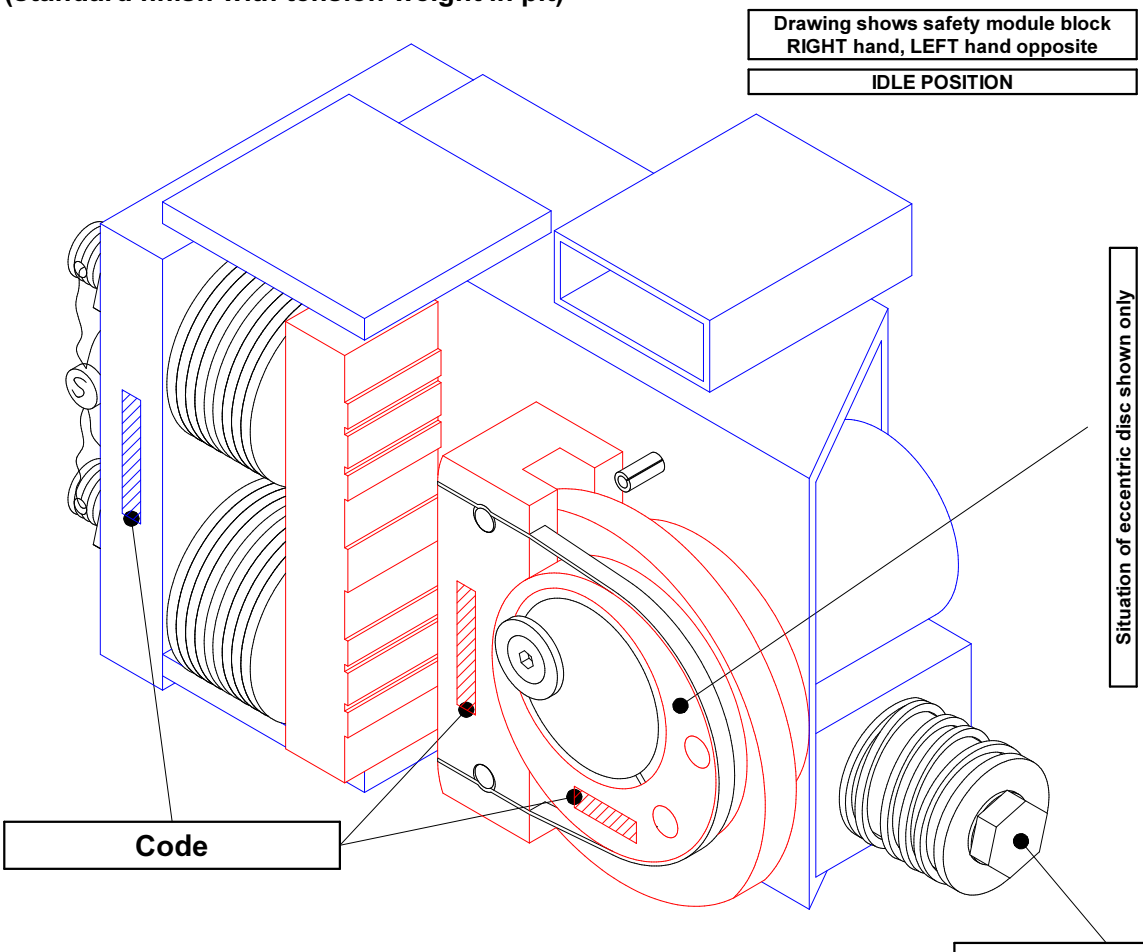
SAFETY GEAR EB 59 K ↓	SAFETY GEAR EB 75 KS/MS ↓

AUFZUGTECHNOLOGIE

Progressive safety gear - working in DOWN direction only
= rated load + car weight in DOWN direction (FREE FALL)

Activated by overspeed governor through overspeed governor rope
(standard finish with tension weight in pit)



Explosion drawing RIGHT hand	.....	**5230.800.002**
General Information	.....	**5230.800.003**
Schematic drawing engagement in DOWN direction	.....	**5230.800.004**
Actuating shaft INSIDE	.....	**5230.800.006 ... 5230.800.009**
Actuating shaft OUTSIDE	.....	**5230.800.010 ... 5230.800.013**
Installation and Maintenance	.....	**5230.800.014**
Check	.....	**5230.800.015**
Safety Book - GENERAL - 1	.....	**5230.800.016**
Safety Book - GENERAL - 2	.....	**5230.800.017**
Safety Switch in Idle Position	.....	**5230.800.018**

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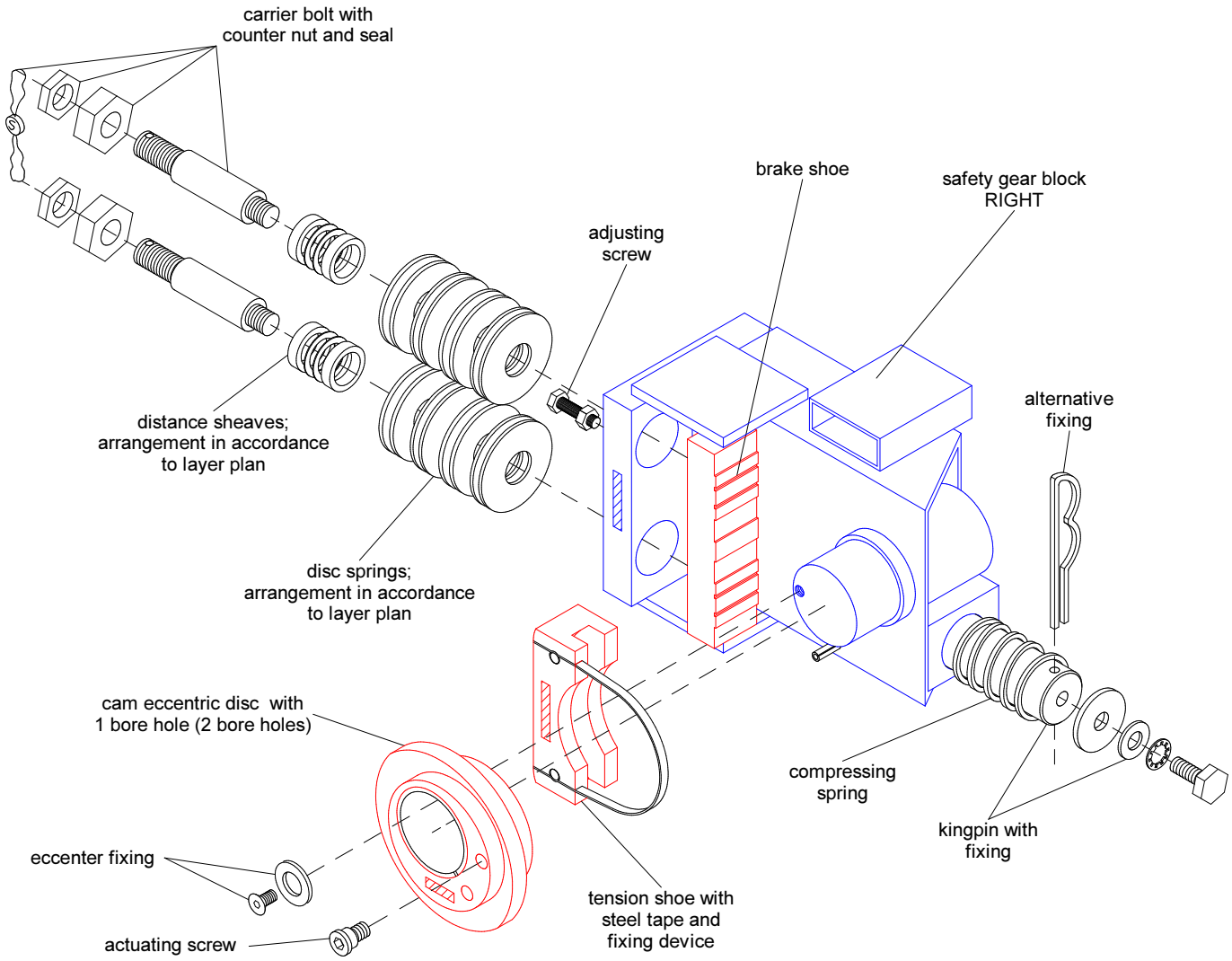
AUFZUGTECHNOLOGIE



Nomination of parts		EB 59 K	EB 75 KS	EB 75 MS
cam eccentric disc 1 bore hole		5230.000.010	5240.000.010	5240.000.010
cam eccentric disc 2 bore holes		5230.000.011	5240.000.011	5240.000.011
tension shoe		5230.000.020	5240.000.020	5240.000.021
brake shoe		5230.000.030	5240.000.030	5240.000.030
carrier bolt		5330.000.040	5340.000.040	5340.000.040
safety gear block RIGHT		5330.010.000	5340.010.000	5340.010.000
safety gear block LEFT		5330.011.000	5340.011.000	5340.011.000
adjusting screw		DIN 933 M6x...	DIN 933 M6x...	DIN 933 M6x...
kingpin		5330.100.264	5340.100.298	5340.100.298
actuating screw		5330.000.070	5330.000.070	5330.000.070
compressing spring		5330.000.080	5340.000.080	5340.000.080
disc spring		5330.000.140	5340.000.140	5340.000.140
eccenter fixing	- screw	DIN 7991 M6x10	DIN 7991 M6x10	DIN 7991 M6x10
	- disc	DIN 125 A Ø10,5	DIN 125 A Ø10,5	DIN 125 A Ø10,5
sealing	- wire	5330.000.110	5330.000.110	5330.000.110
	- seal	5330.000.120	5330.000.120	5330.000.120

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AUFZUGTECHNOLOGIE

Construction - Mode of operation:

The safety gear housing is a solid steel structure welded in accordance with the high German standards. On one side is a carrier block to sustain the spring load transferred from the opposite side of the eccenter and brake shoe. The knurled eccenter disks are followed by the bearing eccenter disk fitted to the safety gear block. When both the eccenters reach the appropriate position the safety gear is engaged, thus ensuring that the kinetically limited spring stroke is limited.

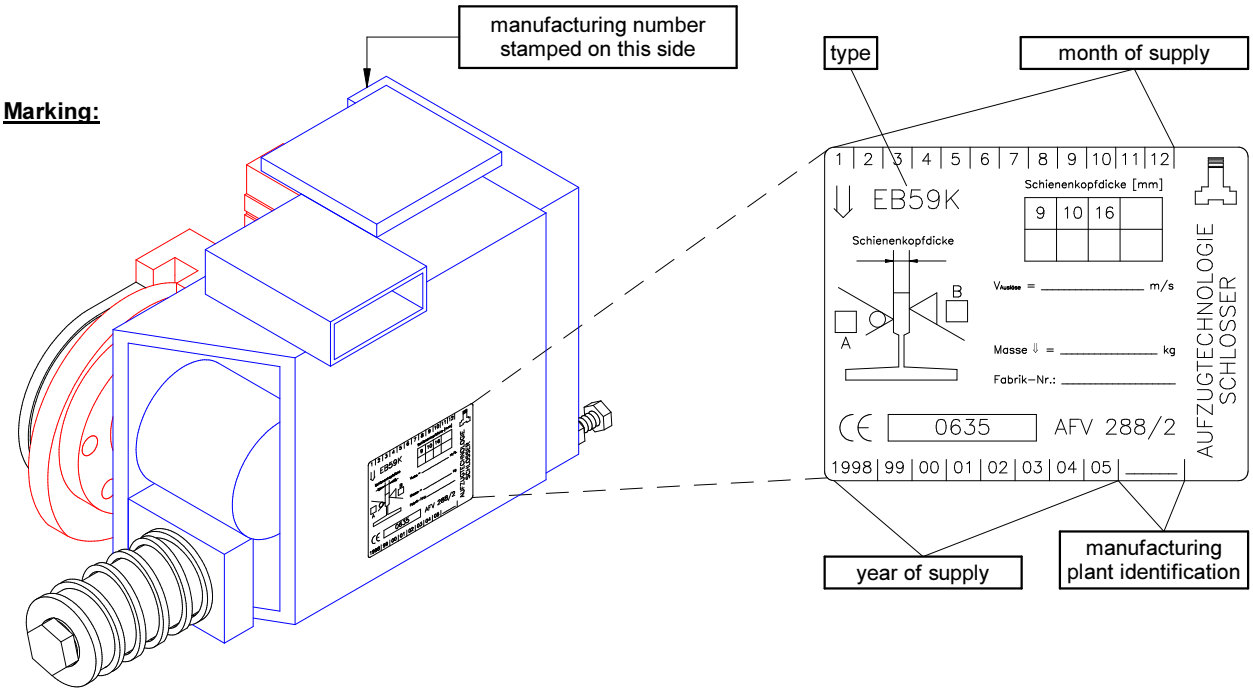
Parameters:

safety gear type
guidethickness
guide rail surface
total mass
contract speed
tripping speed

EB 59 K	EB 75 KS	EB 75 MS
accord. EEC type examination certificate ...		
AFV 288 / _	*AFV 313 / _ (DOWN direction)* *ABF 313 / _ (UP direction)*	

Guide rail condition: either cold drawn or machined, surface can be either dry or lubricated. Lubricant must be in accordance with DIN 51517, part 1.
The safety gears type EB 59 K - EB 75 KS - EB 75 MS are certified to European Standards and hold certificates to DIN EN 81.

Marking:



$V_{Auslöse}$	.....	max. tripping speed
Masse ⇓	.....	total mass in DOWN direction
A	.....	guide rail condition: cold drawn
B	.....	guide rail condition: machined

Warranty and guaranty:

In case our product is not used for the application designed we can not take any responsibility whatsoever. It is the duty of the user to follow the local law and regulations under all circumstances.

AUFZUGTECHNOLOGIE

Figure - 1

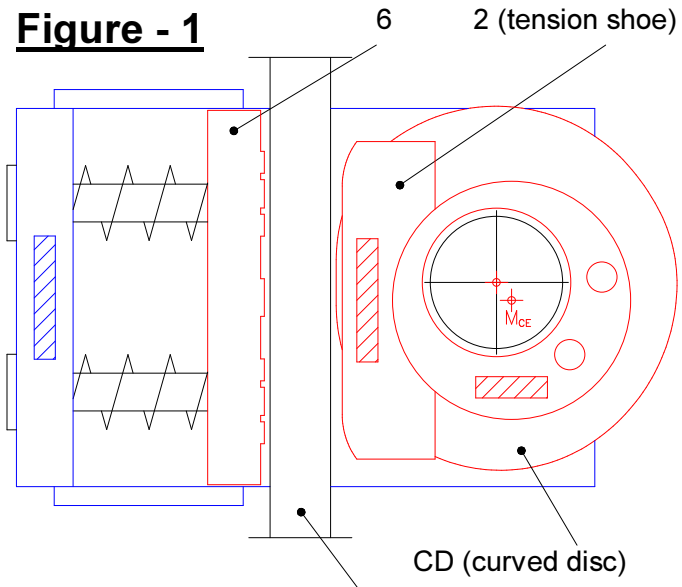


Figure - 1

Idle position = free movement
Guide rail (item 8) is not in contact with brake shoe (item 6), tension shoe (item 2) nor with curved disc (item CD).

Figure - 2

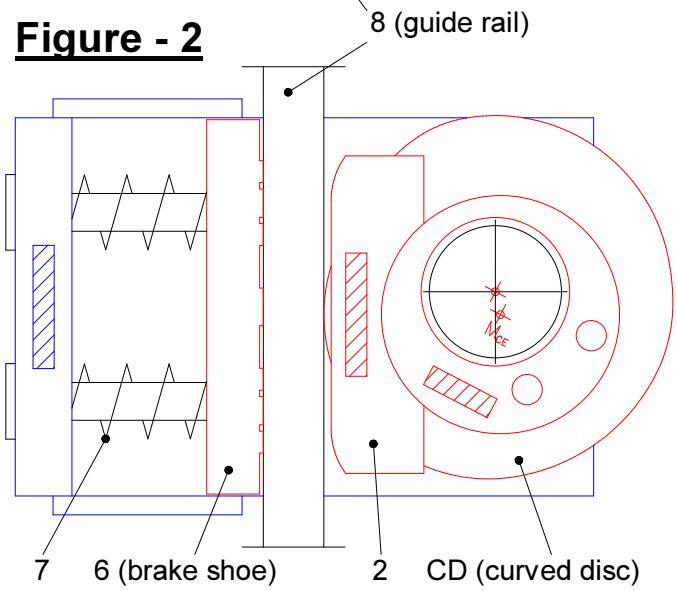


Figure - 2

Engaged position
Curved disc (item CD) is moved by the overspeed governor until the knurled surface of the curved disc (item CD) and the brake shoe (item 6) and the guide rail (item 8) makes contact on both sides. From this moment onwards the curved disc (item CD) will bring the required tension onto the disc springs (item 7).

Figure - 3

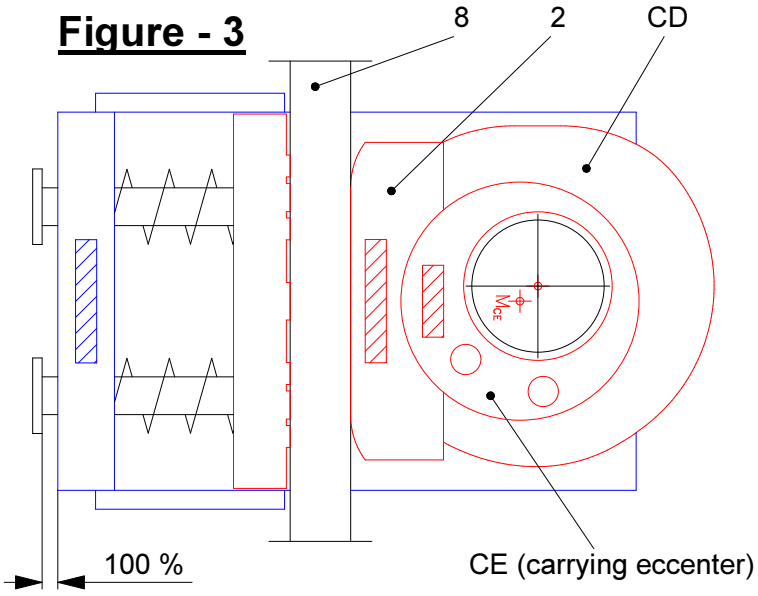
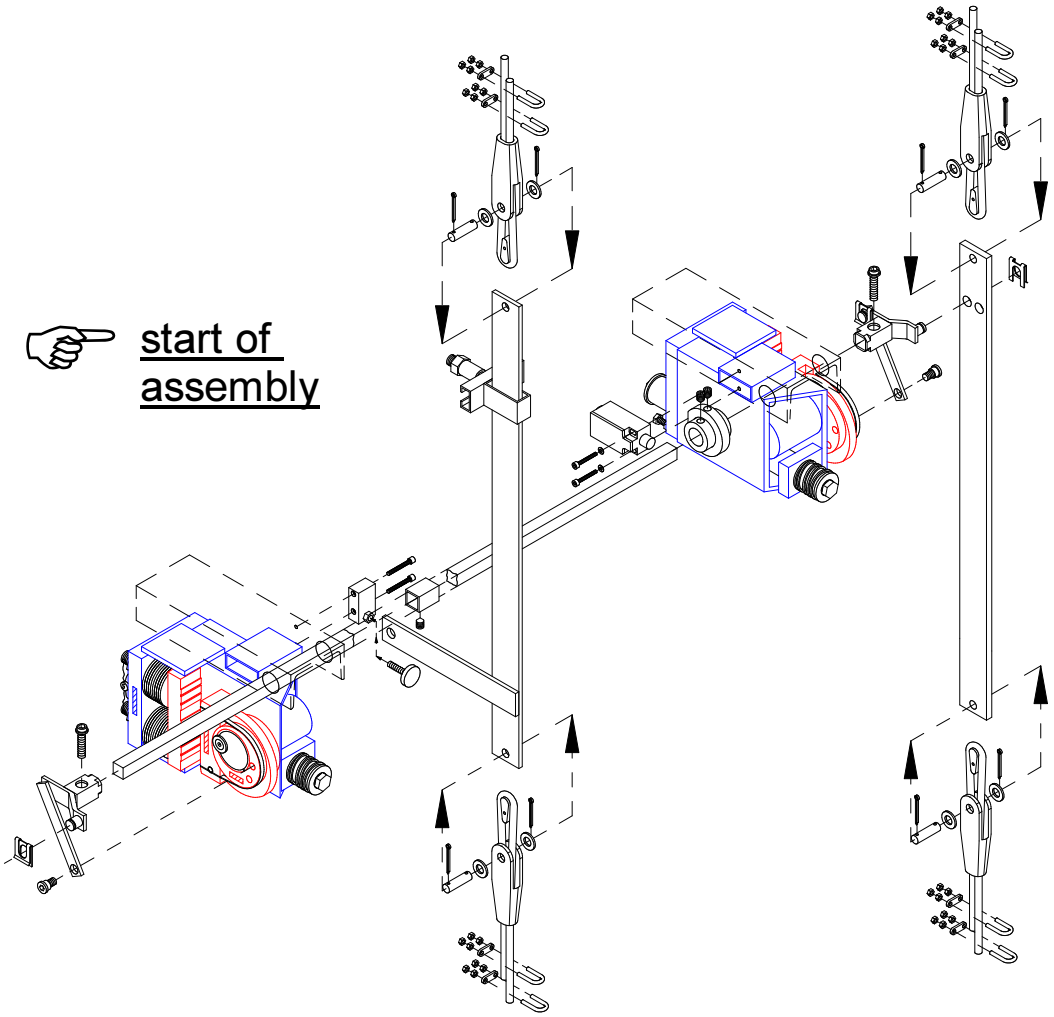


Figure - 3

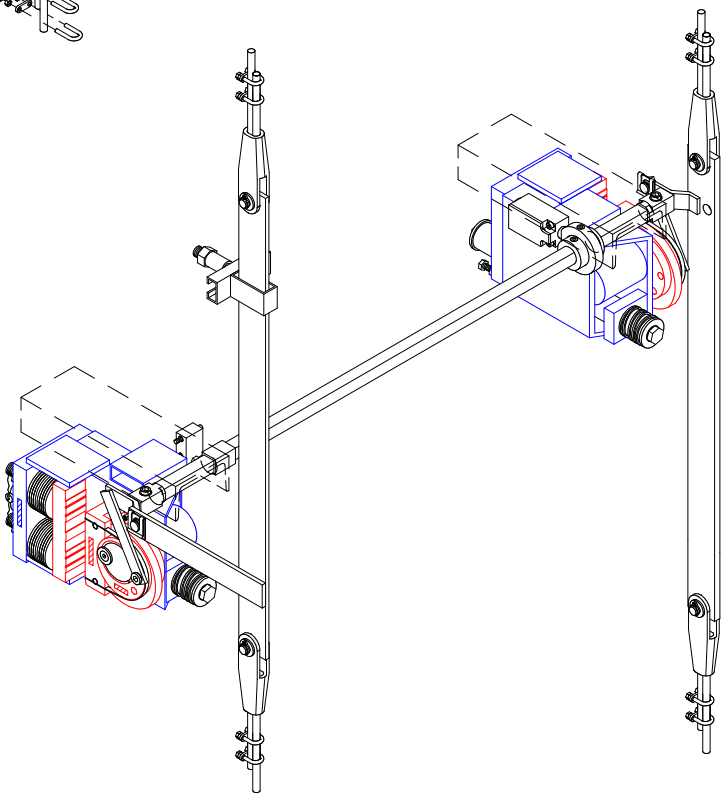
Brake position
The lagging carrying eccenter (item CE) brings tension shoe (item 2) in contact with the guide rail (item 8). Curved disc (item CD) looses contact with the guide rail (item 8), therefore the position of curved disc (item CD) cannot be changed anymore. In this way the car will be decelerated and finally stopped smooth. Dead point of the carrying eccenter (item CE) before brake position is reached (M_{CE}).

AUFZUGTECHNOLOGIE

start of assembly



assembling



completed unit

Edition: 16.07.2001		Manual EB 59 K - EB 75 KS / MS Actuating shaft INSIDE	Drawing No.: 5230.800.006

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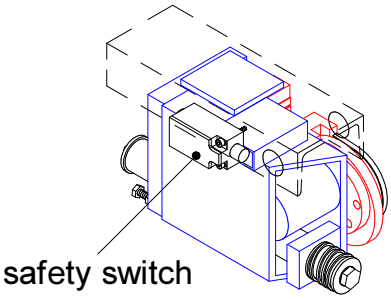
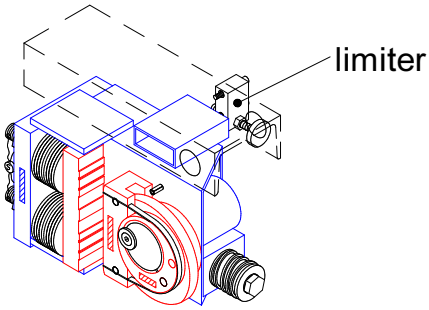
AUFZUGTECHNOLOGIE

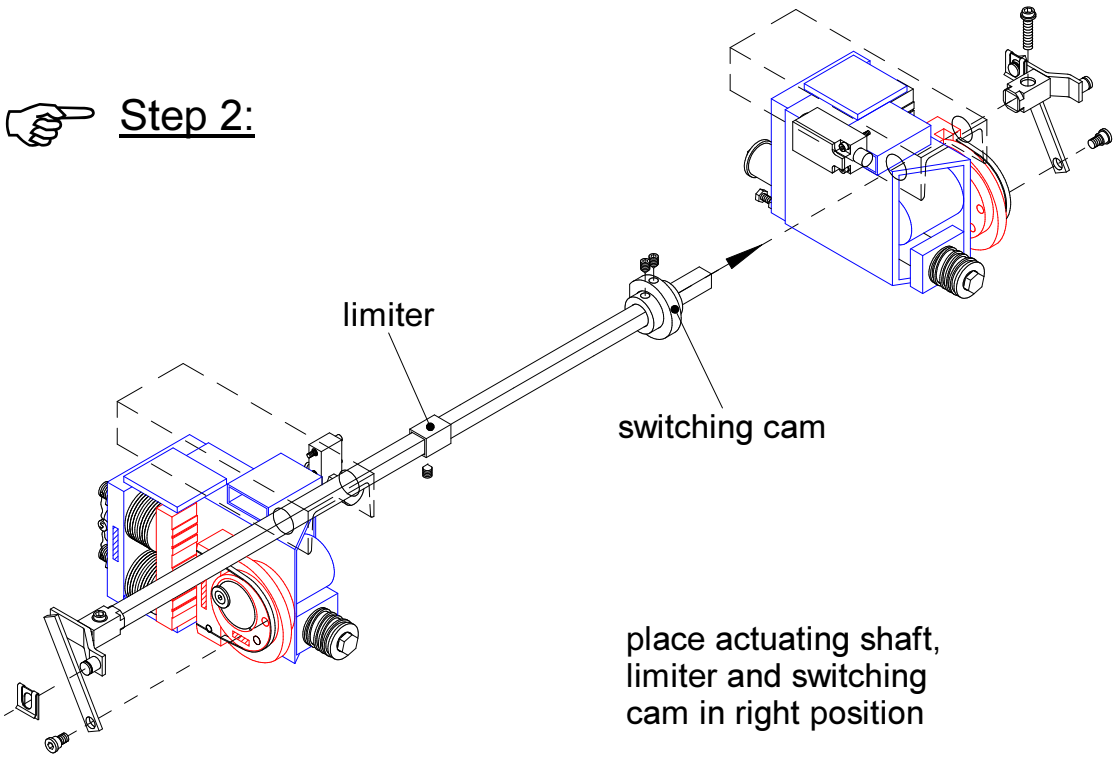
Step 1:





assemble safety gear blocks
safety switch and limiter must
be fixed in position

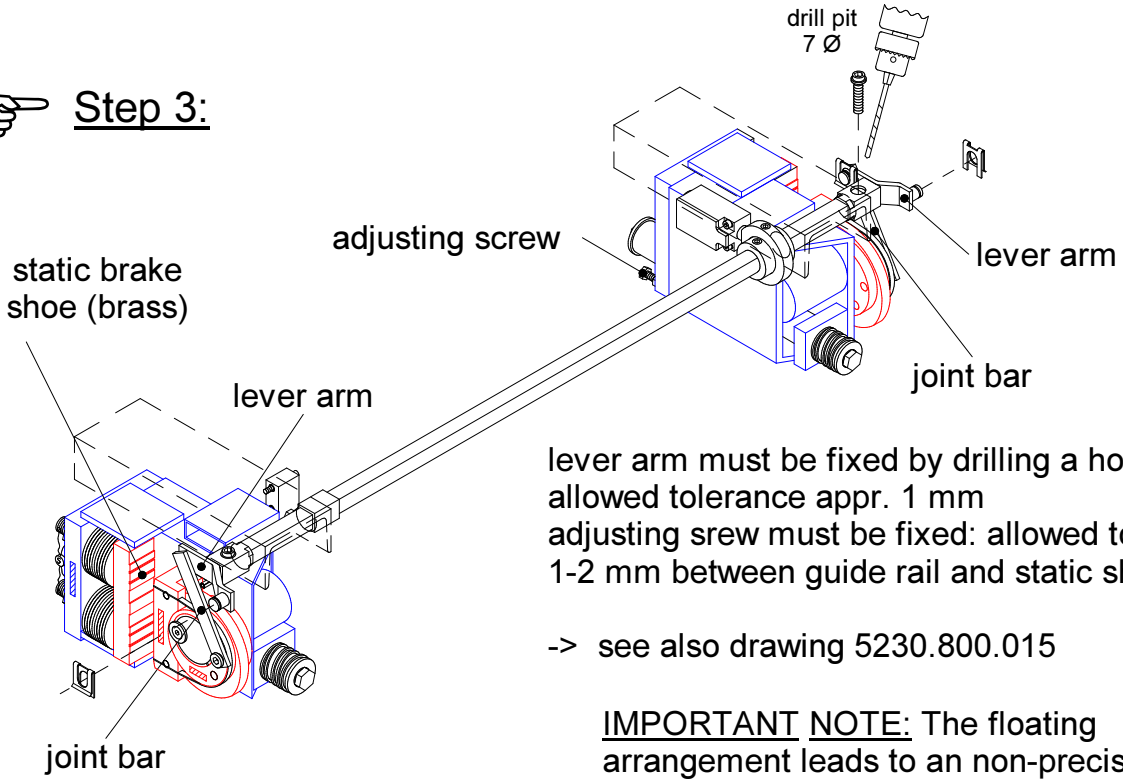
Step 2:



place actuating shaft,
limiter and switching
cam in right position

AUFZUGTECHNOLOGIE

Step 3:



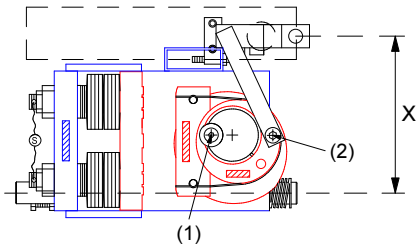
lever arm must be fixed by drilling a hole:
allowed tolerance appr. 1 mm
adjusting srew must be fixed: allowed tolerance 1-2 mm between guide rail and static shoe

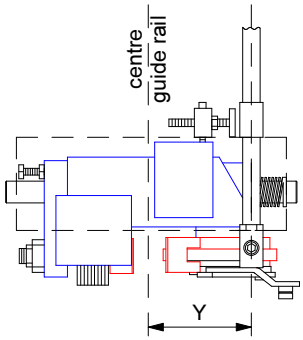
-> see also drawing 5230.800.015

IMPORTANT NOTE: The floating arrangement leads to an non-precise fitting.

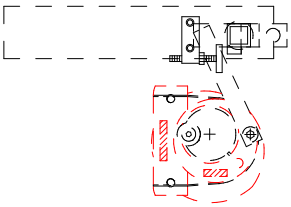
ATTENTION: max. allowance being ± 2 mm from the centre of the outer housing

centre eccenter fixing (1) and centre actuating bolt (2) HORIZONTAL
in idle position

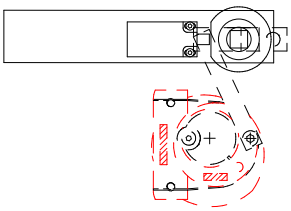




limiter adjustment



safety switch adjustment



see also drawing 5230.800.018

Standard Aufzug-technologie	X	Y
EB 59 K	108	66
EB 75 KS/MS	127	86

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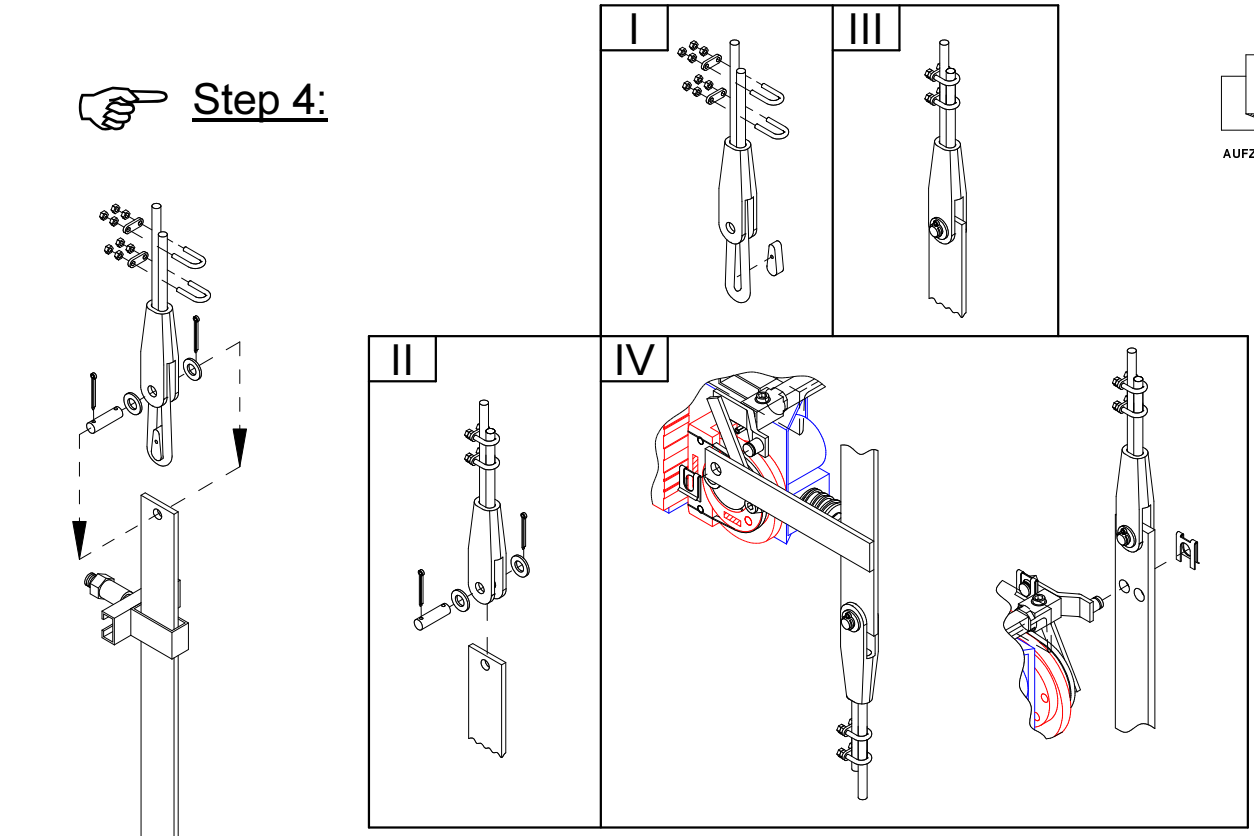
AUFZUGTECHNOLOGIE

Step 4:



when testing the safety gear
the spring balance should not

by hand (car is at a stand still)
show a load exceeding 20 daN

Edition:		Manual EB 59 K - EB 75 KS / MS	Drawing No.:
16.07.2001		Actuating shaft INSIDE	5230.800.009

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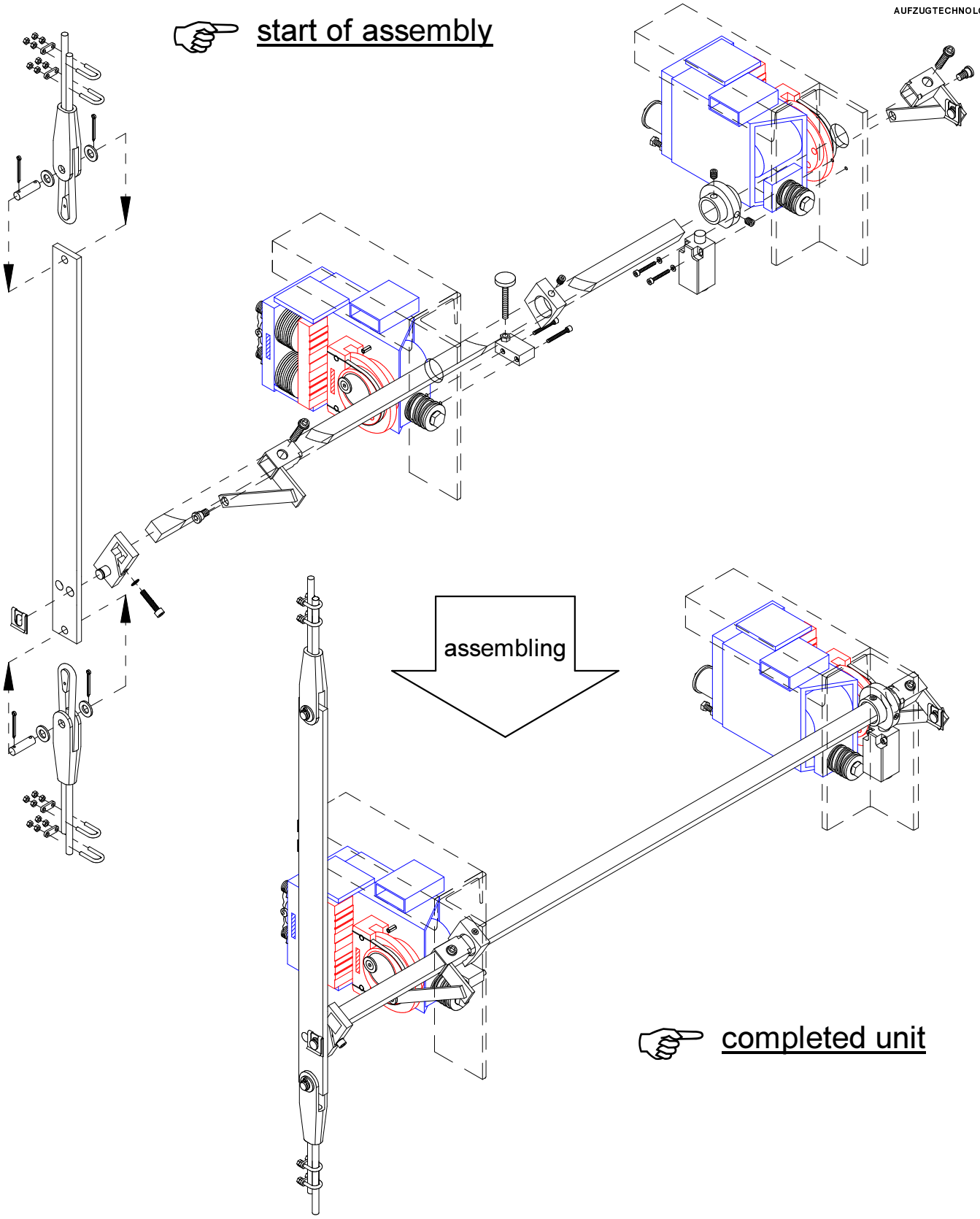
AUFZUGTECHNOLOGIE

start of assembly



completed unit

Edition:		Manual EB 59 K - EB 75 KS / MS	Drawing No.:
16.07.2001		Actuating shaft OUTSIDE	5230.800.010

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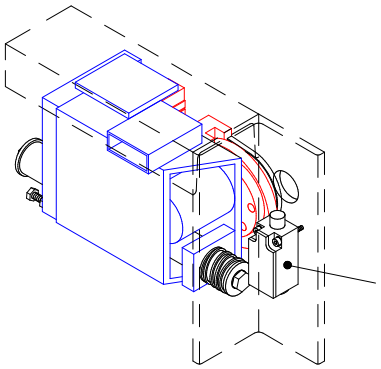
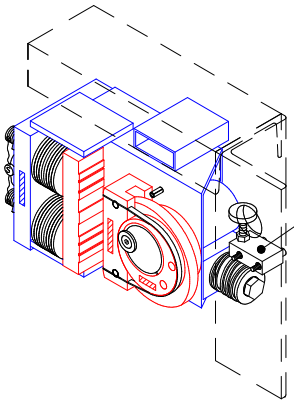
AUFZUGTECHNOLOGIE

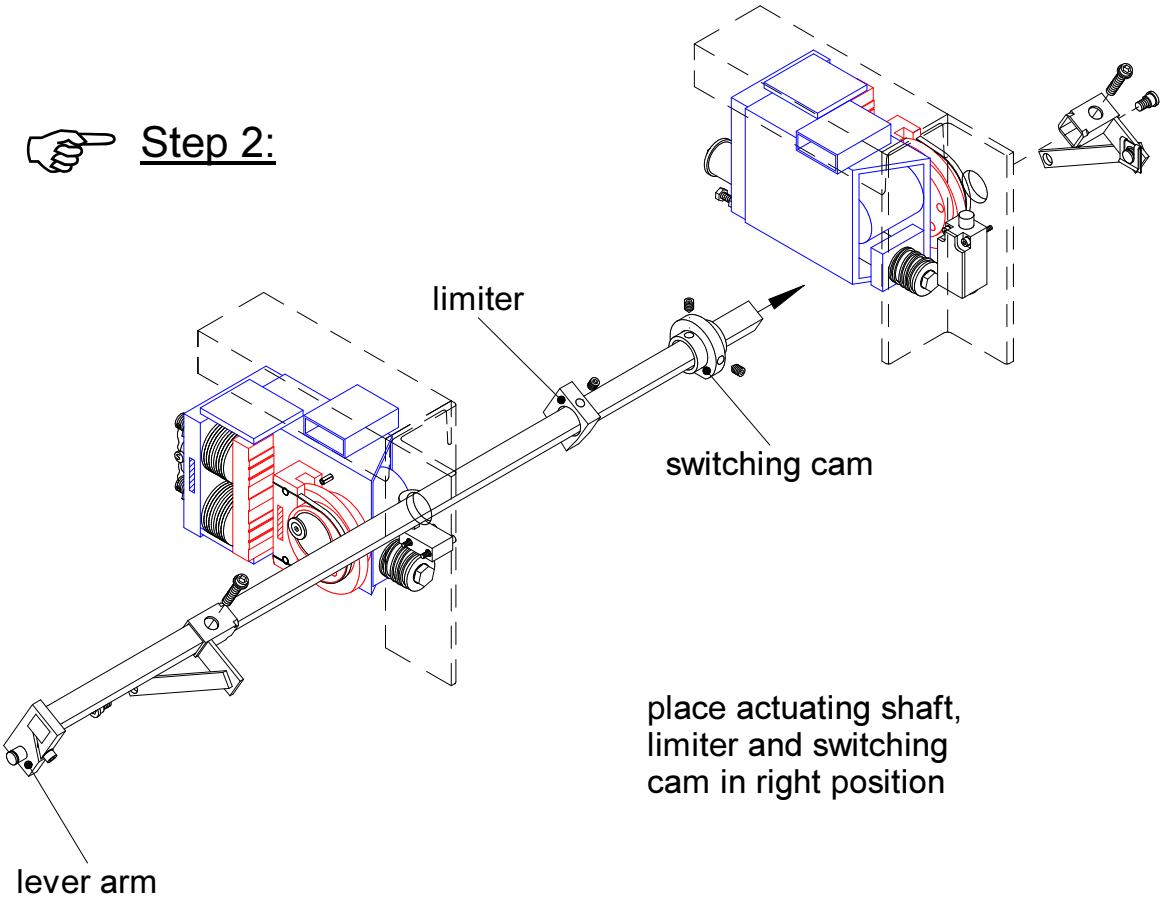
Step 1:





assemble safety gear blocks
safety switch and limiter must
be fixed in position

Step 2:



place actuating shaft,
limiter and switching
cam in right position

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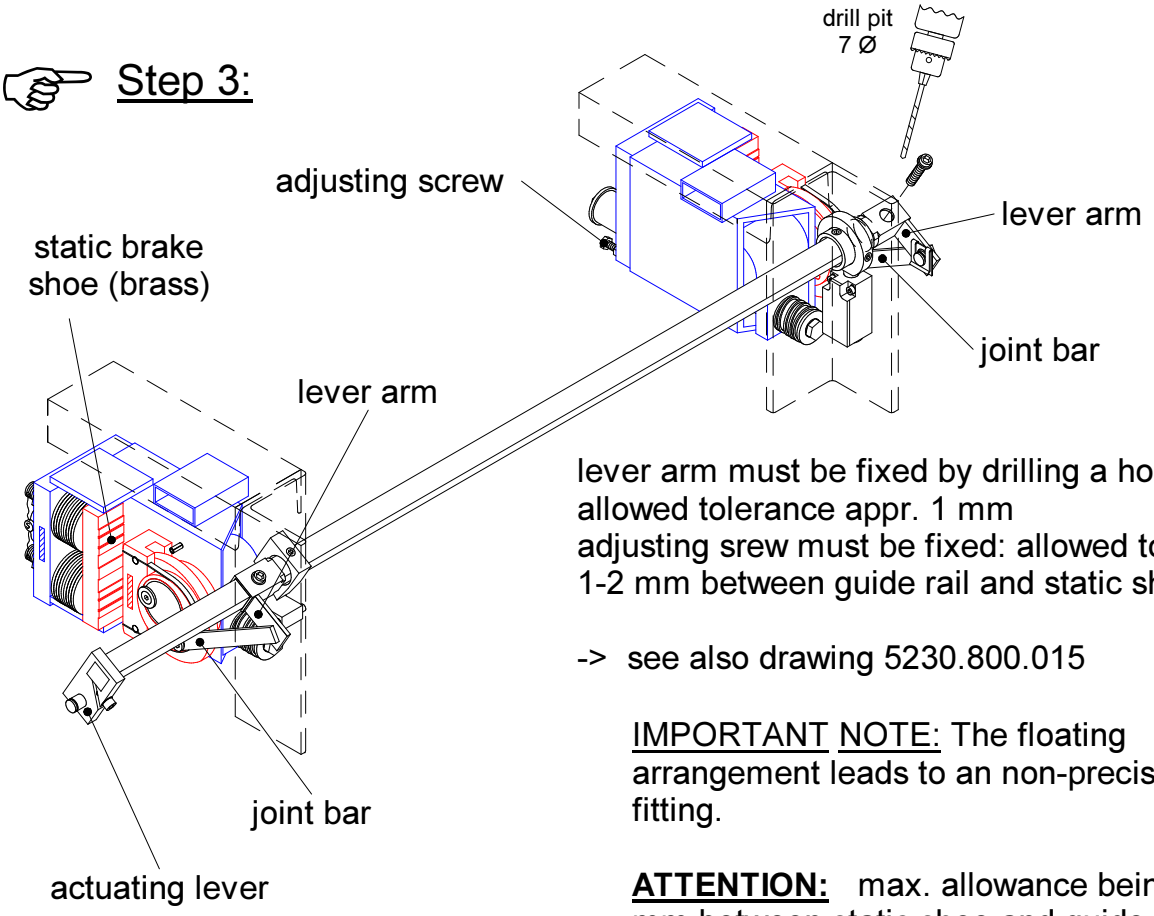
AUFZUGTECHNOLOGIE

Step 3:



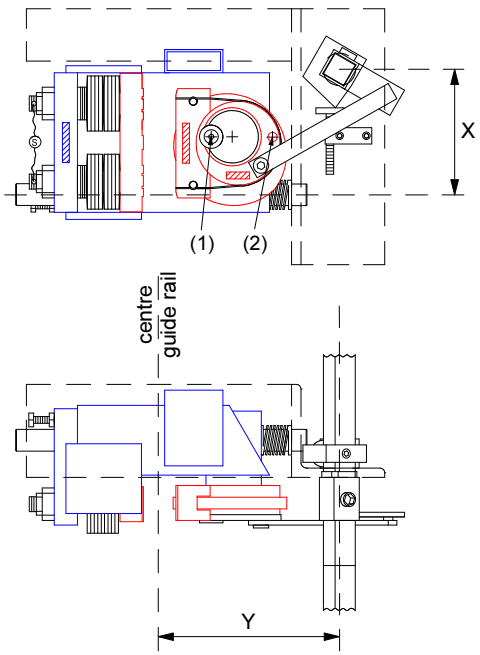
lever arm must be fixed by drilling a hole:
allowed tolerance appr. 1 mm
adjusting srew must be fixed: allowed tolerance
1-2 mm between guide rail and static shoe

-> see also drawing 5230.800.015

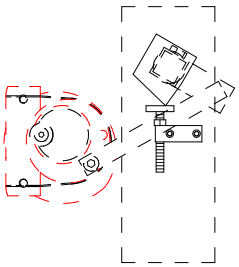
IMPORTANT NOTE: The floating arrangement leads to an non-precise fitting.

ATTENTION: max. allowance being ± 2 mm between static shoe and guide rail

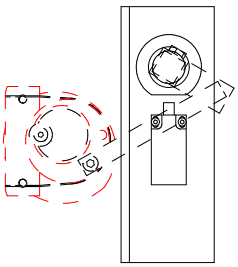
centre eccenter fixing (1) and centre eccenter hole (2) HORIZONTAL
in idle position



limiter adjustment



safety switch adjustment

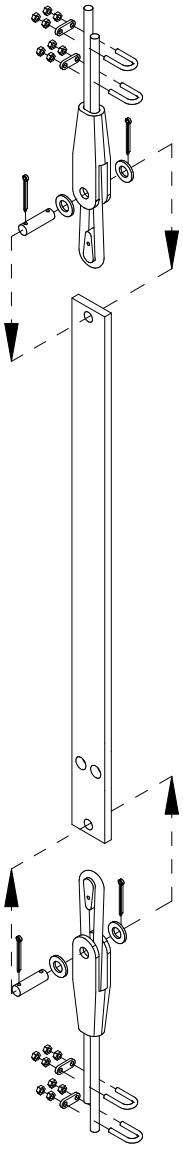


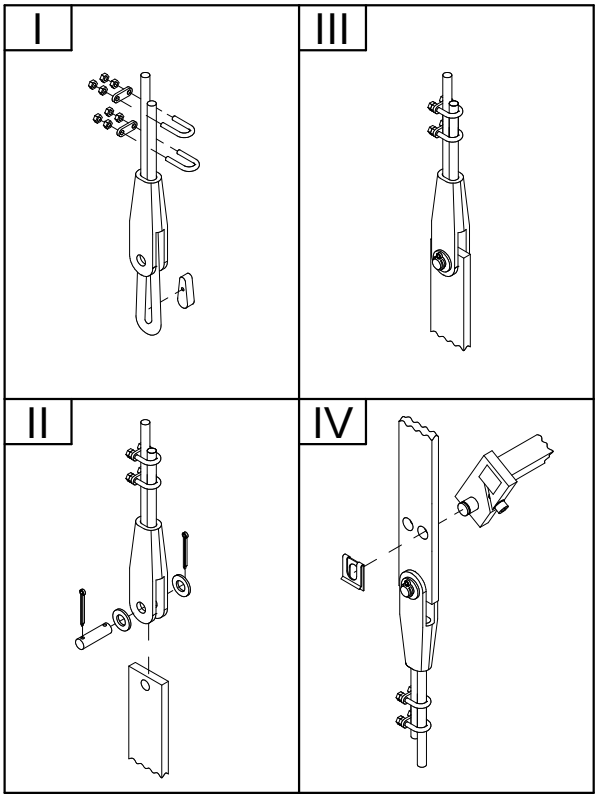
see also drawing
5230.800.018

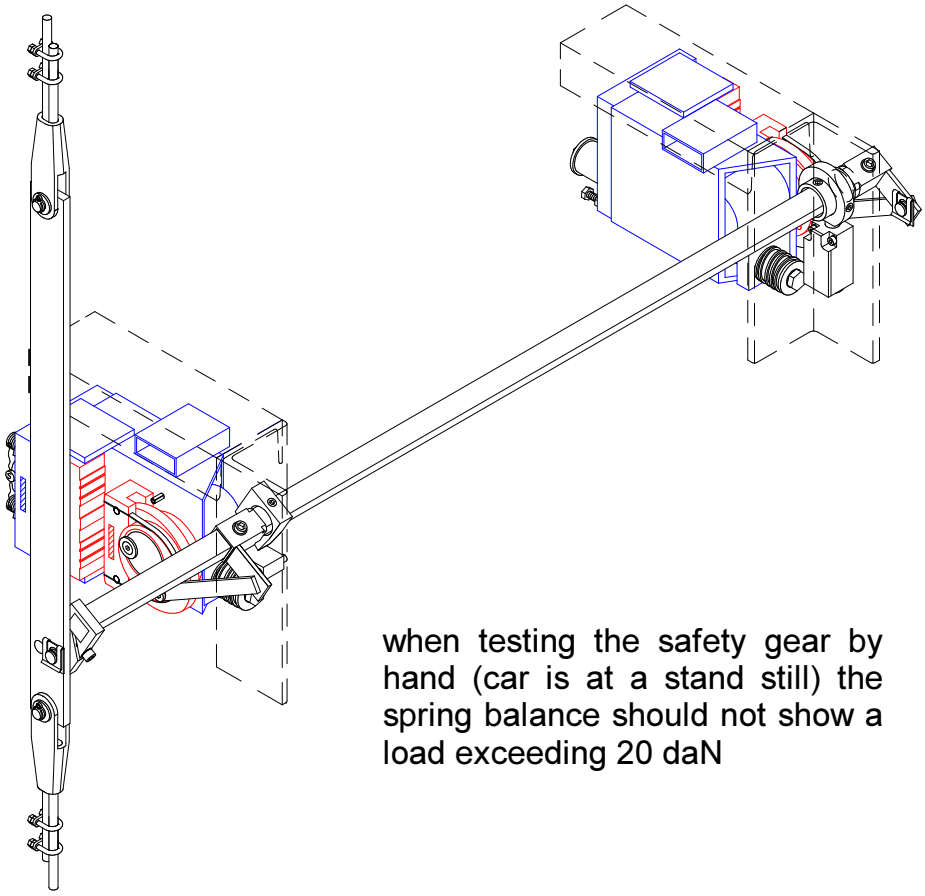
Standard Aufzug-technologie	**X**	**Y**
EB 59 K	90	147
EB 75 KS/MS	100	155

AUFZUGTECHNOLOGIE

Step 4:







when testing the safety gear by hand (car is at a stand still) the spring balance should not show a load exceeding 20 daN

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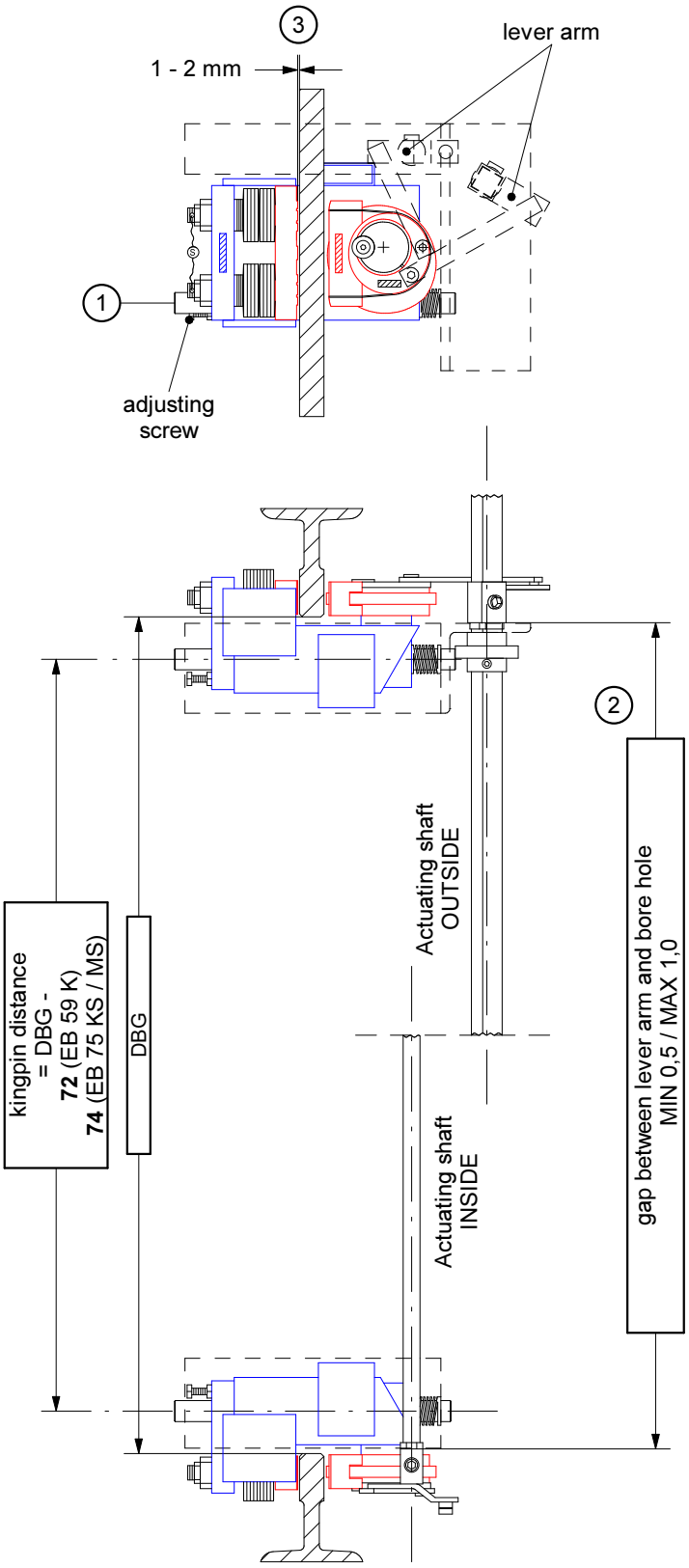


(1) ATTENTION: Safety gears are vital parts of a lift. They are manufactured to DIN ISO 9001, checked and finally packed to reach all criteria required.
We strongly request that you check at your factory all data and compare the label with your order.

(2) Our safety gears are maintenance free. Please avoid rust arising from low temperatures and/or bad storage.
Lubricate all moving parts like hinges, between eccenter and steel tape, carrier bolt = floating arrangement.

(3)

1. THE KINGPIN MUST BE REMOVABLE. SO PLEASE TAKE CARE TO ALLOW THE NECESSARY.
2. Gap between lever arm and bore hole must be assembled by drilling bore hole and keeping an allowance of 1 to 2 mm.
3. Static brake shoe must be adjusted to the guide rail, leave 1-2 mm gap.

(4) THE FOLLOWING MUST BE NOTED FOR YOUR SITE ENGINEERS:

a) Square tube actuating shaft must be easily moveable by hand until safety gear is activated.

b) Safety switch must be activated. When moving car in UP direction the actuating shaft must freely move back to the original position.

c) DEBRIS, DUST etc. will not allow a free dynamic movement.

d) Lubrication of guide rails with recommended oil.

e) COMMENT: Dry running guide rail is of advantage.

ATTENTION: Clean and properly maintained components are essential and guaranty a perfect function of our safety gears!

AUFZUGTECHNOLOGIE

TEST OF SAFETY GEAR:

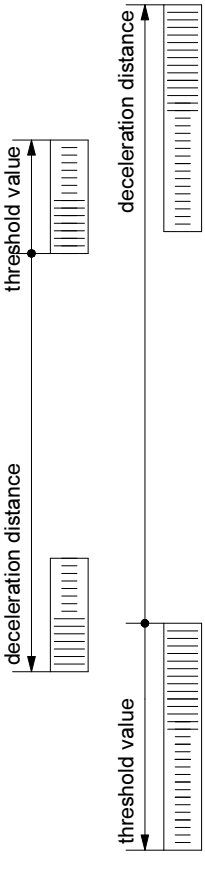
The friction between guide rail and the brake shoes is strongly depending on the roughness of the guide rail surface, spring force and hardness of the brake shoes. The braking force also depends on the spring load and elasticity of the safety gear block housing.
In general we test each and every safety gear: hardness of brake shoe surface, the kinetic stroke of the spring block, as well as the "hook's" deforming of the safety gear housing. The hardness and roughness of guide rail surface used are beyond our control.

During installation experienced lift engineers will check engagement, activating way and the deceleration distance. Needless to say, the complete overspeed system have to checked as well.

WE ALSO HAND OVER SPRING CHARACTERISTIC DIAGRAMS AND ADJUSTMENT MANUALS TO THE SITE ENGINEER UPON REQUESTED.

reading of marks

DOWN ↓ UP ↑



DOWN direction EB 59 K - EB 75 KS/MS

Before handing over, a safety gear test must be performed:

a) 1,25 x contract load, open brake on gear, do not loop safety switches of over-speed governor and safety gear

b) contract load, open brake on gear, do not loop safety switches of overspeed governor and safety gear

UP- and DOWN direction - EB 59 D - EB 75 KD

a) DOWN contract load x 1,25 - as above

b) DOWN contract load - as above

c) UP, no load, run lift with open brake, main circuit breaker OFF, overspeed governor will engage and activate safety gear

d) -> with small loads, small travel height
-> poor efficiency on gear or single guide rail arrangement
PLEASE NOTE: a major defect (gear box failure) can not be simulated !
-> if there are several divertor the friction may progressively increase
In case the overspeed tripping speed is not reached, increase electrical speed on regulated lift control systems. After the test set back to original stage.

In the **DOWN** direction mode during a short threshold period and in the deceleration mode a massive energy conversion will take place
In the **UP** direction mode - due to the soft engagement - a relative long threshold segment applies. The energy conversion can be ignored.

deceleration [g]: $a = \frac{v^2}{2 * s * 10} = \frac{[\quad]^2}{2 * [\quad] * 10}$

v = deceleration start speed [m/s]; s = deceleration distance [m]; a = deceleration [g];

Edition: 16.07.2001	↓ ↑↓	Manual EB 59 K / D - EB 75 KS / MS / KD Check	Drawing No.: 5230.800.015

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SAFETY GEAR ↓

AUFZUGTECHNOLOGIE

WHY ARE YOU NOT MAKING YOUR LIFE EASIER !

Working with lifts needs a sense of responsibility and is also sometimes hard physical work.
You can take a lot of the strain from your site engineers by following our suggestion based on our long experience in the field.

(a) KEEP ALWAYS AMPLE ROOM AROUND ALL CONSTRUCTION PARTS OF THE CAR SLING AND SAFETY GEAR COMPONENTS:

☞ The kingpin must be easily removed.

☞ Keep easy access for works on the safety gear.

☞ Keep sufficient room at the car framework to check actuating gear and safety switch and each part.

(b) Make sure free ans easy running:

☞ At turning the actuating shaft no obstacle is to be feeled.

☞ At stressed resetting spring and safety switch screwed on the pulling force on the governor rope may not surpass 300 N.

(c) DO NOT USE HEAVY OVERSPEED GOVERNOR ROPE TENSION WEIGHT:

☞ Our tension weight DrawingNo. 5230.260.300 is tailor made for our units.

☞ Tension weight exceeding 60 kg demolishes the actuating shaft components and complicated the release of the safety gear blocks.

(d) CHECK ALL THE COMPONENTS IN ACCORDANCE TO EN 81.

(e) READ OUR INSTRUCTION MANUAL CAREFULLY.

(f) THE SAFETY GEAR ↓ IS THE SIGNIFICANT PART OF THE LIFT CONSTRUCTION. HENCE MAKE ABSOLUTELY SURE EVERY CARE IS TAKEN TO INSTALL THE COMPONENTS CORRECT.

☞ Clean and properly maintained components are essential and guaranty a perfect function of our safety gears!

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D.2 Tests and verifications

:

j) car safety gear (**9.8**):
the energy which the safety gear is capable of absorbing at the moment of engagement will have been verified in accordance with F.3. The aim of the best before putting into service is to check the correct mounting, correct setting and the soundness of the complete assembly, comprising car, safety gear, guide rails and their fixing to the building.
The test shall be made while the car is descending, with the required load uniformly distributed over the car area, with the machine running until the ropes slib or become slack, and under the following conditions:

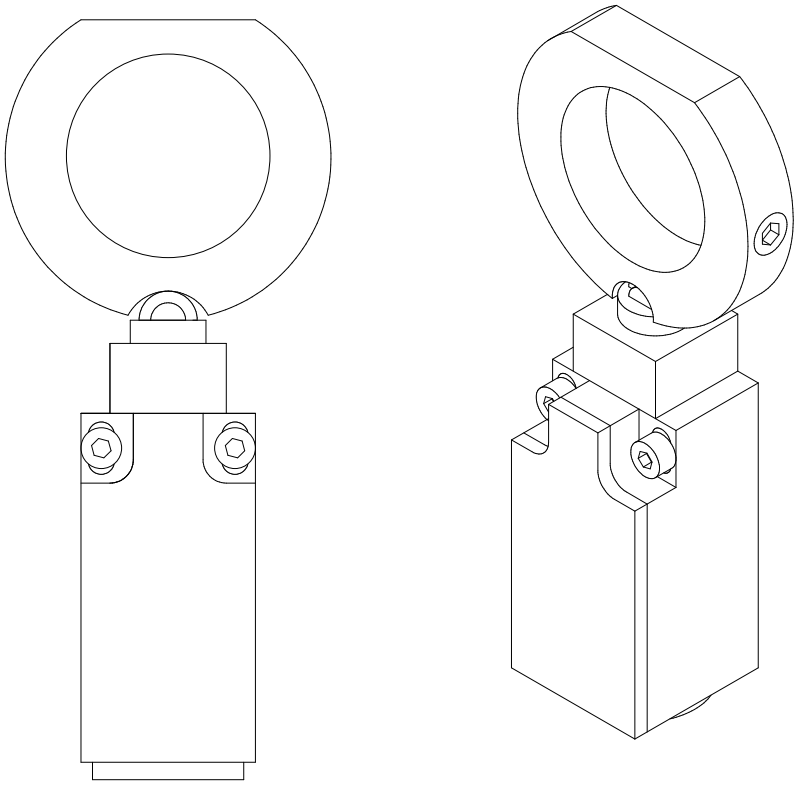
:

2. progressive safety gear:
the car shall be loaded with 125 % of the rated load, and travel at rated speed or lower.
When the test is made with lower than rated speed, the manufacturer shall provide curves to illustrate the behaviour of the type tested progressive safety gear when dynamically tested with the suspen-sions attached.
After the test, it shall be ascertained that no deterioration, which could adversely affect the normal use of the lift has occurred. If necessary, friction components may be replaced. Visual check is considered to be sufficient.

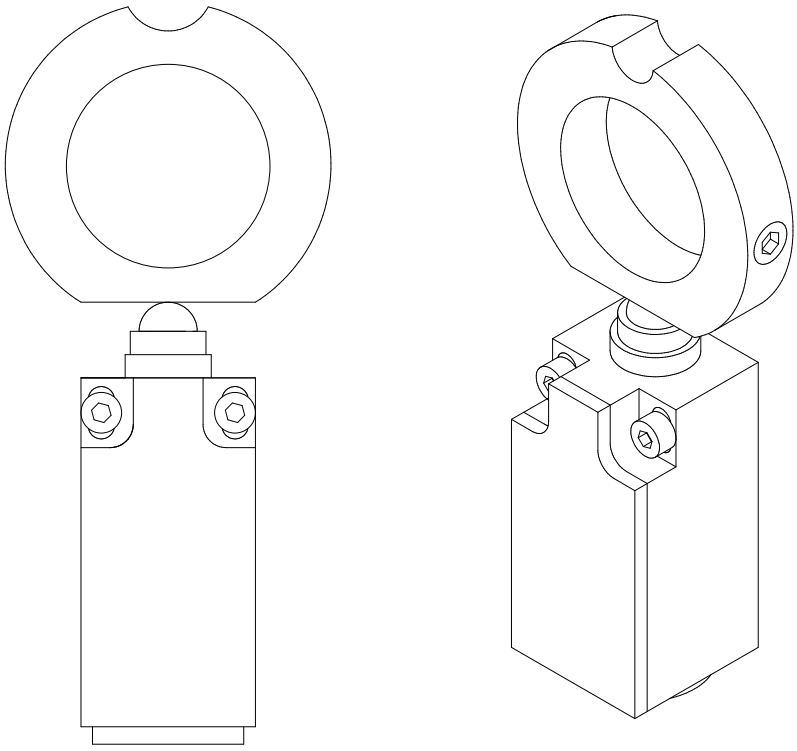
Note:
In order to faciliate disengagement of the safety gear, it is recom-mended that the test be carried out opposite a door in order to be able to unload the car.

AUFZUGTECHNOLOGIE

Safety Switch - IDLE POSITION
Safety Module (↑↓)



Safety Switch - IDLE POSITION
Safety Gear (↓)



Edition:			Drawing No.:
16.07.2001	↓	**SAFETY SWITCH in IDLE POSITION**	**5230.800.018**

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