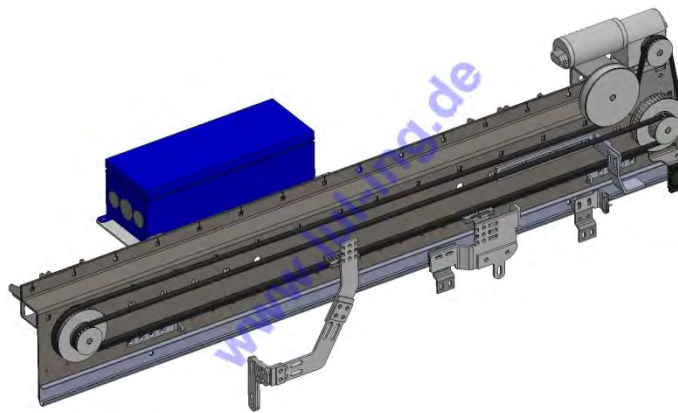


User Manual

for

QKS8 L&L door operator conversion



for doors QKS8 L&L V1.6:
2 panel telescoping left, 2 panel telescoping right,
2 panel central.

document history

No.	ver.	date	worker
7	1.6	14.12.15	JE
8	1.7	11.02.16	CSA
9	1.8	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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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 and central 2-panel. Electrical connection, commissioning and adjustment of the door control unit are expressly not components of these instructions.

1.2 Copyright

We reserve all rights pertaining to these technical documents. It is prohibited to reproduce them, make them available to third parties or to use them in any other unauthorised manner without our prior agreement. Changes require our express prior and written agreement.

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 impending 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

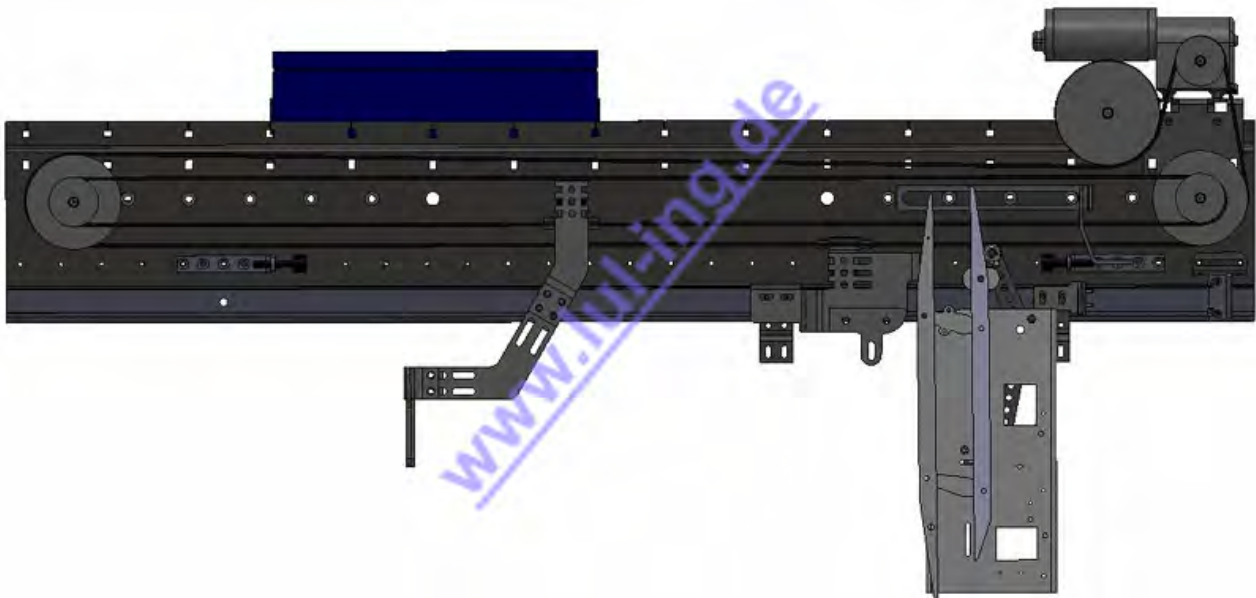


Abbildung 1: Summary QKS8 L&L Door Operator (here: 2 panel telescoping left)

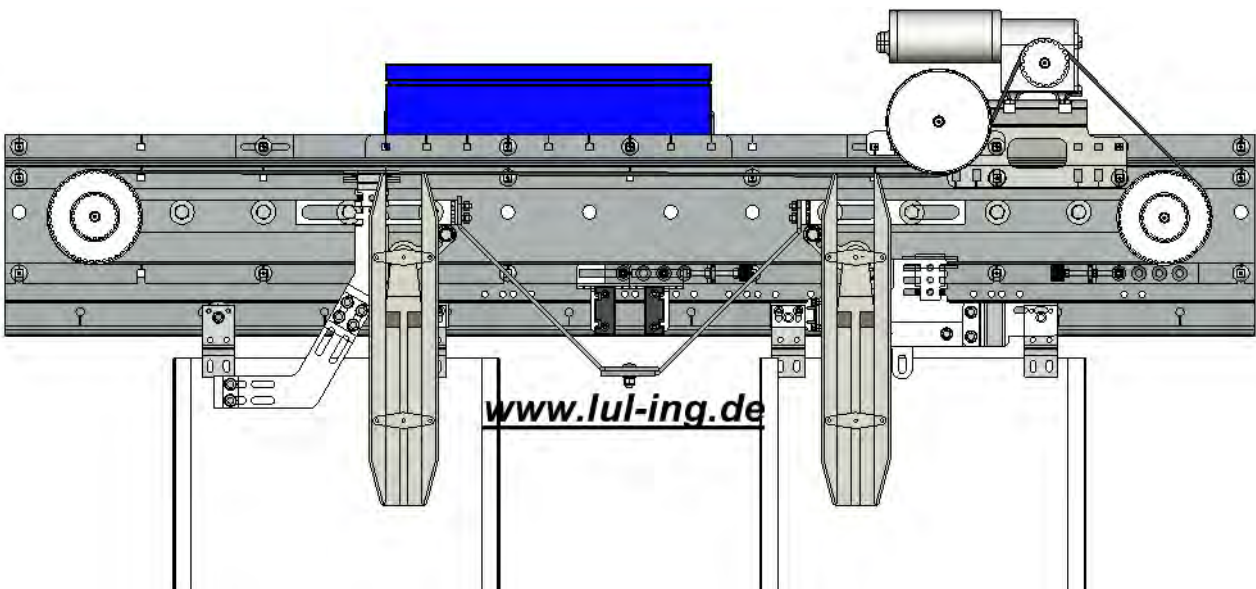


Abbildung 2: Summary QKS8 L&L Door Operator (here: 2 panel centre)

2.2 Variant of QKS8

Following the variants of QKS8:

Table 1: variants

Door width (configuration)	2 panel telescoping left	2 panel telescoping right	2 panel telescoping central
700	X	X	X
800	X	X	X
900	X	X	X

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

2.3 Measure

Table 2: Measure

Door width (configuration)	2 panel telescoping left	2 panel telescoping right	2 panel telescoping central
700	1235	1235	1435
800	1385	1385	1635
900	1535	1535	1835

2.4 Scope of Delivery of Mechanical Assemblies

- Door mechanism (completely assembled incl. cogs, belt, drive, buffer)
- Slow door-panel carrier (incl. bolts, washers)
- Fast door-panel carrier (incl. bolts, washers)
- Safety limit switches (incl. bracket, actuator)
- Control cabinet bracket
- Housing (incl. TSG PCB)
- Springing retainer (incl. shims)



CAUTION:

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

2.5 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).

The existing retractable door cam is modified by material included in the delivery. The existing retractable door cam is folded up into the closed position by means of a lever.

2.6 Kind of car



Abbildung 3: car P8K without door operator – right side (TL)

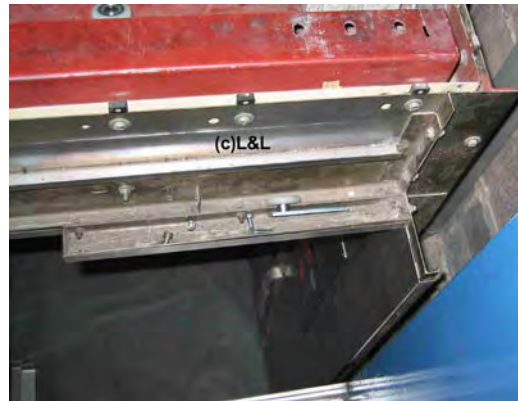


Abbildung 4: car P8K without door operator – left side (TL)

The basic of QKS8 L&L door operator is the car P8K or P9K, (see Abbildung 3: car P8K without door operator – right side (TL) and Abbildung 4: car P8K without door operator – left side (TL)).

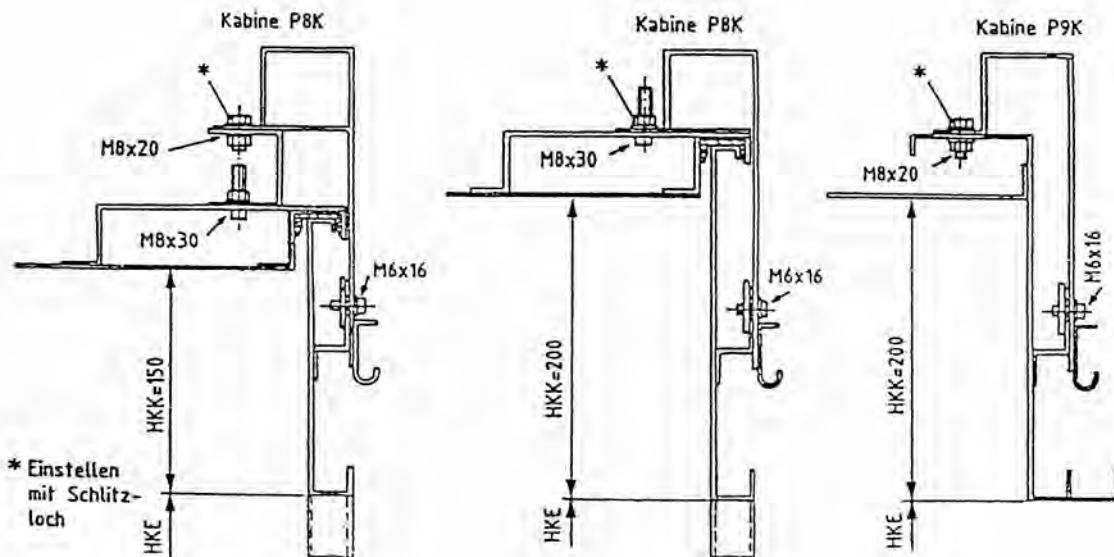


Abbildung 5: car of QKS8 with previous QKS8 door operator (side view)

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 retractable door cam on the shaft opening remains intact in principle, but requires additional metal parts.

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 Assembly door frame on car roof



NOTE:

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

3.3.1 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 (approx. 123... 125mm) (see Abbildung 6: Height of track of car roof (car internal height))
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)



NOTE:

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



Abbildung 6: Height of track of car roof (car internal height)

3.3.2 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.

3.3.3 Disassembly retractable door cam

The retractable door cam must be dismantled by the panel, since it is modified by the back.

3.3.4 Mounting clamping plates on new door operator

The clamping plates are installed with use of the old screws and disks at the new door machine. The holes are already in the new door machine present (300mm and/or 850mm of the closing edge) (see Abbildung 7: clamping plates on new door operator).



Abbildung 7: clamping plates on new door operator

3.3.5 Assembling retractable door cam

see Kap. 3.6 Assembling the retractable door cam / page 25.

3.3.6 Door operator on car

Put the new door operator on car (provisional attachment by bracket for door frame e.g. by fastening clamps) and insert clamping plates in border at car (see Abbildung 8: border at car for clamping plates)

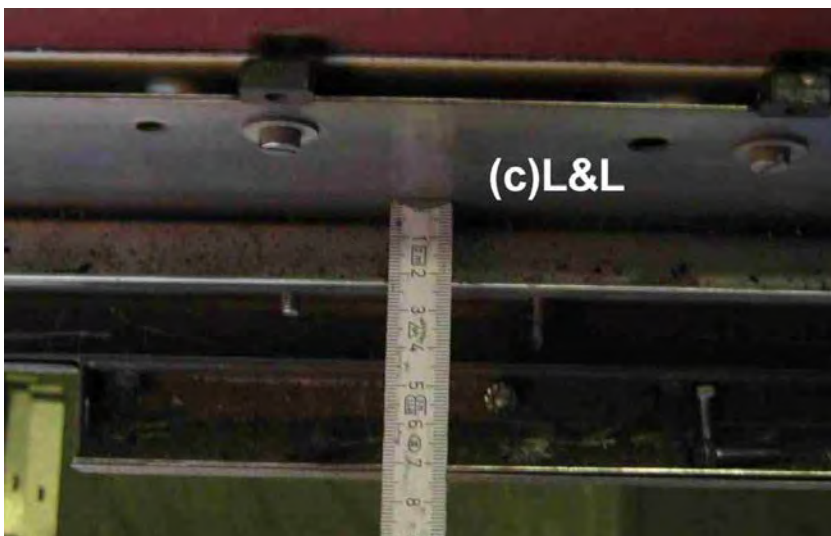


Abbildung 8: border at car for clamping plates

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. 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 (remark: on the closing side of the door operator the double toothed belt disk does not stand under normal conditions beyond the door frame).

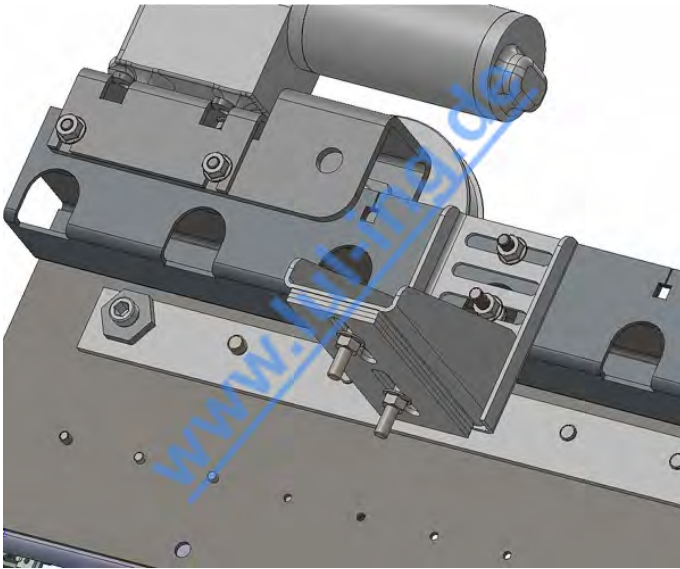


Abbildung 9: QKS8 L&L door operator - bracket for door frame, back



Abbildung 10: QKS8 L&L door operator - bracket for door frame, back

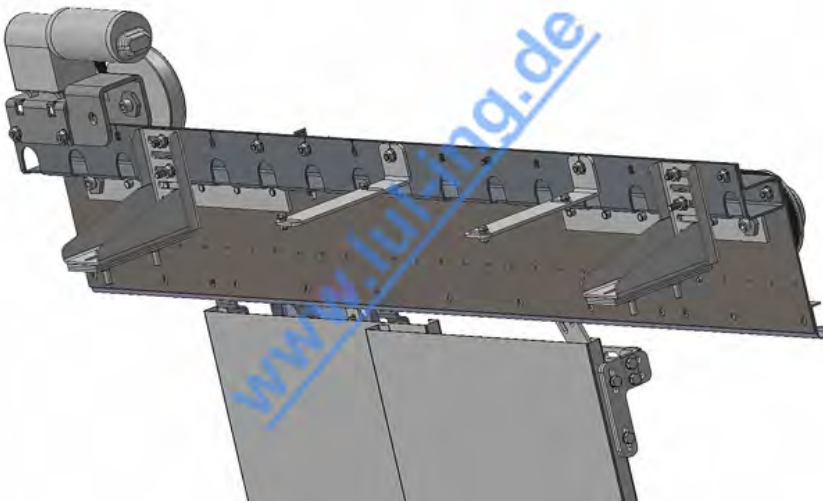


Abbildung 11: QKS8 L&L door operator - bracket for door frame, back

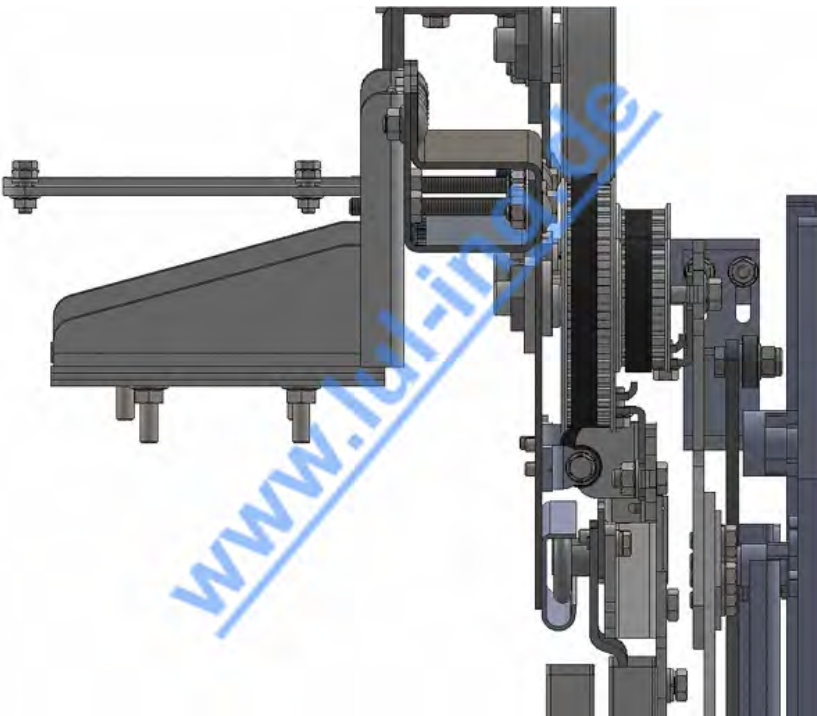


Abbildung 12: QKS8 L&L door operator - bracket for door frame, back

3.3.7 Adaptation on car

If parts of the car (see Abbildung 13: adapt car - left side and

Abbildung 14: adapt car - right side

) are in the way, remove by suitable tools. It is to be made certain that stability and the function are given to the car and/or car mounting plate after treatment also.



Abbildung 13: adapt car - left side



Abbildung 14: adapt car - right side

3.3.8 Hang up the panel

The fast panel hang up with the help of the door roller (supports) and the retractable door cam (see also Kap. 0

Fastening the coupler on door panel)

3.3.9 Safety contact

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

3.3.10 Limit stop / buffer

Control the limit stop / buffer in closed and opened position.

3.3.11 Slow panel

Mark the fixing point of coupler for slow panel. Take out the slow panel, drill the holes for the coupler in the panel, fix the coupler and hang up the panel again.

3.3.12 Mounting retractable door cam

Fix the redesigned retractable door cam at the panel again (same position on panel as before) and adjust the curve for the retractable door cam.

3.3.13 Conclusion

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

3.4 Fastening the coupler on door panel

2 panel telescoping left : 1x coupler on the slow door panel
 1x coupler on the fast door panel

2 panel telescoping right : 1x coupler on the slow door panel
 1x coupler on the fast door panel

The differently slotted holes allow the position of the door panels to be defined precisely.

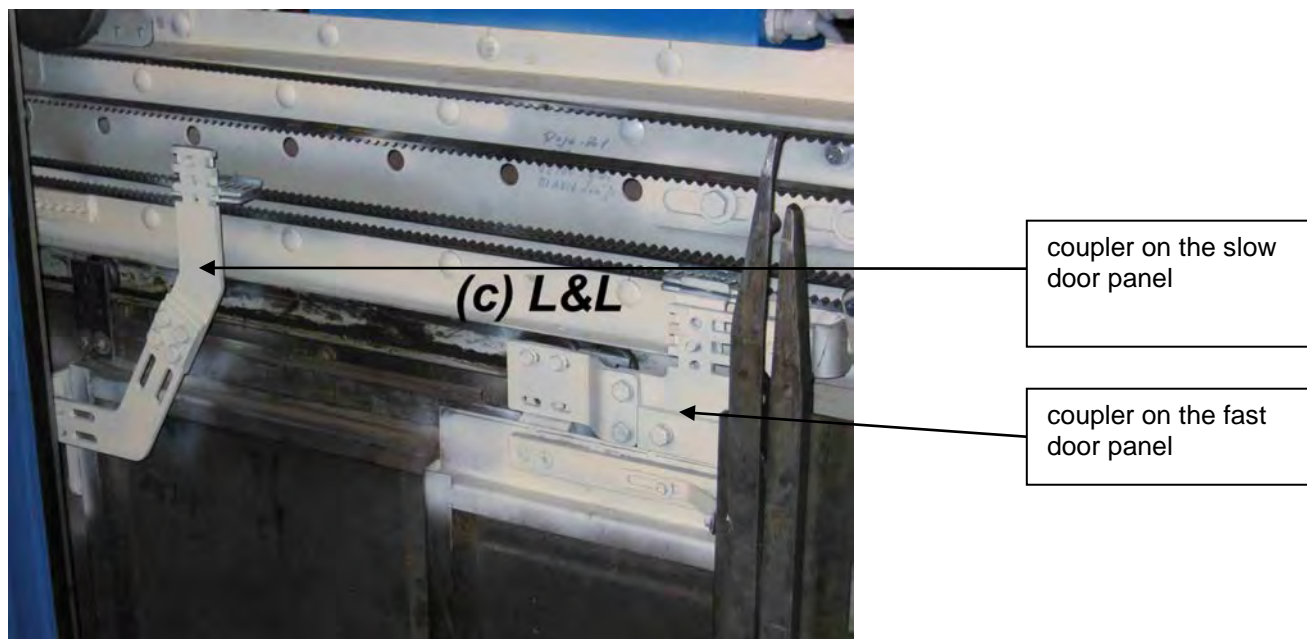


Abbildung 15: coupler on the door panel (here: telescoping left)

2 panel central: 1x coupler on the slow door panel right
 1x coupler on the slow door panel left

The coupler are designed both for a left-telescopically and a right-telescopically opening door, and can be re-bolted if necessary. The differently slotted holes allow the position of the door panels to be defined precisely.

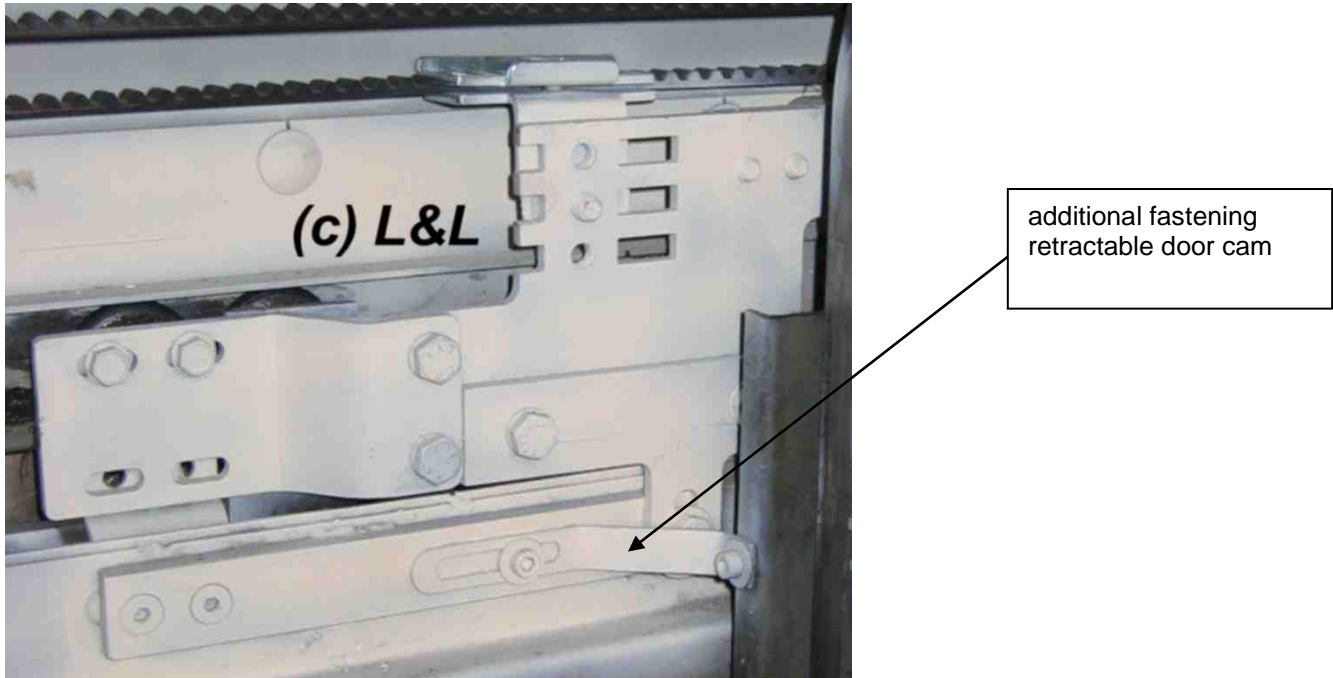


Abbildung 16: coupler on the fast door panel (here: telescoping left)

The existing retractable door cam is secured to the door panel by means of an additional securing element (see Abbildung 16: coupler on the fast door panel (here: telescoping left)).



Abbildung 17: coupler on the slow door panel (here: telescoping left)

3.5 Assembling the limit buffer and the limit switch

A limit buffer and a forced door contact are mandatory in the 'Closed' position if the door drive is to function in a trouble-free manner. These must be set in such a way that firstly the door is fully closed and has struck against the limit buffer; secondly, the forced door contact must make contact about 2 – 3 mm in front of the buffer limit position.

The buffer is struck by the cheek on the door panel pusher door.

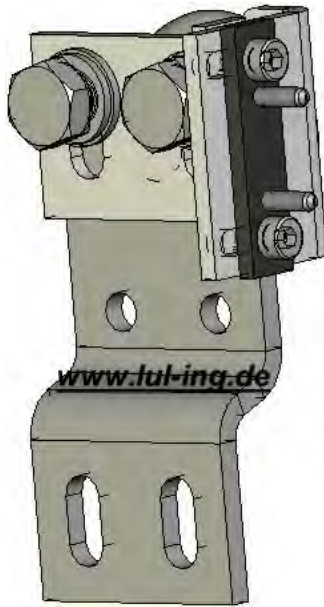


Abbildung 18: limit switch with door roller

3.5.1 For telescoping doors

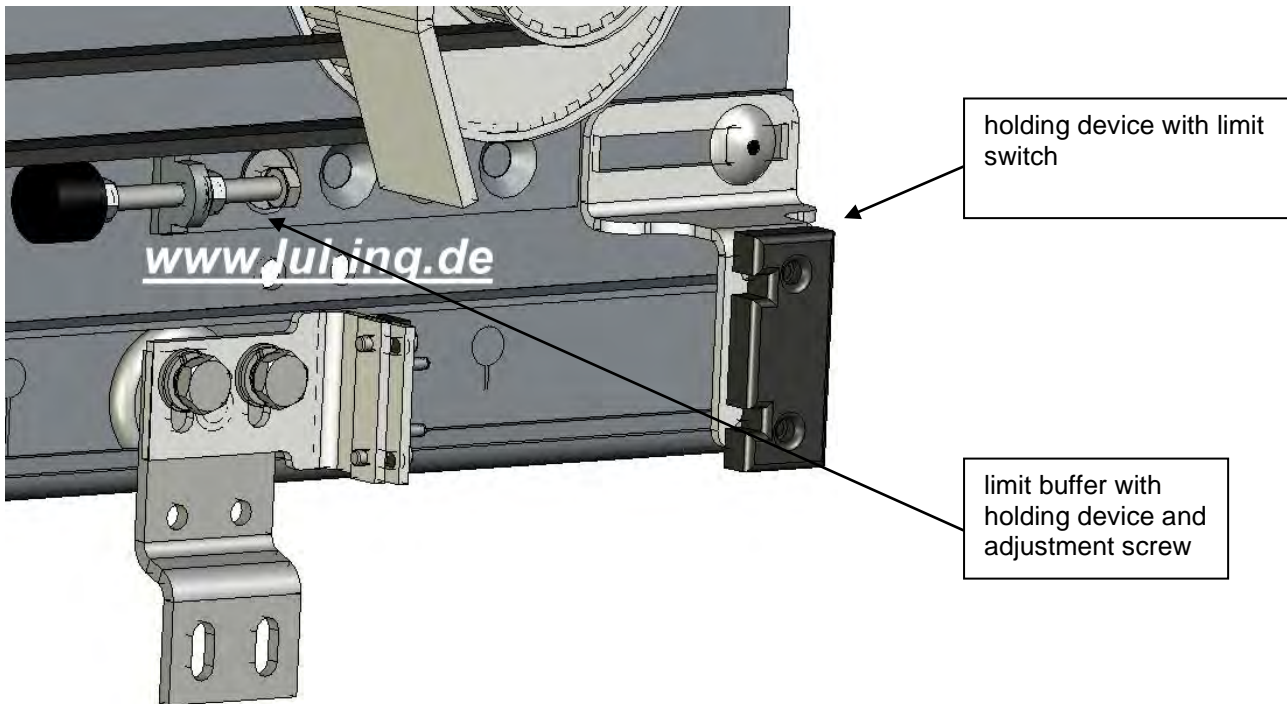


Abbildung 19: limit buffer and limit switch

3.5.2 For centre doors

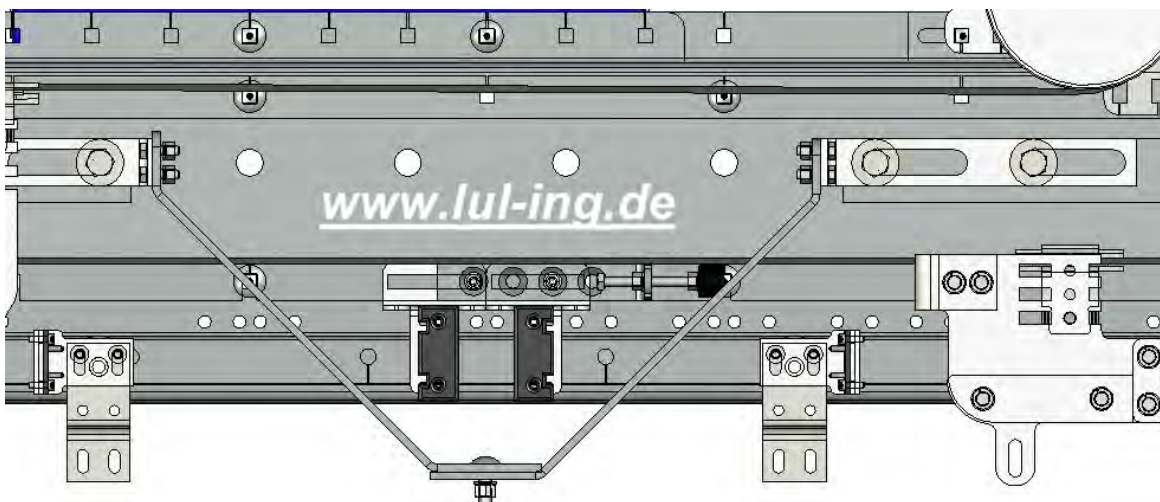


Abbildung 20: limit buffer and limit switch

3.6 Assembling the retractable door cam

The already existing retractable door cam has to be converted using the supplied metal parts.

3.6.1 For telescoping doors

3.6.1.1 Lever-Securing Hole in the retractable door cam

A hole to secure the new lever has to be drilled in the retractable door cam.

Position of the hole: 25mm from the top, 44mm from the side (side opposite the folding mechanism), diameter 10mm (see Abbildung 21: hole to drill in the retractable door cam)

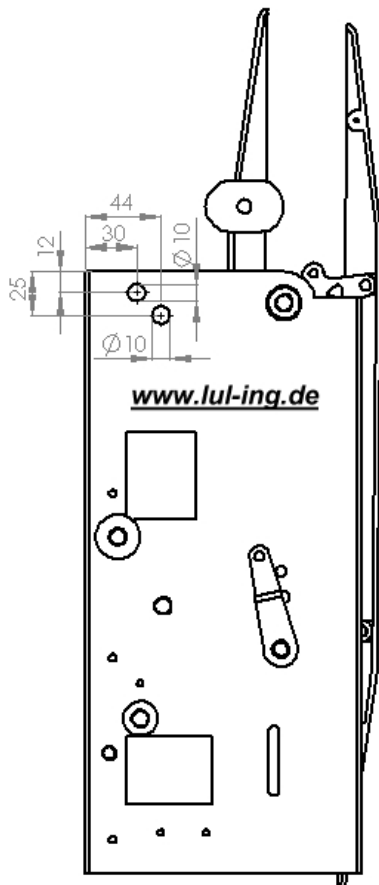


Abbildung 21: hole to drill in the retractable door cam

Remark:

In the case of some doors and retractable door cam, the hole must be drilled at the dimension 25mm/25mm or 12mm/30mm instead of at 25mm/44mm. To simplify this procedure it is recommended that several holes should be drilled and the appropriate hole used by holding the lever in position. In addition the long lever has several holes, which can also be used for this purpose.

3.6.1.2 Assembling lever on retractable door cam

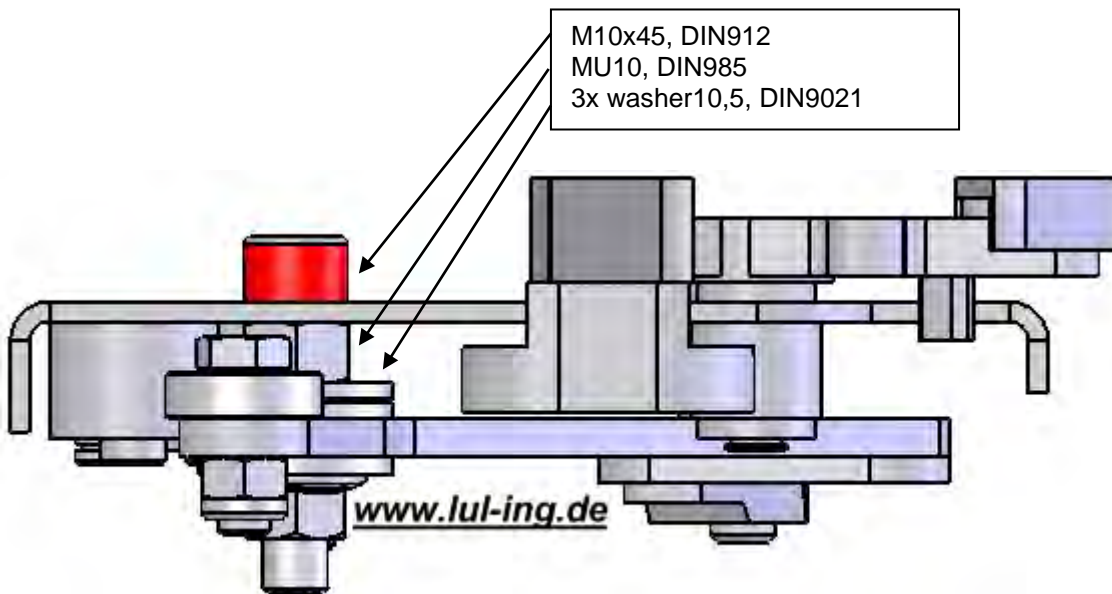


Abbildung 22: view retractable door cam from above

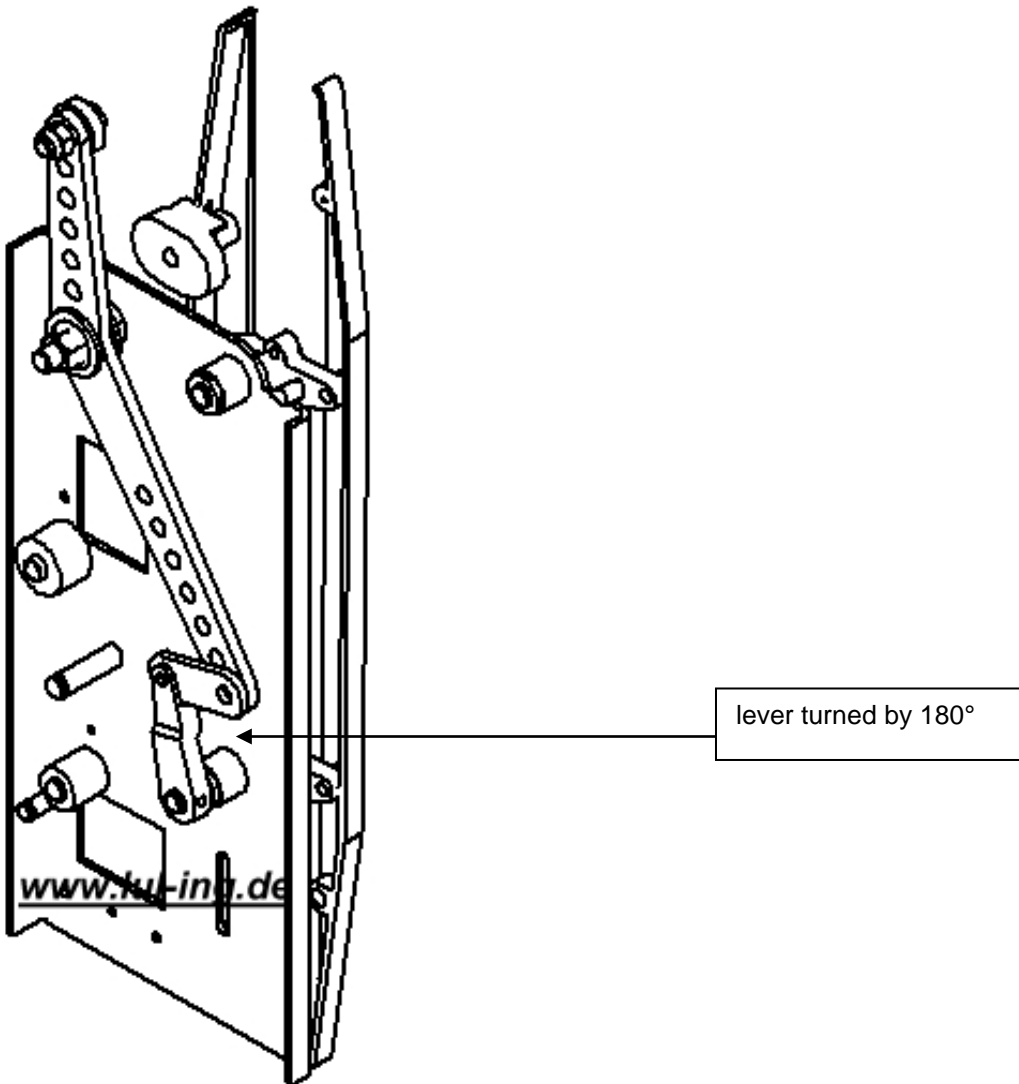


Abbildung 23: view retractable door cam after conversion (back)

A roller (or bearing) must be secured to the upper side of the lever (bearing is included in the scope of delivery). When the door is in the closed position, this roller runs against the retractable door cam-actuator bracket, thereby closing the retractable door cam. The position of the retractable door cam-actuator bracket can be adjusted by slackening the screws.

In order to be able to optimally adjust the lever mechanism, several additional holes have been drilled in the lever arm in order to be able to use a hole other than the outermost one.

3.6.2 For central doors

The retractable door cams for central doors are different to retractable door cams for telescoping doors.
Fix the lever with the roller on the arm of the retractable door cam.

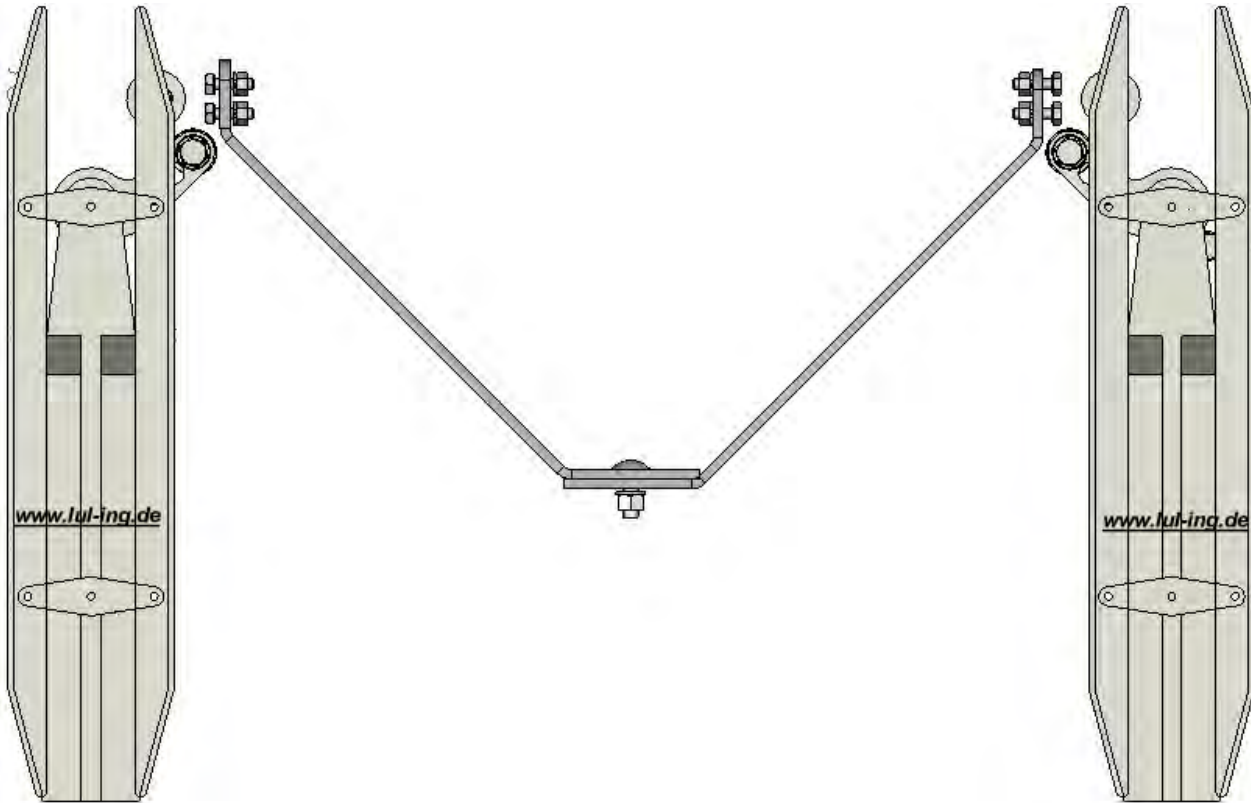


Abbildung 24: modification retractable door cam (centre door)

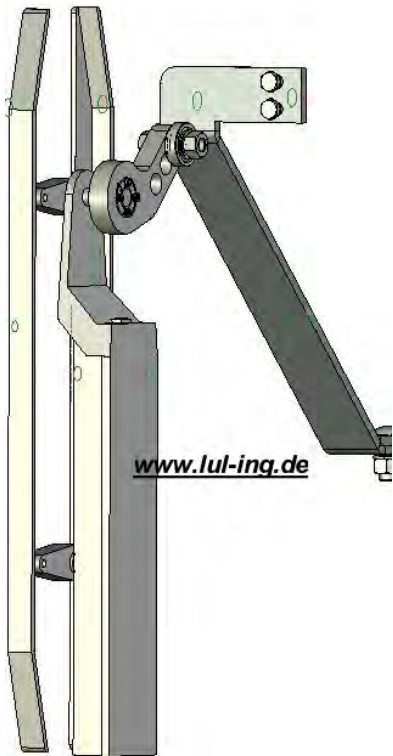


Abbildung 25: retractable door cam QKS8 - right side: view from the back



Abbildung 26: retractable door cam QKS8 - left side: view from the back

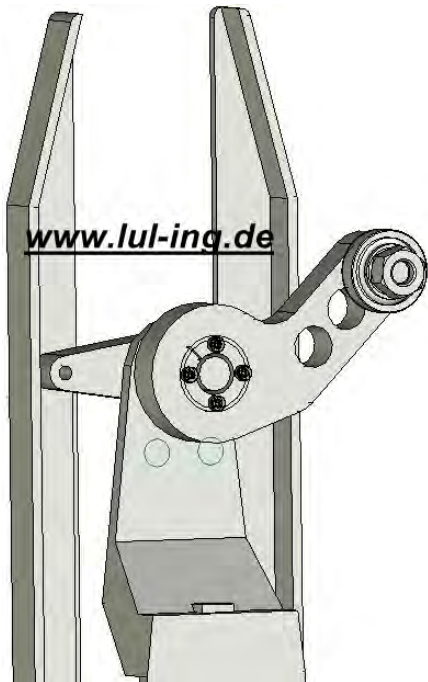


Abbildung 27: retractable door cam QKS8 - right side: detail

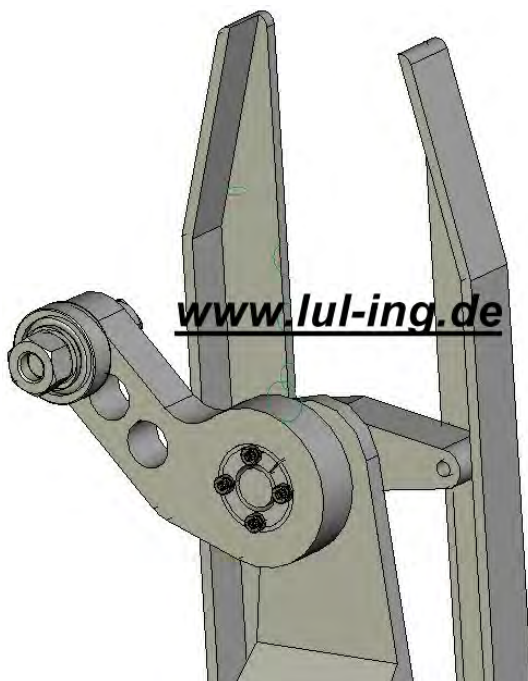


Abbildung 28: retractable door cam QKS8 - left side: detail

The existing arm on the reverse side of the retractable door cam has to be dismantled. The new (attached) arm has to be fitted with bushing. The angle of the new arm is infinitely adjusted by the bushing. In addition, the bearing in different holes on the arm attached to the closing of retractable door cam optimal setting.

3.7 Installation of the Control Cabinet Bracket

The electronic system (PCB plus housing) can be secured to the door frame of the springing retainer using the control cabinet bracket

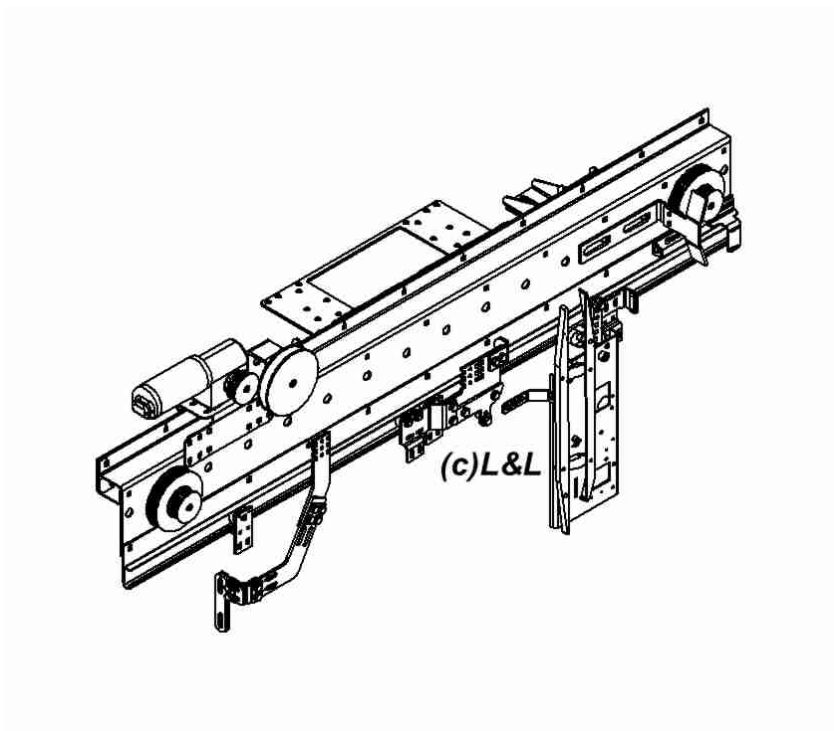


Abbildung 29: summary door operator QKS8

4 Calibrating the door

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.

After calibration is completed, the connector rails X1 and X2 must be reconnected.

(We refer to the further calibration of the door contained in the enclosed Operating Instructions for the door control unit TSG200/400 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.

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:
 - o iron scrap
 - o electronic scrap
 - o aluminum
 - o multicolored metal (worm gear, drive winding)

7 Contact

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