User Manual
for
QKS9 L&L door operator conversion

for doors QKS9 L&L V4.0:
2 panel telescoping left, 2 panel telescoping right,
2 panel central, 4 panel central telescoping.

document history

No.	ver.	Date	worker
10	3.3	02.12.10	CSA
11	3.4	12.07.12	FR
12	3.5	12.05.14	CSA
13	3.6	14.12.15	JE
14	3.7	30.12.19	CSA

Fordern Sie die Umbauanleitung **auf Deutsch** an, indem Sie den QR Code einscannen.

Demandez les instructions d´instruction de montage **en français**, en scannant le code QR.

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table of contents

1 Basic Instructions

1.1 Status of the Installation Instructions

Product installation instructions are enclosed by the manufacturer or supplier in order to provide the customer or fitter with the essential knowledge necessary for correct and safe installation. These brief installation instructions are intended to clarify basic mechanical installation steps and to illustrate the principal differences between the door operator versions for telescopic 2 panel, central 2 panel and central 4 panel. Electrical connection, commissioning and adjustment of the door control unit are expressly not components of these instructions.

1.2 Copyright

1.3 Instructions in the Installation Manual

All instructions in the installation manual absolutely must be adhered to.

1.4 Informal Measures by the Fitter

The fitter installing the system is him/herself responsible for participating in training. He/she must immediately inform the manufacturer/supplier of missing or damaged delivered parts.

1.5 Requirements of Installation Personnel

Persons responsible for installation and maintenance should be familiar with the generally applicable safety and work-hygiene regulations. They should be familiar with Langer & Laumann products. Installation tools are to be properly functional and measuring instruments must be subject to continuous checks.

1.6 Description of Symbols

WARNING:
This sign is to indicate a possible impeding danger of serious physical damage or death.

CAUTION:
This sign is to indicate a possible impending danger of light physical damage. This sign is also to warn you of material damage.

NOTE:
You will be informed of various possible applications and will receive further useful suggestions.

2 General

2.1 Summary Sketch

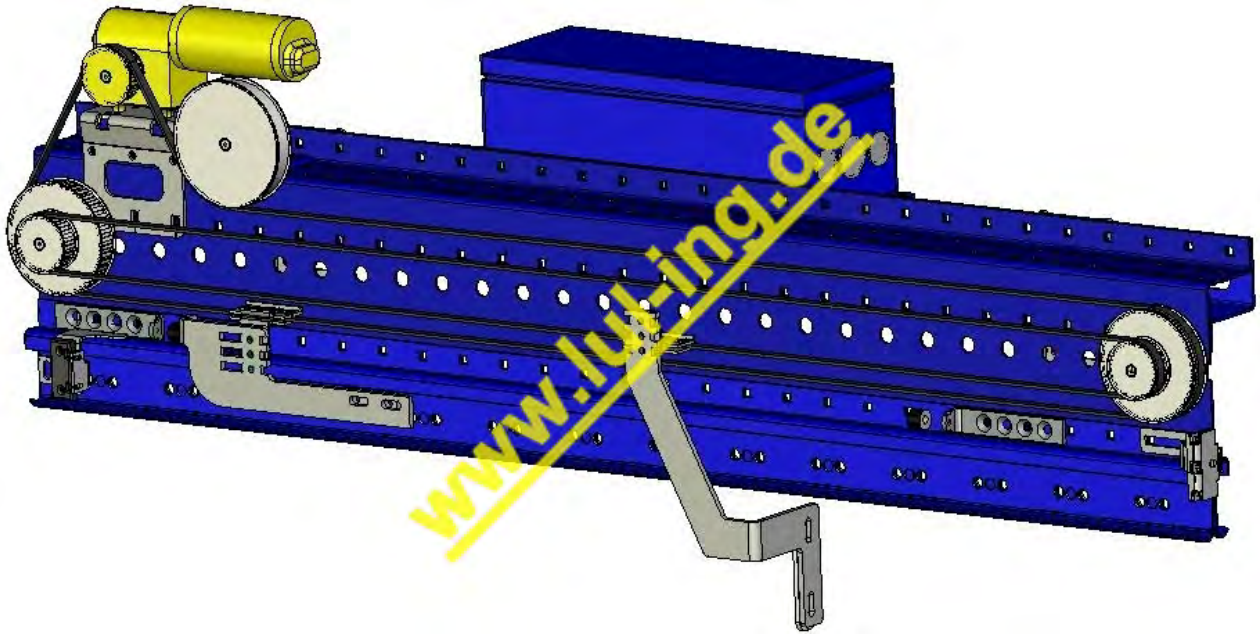

Abb. 1: QKS9 L&L door operator telescoping right

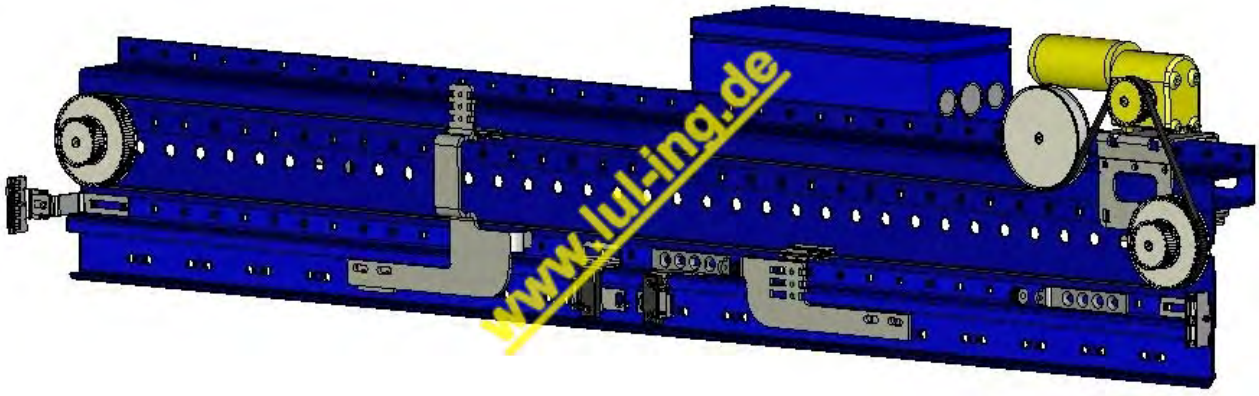

Abb. 2: QKS9 L&L door operator centre

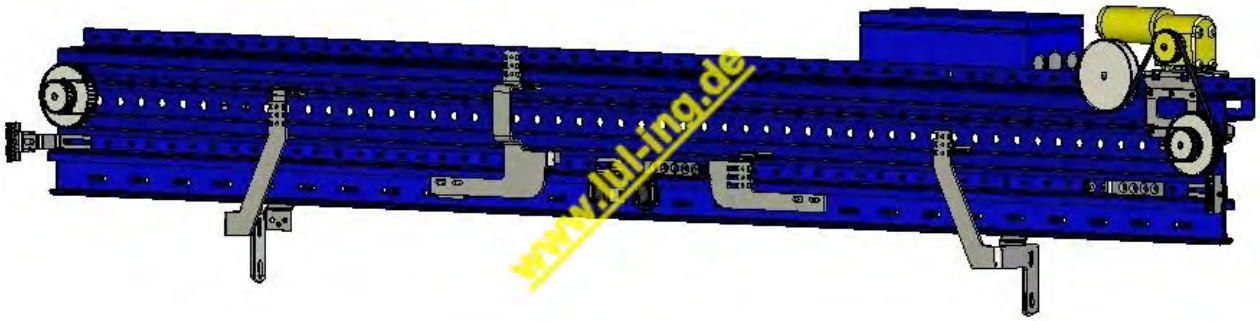

Abb. 3: QKS9 L&L door operator centre telescoping

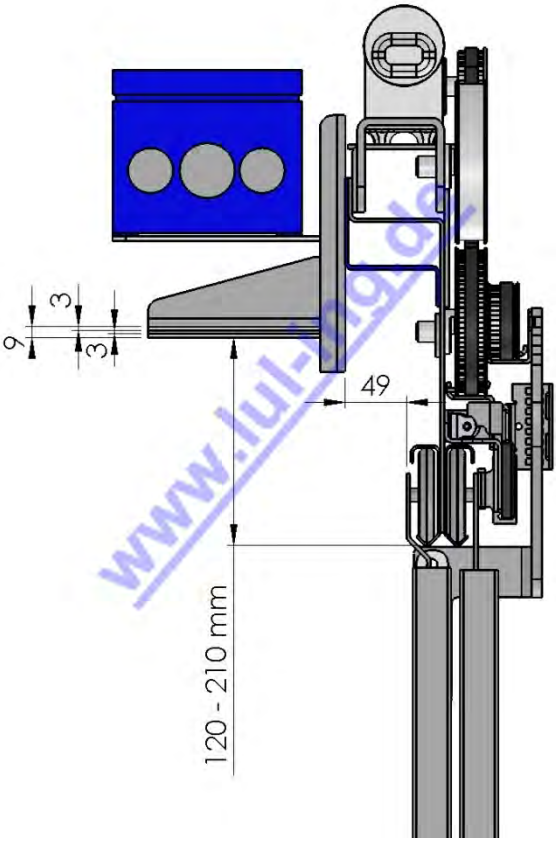

Abb. 4: mounting dimensions door operator

2.2 Variant of QKS9

Following the variants of QKS9:

Table 1: variants

Door width (configuration)	2 panel telescoping left	2 panel telescoping right	2 panel telescoping centre	4 panel telescoping centre
0700	X	X	X	-
0800	X	X	X	-
0900	X	X	X	-
1000	X	X	X	-
1100	X	X	X	-
1200	X	X	X	X
1300	X	X	X	X
1400	X	X	X	X
1500	-	-	-	X
1600	-	-	-	X
1700	-	-	-	X
1800	-	-	-	X
1900	-	-	-	X
2000	-	-	-	X
2100	-	-	-	X
2200	-	-	-	X

(X) = existing, (-) = not existing

2.3 Scope of Delivery

Pos.	article number		quantity
1	(depend on door operator)	QKS9 L&L door operator (completely assembled incl. cogs, belt, drive, buffer)	1
2		Skate drive	1 / 2
3		accessories	
4		bolts, washers)	
5		TSG electronic in closed housing	1
6	1.20.30150	Manual QKS9 conversion	1
7	1.20.91570	Manual TSG electronic for drive	1
8	1.20.91000	Manual TSG	1

CAUTION:
Shafts and their bearings as well as the encoder must not be damaged by pumping!

2.4 Description of Product Functions

All the door drives operate according to the same function principle. The doors are activated by a DC motor using toothed belts and two or more pusher dogs.
The DC motor drives a toothed belt, which runs over double toothed belt pulleys. The pusher dogs are fastened to the toothed belts by means of a catch. The car doors are firmly interconnected with the pusher dogs. The height of the toothed belts can be adjusted by adjusting the double toothed belt pulleys (eccentric).

3 Assembly Instructions for Mechanical Part

3.1 Fundamental Info

In principle, the door frame is pre-commissioned for all types of doors and are pre-assembled as much as possible at the factory.
However, there are a few items that still have to be assembled on the cabin doors and adapted on site. Likewise, adjustments are required on the pulleys, the limit switches as well as the door pusher dogs.
The existing skate for shaft opening remains intact in principle, but requires an additional actuator.

As all the assembly steps for the 2 panel telescopic, 2 panel central and 4 piece central door models are all similar in principle, the following description deals with all three door types at the same time. Wherever there are distinct differences, these will be explained explicitly.

WARNING:
For safety reasons all nuts and bolts, which are already tightened upon delivery, must be re-tightened on-site.

3.2 Safety Equipment

CAUTION:
All the safety regulations listed in EN81 must still be observed after modifying the new door machine.

In the case of a telescopic lift door, it should be noted that the door panel has a door interlock.
Extract from EN81-1:
Ch. 8.10 Lift-compartment sliding doors with several mechanically linked door panels
8.10.1 In the case of lift-compartment sliding doors with several directly mechanically interlinked door panels, it is permissible,

a) to attach the installation as per 8.9.2
   1. either only on one door panel (the fastest one in the case of telescopic doors)
   2. or on the door drive, as long as there is a form-fitting link between the drive element and the door panels,,

   and
b) in the event of locking only one door panel and in accordance with the conditions as per 11.2.1 c, if this one interlock prevents the opening of the other door panels due to their intermeshing with each other in the closed position.

When attaching and commissioning the TSG in/on a lift cabin, it must be ensured that the maximum permitted total weight of the lift cabin is not exceeded under maximum rated load.

In the event of an emergency stop or shut-down of the lift, it must be ensured that the TSG door-control unit does not cause any unintentional, dangerous or uncontrolled door movements.

CAUTION:
The simulated limit switch for “Door open”, “Door closed” and “Door blocked” on the controller for the door and locking bar drive must not be used as safety equipment with any safety relevance.

3.3 Car door lock

WARNING:
The Schindler QKS9 car door lock **is not** compatible with the Langer & Laumann modernization packages and **is not** supported!

3.4 Assembly door frame on the car roof

NOTE:
The sequence of the assembly specified here shows only a recommendation. There is not a requirement on completeness.

3.4.1 Before disassembly the old door operator

Before the disassembly of the old door operator must be taken up the following mass.

1. Height of track of car roof (car internal height)
   upper edge of track to car roof.
2. Track:
   - closing edge extremely needed measure consider (pay attention to lines and other obstacles of shaft wall by passage),
   - opening edge extremely needed measure consider (pay attention to lines and other obstacles of shaft wall by passage),
3. depth of installation of the track (back of track to car),
4. distance from extended door cam to the border of closing side of the fasten door panel.

NOTE:
The new track has the same length and mass as the old one.

3.4.2 Disassembly the old door operator

The old door drive must be dismantled completely. The clamping plates at the old door drive must be unscrewed, since they are again used.

3.4.3 Door operator on car

Put the new door operator on car (provisional attachment by fighter mounting plate e.g. by fastening clamps).

The height, lateral position and the depth of the door operator depends on the track. The mass, which were taken up before the disassembly of the old door operator, are to be kept with the new track.

NOTE:
Build door operator horizontally and in the plumb!
For security an inspection drive should be accomplished, in order to recognize possible obstacles and to correct the position of the door operator. It makes certain that also the supernatant double toothed belt disks do not affect the shaft wall or obstacles at the shaft wall

3.4.4 Adaptation on car

Fastening the door frame occurs as with the old QKS 9 design, depending on the cab (PK9), either on the top on the cab roof, or on the right or left side on the exterior wall of the cab. With both types of fasteners, the mountings have been pre-assembled on the frame; their respective spacing can be moved horizontally and is infinitely variable.

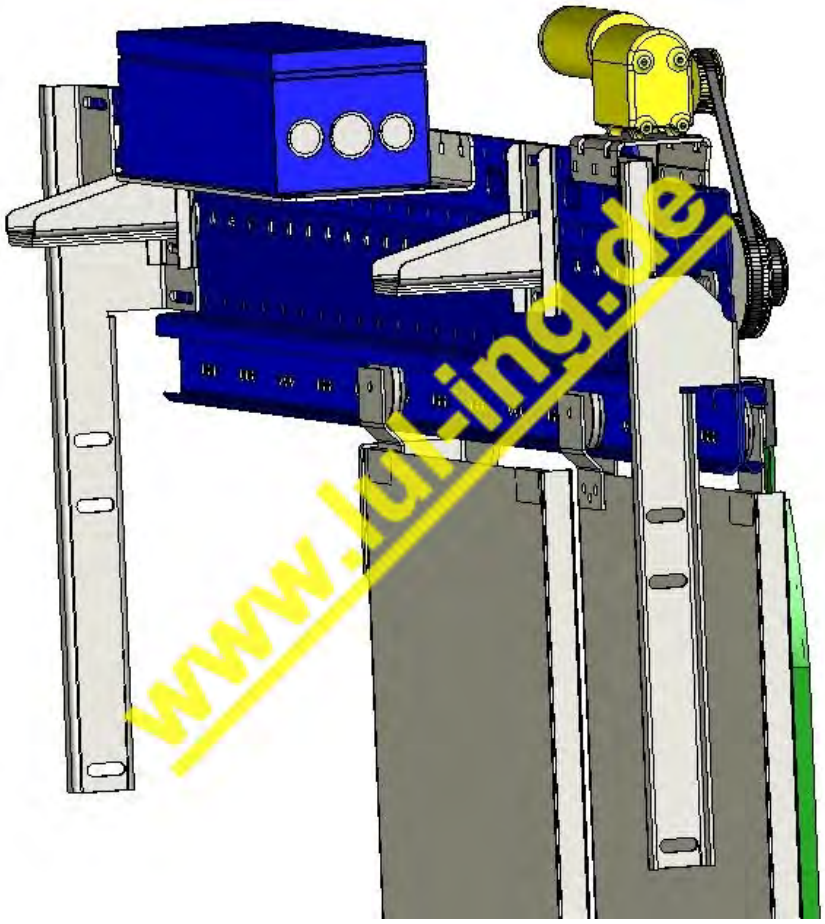

Abb. 5: View from side QKS9 L&L

NOTE:
It is not necessary to use both brackets (upper and lateral) for fixing the door operator. Under normal circumstances it is enough to use one of them.

3.4.5 Hang up the panel

The fast panel hang up with the help of the door roller (supports) and the retractable door cam.

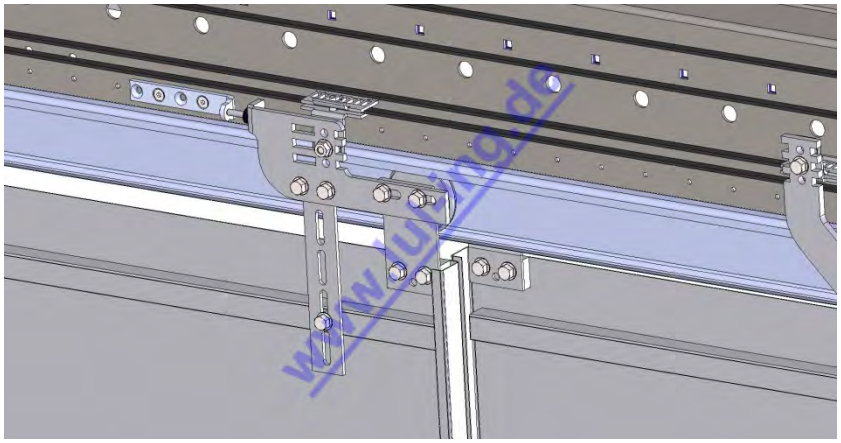

Abb. 6: mounting door panel coupler on fast panel with torque arm

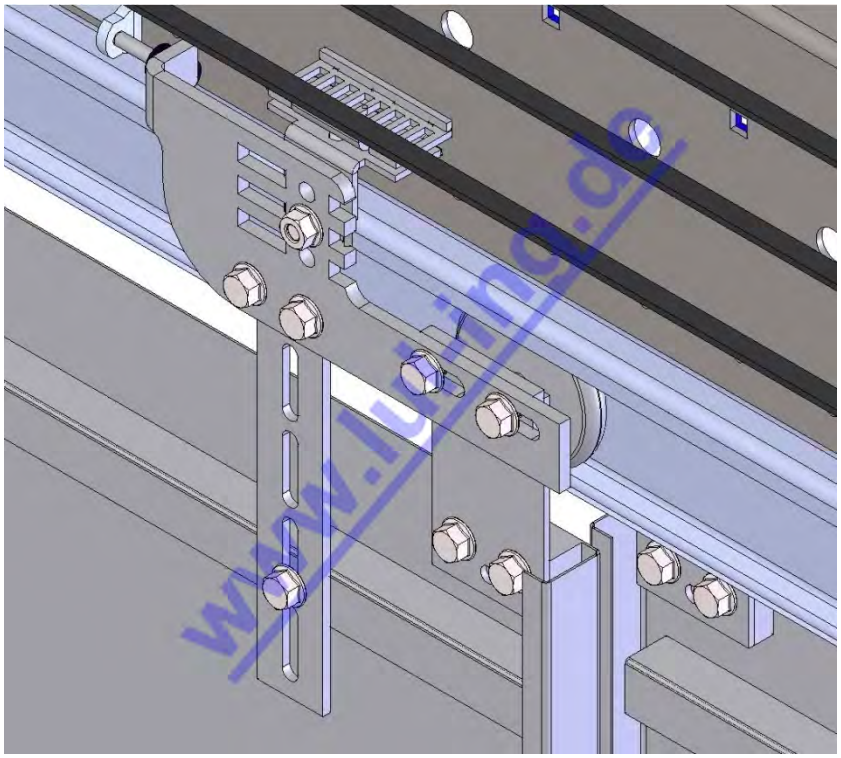

Abb. 7: mounting door panel coupler on fast panel with torque arm

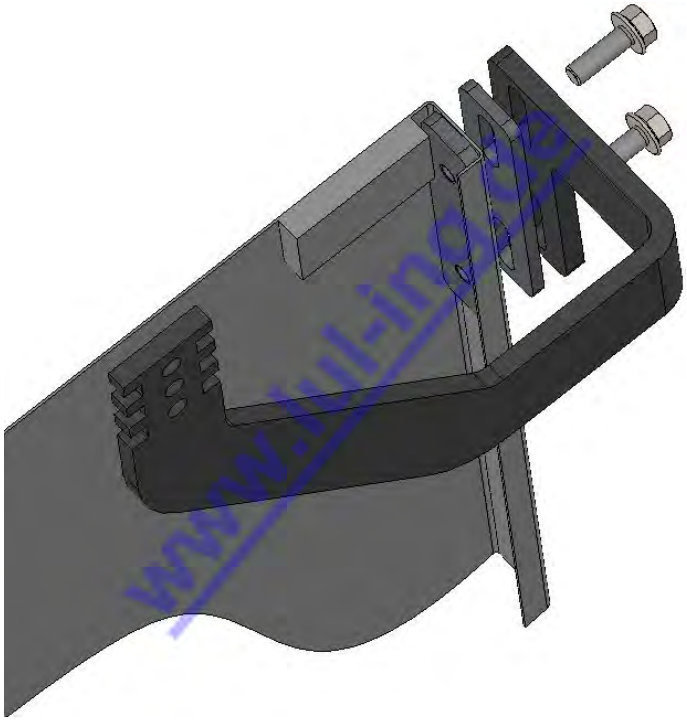

Abb. 8: mounting door panel coupler on slow panel with strengthening

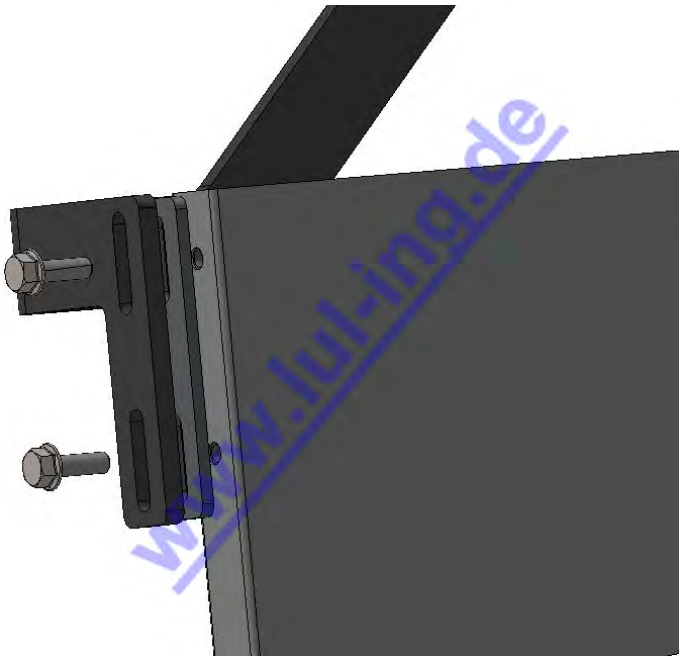

Abb. 9: mounting door panel coupler on slow panel with strengthening

3.4.6 Safety contact

Control the safety contact at door operator and fix the actuator for safety contact on door roller.

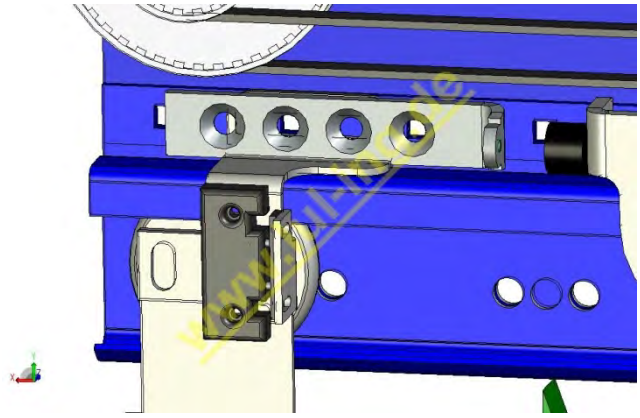

Abb. 10: safety contact by QKS9 L&L telescoping right

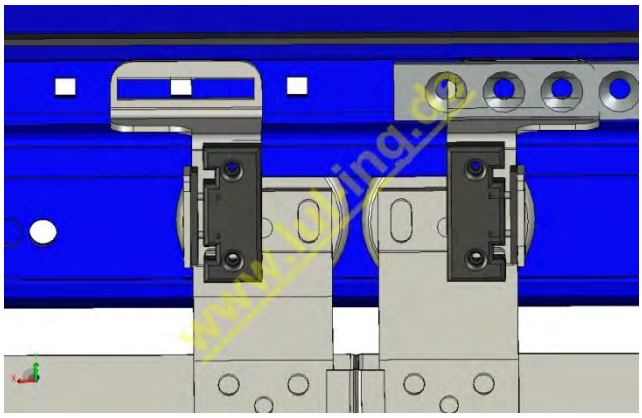

Abb. 11: safety contact by QKS9 L&L centre / centre telescoping

3.4.7 Limit stop / buffer

The TSG has to use in every floor the same limit stop. Therefore, on the door operator there are two limit stop with puffer. The fasten coupler serves as a stop and stops the panel in open and close direction. Control the limit stop / buffer in closed and opened position.

3.4.8 Slow panel

The slow panel hang up with the help of the door roller (supports) and the retractable door cam.

3.4.9 Emergency coupler

In case of a break of the toothed belt, please install the attached coupler on the panels.

Abb. 12: Emergency coupler on TL

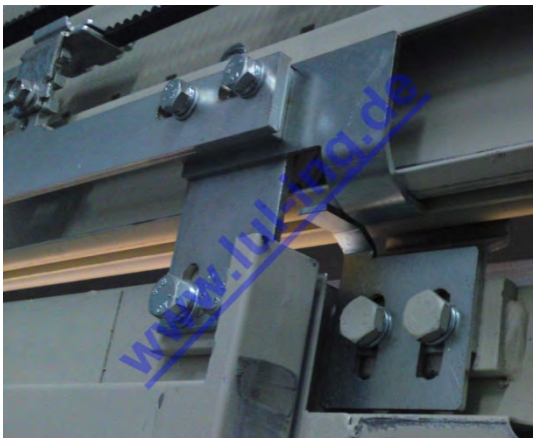

Abb. 13: Emergency coupler on TR

3.4.10 Mounting skate drive

To operate the drive skate a motor is used. The drive motor is mounted on the right side of skate at an opening door to the right or the left side of the skate with an opening to the left door.

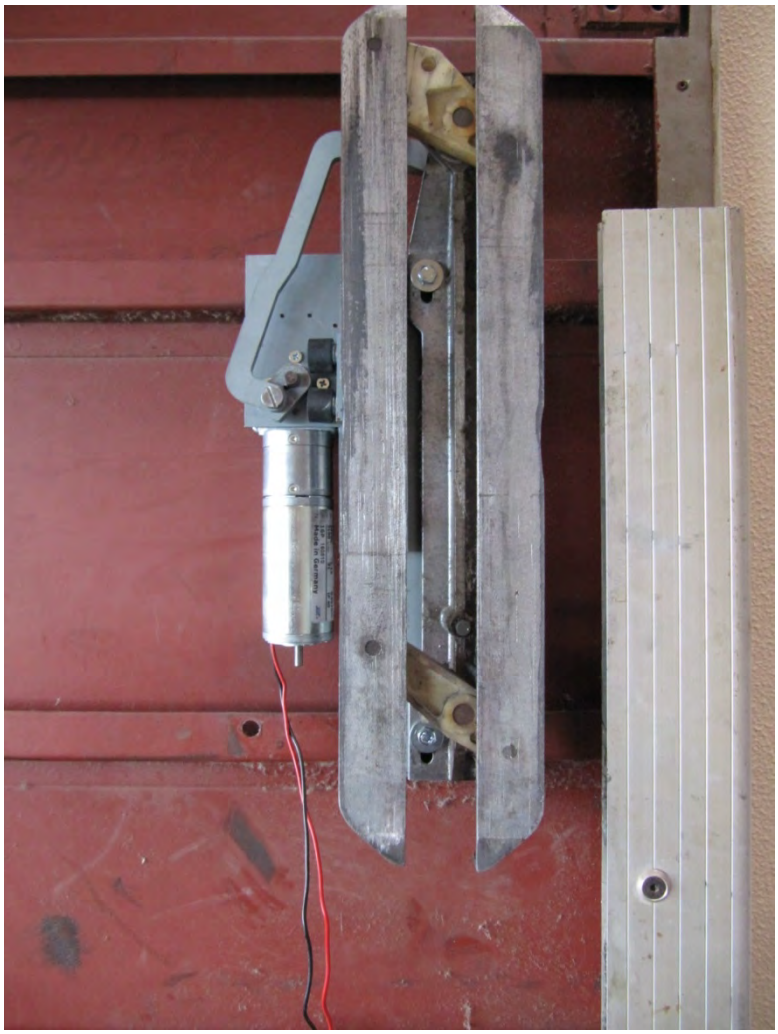

Abb. 14: View mounted drive motor at TL

NOTE:
The tension spring is to remove the tag!

Abb. 15: Delivery condition drive motor TL

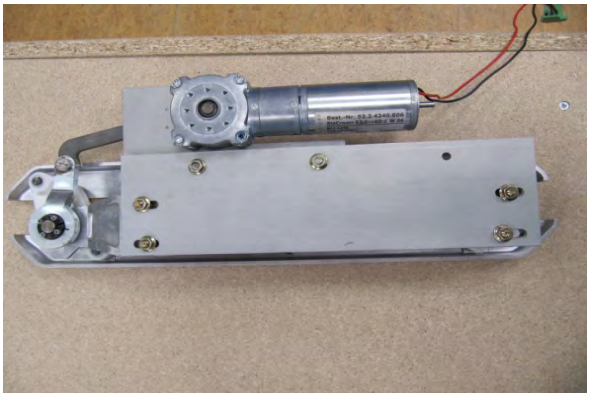

Abb. 18: Motor mounted on the drive TL

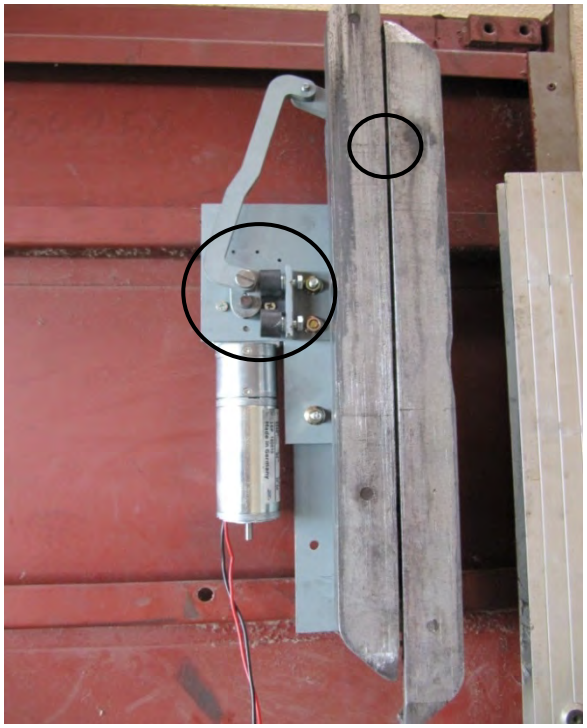

Abb. 16: Motor when mounted

Abb. 19: Original Lever

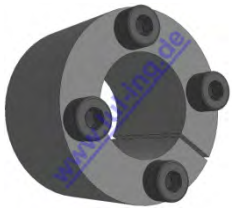

Abb. 17: TSG bush

Abb. 20: lever conversion

NOTE:
The old lever of the existing motor has to be dismantled (Abb. 19: Original Lever / page 19). For mounting and adjusting the drive of the new motor drive up to the upper buffer is rotated (Abb. 16: Motor when mounted / page 19), and the motor is folded up to 3mm together (Abb. 18: Motor mounted on the drive TL / page 19). Then the new lever is mounted on the presence motor and fixed with the TSG bush (Abb. 20: lever conversion / page 19). Now the motor with the new drive will be reinstalled on the car panel.

NOTE:
The four screws of the TSG brush must be tightened with a force of up to 1.2[Nm] (Abb. 17: TSG bush / page 19).

3.4.11 Mounting the ribbon cable

The voltage to the actuator on the skate is supplied via a flexible ribbon cable. The ribbon cable holder is used for fastening purposes:

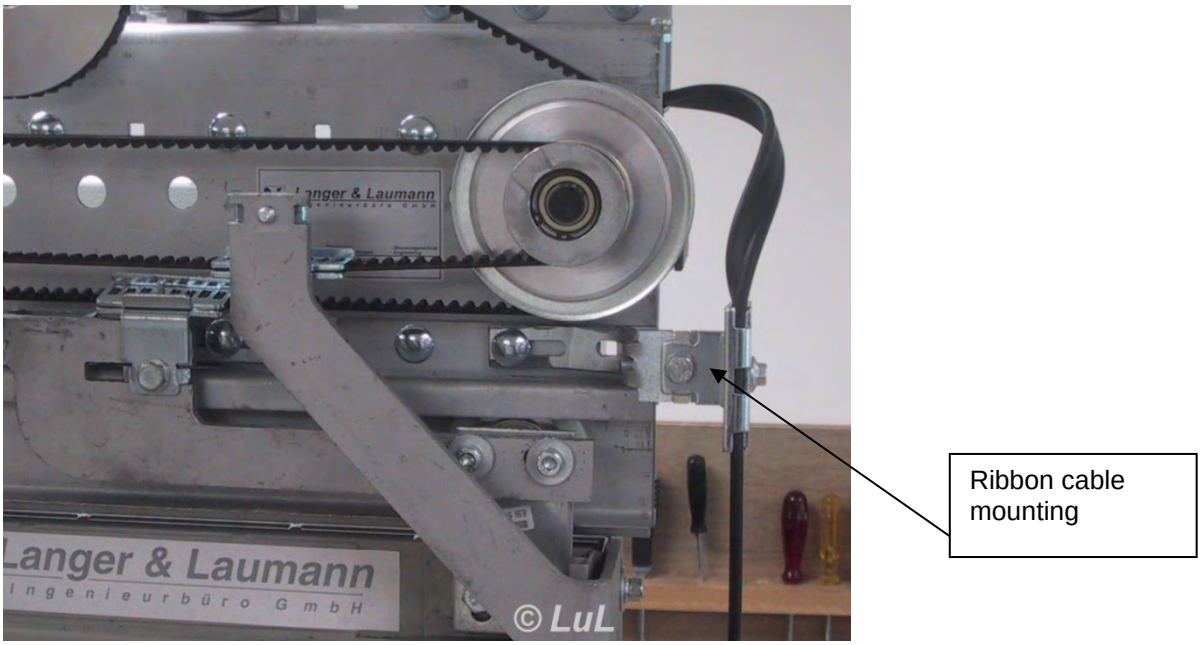

Abb. 21: QKS9 L&L with ribbon cable

3.4.12 Console for housing

You can fit the TSG electronic (board plus IP54 housing) with the console on the back of the door operator (see Abb. 22: console for housing).

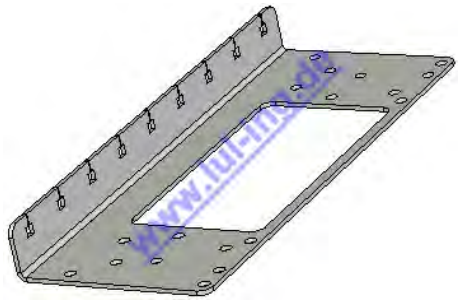

Abb. 22: console for housing

3.4.13 Conclusion

At the end of assembly fix the whole door operator at the car and control all adjustments.

4 Assembly Instructions for Electrical Part

Following the installation of the mechanical components on the cab and the mounting of the cab doors, the door must be calibrated once. The following conditions must absolutely be observed:

- Any existing shaft locking weight must not bounce
- The cab doors and all the shaft doors must move easily.
- The toothed belts must be taut (one should only be able to depress it in the centre by two fingers).
- The connector rail X1 (inputs) and X2 (outputs) must be stripped temporarily for calibration purposes.

NOTE:
We refer to the further calibration of the door contained in the enclosed Operating Instructions for the door control unit and the manual for TSG electronic for skate drive at this time.

5 Maintenance

The maintenance of L & L door operators is by their constructive approach to a minimum. Components, which are subject to an operational wear, are in regular maintenance involved.

WARNING:
During the maintenance work is essential to ensure that the drive cannot be turned on and that no parts exposed inadvertently come under electric voltage. After end of these measures available protective facilities and security facilities in the door operator are to be installed again.

It is mandatory to check the operation of the TSG regularly, no less than every 3 months. The following items must be checked:

- Check doors, drives and the electronic unit for visible damage or defects
- Ensure the door moves easily
- Check the toothed belt (for wear, tension, etc.)
- Check the functions of the system (safety equipment, inputs, outputs, etc.)

CAUTION:
If damage and/or defects are discovered in the system, it must be taken out of operation immediately. The damage and/or defects must be eliminated before the system is started up again.

6 Waste disposal

With the disposal the appropriate regulations are to be followed:

- oil according to waste oil order (e.g.. no mixture of solvent, cold cleaner or varnish remains)
- components for utilization distinguish between:
    - iron scrap
    - electronic scrap
    - aluminum
    - multicolored metal (worm gear, drive winding)

7 Contact

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