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Industrie Service

EC type-examination certificate

Certificate no.:	ABV 766/1
Notified body:	TÜV SÜD Industrie Service GmbH Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile Westendstraße 199, 80686 München - Germany
Applicant/ Certificate holder:	Chr. Mayr GmbH & Co. KG Eichenstraße 1 87665 Mauerstetten - Germany
Date of submission:	2007-01-30
Manufacturer:	Chr. Mayr GmbH & Co. KG Eichenstraße 1 87665 Mauerstetten - Germany
Product, type:	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 RSR/8010._ _ _ _ _, Seize 200, 400, 600, 800, 1000
Test Laboratory:	TÜV SÜD Industrie Service GmbH Prüfbereich Aufzüge und Sicherheitsbauteile Westendstraße 199, 80686 München - Germany
Date and Number of test report:	2007-02-26 766/1
EC-directive:	95 / 16 / EC
Statement:	The safety component conforms to the directive's essential safety requirements for the respective scope of application stated on page 1 and 2 of the annex to this EC type-examination certificate.
Certificate date:	2007-02-26

Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
Identification number: 0036

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Annex to the EC type-examination certificate no. ABV 766/1 dated 2007-02-26

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

Seize	Permissible brake moment (Nm)	Max. tripping rotary speed of traction sheave (min^{-1})	Max. rated rotary speed of traction sheave (min^{-1})
200	200 – 500	600	522
400 „short“	420 – 840	600	522
400 „long“	750 – 1100	500	435
600	1000 – 1400	500	435
800	1300 – 1900	400	348
1000	1840 – 2400	400	348

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)
Π = 3,14
n = Rotary speed (min^{-1})
i = Ratio of the car suspension

2. Conditions

2.1 Since the brake device represents only a part oft 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 form traveling 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 A code number for the brake moment effectively adjusted will be marked at the first blank in the type designation 8010. _ _._ _ _ within the permissible scope of application. A code number for design characteristics which are not directly part of the type-examination will be marked at the rest of the blanks (e. g. in the second blank: with flange plate, in the third blank: with hand release; in the fourth blank: release control and/or wear control; in the fifth blank: characteristics for electrical connection).

3.2 The permissible brake moments must be applied to the lift system in such a manner that they do not decelerate more than 1 g_n, if the empty car is moving upwards.

3.3 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.

3.4 In order to provide identification, information about the basic design and it's functioning and to show which parts have been tested pertaining to the tested and approved type, drawing no. E 028 01 000 000 2 60 dated 03 November 2006 is to be enclosed with the EC type-examination certificate and the Annex thereto. The installation conditions and connection requirements are presented or described in separate documents (e.g. assembly and operating instructions).

3.5 The EC type-examination certificate may only be used in connection with the pertinent Annex.