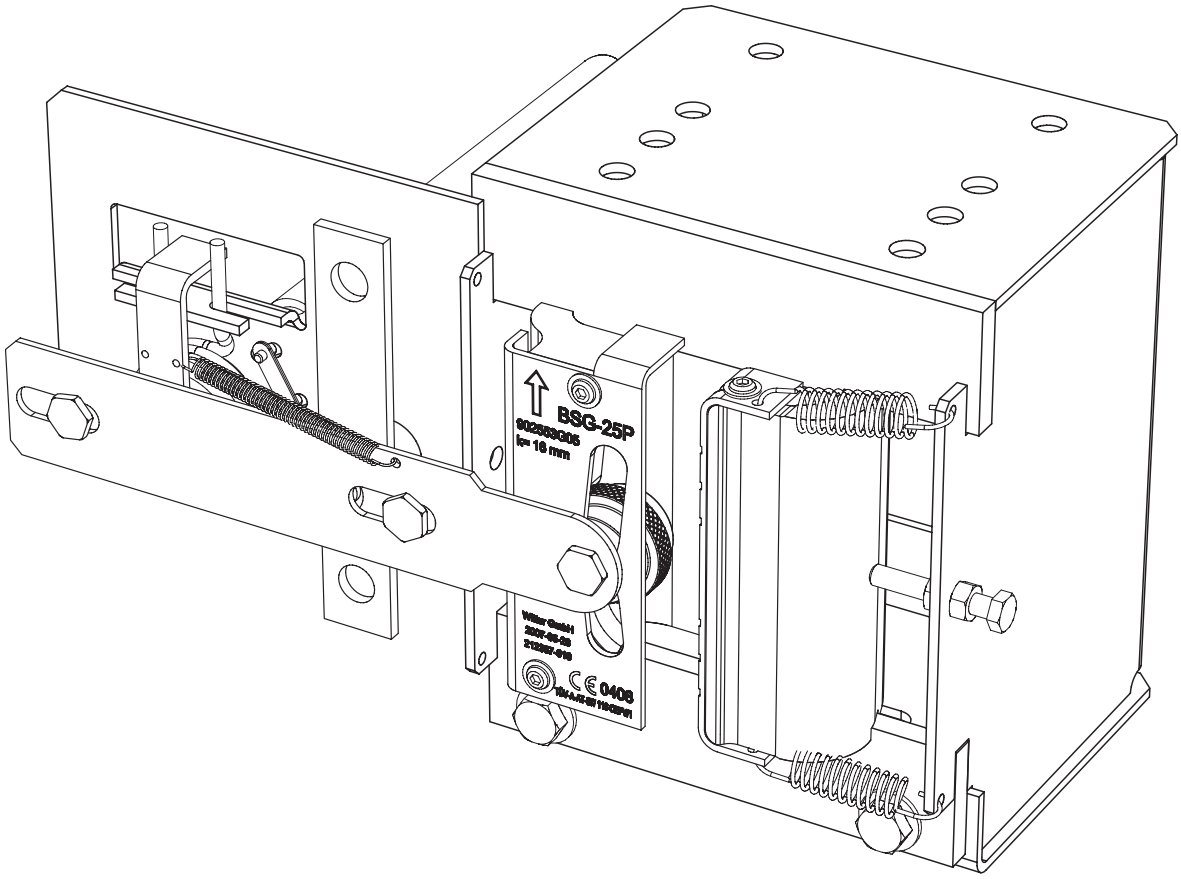
WITTUR

Bi-directional
Progressive Safety Gear BSG-25P
Operating Instructions

Blatt/*sheet* D728MGB.000
Datum/*date* 13.11.2006
Stand/*version* H-15.03.2016
Geprüft/*approved* WAT/MZE

Bi-directional Progressive Safety Gear BSG-25P

* D 7 2 8 M G B $ 1 1 1 *



PM.7.000338.EN 03.2016

Original

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 BSG-25P

Operating Instructions

Blatt/*sheet* D728MGB.001
Datum/*date* 13.11.2006
Stand/*version* H-15.03.2016
Geprüft/*approved* WAT/MZE

Contents Page

Bi-directional
Progressive Safety Gear BSG-25P
Operating Instructions

Blatt/*sheet* D728MGB.002
Datum/*date* 13.11.2006
Stand/*version* A-07.01.2008
Geprüft/*approved* WAT/MZE

1 General information prior to installation

1.1 Description and functions

The bi-directional progressive type safety gear BSG-25P 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.

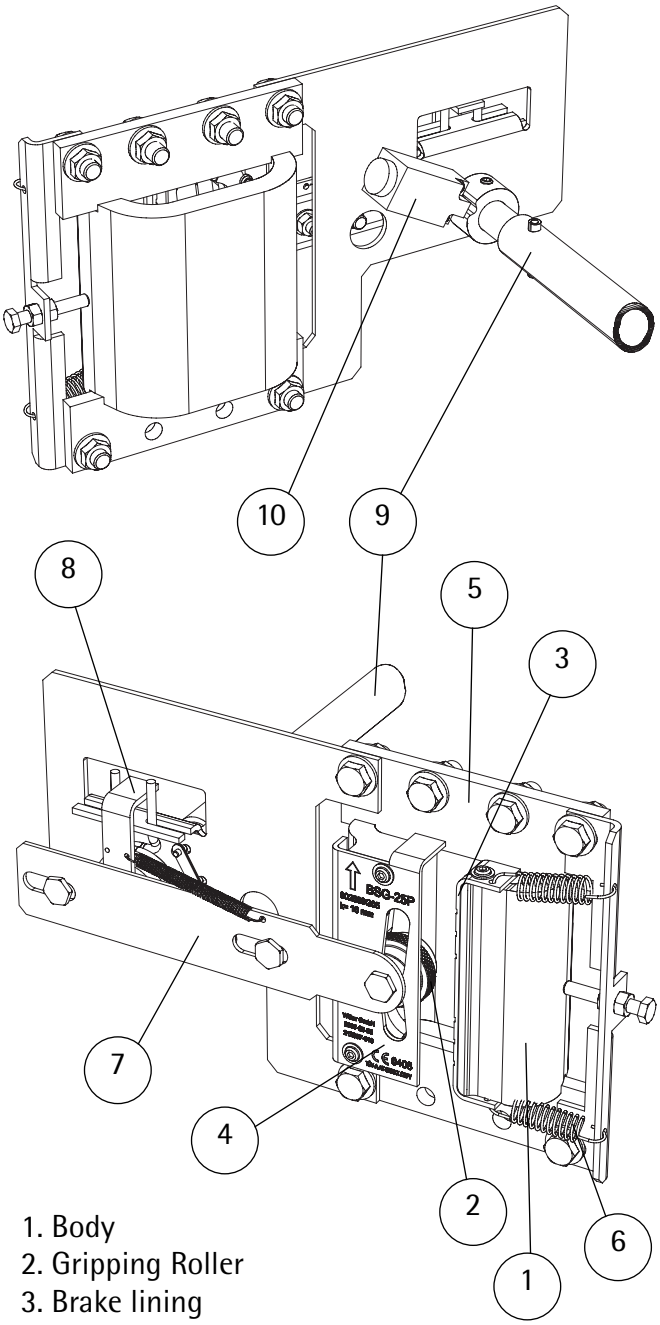
The overspeed governor rope is blocked and pulls the engaging lever, depending on running direction of the over speed governor rope, up or down into brake position. Both safety gears, connected by a gripping shaft will grip at the same time.

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.

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

Operating range:
- max. nominal speed v = 2,0 m/s
- width of guide rail head k = 8 - 16 mm
- max. mass to be gripped (downward) Fmax = 2550kg



1. Body
2. Gripping Roller
3. Brake lining
4. Guide plate
5. Flat bar - Guiding
6. Reset spring
7. Activation lever
8. Synchronisation unit
9. Synchronisation shaft
10. Safety switch

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.

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 upwards 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.

Bi-directional
Progressive Safety Gear BSG-25P

Operating Instructions

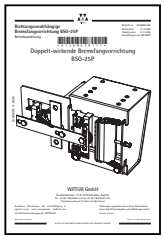
Blatt/*sheet* D728MGB.005
Datum/*date* 13.11.2006
Stand/*version* E-16.09.2013
Geprüft/*approved* WAT/MZE

1.6 Content of supply

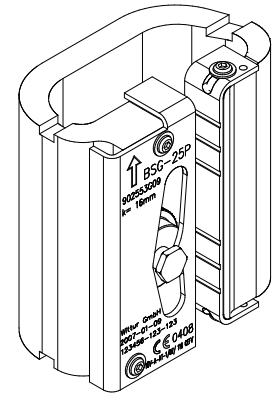
Check the delivery for correctness, completeness and condition on the basis of the order.

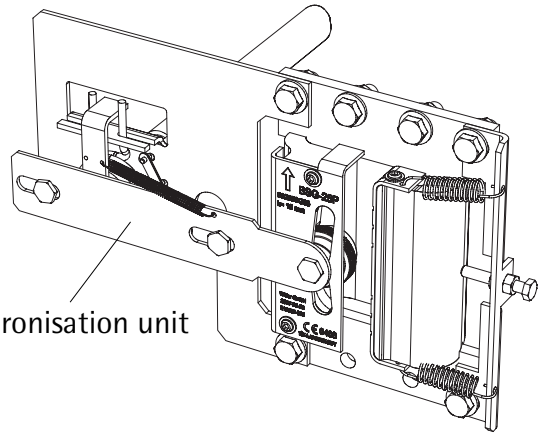
Depending on the order the content of supply can cover:

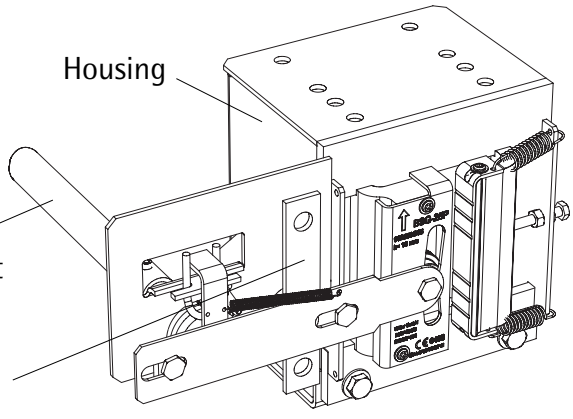
- Operating instructions manual



- One left handed and one right handed safety gear

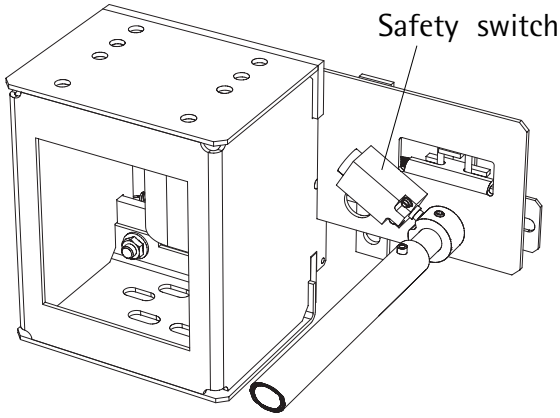






Optional:

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



2 Name plate, designation, identification

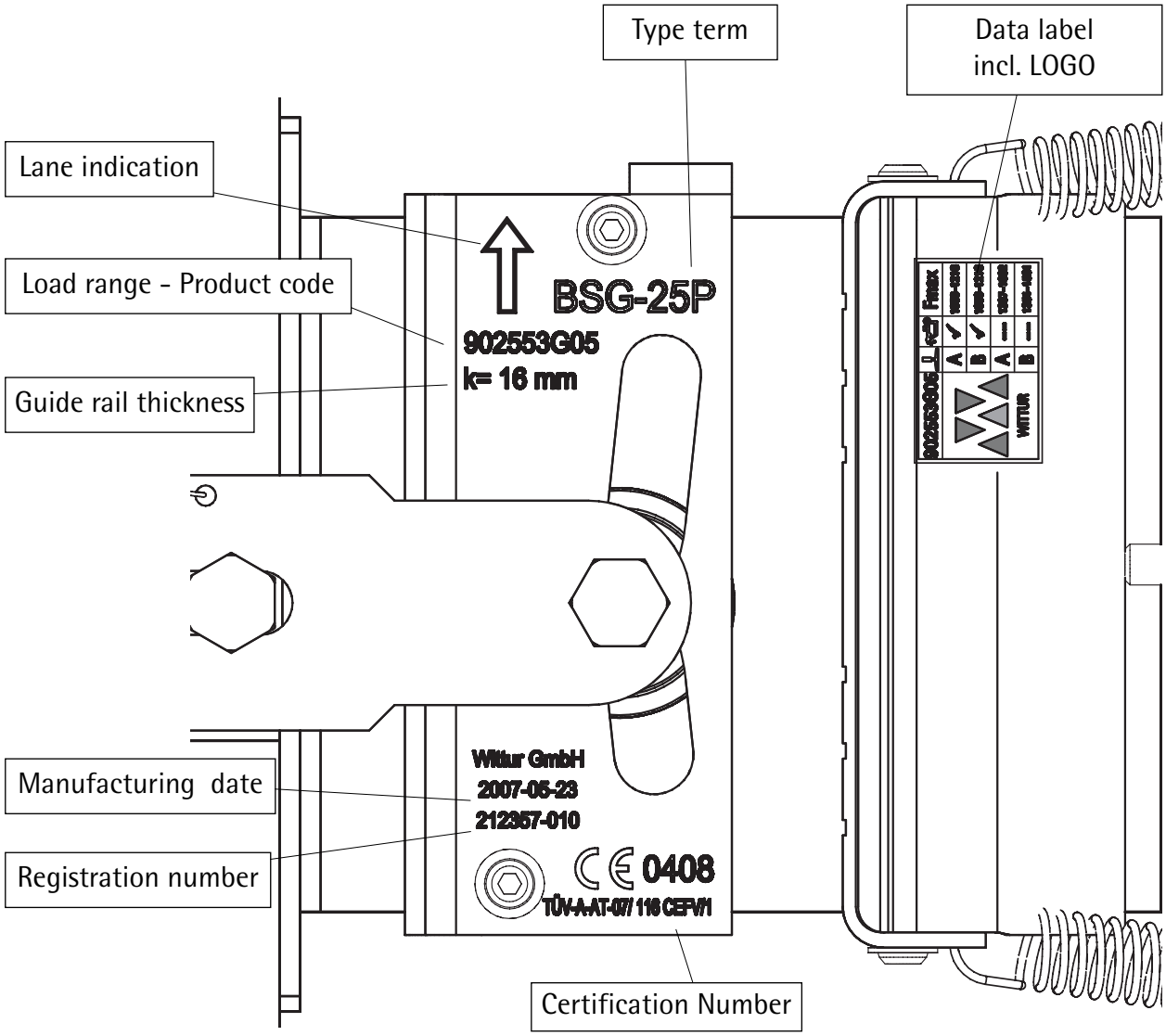
2.1 Labelling according to EN81 (CE)

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 a identification label are supplied which are to glue at the housing.

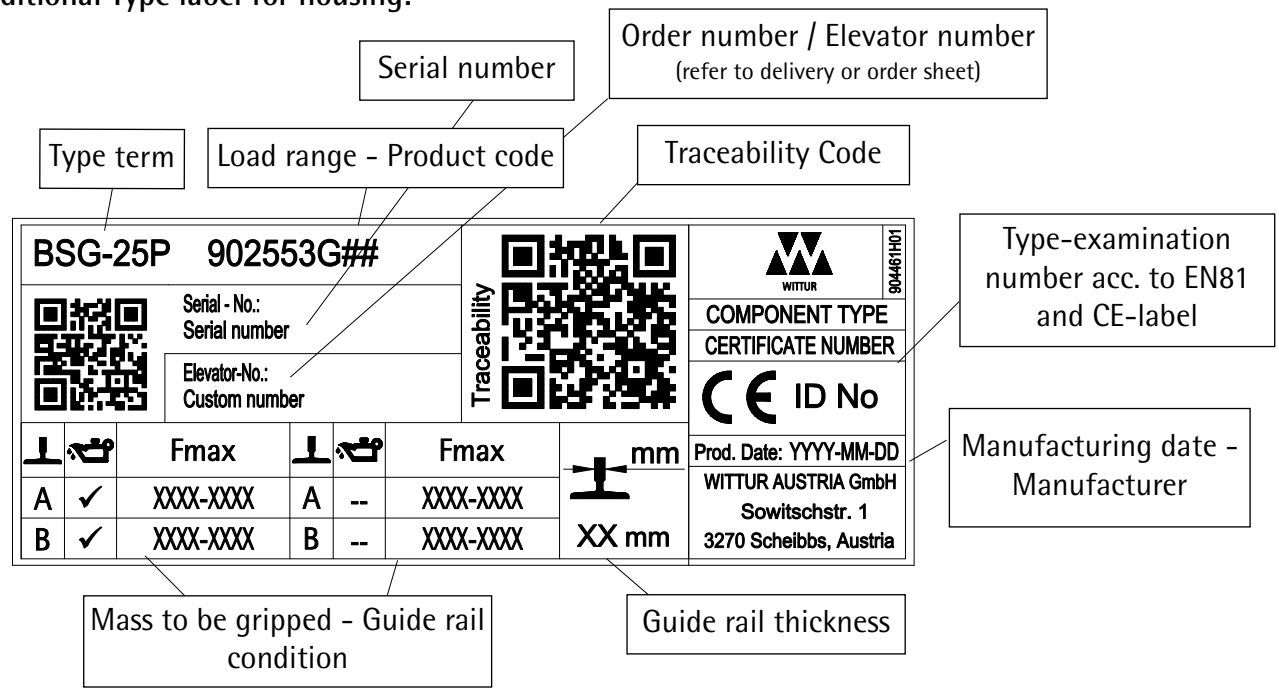
☞ The data on the marking plate and the data label must be compared with ordering paper and the project documents.

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 2.1)
- Guide rail nose thickness
- Data label
- assembling position - lane indication arrow

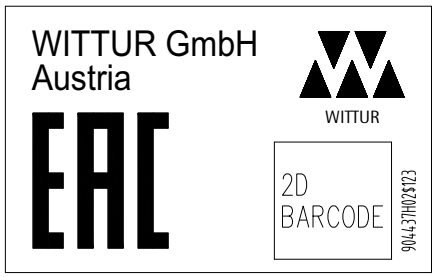


additional Type label for housing:



2.2 Labelling according to GOST R 53780 (Russia)

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



Bi-directional
Progressive Safety Gear BSG-25P
Operating Instructions

2.3 Range of use

Product code	F_{max} ⇩ (P+Q) [kg] according to guide rail manufact. type & surface condition			
	oiled		dry	
	drawn (A)	machined (B)	drawn (A)	machined (B)
902553 G01	584 ... 676	618 ... 714	800 ... 928	720 ... 840
902553 G02	677 ... 781	715 ... 821	929 ... 1077	841 ... 986
902553 G03	782 ... 902	822 ... 944	1078 ... 1249	987 ... 1158
902553 G04	903 ... 1042	945 ... 1085	1250 ... 1448	1159 ... 1359
902553 G05	1043 ... 1204	1086 ... 1247	1449 ... 1680	1360 ... 1596
902553 G06	1205 ... 1391	1248 ... 1434	1681 ... 1948	1597 ... 1874
902553 G07	1392 ... 1607	1435 ... 1648	1949 ... 2259	1875 ... 2200
902553 G08	1608 ... 1857	1649 ... 1895	2260 ... 2550	2201 ... 2550
902553 G09	1858 ... 2146	1896 ... 2178		
902553 G10	2147 ... 2486	2179 ... 2517		

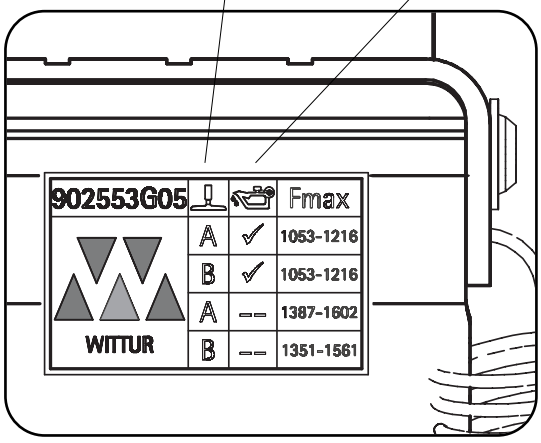
P masses of the empty car and components supported by the car, i.e. part of the travelling cable, compensating ropes/chains (if any)

Q Nominal load

Explanation to Data label:

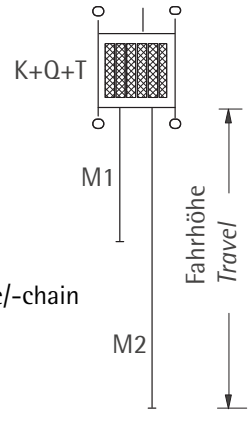
Rail type (manufacturing method) acc. DIN ISO 7465 (z.B. T89/A):
A - drawn
B - machined

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



Calculation method F_{max}:

F_{max} = K+Q+T+0,375xM=____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 Assembly of the roller

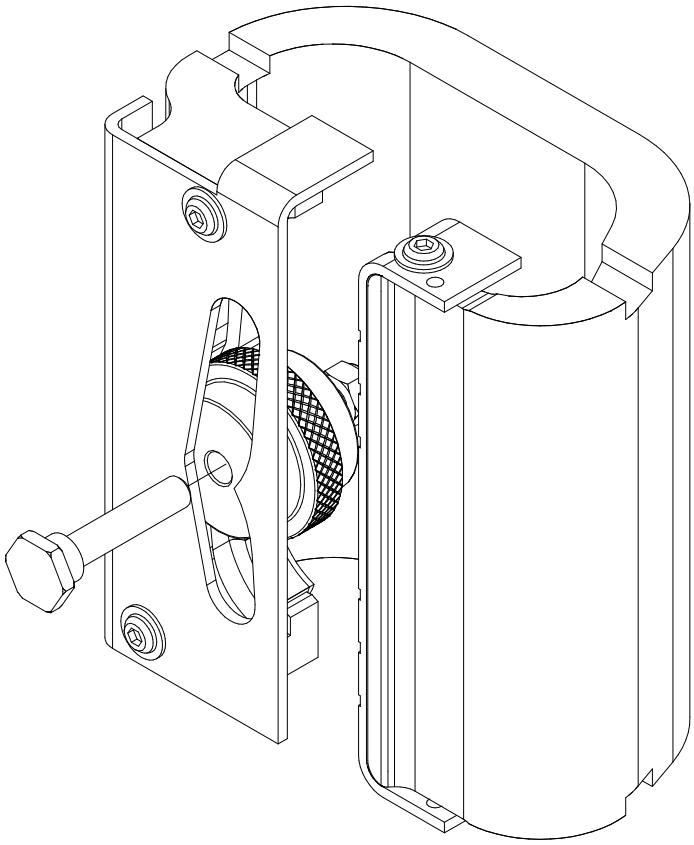
For special demand it could be, that the saftey gear rolleres (left and right) are not preassembled - delivered in a separate bag together with the axles and self locking nuts.

(1) Assemble the lifting lever - axle and roller.

(2) Tighten the self locking nut.

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

(3) Repeat this sequence on the other saftey gear.



3.2 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)

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

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

In general:

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

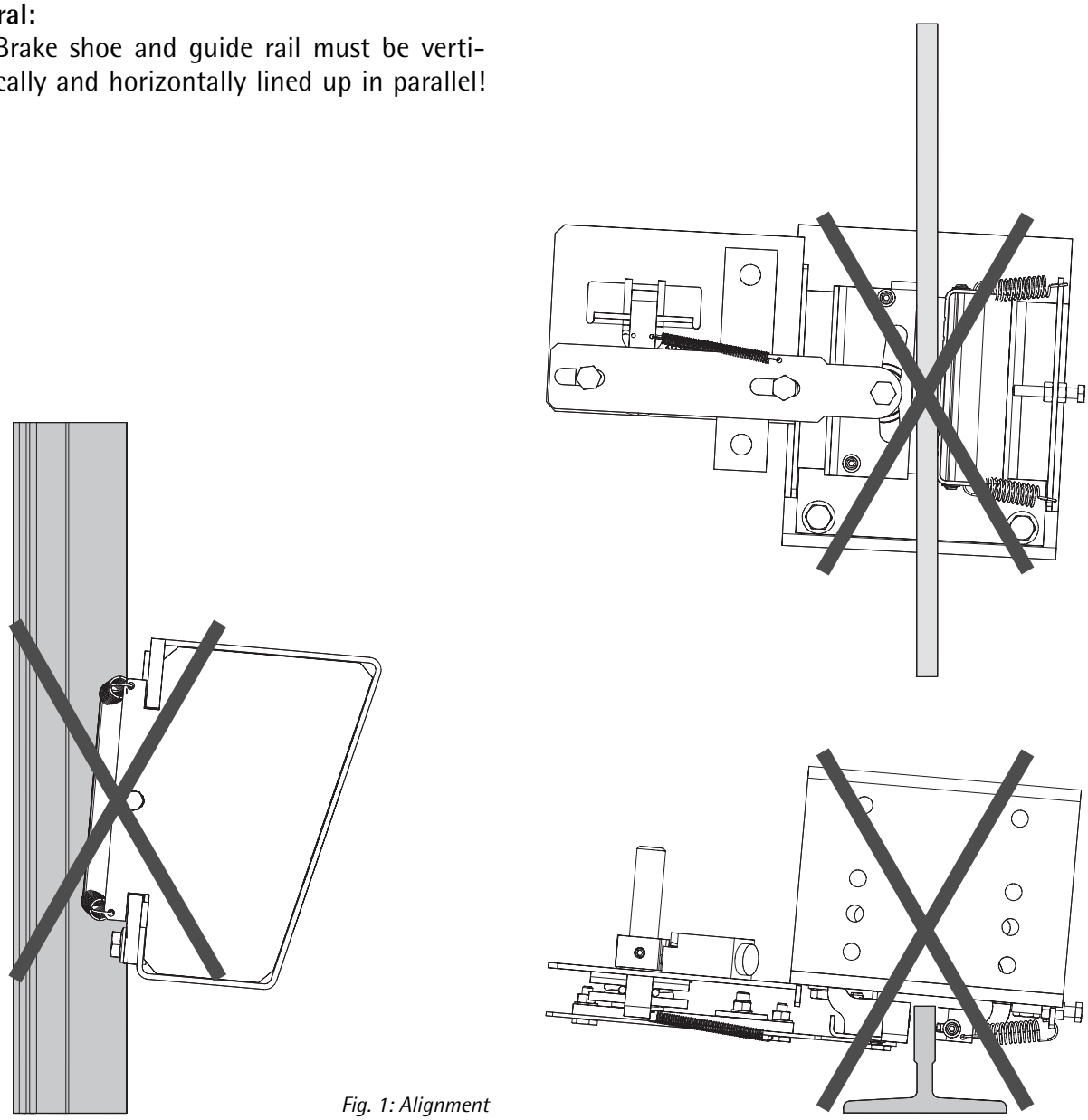
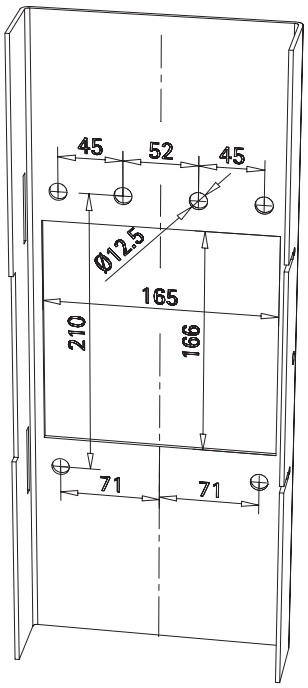


Fig. 1: Alignment

Bi-directional
Progressive Safety Gear BSG-25P
Operating Instructions

Blatt/*sheet* D728MGB.011
Datum/*date* 13.11.2006
Stand/*version* A-07.01.2008
Geprüft/*approved* WAT/MZE

3.2.1 Mounting with Flat bars (integrated solution)



Demands:

- rectangular cut out (e.g. in upright) of minimum WxH = 165x166mm
- 6 pcs. fixing holes ø12,5mm with a height distance of $210^{+0/-0,5}$mm

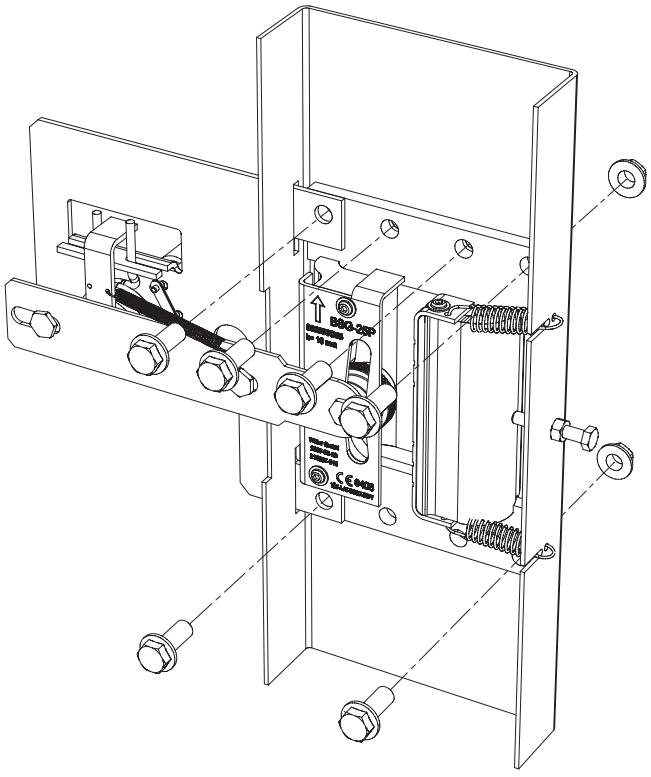
☞ For details refer also to catalogue D700CDEGB.1.8

Mounting:

(1) If necessary, take apart the assembly (activation lever, Synchronisation unit) carefully

☞ To ensure proper re-assembly (function) take special care about the way of assembly sequence!

(2) Re-assemble the system
Ensure correct alignment to guide rail (see chapter 3.1)



! Note: the tightening momentum for the screw M12 is 80Nm

(3) Repeat this sequence on the other safety gear

3.3 Adjustment of running clearance (gap brake lining / guide rail)

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

Adjustment:

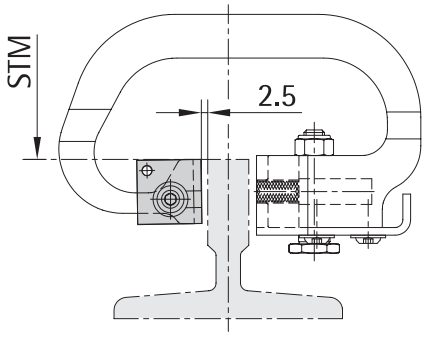
(1) Check, if the safety gear can be moved sideways easily!

(2) Ensure that the gripping roller rests in it's initial position. If necessary, loosen the adjustment screw (11) and twist the activation lever (7) accordingly - re-tighten the screw (11) (the roller may not exceed the guide plate edge (4)).

(3) Adjust the running clearance of $2{,}5^{+0/-0{,}5}$mm between brake lining (3) and guide rail by means of the limiter screw (12)

(4) Lock the limiter screw (12) with the counter nuts

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



(6) Repeat this adjustment sequence on the other safety gear

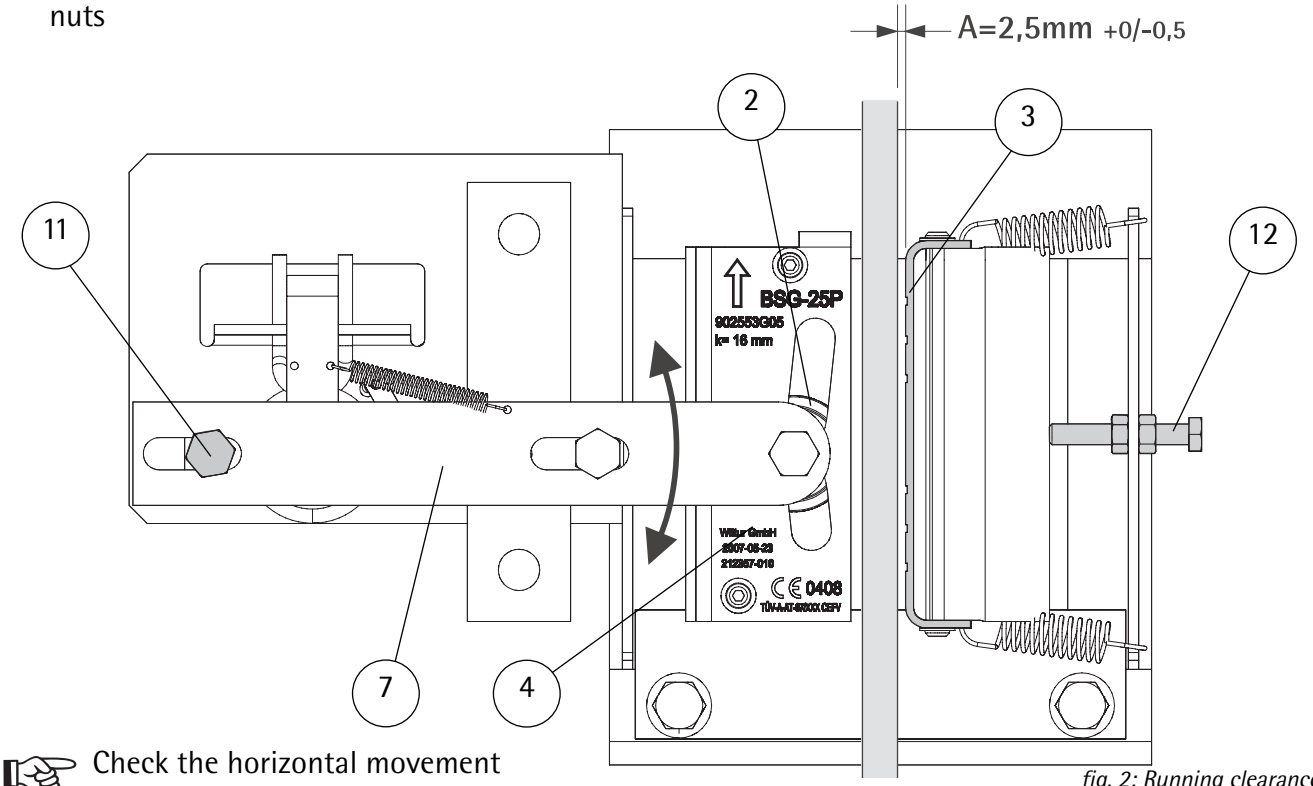


fig. 2: Running clearance

Check the horizontal movement of the safety gears in both directions - the movement should be able to be done easily by hand.

Bi-directional
Progressive Safety Gear BSG-25P
Operating Instructions

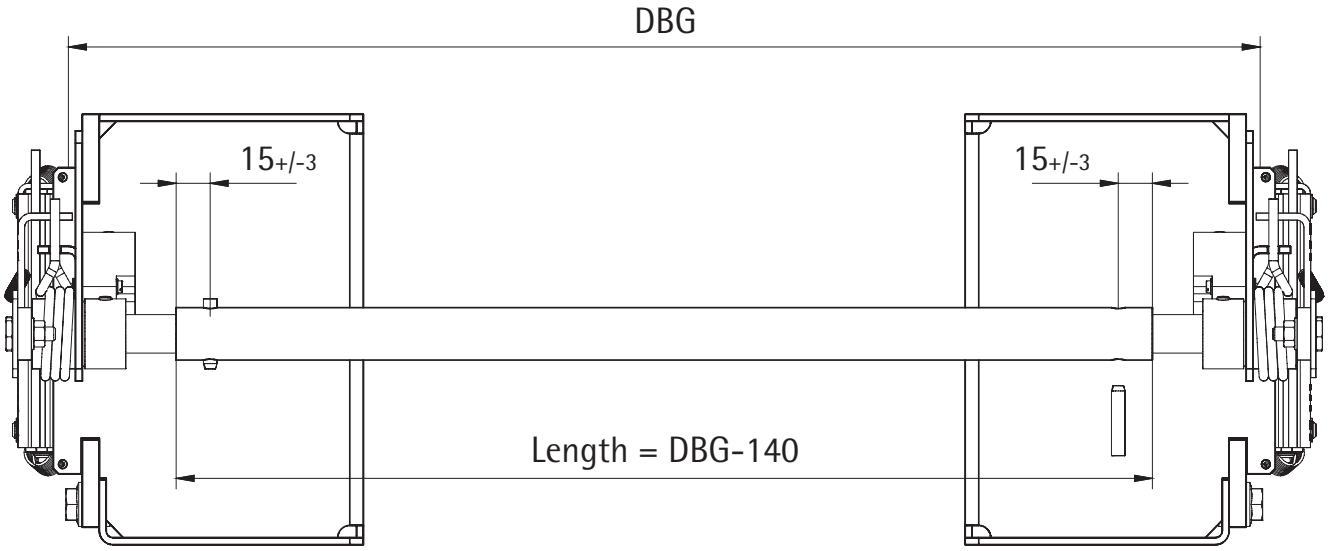
3.4 Dimensioning and cut of synchronisation shaft

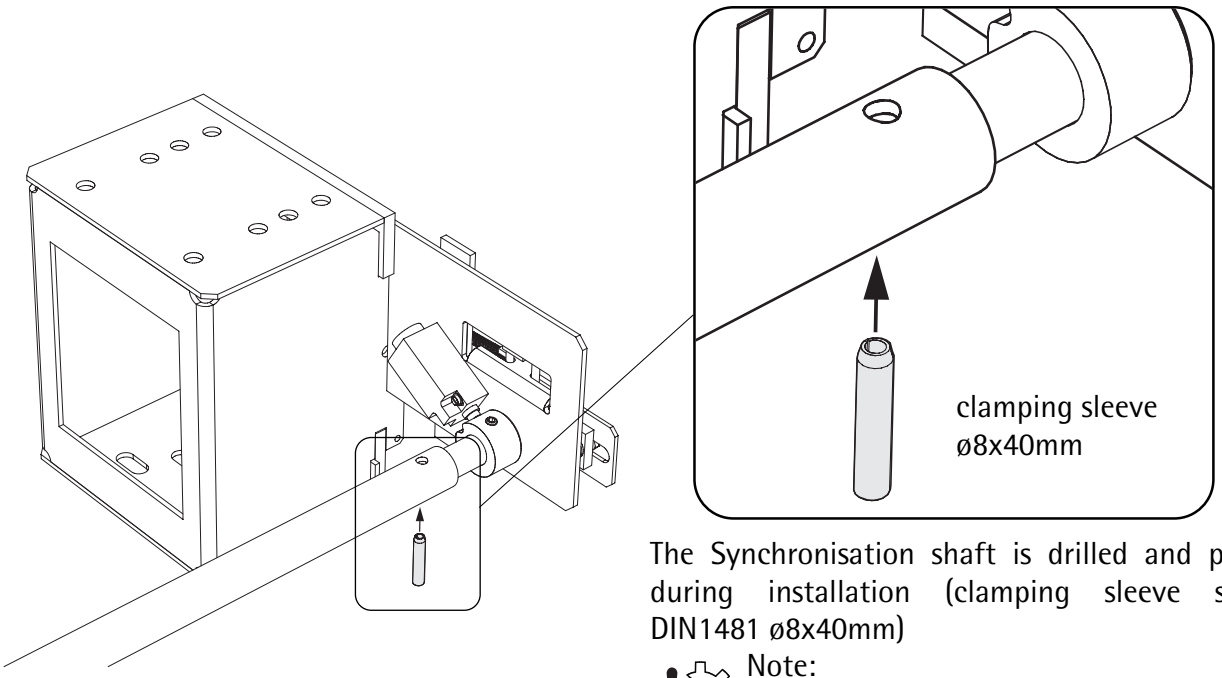
Dimension:

Shaft dim. = S235JRG2 / ø30 x 3,5mm
Length = DBG -140mm

⚠ It is important that the axes align. Otherwise the release force increase or the reset to normal position isn't possible.
The overhang of the clamping sleeves has to be the same on both sides.

Installation situation:





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

! Note:
drill hole diameter 8mm

3.5 Synchronisation of the safety gear

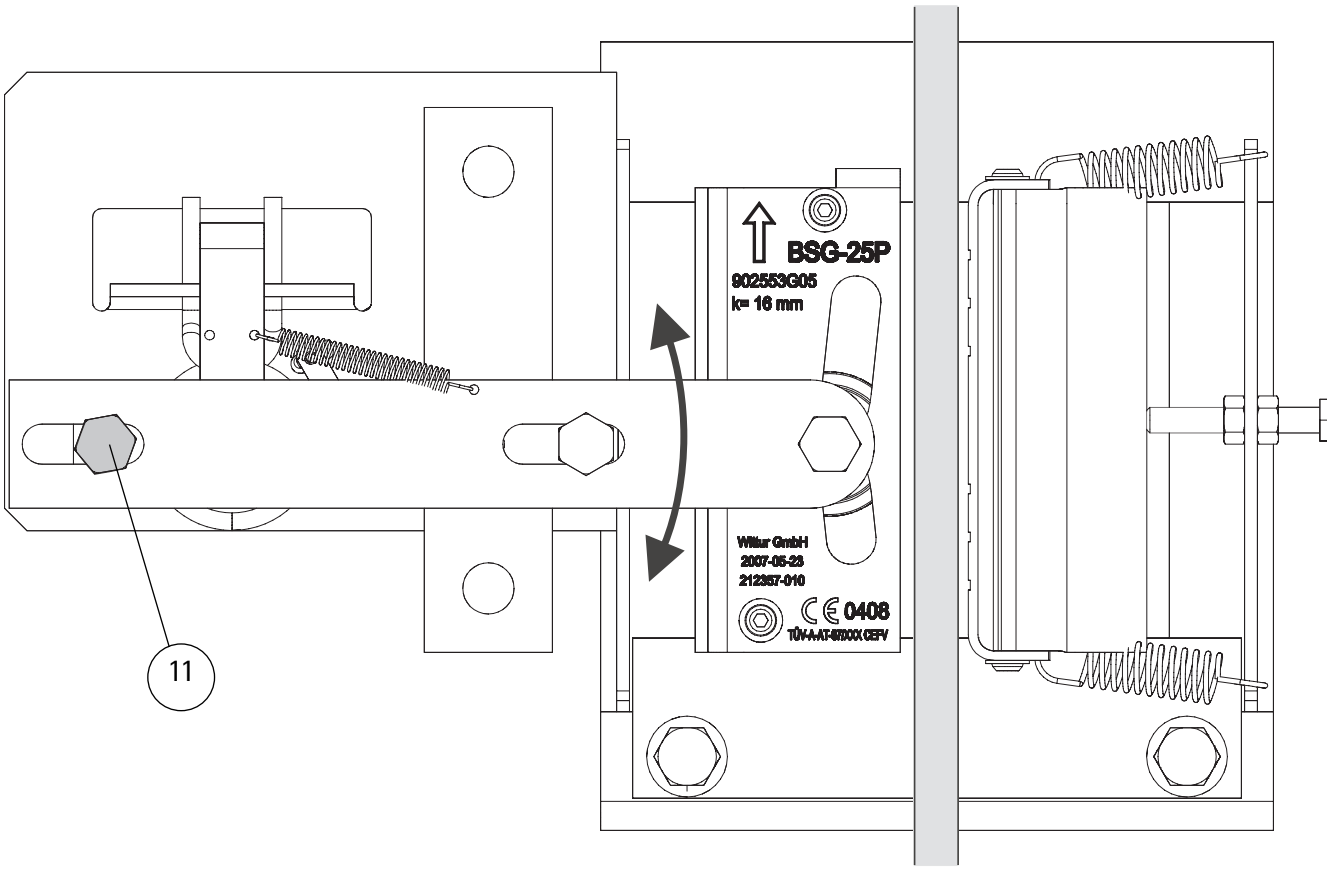
Both safety gears must operate synchronous.

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

Use e.g. paper strips. Pull the activation lever (7) 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 use of the screw (11).

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



3.6 Fixture of the overspeed governor rope

The fixing is done to the activation linkage (13) (max. plate thickness 5mm) on bolt (M10, see arrow) of the activation lever (7) (see Fig.3).

Mounting:

(1) Plug the activation linkage (13) onto the bolt of the lever (7)

(2) Screw the hexagon nut M10-DIN985 (self secure type) and tighten (ensure ease movement)!

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

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

(3) Fix the steel thimbles (14) onto the linkage (13)

(4) Threat the rope onto the thimble and fix it with rope clamps (15) (see Fig.4)

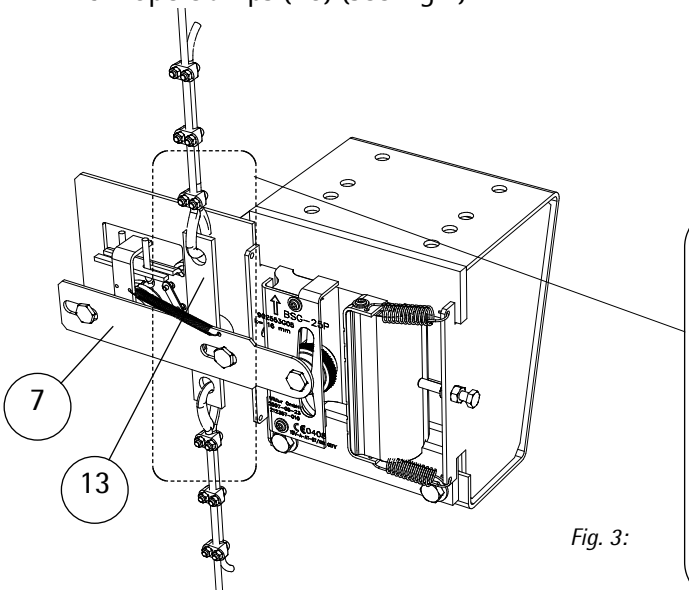


Fig. 3:

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

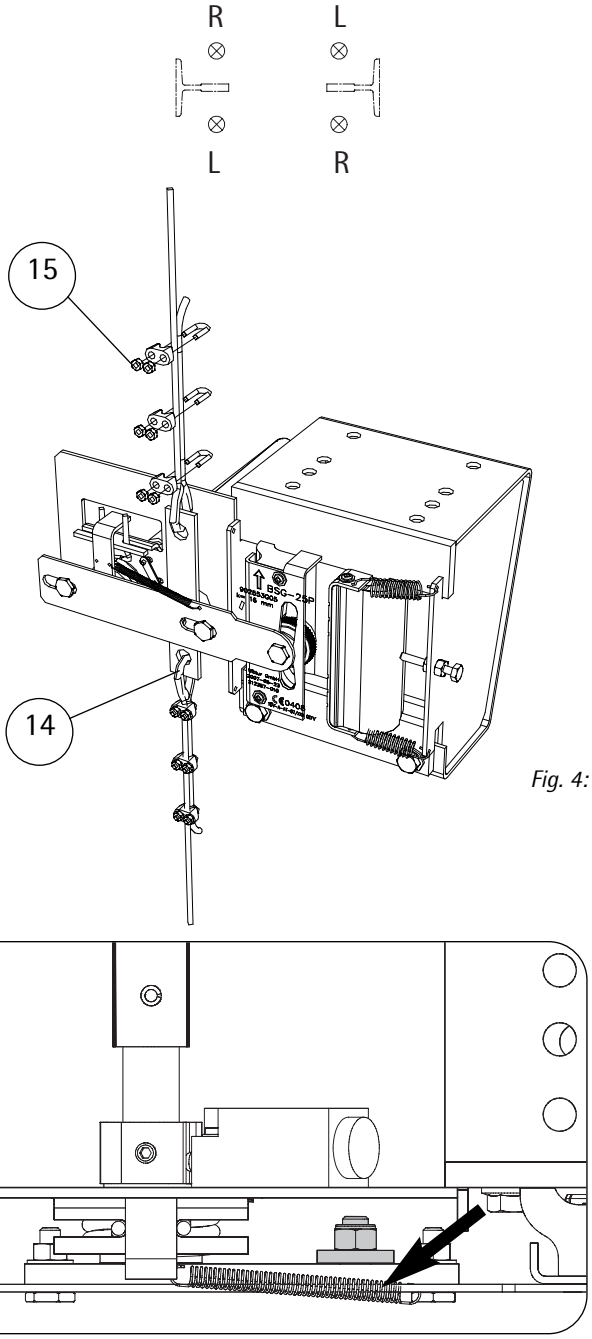


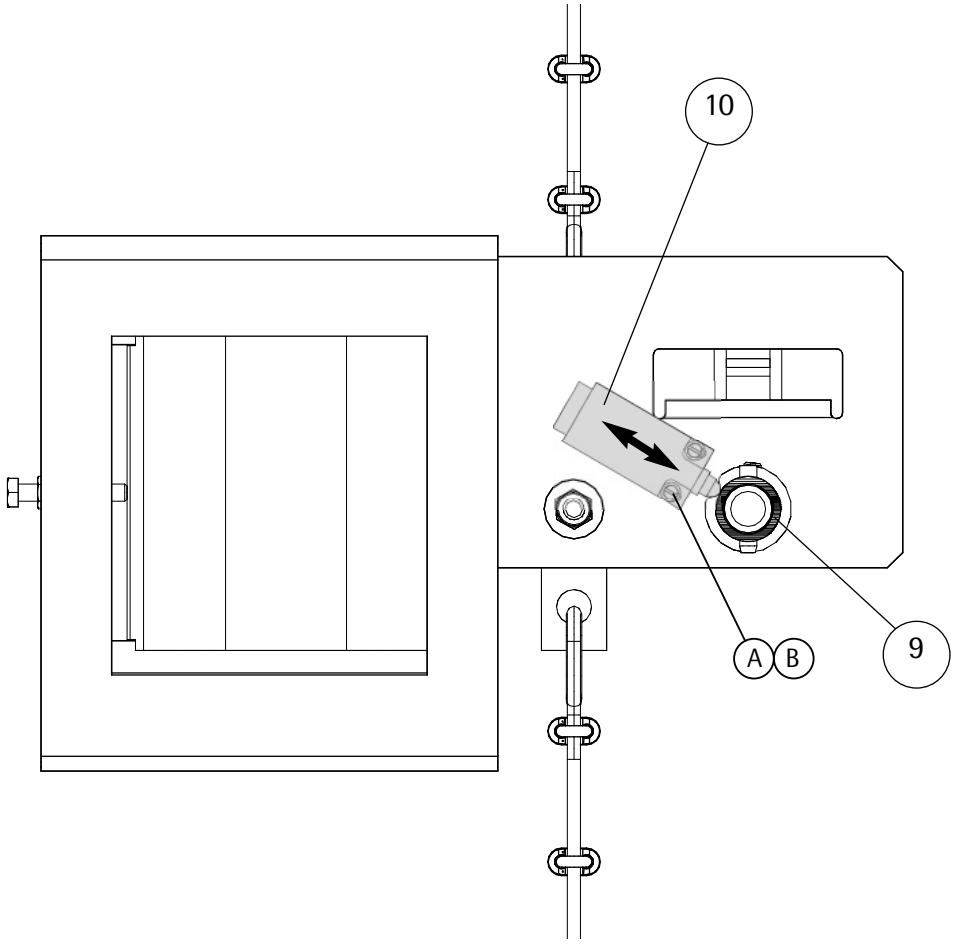
Fig. 4:

Pay attention, that the thimbles can not touch the base plate.

3.7 Adjustment of safety switch

(1) Move the activation lever to the resting position
(2) Place the safety switch (10) like shown in picture
(3) Insert cheese head screw M 4 (A) through switch and sheet metal and tighten the spring nut (B).
(4) Turn the synchronisation shaft (9) for testing the safety switch (10)
(5) Check position of the safety switch and readjust if necessary

Version safety switch optional self-reset type or with snap action = manual-reset type (reset switch knob with screw driver)



3.8 Electrical installation of the safety switch

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

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

(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!

3.8.1 Safety switch (self-resetting)

-	Utilisation Category:	AC-15
		U_e/I_e 240V/1,5A
-	Konv. thermal current:	I_{the} = 5A AC
-	Insulation voltage:	U_i = 250V AC
-	Protection class:	IP 43
-	Tested according:	DIN VDE 0470 T1
		IEC/EN 60947-5-1

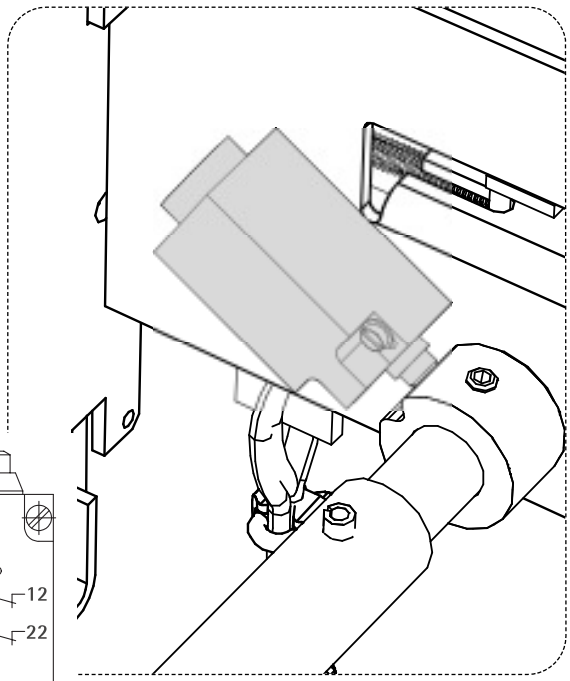
3.8.2 Safety switch (manual-resetting)

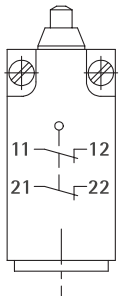
-	Utilisation Category:	AC-15
		U_e/I_e 240V/3A
-	Konv. thermal current:	I_{the} = 10A AC
-	Insulation voltage:	U_i = 250V AC
-	Protection class:	IP 43
-	Tested according:	DIN VDE 0470 T1
		IEC/EN 60947-5-1

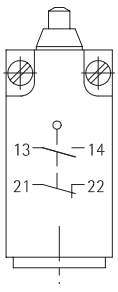
Pay special attention during installation of cables that:

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

The safety switch interrupts the safety circuit of elevator plant.







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.

Lubricant viscosity ISO VG 68-150
Type C according DIN51517 Part 1
The lubrication oil may not include high pressure additives.

- Check the activating force of the safety gear synchronisation F_1 in both directions
- 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 = 170N => F_2min = 2 x F_1 = 340N

The recommended maximum tripping force of the governor F_2 =1800N

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. 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/s^2 and 8 m/s^2

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.

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!

4.3.1 General notes

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

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

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.

4.3.2 Procedure of dynamic functions test - gripping downward

According to EN81 method A is recommended for functions test. If it is not possible to reach the specified gripping distance according chapter 4.4, it is recommended to test according to method B.
This method fits better with systems that are flexible based on small number of ropes, high travel height, great number of deflection pulley or spring supported cars or rope fixings.

Method A - Gripping test with overload
-125% of the rated load in the car
- gripping speed = nominal speed

Methode B - Gripping test with rated load
- 100% of the rated load in the car
- gripping speed = tripping speed of the overspeed govenor

The test procedure itself is the same for both methods.

Requirements:
- **No bridge** is allowed in the safety circuit (motor has to be switched of when tripping)
- **No shortcut bridge** (gearless) at the main conductors (electric emergency brake)
- Motor brake open during gripping (mechanically or electrically for MRL)

Test procedure:

(1) Place test weights (depending on method) inside the car. Distribute the weights evenly.
(2) Drive the car frame to the level near the mid point of the shaft or higher (to avoid buffer run).
(3) Switch of the lift (with frequency inverter, wait discharging time)
(4) Unmount bridges if necessary
(5) Prepare possibility to open the motor brake
(6) Switch on the lift
(7) Drive the car down and lift the motor brake
(8) After reaching the required speed (depending on method) activate the tripping function of the overspeed governor at the door zone or let the governor trip at overspeed.
(9) The overspeed governor must activate the safety gear and the safety gear must stop the elevator. At the same time the safety switch must interupt 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 to stop the elevator.

(10) Release the motor brake
(11) Try to drive the car down to check if the safety gear is gripping (ropes have to slip on the traction sheave)
(12) Identify and notice position in the shaft
(13) Pull the car out of gripping
Required force to release the car:

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

(14) Remove the test weights
(15) Check if the actuation mechanism and the safety switch are in its initial position
(16) Reset the overspeed governor
(17) If safety switch has to be reset by hand, do so
(18) Drive the car to a position to measure the gripping traces. They have to be at the same height and have the same length (max. difference 1,5cm, for validation use the shorter trace).
(19) Validate the length of the gripping traces with the related diagram (depending on speed and method) according chapter 4.4
(20) Set elevator to its inital condition

To simplify the periodical test a reference measurement with ADIAS could be done and documented after valid function test.

4.3.3 Procedure of dynamic functions test - gripping upward

The test should be made while the empty car is ascending at not less than rated speed, using exclusively the BSG-25P for braking.

Requirements:

- **No bridge** is allowed in the safety circuit (motor has to be switched of when tripping)
- **No shortcut bridge** (gearless) at the main conductors (electric emergency brake)
- Motor brake open during gripping (mechanically or electrically for MRL)

Test procedure:

(1) Drive the car frame to the level near the mid point of the shaft or lower
(2) Switch of the lift (with frequency inverter, wait discharging time)
(3) Unmount bridges if necessary
(4) Prepare possibility to open the motor brake
(5) Switch on the lift
(6) Drive the car up and lift the motor brake
(7) After reaching the required speed activate the tripping function of the overspeed governor at the door zone or let the governor trip at overspeed.
(8) The overspeed governor has to activate the safety gear and the safety gear must stop the elevator. At the same time the safety switch must interupt 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 to stop the elevator.

(9) Release the motor brake

It is not allowed to test if the safety gear is gripping by use of releveling control. Safety gear could get overloaded

(10) Identify and notice position in the shaft
(11) Pull the car out of gripping by driving downward
(12) Check if the actuation mechanism and the safety switch are in its initial position
(13) Reset the overspeed governor
(14) If safety switch has to be reset by hand, do so
(15) Drive the car to a position to measure the gripping traces. They have to be at the same height and have the same length (max. difference 1,5cm).

(16) Set elevator back to initial condition.

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

4.3.4 Visual checks after a saftey gear test

- Inclination of the Car:

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

- 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

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

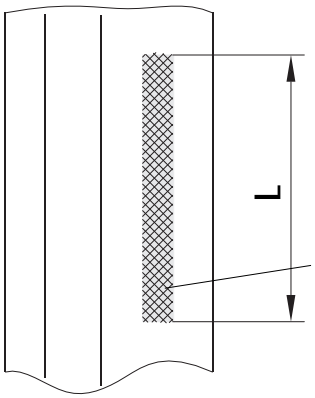
  After the safety gear test the burrs must be removed from the guide rails.

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

4.4 Gripping distance

4.4.1 Measuring of the gripping distance

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



The measurement tolerance is 0.5cm; The difference between the two traces should be max. 1.5cm. For validation always use the shorter trace.

4.4.2 Permitted gripping distance

The gripping distance "**s**" is to be within the values:

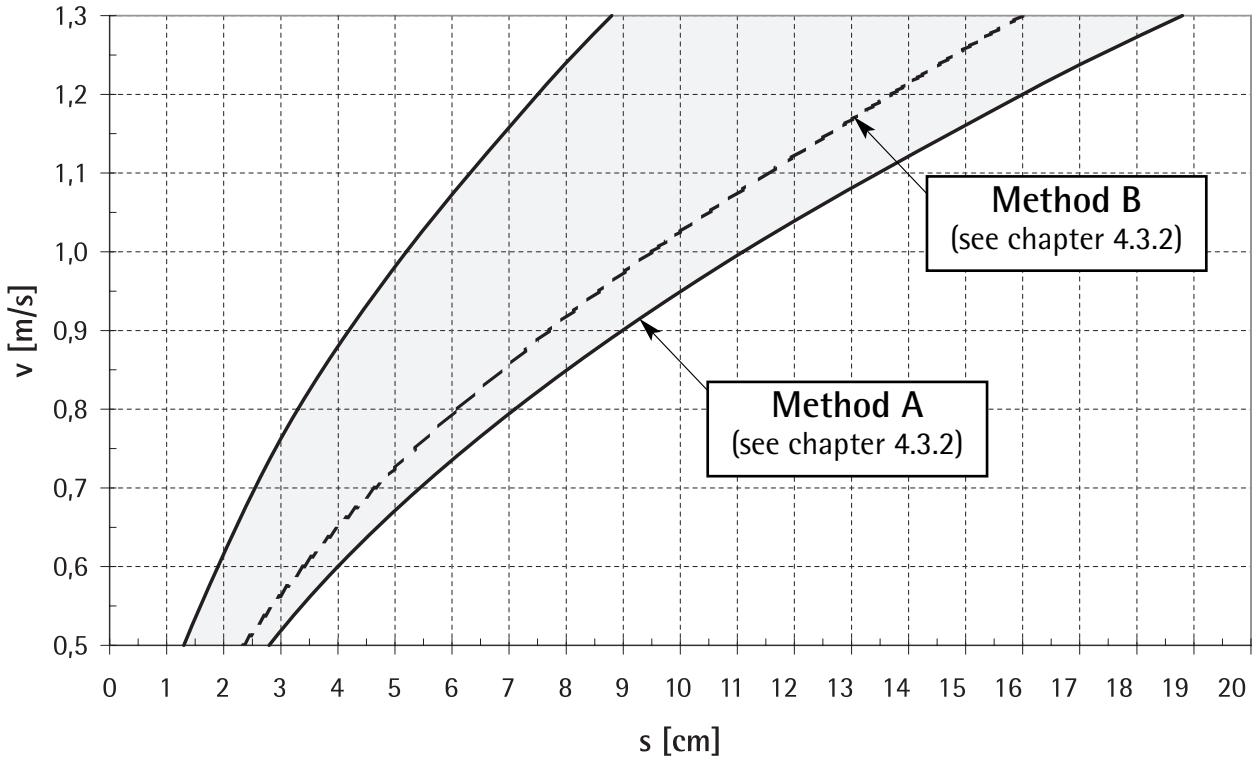
s = gripping distance [cm]
v = nominal speed [m/s]

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 ≤ 1,0m/s . . . s = L - 2 (cm)

v > 1,0m/s . . . s = L - 4 (cm)

Diagram 1: v=0,5-1,3m/s



Bi-directional
Progressive Safety Gear BSG-25P
Operating Instructions

Diagram 2: v=1,2-1,9m/s

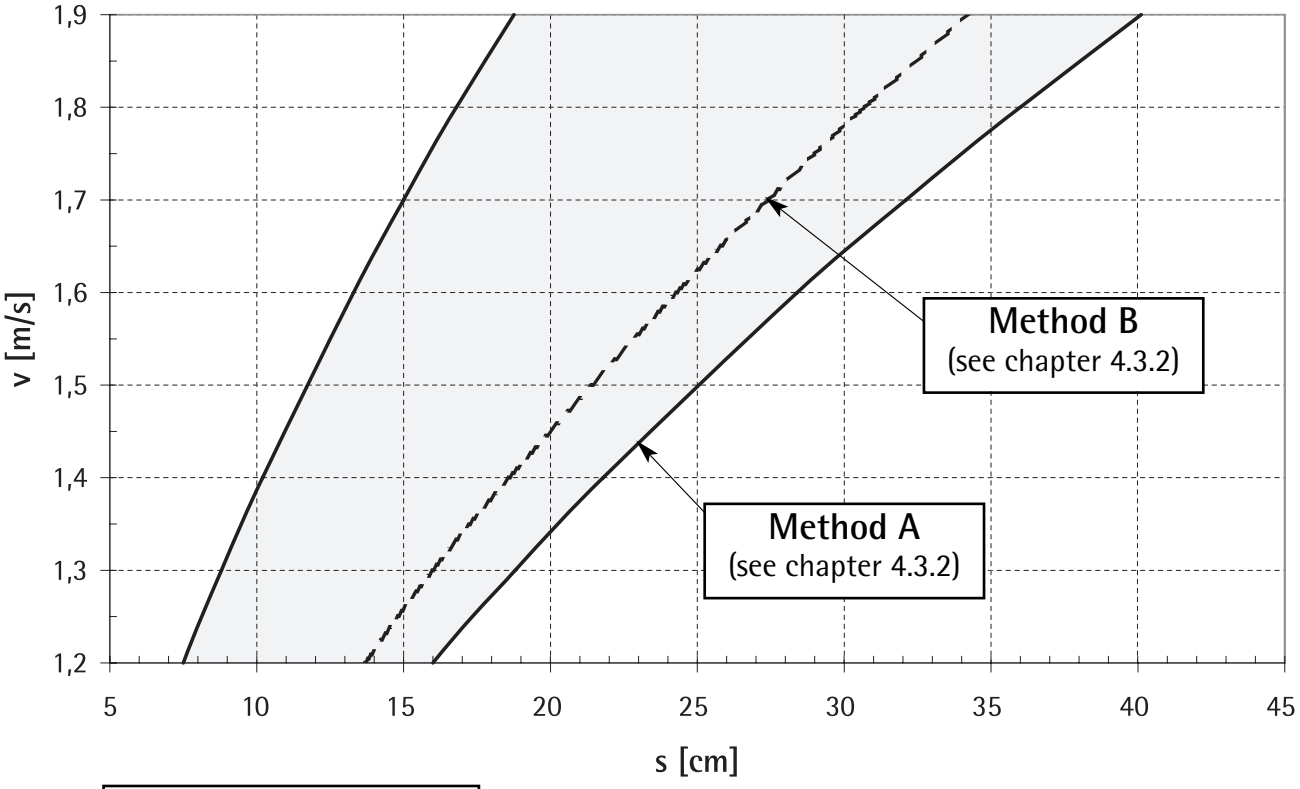
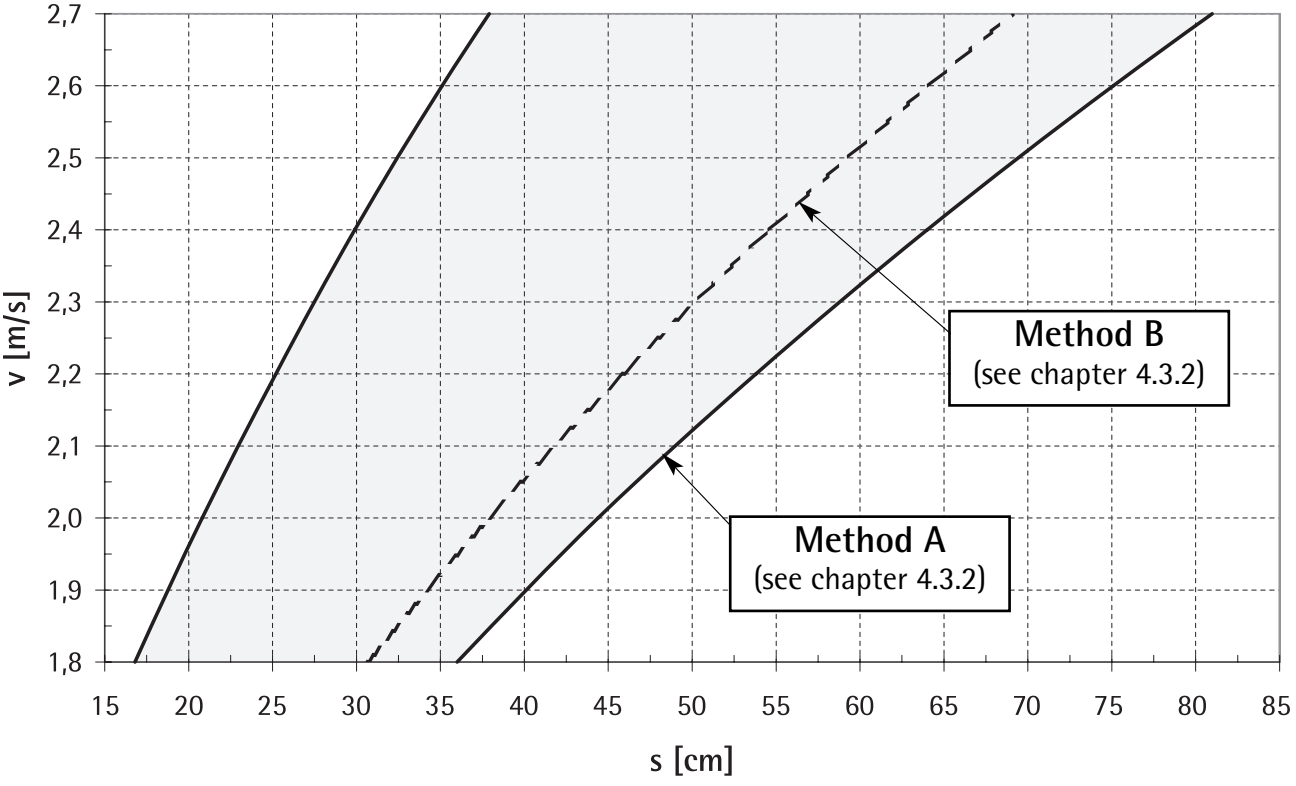


Diagram 3: v=1,8-2,7m/s



5 Maintenance, inspection and repair

5.1 Maintenance and inspection

The progressive type safety gear BSG-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 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.

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

Operation temp. [°C]	Viscosity
-20 ... +35	ISO VG-68 / 100 / 150
+30 ... +50	ISO VG-150

Tab. 1: Lubricant requirements

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 Periodical 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.

A test with use of ADIAS is possible.

Recommended P/Q>1 and v>1m/s to reach the threshold of the safety gear. A reference measurement after first function test and documentation in the elevator book is recommended.

The reset of the safety gear must be done by an authorized 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”.

5.3 Operational life time of the safety gears

After a certain number of grippings with full load (see below) change the complete safety gear!

nominal speed [m/s]	number of gripping tests
≤ 1,0	50
1,01 ... 1,88	22

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.

During repair work, take care about the security measures for work on lift equipment.

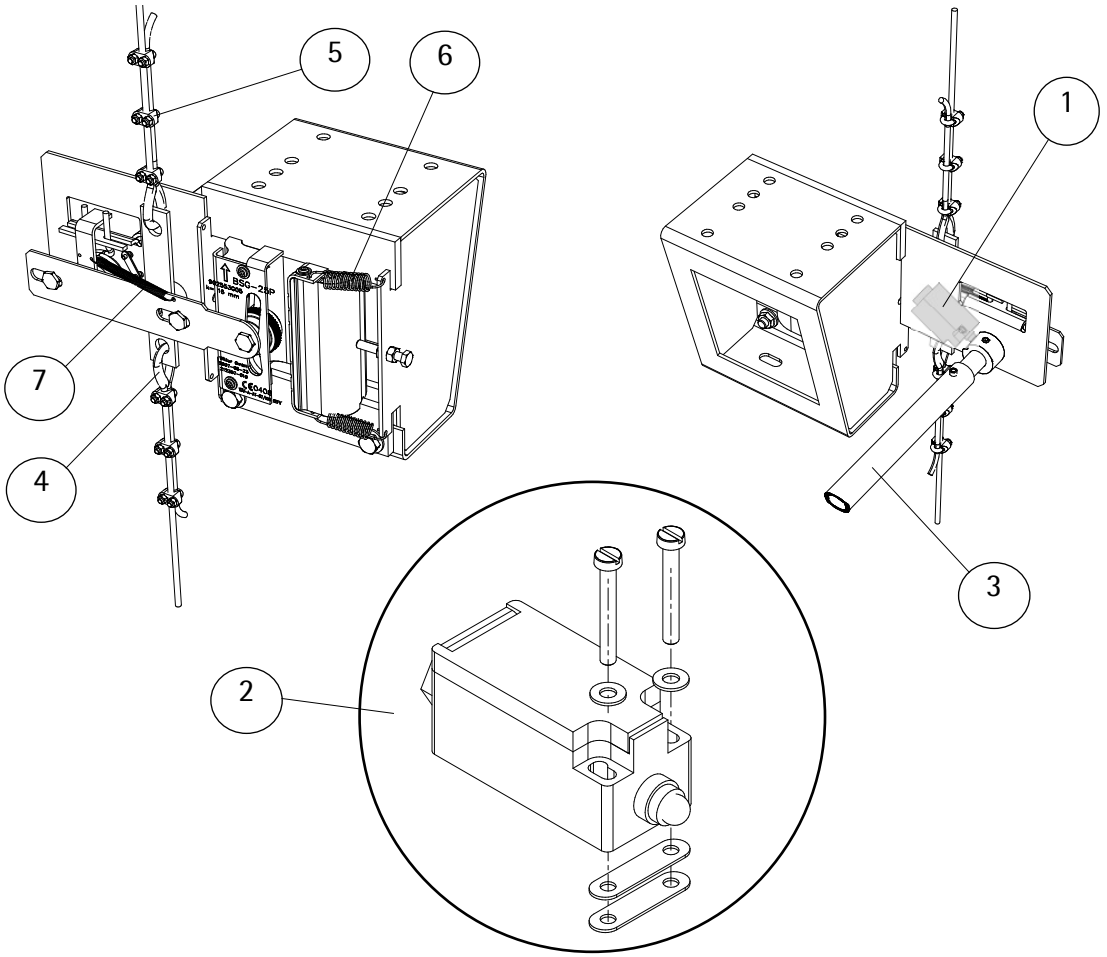
Permitted repair work:
Repairs to the safety gear system which do not directly affect the safety gear (e.g. Synchronisation, safety gear contact, etc.) must be carried out locally. In other words, all procedures involved in initial installation are also included in the repairs and maintenance schedule.

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

Bi-directional
Progressive Safety Gear BSG-25P
Operating Instructions

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	Safety switch assembly	Bernstein	I88-A2Z w	self resetting	1	902385G02
		Bernstein	I88-SU1Z w	manual-resetable	1	902385G01
3	Synchronisation shaft	tube St35, D30 x 3,5mm		(... state the distance between guides in the order)	1	902383G01
4	Steel timber	N06	DIN3090	rope diameter 6-6,5 mm	1	273940
5	Rope clamp	S6,5	DIN1142	rope diameter 6-6,5 mm	1	259316
6	Adjusment spring			BSG-25P	1	902374H01
7	Activating spring			BSG-25P	1	904431H01



WITTUR manufacturing locations

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

ARGENTINIA

WITTUR S.A.
Av. Belgrano 2445
Sarandi - Pcia. de Buenos Aires Argentinia

ITALY

WITTUR S.P.A.
Via Macedonio Melloni no 12
43052 Colorno

AUSTRIA

WITTUR Austria GmbH
Sowitschstrasse 1
3270 Scheibbs

INDIA

WITTUR Elevator Components India Pvt. Ltd.
Survey nos 45/1B , 3 & 4 , Pondur Village
Sriperumbudur – 602 105
Tamil Nadu, INDIA

BRASIL

WITTUR LTDA
Rodovia Celso garcia Cid
1406 Cambé Parana - Brazil

SLOWAKIA

WITTUR S.R.O.
Priemyselná ulica 2747/7
963 01 Krupina, Slovakia

CHINA

WITTUR Elevator Components (Suzhou) Co. Ltd.
18 Shexing Road, FOHO Economic Development Zone, Wu-jiang City, Jiangsu Province
P.R. China 215214

SPAIN

WITTUR ELEVATOR COMPONENTS S.A.U.
Polig. Ind. Malpica, Calle E - Parcela 8
50016 Zaragoza

GERMANY

WITTUR ELECTRIC DRIVES GMBH
Offenburger Str. 3
01189 Dresden, Germany

TURKEY

WITTUR Asansör San. ve Tic. A.S.
Y Dudullu Organize - Sanayi Bolgesi n° 13
34776 Istanbul, Turkey