



Product information

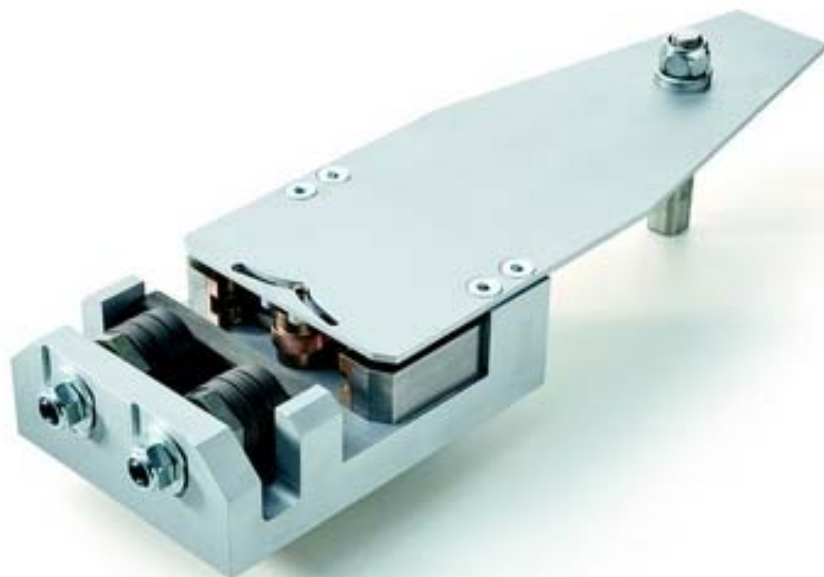
300.000.155 | Version 01.2010

Progressive safety gear SG braking up- and downwards

Safety gear

SG2D-1

Variant 1 and 2



Authorised
Distributor
for UK



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1. Safety instructions

This product information refers to the progressive safety gear type SG braking up- and downwards and contains important information on correct and safe installation, putting into service, use and maintenance of the safety gear. Observing these instructions helps to avoid danger, to reduce repair costs and downtimes and to increase the reliability and life of the safety gear.

The product information has to be supplemented by instructions based on national rules and regulations concerning accident prevention.

The product information must always be available wherever the safety gear is in use. The manual must be read and applied by any person in charge of carrying out work with and on the safety gear.

In addition to the product information and to the mandatory rules and regulations for accident prevention in the country and place of use of the safety gear the generally recognized technical rules for safe and proper working must also be observed.

1.1 Designations and signs

The following designations and signs are used in this product information to designate instructions of particular importance:



DANGER

in this manual refers to the risk of death, heavy injuries and extensive damage if the required prevention measures are not taken.



WARNING

in this manual refers to light injuries or damage if the required prevention measures are not taken.



IMPORTANT

in this manual refers to important information about the product or is meant to attract the readers attention to important parts of the product information.

1.2 Principle / intended use of the safety gear

The safety gear has been built in accordance with current standards and the recognized safety rules. Nevertheless, its use may constitute a risk to life and limb of the user or cause damage to the safety gear and to other material property.

The safety gear must be operated in technically perfect condition only, in accordance with its intended use and with the instructions set out in this product information.

Any functional disorders, especially those affecting the safety of the safety gear should therefore be rectified immediately.

The safety gear SG braking up- and downwards is designed exclusively for preventing the fall of the lift car. Using the safety gear for purposes other than those mentioned above is considered contrary to its designated use. The manufacturer cannot be held liable for any damage resulting from such use.

The risk of any misuse lies entirely with the user.

Operating the safety gear within the limits of its designated use also involves observing the instructions set out in this manual and complying with the inspection and maintenance directives.

Never make any modifications, additions or conversions that might affect safety without the supplier's approval!

Spare parts must comply with the technical requirements specified by the manufacturer. Spare parts from original equipment manufacturers can be relied to do so.

Adhere to prescribed intervals for routine checks and inspections!

For the execution of maintenance work tools and workshop equipment adapted to the task on hand are absolutely indispensable.

1.3 Selection and qualification of personnel / basic responsibilities

Any work on and with the safety gear must be executed by reliable personnel only. Statutory minimum age limits must be observed!

Employ only trained and instructed staff and set out clearly the individual responsibilities of the personnel for operation, set-up, maintenance and repair!

Make sure that only authorized personnel works on or with the safety gear!

1.4 Safety instructions governing assembly and specific operational phases

Assembly	Always wear personal protective equipment during assembly work.
Standard operation	Avoid any operational mode that might be prejudicial to safety! Take the necessary precautions to ensure that the safety gear is used only when in a safe and reliable state!
Main-tenance	Ensure that the maintenance area is adequately secured! For carrying out overhead assembly work always use specially designed or otherwise safety-oriented ladders and working platforms. Wear a safety harness when carrying out maintenance work at greater heights! Before cleaning with water or detergents cover or tape up all openings which - for safety and functional reasons - must be protected against water or detergent penetration. After cleaning remove all covers and tapes applied for that purpose! Always tighten any screwed connections that have been loosened during maintenance and repair! Ensure that all consumables and replaced parts are disposed safely and with minimum environmental impact!
Gas dust steam smoke	Carry out welding or grinding work on the safety gear only if this has been expressly authorized, as there may be a risk of explosion and fire! Before carrying out welding or grinding operation, clean the safety gear and its surroundings from dust and other inflammable substances and make sure that the premises are adequately ventilated (risk of explosion)! When there is little space for working observe the national rules and regulations!
Oil grease etc.	When handling oil, grease and other chemical substances, observe the product-related safety regulations! Be careful when handling hot consumables (risk of burning or scalding)!

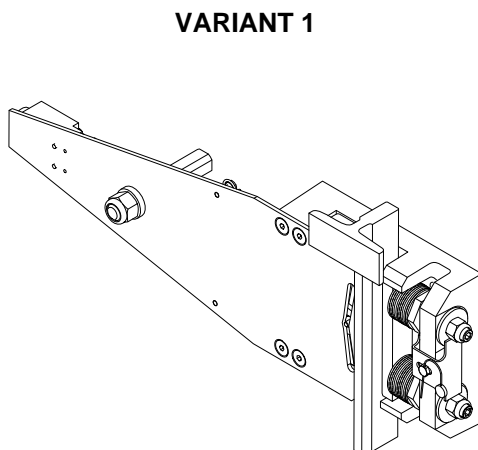
2. General notes

The safety gear of type SG is a double-sided acting safety device for passenger and goods lifts as well as for counterweights.

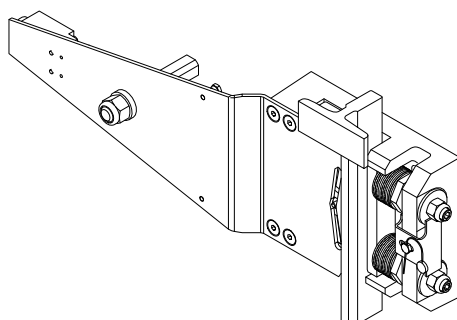
The double-sided acting safety gear prevents the car from falling upwards as well as downwards.

All safety gears are type-examined.

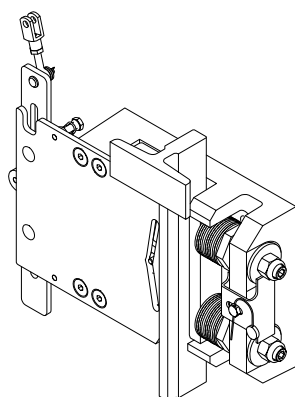
Tripping device straight, standard



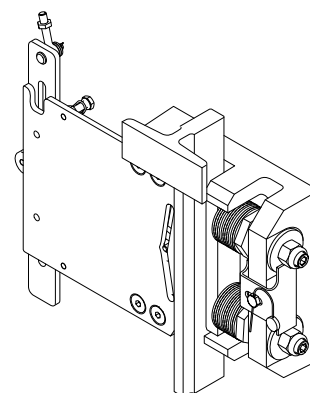
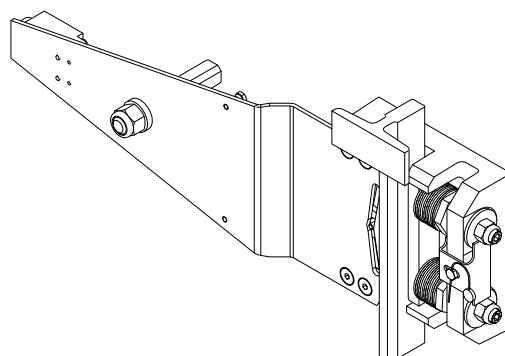
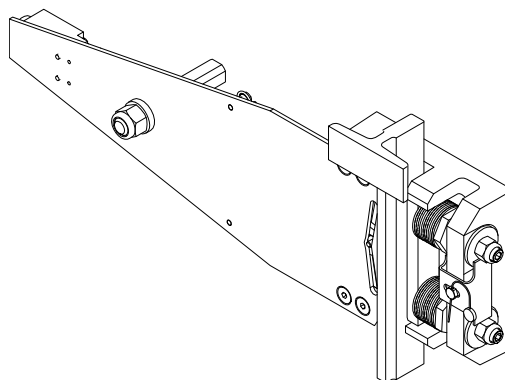
Tripping device cranked



Short plate



VARIANT 2



2.1 Designation

SG.. - .	Safety Gear
1D	braking in 1 Direction ↓
2D	braking in 2 Directions ↑↓
- 1	Type 1
- 2	Type 2

Example SG2D-1 = Safety gear SG braking up- and downwards, type 1

2.2 Advantage-Gain-Argument

Feature	Advantage	Gain
Safety gear	<ul style="list-style-type: none"> ❖ Prevents inadmissible excess of car speed in the event of intact suspension means and unfavourable loading ❖ Prevents free fall of the car in the event of broken suspension means 	<ul style="list-style-type: none"> ❖ Reduces the residual risk
Default setting at works	<ul style="list-style-type: none"> ❖ Exact setting ❖ Reduced assembly time 	<ul style="list-style-type: none"> ❖ Cost saving
Braking upwards and downwards	<ul style="list-style-type: none"> ❖ compact, minimized dimensions 	<ul style="list-style-type: none"> ❖ High degree of freedom for mounting at the car
Mounting of safety gear	<ul style="list-style-type: none"> ❖ Flexible mounting with excentric pivot ❖ Application for external and internal guide rails („Rucksack-lift“) 	<ul style="list-style-type: none"> ❖ Flexibility
Component for braking	Combination safety gear roller – brake shoe <ul style="list-style-type: none"> ❖ Easy release of the safety gear ❖ Low maximum deceleration 	<ul style="list-style-type: none"> ❖ Service-friendly

2.3 Criteria for the selection of safety gears

Rail head width			
Load of safety operation P+Q			
Counterweight mass			
Car speed			
Guide rail	→	machined	→ dry oiled
	→	drawn	→ dry oiled

2.4 EC type-examination certificate

Certification no. of the EC type-examination certificate:

Type	Certification no.
SG2D-1 Variant 1	ABFV 710
SG2D-1 Variant 2	ABFV 710

2.5 Manufacturer of the safety gear

Manufacturer of the safety gear and holder of the type-examination certificate:

SLC Sautter Lift Components GmbH & Co. KG

Borsigstraße 26

70469 Stuttgart | Germany



IMPORTANT

EC type-examination certificates plus certificates of conformity are added to the delivery separately.

In addition the EC type-examination certificates can be downloaded on the homepage of SLC:

www.slc-liftco.com

3. Technical Data

3.1 Roundary conditions

- ❖ The device is a progressive safety gear.
- ❖ Braking is caused by frictional force.
- ❖ The device is installed on the lift car.
- ❖ Connection to the car with screws M12.

3.2 Dimensions

Type	Installation dimensions			
	Weight (Pair)	Height	Width	Depth
SG2D-1 Variant 1	23 kg	163 mm	201 mm	60.5 mm
SG2D-1 Variant 2	20 kg	163 mm	149 mm	60.5 mm

Drawings see chapter 4

3.3 Range of application

	Machined rails		Drawn rails	
	dry	oiled ¹	dry	oiled ¹
SG2D-1 Variant 1 and 2				
Min. width of running surface	19 mm			
Rail head width	5 – 16 mm			
Max. rated speed [m/s]	3,23		3,23	
Total mass min.-max. [kg]	293 – 2,810	303 – 2,889	303 – 2,489	292 – 2,368

Maximum tripping speed of the overspeed governor and range of maximum rated speed:

Max. tripping speed [m/s]	3.23
Max. rated speed [m/s]	2.50 – 2.80

¹ the indications for oiled guide rail refer to use of mineral oils without additive (for example lubricant C according to DIN 51517, Part 1).

3.4 Tripping

Below the minimum tripping force required to trip the safety gear

Type	Braking up- and downwards
SG2D-1 Variant 1 and 2	120 N

The maximum admissible tripping force required at the safety gear shall not exceed 1600N.

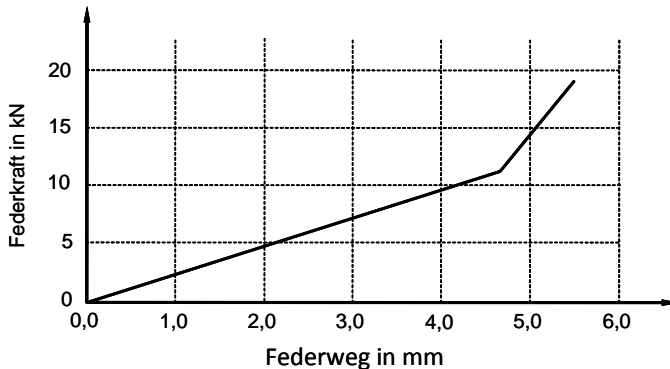
The individually needed tripping force has to be ascertained at the lift, considering all components.

Standard EN 81 rules that for the tripping of safety gears twice the required tripping force has to be available.

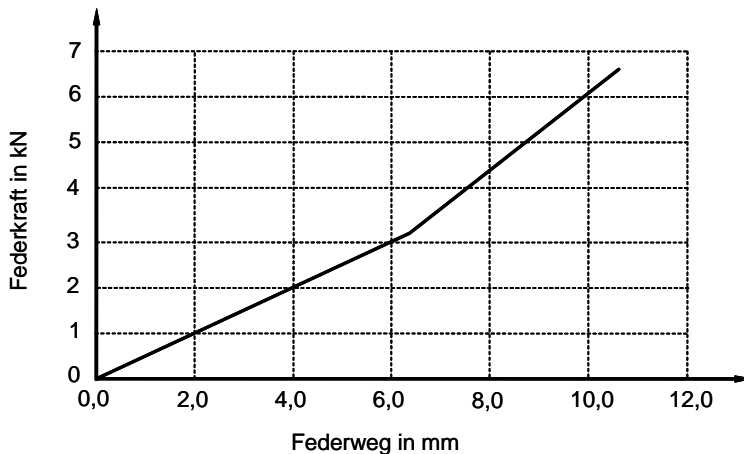
3.5 Compression stress of springs

The following diagrams show the compression stress of the disk springs depending on the length of the spring assembly.

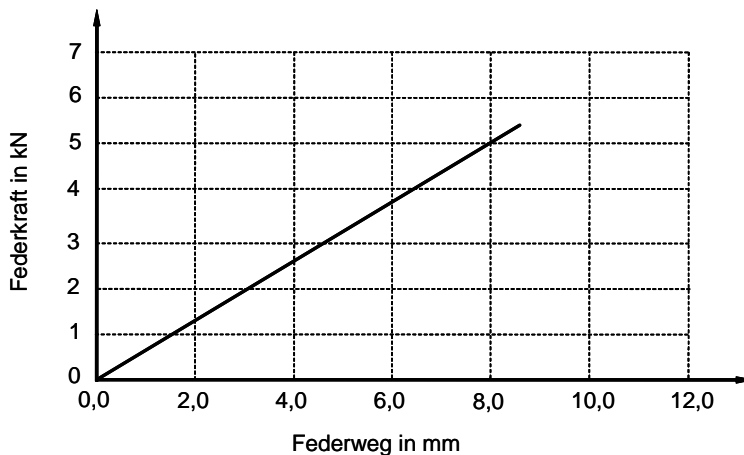
**Spring characteristic for combination
3x 2TF + 2x 3TF**



**Spring characteristic for combination
5x 2TF + 3x 1TF**



**Spring characteristic for combination
10x 1TF**



3.6 State of delivery

The safety gear is adjusted in the factory to the following lift specific characteristics:

- ❖ Mass of lift car (P)
- ❖ Mass of payload (Q)
- ❖ Mass of compensation ropes
- ❖ Rated speed of the lift car
- ❖ Rail head width (5 – 16 mm)
- ❖ Manufacturing mode of rails (machined, drawn)
- ❖ Surface condition of rails (dry, oiled)

The setting is secured against alterations by the manufacturer by means of a seal.



DANGER

Wrong setting of the safety gear can result in falling-down of the lift.

The safety gear is adjusted by the manufacturer. As the deceleration depends on different, partially lift-specific factors (material of guide rail, surface hardness of the rail, ...) a precise pre-adjustment can not be guaranteed.

If a setting correction is exceptionally required, the setting has to be carried out only by specially trained personnel after consultation with the manufacturer. The new setting has to be secured against unauthorized alterations by means of a seal.



WARNING

The manufacturer cannot be held liable for damages caused by unauthorized setting alterations.



WARNING

Before installing the safety gear on the lift car its type plate characteristics have to be compared with the lift characteristics. The type plate is mounted on the safety gear.

The safety gear must only be applied within the permission scope of application: see EC type-examination certificate "Scope of application", certificate no. see chapter 2.4.



IMPORTANT

The safety gear is set at work according to values specified in the order form for safety gears to obtain the required braking force.

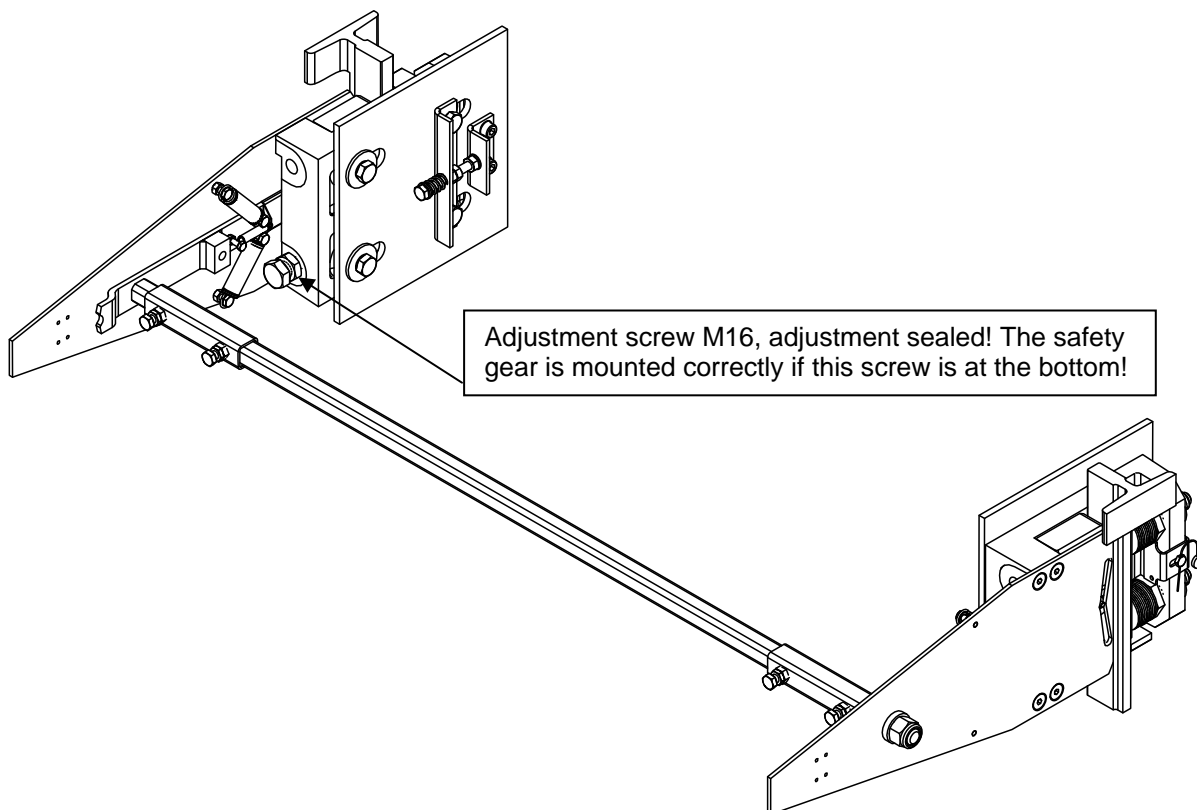
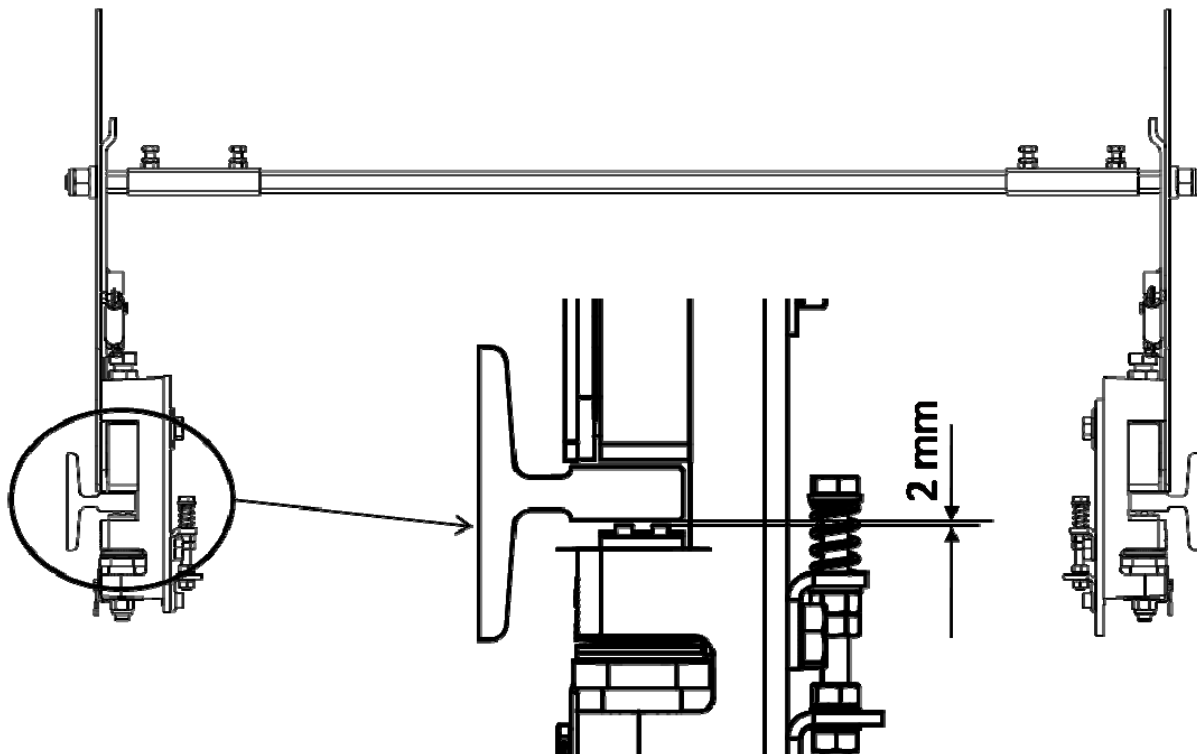
The order form is included in the annexe of this product information.

In addition the order form can be downloaded on the homepage of SLC: www.slc-liftco.com

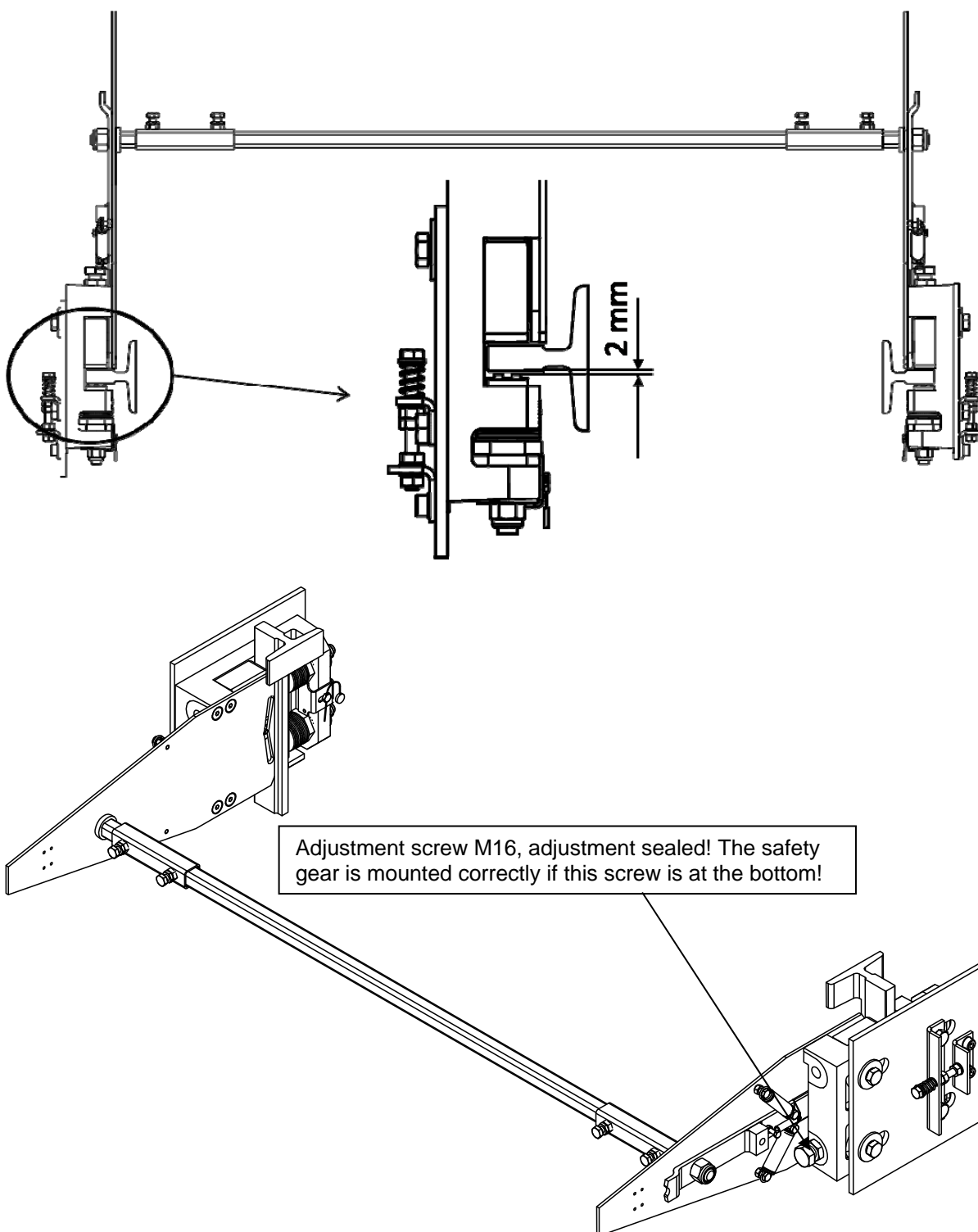
4. Mounting and dimensions

4.1 Mounting the safety gear

SG2D-1, external rail

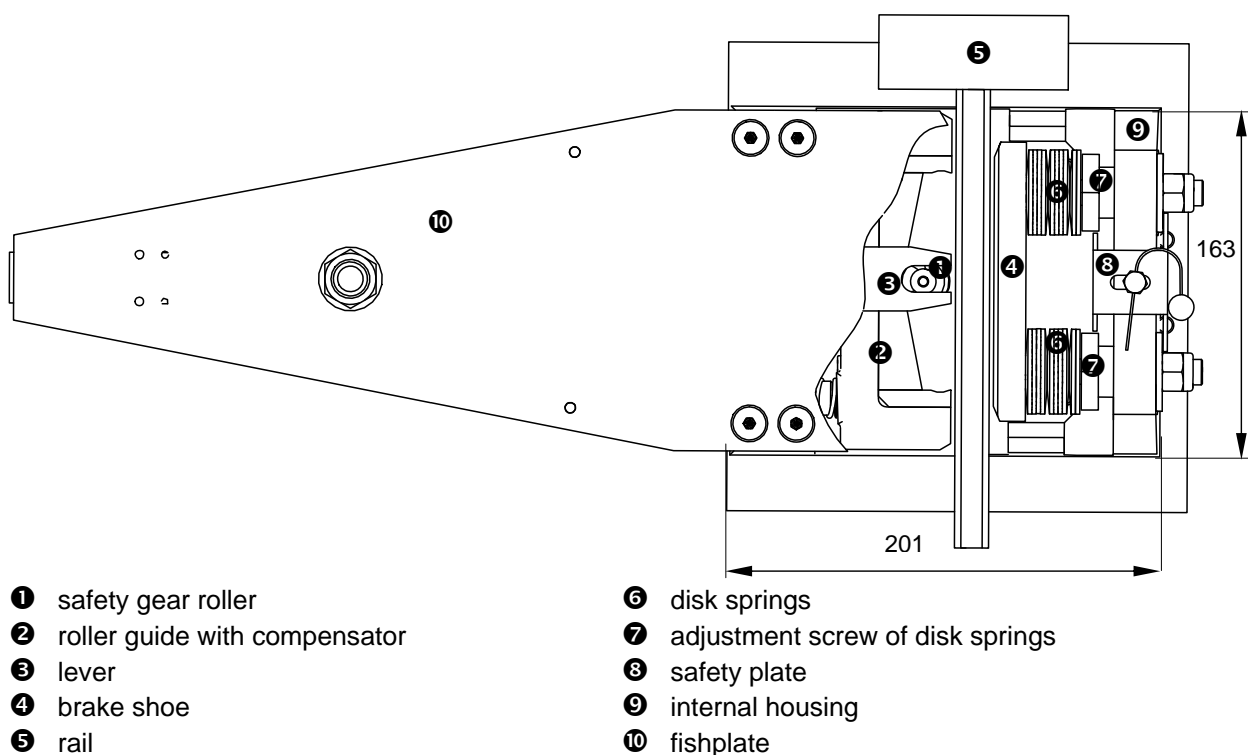


SG2D-1, internal rail

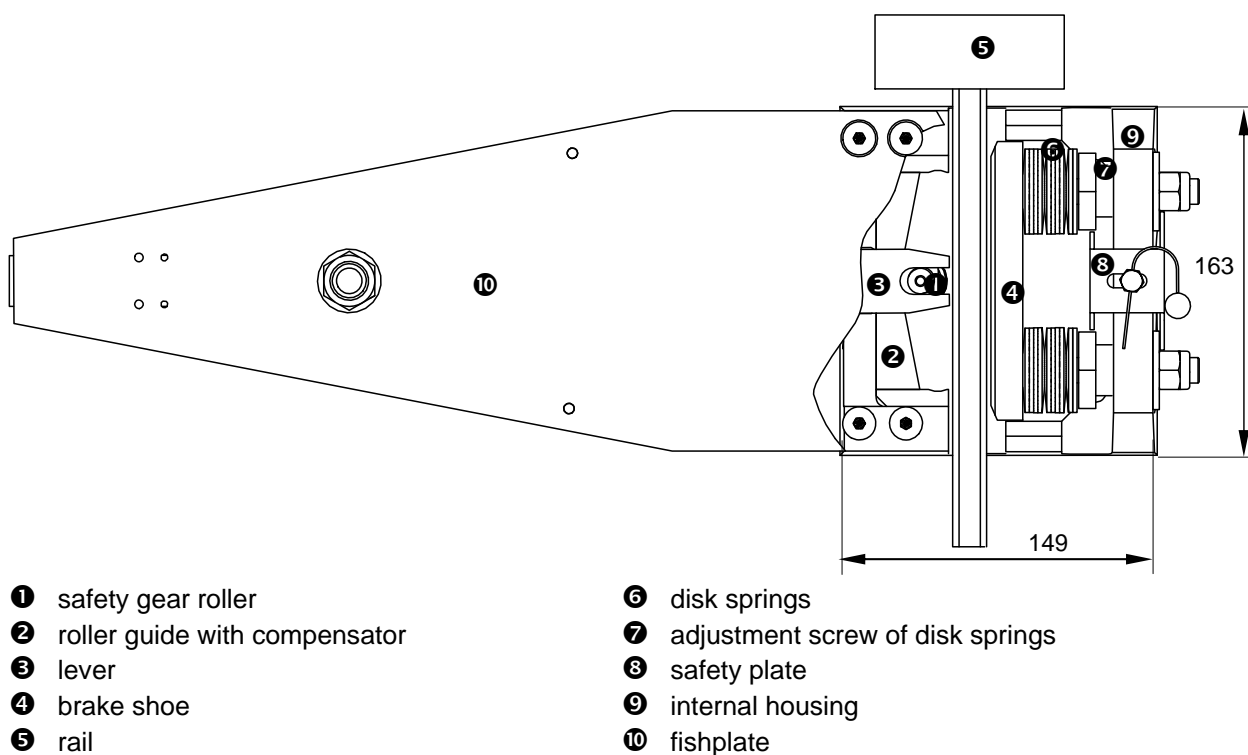


5. Description and function

5.1 Description of safety gear, VARIANT 1



5.2 Description of safety gear, VARIANT 2



5.3 Function of safety gear

Upon tripping the overspeed governor both levers ❸ synchronised by the actuating shaft are turned by 15°.

In doing so the safety gear roller ❶ moved by the lever makes contact with the rail surface. The safety gear roller is pressed into the wedge-shaped gap between rail and roller guide ❷. Owing to the wedge effect of the roller guide the full floating beared safety gear is moved until the brake shoe ❹ rests against the rail ❺.

The disc spring transmits the braking force to the internal housing. To adapt to different widths of guide blades distance plates of various thickness ❹ are placed under the disc.

The spring pressure is preset and secured by a safety plate ❸ and a led-sealing to prevent unauthorized adjustment.

In the braking process the brake shoe fixed on the bracket cuts into the rail surface. The braking effect is caused by friction and spring tension action.

Moving the lift car upwards releases the brakes and lever and the safety gear rollers return to neutral position.

The safety gear is ready for action again.



IMPORTANT

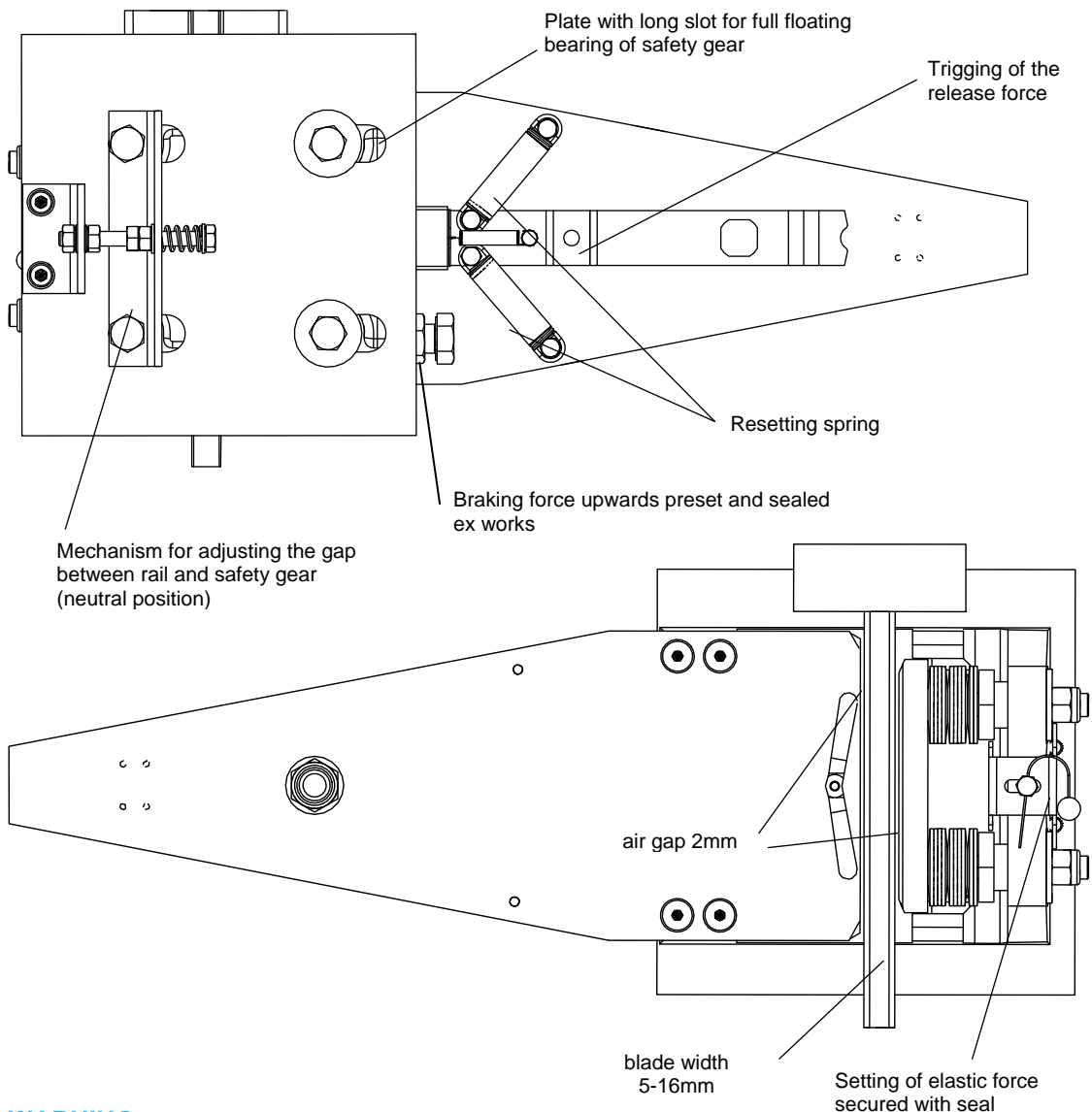
The safety gear transmits the braking force to the car. This braking force must be taken into account in the construction of the interface between safety gear and car.

6. Assembly

6.1 Assembly the safety gear on the lift car (Variant 1 and 2)

The safety gear is fixed to the lift car with four screws of type M12 as well as bushes.

Pay attention to the full floating bearing the safety gear as this is key to the safety gear sliding into braking position after being tripped by the overspeed governor.



WARNING

When the safety gear is in neutral position it can be adjusted using the adjustment mechanism.

The following points must be observed:

The rail running guide must cover the brake shoes completely. The air gap between the rail running surface and the brake shoe must be adjusted to 2 mm.

The safety gear must be installed so that the spring mounted brake shoe is parallel to the rail and in direction of travel. This prevents getting out of the braking trace.



WARNING


Ensure that the mounting screws in the long slots of the external housing have enough play in both directions in neutral positions.

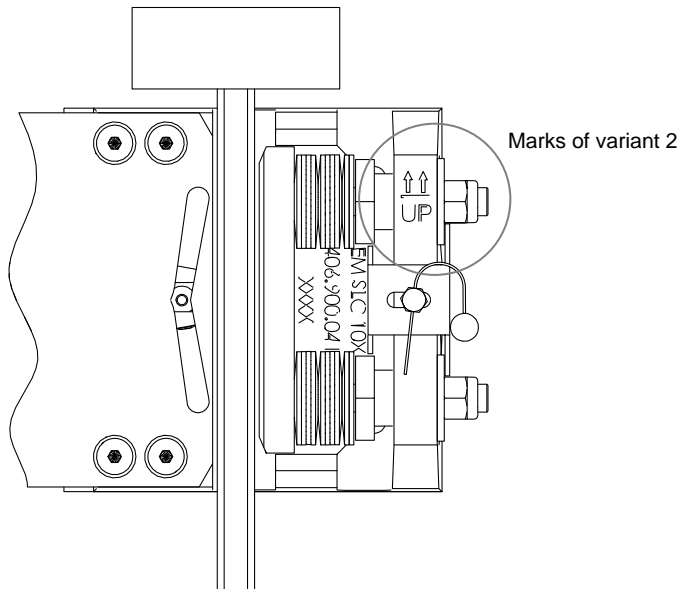
Correct position of the safety gear

During assembly the safety gear on the car take care for the correct position of the safety gear.

There is an advice on the type plate of the safety gear.

Variant 1: The adjustment screw has to be at the bottom (see drawings at page 14-15).

Variant 2: The housing is marked with the following icon  as well as the word „UP“. Both marks are written on the same side of the safety gear that has to be mounted upwards.



WARNING

Incorrect installation of the braking device causes a functional disorder of the safety gear.

Linkage of the braking units

❖ Connection with actuating shaft

Both safety gear units are linked with an actuating shaft.

The actuating shaft is fixed to the lever of the safety gear with attachment screws or spring type straight pins. The actuating shaft is connected by mean of two square-type tubes □ 20x20 mm.

❖ Connection to pull rod

The lever is connectet with a pull rod to the rope of the overspeed governor. The pull rod is fixed to the lever by a screw type M8. The tightening torque for this screw is 20 Nm.

When the overspeed governor is blocked, the rod transfers the tractive forces from the governor rope to the lever. The pivoting of the lever pulls the safety gear out of neutral position so the safety gear makes contact to the rail.

Inertia of the governor rope and of the components between safety gear and rope appearing during acceleration has to be compensated by a spring.

On dimensioning the pull rod the tractive force has to be considered.

7. Commissioning

7.1 Functional check



WARNING

Before commissioning the safety gear

- ❖ make sure that the overspeed governor works correctly, that the safety gear is attached to the overspeed governor and that the produced tractive force is two times the force required for engaging the safety gear.
- ❖ the guide rail must be cleaned of dirt. Most suitable for cleaning is cold solvent.

Before commissioning the lift car

- ❖ the lift car must be braked statically:
by turning the actuating shaft until both safety gear rollers contact the guide rail as well as letting the car down slowly. It has to be checked if both safety gear rollers move to their working position.
- ❖ the lift car must be braked with low speed.
It has to be checked if both safety gear rollers move to their working position.

For checking the braking force it is possible to trip the safety gear with rated speed or overspeed. By pulling out from braking position the lever of the safety gear roller turns back into neutral position.



WARNING

The safety gear may be operated only in combination with an overspeed governor.

7.2 Commissioning at the lift

Braking the car in down direction with 125% of payload decelerations of the car must be between 0,2g and 1g (9,81m/s²).

7.3 Acceptance test or commissioning of the lift



IMPORTANT

Engagement test downwards

Tests before commissioning the lift according to EN 81-1, annexe D resp. periodic tests according to EN 81-1, annexe E.



IMPORTANT

Engagement test upwards

The test in up direction is executed with empty lift car without mechanical oder electrical braking of the drive unit.

When the braking is tripped the elctrical drive system has to be switched off. When the safety gear is engaged in up direction the electrical drive can draw the lift car further up. This is even possible at standstill.

Therefore refrain a further retightening after braking.

7.4 Check after braking

After every braking the safety gear has to be rechecked by a qualified person.

There is to be checked visually whether any changes or dirtying at the braking elements has occurred.

The following points are to be rechecked:

- ❖ excessive wear of the brake shoes
- ❖ deformations
- ❖ smooth running

The rubbed-off particles have to be removed and the braking marks grinded down.

Braking again on a re-grinded braking track is not causing an essential change of the braking force.



DANGER

For guide rail lubrication only oil products approved in the type examination certificate shall be used.

Use machine oil of viscosity class ISO 68-150 without extreme pressure additive. See mineral oils without additive (for example lubricant C according to DIN 51517, Part 1.)

Oils for hydraulic aggregates, gears and motors are not suitable for this use.

8. Maintenance

Upon maintenance the safety gear shall be checked for:

- ❖ smooth operation
- ❖ synchronous operation of the two units
- ❖ wear
- ❖ rust
- ❖ dirt
- ❖ sealing

If, after a couple of braking tests, the braking rollers or the safety gear base show signs of wear they are to be replaced by qualified persons.

Material no.:

Brake shoes 106.930.292 resp. 106.930.294

Safety gear roller 106.920.120

Roller guide 106.930.280 and 106.930.281

9. Transport

Any work upon transport, storage, installation and commissioning as well as (if any) demounting and disposal of a safety gear is to be carried out by qualified persons only.

They shall be responsible for proper assembly, transport and installation, and for putting the safety gear into operational condition. If this is not ensured, the manufacturer shall not be held liable for any damages that might occur.

Upon transport the safety gear must be protected against:

- ❖ humidity
- ❖ shock
- ❖ dirt
- ❖ falling-down, etc.

10. Annexe

- ❖ Order form for safety gear type SG

ENQUIRY

ORDER

SLS Sassi Lift Systems

5 Blackwell Drive
Springwood Industrial Estate
Braintree, Essex CM7 20J, UK
Tel: 01376 550666
Fax: 01376 341219
Email: sales@sls-ltd.co.uk

Order no.:

Customer:

Delivery address:

Cust. order no:

Processor:

Serial no.:

Date:

Comm. no.:

Required date:

PROGRESSIVE SAFETY GEAR SG

Quantity:

Braking downwards:

SG1D-1

Braking up-/downwards:

SG2D-1 Variant 1

SG2D-1 Variant 2

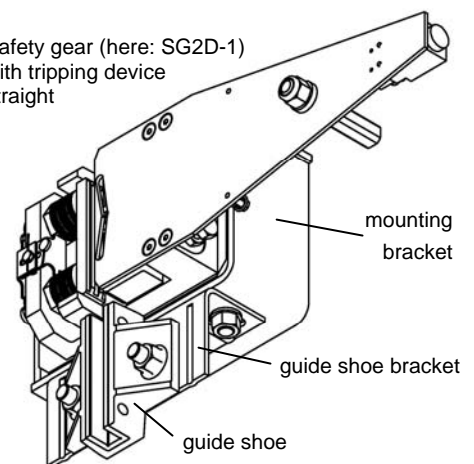
Miscellaneous:

Please specify additional components and special requests using the field „Miscellaneous“.

1. Technical Data

Rated speed v: _____ m/s
 Payload Q: _____ kg
 Car weight P: _____ kg (incl. cabin weight)
 Compens. rope weight CR: _____ kg
 Mass counterweight CTW: _____ kg
 Width of rail: 9mm 16mm
 _____ mm (> 5mm and < 16mm)
 Manufacture of rail: machined drawn
 Surface of rail: dry oiled
 Traverse mounting at lower traverse
 mounting at upper traverse
 Position of rail external
 internal

Safety gear (here: SG2D-1)
with tripping device
straight



2. Options and additional components

safety gear shaft straight
depth gauge _____ mm

tripping device straight

PU lubricator

2 mounting brackets
with mounting parts

tripping device cranked, standard

PU guide shoes (with mounting parts)

mounting parts

tripping device cranked, order-bound
(please attach drawings or dimensions)

cable loop 5 m 8 m

neutral position

short plate

roller switch (with locking)

PU governor rope 6.5 8.0 mm

roller switch (without locking)

roller switch EX (without locking)