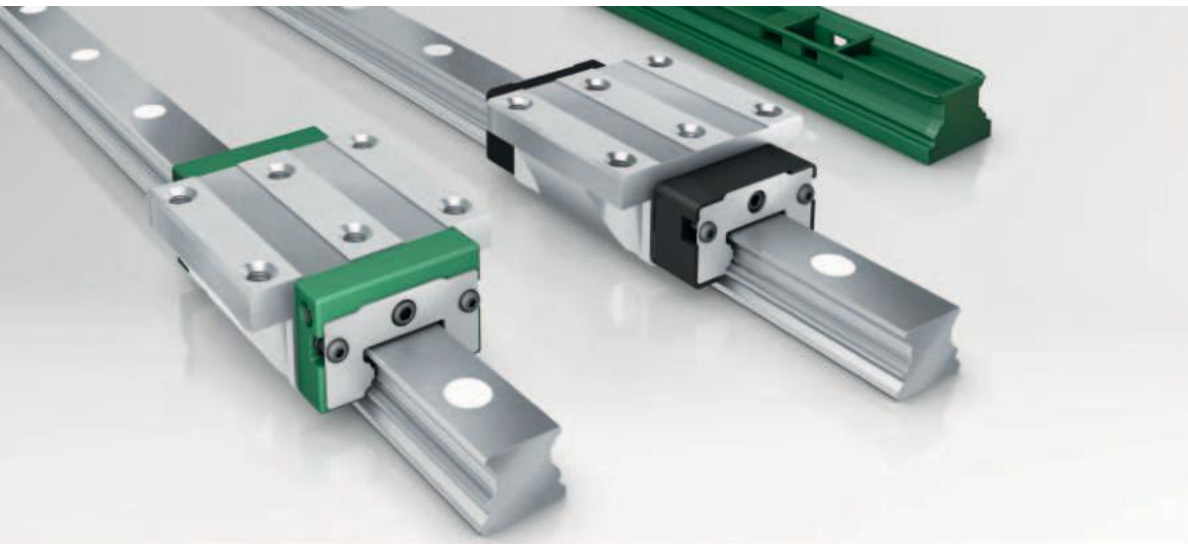
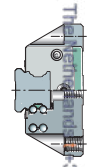
ALMOTION



Four-row linear recirculating ball bearing and guideway assemblies

Carriages and guideways
High-Speed
Sealing and lubrication elements
Accessories



ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Carriages Guideways **278**

Four-row linear recirculating ball bearing and guideway assemblies KUVE are of a full complement design and therefore have a high load carrying capacity.

They are used where the emphasis is on dynamic characteristics as well as maximum load carrying capacity and rigidity.

X-life **High-Speed** **278**

Full complement linear recirculating ball bearing and guideway assemblies KUVE..-B-HS are designed for highly dynamic operation. In this case, the end pieces and ball return systems were redesigned in comparison with linear recirculating ball bearing and guideway assemblies KUVE..-B. The design envelope corresponds to DIN 645-1.

Sealing and lubrication elements – system KIT **362**

For optimum lubrication and sealing, there is an extensive system of sealing and lubrication elements. The elements are configured as a KIT and are designed for various application conditions.

Accessories **398**

There is an extensive range of accessories for the four-row linear recirculating ball bearing and guideway assemblies.

These include closing plugs and covering strips for the guideways as well as suitable fitting tools (hydraulic fitting device and rolling-in device).

The braking and clamping element is a mechanical retaining system that is used, for example, where additional braking and clamping functions are required.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

000B68BB

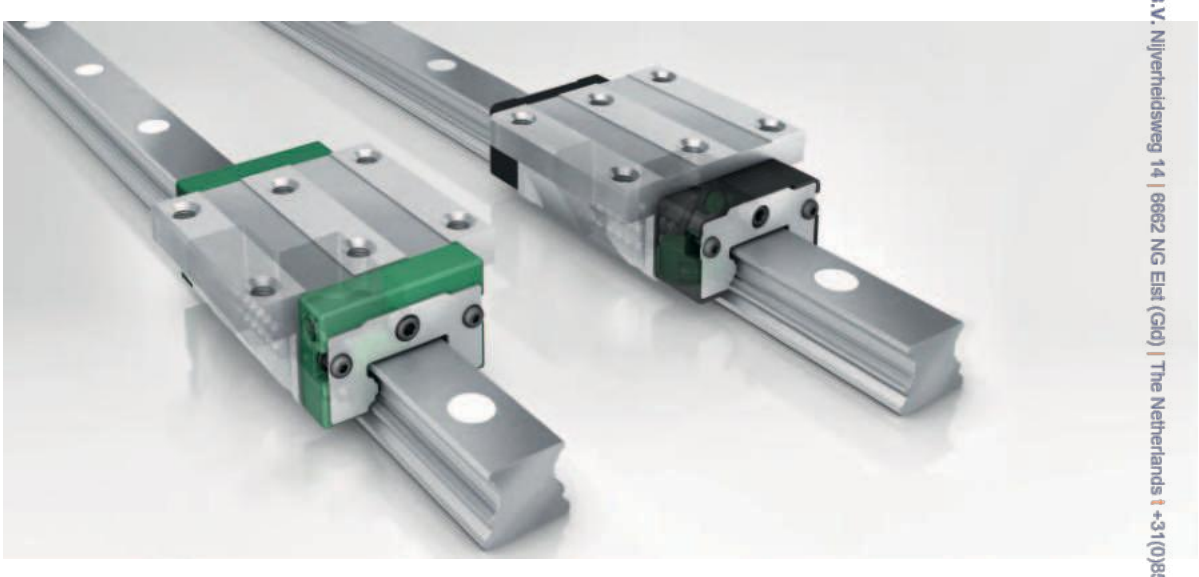
000B68BC

000B65E8

000B66CD

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION



Four-row linear recirculating ball bearing and guideway assemblies

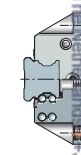
Carriages
Guideways

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

		Page
Product overview	Four-row linear recirculating ball bearing and guideway assemblies	281
Features	X-life	284
	High-Speed	284
	Full complement	285
	Carriages	285
	Guideways	285
	Standard accessories	285
	Load carrying capacity	286
	Acceleration and velocity	286
	Interchangeability	286
	Sealing	286
	Lubrication	287
	Operating temperature	288
	Corrosion-resistant design	288
	Designs	288
Design and safety guidelines	Preload	289
	Friction	289
	Rigidity	289
	Hole patterns of guideways	298
	Demands on the adjacent construction	301
Accuracy	Accuracy classes	305
	Height sorting 2S	307
	Positional and length tolerances of guideways	308
Ordering example, ordering designation		310



ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Dimension tables

Page

Four-row linear recirculating ball bearing and guideway assemblies, full complement, standard, L, N and NL carriages 312

Four-row linear recirculating ball bearing and guideway assemblies, full complement, H, S and SN carriages 316

Four-row linear recirculating ball bearing and guideway assemblies, full complement, HL, SL and SNL carriages 320

Four-row linear recirculating ball bearing and guideway assembly, full complement, E carriages, without screw threads 324

Four-row linear recirculating ball bearing and guideway assembly, full complement, ES carriages 328

Four-row linear recirculating ball bearing and guideway assembly, full complement, EC carriages, without screw threads 332

Four-row linear recirculating ball bearing and guideway assembly, full complement, ESC carriages 336

Four-row linear recirculating ball bearing and guideway assemblies, full complement, wide guideway, W and WL carriages 340

Four-row linear recirculating ball bearing and guideway assemblies, full complement, High-Speed, HS, E-HS and N-HS carriages 344

Four-row linear recirculating ball bearing and guideway assemblies, full complement, High-Speed, ES-HS, H-HS, S-HS and SN-HS carriages 348

Guideways and closing methods 352

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Product overview

Four-row linear recirculating ball bearing and guideway assemblies

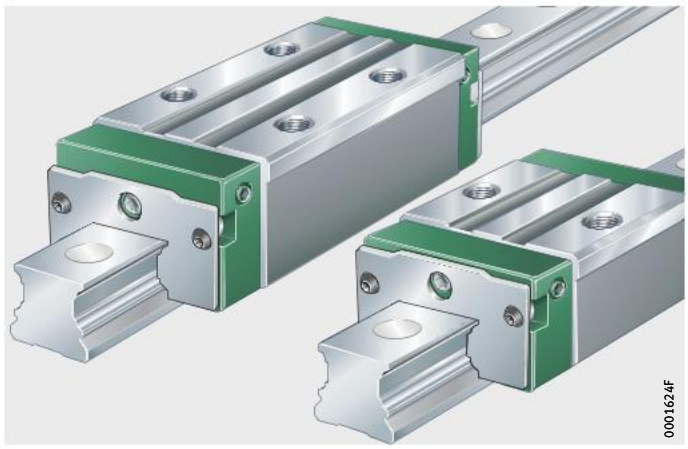
Full complement

For oil or grease lubrication

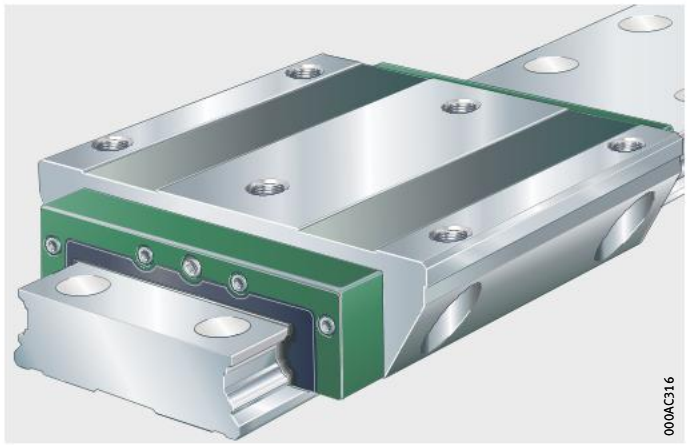
KUVE..-B, KUVE..-B-E, KUVE..-B-EC, KUVE..-B-L, KUVE..-B-HS, KUVE..-B-E-HS, KUVE..-B-N-HS, KUVE..-B-N, KUVE..-B-NL



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



KUVE..-W, KUVE..-WL



ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

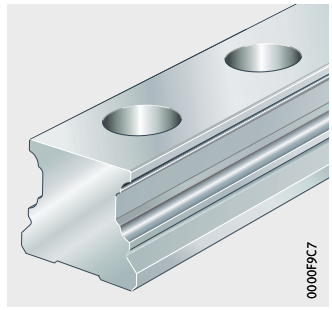
Product overview

Four-row linear recirculating ball bearing and guideway assemblies

Guideways

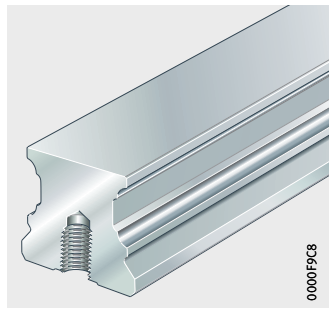
Standard

TKVD

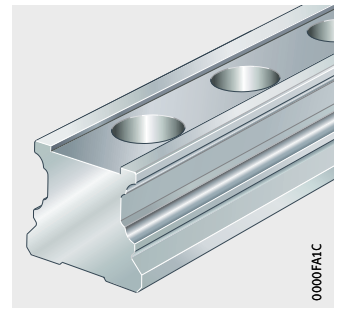


For screw mounting from below or with slot for covering strip

TKVD..-U

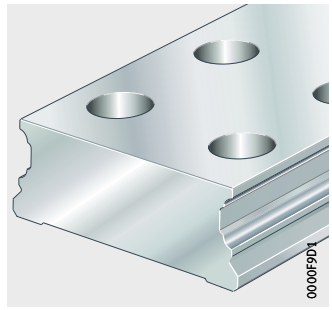


TKVD..-ADB, TKVD..-ADK

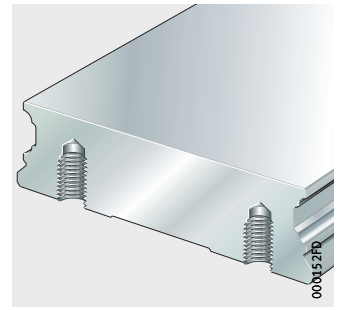


Wide guideway

TKVD..-W



TKVD..-W-U

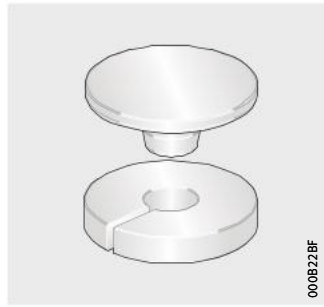


ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.linearregeleiding.nl | www.linearregeleidingshop.nl | www.linearmotion.nl

Standard accessories

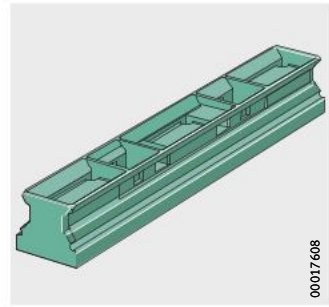
Plastic closing plugs

KA..-TN/A



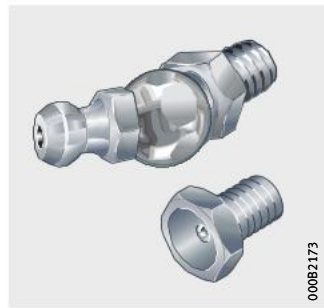
Dummy guideway

MKVD



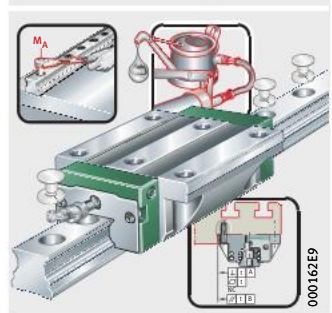
Lubrication connector

S



Mounting manual

MON 38



ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Features

Four-row linear recirculating ball bearing and guideway assemblies are the most extensive and complex group within the range of monorail guidance systems. They are used where heavy loads must be moved with high running and positional accuracy as well as low friction. The guidance systems are of a full complement design, preloaded and are suitable for long, unlimited stroke lengths.

A guidance system comprises at least one carriage, one guideway, one dummy guideway, two-piece plastic closing plugs and one lubrication connector included in the delivery.

The four-row linear recirculating ball bearing and guideway assemblies are supplied with basic greasing as standard.

X-life

Linear recirculating ball bearing and guideway assemblies of the design High-Speed are supplied in X-life quality. These bearings are characterised by optimised technological characteristics, increased robustness and a longer operating life at significantly higher velocities.

High-Speed

The four-row linear recirculating ball bearing and guideway assembly KUVE25-B-HS is the design High-Speed and represents an expansion of the existing extensive KUVE range in the field of highly dynamic applications.

Systems KUVE25-B..-HS are supplied as standard with an initial greasing (greasing ready for operation). In highly dynamic applications in particular, an adequate supply of lubricant is indispensable as early as the commissioning stage.

This variant is extremely robust and is currently the fastest four-row linear recirculating ball bearing and guideway assembly with steel balls on the market. In order to achieve 10 m/s, the end pieces and ball return systems were optimised for highly dynamic requirements. As a result, the total length of the carriage is slightly longer compared to the standard version. The design envelope corresponds, as before, to DIN 645-1. The loads are supported by standard steel rolling elements.

The design High-Speed is only available in size 25. In accordance with the modular concept, it is interchangeable with the other KUVE25-B units.

The unit KUVE High-Speed is used where there are very high dynamic requirements. Since hybrid technology is not used, the full performance capacity of the rolling contact can be implemented, with the associated advantages in terms of load carrying capacity, rigidity, robustness and crash safety.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Full complement

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

Carriages

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

A generous grease reservoir and beneficial lubrication is provided by means of favourably positioned lubricant pockets in the carriage, see page 287.

Guideways

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

Location from above or below

Guideways TKVD (-ADB, -ADK) and TKVD..W are located from above and have through holes with counterbores for the fixing screws.

Guideways TKVD..-U and TKVD..-W-U are located from below and have threaded blind holes.

Slot for covering strip

Guideways TKVD..-ADB have a slot for the adhesive bonded steel covering strip ADB. Guideways TKVD..-ADK have a slot with undercut for the clip fit steel covering strip ADK, see dimension tables.

Multi-piece guideways

If the required guideway length l_{max} is greater than the value in the dimension tables, the guideways are supplied in several segments, see page 300.

Standard accessories

The scope of delivery includes various accessory parts as standard.

Dummy guideway

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

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

Plastic closing plugs

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

Optionally, brass closing plugs are also available, see page 402.

Lubrication connector

A lubrication connector for relubrication from the end is included in the scope of delivery.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Load carrying capacity

The rows of balls are in an O arrangement with two point contact on the raceways.

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

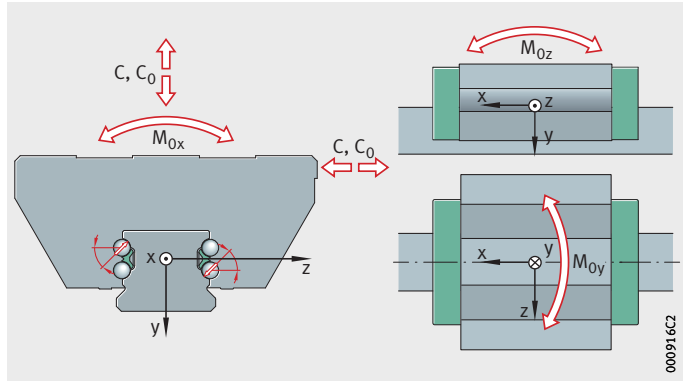


Figure 1
Load carrying capacity

Acceleration and velocity

Four-row linear recirculating ball bearing and guideway assemblies KUVE permit accelerations up to 150 m/s^2 and velocities up to 6 m/s, see table. The design High-Speed permits velocities up to 10 m/s, depending on the operating conditions.

Operating limits

Designation	Acceleration up to m/s^2	Velocity up to m/s
KUVE	150	6

Interchangeability

Carriages KWVE and guideways TKVD are interchangeable in any combination within one size, preload class and accuracy class.

Sealing

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

Standard sealing strips ensure reliable sealing and protect the rolling element system against contamination, even in critical environmental conditions, *Figure 2*, page 287.

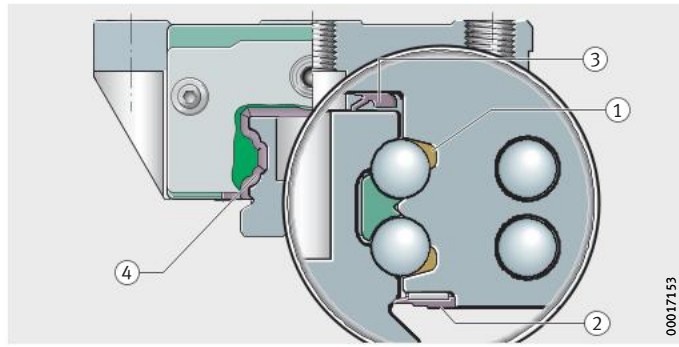
Under extremely heavy contamination load, additional wipers can be fitted, see page 362. Where necessary, additional covers must be used.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

Lubrication

Linear recirculating ball bearing and guideway assemblies KUVE..-B and KUVE..-W are suitable for oil and grease lubrication. The systems are supplied with a basic greasing. A lubrication connector for relubrication from the end is included in the scope of delivery. Optionally, other lubrication connectors are available, see page 384 and page 394.

The lubrication connectors can be screw mounted into the end piece on the left, right or end face in the design KUVE..-B, while this is only permissible on the end face in the designs KUVE High-Speed and KUVE..-W. All relubrication holes are closed off by means of grub screws. Before the lubrication connector is screwed in, the corresponding grub screw must be removed. Observe the mounting manual MON 38.



① Integrated lubrication pockets with grease reservoir
② Standard sealing strip
③ Optional sealing strip
④ Elastic wipers on end faces

Figure 2
Lubricant reservoir KUVE..-B and sealing

If lubrication connectors are fitted on the end or side, the maximum permissible screw depth must be observed, see dimension tables. If additional sealing elements KIT are used, the screw depth is increased for the end relubrication facility. The standard lubrication connector is then no longer usable. Suitable lubrication connectors must additionally be taken into consideration when ordering, see page 384 and page 394.

In order to ensure optimum lubricant distribution, we recommend that carriages of design High-Speed should be moved several times at low speed before commissioning and after maintenance and lubrication intervals.

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Operating temperature

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

Corrosion-resistant design

Four-row linear recirculating ball bearing and guideway assemblies KUVE..-B are available in the accuracy class G3 and also in a corrosion-resistant design with the special coatings Corrotect (with the preload class V1 or V2) and Protect A (with the preload class V2), see page 56.

Designs

Linear recirculating ball bearing and guideway assemblies KUVE..-B are available in numerous designs, see table.

Available designs

Design	Description
–	Standard carriage
E	Expanded design (carriage without screw threads)
EC	Expanded design, short carriage (carriage without screw threads)
ES	Expanded design, narrow carriage
ESC	Expanded design, short, narrow carriage
H	High carriage
HL	High, long carriage
HS	High-Speed
E-HS	High-Speed, expanded design
ES-HS	High-Speed, expanded design, narrow carriage
H-HS	High-Speed, high carriage
N-HS	High-Speed, low carriage
S-HS	High-Speed, narrow carriage
SN-HS	High-Speed, narrow, low 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

Wide linear recirculating ball bearing and guideway assemblies are available in two designs, see table.

Available designs

Design	Description
W	Wide carriage and wide guideway
WL	Wide, long carriage and wide guideway

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Design and safety guidelines

Preload

Linear recirculating ball bearing and guideway assemblies KUVE are available in the preload classes V0, V1 and V2, see table.

Preload classes

Preload class	Preload setting
V0	Very small clearance to clearance-free
V1[1)]	0,04 · C
V2[2)]	0,1 · C

1) Standard preload class.

2) Not for design High-Speed.

Influence of preload on the linear guidance system

The preload of a linear guidance system defines the rigidity of the system. The four-row linear recirculating ball bearing and guideway assembly KUVE can be obtained in the preload classes V0 to V2, where the preload class V1 is the standard preload class. If special requirements are present, the alternative preload classes may be used.

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

Friction

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

Coefficient of friction

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

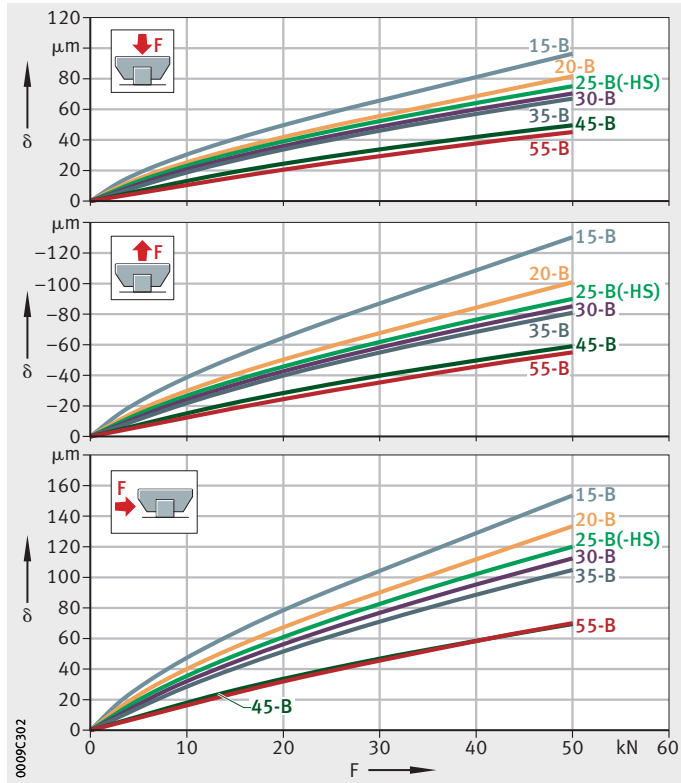
Rigidity

The deflection curves show the deformation of the linear recirculating ball bearing and guideway assembly KUVE, including the deformation of the screw connections to the adjacent construction, *Figure 3*, page 290 to *Figure 18*, page 297.

The rigidity curves are valid only for screw mounting in accordance with the mounting manual MON 38 and the standard preload class V1.

ALMOTION B.V. Nijverheidsweg 14 | 8162 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

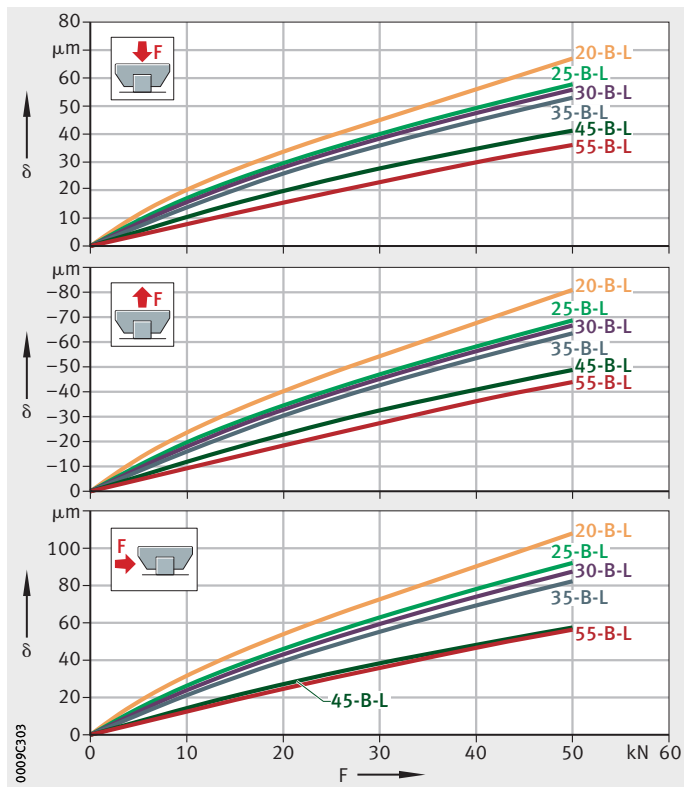
Four-row linear recirculating ball bearing and guideway assemblies



KUVE15-B
KUVE20-B
KUVE25-B
KUVE25-B-HS
KUVE30-B
KUVE35-B
KUVE45-B
KUVE55-B

δ = deflection
F = load

Figure 3
Deflection curves for compressive, tensile and lateral load

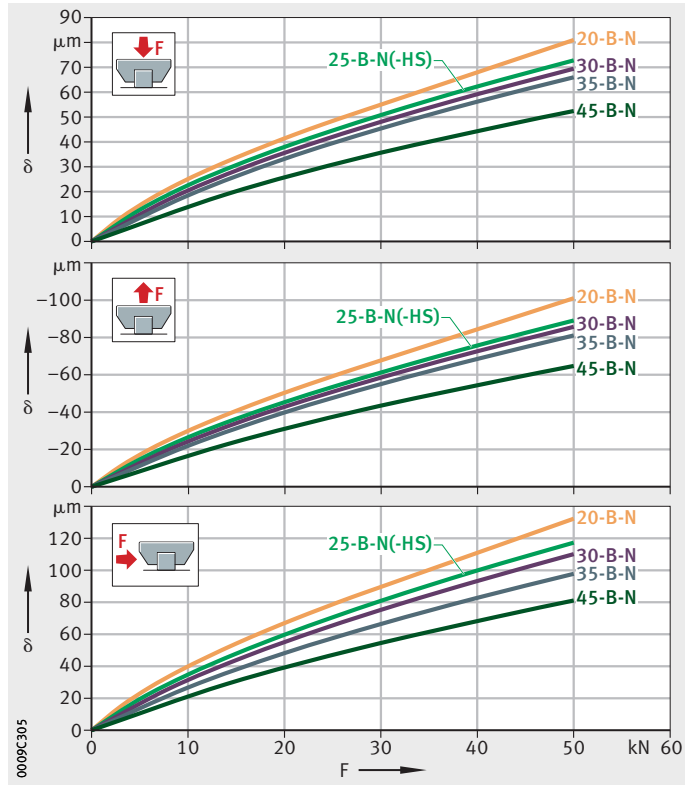


KUVE20-B-L
KUVE25-B-L
KUVE30-B-L
KUVE35-B-L
KUVE45-B-L
KUVE55-B-L

δ = deflection
F = load

Figure 4
Deflection curves for compressive, tensile and lateral load

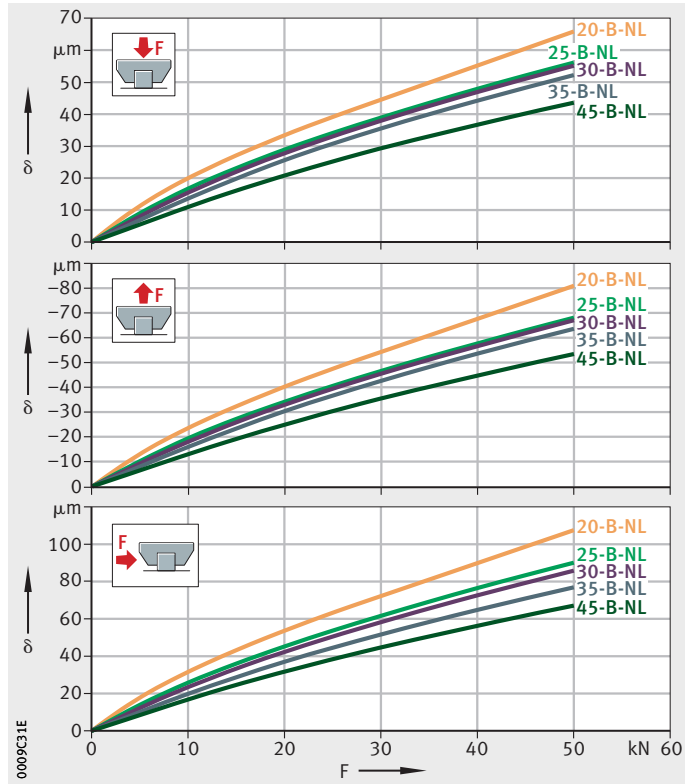
ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl



KUVE20-B-N
KUVE25-B-N
KUVE25-B-N-HS
KUVE30-B-N
KUVE35-B-N
KUVE45-B-N

δ = deflection
F = load

Figure 5
Deflection curves for compressive, tensile and lateral load



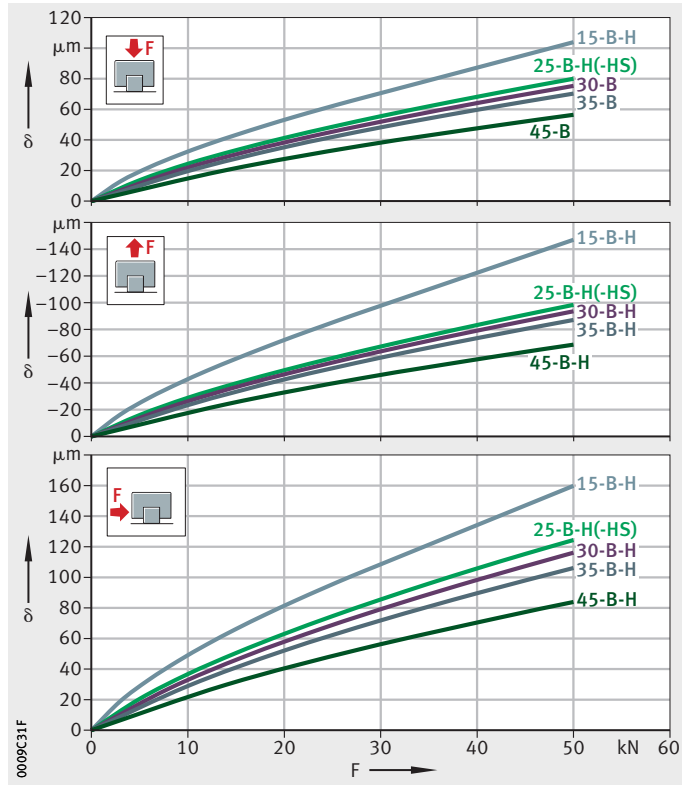
KUVE20-B-NL
KUVE25-B-NL
KUVE30-B-NL
KUVE35-B-NL
KUVE45-B-NL

δ = deflection
F = load

Figure 6
Deflection curves for compressive, tensile and lateral load

ALMOTION B.V. Nijverheidsweg 14 | 8162 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

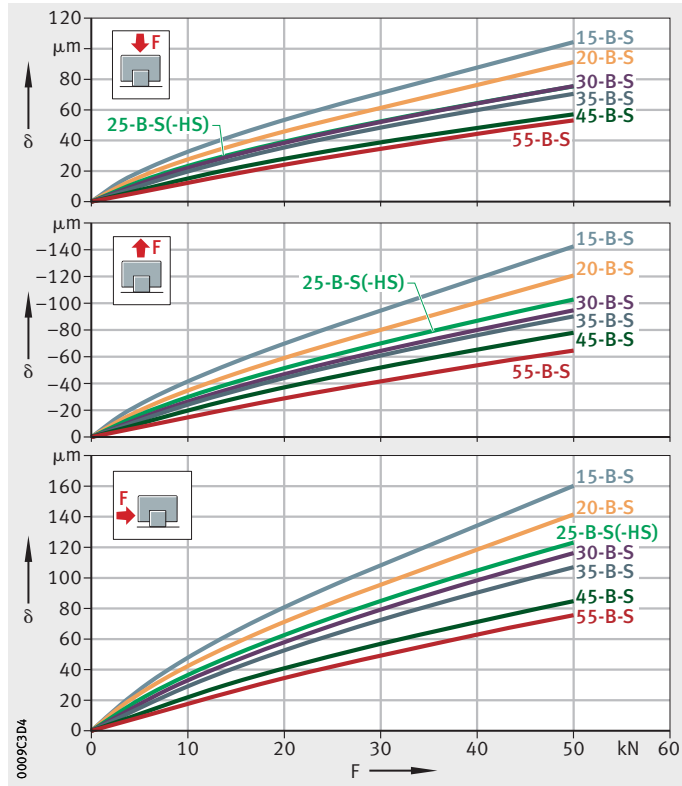
Four-row linear recirculating ball bearing and guideway assemblies



KUVE15-B-H
KUVE25-B-H
KUVE25-B-H-HS
KUVE30-B-H
KUVE35-B-H
KUVE45-B-H

δ = deflection
F = load

Figure 7
Deflection curves for compressive, tensile and lateral load

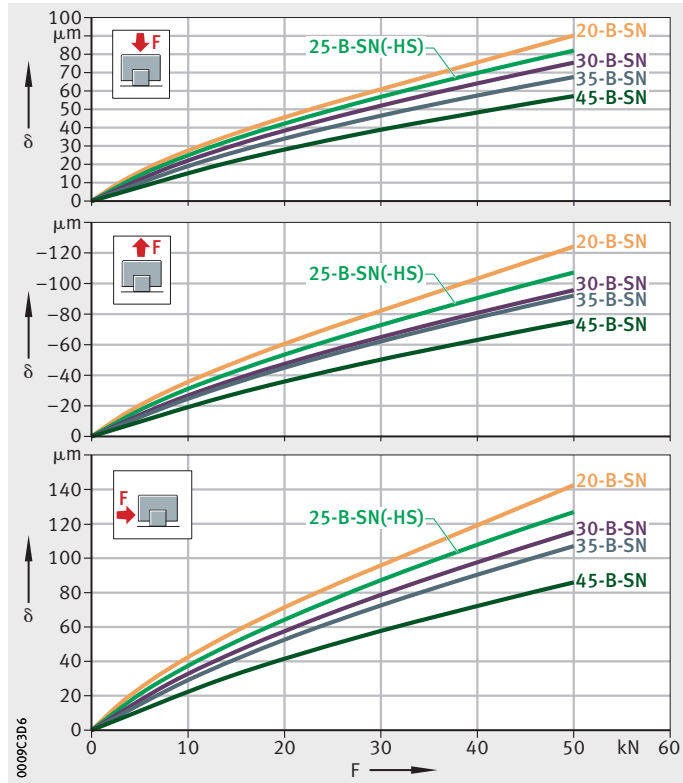


KUVE15-B-S
KUVE20-B-S
KUVE25-B-S
KUVE25-B-S-HS
KUVE30-B-S
KUVE35-B-S
KUVE45-B-S
KUVE55-B-S

δ = deflection
F = load

Figure 8
Deflection curves for compressive, tensile and lateral load

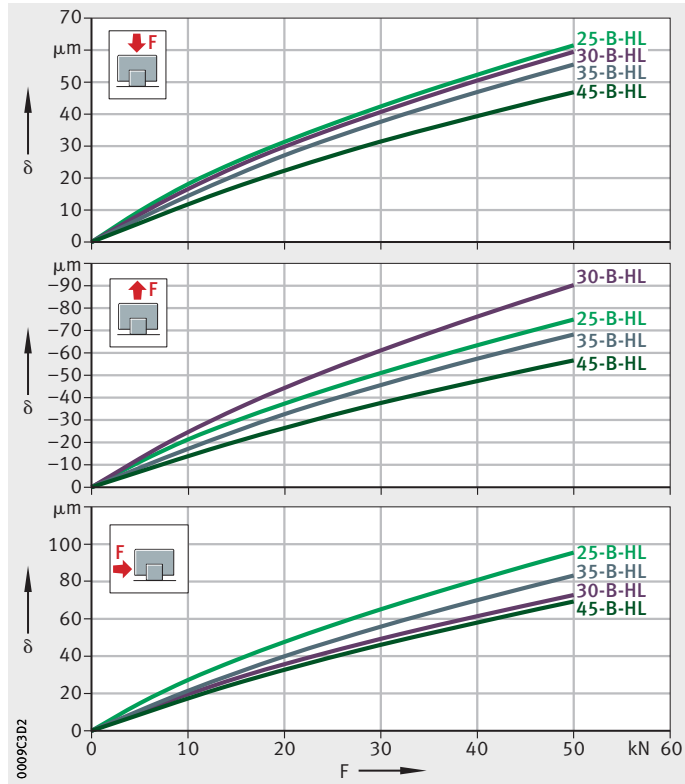
ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl



KUVE20-B-SN
KUVE25-B-SN
KUVE25-B-SN-HS
KUVE30-B-SN
KUVE35-B-SN
KUVE45-B-SN

δ = deflection
F = load

Figure 9
Deflection curves for compressive, tensile and lateral load



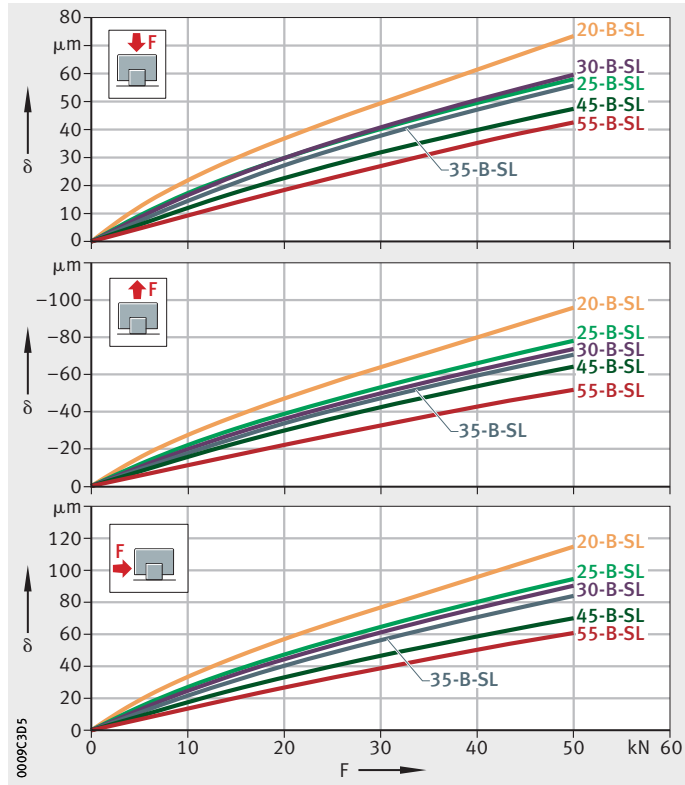
KUVE25-B-HL
KUVE30-B-HL
KUVE35-B-HL
KUVE45-B-HL

δ = deflection
F = load

Figure 10
Deflection curves for compressive, tensile and lateral load

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

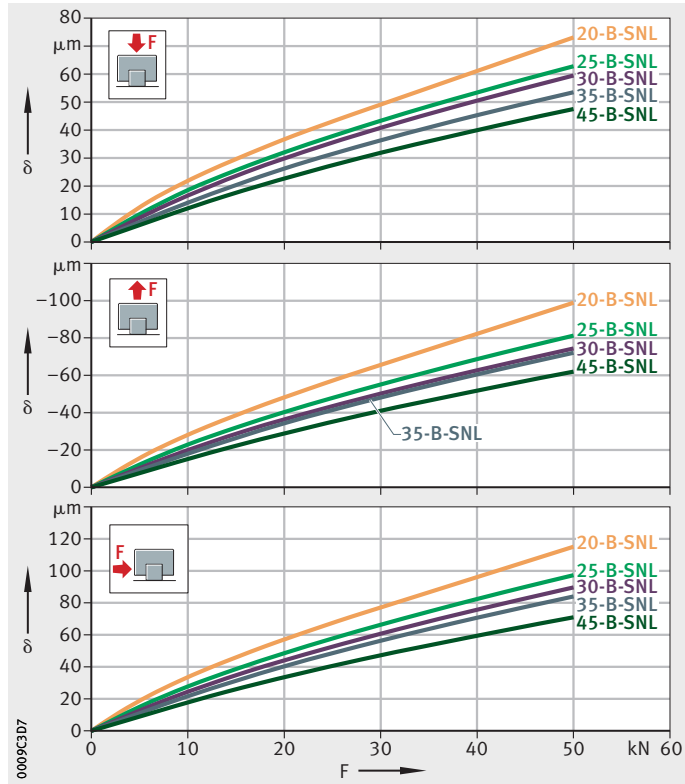
Four-row linear recirculating ball bearing and guideway assemblies



KUVE20-B-SL
KUVE25-B-SL
KUVE30-B-SL
KUVE35-B-SL
KUVE45-B-SL
KUVE55-B-SL

δ = deflection
F = load

Figure 11
Deflection curves for compressive, tensile and lateral load

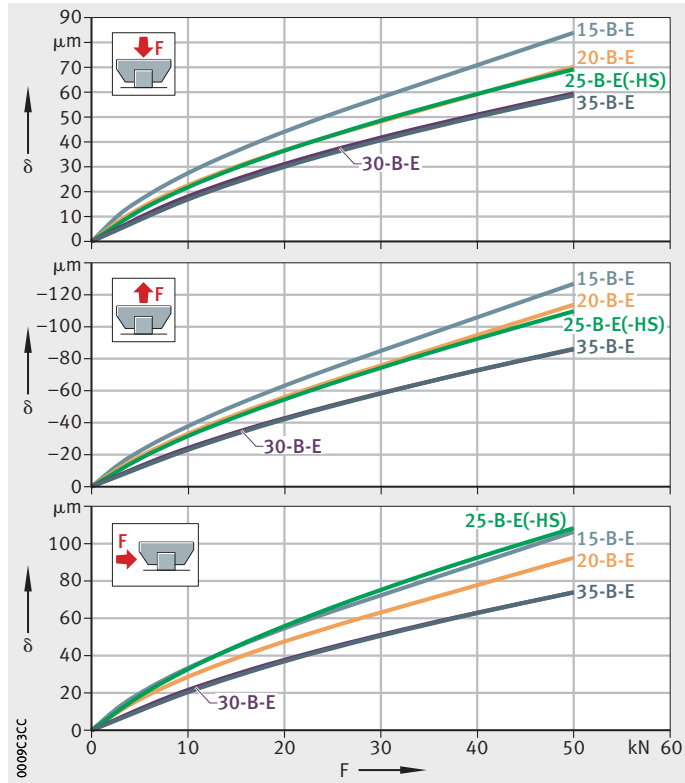


KUVE20-B-SNL
KUVE25-B-SNL
KUVE30-B-SNL
KUVE35-B-SNL
KUVE45-B-SNL

δ = deflection
F = load

Figure 12
Deflection curves for compressive, tensile and lateral load

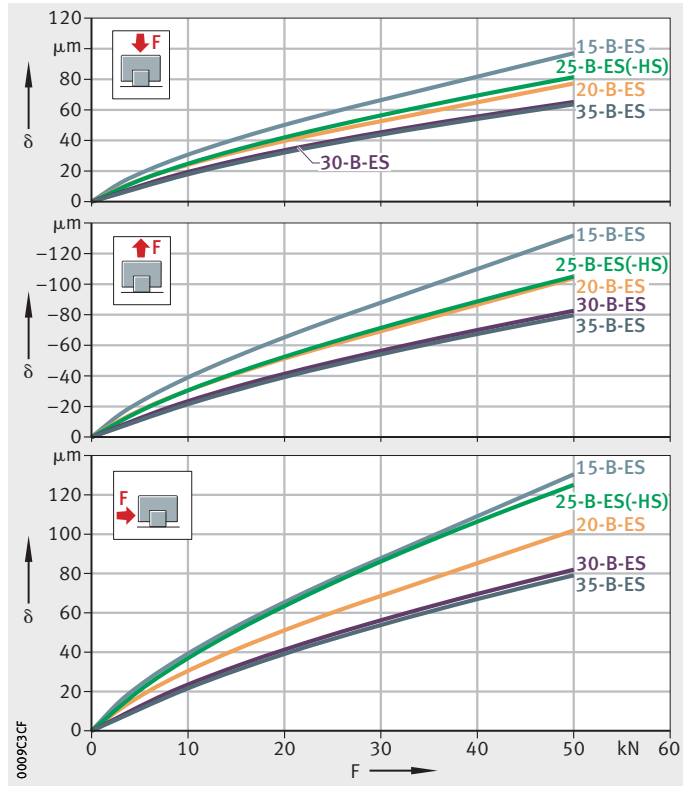
ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl



KUVE15-B-E
KUVE20-B-E
KUVE25-B-E
KUVE25-B-E-HS
KUVE30-B-E
KUVE35-B-E

δ = deflection
F = load

Figure 13
Deflection curves for compressive, tensile and lateral load



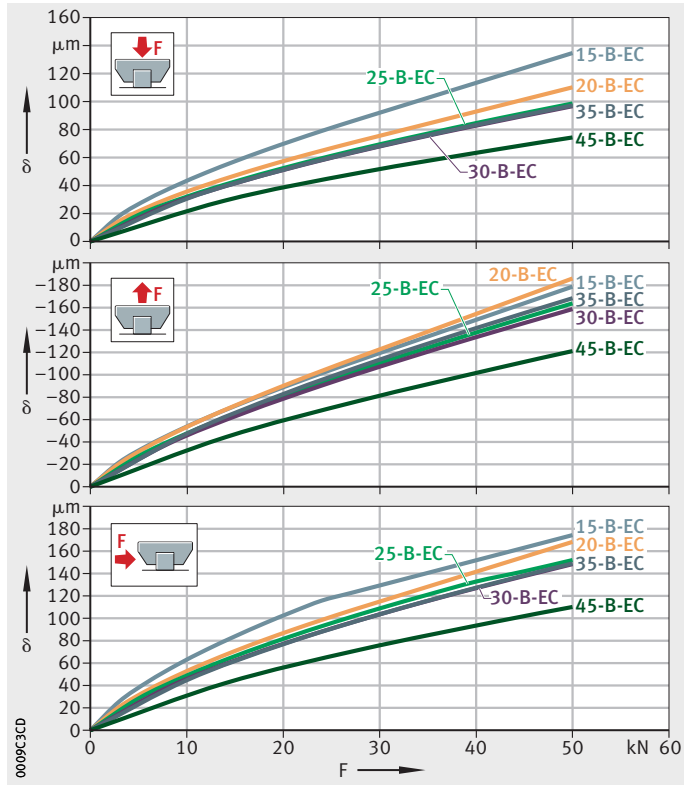
KUVE15-B-ES
KUVE20-B-ES
KUVE25-B-ES
KUVE25-B-ES-HS
KUVE30-B-ES
KUVE35-B-ES

δ = deflection
F = load

Figure 14
Deflection curves for compressive, tensile and lateral load

ALMOTION B.V. Nijverheidsweg 14 | 8162 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

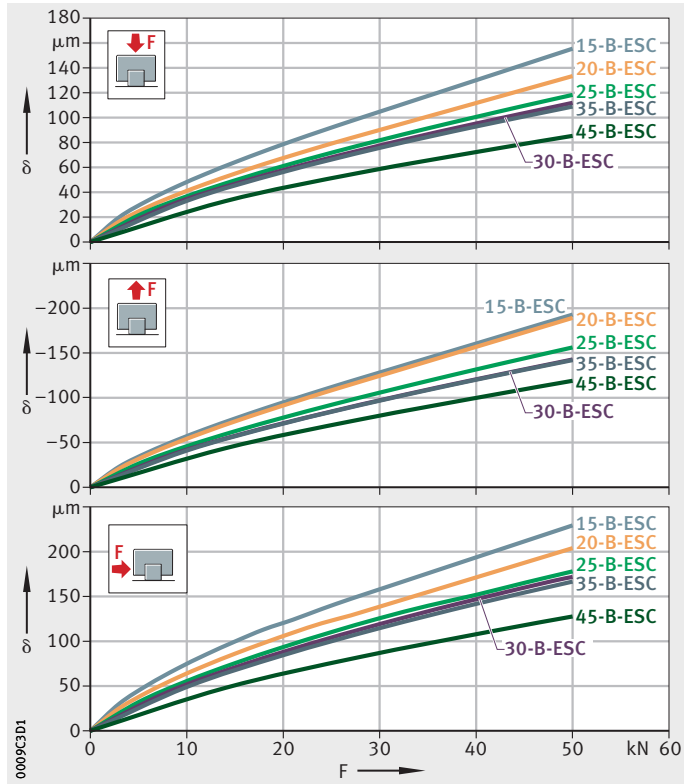
Four-row linear recirculating ball bearing and guideway assemblies



KUVE15-B-EC
KUVE20-B-EC
KUVE25-B-EC
KUVE30-B-EC
KUVE35-B-EC
KUVE45-B-EC

δ = deflection
F = load

Figure 15
Deflection curves for compressive, tensile and lateral load

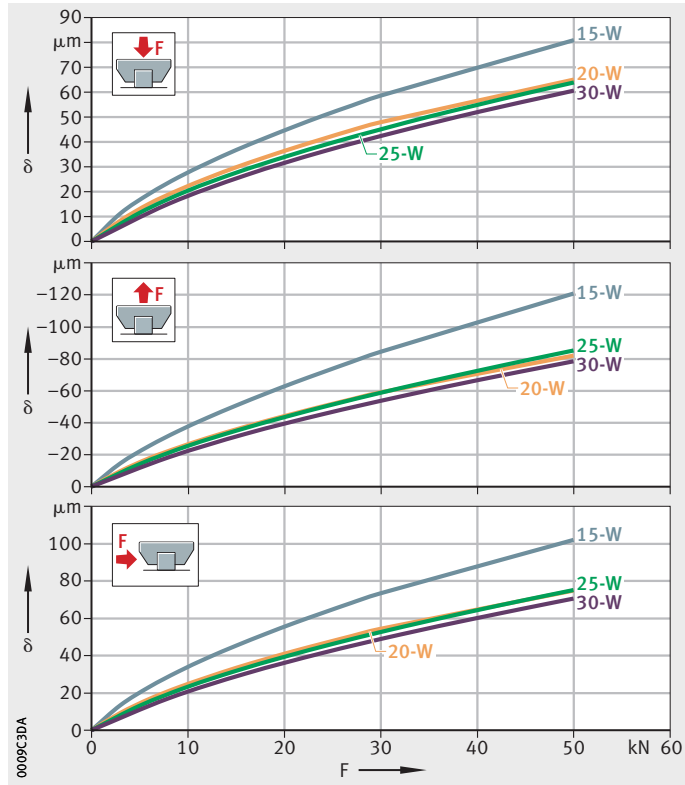


KUVE15-B-ESC
KUVE20-B-ESC
KUVE25-B-ESC
KUVE30-B-ESC
KUVE35-B-ESC
KUVE45-B-ESC

δ = deflection
F = load

Figure 16
Deflection curves for compressive, tensile and lateral load

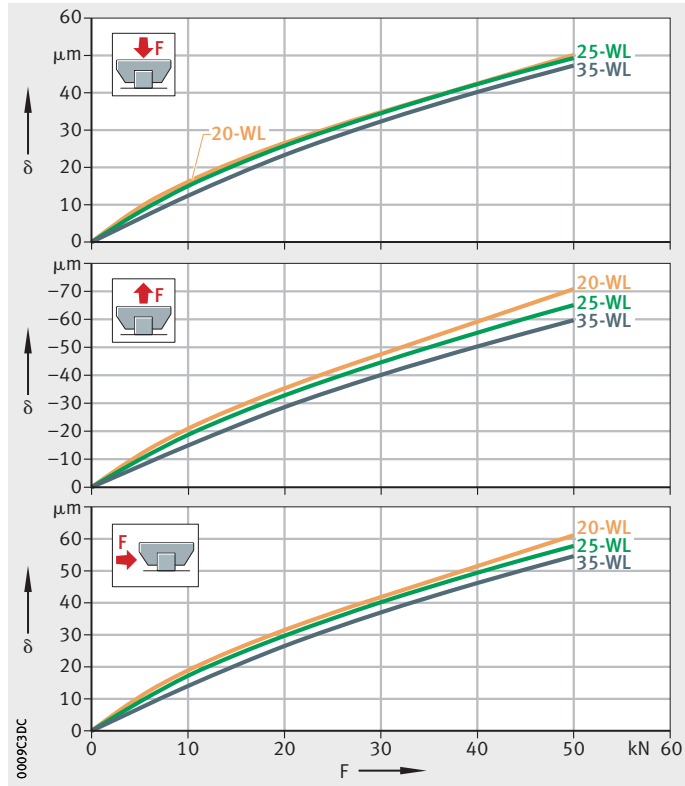
ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl



KUVE15-W
KUVE20-W
KUVE25-W
KUVE30-W

δ = deflection
F = load

Figure 17
Deflection curves for compressive, tensile and lateral load



KUVE20-WL
KUVE25-WL
KUVE35-WL

δ = deflection
F = load

Figure 18
Deflection curves for compressive, tensile and lateral load

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

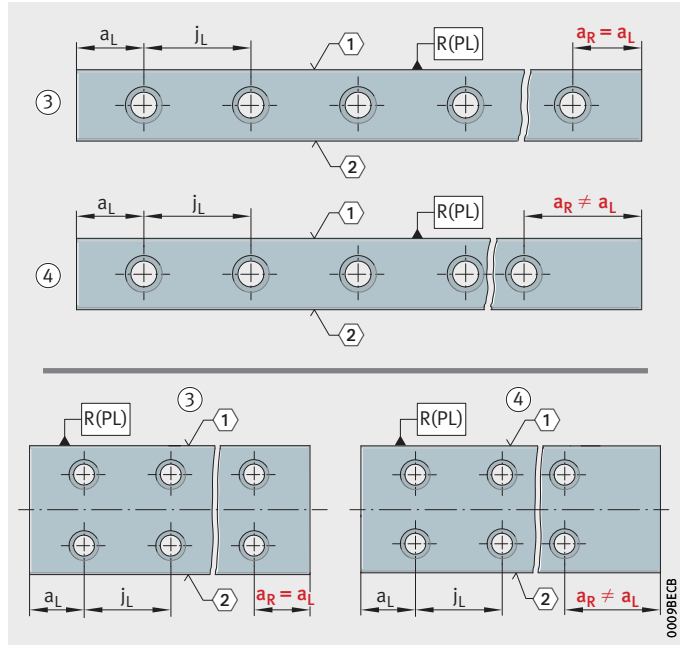
Four-row linear recirculating ball bearing and guideway assemblies

Hole patterns of guideways

Unless specified otherwise, the guideways have a symmetrical hole pattern where $a_L = a_R$, *Figure 19*.

An asymmetrical hole pattern may also be available upon request. In this case, $a_L \geqq a_{L\,min}$ and $a_R \geqq a_{R\,min}$, *Figure 19*.

Irrespective of the orientation of the locating face, a_L is on the left and a_R on the right, *Figure 19*. When ordering, the required orientation of the locating face (top or bottom) must be indicated.



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

Figure 19
Hole patterns of guideways with one or two rows of holes

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Maximum number of pitches between holes

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

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

The spacings a_L and a_R are generally determined as follows:

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

For guideways with a symmetrical hole pattern:

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

Number of holes:

$$x = n + 1$$

a_L, a_R mm
Spacing between the start and the end of the guideway and the nearest hole, *Figure 19*, page 298

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

l mm
Guideway length

n –
Maximum possible number of pitches between holes

j_L mm
Spacing between holes

x –
Number of holes.

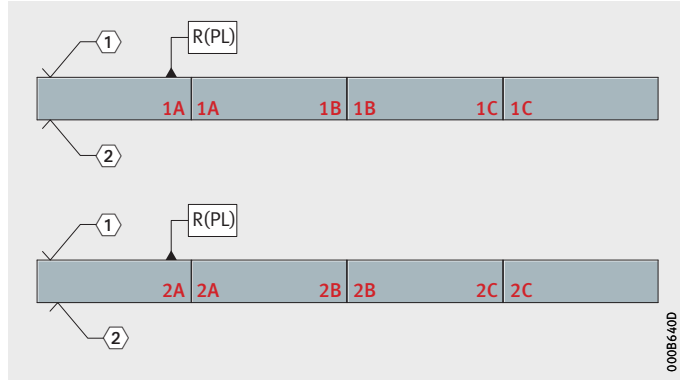
If the minimum values for a_L and a_R are not observed, the counterbores of the holes may be intersected.
Risk of injury.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Multi-piece guideways

If the guideway length required is greater than l_{max}, see dimension tables, or joined guideways are required, these guideways are made up from segments that together comprise the total required length. The segments are matched to each other and marked, *Figure 20*. The pitch is always located centrally between the fixing holes.



① Locating face
② Marking

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

Figure 20
Marking of multi-piece guideways

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

Guideways suitable for joining as required

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

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

This design facilitates easier logistics.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

ALMOTION

Demands on the adjacent construction

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

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

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

Geometrical and positional accuracy of the adjacent surfaces

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

Observe the tolerances for the mounting surface and parallelism of the mounted guideways, *Figure 21*, page 302, and table, page 303.

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

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

Height difference ΔH

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

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

ΔH μm
Maximum permissible deviation from the theoretically precise position, *Figure 21*, page 302
a –
Factor, dependent on the preload class, see table
b mm
Centre distances between guidance elements.

Factor a

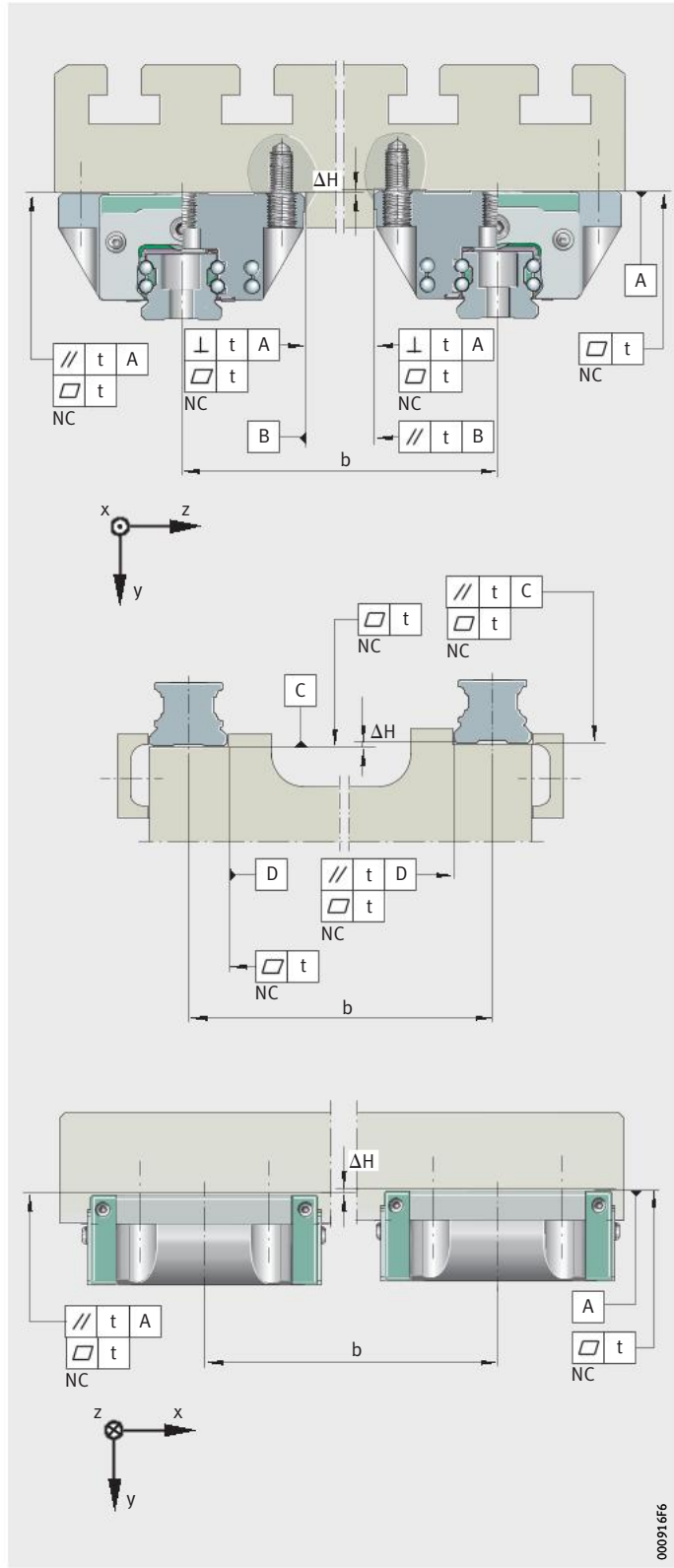
Preload class	Factor a
V0	0,2
V1[1)]	0,2
V2	0,1

1) Standard preload class.

Observe the guidelines in the mounting manual MON 38 for KUVE.

ALMOTION B.V. Nijverheidsweg 14 | 8162 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

Four-row linear recirculating ball bearing and guideway assemblies



NC = not convex

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

Figure 21
Tolerances of mounting surfaces and parallelism of mounted guideways and carriages

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Parallelism of mounted guideways

For guideways arranged in parallel, the values for t are in accordance with *Figure 21*, page 302, and the table. If the maximum values are used, this may increase the displacement resistance.

Values for geometry and position

Guideway	Preload class	
	V0, V1	V2
	Parallelism, flatness and perpendicularity t µm	
TKVD15-B (-U)	8	5
TKVD15-W (-U)		
TKVD20 (-U, -ADB, -ADK)	9	6
TKVD20-W (-U)		
TKVD25 (-U, -ADB, -ADK)	11	7
TKVD25-W (-U)		
TKVD30 (-U, -ADB, -ADK)	13	8
TKVD30-W (-U)		
TKVD35 (-U, -ADB, -ADK)	15	10
TKVD35-W (-U)		
TKVD45 (-U, -ADB, -ADK)	17	12
TKVD55-B (-U, -ADB, -ADK)	20	14

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

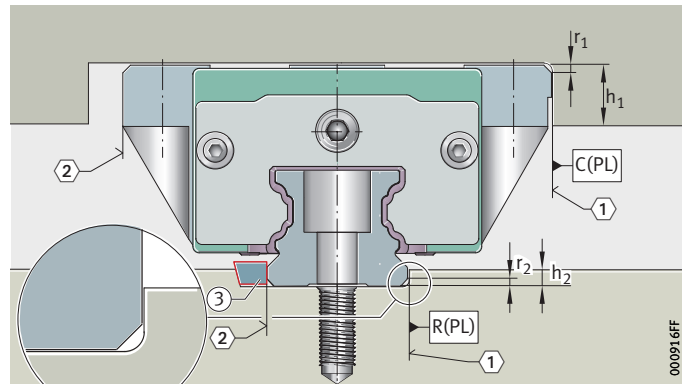
Four-row linear recirculating ball bearing and guideway assemblies

Locating heights and corner radii

For the design of the locating heights and corner radii, see table and *Figure 22*.

Locating heights, corner radii

Designation	Locating heights		Corner radii	
	h_1 mm	h_2 mm max.	r_1 mm max.	r_2 mm max.
KUVE15-B (-H, -S, -E, -EC, -ES, -ESC)	4,5	3,5	1	0,3
KUVE15-W	4,5	1,6	1	0,5
KUVE20-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -E, -EC, -ES, -ESC)	5	4	1	0,5
KUVE20-W (-WL)	5	4	1	0,5
KUVE25-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -E, -EC, -ES, -ESC)	5	4,5	1	0,8
KUVE25-B (-E, -ES, -H, -S, -SN, -N) -HS	5	4,5	1	0,8
KUVE25-W (-WL)	5	4,5	1	0,8
KUVE30-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -E, -EC, -ES, -ESC)	6	5	1	0,8
KUVE30-W	6	5	1	0,8
KUVE35-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -E, -EC, -ES, -ESC)	6,5	6	1	0,8
KUVE35-WL	6,5	6	1	0,8
KUVE45-B (-L, -H, -HL, -S, -SL, -SN, -SNL, -N, -NL, -EC, -ESC)	9	8	1	1
KUVE55-B (-L, -S, -SL)	12	10	1	1,5



① Locating face
② Marking
③ Vee strip

Figure 22
Locating heights and corner radii

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Accuracy

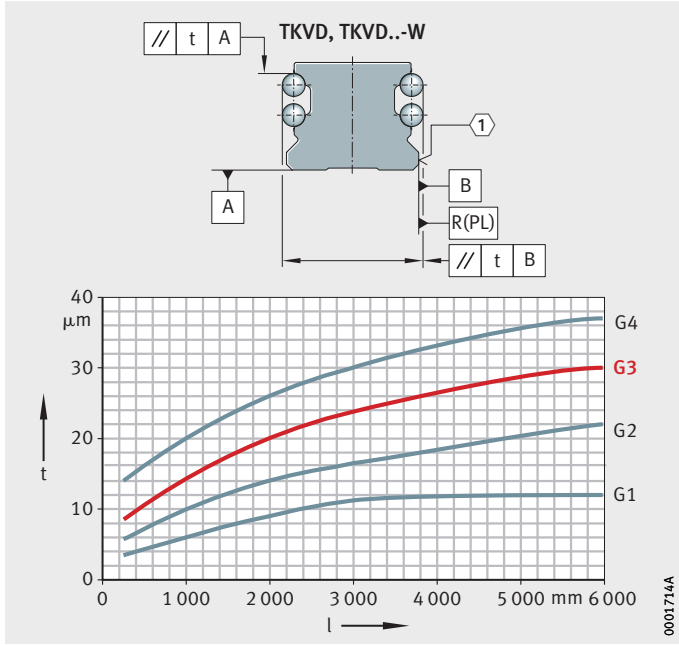
Accuracy classes

Four-row linear recirculating ball bearing and guideway assemblies are available in the accuracy classes G1 to G4, *Figure 23* and table, page 306. The standard is class G3.

Parallelism of raceways to locating surfaces

The parallelism tolerances of the guideways are dependent on the accuracy class, *Figure 23*.

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



t = parallelism tolerance
l = total guideway length

1 Locating face

Figure 23
Accuracy classes and parallelism tolerances of guideways

Tolerances

The tolerances are arithmetic mean values, see table and *Figure 24*, page 306. They are relative to the centre point of the screw mounting or locating surfaces of the carriage.

The dimensions H and A_1 should always remain within the tolerance irrespective of the position of the carriage on the guideway, see table, page 306.

ALMOTION B.V. Nijverheidsweg 14 | 8162 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Tolerances for height H and spacing A_1

Tolerance		Accuracy			
		G1 µm	G2 µm	G3[1] µm	G4 µm
Tolerance for height	H	±10	±20	±25	±80
Difference in height[2]	ΔH	5	10	15	20
Tolerance for spacing	A_1	±10	±15	±20	±80
Difference in spacing[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.

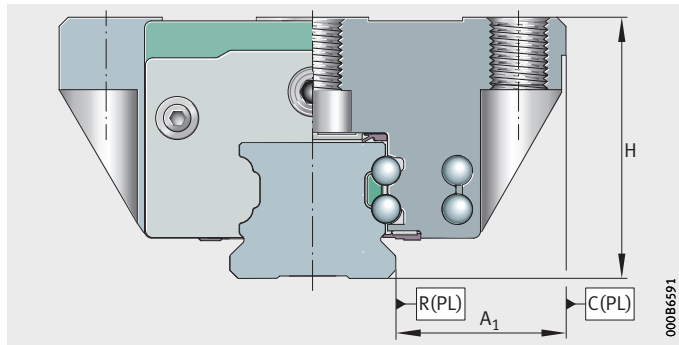


Figure 24
Datum dimensions for accuracy

Units with coating

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

Coated systems are only available in the accuracy class G3.

Tolerances for coated parts

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

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

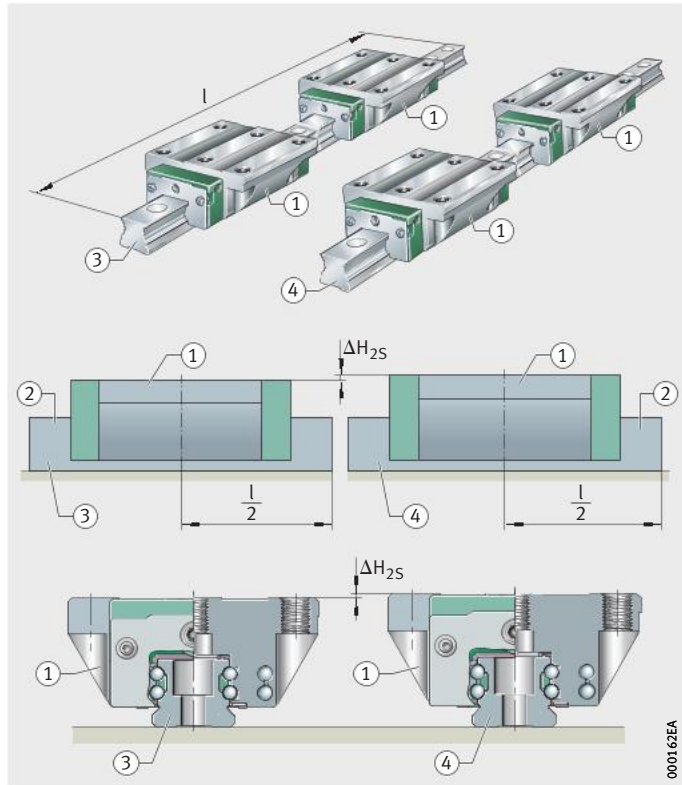
2) Difference between several carriages on one guideway, measured at the same point on the guideway.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

Height sorting 2S

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

The height difference ΔH_{2S} is measured at the centre of the guideway (l/2). At this point, the height difference between all carriages of linear recirculating ball bearing and guideway assemblies supplied as a set is max. ΔH_{2S}, *Figure 25* and table.



l = guideway length

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

Figure 25
Height sorting 2S

Height difference in 2S

Height difference	Accuracy		
	G1	G2	G3
	µm	µm	µm
ΔH_{2S}[1)]	10	20	25

1) Measured at the centre of the guideway.

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Positional and length tolerances of guideways

The positional tolerances are not dependent on the guideway length, *Figure 26*, *Figure 27* and tables, page 309.

The hole pattern corresponds to DIN EN ISO 1101.

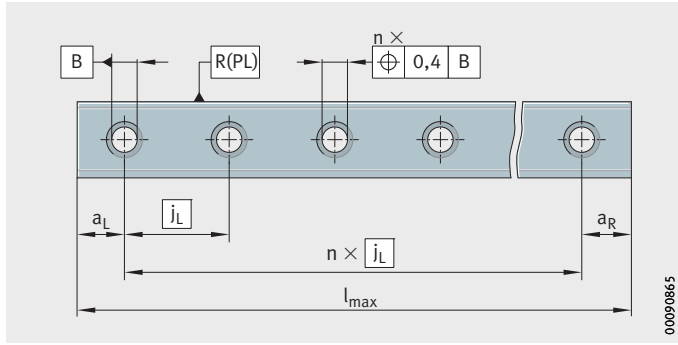


Figure 26
Positional and length tolerances of guideways TKVD with one row of holes

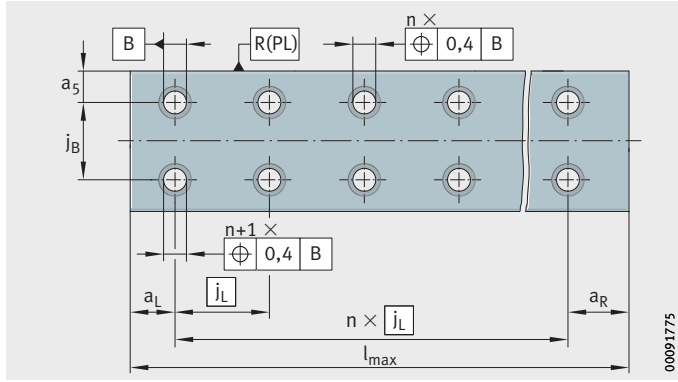


Figure 27
Positional and length tolerances of guideways TKVD..-W with two rows of holes

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Length tolerances of guideways

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

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

Segments for multi-piece guideways

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

1) Minimum length of one segment = 600 mm.

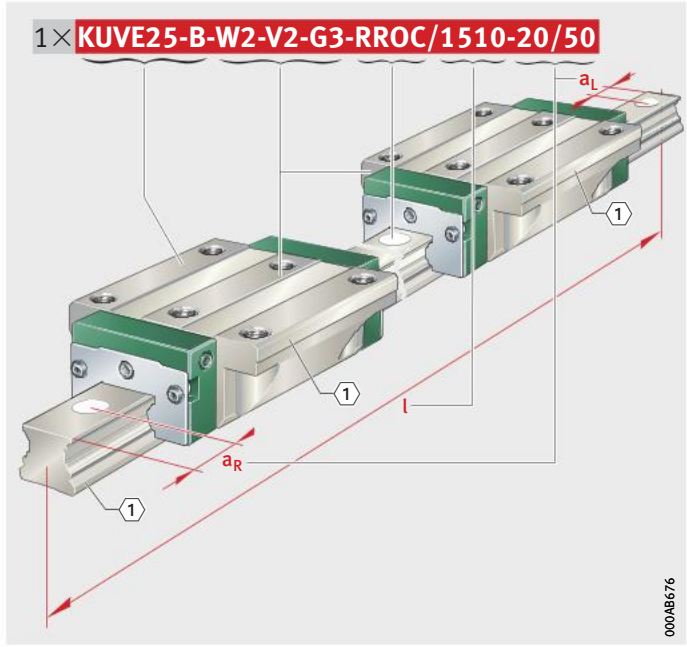
ALMOTION B.V. Nijverheidsweg 14 | 8162 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Ordering example, ordering designation

Unit, guideway with asymmetrical hole pattern:

Unit	Linear recirculating ball bearing and guideway assembly	
	with two carriages per guideway	KUVE
	Size	25
	Carriage type, full complement	B
	Number of carriages per unit	W2
	Preload class	V2
	Accuracy class	G3
	With Corrotect coating	RROC
	Length of guideway	1 510 mm
	a_L	20 mm
	a_R	50 mm
Ordering designation	1×**KUVE25-B-W2-V2-G3-RROC/1510-20/50**, *Figure 28*	



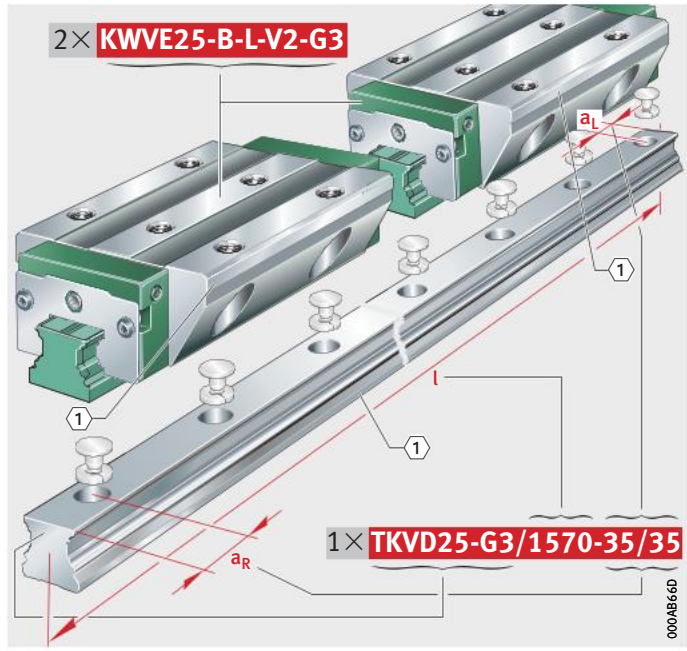
1 Locating face

Figure 28
Ordering example, ordering designation

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Carriage and guideway separate, guideway with symmetrical hole pattern:

Carriages	Carriage for four-row linear ball bearing and guideway assembly	KWVE
	Size	25
	Carriage type, full complement	B
	Long carriage	L
	Preload class	V2
	Accuracy class	G3
Ordering designation	2×**KWVE25-B-L-V2-G3**, *Figure 29*	
Guideway	Guideway for carriage	TKVD
	Size	25
	Accuracy class	G3
	Length of guideway	1 570 mm
	a_L	35 mm
	a_R	35 mm
Ordering designation	1×**TKVD25-G3/1570-35/35**, *Figure 29*	



1 Locating face

Figure 29
Ordering example, ordering designation

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
Standard, L, N and NL carriages

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions										
	l_{max} [2]	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_s	J_L	J_{LZ}	j_L	a_L, a_R [3] min.	a_L, a_R [3] max.
KUVE15-B	2 880	24	47	61,2	16	38	15	4,5	39,8	1,3	30	26	60	20	53
KUVE20-B	5 880	30	63	71,4	21,5	53	20	5	50,4	1,3	40	35	60	20	53
KUVE20-B-L				88,9					67,9						
KUVE20-B-N		27		71,4					50,4						
KUVE20-B-NL				88,9					67,9						
KUVE25-B	5 880	36	70	83,3	23,5	57	23	6,5	60,7	1,65	45	40	60	20	53
KUVE25-B-L				109,1					86,5						
KUVE25-B-N		31		83,3					60,7						
KUVE25-B-NL				109,1					86,5						
KUVE30-B	5 860	42	90	99	31	72	28	9	72	1,65	52	44	80	20	71
KUVE30-B-L				127					100						
KUVE30-B-N		38		99					72						
KUVE30-B-NL				127					100						
KUVE35-B	5 860	48	100	112	33	82	34	9	80	1,65	62	52	80	20	71
KUVE35-B-L				145					113						
KUVE35-B-N		44		112					80						
KUVE35-B-NL				145					113						
KUVE45-B	5 835	60	120	140,6	37,5	100	45	10	102,5	2,2	80	60	105	20	94
KUVE45-B-L				172,7					134,6						
KUVE45-B-N		52		140,6					102,5						
KUVE45-B-NL				172,7					134,6						
KUVE55-B	5 820	70	140	173,6	43,5	116	53	12	132	2,2	95	70	120	20	107
KUVE55-B-L				211,6					170						

For further table values, see page 314 and page 315.

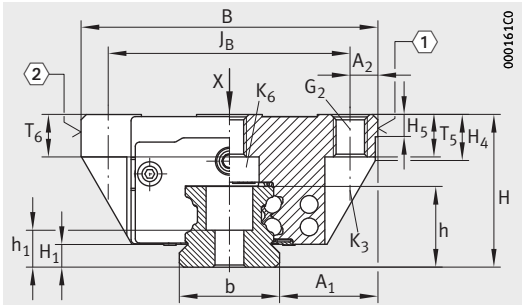
① Locating face. ② Marking.

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

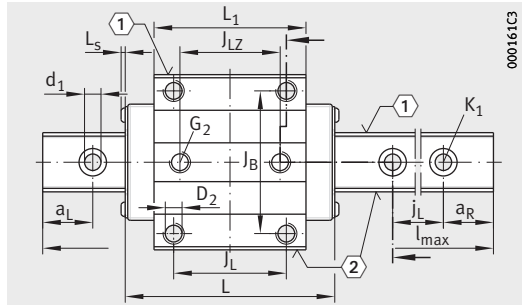
2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

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

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.linearregeleding.nl | www.linearregelingshop.nl | www.linearmotion.nl



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



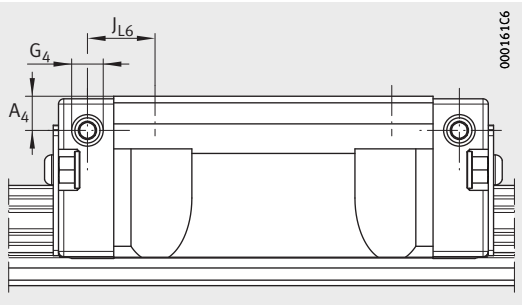
KUVE..-B, KUVE..-B-L, KUVE..-B-N, KUVE..-B-NL
View X rotated 90°

							Fixing screws[1)]											
H_1	H_4	H_5	T_5	T_6	h	h_1	G_2		K_1		K_3		K_6		K_6		d_1	D_2
							DIN ISO 4762-12.9								DIN 7984-8.8			
								M_A Nm		M_A Nm		M_A Nm		M_A Nm		M_A Nm		
4,3	7,6	4,75	7	5,8	15	7,6	M5	5,8	M4	5	M4	5	–	–	M4	2	4,6	4,5
4,5	11	5,25	10	7,5	17	8,6	M6	10	M5	10	M5	10	M5	10	–	–	5,8	5,5
	8,6		8	6							M5	10	–	–	M5	4		
5,1	10,9	5,25	10	10	18,7	8,2	M8	24	M6	17	M6	17	M6	17	–	–	6,8	6,7
	9,3			8									–	–	M6	8		
5,9	13,8	6,25	12	11,5	23,5	11	M10	41	M8	41	M8	41	M8	41	–	–	9	8,6
	9,8			9									–	–	M8	12		
6,7	14,3	6,75	13	12,3	27	14,5	M10	41	M8	41	M8	41	M8	41	–	–	9	8,6
	10,3			8,3									–	–	M8	12		
9,7	19,9	9,25	15	15	34,2	15,7	M12	83	M12	140	M10	83	M10	83	–	–	13,4	10,6
	17,2			11									–	–	M10	35		
13,5	22,7	11,25	21	18	41,5	19	M14	140	M14	220	M12	140	M12	140	–	–	15,4	12,5

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.linearregeleding.nl | www.linearregeledingshop.nl | www.linearmotion.nl

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		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE15-B	KWVE15-B	0,2	TKVD15-B[3]	1,44	4,3	M3	5,5
KUVE20-B	KWVE20-B	0,44	TKVD20	2,2	7,7	M5	7
KUVE20-B-L	KWVE20-B-L	0,59					
KUVE20-B-N	KWVE20-B-N	0,37			4,7		
KUVE20-B-NL	KWVE20-B-NL	0,51					
KUVE25-B	KWVE25-B	0,68	TKVD25	2,7	11	M6	7
KUVE25-B-L	KWVE25-B-L	1					
KUVE25-B-N	KWVE25-B-N	0,56			6		
KUVE25-B-NL	KWVE25-B-NL	0,82					
KUVE30-B	KWVE30-B	1,2	TKVD30	4,3	11,5	M6	7
KUVE30-B-L	KWVE30-B-L	1,7					
KUVE30-B-N	KWVE30-B-N	1			7,5		
KUVE30-B-NL	KWVE30-B-NL	1,5					
KUVE35-B	KWVE35-B	1,75	TKVD35	5,7	12,3	M6	7
KUVE35-B-L	KWVE35-B-L	2,52					
KUVE35-B-N	KWVE35-B-N	1,56			8,3		
KUVE35-B-NL	KWVE35-B-NL	2,23					
KUVE45-B	KWVE45-B	3,3	TKVD45	9,2	16,5	M6	7
KUVE45-B-L	KWVE45-B-L	4,3					
KUVE45-B-N	KWVE45-B-N	2,72			8,5		
KUVE45-B-NL	KWVE45-B-NL	3,38					
KUVE55-B	KWVE55-B	5,5	TKVD55-B	14	15	M6	7
KUVE55-B-L	KWVE55-B-L	6,6					

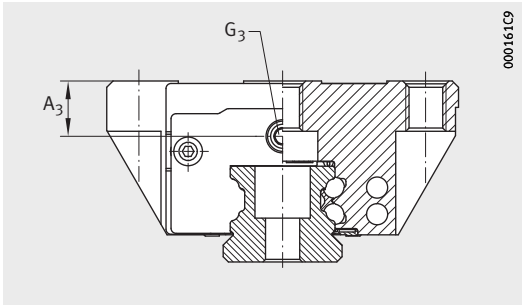
1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

2) Maximum permissible screw depth for lubrication connectors.

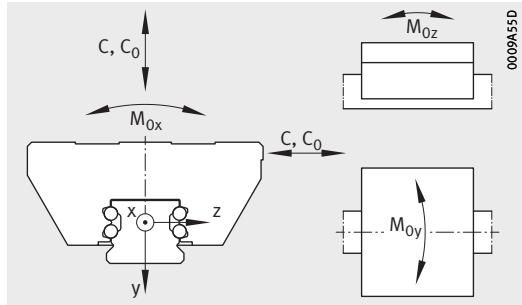
3) The new carriages cannot be used on the previous guideways TKVD15 or TKVD15-U.

4) Lubrication connectors are included loose:
- S04 with KUVE20-B
- S05 with KUVE25-B to KUVE55-B
- S16 with KUVE15-B.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31 (0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

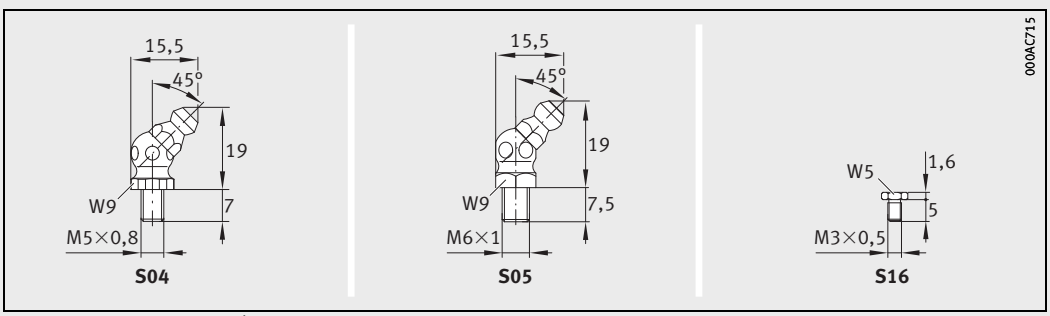


Lubrication connector on end face



Load directions

				Load carrying capacity				
A_4	G_4		J_{L6}	Basic load ratings[1]		Moment ratings		
		[2]		dyn. C	stat. C_0	M_{0x}	M_{0y}	M_{0z}
				N	N	Nm	Nm	Nm
3,2	M3	5,5	9,1	7 200	14 500	150	100	100
4,6	M5	5,5	9,4	13 100	27 000	332	240	240
			18,9	16 200	36 500	452	430	430
3,3	M3		9,4	13 100	27 000	332	240	240
			18,9	16 200	36 500	452	430	430
6,5	M6	7	12,85	17 900	37 000	510	395	395
			25,75	23 400	54 000	745	825	825
4	M3	6	12,05	17 900	37 000	510	395	395
			24,95	23 400	54 000	745	825	825
7	M6	7	15,5	27 500	55 000	970	700	700
			29,5	34 500	74 000	1 310	1 240	1 240
4,95	M5		15,1	27 500	55 000	970	700	700
			29,1	34 500	74 000	1 310	1 240	1 240
11	M6	7	16	38 000	72 000	1 465	1 020	1 020
			32,5	47 500	100 000	2 625	1 890	1 890
7			16	38 000	72 000	1 465	1 020	1 020
			32,5	47 500	100 000	2 625	1 890	1 890
16,5	M6	7	19,25	69 000	141 000	3 610	2 485	2 485
			35,3	82 000	181 000	4 635	4 000	4 000
8,5			19,25	69 000	141 000	3 610	2 485	2 485
			35,5	82 000	181 000	4 635	4 000	4 000
15	M6	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 connectors[4]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
H, S and SN carriages

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions						
	l_{max} 2)	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_s	J_L
KUVE15-B-H	2 880	28	34	61,2	9,5	26	15	4	39,8	1,3	26
KUVE15-B-S		24									
KUVE20-B-H 4)	5 880	30	44	71,4	12	32	20	6	50,4	1,3	36
KUVE20-B-S 4)		30									
KUVE20-B-SN		27									
KUVE25-B-H	5 880	40	48	83,3	12,5	35	23	6,5	60,7	1,65	35
KUVE25-B-S		36									
KUVE25-B-SN		31									
KUVE30-B-H	5 860	45	60	99	16	40	28	10	72	1,65	40
KUVE30-B-S		42									
KUVE30-B-SN		38									
KUVE35-B-H	5 860	55	70	112	18	50	34	10	80	1,65	50
KUVE35-B-S		48									
KUVE35-B-SN		44									
KUVE45-B-H	5 835	70	86	140,6	20,5	60	45	13	102,5	2,2	60
KUVE45-B-S		60									
KUVE45-B-SN		52									
KUVE55-B-S	5 820	70	100	173,6	23,5	75	53	12,5	132	2,2	75

For further table values, see page 318 and page 319.

① Locating face. ② Marking.

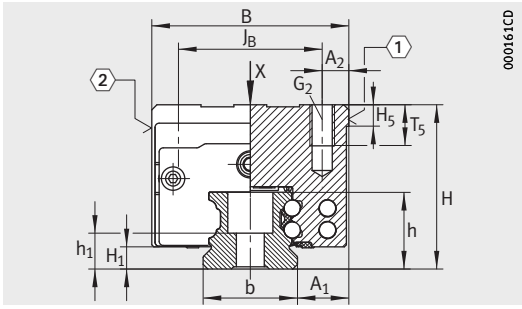
1) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications ($S_0 = 1$). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific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

2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

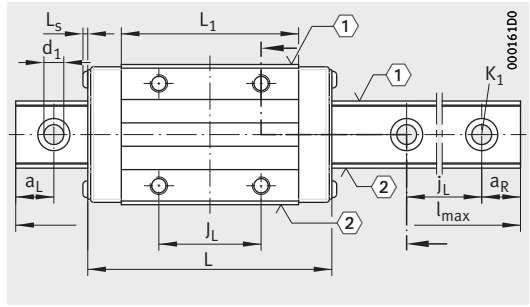
3) a_L and a_R are dependent on the guideway length.

4) KUVE20-B-H and KUVE20-B-S are 100% identical in dimensions and performance.
If a KUVE20-B-H is ordered, the order confirmation will contain the designation KUVE20-B-S.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl



KUVE..-B-H, KUVE..-B-S, KUVE..-B-SN



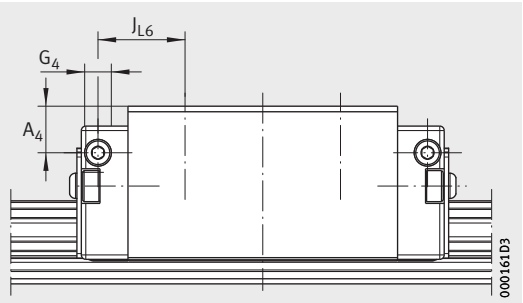
KUVE..-B-H, KUVE..-B-S, KUVE..-B-SN
View X rotated 90°

								Fixing screws[1]				
j_L	a_L, a_R[3]		H_1	H_5	T_5	h	h_1	G_2		K_1		d_1
								DIN ISO 4762-12.9				
	min.	max.							M_A Nm		M_A Nm	
60	20	53	4,3	4,75	6	15	7,6	M4	5	M4	5	4,6
60	20	53	4,5	5,25	7,5	17	8,6	M5	10	M5	10	5,8
60	20	53	5,1	5,25	10 7,5	18,7	8,2	M6	17	M6	17	6,8
80	20	71	5,9	6,25	13,5 11	23,5	11	M8	41	M8	41	9
80	20	71	6,7	6,75	13,5	27	14,5	M8	41	M8	41	9
105	20	94	9,7	9,25	17 16,5	34,2	15,7	M10	83	M12	140	13,4
120	20	107	13,5	11,25	15	41,5	19	M12	140	M14	220	15,4

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
H, S and SN carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE15-B-H	KWVE15-B-H	0,2	TKVD15-B[3]	1,44	8,3	M3	5,5
KUVE15-B-S	KWVE15-B-S	0,16			4,3		
KUVE20-B-H[4]	KWVE20-B-H	0,34	TKVD20	2,2	7,7	M5	7
KUVE20-B-S[4]	KWVE20-B-S	0,34			7,7		
KUVE20-B-SN	KWVE20-B-SN	0,29			4,7		
KUVE25-B-H	KWVE25-B-H	0,65	TKVD25	2,7	15	M6	7
KUVE25-B-S	KWVE25-B-S	0,56			11		
KUVE25-B-SN	KWVE25-B-SN	0,45			6		
KUVE30-B-H	KWVE30-B-H	1,04	TKVD30	4,3	14,5	M6	7
KUVE30-B-S	KWVE30-B-S	0,94			11,5		
KUVE30-B-SN	KWVE30-B-SN	0,8			7,5		
KUVE35-B-H	KWVE35-B-H	1,71	TKVD35	5,7	19,3	M6	7
KUVE35-B-S	KWVE35-B-S	1,3			12,3		
KUVE35-B-SN	KWVE35-B-SN	1,24			8,3		
KUVE45-B-H	KWVE45-B-H	3,36	TKVD45	9,2	26,5	M6	7
KUVE45-B-S	KWVE45-B-S	2,67			16,5		
KUVE45-B-SN	KWVE45-B-SN	2,12			8,5		
KUVE55-B-S	KWVE55-B-S	4,35	TKVD55-B	14	15	M6	7

1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

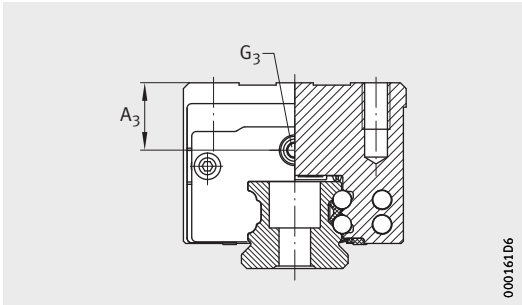
2) Maximum permissible screw depth for lubrication connectors.

3) The new carriages cannot be used on the previous guideways TKVD15 or TKVD15-U.

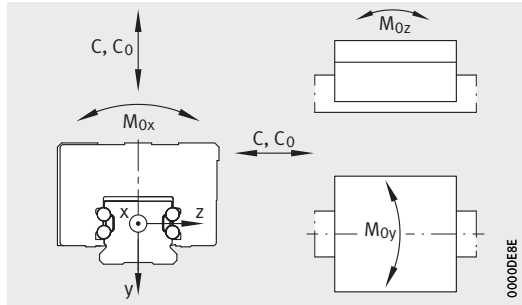
4) KUVE20-B-H and KUVE20-B-S are 100% identical in dimensions and performance.
If a KUVE20-B-H is ordered, the order confirmation will contain the designation KUVE20-B-S.

5) Lubrication connectors are included loose:
- S04 with KUVE20-B
- S05 with KUVE25-B to KUVE55-B
- S16 with KUVE15-B.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31 (0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

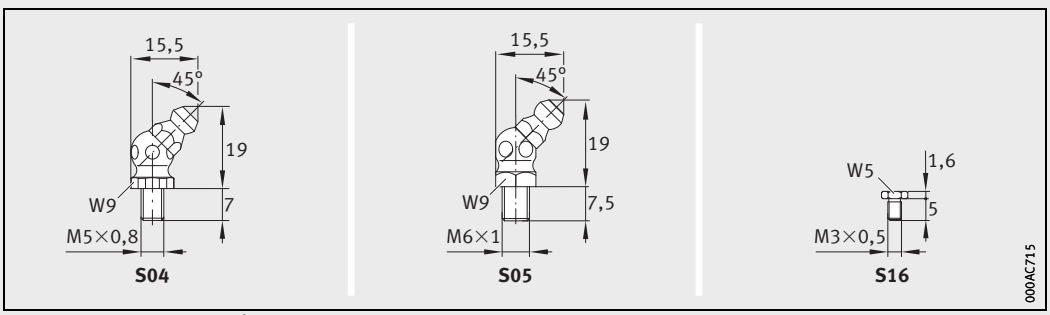


Lubrication connector on end face



Load directions

				Load carrying capacity				
A_4	G_4		J_{L6}	Basic load ratings[1]		Moment ratings		
		[2]		dyn. C N	stat. C_0 N	M_{0x} Nm	M_{0y} Nm	M_{0z} Nm
7,2	M3	5,5	11,1	7 200	14 500	150	100	100
3,2								
4,6	M5	5,5	11,4	13 100	27 000	332	240	240
4,6								
3,3	M3							
10,5	M6	7	17,9	17 900	37 000	510	395	395
6,5								
4	M3	6						
10	M6	7	21,5	27 500	55 000	970	700	700
7								
4,95	M5							
18	M6	7	22	38 000	72 000	1 465	1 020	1 020
11								
7								
26,5	M6	7	29,3	69 000	141 000	3 610	2 485	2 485
16,5								
8,5								
15	M6	7	40,5	104 000	213 000	5 600	2 730	2 730



Lubrication connectors[5]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
HL, SL and SNL carriages

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions						
	l_{max} [2]	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_s	J_L
KUVE20-B-SL	5 880	30	44	88,9	12	32	20	6	67,9	1,3	50
KUVE20-B-SNL		27									
KUVE25-B-HL	5 880	40	48	109,1	12,5	35	23	6,5	86,5	1,65	50
KUVE25-B-SL		36									
KUVE25-B-SNL		31									
KUVE30-B-HL	5 860	45	60	127	16	40	28	10	100	1,65	60
KUVE30-B-SL		42									
KUVE30-B-SNL		38									
KUVE35-B-HL	5 860	55	70	145	18	50	34	10	113	1,65	72
KUVE35-B-SL		48									
KUVE35-B-SNL		44									
KUVE45-B-HL	5 835	70	86	172,7	20,5	60	45	13	134,6	2,2	80
KUVE45-B-SL		60									
KUVE45-B-SNL		52									
KUVE55-B-SL	5 820	70	100	211,6	23,5	75	53	12,5	170	2,2	95

For further table values, see page 322 and page 323.

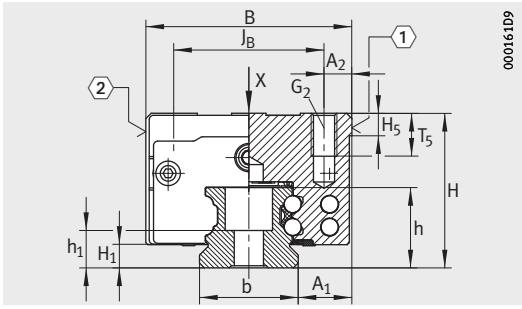
① Locating face. ② Marking.

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

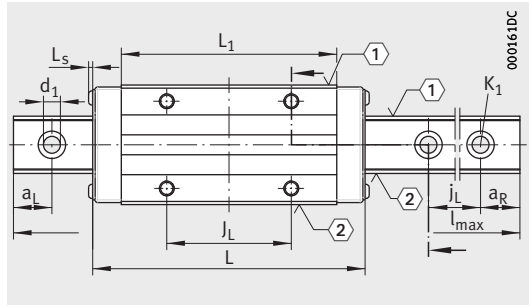
2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

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

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



KUVE..-B-HL, KUVE..-B-SL, KUVE..-B-SNL



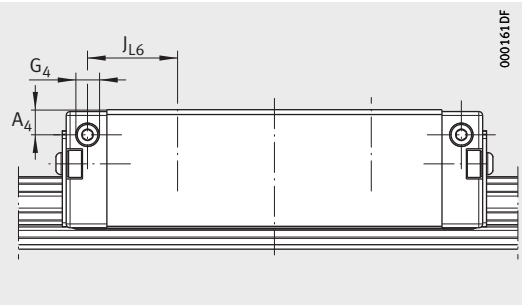
KUVE..-B-HL, KUVE..-B-SL, KUVE..-B-SNL
View X rotated 90°

							Fixing screws[1]				
j_L	a_L, a_R[3]		H_1	H_5	T_5	h	h_1	G_2		K_1		d_1
								DIN ISO 4762-12.9				
	min.	max.							M_A Nm		M_A Nm	
60	20	53	4,5	5,25	7,5	17	8,6	M5	10	M5	10	5,8
60	20	53	5,1	5,25	10 7,5	18,7	8,2	M6	17	M6	17	6,8
80	20	71	5,9	6,25	13,5 11	23,5	11	M8	41	M8	41	9
80	20	71	6,7	6,75	13,5	27	14,5	M8	41	M8	41	9
105	20	94	9,7	9,25	17 16,5	34,2	15,7	M10	83	M12	140	13,4
120	20	107	13,5	11,25	15	41,5	19	M12	140	M14	220	15,4

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
HL, SL and SNL carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

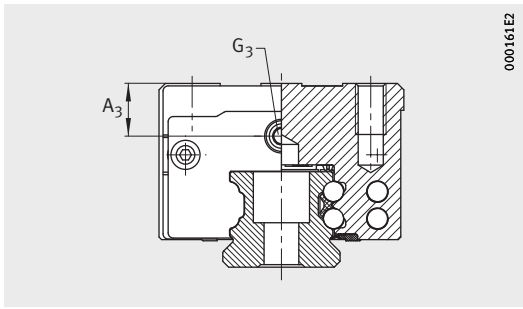
Designation	Carriage		Guideway		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE20-B-SL	KWVE20-B-SL	0,46	TKVD20	2,2	7,7	M5	7
KUVE20-B-SNL	KWVE20-B-SNL	0,38			4,7		
KUVE25-B-HL	KWVE25-B-HL	1	TKVD25	2,7	15	M6	7
KUVE25-B-SL	KWVE25-B-SL	1			11		
KUVE25-B-SNL	KWVE25-B-SNL	0,62			6		
KUVE30-B-HL	KWVE30-B-HL	1,43	TKVD30	4,3	14,5	M6	7
KUVE30-B-SL	KWVE30-B-SL	1,7			11,5		
KUVE30-B-SNL	KWVE30-B-SNL	1,1			7,5		
KUVE35-B-HL	KWVE35-B-HL	2,4	TKVD35	5,7	19,3	M6	7
KUVE35-B-SL	KWVE35-B-SL	1,81			12,3		
KUVE35-B-SNL	KWVE35-B-SNL	1,72			8,3		
KUVE45-B-HL	KWVE45-B-HL	4,27	TKVD45	9,2	26,5	M6	7
KUVE45-B-SL	KWVE45-B-SL	3,38			16,5		
KUVE45-B-SNL	KWVE45-B-SNL	2,68			8,5		
KUVE55-B-SL	KWVE55-B-SL	6,3	TKVD55-B	14	15	M6	7

1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

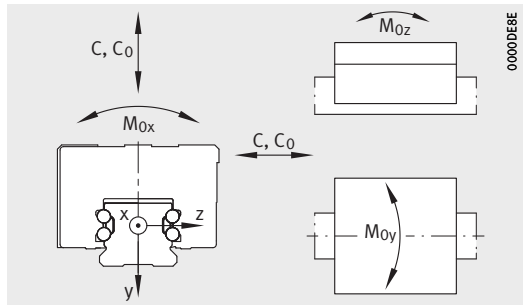
2) Maximum permissible screw depth for lubrication connectors.

3) Lubrication connectors are included loose:
- S04 with KUVE20-B
- S05 with KUVE25-B to KUVE55-B
- S16 with KUVE15-B.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31 (0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

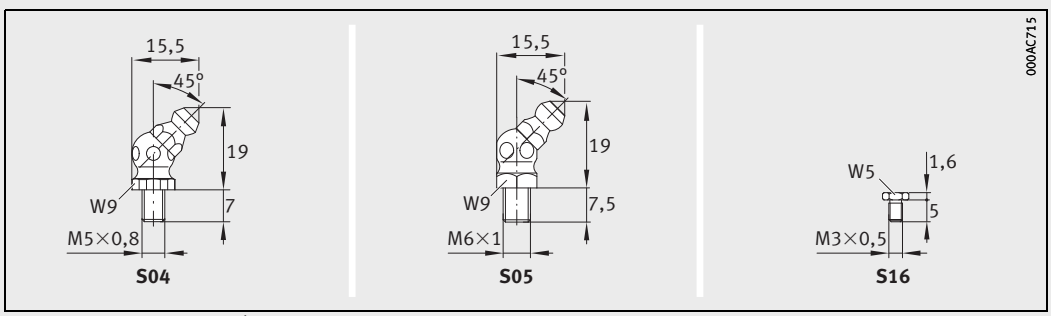


Lubrication connector on end face



Load directions

				Load carrying capacity				
A_4	G_4		J_{L6}	Basic load ratings[1]		Moment ratings		
		[2]		dyn. C N	stat. C_0 N	M_{0x} Nm	M_{0y} Nm	M_{0z} Nm
4,6	M5	5,5	13,2	16 200	36 500	452	430	430
3,3	M3							
10,5	M6	7	23,3	23 400	54 000	745	825	825
6,5								
4	M3	6	22,5					
10	M6	7	25,5	34 500	74 000	1 310	1 240	1 240
7								
4,95	M5		25,1					
18	M6	7	27,5	47 500	100 000	2 625	1 890	1 890
11								
7								
26,5	M6	7	35,3	82 000	181 000	4 635	4 000	4 000
16,5								
8,5								
15	M6	7	49,5	127 000	285 000	7 500	4 725	4 800



Lubrication connectors[3]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
E carriages
Without screw threads

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions						
	l_{max} [2]	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_S	J_L
KUVE15-B-E	2 880	24	52	61,2	18,5	41	15	5,5	39,8	1,3	26
KUVE20-B-E	5 880	28	59	71,4	19,5	49	20	5	50,4	1,3	32
KUVE25-B-E	5 880	33	73	83,3	25	60	23	6,5	60,7	1,65	35
KUVE30-B-E	5 860	42	90	99	31	72	28	9	72	1,65	40
KUVE35-B-E	5 860	48	100	112	33	82	34	9	80	1,65	50

For further table values, see page 326 and page 327.

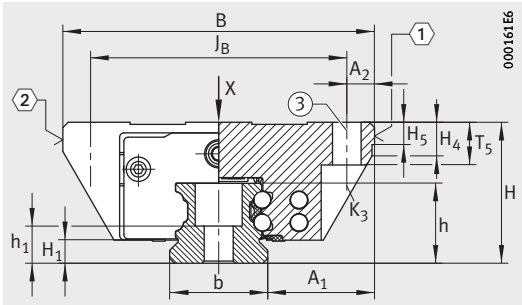
⟨1⟩ Locating face. ⟨2⟩ Marking. ⟨3⟩ No thread.

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

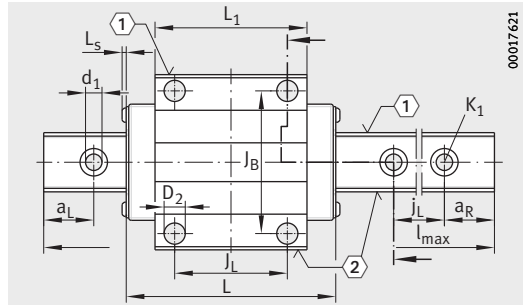
2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

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

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



KUVE..-B-E



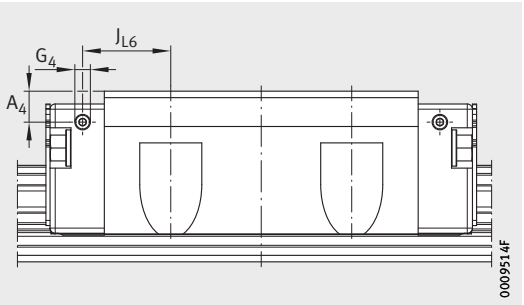
KUVE..-B-E
View X rotated 90°

									Fixing screws[1]					
j_L	a_L, a_R[3]		H_1	H_4	H_5	T_5	h	h_1	K_1		K_3		d_1	D_2
									DIN ISO 4762-12.9					
	min.	max.								M_A Nm		M_A Nm		
60	20	53	4,3	6,1	4,75	7	15	8,15	M4	5	M4	5	4,6	4,5
60	20	53	4,5	11,2	5,25	9	17	9,1	M5	10	M5	10	5,8	5,5
60	20	53	5,1	7,85	5,25	10	18,7	8,7	M6	17	M6	17	6,8	6,7
80	20	71	5,9	13,8	6,25	12	23,5	11,5	M8	41	M8	41	9	8,6
80	20	71	6,7	14,3	6,75	13	27	15	M8	41	M8	41	9	8,6

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
E carriages
Without screw threads



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

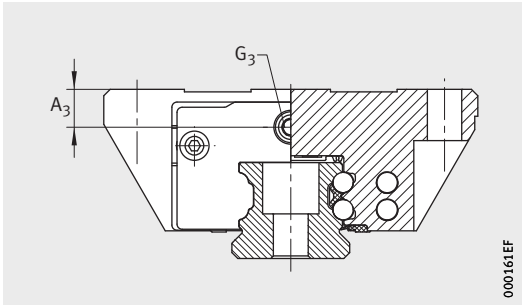
Designation	Carriage		Guideway		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE15-B-E	KWVE15-B-E	0,2	TKVD15-B	1,44	4,3	M3	5,5
KUVE20-B-E	KWVE20-B-E	0,36	TKVD20	2,2	6	M5	7
KUVE25-B-E	KWVE25-B-E	0,68	TKVD25	2,7	8	M6	7
KUVE30-B-E	KWVE30-B-E	1,2	TKVD30	4,3	11,5	M6	7
KUVE35-B-E	KWVE35-B-E	1,75	TKVD35	5,7	12,3	M6	7

1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

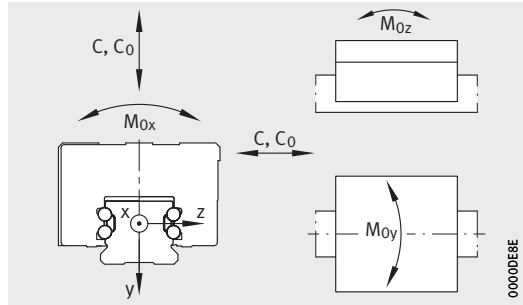
2) Maximum permissible screw depth for lubrication connectors.

3) Lubrication connectors are included loose:
- S04 with KUVE20-B
- S05 with KUVE25-B to KUVE55-B
- S16 with KUVE15-B.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

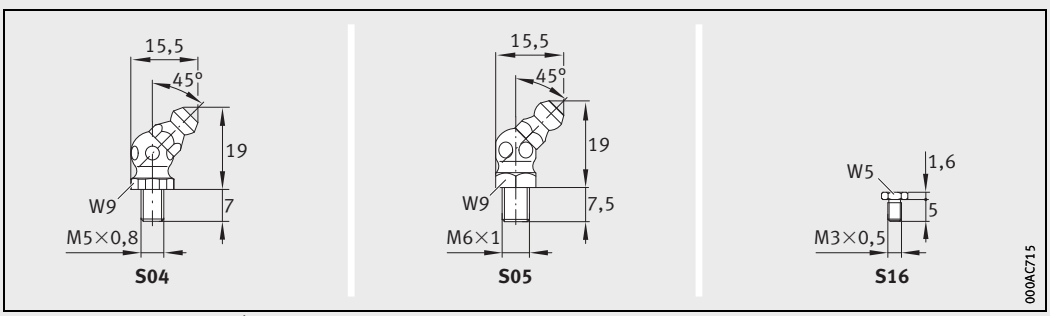


Lubrication connector on end face



Load directions

				Load carrying capacity				
A_4	G_4		J_{L6}	Basic load ratings[1]		Moment ratings		
		[2]		dyn. C	stat. C_0	M_{0x}	M_{0y}	M_{0z}
				N	N	Nm	Nm	Nm
3,2	M3	5,5	11,1	7 200	14 500	150	100	100
4,3	M3	5,5	13,4	13 100	27 000	332	240	240
6	M3	7	17,05	17 900	37 000	510	395	395
7	M6	7	21,1	27 500	55 000	970	700	700
11	M6	7	22	38 000	72 500	1 465	1 020	1 020



Lubrication connectors[3]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
ES carriages

Dimension table · Dimensions in mm

Designation[2]	Dimensions				Mounting dimensions					
	l_{max}[3]	H	B	L	A_1	J_B	b $^{-0,06}_{-0,03}$	A_2	L_1	L_S
KUVE15-B-ES	2 880	24	34	61,2	9,5	26	15	4	39,8	1,3
KUVE20-B-ES	5 880	28	42	71,4	11	32	20	5	50,4	1,3
KUVE25-B-ES	5 880	33	48	83,3	12,5	35	23	6,5	60,7	1,65
KUVE30-B-ES	5 860	42	60	99	16	40	28	10	72	1,65
KUVE35-B-ES	5 860	48	70	112	18	50	34	10	80	1,65

For further table values, see page 330 and page 331.

⟨1⟩ Locating face. ⟨2⟩ Marking.

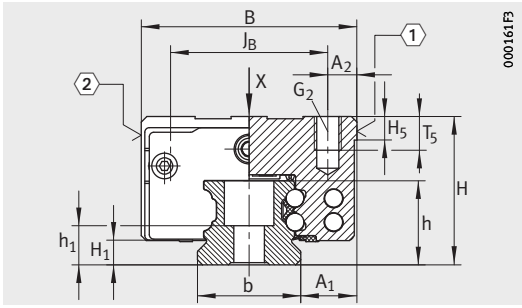
1) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications ($S_0 = 1$). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific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

2) KUVE15-B-ES and KUVE15-B-S, KUVE30-B-ES and KUVE30-B-S as well as KUVE35-B-ES and KUVE35-B-S are in each case 100% identical in dimensions and performance.
If a KUVE15-B-ES, KUVE30-B-ES or KUVE35-B-ES is ordered, the confirmation of the quotation will contain the designation KUVE15-B-S, KUVE30-B-S or KUVE35-B-S.

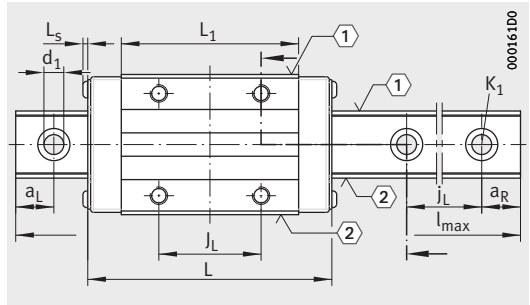
3) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

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

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



KUVE..-B-ES



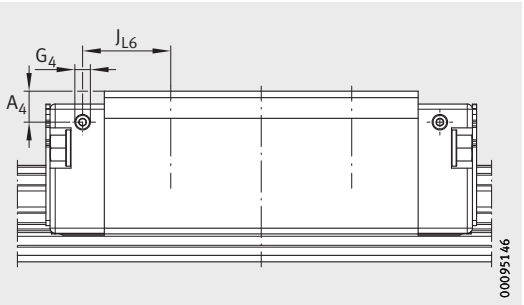
KUVE..-B-ES
View X rotated 90°

									Fixing screws[1]				
J_L	j_L	a_L, a_R[4]		H_1	H_5	T_5	h	h_1	G_2		K_1		d_1
									DIN ISO 4762-12.9				
		min.	max.							M_A Nm		M_A Nm	
26	60	20	53	4,3	4,75	6	15	7,6	M4	5	M4	5	4,6
32	60	20	53	4,5	5,25	7,5	17	8,6	M5	10	M5	10	5,8
35	60	20	53	5,2	5,25	10	18,7	8,2	M6	17	M6	17	6,8
40	80	20	71	5,9	6,25	13,5	23,5	11	M8	41	M8	41	9
50	80	20	71	6,7	6,75	13,5	27	14,5	M8	41	M8	41	9

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
ES carriages



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE15-B-ES	KWVE15-B-ES	0,16	TKVD15-B[3]	1,44	4,3	M3	5,5
KUVE20-B-ES	KWVE20-B-ES	0,31	TKVD20	2,2	8	M5	7
KUVE25-B-ES	KWVE25-B-ES	0,56	TKVD25	2,7	11	M6	7
KUVE30-B-ES	KWVE30-B-ES	0,94	TKVD30	4,3	11,5	M6	7
KUVE35-B-ES	KWVE35-B-ES	1,3	TKVD35	5,7	12,3	M6	7

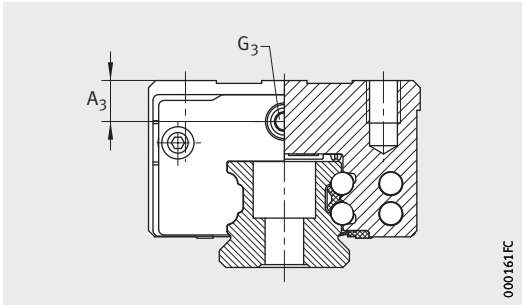
1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

2) Maximum permissible screw depth for lubrication connectors.

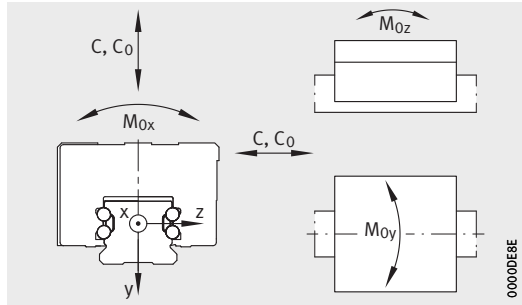
3) The new carriages cannot be used on the existing guideways TKVD15 or TKVD15-U.

4) Lubrication connectors are included loose:
- S04 with KUVE20-B
- S05 with KUVE25-B to KUVE55-B
- S16 with KUVE15-B.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

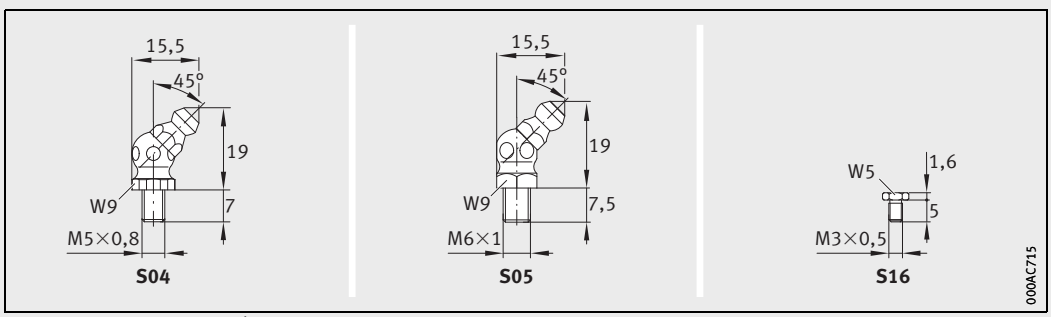


Lubrication connector on end face



Load directions

				Load carrying capacity				
A_4	G_4		J_{L6}	Basic load ratings[1]		Moment ratings		
		[2]		dyn. C	stat. C_0	M_{0x}	M_{0y}	M_{0z}
				N	N	Nm	Nm	Nm
3,2	M3	5,5	9,1	7 200	14 500	150	100	100
4,6	M3	5,5	9,4	13 100	27 000	332	240	240
6,5	M3	7	12,85	17 900	37 000	510	395	395
7	M6	7	15,5	27 500	55 000	970	700	700
11	M6	7	16	38 000	72 500	1 465	1 020	1 020



Lubrication connectors[4]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
EC carriages
Without screw threads

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions					
	l_{max} [2]	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_s
KUVE15-B-EC	2 880	24	52	44,5	18,5	41	15	5,5	23,1	1,3
KUVE20-B-EC	5 880	28	59	50,4	19,5	49	20	5	29,4	1,65
KUVE25-B-EC	5 880	33	73	58,2	25	60	23	6,5	35,6	1,65
KUVE30-B-EC	5 860	42	90	69	31	72	28	9	42	1,65
KUVE35-B-EC	5 860	48	100	76,2	33	82	34	9	44,2	1,65
KUVE45-B-EC	5 835	60	120	97,8	37,5	100	45	10	59,7	2,2

For further table values, see page 334 and page 335.

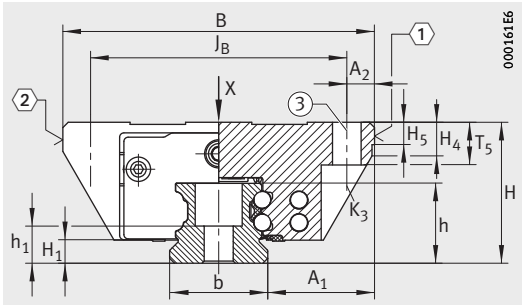
① Locating face. ② Marking. ③ No thread.

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

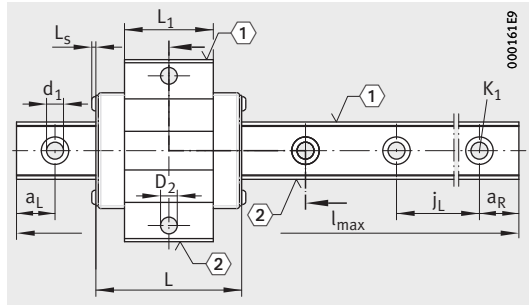
2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

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

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



KUVE..-B-EC



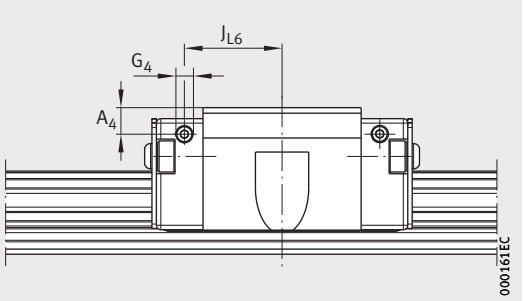
KUVE..-B-EC
View X rotated 90°

									Fixing screws[1]					
j_L	a_L, a_R[3]		H_1	H_4	H_5	T_5	h	h_1	K_1		K_3		d_1	D_2
									DIN ISO 4 762-12.9					
	min.	max.								M_A Nm		M_A Nm		
60	20	53	4,3	6,1	4,75	7	15	7,6	M4	5	M4	5	4,6	4,5
60	20	53	4,5	11,2	5,25	9	17	8,6	M5	10	M5	10	5,8	5,5
60	20	53	5,1	7,85	5,25	10	18,7	8,2	M6	17	M6	17	6,8	6,7
80	20	71	5,9	13,8	6,25	12	23,5	11	M8	41	M8	41	9	8,6
80	20	71	6,7	14,3	6,75	13,5	27	14,5	M8	41	M8	41	9	8,6
105	20	94	9,7	19,9	9,25	15	34,2	15,7	M12	140	M10	83	13,4	10,6

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
EC carriages
Without screw threads



Lubrication connector on lateral face

Dimension table (continued) · Dimensions in mm

Designation	Carriage		Guideway		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE15-B-EC	KWVE15-B-EC	0,13	TKVD15-B[3)]	1,44	4,3	M3	5,5
KUVE20-B-EC	KWVE20-B-EC	0,23	TKVD20	2,2	6	M5	7
KUVE25-B-EC	KWVE25-B-EC	0,4	TKVD25	2,7	8	M6	7
KUVE30-B-EC	KWVE30-B-EC	0,75	TKVD30	4,3	11,5	M6	7
KUVE35-B-EC	KWVE35-B-EC	1,04	TKVD35	5,7	12,3	M6	7
KUVE45-B-EC	KWVE45-B-EC	2,07	TKVD45	9,2	16,5	M6	7

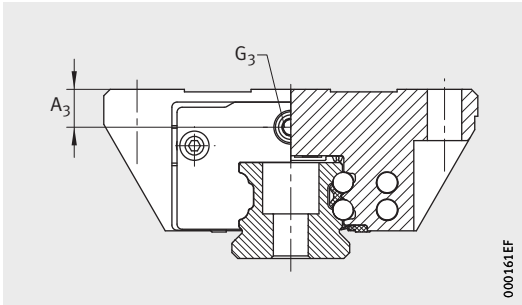
1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

2) Maximum permissible screw depth for lubrication connectors.

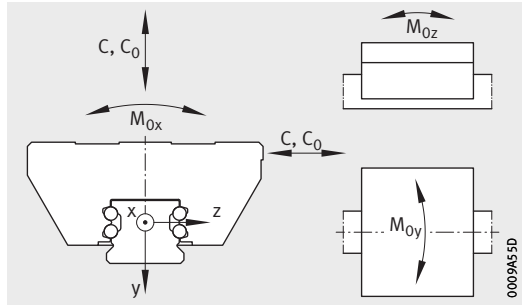
3) The new carriages cannot be used on the previous guideways TKVD15 or TKVD15-U.

4) Lubrication connectors are included loose:
- S04 with KUVE20-B
- S05 with KUVE25-B to KUVE55-B
- S16 with KUVE15-B.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31 (0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

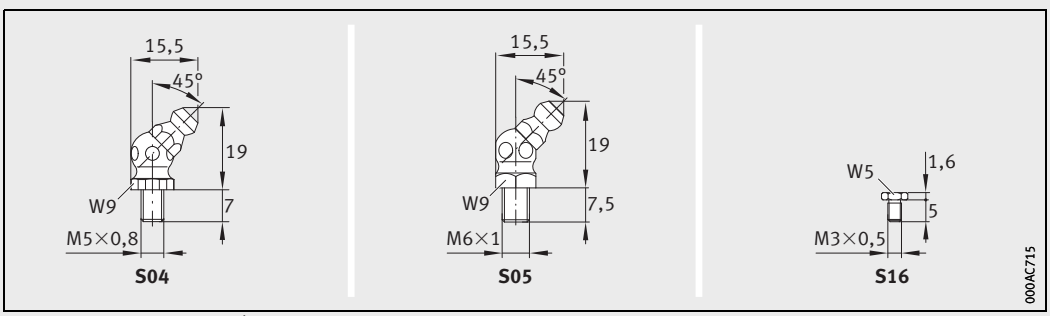


Lubrication connector on end face



Load directions

				Load carrying capacity				
A_4	G_4		J_{L6}	Basic load ratings[1]		Moment ratings		
		[2]		dyn. C	stat. C_0	M_{0x}	M_{0y}	M_{0z}
				N	N	Nm	Nm	Nm
3,2	M3	5,5	15,8	4 900	8 300	86	35	35
4,3	M3	5,5	18,9	8 900	15 400	190	85	85
6	M3	6	22	12 500	22 200	305	155	155
7	M6	7	26,5	18 700	31 500	554	248	248
11	M6	7	29,1	24 600	39 000	790	330	330
16,5	M6	7	37,9	46 500	80 000	2 060	883	883



Lubrication connectors[4]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
ESC carriages

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions					
	l_{max} [2]	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_s
KUVE15-B-ESC	2 880	24	34	44,5	9,5	26	15	4	23,1	1,3
KUVE20-B-ESC	5 880	28	42	50,4	11	32	20	5	29,4	1,65
KUVE25-B-ESC	5 880	33	48	58,2	12,5	35	23	6,5	35,6	1,65
KUVE30-B-ESC	5 860	42	60	69	16	40	28	10	42	1,65
KUVE35-B-ESC	5 860	48	70	76,2	18	50	34	10	44,2	1,65
KUVE45-B-ESC	5 835	60	86	97,8	20,5	60	45	13	59,7	2,2

For further table values, see page 338 and page 339.

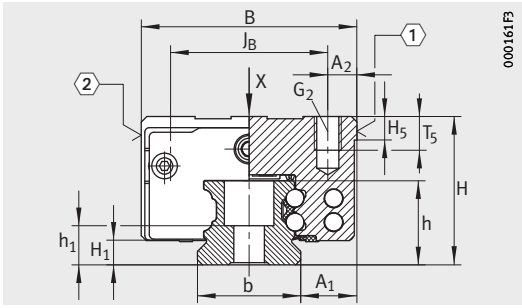
① Locating face. ② Marking.

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

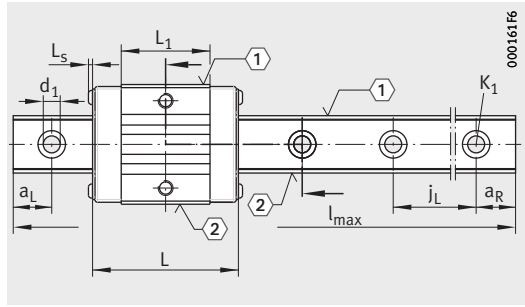
2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

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

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



KUVE..-B-ESC



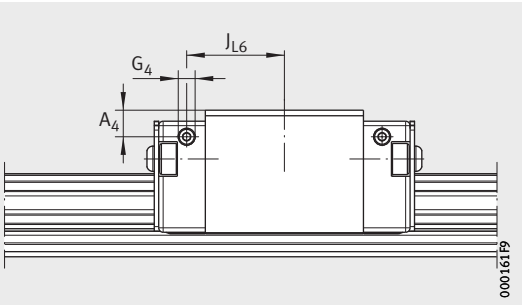
KUVE..-B-ESC
View X rotated 90°

								Fixing screws[1]				
j_L	a_L, a_R[3]		H_1	H_5	T_5	h	h_1	G_2		K_1		d_1
								DIN ISO 4762-12.9				
	min.	max.							M_A Nm		M_A Nm	
60	20	53	4,3	4,75	6	15	7,6	M4	5	M4	5	4,6
60	20	53	4,5	5,25	7,5	17	8,6	M5	10	M5	10	5,8
60	20	53	5,1	5,25	10	18,7	8,2	M6	17	M6	17	6,8
80	20	71	5,9	6,25	13,5	23,5	11	M8	41	M8	41	9
80	20	71	6,7	6,75	13,5	27	14,5	M8	41	M8	41	9
105	20	94	9,7	9,25	17	34,2	15,7	M10	83	M12	140	13,4

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

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		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE15-B-ESC	KWVE15-B-ESC	0,12	TKVD15-B[3]	1,44	4,3	M3	5,5
KUVE20-B-ESC	KWVE20-B-ESC	0,18	TKVD20	2,2	6	M5	7
KUVE25-B-ESC	KWVE25-B-ESC	0,3	TKVD25	2,7	8	M6	7
KUVE30-B-ESC	KWVE30-B-ESC	0,57	TKVD30	4,3	11,5	M6	7
KUVE35-B-ESC	KWVE35-B-ESC	1,04	TKVD35	5,7	12,3	M6	7
KUVE45-B-ESC	KWVE45-B-ESC	1,8	TKVD45	9,2	16,5	M6	7

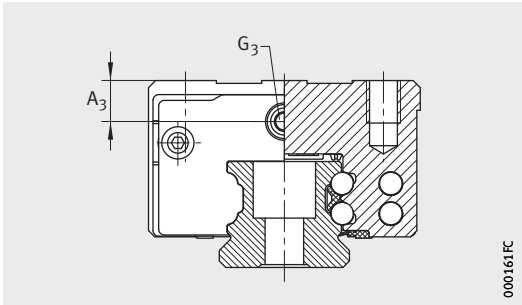
1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

2) Maximum permissible screw depth for lubrication connectors.

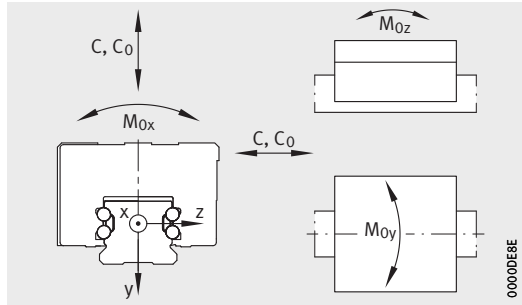
3) The new carriages cannot be used on the previous guideways TKVD15 or TKVD15-U.

4) Lubrication connectors are included loose:
- S04 with KUVE20-B
- S05 with KUVE25-B to KUVE55-B
- S16 with KUVE15-B.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31 (0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

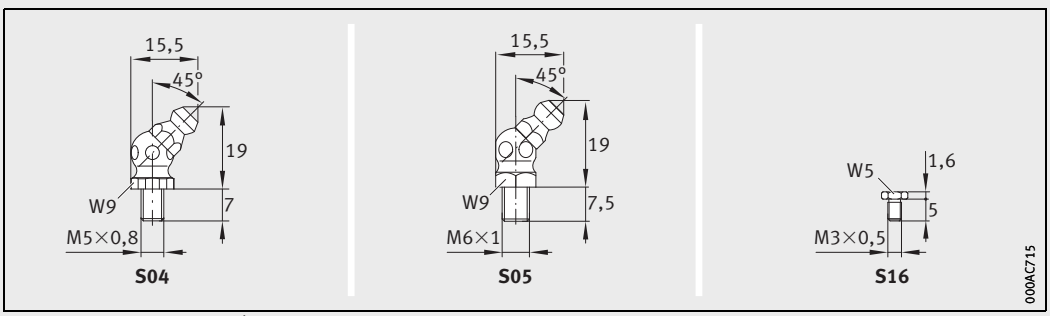


Lubrication connector on end face



Load directions

				Load carrying capacity				
A_4	G_4		J_{L6}	Basic load ratings[1]		Moment ratings		
		[2]		dyn. C N	stat. C_0 N	M_{0x} Nm	M_{0y} Nm	M_{0z} Nm
3,2	M3	5,5	15,8	4 900	8 300	86	35	35
4,3	M3	5,5	18,9	8 900	15 400	190	85	85
6	M3	6	22	12 500	22 200	305	155	155
7	M6	7	26,5	18 700	31 500	554	248	248
11	M6	7	29,1	24 600	39 000	790	330	330
16,5	M6	7	37,9	46 500	80 000	2 060	883	883



Lubrication connectors[4]

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
Wide guideway
W and WL carriages

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions										
	l_{max} [2]	H	B	L	A_1	J_B	j_B	a_5	b	A_2	L_1	J_L	j_L	a_L, a_R [3]	
														min.	max.
KUVE15-W	2 890	21	68	55,6	15,5	60	22	7,5	37	4	39,8	29	50	20	44
KUVE20-W	2 880	27	80	69,8	19	70	24	9	42	5	50,4	40	60	20	53
KUVE20-WL				87,3							67,9				
KUVE25-W	5 860	35	120	81,7	25,5	107	40	14,5	69	6,5	60,7	45	80	20	71
KUVE25-WL				107,5							86,5	60			
KUVE30-W	5 860	42	142	97,5	31	124	50	15	80	9	72	52	80	20	71
KUVE35-WL	5 860	50	162	140,2	36	144	60	15	90	9	109,8	80	80	20	71

Further table values, see page 342 and page 343.

⟨1⟩ Locating face. ⟨2⟩ Marking.

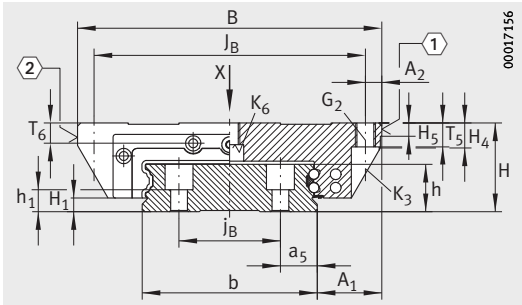
1) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications ($S_0 = 1$). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific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

2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

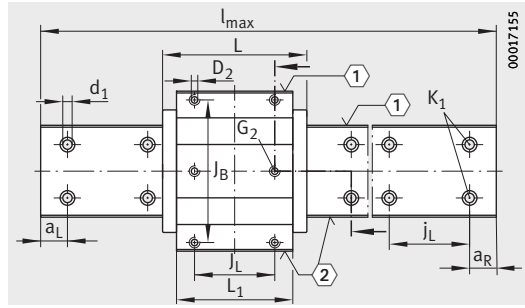
3) a_L and a_R are dependent on the guideway length.

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

ALMOTION B.V. Nijverheidsweg 14 | 8162 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl



KUVE..-W, KUVE..-WL



KUVE..-W, KUVE..-WL
View X rotated 90°

							Fixing screws[1]											
H_1	H_5	H_4	T_5	T_6[4]	h	h_1	G_2		K_1		K_3		K_6		K_6		d_1	D_2
							DIN ISO 4762-12.9								DIN 7984-8.8			
								M_A Nm		M_A Nm		M_A Nm		M_A Nm		M_A Nm		
2,1	4,5	7,7	7	4,8	12,9	6	M5	5,8	M4	5	M4	5	–	–	M4	2	4,6	4,5
4,6	5	10,6	10	6	17	10	M6	10	M4	5	M5	10	–	–	M5	4	4,6	5,5
				6									M6	17	–	–		
5,2	5	9,9	10	8,5	18,7	8,2	M8	41	M6	17	M6	17	–	–	M6	8	6,8	6,7
				10									M6	17	–	–		
6	6	13,8	12	12	23,5	11	M10	41	M8	41	M8	41	–	–	M8	12	9	8,6
6,8	6,5	16,3	13	13	27	14,5	M10	41	M8	41	M8	41	M8	41	–	–	9	8,6

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
Wide guideway
W and WL carriages

Dimension table (continued) · Dimensions in mm

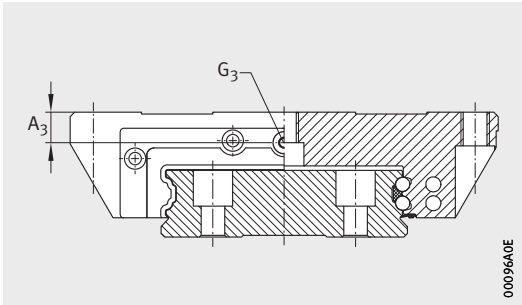
Designation	Carriage		Guideway	
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m
KUVE15-W	KWVE15-W	0,27	TKVD15-W	3,6
KUVE20-W	KWVE20-W	0,5	TKVD20-W	5
KUVE20-WL	KWVE20-WL	0,7		
KUVE25-W	KWVE25-W	1,1	TKVD25-W	9,4
KUVE25-WL	KWVE25-WL	1,46		
KUVE30-W	KWVE30-W	1,95	TKVD30-W	13,6
KUVE35-WL	KWVE35-WL	4,11	TKVD35-W	17,4

1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the full thread length is used and the adjacent construction is dimensioned accordingly.

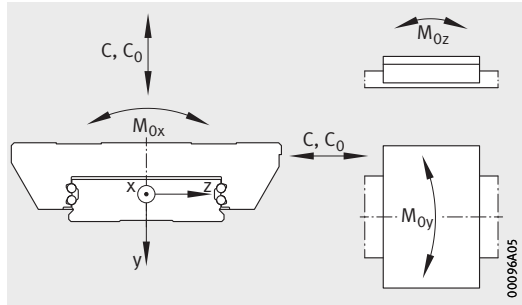
2) Maximum permissible screw depth for lubrication connectors.

3) Lubrication connectors are included loose:
- S04 with KUVE20-W
- S05 with KUVE25-W to KUVE35-WL
- S16 with KUVE15-W.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31 (0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineamotion.nl

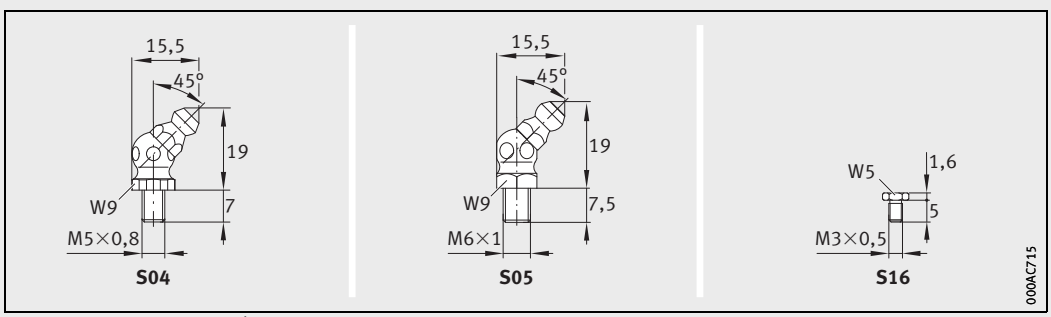


Lubrication connector on end face



Load directions

Lubrication connectors			Load carrying capacity				
A_3	G_3		Basic load ratings[1]		Moment ratings		
		[2]	dyn. C N	stat. C_0 N	M_{0x} Nm	M_{0y} Nm	M_{0z} Nm
3,6	M3	4	7 200	14 500	332	100	100
5	M5	5	13 100	27 000	687	240	240
			16 200	36 500	920	400	400
10	M6	6	17 900	37 000	1 470	395	395
			23 400	54 000	2 225	825	825
11,25	M6	6	27 500	55 000	2 660	700	700
14,3	M6	6	47 500	100 000	5 550	1 890	1 890



Lubrication connectors[3]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
High-Speed
HS, E-HS and N-HS carriages

X-life

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions										
	l_{max} [2]	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_s	J_L	J_{LZ}	j_L	a_L, a_R [3]	
														min.	max.
KUVE25-B-HS	5 880	36	70	98,3	23,5	57	23	6,5	60,7	1,65	45	40	60	20	53
KUVE25-B-E-HS	5 880	33	73	98,3	25	60	23	6,5	60,7	1,65	35	[4]	60	20	53
KUVE25-B-N-HS	5 880	31	70	98,3	23,5	57	23	6,5	60,7	1,65	45	40	60	20	53

For further table values, see page 346 and page 347.

① Locating face. ② Marking.

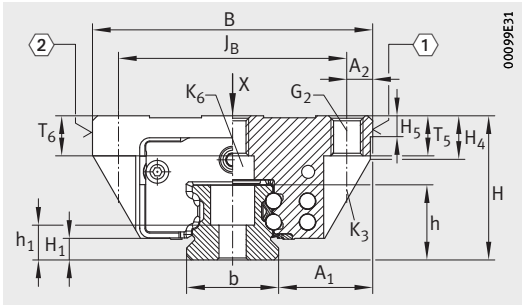
1) The stated torques represent maximum values for the secure transmission of forces in vibration-free, quasistatic applications ($S_0 = 1$). We recommend that the tightening torques for the screw connection of the adjacent construction should be determined at the customer under the conditions specific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

2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.

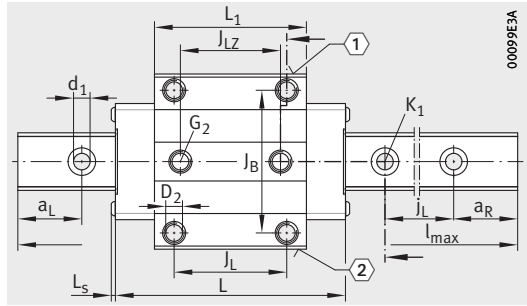
3) a_L and a_R are dependent on the guideway length.

4) The central holes are not present in the case of KUVE25-B-E-HS. The outer holes do not have the thread G_2.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



KUVE25-B-HS, KUVE25-B-E-HS, KUVE25-B-N-HS



KUVE25-B-HS, KUVE25-B-E-HS, KUVE25-B-N-HS
View X rotated 90°

							Fixing screws[1]											
H_1	H_4	H_5	T_5	T_6	h	h_1	G_2		K_1		K_3		K_6		K_6		d_1	D_2
							DIN ISO 4762-12.9								DIN 7984-8.8			
								M_A Nm		M_A Nm		M_A Nm		M_A Nm		M_A Nm		
5,1	10,9	5	10	10	18,7	8,7	M8	24	M6	17	M6	17	M6	17	–	–	6,8	6,7
5,1	7,85	5,25	10	[4]	18,7	8,7	[4]	[4]	M6	17	M6	17	[4]	[4]	[4]	[4]	6,8	–
5,1	9,3	5	10	8	18,7	8,7	M8	24	M6	17	M6	17	–	–	M6	8	6,8	6,7

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
High-Speed
HS, E-HS and N-HS carriages

X-life

Dimension table (continued) · Dimensions in mm

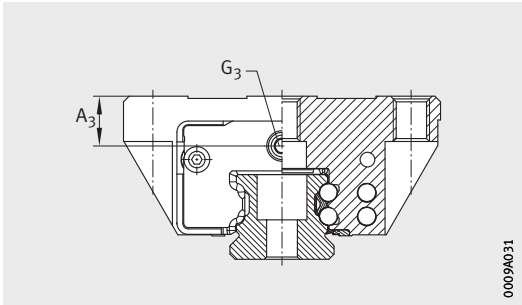
Designation	Carriage		Guideway		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE25-B-HS	KWVE25-B-HS	0,71	TKVD25	2,7	11	M6	7
KUVE25-B-E-HS	KWVE25-B-E-HS	0,68	TKVD25	2,7	8	M6	7
KUVE25-B-N-HS	KWVE25-B-N-HS	0,57	TKVD25	2,7	6	M6	7

1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

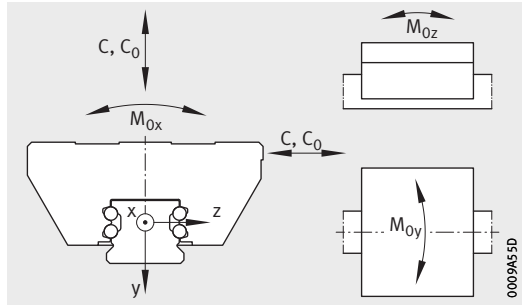
2) Maximum permissible screw depth for lubrication connectors.

3) Lubrication connector S62 is included loose.

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



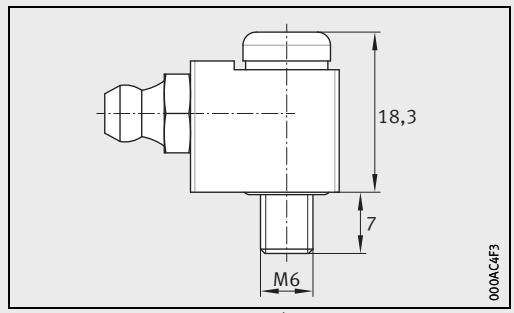
Lubrication connector on end face



Load directions

Load carrying capacity

Basic load ratings[1]		Moment ratings		
dyn. C N	stat. C_0 N	M_{0x} Nm	M_{0y} Nm	M_{0z} Nm
15 000	37 000	510	395	395
15 000	37 000	510	395	395
15 000	37 000	510	395	395



Lubrication connector S62[3]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
High-Speed
ES-HS, H-HS, S-HS and SN-HS carriages

X-life

Dimension table · Dimensions in mm

Designation	Dimensions				Mounting dimensions					
	l_{max} [2]	H	B	L	A_1	J_B	b $^{-0,005}_{-0,03}$	A_2	L_1	L_s
KUVE25-B-ES-HS	5 880	33	48	98,3	12,5	35	23	6,5	60,7	1,65
KUVE25-B-H-HS	5 880	40	48	98,3	12,5	35	23	6,5	60,7	1,65
KUVE25-B-S-HS	5 880	36	48	98,3	12,5	35	23	6,5	60,7	1,65
KUVE25-B-SN-HS	5 880	31	48	98,3	12,5	35	23	6,5	60,7	1,65

For further table values, see page 350 and page 351.

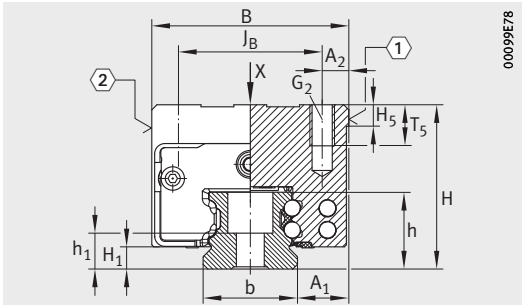
〈1〉 Locating face. 〈2〉 Marking.

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

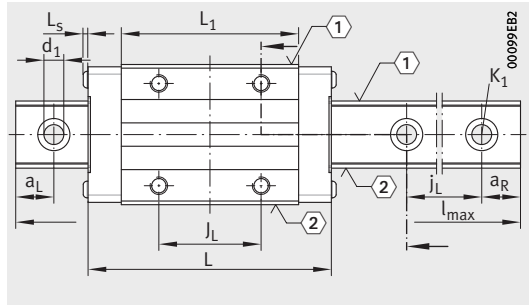
2) Maximum length of single-piece guideways.
Permissible number of guideway segments, see page 309.
Maximum single-piece guideway length of 6 m available by agreement.

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

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl



KUVE25-B-ES-HS, KUVE25-B-H-HS, KUVE25-B-S-HS, KUVE25-B-SN-HS



KUVE25-B-ES-HS, KUVE25-B-H-HS, KUVE25-B-S-HS, KUVE25-B-SN-HS
View X rotated 90°

									Fixing screws[1]				
J_L	j_L	a_L, a_R[3]		H_1	H_5	T_5	h	h_1	G_2		K_1		d_1
									DIN ISO 4762-12.9				
		min.	max.							M_A Nm		M_A Nm	
35	60	20	53	5,2	5,25	10	18,7	8,2	M6	17	M6	17	6,8
35	60	20	53	5,1	5	10	18,7	8,7	M6	10	M6	17	6,8
35	60	20	53	5,1	5	10	18,7	8,7	M6	10	M6	17	6,8
35	60	20	53	5,1	5	7,5	18,7	8,7	M6	10	M6	17	6,8

ALMOTION B.V. Nijverheidsweg 14 | 8662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.lineairmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Full complement
High-Speed
ES-HS, H-HS, S-HS and SN-HS carriages

X-life

Dimension table (continued) · Dimensions in mm

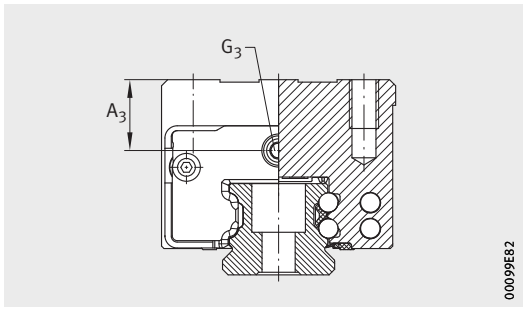
Designation	Carriage		Guideway		Lubrication connectors		
	Designation	Mass m ≈ kg	Designation	Mass m ≈ kg/m	A_3	G_3	2)
KUVE25-B-ES-HS	KWVE25-B-ES-HS	0,56	TKVD25	2,7	11	M6	7
KUVE25-B-H-HS	KWVE25-B-H-HS	0,65	TKVD25	2,7	15	M6	7
KUVE25-B-S-HS	KWVE25-B-S-HS	0,56	TKVD25	2,7	11	M6	7
KUVE25-B-SN-HS	KWVE25-B-SN-HS	0,45	TKVD25	2,7	6	M6	7

1) Calculation of basic load ratings in accordance with DIN ISO 14728-1.
Based on practical experience, it may be possible to increase the basic dynamic load rating.
The basic load rating can only be transmitted fully if the whole thread length is used and the adjacent construction is dimensioned appropriately.

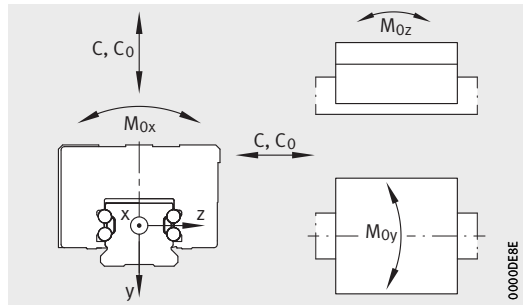
2) Maximum permissible screw depth for lubrication connectors.

3) Lubrication connector S62 is included loose.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl



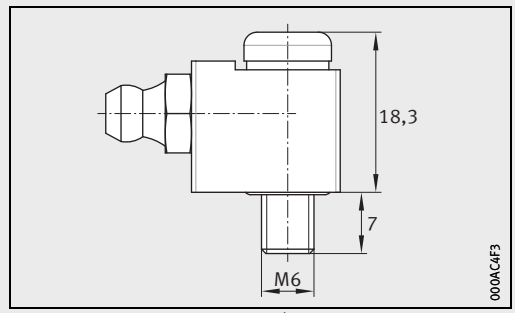
Lubrication connector on end face



Load directions

Load carrying capacity

Basic load ratings[1]		Moment ratings		
dyn. C	stat. C_0	M_{0x}	M_{0y}	M_{0z}
N	N	Nm	Nm	Nm
15 000	37 000	510	395	395
15 000	37 000	510	395	395
15 000	37 000	510	395	395
15 000	37 000	510	395	395

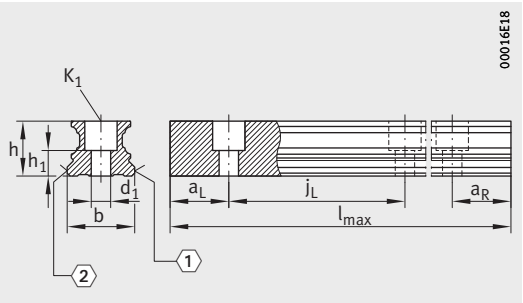


Lubrication connector S62[3]

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Guideways and closing methods for
KUVE..-B
KUVE..-W



TKVD

Dimension table · Dimensions in mm

Designation	For linear guidance system	Mass m ≈ kg/m	Closing plug[1]				Covering strip[2]		
			Plastic		Brass		Adhesive bonded	Clip fit Convex	Retaining plate
			one-piece	two-piece[6]	one-piece	two-piece			
TKVD15-B	KUVE15-B	1,44	KA07-A-TN	KA07-A-TN/A	–	KA07-M/A	–	–	–
TKVD15-B-U			–	–		–			
TKVD15-W	KUVE15-W	3,6	KA08-TN	KA08-TN/A	–	–	–	–	–
TKVD15-W-U			–	–					
TKVD20	KUVE20-B	2,2	KA10-TN	KA10-TN/A	KA10-M	KA10-M/A	–	–	–
TKVD20-U			–	–	–	–			
TKVD20-ADB			–	–	–	–	ADB13	–	HPL.ADB9-B
TKVD20-ADK							–	ADK12	
TKVD20-W	KUVE20-W	5	KA08-TN	KA08-TN/A	–	–	–	–	–
TKVD20-W-U			–	–					

〈1〉 Locating face. 〈2〉 Marking.

1) Closing plugs, see page 401.

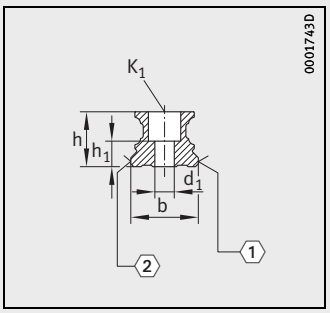
2) Covering strips, see page 402.

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

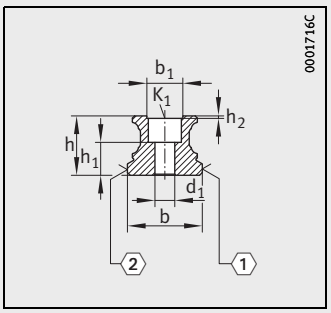
4) Maximum length of single-piece guideways.
Longer guideways are supplied as several segments and are marked accordingly.
Permissible number of guideway segments, see page 309.

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

6) Standard.

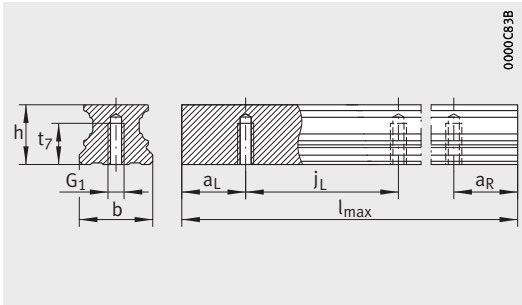


TKVD

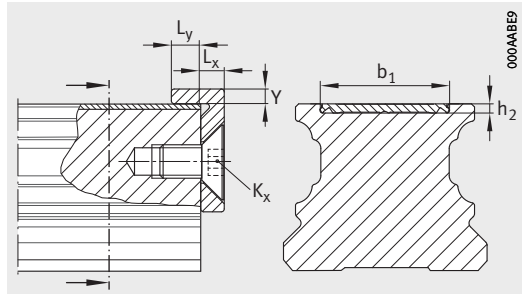


TKVD..-ADB

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

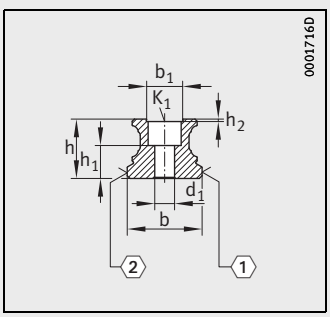


TKVD..-U

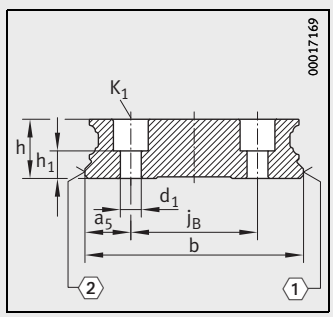


Retaining plate and covering strip

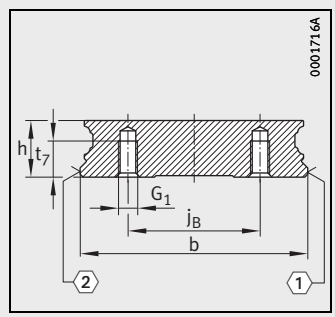
Dimensions															Fixing screws[3]				
K_x	L_x	L_y	Y	l_{max}[4]	h	b	a_L, a_R[5]		j_L	j_B	a_5	h_1	h_2	t_7	b_1	G_1		K_1		d_1
																DIN ISO 4762-12.9				
						$^{-0,005}_{-0,035}$	min.	max.				±0,5					M_A Nm		M_A Nm	
–	–	–	–	2 880	15	15	20	53	60	–	–	7,7	–	–	–	–	–	M4	5	4,6
														8		M5	10	–	–	–
–	–	–	–	2 890	12,9	37	10	44	50	22	7,5	6	–	–	–	–	–	M4	5	4,6
														7		M5	10	–	–	–
–	–	–	–	5 880	17	20	20	53	60	–	–	8,6	–	–	–	–	–	M5	10	5,8
														10		M6	17	–	–	–
M5	4	5	2	5 880	17	20	20	53	60	–	–	8,6	0,5	–	13	–	–	M5	10	5,8
													1,1		12,6					
–	–	–	–	2 880	17	42	20	53	60	24	9	10	–	–	–	–	–	M4	5	4,6
														10		M6	17	–	–	–



TKVD..-ADK



TKVD..-W

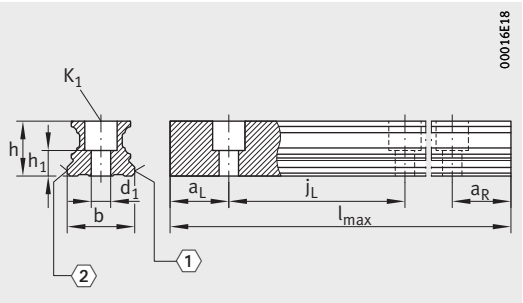


TKVD..-W-U

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Guideways and closing methods for
KUVE..-B
KUVE..-W



TKVD

Dimension table (continued) · Dimensions in mm

Designation	For linear guidance system	Mass m ≈ kg/m	Closing plug[1]				Covering strip[2]		
			Plastic		Brass		Adhesive bonded	Clip fit Convex	Retaining plate
			one-piece	two-piece[6]	one-piece	two-piece			
TKVD25	KUVE25-B	2,7	KA11-TN	KA11-TN/A	KA11-M	KA11-M/A	–	–	–
TKVD25-U			–	–	–	–			
TKVD25-ADB		2,7	–	–	–	–	ADB13	–	HPL.ADB9-B
TKVD25-ADK							–	ADK12	
TKVD25-W	KUVE25-W	9,4	KA11-TN	KA11-TN/A	–	–	–	–	–
TKVD25-W-U			–	–					

1 Locating face. 2 Marking.

1) Closing plugs, see page 401.

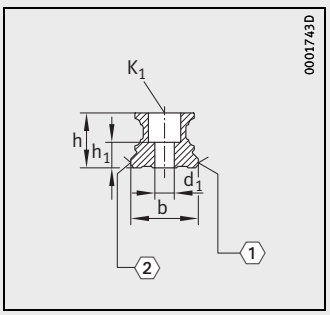
2) Covering strips, see page 402.

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

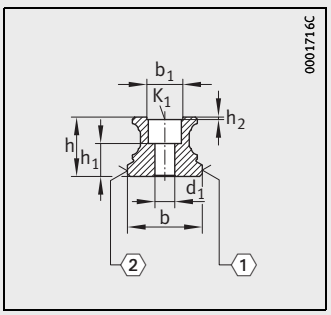
4) Maximum length of single-piece guideways.
Longer guideways are supplied as several segments and are marked accordingly.
Permissible number of guideway segments, see page 309.

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

6) Standard.

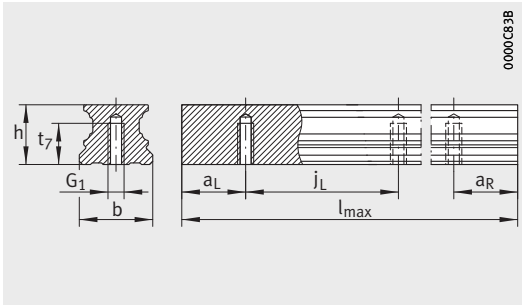


TKVD

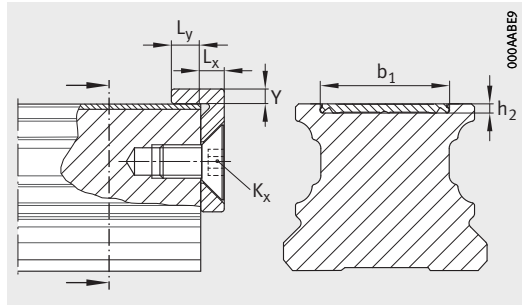


TKVD..-ADB

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

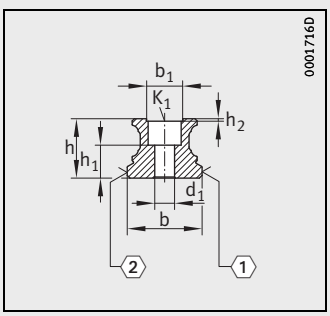


TKVD..-U

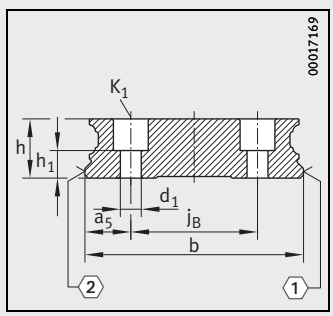


Retaining plate and covering strip

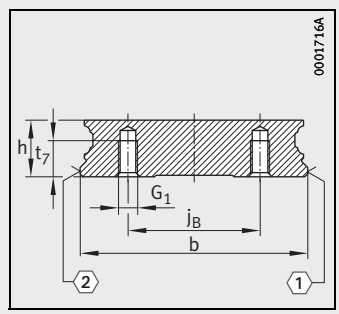
Dimensions																Fixing screws[3]				
K_x	L_x	L_y	Y	l_{max}[4]	h	b	a_L, a_R[5]		j_L	j_B	a_5	h_1	h_2	t_7	b_1	G_1		K_1		d_1
																DIN ISO 4762-12.9				
						$^{-0,005}_{-0,035}$	min.	max.				±0,5					M_A Nm		M_A Nm	
–	–	–	–	5 880	18,7	23	20	53	60	–	–	8,2	–	–	–	–	–	M6	17	6,8
														12		M6	17	–	–	–
M5	4	5	2	5 880	18,7	23	20	53	60	–	–	8,2	0,5	–	13	–	–	M6	17	6,8
													1,1		12,6					
–	–	–	–	5 860	18,7	69	20	71	80	40	14,5	8,2	–	–	–	–	–	M6	17	6,8
														12		M6	17	–	–	–



TKVD..-ADK



TKVD..-W

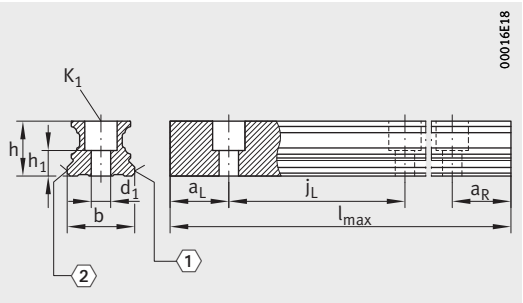


TKVD..-W-U

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Guideways and closing methods for
KUVE..-B
KUVE..-W



TKVD

Dimension table (continued) · Dimensions in mm

Designation	For linear guidance system	Mass m ≈ kg/m	Closing plug[1]				Covering strip[2]		
			Plastic		Brass		Adhesive bonded	Clip fit Convex	Retaining plate
			one-piece	two-piece[6]	one-piece	two-piece			
TKVD30	KUVE30-B	4,3	KA15-TN	KA15-TN/A	KA15-M	KA15-M/A	–	–	–
TKVD30-U			–	–	–	–			
TKVD30-ADB		4,3	–	–	–	–	ADB18	–	HPL.ADB17-B
TKVD30-ADK							–	ADK16	
TKVD30-W	KUVE30-W	13,6	KA15TN	KA15TN/A	–	–	–	–	–
TKVD30-W-U			–	–					

1 Locating face. 2 Marking.

1) Closing plugs, see page 401.

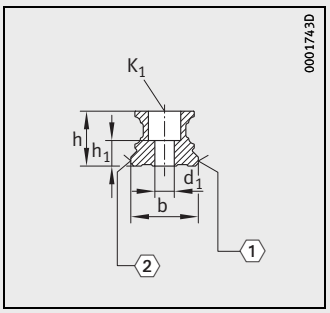
2) Covering strips, see page 402.

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

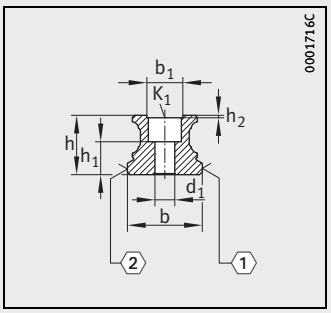
4) Maximum length of single-piece guideways.
Longer guideways are supplied as several segments and are marked accordingly.
Permissible number of guideway segments, see page 309.

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

6) Standard.

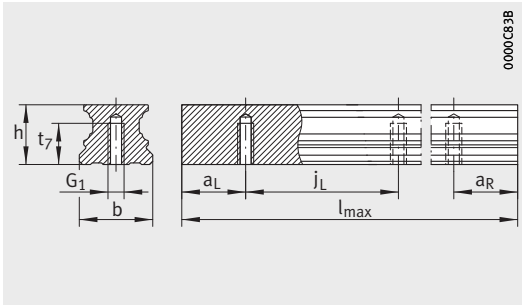


TKVD

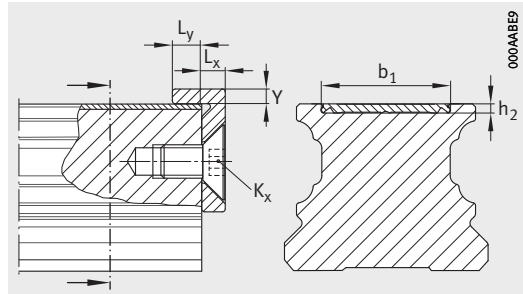


TKVD..-ADB

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

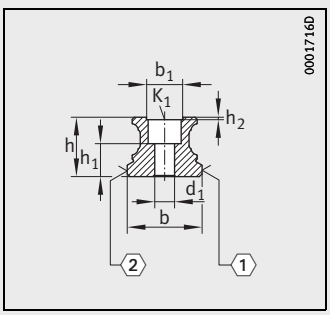


TKVD..-U

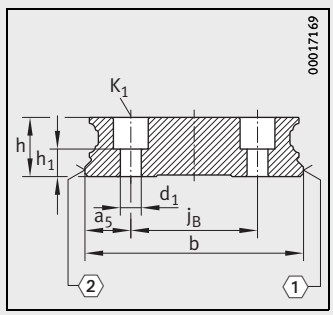


Retaining plate and covering strip

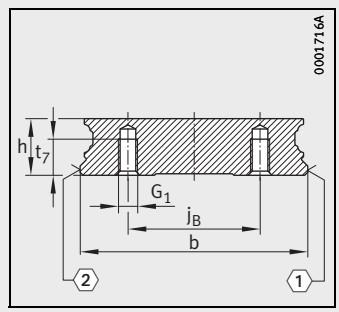
Dimensions															Fixing screws[3]				
K_x	L_x	L_y	Y	l_{max}[4]	h	b	a_L, a_R[5]		j_L	j_B	a_5	h_1	h_2	t_7	b_1	G_1		K_1		d_1
																DIN ISO 4762-12.9				
						$^{-0,005}_{-0,035}$	min.	min.				±0,5					M_A Nm		M_A Nm	
–	–	–	–	5 860	23,5	28	20	71	80	–	–	11	–	–	–	–	–	M8	41	9
														15		M8	41	–	–	–
M6	4	5	3	5 860	23,5	28	20	71	80	–	–	11	0,5	–	18	–	–	M8	41	9
													1,1		16,6					
–	–	–	–	5 860	23,5	80	20	71	80	50	15	11	–	–	–	–	–	M8	41	9
														15		M8	41	–	–	–



TKVD..-ADK



TKVD..-W



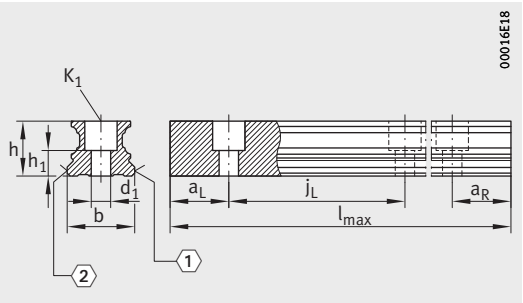
TKVD..-W-U

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

Four-row linear recirculating ball bearing and guideway assemblies

Guideways and closing methods for
KUVE..-B
KUVE..-W



TKVD

Dimension table (continued) · Dimensions in mm

Designation	For linear guidance system	Mass m ≈ kg/m	Closing plug[1]				Covering strip[2]		
			Plastic		Brass		Adhesive bonded	Clip fit Convex	Retaining plate
			one-piece	two-piece[6]	one-piece	two-piece			
TKVD35	KUVE35-B	5,7	KA15-TN	KA15-TN/A	KA15-M	KA15-M/A	–	–	–
TKVD35-U			–	–	–	–			
TKVD35-ADB		5,7	–	–	–	–	ADB18	–	HPL.ADB17-B
TKVD35-ADK							–	ADK16	
TKVD35-W	KUVE35-W	17,4	KA15-TN	KA15-TN/A	–	–	–	–	–
TKVD35-W-U			–	–					

〈1〉 Locating face. 〈2〉 Marking.

1) Closing plugs, see page 401.

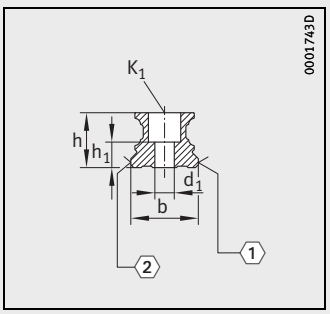
2) Covering strips, see page 402.

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

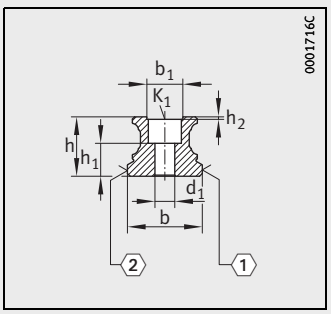
4) Maximum length of single-piece guideways.
Longer guideways are supplied as several segments and are marked accordingly.
Permissible number of guideway segments, see page 309.

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

6) Standard.

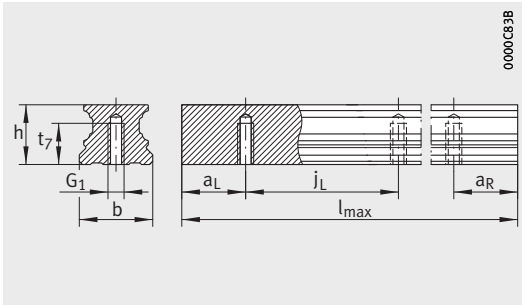


TKVD

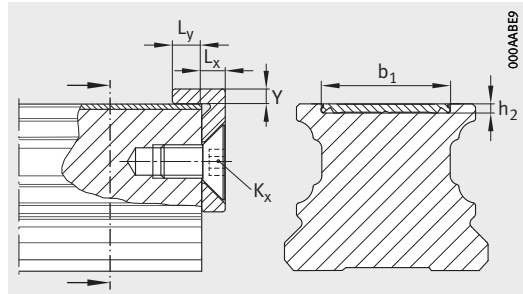


TKVD..-ADB

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

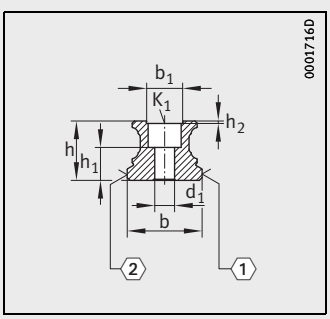


TKVD..-U

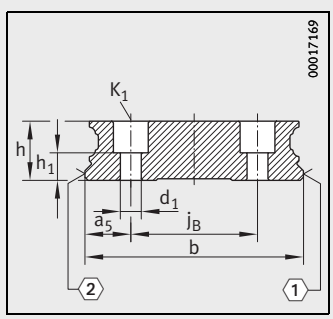


Retaining plate and covering strip

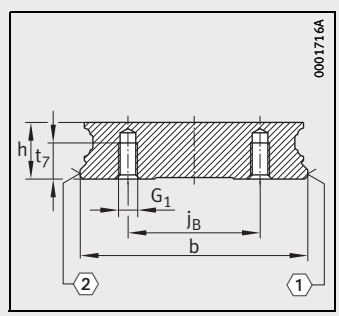
Dimensions															Fixing screws[3]				
K_x	L_x	L_y	Y	l_{max}[4]	h	b	a_L, a_R[5]		j_L	j_B	a_5	h_1	h_2	t_7	b_1	G_1		K_1		d_1
																DIN ISO 4762-12.9				
						$^{-0,005}_{-0,035}$	min.	max.				±0,5					M_A Nm		M_A Nm	
–	–	–	–	5 860	27	34	20	71	80	–	–	14,5	–	–	–	–	–	M8	41	9
														15		M8	41	–	–	–
M6	4	5	3	5 860	27	34	20	71	80	–	–	14,5	0,5	–	18	–	–	M8	41	9
													1,1		16,6	M5	10			
–	–	–	–	5 860	27	90	20	71	80	60	15	14,5	–	–	–	–	–	M8	41	9
														15		M8	41	–	–	–



TKVD..-ADK



TKVD..-W

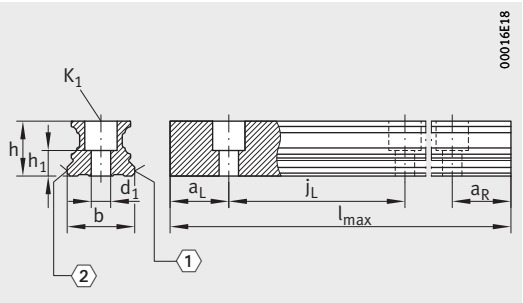


TKVD..-W-U

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

Four-row linear recirculating ball bearing and guideway assemblies

Guideways and closing methods for KUVE..-B



TKVD

Dimension table (continued) · Dimensions in mm

Designation	For linear guidance system	Mass m ≈ kg/m	Closing plug[1]				Covering strip[2]		
			Plastic		Brass		Adhesive bonded	Clip fit Convex	Retaining plate
			one-piece	two-piece[6]	one-piece	two-piece			
TKVD45	KUVE45-B	9,2	KA20-TN	KA20-TN/A	KA20-M	KA20-M/A	–	–	–
TKVD45-U			–	–	–	–			
TKVD45-ADB		9,2	–	–	–	–	ADB23	–	HPL.ADB17-B
TKVD45-ADK							–	ADK21	
TKVD55-B	KUVE55-B	14	KA24-TN	KA24-TN/A	KA24-M	KA24-M/A	–	–	–
TKVD55-B-U			–	–	–	–			
TKVD55-ADB		14	–	–	–	–	ADB27	–	HPL.ADB17-B
TKVD55-ADK							–	ADK25	

① Locating face. ② Marking.

1) Closing plugs, see page 401.

2) Covering strips, see page 402.

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

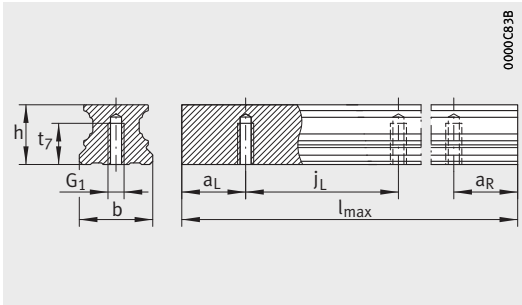
4) Maximum length of single-piece guideways. Longer guideways are supplied as several segments and are marked accordingly. Permissible number of guideway segments, see page 309.

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

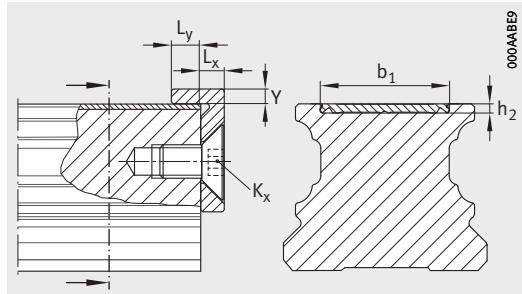
6) Standard.

ALMOTION B.V. Nijverheidsweg 14 | 8862 NG Elst (Gld) | The Netherlands t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl

ALMOTION

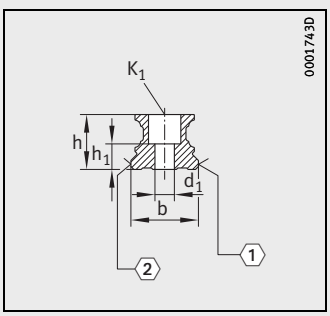


TKVD..-U

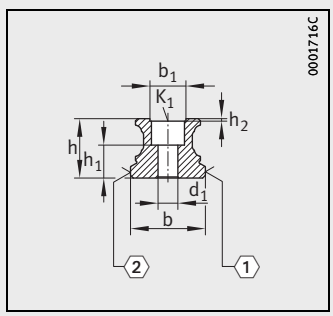


Retaining plate and covering strip

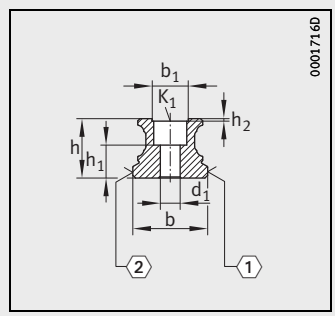
Dimensions															Fixing screws[3]				
K_x	L_x	L_y	Y	l_{max}[4]	h	b	a_L, a_R[5]		j_L	j_B	a_5	h_1	h_2	t_7	b_1	G_1		K_1		d_1
																DIN ISO 4762-12.9				
						−0,005 −0,035	min.	max.				±0,5					M_A Nm		M_A Nm	
–	–	–	–	5 835	34,2	45	20	94	105	–	–	15,7	–	–	–	–	–	M12	140	13,4
														20		M12	140	–	–	–
M5	4	5	2	5 835	34,2	45	20	94	105	–	–	15,7	0,5	–	23	–	–	M12	140	13,4
													1,1		21,7					
–	–	–	–	5 820	41,5	53	20	107	120	–	–	19	–	–	–	–	–	M14	220	15,4
														22		M14	220	–	–	–
M5	4	5	2	5 820	41,5	53	20	107	120	–	–	19	0,5	–	27	–	–	M14	220	15,4
													1,1		25,7					



TKVD



TKVD..-ADB



TKVD..-ADK

ALMOTION B.V. Nijverheidsweg 14 | 6662 NG Elst (Gld) | The Netherlands | t +31(0)85 0491 777 e info@almotion.nl | www.almotion.nl | www.lineairegeleiding.nl | www.lineairegeleidingshop.nl | www.linearmotion.nl