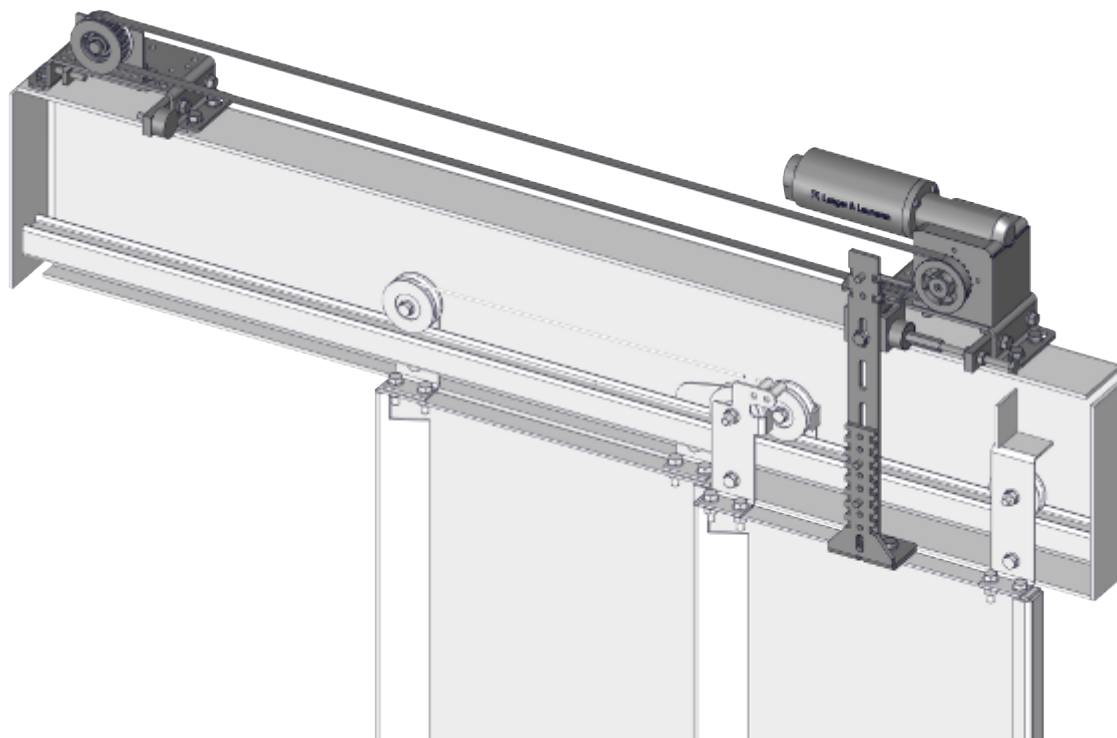




Conversion Instructions
Rathgeber wire rope
to TSG V4

Shows **TL**. **ZT** like **TL**, **TR** mirror image.

Imprint

Manufacturer	Langer & Laumann Ing.-Büro GmbH
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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:

- Rathgeber wire rope to 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Using an outdated version of this and any required and supplementary documentation can lead to incorrect assembly.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 by Langer & 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.

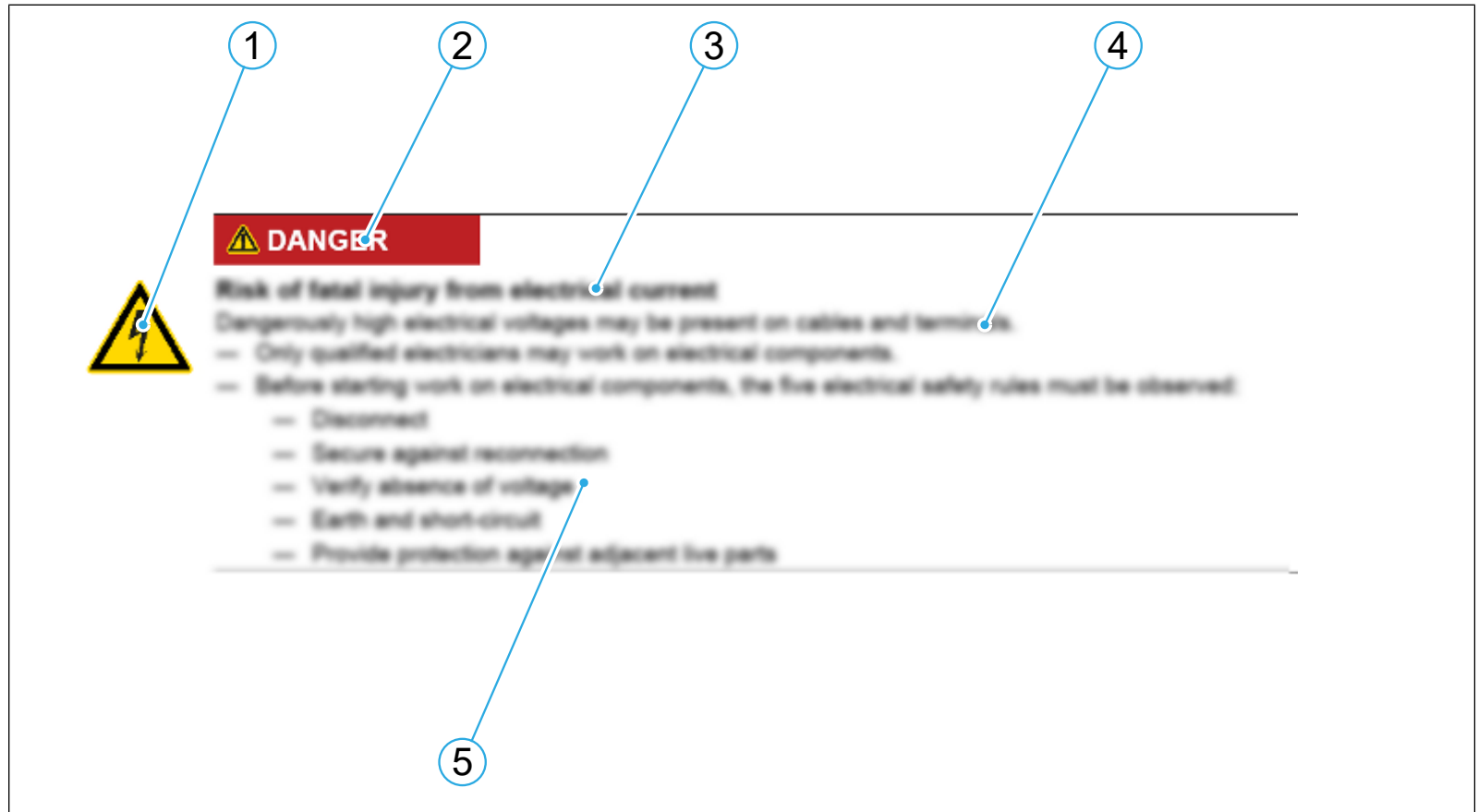
Symbol	Meaning
	Protective clothing must be worn to protect against hazards in the workplace.
	Non-slip safety footwear must be worn to prevent injuries to feet.
	Cut resistant and puncture resistant protective gloves must be worn to prevent hand injuries.
	Hard hats must be worn to prevent head injuries.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

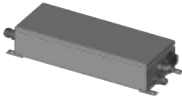
The following hazard symbols are used in this document:

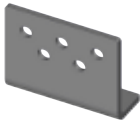
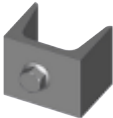
Symbol	Designation
	Automatic start-up
	Electrical hazard

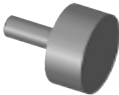
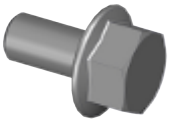
Table 3: Meaning of hazard symbols

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	Timing belt 8M	1
P004		1.20.60003	Deflection pulley D = 56 mm, 8M	1
P005		1.20.60004	Rectangular plate	1
P006		1.20.60005	Timing belt lock, L-shaped	1
P007		1.20.60013	L-shaped bracket	1
P008		1.20.60020	U-shaped bracket	1
P009		1.20.60037	Rectangular plate	2
P010		1.20.60060	Motor bracket, hat shaped	2

Pos.	Illustration	Item number	Description	Quantity
P011		1.20.60110	L-shaped bracket	1
P012		1.20.91120	Bumper D = 30 mm, round	2
P013		1.20.92020	L-shaped bracket	1
P014		1.36.00115	Hexagon head screw M8 x 40 mm	2
P015		1.36.00121	Spacer M8 x 40 mm	1
P016		1.36.00135	Locking screw M6 x 12 mm	5
P017		1.36.00169	Spring washer M8	1
P018		1.36.00177	Hexagon head screw M8 x 100 mm	1

Pos.	Illustration	Item number	Description	Quantity
P019		1.36.00430	Nut M8	2
P020		1.36.00501	Nut M8	11
P021		1.36.00710	Locking screw M8 × 16 mm	1
P022		1.36.00720	Locking screw M8 × 20 mm	19
P023		1.36.01035	Washer M8	1

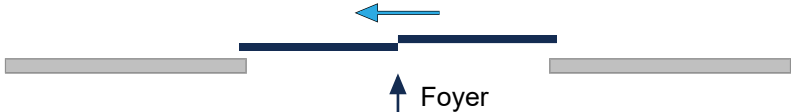
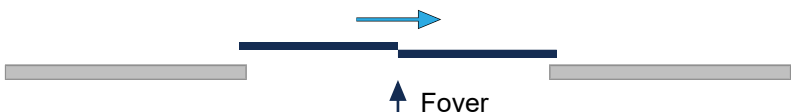
4 Required tools

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
T006		Circlip pliers
T007		Angle grinder
T008		Measuring tool (folding rule or measuring tape)
T009		Slotted screwdriver
T010		Phillips screwdriver
T110		Combination wrench, size 10
T111		Combination spanner, SW 11
T113		Combination wrench, size 13
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



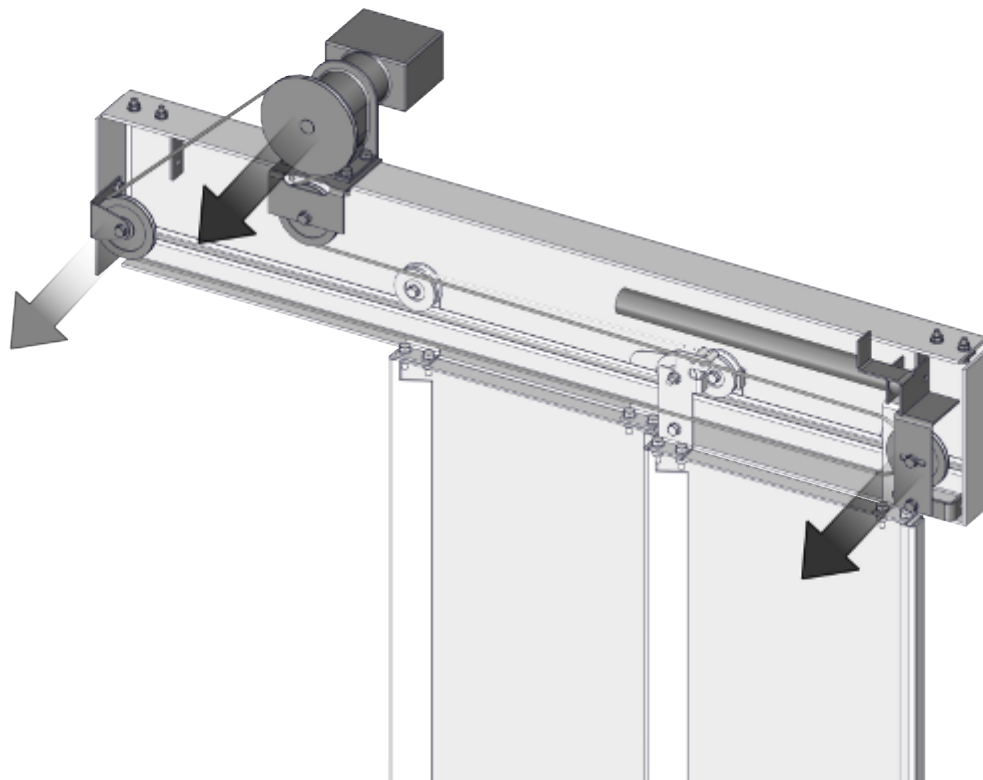
Risk of fatal injury from electrical current

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

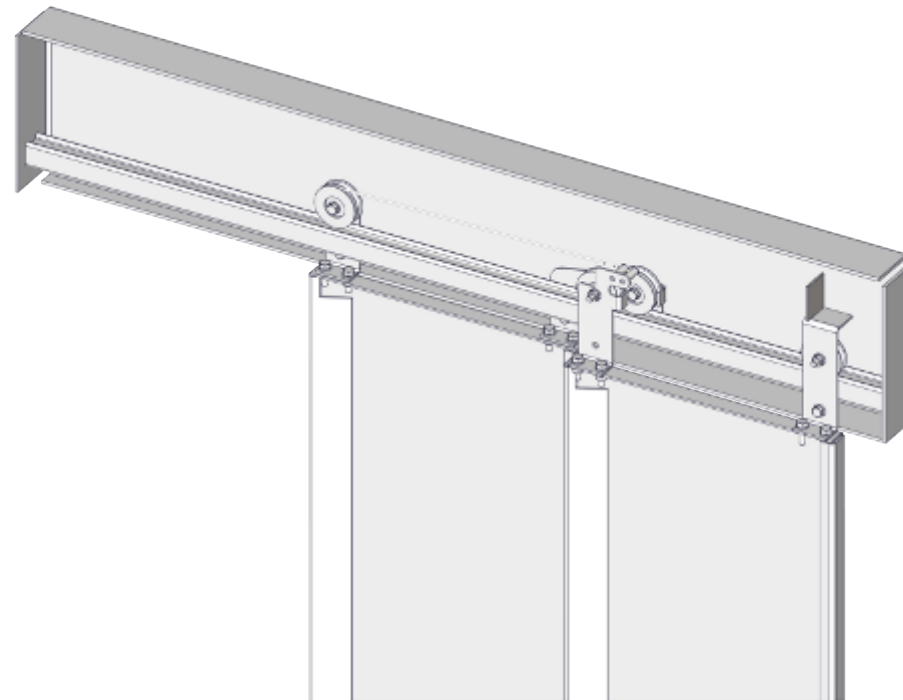
- Only qualified electricians may work on electrical components.
- Before starting work on electrical components, the five electrical safety rules must be observed:
 - Disconnect
 - Secure against reconnection
 - Verify absence of voltage
 - Earth and short-circuit
 - Provide protection against adjacent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

Tools

Pos.	Symbol	Description
T002		Hammer
T003		Puller for bearings and pinions
T004		Pipe wrench
T005		Side cutters
T006		Circlip pliers
T007		Angle grinder
T1xx		Combination spanners, as needed



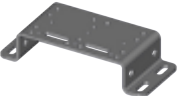
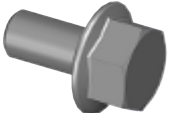
Shows the components to be dismantled for opening direction TL.



7 Assembly

7.1 Mounting the motor and motor bracket on the door frame

Components

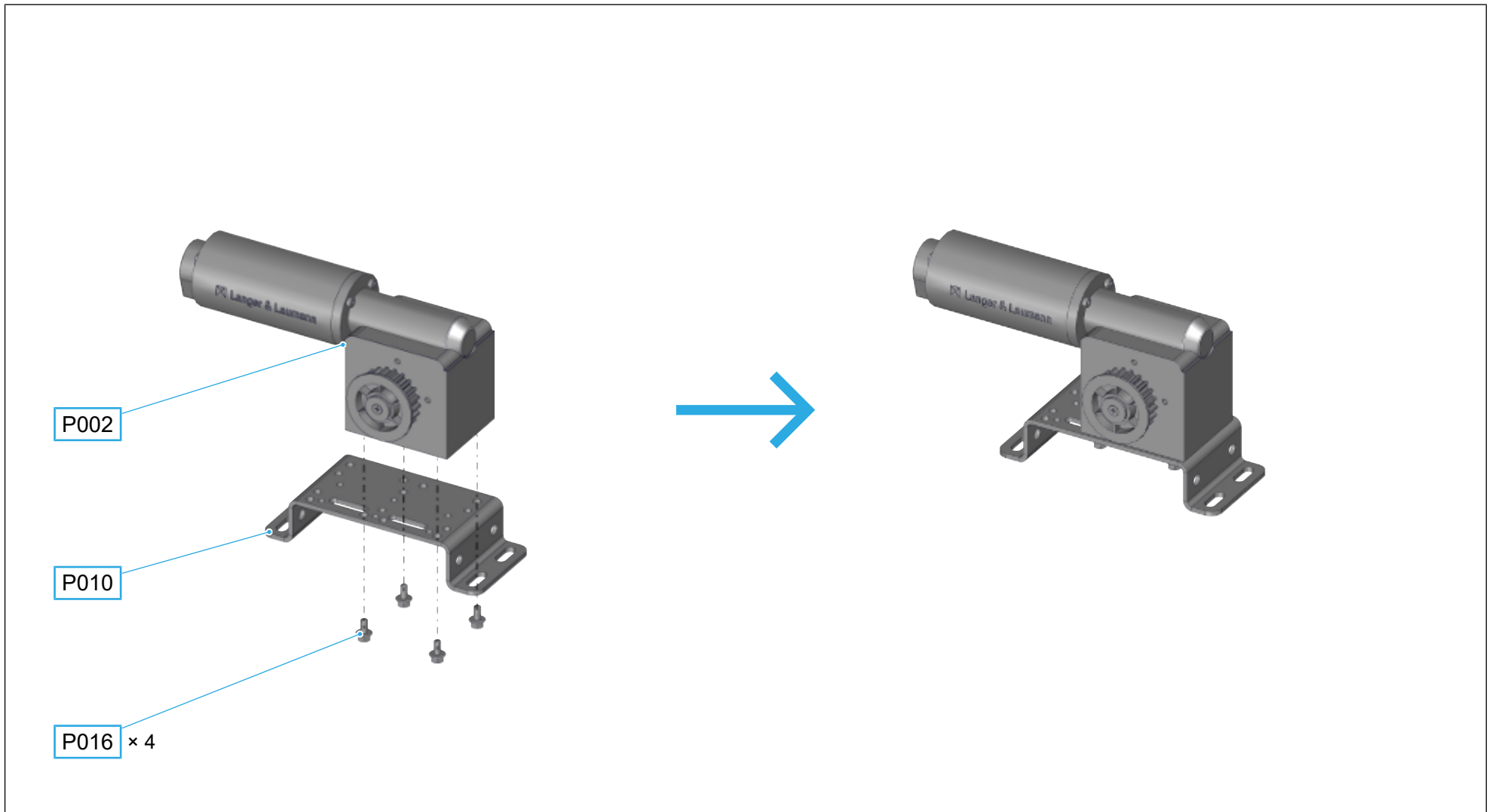
Pos.	Illustration	Item number	Description	Quantity
P002		8.20.400xx.xx	TSG Motor	1
P009		1.20.60037	Rectangular plate	1
P010		1.20.60060	Motor bracket, hat shaped	1
P012		1.20.91120	Bumper D = 30 mm, round	1
P015		1.36.00121	Spacer M8 x 40 mm	1
P016		1.36.00135	Locking screw M6 x 12 mm	4

Pos.	Illustration	Item number	Description	Quantity
P018		1.36.00177	Hexagon head screw M8 × 100 mm	1
P019		1.36.00430	Nut M8	2
P020		1.36.00501	Nut M8	4
P022		1.36.00720	Locking screw M8 × 20 mm	6

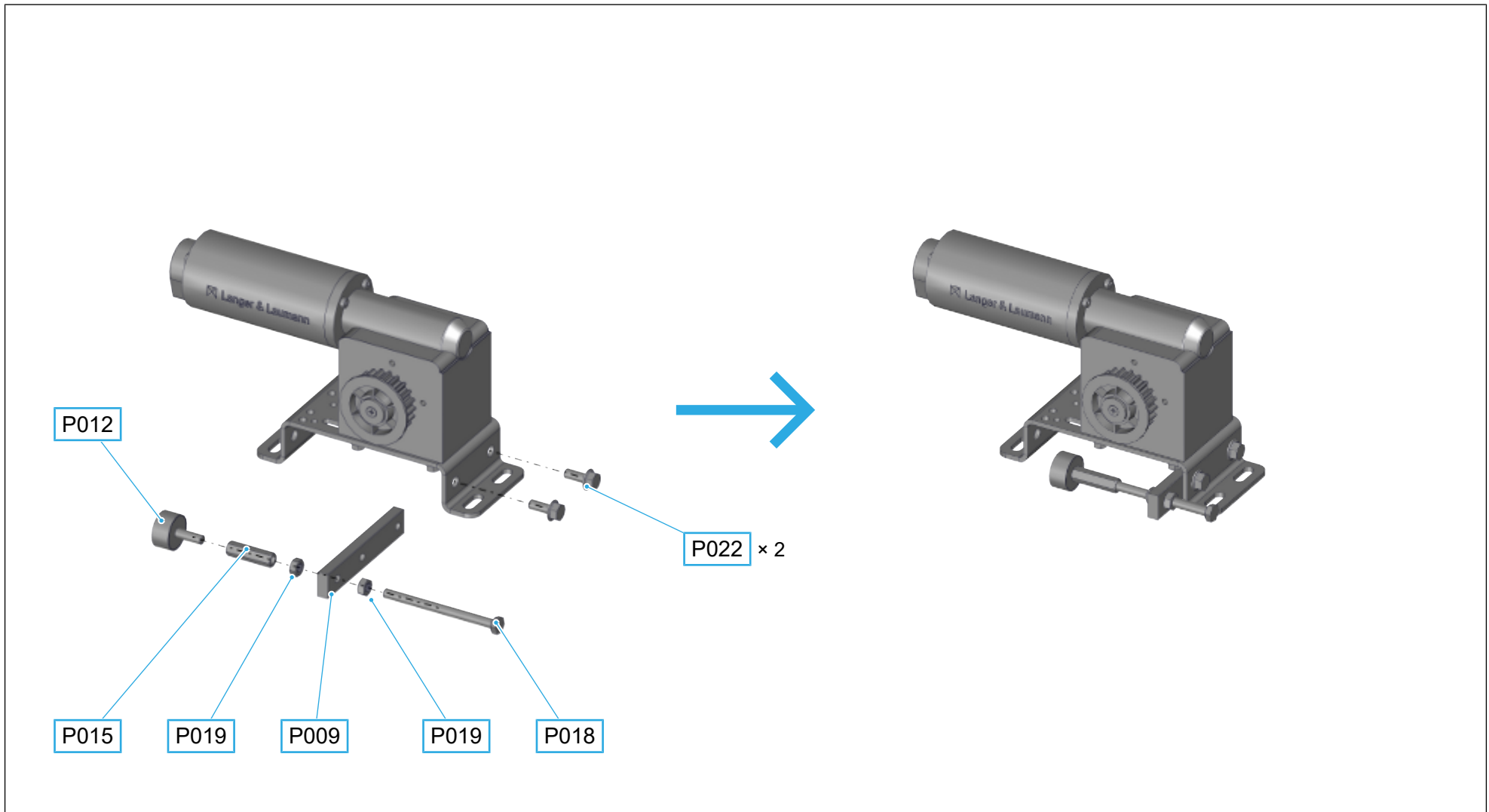
Tools

Pos.	Symbol	Description
T110		Combination wrench, size 10
T111		Combination spanner, SW 11
T113		Combination wrench, size 13
T608.5		Drill bit, Ø 8.5 mm

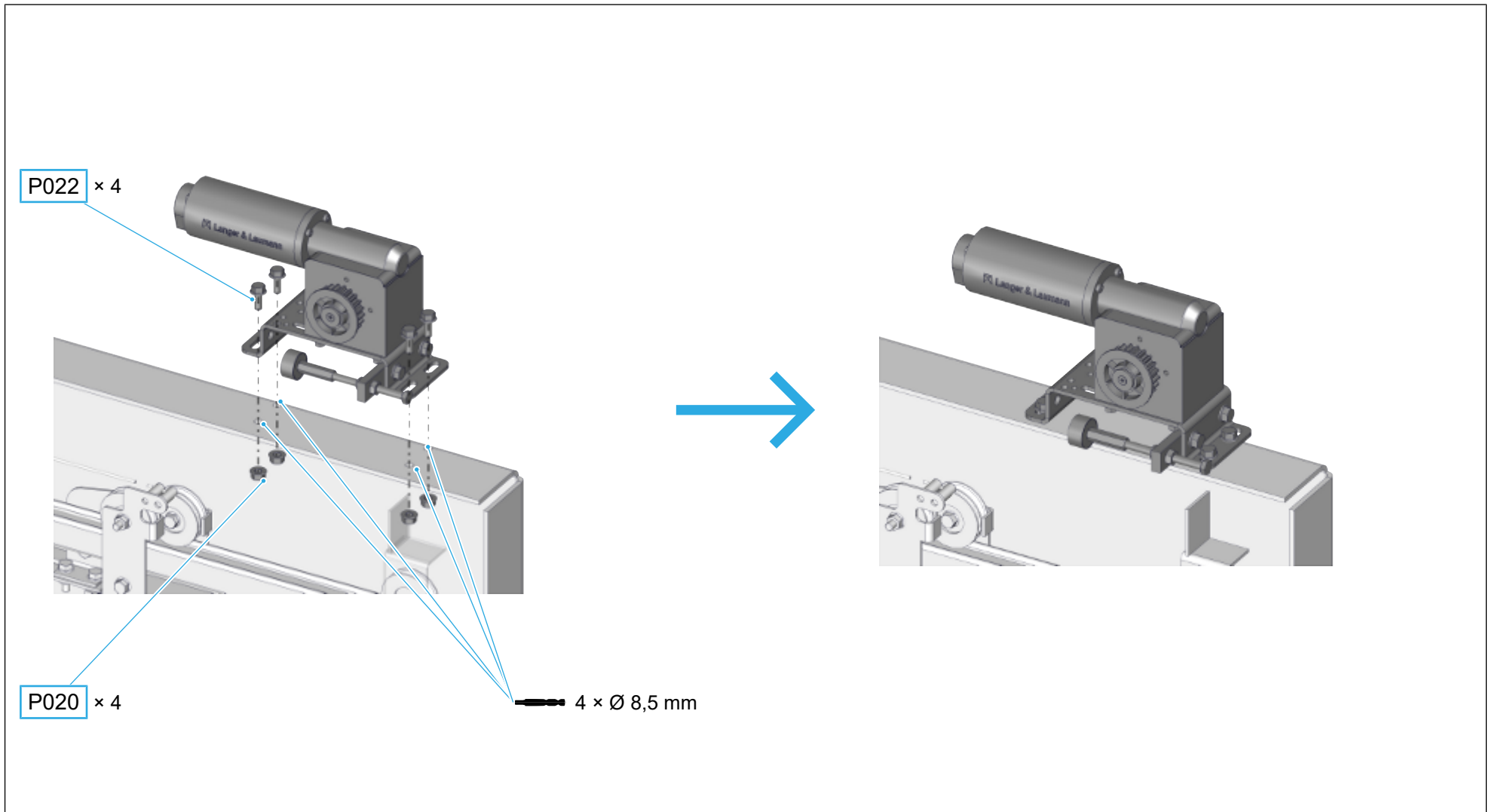
7.1.1 Mounting the motor on the motor bracket



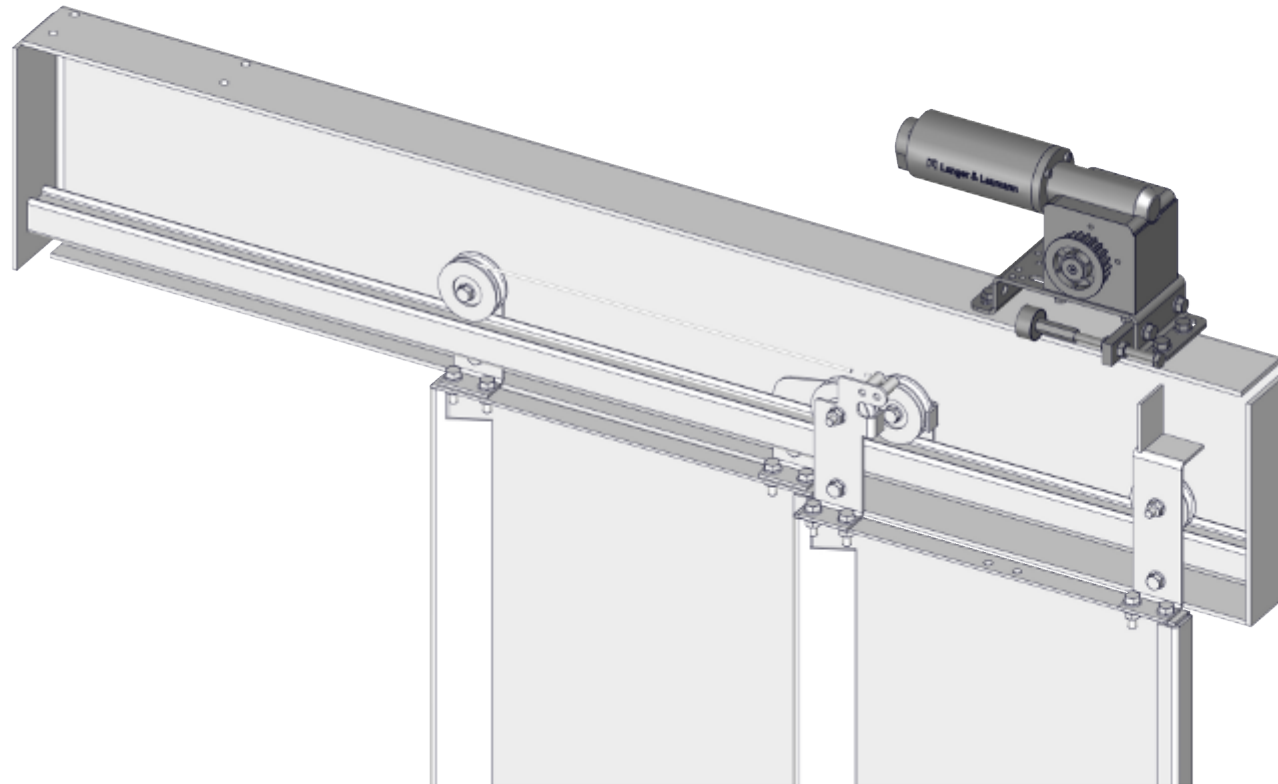
7.1.2 Mounting the buffer and bracket on the motor with motor bracket



7.1.3 Mounting the motor with motor bracket on the buffer

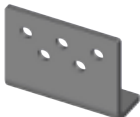
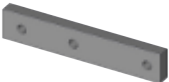


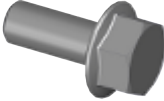
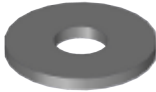
7.1.4 Motor and motor bracket mounted on the door frame



7.2 Mounting the deflection pulley and bracket on the door frame

Components

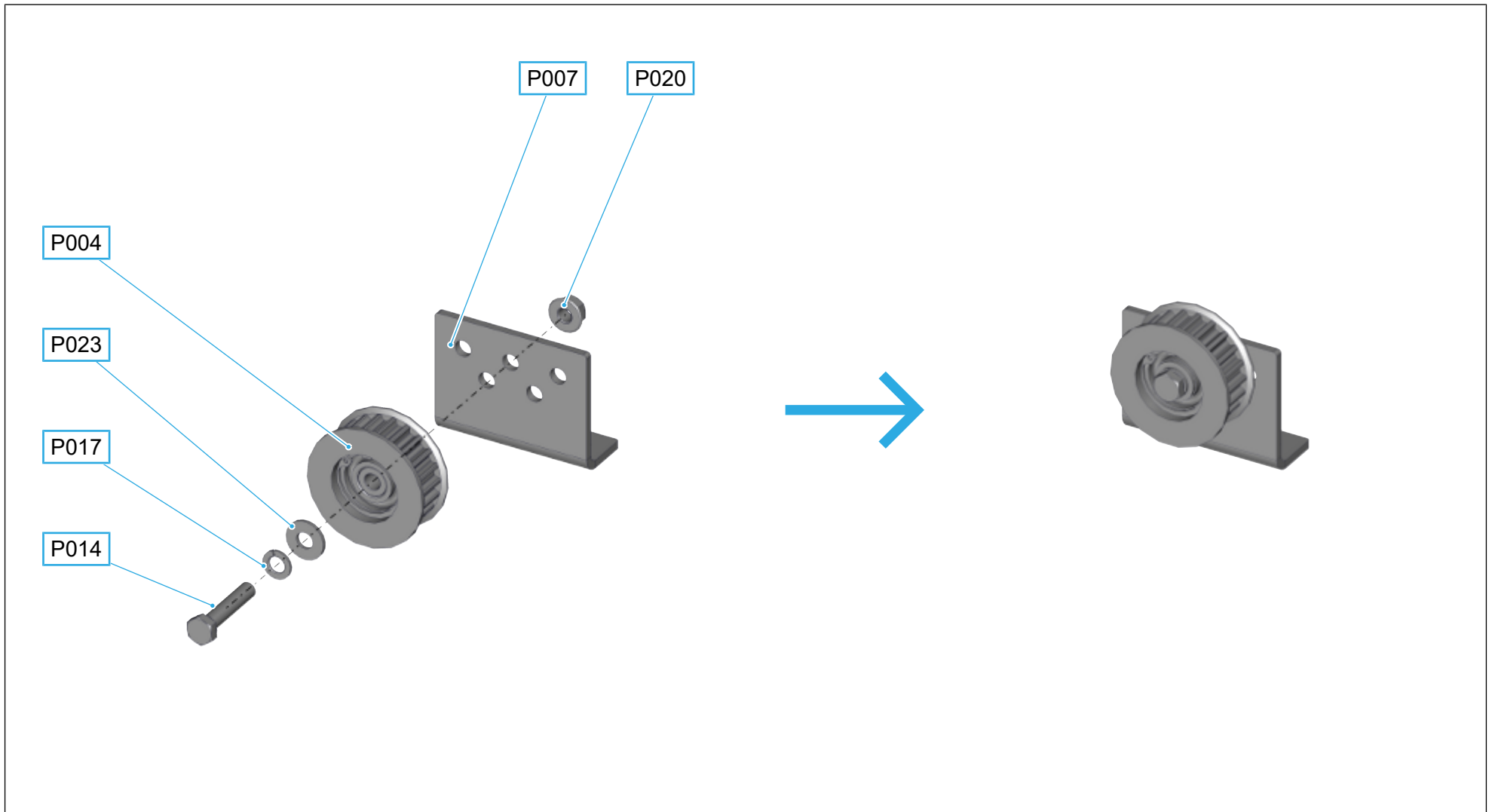
Pos.	Illustration	Item number	Description	Quantity
P004		1.20.60003	Deflection pulley D = 56 mm, 8M	1
P007		1.20.60013	L-shaped bracket	1
P009		1.20.60037	Rectangular plate	1
P010		1.20.60060	Motor bracket, hat shaped	1
P011		1.20.60110	L-shaped bracket	1
P012		1.20.91120	Bumper D = 30 mm, round	1
P014		1.36.00115	Hexagon head screw M8 × 40 mm	2

Pos.	Illustration	Item number	Description	Quantity
P017		1.36.00169	Spring washer M8	1
P020		1.36.00501	Nut M8	5
P022		1.36.00720	Locking screw M8 × 20 mm	8
P023		1.36.01035	Washer M8	1

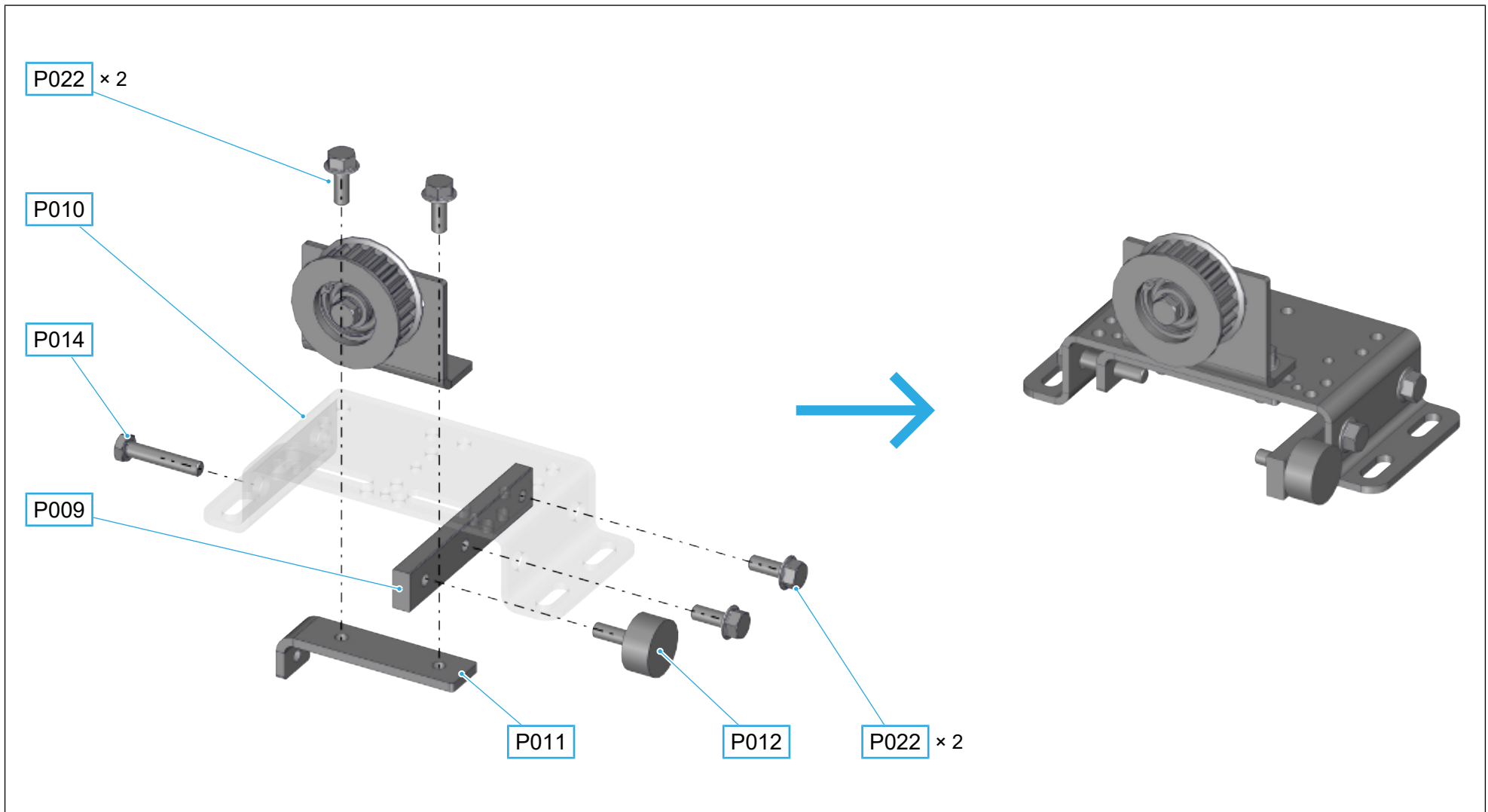
Tools

Pos.	Symbol	Description
T113		Combination wrench, size 13
T608.5		Drill bit, Ø 8.5 mm

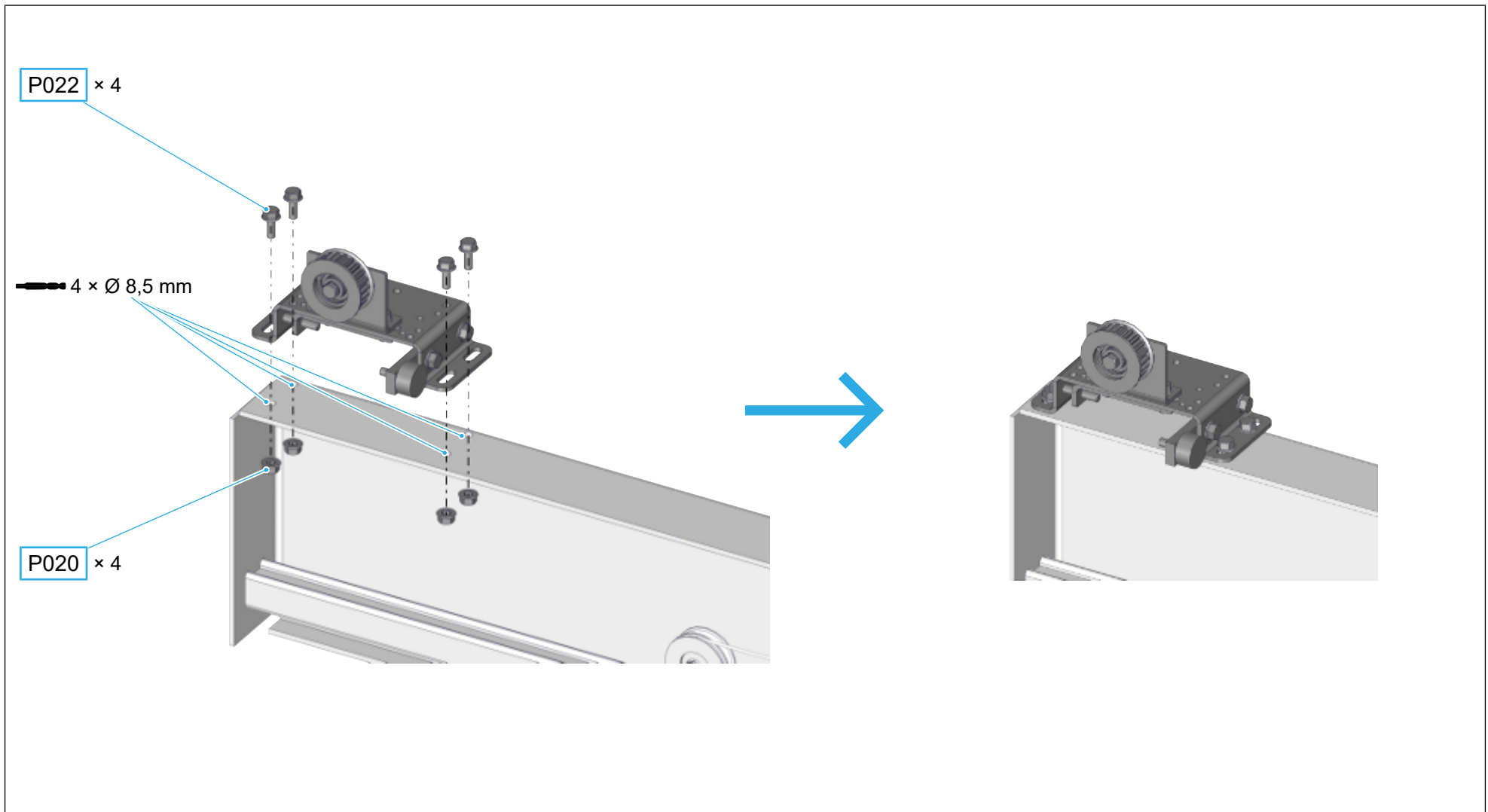
7.2.1 Mounting the deflection pulley on the bracket



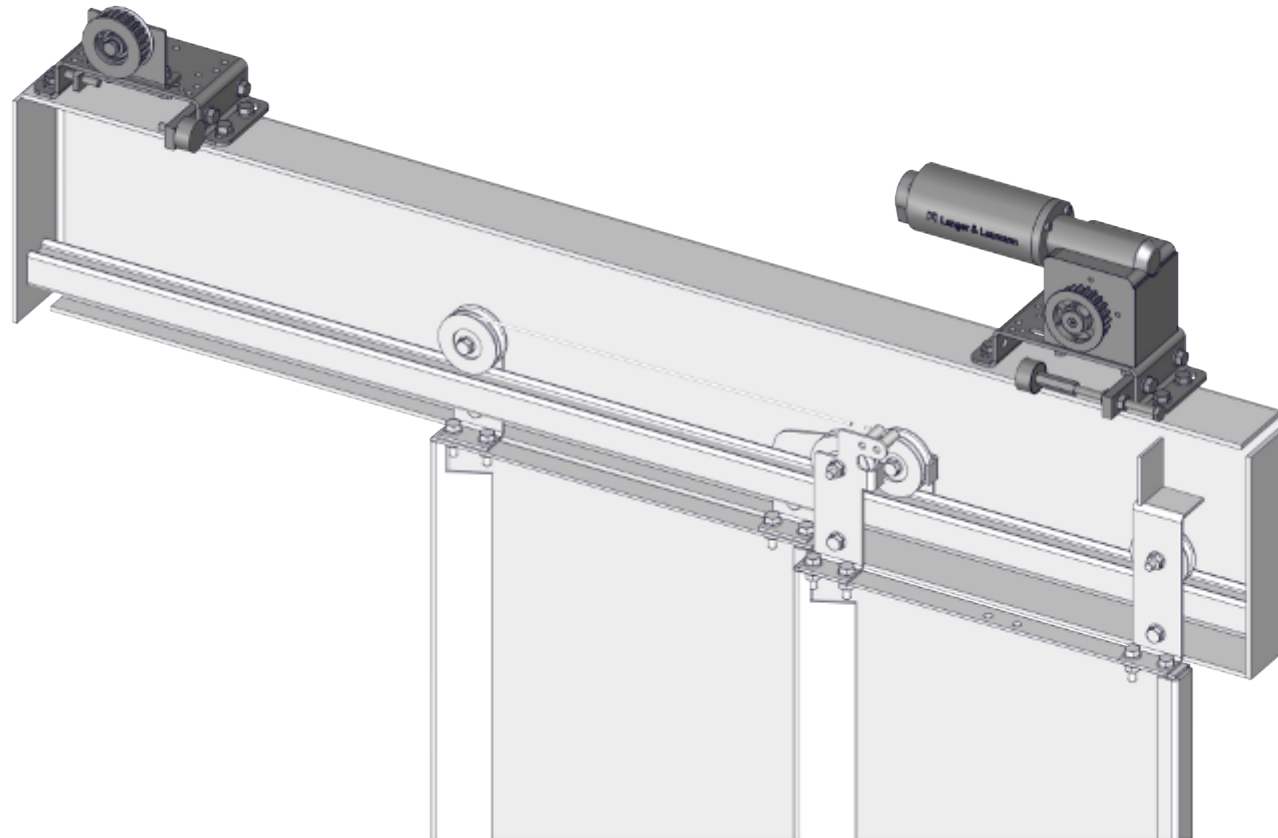
7.2.2 Mounting the deflection pulley with bracket and buffer with bracket on the motor bracket



7.2.3 Mounting the deflection pulley with bracket and buffer on the door frame

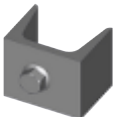


7.2.4 Deflection pulley and bracket mounted on the door frame



7.3 Mounting the door panel coupler on the door panel

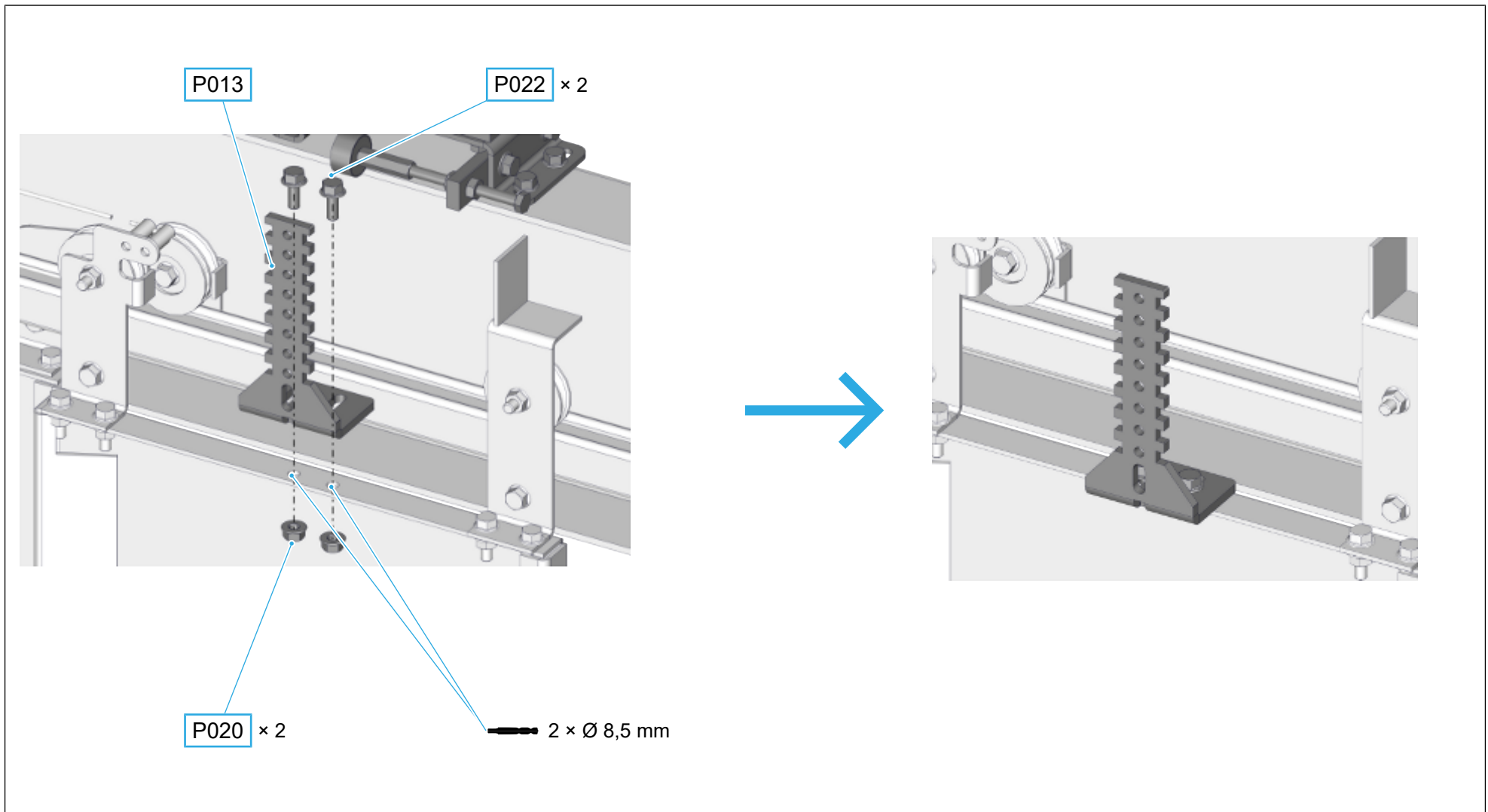
Components

Pos.	Illustration	Item number	Description	Quantity
P005		1.20.60004	Rectangular plate	1
P008		1.20.60020	U-shaped bracket	1
P013		1.20.92020	L-shaped bracket	1
P020		1.36.00501	Nut M8	2
P021		1.36.00710	Locking screw M8 × 16 mm	1
P022		1.36.00720	Locking screw M8 × 20 mm	4

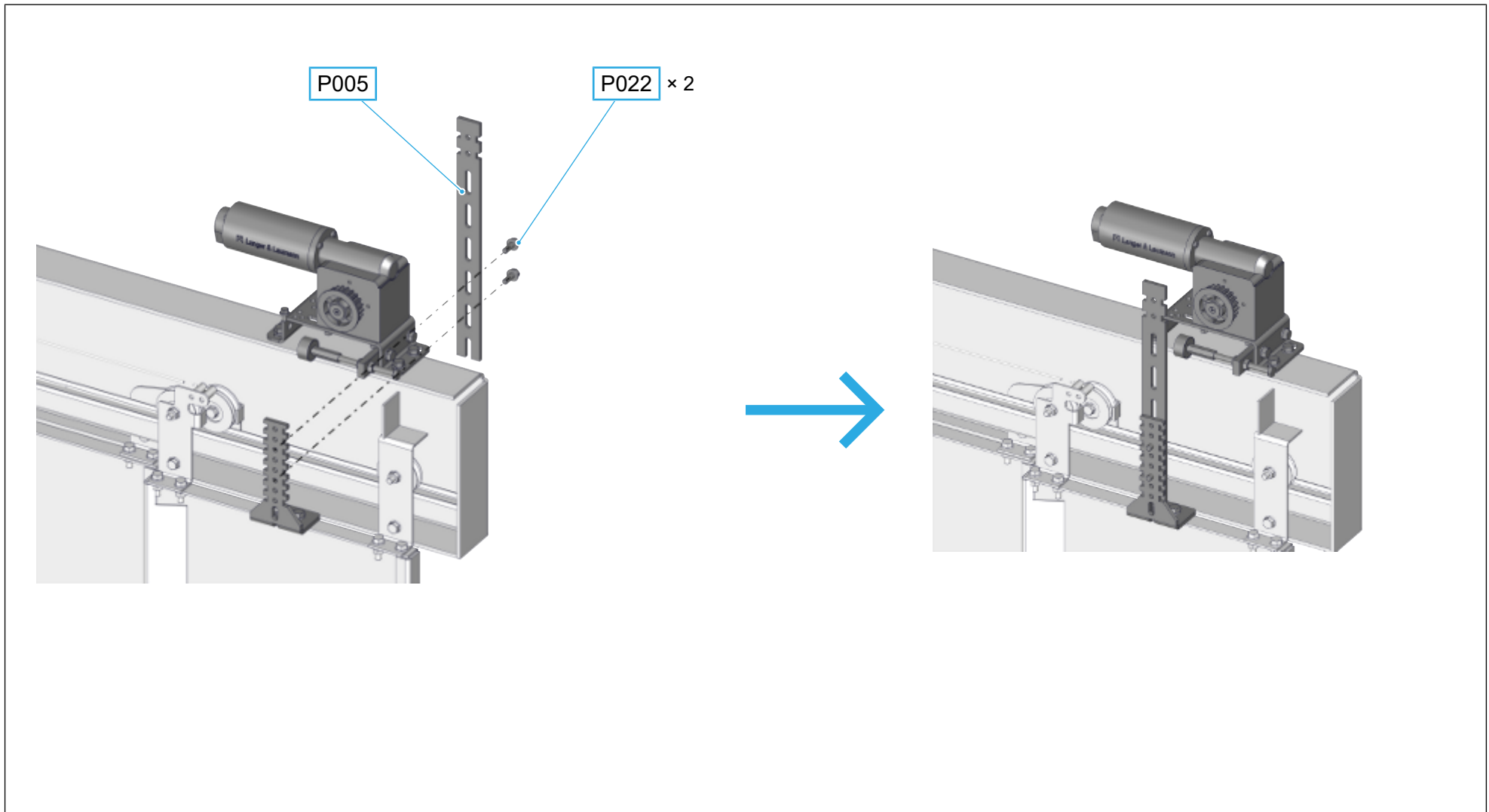
Tools

Pos.	Symbol	Description
T113		Combination wrench, size 13
T608.5		Drill bit, Ø 8.5 mm

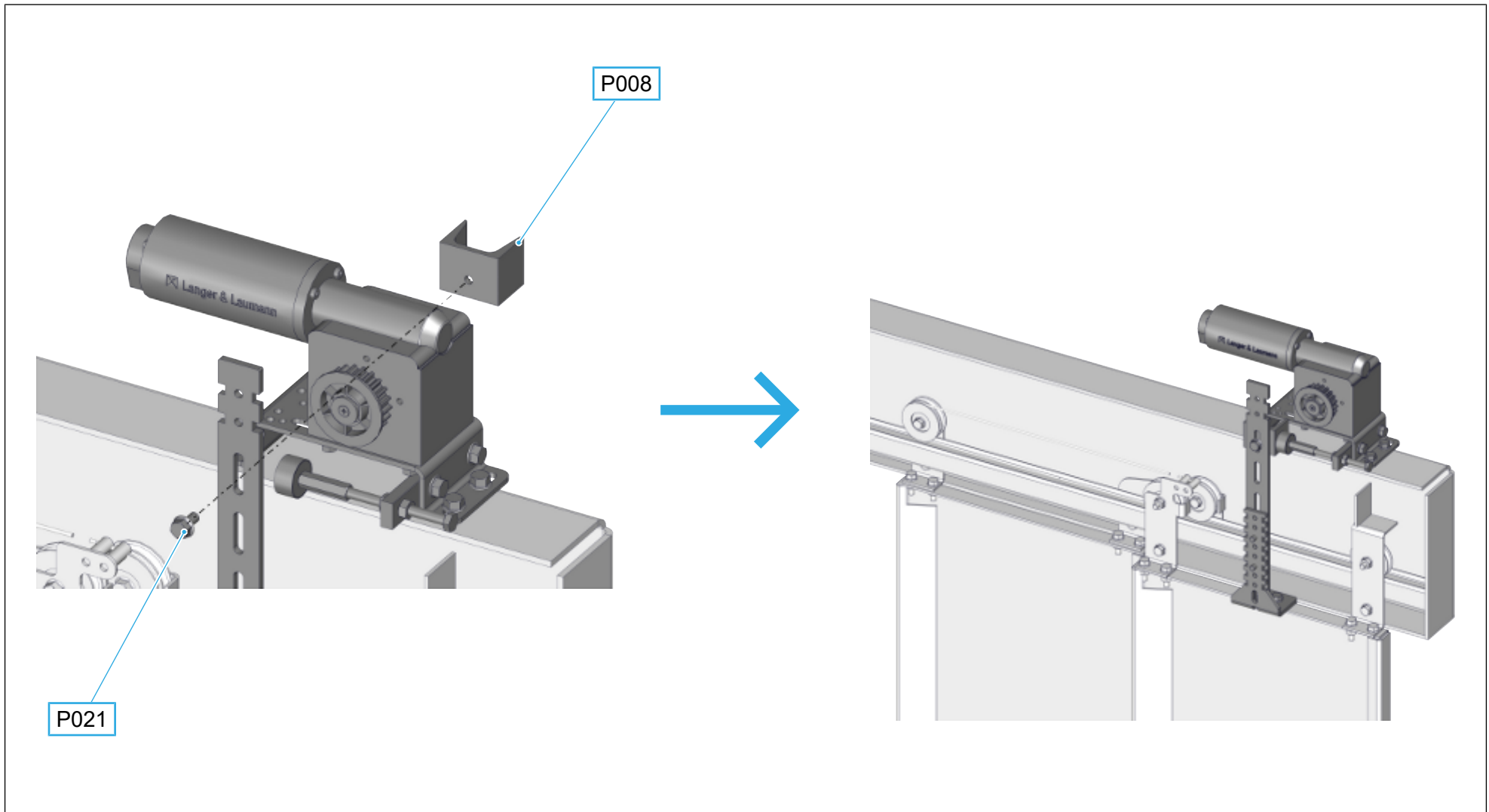
7.3.1 Mounting the bracket on the door panel



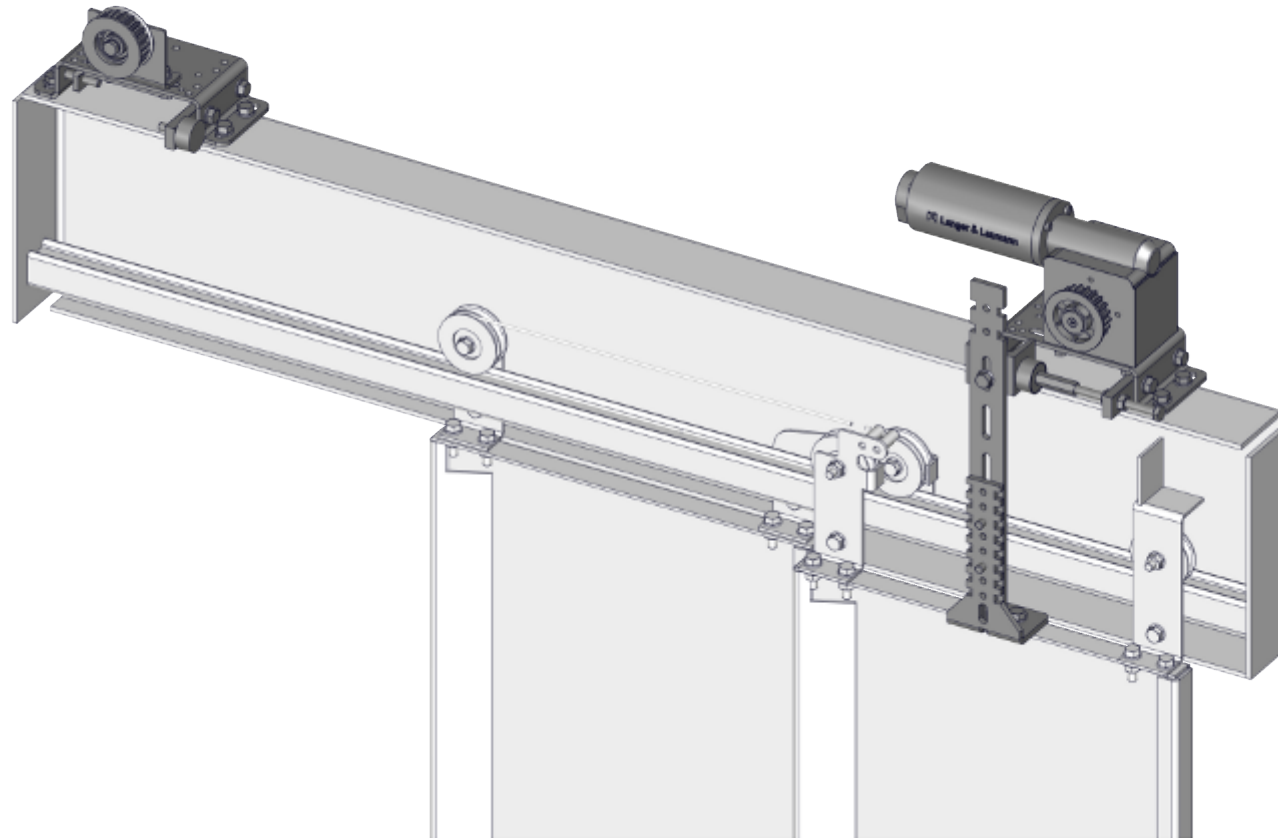
7.3.2 Mounting the plate pulley on the bracket



7.3.3 Mounting the stop on the bracket



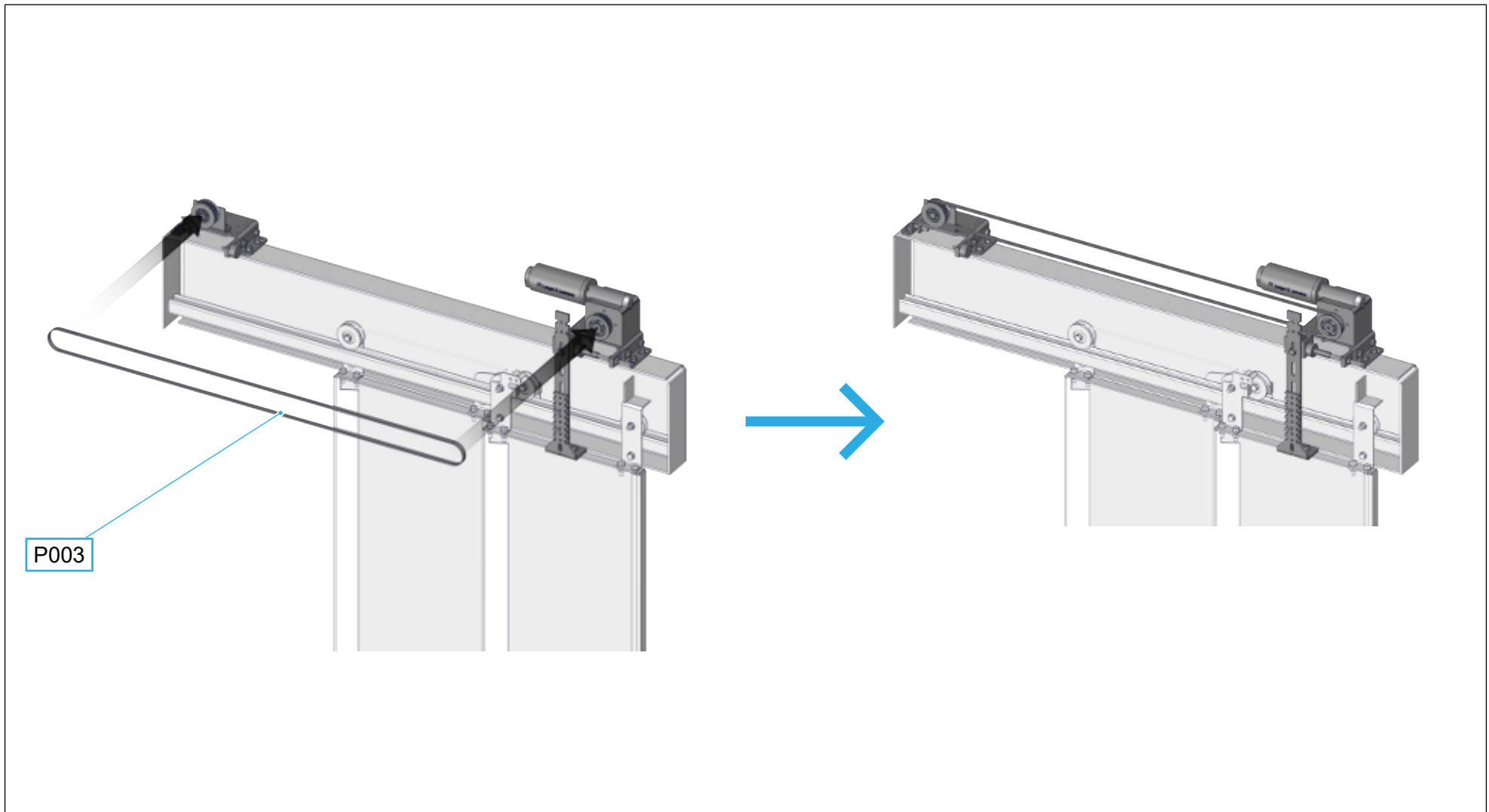
7.3.4 Door panel coupler mounted on the door panel



7.4 Mounting the timing belt

Components

Pos.	Illustration	Item number	Description	Quantity
P003		x.20.xxxxx	Timing belt 8M	1



7.5 Mounting the timing belt lock and tensioning the timing belt

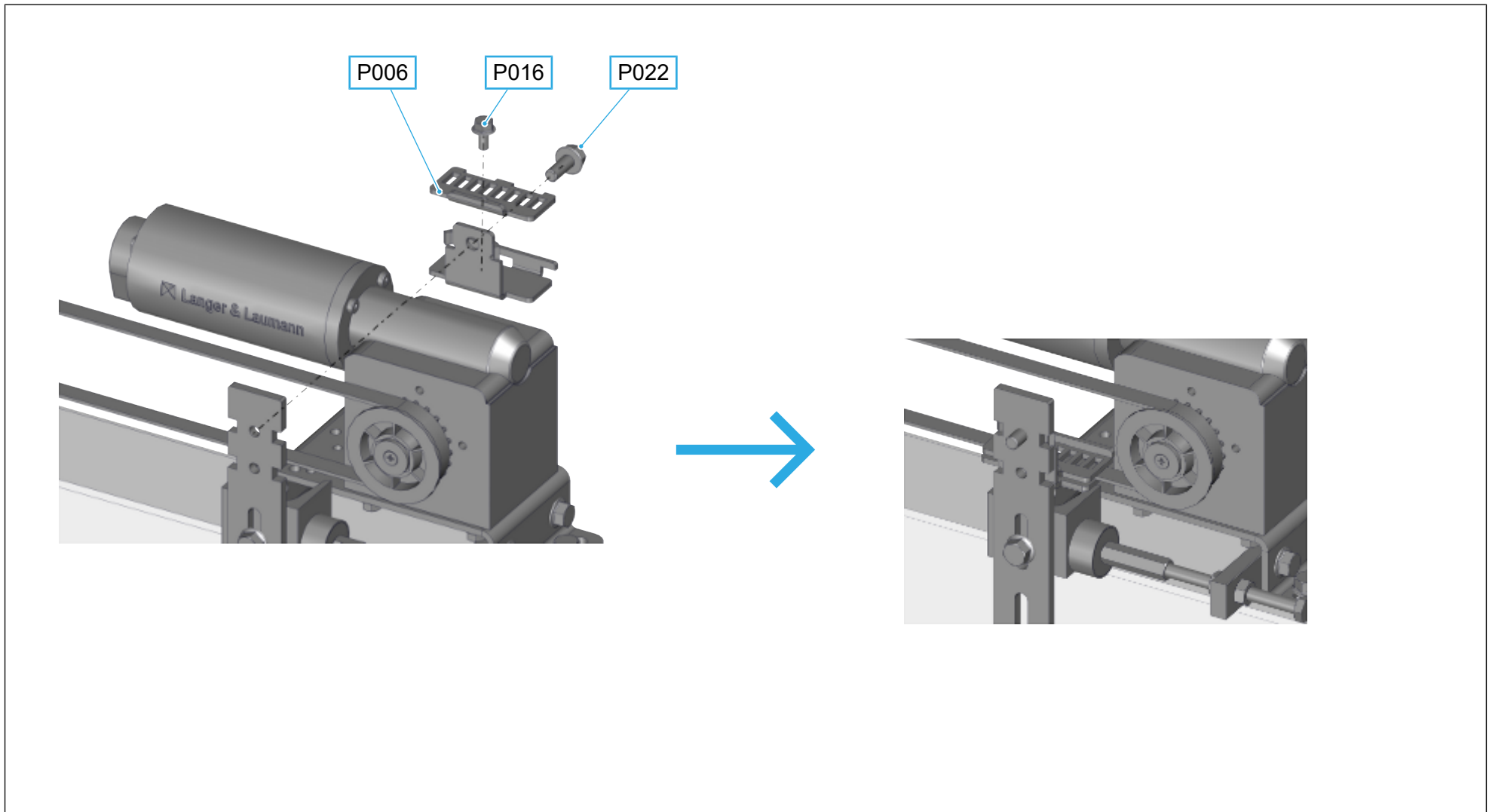
Components

Pos.	Illustration	Item number	Description	Quantity
P006		1.20.60005	Timing belt lock, L-shaped	1
P016		1.36.00135	Locking screw M6 × 12 mm	1
P022		1.36.00720	Locking screw M8 × 20 mm	1

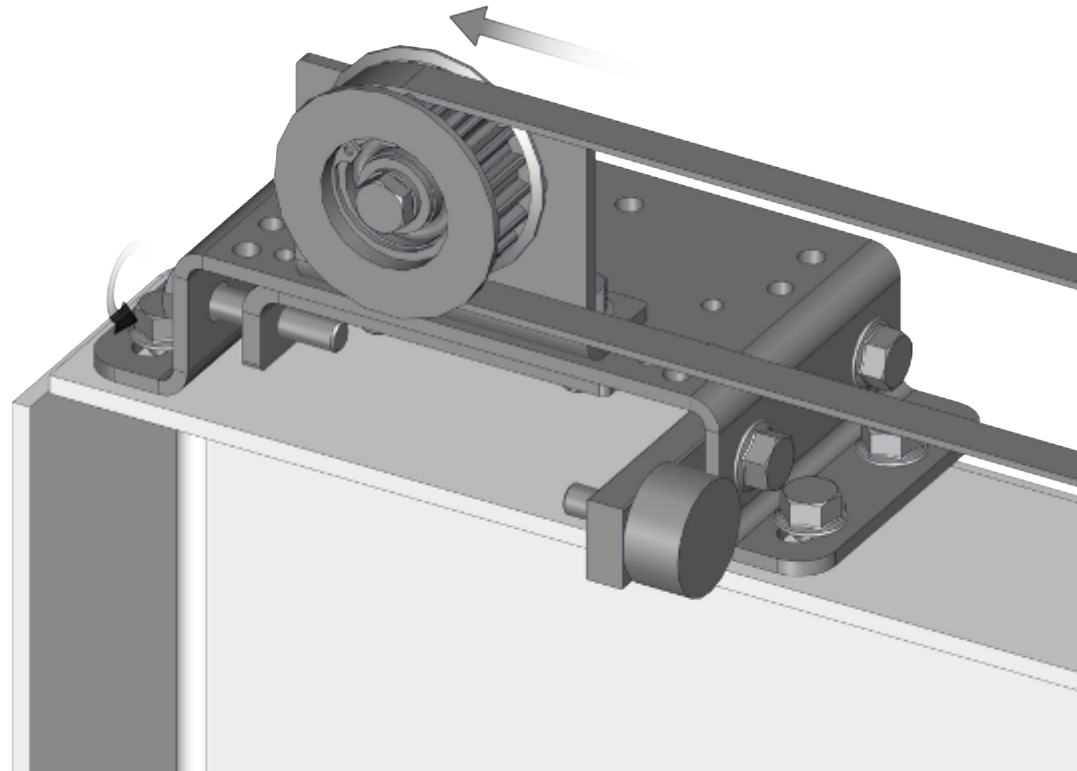
Tools

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

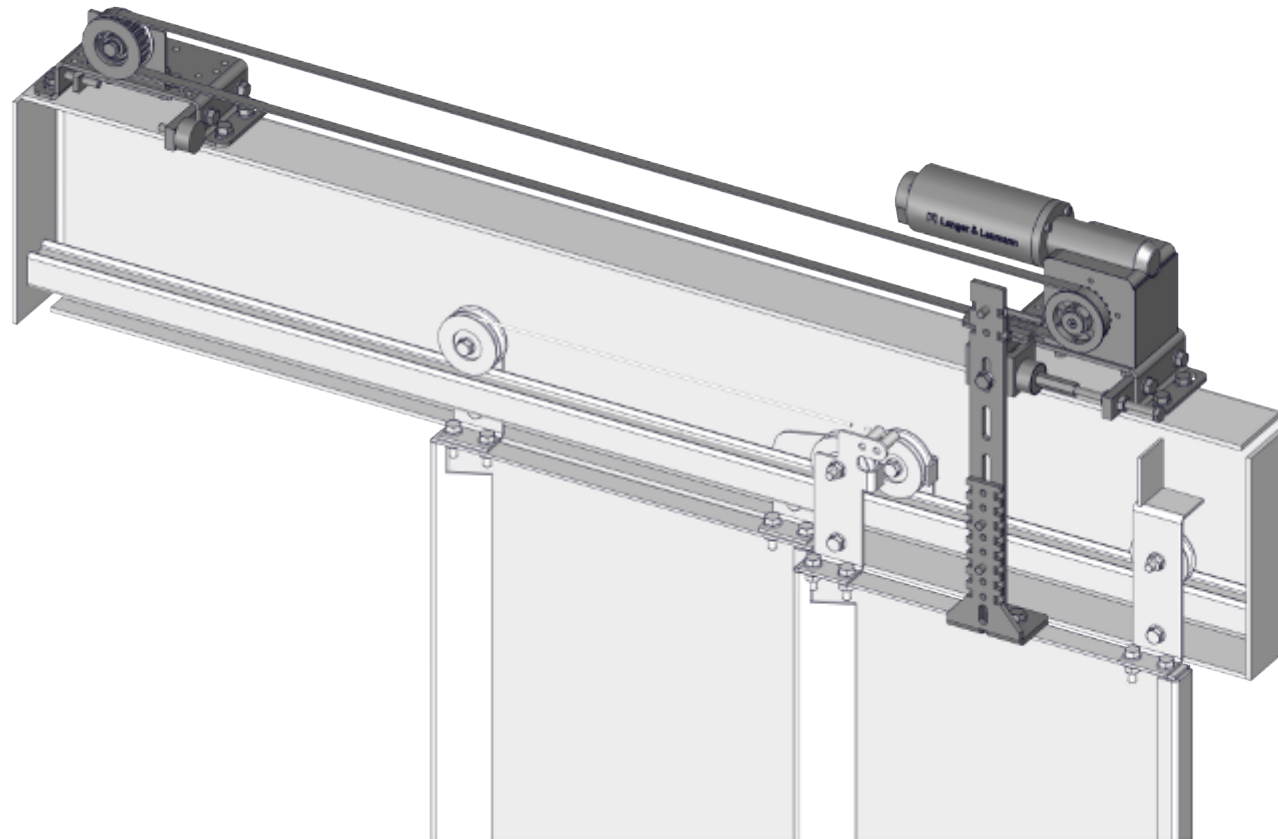
7.5.1 Mounting the timing belt lock



7.5.2 Tightening the timing belt



7.5.3 Timing belt and timing belt lock mounted



8 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.



Innovation meets Technology

