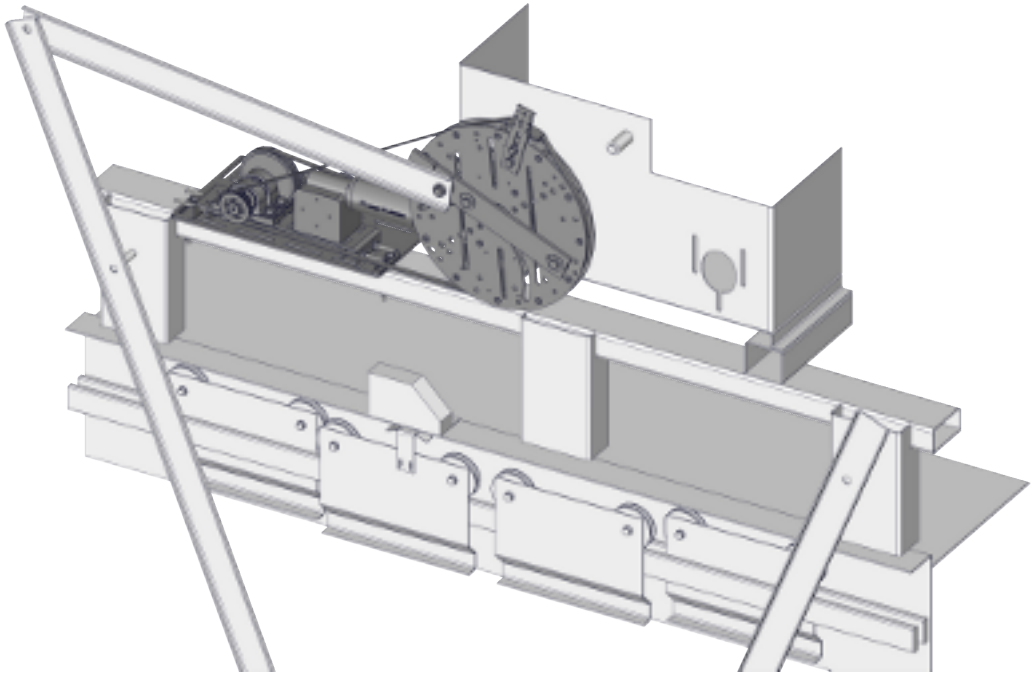
Langer & Laumann®
smart door solutions



Conversion Instructions

MitsubishiHD

to TSG V4

Shows **Z**.

Imprint

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Dokument **in Deutsch** durch Scannen des QR-Codes anfordern.

Obtenir le document **en français** en scannant le code QR.

1 About these instructions

1.1 Purpose

These conversion instructions contain important information and general mechanical assembly steps for the conversion of an existing system. These instructions must be observed to avoid hazards, repair costs and downtimes and increase the reliability and service life of the system.

1.2 Scope

These conversion instructions apply to the following conversion kit:

— MitsubishiHDto TSG V4

1.3 Version information

The version number of these conversion instructions is shown on the front page and footer of each page.

Always retain and use the latest version of all documents.

Using an outdated version of this and any required and supplementary documentation can lead to incorrect assembly.

1.4 Contact information

See page 2.

1.5 Customers for whom these instructions are intended

These conversion instructions are intended for end customers of Langer & Laumann Ing.-Büro GmbH.

To ensure correct operation of the system, in addition to reading these conversion instructions, personnel must have the following qualifications and relevant technical knowledge:

— Extensive technical knowledge of these systems

— Thorough knowledge of the operating instructions of these systems

— Recognised as a qualified specialist

1.6 Other applicable documents

The following documents are required for work not described in these conversion instructions:

— Fitting instructions for the door control unit with information on electrical connection, fitting and commissioning

— Information on components not manufactured and supplied byLanger & Laumann

2 Safety

2.1 General safety instructions

Personnel must have carefully read and understood these conversion instructions before starting the conversion work.

The safety instructions and guidelines specified in these conversion instructions must be observed.

The accident prevention regulations applicable at the place of use and general safety regulations must be observed.

2.2 Personnel requirements

2.2.1 Personnel qualification and scope of work

The work described in these instructions places different demands on the qualifications of personnel. Insufficiently qualified personnel cannot correctly assess the potential risks and may expose themselves and others to the risk of injury. Insufficiently qualified personnel are not permitted to enter work areas/danger zones. Persons whose reactions are influenced, e.g. by drugs, alcohol or medication, must not work on the system.

Qualified personnel Only qualified personnel (lift fitters for specific activities in lift construction in accordance with DGUV 303-001) may work on mechanical components.

Qualified electricians Only qualified electricians or lift fitters with advanced training as qualified electricians for specific activities in lift construction may work on electrical components in accordance with DGUV 303-001.

2.2.2 Personal protective equipment

Personal protective equipment serves to protect personnel from health and safety risks at work. The prescribed protective equipment must be worn.

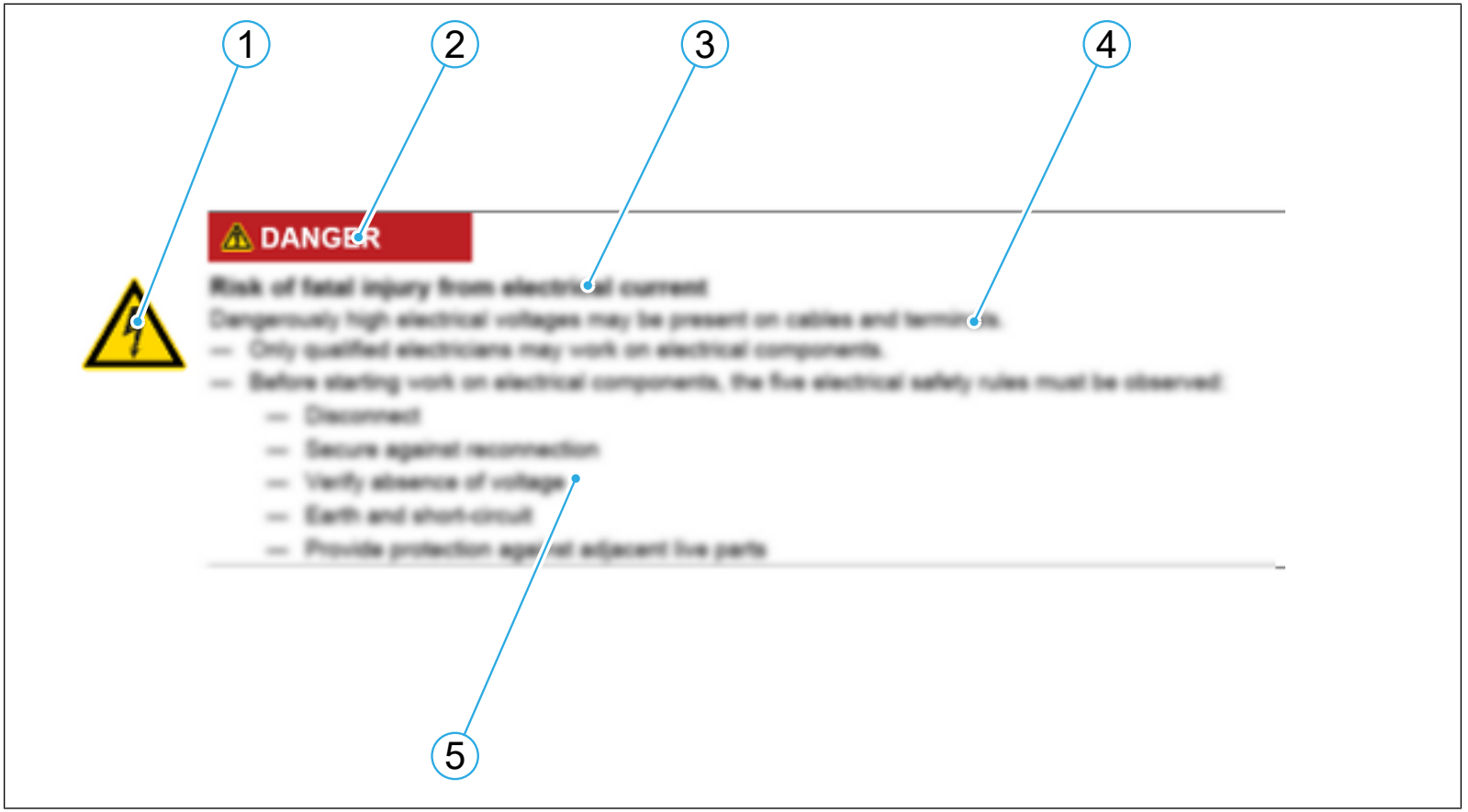
Symbol	Meaning
	Protective clothing must be worn to protect against hazards in the workplace.
	Non-slip safety footwear must be worn to prevent injuries to feet.
	Cut resistant and puncture resistant protective gloves must be worn to prevent hand injuries.
	Hard hats must be worn to prevent head injuries.
	Safety goggles must be worn to prevent eye injuries.
	Hearing protectors must be worn to protect against noise.
	Safety harnesses must be worn to protect against falls.

Table 1: Personal protective equipment

2.3 Warnings

2.3.1 Structure of warning notices

All warning notices in this document are structured as follows:



1	Hazard symbol	2	Signal word
3	Type and source of hazard	4	Possible consequences of non-observance
5	Procedure for hazard prevention		

2.3.2 Meaning of signal words and symbols

The following signal words are used in this document:

Signal word	Meaning, consequences if not prevented
DANGER	Warns of an imminent hazardous situation which results in death or serious injury.

Table 2: Meaning of signal words

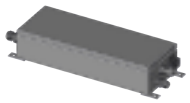
The following hazard symbols are used in this document:

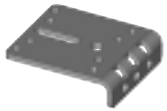
Symbol	Designation
	Automatic start-up
	Electrical hazard

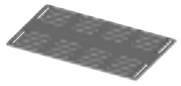
Table 3: Meaning of hazard symbols

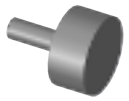
3 In the box

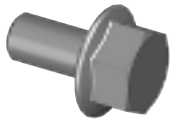
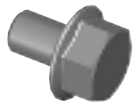
The conversion kit components are shown in the table. The position numbers are used in the following chapters to identify the individual components. For logistical reasons, the packaging can contain further components that are not required for actual use.

Pos.	Illustration	Item number	Description	Quantity
P001		8.20.xxxxx.04	TSG electronics	1
P002		8.20.400xx.xx	TSG motor	1

Pos.	Illustration	Item number	Description	Quantity
P003		x.20.xxxxx.xx	Timing belt 8M	1
P004		1.20.61090	Endless timing belt 8M	1
P005		1.20.23200	Motor bracket, hat shaped	1
P006		1.20.23220	L-shaped bracket	1
P007		1.20.23230	Round shaft	1
P008		1.20.60007	Timing belt lock	1
P009		1.20.60160	Timing belt pulley D = 56 mm, 8M	1
P010		1.20.60532	L-shaped bracket	1

Pos.	Illustration	Item number	Description	Quantity
P011		1.20.60870	Bearing, round	1
P012a		1.20.60873	Clamping bush, round, 1"	1
P012b		1.20.60871	Clamping bush, round, ½" (alternative)	1
P012c		1.20.60872	Clamping bush, round, ¾" (alternative)	1
P013		1.20.60900	Plate, D = 368.3 mm	1
P014		1.20.60901	Plate, D = 348.3 mm	1
P015		1.20.60905	Plate, rectangular	1
P016		1.20.60915	Plate, rectangular	1

Pos.	Illustration	Item number	Description	Quantity
P017		1.20.60920	L-shaped bracket	1
P018		1.20.60921	L-shaped bracket	1
P019		1.20.85150	Ball bearing, D = 20 mm	2
P020		1.20.91120	Bumper D = 30 mm, round	2
P021		1.20.96053	Key, rectangular	1
P022		1.20.96055	Key, rectangular	1
P023		1.20.96110	Deflection pulley, D = 18 mm, 8M	1
P024		1.36.00014	Button head screw M4 × 12 mm	1

Pos.	Illustration	Item number	Description	Quantity
P025		1.36.00106	Hexagon head screw M10 × 16 mm	2
P026		1.36.00135	Locking screw M6 × 12 mm	1
P027		1.36.00138	Locking screw M6 × 16 mm	4
P028		1.36.00140	Locking screw M8 × 12 mm	4
P029		1.36.00171	Spring washer M6	6
P030		1.36.00200	Nut M6	6
P031		1.36.00332	Countersunk screw M4 × 10 mm	1
P032		1.36.00366	Countersunk screw M6 × 25 mm	22

Pos.	Illustration	Item number	Description	Quantity
P033		1.36.00430	Nut M8	2
P034		1.36.00440	Washer M8	4
P035		1.36.00451	Washer M4	1
P036		1.36.00470	Washer M10	4
P037		1.36.00501	Nut M8	14
P038		1.36.00503	Nut M10	4
P039		1.36.00710	Locking screw M8 × 16 mm	1
P040		1.36.00730	Locking screw M8 × 30 mm	2

Pos.	Illustration	Item number	Description	Quantity
P041		1.36.00870	Spacer M8 × 10 mm	2
P042		1.36.00881	Sleeve, D = 15 mm	16
P043		1.36.01030	Washer M10	2
P044		1.36.02112	Hexagon head screw M10 × 45 mm	4
P045		1.36.02125	Hexagon head screw M8 × 80 mm	8
P046		1.36.05611	Washer M6	6

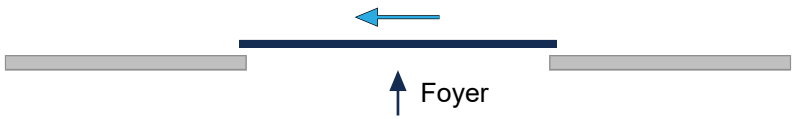
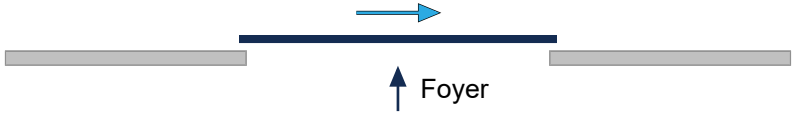
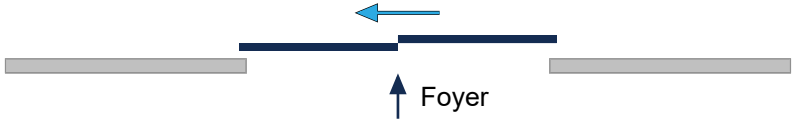
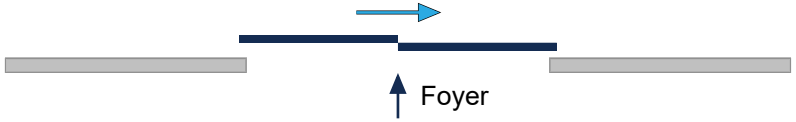
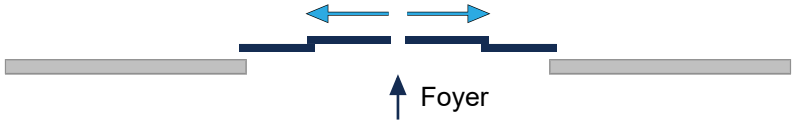
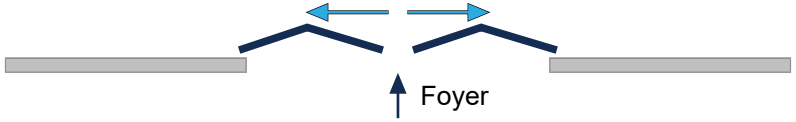
4 Required tools

The tools required for the conversion are shown in the table. The position numbers are used in the following chapters to identify the individual tools.

Pos.	Symbol	Description
T001		Soft face hammer
T002		Hammer
T003		Puller for bearings and pinions
T004		Pipe wrench
T005		Side cutters
T007		Angle grinder
T008		Measuring tool (folding rule or measuring tape)
T009		Slotted screwdriver
T011		Hook spanner
T010		Phillips screwdriver
T110		Combination wrench, size 10
T113		Combination wrench, size 13
T115		Combination spanner, size 15
T116		Combination spanner, size 16
T204.0		Allen key, size 4
T608.5		Drill bit, Ø 8.5 mm

5 Definition of door opening directions

The possible door opening directions are shown in the following table in schematic form.

L: Left opening	
R: Right opening	
TL: Telescopic left opening	
TR: Telescopic right opening	
C: Center opening	
CT: Center telescoping opening	
FD: Folding door	

6 Disassembly of existing components

⚠ DANGER

Danger to life from rotating/moving system components

— Before starting work, switch off the system completely.
— Keep away from unsecured rotating/moving system components.

⚠ DANGER

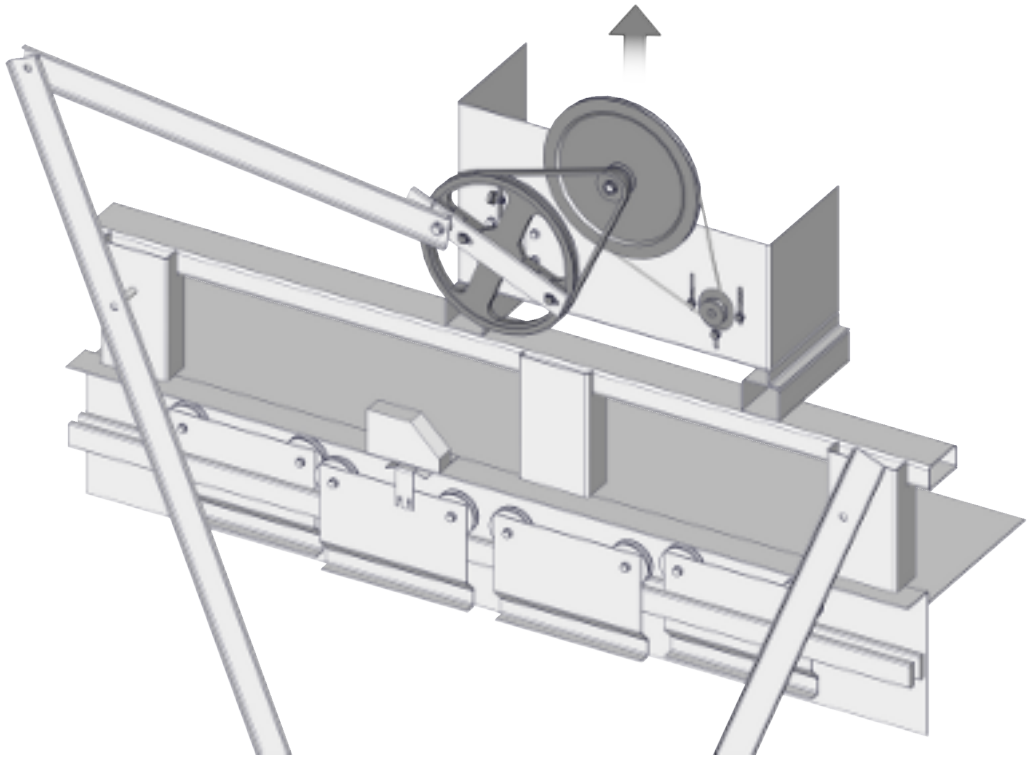
Risk of fatal injury from electrical current

Dangerously high electrical voltages may be present on cables and terminals.

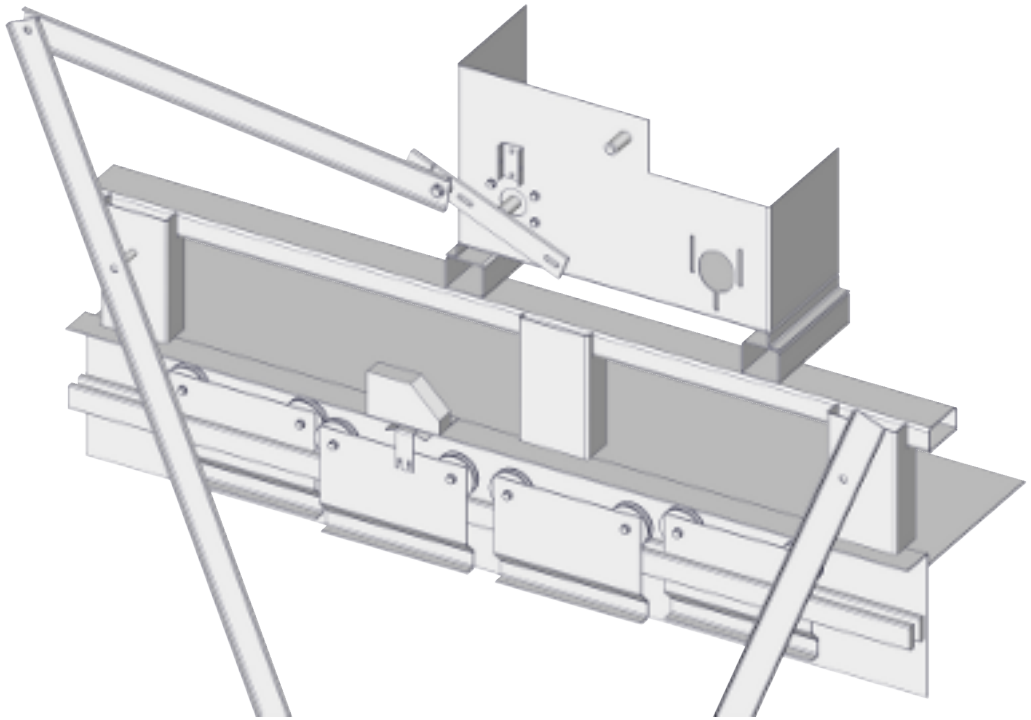
— Only qualified electricians may work on electrical components.
— Before starting work on electrical components, the five electrical safety rules must be observed:
  — Disconnect
  — Secure against reconnection
  — Verify absence of voltage
  — Earth and short-circuit
  — Provide protection against adjacent live parts

Tools

Pos.	Symbol	Description
T002		Hammer
T003		Puller for bearings and pinions
T004		Pipe wrench
T005		Side cutters
T007		Angle grinder
T1xx		Combination spanners, as needed



Shows the components to be dismantled.

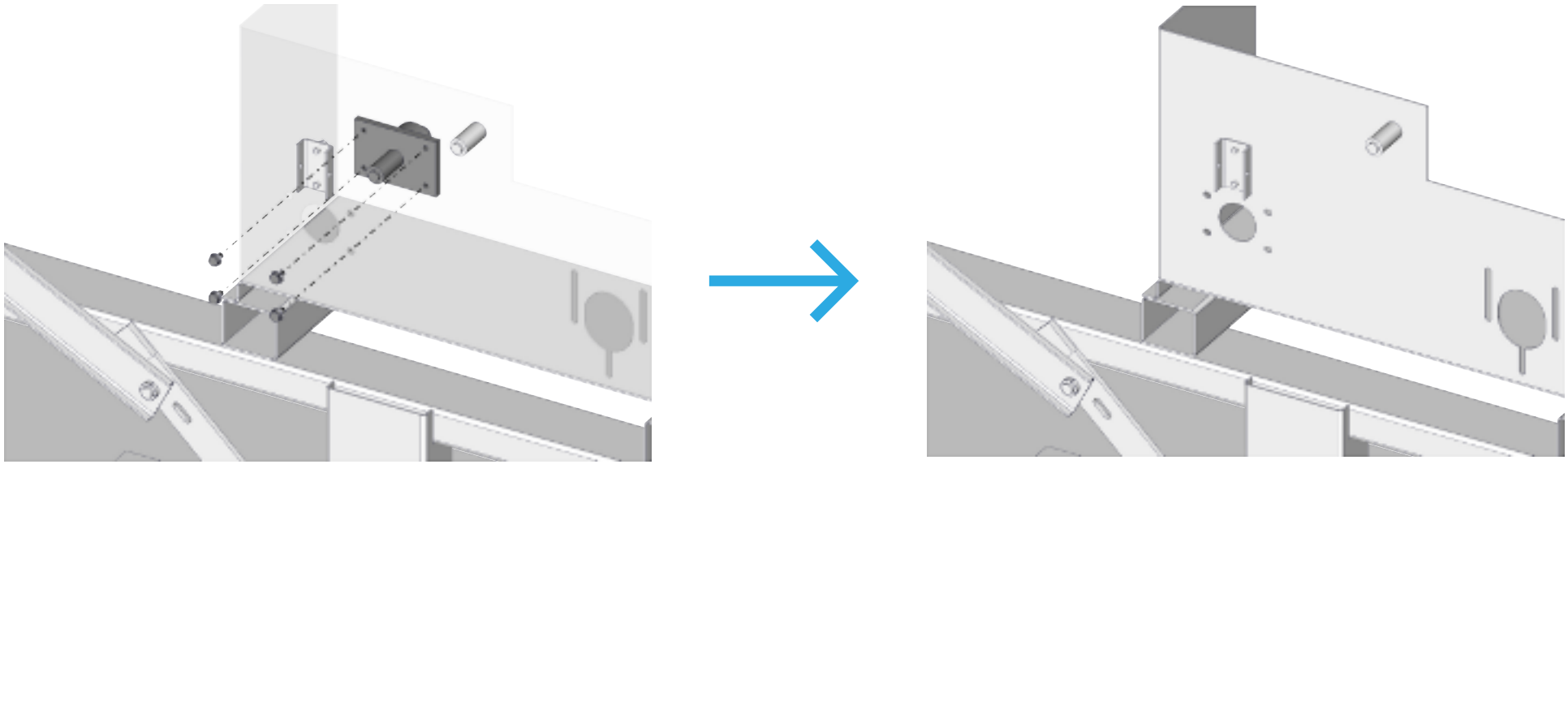


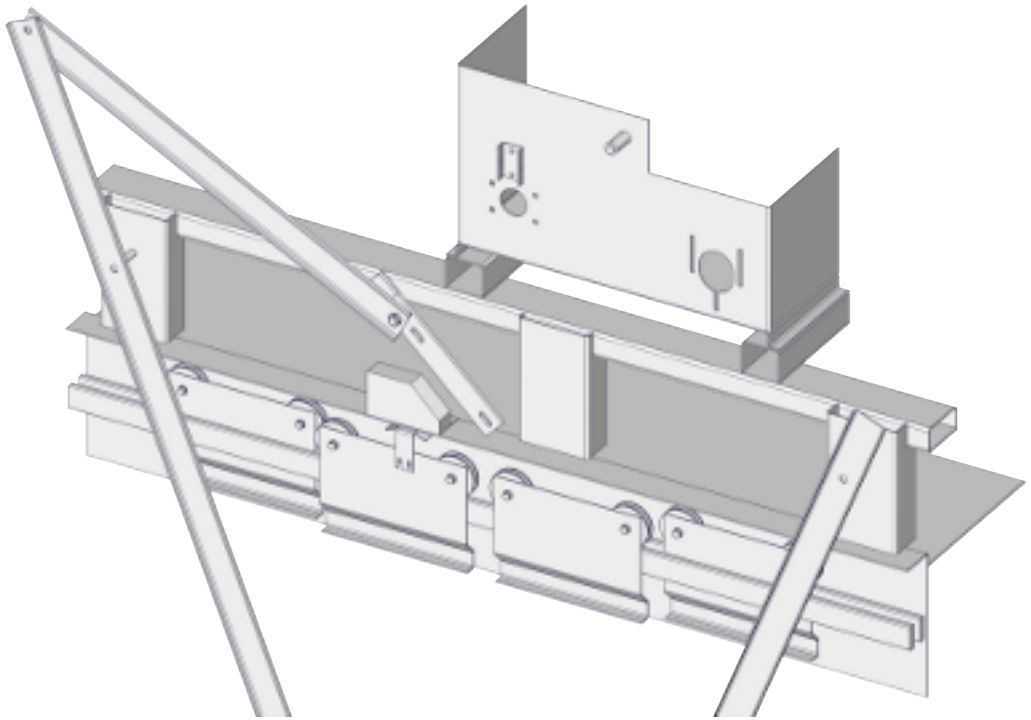
7 Installation preparation

Tools

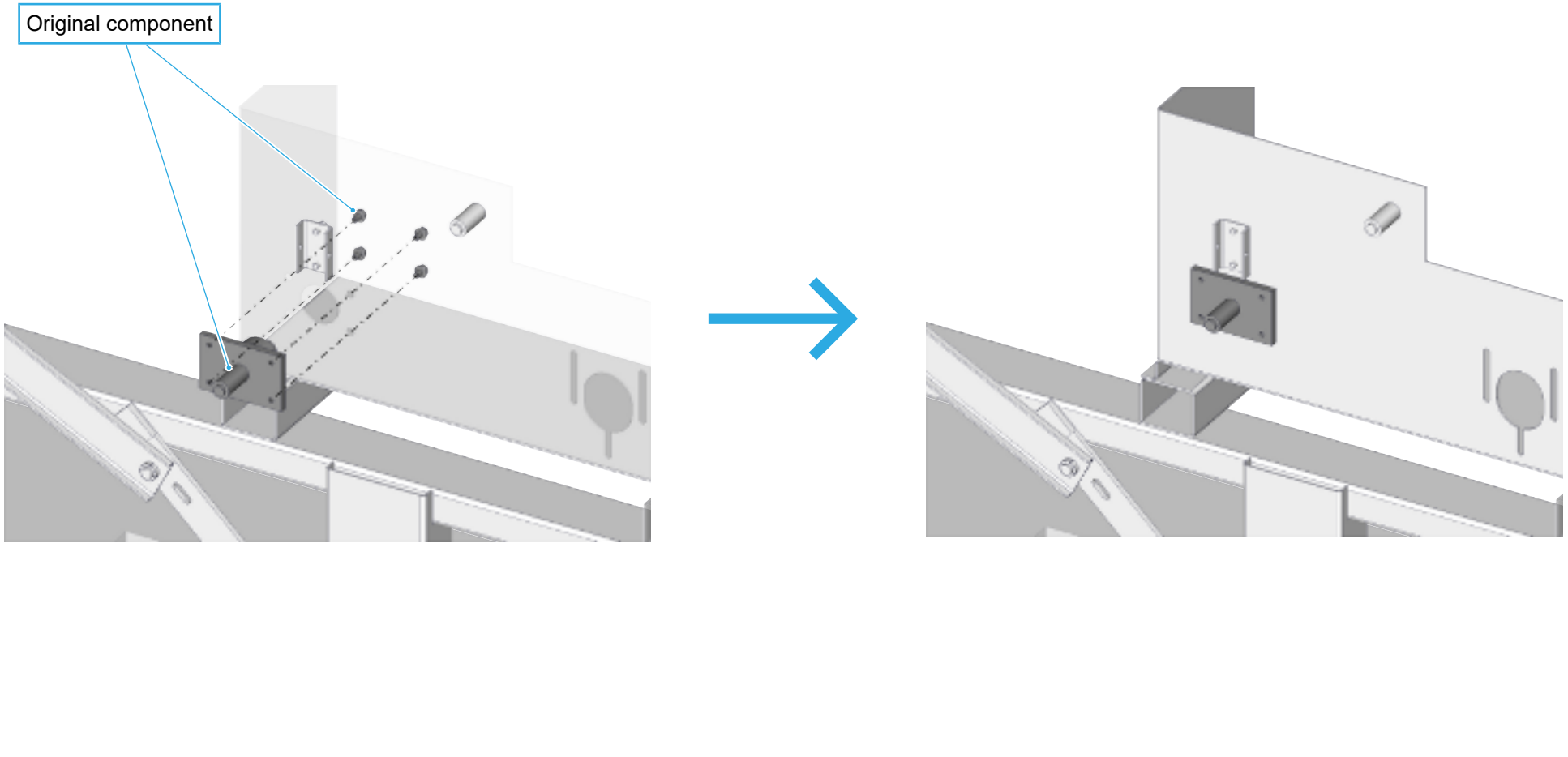
T002		Hammer
T004		Pipe wrench
T009		Slotted screwdriver
T011		Hook spanner
T113		Combination wrench, size 13

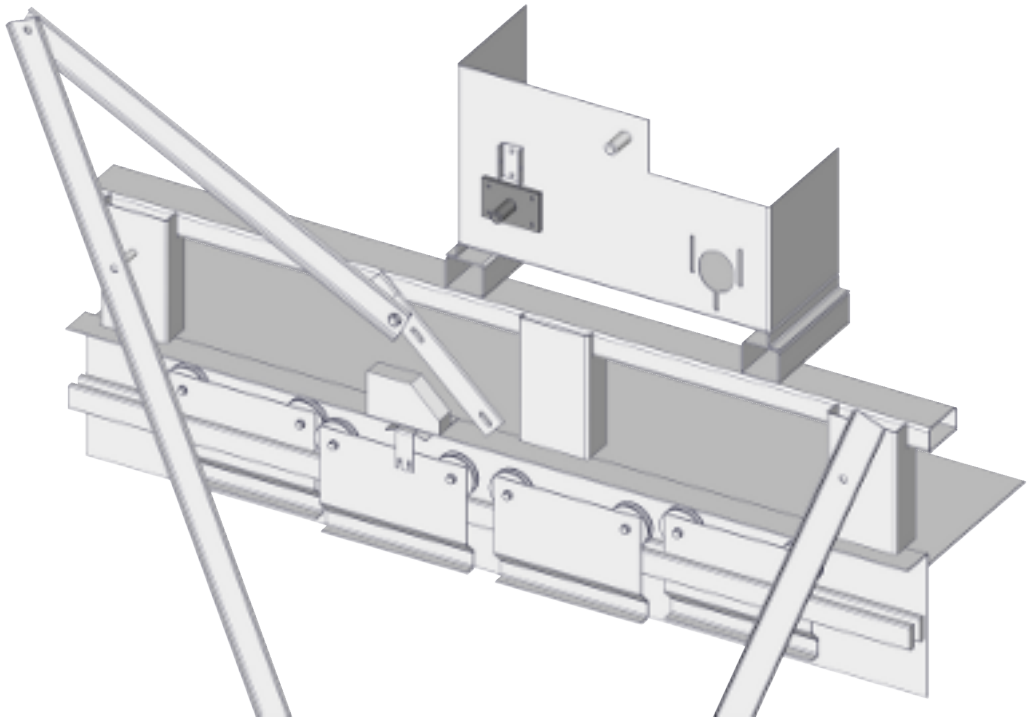
7.1 Dismantling the flange bearing



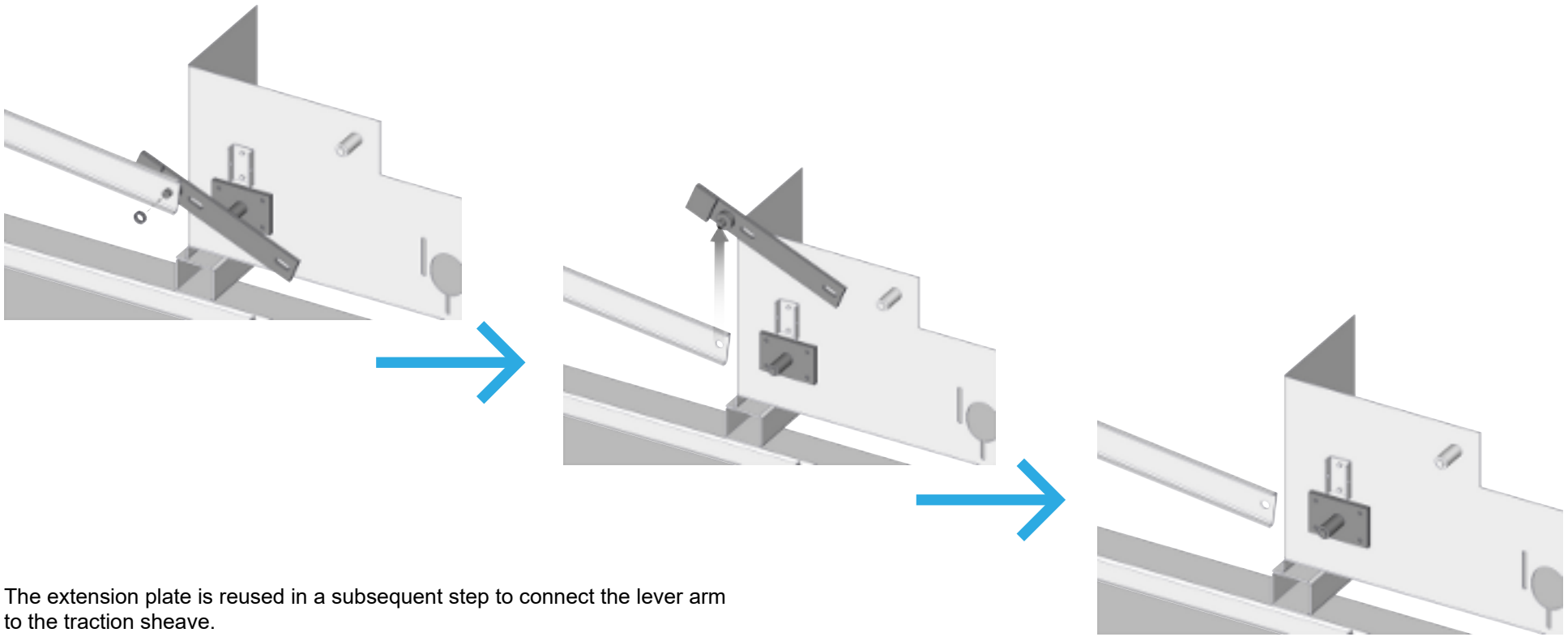


7.2 Mounting the flange bearing

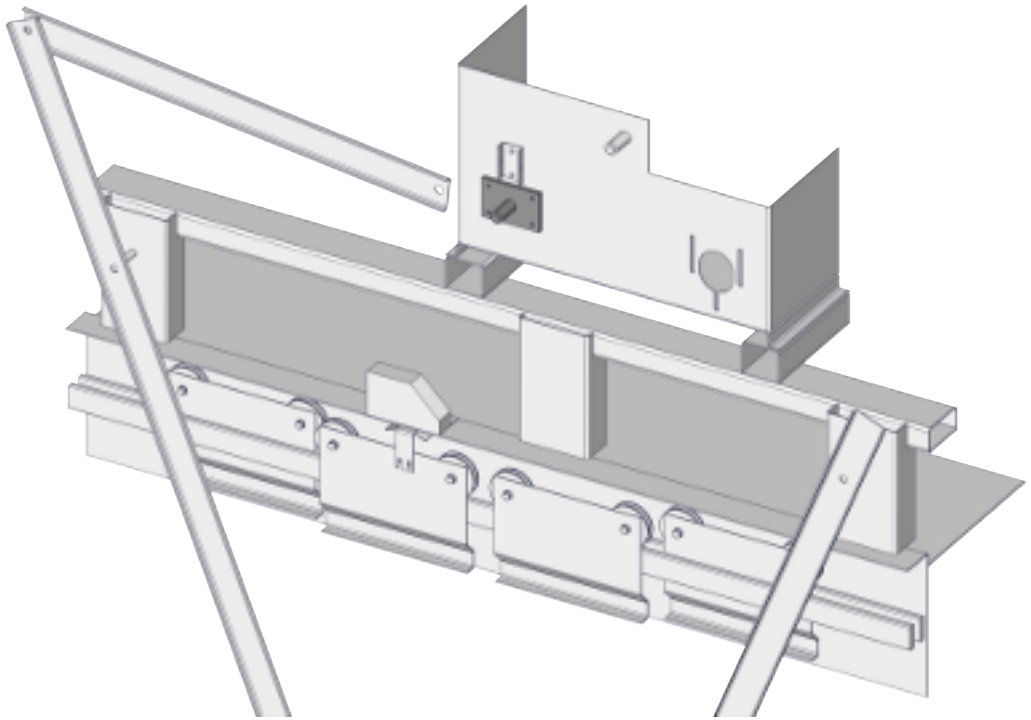




7.3 Dismantling the lever arm connection plate



The extension plate is reused in a subsequent step to connect the lever arm to the traction sheave.

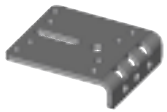
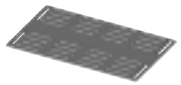


8 Assembly

8.1 Mounting the drive unit

Components

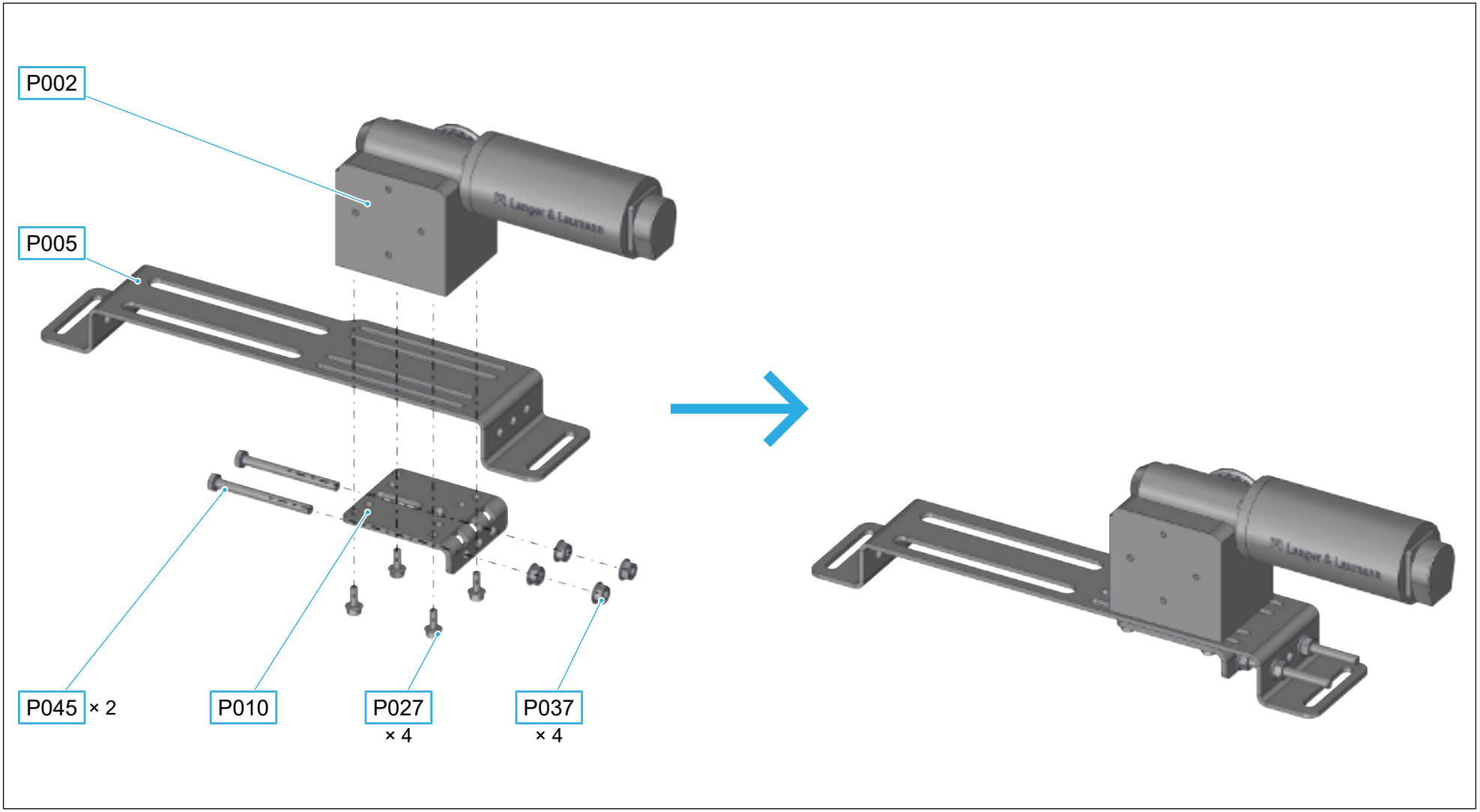
Pos.	Illustration	Item number	Description	Quantity
P002		8.20.400xx.xx	TSG motor	1
P004		1.20.61090	Endless timing belt 8M	1
P005		1.20.23200	Motor bracket, hat shaped	1
P006		1.20.23220	L-shaped bracket	1
P007		1.20.23230	Round shaft	1
P009		1.20.60160	Timing belt pulley D = 56 mm, 8M	1

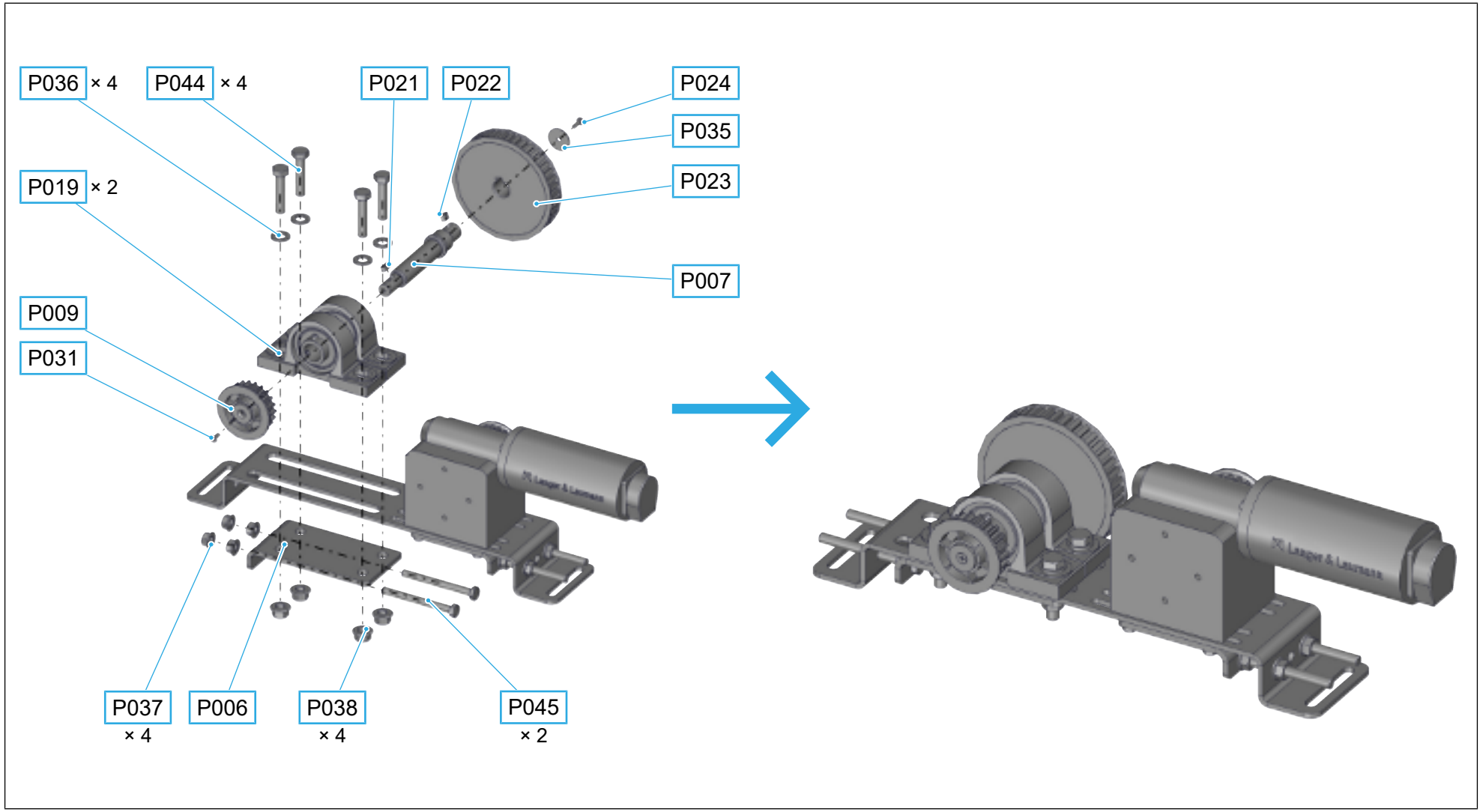
Pos.	Illustration	Item number	Description	Quantity
P010		1.20.60532	L-shaped bracket	1
P016		1.20.60915	Plate, rectangular	1
P019		1.20.85150	Ball bearing, D = 20 mm	2
P021		1.20.96053	Key, rectangular	1
P022		1.20.96055	Key, rectangular	1
P023		1.20.96110	Deflection pulley, D = 18 mm, 8M	1
P024		1.36.00014	Button head screw M4 × 12 mm	1
P027		1.36.00138	Locking screw M6 × 16 mm	4

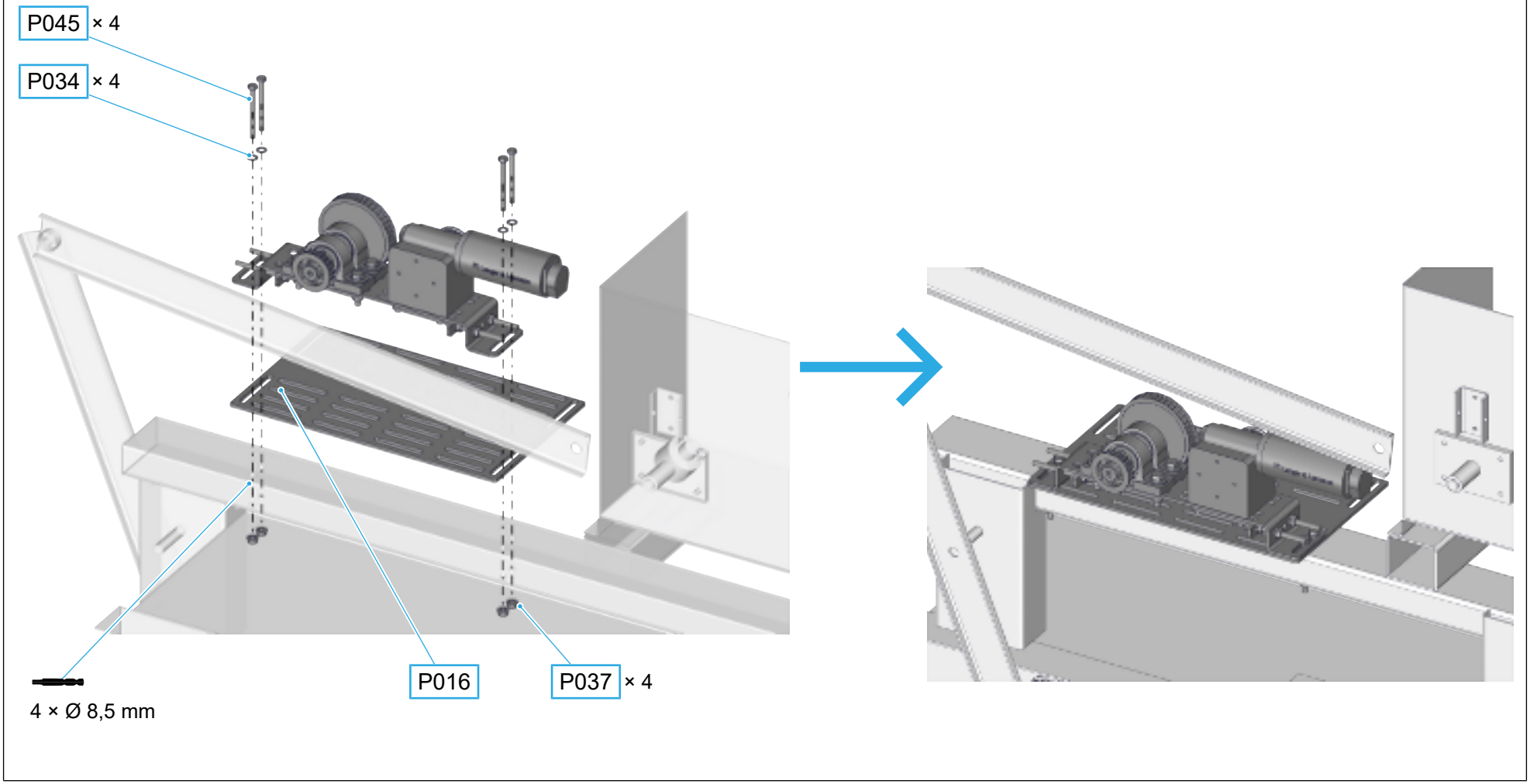
Pos.	Illustration	Item number	Description	Quantity
P031		1.36.00332	Countersunk screw M4 × 10 mm	1
P034		1.36.00440	Washer M8	4
P035		1.36.00451	Washer M4	1
P036		1.36.00470	Washer M10	4
P037		1.36.00501	Nut M8	12
P038		1.36.00503	Nut M10	4
P044		1.36.02112	Hexagon head screw M10 × 45 mm	4
P045		1.36.02125	Hexagon head screw M8 × 80 mm	8

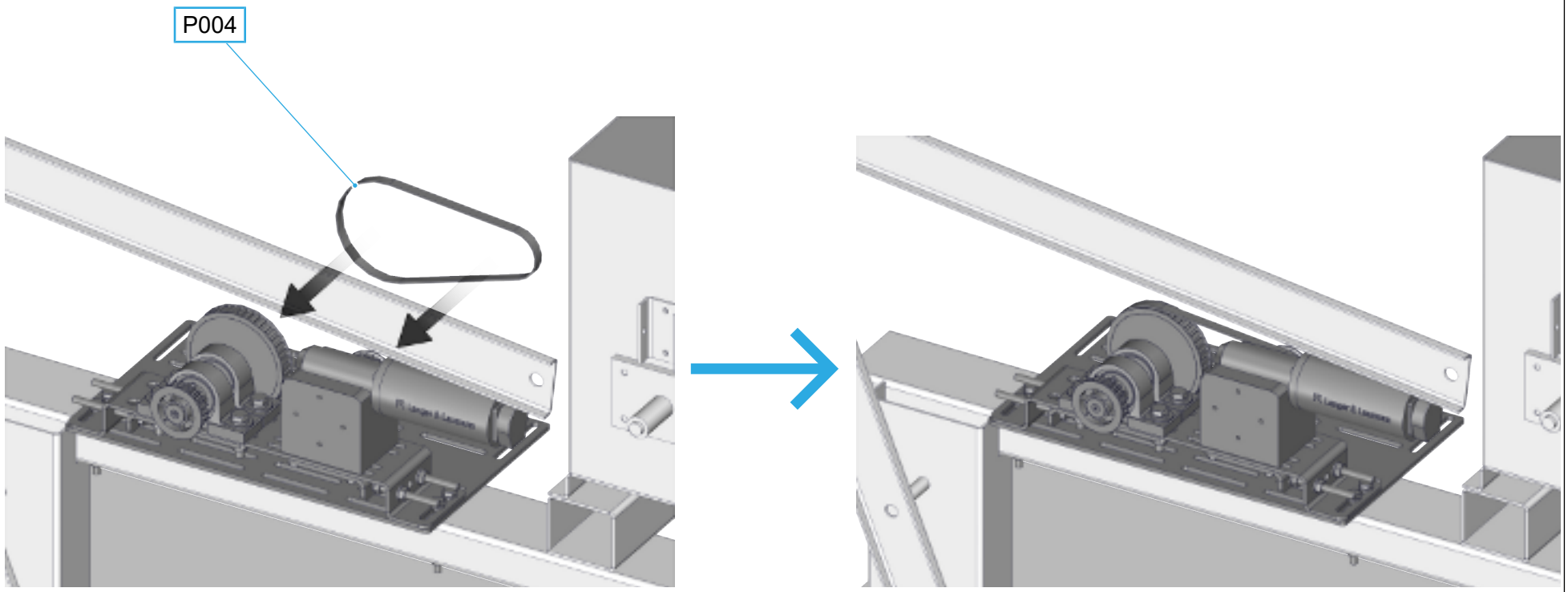
Tools

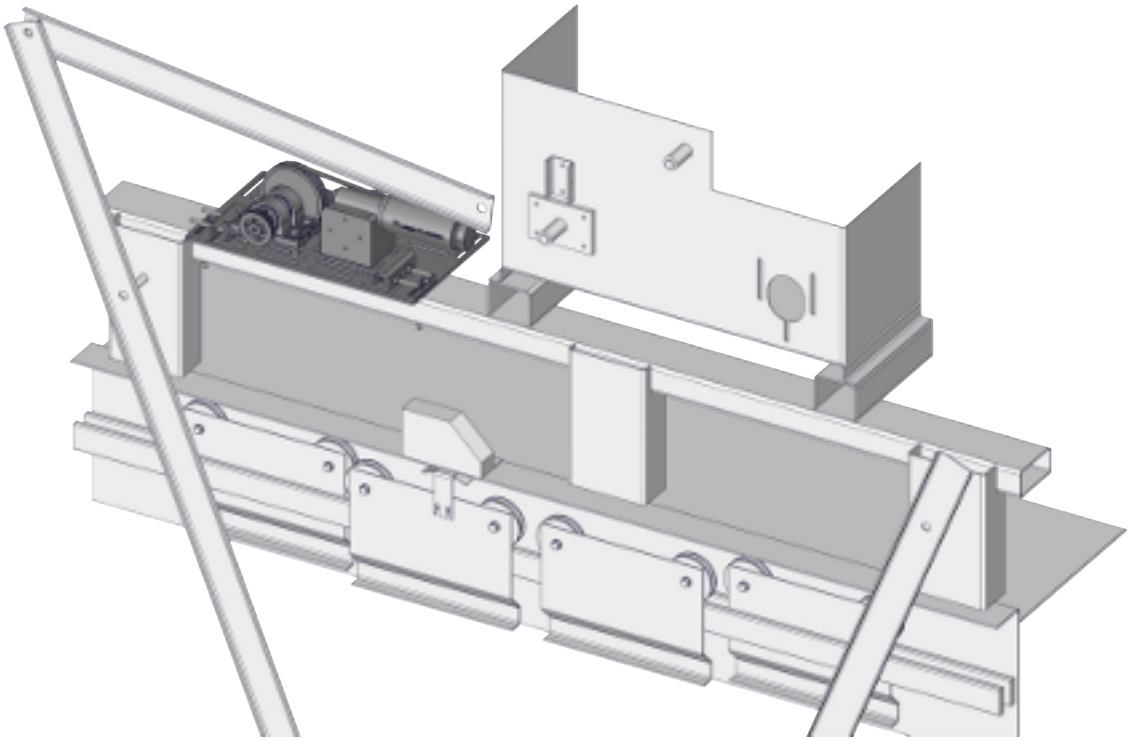
Pos.	Symbol	Description
T010	⊗	Phillips screwdriver
T110	⬣	Combination wrench, size 10
T113	⬣	Combination wrench, size 13
T115	⬣	Combination spanner, size 15
T116	⬣	Combination spanner, size 16


P002
P005
P045 × 2
P010
P027 × 4
P037 × 4


P036 × 4
P044 × 4
P021
P022
P024
P035
P023
P019 × 2
P007
P009
P031
P037 × 4
P006
P038 × 4
P045 × 2


P045 × 4
P034 × 4
P016
P037 × 4
4 × Ø 8,5 mm

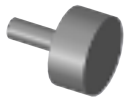
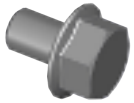

P004



8.2 Mounting the timing belt pulley

Components

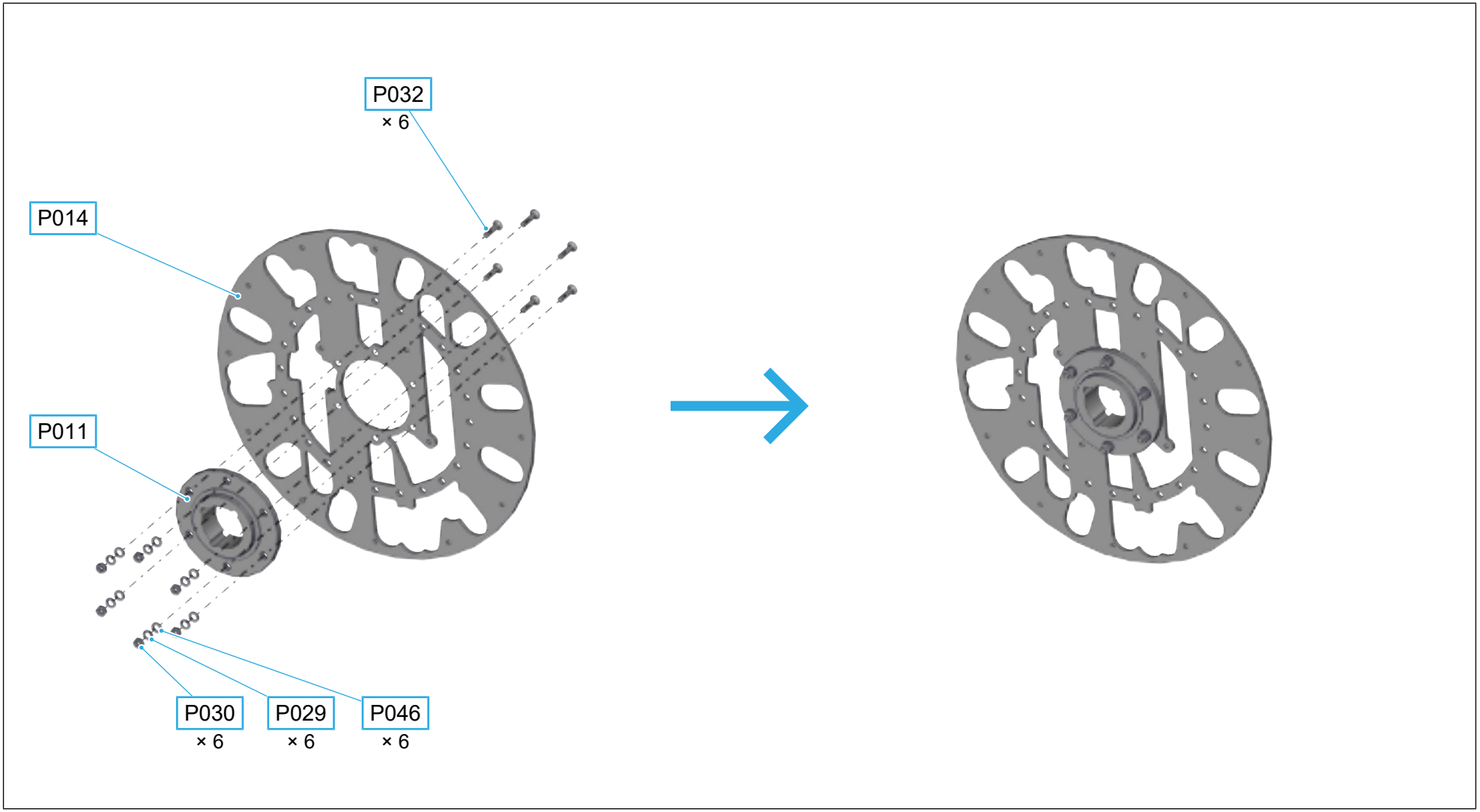
Pos.	Illustration	Item number	Description	Quantity
P011		1.20.60870	Bearing, round	1
P012a		1.20.60873	Clamping bush, round, 1"	1
P012b		1.20.60871	Clamping bush, round, ½" (alternative)	1
P012c		1.20.60872	Clamping bush, round, ¾" (alternative)	1
P013		1.20.60900	Plate, D = 368.3 mm	1
P014		1.20.60901	Plate, D = 348.3 mm	1
P017		1.20.60920	L-shaped bracket	1

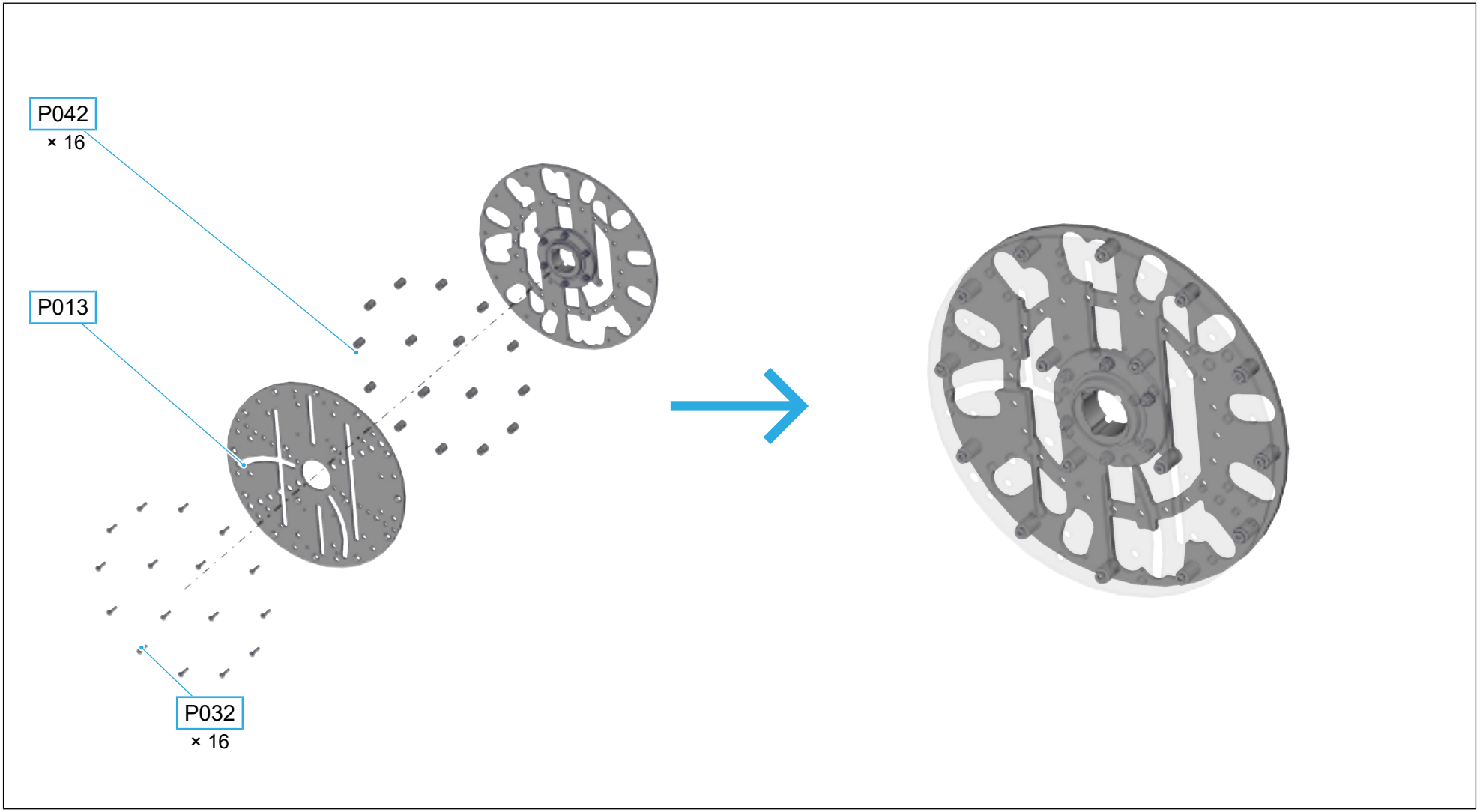
Pos.	Illustration	Item number	Description	Quantity
P018		1.20.60921	L-shaped bracket	1
P020		1.20.91120	Bumper D = 30 mm, round	2
P025		1.36.00106	Hexagon head screw M10 × 16 mm	2
P028		1.36.00140	Locking screw M8 × 12 mm	4
P029		1.36.00171	Spring washer M6	6
P032		1.36.00366	Countersunk screw M6 × 25 mm	22
P033		1.36.00430	Nut M8	2
P042		1.36.00881	Sleeve, D = 15 mm	16

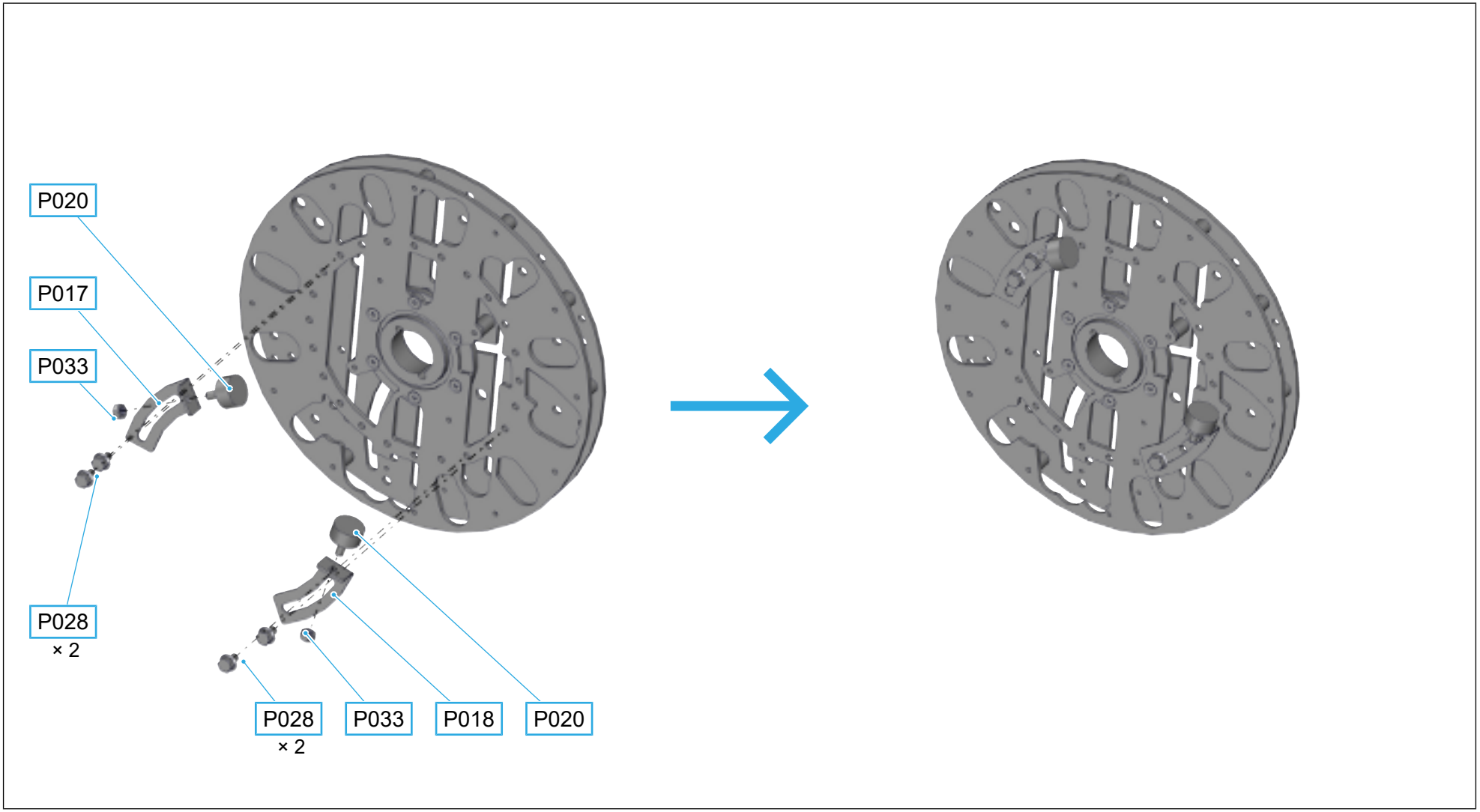
Pos.	Illustration	Item number	Description	Quantity
P043		1.36.01030	Washer M10	2
P046		1.36.05611	Washer M6	6

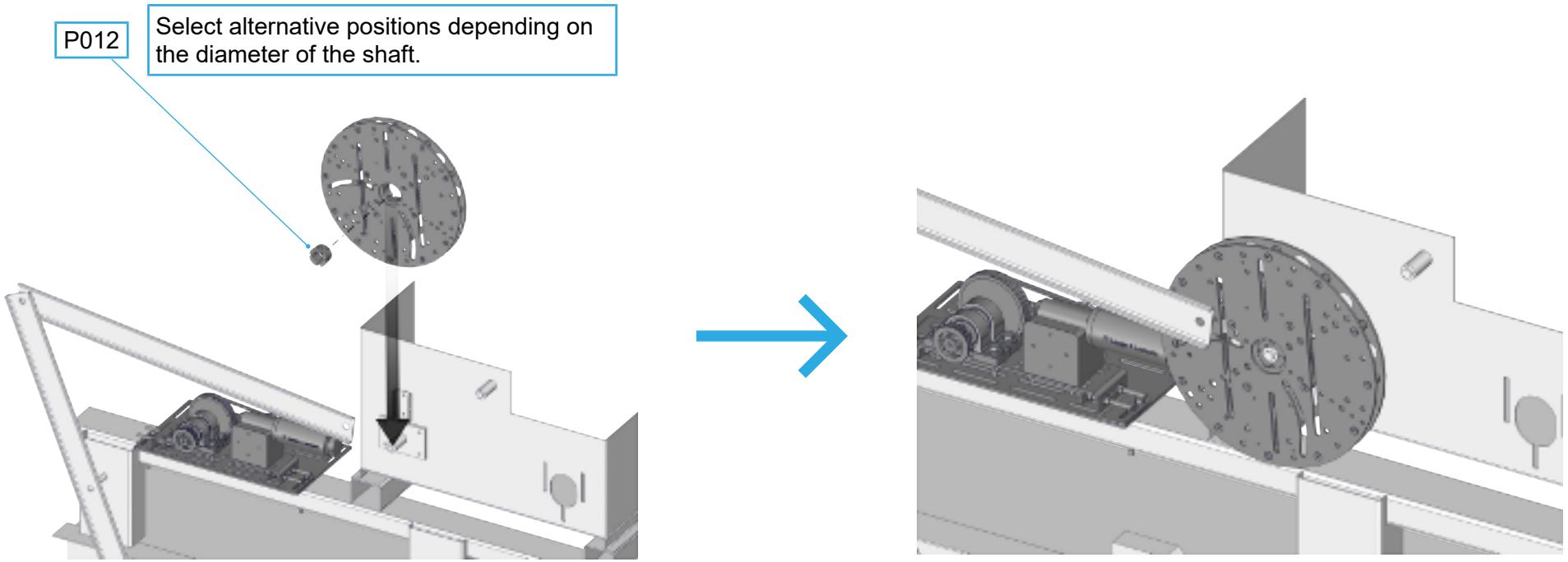
Tools

Pos.	Symbol	Description
T002		Hammer
T004		Pipe wrench
T009		Slotted screwdriver
T011		Hook spanner
T110		Combination wrench, size 10
T113		Combination wrench, size 13
T116		Combination spanner, size 16
T204.0		Allen key, size 4
T2xx.x		Allen keys, as needed

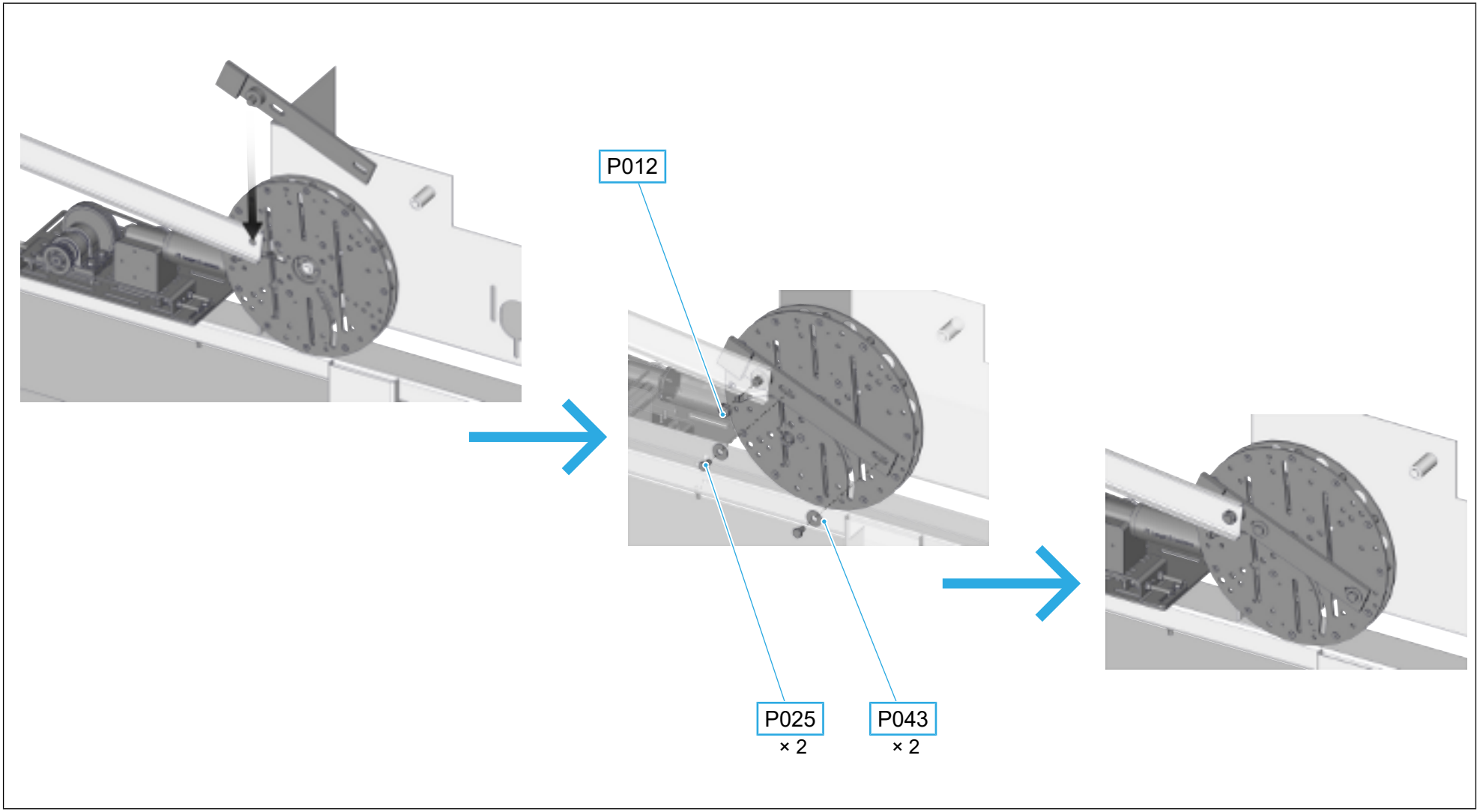

P032
× 6
P014
P011
P030
× 6
P029
× 6
P046
× 6

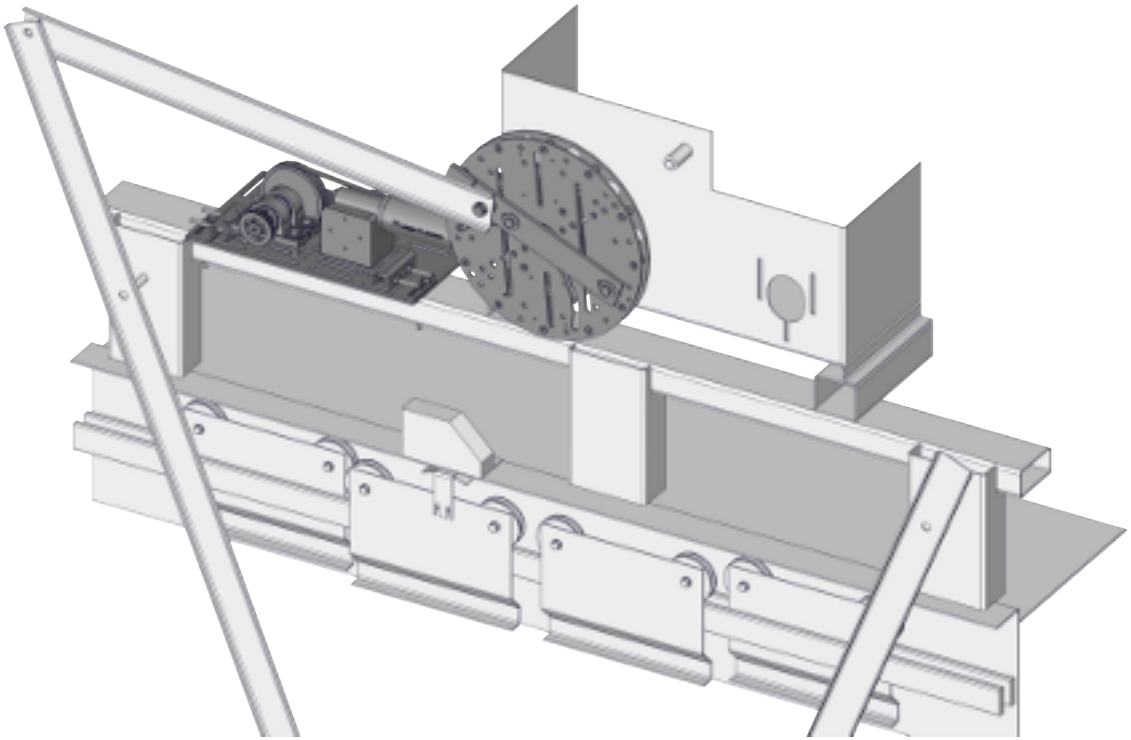

P042
× 16
P013
P032
× 16


P020
P017
P033
P028
× 2
P028
× 2
P033
P018
P020



Observe the manufacturer's enclosed installation instructions when installing the clamping bush.


P012
P025
× 2
P043
× 2



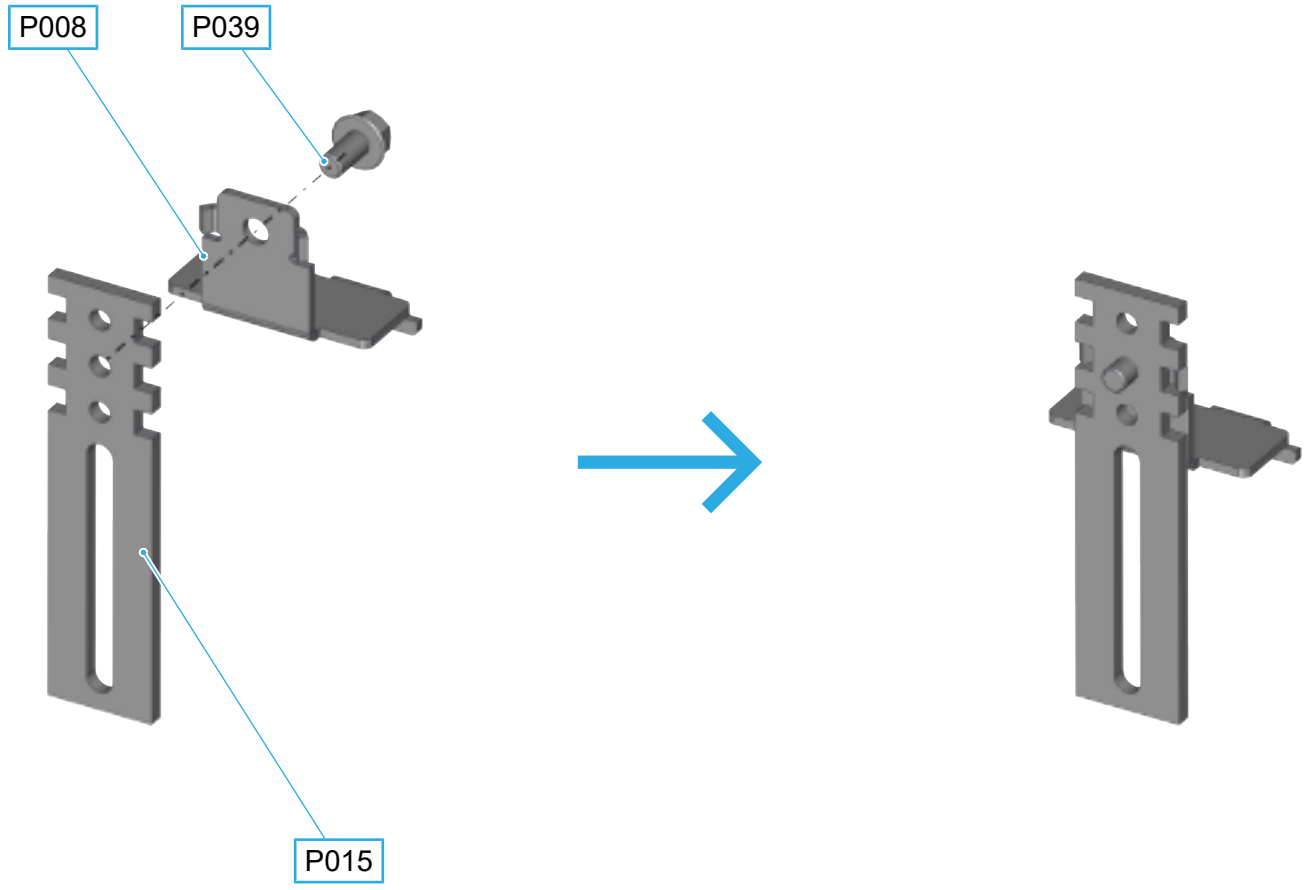
8.3 Mounting the timing belt lock and the timing belt

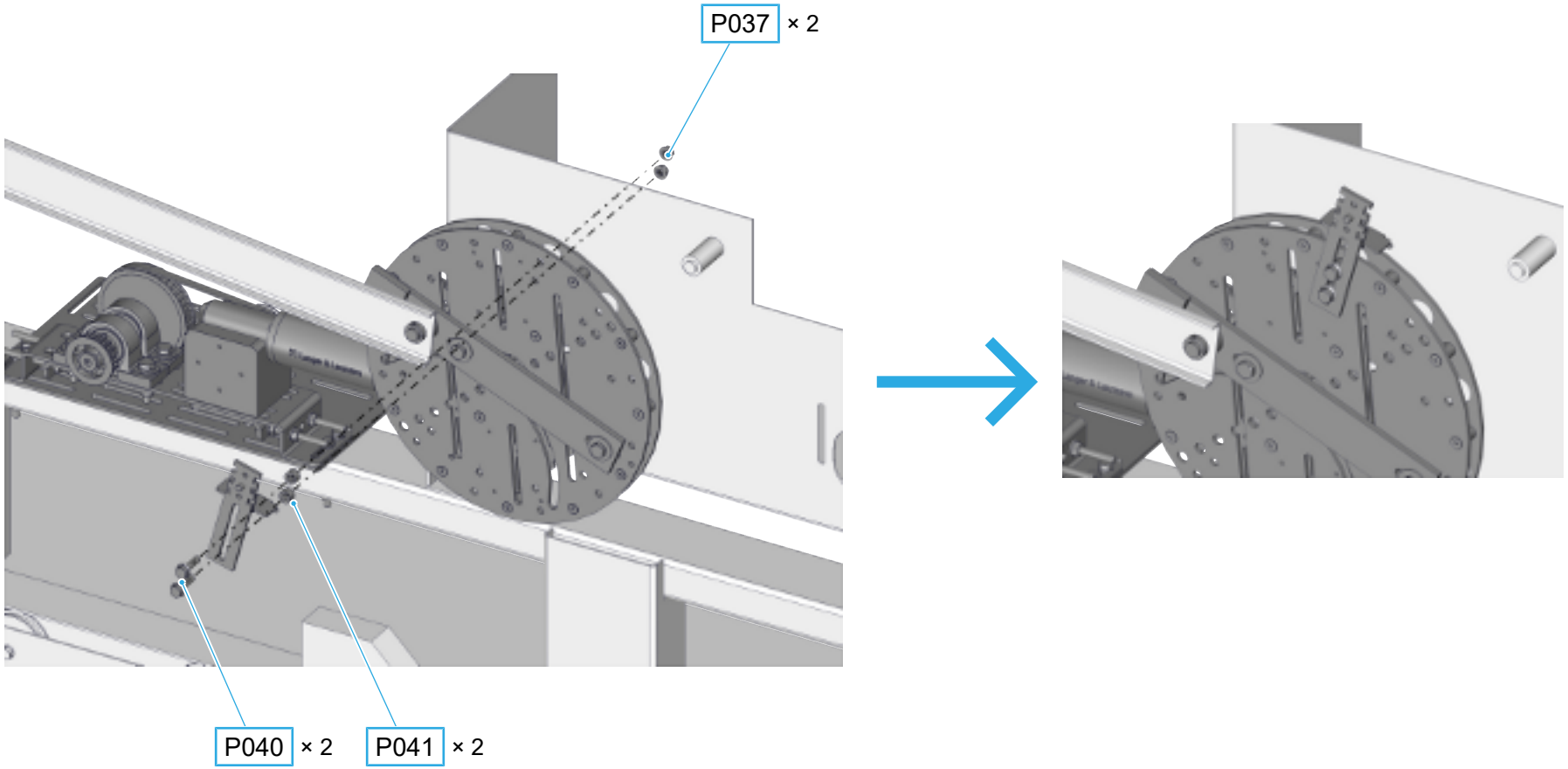
Components

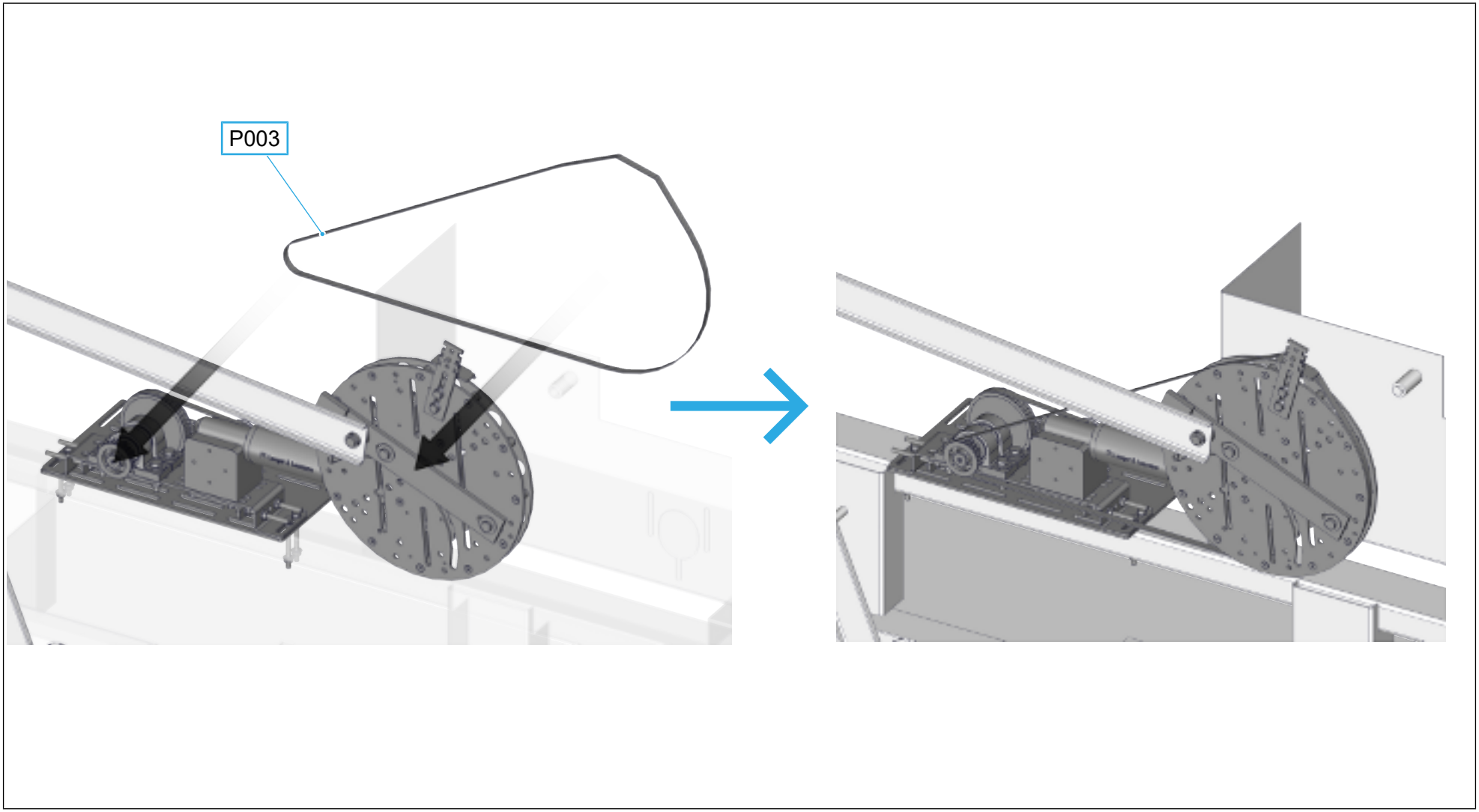
Pos.	Illustration	Item number	Description	Quantity
P003		x.20.xxxxx.xx	Timing belt 8M	1
P008		1.20.60007	Timing belt lock	1
P015		1.20.60905	Plate, rectangular	1
P037		1.36.00501	Nut M8	2
P039		1.36.00710	Locking screw M8 × 16 mm	1
P040		1.36.00730	Locking screw M8 × 30 mm	2
P041		1.36.00870	Spacer M8 × 10 mm	2

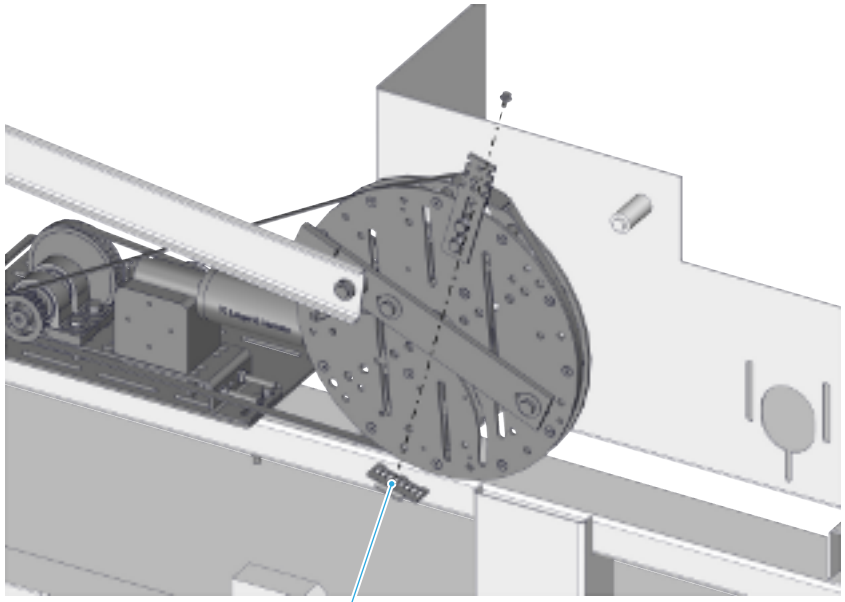
Tools

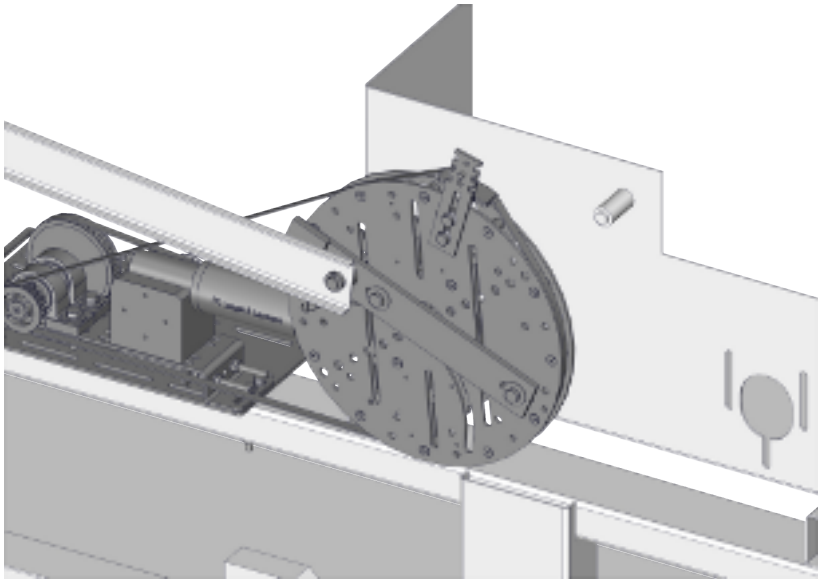
Pos.	Symbol	Description
T110	⬢	Combination wrench, size 10
T113	⬢	Combination wrench, size 13

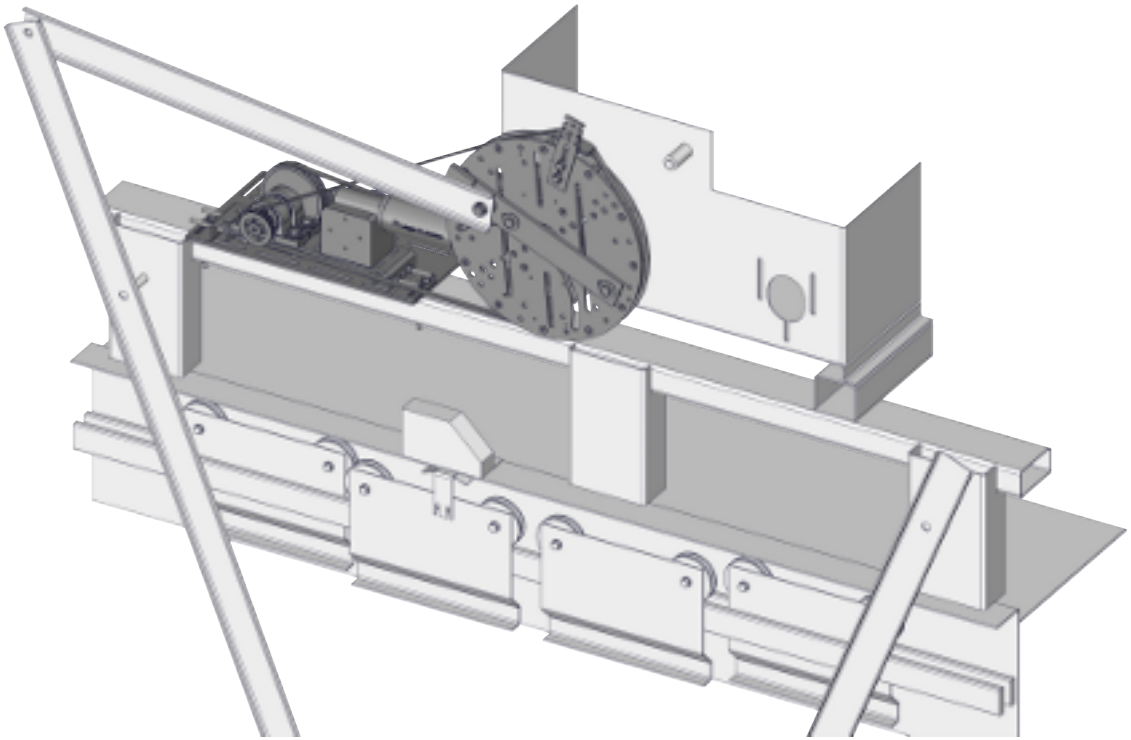



P037 × 2
P040 × 2
P041 × 2


P003


P008

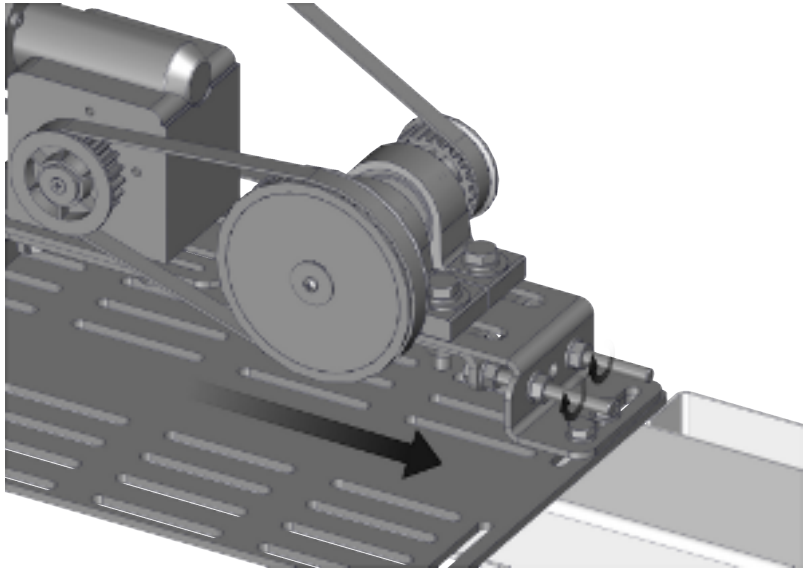


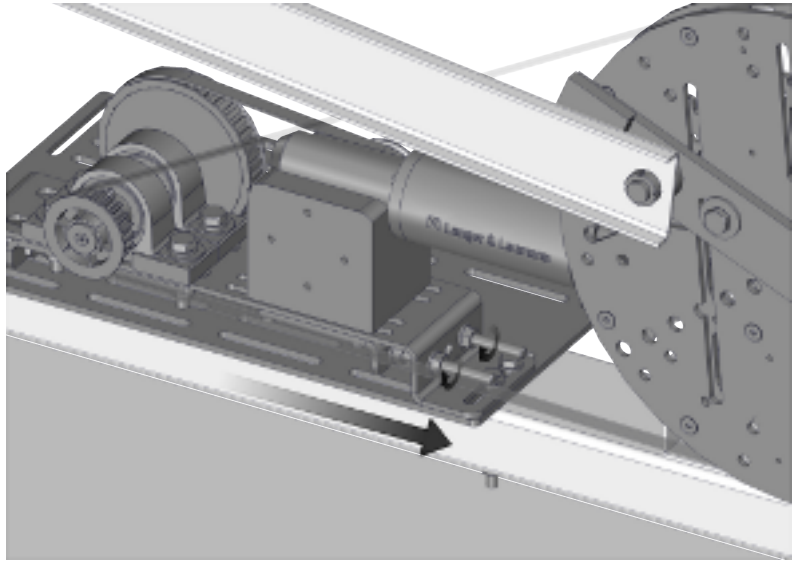


8.4 Tightening the timing belt

Tools

Pos.	Symbol	Description
T113	⬣	Combination wrench, size 13

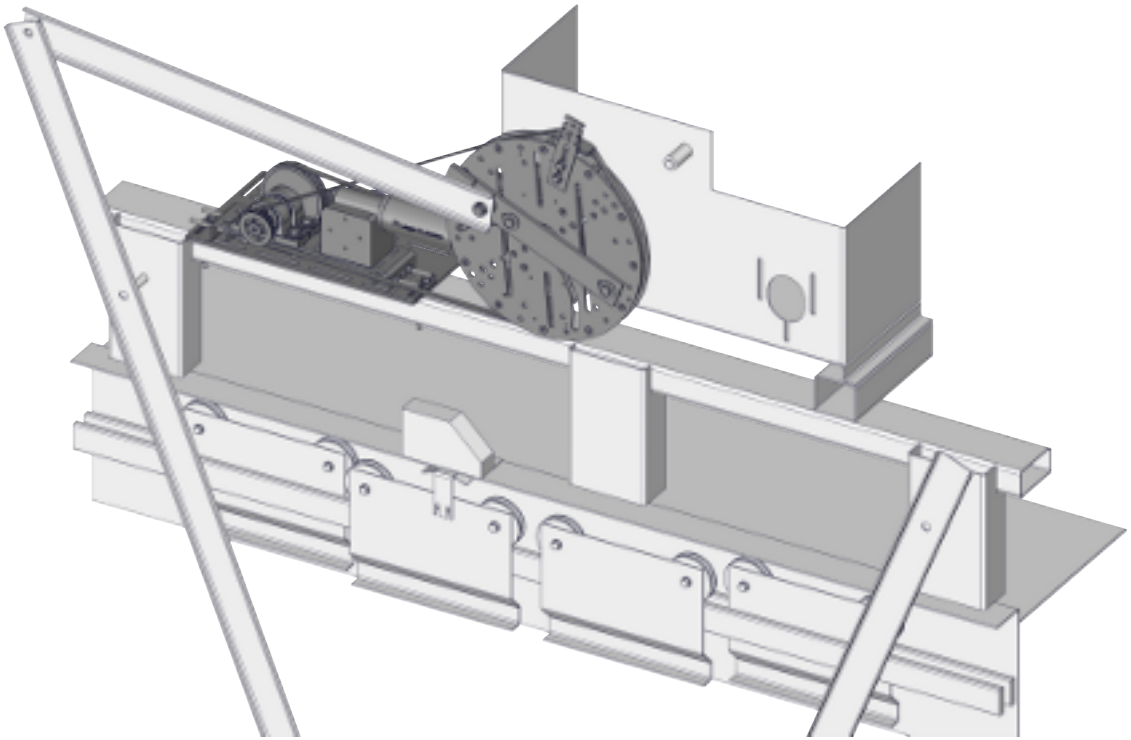




Observe the sequence when tensioning the timing belts.

1. Tension the endless timing belt at the rear.

2. Tension the timing belt to the drive wheel at the front.



9 Fitting, connecting and commissioning the door control unit

Fitting, connecting and commissioning the door control unit are described in detail in the **assembly instructions** supplied with the door control unit.

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