



Industrie Service

# EU TYPE-EXAMINATION CERTIFICATE

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

**Certificate No.:** EU-BD 703

**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:** RSD 500/891 \_ \_ \_ . \_ , Size 500

**Directive:** 2014/33/EU

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

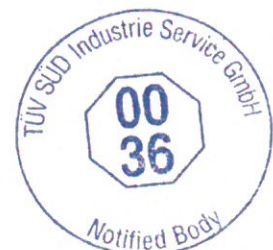
**Test Report:** EU-BD 703 of 2015-09-30

**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 703 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 torque and tripping rotary speed**

1.1.1 Permissible brake torque when the braking device acts on the shaft of the traction sheave while the car is moving upward 1379 Nm

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 below 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)  
 $\pi$  = 3,14  
 $n$  = Rotary speed (rpm)  
 $i$  = Ratio of the car suspension

Maximum tripping rotary speed of the traction sheave 473 rpm

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

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

Size	Nominal brake torque* [Nm]	Maximum response times** [ms]		
		without / with overexcitation		
		$t_0$	$t_{50}$	$t_{90}$
500	2 x 520 = 1040	35 / 45	80 / 100	120 / 150

**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	serial
Nominal air gap	0.50 mm
Damping elements	YES
Overexcitation	at double non-release voltage
Maximum tripping rotary speed of the traction sheave	473 rpm

**Annex to the EC Type-Examination Certificate  
No. EU-BD 703 of 2015-09-30**



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**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. E07910000000261 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.

**3 Remarks**

- 3.1 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.
- 3.2 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 703 of 2015-09-30**



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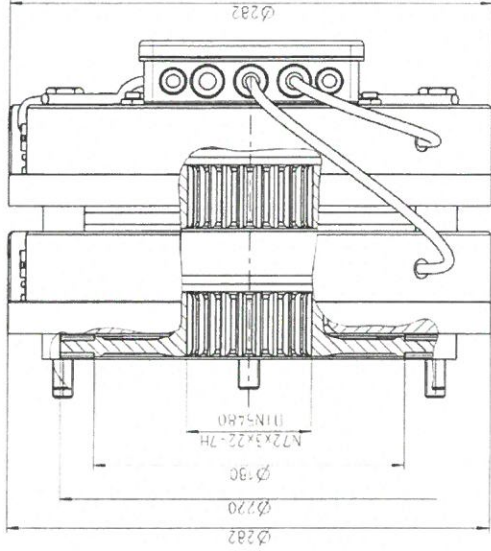
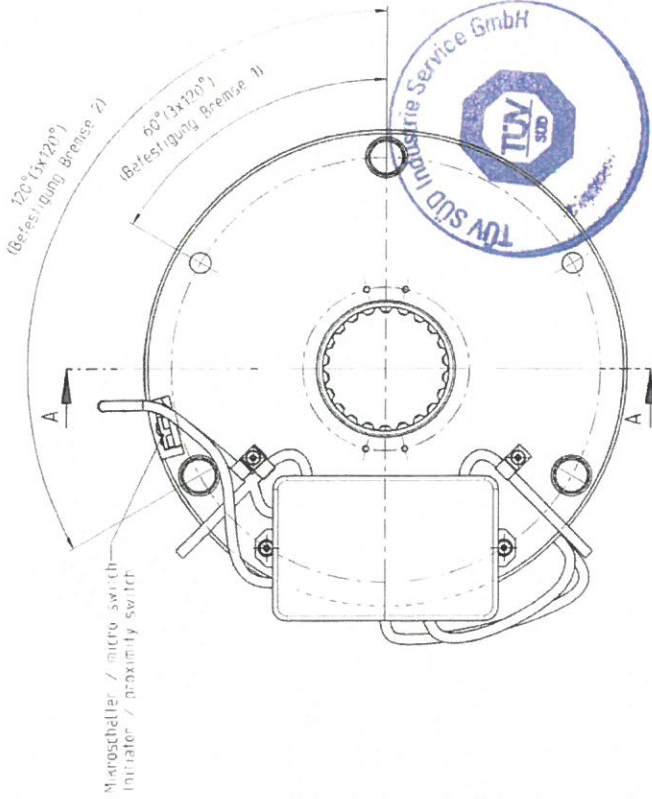
**Authorised Manufacturer of Serial Production – Production Sites (valid from: 2015-09-30):**

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

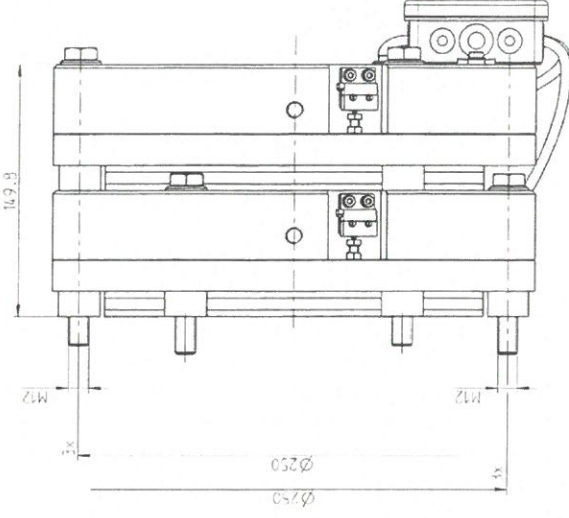
**Company** Mayr Polska Sp. z o.o.  
**Address** Rojów, ul. Hetmanska 1  
63-500 Ostrzesów - Poland

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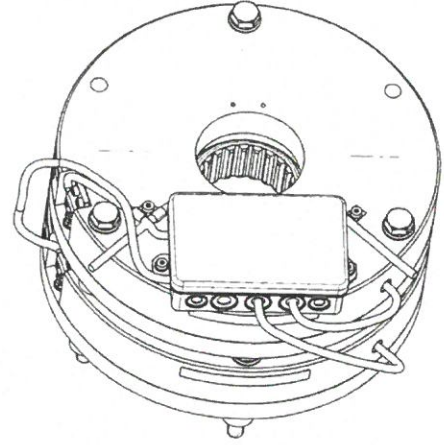
Bremse 2



30. SEP. 2015

GEPRÜFT / APPROVED  
 TÜV SÜD Industrie Service GmbH  
 PrüfLabor für Produkte der Forsttechnik  
 Westertstraße 199  
 85686 München  
 Sachverständiger / Expert

*H. Napp*  
 Sachverständiger / Expert



30.09.2015 12 500	09.09.2015 12 500	09.09.2015 12 500	09.09.2015 12 500
RSD 500/891.110.9 S ROBA-stop-duo		E07910000000261	

**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® -duo	500	891.____	1, **, ***

<b>Jahr der Herstellung:</b> <i>Year of manufacture:</i> <b>Année de production:</b> <i>Anno di produzione:</i> <b>Año de fabricación:</b> <i>Ano de fabricação:</i>	<b>Siehe Typenschild am Produkt</b> <i>see product label</i> <b>Voir l'étiquette sur le produit</b> <i>vedi l'etichetta sul prodotto</i> <b>ver placa de identificación del producto</b> <i>Ver placa do produto</i>
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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 Bremselentgegen 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 703**

	* 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

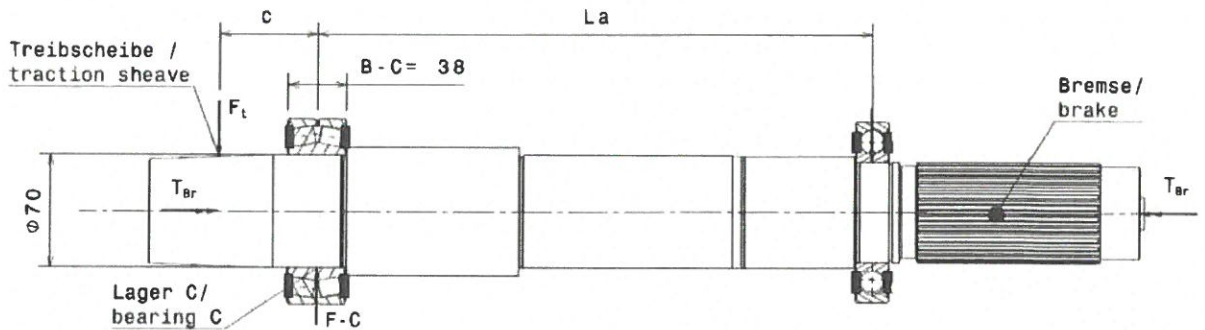
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 Dipl. Ing. (FH) / graduate engineer / Engenheiro graduado  
 Geschäftsführer / Managing Director / Directeur Général / Gerente / Gerente  
 Günther Klingler

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

Neuhausen, den 14. Januar 2016

**Lift machine type:** DAF210M  
**Brake type:** ROBA-stop RSD 500 – 2x520Nm according  
 • EC-Type – Examination ABV 703/x  
 • EC-Type – Examination EU-BD 703/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:** 6149 000 3098  
**Material:** C60R+N (1.1223)

**Load data:**


Distance traction sheave $c$	Bearing distance $La$	Max. shaft load $F_t$	Nominal brake torque $T_{Br}$	Max. brake torque $1,68 \times T_{Br}$
(mm)	(mm)	(kN)	(Nm)	(Nm)
58	292,5	37	$2 \times 520 = 1040$	1747

**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. ABV703/x respectively EC Type-Examination Certificate EU BD 703/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 DAF210M\_Mayr RSD 500\_14-01-2016.doc]