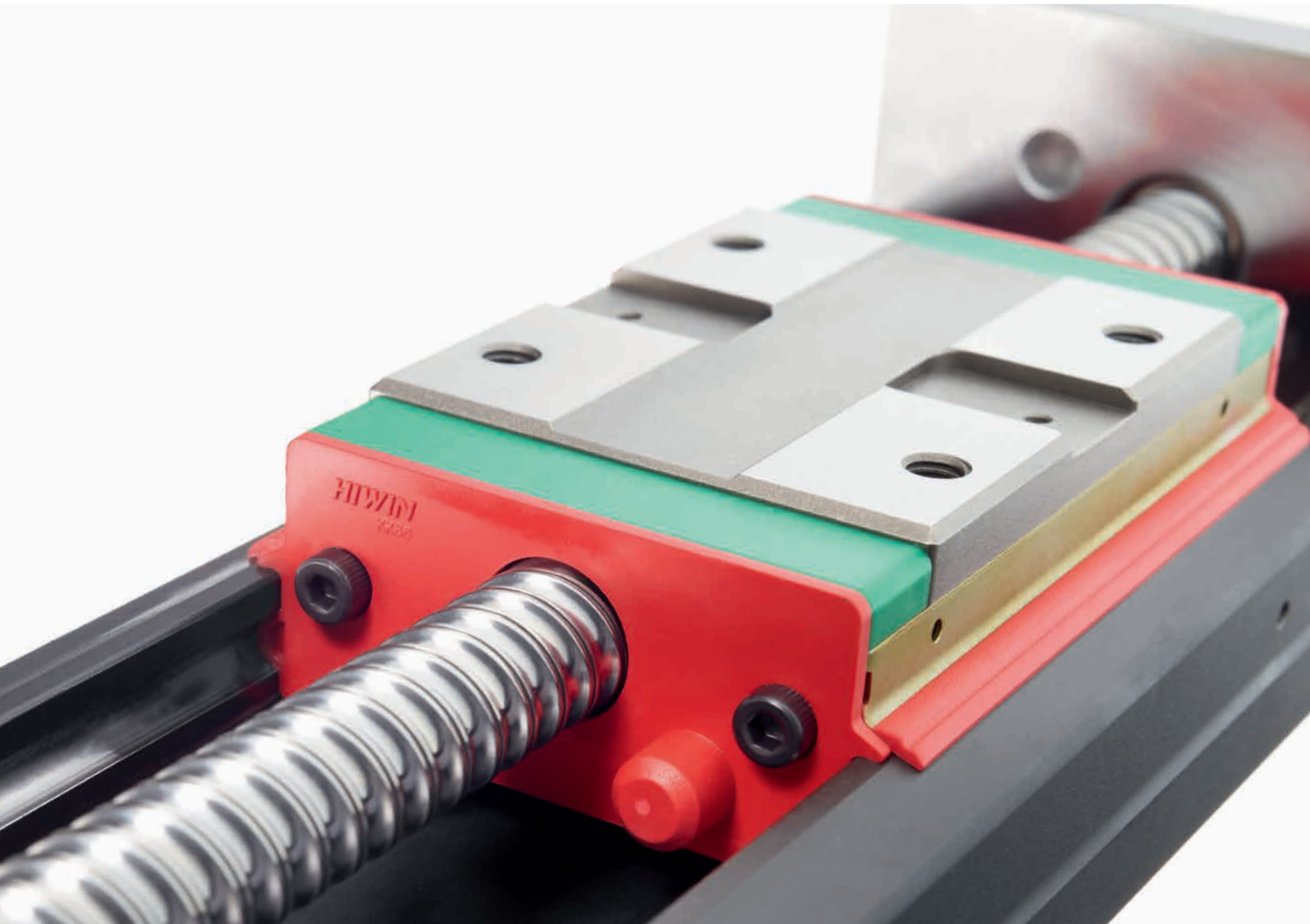


HIWIN®

Motion Control & Systems



Positioning Systems

Linear Axes with Ballscrew
Accessories

Positioning Systems

Linear axes with ballscrew

Linear axes are used in many areas of industry to transport or to position. HIWIN supplies linear axes with ballscrews for a range of applications. For situations where greater precision is needed, the HIWIN product range also includes direct-driven linear motor systems. You will find these in our linear motor systems catalogue.

KK Linear Axes

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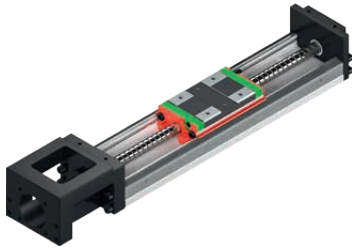
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KK Linear Axes

Product overview

1. Product overview



KK Linear Axes

[Page 16](#)

- Ready-to-install complete axis with HIWIN servo motor and HIWIN drive
- Universal use
- Compact design
- Adaptable and robust
- High precision and rigidity



Accessories

[Page 40](#)

- HIWIN servo motors
- HIWIN servo drive
- Sensor rail with limit switch
- Covers
- Grease nipples

KK Linear Axes

General information

2. General information

2.1 Characteristics of KK linear axes

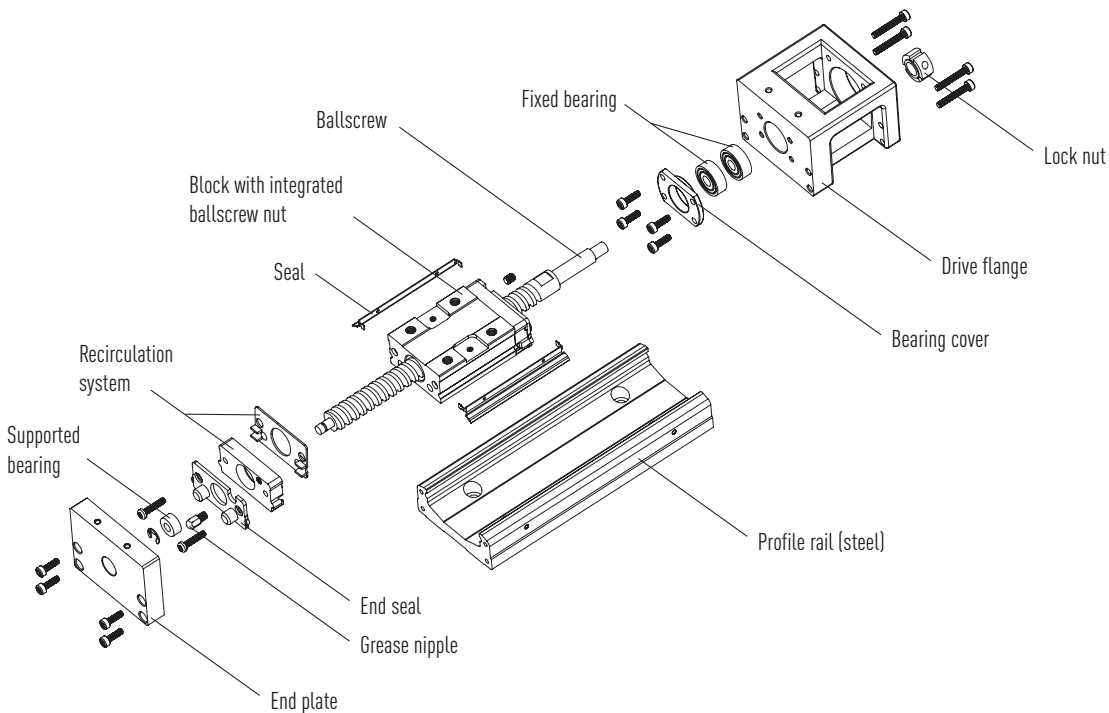
HIWIN KK linear axes are compact positioning axes which are supplied fully fitted with HIWIN servo motor and HIWIN servo drive. Alternatively, the KK linear axis can also be supplied with "motor-ready" mountings for connecting to customer-specific motors. High levels of accuracy and rigidity are achieved through a linear guideway in the steel profile with integrated ballscrew.

The axis is available in different sizes and lengths and can be adapted to the application requirements through additional options such as aluminium covers, bellow covers, limit switches and additional blocks.

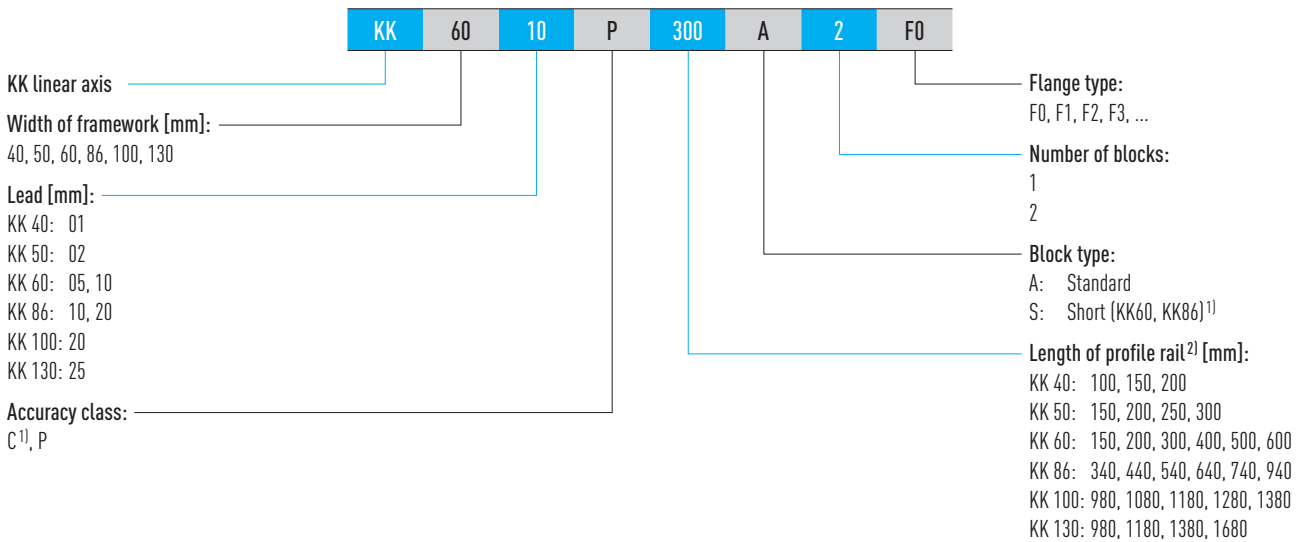
Advantages of KK linear axes

- Ready-to-install complete axis with HIWIN servo motor and HIWIN drive
- Universal use
- Compact design
- Adaptable and robust
- High precision and rigidity

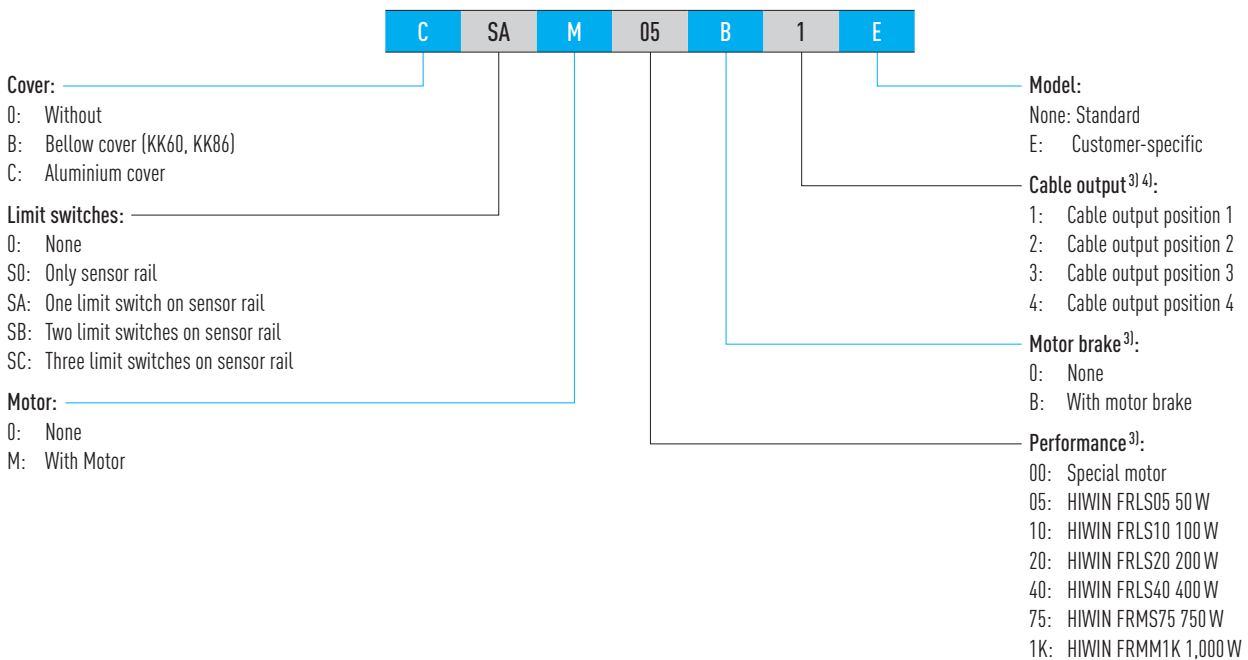
2.2 Structure of KK linear axes



2.3 Order code for KK linear axes



Continuation order code for KK linear axes



¹⁾ On request

²⁾ Shortened lengths are available on request

³⁾ Does not apply to models without motor

⁴⁾ See Fig. 2.1

The item numbers for the associated HIWIN servo motors and HIWIN drives and extension cables can be found in tables [Table 9.2](#) and [Table 9.3](#).

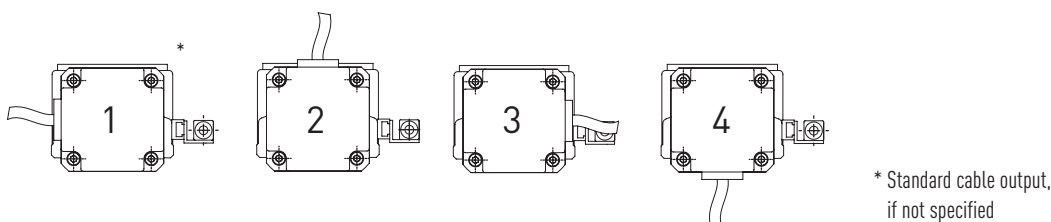


Fig. 2.1 Position of cable output

KK Linear Axes

General information

Table 2.1 Assignment of flange type to motor type

| Motor output | Motor type | Flange type | | | | | |
|--------------|------------|-------------|------|------|------|-------|-------|
| | | KK40 | KK50 | KK60 | KK86 | KK100 | KK130 |
| 50 W | FRLS05 | F2 | F2 | F2 | | | |
| 100 W | FRLS10 | F2 | F2 | F2 | | | |
| 200 W | FRLS20 | | | | F0 | F0 | F1 |
| 400 W | FRLS40 | | | | F0 | F0 | F1 |
| 750 W | FRMS75 | | | | | F1 | F2 |
| 1,000 W | FRMM1K | | | | | | F5 |

2.4 Service life calculation

The constant, repeated load on blocks and spindles results in signs of fatigue and eventually pitting on the track surface. The service life of a linear axis is defined as the total distance travelled until pitting appears on the surface of the track or spindle.

2.4.1 Nominal service life (L)

The service life may vary significantly even between linear axes that were manufactured in the same way and are used under the same motion conditions. So the nominal service life serves as a guideline to estimate the service life of a linear axis. The nominal service life corresponds to the total distance travelled that will be achieved by 90 % of a group of identical linear axes used under the same conditions without failure.

Calculation of nominal service life (L)

The actual calculation influences the nominal service life of a linear axis. When the selected dynamic load rating and the dynamic equivalent load are known, the nominal service life can be calculated using the formulas [F 2.1](#) and [F 2.2](#).

- Nominal service life of ballscrew

F 2.1

$$L = \left(\frac{C_{dyn}}{f_p \times F_{xm}} \right)^3 \times 10^6$$

L Nominal service life in revolutions
 C_{dyn} Dynamic load rating [N]
 F_{xm} Dynamic equivalent load (axial) [N]
 f_p Ballscrew load factor

- Nominal service life of linear guideway

F 2.2

$$L = \left(\frac{C_{dyn}}{f_w \times F_{bm}} \right)^3 \times 50 \text{ km}$$

L Nominal service life in kilometres
 C_{dyn} Dynamic load rating [N]
 F_{bm} Dynamic equivalent load [N]
 f_w Linear guideway load factor

Load factor (f_p , f_w)

The loads that act on a linear axis include the weight of the block, the inertia at the start and end of a movement and the load torque created by the projecting load. These load factors are especially difficult to gauge when vibrations or impact loads are added. The load should therefore be multiplied by the empirical load factor. In short-stroke applications (stroke < 2 × block length) the calculated load factor should be doubled.

| Type of load | f_p |
|----------------------------------------------|-----------|
| Operation without impact | 1.1 – 1.2 |
| Operation under normal conditions | 1.3 – 1.8 |
| Operation with high impact and vibrations | 2.0 – 3.0 |
| Short-stroke applications (< 3 × nut length) | 3.0 – 5.0 |

| Type of load | Travel speed | f_w |
|----------------------------|-----------------------|-----------|
| No impact or vibrations | up to 15 m/min | 1.0 – 1.2 |
| Normal load | 15 m/min to 60 m/min | 1.2 – 1.5 |
| Minor impacts | 60 m/min to 120 m/min | 1.5 – 2.0 |
| With impact and vibrations | over 120 m/min | 2.0 – 3.5 |

2.4.1.1 Calculation of service life of linear guideway

Because the load of a block varies considerably, an equivalent load must be used to calculate the service life. The equivalent load is defined as the load that causes the same wear on the bearings as the variable load. Constant operating conditions are not taken into account.

- Combined dynamic equivalent load

F 2.3

$$F_{bm} = F + M \times \frac{C_0}{M_0}$$

- F_{bm} Dynamic equivalent load [N]
- C_0 Static load rating [N]
- M_0 Static moment [Nm]
- M Directly effective moment (around X, Y or Z axis) [Nm]
- F Effective force (in Y or Z direction) [N]

This formula is a simplified way of calculating the dynamic equivalent load. If you require more information, please contact HIWIN.

Example calculation of service life of linear guideway

- Service life calculation for a KK60 linear axis (when $f_w = 1$)

Specification: $M_Y = 20 \text{ Nm}$ Moment
 $M_{Y0} = 152 \text{ Nm}$ Static moment¹⁾
 $C_{dyn} = 13,230 \text{ N}$ Dynamic load rating¹⁾
 $C_0 = 21,462 \text{ N}$ Static load rating¹⁾

¹⁾ For calculated values for load ratings and static moment, see [Table 2.5](#)

$$F_{bm} = F + M \times \frac{C_0}{M_{Y0}} \quad \rightarrow \quad F_{bm} = 0 + 20 \text{ Nm} \times \frac{21462 \text{ N}}{152 \text{ Nm}} \quad \rightarrow \quad F_{bm} = 2823.95 \text{ N}$$

$$L = \left(\frac{C_{dyn}}{f_w \times F_{bm}} \right)^3 \times 50 \text{ km} \quad \rightarrow \quad L = \left(\frac{13230 \text{ N}}{1 \times 2823.95 \text{ N}} \right)^3 \times 50 \text{ km} \quad \rightarrow \quad \underline{\underline{L = 5141 \text{ km}}}$$

With a moment of $M_Y = 20 \text{ Nm}$, the nominal service life of the block in a KK60 linear axis is 5,141 km.

For more information, please contact HIWIN.

KK Linear Axes

General information

2.4.1.2 Calculation of service life of ballscrew

The bases of calculation are based on DIN 69051 and/or ISO 3408. For detailed information about configuring a ballscrew, please refer to our "Ballscrews and Accessories" catalogue.

a) Average speed n_m

F 2.4

$$n_m = n_1 \times \frac{t_1}{100} + n_2 \times \frac{t_2}{100} + n_3 \times \frac{t_3}{100} + \dots$$

n_m Average speed, total [1/min]
 n_n Average speed in phase n [1/min]
 t_n Amount of time in phase n [%]

b) Average operating load F_{xm}

- With alternating load and constant speed:

F 2.5

$$F_{xm} = \sqrt[3]{F_{x1}^3 \times \frac{t_1}{100} \times f_{p1}^3 + F_{x2}^3 \times \frac{t_2}{100} \times f_{p2}^3 + F_{x3}^3 \times \frac{t_3}{100} \times f_{p3}^3 \dots}$$

F_{xm} Average operating load in axial direction [N]
 F_{xn} Operating axial loading in phase n [N]
 f_{pn} Operating condition factor in phase n
 f_p See [Table 2.2](#)

- With alternating load and alternating speed:

F 2.6

$$F_{xm} = \sqrt[3]{F_{x1}^3 \times \frac{n_1}{n_m} \times \frac{t_1}{100} \times f_{p1}^3 + F_{x2}^3 \times \frac{n_2}{n_m} \times \frac{t_2}{100} \times f_{p2}^3 + F_{x3}^3 \times \frac{n_3}{n_m} \times \frac{t_3}{100} \times f_{p3}^3 \dots}$$

Service life with axial load on both sides

- Service life in revolutions

F 2.7

$$L_1 = \left(\frac{C_{dyn}}{F_{xm1}} \right)^3 \times 10^6 \quad L_2 = \left(\frac{C_{dyn}}{F_{xm2}} \right)^3 \times 10^6$$

L_1 Service life in revolutions, forward motion
 L_2 Service life in revolutions, backward motion
 C_{dyn} Dynamic load rating [N]
 F_{xm1} Average operating load, forward motion [N]
 F_{xm2} Average operating load, backward motion [N]
 L Service life in revolutions

F 2.8

$$L = \left(L_1^{-10/9} + L_2^{-10/9} \right)^{-9/10}$$

- Conversion of service life into operating hours

F 2.9

$$L_h = \frac{L}{n_m \times 60}$$

L_h Service life in operating hours
 n_m Average speed [rpm], see formula [F 2.4](#)

- Conversion of distance travelled [km] into operating hours

F 2.10

$$L_h = \left(\frac{L_{km} \times 10^6}{P} \right) \times \frac{1}{n_m \times 60}$$

L_h Service life in operating hours
 L_{km} Service life in distance travelled [km]
 P Lead [mm]
 n_m Average speed [rpm], see formula [F 2.4](#)

2.5 Ambient conditions

- Ambient temperature: +5 °C to +40 °C
- Installation site: dry
- Atmosphere: not explosive

2.6 Glossary

Positioning accuracy

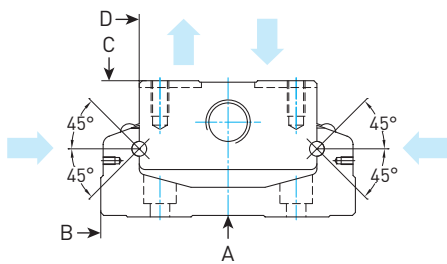
According to VDI/DGQ 3441, positioning accuracy describes the maximum deviation between the actual and nominal positions. Positioning accuracy is influenced by the following factors: lead error of spindle, system play, controller parameterisation and the accuracy of the linear unit, transmission, motor and measuring system.

Repeatability

Repeatability describes how accurately the block is stopped and positioned when approaching a given position from the same direction several times. It is stated as the maximum deviation between the actual positions attained.

Guide parallelism

The guide parallelism is measured by aligning a measuring rule parallel to a linear axis mounted on a table. The parallelism of contact faces D and B on the block and profile and of the block top face C to mounting surface A of the profile is then measured. It is assumed that the axis is ideally installed and that the measurement is taken across the centre of the block. Guide parallelism is calculated by subtracting the minimum value from the maximum value.



Breakaway torque

The breakaway torque is the torque needed to overcome the frictional torque.

KK Linear Axes

General information

2.7 Technical data of KK linear axes with and without HIWIN servo motor

2.7.1 Accuracy and maximum values of KK linear axes

| Model | Lead [mm] | L1 [mm] | V _{max} [mm/s] | | a _{max} [m/s ²] | Accuracy [mm] | Repeatability [mm] | Guideway parallelism [mm] | Starting torque [Nmm] |
|--------------|-----------|---------|-------------------------|------------|--------------------------------------|---------------|--------------------|---------------------------|-----------------------|
| | | | without motor | with motor | | | | | |
| KK4001P0100 | 1 | 159 | 190 | 75 | 5 | 0.020 | ± 0.003 | 0.010 | 12 |
| KK4001P0150 | 1 | 209 | 190 | 75 | 5 | 0.020 | ± 0.003 | 0.010 | 12 |
| KK4001P0200 | 1 | 259 | 190 | 75 | 5 | 0.020 | ± 0.003 | 0.010 | 12 |
| KK5002P0150 | 2 | 220 | 270 | 150 | 5 | 0.020 | ± 0.003 | 0.010 | 40 |
| KK5002P0200 | 2 | 270 | 270 | 150 | 5 | 0.020 | ± 0.003 | 0.010 | 40 |
| KK5002P0250 | 2 | 320 | 270 | 150 | 5 | 0.020 | ± 0.003 | 0.010 | 40 |
| KK5002P0300 | 2 | 370 | 270 | 150 | 5 | 0.020 | ± 0.003 | 0.010 | 40 |
| KK6005P0150 | 5 | 220 | 550 | 375 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6005P0200 | 5 | 270 | 550 | 375 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6005P0300 | 5 | 370 | 550 | 375 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6005P0400 | 5 | 470 | 550 | 375 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6005P0500 | 5 | 570 | 550 | 375 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK6005P0600 | 5 | 670 | 340 | 340 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK6010P0150 | 10 | 220 | 1,100 | 750 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6010P0200 | 10 | 270 | 1,100 | 750 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6010P0300 | 10 | 370 | 1,100 | 750 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6010P0400 | 10 | 470 | 1,100 | 750 | 15 | 0.020 | ± 0.003 | 0.010 | 150 |
| KK6010P0500 | 10 | 570 | 1,100 | 750 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK6010P0600 | 10 | 670 | 670 | 670 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8610P0340 | 10 | 440 | 740 | 740 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8610P0440 | 10 | 540 | 740 | 740 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8610P0540 | 10 | 640 | 740 | 740 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8610P0640 | 10 | 740 | 740 | 740 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8610P0740 | 10 | 840 | 740 | 740 | 15 | 0.030 | ± 0.003 | 0.020 | 170 |
| KK8610P0940 | 10 | 1,040 | 610 | 610 | 15 | 0.040 | ± 0.003 | 0.030 | 250 |
| KK8620P0340 | 20 | 440 | 1,480 | 1,480 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8620P0440 | 20 | 540 | 1,480 | 1,480 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8620P0540 | 20 | 640 | 1,480 | 1,480 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8620P0640 | 20 | 740 | 1,480 | 1,480 | 15 | 0.025 | ± 0.003 | 0.015 | 150 |
| KK8620P0740 | 20 | 840 | 1,480 | 1,480 | 15 | 0.030 | ± 0.003 | 0.020 | 170 |
| KK8620P0940 | 20 | 1,040 | 1,220 | 1,220 | 15 | 0.040 | ± 0.003 | 0.030 | 250 |
| KK10020P0980 | 20 | 1,089 | 1,120 | 1,120 | 15 | 0.035 | ± 0.005 | 0.025 | 170 |
| KK10020P1080 | 20 | 1,189 | 980 | 980 | 15 | 0.035 | ± 0.005 | 0.025 | 170 |
| KK10020P1180 | 20 | 1,289 | 750 | 750 | 15 | 0.040 | ± 0.005 | 0.030 | 200 |
| KK10020P1280 | 20 | 1,389 | 630 | 630 | 15 | 0.045 | ± 0.005 | 0.035 | 230 |
| KK10020P1380 | 20 | 1,489 | 530 | 530 | 15 | 0.050 | ± 0.005 | 0.040 | 250 |
| KK13025P0980 | 25 | 1,098 | 1,120 | 1,120 | 15 | 0.035 | ± 0.005 | 0.025 | 250 |
| KK13025P1180 | 25 | 1,298 | 1,120 | 1,120 | 15 | 0.040 | ± 0.005 | 0.030 | 250 |
| KK13025P1380 | 25 | 1,498 | 830 | 830 | 15 | 0.040 | ± 0.005 | 0.030 | 250 |
| KK13025P1680 | 25 | 1,798 | 550 | 550 | 15 | 0.050 | ± 0.007 | 0.040 | 270 |

2.7.2 Load ratings and torques of KK linear axes

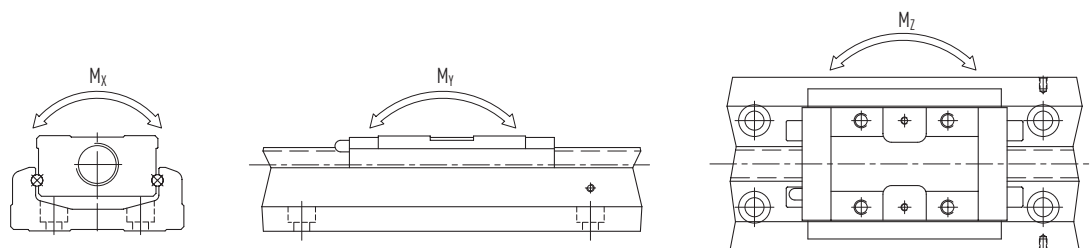


Table 2.5 Load ratings of KK linear axes: linear guideway, standard block

| Model | C_{dyn} [N] | C_0 [N] | Block A1 | | | Block A2 | | |
|-------|---------------|-----------|------------|------------|------------|------------|------------|------------|
| | | | M_x [Nm] | M_y [Nm] | M_z [Nm] | M_x [Nm] | M_y [Nm] | M_z [Nm] |
| KK40 | 3,920 | 6,468 | 81 | 33 | 33 | 162 | 182 | 182 |
| KK50 | 8,007 | 12,916 | 222 | 116 | 116 | 444 | 545 | 545 |
| KK60 | 13,230 | 21,462 | 419 | 152 | 152 | 838 | 760 | 760 |
| KK86 | 31,458 | 50,764 | 1,507 | 622 | 622 | 3,014 | 3,050 | 3,050 |
| KK100 | 39,200 | 63,406 | 2,205 | 960 | 960 | 4,410 | 4,763 | 4,763 |
| KK130 | 48,101 | 84,829 | 3,885 | 1,536 | 1,536 | 7,770 | 7,350 | 7,350 |

Table 2.6 Load ratings of KK linear axes: linear guideway, short block

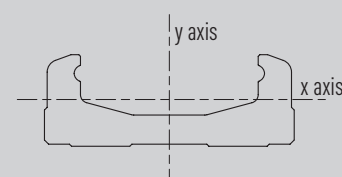
| Model | C_{dyn} [N] | C_0 [N] | Block S1 | | | Block S2 | | |
|-------|---------------|-----------|------------|------------|------------|------------|------------|------------|
| | | | M_x [Nm] | M_y [Nm] | M_z [Nm] | M_x [Nm] | M_y [Nm] | M_z [Nm] |
| KK60 | 7,173 | 11,574 | 241 | 72 | 72 | 482 | 367 | 367 |
| KK86 | 21,051 | 29,475 | 847 | 166 | 166 | 1,694 | 1,309 | 1,309 |

Table 2.7 Load ratings of KK linear axes: ballscrew and fixed bearing

| Model | Shaft | | | Fixed bearing | |
|--------------|--------------------|---------------|-----------|-----------------|---------------------|
| | \varnothing [mm] | C_{dyn} [N] | C_0 [N] | C_0 Axial [N] | F_{max} Axial [N] |
| KK4001Pxxxx | 8 | 735 | 1,538 | 1,910 | 750 |
| KK5002Pxxxx | 8 | 2,136 | 3,489 | 1,910 | 1,500 |
| KK6005Pxxxx | 12 | 3,744 | 6,243 | 4,480 | 3,120 |
| KK6010Pxxxx | 12 | 2,410 | 3,743 | 4,480 | 1,870 |
| KK8610Pxxxx | 15 | 7,144 | 12,642 | 9,240 | 6,320 |
| KK8620Pxxxx | 15 | 4,645 | 7,655 | 9,240 | 3,825 |
| KK10020Pxxxx | 20 | 7,046 | 12,544 | 10,600 | 6,270 |
| KK13025Pxxxx | 25 | 7,897 | 15,931 | 18,485 | 7,950 |

Table 2.8 Area moment of inertia of KK linear axes

| Model | Area moment of inertia [mm ⁴] | |
|-------|-------------------------------------------|---------------------|
| | I_x | I_y |
| KK40 | 3.533×10^3 | 5.317×10^4 |
| KK50 | 9.600×10^3 | 1.340×10^5 |
| KK60 | 2.056×10^4 | 2.802×10^5 |
| KK86 | 7.445×10^4 | 1.134×10^6 |
| KK100 | 1.296×10^5 | 2.035×10^6 |
| KK130 | 2.546×10^5 | 5.073×10^6 |



KK Linear Axes

KK40

3. KK linear axes

3.1 KK40 linear axes without cover

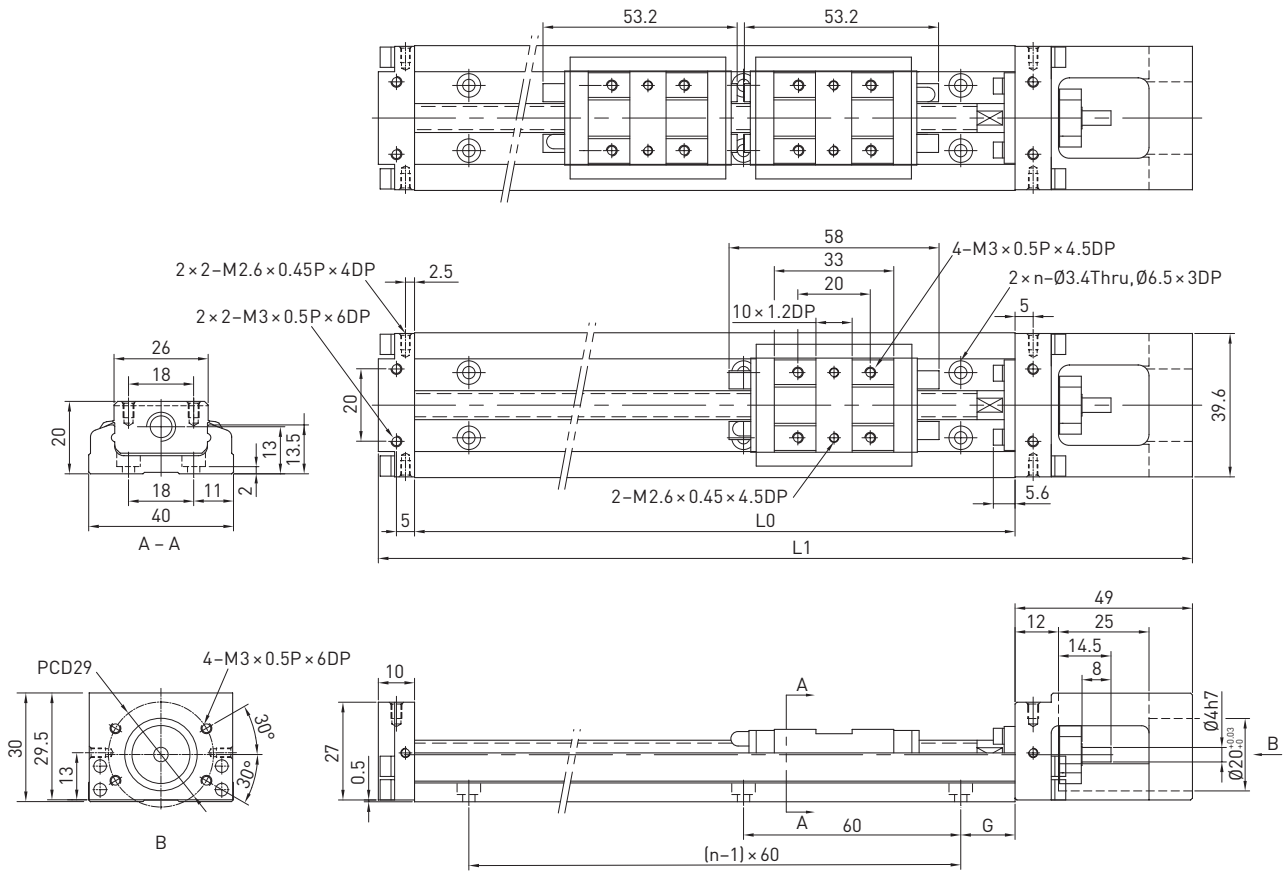


Table 3.1 Dimensions and weights of KK40 linear axes without cover

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | n | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | Block A1 | Block A2 |
| KK4001P0100 | 1 | 100 | 159 | 36 | — | 20 | 2 | 0.48 | — |
| KK4001P0150 | 1 | 150 | 209 | 86 | 34 | 15 | 3 | 0.60 | 0.67 |
| KK4001P0200 | 1 | 200 | 259 | 136 | 84 | 40 | 3 | 0.72 | 0.79 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

3.2 KK40 linear axes with aluminium cover

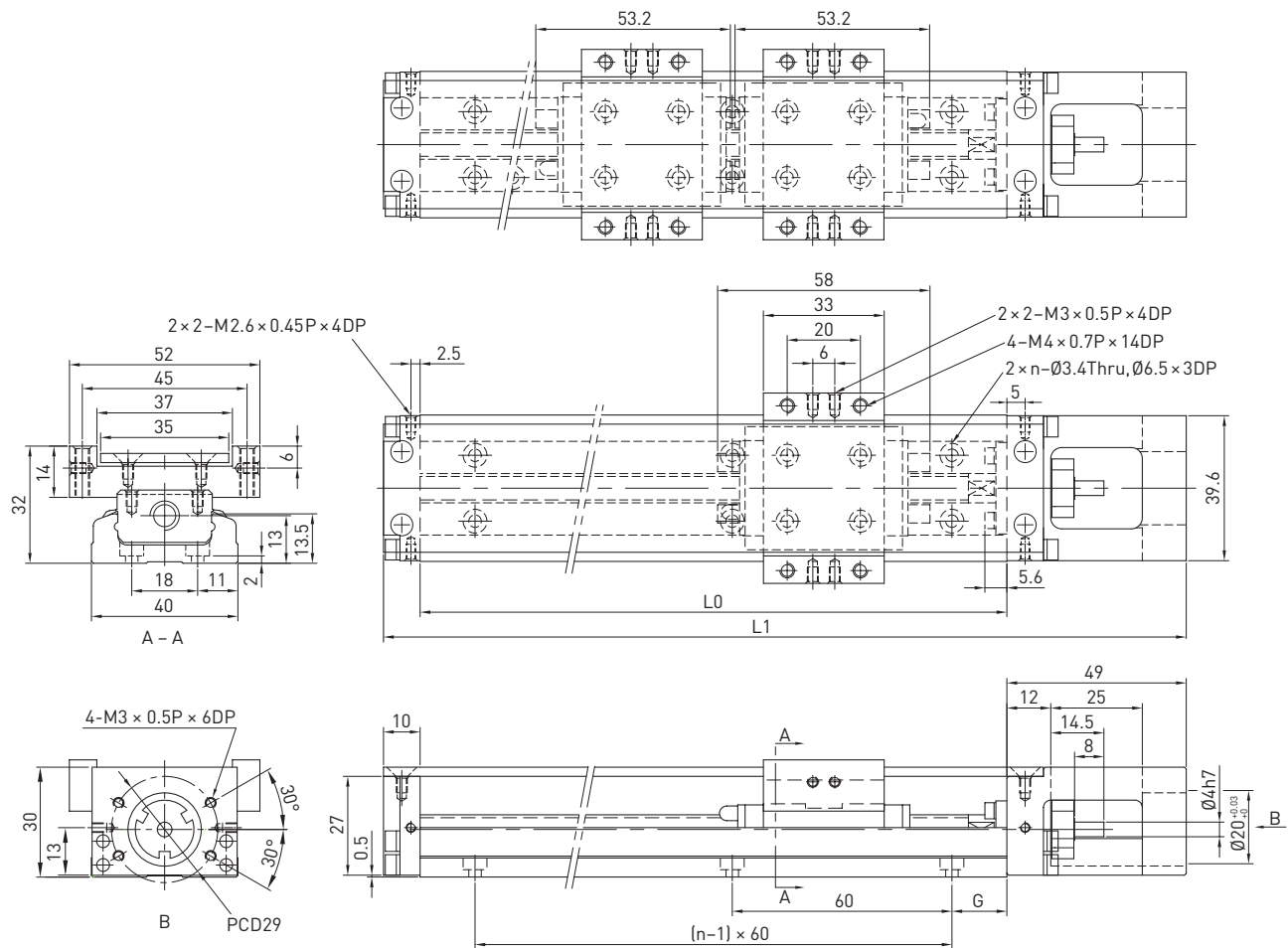


Table 3.2 Dimensions and weights of KK40 linear axes with aluminium cover

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | n | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | Block A1 | Block A2 |
| KK4001P0100 | 1 | 100 | 159 | 36 | — | 20 | 2 | 0.55 | — |
| KK4001P0150 | 1 | 150 | 209 | 86 | 34 | 15 | 3 | 0.68 | 0.76 |
| KK4001P0200 | 1 | 200 | 259 | 136 | 84 | 40 | 3 | 0.82 | 0.89 |

Reference edge

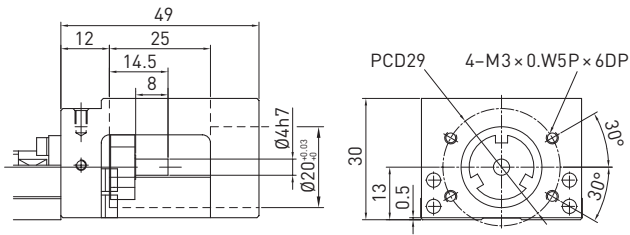
Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

KK Linear Axes

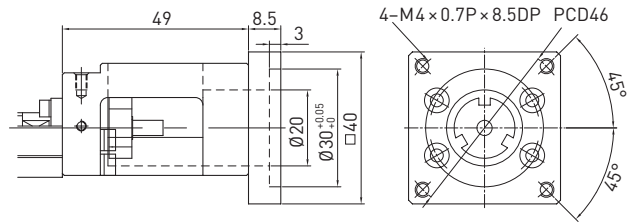
KK40, KK50

3.3 KK40 adapter flanges

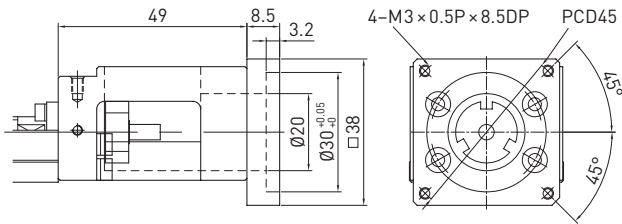
Motor adapter flange F0



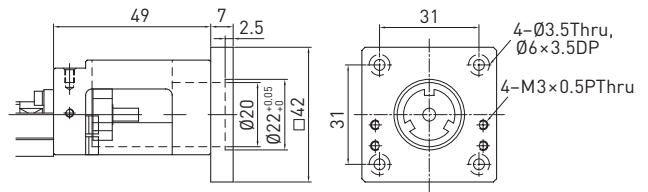
Motor adapter flange F1



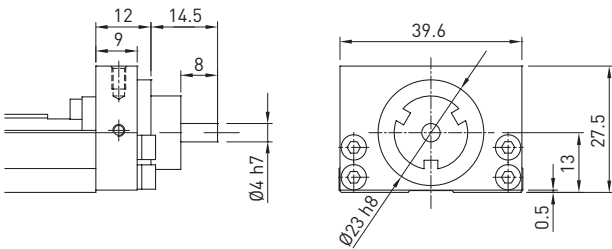
Motor adapter flange F2



Motor adapter flange F3



Motor adapter flange H0



4. KK50 linear axes

4.1 KK50 linear axes without cover

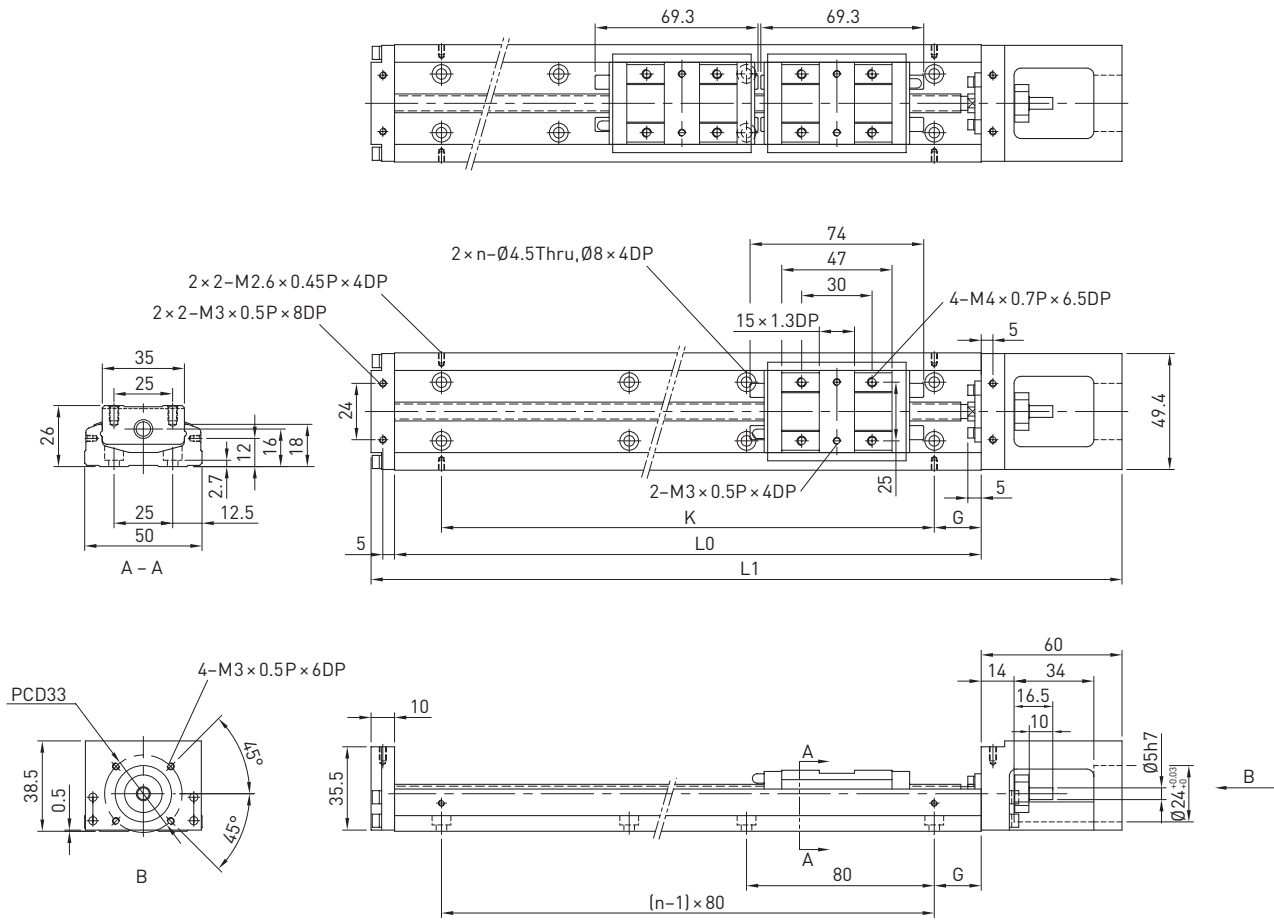


Table 4.1 Dimensions and weights of KK50 linear axes without cover

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|--------|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | Block A1 | Block A2 |
| KK5002P0150 | 2 | 150 | 220 | 70 | — | 35 | 80 | 2 | 1.0 | — |
| KK5002P0200 | 2 | 200 | 270 | 120 | 55 | 20 | 160 | 3 | 1.2 | 1.4 |
| KK5002P0250 | 2 | 250 | 320 | 170 | 105 | 45 | 160 | 3 | 1.4 | 1.6 |
| KK5002P0300 | 2 | 300 | 370 | 220 | 155 | 30 | 240 | 4 | 1.6 | 1.8 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

KK Linear Axes

KK50

4.2 KK50 linear axes with aluminium cover

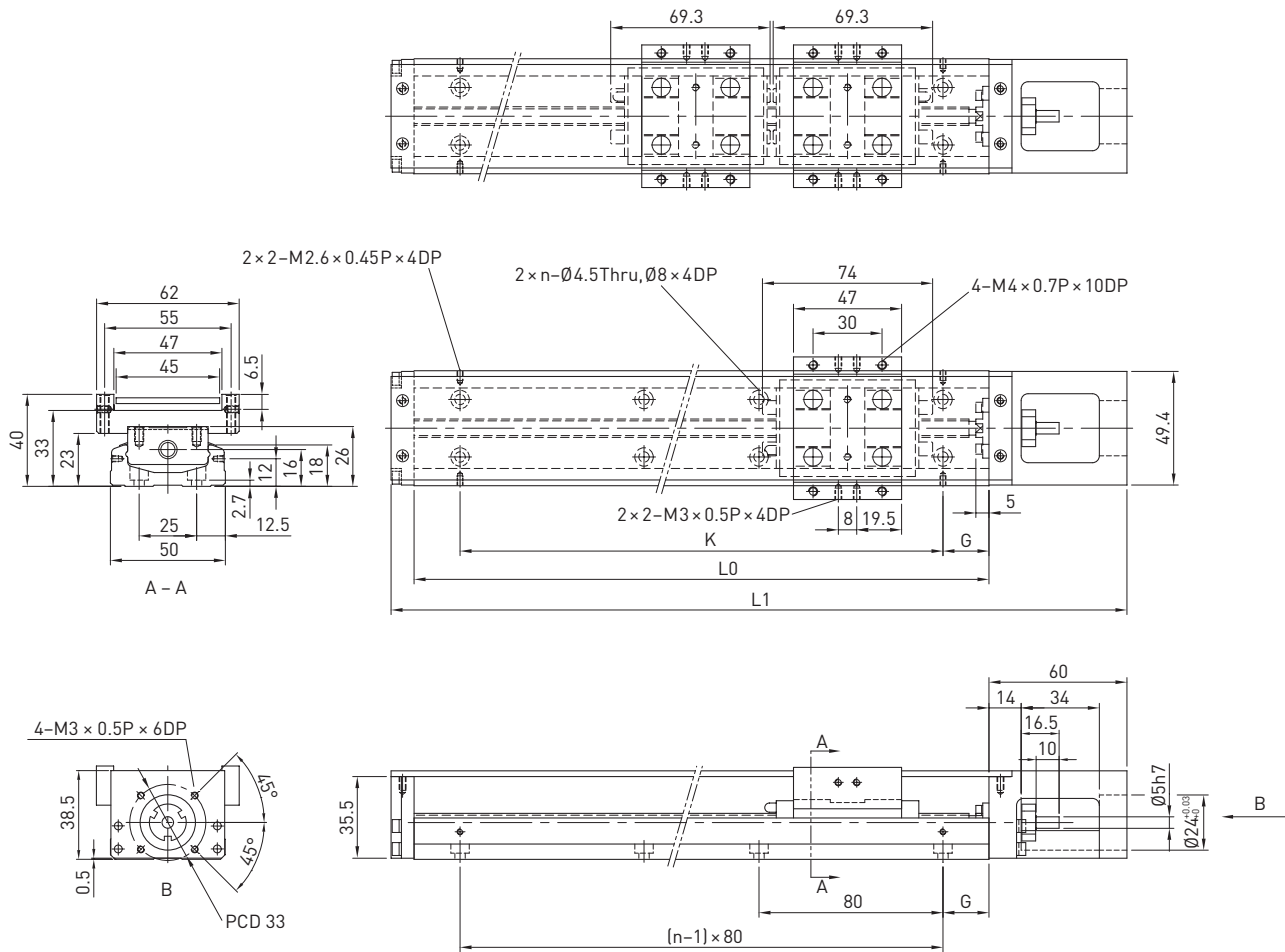


Table 4.2 Dimensions and weights of KK50 linear axes with aluminium cover

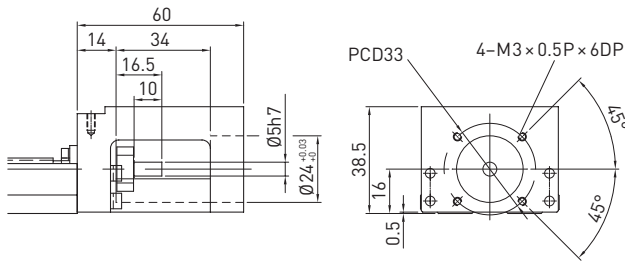
| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|--------|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | Block A1 | Block A2 |
| KK5002P0150 | 2 | 150 | 220 | 70 | — | 35 | 80 | 2 | 1.1 | — |
| KK5002P0200 | 2 | 200 | 270 | 120 | 55 | 20 | 160 | 3 | 1.3 | 1.5 |
| KK5002P0250 | 2 | 250 | 320 | 170 | 105 | 45 | 160 | 3 | 1.6 | 1.8 |
| KK5002P0300 | 2 | 300 | 370 | 220 | 155 | 30 | 240 | 4 | 1.8 | 2.0 |

Reference edge

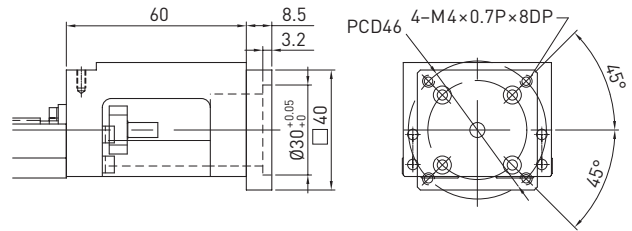
Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

4.3 KK50 adapter flanges

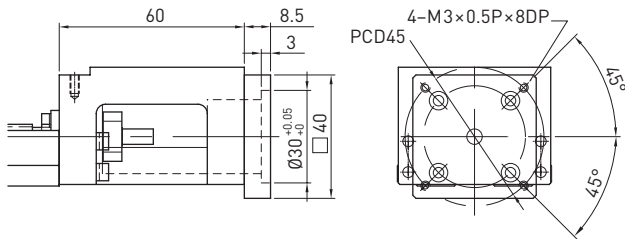
Motor adapter flange F0



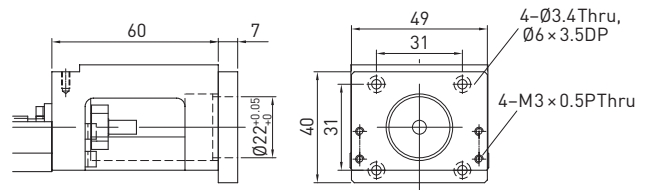
Motor adapter flange F1



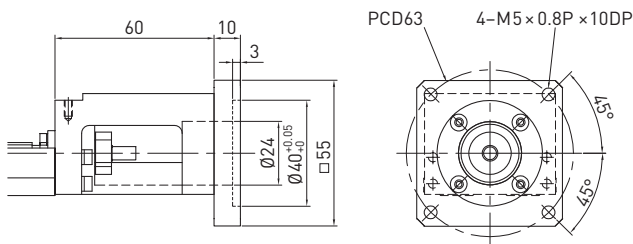
Motor adapter flange F2



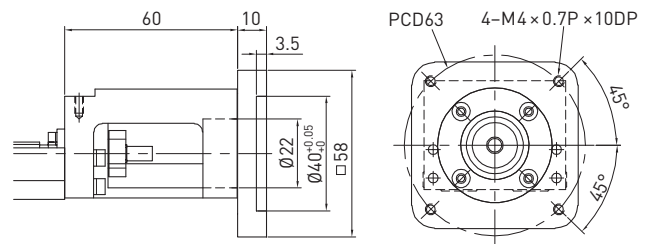
Motor adapter flange F3



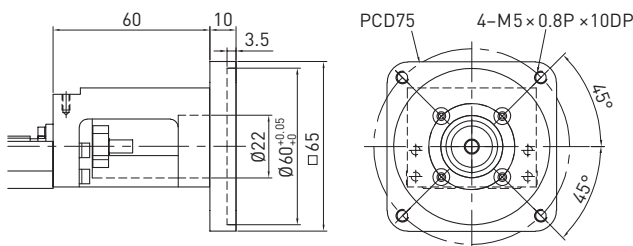
Motor adapter flange F4



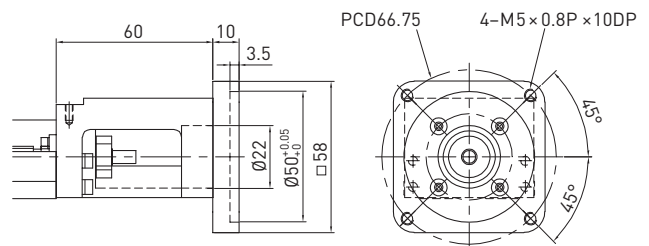
Motor adapter flange F5



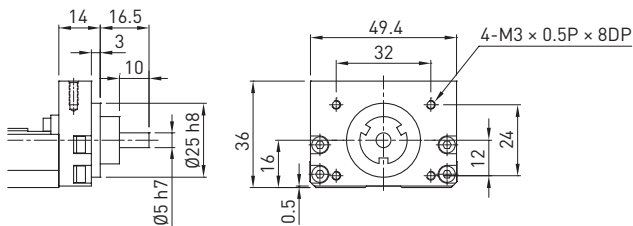
Motor adapter flange F6



Motor adapter flange F7



Motor adapter flange H0



KK Linear Axes

KK60

5. KK60 linear axes

5.1 KK60 linear axes without cover, standard block

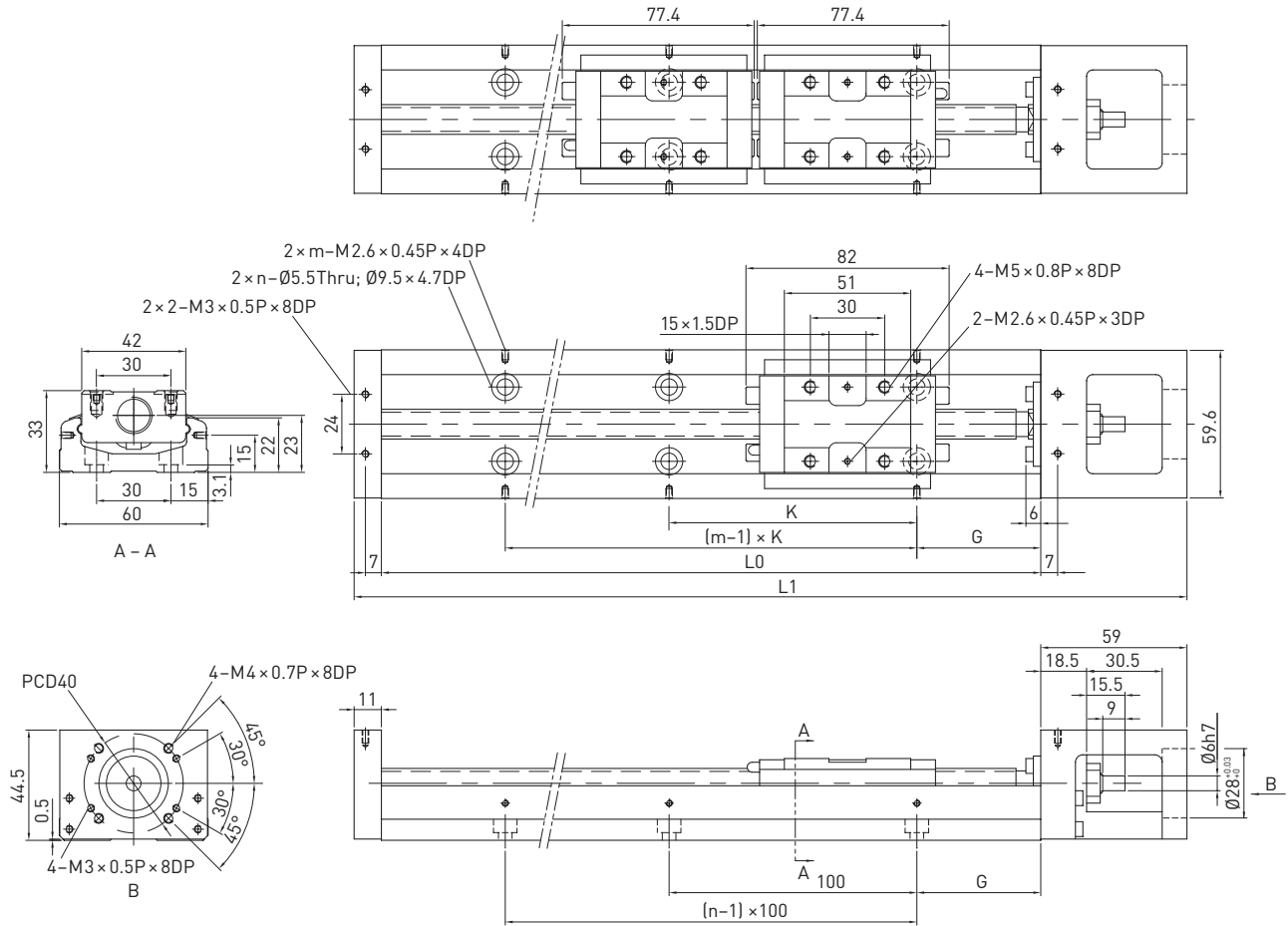


Table 5.1 Dimensions and weights of KK60 linear axes without cover, standard block

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|--------|---|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | | Block A1 | Block A2 |
| KK6005P0150 | 5 | 150 | 220 | 60 | — | 25 | 100 | 2 | 2 | 1.5 | — |
| KK6005P0200 | 5 | 200 | 270 | 110 | — | 50 | 100 | 2 | 2 | 1.8 | — |
| KK6005P0300 | 5 | 300 | 370 | 210 | 135 | 50 | 200 | 3 | 2 | 2.4 | 2.7 |
| KK6005P0400 | 5 | 400 | 470 | 310 | 235 | 50 | 100 | 4 | 4 | 3.0 | 3.3 |
| KK6005P0500 | 5 | 500 | 570 | 410 | 335 | 50 | 200 | 5 | 3 | 3.6 | 3.9 |
| KK6005P0600 | 5 | 600 | 670 | 510 | 435 | 50 | 100 | 6 | 6 | 4.2 | 4.6 |
| KK6010P0150 | 10 | 150 | 220 | 60 | — | 25 | 100 | 2 | 2 | 1.5 | — |
| KK6010P0200 | 10 | 200 | 270 | 110 | — | 50 | 100 | 2 | 2 | 1.8 | — |
| KK6010P0300 | 10 | 300 | 370 | 210 | 135 | 50 | 200 | 3 | 2 | 2.4 | 2.7 |
| KK6010P0400 | 10 | 400 | 470 | 310 | 235 | 50 | 100 | 4 | 4 | 3.0 | 3.3 |
| KK6010P0500 | 10 | 500 | 570 | 410 | 335 | 50 | 200 | 5 | 3 | 3.6 | 3.9 |
| KK6010P0600 | 10 | 600 | 670 | 510 | 435 | 50 | 100 | 6 | 6 | 4.2 | 4.6 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

5.2 KK60 linear axis without cover, short block
(available upon request)

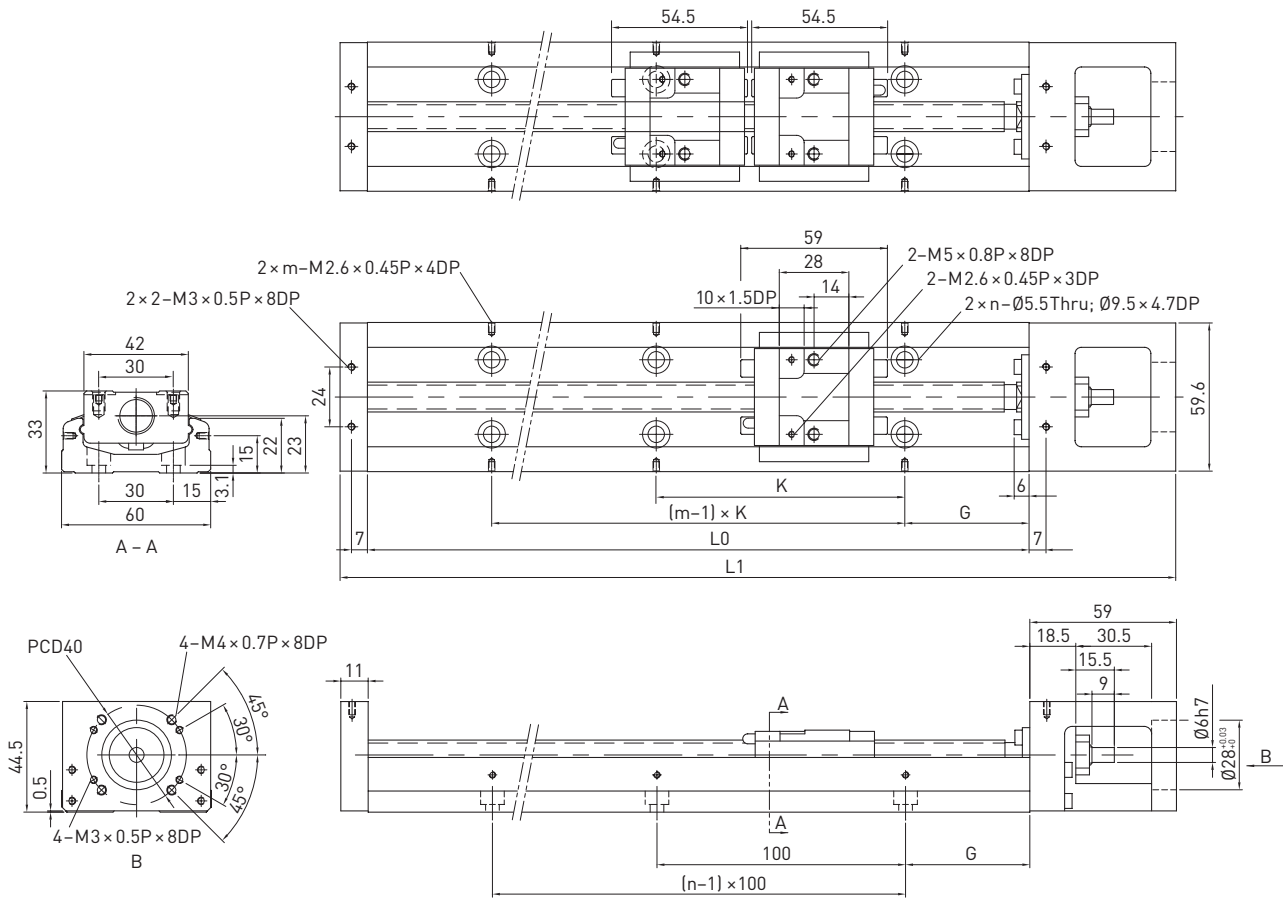


Table 5.2 Dimensions and weights of KK60 linear axes, short block

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|--------|---|---|-------------|----------|
| | | | | Block S1 | Block S2 | | | | | Block S1 | Block S2 |
| KK6005P0150 | 5 | 150 | 220 | 85 | 34 | 25 | 100 | 2 | 2 | 1.4 | 1.6 |
| KK6005P0200 | 5 | 200 | 270 | 135 | 84 | 50 | 100 | 2 | 2 | 1.7 | 1.9 |
| KK6005P0300 | 5 | 300 | 370 | 235 | 184 | 50 | 200 | 3 | 2 | 2.3 | 2.5 |
| KK6005P0400 | 5 | 400 | 470 | 335 | 284 | 50 | 100 | 4 | 4 | 2.9 | 3.1 |
| KK6005P0500 | 5 | 500 | 570 | 435 | 384 | 50 | 200 | 5 | 3 | 3.5 | 3.7 |
| KK6005P0600 | 5 | 600 | 670 | 535 | 484 | 50 | 100 | 6 | 6 | 4.1 | 4.3 |
| KK6010P0150 | 10 | 150 | 220 | 85 | 34 | 25 | 100 | 2 | 2 | 1.4 | 1.6 |
| KK6010P0200 | 10 | 200 | 270 | 135 | 84 | 50 | 100 | 2 | 2 | 1.7 | 1.9 |
| KK6010P0300 | 10 | 300 | 370 | 235 | 184 | 50 | 200 | 3 | 2 | 2.3 | 2.5 |
| KK6010P0400 | 10 | 400 | 470 | 335 | 284 | 50 | 100 | 4 | 4 | 2.9 | 3.1 |
| KK6010P0500 | 10 | 500 | 570 | 435 | 384 | 50 | 200 | 5 | 3 | 3.5 | 3.7 |
| KK6010P0600 | 10 | 600 | 670 | 535 | 484 | 50 | 100 | 6 | 6 | 4.1 | 4.3 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

KK Linear Axes

KK60

5.3 KK60 linear axes with aluminium cover, standard block

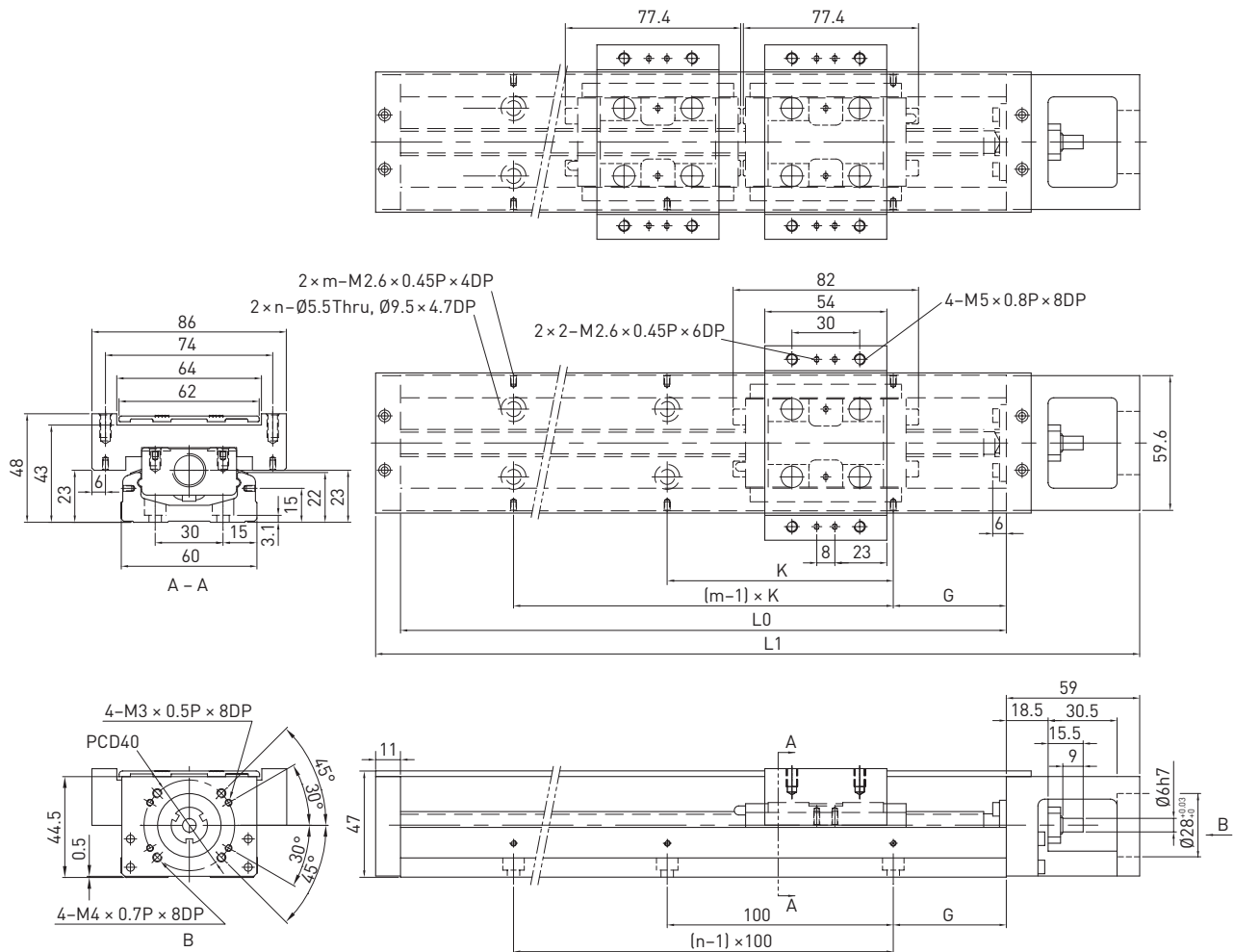


Table 5.3 Dimension and weights of KK60 linear axes with aluminium cover, standard block

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|--------|---|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | | Block A1 | Block A2 |
| KK6005P0150 | 5 | 150 | 220 | 60 | — | 25 | 100 | 2 | 2 | 1.7 | — |
| KK6005P0200 | 5 | 200 | 270 | 110 | — | 50 | 100 | 2 | 2 | 2.1 | — |
| KK6005P0300 | 5 | 300 | 370 | 210 | 135 | 50 | 200 | 3 | 2 | 2.7 | 3.0 |
| KK6005P0400 | 5 | 400 | 470 | 310 | 235 | 50 | 100 | 4 | 4 | 3.3 | 3.6 |
| KK6005P0500 | 5 | 500 | 570 | 410 | 335 | 50 | 200 | 5 | 3 | 3.9 | 4.2 |
| KK6005P0600 | 5 | 600 | 670 | 510 | 435 | 50 | 100 | 6 | 6 | 4.4 | 5.0 |
| KK6010P0150 | 10 | 150 | 220 | 60 | — | 25 | 100 | 2 | 2 | 1.7 | — |
| KK6010P0200 | 10 | 200 | 270 | 110 | — | 50 | 100 | 2 | 2 | 2.1 | — |
| KK6010P0300 | 10 | 300 | 370 | 210 | 135 | 50 | 200 | 3 | 2 | 2.7 | 3.0 |
| KK6010P0400 | 10 | 400 | 470 | 310 | 235 | 50 | 100 | 4 | 4 | 3.3 | 3.6 |
| KK6010P0500 | 10 | 500 | 570 | 410 | 335 | 50 | 200 | 5 | 3 | 3.9 | 4.2 |
| KK6010P0600 | 10 | 600 | 670 | 510 | 435 | 50 | 100 | 6 | 6 | 4.4 | 5.0 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

5.4 KK60 Linear axes with aluminium cover, short block
(available upon request)

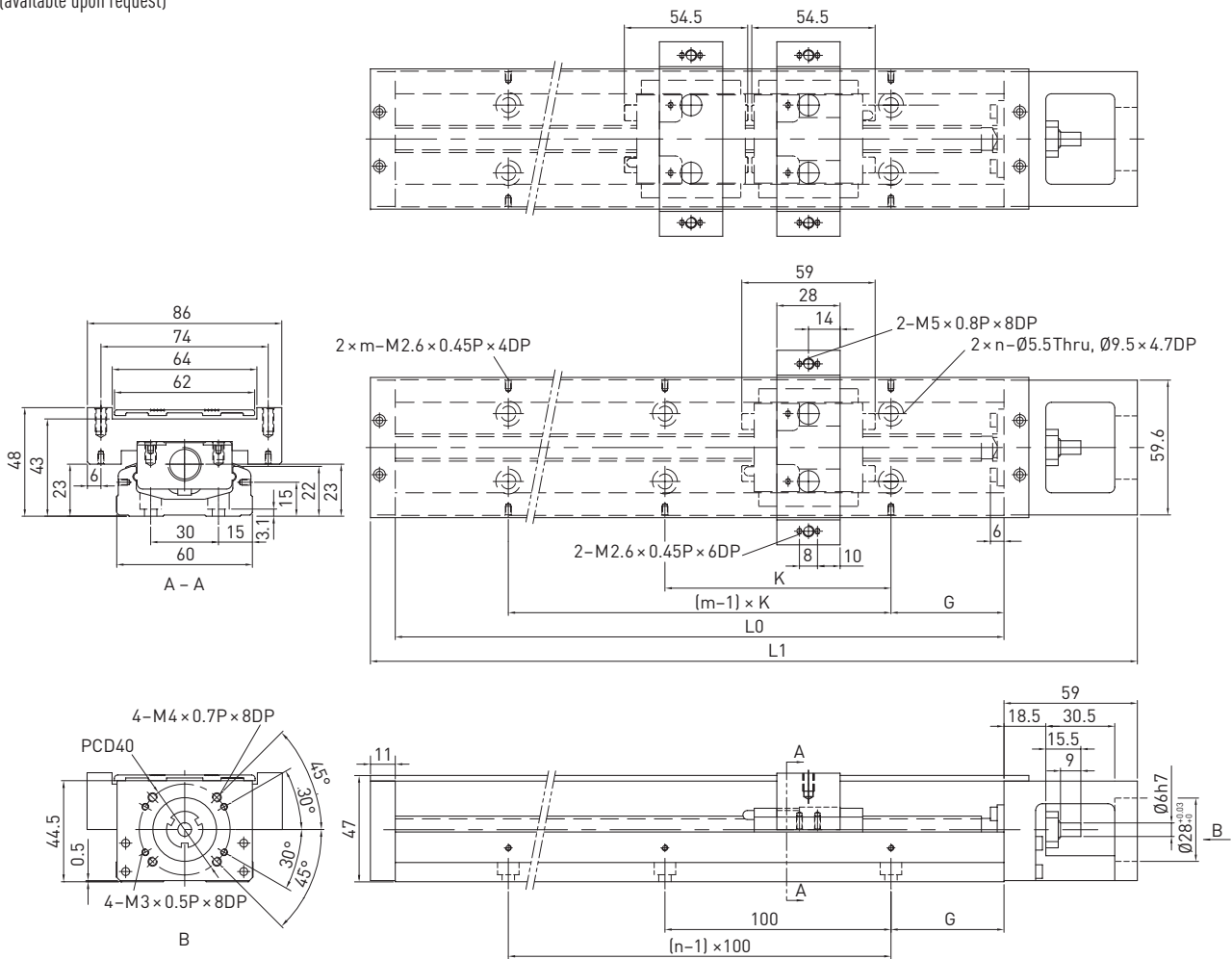


Table 5.4 Dimension and weights of KK60 linear axes with aluminium cover, short block

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|--------|---|---|-------------|----------|
| | | | | Block S1 | Block S2 | | | | | Block S1 | Block S2 |
| KK6005P0150 | 5 | 150 | 220 | 85 | 34 | 25 | 100 | 2 | 2 | 1.6 | 1.8 |
| KK6005P0200 | 5 | 200 | 270 | 135 | 84 | 50 | 100 | 2 | 2 | 1.9 | 2.1 |
| KK6005P0300 | 5 | 300 | 370 | 235 | 184 | 50 | 200 | 3 | 2 | 2.5 | 2.7 |
| KK6005P0400 | 5 | 400 | 470 | 335 | 284 | 50 | 100 | 4 | 4 | 3.1 | 3.3 |
| KK6005P0500 | 5 | 500 | 570 | 435 | 384 | 50 | 200 | 5 | 3 | 3.7 | 3.9 |
| KK6005P0600 | 5 | 600 | 670 | 535 | 484 | 50 | 100 | 6 | 6 | 4.4 | 4.6 |
| KK6010P0150 | 10 | 150 | 220 | 85 | 34 | 25 | 100 | 2 | 2 | 1.6 | 1.8 |
| KK6010P0200 | 10 | 200 | 270 | 135 | 84 | 50 | 100 | 2 | 2 | 1.9 | 2.1 |
| KK6010P0300 | 10 | 300 | 370 | 235 | 184 | 50 | 200 | 3 | 2 | 2.5 | 2.7 |
| KK6010P0400 | 10 | 400 | 470 | 335 | 284 | 50 | 100 | 4 | 4 | 3.1 | 3.3 |
| KK6010P0500 | 10 | 500 | 570 | 435 | 384 | 50 | 200 | 5 | 3 | 3.7 | 3.9 |
| KK6010P0600 | 10 | 600 | 670 | 535 | 484 | 50 | 100 | 6 | 6 | 4.4 | 4.6 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

KK Linear Axes

KK60

5.5 KK60 linear axes with bellow cover

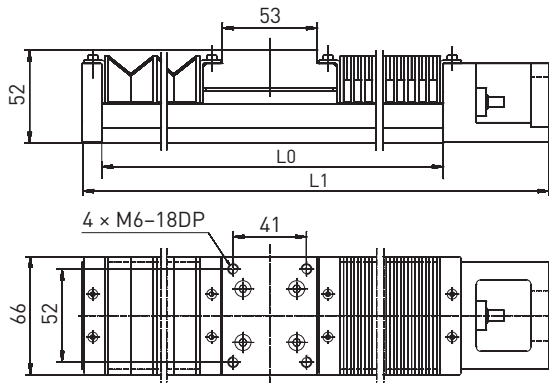


Table 5.5 Dimension and weights of KK60 linear axes with bellow cover

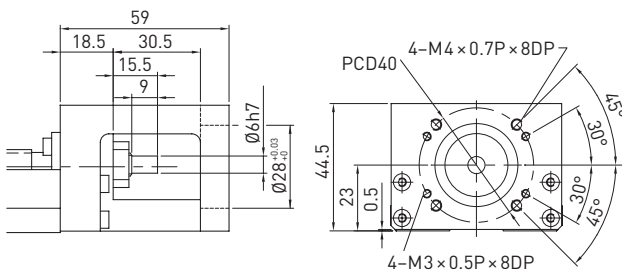
| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | Weight [kg] |
|-------------|-----------|---------|---------|---------------------|-------------|
| KK6005P0150 | 5 | 150 | 220 | 45 | 1.7 |
| KK6005P0200 | 5 | 200 | 270 | 77 | 2.1 |
| KK6005P0300 | 5 | 300 | 370 | 151 | 2.7 |
| KK6005P0400 | 5 | 400 | 470 | 230 | 3.3 |
| KK6005P0500 | 5 | 500 | 570 | 300 | 3.9 |
| KK6005P0600 | 5 | 600 | 670 | 376 | 4.6 |
| KK6010P0150 | 10 | 150 | 220 | 45 | 1.7 |
| KK6010P0200 | 10 | 200 | 270 | 77 | 2.1 |
| KK6010P0300 | 10 | 300 | 370 | 151 | 2.7 |
| KK6010P0400 | 10 | 400 | 470 | 230 | 3.3 |
| KK6010P0500 | 10 | 500 | 570 | 300 | 3.9 |
| KK6010P0600 | 10 | 600 | 670 | 376 | 4.6 |

Reference edge

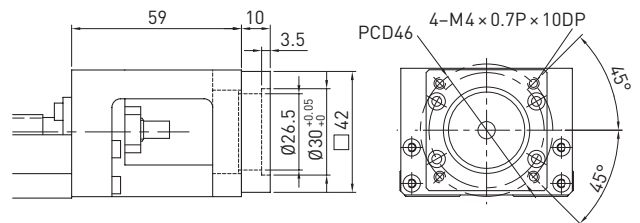
Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

5.6 KK60 adapter flanges

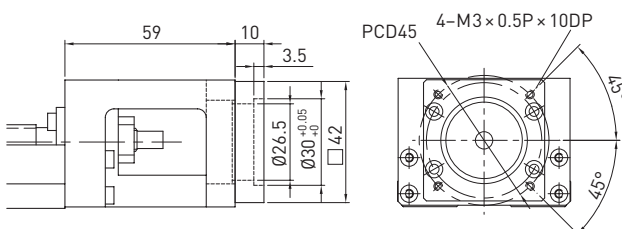
Motor adapter flange F0



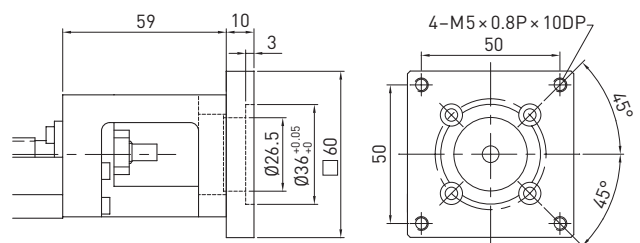
Motor adapter flange F1



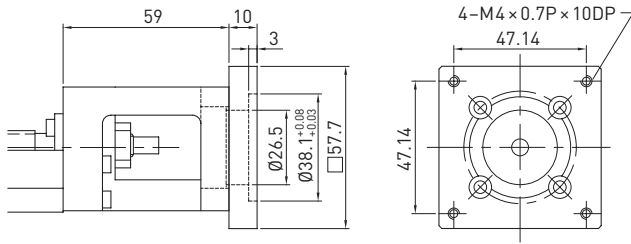
Motor adapter flange F2



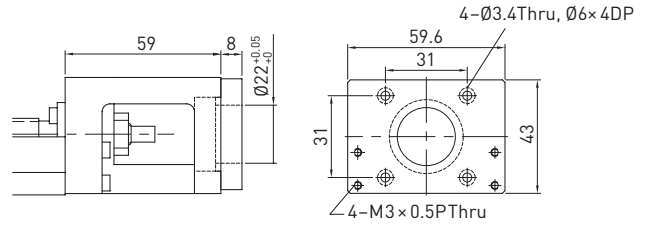
Motor adapter flange F3



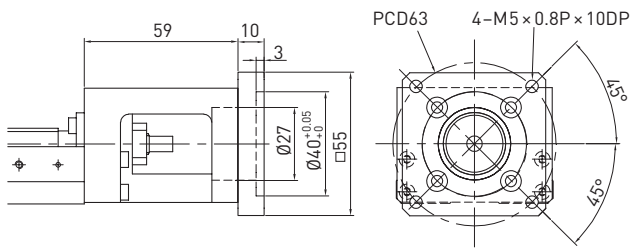
Motor adapter flange F4



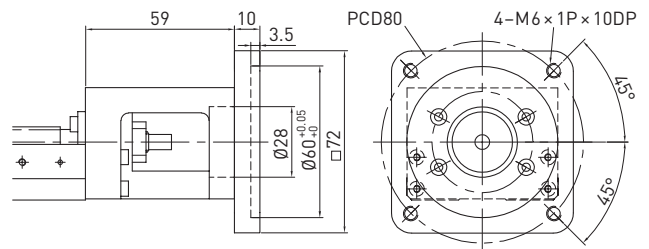
Motor adapter flange F5



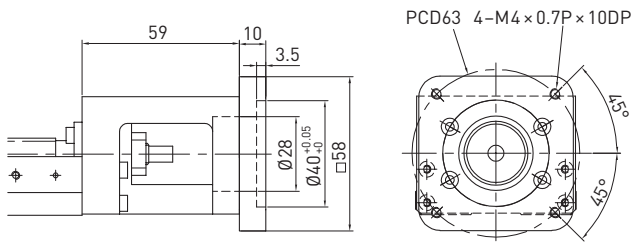
Motor adapter flange F6



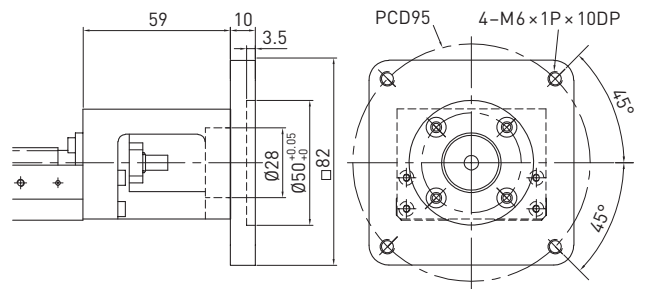
Motor adapter flange F7



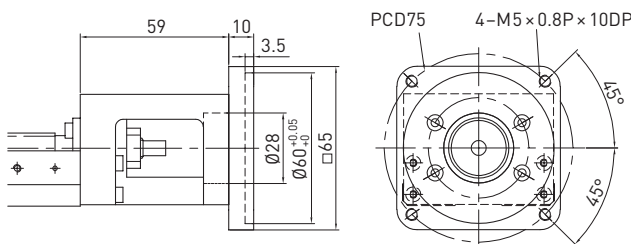
Motor adapter flange F8



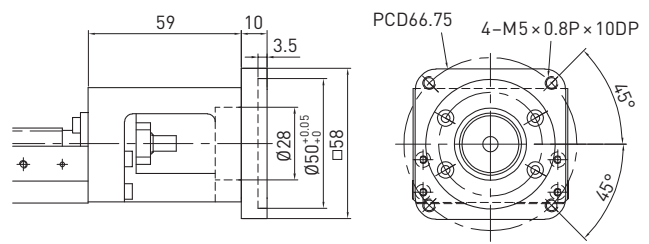
Motor adapter flange F9



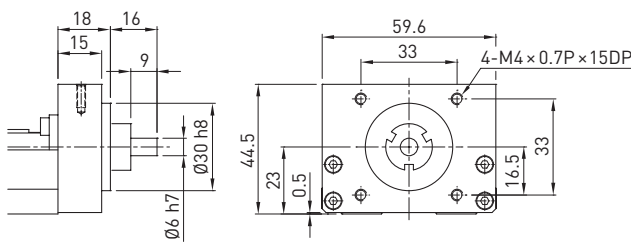
Motor adapter flange F10



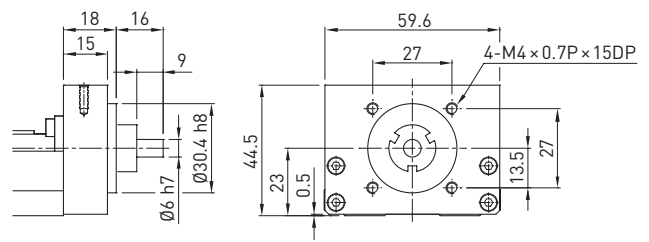
Motor adapter flange F11



Motor adapter flange H0



Motor adapter flange H1



KK Linear Axes

KK86

6.3 KK86 linear axes with aluminium cover, standard block

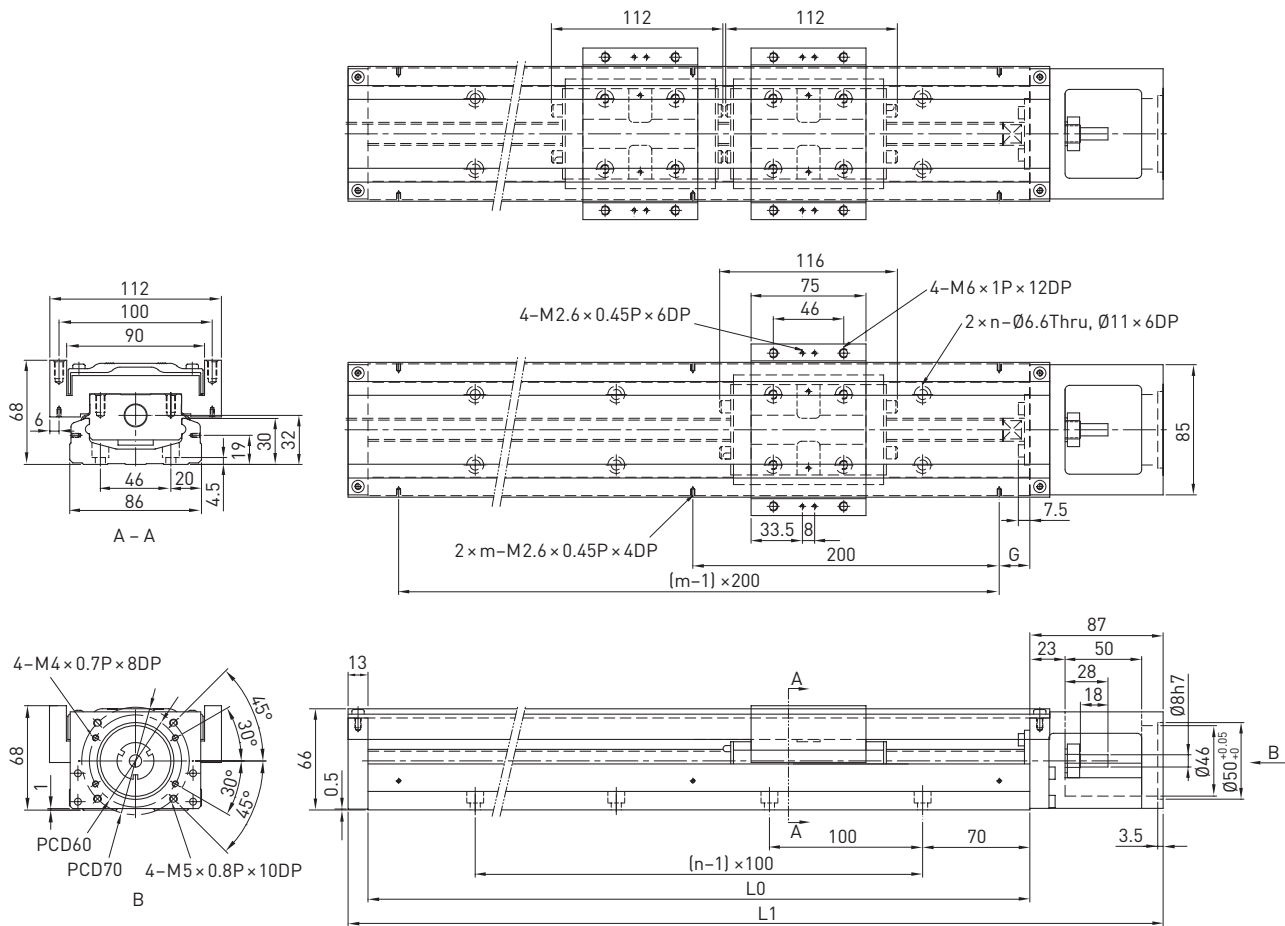


Table 6.3 Dimensions and weights of KK86 linear axes with aluminium cover, standard block

| Model | Lead [mm] | LO [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | n | m | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|---|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | Block A1 | Block A2 |
| KK8610P0340 | 10 | 340 | 440 | 210 | 100 | 70 | 3 | 2 | 6.5 | 7.3 |
| KK8610P0440 | 10 | 440 | 540 | 310 | 200 | 20 | 4 | 3 | 7.8 | 8.6 |
| KK8610P0540 | 10 | 540 | 640 | 410 | 300 | 70 | 5 | 3 | 9.0 | 9.8 |
| KK8610P0640 | 10 | 640 | 740 | 510 | 400 | 20 | 6 | 4 | 10.3 | 11.3 |
| KK8610P0740 | 10 | 740 | 840 | 610 | 500 | 70 | 7 | 4 | 11.6 | 12.4 |
| KK8610P0940 | 10 | 940 | 1,040 | 810 | 700 | 70 | 9 | 5 | 13.0 | 13.8 |
| KK8620P0340 | 20 | 340 | 440 | 210 | 100 | 70 | 3 | 2 | 6.5 | 7.3 |
| KK8620P0440 | 20 | 440 | 540 | 310 | 200 | 20 | 4 | 3 | 7.8 | 8.6 |
| KK8620P0540 | 20 | 540 | 640 | 410 | 300 | 70 | 5 | 3 | 9.0 | 9.8 |
| KK8620P0640 | 20 | 640 | 740 | 510 | 400 | 20 | 6 | 4 | 10.3 | 11.3 |
| KK8620P0740 | 20 | 740 | 840 | 610 | 500 | 70 | 7 | 4 | 11.6 | 12.4 |
| KK8620P0940 | 20 | 940 | 1,040 | 810 | 700 | 70 | 9 | 5 | 13.0 | 13.8 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

6.4 KK86 linear axes with aluminium cover, short block
(available upon request)

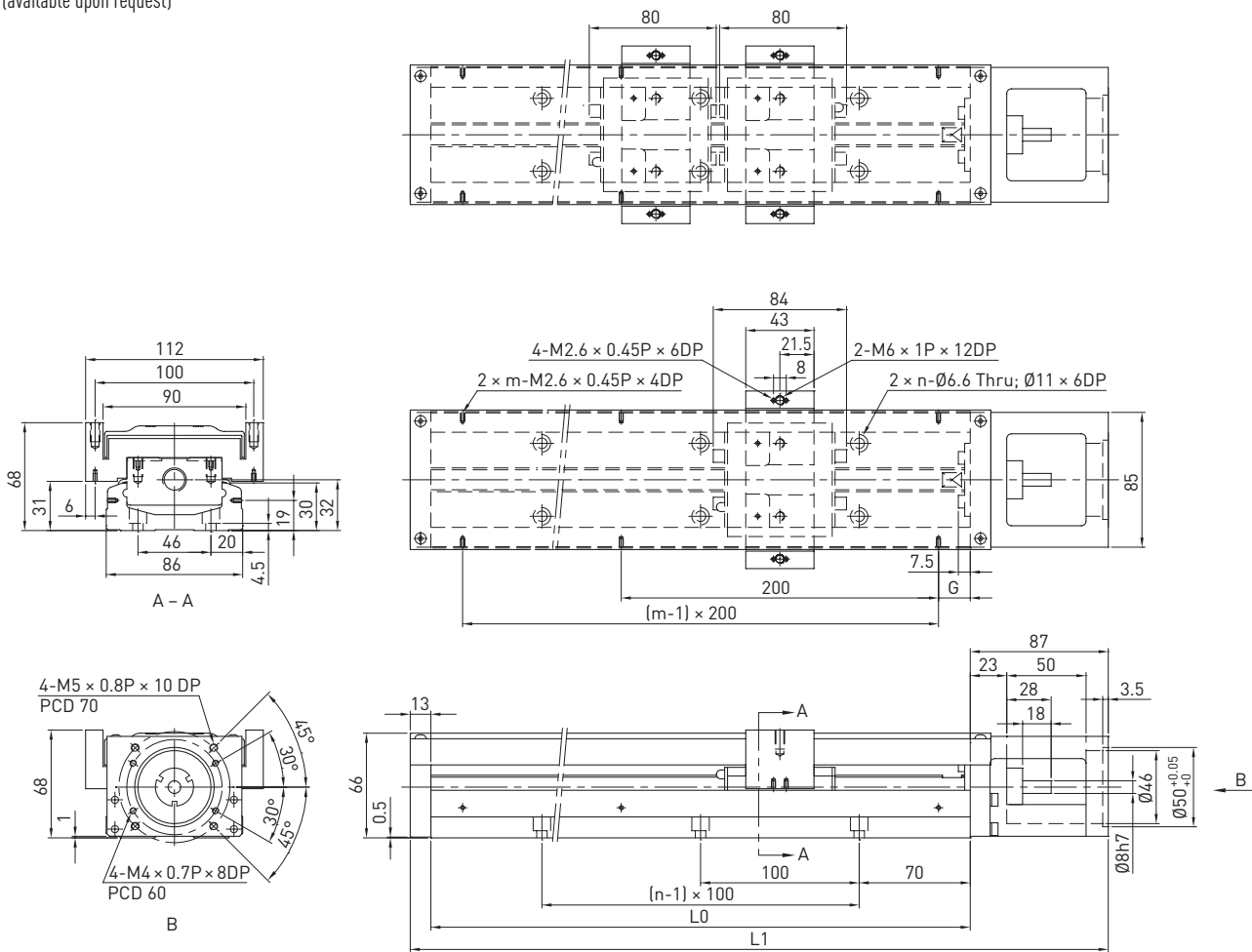


Table 6.4 Dimensions and weights of KK86 linear axes with aluminium cover, short block

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | n | m | Weight [kg] | |
|-------------|-----------|---------|---------|---------------------|----------|--------|---|---|-------------|----------|
| | | | | Block S1 | Block S2 | | | | Block S1 | Block S2 |
| KK8610P0340 | 10 | 340 | 440 | 246 | 170 | 70 | 3 | 2 | 6.3 | 7.1 |
| KK8610P0440 | 10 | 440 | 540 | 346 | 270 | 20 | 4 | 3 | 7.6 | 8.4 |
| KK8610P0540 | 10 | 540 | 640 | 446 | 370 | 70 | 5 | 3 | 8.8 | 9.6 |
| KK8610P0640 | 10 | 640 | 740 | 546 | 470 | 20 | 6 | 4 | 10.1 | 11.1 |
| KK8610P0740 | 10 | 740 | 840 | 646 | 570 | 70 | 7 | 4 | 11.4 | 12.2 |
| KK8610P0940 | 10 | 940 | 1,040 | 846 | 770 | 70 | 9 | 5 | 12.8 | 13.6 |
| KK8620P0340 | 20 | 340 | 440 | 246 | 170 | 70 | 3 | 2 | 6.3 | 7.1 |
| KK8620P0440 | 20 | 440 | 540 | 346 | 270 | 20 | 4 | 3 | 7.6 | 8.4 |
| KK8620P0540 | 20 | 540 | 640 | 446 | 370 | 70 | 5 | 3 | 8.8 | 9.6 |
| KK8620P0640 | 20 | 640 | 740 | 546 | 470 | 20 | 6 | 4 | 10.1 | 11.1 |
| KK8620P0740 | 20 | 740 | 840 | 646 | 570 | 70 | 7 | 4 | 11.4 | 12.2 |
| KK8620P0940 | 20 | 940 | 1,040 | 846 | 770 | 70 | 9 | 5 | 12.8 | 13.6 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

KK Linear Axes

KK86

6.5 KK86 linear axes with bellow cover

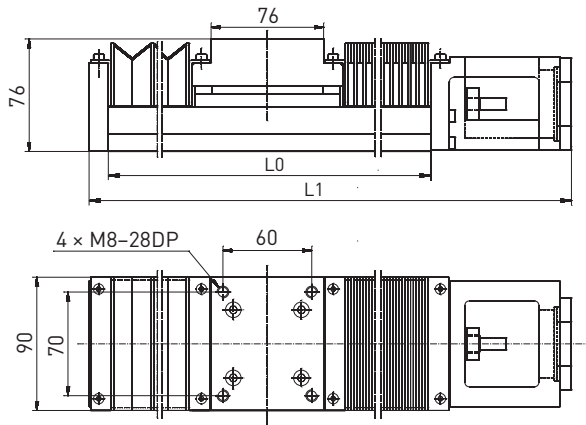


Table 6.5 Dimensions and weights of KK86 linear axes with bellow cover

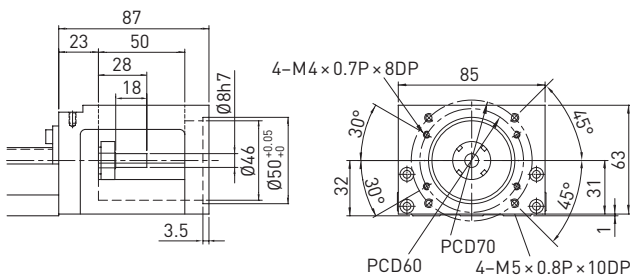
| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | Weight [kg] |
|-------------|-----------|---------|---------|---------------------|-------------|
| KK8610P0340 | 10 | 340 | 440 | 142 | 6.3 |
| KK8610P0440 | 10 | 440 | 540 | 216 | 7.6 |
| KK8610P0540 | 10 | 540 | 640 | 295 | 8.8 |
| KK8610P0640 | 10 | 640 | 740 | 378 | 10.0 |
| KK8610P0740 | 10 | 740 | 840 | 459 | 11.3 |
| KK8610P0940 | 10 | 940 | 1,040 | 622 | 12.7 |
| KK8620P0340 | 20 | 340 | 440 | 174 | 6.3 |
| KK8620P0440 | 20 | 440 | 540 | 248 | 7.6 |
| KK8620P0540 | 20 | 540 | 640 | 327 | 8.8 |
| KK8620P0640 | 20 | 640 | 740 | 410 | 10.0 |
| KK8620P0740 | 20 | 740 | 840 | 491 | 11.3 |
| KK8620P0940 | 20 | 940 | 1,040 | 654 | 12.7 |

Reference edge

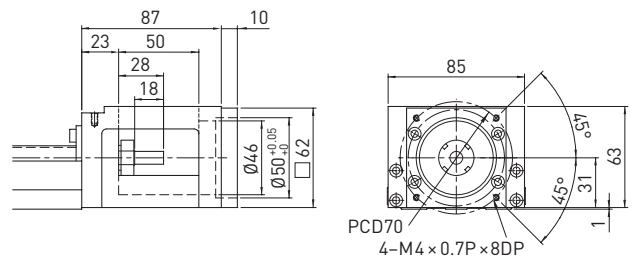
Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

6.6 KK86 adapter flanges

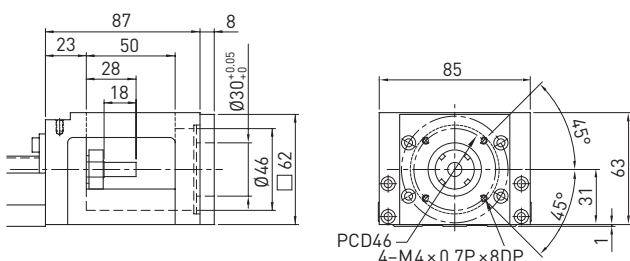
Motor adapter flange F0



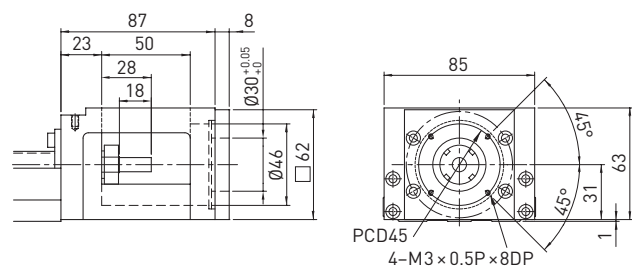
Motor adapter flange F1



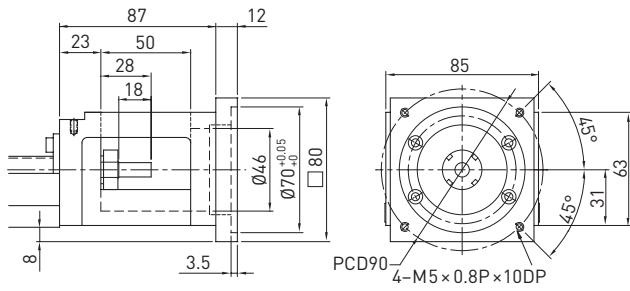
Motor adapter flange F2



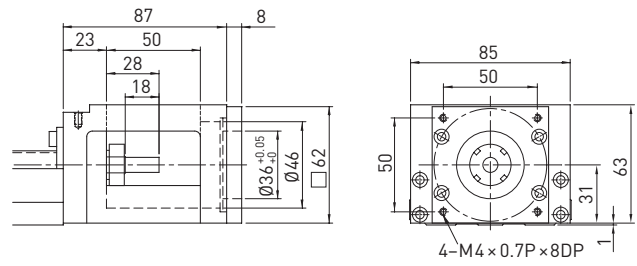
Motor adapter flange F3



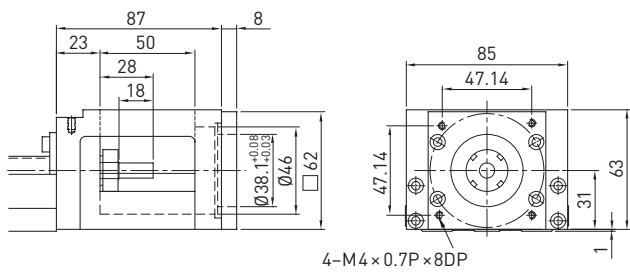
Motor adapter flange F4



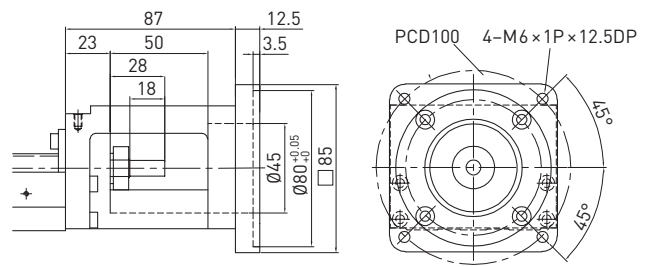
Motor adapter flange F5



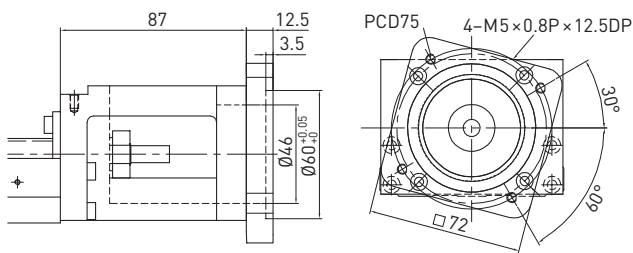
Motor adapter flange F6



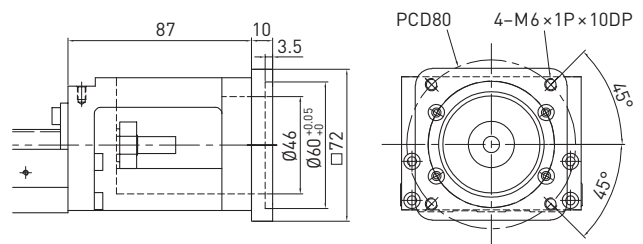
Motor adapter flange F7



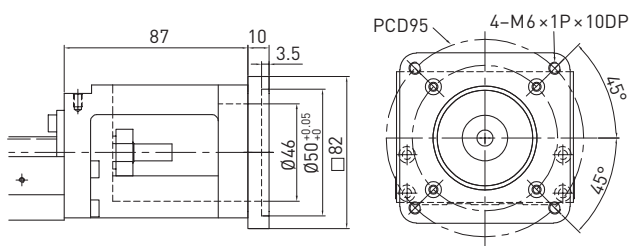
Motor adapter flange F8



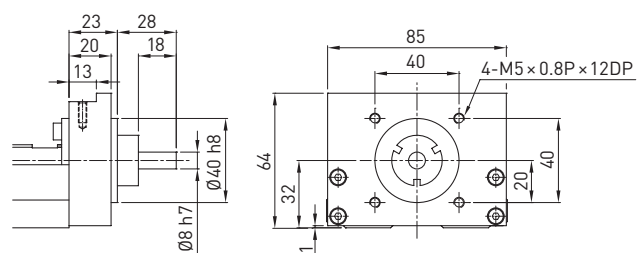
Motor adapter flange F9



Motor adapter flange F10



Motor adapter flange H0



KK Linear Axes

KK100

7. KK100 linear axes

7.1 KK100 linear axes without cover

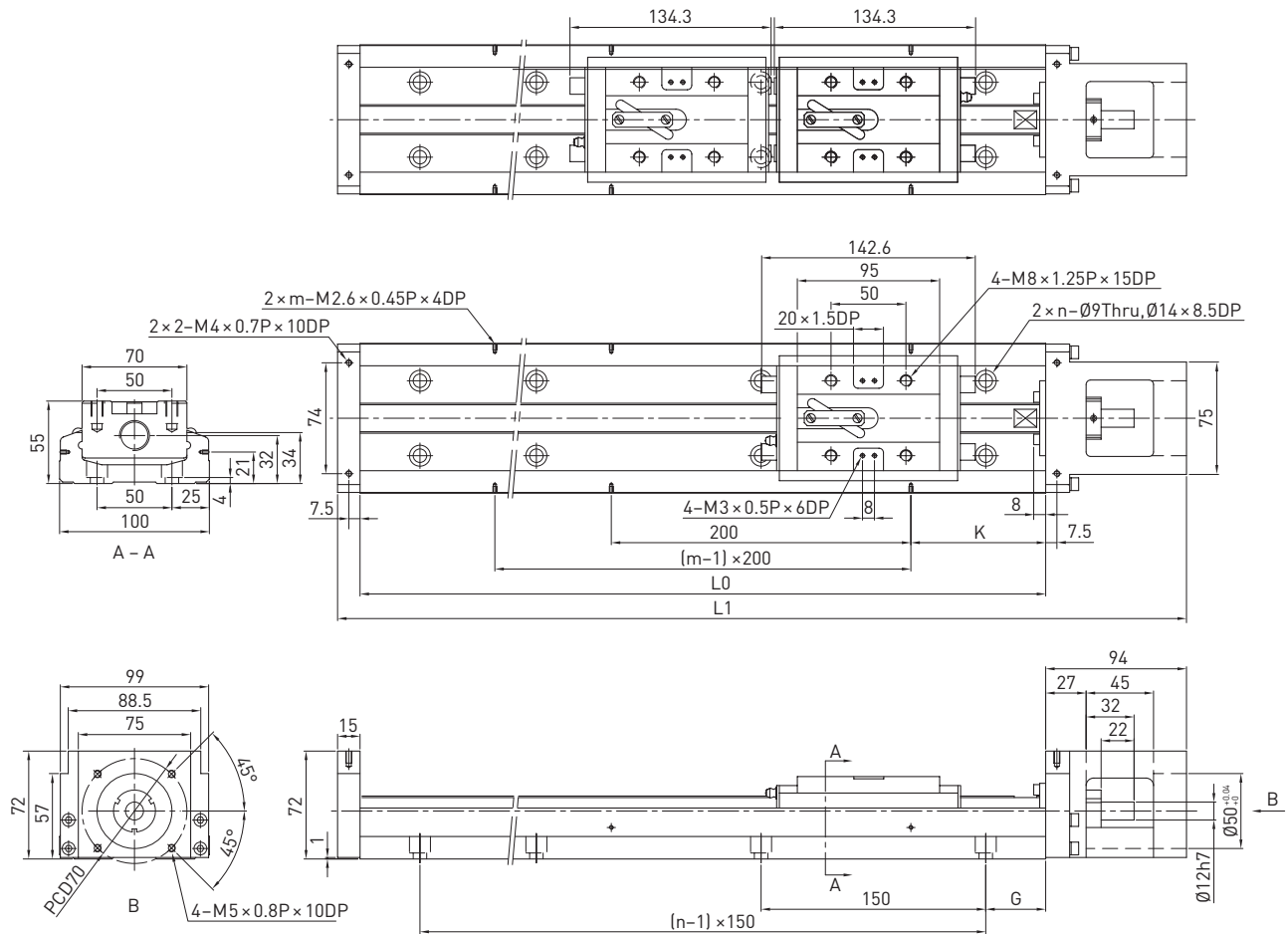


Table 7.1 Dimensions and weights of KK100 linear axes without cover

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|--------------|-----------|---------|---------|---------------------|----------|--------|--------|----|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | | Block A1 | Block A2 |
| KK10020P0980 | 20 | 980 | 1,089 | 828 | 700 | 40 | 90 | 7 | 5 | 18.6 | 20.3 |
| KK10020P1080 | 20 | 1,080 | 1,189 | 928 | 800 | 15 | 40 | 8 | 6 | 20.3 | 22.0 |
| KK10020P1180 | 20 | 1,180 | 1,289 | 1,028 | 900 | 65 | 90 | 8 | 6 | 22.0 | 23.7 |
| KK10020P1280 | 20 | 1,280 | 1,389 | 1,128 | 1,000 | 40 | 40 | 9 | 7 | 23.6 | 25.3 |
| KK10020P1380 | 20 | 1,380 | 1,489 | 1,228 | 1,100 | 15 | 90 | 10 | 7 | 25.3 | 27.0 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

7.2 KK100 linear axes with aluminium cover

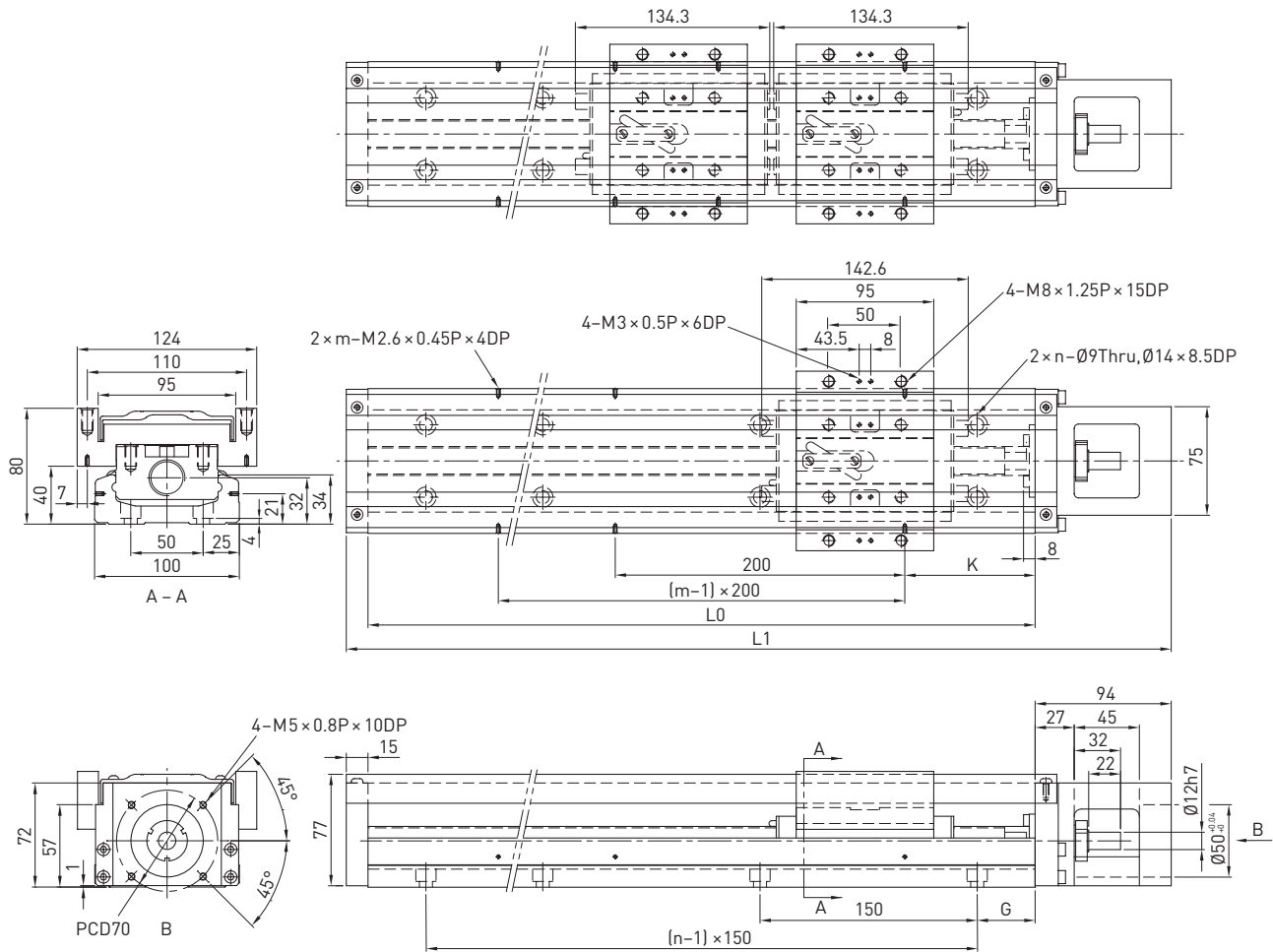


Table 7.2 Dimensions and weights of KK100 linear axes with aluminium cover

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|--------------|-----------|---------|---------|---------------------|----------|--------|--------|----|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | | Block A1 | Block A2 |
| KK10020P0980 | 20 | 980 | 1,089 | 828 | 700 | 40 | 90 | 7 | 5 | 20.4 | 22.1 |
| KK10020P1080 | 20 | 1,080 | 1,189 | 928 | 800 | 15 | 40 | 8 | 6 | 22.2 | 23.9 |
| KK10020P1180 | 20 | 1,180 | 1,289 | 1,028 | 900 | 65 | 90 | 8 | 6 | 24.0 | 25.7 |
| KK10020P1280 | 20 | 1,280 | 1,389 | 1,128 | 1,000 | 40 | 40 | 9 | 7 | 25.7 | 27.4 |
| KK10020P1380 | 20 | 1,380 | 1,489 | 1,228 | 1,100 | 15 | 90 | 10 | 7 | 27.5 | 29.2 |

Reference edge

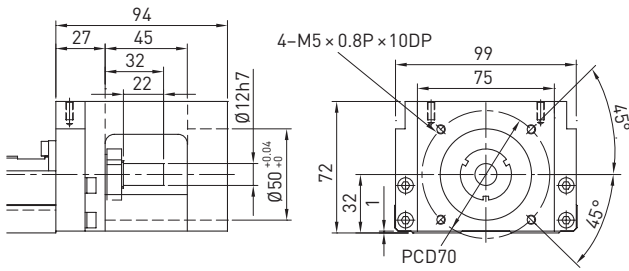
Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

KK Linear Axes

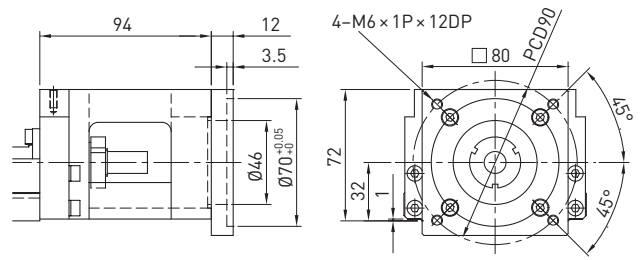
KK100, KK130

7.3 KK100 adapter flanges

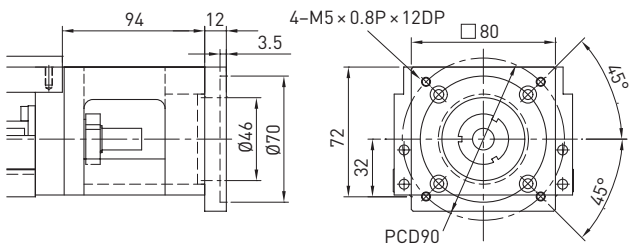
Motor adapter flange F0



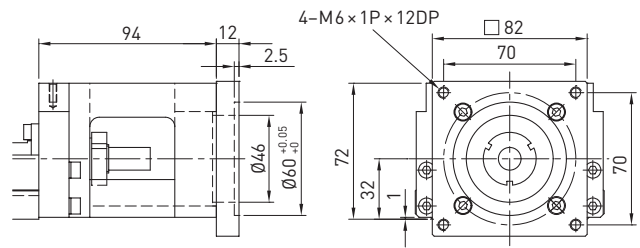
Motor adapter flange F1



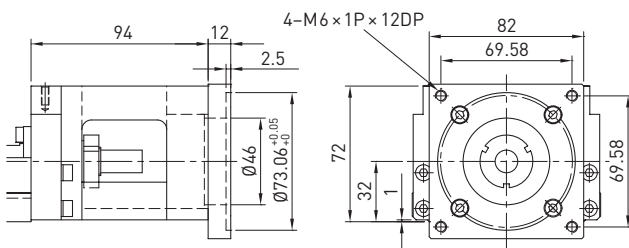
Motor adapter flange F2



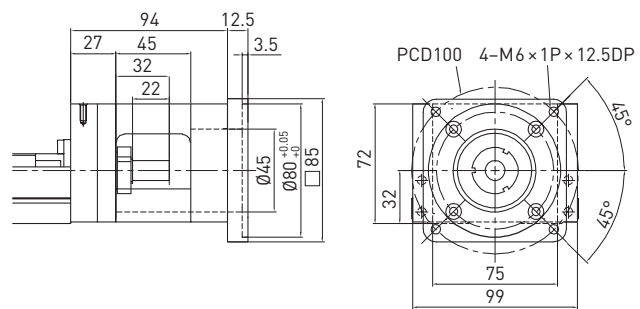
Motor adapter flange F3



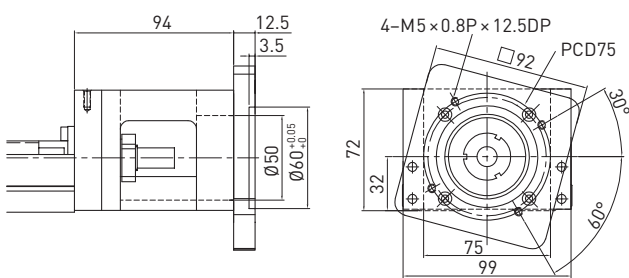
Motor adapter flange F4



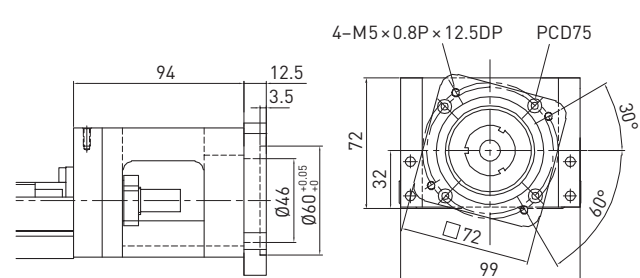
Motor adapter flange F5



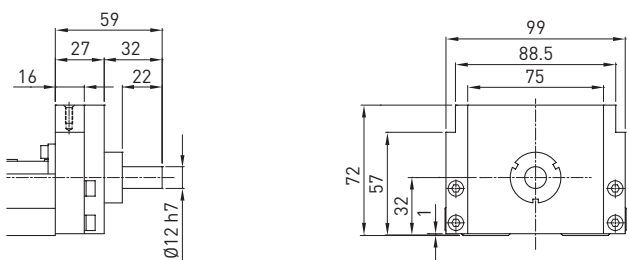
Motor adapter flange F6



Motor adapter flange F7



Motor adapter flange H0



8. KK130 linear axes

8.1 KK130 linear axes without aluminium cover

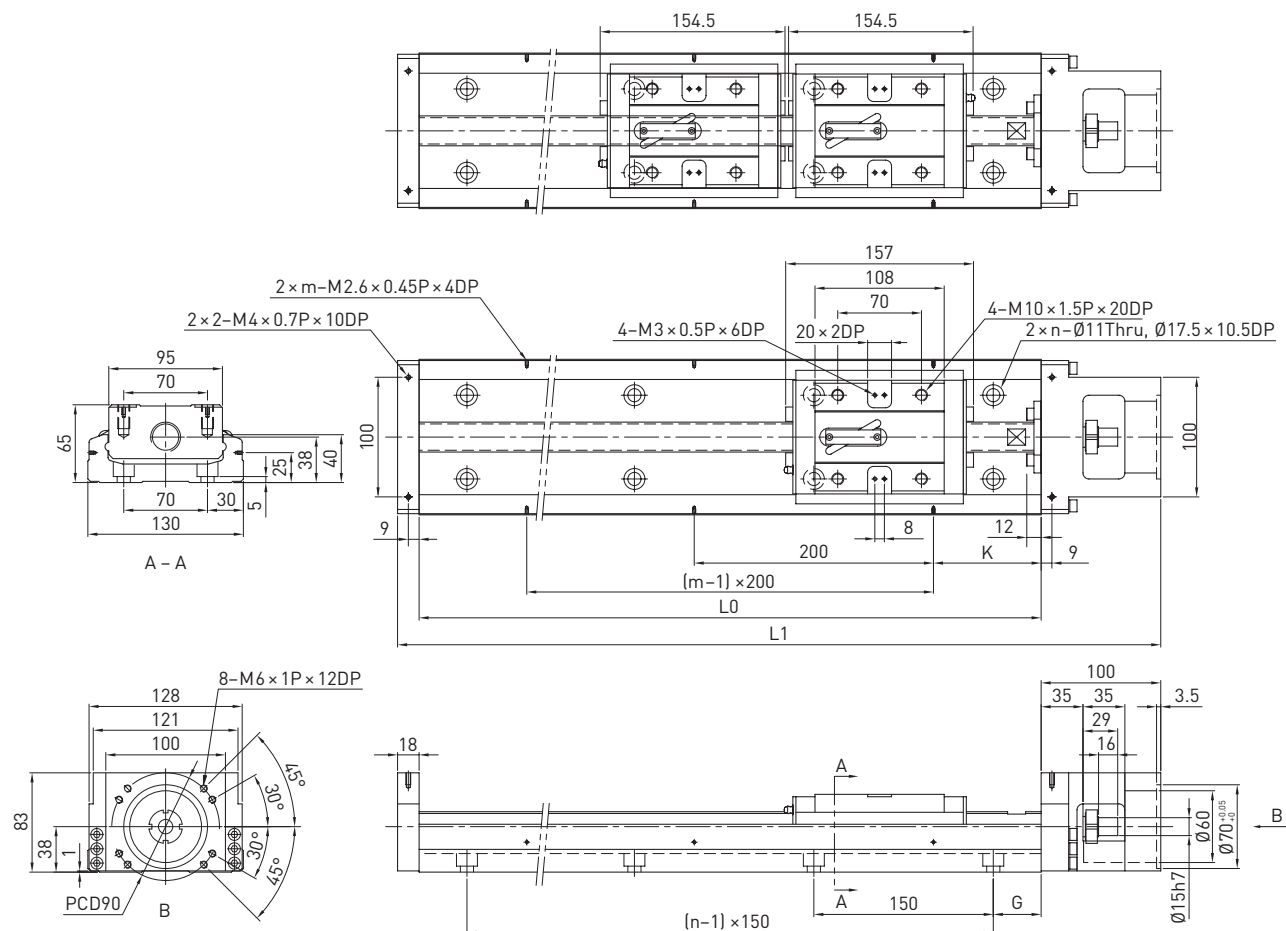


Table 8.1 Dimensions and weights of KK130 linear axes without cover

| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|--------------|-----------|---------|---------|---------------------|----------|--------|--------|----|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | | Block A1 | Block A2 |
| KK13025P0980 | 25 | 980 | 1,098 | 811 | 659 | 40 | 90 | 7 | 5 | 29.4 | 32.3 |
| KK13025P1180 | 25 | 1,180 | 1,298 | 1,011 | 859 | 65 | 90 | 8 | 6 | 34.3 | 37.2 |
| KK13025P1380 | 25 | 1,380 | 1,498 | 1,211 | 1,059 | 90 | 90 | 9 | 7 | 39.2 | 42.1 |
| KK13025P1680 | 25 | 1,680 | 1,798 | 1,511 | 1,359 | 90 | 40 | 11 | 9 | 46.5 | 49.4 |

Reference edge

Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

KK Linear Axes

KK130

8.2 KK130 linear axes with aluminium cover

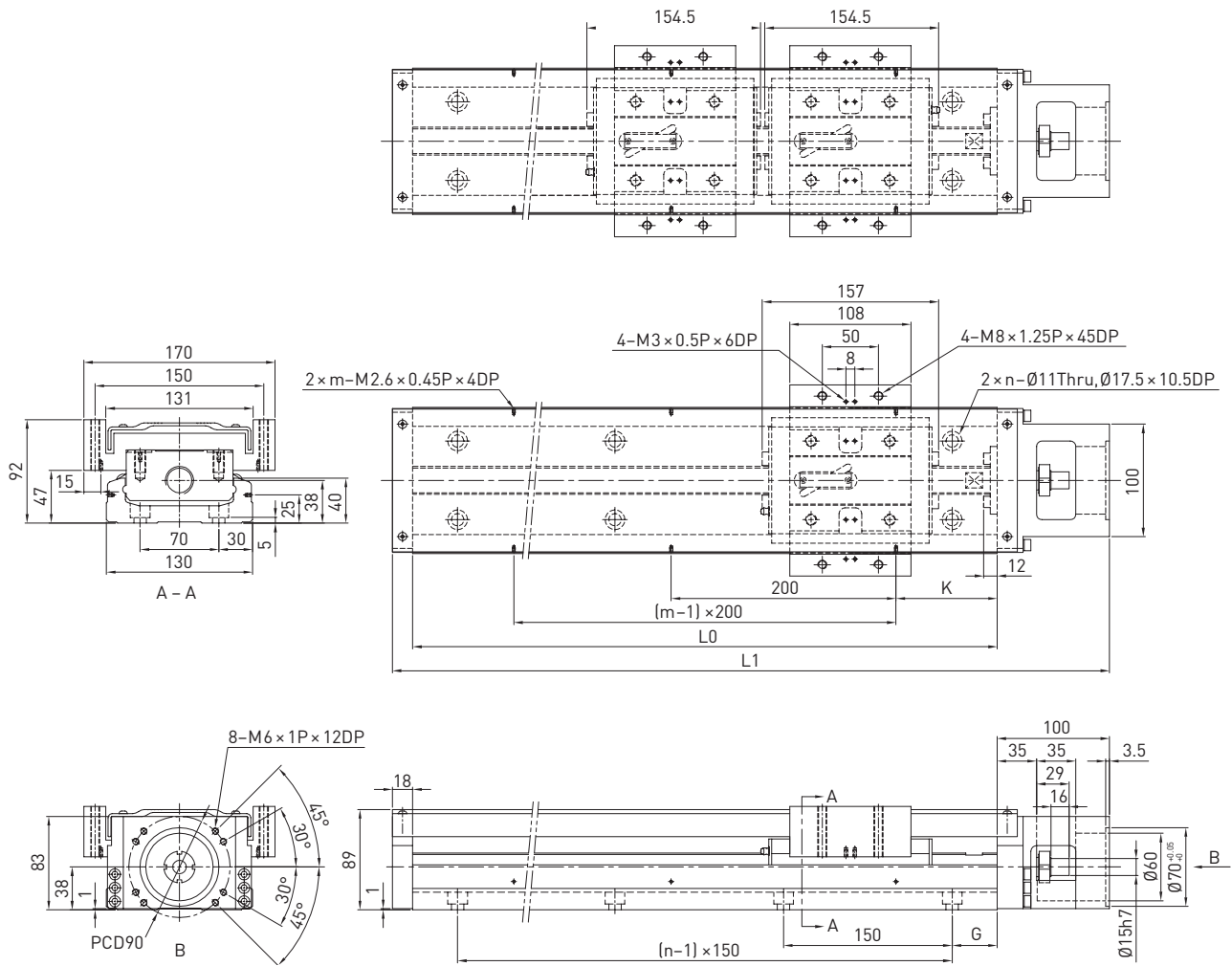


Table 8.2 Dimensions and weights of KK130 linear axes with aluminium cover

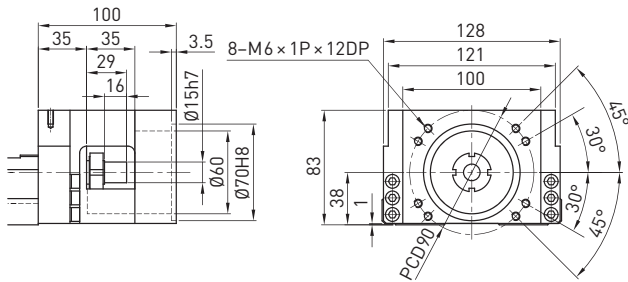
| Model | Lead [mm] | L0 [mm] | L1 [mm] | Maximum stroke [mm] | | G [mm] | K [mm] | n | m | Weight [kg] | |
|--------------|-----------|---------|---------|---------------------|----------|--------|--------|----|---|-------------|----------|
| | | | | Block A1 | Block A2 | | | | | Block A1 | Block A2 |
| KK13025P0980 | 25 | 980 | 1,098 | 811 | 659 | 40 | 90 | 7 | 5 | 31.9 | 35.9 |
| KK13025P1180 | 25 | 1,180 | 1,298 | 1,011 | 859 | 65 | 90 | 8 | 6 | 37.1 | 41.1 |
| KK13025P1380 | 25 | 1,380 | 1,498 | 1,211 | 1,059 | 90 | 90 | 9 | 7 | 42.2 | 46.2 |
| KK13025P1680 | 25 | 1,680 | 1,798 | 1,511 | 1,359 | 90 | 40 | 11 | 9 | 49.9 | 53.9 |

Reference edge

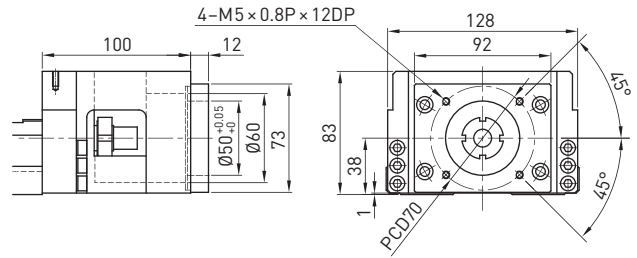
Viewed from the motor flange, the reference edge is located on the left side of the linear axis.

8.3 KK130 adapter flanges

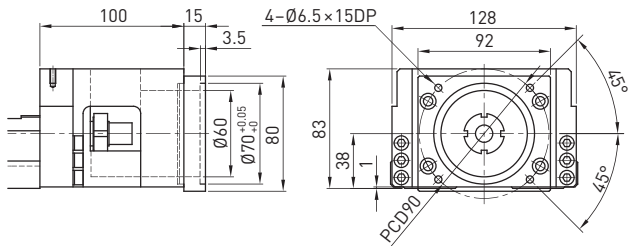
Motor adapter flange F0



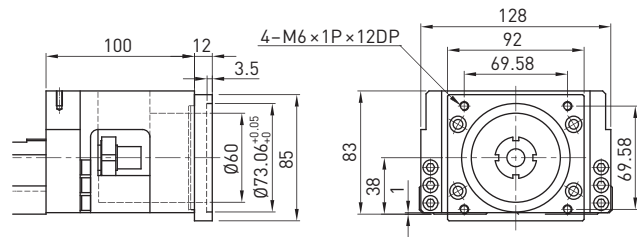
Motor adapter flange F1



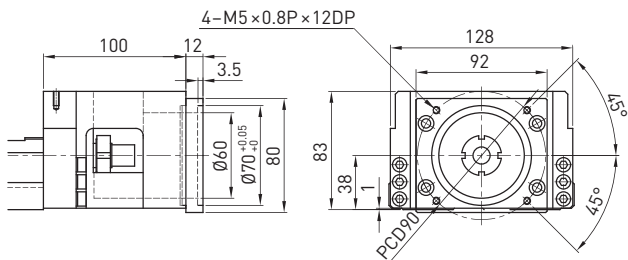
Motor adapter flange F2



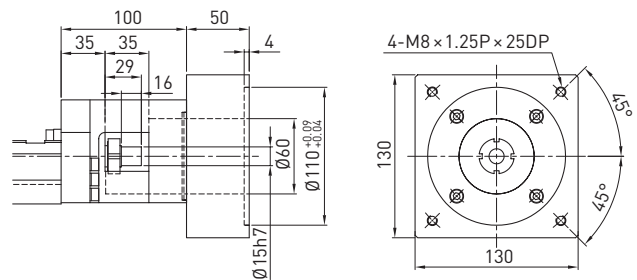
Motor adapter flange F3



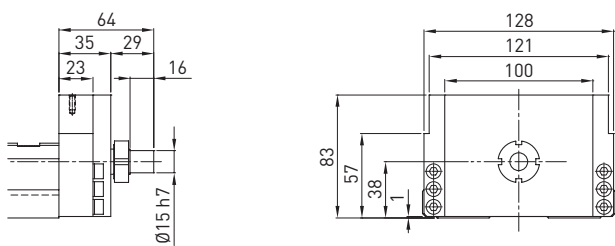
Motor adapter flange F4



Motor adapter flange F5



Motor adapter flange H0



KK Linear Axes

Accessories

9. Accessories for KK linear axes

9.1 HIWIN servo motor

HIWIN synchronous AC servo motors are available with power ratings of 50 W, 100 W, 200 W, 400 W, 750 W and 1000 W. The standard motors are equipped with an incremental encoder (10,000 increments per revolution), and are available with or without a motor brake.

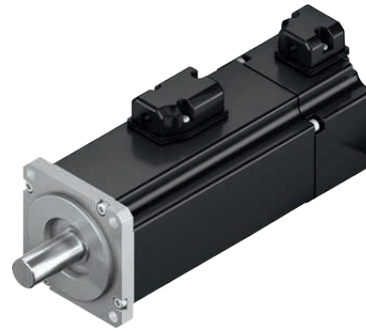


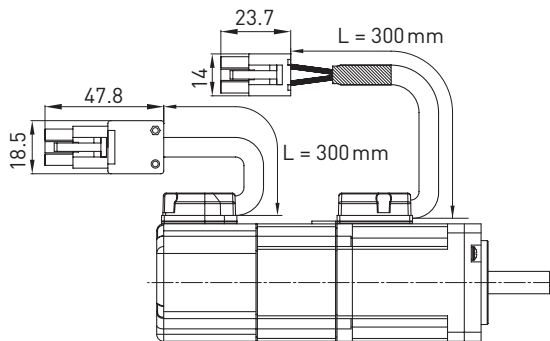
Table 9.1 Motor type to KK linear axis assignment

| Motor type | Motor output [W] | Motor torque [Nm] | | KK40 | KK50 | KK60 | KK86 | KK100 | KK130 |
|------------|------------------|-------------------|-------------|------|------|------|------|-------|-------|
| | | Nominal torque | Peak torque | | | | | | |
| FRLS05 | 50 | 0.16 | 0.48 | ● | ● | ● | | | |
| FRLS10 | 100 | 0.32 | 0.96 | ● | ● | ● | | | |
| FRLS20 | 200 | 0.64 | 1.92 | | | | ● | ● | ● |
| FRLS40 | 400 | 1.27 | 3.81 | | | | ● | ● | ● |
| FRMS75 | 750 | 2.40 | 7.20 | | | | | ● | ● |
| FRMM1K | 1,000 | 4.77 | 14.30 | | | | | | ● |

The motor and encoder cable connections are provided with a connector for the quick and easy connection of extension cables.

Table 9.2 Motor and encoder cable extension

| Length [m] | Motor cable | | Encoder cable |
|------------|---------------|------------|---------------|
| | Without brake | With brake | |
| 3 | 8-10-0627 | 8-10-0623 | 8-10-0751 |
| 5 | 8-10-0628 | 8-10-0624 | 8-10-0752 |
| 7 | 8-10-0629 | 8-10-0625 | 8-10-0753 |
| 10 | 8-10-0630 | 8-10-0626 | 8-10-0754 |



For more information about HIWIN servo motors, please refer to the "Drives & Servo Motors" catalogue or visit www.hiwin.de

9.2 HIWIN D2 servo drive

The compact HIWIN D2 servo drive is specially optimised for HIWIN servo motors and is available in the performance classes 100 W, 400 W and 1000 W. The D2 drive offers the following properties:

- Fully digital, vector-controlled drive
- Autotuning function
- Vibration suppression
- Error compensation
- Integrated PLC function
- Plug-in connections for quick exchange
- 2-line alphanumeric display with 4 control keys on the drive
- Digital pulse-direction interface and analogue +/-10 V interface
- Position control, speed control and torque control
- Inputs/outputs which can be parameterised
- Optional EtherCAT interface with CoE (CAN over EtherCAT) protocol and DS402 drive profile
- Optional mega-ulink interface
- Efficient and freely available "Lightening" commissioning software



Table 9.3 D2 servo drive to motor type assignment

| Motor | | Servo drive | | | | KK linear axis |
|--------|-------------------|-----------------------|------------|------------|--------------|--------------------|
| Typ | Nominal power [W] | Performance class [W] | D2Standard | D2EtherCAT | D2mega-ulink | |
| FRLS05 | 50 | 100 | 23.00023 | 23.00025 | 23.00028 | KK40, KK50, KK60 |
| FRLS10 | 100 | 100 | 23.00023 | 23.00025 | 23.00028 | KK40, KK50, KK60 |
| FRLS20 | 200 | 400 | 23.00022 | 23.00026 | 23.00029 | KK86, KK100, KK130 |
| FRLS40 | 400 | 400 | 23.00022 | 23.00026 | 23.00029 | KK86, KK100, KK130 |
| FRMS75 | 750 | 1,000 | 23.00024 | 23.00027 | 23.00030 | KK100, KK130 |
| FRMM1K | 1,000 | 1,000 | 23.00024 | 23.00027 | 23.00030 | KK130 |

For more information, please consult the assembly and commissioning instructions available at www.hiwin.de. The "Lightening" commissioning software can also be downloaded free from our website.

9.3 Sensor rail with limit switch

The KK linear axis can be ordered with up to three limit switches (inductive PNP proximity switches). The limit switches are mounted on the sensor rail, where they can be placed in any position. The limit switches are supplied with open cable ends and mounted on the sensor rail which is attached to the linear axis. More details of the limit switches can be found in the "KK linear axes assembly instructions" available at www.hiwin.de.

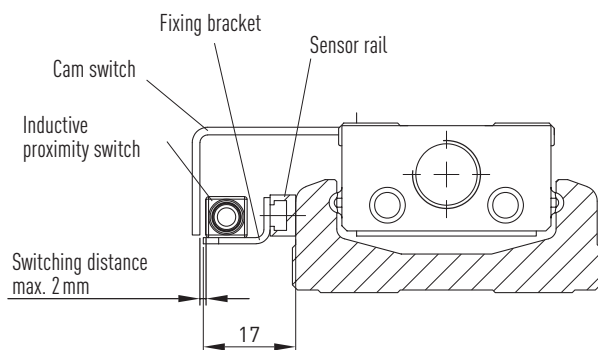


Table 9.4 Available limit switches

| Article number | Function | Cable length |
|-------------------------|-------------------------|--------------|
| 8-14-0040 ¹⁾ | Normally open contact | 4 m |
| 8-14-0010 | Normally closed contact | 2 m |

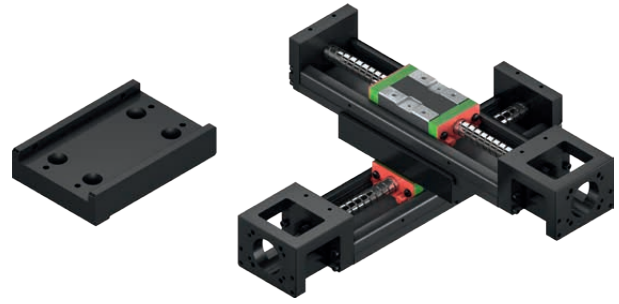
¹⁾ Standard version

KK Linear Axes

Accessories

9.4 Cross table adapter

- Adapter for connecting two or more KK axes crosswise into one X-Y system
- Adapter for KK axes available with and without aluminium cover
- Cam switch for limit switch can be adapted
- Black anodised surface
- Delivered in a set including mounting material



9.4.1 Cross table adapter for KK linear axes without aluminium cover

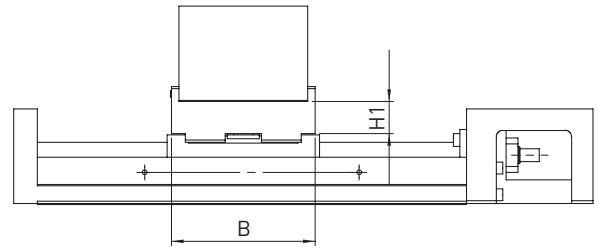
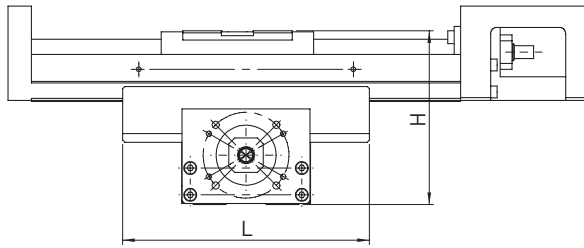


Table 9.5 Dimensions of cross table adapter without cover

| Article number | Lower axis | Upper axis | H | H1 | L | B |
|----------------|------------|------------|-----|----|-----|----|
| 10-000604 | KK40 | KK40 | 47 | 7 | 70 | 47 |
| 10-000606 | KK50 | KK40 | 56 | 10 | 70 | 47 |
| 10-000608 | KK50 | KK50 | 62 | 10 | 90 | 57 |
| 10-000610 | KK60 | KK50 | 74 | 15 | 90 | 57 |
| 10-000612 | KK60 | KK60 | 81 | 15 | 115 | 67 |
| 10-000614 | KK86 | KK60 | 95 | 16 | 110 | 67 |
| 10-000616 | KK86 | KK86 | 108 | 16 | 120 | 97 |

Unit: mm

9.4.2 Cross table adapter for KK linear axes with aluminium cover

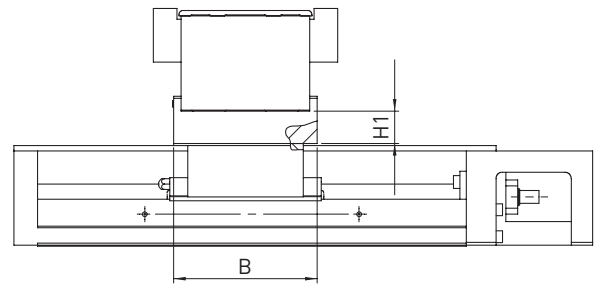
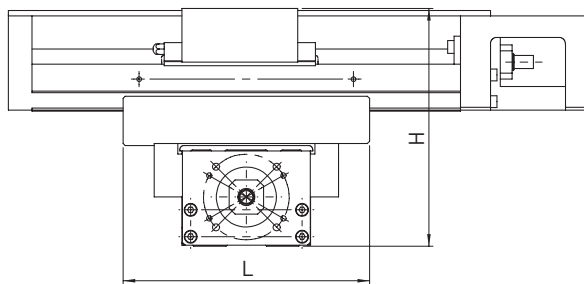


Table 9.6 Dimensions of cross table adapter with cover

| Article number | Lower axis | Upper axis | H | H1 | L | B |
|----------------|------------|------------|-----|----|-----|----|
| 10-000605 | KK40 | KK40 | 74 | 10 | 70 | 47 |
| 10-000607 | KK50 | KK40 | 82 | 10 | 70 | 47 |
| 10-000609 | KK50 | KK50 | 90 | 10 | 90 | 57 |
| 10-000611 | KK60 | KK50 | 103 | 15 | 57 | 57 |
| 10-000613 | KK60 | KK60 | 111 | 15 | 115 | 67 |
| 10-000615 | KK86 | KK60 | 132 | 16 | 144 | 67 |
| 10-000617 | KK86 | KK86 | 152 | 16 | 144 | 97 |

Unit: mm

9.5 Covers

To protect the linear axes, they can be fitted with aluminium or bellow covers. You will find the dimensions of the KK linear axes with covers in the chapters for the relevant sizes.

Table 9.7 Availability of covers

| Model | Aluminium cover | Bellow cover |
|-------|-----------------|--------------|
| KK40 | • | |
| KK50 | • | |
| KK60 | • | • |
| KK86 | • | • |
| KK100 | • | |
| KK130 | • | |

9.6 Grease nipples

Table 9.8 Nipples for grease lubrication

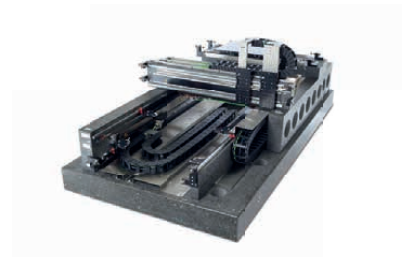
| | | |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |
| Art. No.: 20-000275 – M3 × 0.5 P KK40 | Art. No.: 20-000272 – M4 × 0.7 P KK50, KK60, KK86 | Art. No.: 20-000273 – M6 × 0.75 P KK100, KK130 |



Linear Guideways



Ballscrews



Linear Motor Systems



Linear Axes



Linear Actuators



Robots



Linear Motor Components



Rotary Tables



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