



## EC type-examination certificate

**Certificate no.:** ABV 535/2

**Notified body:** TÜV SÜD Industrie Service GmbH  
Westendstr. 199  
80686 München - Germany

**Applicant/  
Certificate holder:** Inventio AG  
Seestr. 55  
6052 Hergiswil - Switzerland

**Date of application:** 2013-09-26

**Manufacturer of the test  
sample:** Schindler Aufzüge AG  
EBI Works  
Zugerstr. 13  
6030 Ebikon - Switzerland

**Product:** Braking device acting on the traction sheave, as part of the protection device against overspeed for the car moving in upwards direction

**Type:** FM 280

**Test laboratory:** TÜV SÜD Industrie Service GmbH  
Prüflaboratorium für Produkte der Fördertechnik  
Prüfbereich Aufzüge und Sicherheitsbauteile  
Westendstr. 199  
80686 München - Germany

**Date and  
number of the test report:** 2013-10-07  
ABV 535/2, ABV 551/4

**EC-Directive:** 95 / 16 / EC

**Result:** The safety component conforms to the essential safety requirements of the Directive for the respective scope of application stated on page 1 of the annex to this EC type-examination certificate.

**Date of issue:** 2013-10-08

Certification body for lifts and safety components  
Identification number: 0036

*C. Rührmeyer*  
Christian Rührmeyer





**Annex to the EC type-examination certificate  
no. ABV 535/2 dated 2013-10-08**

**1. Scope of application**

Permissible brake moment when the brake device acts on the traction sheave while the car is moving upward

800 - 1850 Nm

1.2 Maximum tripping speed of the overspeed governor and maximum rated speed for traction sheave diameter of 410 mm (in relation to the rope's centre) and car suspension of 1:1

1.2.1 Maximum tripping speed

10.00 m/s

1.2.2 Maximum rated speed

8.00 m/s

According to the tripping speed and the rated speed, a tripping rotary speed of  $466 \text{ min}^{-1}$  and a rated rotary speed of  $373 \text{ min}^{-1}$  of the traction sheave is calculated on the basis of the traction sheaves diameter of 410 mm and the car suspension of 1:1.

If deviating traction sheave diameters, car speeds or car suspensions are used, care must be taken that these rotary speeds are not exceeded during operation and tripping of the overspeed governor.

**2. Conditions**

2.1 Since the brake device represents only a part of the protection device against overspeed for the car moving in upwards direction an overspeed governor as per EN 81-1, paragraph 9.9 must be used to monitor the upward speed and the brake device must be triggered (engaged) via the overspeed governor's electric safety device.

2.2 Alternatively, the speed may also be monitored and the brake device engaged by a device other than an overspeed governor as per paragraph 9.9 if the device shows the same safety characteristics and has been type tested.

2.3 In order to recognise the loss of redundancy the movement of each brake circuit (each brake lever) is to be monitored separately and directly (e.g. by micro switches). If a brake circuit fails to engage (close) while the lift machine is at standstill, next movement of the lift must be prevented.

2.4 In cases where the lift machine moves despite the brake being engaged (closed), the lift machine must be stopped at the next operating sequence at the latest and the next movement of the lift must be prevented (The car may, for example, be prevented from travelling by querying the position of the micro switch which is used to monitor the mechanical movement of the brake circuits, should both brake circuits fail to open).

**3. Remarks**

3.1 The permissible braking moments must be applied to the lift system in such a manner that they do not decelerate more than  $1_{gn}$ , if the empty car is moving upwards.

3.2 The brake device type FM 280, as part of the protection device against overspeed for the car moving in upwards direction, also functions as a brake for normal operation.

The type examination only refers to the requirements pertaining to brake devices as per EN 81-1, paragraph 9.10, which stipulates that the component decelerate and stop the car in normal operation and that it be designed as a redundant system.

Checking whether the requirements as per paragraph 12.4 have been complied with is not part of this type examination.

3.3 In order to provide identification, information about the basic design and functioning and to show the environmental conditions and connection requirements, drawing no. M 133 059 and certification stamp dated 1999-06-30 is to be enclosed with the EC type-examination certificate and the annex thereto.

3.4 The EC type-examination certificate may only be used in connection with the pertinent annex and the list of the authorized manufacturers (according to enclosure). This enclosure shall be updated and re-edited following information of the certificate holder.



Industrie Service

**Enclosure of EC type-examination certificate  
no. ABV 535/2 dated 2013-10-08**

**Authorized manufacturers – production sites (stated: 2013-10-08):**

**Schindler Aufzüge AG**

EBI Works  
Zugerstr. 13  
6030 Ebikon - Switzerland

**Schindler (China) Elevator Co. Ltd**

No. 818, Jinmen Rd.  
215004 Suzhou - China

- END OF DOCUMENT -

Base: Application of Co. Schindler Aufzüge AG dated 2013-09-26