the carriage is separated from the guideway. The carriage is always pushed direct from the guideway onto the dummy guideway



# Linear recirculating roller bearing and guideway assemblies

with chain guidance system

Series RUE..E L KT  
RUE..E HL KT



TSX..E U

172 394

**Dimension table** · Dimensions in mm

Designation	Carriage		Guideway				Dimensions				Mounting dimensions		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug <sup>1)</sup>	Covering strip	$l_{max}^{2)}$	H	B	$L^{3)}$	$A_1$	$J_B$	b ±0,015
<b>RUE 35 E L KT</b>	RWU 35 E L KT	2,28	TSX 35 E (U)	5,9	KA 15 TN	ADB 18	2960	48	99,8	149	33	82	33,98
<b>RUE 35 E HL KT</b>	RWU 35 E HL KT	2,14	TSX 35 E (U)	5,9	KA 15 TN	ADB 18	2960	55	69,8	149	18	50	33,98
<b>RUE 45 E L KT</b>	RWU 45 E L KT	3,97	TSX 45 E (U)	9,4	KA 20 TN	ADB 23	2940	60	119,8	178,6	37,5	100	44,98
<b>RUE 45 E HL KT</b>	RWU 45 E HL KT	3,88	TSX 45 E (U)	9,4	KA 20 TN	ADB 23	2940	70	85,8	178,6	20,5	60	44,98

<sup>1)</sup> Closing plugs KA..TN are included in the delivery.

<sup>2)</sup> Maximum length of single-piece guideways; longer guideways are supplied in several sections and are marked accordingly. Maximum single-piece guideway length of 6 m by agreement.

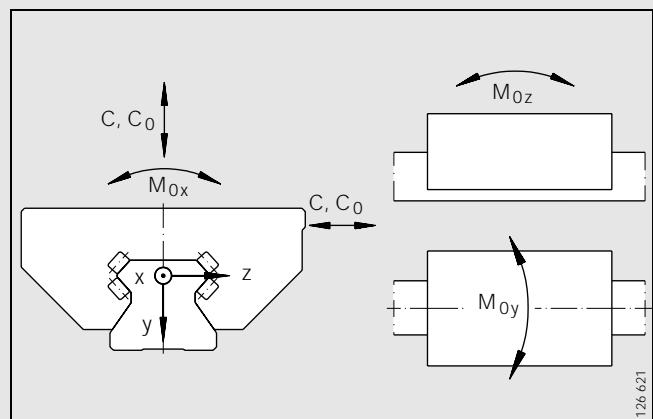
<sup>3)</sup> Minimum covered length for sealing the lubrication connectors.

<sup>4)</sup>  $a_L$  and  $a_R$  are dependent on the guideway length. *Calculation*, page 7.

<sup>5)</sup> Position of the lubrication hole in the adjacent construction.

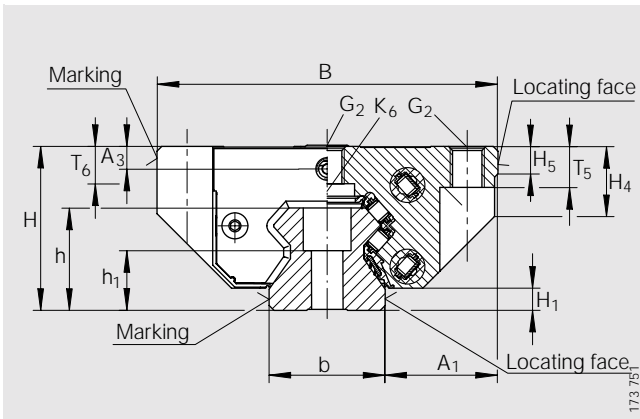
<sup>6)</sup> Maximum diameter of the lubrication hole in the adjacent construction.

<sup>7)</sup>  For information on fixing screws see *INA Catalogue 605, Fixing screws*.

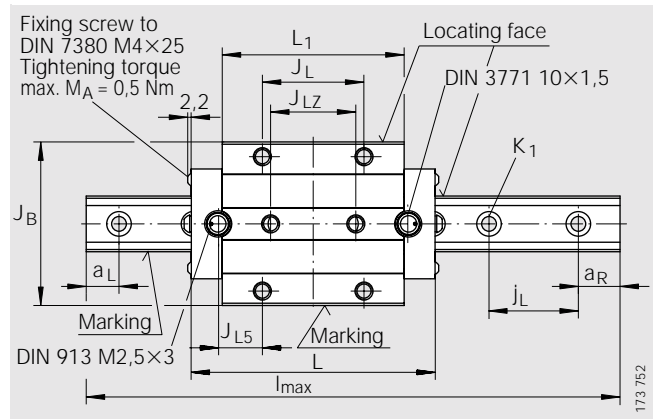


Load directions

126 621

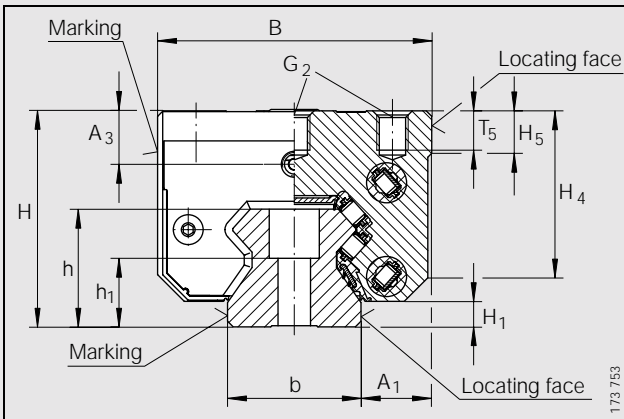


RUE..E L KT

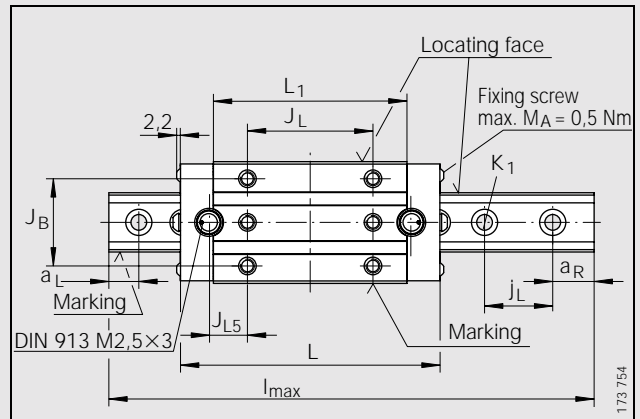


RUE..E L KT · View X (rotated 90°)

L <sub>1</sub>	J <sub>L</sub>	J <sub>LZ</sub>	J <sub>L</sub>	a <sub>L</sub> /a <sub>R</sub> <sup>4)</sup>		J <sub>L5</sub> <sup>5)</sup>	N <sub>2</sub> <sup>6)</sup>	H <sub>1</sub>	H <sub>5</sub>	A <sub>3</sub>	H <sub>4</sub>	T <sub>5</sub>	T <sub>6</sub>	t <sub>7</sub>	h	h <sub>1</sub>	Fixing screws <sup>7)</sup>				
				min.	max.												G1	G2	K1	K3	K6
111	62	52	40	20	31	26,73	6	6,8	8	6,6	19,69	12	10,92	15	30	17,5	M 8	M10	M 8	M 8	M 8
111	72	-	40	20	31	21,73	6	6,8	10,8	13,6	41,69	10	-	15	30	17,5	M 8	M 8	M 8	-	-
136,6	80	60	52,5	20	41	31,33	6	8,7	8	6,6	25,22	15	13,25	20	38	21,5	M12	M12	M12	M10	M10
136,6	80	-	52,5	20	41	31,33	6	8,7	8	16,6	52,22	12,5	-	20	38	21,5	M12	M12	M12	-	-



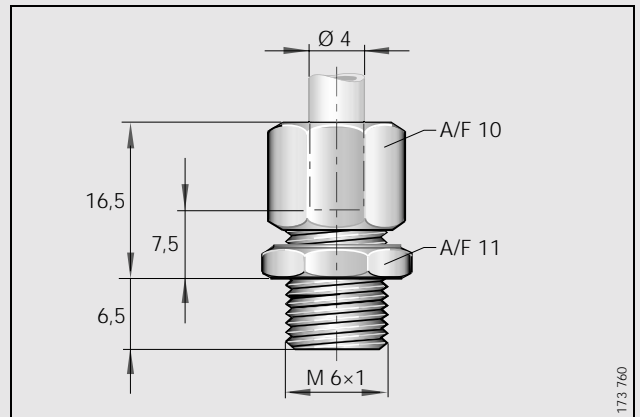
RUE..E HL KT



RUE..E HL KT

**Load carrying capacity**  
(for definition of basic load ratings, see INA Catalogue 605)

Unit Designation	Basic load ratings		Moment ratings		
	C N	C <sub>0</sub> N	M <sub>0x</sub> Nm	M <sub>0y</sub> Nm	M <sub>0z</sub> Nm
RUE 35 E L KT	54 000	126 000	1100	2500	2250
RUE 35 E HL KT	54 000	126 000	1100	2500	2250
RUE 45 E L KT	115 000	275 000	2410	6770	6095
RUE 45 E HL KT	115 000	275 000	2410	6770	6095



Connector with union nut



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