

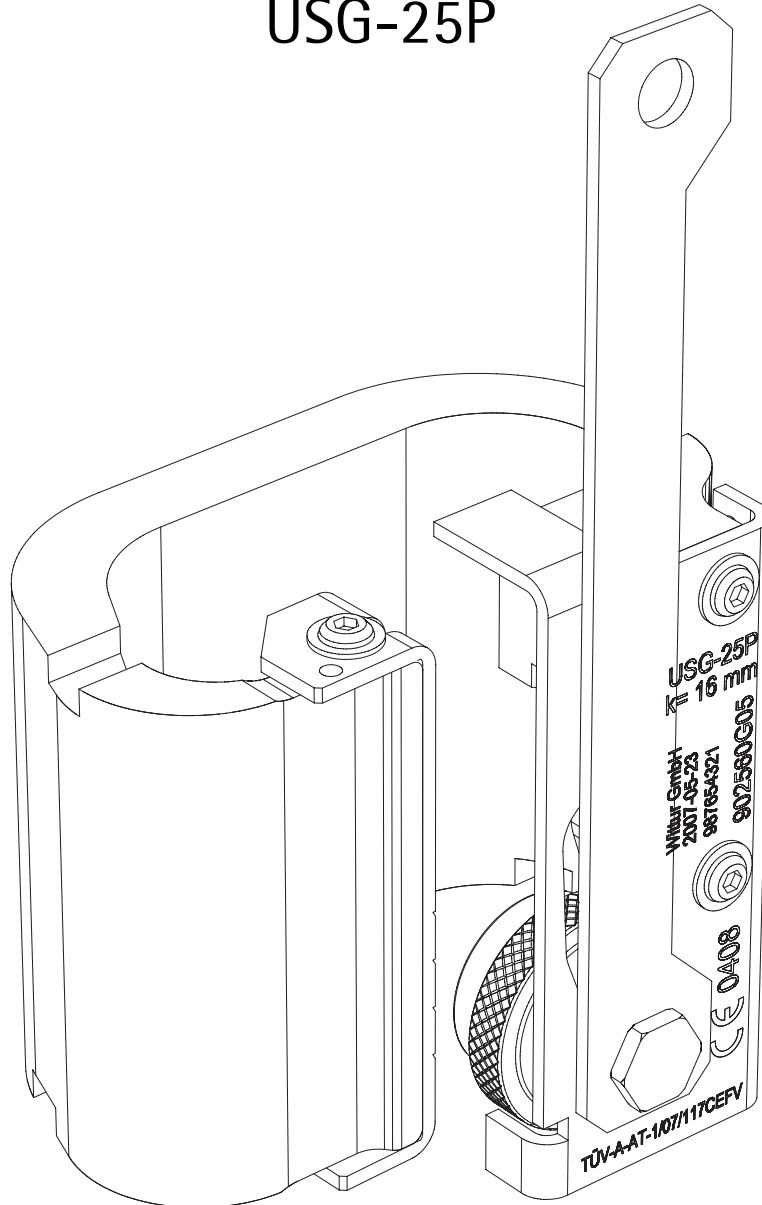
# Progressive Safety Gear USG-25P

Operating Instructions



Blatt/sheet D729MGB.000  
Datum/date 23.05.2007  
Stand/version G-07.05.2018  
Geprüft/approved WAT/MZE

## Progressive Safety Gear USG-25P



[www.wittur.com](http://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.



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# Progressive Safety Gear

## USG-25P

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## 1 General information prior to installation

### 1.1 Description and functions

The progressive type safety gear USG-25P is a combined c-type spring, frame and friction element, which is activated by a movable roller. The braking force is adjusted by means of variable machining dimensions, therefore the re-adjusting is impossible. The safety gears are fixed normally below the car or counterweight frame. There is always a pair of safety gears used.

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

The overspeed governor rope is blocked and pulls the lifting lever up into brake position. Both safety gears, connected by a gripping shaft will grip at the same time.

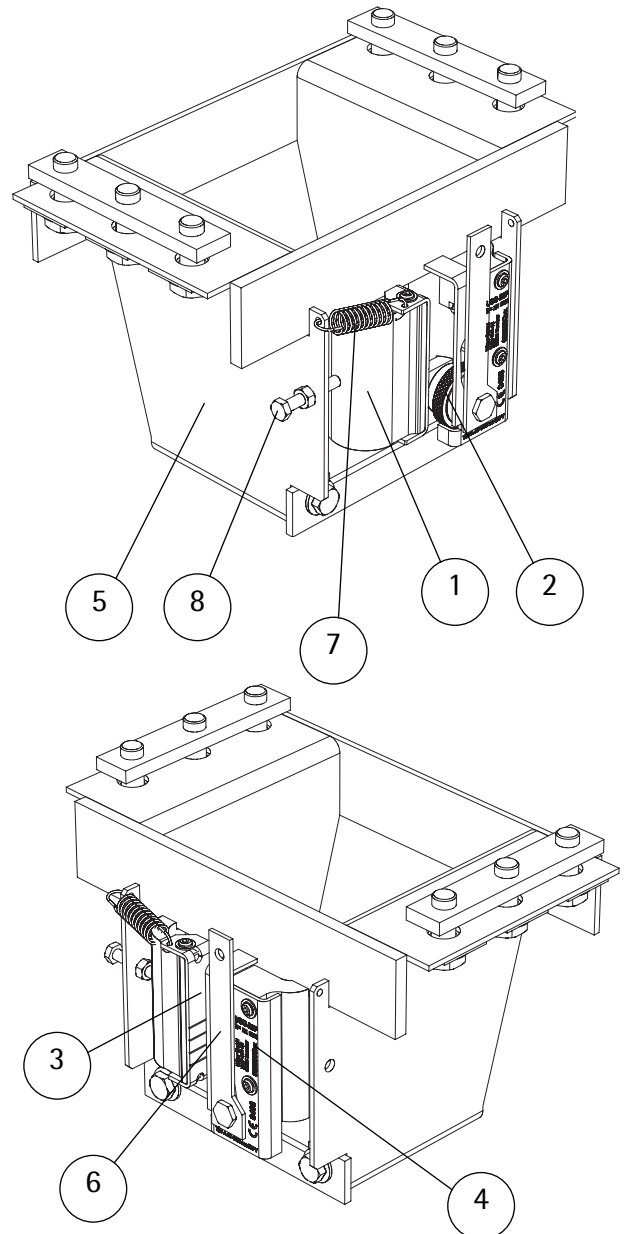
The uniform braking of both safety gears is caused by a good synchronisation during mounting. This must be done very carefully.

The release of the safety gear is done by moving the car or counterweight 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 resettable switch), is the safety gear ready for operation immediately.

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 2,0 m/s
- width of guide rail head 8 - 16 mm
- max. mass to be gripped  $F_{max} = 2600\text{kg}$
- governor tripping force max. 1000N



1. Spring Body
2. Gripping Roller
3. Brake lining
4. Guide plate
5. Housing (optional)
6. Lifting lever
7. Reset spring
8. Reset limiter

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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
- 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 re-leased 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 (e.g. 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.

# Progressive Safety Gear

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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 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 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 re-assembled and comply with the required tests, as soon as the work has been carried out.

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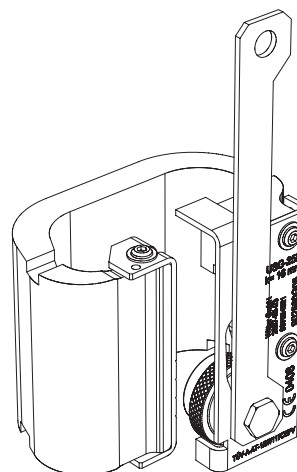
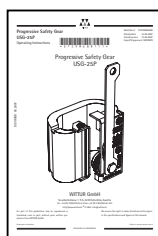
### 1.6 Content of supply



Check the delivery for correctness, completeness and condition on the basis of the order.

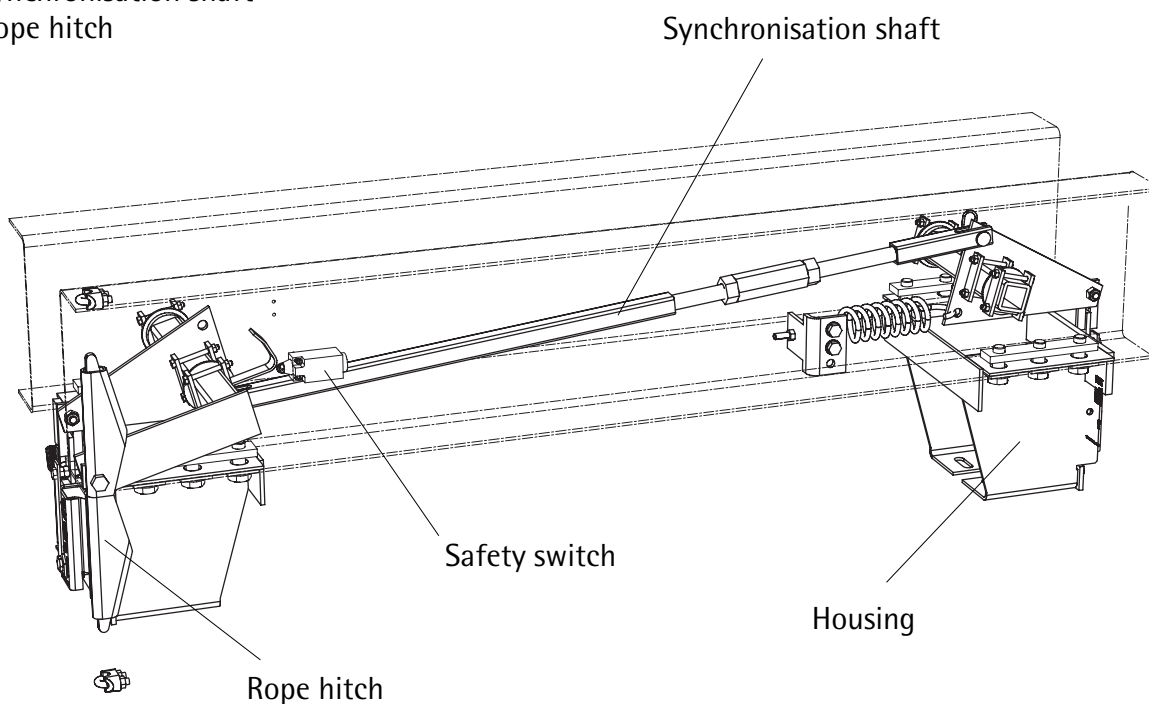
Depending on the order the content of supply can cover:

- One left handed and one right handed safety gear
- Operating instructions manual



Optional:

- Housing
- Safety switch (manual or self resetting type)
- Synchronisation shaft
- Rope hitch



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## 2 Name plate, designation, identification

### 2.1 Labelling according to EN81 (CE)

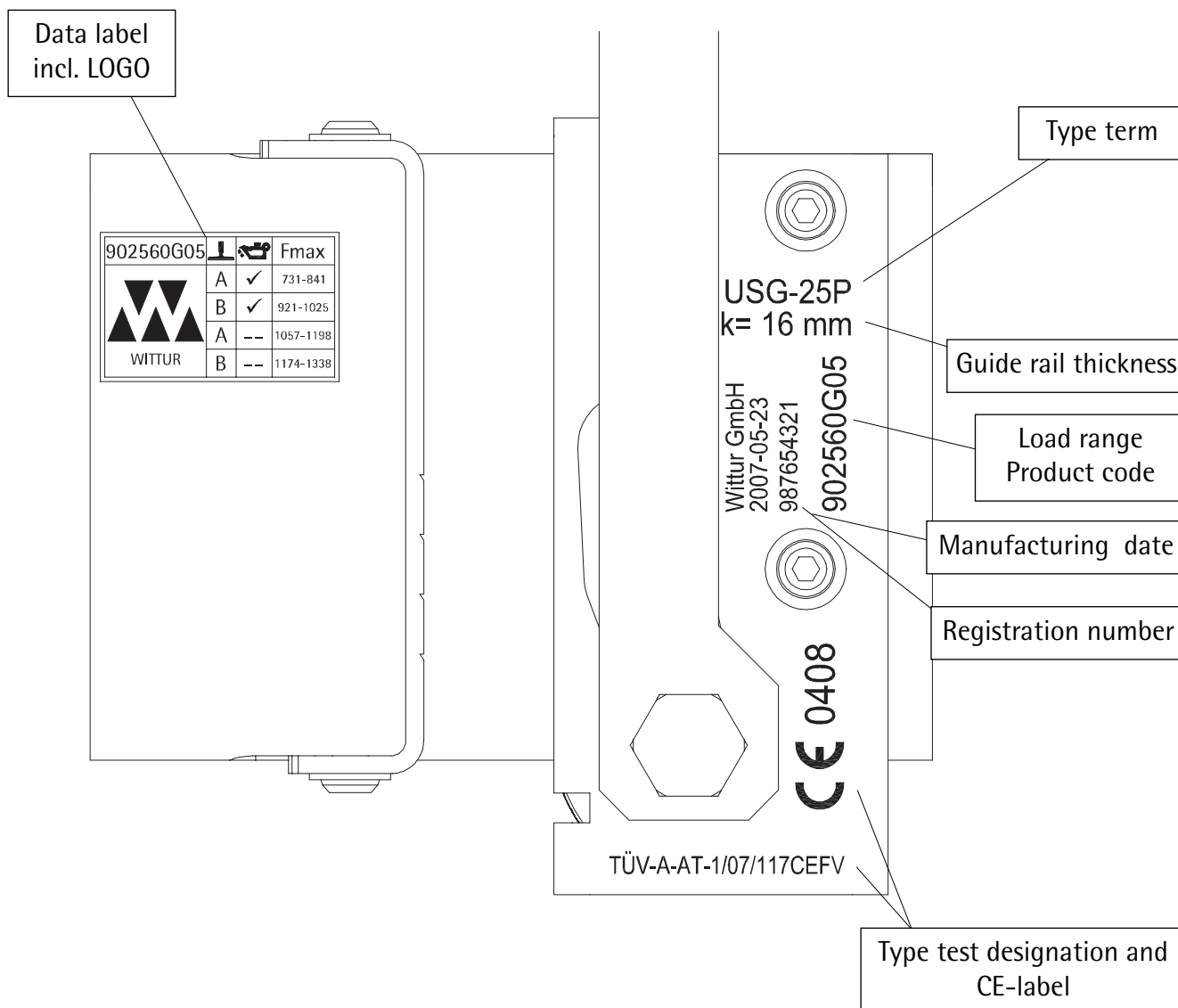
The Type marking is located on the guide plate (on the front side of the safety gear). The range of use is stated on a separate sticker (Data label) nearby on the side of the body. Additionally a type label and an identification label are supplied which are to glue at the housing.



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

The Marking gives following data:

- Type term of the safety gear
- Type test designation
- Manufacturing date
- Registration number (serial number of WITTUR manufacturing)
- Load range - Product code (see chapter 2.3)
- Guide rail nose thickness
- Data label



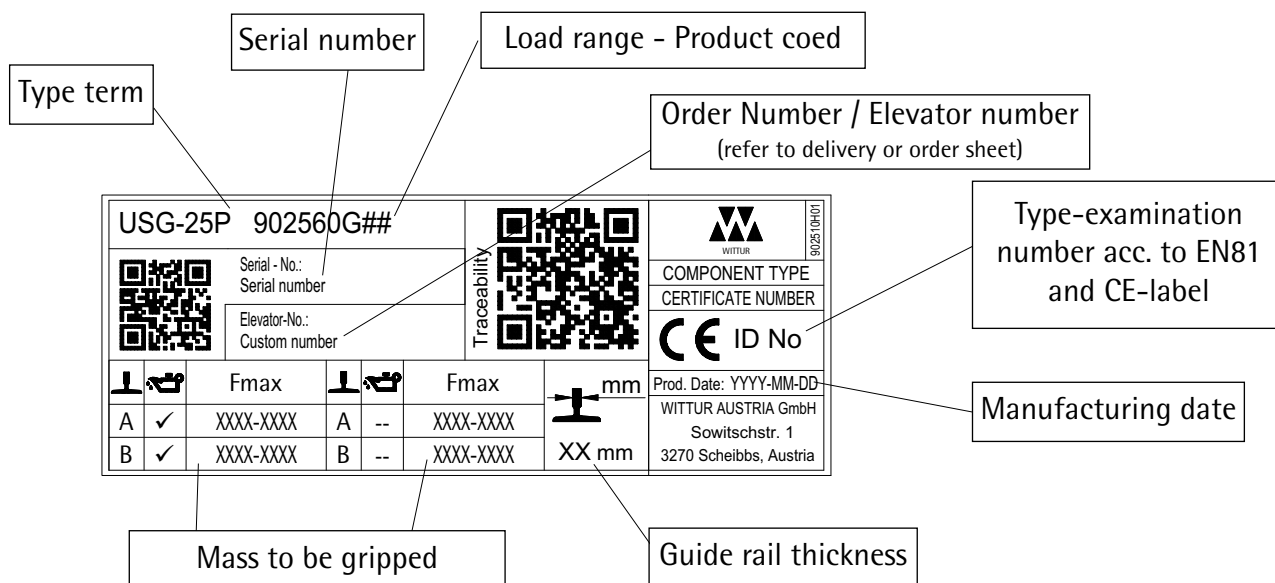
# Progressive Safety Gear

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### Operating Instructions

Blatt/sheet D729MGB.007  
 Datum/date 23.05.2007  
 Stand/version E-05.04.2016  
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additional Type label for housing:



## 2.2 Labelling according to GOST R 53780 (Russia)

For GOST R53780 the same labelling is used as for EN81.  
 Additionally the EAC-Label is supplied:





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## 2.3 Range of use



The  $\pm 7,5\%$  clause according EN81-50 / 5.3.4 must not be used.

| Product code | $F_{\max}$ (P+Q) [kg]<br>according to guide rail manufact. type & surface condition |               |               |               |
|--------------|---|---------------|---------------|---------------|
|              | oiled   |               | dry           |               |
|              | drawn (A)   | machined (B)  | drawn (A)     | machined (B)  |
| 902560 G01   | 465 ... 482   | 622 ... 679   | 650 ... 731   | 720 ... 809   |
| 902560 G02   | 483 ... 553   | 680 ... 748   | 732 ... 825   | 810 ... 912   |
| 902560 G03   | 554 ... 635   | 749 ... 828   | 826 ... 932   | 913 ... 1033  |
| 902560 G04   | 636 ... 730   | 829 ... 920   | 933 ... 1056  | 1034 ... 1173 |
| 902560 G05   | 731 ... 841   | 921 ... 1025  | 1057 ... 1198 | 1174 ... 1338 |
| 902560 G06   | 842 ... 969   | 1026 ... 1148 | 1199 ... 1361 | 1339 ... 1531 |
| 902560 G07   | 970 ... 1117  | 1149 ... 1291 | 1362 ... 1550 | 1532 ... 1759 |
| 902560 G08   | 1118 ... 1290   | 1292 ... 1458 | 1551 ... 1768 | 1760 ... 2028 |
| 902560 G09   | 1291 ... 1490   | 1459 ... 1653 | 1769 ... 2020 | 2029 ... 2346 |
| 902560 G10   | 1491 ... 1723   | 1654 ... 1881 | 2021 ... 2313 | 2347 ... 2600 |
| 902560 G11   | 1724 ... 1995   | 1882 ... 2150 | 2314 ... 2600 |               |
| 902560 G12   | 1996 ... 2310   | 2151 ... 2466 |               |               |

P masses of the empty car and components supported by the car, i.e. part of the travelling cable, compensating ropes/chains (if any)  
 Q Nominal load

### Explanation to Data label:

Rail type (manufacturing method)  
 acc. DIN ISO 7465 (z.B. T89/A):

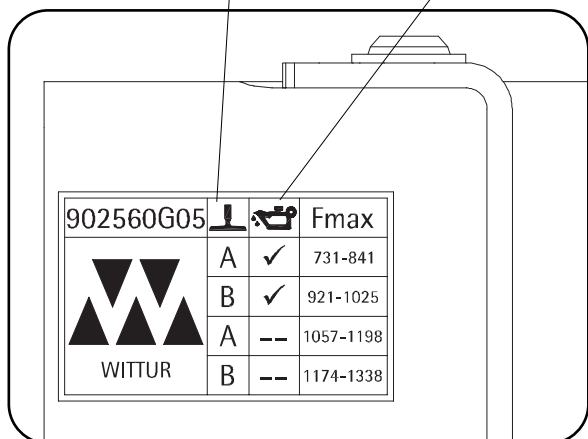
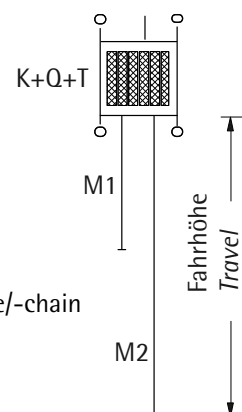
A - drawn  
 B - machined

Rail condition:  
 ✓ oiled  
 -- not oiled (dry)

### Calculation method $F_{\max}$ :

$$F_{\max} = K + Q + T + 0,375 \times M = \text{--- kg}$$

$F_{\max}$  mass to be gripped  
 K = mass of the car  
 Q = nominal load  
 T = mass of the car frame  
 M1 = mass of travelling cable  
 M2 = mass of compensation rope/-chain  
 M = M1 + M2



## 3 Installation and adjustment

### 3.1 Mounting to the car frame

In accordance to the delivery content the manner of how to mount it to the car frame is deviating:

- Mounting with flat bars (see chapter 3.1.1) (e.g. integrated directly to the upright)
- Safety gear with housing (see Fig.1)
- If mounting method is different, additional documentation is included in delivery



**In general:**

Brake shoe and guide rail must be vertically and horizontally lined up in parallel!



The following malfunction of the safety gear may appear because of inaccurate mounting:

- unintended gripping of the Roller
- no 100% braking extent



When mounting the safety gear, observe the position of the overspeed governor rope. The position of the lifting lever of the rope at the safety gear cannot be changed if the safety gear is built in.

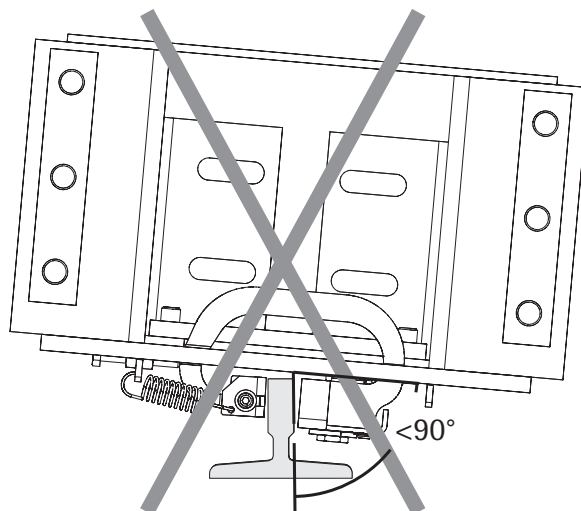
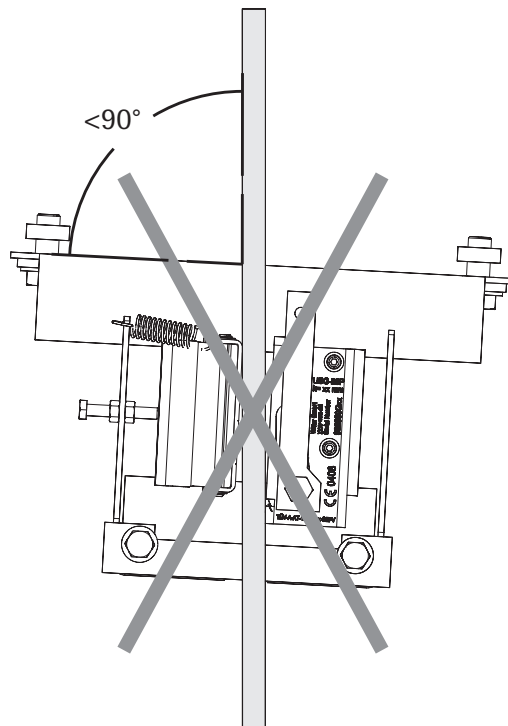
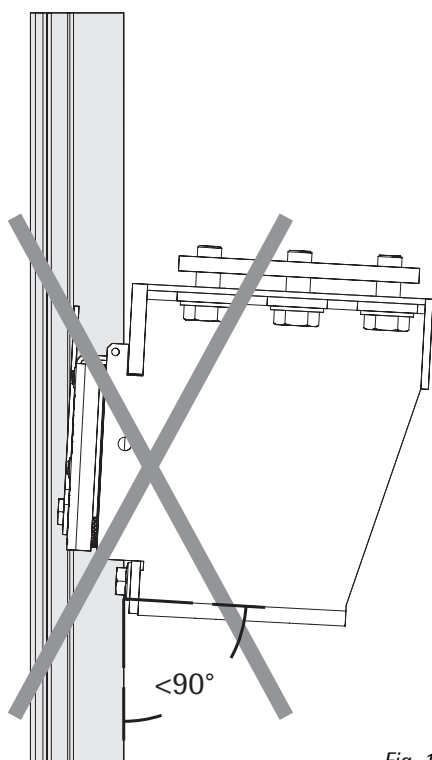


Fig. 1: Alignment

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#### 3.1.1 Mounting with Flat bars (integrated solution)


##### Demands:


- rectangular cut out (e.g. in upright) of minimum WxH = 165x135mm
- fixing holes  $\varnothing 12,5\text{mm}$  (for M12 screws) with a height distance tolerance  $+0/-0,5\text{mm}$


 For details refer also to catalogue D700CDEGB.1.9

##### Mounting:

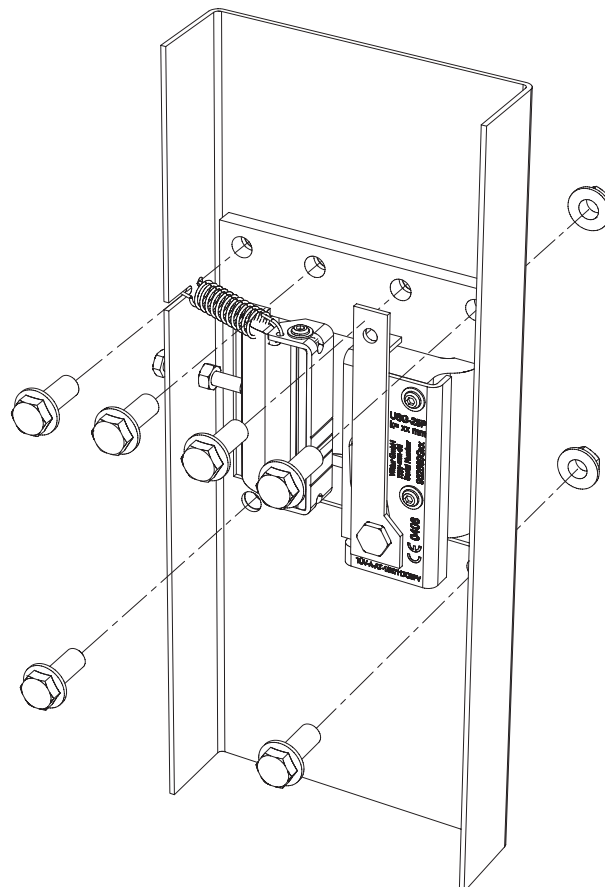
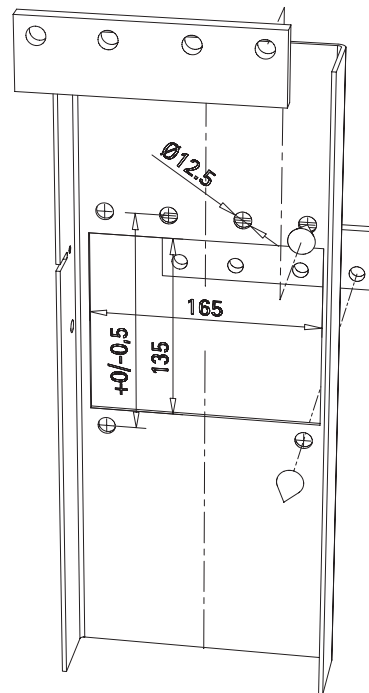
- (1) Mount upper flat bar (10mm thick material)
- (2) Put in the safety gear (from back through the cut out) and secure with lower flat bar
- (3) Hang in the reset spring (spring force  $F_1=35-40\text{N}$ , spring rate  $\sim 1,4\text{N/mm}$ ) and mount the reset limiter screw (M8)

 Ensure correct alignment to guide rail (see chapter 3.2)

 Note: the tightening momentum for M12 is 80Nm

 Note: the tightening momentum for M8 is 10-13Nm

- (4) Repeat this sequence on the other safety gear



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### 3.2 Adjustment of running clearance (gap brake lining to guide rail)

After mounting and alignment of the safety gear, adjust the running clearance "A" (see Fig.2).



Check the horizontal alignment!  
The brake lining edge have to be on the same level as the guide rail nose edge

Adjustment (on sample option housing):

- (1) Check, if the safety gear can be moved side-ways easily (move by hand manually)!
- (2) Ensure that the gripping roller rests in it's initial most bottom position.
-  Refer also to synchronisation adjustment (chapter 3.4)
- (3) Adjust the running clearance of  $3,0^{+0/-0,5}$ mm between brake lining (3) and guide rail by means of the limiter screw (8)
- (4) Lock the limiter screw (8) with the counter nuts

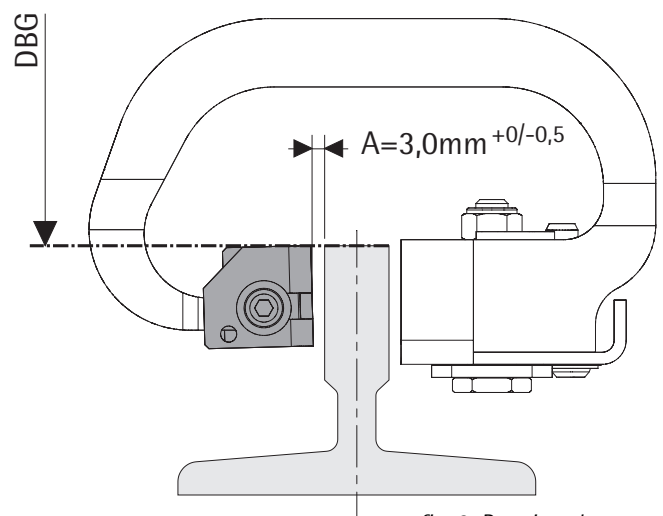
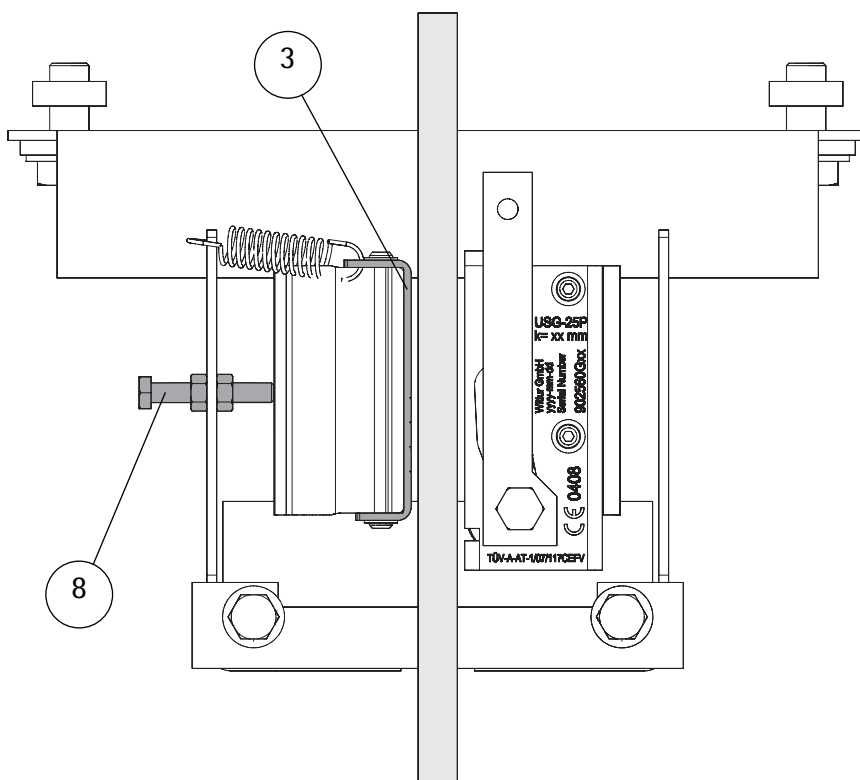


fig. 2: Running clearance



- (5) Repeat this adjustment sequence on the other safety gear



Check the horizontal movement of the safety gears - the movement should be able to be done easily by hand. Be sure that brake lining (3) is able to access the guide rail when safety gear is activated.

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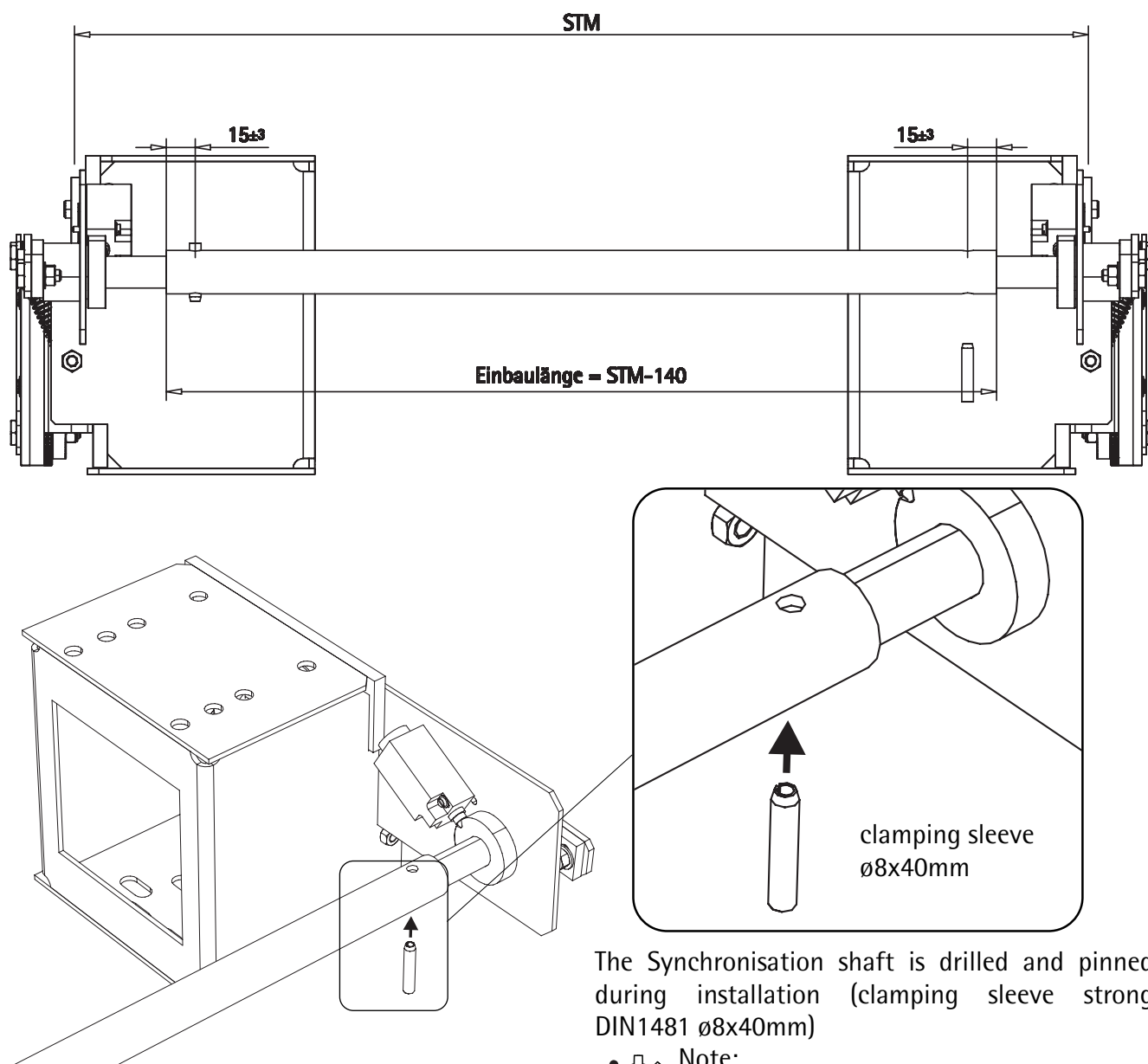
## 3.3 Dimensioning and cut of synchronisation shaft (type A)

### Dimension:

Shaft dim. = S235JRG2 /  $\varnothing 30 \times 3,5\text{mm}$

Length = DBG - 140mm

### Installation situation:



The Synchronisation shaft is drilled and pinned during installation (clamping sleeve strong DIN1481 ø8x40mm)



Note:  
drill hole diameter 8mm

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### 3.4 Synchronisation of the safety gear (type A)

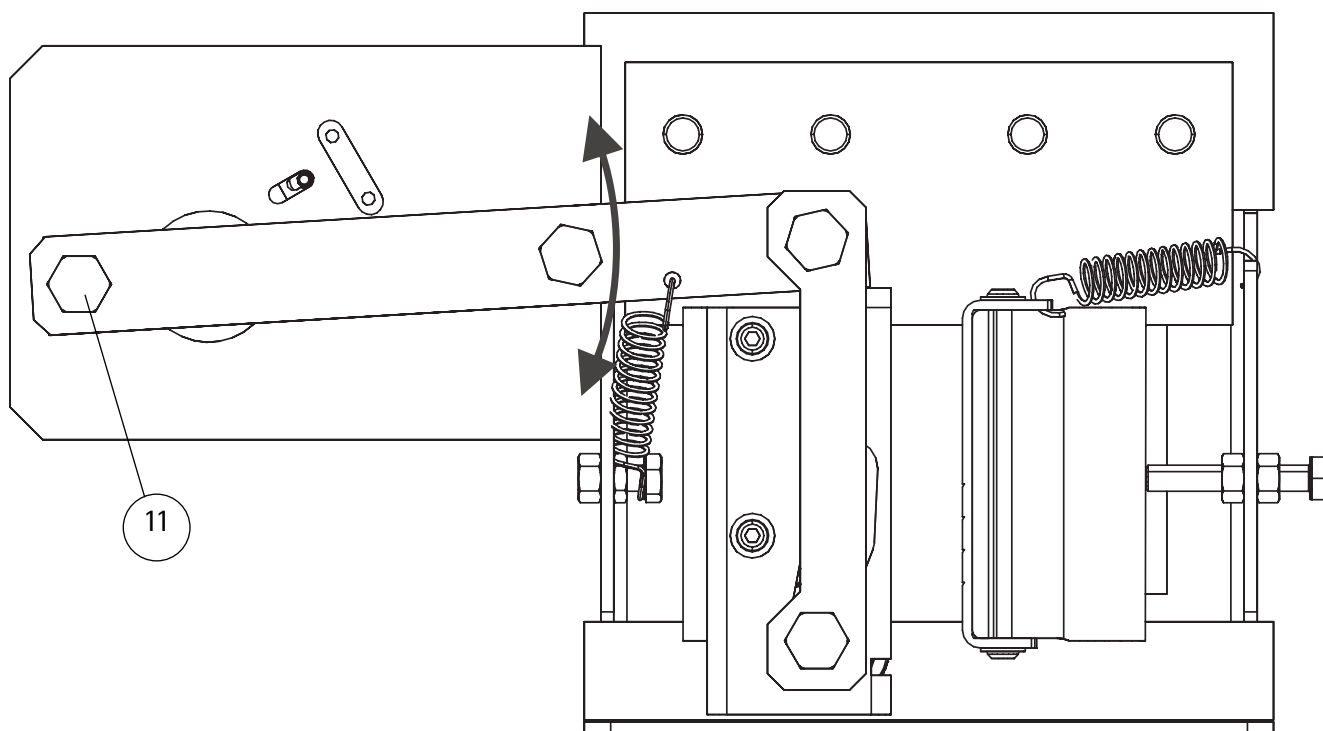
Both safety gears must operate synchronous.

If necessary readjust by use of the screw (11).

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

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

Use e.g. paper strips. Pull the activation lever 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.




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### 3.5 Assembling and adjustment of housing (type B) and synchronisation

 Both safety gears must operate synchronously.

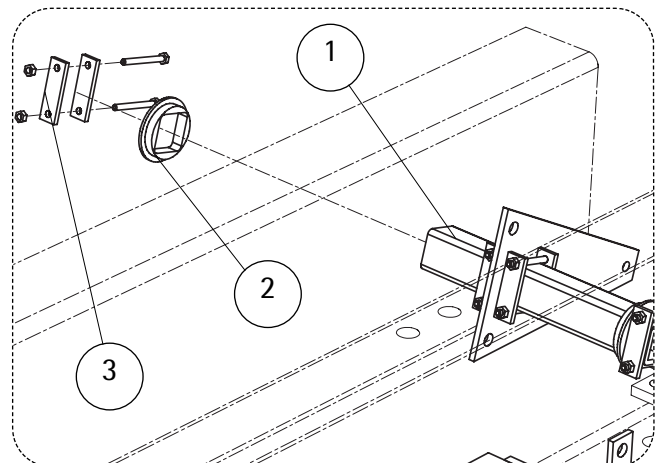
If there is safety gear delivered with safety gear housing and synchronisation do the assembling and adjustment as follows:

(1) Fit the synchronisation-axes (1) into the lower cross beam of the car frame - insert the sliding-bushes (2) and fix the axle with the delivered clamping-flats (3).

(2) Mount the safety gear housing (4) to the lower cross beam of the car frame (by means of treated-plates (5) and screws M16x40)

 Take care of tightening torque  
Screw M16: 195Nm

(3) Fit the safety gear lifting lever (6) to the synchronisation-axle-plate (1) let a gap of 0,5mm by means of the self locking nut



(1)

5

(2)

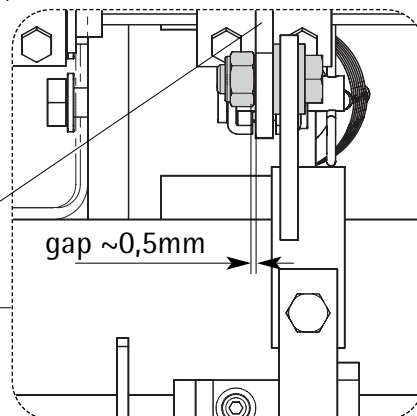
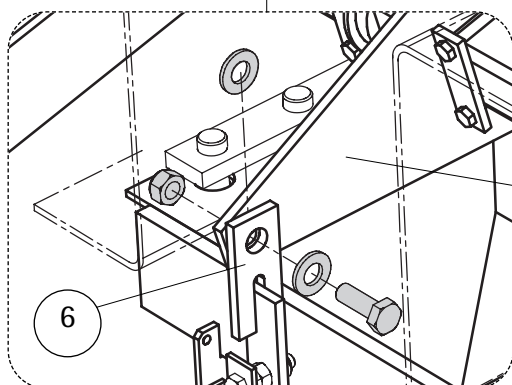
4

M16x40

gap ~0,5mm

(3)

6



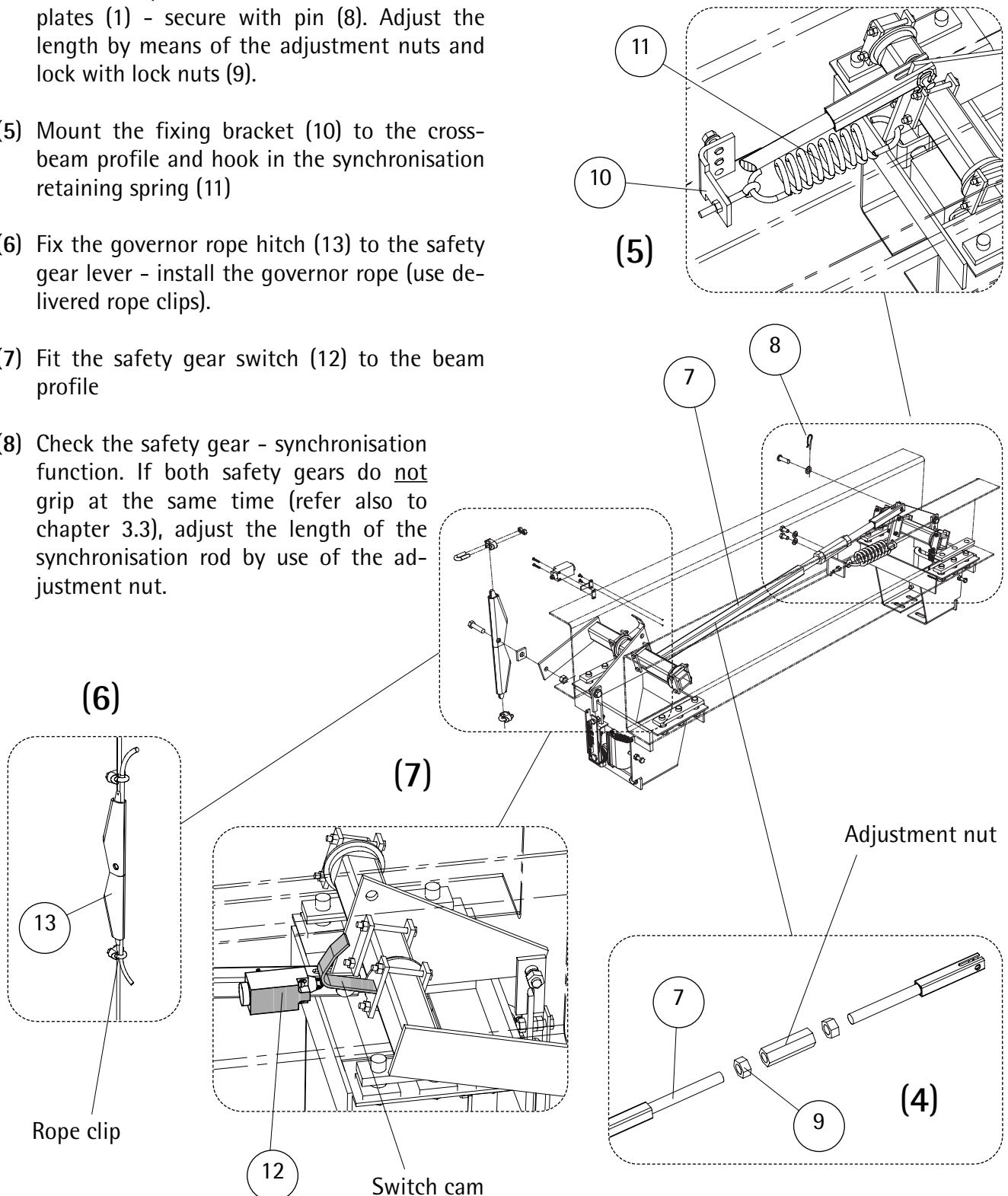
# Progressive Safety Gear

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- (4) Install the synchronisation rod (7) to the axle-plates (1) - secure with pin (8). Adjust the length by means of the adjustment nuts and lock with lock nuts (9).
- (5) Mount the fixing bracket (10) to the cross-beam profile and hook in the synchronisation retaining spring (11)
- (6) Fix the governor rope hitch (13) to the safety gear lever - install the governor rope (use delivered rope clips).
- (7) Fit the safety gear switch (12) to the beam profile
- (8) Check the safety gear - synchronisation function. If both safety gears do not grip at the same time (refer also to chapter 3.3), adjust the length of the synchronisation rod by use of the adjustment nut.





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## 3.6 Electrical installation of the safety gear switch of housing (type B)



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



Before carrying out work, switch off all voltage to installation equipment.



Take note of the following when laying the connection cable:

- that the single polarity cables have double insulation
- the use and laying of cables is governed by the EMC



The safety gear contact opens the lift installation's remotely controlled safety circuit.

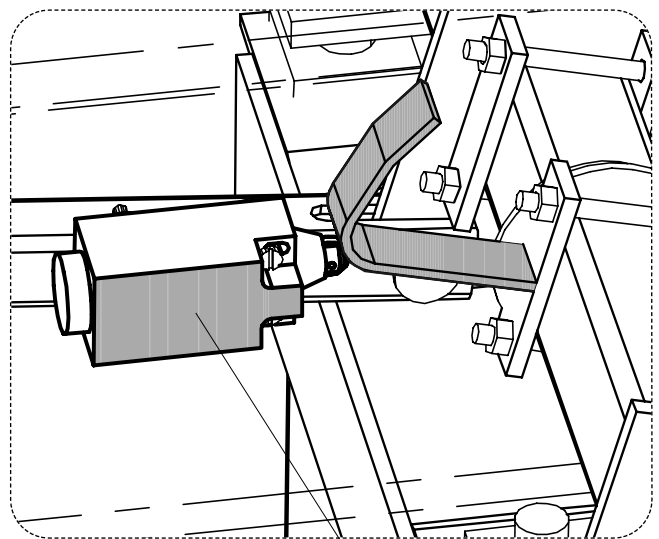
- (1) Connect the contact
- (2) Test the safety gear switch function - adjust if necessary
- (3) Adjust the switch horizontally on its fixing bracket.



Adjusting dimension: 3-5 mm from the guard peak



The contact must break just before safety gear gripping!

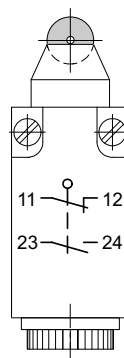


(1-3)

Safety gear switch

### 3.6.1 Safety gear switch

- utilization category: AC-15  
 $U_e/I_e$  240V / 3A
- conv. thermal current:  $I_{the} = 10A$
- rated insulation voltage:  $U_i = 250V$  AC
- protection type: IP 43
- approved in accordance: DIN VDE 0470 T1  
IEC/EN 60947-5-1
- protection class: II, totally insulated



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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 done from the local authorities.

#### First test run after installation



Before the first test run:

**Clean the guide rails!**

The protective coating of grease is to be carefully removed from 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 (it should be between 200 and 250 N). This value can be higher if the travel is over 75m. Calculate the minimum required force  $F_1$  as follows:

$$F_1 = \text{mass of overspeed governor rope} \times \text{downwards acceleration} \times \text{safety factor (2)}$$

$$\text{e.g.: } F_{1\min} = 80\text{kg} \times 1,5\text{m/s}^2 \times 2 = 240\text{N}$$



This is the minimum force which should be measured on the safety gear synchronisation to prevent unintended gripping. If the force is less than the retaining spring of the safety gear synchronisation must be adjusted.

- Check the tripping force of the overspeed governor  $F_2$ :

This force must be at least twice as high as the force measured on the safety gear synchronisation.

$$\text{e.g.: } F_1 = 240\text{N} \Rightarrow \\ F_{2\min} = 2 \times F_1 = 2 \times 240 = 480\text{N}$$



The maximum tripping force  $F_{2\max}$  of the overspeed governor is 1100N + 100N.

# Progressive Safety Gear USG-25P

## Operating Instructions

Blatt/sheet D729MGB.018

Datum/date 23.05.2007

Stand/version C-07.09.2011

Geprüft/approved WAT/MZE

### 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 300N). At the same time, use the emergency control or inspection run control to gradually lower the car.
- 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 resettable safety switch: reset the safety switch manually
- Check that both safety gears work at the same time. **Gripping marks on the guide rails must be the same length and on the same height.**



If the safety gears are not working simultaneously, the safety gear synchronisation must be readjusted.



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



If the rated speed is above 1,5m/s, another safety gear test must be done with rated load in the car and at a speed of about 1,5m/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 5 m/s<sup>2</sup> and 9 m/s<sup>2</sup>



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.

# Progressive Safety Gear USG-25P

## Operating Instructions

Blatt/sheet D729MGB.019  
Datum/date 23.05.2007  
Stand/version G-07.05.2018  
Geprüft/approved WAT/MZE

### 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!

#### General notes:

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



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.

#### 4.3.1 Gripping test for car safety gear

##### Method A - Gripping test with overload

- 125% of the rated load in the car
- gripping speed = nominal speed or lower
- Secure the counterweight safety gear (if any) by tying the safety gear lever up. This prevents unintended gripping of the counterweight safety gear due to jumping of the counterweight.
- Place test weights (equal to 125% of the rated load) inside the car. Distribute the weights evenly.
- Drive the car down with nominal or lower speed, keep the machine brake manually open. After reaching the test speed activate the tripping function of the overspeed governor at the door zone.

- If the car does not stop after 1-2 seconds close the brake immediately.
- Try to drive the car down to check that the safety gear has engaged (suspension ropes should slide on the traction sheave).

##### Method B - Gripping test with rated load

- 100% of the rated load in the car
- gripping speed = tripping speed of the overspeed governor



Always ensure that the travelling height is high enough to keep the car from running onto the buffer.

##### With gearless elevators:

three persons are required for the test. The first person keeps the machine brake open. The second person monitors the speed of the elevator with a manual tachometer. The third person observes the distance to the pit. His task is to notify when the machine brake must be closed if the safety gear does not grip within safe distance to the pit. After switching the power OFF, if the safety gear does not grip within the value of rated speed + 2 seconds close the machine brake. For example, if the rated speed is 3 m/s the safety gear must grip within 5 seconds.

- Secure the counterweight safety gear (if any) by tying the safety gear lever up. This prevents unintended gripping of the counterweight safety gear due to jumping of the counterweight.
- Place test weights (equal to 100% of the rated load) inside the car. Distribute the weights evenly.

# Progressive Safety Gear USG-25P

## Operating Instructions

Blatt/sheet D729MGB.020

Datum/date 23.05.2007

Stand/version C-07.09.2011

Geprüft/approved WAT/MZE

### Gearless elevator:

- Switch the main power OFF. Open the machine brake manually and let the car accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, which will engage the safety gear and stop the car.



Do not let the car run on the buffer.

### Geared elevator:

- Accelerate the car with the hoisting motor to the rated speed, keep the machine brake open manually, switch the main power OFF and let the car accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, safety gear engage and car stop.



Do not let the car run on the buffer.

- Try to drive the car down to check that the safety gear has engaged (suspension ropes should slide on the traction sheave).

### 4.3.2 Gripping test for counterweight safety gear



Always check that the filler weights are secured in place before the test.

#### Method A - Gripping test with nominal speed

- empty car
- counterweight frame loaded with required number of filler weights
- gripping speed = nominal speed
- Secure the car safety gear by tying the safety gear lever up. This prevents unintended gripping of the car safety gear due to jumping of the car.
- Drive the counterweight down with nominal speed
- After reaching the nominal speed activate the tripping function of the overspeed governor
- Try to drive the counterweight down to check that the safety gear has engaged (suspension ropes should slide on the traction sheave).

#### Method B - Gripping test with overspeed

- empty car
- counterweight frame loaded with required number of filler weights
- gripping speed = tripping speed of the overspeed governor



Always ensure that the travelling height is high enough to keep the counterweight from running onto the buffer.



With geared elevators, if the elevator does not accelerate to the tripping speed of the overspeed governor, test the safety gear with nominal speed (according to test method A).

# Progressive Safety Gear

## USG-25P

### Operating Instructions

Blatt/sheet D729MGB.021  
Datum/date 23.05.2007  
Stand/version C-07.09.2011  
Geprüft/approved WAT/MZE

- Secure the car safety gear by tying the safety gear lever up. This prevents unintended gripping of the car safety gear due to jumping of the car.

#### Gearless elevator:

- Switch the main power OFF. Open the machine brake manually and let the counterweight accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, which will engage the safety gear and stop the counterweight.



Do not let the counterweight run onto the buffer.

#### Geared elevator:

- Accelerate the counterweight with the hoisting motor to the rated speed, keep the machine brake open manually, switch the main power OFF and let the counterweight accelerate to the tripping speed of the overspeed governor. The overspeed governor should trip, safety gear engage and counterweight stop.



Do not let the counterweight run onto the buffer.

- Try to drive the counterweight down to check that the safety gear has engaged (suspension ropes should slide on the traction sheave).

#### 4.3.3 Checking safety gear, car and counterweight and returning the elevator to normal drive

- Release the safety gear by driving the car or counterweight up.  
Force to lift the elevator after gripping:

$$F = 1,5 \times F_{\max}$$

- Remove test weights (if applicable).

- Reset the overspeed governor (if needed).
- Remove temporary securing of the safety gear (if applicable).
- Check from the gripping marks if left and right safety gear was gripping at the same time
- Measure the roller gripping marks.

#### 4.3.4 Visual checks after a safety gear test

- Check that the inclination of the car, car sling or counterweight frame, in any direction, is not more than 5% (for example car floor is not horizontal or car entrance is not parallel with landing door entrance). A visual check is sufficient.
- Safety gear:  
Drive the car to the lowest floor and check from the pit following items:
  - existence of roller
  - existence of brake lining
  - visual defects of safety gear parts
  - defects on the Synchronisation resp. governor linkage
  - defects on the safety gear housing
- Check that the actuating mechanism and the safety gear contact have returned to their initial positions



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



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.

# Progressive Safety Gear USG-25P

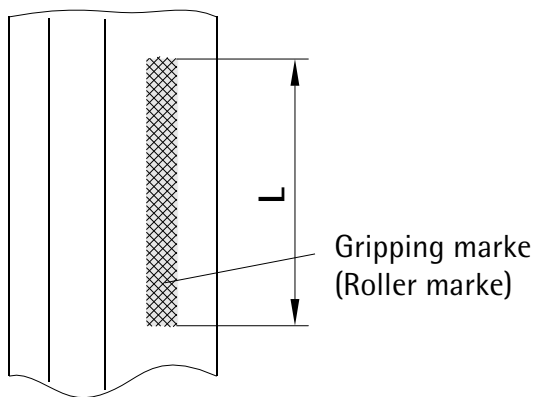
## Operating Instructions

Blatt/sheet D729MGB.022  
Datum/date 23.05.2007  
Stand/version C-07.09.2011  
Geprüft/approved WAT/MZE

### 4.4 Gripping distance

#### 4.4.1 Determining the gripping distance

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



the measurement tolerance is 0.5cm

#### 4.4.2 Checking the gripping distance

The gripping distance has to be within the values:

s = gripping distance [cm]  
v = gripping speed [m/s]

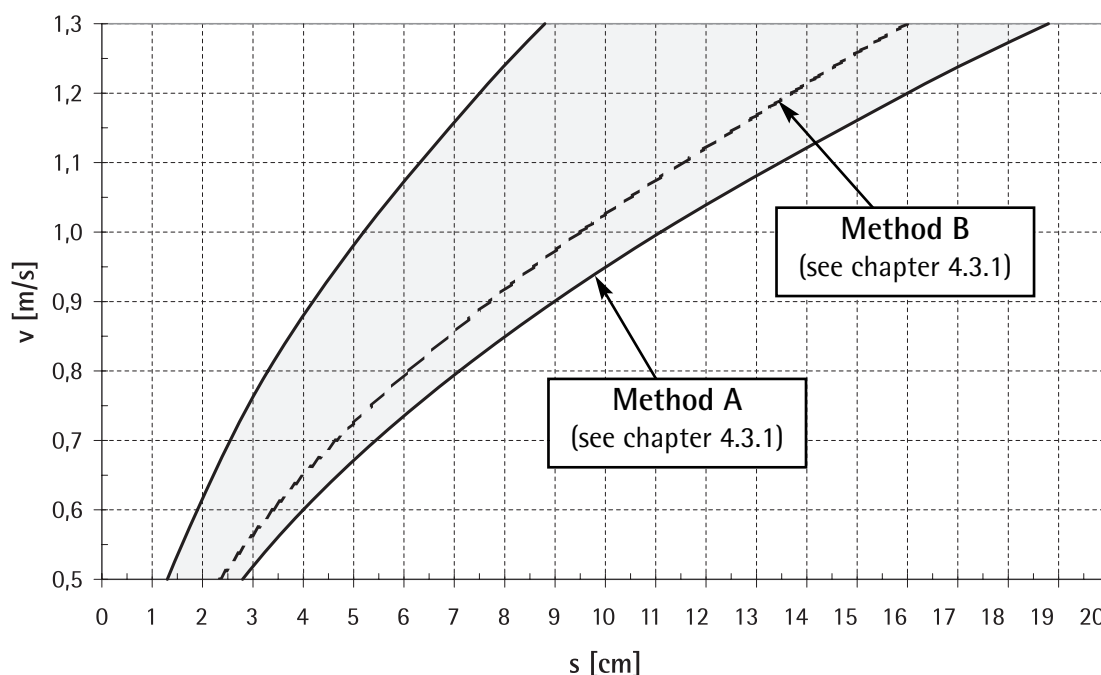
Check that the gripping distance s is correct using one of the following diagrams. Choose the diagram according to the test speed.

If the gripping distance s is within the shaded area the safety gear is set correctly, otherwise contact us at WITTUR.

$$v \leq 1,0 \text{ m/s} \dots s = L - 2 \text{ (cm)}$$

$$v > 1,0 \text{ m/s} \dots s = L - 4 \text{ (cm)}$$

Diagram 1:  $v=0,5-1,3 \text{ m/s}$



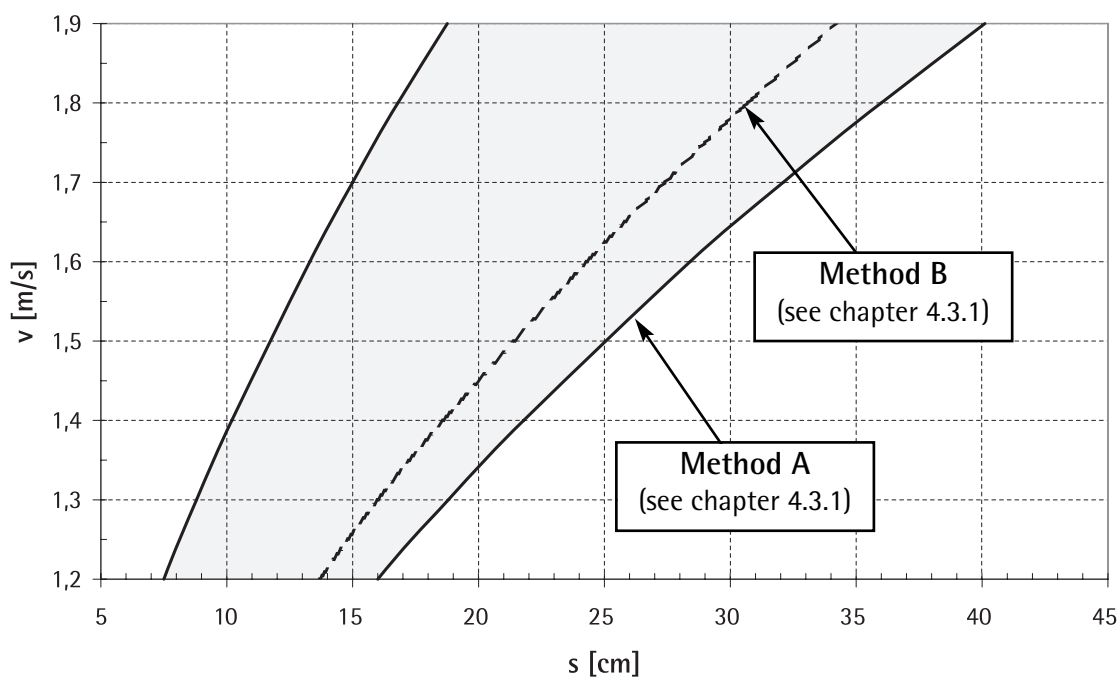
# Progressive Safety Gear

## USG-25P

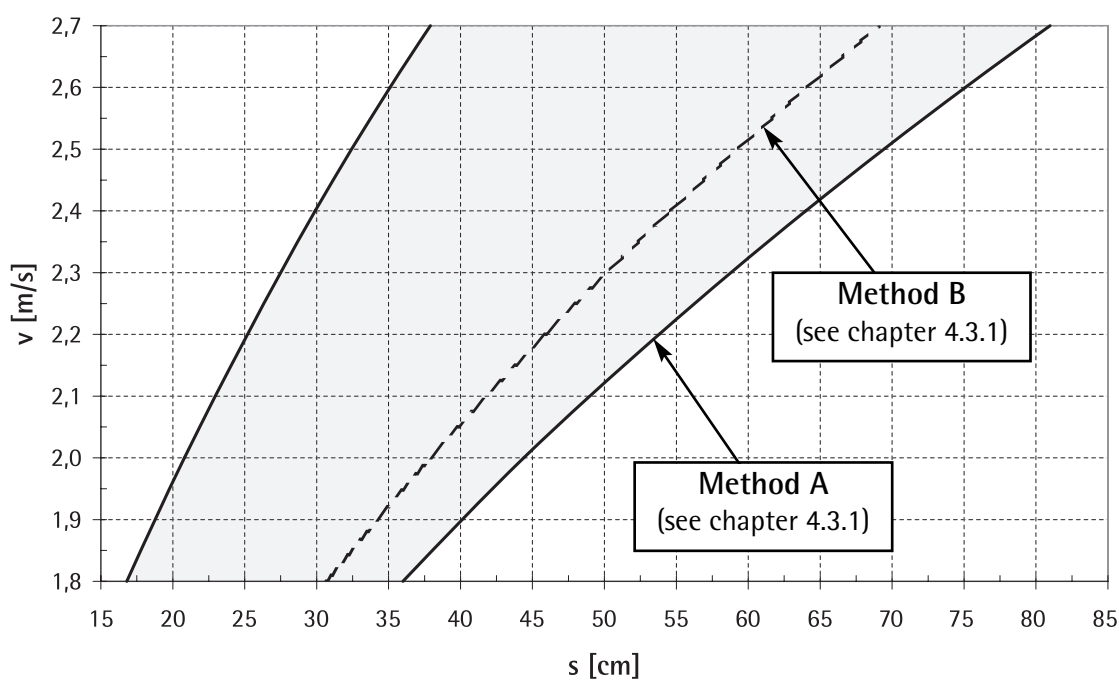
### Operating Instructions

Blatt/sheet D729MGB.023  
 Datum/date 23.05.2007  
 Stand/version C-07.09.2011  
 Geprüft/approved WAT/MZE

**Diagram 2:  $v=1,2-1,9\text{m/s}$**



**Diagram 3:  $v=1,8-2,7\text{m/s}$**





# Progressive Safety Gear

## USG-25P

### Operating Instructions

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## 5 Maintenance, inspection and repair

### 5.1 Maintenance and inspection

The progressive type safety gear USG-25P 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 once 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 local authorities 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.

e.g.: lubricant Type C acc. DIN51517 Part1

| Operation temp.<br>[°C] | Viscosity       |
|-------------------------|-----------------|
| -20 ... +5              | 68 cSt/40°C     |
| -5 ... +35              | ISO VG100 / 150 |
| +30 ... +50             | ISO VG150       |

Tab. 1: Lubricant requirements

# Progressive Safety Gear

## USG-25P

### Operating Instructions

Blatt/sheet D729MGB.025  
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Geprüft/approved WAT/MZE

#### 5.1.2 Maintenance and inspection check list

- Check brake lining / guide rail for free running, and adjust if necessary
- Check the gripping roller for damage or high degree of wearing
- Check the brake body for damage or heavy oxidation (rust).
- Check axial play and turning capacity of the safety gear synchronisation.
- 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.
- Check safety gear for cleanliness\*).



\*) excessive dirt: cuttings, oil, guide rails protective coatings etc. on the safety elements (gripping roller, brake lining, roller running surface).  
If necessary clean by use of appropriate cleaning agent.

#### 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 Periodical tests

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. "Function testing".

# Progressive Safety Gear

## USG-25P

### Operating Instructions

Blatt/sheet D729MGB.026  
 Datum/date 23.05.2007  
 Stand/version C-07.09.2011  
 Geprüft/approved WAT/MZE

### 5.3 Operational life time of the safety gears



After a certain number of grippings with full load change the complete safety gear!

| Fmax<br>[kg]  | number of gripping<br>tests |
|---------------|-----------------------------|
| ≤ 2000        | 25                          |
| 2001 ... 2600 | 15                          |

### 5.4 Carrying out repairs



As a rule: the safety gear resp. it's main parts (Roller / guide plate / body / brake lining) should neither be taken apart or altered in any other way! This also applies to repairs.

An exception is the Synchronisation (e.g. during modernisation). Condition for it is that the process is duly accomplished, and impaired the function in no way.



It is also forbidden to replace by yourself above mentioned main parts if they are faulty or worn out.

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.



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.

**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.



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

# Progressive Safety Gear

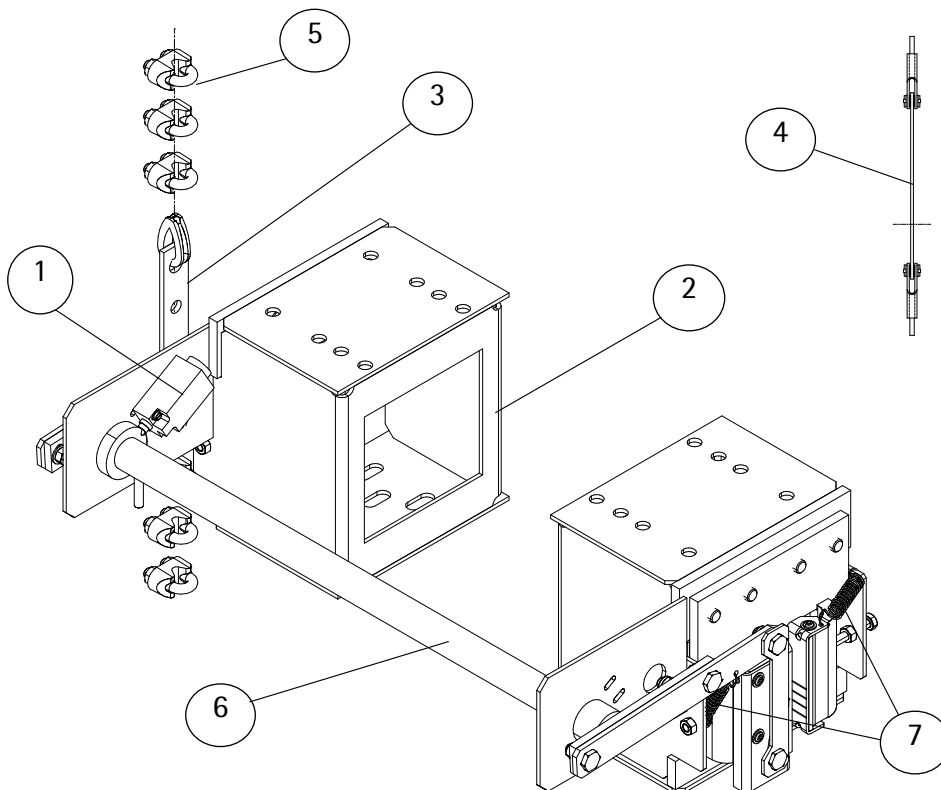
## USG-25P

### Operating Instructions

Blatt/sheet D729MGB.027  
 Datum/date 23.05.2007  
 Stand/version D-21.08.2013  
 Geprüft/approved WAT/MZE

## 5.5 Spare parts list (type A)

| Pos. | Component           | Spare part | ... used                               | Number ... | Art. No.  |
|------|---------------------|------------|--|------------|-----------|
| 1    | Safety gear contact | Bernstein  | limit switch I88-SU1Z w (manual reset) | 1          | 254372    |
|      |                     | Bernstein  | limit switch I88-A2Z w (self reset)    | 1          | 265244    |
| 2    | Safety gear housing | USG-25P    |  | 1          | 903196G01 |
| 3    | Lever               | type K     | rope diam. 6-6,5 mm                    | 1          | 902373G01 |
| 4    | support lever       | type S     | rope diam. 6-6,5 mm                    | 1          | 900237G11 |
|      |                     | type S     | rope diam. 7-8 mm                      | 1          | 900237G12 |
|      |                     | type S     | rope diam. 9-11 mm                     | 1          | 900237G13 |
| 5    | Rope clip           | S6,5       | DIN1142 rope diam. 6-6,5 mm            | 1          | 259316    |
|      |                     | S8         | DIN1142 rope diam. 7-8 mm              | 1          | 256349    |
|      |                     | S10        | DIN1142 rope diam. 9-11 mm             | 1          | 252042    |
| 6    | Synchron. tube      |            |  | 1          | 902383H01 |
| 7    | Spring              |            |  | 1          | 902374H01 |



# Progressive Safety Gear

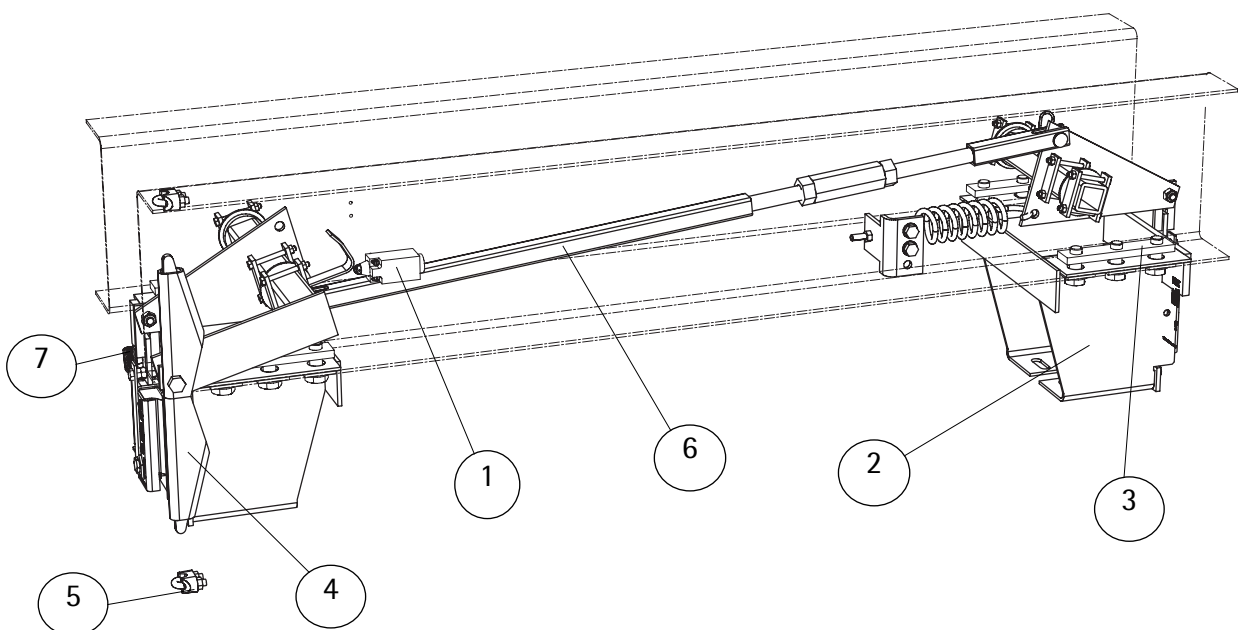
## USG-25P

### Operating Instructions

Blatt/sheet D729MGB.028  
 Datum/date 23.05.2007  
 Stand/version D-21.08.2013  
 Geprüft/approved WAT/MZE

## 5.6 Spare parts list (type B)

| Pos. | Component  | Spare part   | ... used                             | Number... | Art. No.   |
|------|--|--|--------------------------------------|-----------|------------|
| 1    | Safety gear contact  | Bernstein  | I88-U1Z Riwk                         | 1         | 258453     |
| 2    | Safety gear housing  |  | USG-25P                              | 1         | 902583G01  |
| 3    | Threated plate (M16)   | Fl 30x10x160   | St37-2 (2 pcs. per housing required) | 1         | 611265H01  |
| 4    | Rope housing<br>(incl. rope clips - 2pcs.<br>and fixing screw M12) |  | rope diam. 6-7 mm                    | 1         | 392772G06L |
|      |  |  | rope diam. 8-9 mm                    | 1         | 392772G08L |
|      |  |  | rope diam. 10 mm                     | 1         | 392772G10  |
|      |  |  | rope diam. 13 mm                     | 1         | 392772G13  |
| 5    | Rope clip  | S6,5   | DIN1142 rope diam. 6-7 mm            | 1         | 259316     |
|      |  | S8   | DIN1142 rope diam. 8-9 mm            | 1         | 256349     |
|      |  | S10  | DIN1142 rope diam. 10 mm             | 1         | 252042     |
|      |  | S13  | DIN1142 rope diam. 13 mm             | 1         | 252459     |
| 6    | Compl. Synchron.   | incl. synchr-rod, contact, lifting lever, axle, spring, .... |                                      | 1         | 611160G..  |
| 7    | Spring   |  |                                      | 1         | 902374H01  |





# Progressive Safety Gear USG-25P

Operating Instructions

Blatt/sheet D729MGB.029  
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Geprüft/approved WAT/MZE

## 6 Revision Table

| Issue | date       | description of change                                    | CR       |
|-------|------------|--|----------|
| D     | 21.08.2013 | 902374H01 added as spare part, revision table added      | CRW-4103 |
|       | 21.08.2013 | Labelling updated  | CRW-4103 |
| E     | 28.10.2014 | slogan updated   | CRW-4737 |
| F     | 05.04.2016 | title page and type label updated; add last page         | CRW-6014 |
| G     | 07.05.2018 | comment section 2.3 added, section 3 / 4.3 / 5.2 updated | CRW-8671 |



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

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