

Bi-Directional Progressive Safety Gear LADP-9/14/16

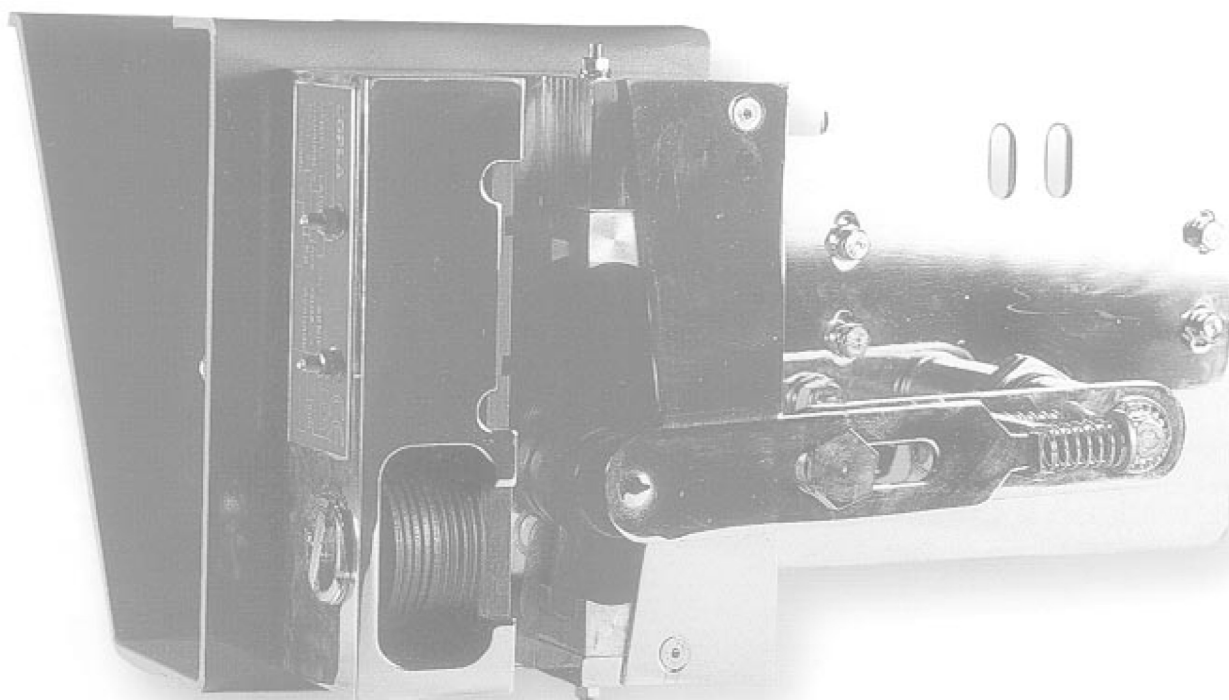
Operating instructions



Blatt/sheet D795MGB.000
Datum/date 13.02.2001
Stand/version D-05.04.2016
Geprüft/approved WAT/MZE

Bi-Directional Progressive Safety Gear LADP-9/14/16

D795MGB 08.2008



Original Instruction

www.wittur.com

Product manufacturer reference can be found on the product type label.
For any support or further questions please contact your trading office.





Bi-Directional Progressive Safety Gear LADP-9/14/16

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1 General information prior to installation

1.1 Description and functions

The double- acting progressive safety gear LADP-9/14/16 is effective in up direction as well as in down direction. The safety gears are fixed normally below the car frame. There is always a pair of safety gears mounted to the car frame.

When the tripping speed of the overspeed governor is reached during up- or downward drive, the safety gear is engaged.

The overspeed governor rope is blocked and pulls the engaging lever, depending on running direction of the over speed governor rope, up or down into brake position. Both safety gears, connected by a gripping shaft will grip at the same time.

The uniform braking of both safety gears is caused by a good synchronisation during mounting. This must be done very carefully.

The release of the safety gear is done by moving the car upward about 100mm. With the exception of resetting the safety switch, which must be done by trained personal (if the safety gear is equipped with a manual resetable switch), is the safety gear ready for operation immediately.

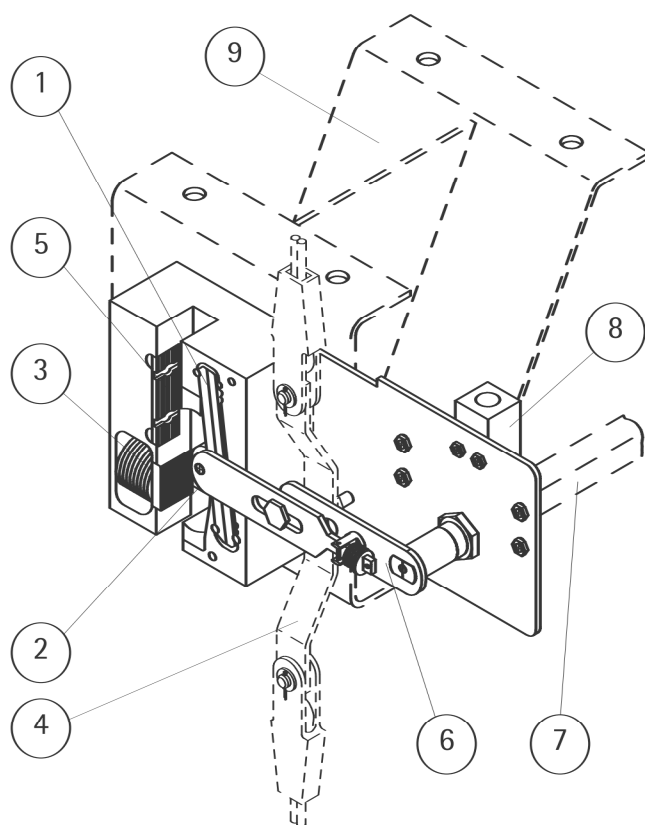
Each safety gear will be factory adjusted and sealed according the ordering papers. Readjustment afterward is not allowed for safety precautions.

If this safety component is handled with care and scheduled examination is performed, it will be very long live and fail save.

The operating range is defined as follows:

- max. elevator speed 1,88 m/s
- width of guide rail head 8 - 16 mm
- max. mass to be gripped (downward)

LADP-9/14	Fmax = 2400kg
LADP-16	Fmax = 4641kg
- tripping force of the governor 1700N



1. Plate spring
2. Gripping roller
3. Disc spring
4. Activation linkage
5. Brake shoe for gripping downward
6. Activation lever
7. Gripping shaft
8. Safety switch
9. Outer housing

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1.2 Liability and guarantee

This instruction handbook is written for people who are familiar with lift servicing and installation. Sufficient knowledge of lifts is essential.

WITTUR accept no responsibility for damage caused by improper handling, or for damage caused as a result of actions other than those stated in these operating instructions.

The WITTUR guarantee may be voided if parts other than those described in these instructions are installed.

Unless stated otherwise, the following are not permissible due to technical safety reasons:

- The use of components other than those installed
- Carrying out modifications, of any kind on the safety gear
- Installing two different brake heads with different index numbers together
- Destruction of the lead seal
- Combining different component types
- Installing progressive safety gears intended for other employment than that stipulated
- Carrying out faulty or improper maintenance or inspection checks
- Using unsuitable accessories, spare parts or operating material which has neither been released by the WITTUR Company nor consists of original WITTUR spare parts

1.3 Safety precautions

WITTUR machine installation or repair engineers are chiefly responsible for the safe operation of machinery.

It is essential to comply with and keep abreast of all safety rules and legal obligations in order to avoid personal / product damage during installation, maintenance and repair work.

Important safety advice and danger warnings are emphasised with the following symbols:



General danger warning



High danger risk warning (i.e. crushing edge, cutting edge etc.).



Risk of damage to machinery parts (i.e. due to incorrect installation, or such like).



Important information sign

These operating instructions belong with the whole installation and must be kept in a safe place at all times (i.e. machine room).

The proper assembly and installation of WITTUR safety gears requires correspondingly well trained fitting engineers. The responsibility of training lies with the company appointed to carry out the work.

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Before starting installation work:



Only properly trained personnel may carry out work, or be allowed access to the installation site.

- Attach safety devices to guard against falling (platform or harnesses)
- Cover any floor openings
- Secure installation tools or objects against accidental falling
- Lift shaft openings should be cordoned off and suitable warning signs should be erected when working in shaft openings
- Work involving electrical equipment should only be carried out by an electrical engineer or qualified personnel.

1.4 Preparation

Before beginning installation work it is in your own interest to ascertain the constructional and spatial conditions. Where (workshop or on site) and when which installation operations can or must be carried out. It is recommended therefore, taking into account all the given circumstances, to plan the various operational sequences in advance, rather than carrying them out prematurely and in an unconsidered manner.

On receipt of the delivery, the goods or components should be checked for correctness and completeness with the order sheet.

The following should be checked also:

- that the factory and order number correspond
- that the details on the name plate correspond to those on the order
- the width and type of guide rail used
- the total load F_{\max} (P+Q)
- the brake force F_{brake} (P+Q)
- the elevator tripping speed

1.5 Advice for when working on safety components

Safety gears are classified as safety components. It is most important that the standards and guidelines described in this section be complied with as well as those given in the rest of this operating manual.



These instructions, and especially the section on safety precautions, should be read and fully understood before work begins.

Safety devices require special attention. It is compulsory that they function perfectly to ensure danger free installation operation.

Safety devices that can only be adjusted after installation should be done so immediately after installation.

Operation of safety devices installed ex-works must be tested immediately.

If it is necessary to disassemble a safety device during servicing or repair, they should be reassembled and comply with the required tests, as soon as the work has been carried out.

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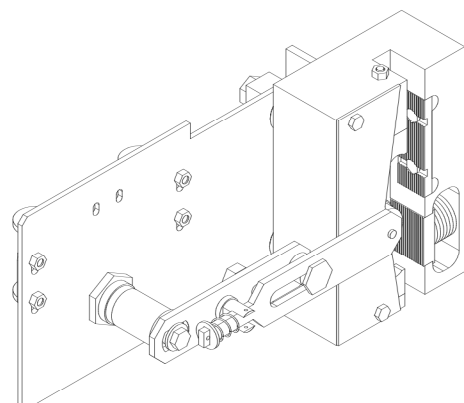
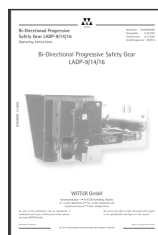
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1.6 Content of supply

After delivery, check the safety gear for damage and for full delivery of parts.

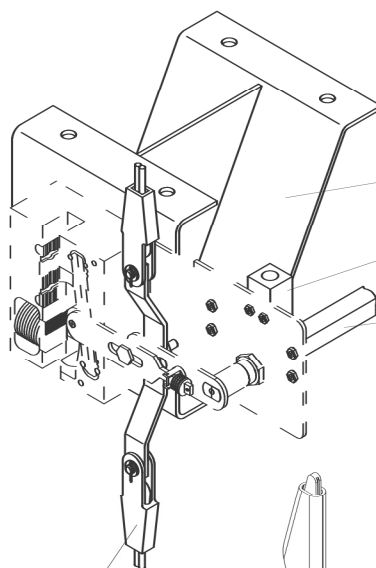
Depending on the order the content of supply can cover:

- Operating instructions manual
- One left handed and one right handed safety gear (adjusted and sealed at the factory)



Optional:

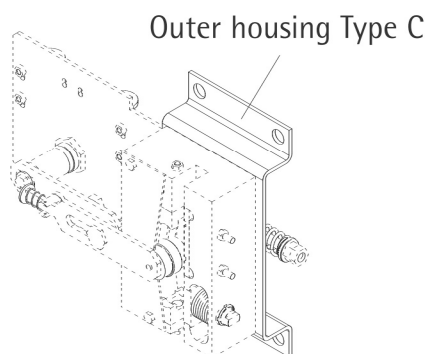
- Outer housing (type A, B or C)
- Safety switch (manual or self resetting type)
- Gripping shaft
- Rope hitch



Outer housing Type A

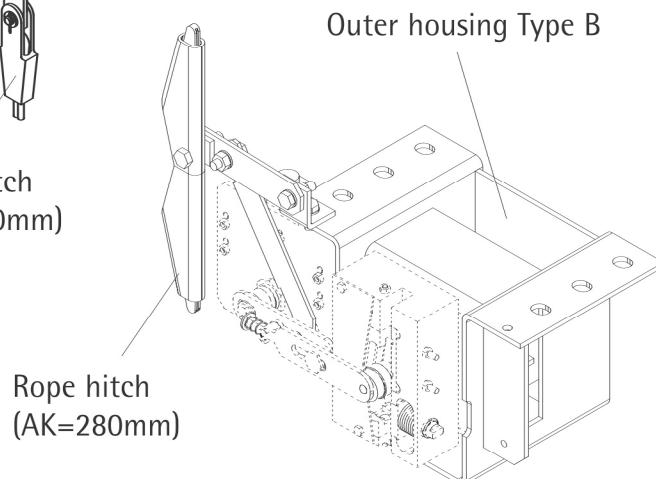
Safety switch

Gripping shaft



Outer housing Type C

Rope hitch
(AK=140mm)



Outer housing Type B

Rope hitch
(AK=280mm)

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2 Name plate, designation, identification

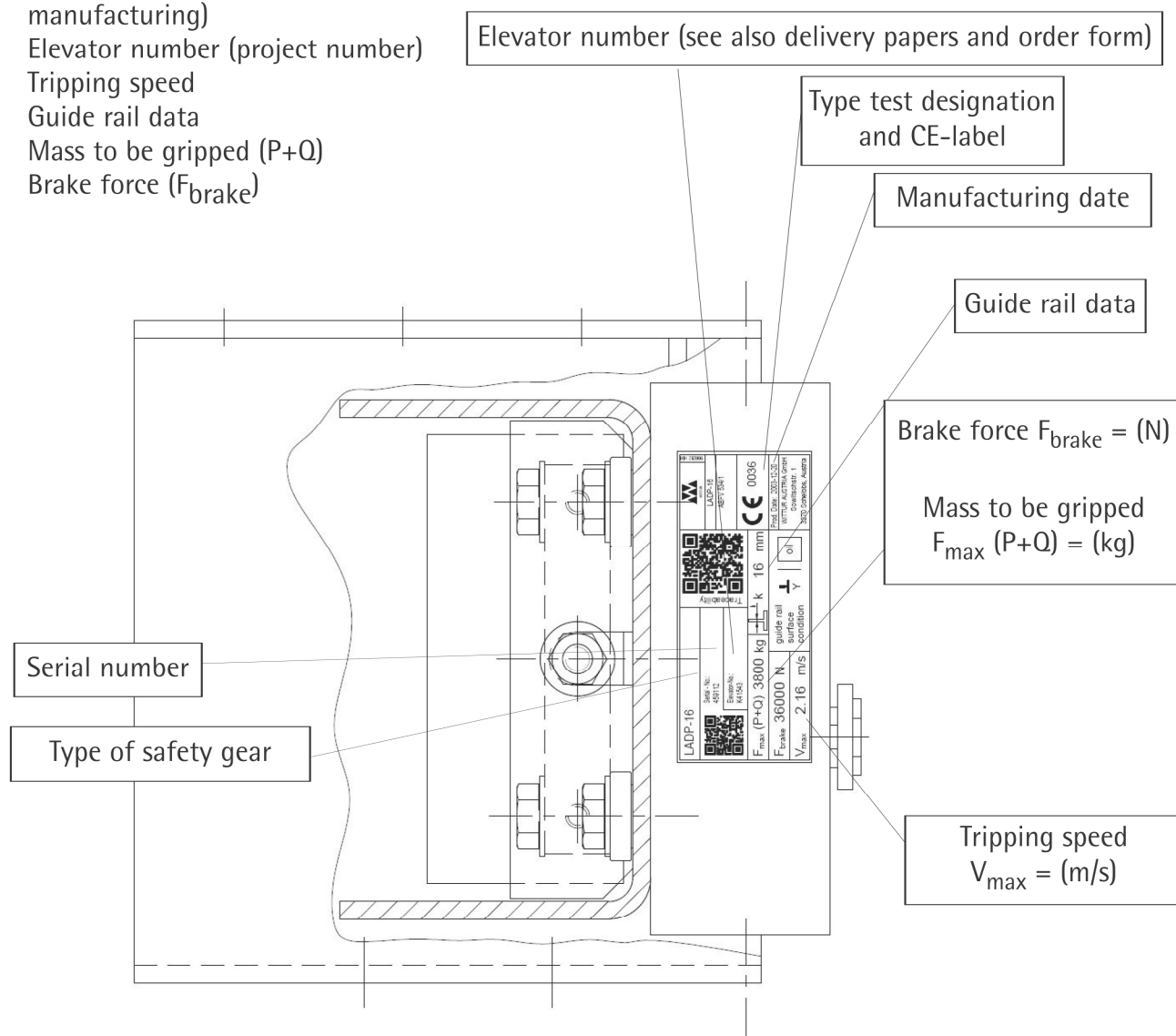
The safety gear identification indicators are located on the side of the safety gear respectively on its housing (if delivered).



The data on the type label must be compared with ordering paper and the project documents.

These consist of a name plate and a identification sticker which gives following data:

- Type term of safety gear
- Type test designation
- Manufacturing date
- Registration number (serial number of WITTUR manufacturing)
- Elevator number (project number)
- Tripping speed
- Guide rail data
- Mass to be gripped (P+Q)
- Brake force (F_{brake})



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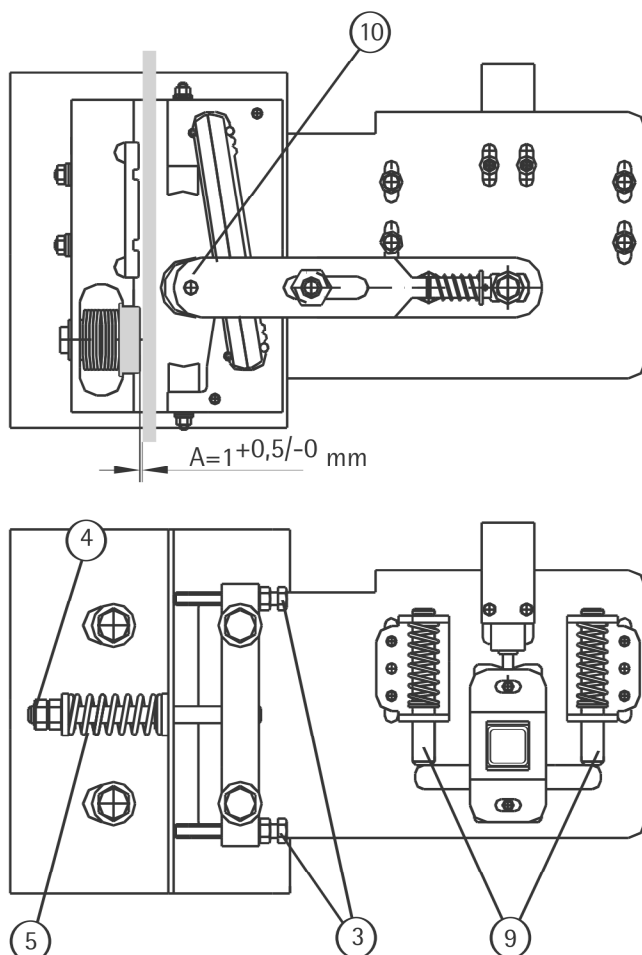
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3 Installation and adjustment


3.1 Adjustment of gap brake shoe / guide rail

After installation of the car frame and the guides, the correct running clearance "A" of the safety gear with regard to the rails have to be done. The gripping roller (10) must be in resting position. If necessary set up this resting position with the reset bolts (9) (see pict.1).




Adjustment:

- (1) Check if the safety gear can be moved side-ways
- (2) Adjust the lower brake shoe / guide rail by stop screw (3) to a running clearance of $1+0,5/-0\text{mm}$

 Brake shoe and guide rail must be lined up in parallel.

- (3) Tighten the nuts of the stop screws (3)
- (4) Repeat adjustment on the other safety gear

 Check the horizontal movement of the safety gears in both directions and the movement can be done easily by hand.

- (5) If necessary change the resetting force of the spring (5).
- (6) After adjustment, lock the nuts (4)

Pict. 1: Running clearance

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3.2 Dimensioning and cut of synchro- nisation shaft

Dimensions:

Square Pipe measurement = S355J0 / □ 25 x 3

LADP-9/14

Mounting dimension

Housing type A & C =

Distance between guides - 140mm

Housing type B =

Distance between guides - 102mm

LADP-16

Mounting dimension

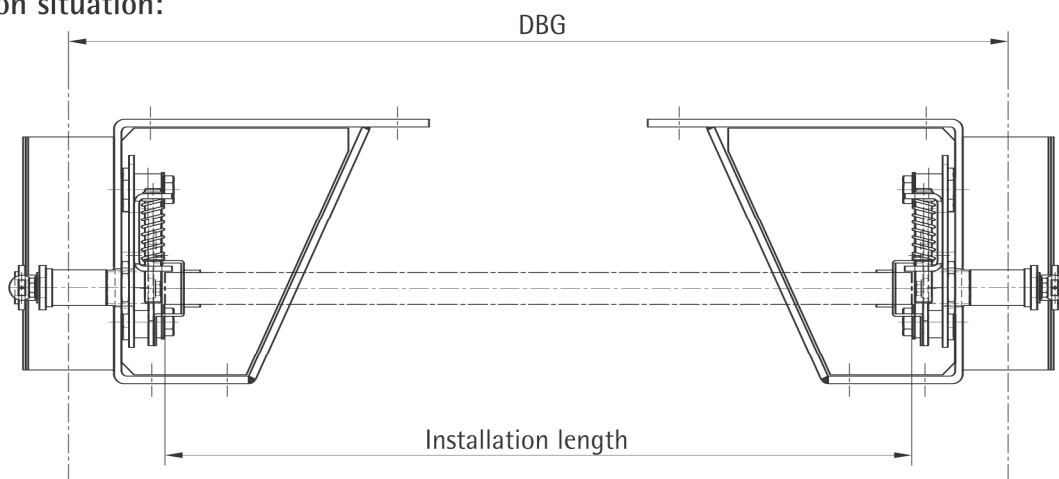
Housing type A & C =

Distance between guides - 145mm

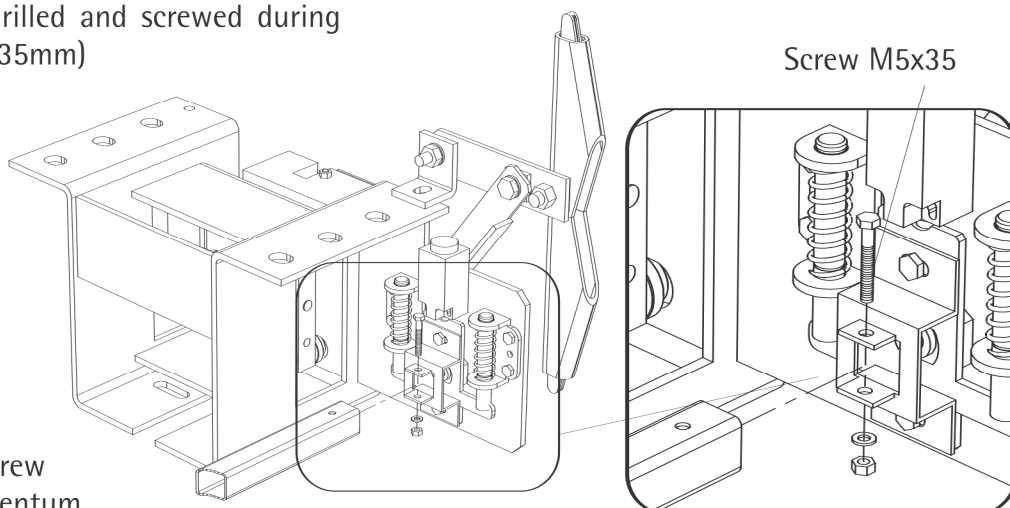
Housing type B =

Distance between guides - 94mm

Installation situation:



The gripping shaft is drilled and screwed during installation (Screw M5x35mm)



Attention the screw
tightening momentum
for the screw M5: 5,5Nm


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3.3 Synchronising the safety gears


Both safety gears must operate synchronous.

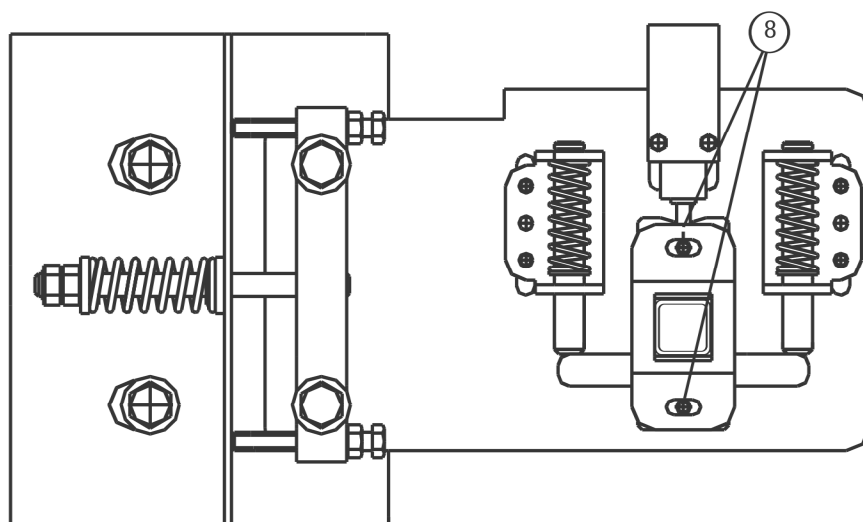
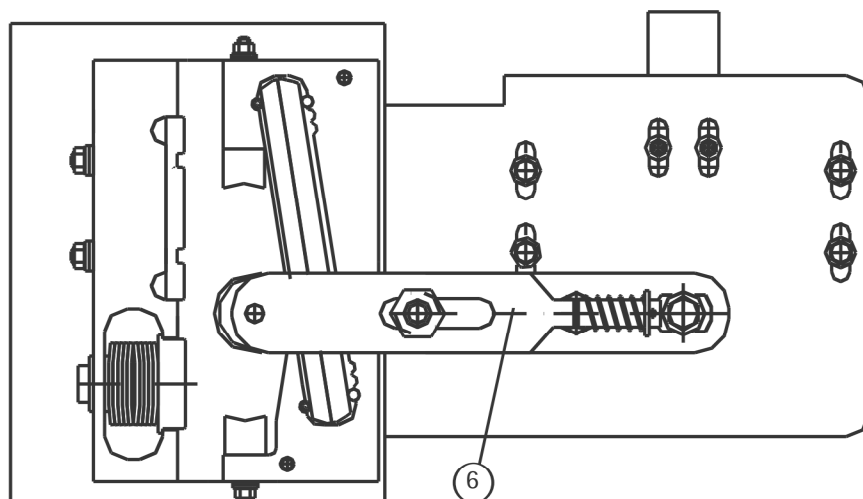
 Check the Synchronising of both safety gears in up- and downward direction..

Use e.g. paper strips. Pull the activation linkage (6) on the contact point of over speed governor rope up and down and check if both paper strips will be clamped by the gripping roller.

If necessary readjust by using the clamping screw (8).

Afterward tighten the clamping screw (8).

 Check again the Synchronising of both safety gears in up- and downward direction.



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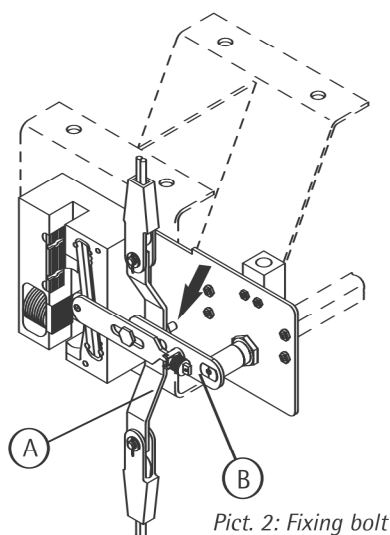
Operating instructions

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3.4 Fixing of overspeed governor rope

3.4.1 AK=140mm (housing type A, B & C)

The fixing is done to the activation linkage (A) (max. plate thickness 5mm) on bolt ($\varnothing 12\text{mm}$, see arrow) of the activation lever (B) (see pict.2).





Pict. 2: Fixing bolt

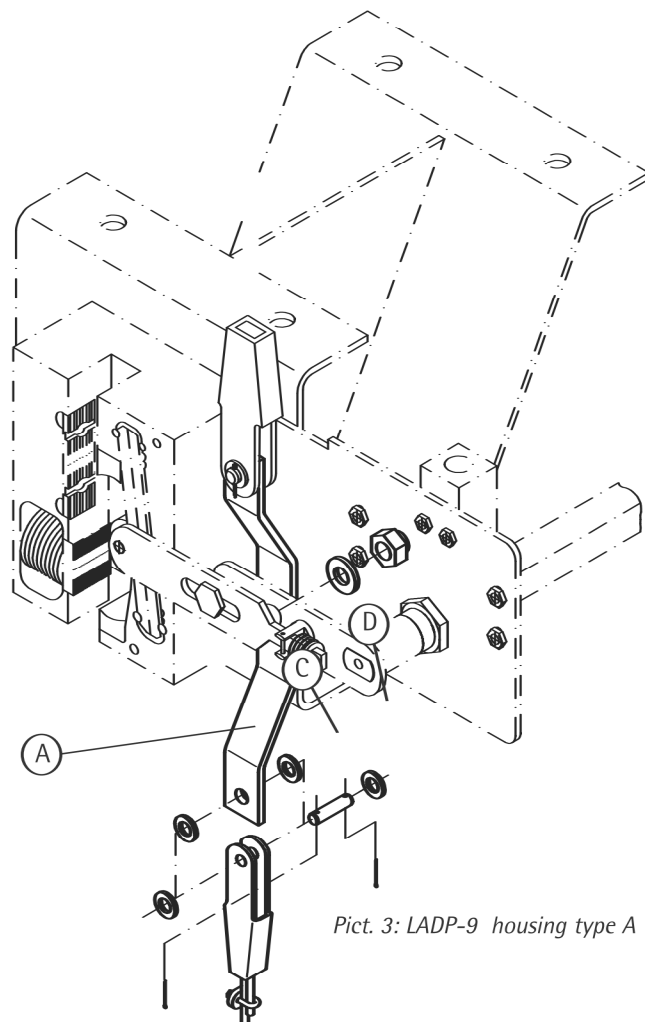
 All possible fixing positions (L/R) of over speed governor rope can be done without additional parts.

Fixing of activation linkage:

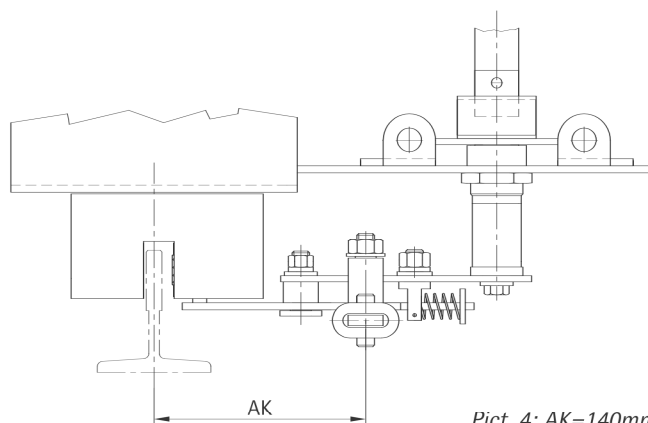
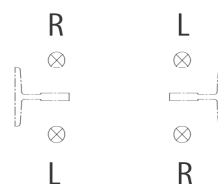
- (1) Plug the activation linkage (A), lock washer (C) onto the bolt ($\varnothing 12\text{mm}$) of the activation lever.
- (2) Screw the hexagon nut M10 (D) and tighten..

 Note: the tightening momentum for the screw M10 is 46Nm

 The activation linkage can be turned on the activation lever also with tightened nut!



Pict. 3: LADP-9 housing type A



Pict. 4: AK=140mm

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3.4.1 AK=280mm (only housing type B)

The fixing is done with the activation lever (A) on bolt ($\varnothing 12\text{mm}$) of activation lever (B).

For fixing of the activation mechanism to the housing of the safety gear (see pict.5).

Mounting of activation lever

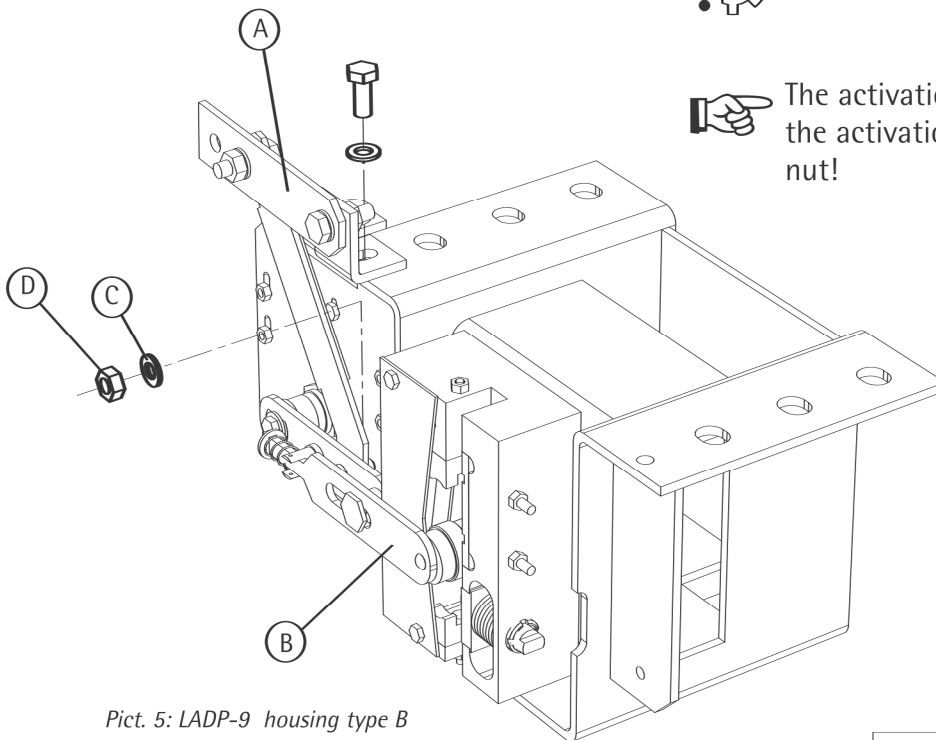
- (1) Put the activation lever (A), lock washer (C) to the bolt ($\varnothing 12\text{mm}$) of the activation lever (B).
- (2) Screw the hexagon nut (D) and tighten.



Note: the tightening momentum for the screw M10 is 46Nm



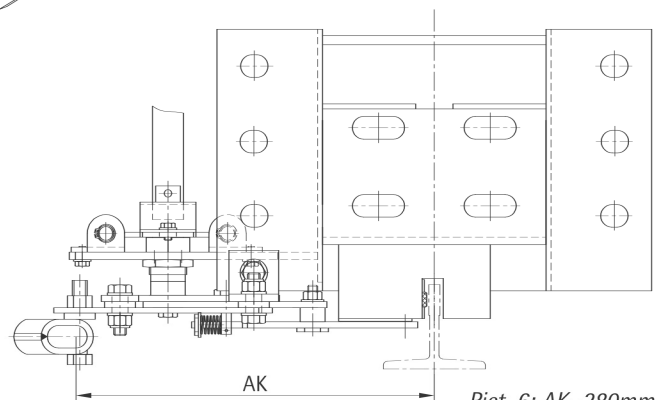
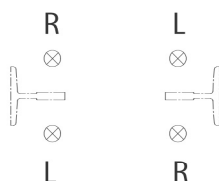
The activation linkage can be turned on the activation lever also with tightened nut!



Pict. 5: LADP-9 housing type B



All possible fixing positions (L/R) of over speed governor rope can be done without additional parts.



Pict. 6: AK=280mm

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3.4.1 Mounting of rope hitches

Rope hitches for AK = 140mm

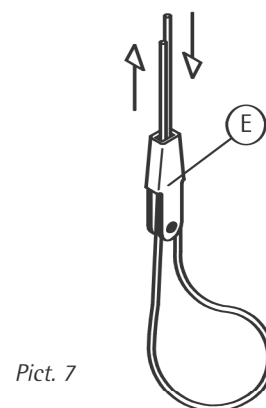
- (1) Cut rope to right length
- (2) Threat the rope into the rope hitch (E) and make a loop back (see pict.7)
- (3) Insert the wedge into the loop of the rope and pull on the ropes until it is fixed in the rope hitch (see pict.8).
- (4) Fixing of rope clamp: put the U piece (G) to the rope, place counterpiece (H) and tighten with the hexagonal nuts (J).



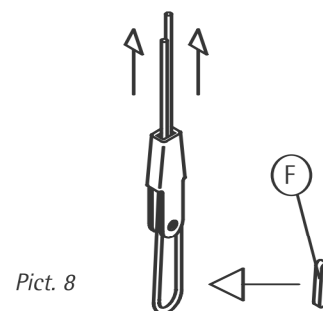
Tighten the rope clamp firmly, but not too much. The rope must not be crushed (pict.9).



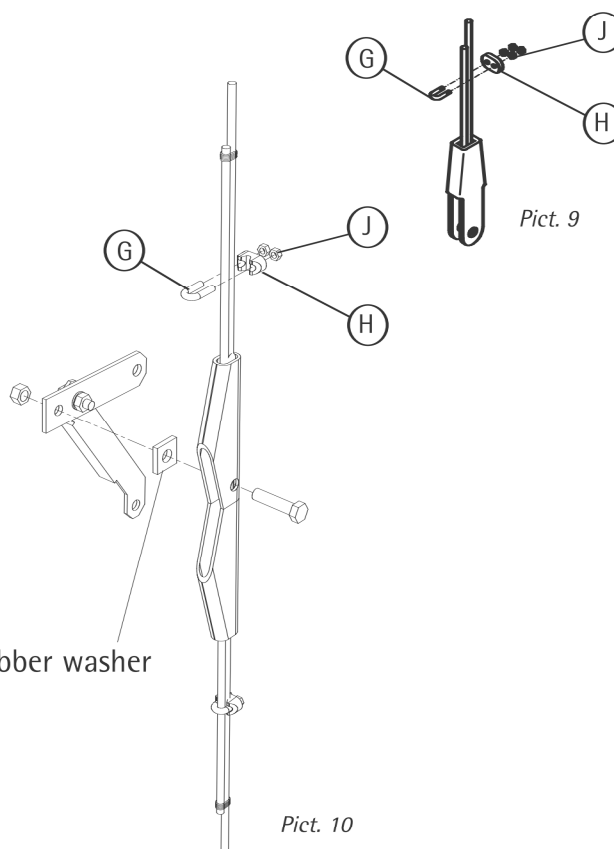
Shorten too long rope ends to about 5-10cm.



Pict. 7



Pict. 8



Pict. 9

Pict. 10

Rope hitches for AK = 280mm

Basically the same mounting steps like for the rope hitch AK = 140mm (pict.10)

Rubber washer

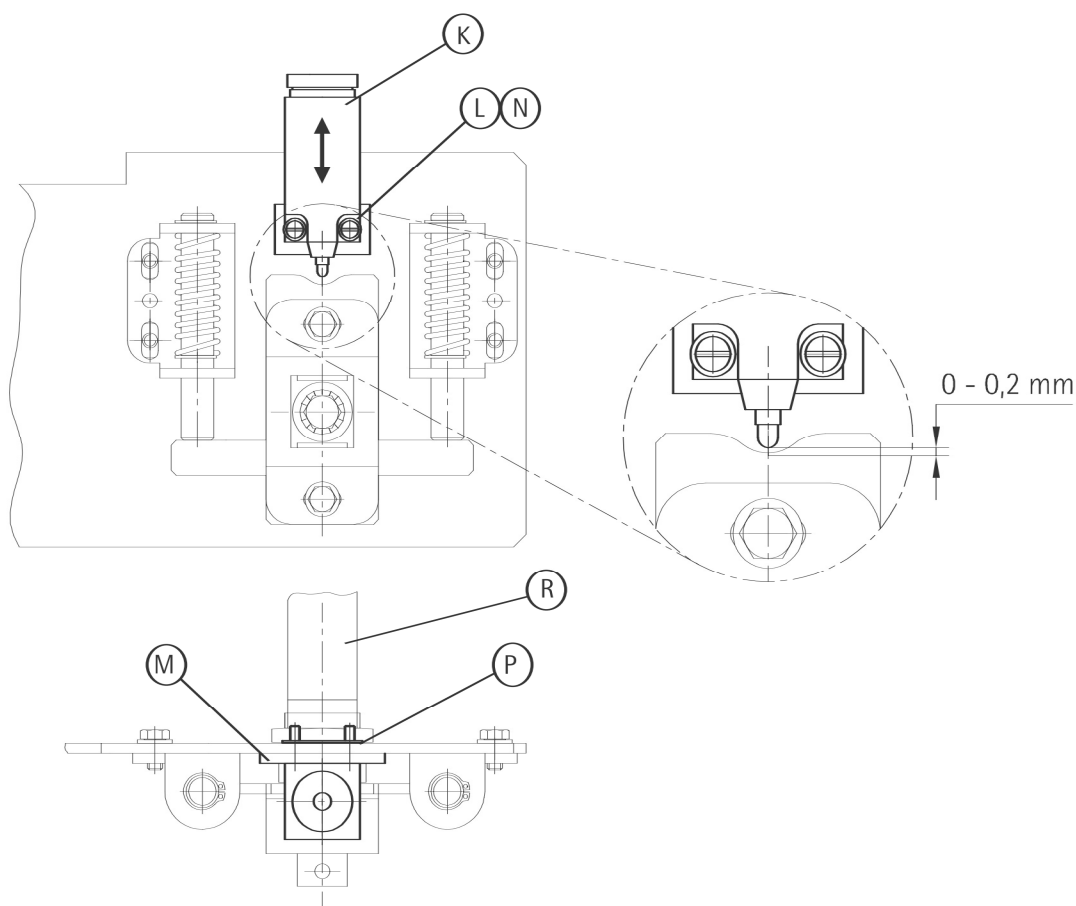
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Blatt/sheet D795MGB.013
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3.5 Adjustment of safety switch

- (1) Move the activation linkage to the resting position
- (2) Place the safety switch (K) like shown in picture
- (3) Insert cheese head screw M 4 (L) and metal plate (M). Shim washer (N). Screw an tighten the spring nut (P).
- (4) Turn the gripping shaft (R) for testing of safety switch
- (5) Check position of the safety switch and readjust if necessary
- (6) Version safety switch with snap action contact: reset switch knob with screw driver



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3.6 Electrical installation of the safety switch



Work involving electrical equipment should only be carried out by an electrical engineer or qualified personnel.



Pay special attention during installation of cables that:

- single wires are covered with double insulation
- the installation and usage of cables is done according EMV-rules.



Switch off the power to all parts of elevator before starting work.



The safety switch interrupts the safety circuit of elevator plant.

(1) Wire the contacts

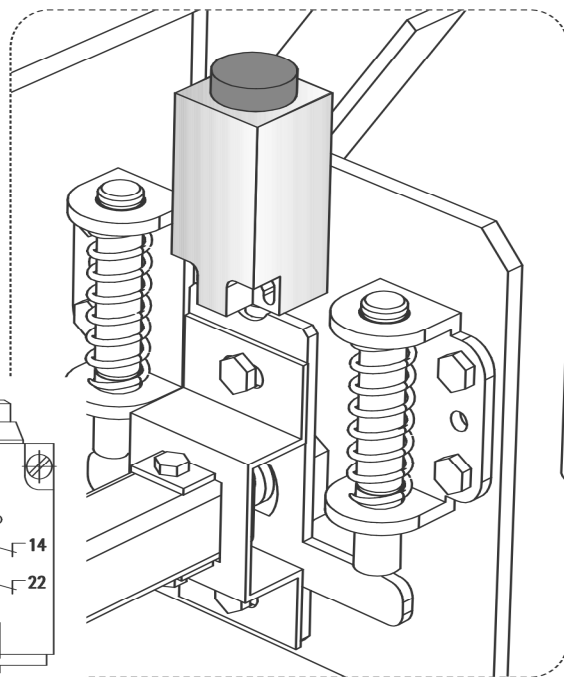
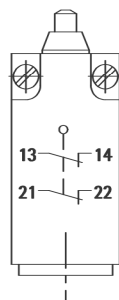
(2) Check the function of the safety switch - if necessary do readjustment (see chapter 3.6)



The safety switch must interrupt shortly before gripping of safety gear!

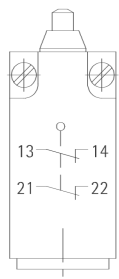
3.6.1 Safety switch (self-resetting)

- Utilisation Category: AC 15, B300, U_e/I_e 240V (1,5A)
- Konv. thermal current: $I_{the} = 5A$
- Insulation voltage: $U_i = 400V$ AC
- Protection class: IP 43
- Tested according: VDE 0470 IEC/EN 60947-5-1



3.6.2 Safety switch (manual-resetting)

- Utilisation Category: AC 15, A300, U_e/I_e 240V (3A)
- Konv. thermal current: $I_{the} = 10A$
- Insulation voltage: $U_i = 250V$ AC
- Protection class: IP 43
- Tested according: VDE 0470 IEC/EN 60947-5-1



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4 Function testing

4.1 First acceptance test

Operational reliability of the installation is assured. The quality and function of individual components are subject to thorough inspection and is checked before dispatch from our works. The safety gear system should undergo an operational test before commissioning or before possible inspection from a technical institute.

First test run after installation



Before the first test run:

**The protective coating of grease is to be carefully removed from the guide rails!
Clean the guide rails!**



The cleaning of the guide rail must be done with a disc brake cleaner or a similar fluid. It is not allowed to do mechanical cleaning like filing, grinding. If the surface cannot be cleaned properly contact the guide rail manufacturer.



Clear all people and objects from the lift shaft before commencing the test run
Risk of crushing injuries!

The entire lift travel path should be slowly travelled (in inspection mode) before the functions tests. Attention should be paid to the clearance of all fastened parts, especially with regards to the guide brackets/safety gear devices. Find and remove any protruding bolts or other dangerous restrictions well in advance.

Preparations before tests:



When sliding guides shoes are used, a thin coating of the guide rail oil is to be applied to the guide rails.

When roller guide shoes are used the guide rail may not be lubricated at all.



The lubrication oil may not include high pressure additives.

- Check the activating force of the safety gear synchronisation (see pict.4 & 6):
for AK = 140mm ... $F_1 = 170N \pm 25N$
for AK = 280mm ... $F_1 = 250N \pm 25N$
- Check the tripping force of the overspeed governor F_2 :
This force must be double as high like the force measured on the synchronisation of safety gear.

e.g.: $F_1 = 250N \Rightarrow F_{2min} = 2 \times F_1 = 500N$



The maximum tripping force F_{2max} of the overspeed governor is $1700N \pm 100N$.

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4.2 Static functions test

The function of the safety gear is to be checked with empty car and at service speed before the real safety gear test is performed.

- Activate the safety gear actuating lever (or the overspeed governor rope as well by means of the tripping function if available) manually (about 170N). At the same time, use the emergency control or inspection run control to gradually lower the car.
- Check if both safety gears work at the same time. (Gripping marks on the guide rails must be on the same height). If the safety gears are not working simultaneously the safety gear synchronisation must be readjusted.
- After a few centimetres, the car should be caught on the left and right by the safety gear.
- The safety gear contact should respond
- Then release the safety gear by running up the car. Check that the actuating mechanism and the safety gear contact have returned to their initial positions.
- Version with manual resetable safety switch: - reset the safety switch manually
- Repeat function test in the other direction



For rated speed lower 1,5 m/s the dynamic safety gear test can be done when the function test is shown to be ok.



If the rated speed is above 1.5 m/s, another safety gear test must be done with rated load in the car and at a speed of 1,5 m/s. Measure the gripping distance as shown in section 4.4. From the tripping speed v and the gripping distance s the retardation R can be calculated according to the following formula.

$$R = v^2 / (2 \times s)$$

The retardation R should be within 6 m/s² and 8 m/s²



If the retardation is not correct the safety gear must be replaced (please contact WITTUR).



The real safety gear test can be performed when the above mentioned tests are ok.

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4.3 Dynamic functions test



Nobody should be in the lift car, on the car roof or in the lift shaft when carrying out test runs or functions tests!

Each gripping test has to be documented and a copy of the test report should remain in the elevator book.

4.3.1 Testing criteria (gripping downward)

Two possibilities to do the tests for car safety gear:

- A) - load the car with 100% of the full load
- gripping speed = tripping speed of over-speed governor (v_t)
- B) - Simulated safety gear test
- load the car with 125% of the full load
- gripping speed = nominal speed



After each test or activation of the safety gear check that there are no defects that can impair the normal run of the elevator.



Change the safety gear if there is a damage on it. A visual check is sufficient.



It is recommended to do the test near a door, to unload the weights and make it easier to lift up the elevator after testing the safety gears.

In order to ease the releasing of the elevator car from the safety gear do the following:

4.3.2 Procedure of dynamic functions test - gripping downward

- Place the test weights in the centre of the elevator car (only for testing car safety gear).
- Drive the car/counterweight frame to the level near the mid point of the shaft or higher.
- Drive the car/counterweight frame about 2 m to up direction from the level, use service drive.
- In geared elevators accelerate the elevator with the motor. In gearless the acceleration can be done just by opening the motor brake.

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- Shut down the power supply; keep the brake manually open.
The elevator should accelerate to the tripping speed of the Overspeed governor. When the tripping speed is reached the Overspeed governor must activate the safety gear and the safety gear must stop the elevator. At the same time the safety switch must interrupt the safety circuit of lift control.



If this does not work correct (the elevator does not stop after 2 - 3 m) release immediately the motor brake so that the elevator is braked by it.

- Check if left and right safety gear was gripping at the same time.
- Drive the elevator in up direction in order to release the safety gear.
Force to lift the elevator after gripping:

$$F = 1,2 \times F_{\max}$$

- Drive the elevator to a floor and remove the test weights from the car (only for testing car safety gear).
- Check that the actuating mechanism and the safety gear contact have returned to their initial positions.
- Version with manual resetable safety switch: - reset the safety switch manually
- Do the checks described in the following chapters.

4.3.3 Procedure of dynamic functions test - gripping upward



Perform test without nominal load!

- First drive the car downward
- Open the manual motor brake, let the elevator accelerate to the tripping speed

The over speed governor must trip now

The safety gear must brake or stop the car within the limits given from EN81.

- Check if left and right safety gear was gripping at the same time.
- Drive the elevator in down direction in order to release the safety gear.

The actuating rod linkage and the safety switch must return to its initial position.

- Check that the actuating mechanism and the safety gear contact have returned to their initial positions.
- Version with manual resetable safety switch: - reset the safety switch manually

Bi-Directional Progressive Safety Gear LADP-9/14/16

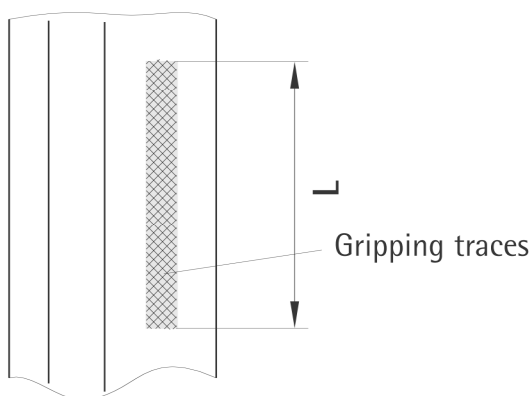
Operating instructions

Blatt/sheet D795MGB.019
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Geprüft/approved WAT/MZE

4.4 Gripping distance

4.4.1 Measuring of the gripping distance "s"

Measure and calculate the gripping distance "s" as described in the of the following instruction:



$$s = L + 1 \text{ (cm)}$$

4.4.2 Permitted gripping distance

A) Safety gear test with full load and tripping speed of the overspeed governor:

The gripping distance "s" is to be within the maximum and minimum values which are based on the tripping speed v_t of the overspeed governor.

s = gripping distance [m]
 s_{\min} = minimum distance [m]
 s_{\max} = maximum distance [m]
 v_t = tripping speed of the governor [m/s]
 g = 9.81 m/s²

$$s_{\min} = 0.50 \times v_t^2 / g \times 100$$

$$s_{\max} = 0.93 \times v_t^2 / g \times 100 + 2$$

Example:

Tripping speed of over speed governor:

$$v_t = 1,3 \text{ m/s}$$

$$s_{\min} = 0.50 \times v_t^2 / g \times 100 = 8.5 \text{ cm}$$

$$s_{\max} = 0.93 \times v_t^2 / g \times 100 + 2 = 18 \text{ cm}$$

(the measurement tolerance is 0.5cm)

B) Simulated safety gear test with 125% load and nominal speed of the elevator

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4.4.3 Visual checks after a safety gear test

- Inclination of the Car frame:



During gripping the car may not incline more than 5% towards the normal position.



If there is any defect the safety gear must be replaced!

- Safety gear:
Drive the car to the lowest floor and check from the pit following items:
 - existence of brake lining
 - visual defects of safety gear parts
 - friction marks
 - defects on the safety gear housing



After the safety gear test the burrs must be removed from the guide rails.



If deviations from the permitted limits had been noticed during safety gear test please contact us at WITTUR.

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5 Maintenance, inspection and repair

5.1 Maintenance and inspection

The progressive type safety gear LADP-9/14/16 is basically maintenance free. The whole installation is designed so that no large maintenance operations have to be carried out during damage free operation of the installation.

Inspection checks must be carried out at regular intervals (minimum twice a year with each service) to guarantee safe operation.

Alterations, damage or other irregularities should be reported, and repaired if possible. Frequent servicing and control checks not only make operation of the installation safer, but also ensure long and reliable service life.

It is recommended that control checks and servicing be carried out before legally prescribed functional tests (e.g. before TÜV tests).



The lift installation must be immediately taken out of use should any damage or irregularities arise which could possibly impair operational safety.



Please contact us at WITTUR if you have any problems or queries.



Maintenance work should be expertly carried out with utmost care in order to guarantee safe installation operation.

5.1.1 General



When sliding guides shoes are used, a thin coating of the guide rail oil is to be applied to the guide rails.

When roller guide shoes are used the guide rail may not be lubricated at all.



The lubrication oil may not include high pressure additives.

Operation temp. [°C]	Viscosity
-20 ... +5	68 cSt/40°C
-5 ... +35	ISO VG-320
+30 ... +50	ISO VG-460

Tab. 1: Lubricant requirements

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5.1.2 Maintenance and inspection check list

- Check brake shoe/guide rail for free running, and adjust if necessary
- Check the gripping roller for damage or high degree of wearing
- Check the disk spring for damage or heavy oxidation (rust).
- Check axial play and turning capacity of the safety gear shaft.
- Check the mobility of the gripping roller and the safety gear in the outer housing.
- Check even running of left and right safety gear (synchronisation).
- Check the rope connection for movability/function.
- Check safety gear contact for function/clearance and adjust if necessary
- Check state of safety gear and neighbouring components for damage, deformation or heavy oxidation (rust).
- Check the lubrication state of the guide rails (mandatory), renew if necessary.
- Check all screw joints.
- Clean system if dirt has built up.

5.1.3 Cleaning of guide rails

Any dust or dirt on the guide rails can have influence to the friction between the guide rail and the safety gear. This means that the guide rails must be cleaned carefully whenever the dirt becomes visible on the guide rails or in minimum once per year.



As cleaning fluid a disc brake cleaner or a similar fluid should be used.



Mechanical cleaning like filing, grinding is not permitted.

Only the marks from the safety gear rollers caused during safety gear activation may be removed with a file or a scraper.

5.2 Returning tests (EN81 Annex E)

The standard levels of returning tests should not be higher than the standards of the tests before installation.

These returning tests are not allowed to cause wear or stresses that impair the operation reliability of the elevator. The tests must be done with empty car and reduced speed.



The reset of the safety gear must be done by an expert person.

Each gripping test has to be documented and a copy of the test report should remain in the elevator book.

For detailed adjustment dimensions and testing procedures refer to chapter 4. Functions testing.

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5.3 Operational life time of the safety gears



After 10 times of gripping with full load change the complete safety gear!

5.4 Carrying out repairs



As a rule, the safety gear should neither be taken apart or altered in any other way (sealants, sealing wax). This also applies to repairs.



It is forbidden to replace faulty or worn parts of the safety gear yourself.

The reasons are:

- conditions of liability and technical safety
- only original replacement parts may be installed (these are available from manufacturer only).
- repairs are carried out only in pairs and are checked before return.



Operation of the system without the safety gear, even for short periods of time, is forbidden.

Permitted repair work:

Repairs to the safety gear system which do not directly affect the safety gear (e.g. synchronisation, safety gear contact, etc.) must be carried out locally. In other words, all procedures involved in initial installation are also included in the repairs and maintenance schedule.

Such repair work in the safety system must, of course, be carried out correctly and with utmost care, in order to guarantee long-term safe operation of the system.



Please contact WITTUR if for any reason something is unclear, or you encounter damage that cannot be repaired with the help of these instructions.

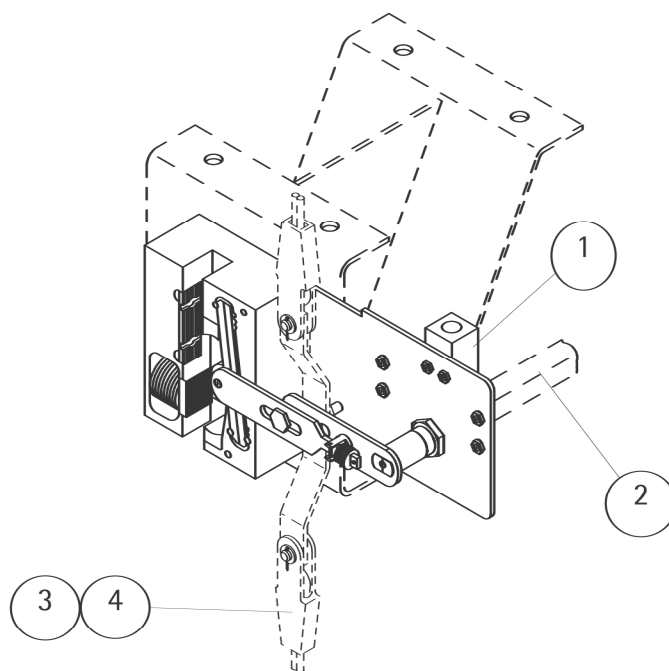
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Operating instructions

Blatt/sheet D795MGB.024
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Stand/version A-11.10.2005
Geprüft/approved WAT/MZE

5.5 Spare parts list

Pos.	Component	Spare part	... used	Number ...	Art. No.
1	Safety switch	Bernstein	I88-A2Z w self resetting	1	265244
		Bernstein	I88-SU1Z w manual-resetable	1	254372
2	Gripping shaft (... the distance between guides must be declared in the order form)	square tube S355J0, □ 25 x 3	Housing type A/C - LADP-9/14	1	900085H05
		square tube S355J0, □ 25 x 3	Housing type A/C - LADP-16	1	900085H04
		square tube S355J0, □ 25 x 3	Housing type B - LADP-9/14	1	900085H01
		square tube S355J0, □ 25 x 3	Housing type B - LADP-16	1	900085H02
3	Rope hitch (incl. wedge and bolt)	Rope diameter 6-6,5 mm	... for housing type A/C	1	C1037
		Rope diameter 7-8 mm	... for housing type A/C	1	C1038
		Rope diameter 9-11 mm	... for housing type A/C	1	C1039
		Rope diameter 6-6,5 mm	... for housing type B	1	392772G06L
		Rope diameter 7-8 mm	... for housing type B	1	392772G08L
		Rope diameter 9-11 mm	... for housing type B	1	392772G10
4	Rope clamp	S6,5 DIN1142	Rope diameter 6-6,5 mm	1	259316
		S8 DIN1142	Rope diameter 7-8 mm	1	256349
		S10 DIN1142	Rope diameter 9-11 mm	1	252042





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Product manufacturer reference can be found on the product type label.

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