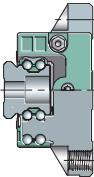


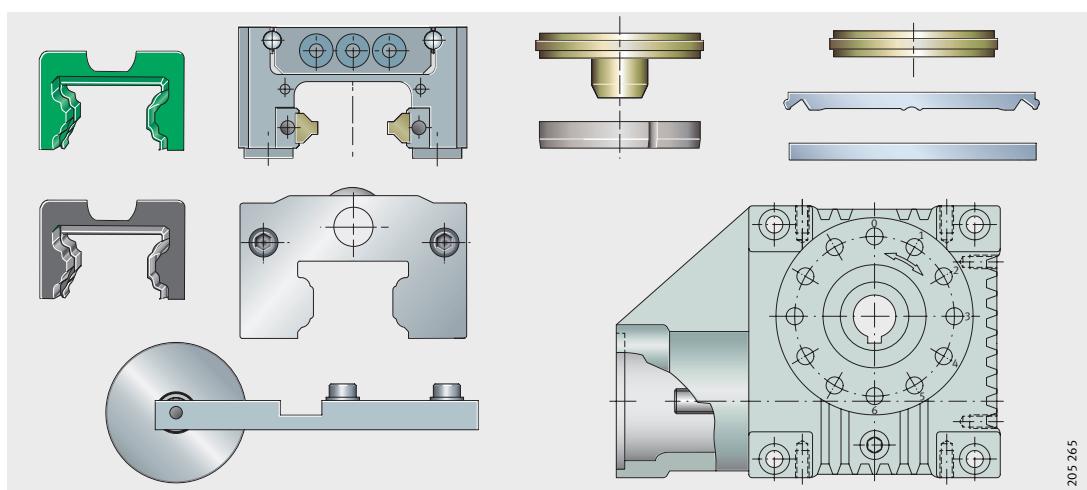
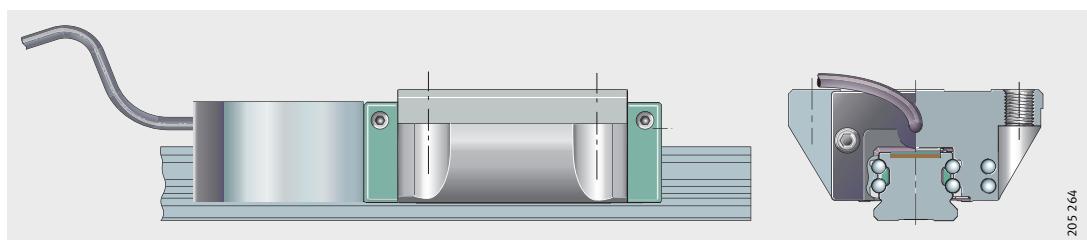
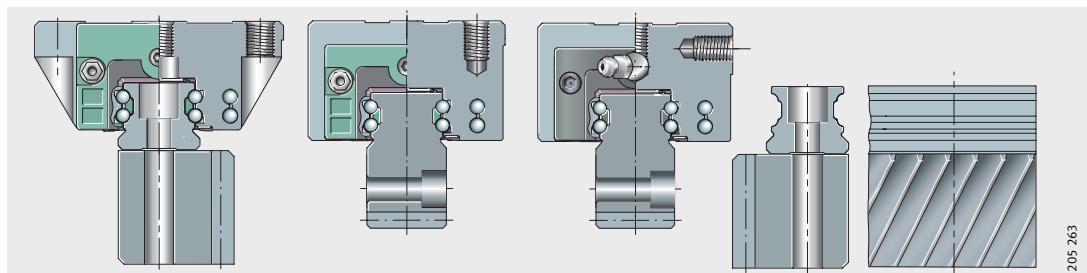
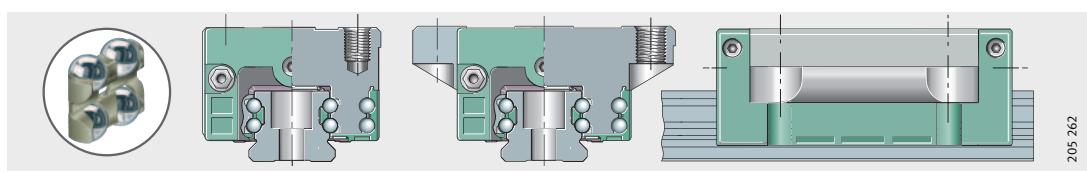
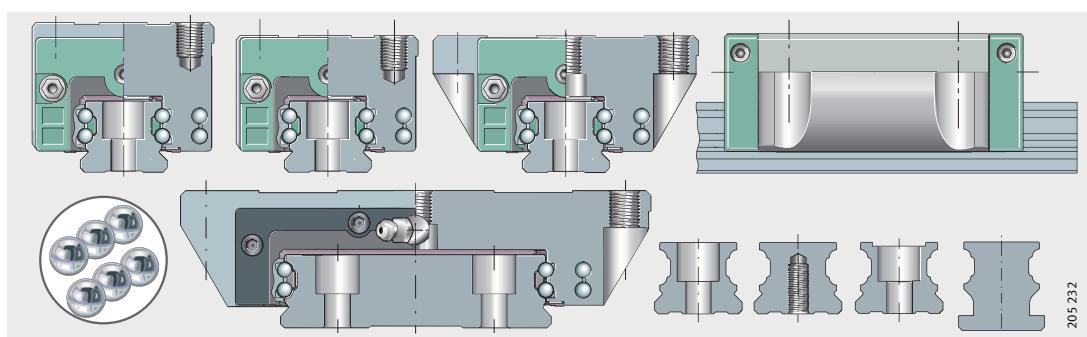
Four-row linear recirculating ball bearing and guideway assemblies

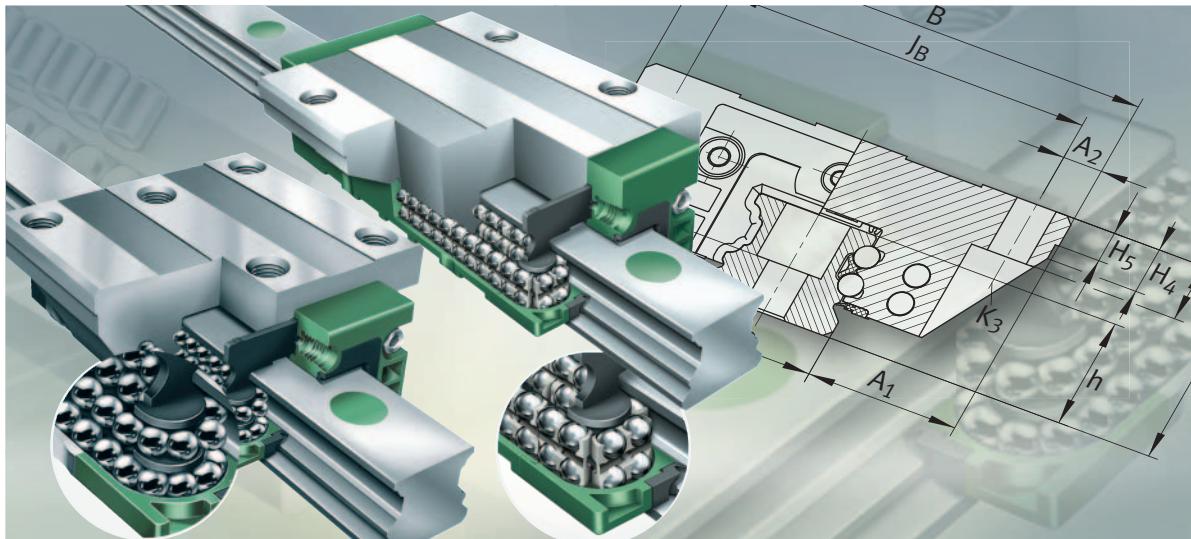
Full complement
With Quad-Spacers
With toothed guideway
With integral measuring system
Accessories



Four-row linear recirculating ball bearing and guideway assemblies

X-life® Full complement	.....	228
	KUVE..-B is of a full complement design and therefore has a high load carrying capacity. It is used where the emphasis is on dynamic characteristics as well as maximum load carrying capacity and rigidity.	
<hr/> X-life® With Quad-Spacers	.....	228
	Linear recirculating ball bearing and guideway assemblies KUVE..-B-KT have Quad-Spacers. These plastic spacers ensure that the rolling elements do not come into contact with each other. Since this prevents collision noises, the units run more quietly.	
<hr/> Toothed guideways	.....	296
Teeth on underside or toothed rack with lateral teeth	For driven guideways, it is possible to use the units KUVE..-B-ZHP with a toothed guideway and right hand helical teeth on the underside or a combination of the toothed rack ZHST..-SVS + guideway TKVD with lateral helical teeth. In comparison with units without teeth, these designs are more precise, allow significantly simpler adjacent constructions and give additional freedom in the design of bearing arrangements.	
<hr/> With integral electronic-magnetic measuring system	.....	322
	The combination of the proven linear recirculating ball bearing and guideway assemblies with an electronic-magnetic measuring system gives a very compact, cost-effective solution for applications that require particularly precise travel distances. Measurement is carried out by means of absolute digital or incremental length measurement.	
<hr/> Accessories	.....	336
	There is a comprehensive range of accessories for the KUVE units. This includes closing plugs and covering strips for the guideways as well as suitable fitting tools. For lubrication and sealing, it includes lubrication and sealing KITs, such as the long term lubrication unit, end plates, end wipers and sealing strips. For toothed units, it includes gearboxes, motors and drive shafts.	



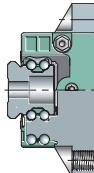


Four-row linear recirculating ball bearing and guideway assemblies

Full complement
With Quad-Spacers

Four-row linear recirculating ball bearing and guideway assemblies

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Four-row linear recirculating ball bearing and guideway assemblies

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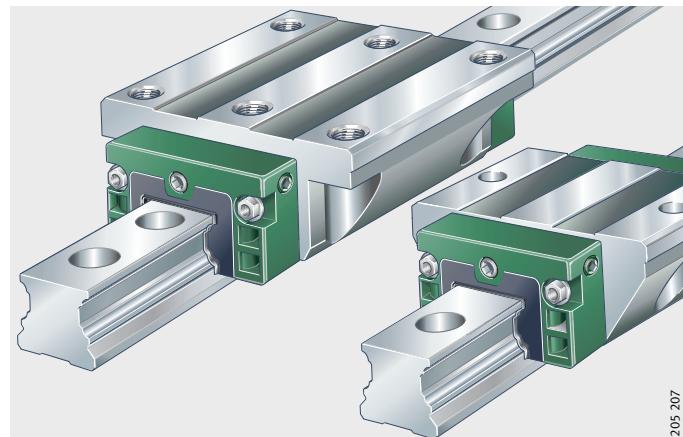
Product overview

Four-row linear recirculating ball bearing and guideway assemblies

Full complement

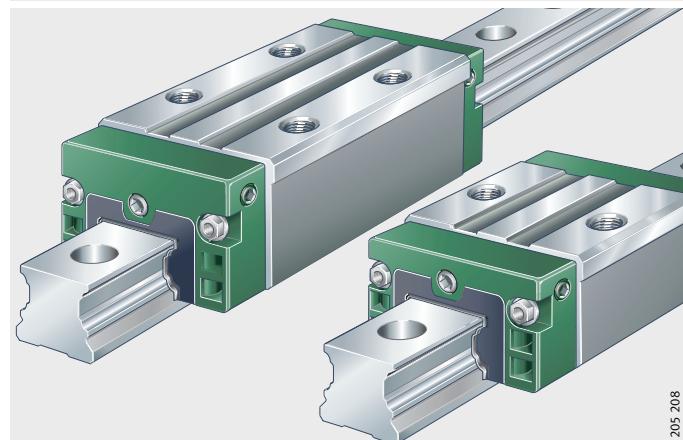
Standard, long, low, high or short carriage

**KUVE..-B, KUVE..-B-L,
KUVE..-B-N, KUVE..-B-NL, KUVE..-B-EC**



High, narrow or short carriage

**KUVE..-B-H, KUVE..-B-HL, KUVE..-B-S, KUVE..-B-SL,
KUVE..-B-SN, KUVE..-B-SNL, KUVE..-B-ESC**



Wide guideway

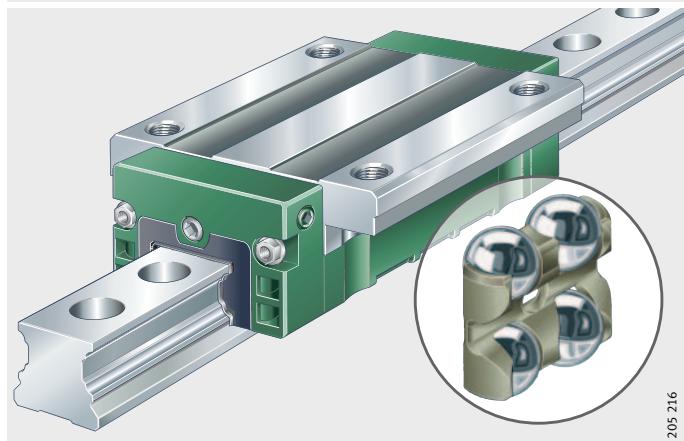
KUVE..-W, KUVE..-WL



Product overview Four-row linear recirculating ball bearing and guideway assemblies

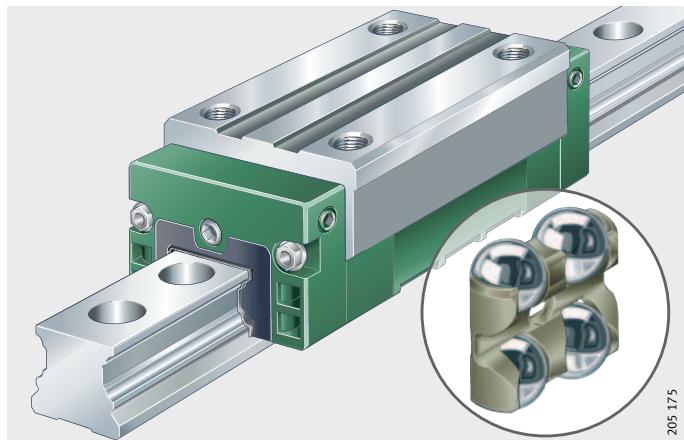
With Quad-Spacers

KUVE..-B-KT, KUVE..-B-KT-L



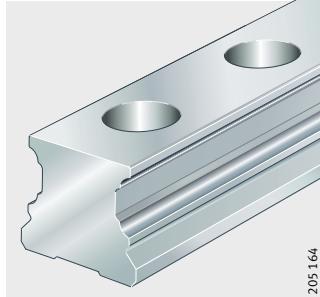
High or narrow carriage

KUVE..-B-KT-H, KUVE..-B-KT-HL, KUVE..-B-KT-S, KUVE..-B-KT-SL



Guideways
Standard
or
with slot for covering strip

TKVD

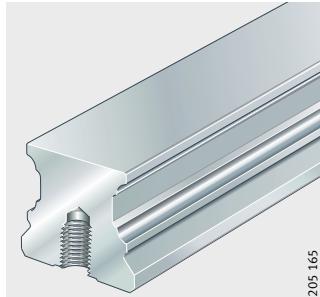


TKVD..-ADB, TKVD..-ADB+K

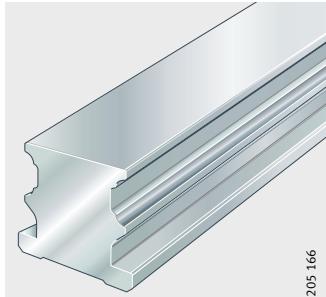


For screw mounting from below
With slots for clamping lugs

TKVD..-U

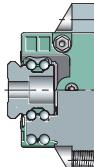
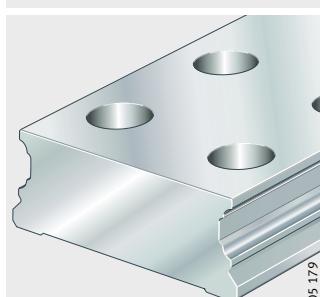


TKVD..-K



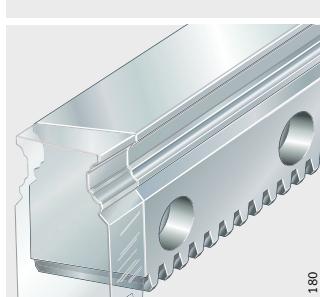
Wide guideway

TKVD..-W

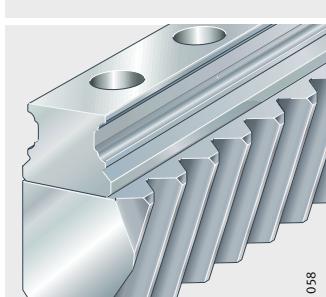


With helical teeth

TKVD..-ZHP



TKVD..-ZHST+SVS

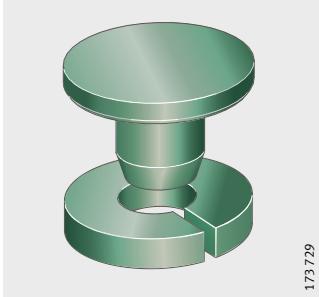


Product overview Four-row linear recirculating ball bearing and guideway assemblies

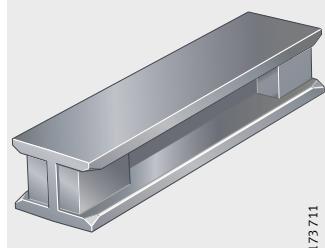
Standard accessories

Plastic closing plugs
Dummy guideway

KA..-TN/A

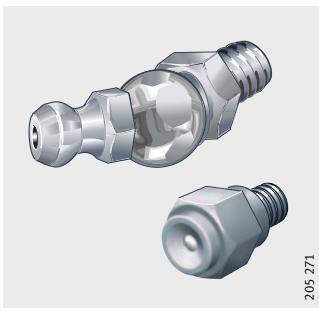


MKVD

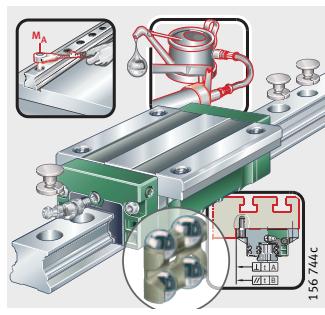


Lubrication nipple
Fitting manual

DIN 71412-B, NIP S M3



MON 38



Four-row linear recirculating ball bearing and guideway assemblies

Features

Four-row linear recirculating ball bearing and guideway assemblies represent the most extensive and complex group within the range of monorail guidance systems. They are used where linear guidance systems with high load carrying capacity and rigidity must move heavy loads with high running and positional accuracy as well as low friction. The guidance systems are preloaded and are suitable for long, unlimited stroke lengths.

Depending on the operating conditions, accelerations up to 150 m/s^2 and speeds up to 360 m/min are possible. Where designs are planned with extensive use of accessories and travel speeds $>180 \text{ m/min}$, please contact us.

The units are available in full complement design and with Quad-Spacers. A guidance system comprises at least one carriage with rolling elements, a guideway and two-piece plastic closing plugs. The four-row linear recirculating ball bearing and guideway assemblies are supplied with initial greasing as standard.

X-life

Four-row linear recirculating ball bearing and guideway assemblies are linear guidance systems of X-life quality. They are characterised by improved technological characteristics, increased robustness and a longer operating life.

Full complement

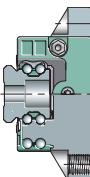
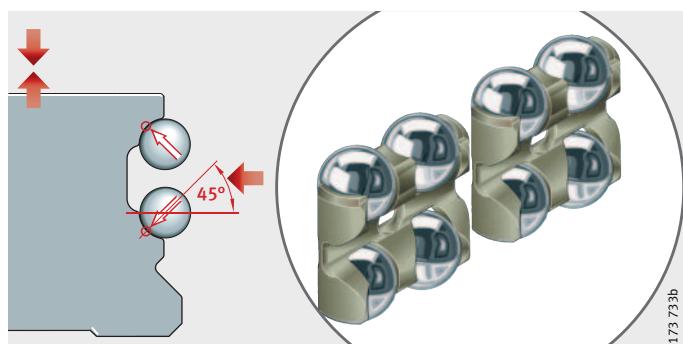
Series KUVE..-B has a full complement of balls as rolling elements. Since they have the maximum possible number of rolling elements, full complement guidance systems have extremely high load carrying capacity and particularly high rigidity.

With Quad-Spacers

Series KUVE..-B-KT corresponds to the full complement design. In order to prevent noise from recirculation, however, the rolling elements are guided by plastic spacers – known as Quad-Spacers. As a result, these guidance systems run with less noise than full complement variants.

One Quad-Spacer accommodates two rolling elements each from the compressive and tensile raceway. Since the Quad-Spacers are not connected chain elements, bending and tensile stresses are eliminated, particularly in the return area.

Figure 1
Quad-Spacers



Four-row linear recirculating ball bearing and guideway assemblies

Load carrying capacity

The rows of balls are in two point contact, in an O arrangement and at a contact angle of 45° in relation to the raceways.

The units can support forces from all directions – except in the direction of motion – and moments about all axes, *Figure 2*.

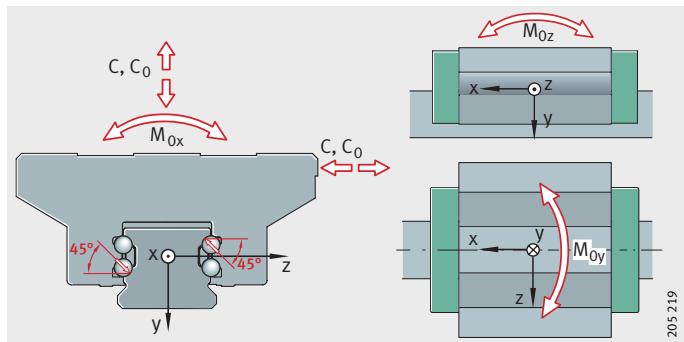


Figure 2

Load carrying capacity and contact angle

Carriages

The carriages are supplied in numerous variants. They have saddle plates with hardened and precision ground rolling element raceways, in which the balls are recirculated by means of enclosed channels and plastic return elements.

A generous grease reservoir is provided by means of favourably positioned lubricant pockets in the carriage; see Lubrication, page 237.

Guideways

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

Located from above or below

Guideways TKVD.. (-ADB, -ADB+K) and TKVD..-W are located from above. The through holes have counterbores for the fixing screws. Guideways TKVD..-U are located from below by means of threaded blind holes.

Clamping lugs and clamping strips are used for the location of guideways TKVD..-K.

With helical teeth

Guideways TKVD..-ZHP have right hand helical teeth on the underside and are located from the lateral side.

In the variant TKVD..-ZHST+SVS, the standard guideway is combined with a toothed rack. In this case, the helical teeth are arranged on the lateral face.

Slot for covering strip

Guideways TKVD..-ADB have a slot for an adhesive bonded steel covering strip (ADB) and guideways TKVD..-ADB+K have a slot with undercut for a clip fit steel covering strip (ADB+K).

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 pieces; see page 252.

Sealing

Elastic end wipers are fitted to the end pieces of the carriages on both sides to retain the lubricant within the system.

Standard sealing strips as well as additional optional upper sealing strips ensure reliable sealing and protect the rolling element system against contamination, even in demanding environmental conditions, *Figure 3*.

Attention!

If the contamination conditions are exceptionally severe, please contact us.

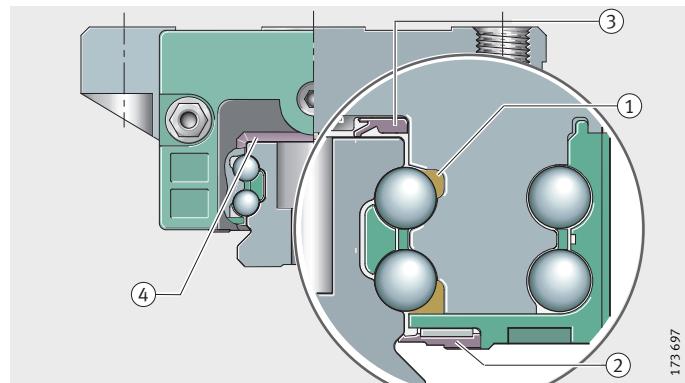
Lubrication

Linear recirculating ball bearing and guideway assemblies KUVE..-B and KUVE..-B-KT are suitable for oil and grease lubrication and the systems are supplied with initial greasing. They are lubricated via the lubrication nipple in the end piece (on the end face or from the side). The end face lubrication nipple is included in the delivery. Lubrication nipples for relubrication from the side are available by agreement.

Due to the integral lubricant reservoir in the carriages, the units have extended relubrication intervals, *Figure 3*. Depending on the application, they may also give maintenance-free operation.

- ① Integral lubricant pockets with grease reservoir
- ② Standard sealing strip
- ③ Optional sealing strip
- ④ Elastic wipers on end faces

Figure 3
Lubricant reservoir
and sealing



Operating temperature

Four-row linear recirculating ball bearing and guideway assemblies can be used at operating temperatures from -10°C to $+100^{\circ}\text{C}$.

Four-row linear recirculating ball bearing and guideway assemblies

Standard accessories

Plastic dummy guideway

The dummy guideway prevents damage to the rolling element set if the carriage is removed from the guideway.

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

Plastic closing plugs

The plugs close off the counterbores of the guideway holes flush with the surface of the guideway.

Optionally, brass closing plugs are also available, see Accessories, page 344.

Lubrication connectors

One lubrication nipple is included loose in the delivery.

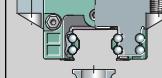
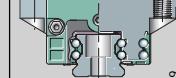
The lateral relubrication holes are open. Once the lubrication nipple provided for this purpose is screwed in, the guidance systems can be supplied with lubricant. For protection, the holes are closed off by means of a grub screw.

Corrosion-resistant designs

Four-row linear recirculating ball bearing and guideway assemblies KUVE are also available in corrosion-resistant designs with the special coatings Corrotect®, Protect A and Protect B; for a description of the coatings, see page 53 to page 58.

For applications with Corrotect®, please contact us.

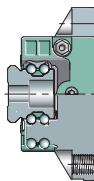
Suffixes for Corrotect®-coated parts

With Corrotect® coating	Preassembled unit Guideway only coated	Carriage and guideway separate Carriage or guideway coated	Preassembled unit Carriage and guideway coated
			
205229	RRFT	205228	205229
Suffix	RRF	RRF	RRF

Suffixes Suffixes for available designs: see table.

Available designs

Suffix	Description
–	Standard carriage
EC	Short carriage
ESC	Short, narrow carriage
H	High carriage
HL	High, long carriage
L	Long carriage
N	Low carriage
NL	Low, long carriage
S	Narrow carriage
SL	Narrow, long carriage
SN	Narrow, low carriage
SNL	Narrow, low, long carriage
W	Wide carriage
WL	Wide, long carriage
SB	High carriage with lateral threaded fixing holes



Four-row linear recirculating ball bearing and guideway assemblies

Design and safety guidelines

Preload

Four-row linear recirculating ball bearing and guideway assemblies are available in preload classes V1 and V2, see table.

Preload classes

Preload class ¹⁾	Preload setting	Suitable for
V1 ²⁾	$0,04 \cdot C$	<input type="checkbox"/> Moderate load <input type="checkbox"/> High rigidity requirements <input type="checkbox"/> Moment load
V2	$0,1 \cdot C$	<input type="checkbox"/> High alternating load <input type="checkbox"/> Particularly high rigidity requirements <input type="checkbox"/> Moment load

¹⁾ Other preload classes available by agreement.

²⁾ Standard preload class.

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.

Friction

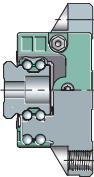
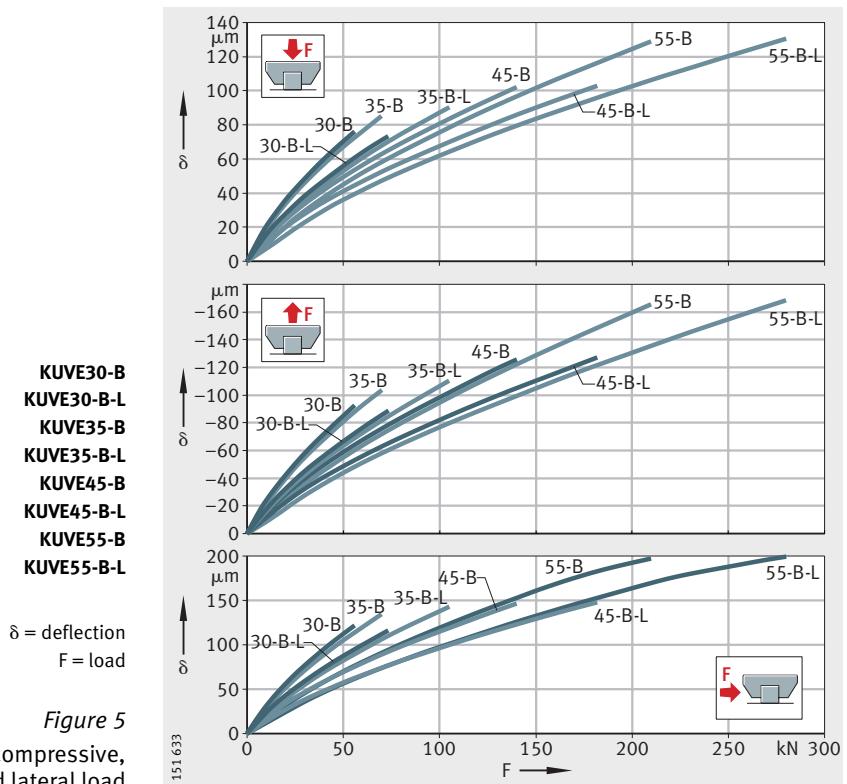
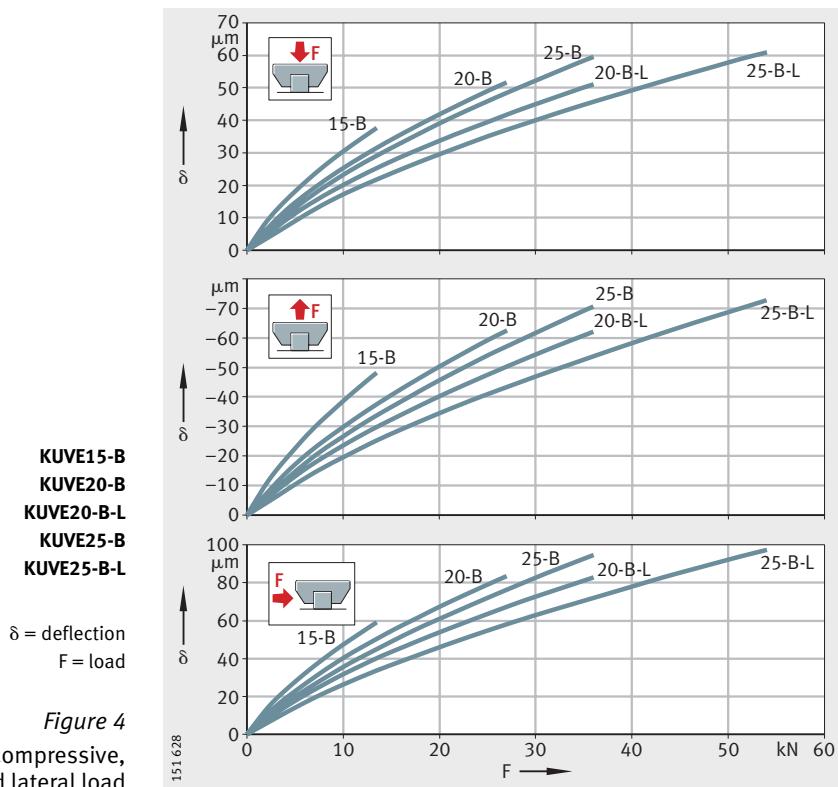
Coefficient of friction

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

Load C/P	Coefficient of friction μ_{KUVE}
4 to 20	0,0007 to 0,0015

Rigidity

The spring curves show the deformation of linear recirculating ball bearing and guideway assemblies including the deformation of the screw connections to the adjacent construction, *Figure 4*, page 241 to *Figure 21*, page 249.



Four-row linear recirculating ball bearing and guideway assemblies

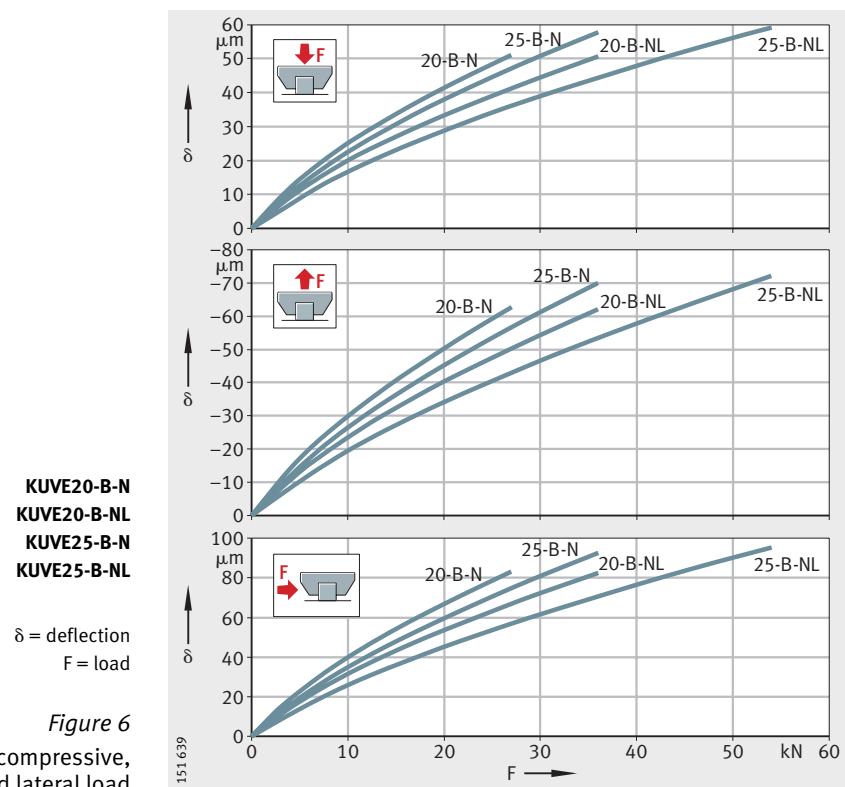


Figure 6
Spring curves for compressive,
tensile and lateral load

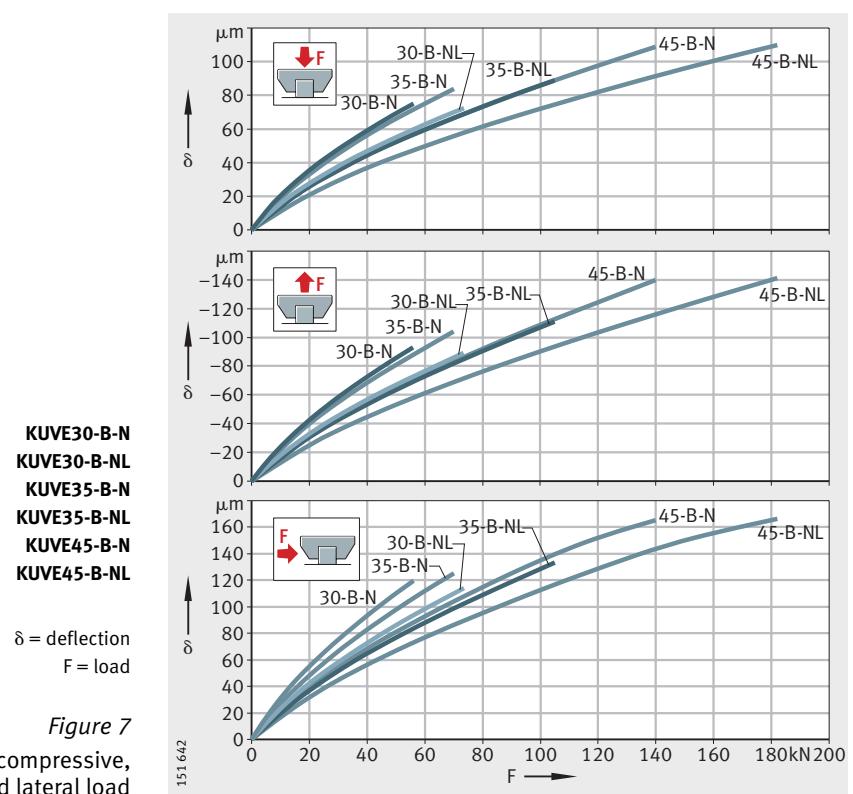
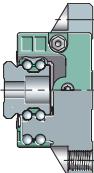
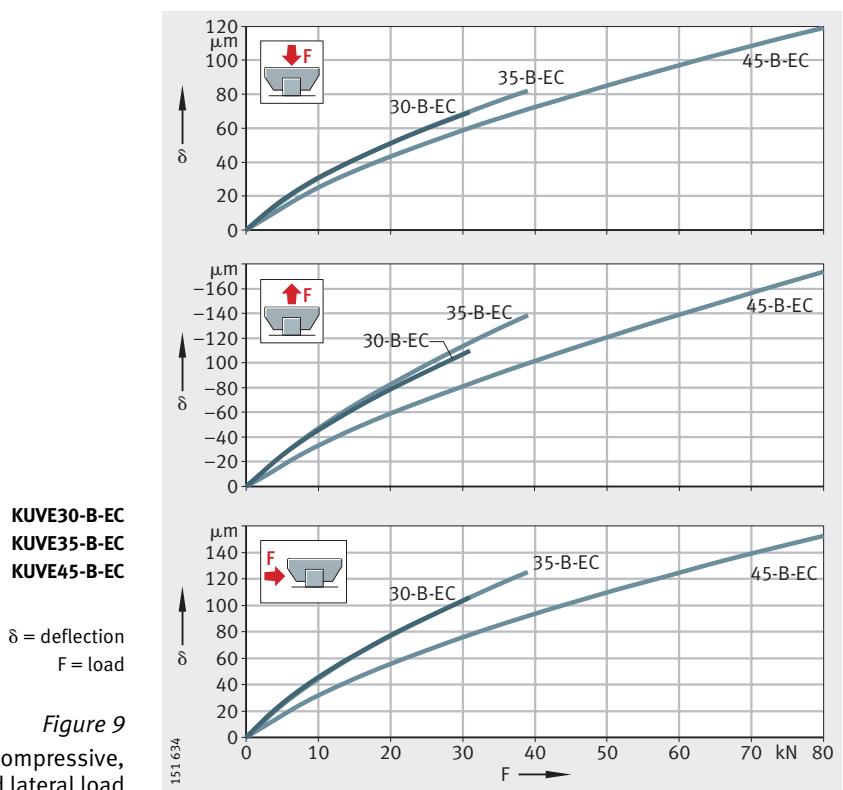
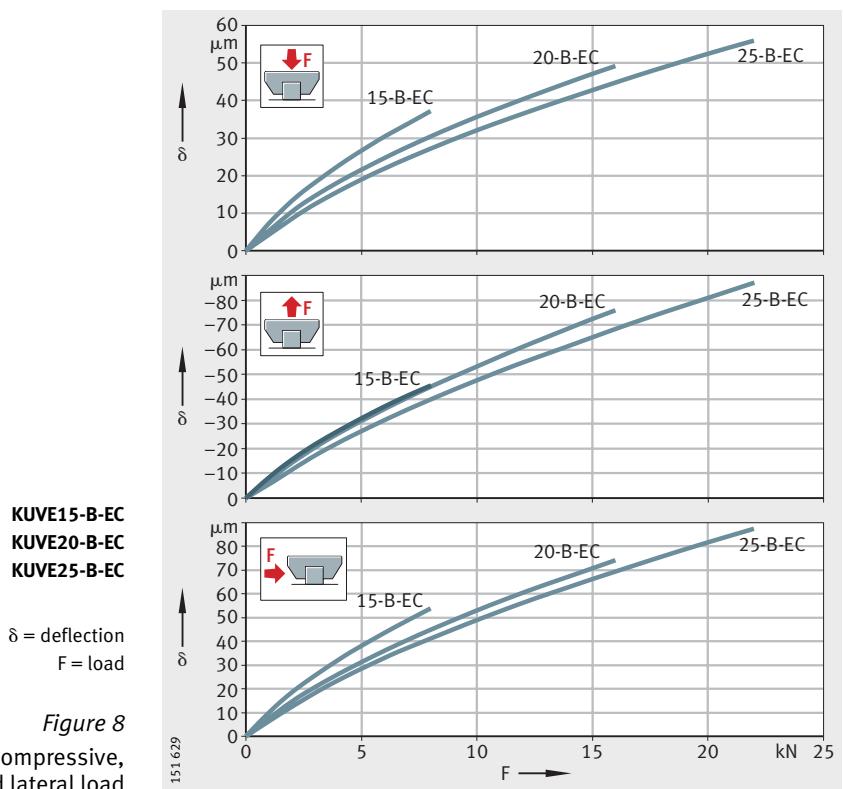


Figure 7
Spring curves for compressive,
tensile and lateral load



Four-row linear recirculating ball bearing and guideway assemblies

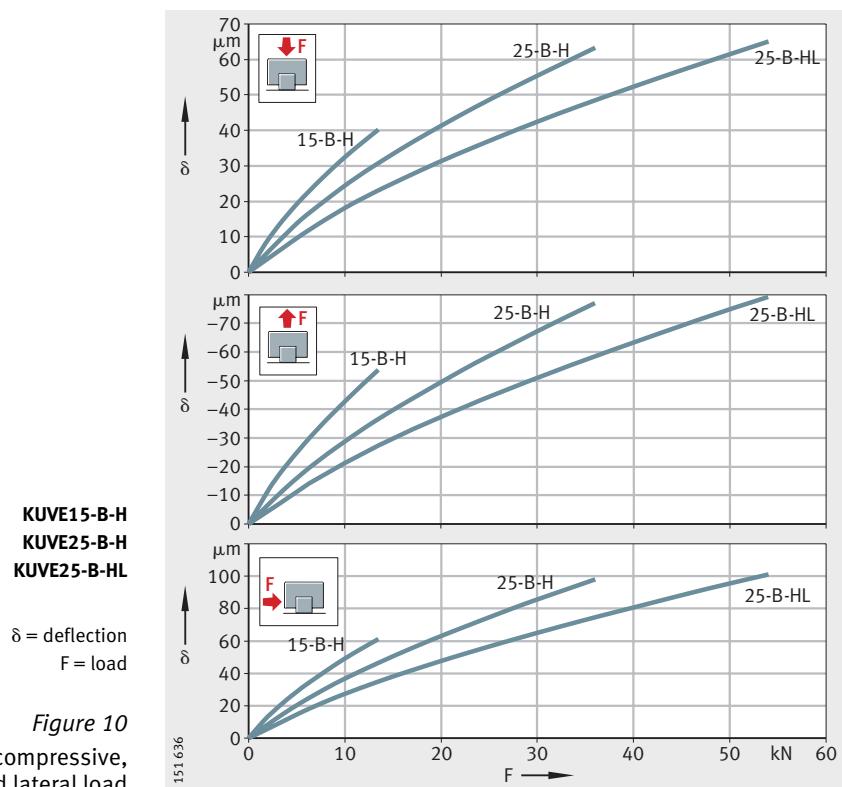


Figure 10
 Spring curves for compressive, tensile and lateral load

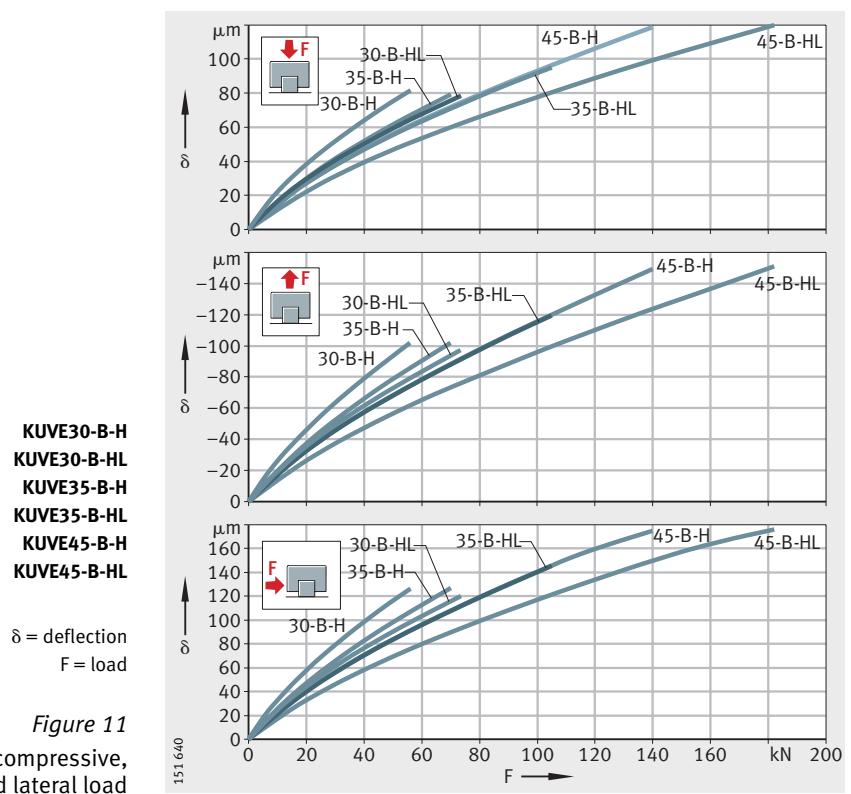


Figure 11
 Spring curves for compressive, tensile and lateral load

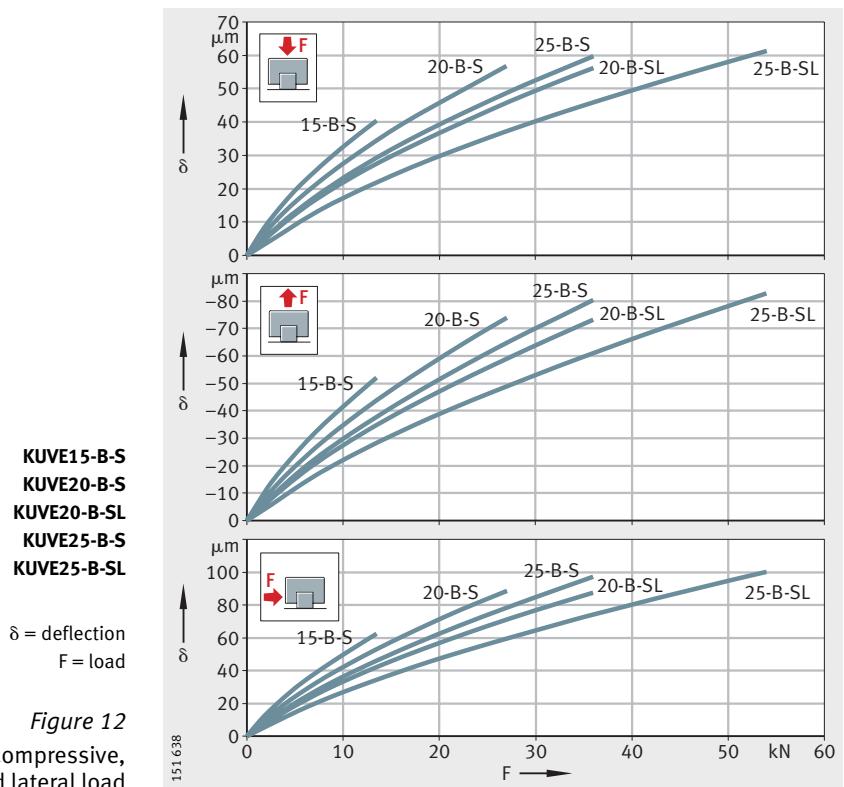


Figure 12
Spring curves for compressive,
tensile and lateral load

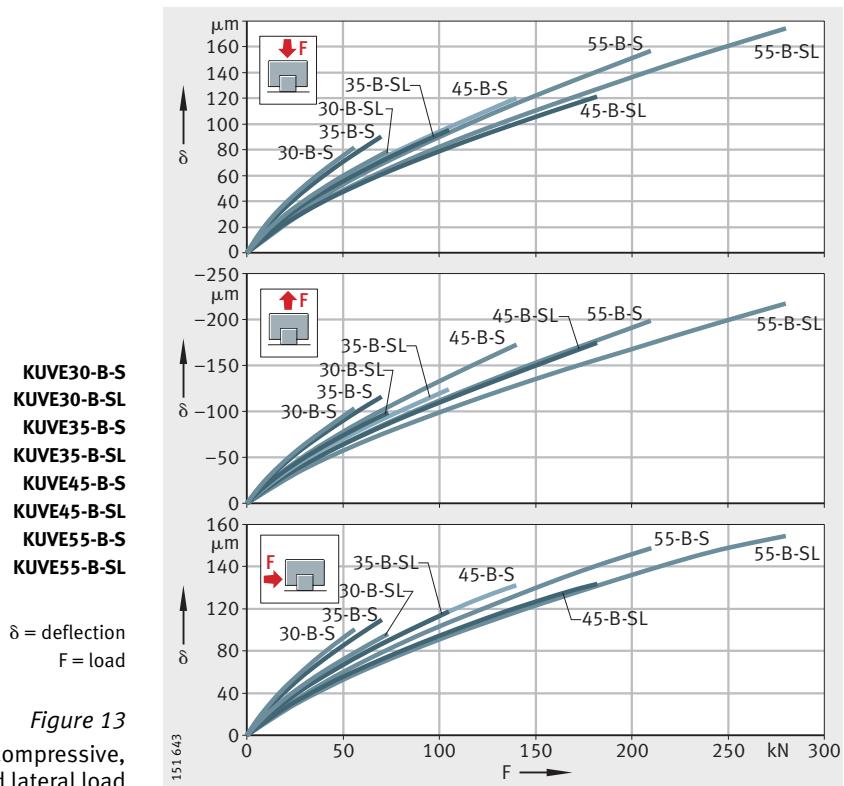
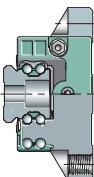


Figure 13
Spring curves for compressive,
tensile and lateral load

Four-row linear recirculating ball bearing and guideway assemblies

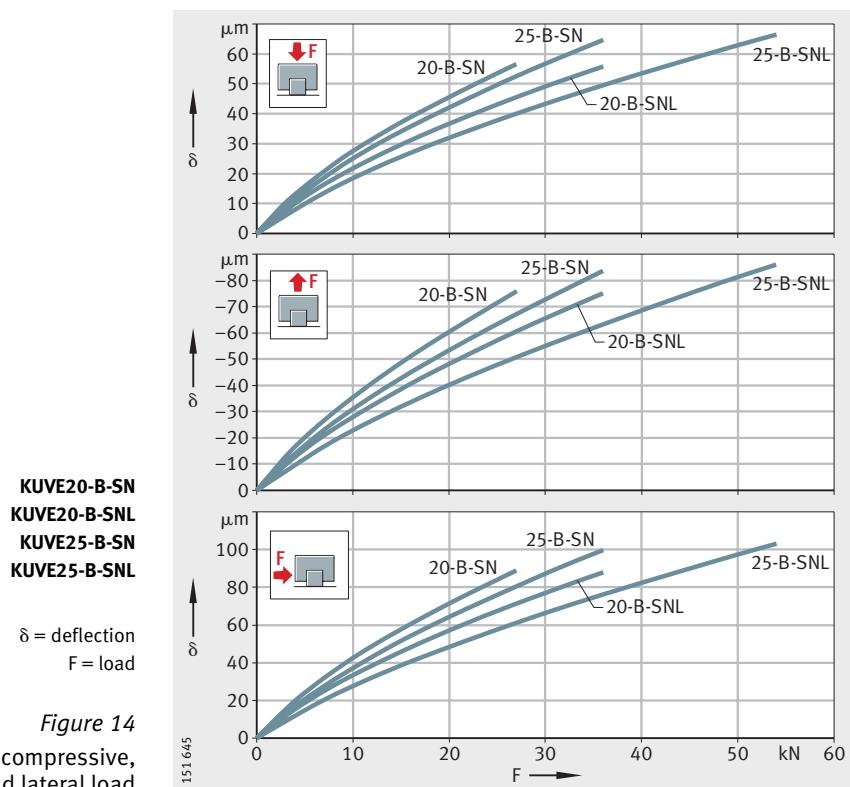


Figure 14
Spring curves for compressive, tensile and lateral load

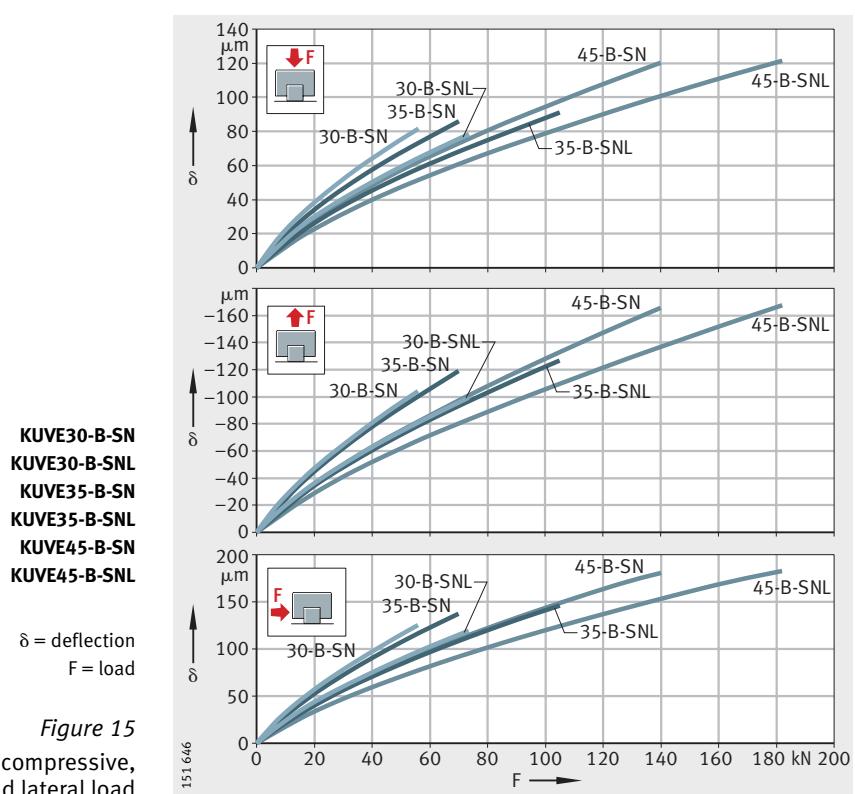


Figure 15
Spring curves for compressive, tensile and lateral load

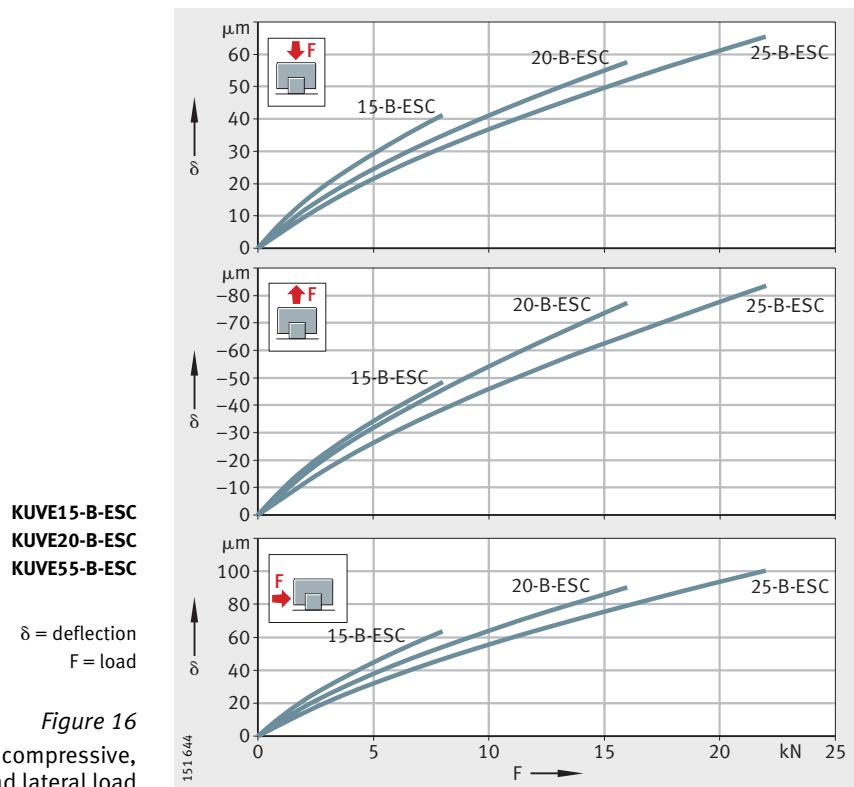


Figure 16
 Spring curves for compressive,
 tensile and lateral load

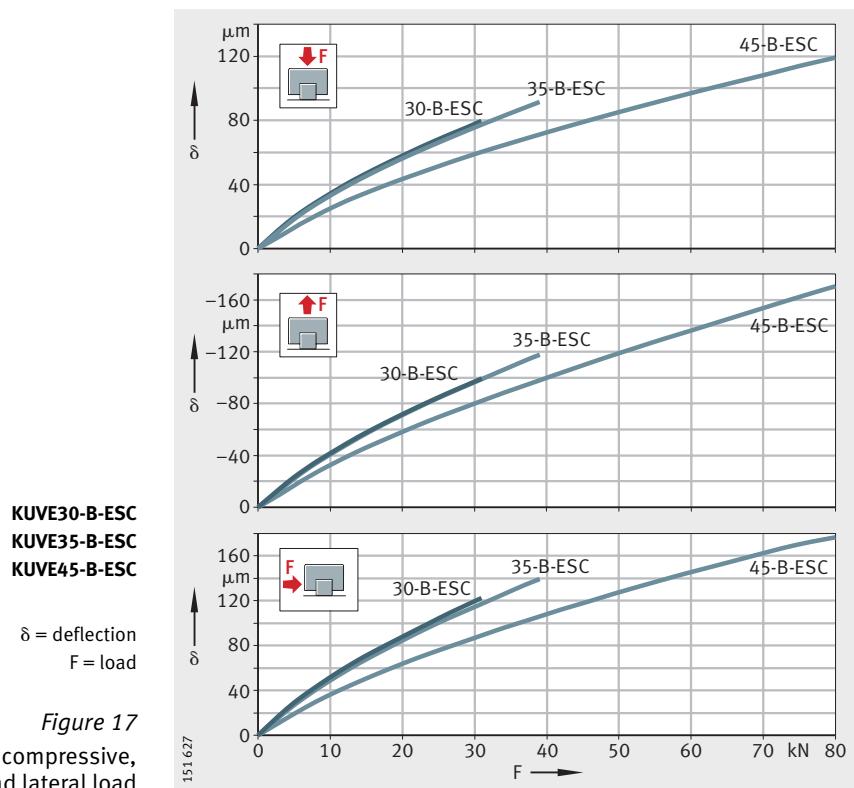
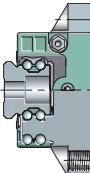


Figure 17
 Spring curves for compressive,
 tensile and lateral load



Four-row linear recirculating ball bearing and guideway assemblies

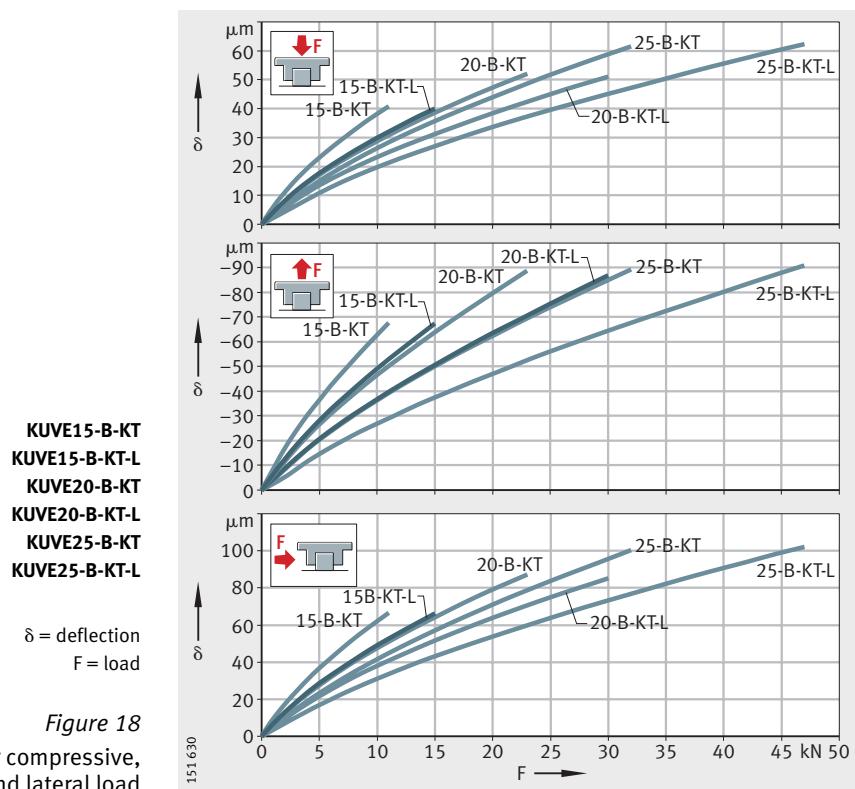


Figure 18
Spring curves for compressive, tensile and lateral load

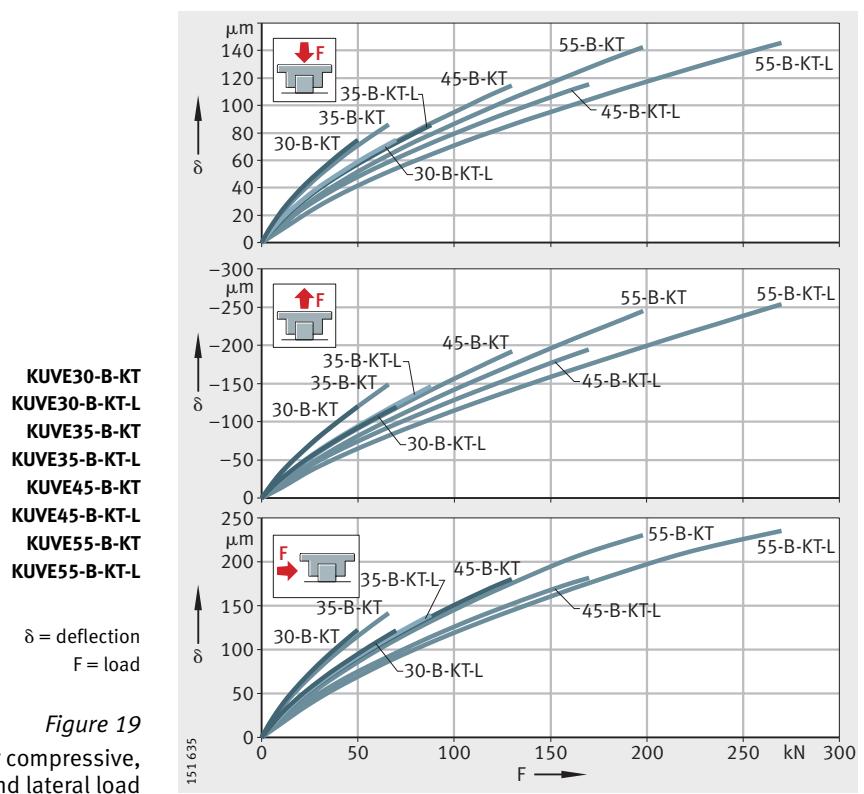
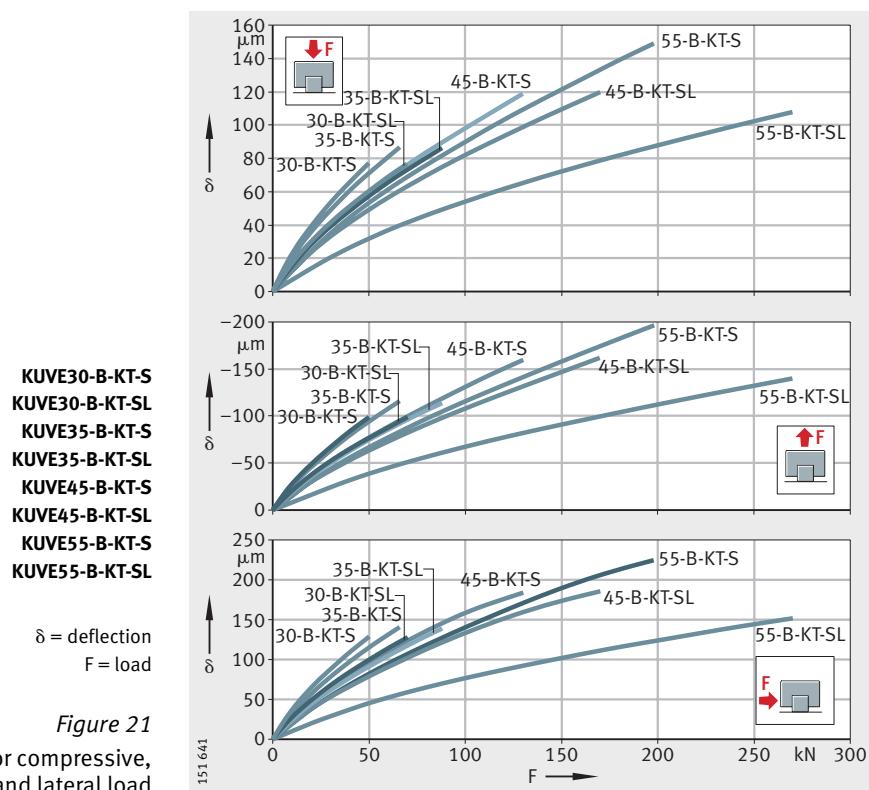
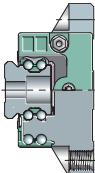
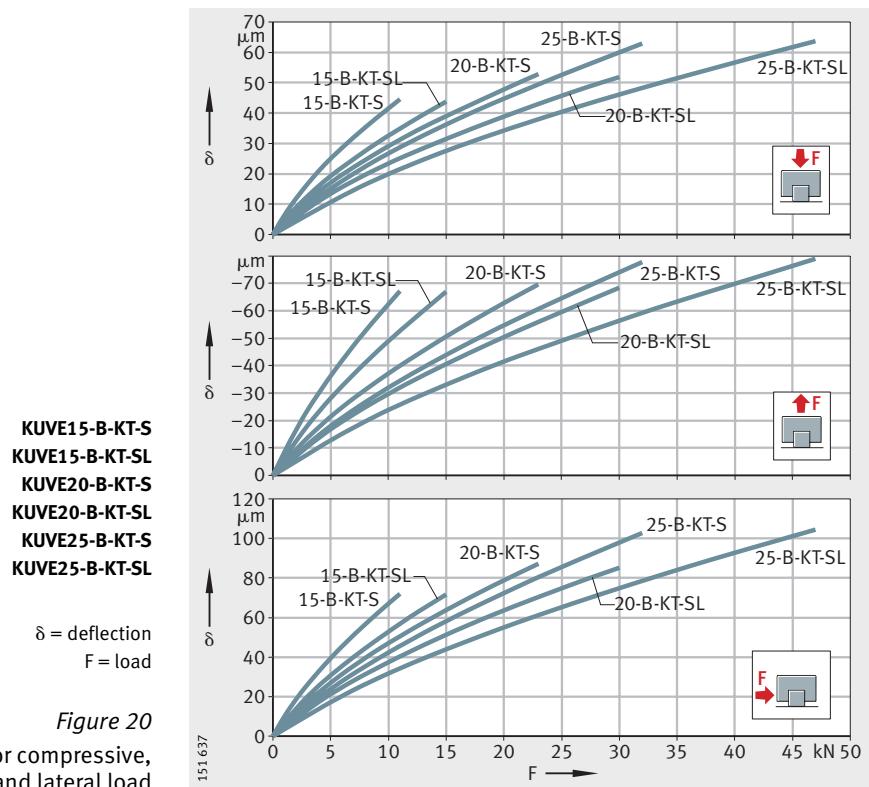


Figure 19
Spring curves for compressive, tensile and lateral load



Four-row linear recirculating ball bearing and guideway assemblies

Guideway hole patterns

Unless specified otherwise, the guideways have a symmetrical hole pattern, *Figure 22*.

An asymmetrical hole pattern may be available at customer request. In this case, $a_L \geq a_{L\min}$ and $a_R \geq a_{R\min}$, *Figure 22*.

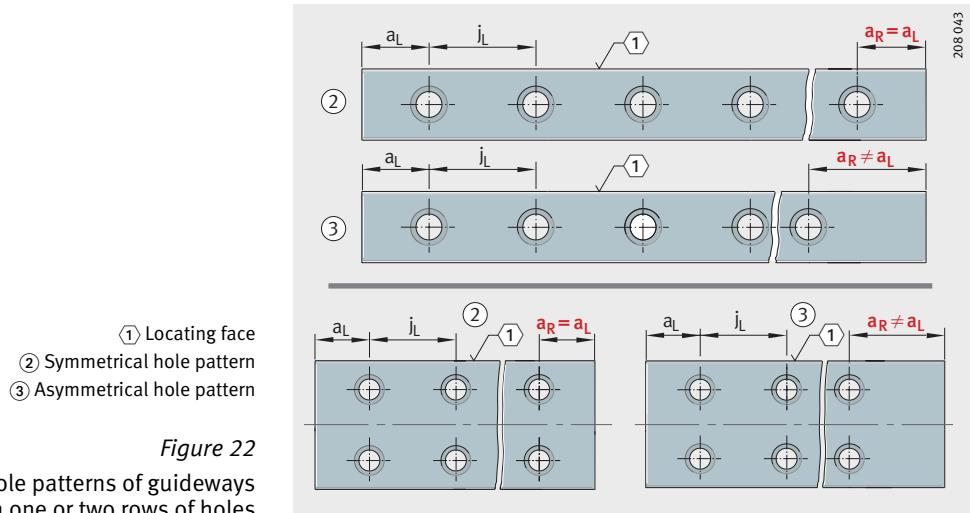


Figure 22

Hole patterns of guideways with one or two rows of holes

Maximum number of pitches between holes

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

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

The distances a_L and a_R are generally determined by:

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

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

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 dimension tables

l mm

Guideway length

n –

Maximum possible number of hole pitches

j_L mm

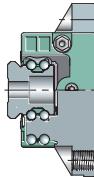
Distance between holes

x –

Number of holes.

Attention!

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



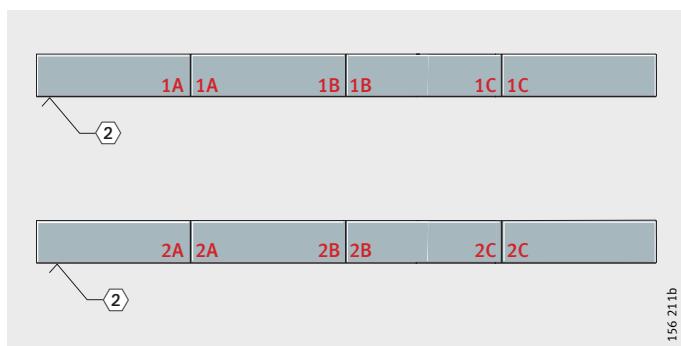
Four-row linear recirculating ball bearing and guideway assemblies

Multi-piece guideways

If the guideway length required is greater than l_{max} according to the dimension tables, these guideways are made up from individual pieces that together comprise the total required length. The individual pieces are matched to each other and marked, *Figure 23*.

② Marking
Guideway pieces:
1A, 1A
1B, 1B
1C, 1C
2A, 2A
2B, 2B
2C, 2C

Figure 23
Marking of multi-piece guideways



156 211b

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 is only achieved when the 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 contact us.

Geometrical and positional accuracy of the mounting surfaces

Attention!

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 according to *Figure 24*, page 253 and table Values for parallelism tolerances t , page 254 must be observed.

Surfaces should be ground or precision milled – with the aim of achieving a mean roughness value $R_a 1,6$.

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

Height difference ΔH

For ΔH , permissible values are in accordance with the following formula. If larger deviations are present, please contact us.

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

ΔH μm
Maximum permissible deviation from the theoretically precise position, *Figure 24*, page 253

a –
Factor dependent on preload class, see table

b mm
Centre distance between guidance elements.

Factor a

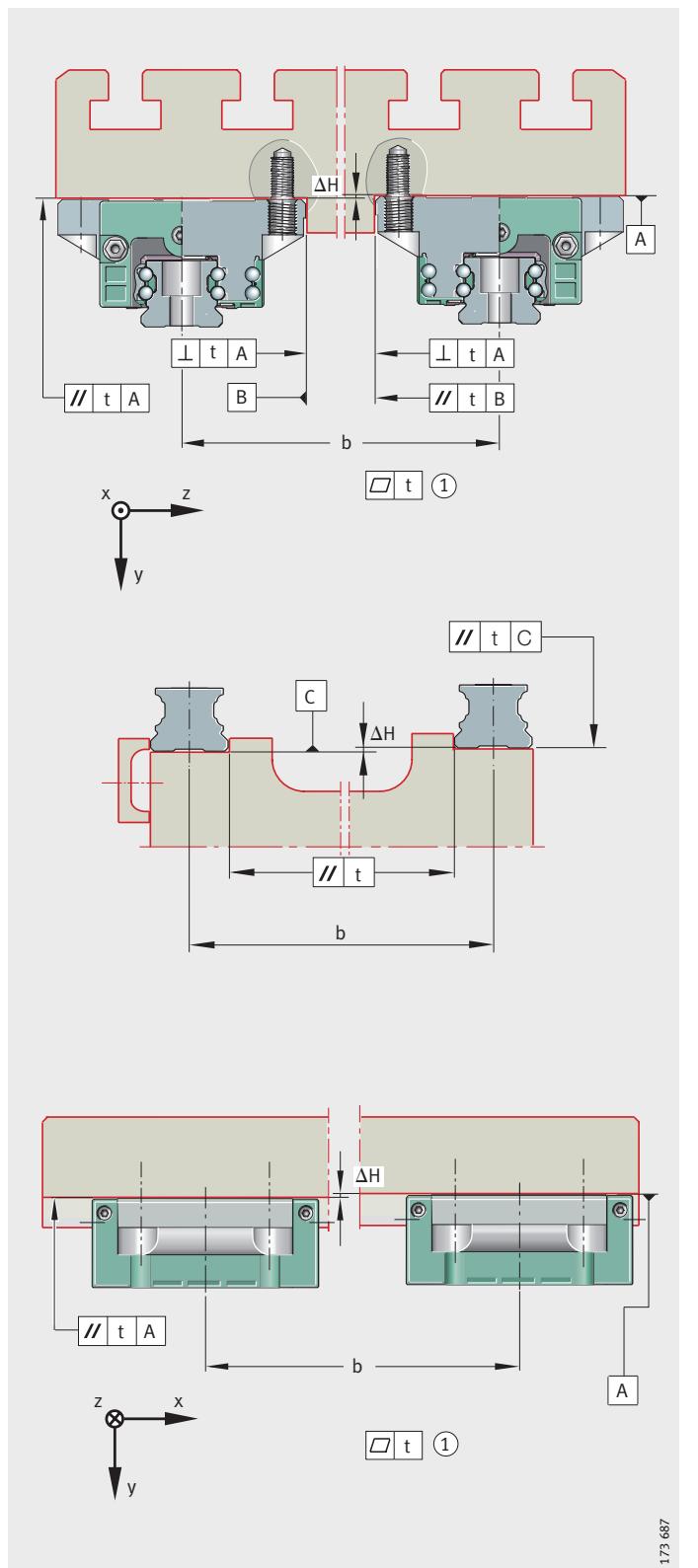
Preload class	Factor a
V1 ¹⁾	0,2
V2	0,1

¹⁾ Standard preload class.

① Not convex
(for all machined surfaces)

Figure 24

Tolerances of mounting surfaces
and parallelism
of mounted guideways



Four-row linear recirculating ball bearing and guideway assemblies

Parallelism of mounted guideways

For guideways arranged in parallel, the parallelism t should be in accordance with *Figure 24*, page 253 and table. If the maximum values are used, the displacement resistance may increase. If larger tolerances are present, please contact us.

Values for parallelism tolerances t

Guideway Designation	Preload class	
	V1	V2
	Parallelism tolerance t	μm
TKVD15-B (-U)	8	5
TKVD20 (-U)	9	6
TKVD25 (-U)	11	7
TKVD30 (-U)	13	8
TKVD35 (-U)	15	10
TKVD45 (-U)	17	12
TKVD55-B (-U)	20	14

Locating heights and corner radii

The locating heights and corner radii should be designed in accordance with table and *Figure 25*.

Locating heights, corner radii

Designation Four-row linear recirculating ball bearing and guideway assembly	Locating heights		Corner radii	
	h_1 mm	h_2 mm max.	r_1 mm max.	r_2 mm max.
KUVE15-B (-H, -S, -EC, -ESC)	4,5	3,5	1	0,5
KUVE15-B-KT (-L, -H, -HL, -S, -SL)	4,5	3,5	1	0,5
KUVE20-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -EC, -ESC)	5	4	1	0,5
KUVE20-B-KT (-L, -H, -HL, -S, -SL)	5	4	1	0,5
KUVE25-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -EC, -ESC)	5	4,5	1	0,8
KUVE25-B-KT (-L, -H, -HL, -S, -SL, -W, -WL)	5	4,5	1	0,8
KUVE30-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -EC, -ESC)	6	5	1	0,8
KUVE30-B-KT (-L, -H, -HL, -S, -SL)	6	5	1	0,8
KUVE35-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -EC, -ESC)	6,5	6	1	0,8
KUVE35-B-KT (-L, -H, -HL, -S, -SL)	6,5	6	1	0,8
KUVE45-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -EC, -ESC)	9	8	1	1
KUVE45-B-KT (-L, -H, -HL, -S, -SL)	9	8	1	1
KUVE55-B (-L, -S, -SL)	12	10	1	1,5
KUVE55-B-KT (-L, -S, -SL)	12	10	1	1,5

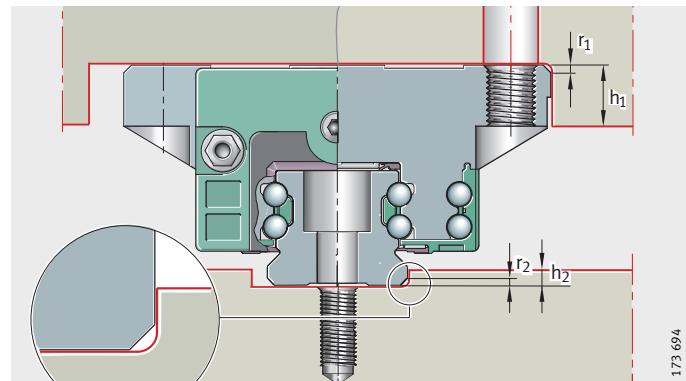


Figure 25

Locating heights and corner radii

Four-row linear recirculating ball bearing and guideway assemblies

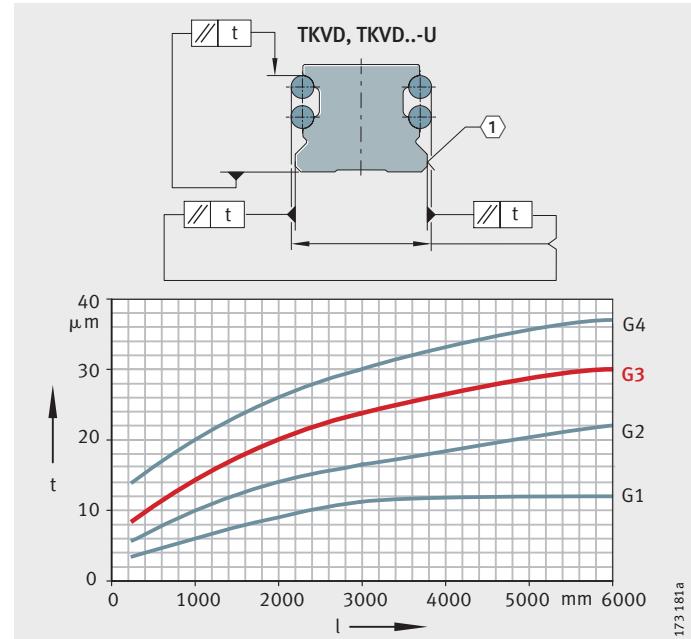
Accuracy Accuracy classes

Four-row linear recirculating ball bearing and guideway assemblies are available in accuracy classes G1 to G4, *Figure 26*. The standard is class G3.

t = parallelism tolerance with differential measurement
 l = total guideway length
① Locating face

Figure 26
Accuracy classes
and parallelism tolerances
of guideways

Parallelism of raceways to locating surfaces



The parallelism tolerances of guideways are shown in *Figure 26*. In systems with Corrotect® coating, there may be deviations in tolerances compared with uncoated units.

Tolerances

Tolerances: see table Accuracy class tolerances, reference dimensions for accuracy: see *Figure 27*.

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 A₁ (table Accuracy class tolerances) should always remain within the tolerance irrespective of the position of the carriage on the guideway.

Accuracy class tolerances

Tolerance	Accuracy			
	G1 μm	G2 μm	G3 ¹⁾ μm	G4 μm
Tolerance for height H	±10	±20	±25	±80
Height difference ²⁾ ΔH	5	10	15	20
Tolerance for spacing A ₁	±10	±15	±20	±80
Spacing difference ²⁾ ΔA ₁	7	15	22	30

¹⁾ Standard accuracy class.

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

Units with coating

For these units, the values for the appropriate accuracy class must be increased by the values (dependent on the coating); for values see table.

Tolerances for coated parts

Tolerance	With Corrotect® coating		With Protect A coating KD μm	With Protect B coating KDC μm
	RRF ¹⁾ μm	RRFT ²⁾ μm		
Tolerance for height H	+6	+3	+6	+6
Height difference ³⁾ ΔH	+3	0	+3	+3
Tolerance for spacing A ₁	+3	+3	+3	+3
Spacing difference ³⁾ ΔA ₁	+3	0	+3	+3

¹⁾ Displacement in tolerance zone (guideway and carriage coated).

²⁾ Displacement in tolerance zone (guideway only coated).

³⁾ Difference between several carriages on one guideway, measured at the same point on the guideway.

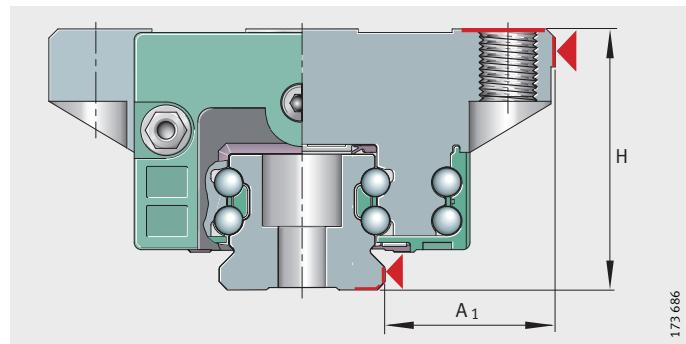
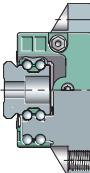


Figure 27

Datum dimensions for accuracy



Four-row linear recirculating ball bearing and guideway assemblies

Height sorting 2S

Where guidance systems are subject to particularly high accuracy requirements, it is possible to restrict the height tolerance by specific sorting.

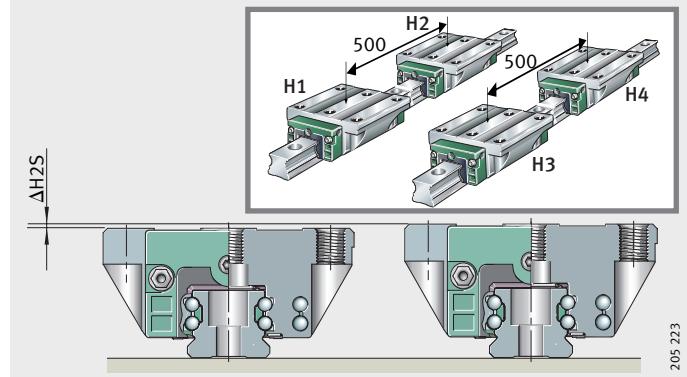


Figure 28
Height sorting 2S

Height difference in 2S

Accuracy	G1 μm	G2 μm	G3 μm	
Height difference	$\Delta H2S^1)$	10	20	25

¹⁾ Measured at the centre of the guideway.

The height tolerance of the carriages in sorting by sets comprises the height difference ΔH or $\Delta H2S$ and the parallelism deviation of the raceways as a function of length.

Positional and length tolerances of guideways

The positional and length tolerances are shown in *Figure 29*, *Figure 30* and table.

The hole pattern corresponds to DIN ISO 1101.

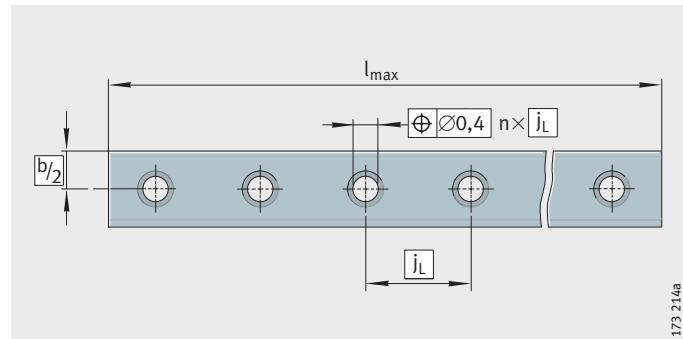


Figure 29

Positional and length tolerances of guideways with one row of holes

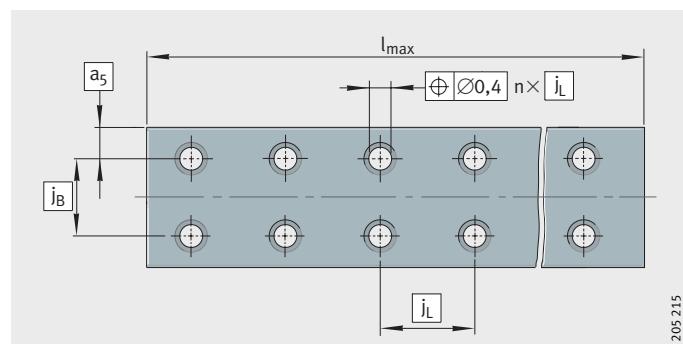


Figure 30

Positional and length tolerances of guideways with two rows of holes

Length tolerances of guideways

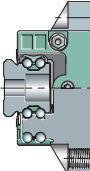
Tolerances			
of guideways, as a function of length l_{max} ¹⁾			on multi-piece guideways
Guideway length mm			mm
≤1000	>1000 <3000	>3000	
-1	-1,5	±0,1% of guideway length	±3 over total length

¹⁾ Length l_{max} : see dimension tables.

Pieces of joined guideways

Guideway length ¹⁾ mm	Maximum permissible number of pieces
<3 000	2
3 000 – 4 000	3
4 000 – 6 000	4
>6 000	4 + 1 piece per 1 500 mm

¹⁾ Minimum length of one piece = 600 mm.

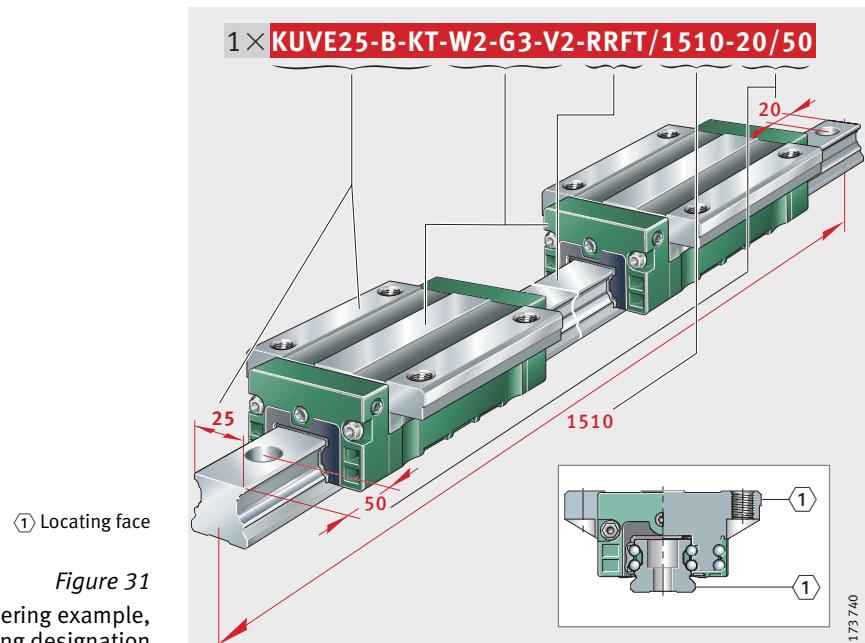


Four-row linear recirculating ball bearing and guideway assemblies

Ordering example, ordering designation Unit, guideway with asymmetrical hole pattern

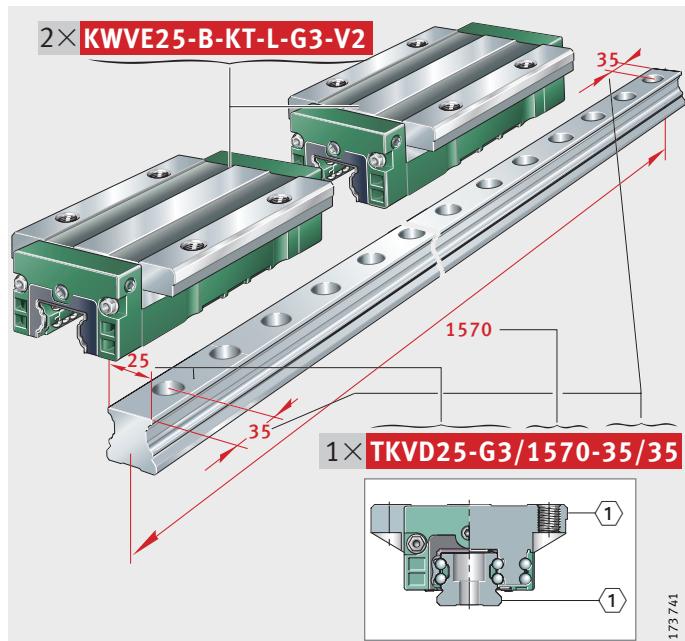
Linear ball bearing and guideway assembly with two carriages per guideway	KUVE
Size	25
Carriage type, with Quad-Spacers	B-KT
Number of carriages per unit	W2
Accuracy class	G3
Preload class	V2
Guideway with Corrotect® coating	RRFT
Guideway length	1 510 mm
a_L	20 mm
a_R	50 mm

Ordering designation 1×KUVE25-B-KT-W2-G3-V2-RRFT/1510-20/50, Figure 31



Carriage and guideway separate, guideway with symmetrical hole pattern

Carriage	Carriage for four-row linear ball bearing and guideway assembly	KWVE
Size	25	
Carriage type, long carriage, with Quad-Spacers	B-KT-L	
Accuracy class	G3	
Preload class	V2	
Ordering designation	2×KWVE25-B-KT-L-G3-V2, Figure 32	
Guideway	Guideway for carriage	TKVD
Size	25	
Accuracy class	G3	
Guideway length	1 570 mm	
a_L	35 mm	
a_R	35 mm	
Ordering designation	1×TKVD25-G3/1570-35/35 , Figure 32	



Four-row linear recirculating ball bearing and guideway assemblies

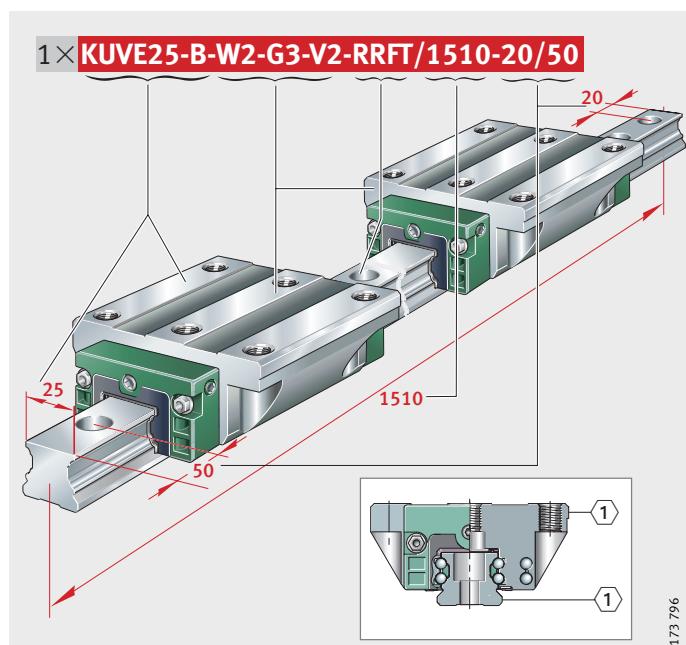
Unit, guideway with asymmetrical hole pattern

Linear ball bearing and guideway assembly with two carriages per guideway	KUVE
Size	25
Carriage type, full complement	B
Number of carriages per unit	W2
Accuracy class	G3
Preload class	V2
Guideway with Corrotect® coating	RRFT
Guideway length	1 510 mm
a_L	20 mm
a_R	50 mm

Ordering designation

1×KUVE25-B-W2-G3-V2-RRFT/1510-20/50, Figure 33

① Locating face
Figure 33
Ordering example,
ordering designation



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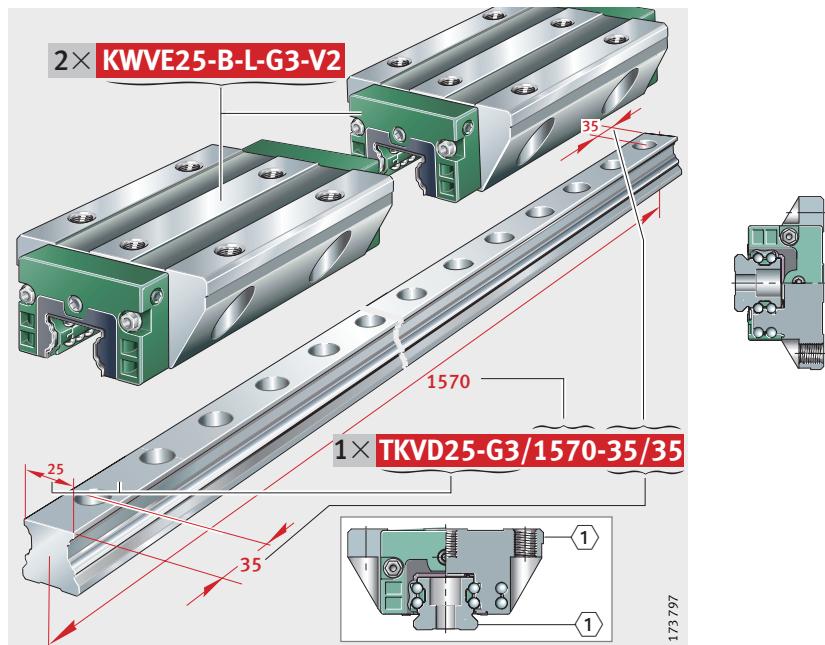
Carriage and guideway separate, guideway with symmetrical hole pattern

Carriage	Carriage for four-row linear ball bearing and guideway assembly	KWVE
Size	25	
Type, long carriage	B-L	
Accuracy class	G3	
Preload class	V2	
Ordering designation	2×KWVE25-B-L-G3-V2, Figure 34	
Guideway	Guideway for carriage	TKVD
Size	25	
Accuracy class	G3	
Guideway length	1 570 mm	
a_L	35 mm	
a_R	35 mm	
Ordering designation	1×TKVD25-G3/1570-35/35	

① Locating face

Figure 34

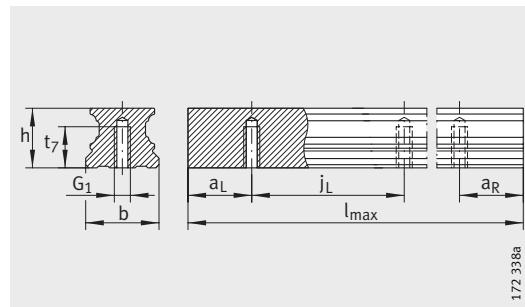
Ordering example, ordering designation



173797

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
Standard, L, N and NL carriages



TKVD..-U

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions										$a_L, a_R^{2)}$	H_1	H_4	
	$l_{max}^{1)}$	H	B	L	A ₁	J _B	b	A ₂	L ₁	J _L	J _{LZ}	j _L	min.	max.				
KUVE15-B	1 200	24	47	59,6	16	38	15	4,5	39,8	30	26	60	20	53	4,3	7,6		
KUVE20-B	2 960	30	63	69,8	21,5	53	20	5	50,4	40	35	60	20	53	4,5	11	8,6	
KUVE20-B-L				87,3					67,9									
KUVE20-B-N				69,8					50,4									
KUVE20-B-NL				87,3					67,9									
KUVE25-B	2 960	36	70	81,7	23,5	57	23	6,5	60,7	45	40	60	20	53	5,1	10,9	9,3	
KUVE25-B-L				107,5					86,5									
KUVE25-B-N				81,7					60,7									
KUVE25-B-NL				107,5					86,5									
KUVE30-B	2 960	42	90	97,4	31	72	28	9	72	52	44	80	20	71	5,9	13,8	9,8	
KUVE30-B-L				125,4					100									
KUVE30-B-N				97,4					72									
KUVE30-B-NL				125,4					100									
KUVE35-B	2 960	48	100	110,4	33	82	34	9	80	62	52	80	20	71	6,7	14,3	10,3	
KUVE35-B-L				143,4					113									
KUVE35-B-N				110,4					80									
KUVE35-B-NL				143,4					113									
KUVE45-B	2 940	60	120	139	37,5	100	45	10	102,5	80	60	105	20	94	9,7	19,9	17,2	
KUVE45-B-L				171,1					134,6									
KUVE45-B-N				139					102,5									
KUVE45-B-NL				171,1					134,6									
KUVE55-B	2 520	70	140	172	43,5	116	53	12	132	95	70	120	20	107	13,5	22,7		
KUVE55-B-L				210					170									

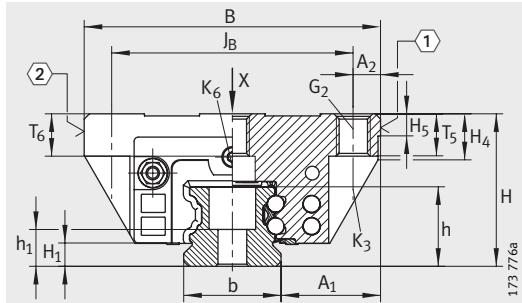
For further table values, see page 266 and page 267.

¹⁾ Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

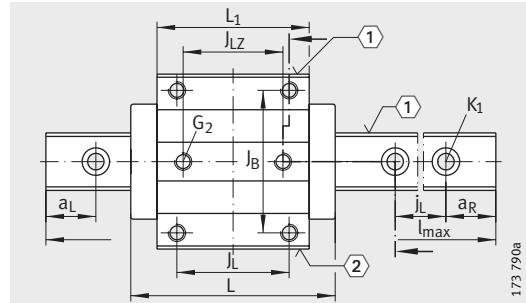
²⁾ a_L and a_R are dependent on the guideway length.

³⁾ If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

⁴⁾ ① Locating face
② Marking



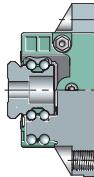
KUVE..-B (-L, -N, -NL)
①, ② 4)



KUVE..-B (-L, -N, -NL) · View rotated 90°
①, ② 4)

Fixing screws³⁾

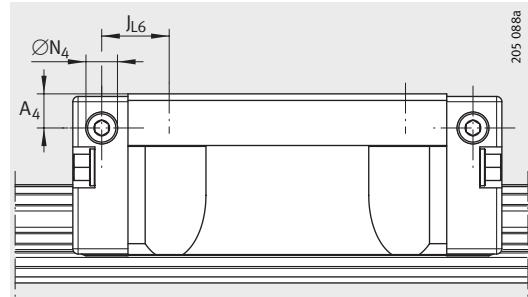
H ₅	T ₅	T ₆	t ₇	h	h ₁	G ₁ DIN ISO 4 762-12.9		G ₂ DIN ISO 4 762-12.9		K ₁		K ₃		K ₆		K ₆ DIN 7984-8.8	
							M _A Nm		M _A Nm		M _A Nm		M _A Nm		M _A Nm		
4,75	7	5,8	8	15	8,15	M5	10	M5	5,8	M4	5	M4	5	—	—	M4	2
5,25	10	7,5	10	17	9,1	M6	17	M6	10	M5	10	M5	10	M5	10	—	—
	8	6										M5	10	—	—	M5	4
5,25	10	10	12	18,7	8,7	M6	17	M8	24	M6	17	M6	17	M6	17	—	—
	8	8										—	—	M6	8	—	—
6,25	12	11,5	15	23,5	11,5	M8	41	M10	41	M8	41	M8	41	M8	41	—	—
	9	9										—	—	M8	12	—	—
6,75	13	12,3	15	27	15	M8	41	M10	41	M8	41	M8	41	M8	41	—	—
	8,3	8,3										—	—	M8	12	—	—
9,25	15	15	20	34,2	16,2	M12	140	M12	83	M12	140	M10	83	M10	83	—	—
	11	11										—	—	M10	35	—	—
11,25	21	18	22	41,5	19,5	M14	220	M14	140	M14	220	M12	140	M12	140	—	—



Four-row linear recirculating ball bearing and guideway assemblies

Full complement

Standard, L, N and NL carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K ₂
KUVE15-B	KWVE15-B	0,2	TKVD15-B (-U) ²⁾	1,44	KA07-TN/A
KUVE20-B	KWVE20-B	0,44	TKVD20 (-U)	2,2	KA10-TN/A
KUVE20-B-L	KWVE20-B-L	0,59			
KUVE20-B-N	KWVE20-B-N	0,37			
KUVE20-B-NL	KWVE20-B-NL	0,51			
KUVE25-B	KWVE25-B	0,68	TKVD25(-U)	2,7	KA11-TN/A
KUVE25-B-L	KWVE25-B-L	1			
KUVE25-B-N	KWVE25-B-N	0,56			
KUVE25-B-NL	KWVE25-B-NL	0,82			
KUVE30-B	KWVE30-B	1,2	TKVD30(-U)	4,3	KA15-TN/A
KUVE30-B-L	KWVE30-B-L	1,7			
KUVE30-B-N	KWVE30-B-N	1			
KUVE30-B-NL	KWVE30-B-NL	1,5			
KUVE35-B	KWVE35-B	1,75	TKVD35(-U)	5,7	KA15-TN/A
KUVE35-B-L	KWVE35-B-L	2,52			
KUVE35-B-N	KWVE35-B-N	1,56			
KUVE35-B-NL	KWVE35-B-NL	2,23			
KUVE45-B	KWVE45-B	3,3	TKVD45(-U)	9,2	KA20-TN/A
KUVE45-B-L	KWVE45-B-L	4,3			
KUVE45-B-N	KWVE45-B-N	2,72			
KUVE45-B-NL	KWVE45-B-NL	3,38			
KUVE55-B	KWVE55-B	5,5	TKVD55-B(-U)	14	KA24-TN/A
KUVE55-B-L	KWVE55-B-L	6,6			

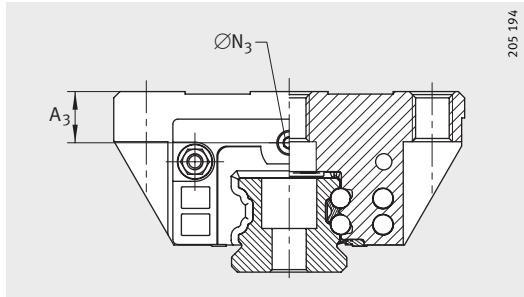
¹⁾ Calculation of basic load ratings in accordance with DIN 636.

Based on practical experience, it may be possible to increase the basic dynamic load rating.

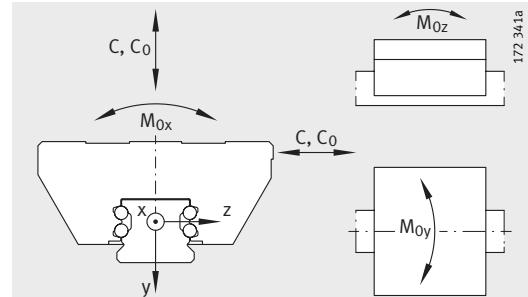
²⁾ The new carriages cannot be used on the previous guideways TKVD15(-U).

³⁾ Tapered head lubrication nipple to DIN 71 412-B M6,
KUVE20-B to DIN 71 412-B M5 and KUVE15-B to DIN 3 405-B M3, supplied loose with delivery.

⁴⁾ Maximum permissible screw depth for lubrication connectors.

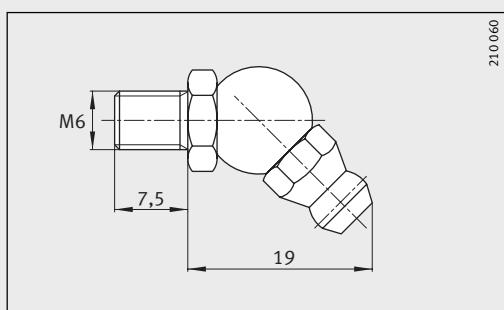
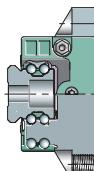


Lubrication connector on end face

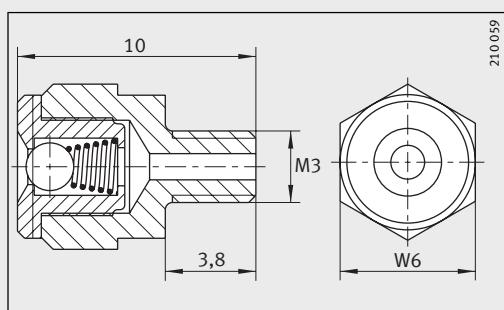


Load directions

Dimensioning of lubrication connectors						Load carrying capacity ¹⁾					
A ₃	ØN ₃		A ₄	ØN ₄		J _{L6}	Basic load ratings		Moment ratings		
	4)	4)		4)	4)		C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm
4,3	2,57	5,5	3,2	2,57	5,5	9,1	7 200	14 500	150	100	100
7,7	4,5	7	4,6	4,5	5,5	9,4	13 100	27 000	332	240	240
			18,9	16 200		18,9	16 200	36 500	452	430	430
	4,7	7	3,3	2,57		9,4	13 100	27 000	332	240	240
			18,9	16 200		18,9	16 200	36 500	452	430	430
11	5,5	7	6,5	5,6	7	12,85	17 900	37 000	510	395	395
			25,75	23 400		25,75	23 400	54 000	745	825	825
6	5,5	7	4	2,57	6	12,05	17 900	37 000	510	395	395
			24,95	23 400		24,95	23 400	54 000	745	825	825
11,5	5,5	7	7	5,5	7	15,5	27 500	55 000	970	660	660
			29,5	34 500		29,5	34 500	74 000	1 320	1 180	1 180
7,5	5,5	7	4,95	4,5		15,1	27 500	55 000	970	700	700
			29,1	34 500		29,1	34 500	74 000	1 310	1 240	1 240
12,3	5,5	7	11	5,5	7	16	38 000	72 000	1 465	1 020	1 020
			32,5			32,5	47 500	100 000	2 625	1 890	1 890
8,3	5,5	7	7	5,5	7	16	38 000	72 000	1 465	1 020	1 020
			32,5			32,5	47 500	100 000	2 025	1 890	1 890
16,5	5,5	7	16,5	5,5	7	19,25	69 000	141 000	3 610	2 485	2 485
			35,3			35,3	82 000	181 000	4 635	4 000	4 000
8,5	5,5	7	8,5	5,5	7	19,25	69 000	141 000	3 610	2 485	2 485
			35,5			35,5	82 000	181 000	5 635	4 000	4 000
15	5,5	7	15	5,5	7	30,5	104 000	213 000	5 600	2 730	2 730
						49,5	127 000	285 000	7 500	4 725	4 800



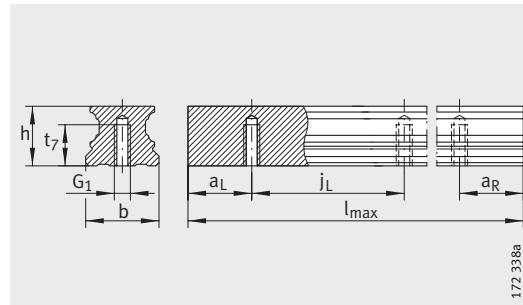
Lubrication nipple³⁾



Lubrication nipple³⁾,
width across flats W = 6 mm

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
H, S, SN carriages



TKVD..-U

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions											
	$l_{\max}^{1)}$	H	B	L	A ₁	J _B	b	A ₂	L ₁	J _L	j _L	a _L , a _R ²⁾	min.	max.		
KUVE15-B-H	1 200	28		34	59,6	9,5	26	15	4	39,8	26	60	20	53		
KUVE15-B-S		24														
KUVE20-B-H	2 960	30		44	69,8	12	32	20	6	50,4	36	60	20	53		
KUVE20-B-S																
KUVE20-B-SN		27														
KUVE25-B-H		40														
KUVE25-B-S	2 960	36		48	81,7	12,5	35	23	6,5	60,7	35	60	20	52		
KUVE25-B-SN		31														
KUVE30-B-H		45														
KUVE30-B-S	2 960	42		60	97,4	16	40	28	10	72	40	80	20	71		
KUVE30-B-SN		38														
KUVE35-B-H		55														
KUVE35-B-S	2 960	48		70	110,4	18	50	34	10	80	50	80	20	71		
KUVE35-B-SN		44														
KUVE45-B-H		70														
KUVE45-B-S	2 940	60		86	139	20,5	60	45	13	102,5	60	105	20	94		
KUVE45-B-SN		52														
KUVE55-B-S	2 520	70	100	172	23,5	75	53	12,5	132	75	120	20	107			

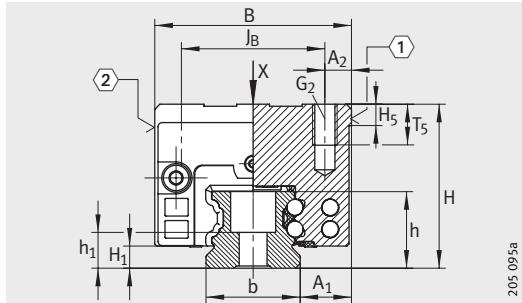
For further table values, see page 270 and page 271.

¹⁾ Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

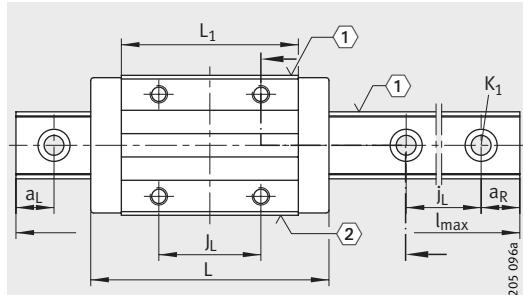
²⁾ a_L and a_R are dependent on the guideway length.

³⁾ If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

- ⁴⁾
① Locating face
② Marking

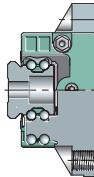


KUVE..-B (-H, -S, -SN)
①, ②⁴⁾



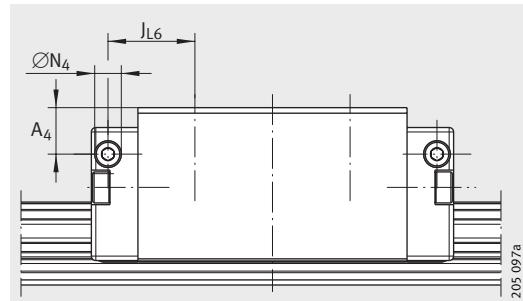
KUVE..-B (-H, -S, -SN) · View rotated 90°
①, ②⁴⁾

						Fixing screws ³⁾					
H ₁	H ₅	T ₅	t ₇	h	h ₁	G ₁		G ₂		K ₁	
						DIN ISO 4 762-12.9		M _A Nm	M _A Nm	M _A Nm	M _A Nm
4,3	4,75	6	8	15	8,15	M5	10	M4	5	M4	5
4,5	5,25	7,5	10	17	9,1	M6	17	M5	10	M5	10
5,1	5,25	10 7,5	12	18,7	8,7	M6	17	M6	17	M6	17
5,9	6,25	13,5 11	15	23,5	11,5	M8	41	M8	41	M8	41
6,7	6,75	13,5	15	27	15	M8	41	M8	41	M8	41
9,7	9,25	23,5 17 16,5	20	34,2	16,2	M12	140	M10	83	M12	140
13,5	11,25	15	22	41,5	19,6	M14	220	M12	140	M14	220



Four-row linear recirculating ball bearing and guideway assemblies

Full complement
H, S, SN carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K ₂
KUVE15-B-H	KWVE15-B-H	0,2	TKVD15-B (-U) ²⁾	1,44	KA07-TN/A
KUVE15-B-S	KWVE15-B-S	0,16			
KUVE20-B-H	KWVE20-B-H	0,34	TKVD20 (-U)	2,2	KA10-TN/A
KUVE20-B-S	KWVE20-B-S				
KUVE20-B-SN	KWVE20-B-SN	0,29			
KUVE25-B-H	KWVE25-B-H	0,65	TKVD25(-U)	2,7	KA11-TN/A
KUVE25-B-S	KWVE25-B-S	0,56			
KUVE25-B-SN	KWVE25-B-SN	0,45			
KUVE30-B-H	KWVE30-B-H	1,04	TKVD30(-U)	4,3	KA15-TN/A
KUVE30-B-S	KWVE30-B-S	0,94			
KUVE30-B-SN	KWVE30-B-SN	0,8			
KUVE35-B-H	KWVE35-B-H	1,71	TKVD35(-U)	5,7	KA15-TN/A
KUVE35-B-S	KWVE35-B-S	1,3			
KUVE35-B-SN	KWVE35-B-SN	1,24			
KUVE45-B-H	KWVE45-B-H	3,36	TKVD45(-U)	9,2	KA20-TN/A
KUVE45-B-S	KWVE45-B-S	2,67			
KUVE45-B-SN	KWVE45-B-SN	2,12			
KUVE55-B-S	KWVE55-B-S	4,35	TKVD55-B(-U)	14	KA24-TN/A

¹⁾ Calculation of basic load ratings in accordance with DIN 636.

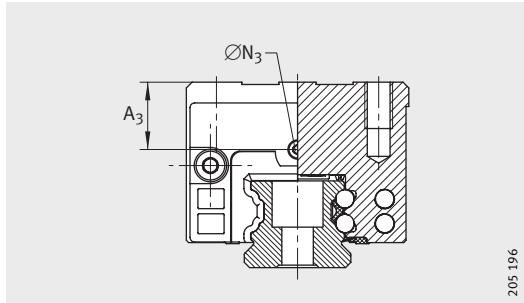
Based on practical experience, it may be possible to increase the basic dynamic load rating.

²⁾ The new carriages cannot be used on the previous guideways TKVD15(-U).

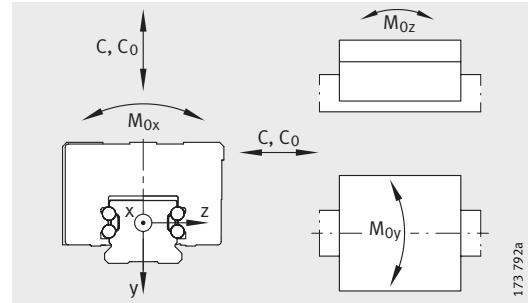
³⁾ Tapered head lubrication nipple to DIN 71 412-B M6,

KUVE20-B to DIN 71 412-B M5 and KUVE15-B to DIN 3 405-B M3, supplied loose with delivery.

⁴⁾ Maximum permissible screw depth for lubrication connectors.

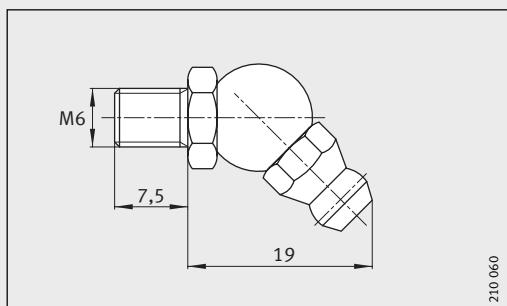
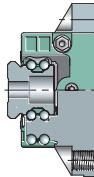


Lubrication connector on end face

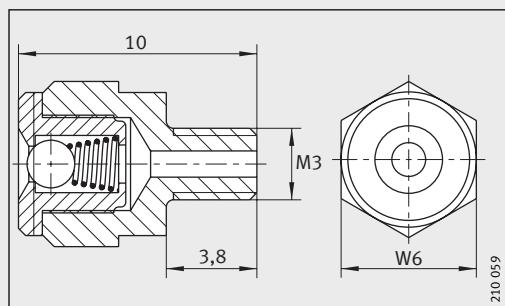


Load directions

Dimensioning of lubrication connectors						Load carrying capacity ¹⁾					
A ₃	ØN ₃		A ₄	ØN ₄		J _{L6}	Basic load ratings		Moment ratings		
	4)			4)			C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm
8,3	2,57	5,5	7,2	2,57	5,5	11,1	7 200	14 500	150	100	100
4,3			3,2								
8	4,5	7	4,6	4,5	5,5	11,4	13 100	27 000	332	240	240
4,7			3,3	2,57							
15	5,5	7	10,5	5,6	7	17,9	17 900	37 000	510	395	395
11			6,5								
6			4	2,57	6						
14,5	5,5	7	10	5,5	7	21,5	27 500	55 000	970	700	700
11,5			7								
7,5			4,95	4,5							
19,3	5,5	7	18	5,5	7	22	38 000	72 000	1 465	1 020	1 020
12,3			11								
8,3			7								
26,5	5,5	7	26,5	5,5	7	29,3	69 000	141 000	3 610	2 485	2 485
16,5			16,5								
8,5			8,5								
15	5,5	7	15	5,5	7	40,5	104 000	213 000	5 600	2 730	2 730



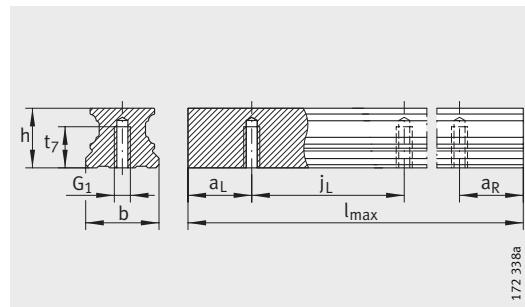
Lubrication nipple³⁾



Lubrication nipple³⁾,
width across flats W = 6 mm

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
SL, HL, SNL carriages



TKVD..-U

Dimension table · Dimensions in mm

Designation	Dimensions				Dimensions						
	$l_{\max}^{1)}$	H	B	L	A ₁	J _B	b	A ₂	L ₁	J _L	j _L
KUVE20-B-SL	2 960	30	44	87,3	12	32	20	6	67,9	50	60
KUVE20-B-SNL		27									
KUVE25-B-HL	2 960	40	48	107,5	12,5	35	23	6,5	86,5	50	60
KUVE25-B-SL		36									
KUVE25-B-SNL		31									
KUVE30-B-HL	2 960	45	60	125,4	16	40	28	10	100	60	80
KUVE30-B-SL		42									
KUVE30-B-SNL		38									
KUVE35-B-HL	2 960	55	70	143,4	18	50	34	10	113	72	80
KUVE35-B-SL		48									
KUVE35-B-SNL		44									
KUVE45-B-HL	2 940	70	86	171,1	20,5	60	45	13	134,6	80	105
KUVE45-B-SL		60									
KUVE45-B-SNL		52									
KUVE55-B-SL	2 520	70	100	210	23,5	75	53	12,5	170	95	120

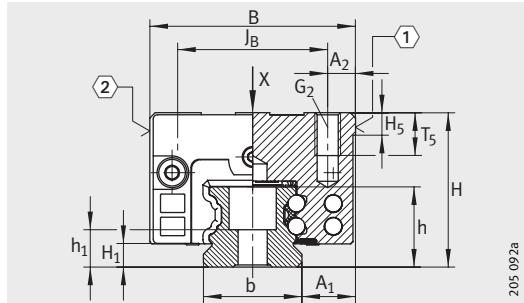
For further table values, see page 274 and page 275.

¹⁾ Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

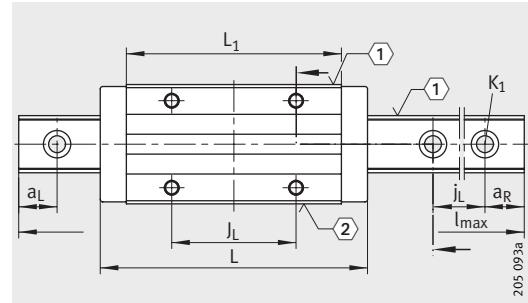
²⁾ a_L and a_R are dependent on the guideway length.

³⁾ If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

⁴⁾ ^① Locating face
^② Marking

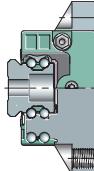


KUVE..-B (-SL, -HL, -SNL)
①, ②⁴⁾



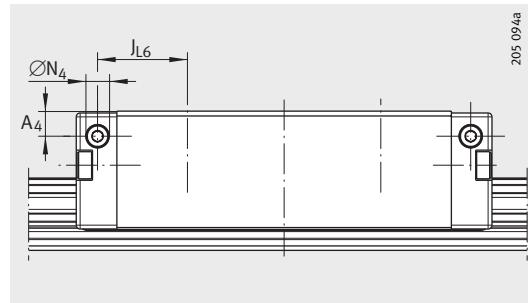
KUVE..-B (-SL, -HL, -SNL) · View rotated 90°
①, ②⁴⁾

								Fixing screws ³⁾					
a _L , a _R ²⁾		H ₁	H ₅	T ₅	t ₇	h	h ₁	G ₁	G ₂	K ₁			
min.	max.							DIN ISO 4 762-12.9	M _A Nm	M _A Nm	M _A Nm	M _A Nm	
20	53	4,5	5,25	7,5	10	17	9,1	M6	17	M5	10	M5	10
20	53	5,1	5,25	10	12	18,7	8,7	M6	17	M6	17	M6	17
				7,5									
20	71	5,9	6,25	13,5	15	23,5	11,5	M8	41	M8	41	M8	41
				11									
20	71	6,7	6,75	13,5	15	27	15	M8	41	M8	41	M8	41
20	94	9,7	9,25	17	20	34,2	16,2	M12	140	M10	83	M12	140
				16,5									
20	107	13,5	11,25	15	22	41,5	19,5	M14	220	M12	140	M14	220



Four-row linear recirculating ball bearing and guideway assemblies

Full complement
SL, HL, SNL carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K_2
KUVE20-B-SL	KWVE20-B-SL	0,46	TKVD20 (-U)	2,2	KA10-TN/A
KUVE20-B-SNL	KWVE20-B-SNL	0,38			
KUVE25-B-HL	KWVE25-B-HL	1			
KUVE25-B-SL	KWVE25-B-SL	1	TKVD25(-U)	2,7	KA11-TN/A
KUVE25-B-SNL	KWVE25-B-SNL	0,62			
KUVE30-B-HL	KWVE30-B-HL	1,43			
KUVE30-B-SL	KWVE30-B-SL	1,7	TKVD30(-U)	4,3	KA15-TN/A
KUVE30-B-SNL	KWVE30-B-SNL	1,1			
KUVE35-B-HL	KWVE35-B-HL	2,4			
KUVE35-B-SL	KWVE35-B-SL	1,81	TKVD35(-U)	5,7	KA15-TN/A
KUVE35-B-SNL	KWVE35-B-SNL	1,72			
KUVE45-B-HL	KWVE45-B-HL	4,27			
KUVE45-B-SL	KWVE45-B-SL	3,38	TKVD45(-U)	9,2	KA20-TN/A
KUVE45-B-SNL	KWVE45-B-SNL	2,68			
KUVE55-B-SL	KWVE55-B-SL	6,3	TKVD55(-U)	14	KA24-TN/A

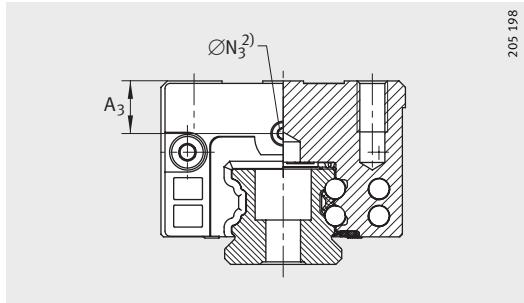
¹⁾ Calculation of basic load ratings in accordance with DIN 636.

Based on practical experience, it may be possible to increase the basic dynamic load rating.

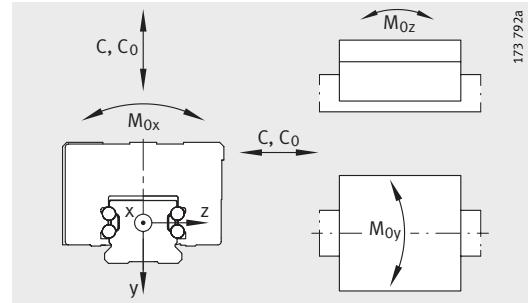
²⁾ Tapered head lubrication nipple to DIN 71 412-B M6,

KUVE20-B to DIN 71 412-B M5 and KUVE15-B to DIN 3 405-B M3, supplied loose with delivery.

³⁾ Maximum permissible screw depth for lubrication connectors.

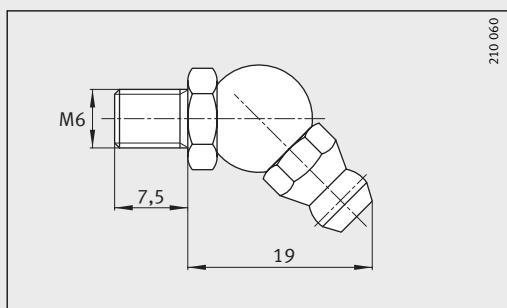
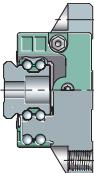


Lubrication connector on end face

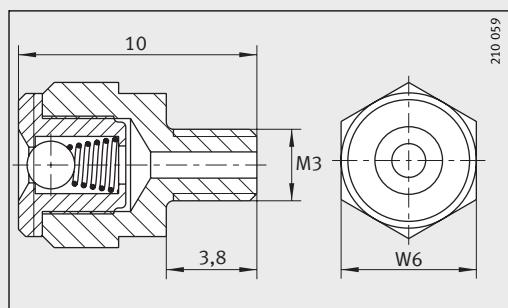


Load directions

Dimensioning of lubrication connectors						Load carrying capacity ¹⁾					
A ₃	ØN ₃		A ₄	ØN ₄		J _{L6}	Basic load ratings		Moment ratings		
	Ø	3)		Ø	3)		C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm
7,7 4,7	4,5	7	4,6 3,3	4,5 2,57	5,5	13,2	16 200	36 500	452	430	430
15	5,5	7	10,5	5,6 6,5 4	7	23,3	23 400	54 000	745	825	825
11			6,5								
6			4								
14,5	5,5	7	10	5,5 4,95	7	25,5 25,1	34 500	74 000	1 310	1 240	1 240
11,5			7								
7,5			4,95								
19,3	5,5	7	18	5,5 7	7	27,5	47 500	100 000	2 025	1 890	1 890
12,3			11								
8,3			7								
26,5	5,5	7	26,5	5,5	7	35,3	82 000	181 000	4 635	4 000	4 000
16,5			16,5								
8,5			8,5								
15	5,5	7	15	5,5	7	49,5	127 000	285 000	7 500	4 725	4 800



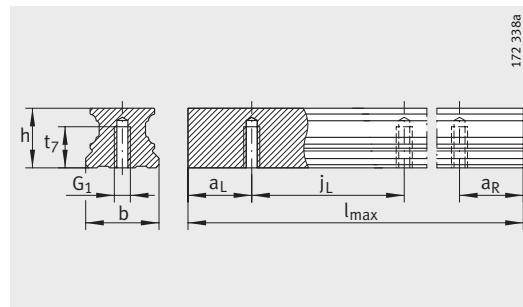
Lubrication nipple²⁾



Lubrication nipple²⁾,
width across flats W = 6 mm

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
EC carriages



TKVD..-U

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions							
	$l_{\max}^{1)}$	H	B	L	A ₁	j _B	b	A ₂	L ₁	j _L	a _L , a _R ²⁾	
						-0,005 -0,03					min.	
KUVE15-B-EC	1 200	24	52	42,9	18,5	41	15	5,5	23,1	60	20	53
KUVE20-B-EC	2 960	28	59	48,8	19,5	49	20	5	29,4	60	20	53
KUVE25-B-EC	2 960	33	73	56,6	25	60	23	6,5	35,6	60	20	53
KUVE30-B-EC	2 960	42	90	67,4	31	72	28	9	42	80	20	71
KUVE35-B-EC	2 960	48	100	74,6	33	82	34	9	44,2	80	20	71
KUVE45-B-EC	2 940	60	120	96,2	37,5	100	45	10	59,7	105	20	94

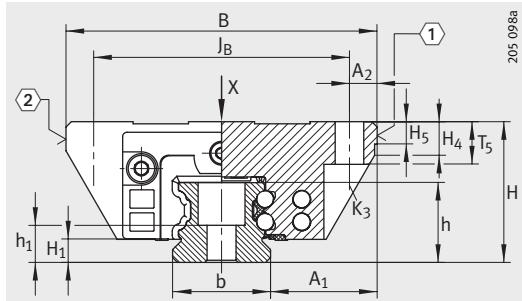
For further table values, see page 278 and page 279.

¹⁾ Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

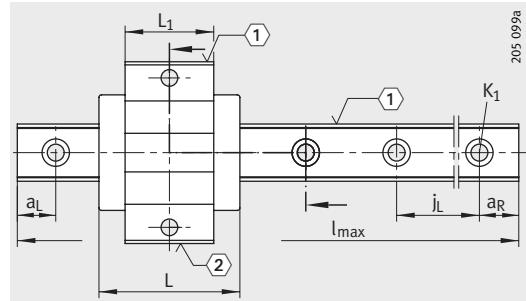
²⁾ a_L and a_R are dependent on the guideway length.

³⁾ If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

⁴⁾ ^① Locating face
^② Marking

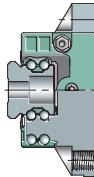


KUVE..-B-EC
①, ②⁴⁾



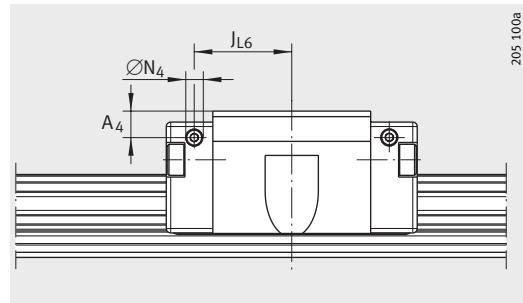
KUVE..-B-EC · View rotated 90°
①, ②⁴⁾

Fixing screws ³⁾												
H ₁	H ₄	H ₅	T ₅	t ₇	h	h ₁	G ₁	K ₁	K ₃			
							DIN ISO 4 762-12.9	M _A Nm	M _A Nm			
4,3	6,1	4,75	7	8	15	8,15	M5	10	M4	5	M4	5
4,5	11,2	5,25	9	10	17	9,1	M6	17	M5	10	M5	10
5,1	7,85	5,25	10	12	18,7	8,7	M6	17	M6	17	M6	17
5,9	13,8	6,25	12	15	23,5	11,5	M8	41	M8	41	M8	41
6,7	14,3	6,75	13	15	27	15	M8	41	M8	41	M8	41
9,7	19,9	9,25	15	20	34,2	16,2	M12	140	M12	140	M10	83



Four-row linear recirculating ball bearing and guideway assemblies

Full complement
EC carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K_2
KUVE15-B-EC	KWVE15-B-EC	0,13	TKVD15-B (-U) ²⁾	1,44	KA07-TN/A
KUVE20-B-EC	KWVE20-B-EC	0,23	TKVD20 (-U)	2,2	KA10-TN/A
KUVE25-B-EC	KWVE25-B-EC	0,4	TKVD25(-U)	2,7	KA11-TN/A
KUVE30-B-EC	KWVE30-B-EC	0,75	TKVD30(-U)	4,3	KA15-TN/A
KUVE35-B-EC	KWVE35-B-EC	1,04	TKVD35(-U)	5,7	KA15-TN/A
KUVE45-B-EC	KWVE45-B-EC	2,07	TKVD45(-U)	9,2	KA20-TN/A

1) Calculation of basic load ratings in accordance with DIN 636.

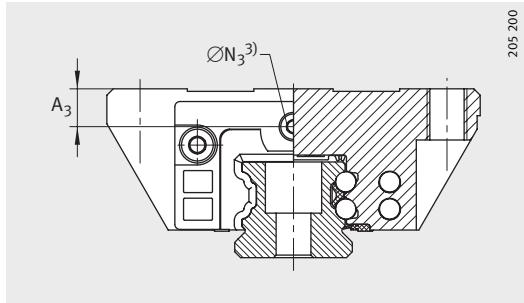
Based on practical experience, it may be possible to increase the basic dynamic load rating.

2) The new carriages cannot be used on the previous guideways TKVD15(-U).

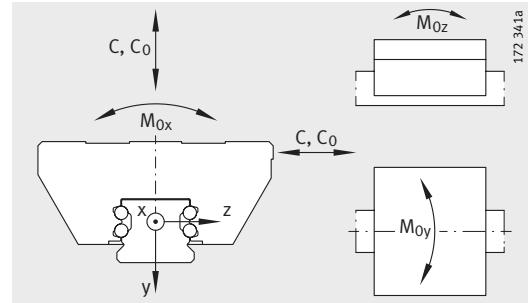
3) Tapered head lubrication nipple to DIN 71 412-B M6,

KUVE20-B to DIN 71 412-B M5 and KUVE15-B to DIN 3 405-B M3, supplied loose with delivery.

4) Maximum permissible screw depth for lubrication connectors.

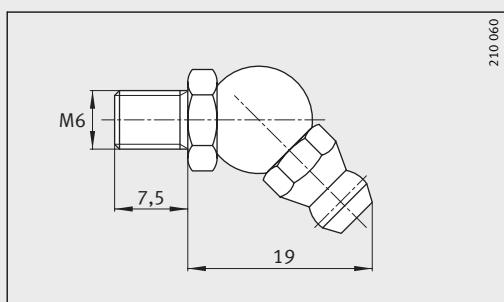
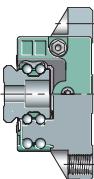


Lubrication connector on end face

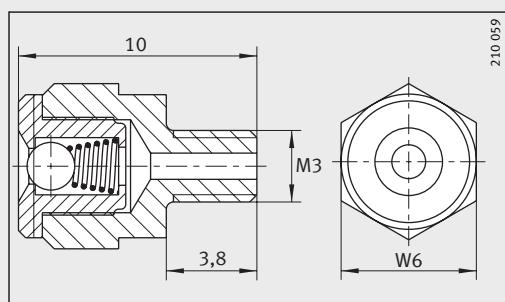


Load directions

Dimensioning of lubrication connectors							Load carrying capacity ¹⁾				
A ₃	ØN ₃		A ₄	ØN ₄		J _{L6}	Basic load ratings		Moment ratings		
		4)			4)		C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm
4,3	2,57	5,5	3,2	2,57	5,5	15,8	4 900	8 300	86	35	35
6	4,5	7	4,3	2,57	5,5	18,9	8 900	15 400	190	85	85
8	5,5	7	6	2,57	6	22	12 500	22 200	305	155	155
11,5	5,5	7	7	5,5	7	26,5	18 700	31 500	554	248	248
12,3	5,5	7	11	5,5	7	29,1	24 600	39 000	790	330	330
16,5	5,5	7	16,5	5,5	7	37,9	46 500	80 000	2 060	883	883



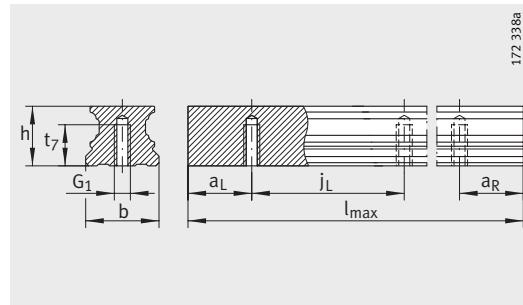
Lubrication nipple³⁾



Lubrication nipple³⁾,
width across flats W = 6 mm

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
ESC carriages



TKVD..-U

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions							$a_L, a_R^{2)}$		
	$l_{max}^{1)}$	H	B	L	A_1	j_B	b	A_2	L_1	j_L	min.	max.		
KUVE15-B-ESC	1 200	24	34	42,9	9,5	26	15	4	23,1	60	20	53		
KUVE20-B-ESC	2 960	28	42	48,8	11	32	20	5	29,4	60	20	53		
KUVE25-B-ESC	2 960	33	48	56,6	12,5	35	23	6,5	35,6	60	20	53		
KUVE30-B-ESC	2 960	42	60	67,4	16	40	28	10	42	80	20	71		
KUVE35-B-ESC	2 960	48	70	74,6	18	50	34	10	44,2	80	20	71		
KUVE45-B-ESC	2 940	60	86	96,2	20,5	60	45	13	59,7	105	20	94		

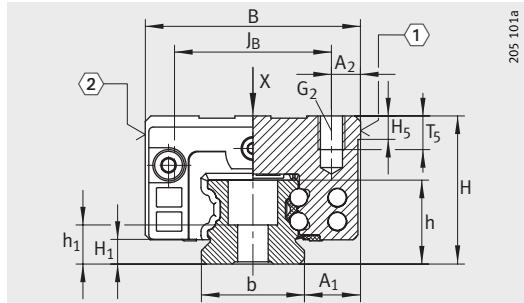
For further table values, see page 282 and page 283.

¹⁾ Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

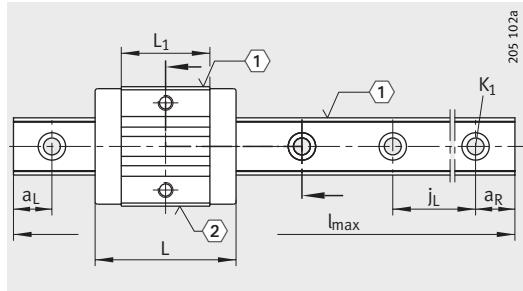
²⁾ a_L and a_R are dependent on the guideway length.

³⁾ If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

- ⁴⁾ Locating face
 Marking

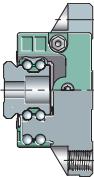


KUVE..-B-ESC
①, ②⁴⁾



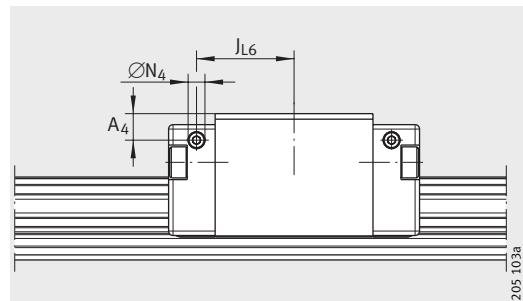
KUVE..-B-ESC · View rotated 90°
①, ②⁴⁾

H ₁	H ₅	T ₅	t ₇	h	h ₁	Fixing screws ³⁾					
						G ₁ DIN ISO 4 762-12.9		G ₂		K ₁	
							M _A Nm		M _A Nm		M _A Nm
4,3	4,75	6	8	15	8,15	M5	10	M4	5	M4	5
4,5	5,25	7,5	10	17	9,1	M6	17	M5	10	M5	10
5,1	5,25	10	12	18,7	8,7	M6	17	M6	17	M6	17
5,9	6,25	13,5	15	23,5	11,5	M8	41	M8	41	M8	41
6,7	6,75	13,5	15	27	15	M8	41	M8	41	M8	41
9,7	9,25	17	20	34,2	16,2	M12	140	M10	83	M12	140



Four-row linear recirculating ball bearing and guideway assemblies

Full complement
ESC carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K_2
KUVE15-B-ESC	KWVE15-B-ESC	0,12	TKVD15-B (-U) ²⁾	1,44	KA07-TN/A
KUVE20-B-ESC	KWVE20-B-ESC	0,18	TKVD20 (-U)	2,2	KA10-TN/A
KUVE25-B-ESC	KWVE25-B-ESC	0,3	TKVD25(-U)	2,7	KA11-TN/A
KUVE30-B-ESC	KWVE30-B-ESC	0,57	TKVD30(-U)	4,3	KA15-TN/A
KUVE35-B-ESC	KWVE35-B-ESC	1,04	TKVD35(-U)	5,7	KA15-TN/A
KUVE45-B-ESC	KWVE45-B-ESC	1,8	TKVD45(-U)	9,2	KA20-TN/A

1) Calculation of basic load ratings in accordance with DIN 636.

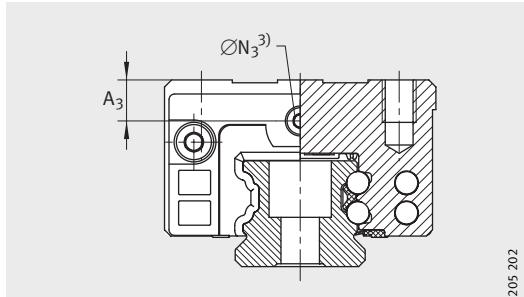
Based on practical experience, it may be possible to increase the basic dynamic load rating.

2) The new carriages cannot be used on the previous guideways TKVD15(-U).

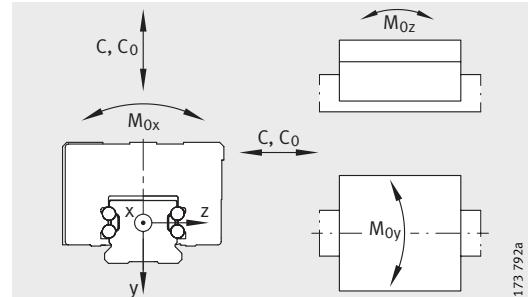
3) Tapered head lubrication nipple to DIN 71 412-B M6,

KUVE20-B to DIN 71 412-B M5 and KUVE15-B to DIN 3 405-B M3, supplied loose with delivery.

4) Maximum permissible screw depth for lubrication connectors.



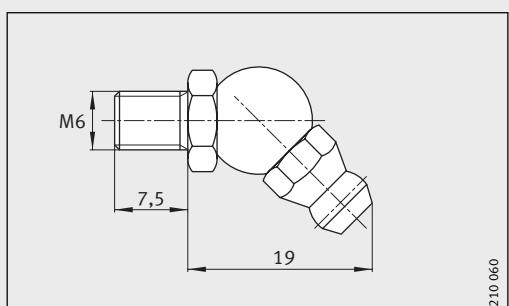
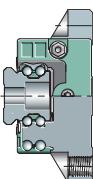
Lubrication connector on end face



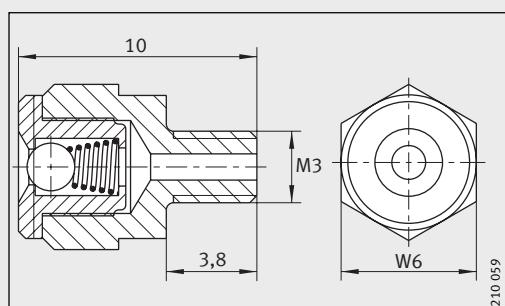
Load directions

173 792a

Dimensioning of lubrication connectors							Load carrying capacity ¹⁾				
A ₃	ØN ₃		A ₄	ØN ₄		J _{L6}	Basic load ratings		Moment ratings		
	4)	4)		4)	4)		C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm
4,3	2,57	5,5	3,2	2,57	5,5	15,8	4 900	8 300	86	35	35
6	4,5	7	4,3	2,57	5,5	18,9	8 900	15 400	190	85	85
8	5,5	7	6	2,57	6	22	12 500	22 200	305	155	155
11,5	5,5	7	7	5,5	7	26,5	18 700	31 500	554	248	248
12,3	5,5	7	11	5,5	7	29,1	24 600	39 000	790	330	330
16,5	5,5	7	16,5	5,5	7	37,9	46 500	80 000	2 060	883	883



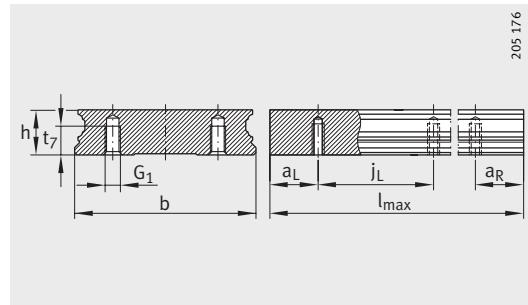
Lubrication nipple³⁾



Lubrication nipple³⁾,
width across flats W = 6 mm

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
Wide guideway
W, WL carriages



205 176

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions										A_{L1}	H_1	
	$l_{max}^{1)}$	H	B	L	A_1	j_B	j_B	a_5	b	A_2	L_1	j_L	j_L	$a_L, a_R^{2)}$	min.	max.	
KUVE15-W	1 200	21	68	55,6	15,5	60	22	7,5	37	4	39,8	29	50	10	44	1,5	4,3
KUVE20-W	1 980	27	80	69,8	19	70	24	9	42	5	50,4	40	60	20	53	19	4,6
KUVE25-WL	1 980	35	120	107,5	25,5	107	40	14,5	69	6,5	86,5	60	80	20	71	19	5,2
KUVE30-W	2 000	42	142	97,6	31	124	50	15	80	9	72	52	80	20	71	19	6
KUVE35-WL	2 960	50	162	140,2	36	144	60	15	90	9	109,8	80	80	20	71	19	6,8

1) Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

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

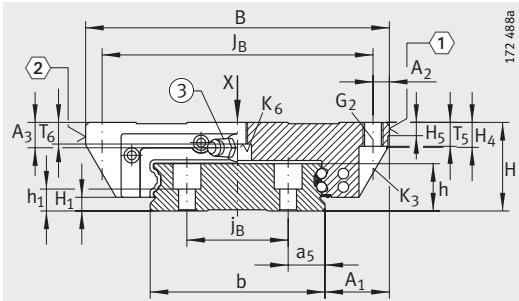
3) For location from above: the maximum screw depth for the central threaded holes is $T_6 + 2,5$ mm.

4) If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

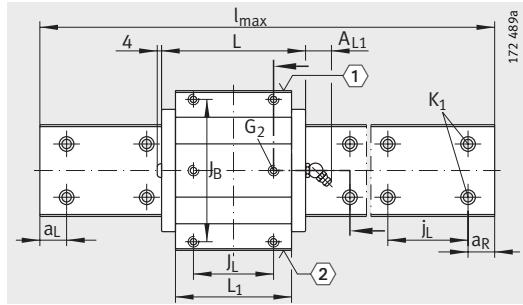
5) ① Locating face

② Marking

③ Tapered head lubrication nipple to DIN 71412-B M6,
KUVE20 to DIN 71412-B M5 and KUVE15 with drive fit lubrication nipple

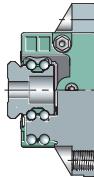


KUVE..-W (-WL)
①, ②, ③⁵⁾



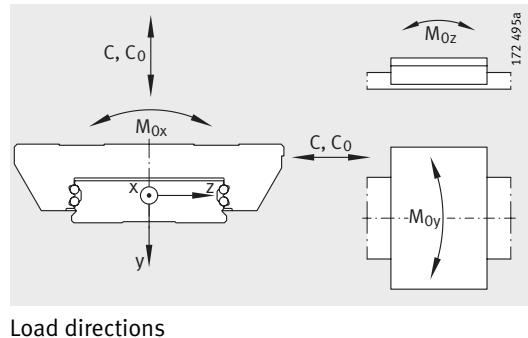
KUVE..-W (-WL) · View rotated 90°
①, ②⁵⁾

Fixing screws ⁴⁾												
H ₅	H ₄	T ₅	T ₆ ³⁾	h	h ₁	G ₂	K ₁		K ₃		K ₆	
						DIN ISO 4 762-12.9	M _A Nm					
4,5	7,7	7	4,8	12,9	6	M5	5,8	M4	5	M4	5	—
5	10,6	10	6	17	10	M6	10	M4	5	M5	10	—
5	9,9	10	10	18,7	8,7	M8	41	M6	17	M6	17	—
6	13,8	12	12	23,5	11,5	M10	41	M8	41	M8	41	—
6,5	16,3	13	13	27	15	M10	41	M8	41	M8	41	—



Four-row linear recirculating ball bearing and guideway assemblies

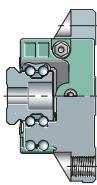
Full complement
Wide guideway
W, WL carriages



Load directions

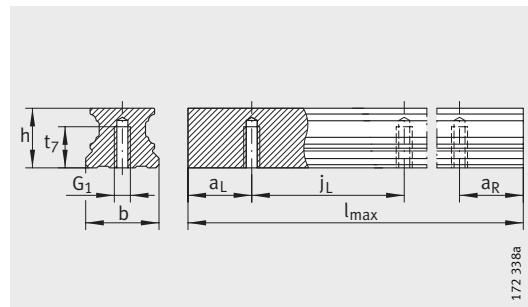
Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway			Load carrying capacity				
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K ₂	Basic load ratings		Moment ratings		
						C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm
KUVE15-W	KWVE15-W	0,27	TKVD15-W	3,6	KA08-TN/A	7 200	14 500	332	100	100
KUVE20-W	KWVE20-W	0,5	TKVD20-W	5	KA08-TN/A	13 100	27 000	687	240	240
KUVE25-WL	KWVE25-WL	1,46	TKVD25-WL	9,4	KA11-TN/A	23 400	54 000	2 225	825	825
KUVE30-W	KWVE30-W	1,95	TKVD30-W	13,6	KA15-TN/A	27 500	55 000	2 660	700	700
KUVE35-WL	KWVE35-WL	4,11	TKVD35-W	17,4	KA15-TN/A	47 500	100 000	5 550	1 890	1 890



Four-row linear recirculating ball bearing and guideway assemblies

With Quad-Spacers
Standard, L carriages



TKVD..-U

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions								
	l_{\max} ¹⁾	H	B	L	A ₁	J _B	b	A ₂	L ₁	J _L	j _L	a _L , a _R ²⁾	min.	max.
KUVE15-B-KT	1200	24	47	59,6	16	38	15	4,5	39,8	30	60	20	53
KUVE15-B-KT-L				73					53,2				
KUVE20-B-KT	2960	30	63	69,8	21,5	53	20	5	50,4	40	60	20	53
KUVE20-B-KT-L				87,3					67,9				
KUVE25-B-KT	2960	36	70	82,1	23,5	57	23	6,5	60,7	45	60	20	53
KUVE25-B-KT-L				107,9					86,5				
KUVE30-B-KT	2960	42	90	97,4	31	72	28	9	72	52	80	20	71
KUVE30-B-KT-L				125,4					100				
KUVE35-B-KT	2960	48	100	110,4	33	82	34	9	80	62	80	20	71
KUVE35-B-KT-L				143,4					113				
KUVE45-B-KT	2940	60	120	139	37,5	100	45	10	102,5	80	105	20	94
KUVE45-B-KT-L				171,1					134,6				
KUVE55-B-KT	2520	70	140	172	43,5	116	53	12	132	95	120	20	107
KUVE55-B-KT-L				210					170				

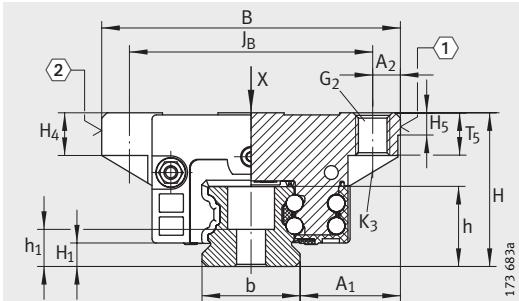
For further table values, see page 290 and page 291.

1) Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

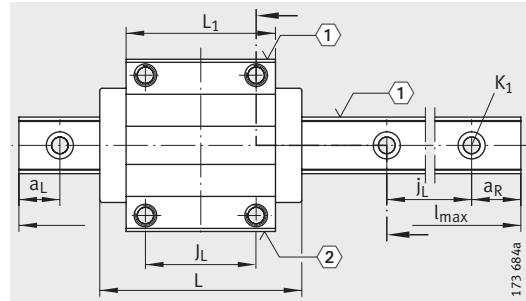
2) a_L and a_R are dependent on the guideway length.

3) If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

- 4) ^① Locating face
^② Marking

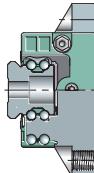


KUVE..-B-KT (-L)
①, ②⁴⁾



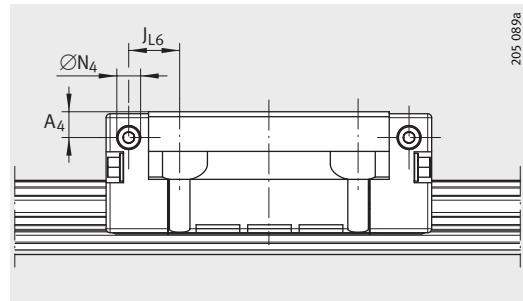
KUVE..-B-KT (-L) · View rotated 90°
①, ②⁴⁾

Fixing screws ³⁾														
H ₁	H ₄	H ₅	T ₅	t ₇	h	h ₁	G ₁	G ₂	K ₁	K ₃				
							DIN ISO 4762-12.9		M _A	M _A				
									Nm	Nm				
4,3	7	4,75	7	8	15	8,15	M5	10	M5	5,8	M4	5	M4	5
4,5	10,2	5,25	7,5	10	17	9,1	M6	17	M6	10	M5	10	M5	10
5,1	10,4	5,25	10	12	18,7	8,7	M6	17	M8	24	M6	17	M6	17
5,9	13,2	6,25	12	15	23,5	11,5	M8	41	M10	41	M8	41	M8	41
6,7	13,3	6,75	13	15	27	15	M8	41	M10	41	M8	41	M8	41
9,7	19,1	9,25	15	20	34,2	16,2	M12	140	M12	83	M12	140	M10	83
13,5	21,6	11,25	21	22	41,5	19,5	M14	220	M14	140	M14	220	M12	140



Four-row linear recirculating ball bearing and guideway assemblies

With Quad-Spacers
Standard, L carriages



205 089a

Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K ₂
KUVE15-B-KT	KWVE15-B-KT	0,17	TKVD15-B (-U) ²⁾	1,44	KA07-TN/A
KUVE15-B-KT-L	KWVE15-B-KT-L	0,21			
KUVE20-B-KT	KWVE20-B-KT	0,37	TKVD20 (-U)	2,2	KA10-TN/A
KUVE20-B-KT-L	KWVE20-B-KT-L	0,5			
KUVE25-B-KT	KWVE25-B-KT	0,6	TKVD25(-U)	2,7	KA11-TN/A
KUVE25-B-KT-L	KWVE25-B-KT-L	0,9			
KUVE30-B-KT	KWVE30-B-KT	1	TKVD30(-U)	4,3	KA15-TN/A
KUVE30-B-KT-L	KWVE30-B-KT-L	1,5			
KUVE35-B-KT	KWVE35-B-KT	1,56	TKVD35(-U)	5,7	KA15-TN/A
KUVE35-B-KT-L	KWVE35-B-KT-L	2,16			
KUVE45-B-KT	KWVE45-B-KT	2,98	TKVD45(-U)	9,2	KA20-TN/A
KUVE45-B-KT-L	KWVE45-B-KT-L	4,3			
KUVE55-B-KT	KWVE55-B-KT	4	TKVD55-B(-U)	14	KA24-TN/A
KUVE55-B-KT-L	KWVE55-B-KT-L	6,18			

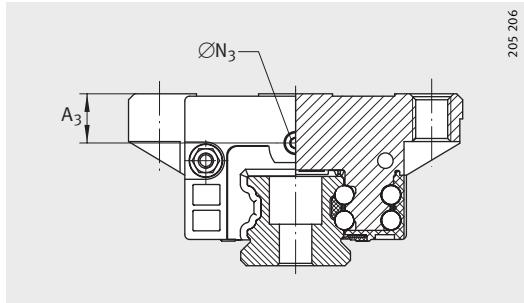
¹⁾ Calculation of basic load ratings in accordance with DIN 636.

Based on practical experience, it may be possible to increase the basic dynamic load rating.

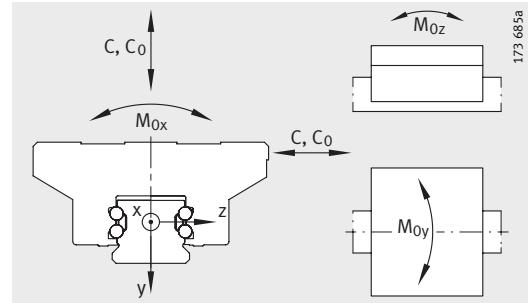
²⁾ The new carriages cannot be used on the previous guideways TKVD15(-U).

³⁾ Tapered head lubrication nipple to DIN 71 412-B M6,
KUVE20-B to DIN 71 412-B M5 and KUVE15-B to DIN 3 405-B M3, supplied loose with delivery.

⁴⁾ Maximum permissible screw depth for lubrication connectors.



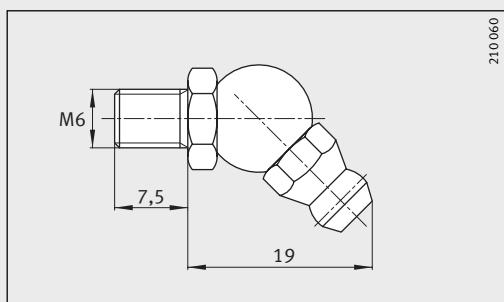
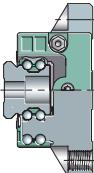
Lubrication connector on end face



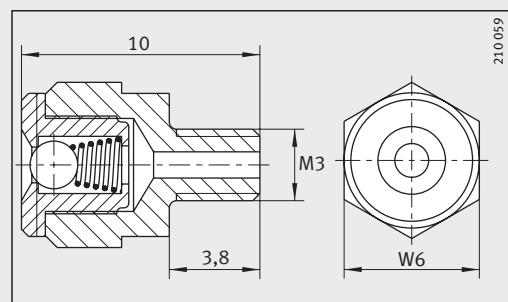
Load directions

Dimensioning of lubrication connectors

A ₃	ØN ₃ 4)	A ₄	ØN ₄ 4)	J _{L6}	Load carrying capacity ¹⁾						
					Basic load ratings		Moment ratings				
					C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm		
4,3	2,57	5,5	3,2	2,57	5,5	9,1	6 100	11 400	105	74	74
						15,8	7 900	16 500	162	148	105
7,7	4,5	7	4,5	4,5	5,5	9,5	11 800	23 000	276	205	205
						18,3	14 400	30 500	368	345	345
11	5,5	7	6,5	5,5	7	12,9	16 200	32 000	430	330	335
						25,8	21 100	47 000	625	690	690
11,5	5,5	7	7	5,5	7	15	26 500	51 000	890	670	670
						29	33 000	71 000	1 230	1 230	1 245
12,3	5,5	7	11	5,5	7	16	36 000	67 000	1 340	995	995
						32,5	44 000	89 000	1 790	1 715	1 710
16,5	5,5	7	16,5	5,5	7	19,3	65 000	130 000	3 600	2 610	2 610
						35,3	79 000	171 000	4 715	4 335	4 330
15	5,5	7	15	5,5	7	30,5	99 000	199 000	6 730	4 750	4 750
						49,5	123 000	270 000	9 115	8 490	8 490



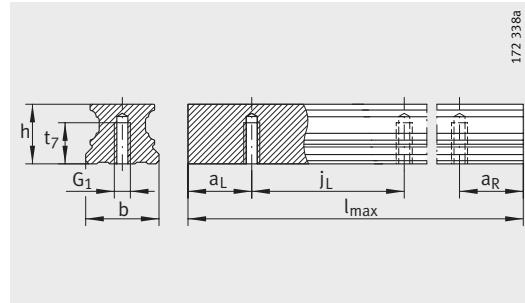
Lubrication nipple³⁾



Lubrication nipple³⁾,
width across flats W = 6 mm

Four-row linear recirculating ball bearing and guideway assemblies

With Quad-Spacers
S, SL, H, HL carriages



TKVD..U

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions								
	l_{\max} ¹⁾	H	B	L	A ₁	J _B	b	A ₂	L ₁	J _L	j _L	a _L , a _R ²⁾	min.	max.
KUVE15-B-KT-S	1 200	24	34	59,6	9,5	26	15	4	39,8	26	60	20	53
KUVE15-B-KT-H		28		73									
KUVE15-B-KT-SL		24		73									
KUVE15-B-KT-HL		28		73									
KUVE20-B-KT-S	2 960	30	44	69,8	12	32	20	6	50,4	36	60	20	53
KUVE20-B-KT-SL				87,3					67,9	50			
KUVE25-B-KT-S	2 960	36	48	82,1	12,5	35	23	6,5	60,7	35	60	20	53
KUVE25-B-KT-H		40		107,9									
KUVE25-B-KT-SL		36		107,9									
KUVE25-B-KT-HL		40		107,9					86,5	50			
KUVE30-B-KT-S	2 960	42	60	97,4	16	40	28	10	72	40	80	20	71
KUVE30-B-KT-H		45		125,4									
KUVE30-B-KT-SL		42		125,4									
KUVE30-B-KT-HL		45		125,4					100	60			
KUVE35-B-KT-S	2 960	48	70	110,4	18	50	34	10	80	50	80	20	71
KUVE35-B-KT-H		55		143,4									
KUVE35-B-KT-SL		48		143,4									
KUVE35-B-KT-HL		55		143,4					113	72			
KUVE45-B-KT-S	2 940	60	86	139	20,5	60	45	13	102,5	60	105	20	94
KUVE45-B-KT-H		70		171,1									
KUVE45-B-KT-SL		60		171,1									
KUVE45-B-KT-HL		70		171,1					134,6	80			
KUVE55-B-KT-S	2 520	70	100	172	23,5	75	53	12,5	132	75	120	20	107
KUVE55-B-KT-SL				210									

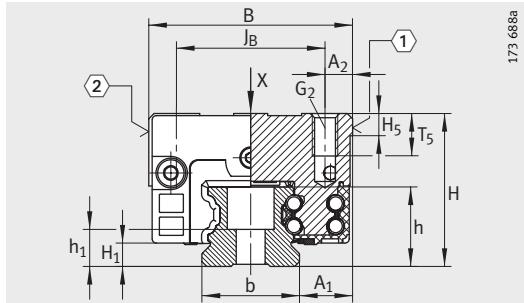
For further table values, see page 294 and page 295.

¹⁾ Maximum length of single-piece guideways. For permissible number of guideway pieces, see page 259.
Maximum single-piece guideway length of 6 m available by agreement.

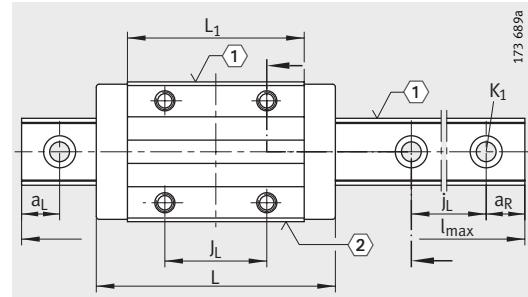
²⁾ a_L and a_R are dependent on the guideway length.

³⁾ If there is a possibility of preload loss due to settling, the fixing screws should be secured against rotation.

⁴⁾ ① Locating face
② Marking

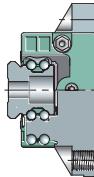


KUVE..-B-KT (-S, -SL, -H, -HL)
①, ②⁴⁾



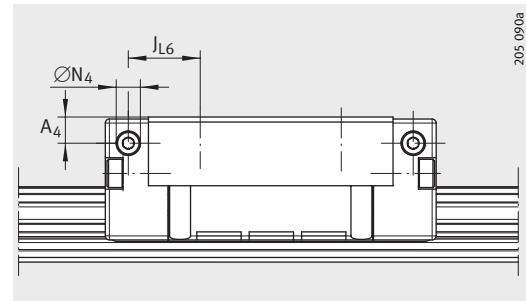
KUVE..-B-KT (-S, -SL, -H, -HL) ·
View rotated 90°
①, ②⁴⁾

						Fixing screws ³⁾					
H ₁	H ₅	T ₅	t ₇	h	h ₁	G ₁		G ₂		K ₁	
						DIN ISO 4 762-12.9		M _A Nm	M _A Nm	M _A Nm	M _A Nm
4,3	4,75	6	8	15	8,15	M5	–	M4	5	M4	5
4,5	5,25	7,5	10	17	9,1	M6	17	M5	10	M5	10
5,1	5,25	10	12	18,7	8,7	M6	17	M6	17	M6	17
5,9	6,25	13,5	15	23,5	11,5	M8	41	M8	41	M8	41
6,7	6,75	13,5	15	27	15	M8	41	M8	41	M8	41
9,7	9,25	17	20	34,2	16,2	M12	140	M10	83	M12	140
13,5	11,25	15	22	41,5	19,5	M14	220	M12	140	M14	220



Four-row linear recirculating ball bearing and guideway assemblies

With Quad-Spacers
S, SL, H, HL carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		
	Designation	Mass m ≈kg	Designation	Mass m ≈kg/m	Closing plug K ₂
KUVE15-B-KT-S	KWVE15-B-KT-S	0,14	TKVD15-B (-U) ²⁾	1,44	KA07-TN/A
KUVE15-B-KT-H	KWVE15-B-KT-H	0,18			
KUVE15-B-KT-SL	KWVE15-B-KT-SL	0,18			
KUVE15-B-KT-HL	KWVE15-B-KT-HL	0,23			
KUVE20-B-KT-S	KWVE20-B-KT-S	0,4	TKVD20 (-U)	2,2	KA10-TN/A
KUVE20-B-KT-SL	KWVE20-B-KT-SL	0,41			
KUVE25-B-KT-S	KWVE25-B-KT-S	0,56	TKVD25(-U)	2,7	KA11-TN/A
KUVE25-B-KT-H	KWVE25-B-KT-H	0,6			
KUVE25-B-KT-SL	KWVE25-B-KT-SL	0,73			
KUVE25-B-KT-HL	KWVE25-B-KT-HL	0,85			
KUVE30-B-KT-S	KWVE30-B-KT-S	0,85	TKVD30(-U)	4,3	KA15-TN/A
KUVE30-B-KT-H	KWVE30-B-KT-H	0,95			
KUVE30-B-KT-SL	KWVE30-B-KT-SL	1,1			
KUVE30-B-KT-HL	KWVE30-B-KT-HL	1,3			
KUVE35-B-KT-S	KWVE35-B-KT-S	1,3	TKVD35(-U)	5,7	KA15-TN/A
KUVE35-B-KT-H	KWVE35-B-KT-H	1,59			
KUVE35-B-KT-SL	KWVE35-B-KT-SL	1,79			
KUVE35-B-KT-HL	KWVE35-B-KT-HL	2,23			
KUVE45-B-KT-S	KWVE45-B-KT-S	2,45	TKVD45(-U)	9,2	KA20-TN/A
KUVE45-B-KT-H	KWVE45-B-KT-H	3,14			
KUVE45-B-KT-SL	KWVE45-B-KT-SL	3,2			
KUVE45-B-KT-HL	KWVE45-B-KT-HL	4,1			
KUVE55-B-KT-S	KWVE55-B-KT-S	3,95	TKVD55-B(-U)	14	KA24-TN/A
KUVE55-B-KT-SL	KWVE55-B-KT-SL	5,05			

¹⁾ Calculation of basic load ratings in accordance with DIN 636.

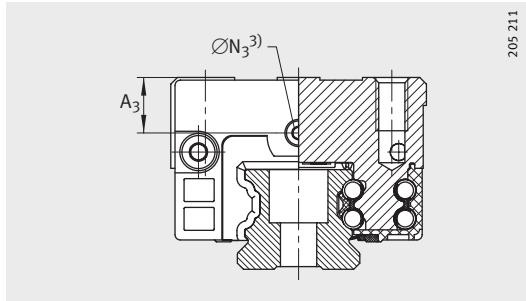
Based on practical experience, it may be possible to increase the basic dynamic load rating.

²⁾ The new carriages cannot be used on the previous guideways TKVD15(-U).

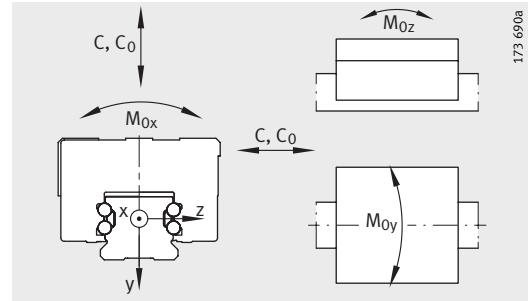
³⁾ Tapered head lubrication nipple to DIN 71 412-B M6,

KUVE20-B to DIN 71 412-B M5 and KUVE15-B to DIN 3 405-B M3, supplied loose with delivery.

⁴⁾ Maximum permissible screw depth for lubrication connectors.

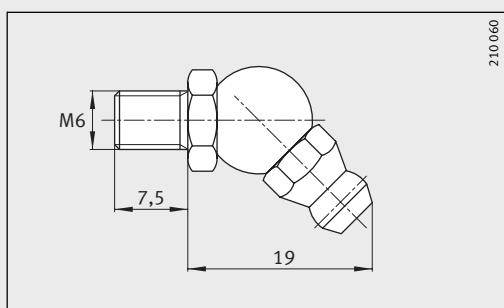
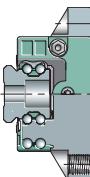


Lubrication connector on end face

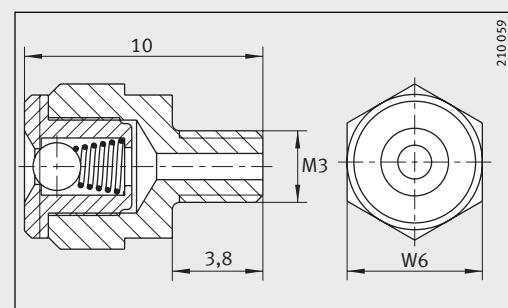


Load directions

Dimensioning of lubrication connectors					Load carrying capacity ¹⁾						
A ₃	ØN ₃		A ₄	ØN ₄		J _{L6}	Basic load ratings		Moment ratings		
		4)			4)		C N	C ₀ N	M _{0x} Nm	M _{0y} Nm	M _{0z} Nm
4,3	2,57	5,5	3,2	2,57	5,5	11,1	6 100	11 400	105	74	74
8,3							7 900	16 500	162	148	105
4,3						17,8	11 800	23 000	276	205	205
8,3							14 400	30 500	368	345	345
7,7	4,5	5,5	4,5	4,5	5,5	11,5	16 200	32 000	430	330	335
11	5,5	7	6,5	5,5	7	17,9	21 100	47 000	625	690	690
15							26 500	51 000	890	670	670
11						25	33 000	71 000	1 230	1 245	1 245
15							36 000	67 000	1 340	995	995
11,5	5,5	7	7	5,5	7	22	44 000	89 000	1 790	1 715	1 710
14,5							27,5	171 000	4 715	4 335	4 330
11,5						29,3	65 000	130 000	3 600	2 610	2 610
14,5							79 000	171 000	4 715	4 335	4 330
12,3	5,5	7	11	5,5	7	40,5	99 000	199 000	5 230	2 530	2 560
19,3							123 000	270 000	7 100	4 580	4 580
12,3						49,5	100 000	200 000	5 230	2 530	2 560
19,3							171 000	342 000	7 100	4 580	4 580
16,5	5,5	7	16,5	5,5	7	27,5	65 000	130 000	3 600	2 610	2 610
26,5							79 000	171 000	4 715	4 335	4 330
16,5						40,5	100 000	200 000	5 230	2 530	2 560
26,5							123 000	270 000	7 100	4 580	4 580
15	5,5	7	15	5,5	7						



Lubrication nipple³⁾



Lubrication nipple³⁾,
width across flats W = 6 mm