



Industrie Service

EC type-examination certificate

Certificate no.: ABV 766/3
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: 2011-02-08
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: RSR/8010._____, Größe 200, 400, 600, 800, 1000, 1500
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:** 2011-04-14
 ABV 766/3
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: 2011-04-15

Certification body for lifts and safety components
 Identification number: 0036


 Christian Rührmeyer





Industrie Service

Annex to the EC type-examination certificate no. ABV 766/3 dated 2011-04-15

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 ⁻¹)	Max. rated rotary speed of traction sheave (min ⁻¹)
200	200 – 560	811	705
200 „long“	500 – 700	820	713
400 „short“	420 – 840	708	616
400 „long“	750 – 1200	1011	879
600	1000 – 1600	500	435
800	1300 – 1900	400	348
1000	1840 – 2400	400	348
1500	2400 – 3600	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 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, proximity switch). 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 traveling by querying the position of the micro switch, proximity switch which is used to monitor the mechanical movement of the brake circuits, should both brake circuits fail to open).

Note: The English text is a translation of the German original. In case of any discrepancy, the German version is valid only.



- 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 functioning and to show the environmental conditions and connection requirements, drawing no. E 028 01 000 000 1 61 with certification stamp dated 2011-04-15 is to be enclosed with the EC type-examination certificate and the annex thereto.
- 3.5 The environment and connection conditions of the safety gear are described and depicted in additional documents (e. g. the assembly instructions).
- 3.6 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 766/3 dated 2011-04-15**

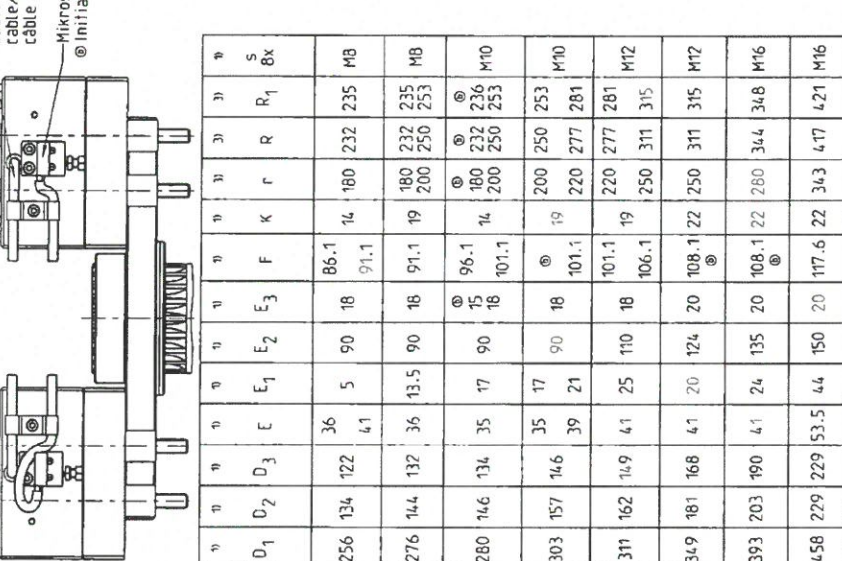
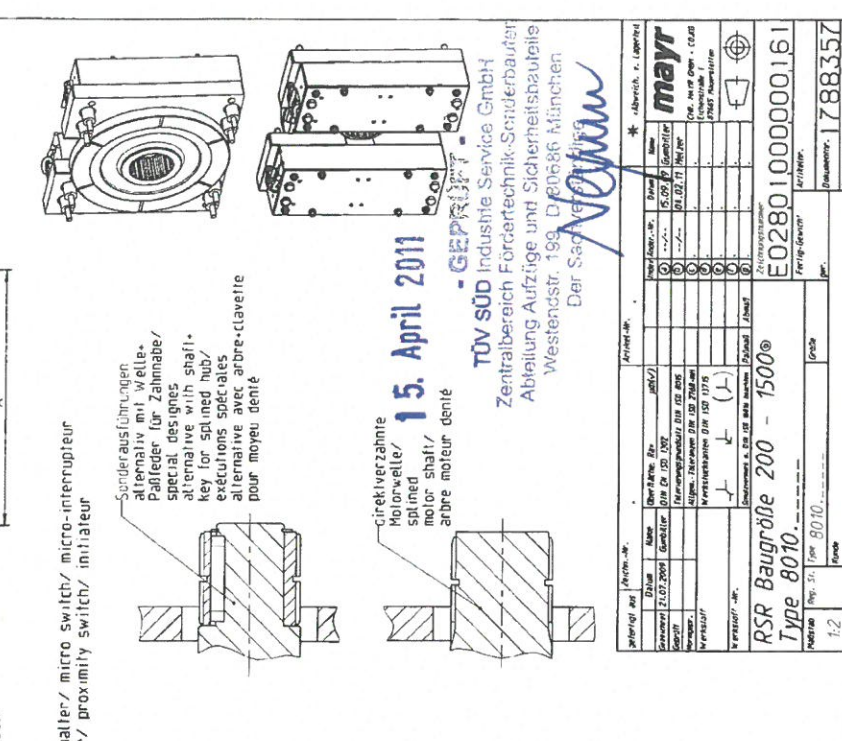
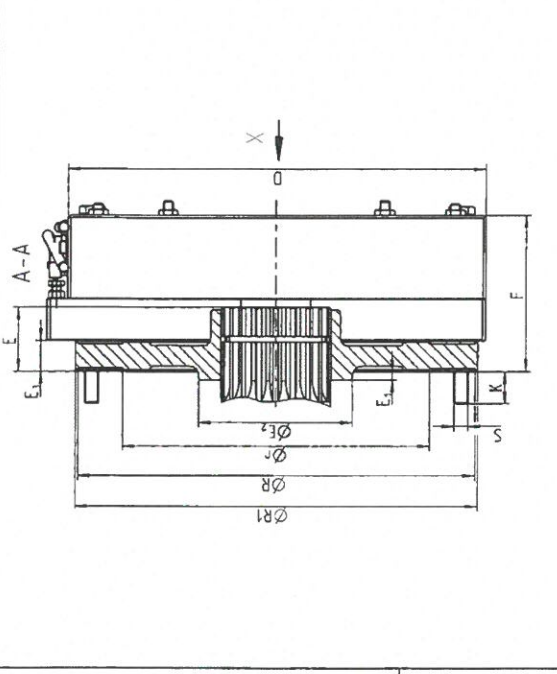
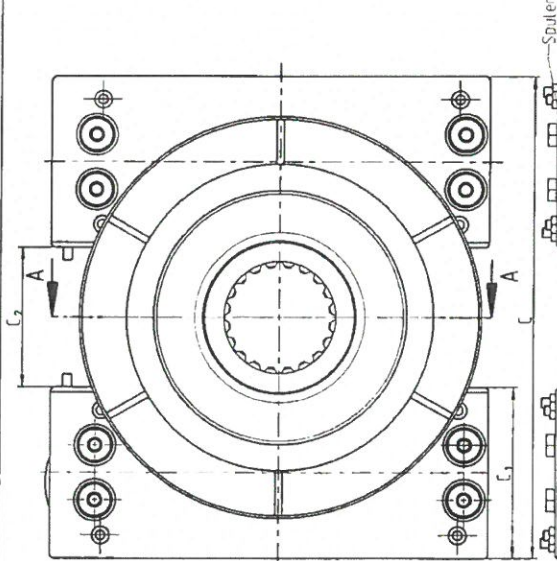
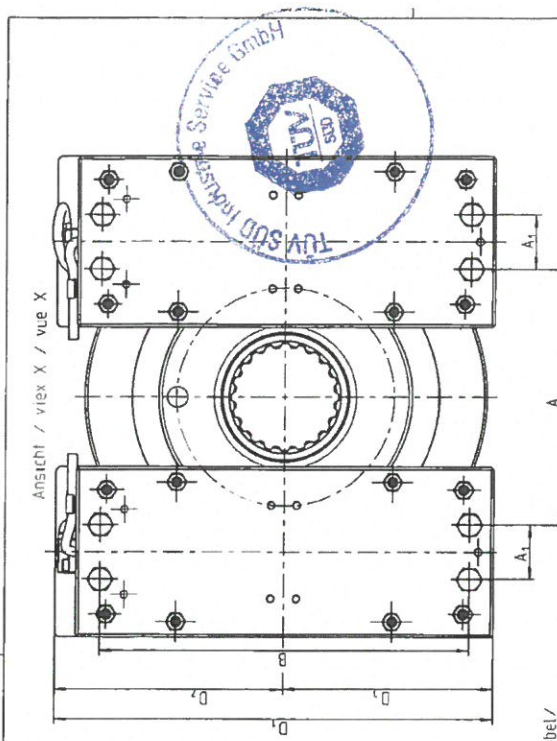
Authorised manufacturers – production sites (stated: 2011-04-15):

Chr. Mayr GmbH & Co. KG
Eichenstr. 1
87665 Mauerstetten – Germany

Mayr Power Transmission Zhangjiagang Co.,Ltd.
No. 3 Factory, No. 16 Changxing road,
215600 Zhangjiagang, P.R. China

- END OF DOCUMENT -

Base: Letter of Request of Co. Chr. Mayr GmbH & Co. KG dated 2011-02-08



1) = Maße variabel, alternative Bestimmungsschrauben mit entsprechendem Festigkeitsnachweis/
dimensions variable, alternative bolts with relevant stressability proof/
Dimensions variables, autres vis de fixation possibles avec contrôle de qualité correspondant.
2) = alternative Verzahnungen mit entsprechendem Festigkeitsnachweis/
alternative splinnings with relevant stressability proof/
Autres cannelures possibles avec contrôle de qualité correspondant.
3) = alternative Rotordurchmesser mit entsprechendem Befestigungsnachweis/
alternative rotor diameters with relevant calculation of spring configuration/
Autres diamètres de rotor possibles avec contrôle des ressorts correspondants

Größe/ size/ haute	max. Antriebs- leistung/ max. power/ vitesse max.	Z1 Vorverzahnung DIN 5480 / gears Advançat teeth Cannelure spiral/ de l'arbre de rotor	A	A ₁	B	C	C ₁	C ₂	D	D ₁	D ₂	D ₃	E	E ₁	E ₂	E ₃	F	K	r	R	R ₁	S
200	2x100 bis 2x260	60 x 2,5 x 22 65 x 3 x 20 67 x 3 x 21	138	32	216	270	100	70	244	256	134	122	36	5	90	18	86,1	14	180	232	235	8x
200 lang	2x250 bis 2x350	65 x 3 x 20 67 x 3 x 21 72 x 3 x 22	147	28	236	275	100	75	264	276	144	132	36	13,5	90	18	91,1	19	200	250	253	MB
400 Kurz	2x270 bis 2x420	65 x 3 x 20 67 x 3 x 21 72 x 3 x 22	153	42	238	315	120	75	268	280	146	134	35	17	90	18	96,1	14	180	232	236	M10
400 lang	2x375 bis 2x600	72 x 3 x 22 82 x 3 x 26 90 x 3 x 28	128	42	258	290	120	50	290	303	157	146	35	17	90	18	101,1	19	200	250	253	M10
600	2x500 bis 2x800	72 x 3 x 22 82 x 3 x 26 90 x 3 x 28	165	50	264	355	140	75	298	311	162	149	41	25	110	18	101,1	19	220	277	281	M12
800	2x550 bis 2x950	82 x 3 x 26 90 x 3 x 28 98 x 4 x 23	169	56	300	375	150	75	336	349	181	168	41	20	124	20	106,1	22	250	311	315	M12
1000	2x920 bis 2x1200	90 x 3 x 28 98 x 4 x 23 115,9 x 5 x 22	175	60	342	395	160	75	380	393	203	190	41	24	135	20	108,1	22	250	311	315	M16
1500	2x 1200 bis 2x 1800	95 x 3 x 30 98 x 4 x 23 115 x 5 x 22	210	70	410	480	200	80	458	458	229	229	53,5	44	150	20	117,6	22	343	417	421	M16

15. April 2011
- GEPÄRKT -
TUV SÜD Industrie Service GmbH
Zentralbereich Fördertechnik-Sonderbauten
Ablenkung Aufzüge und Sicherheitsbauteile
Westendstr. 199, D-80686 München
Der Sachverständige
Neumann

Größe	max. Antriebsleistung	Z1	A	A ₁	B	C	C ₁	C ₂	D	D ₁	D ₂	D ₃	E	E ₁	E ₂	E ₃	F	K	r	R	R ₁	S
200	2x100 bis 2x260	60 x 2,5 x 22 65 x 3 x 20 67 x 3 x 21	138	32	216	270	100	70	244	256	134	122	36	5	90	18	86,1	14	180	232	235	8x
200 lang	2x250 bis 2x350	65 x 3 x 20 67 x 3 x 21 72 x 3 x 22	147	28	236	275	100	75	264	276	144	132	36	13,5	90	18	91,1	19	200	250	253	MB
400 Kurz	2x270 bis 2x420	65 x 3 x 20 67 x 3 x 21 72 x 3 x 22	153	42	238	315	120	75	268	280	146	134	35	17	90	18	96,1	14	180	232	236	M10
400 lang	2x375 bis 2x600	72 x 3 x 22 82 x 3 x 26 90 x 3 x 28	128	42	258	290	120	50	290	303	157	146	35	17	90	18	101,1	19	200	250	253	M10
600	2x500 bis 2x800	72 x 3 x 22 82 x 3 x 26 90 x 3 x 28	165	50	264	355	140	75	298	311	162	149	41	25	110	18	101,1	19	220	277	281	M12
800	2x550 bis 2x950	82 x 3 x 26 90 x 3 x 28 98 x 4 x 23	169	56	300	375	150	75	336	349	181	168	41	20	124	20	106,1	22	250	311	315	M12
1000	2x920 bis 2x1200	90 x 3 x 28 98 x 4 x 23 115,9 x 5 x 22	175	60	342	395	160	75	380	393	203	190	41	24	135	20	108,1	22	250	311	315	M16
1500	2x 1200 bis 2x 1800	95 x 3 x 30 98 x 4 x 23 115 x 5 x 22	210	70	410	480	200	80	458	458	229	229	53,5	44	150	20	117,6	22	343	417	421	M16

Größe	max. Antriebsleistung	Z1	A	A ₁	B	C	C ₁	C ₂	D	D ₁	D ₂	D ₃	E	E ₁	E ₂	E ₃	F	K	r	R	R ₁	S
200	2x100 bis 2x260	60 x 2,5 x 22 65 x 3 x 20 67 x 3 x 21	138	32	216	270	100	70	244	256	134	122	36	5	90	18	86,1	14	180	232	235	8x
200 lang	2x250 bis 2x350	65 x 3 x 20 67 x 3 x 21 72 x 3 x 22	147	28	236	275	100	75	264	276	144	132	36	13,5	90	18	91,1	19	200	250	253	MB
400 Kurz	2x270 bis 2x420	65 x 3 x 20 67 x 3 x 21 72 x 3 x 22	153	42	238	315	120	75	268	280	146	134	35	17	90	18	96,1	14	180	232	236	M10
400 lang	2x375 bis 2x600	72 x 3 x 22 82 x 3 x 26 90 x 3 x 28	128	42	258	290	120	50	290	303	157	146	35	17	90	18	101,1	19	200	250	253	M10
600	2x500 bis 2x800	72 x 3 x 22 82 x 3 x 26 90 x 3 x 28	165	50	264	355	140	75	298	311	162	149	41	25	110	18	101,1	19	220	277	281	M12
800	2x550 bis 2x950	82 x 3 x 26 90 x 3 x 28 98 x 4 x 23	169	56	300	375	150	75	336	349	181	168	41	20	124	20	106,1	22	250	311	315	M12
1000	2x920 bis 2x1200	90 x 3 x 28 98 x 4 x 23 115,9 x 5 x 22	175	60	342	395	160	75	380	393	203	190	41	24	135	20	108,1	22	250	311	315	M16
1500	2x 1200 bis 2x 1800	95 x 3 x 30 98 x 4 x 23 115 x 5 x 22	210	70	410	480	200	80	458	458	229	229	53,5	44	150	20	117,6	22	343	417	421	M16

ASR Baugröße 200 - 1500
Type 8010
E02801000000161
1.2
178835Z



Type examination certificate

Certificate no.: ESV 766/1

Certification office: 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: 2010-06-17

Manufacturer of the test sample: Chr. Mayr GmbH & Co. KG
Eichenstr. 1
87665 Mauerstetten - Germany

Product: Braking element acting on the shaft of the traction sheave, as a part of the protection device against unintended car movement

Type: RSR/8010. _____, Größe 200 till 1500

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:** 2011-07-07
ESV 766/1

Examination basis: EN 81-1:1998 + A3:2009 (D), issue December 2009

Result: The safety component conforms to the requirements of examination basis for the respective scope of application stated on page 1 - 2 of the annex to this type-examination certificate.

Date of issue: 2011-07-11

Certification office for products of conveyor systems
Lifts and safety components

C. Rührmeyer
Christian Rührmeyer



Annex to the type-examination certificate no. ESV 766/1 dated 2011-07-11

1 Scope of application

1.1 Nominal brake torques and response times with relation to a brand-new brake element

Name / Size	Minimum nominal brake torque* [Nm]	Maximum nominal brake torque* [Nm]	Maximum tripping rotary speed [rpm]	Maximum response times** [ms]		
				Parallel without overexcitation / Serial with overexcitation		
				t ₀	t ₅₀	t ₉₀
200	2 x 100 = 200		820	100 / 110	160 / 230	230 / 330
200		2 x 280 = 560	820	25 / 30	60 / 80	110 / 135
200 „Lang“	2 x 250 = 500		820	25 / 30	50 / 65	110 / 135
200 „Lang“		2 x 350 = 700	820	15 / 20	30 / 50	80 / 100
400 „Kurz“	2 x 210 = 420		710	135 / 140	185 / 265	240 / 340
400 „Kurz“		2 x 420 = 840	710	50 / 55	90 / 130	160 / 230
400 „Kurz - leistungsoptimiert“		2 x 350 = 700	335	30 / 40	80 / 100	100 / 150
400 „Lang“	2 x 375 = 750		500	40 / 45	75 / 105	135 / 190
400 „Lang“		2 x 550 = 1100	500	25 / 40	60 / 75	100 / 120
600	2 x 500 = 1000		500	85 / 100	140 / 200	185 / 260
600		2 x 800 = 1600	500	30 / 40	70 / 100	120 / 170
800	2 x 650 = 1300		400	80 / 100	145 / 180	170 / 230
800		2 x 950 = 1900	400	35 / 45	80 / 115	120 / 160
1000	2 x 920 = 1840		400	80 / 95	125 / 180	180 / 250
1000		2 x 1200 = 2400	400	40 / 50	95 / 130	150 / 210
1500	2 x 1200 = 2400		400	75 / 90	160 / 190	270 / 310
1500		2 x 1800 = 3600	400	35 / 40	105 / 115	180 / 240

Interim values can be interpolated

Explanations:

* **Nominal brake torque:**

Brake torque assured for installation operation by the safety component manufacturer.

** **Response times:**

t_x time difference between the drop of the braking power until establishing X% of the nominal brake torque, t₅₀ optionally calculated t₅₀ = (t₁₀ + t₉₀)/2 or value taken from the examination recording

1.2 Assigned execution features

➤ Type of powering / deactivation	Continuous current / continuous current end
➤ Brake control	Parallel and serial
➤ Nominal air gap	0.45 mm
➤ Damping elements	YES
➤ Overexcitation (Größe 200 - 1000)	at 1.5 non-release voltage
➤ Overexcitation (Größe 1500)	at double non-release voltage

Note: The English text is a translation of the German original. In case of any discrepancy, the German version is valid only.

2 Conditions

- 2.1 The above mentioned safety component represents only part of a protective equipment against unintended movement of the elevator car. Only in combination with a detecting and triggering component (two separate components also possible), which must be subjected to an own type examination, can the system created fulfil the requirements for a safety component in accordance with Annex F.8, EN 81-1:1998 + A3:2009 (D).
- 2.2 The safety component is used in combination with the brake device as part of the ascending car over-speed protection means and as a drive brake.
- 2.3 The installer of a lift must create an examination instruction in accordance with D.2 p) of EN 81-1:1998 + A3:2009 (D) for lift(s) to fulfil the overall concept, add it to the lift documentation and provide any necessary tools or measuring devices, which allow a safe examination (e. g., with closed shaft doors).
- 2.4 The dimension configuration of the lift system must be designed as regards the brake torques in such a way that the permissible value of deceleration does not exceed $1 g_n$ in either direction. Excluded are decelerations, which are caused by an instantaneous roller safety gear up to a rated speed of the lift system of 0.63 m/s for instance.
- 2.5 The traction and its variance must be taken into account as regards its braking distance (transferable power / torque) and included in the calculation.
- 2.6 For installer of a lift, the compliance of the component with the type examined component and the assured nominal brake torques and response times must be confirmed in writing (e. g., type plate and/or supplement in the declaration of conformity).
- 2.7 The information evaluation for self-monitoring must prevent an operational starting of the lift in the event of a fault.
- 2.8 According to the norm requirements, the brake element of the protective device must impact directly on the drive disc or on the same shaft in the immediate vicinity of the drive disc.

If the brake element does not impact in the immediate vicinity of the brake disc on the same shaft, on which the drive disc is also arranged, a deviation from the norm exists. A failure of the shaft in the area between the drive disc and the brake element must be ruled out using corresponding construction designs and sufficient measurements. The manufacturer of the entire drive must prove the sufficient safety of the connection brake element – shaft and drive – shaft as well as the shaft itself in calculations. This proof must be added to the technical documentation of the lift.

3 Remarks

- 3.1 As part of the type examination, it was detected that the brake element has a redundant design and that the correct function is monitored by sensors.

The examination of compliance with all requirements under Section 12.4 [EN 81-1:1998 + A3:2009 (D)], deterioration of the brake torques/breaking forces due to wear and tear and the operation-related change of the drive capability are not part of this type examination.

This type examination refers to the partial requirements for the protection device against unintended car movement only according to EN 81-1:1998 + A3:2009 (D), Section 9.11.
- 3.2 In order to provide identification, information about the basic design and functioning and to show the environmental conditions and connection requirements, drawing with the relevant latest identification from the associated EC type-examination certification ABV 766/X is to be enclosed with the type-examination certificate and the annex thereto.
- 3.3 The type-examination certificate may only be used in connection with the pertinent annex and the list of the authorized manufacturers (according to enclosure of the corresponding EC type-examination certification ABV 766/X).

Note: The English text is a translation of the German original. In case of any discrepancy, the German version is valid only.