

Assembly instructions

Linear axes KK/KF

KX-05-02-EN-2201-MA

Imprint

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1 General

1.1 About these assembly instructions

These assembly instructions are intended for planners, developers and operators of systems who plan and install the named products as machine elements. It is also addressed to all persons who carry out the following work:

- Transport
- Assembly
- Electrical connection including connection to the higher-level control system
- Integration into a safety system
- Retrofitting or upgrading
- Setup
- Commissioning
- Operation
- Cleaning
- Maintenance
- Troubleshooting
- Decommissioning, disassembly and disposal

1.1.1 Requirements

We assume that

- The operating personnel have been instructed in the safe operation of linear axes KK/KF and have read and understood these assembly instructions in full
- Maintenance personnel maintain and repair the named products in such a way that they present no danger to persons, the environment or property

1.1.2 Availability

The assembly instructions must always be available to all persons working with or on the named products. The assembly instructions are also available at www.hiwin.de.

1.2 Presentation and layout conventions used in these assembly instructions

1.2.1 Instructions for actions

Instructions for actions are provided in sequential order and identified with a triangle symbol. The results of the actions are accompanied by an arrow.

Example:

- ▶ Instruction 1
- ▶ Instruction 2
- ✓ Result

1.2.2 Lists

Lists are identified through the use of bullet points.

Example:


Linear axes KK/KF must not be operated:

- Outdoors
- In areas where there is a risk of explosion
- ...

1.2.3 Presentation of safety information

Safety notices are always indicated by a signal word and sometimes with a hazard-specific symbol (see section [1.2.4 Symbols used](#)).

The following signal words/hazard levels are used:

 **Danger!** Immediate danger!


Failure to follow this safety instruction will result in severe or fatal injury!

 **Warning!** Potentially dangerous situation!

Failure to follow this safety instruction could result in severe or fatal injury!

 **Attention!** Potentially dangerous situation!







Failure to follow this safety instruction could result in moderately severe or minor injury!

 **Caution!** Potentially dangerous situation!

Failure to follow this safety instruction could result in damage to property or the environment!

1.2.4 Symbols used

The following symbols are used in these assembly instructions and on the product:

Warning symbols			
	Warning of dangerous electrical voltage!		Warning of hot surfaces!
	Warning of crushing risk!		Warning of danger from suspended loads!
	Environmentally hazardous substance!		
Instruction symbols			
	Release prior to work!		

1.2.5 Information

Note:

Provides general information and recommendations.

1.3 Warranty and liability

The manufacturer's "General Terms and Conditions of Sale and Delivery" apply.

1.4 Manufacturer information

Address	HIWIN GmbH Brücklesbünd 1 77654 Offenburg, Germany
Telephone	+49 (0) 781 / 9 32 78 - 0
Technical customer service team	+49 (0) 781 / 9 32 78 - 77
Fax	+49 (0) 781 / 9 32 78 - 90
Technical customer service team fax	+49 (0) 781 / 9 32 78 - 97
E-mail	support@hiwin.de
Internet	www.hiwin.de

1.5 Product monitoring

Please inform HIWIN, as manufacturer of the named products, about:

- Accidents
- Possible sources of danger on the named products
- Any unclear information in these assembly instructions

2 Basic safety information

Warning!

This chapter is for the safety of everyone who works with, assembles, installs, operates, maintains or disassembles linear axes KK/KF. Failure to comply with the following information could be dangerous!

2.1 Proper use

Linear axis KK/KF is a linear drive and guide system for the exact, time-controlled positioning of permanently mounted loads in an automated system.

Several linear axes KK/KF can be mounted on top of each other to form cross tables.

In the event of vertical mounting, a suitable clamping or braking device must be provided to be able to prevent unintentional lowering of the load.

All linear axes KK/KF may only be used as described for the intended purpose.

- The named products may only be operated within their specified performance limits
- The assembly instructions and the maintenance and servicing instructions must be complied to ensure the intended use of the products.
- The products must not be used in potentially explosive atmospheres.
- The products may only be used and operated indoors.
- Any other use of the products is considered improper use.

The products are delivered as a system. That is why the entire documentation of the system must be observed. Depending on the linear axis type, the accompanying documentation may vary.

2.2 Reasonably foreseeable misuse

The named products must not be operated:

- Outdoors
- In areas where there is a risk of explosion

2.3 Conversions or modifications

Conversions or modifications to the named products are not permitted!

2.4 Residual risks

No residual risks emanate from the named products during normal operation. Dangers that may arise during maintenance and servicing are specified in the respective chapters.

2.5 Requirements for personnel

Only authorised and competent persons may carry out work on the products! They must be familiar with the safety equipment and regulations before they start work (see [Table 2.1](#)).

Table 2.1: Requirements for personnel

Activity	Qualifications
Normal operation	Instructed personnel
Cleaning	Instructed personnel
Maintenance	Qualified personnel of the operator or manufacturer
Servicing	Qualified personnel of the operator or manufacturer
Transport	Instructed personnel
Assembly	Instructed qualified personnel
Disassembly	Instructed qualified personnel

2.6 Safety equipment




Table 2.2: Personal protective equipment

Operating phase	Personal protective equipment
Normal operation	The following personal protective equipment is required when standing or working near the linear axes: ○ Safety shoes
Cleaning	The following personal protective equipment is required when cleaning the named products: ○ Safety shoes
Servicing and maintenance	The following personal protective equipment is necessary during maintenance and servicing: ○ Safety shoes

2.7 Markings on the linear axis system

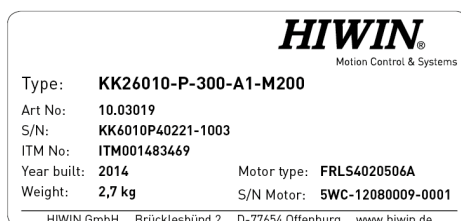
2.7.1 Warning symbols

Table 2.3: Warning symbols

Pictograms	Type and source of danger	Protective measure
	Danger due to electric shock!	Disconnect linear axes KK/KF from the power supply before servicing or maintenance!
		
	Danger due to hot surfaces!	Let hot surfaces cool down before touching them!

2.7.2 Type plate

Fig. 2.1: Example of a type plate



3 Description of linear axis KK/KF

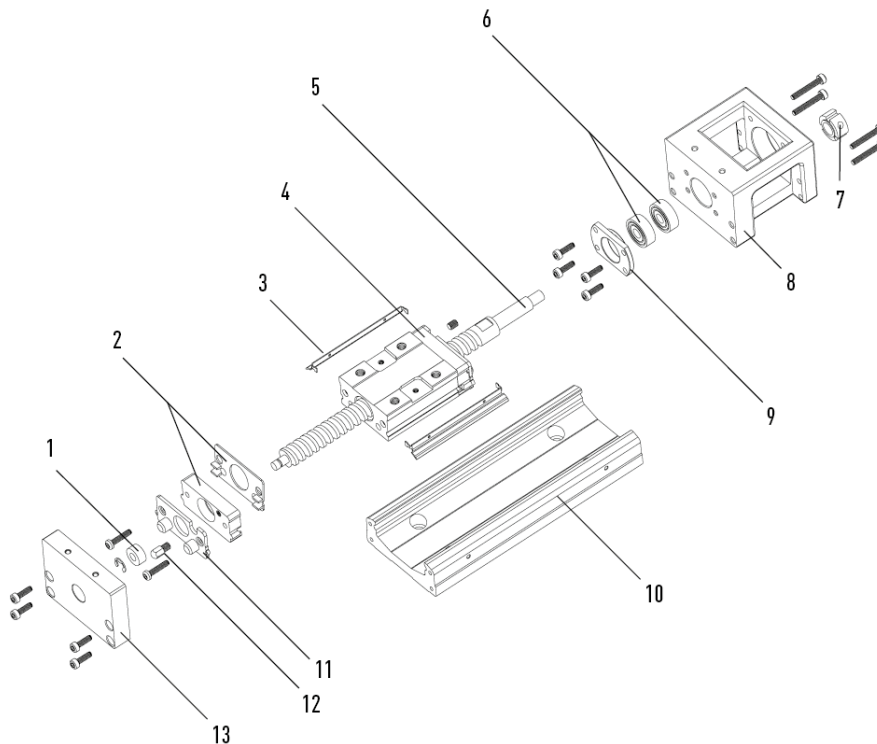
3.1 Application

Linear axis KK/KF is used for traversing and moving loads firmly mounted on the traversing carriage (linearly). It can be mounted horizontally or, with the help of clamping or braking devices, vertically.

3.2 Structure of linear axes KK/KF

Linear axes KK/KF consist of the components shown as examples in [Fig. 3.1](#).

Fig. 3.1: Structure of linear axis KK/KF



1 Supported bearing	8 Drive flange
2 Recirculation system	9 Bearing cover
3 Seal	10 Bearing cover
4 Block with integrated ballscrew nut	11 End seal
5 Ballscrew	12 Grease nipple
6 Fixed bearing	13 End plate
7 Locknut	

Special feature of KK axis

- Two-row version
- Full-ball type

Special feature of KF axis

- Four-row version
- SynchMotion™ technology

3.3 Functional description

HIWIN linear axes KK/KF are compact positioning axes. The feed is generated by a ballscrew mounted in a drive flange. The movement is guided by a special linear guideway. Due to the recirculating ball bearing guide of the block in the steel profile and the integrated nut of the ballscrew, linear axis KK/KF achieves very high load ratings and high rigidity with minimal frictional or idle torque.

Depending on the application requirements, different sizes and the following optional accessories are available:

- Limit switch
- Second block
- Aluminium cover
- Bellows cover
- Motor adapter flanges

Linear axes KK/KF are delivered completely assembled. The optional accessories can be supplied separately on customer request. To avoid damage to the linear axes, please observe the safety instructions in chapter [4.3](#).

The mounting surface must be a flat surface. The required evenness is 0.03 mm over 300 mm.

Typical properties

- Complete axis ready for installation
- Universally applicable
- Compact design
- Adaptable and sturdy
- High accuracy and rigidity

Advantages of KK axis

- Two-row version
- Standard version
- Horizontal mounting position possible
- Vertical mounting position possible with clamping or braking device shown
- Application with high precision
- Compact design

Additional advantages of KF axis

- Four-row version
- Optimised synchronisation properties
- Reduced running noise
- Same dimensions as KK axis
- SynchMotion™ technology

3.3.1 Limit/Reference switch (option)

On linear axis KK/KF, two optical or inductive PNP-switching proximity switches send a signal to the control system when the ends of the travel distance are reached. The limit switches are delivered wired and ready for use.

The limit switches are mounted on a sensor rail attached to linear axis KK/KF and can be positioned freely. On delivery, the proximity switches are mounted on the sensor rail ready for use.

- Cable length 2 m/4 m
- Open cable end
- Optionally with Sub-D connection

Fig. 3.2: Linear axis KK/KF with limit/reference switches

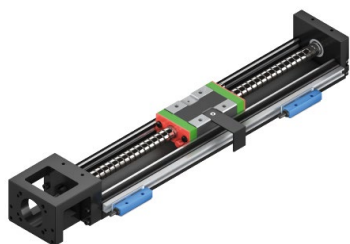


Fig. 3.3: Inductive proximity switch on bracket

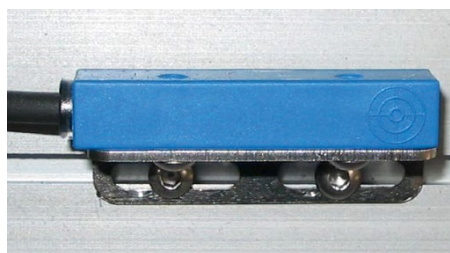
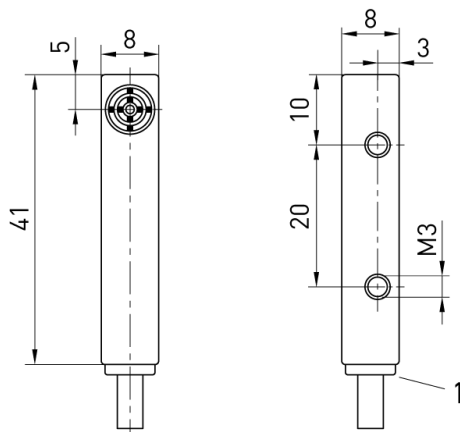


Table 3.1: Technical data of the limit/reference switch

Inductive	
Switching distance	2 mm
Correction factor V2A/brass/aluminium	1.16 / 0.70 / 0.67
Type of installation	Flush
Switch hysteresis	< 10%
Electric	
Power supply	10 to 30 VDC
Current consumption (U _b = 24 V)	< 8 mA
Switching frequency	930 Hz
Temperature drift	< 10%
Temperature range	-25 to +80 °C
Voltage drop of switching output	< 1 V
Switching current	100 mA
Residual current of switching output	< 100 µA
Short-circuit resistant	Yes
Reverse polarity protected	Yes
Overload-proof	Yes
Mechanical	
Housing material	Plastic
Full potting	Yes
Protection class	IP67
Connection type	Cable
Cable length	4 m, 2 m
Protection class	III

Fig. 3.4: Dimensioned drawing of the reference switch



1 Switch state indicator

The proximity switch is attached to the sensor rail with M3 screws. The tightening torque is 1.8 Nm.

3.3.2 Covers (option)

Aluminium sheet metal covers are optionally available for all sizes of linear axes KK. Bellows covers are also available for sizes KK60 and KK86. The covers are delivered mounted as standard.

3.3.3 Motor adapter flange (option)

Linear axis KK/KF is delivered with motor adapter flange F0 as standard. Depending on the size, different adapter flanges are available. Additional adapter flanges F1, F2, F3, ... are delivered mounted on standard motor adapter flange F0.

4 Transport and setup

4.1 Delivery

4.1.1 Delivery condition

Linear axes KK/KF are delivered fully assembled, functionally tested and ready for connection.

4.1.2 Scope of delivery

The scope of delivery may vary depending on the configuration ordered. Please refer to the contract documentation.

4.2 Transport to the installation location

From a weight of 25 kg, suitable and appropriately dimensioned lifting gear must be used for transport. Comply with the applicable industrial safety regulations for handling suspended loads.

⚠ Caution! Danger of property damage!

Linear axis KK/KF can be damaged by mechanical stress.

- ▶ Lift linear axis KK/KF only at the profile, not at the motor or spindle!
- ▶ For longer linear axes, ensure the centre sections have additional protection!
- ▶ Ensure that the linear axis does not bend, as this will permanently damage the precision!
- ▶ Do not transport any additional loads on the linear axis during transport!
- ▶ Secure linear axis and components against tipping before transport!

Note

Linear axes KK/KF must always be operated in conjunction with suitable safety devices (electrosensitive protective equipment, mechanical protective equipment); these protective devices must be designed, installed and regularly checked in accordance with the applicable national and international laws and regulations.

4.3 Installation location requirements

4.3.1 Environmental conditions

Ambient temperature	+ 5 °C to + 40 °C
Installation site	Level, dry, vibration-free
Atmosphere	Non-corrosive, non-explosive
Flatness	0.03 mm to 300 mm

4.3.2 Safety equipment to be provided by the operator

Possible safety equipment/measures:

- Personal protective equipment according to UVV
- Electrosensitive protective equipment
- Mechanical safety equipment

4.4 Storage

- ▶ Store linear axes KK/KF in the transport packaging.
- ▶ Store linear axes KK/KF only in dry, frost-free rooms with a corrosion-free atmosphere.
- ▶ Clean and protect used linear axes KK/KF before storage.

4.5 Unpacking and setup

Note

Linear axis KK/KF may only be set up and operated indoors.

Note

Linear axes KK/KF are ideally designed for horizontal installation. These linear axes should not exceed an angle of 1° on the X- and Y-axis when installed.

- ▶ Remove protective film.
- ▶ Carefully transport linear axis to the intended installation site.
- ▶ Ensure that the maintenance points are freely accessible.
- ▶ Dispose of packaging in an environmentally-safe manner.

5 Assembly and connection

⚠ Warning! Danger of crushing due to traversing carriage!

Risk of injury due to crushing and damage to the linear axis systems due to movement of the traversing carriage due to gravity, as linear axes KK/KF do not have a brake by default.

- ▶ Ensure that linear axis KK/KF has a maximum of 1° horizontal deviation on the X and Y axes during installation!

⚠ Warning! Danger from suspended loads or falling parts!

Lifting heavy loads can cause damage to health.

- ▶ Use appropriately dimensioned lifting equipment for positioning heavy loads!
- ▶ Comply with the applicable industrial safety regulations for handling suspended loads.
- ▶ Only lift the linear axis by the profile!

Note

Mounting surface must have an evenness of 0.03 mm on 300 mm!

Note

Assembly of linear axis KK/KF only by qualified personnel!

5.1 Mounting of linear axis KK/KF

⚠ Caution! Danger of property damage!

As standard, linear axis KK/KF does not have a brake.

- ▶ When used in vertical applications, prevent unintentional lowering of the linear axis!

Linear axes KK/KF are designed for horizontal use as standard. For vertical installation, the applicable safety guidelines must always be observed.

The linear axis is only attached from above. Holes for cap screws are available for this purpose. The number of holes depends on the length of the support profile.

- ▶ Make suitable mounting hole on the mounting surface, if not already present
 - ▶ Clean the mounting surface and position linear axis KK/KF on the mounting surface
 - ▶ Place linear axis KK/KF firmly against the reference edge ([Fig. 5.1](#))
 - ▶ Screw in the mounting bolts for all mounting holes and tighten them from the inside to the outside in a spiral sequence
- ✓ Linear axis KK/KF is mounted

Note

Secure the screws against unintentional loosening!

Table 5.1: Tightening torques of the mounting bolts

Series/Size	Screw size	Torque [Nm]
KK30	M3	1.8
KK40	M3	1.8
KK50	M4	4.4
KK/KF60	M5	7.2
KK/KF86	M6	10.2
KK100	M8	18.6
KK130	M8	18.6

5.2 Mounting a moving load

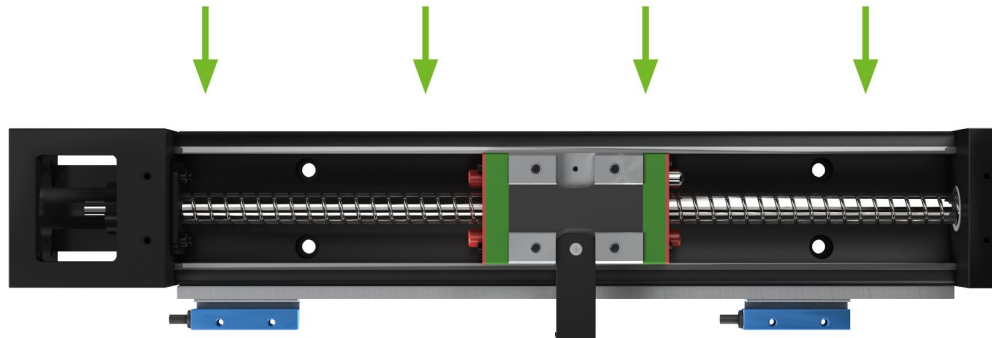
⚠ Warning! Danger from suspended loads or falling parts!

Lifting heavy loads can cause damage to health.

- ▶ Use appropriately dimensioned lifting equipment for positioning heavy loads!
- ▶ Comply with the applicable industrial safety regulations for handling suspended loads.

- ▶ Clean the mounting surfaces for the load on linear axis KK/KF
- ▶ Clean the mounting surface of the load
- ▶ Position the load on the linear axis KK/KF
- ▶ Tighten the mounting bolts in a spiral sequence
- ▶ Check freedom of movement of the load over the entire travel distance
- ▶ Secure screws
- ✓ Load on linear axis KK/KF is mounted

Fig. 5.1: Reference edge

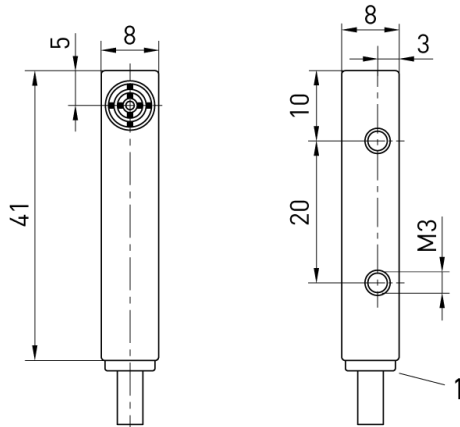


5.3 Limit switch connection

- One to three inductive proximity switches installed in the linear axis ready for operation
- Available with 2 m or 4 m connection cable

5.3.1 Dimensions

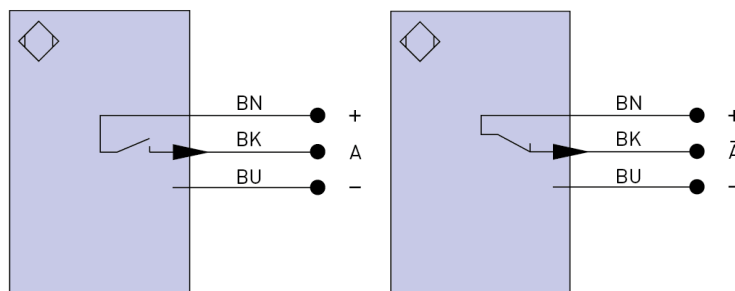
Fig. 5.2: Dimensions of the inductive limit switch



1 Switch state indicator

5.3.2 Circuit diagram

Fig. 5.3: Circuit diagram for normally open Fig. 5.4: Circuit diagram for normally closed



Explanation of symbols

- + Power supply “+”
- Supply voltage “0 V”
- A/ \bar{A} Switching output

Core colours

- BN Brown
- BK Black
- BU Blue

5.4 Mounting of aluminium cover

- ▶ Screw the block adapter [1] to the block [2] with the tightening torque from [Table 5.2](#).
- ▶ Screw the aluminium cover [3] to the drive flange [4] and end plate [5].
- ✓ Aluminium cover is mounted.

Fig. 5.5: KK/KF axis with aluminium cover plate

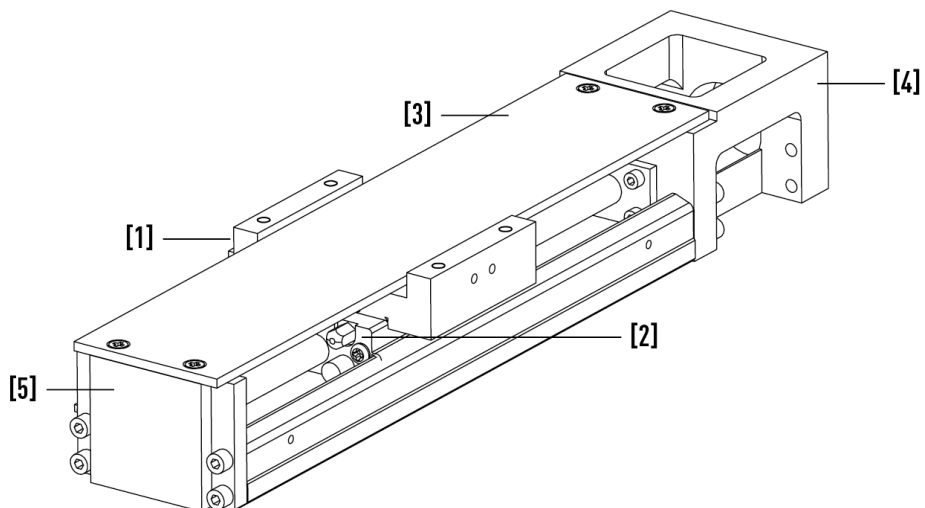


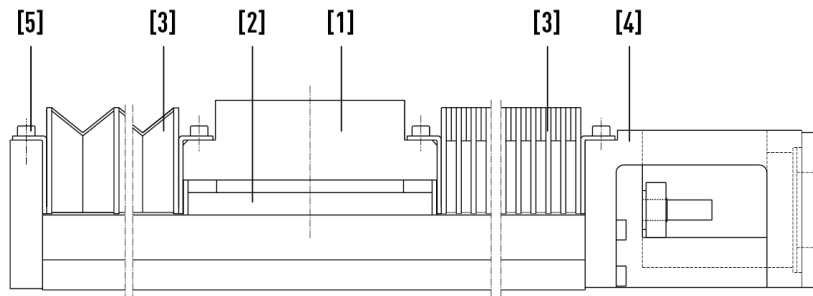
Table 5.2: Tightening torques for mounting bolts

Thread	M3	M4	M5	M6	M8	M10
Tightening torque [Nm]	1.2	2.9	6.0	12.2	24.9	49.4

5.5 Mounting of bellows cover

- ▶ Screw the block adapter [1] to the block [2] with the tightening torque from [Table 5.2](#).
- ▶ Screw bellows [3] to drive flange [4], end plate [5] and block adapter [1].
- ✓ Bellows cover is fitted.

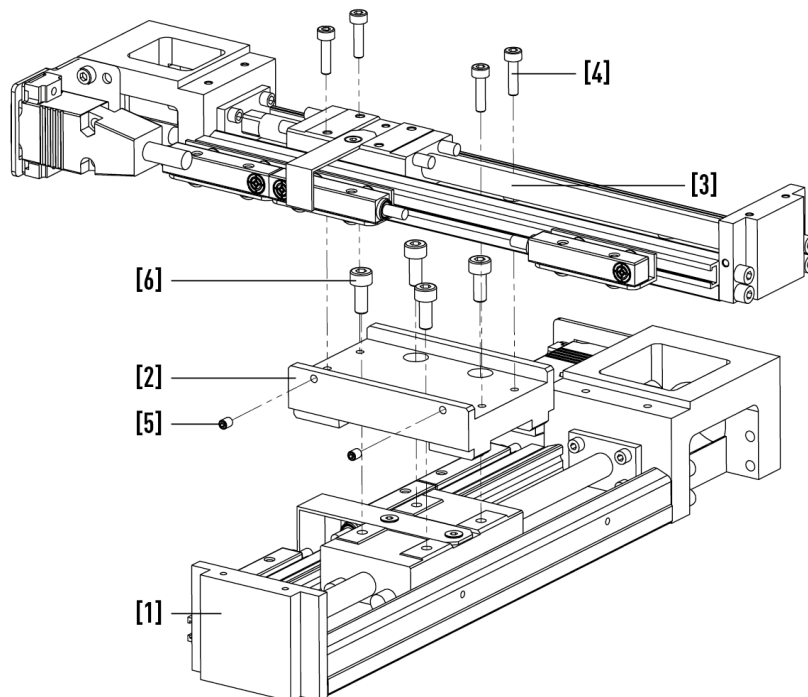
Fig. 5.6: KK/KF axis with bellows



5.6 Mounting of cross table adapter

- ▶ Screw the cross table adapter [2] to the lower KK/KF axis [1] with the screws [6] as shown in [Fig. 5.7](#). Tighten the screws with the torque indicated in [Table 5.2](#).
- ▶ Screw the upper KK/KF axis [3] to the cross table adapter [2] as shown in [Fig. 5.7](#), applying the screws [4] only lightly.
- ▶ To align the upper KK/KF axis [3], use the two threaded pins [5] to place the KK/KF axis firmly against the reference edge.
- ▶ Then tighten the screws [4] of the upper KK/KF axis [3].
- ✓ Cross table with cross table adapter is mounted.

Fig. 5.7: Exploded view of cross table



6 Commissioning

6.1 Switching on linear axis system

⚠ Warning! Danger of crushing!

The travel carriage can cause bruising to limbs due to its movement at the end positions of the machine.

- ▶ Provide protective equipment to prevent reaching into the danger zone of the machine!

⚠ Warning! Risk of burns!

Motor heating can cause burns if the motor is touched.

- ▶ Provide protective device and warnings on the motor!

⚠ Caution! Danger of property damage!

Uncontrolled movements of the traversing carriage in the event of a power failure can cause property damage!

- ▶ Ensure that suitable end stops are fitted to the end positions of the linear axis!

Note

Linear axes must always be operated in conjunction with suitable safety devices (electrosensitive protective equipment, mechanical protective equipment); these protective devices must be designed, installed and regularly checked in accordance with the applicable national and international laws and regulations.

7 Maintenance and cleaning

⚠ Warning! Danger of injury and damage to property!

Unauthorised work on the unit may cause injury and invalidate the warranty.

- ▶ Assembly and maintenance of the system only by qualified personnel!

ⓘ Caution! Risk of damage to health and the environment!

Contact with lubricants can cause irritation, poisoning and allergic reactions as well as damage to the environment.

- ▶ Only use suitable media that are not dangerous for humans. Observe the manufacturer's safety data sheets.
- ▶ Dispose of substances appropriately.

For maintenance work:

- ▶ Secure the linear axis system against unauthorised switch-on.
- ▶ Disconnect the linear axis system from the power supply.
- ▶ Secure the linear axis system against unauthorised restarting.



7.1 Linear guideway and spindle

7.1.1 Lubrication

The profile rails of the linear axes, like any rolling bearing, require a sufficient supply of lubricant. This lubrication reduces wear, protects against dirt and deposits, prevents corrosion and extends the service life due to its properties.

Observe the lubricant manufacturer's specifications!

Miscibility of different lubricants must be checked. Lubricants with same classification (e.g. CL) and similar viscosity (maximum one class difference) are miscible.

Greases are miscible if their base oil and thickening type are the same. The viscosity of the base oil must be similar and the NGLI class must not differ by more than one grade.

Note

Make sure that old grease, dirt and chips have been removed from the profile rails before lubrication!

Note

Only use lubricants according to DIN 51825, KP2K, consistency class NGLI2!

Note

Make sure that only lubricants without solid lubricant content (e.g. graphite or MoS₂) are used!

Table 7.1: Miscibility of HIWIN greases

	G01	G02	G03	G04	G05
G01	●	●	●	○	○
G02	●	●	●	●	●
G03	●	●	●	●	●
G04	○	●	●	●	●
G05	○	●	●	●	●

Table 7.2: Miscibility of HIWIN greases

	G01	G02	G03	G04	G05
KK/KF	○	●	●	●	●

- Miscible
- Partially miscible

Recommendation:

In the case of lubricants that are only partially miscible, the old grease should be used up as far as possible before the new grease is introduced. The relubrication quantity with the new grease should be increased for a short time.

In the case of lubricants that are not miscible, the old grease should be completely used up before the new grease is introduced.

Table 7.3: Grease nipple for grease lubrication

		
Art. no: 20-000275 - M3 x 0.5 P KK40	Art. no: 20-000272 - M4 x 0.7 P KK50 , KK/KF60, KK/KF86	Art. no: 20-000273 - M6 x 0.75 P KK100, KK130

For linear axes with aluminium cover:

- ▶ Move the traversing carriage to the end stop.
- ✓ Grease nipple freely accessible.

For linear axes with bellows cover:

- ▶ Detach the bellows from the traversing carriage.
- ✓ Grease nipple freely accessible.

Note

With linear axes KK/KF, spindle and rail are lubricated via the same grease nipple!

Under normal operating conditions, the linear guideways and ballscrew must be relubricated. Before lubricating, check the linear axis for dirt and clean it if necessary.

Note

For linear axes KK30, we recommend the use of a suitable spray grease (e.g. Fuchs Planto Multispray S). Apply the lubricant evenly over the entire length on the ball track and on the ballscrew. Move the block along the entire stroke and remove excess grease.

Table 7.4: Lubricant quantities

Size	Ballscrew	Lubricant quantity per block [g]	Travel distance [km]
KK30	6 × 1	0.45	250
KK40	8 × 1	0.50	250
KK50	8 × 2	0.55	300
KK/KF60	12 × 5	0.70	300
KK/KF60	12 × 10	0.75	600
KK/KF86	15 × 10	2.50	600
KK/KF86	15 × 20	3.00	800
KK100	20 × 20	4.50	1,000
KK130	25 × 25	10.00	1,000

For non-driven blocks, reduce the lubricant quantity to about 75% of the specified values.

The linear axes are equipped as standard with grease nipples at the ends of the blocks for filling commercially available grease; lubrication adapters are optionally available to connect the linear axes directly to the lubrication line of the central lubrication system.

When lubricating, make sure that the block is moved to the end positions during the lubrication process to ensure sufficient lubrication of the entire linear axis.

Relubrication intervals every 200 – 600 operating hours or travel distance according to above table at loads $\leq 0.10 C_{dyn}$.

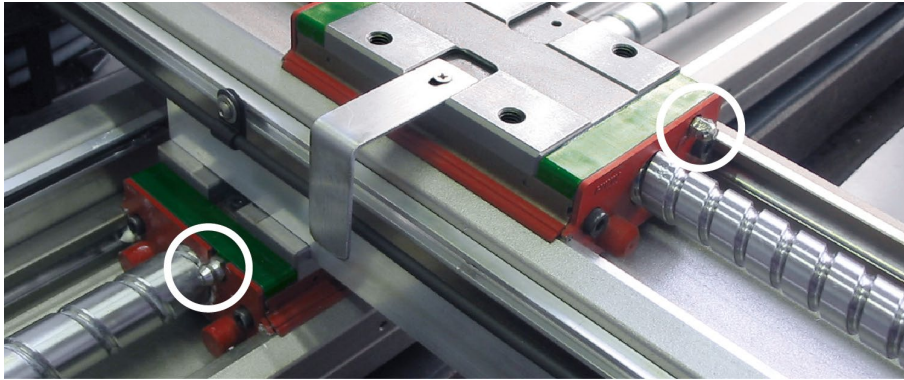
With vertical installation, the relubrication quantity increases by approx. 50%.

In case of special operating conditions (contamination, short stroke, type of installation), the lubrication intervals must be adapted to the application.

Note

On linear axes with bellows, the grease nipples are only accessible when the bellows are detached from the traversing carriage.

Fig. 7.1: Arrangement of the grease nipples at the ends of the blocks (example)



7.1.2 Cleaning

Dirt can accumulate on the profile rails and stick over time. That is why you must check the profile rails regularly for dirt and remove it if necessary.

8 Disassembly

Danger! Danger due to electrical voltage!

Dangerous currents may flow before and during assembly, disassembly and repair work.

- ▶ Work may only be carried out by qualified electricians when the device is de-energised!
- ▶ Before working, disconnect the linear axis system from the power supply and secure them against being switched on again!

Warning! Danger of crushing due to traversing carriage!

Risk of injury due to crushing and damage to the linear axis systems due to movement of the traversing carriage due to gravity, as linear axes KK/KF do not have a brake by default.

- ▶ Ensure that linear axis KK/KF has a maximum of 1° horizontal deviation on the X and Y axes during installation!

Warning! Danger from heavy loads!

Lifting heavy loads can cause damage to health.

- ▶ Use appropriately dimensioned lifting equipment for positioning heavy loads!
- ▶ Comply with the applicable industrial safety regulations for handling suspended loads.
- ▶ Only lift the linear axis by the profile!

Disassembly steps:

- ▶ Disconnect the axis from electricity.
- ▶ Unscrew the moving load.
- ▶ Unscrew linear axis KK/KF.
- ✓ Linear axis KK/KF is dismantled.

9 Disposal

! **Caution!** Environmentally hazardous substances!

The risk posed to the environment depends on the type of materials used.

- ▶ Always clean contaminated components before disposal!
- ▶ Clarify proper disposal with disposal companies and, if necessary, with the responsible authorities!

Table 9.1: Disposal

Liquids	
Lubricants	Dispose of as hazardous waste in an environmentally-safe manner
Soiled cleaning cloths	Dispose of as hazardous waste in an environmentally-safe manner
Linear axis system	
Cabling, electrical components	Dispose of as electrical scrap
Components made of PP (e.g. energy chain)	Sort by type before disposal
Components made of steel (e.g. profile rail)	Sort by type before disposal
Components made of aluminium (e.g. profile)	Sort by type before disposal

10 Appendix 1: Order code of linear axes KK/KF

Number	1	2	3	4	5
Order code	KK	60	10	P	300
1	KK	Linear axis: KK/KF			
2	60	Type: 30, 40, 50, 60, 86, 100, 130			
3	10	Pitch [mm]: KK30: 01 KK40: 01 KK50: 02 KK/KF60: 05, 10 KK/KF86: 10, 20 KK100: 20 KK130: 25			
4	P	Accuracy class: C ¹⁾ , P			
5	300	Length of rail ²⁾ [mm]: KK30: 75, 100, 125, 150, 175, 200 KK40: 100, 150, 200 KK50: 150, 200, 250, 300 KK/KF60: 150, 200, 300, 400, 500, 600 KK/KF86: 340, 440, 540, 640, 740, 940 KK100: 980, 1,080, 1,180, 1,280, 1,380 KK130: 980, 1,180, 1,380, 1,680			

Order code for linear axes HT-L (continued)

Number	6	7	8	9	10
Continued Order code	A	2	F0	C	SA
6	A	Block type: A: Standard S: Short (KK60, KK86) ¹⁾			
7	2	Number of blocks: 1 2			
8	F0	Flange type: F0, F1, F2, F3, ...			
9	C	Cover: 0: Without B: Bellows cover (KK60, KK86) C: Aluminium cover			
10	SA	Limit switch ³⁾ : 0: Without S0: Sensor rail only SA: One limit switch on sensor rail SB: Two limit switches on sensor rail, from length 150 SC: Three limit switches on sensor rail, from length 200			

¹⁾ On request

²⁾ Shortened lengths possible on request

³⁾ Not for version KK30

11 Installation certificate

In terms of EU Machinery Directive 2006/42/EC, Appendix II 1. B for incomplete machines

The manufacturer: HIWIN GmbH, Brücklesbünd 1, 77654 Offenburg, Germany
 Documentation department: HIWIN GmbH, Brücklesbünd 1, 77654 Offenburg, Germany

Description and identification of the incomplete machine:

Product: Linear axis KK
 Type: KK_30..., KK_40..., KK_50..., KK/KF_60..., KK/KF_86..., KK_100..., KK_130...
 Year of manufacture: from 2018

We hereby declare that the machine satisfies the following fundamental provisions of the Machinery Directive 2006/42/EC:

1.1.3, 1.1.5, 1.2.1, 1.3.3, 1.3.4, 1.3.7, 1.3.9, 1.5.1, 1.5.8, 1.5.9, 1.6.2, 1.6.3, 1.5.5, 1.1.2, 1.3.2, 1.5.4

We also declare that the specialist technical documents have been produced in accordance with appendix VII, part B.

We expressly declare that the incomplete machine satisfies all of the applicable provisions of the following EC directives.

2006/42/EC	Machinery Directive
2014/30/EU	Electromagnetic Compatibility Directive (EMC)
2011/65/EU	RoHS Directive on the restriction of hazardous substances

Reference of the harmonised standards applied in accordance with Article 7(2)

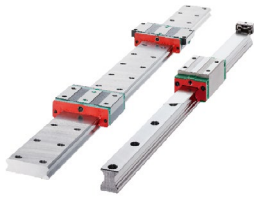
EN ISO 13732-1:2008	Ergonomics of the thermal environment – Evaluation methods for human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2008)
EN ISO 12100:2010-11	Safety of machinery – General principles for design – Risk assessment and risk reduction (ISO 12100:2010)
EN 60204-1:2006/AC:2010	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
EN ISO 13849-1:2016-06	Safety-related parts of control systems - Part 1: General principles for design
EN ISO 13849-2:2012	Safety-related parts of control systems - Part 2: Validation

The manufacturer or its agents undertake to provide the specialist documents on the incomplete machine to authorised organisations in the individual member states upon request.

Commercial copyrights remain unaffected.

Important note The incomplete machinery may not be put into operation until it has been ascertained that the machinery into which this incomplete machinery is to be incorporated is in conformity with this Directive.

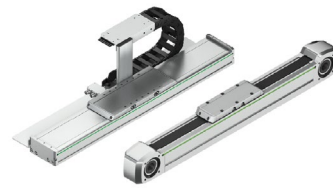
We live motion.



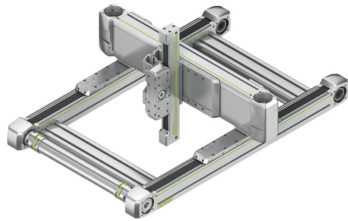
Linear guideways



Ballscrews



Linear axes



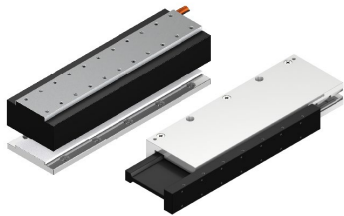
Linear axis systems



Torque motors



Robot



Linear motors



Rotary tables



Servo drives and servo motors

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