



EU TYPE-EXAMINATION CERTIFICATE

According to Annex IV, Part A of 2014/33/EU Directive

Certificate No.: EU-BD 762

Certification Body of the Notified Body: TÜV SÜD Industrie Service GmbH
Westendstr. 199
80686 Munich - Germany
Identification No. 0036

Certificate Holder: Chr. Mayr GmbH & Co. KG
Eichenstr. 1
87665 Mauerstetten - Germany

Manufacturer of the Test Sample: Chr. Mayr GmbH & Co. KG
Eichenstr. 1
87665 Mauerstetten - Germany
(Manufacturer of Serial Production – see Enclosure)

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 and braking element against unintended car movement

Type: 896.2 __ . __, Size 300, 500, 800, 1300, 1800

Directive: 2014/33/EU

Reference Standards: EN 81-20:2014
EN 81-50:2014
EN 81-1:1998+A3:2009

Test Report: EU-BD 762 of 2015-09-30

Outcome: The safety component conforms to the essential health and safety requirements of the mentioned Directive as long as the requirements of the annex of this certificate are kept.

Date of Issue: 2015-09-30

Date of Validity: from 2016-04-20

Achim Janocha
Certification Body "lifts and cranes"



**Annex to the EC Type-Examination Certificate
No. EU-BD 762 of 2015-09-30**



Industrie Service

1 Scope of application

1.1 Use as braking device – part of the the protection device against overspeed for the car moving in upwards direction – permissible brake torques and tripping rotary speeds

1.1.1 Permissible brake torques and maximum tripping rotary speeds 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 torque [Nm]	Max. tripping rotary speed of the traction sheave [rpm]
300	450 - 720	800
500	760 - 1200	730
800	1200 - 2200	650
1300	1960 - 3120	580
1800	2700 - 4300	500

1.1.2 Maximum tripping speed of the overspeed governor and maximum rated speed of the lift

The maximum tripping speed of the overspeed governor and the maximum rated speed of the lift must be calculated on the basis of the traction sheave's maximum tripping rotary speed as outlined above taking into account traction sheave diameter and car suspension.

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

v = Tripping (rated) speed (m/s)
 D_{TS} = Diameter of the traction sheave from rope's center to rope's center (m)
 π = 3,14
 n = Rotary speed (rpm)
 i = Ratio of the car suspension

1.2 Use as braking element – part of the protection device against unintended car movement (acting in up and down direction) – permissible brake torques, tripping rotary speeds and characteristics

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

Size	Min. nominal brake torque* [Nm]	Max. nominal brake torque * [Nm]	Max. tripping rotary speed [rpm]	Maximum response times** [ms]		
				without t_0	with overexcitation t_{50}	t_{90}
300	450		800	90 / 90	170 / 180	200 / 220
300		720	800	35 / 40	100 / 120	165 / 200
500	760		730	100 / 100	160 / 170	230 / 240
500		1200	730	45 / 55	75 / 90	150 / 180
800	1200		650	95 / 95	175 / 180	220 / 240
800		2200	650	30 / 35	70 / 90	150 / 180
1300	1960		580	115 / 115	210 / 220	260 / 280
1300		3120	580	45 / 55	100 / 130	150 / 200
1800	2700		500	145 / 145	225 / 240	320 / 340
1800		4300	500	65 / 80	150 / 180	260 / 300

Interim values can be interpolated

Annex to the EC Type-Examination Certificate
No. EU-BD 762 of 2015-09-30



Industrie Service

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, t_{50} optionally calculated $t_{50} = (t_{10} + t_{90})/2$ or value taken from the examination recording

1.2.2 Assigned execution features

Type of powering / deactivation	continuous current / continuous current end
Nominal air gap	0.60 – 0.70 mm
Damping elements	YES
Overexcitation	at double non-release voltage

2 Conditions

- 2.1 Above mentioned safety component represents only a part at the protection device against over-speed for the car moving in upwards direction and unintended car movement. Only in combination with a detecting and triggering component in accordance with the standard (two separate components also possible), which must be subjected to an own type-examination, can the system created fulfil the requirements for a protection device.
- 2.2 The installer of a lift must create an examination instruction 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).
- 2.3 The triggering of the braking device is not caused positive mechanically but electrically resp. electromagnetically by interruption of the energy supply to the magnetic coil of the braking device. However, the mechanical engagement of the braking device has to be absolutely guaranteed after the electrical safety device has responded.
In light of the above, the braking device must be made to engage at regular intervals e. g. once daily, so that the anchor plates can be checked for correct closing (e.g. micro switches resp. proximity switch). If the anchor plates do not perform correctly (anchors fail to close) the lift must be kept at standstill.
- 2.4 Appropriate measures must ensure that it is evident in the machine room whether the braking device has responded in line with its intended use as a safety component (following failure of an item of operating equipment such as breakage of a gearing element or shaft) or whether the response was caused by other reasons (e. g. loss of power supply). It must also have to be provided a instruction sheet how to proceed in emergency operation (moving the car through manual operation or return motion control) after the braking device has responded. Once the braking device has responded in the intended way as a safety component, it should never be possible to move the lift machine via the return motion control.
- 2.5 The manufacturer of the drive unit must provide calculation evidence that the connection traction sheave – shaft – brake disc and the shaft itself is sufficiently safe, if the brake disc is not a direct component of the traction sheave (e. g. casted on). The shaft itself has to be statically supported in two points.
The calculation evidence must be enclosed with the technical documentation of the lift.
- 2.6 The setting of the brake torque has to be secured against unauthorized adjustment (e. g. sealing lacquer).
- 2.7 The identification drawing no. E07909200000260 including stamp dated 2015-09-30 shall be included to the EU type-examination for the identification and information of the general construction and operation and distinctness of the approved type.

**Annex to the EC Type-Examination Certificate
No. EU-BD 762 of 2015-09-30**



Industrie Service

- 2.8 The EU type-examination certificate may only be used in combination with the corresponding annex and enclosure (List of authorized manufacturer of the serial production). The enclosure will be updated immediately after any change by the certification holder.

3 Remarks

- 3.1 A code number for the brake moment effectively adjusted will be marked at the first blank in the type designation 896.2 __ . __ 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 second, third and fourth blank (e. g. in the second blank: with flange plate, hand release; in the third blank: characteristics for electrical connection; in the fourth blank: with or without cover).
- 3.2 Checking whether the requirements as per section 5.9.2.2 of EN 81-20:2014 (D) have been complied with is not part of this type examination.
- 3.3 Other requirements of the standard, such as reduction of brake moment respectively brake force due to wear or operational caused changes of traction are not part of this type examination.
- 3.4 This EU type-examination certificate was issued according to the following standards:
- EN 81-1:1998 + A3:2009 (D), Annex F.7 and F.8
 - EN 81-20:2014 (D), part 5.6.6.11, 5.6.7.13
 - EN 81-50:2014 (D), part 5.7 and 5.8
- 3.5 A revision of this EU type-examination certificate is inevitable in case of changes or additions of the above mentioned standards or of changes of state of the art.

**Enclosure to the EU Type-Examination Certificate
No. EU-BD 762 of 2015-09-30**



Industrie Service

Authorised Manufacturer of Serial Production – Production Sites (valid from: 2015-09-30):

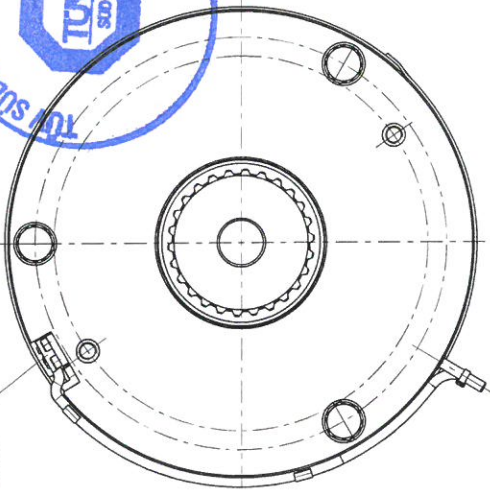
Company Chr. Mayr GmbH & Co. KG
Address Eichenstr. 1
87665 Mauerstetten - Germany

Company Mayr Polska Sp. z o. o.
Address Rojów, ul. Hetmanska 1
63-500 Ostrzesów - Poland

- END OF DOCUMENT -



© Mikroschalter / micro switch
Initiator / proximity switch



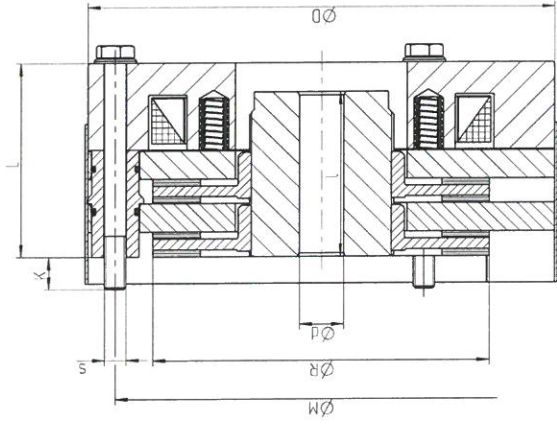
3 0. SEP. 2015

GEPRÜFT / APPROVED
TUV SUD Industrie Service GmbH
Prüflaboratorium für Produkte der Fördertechnik
Westendstraße 199
80686 München
Sachverständigenbüro / Expert

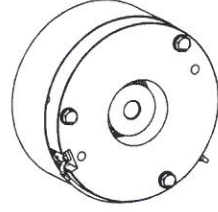
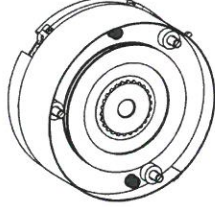
M. Nappun

① Maße variabel:
Zulässige Bohrungsdurchmesser, Nabenlängen und Einschraubtiefen sind vom Drehmoment der Bremse abhängig und können an vorgegebene Wellenenden bzw. Motorflansche angepasst sein.
Dimensions variable:
Permitted bore diameters, hub lengths and screw in depth are dependent on braking torque an could be adapted to specified motor shafts and motor flanges.

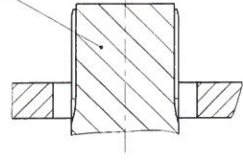
Größe	Bohrung $\frac{11}{d}$	$\frac{11}{D} \pm 5$	$\frac{11}{D} \pm 4$	$\frac{11}{D} \pm 4$	$\frac{11}{L}$	$\frac{11}{K}$	$\frac{11}{S}$
300	26-59	261	168	230	109.4	93	3xM12
500	40-69	285	213	250	120.6	102	6xM12
800	45-79	329	246	290	133.7	122	6xM16
1300	56-95	370	283.5	330	143.7	142	8xM16
1800	66-104	415	320	370	148.7	152	8xM16



optional



Sonderausführungen
alternativ mit
direktverzahnter
Motorwelle /
special designs
alternative with
splined motor shaft



Technische Zeichnung		Kunden		Baujahr		* Abweich. v. Lieferst.	
Zeichnungs-Nr.	01.02.05	Best-Nr.	11.08.00	Baujahr	2017	Abweich.	
Titel	Brake	Best-Nr.	11.07.17	Baujahr	2017	Abweich.	
Proj.		Best-Nr.		Baujahr		Abweich.	
Abg.		Best-Nr.		Baujahr		Abweich.	
Prüf.		Best-Nr.		Baujahr		Abweich.	
Verstärkt-Ab.		Best-Nr.		Baujahr		Abweich.	
RSO 300-1800 / 896.2		Zeichnungsnummer		E07909200000260		Abweich.	
1:2		Form		E07909200000260		Abweich.	
1:2		Form		E07909200000260		Abweich.	

EU – Konformitätserklärung
EU – Declaration of conformity
Déclaration de conformité UE
Dichiarazione di conformità UE
Declaración de conformidad de la UE
Declaração de conformidade da UE

Im Sinne der Richtlinie Aufzüge 2014/33/EU erklären wir
In terms of the Directive 2014/33/EU relating to lifts, we
Conformément à la directive 2014/33/UE sur les ascenseurs, nous déclarons par la présente,
Secondo la Direttiva per ascensori 2014/33/UE, la presente
En el sentido de la Directiva 2014/33/UE sobre ascensores
Nos termos da diretiva 2014/33/UE declaramos

Chr. Mayr GmbH + Co. KG
Eichenstraße 1
D-87665 Mauerstetten

dass die angeführten Produkte den Anforderungen der oben genannten EU-Richtlinie entsprechen.
declare that the listed products meet the requirements of the above mentioned EU Directive.
que les produits décrits satisfont aux exigences de la directive UE susmentionnée.
dichiara che i prodotti sotto elencati soddisfano i requisiti della suddetta Direttiva UE.
declaramos que los productos indicados arriba cumplen los requisitos de la Directiva UE.
que os produtos abaixo mencionados correspondem às exigências da diretiva UE supramencionada.

Elektromagnetische Federdruckbremse / Electromagnetic spring applied brakes / Freins électromagnétiques à ressort de pression / Freni elettromagnetici a molle compresse / Frenos de muelles electromagnéticos / Freio eletromagnético de molas

Produkt / Product / Produit / Prodotto / Producto / Produto	Größen / Sizes / Tailles / Grandezze / Dimensión / Dimensão	Typen / Types / Types / Serie / Tipos / Tipos	ANVP
ROBA-stop®-silenzio®	300/500/800/1300/1800	896.2 _ _ _ _	1, **, ***

Jahr der Herstellung: *Year of manufacture:* **Siehe Typenschild am Produkt**
Année de production: *see product label*
Anno di produzione: **Voir l'étiquette sur le produit**
Año de fabricación: *vedi l'etichetta sul prodotto*
Ano de fabricação: **ver placa de identificación del producto**
Ver placa do produto

Mauerstetten, gültig ab dem 20.4.2016

Ort und Datum / place and date / Lieu et date /
luogo – data / fecha y lugar / Lugar e data


 Dipl. Ing. (FH) / graduate engineer / Engenheiro graduado
 Geschäftsführer / Managing Director / Directeur Général / Gerente / Gerente
 Günther Klingler

Angewendete Normen, Vorschriften und Prüfungen (ANVP) / Applied standards, regulations and inspections (ANVP) / Normes, prescriptions et contrôles appliqués (ANVP) / In conformità alle direttive UE di norme, specifiche e controlli (ANVP) / Normas, regulaciones e inspecciones aplicadas (ANVP) / Normas, regulamentações e inspeções aplicadas (ANVP)

1	EN 81-20:2014 / EN 81-50:2014 / EN 81-1:1998 + A3:2009	Sicherheitsregeln – Konstruktion u. Einbau von Aufzügen Safety rules – Construction and installation of lifts Règles de sécurité – construction et installation d’ascenseurs Regole di sicurezza per la costruzione e il montaggio di ascensori Reglas de seguridad – Construcción y montaje de ascensores Regras de segurança – Construção e instalação de elevadores	2014/33/EU 2014/33/EU 2014/33/UE 2014/33/UE 2014/33/UE 2014/33/UE
---	--	---	--

Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile, Überwachung gemäß Aufzugsrichtlinie:

Certification body for lifts and safety components, monitoring of production acc. lifts directive:

Organisme de certification pour ascenseurs et composants de sécurité, contrôle de production selon la directive sur les ascenseurs:

Organismo di certificazione per ascensori e componenti di sicurezza, controllo di produzione secondo la Direttiva per ascensori :

Centro de certificación para ascensores y componentes de seguridad, supervisión según la directiva de ascensores:

Centro de certificação para elevadores e componentes de segurança, monitoramento conforme a diretiva para elevadores:

**© TÜV SÜD Industrie Service GmbH
Westendstraße 199
D-80686 München**

Kennnummer 0036 / Identification number 0036 / Numéro d’identification 0036 / Numero d’identificazione 0036 / Número de identificación 0036 / Número de identificação 0036 /

Sicherheitsfunktion / Safety function / Fonction de sécurité / Funzione di sicurezza / Función de seguridad / Função de segurança

Bremseinrichtung, als Teil der Schutzeinrichtung für den aufwärtsfahrenden Fahrkorb gegen Übergeschwindigkeit und Bremselent gegen unbeabsichtigte Bewegung des Fahrkorbs.

Braking device as part of the protection device against over speed for the car moving in upwards direction and braking element against unintended car movement.

Dispositif de freinage faisant partie d’un système de protection contre la survitesse en montée de la cabine d’ascenseur et élément de freinage contre le déplacement involontaire de la cabine d’ascenseur.

Dispositivo di frenatura come parte del dispositivo di protezione contro la fuga verso l’alto della cabina e elemento di frenatura contro i movimenti incontrollati della cabina.

Dispositivo de frenado como parte de un dispositivo de seguridad contra la sobrevelocidad de la cabina en movimiento ascendente y como elemento de frenado contra movimientos incontrolados de la cabina.

Dispositivo de freio para ser usado como parte da unidade de proteção para prevenir excesso de velocidade da cabine elevadora em movimento ascendente e elemento de freio contra movimentos inadvertidos da cabine elevadora.

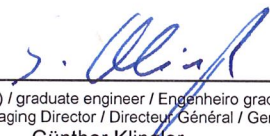
EU-Baumusterprüfbescheinigung / EU type examination certificate / Certificate d’examen de type UE / Certificato di omologazione UE / Certificado de examen UE / Certificado de exame UE

EU-BD 762

*	* EG-Maschinenrichtlinie 2006/42/EG * Directive 2006/42/CE sur les machines * Directiva de Máquinas 2006/42/CE	* EC-Machinery directive 2006/42/EC * Direttiva macchine 2006/42/CE * Diretiva para maquinaria 2006/42/CE
X	** Richtlinie Niederspannung 2014/35/EU ** Directive 2014/35/UE sur les basses tensions ** Directivas de Baja Tensión 2014/35/UE	** EC-Low voltage directive 2014/35/EU ** Direttiva per il basso voltaggio 2014/35/UE ** Diretiva de baixa voltagem 2014/35/UE
X	*** Elektromagnetische Verträglichkeit 2014/30/EU *** Directive 2014/30/UE sur la compatibilité électromagnétique *** Compatibilidad Electromagnética 2014/30/UE	*** Electromagnetic compatibility directive 2014/30/EU *** Direttiva per la compatibilità elettromagnetica 2014/30/UE *** Diretiva de compatibilidade eletromagnética 2014/30/UE

Mauerstetten, gültig ab dem 20.4.2016

*Ort und Datum / place and date / Lieu et date /
luogo – data / fecha y lugar / Lugar e data*


Dipl. Ing. (FH) / graduate engineer / Engenheiro graduado
Geschäftsführer / Managing Director / Directeur Général / Gerente / Gerente
Günther Klingler

Certificate concerning the examination of traction sheave shaft calculation including shaft to collar connections

Neuhausen, den 14. Januar 2016

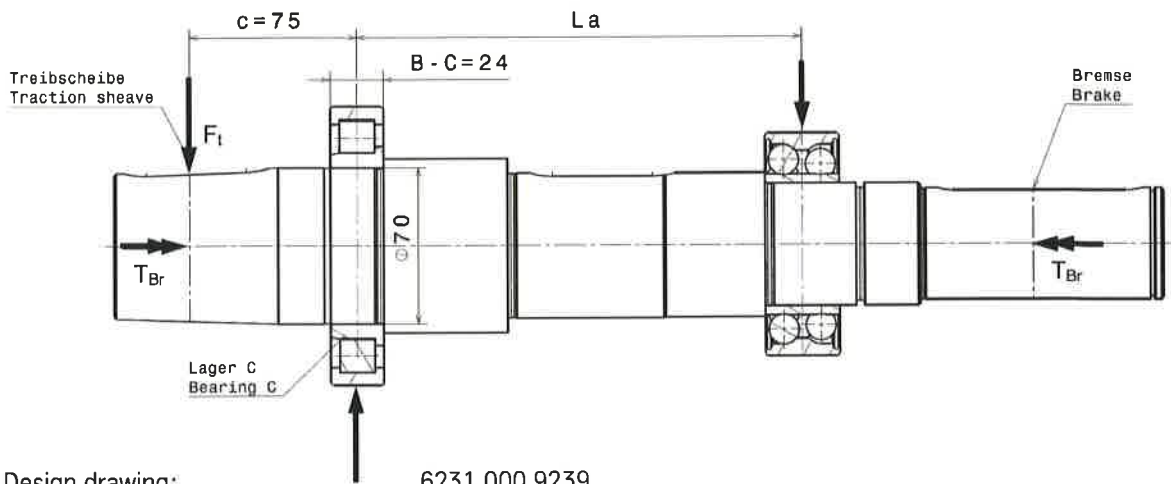
Lift machine type: TW45

Brake type: RSO 500 – 1200Nm according
 • EC-Type – Examination ABV 762/x
 • EC-Type – Examination EU-BD 762/x

Manufacturer: ThyssenKrupp Aufzugswerke GmbH
 Bernhäuser Str.45, 73765 Neuhausen a.d.F.

Object examined: Calculation of traction sheave shaft including shaft to collar connections

Examination basis: DIN743, DIN743, machine elements Niemann/Winter/Höhn (2005)



Design drawing: 6231 000 9239
Material: C60R +N (1.1223)

Load data:

Distance traction sheave c	Bearing distance La	Max. shaft load Ft	Nominal brake torque T _{Br}	Max. brake torque 1,6 x T _{Br}
(mm)	(mm)	(kN)	(Nm)	(Nm)
75	200	30	1200	1920

Examination result:

For the examination calculations were carried out based on the examination basis. The result was that the traction sheave shaft and the shaft to collar connections were designed according the maximum load data. The remarks in the maintenance instructions are to be observed. The conditions mentioned in annex the EC Type-Examination Certificate no. ABV762/x respectively EC Type-Examination Certificate EU BD 762/x are herewith fulfilled.

(Signature)

 (Executive board)

(Signature)

 (Engineering CCU-TD)

ThyssenKrupp Aufzugswerke GmbH
 Company domicile: Neuhausen a.d.F., Commercial register: Stuttgart HRB 213575
 Postal address: P.O. Box 23 03 70, 70623 Stuttgart, Germany
 Chairman of the Supervisory Board: Alexander Keller
 Executive Board: Jürgen Kern (CEO), Jörg Schulz

[Certificate traction sheave shaft TW45_Mayr RSO 500_14-01-2016.doc]

ThyssenKrupp Aufzugswerke

Certificate concerning the examination of traction sheave shaft calculation including shaft to collar connections

Neuhausen, den 14. Januar 2016

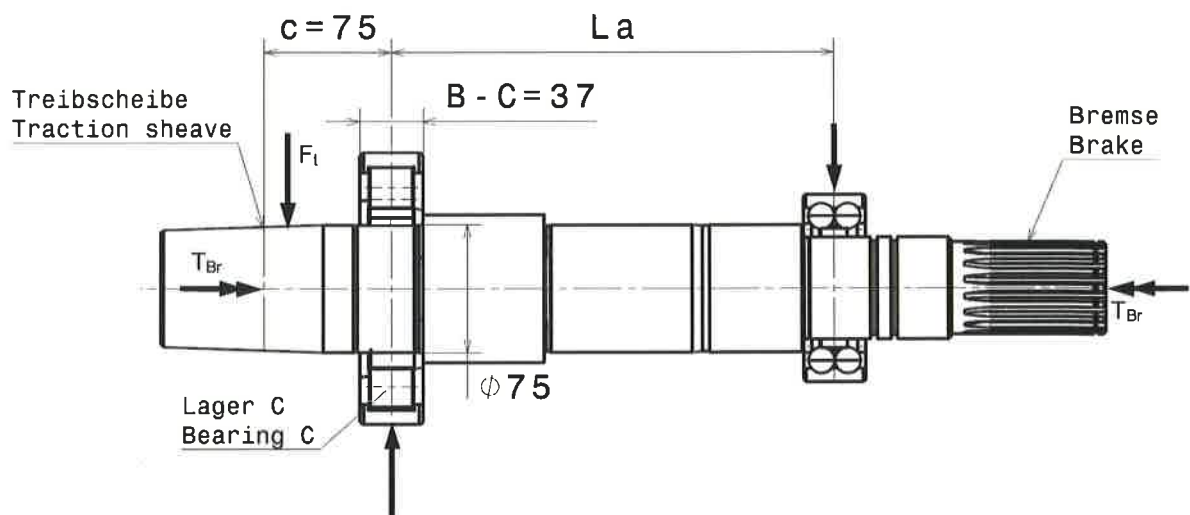
Lift machine type: TW63

Brake type: RSO 800 – 2200Nm according
 • EC-Type – Examination ABV 762/x
 • EC-Type – Examination EU-BD 762/x

Manufacturer: ThyssenKrupp Aufzugswerke GmbH
 Bernhäuser Str.45, 73765 Neuhausen a.d.F.

Object examined: Calculation of traction sheave shaft including shaft to collar connections

Examination basis: DIN743, DIN743, machine elements Niemann/Winter/Höhn (2005)



Design drawing: 6232 000 9237
Material: 42CrMoS4+QT (1.7227) or 42CrMo4+QT (1.7225)

Load data:

Distance traction sheave c	Bearing distance La	Max. shaft load Ft	Nominal brake torque T _{Br}	Max. brake torque 1,6 x T _{Br}
(mm)	(mm)	(kN)	(Nm)	(Nm)
75	260	42	2200	3520

Examination result:

For the examination calculations were carried out based on the examination basis. The result was that the traction sheave shaft and the shaft to collar connections were designed according the maximum load data. The remarks in the maintenance instructions are to be observed. The conditions mentioned in annex the EC Type-Examination Certificate no. ABV762/x respectively EC Type-Examination Certificate EU BD 762/x are herewith fulfilled.


 (Executive board)


 (Engineering CCU-TD)

ThyssenKrupp Aufzugswerke GmbH
 Company domicile: Neuhausen a.d.F., Commercial register: Stuttgart HRB 213575
 Postal address: P.O. Box 23 03 70, 70623 Stuttgart, Germany
 Chairman of the Supervisory Board: Alexander Keller
 Executive Board: Jürgen Kern (CEO), Jörg Schulz

[Certificate traction sheave shaft TW63_Mayr RSO 800_14-01-2016.doc]