



Industrie Service

## EC type-examination certificate

**Certificate no.:** ABV 845  
**Notified body:** TÜV SÜD Industrie Service GmbH  
 Westendstr. 199  
 80686 München – Germany  
**Applicant/  
Certificate holder:** Chr. Mayr GmbH & Co. KG  
 Eichenstr. 1  
 87665 Mauerstetten – Germany  
**Date of application:** 2009-11-25  
**Manufacturer of the test sample:** Chr. Mayr GmbH & Co. KG  
 Eichenstr. 1  
 87665 Mauerstetten – Germany  
**Product:** Braking device, acting on the shaft of the traction  
 sheave, as part of the protection device against  
 overspeed for the car moving in upwards direction  
**Type:** RTW Größe 150, 200, 250, 350  
 Type 8012.\_\_\_\_\_  
**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:** 2010-03-09  
 ABV 845  
**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 - 2 of the annex to this EC  
 type-examination certificate.  
**Date of issue:** 2010-03-10

Certification body for lifts and safety components  
 Identification number: 0036

*C. Rühmeyer*  
 p. p. Christian Rühmeyer



## Annex to the EC type-examination certificate no. ABV 845 dated 2010-03-10

### 1 Scope of application

- 1.1 Permissible brake moment, maximum tripping rotary speed and maximum rated rotary speed of the traction sheave when the brake device acts on the shaft of the traction sheave while the car is moving upward.

Size	Permissible brake moment (Nm)	Max. tripping rotary speed of traction sheave (min <sup>-1</sup> )	Max. rated rotary speed of traction sheave (min <sup>-1</sup> )
150	180 – 360	981	853
200	240 – 500	979	851
250	370 – 640	800	696
350	500 – 920	800	696

- 1.2 Maximum tripping speed of the overspeed governor and maximum rated speed

The maximum tripping speed and the maximum rated speed must be calculated on the basis of the traction sheaves maximum tripping rotary speed and maximum rated rotary speed as outlined in sections 1.1 taking into account traction-sheave diameter and car suspension

$$v = \frac{D \times \pi \times n}{60 \times i}$$

$v$  = speed (m/s)  
 $D$  = Diameter of the traction sheave from rope's centre to rope's centre (m)  
 $\pi$  = 3,14  
 $n$  = Rotary speed (min<sup>-1</sup>)  
 $i$  = Ratio of the car suspension

### 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.

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.

- 2.2 In order to recognise the loss of redundancy the movement of each brake circuit (each single brake) 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.
- 2.3 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).



- 2.4 According to EN 81-1, paragraph 9.10.4 d a braking device must act directly on the traction sheave or on the same shaft on which the traction sheave is situated in the immediate vicinity thereof.

If the braking device does not act in the immediate vicinity of the traction sheave on the same shaft on which the traction sheave is situated, the standard is not complied with. In cases involving shaft failure in the extended area between the traction sheave and the braking device, safety would no longer be ensured by the latter if the lift car made an uncontrolled upward movement.

Shaft failure in the extended area must therefore be ruled out by appropriate design and sufficient dimensioning. In order to eliminate or reduce influencing factors which may lead to failure wherever possible, the following requirements must be satisfied:

- Minimization of bending length between traction sheave and braking device or traction sheave and the next bearing (the next bearing must form part of the drive unit)
- Static defined bearing (e. g. 2-fold borne shaft) otherwise measures are required to obtain a defined loading
- As far as possible, prevention of a reduction in load-bearing capacity in the area of reversed bending stress (reduction in load-bearing capacity caused, for example, by stress concentration and cross-sectional reductions)
- Between traction sheave and braking device the shaft must be continuous (made from one piece)
- Cross-sectional influences on the shaft are only permitted if they act on the following connections: traction sheave – shaft, braking device – shaft, torque of the transmitting component – shaft (situated between traction sheave and braking device).

The manufacturer of the drive unit must provide calculation evidence that the connection braking device – shaft, traction sheave – shaft and the shaft itself is sufficiently safe. If necessary, evidence must be provided for the intended measures, too (see static undefined bearing).

The calculation evidence must be enclosed with the technical documentation of the lift.

### 3 Remarks

- 3.1 The permissible brake forces must be applied to the lift system in such a manner, that the empty car moving in upwards direction is not decelerated by more than  $1g_n$ .
- 3.2 In the scope of this type-examination it was found out, that the brake device also functions as a brake for normal operation, is designed as a redundant system and therefore meets the requirements to be used also as a part of the protection device against overspeed for the car moving in upwards direction.

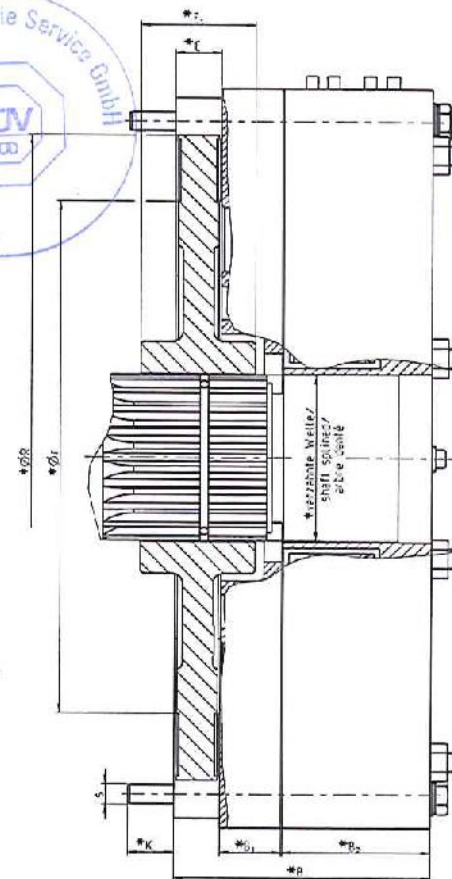
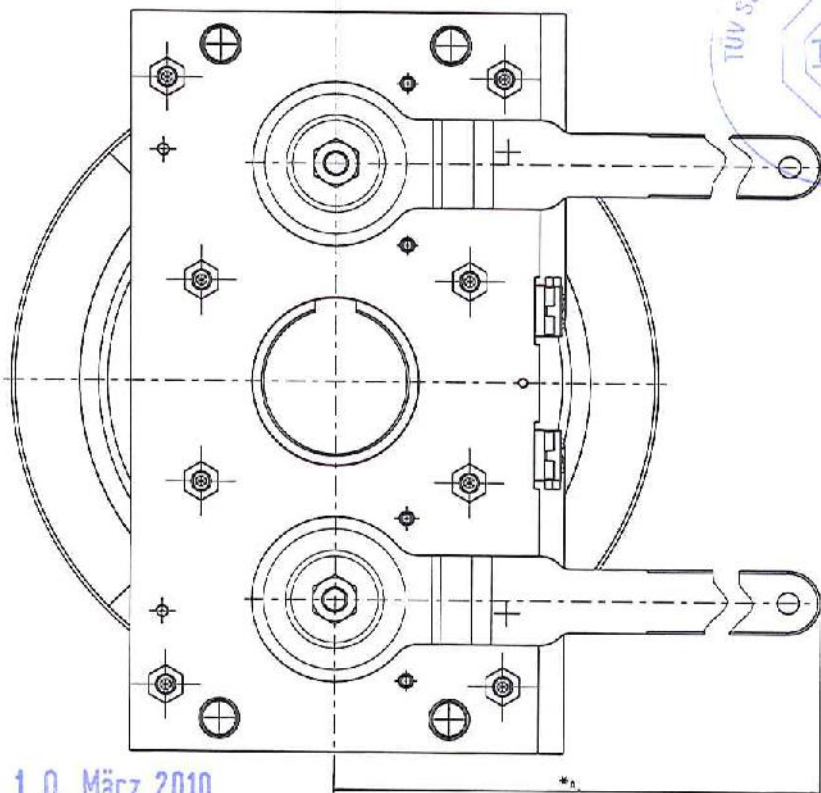
This type-examination only refers to the requirements pertaining to brake devices as per EN 81-1, paragraph 9.10.

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. E028 12 200 000 1 61 dated 2010-03-03 and certification stamp dated 2010-03-10 is to be enclosed with the EC type-examination certificate and the annex thereto.
- 3.4 The environment and connection conditions of the safety gear are described and depicted in additional documents (e. g. the assembly instructions).
- 3.5 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.



Lüftversion von Hand



**- GEPRÜFT -**

TÜV SÜD Industrie Service GmbH

Zentralbereich Fördertechnik-Sonderbauten

Abteilung Aufzüge und Sicherheitsbauteile

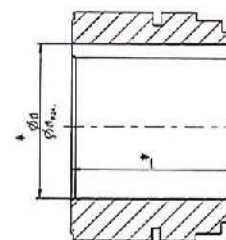
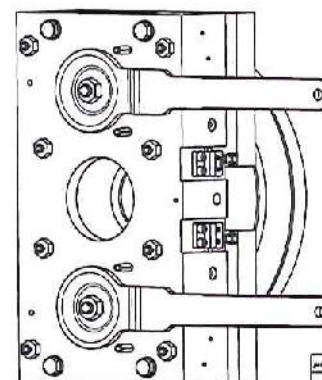
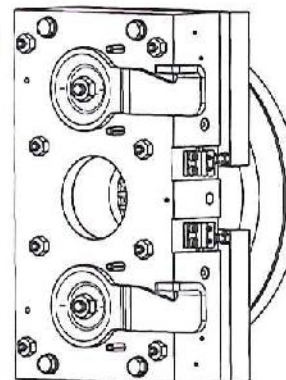
Westendstr. 199, D-80686 München

Der Sachverständige

*Figure*

2) Rotordurchmesser für Nabeversion  
Rotor diameter for hub version  
Diamètre du rotor pour version avec moyeu

Größe mm Tailor	Bremsenanker Braking anchor Coulisse de freinage	Nom. Erzeugnis / Ref. 3000 référence main	Stahl- abmessung / rod dimension Acier	Werkstoff B11 5400 45mm SAE 500 45mm SAE 500 45mm	A	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	C	C <sub>1</sub>	B	B <sub>1</sub>	B <sub>2</sub>	C	E <sub>1</sub>	L	d	d max.	K	P	Q	S	4x
150	2x80 2x20 2x150 =2x180	981	2x 68	60 x 2,5 x 22	160	170	250	133	247,5	94	224	90,6	24,1	45	15	38	50	42	55	18	180	223	10	10
200	2x70 2x60 2x250 =2x250	979	2x 63	60 x 2,5 x 22	160	170	290	133	247,5	90	264	90,6	24,1	45	15	41	65	56	60	18	180/200 <sup>2)</sup>	235/225 <sup>2)</sup>	10	10
250	2x85 2x30 2x250 2x250 =2x320	800	2x 79	65 x 3 x 20	160	170	290	133	247,5	90	264	100,6	24,1	52	15	45	65	56	60	18	200	253	10	10
350	2x250 2x300 2x350 2x410 =2x400 <sup>2)</sup>	800	2x 82	65 x 3 x 20  72 x 3 x 22 <sup>1)</sup>	200	210	300	133	247,5	120	272	100,6	24,1	52	15	52	65	56	60	17	200	273	10	10

[illegible]