



Industrie Service

EU TYPE-EXAMINATION CERTIFICATE

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

Certificate No.: EU-BD 766

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: RSR/8010.____, Size 200, 400, 600, 800, 1000, 1500

Directive: 2014/33/EU

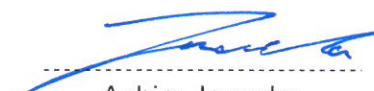
Reference Standards: EN 81-20:2014
EN 81-50:2014
EN 81-1:1998+A3:2009

Test Report: EU-BD 766 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 766 of 2015-09-30**



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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]
200	200 - 560	811
200 „lang“	500 - 700	820
400 „kurz“	420 - 840	708
400 „lang“	750 - 1200	1011
600	1000 - 1600	500
800	1300 - 1900	400
1000	1840 - 2400	400
1500	2400 - 3600	400

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]		
				parallel without overexcitation / seriell 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“ - leistungsopti- miert		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

Annex to the EC Type-Examination Certificate No. EU-BD 766 of 2015-09-30



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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, 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
Brake control	parallel or serial
Nominal air gap	0.45 mm
Damping elements	YES
Overexcitation (Seize 200 – 1000)	at 1.5 non-release voltage
Overexcitation (Seize 1500)	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 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.
- 2.4 The setting of the brake torque has to be secured against unauthorized adjustment (e. g. sealing lacquer).
- 2.5 The identification drawing no. E02801000000161 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.
- 2.6 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.

Annex to the EC Type-Examination Certificate
No. EU-BD 766 of 2015-09-30



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 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 and as braking element as part of the protection device against unintended car movement.
- 3.3 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.
- 3.4 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.
- 3.5 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
- 3.6 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 766 of 2015-09-30**



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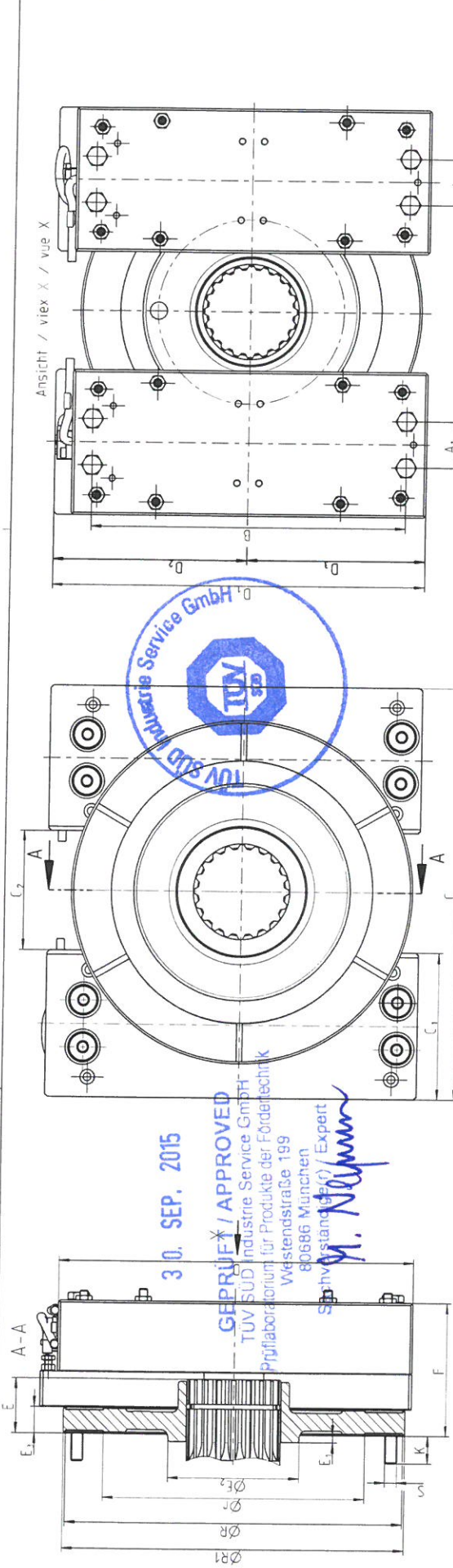
Authorised Manufacturer of Serial Production – Production Sites (valid from: 2016-01-13):

Company Address	Chr. Mayr GmbH & Co. KG Eichenstr. 1 87665 Mauerstetten - Germany
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Company Address	Mayr Power Transmission Co. Ltd. 7 Fuxin Road, Jiangsu Province 215637 Zhangjiagang - P.R. China
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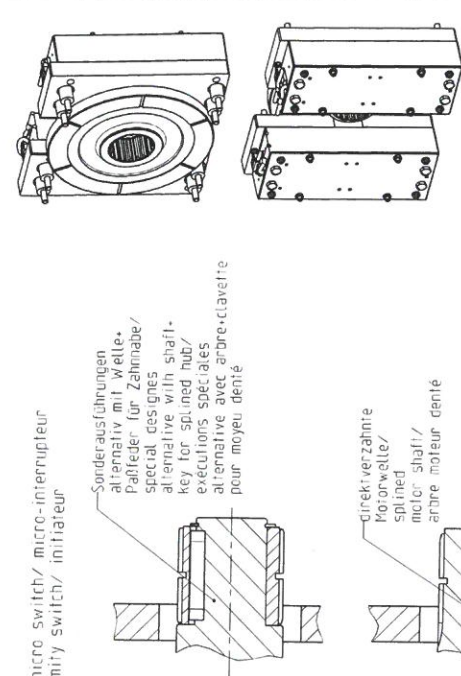
Company Address	Mayr Polska Sp. z o. o. Rojów, ul. Hetmanska 1 63-500 Ostrzesów - Poland
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- 1) = Maße variabel, alternative Befestigungsschrauben mit entsprechendem Festigkeitsnachweis/
dimensions variable, alternative bolts with relevant stressability proof/
Dimensions variables, autres vis de fixation possibles avec contrôle de qualité correspondant.
- 2) = alternative Verzahnungen mit entsprechendem Festigkeitsnachweis/
autres cames/engrenages avec contrôle de qualité correspondant
- 3) = alternative Rotor Durchmesser mit entsprechendem Befestigungsnachweis/
alternative rotor diameters with relevant calculation of spring configuration/
Autres diamètres de rotor possibles avec contrôle des ressorts correspondant

Große/ size/ taille	Bremsmomente/ braking torque/ couples de freinage	max. Ausdrehzahl/ max. speed/ vitesse max.	Verzahnungen der Motorwelle DIN EN 15000 gear / Engrenages tech DIN EN 15000 Cannelures techniques de l'arbre du 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 ₁	S	Øx
200	2x100 bis 2x260	811	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	M8
200 lang	2x250 bis 2x350	620	65 x 3 x 20 67 x 3 x 21 72 x 3 x 22	147	28	235	275	100	75	264	275	144	132	35	13.5	90	18	91.1	19	180	232	235	M8
400 kurz	2x210 bis 2x420	708	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	1011	72 x 3 x 22 82 x 3 x 26 90 x 3 x 28	128	42	256	290	120	50	290	303	157	146	35	17	90	18	101.1	19	200	250	253	M10
600	2x500 bis 2x800	500	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	291	M12
800	2x650 bis 2x950	400	82 x 3 x 26 90 x 3 x 28 98 x 4 x 3	169	56	300	375	150	75	336	349	181	166	41	20	124	20	108.1	22	250	311	315	M12
1000	2x920 bis 2x1200	400	90 x 3 x 28 98 x 4 x 3 115.9 x 5 x 22	175	60	342	395	160	75	380	393	203	190	41	24	135	20	108.1	22	280	344	348	M16
1500	2x1200 bis 2x1800	400	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



RSR Baugröße 200 - 1500
Type 8010

Zeichnungsnummer: E02801000000161

Druck: 1:2

1788357

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

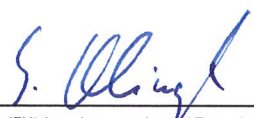
Produkt / Product / Produit / Prodotto / Producto / Produto	Größen / Sizes / Tailles / Grandezze / Dimensión / Dimensão	Typen / Types / Types / Serie / Tipos / Tipos	ANVP
ROBA®-duplostop®	200/400/600/800/1000/1500	8010. _ _ _ _ _	1, **, ***

Jahr der Herstellung:
Year of manufacture:
Année de production:
Anno di produzione:
Año de fabricación:
Ano de fabricação:

Siehe Typenschild am Produkt
see product label
Voir l'étiquette sur le produit
vedi l'etichetta sul prodotto
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
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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 Bremsselement 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 766

	* 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 / April 04th, 2016

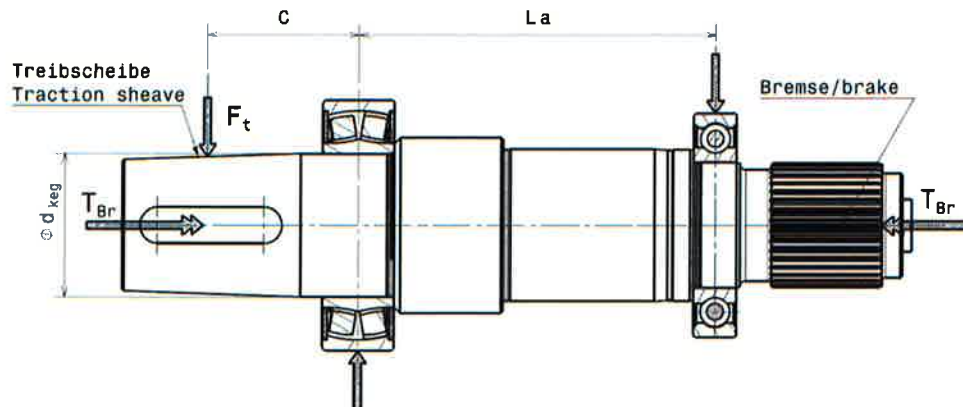
Lift machine, type: **PMC125S0/M0/LO**

Brake type: **RSR 200/8010.00013 S** for PMC125S0
RSR 400/8010.20013 S for PMC125M0
RSR 400/8010.10013 S for PMC125LO
 according EC-Type – Examination ABV 766/3 respectively
 EC-Type – Examination EU-BD 766

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, Roloff / Matek 1994 (DIN254)



Design drawing: 6251 000 0560
 6251 000 0550
 6251 000 0574

Material: C45R +N (1.1201)

Load data:

Machine	Max. Shaft load F_t	Nominal brake torque T_{Br}	Max. brake torque $2,0 \times T_{Br}$	Taper diameter d_{keg}	Distance traction sheave C	Bearing distance La
	(kN)	(Nm)	(Nm)	(mm)	(mm)	(mm)
PMC125S0	13	2 x 210	840	70	60.5	143
PMC125M0	14	2 x 300	1200	70	60.5	158
PMC125LO	25	2 x 500	2000	80	85	200

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 2.4 of the EC-Type-Examination Certificate no. ABV766/3 respectively EC-Type-Examination Certificate EU-BD 766 are herewith fulfilled.



(Executive board)



(Head of TKEI TD)

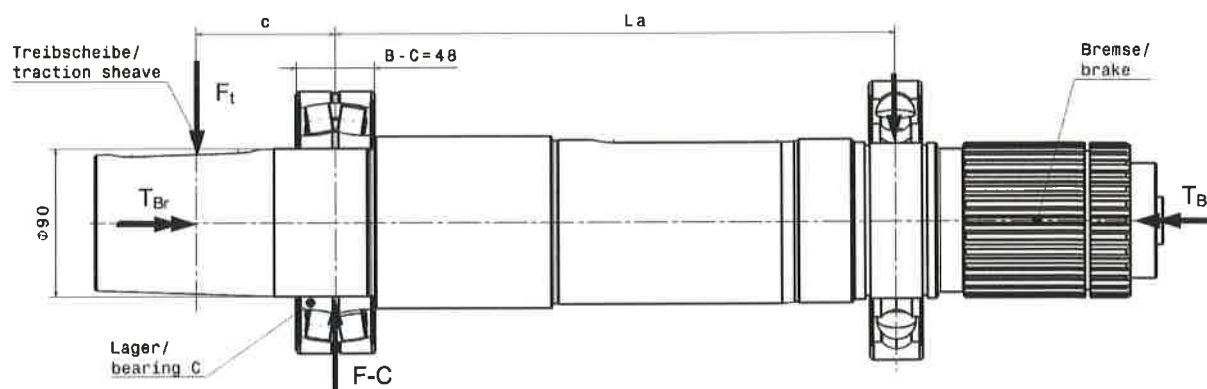
Certificate concerning the examination of traction sheave shaft calculation including shaft to collar connections

Neuhausen, March 22nd 2016

Lift machine type: DAF270S/M/L

Brake type: RSR 1500 – 2x1700Nm according
 • EC-Type – Examination ABV 766/x
 • EC-Type – Examination EU-BD 766/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)



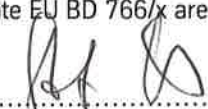
Design drawing: 6243 000 9612 (DAF270S), 6243 000 9523 (DAF270M),
 6243 000 9522 (DAF270L)
Material: 42CrMoS4+QT (1.7227) or 42CrMo4+QT (1.7225)

Load data:

Lift machine type	Distance Traction sheave c	Bearing Distance La	Max. Shaft load Ft	Nominal brake torque TBr	Max. brake torque 1,6 x TBr
	(mm)	(mm)	(kN)	(Nm)	(Nm)
DAF270M	85	341,5	58	2x1700=3400	5440
DAF270S/M	117,5	341,5	43,5		
DAF270S/M	111,5	341,5	47		
DAF270L	111,5	462,5	47		
DAF270L	85	462,5	58		

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. ABV766/x respectively EC Type-Examination Certificate EU BD 766/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 DAF270S-M-L_Mayr RSR1500_22-03-2016.doc]