Nidec

All for dreams

*Instalación y mantenimiento*

# *GEARLESS XAF*

*Motores de corriente alterna para ascensores*

Referencia: 4317 es - 2017.08 / g

LEROY-SOMER™

## ADVERTENCIA GENERAL

En el documento, los símbolos  se utilizan cada vez que se deban tomar en consideración algunas precauciones particulares durante la instalación, la utilización y el mantenimiento ordinario y extraordinario de los motores.

La instalación de los motores eléctricos debe ser efectuada, obligatoriamente, por personal debidamente cualificado, competente y habilitado.

Durante la instalación de los motores en las máquinas deber estar garantizada la seguridad de las personas, de los animales y de los bienes, en aplicación de los requisitos esenciales previstos por las Directivas CEE.

Deberá prestarse una atención especial a las conexiones equipotenciales de masa y a la toma de tierra.

**Antes de actuar sobre un motor bloqueado deberán adoptarse las siguientes precauciones:**
- **comprobar la ausencia de tensión de red o de tensiones residuales;**
- **llevar a cabo un examen detenido de las causas del bloque (bloqueo de la transmisión, interrupción de fase, interrupción debida a la protección térmica, avería del sistema de lubricación...).**

 **Incluso en ausencia de alimentación, los bornes de un motor síncrono de imanes en rotación permanecen en tensión.**
**Por consiguiente, antes de actuar, compruebe atentamente que el motor no esté en rotación.**

 **Sólo en el caso de desmontaje del motor XAF**

**El ensamblaje o el mantenimiento del rotor no deben ser llevados a cabo por personas con estimuladores cardiacos y otros dispositivos electrónicos médicos.**
**El rotor del motor contiene un campo magnético potente. Cuando se separa el rotor del motor, su campo magnético puede perjudicar el funcionamiento de los estimuladores cardiacos o la regulación de dispositivos digitales como relojes, teléfonos móviles, etc.**

*Estimado cliente,*

*Acaba Vd. de adquirir un motor LEROY-SOMER.*

*Este motor, que incorpora la experiencia de uno de los principales fabricantes mundiales, utiliza tecnologías punteras (automatización, materiales seleccionados, riguroso control de calidad) que han permitido a los organismos de certificación y homologación conceder a nuestras fábricas de motores la certificación internacional* ***ISO 9001, Edición 2000 del DNV****. Además, nuestro enfoque ecológicamente compatible nos ha permitido obtener la certificación* ***ISO 14001: 2004.***

*Los productos para aplicaciones particulares o destinados a funcionar en ambientes específicos también están homologados o certificados por organismos como CETIM, LCIE, DNV, ISSEP, INERIS, CTICM, UL, BSRIA, TUV, CCC y GOST los cuales comprueban sus prestaciones técnicas en relación con las diferentes normas o recomendaciones.*

*Agradecemos que haya optado por nosotros y le deseamos que centre su atención en el contenido de este manual.*

*El respeto de algunas reglas esenciales permitirá asegurar un funcionamiento sin problemas durante muchos años.*

*MOTORES LEROY-SOMER*

## CONFORMIDAD CE

Los motores cumplen con la norma EN 60034 (IEC 34) y por lo tanto son conformes a la Directiva de Baja Tensión 73/23/CEE modificada por la Directiva 93/68, tal y como queda indicado por la sigla CE

LEROY SOMER

MOTEURS LEROY-SOMER
USINE

**DECLARACION DE CONFORMIDAD E INCORPORACION**

El fabricante MOTEURS LEROY-SOMER declara que los componentes:

cumplen la norma armonizada EN 60 034 (IEC 34) y responden pues a las prescripciones fundamentales de la Directiva Baja Tensión 73-23 EEC del 19 de febrero 1973 modificada por la Directiva 93-68 EEC del 22 de julio 1993.

Los componentes así definidos responden también a las prescripciones fundamentales de la Directiva Compatibilidad Electromagnética 89-336 EEC del 3 de mayo 1989 modificada por las Directivas 92-31 CEE del 28 de abril 1992 y 93-68 CEE del 22 de julio 1993, si utilizados dentro de ciertos límites de tensión (IEC 34).

Estas conformidades permiten utilizar estas gamas de componentes en una máquina sujeta a la aplicación de la Directiva Máquinas 98/37/CE, con reserva de que su integración o incorporación sea efectuada conformemente, entre otras, a las reglas de la norma EN 60204 "Equipamiento Eléctrico de las Máquinas" y a nuestras instrucciones de instalación.

Los componentes antedichos podrán ser puestos en servicio sólo después de que la máquina donde están incorporados haya sido declarada conforme a las correspondientes directivas aplicables.

Nota : Cuando los componentes están alimentados con convertidores electrónicos adaptados y/o sometidos a dispositivos electrónicos de control y comando, han de ser instalados por un profesional que asuma la responsabilidad del respeto de las reglas de compatibilidad electromagnética en el país donde la máquina es utilizada.

Declarante

En
el

Director Calidad
MOTEURS LEROY-SOMER

Firma



**NOTA:**
LEROY-SOMER se reserva el derecho de modificar las características de sus productos en todo momento para incorporar a los mismos los últimos avances tecnológicos. Por consiguiente, la información contenida en el presente documento puede sufrir modificaciones sin previo aviso.

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Para utilizar de la mejor manera posible el motor Gearless XAF de MOTORES LEROY-SOMER que acaba de adquirir, es indispensable que respete las siguientes advertencias.

⚠ **El contacto con los componentes en tensión o en rotación puede causar quemaduras. No toque la carcasa del motor cuando esté en funcionamiento, pues su temperatura alcanzar generalmente unos valores muy elevados.**

**NOTA: la instalación y el mantenimiento ordinario y extraordinario deben ser efectuados sólo por personal cualificado. En caso de incumplimiento o aplicación errónea de las instrucciones suministradas en el presente manual, el fabricante no será responsable de los daños que puedan producirse.**

**La garantía es válida sólo si el producto, durante el periodo de garantía, no se desmonta parcial o totalmente sin la asistencia o la aprobación de LEROY-SOMER.**

⚠ **Antes de cualquier intervención sobre el motor o sobre los frenos, asegúrese de que la cabina esté completamente inmóvil.**

# 1 - RECEPCIÓN

Comprobaciones:
- cuando reciba el motor, asegúrese de la conformidad de la placa de identificación con las especificaciones contractuales;
- en el momento de entrega de la máquina, inspecciónela inmediatamente. Si la máquina ha sufrido daños durante el transporte, comuníquelo al transportista.

# 2 - ALMACENAJE

## 2.1 - Local de almacenaje

El local debe ser seco, protegido de la intemperie, del frío (temperatura superior a -15°C), de las variaciones de temperatura frecuentes (para eliminar los riesgos de condensación) y sin vibraciones, polvos ni gases corrosivos.

En caso de vibraciones en el almacén, se recomienda girar la polea de tracción por lo menos dos veces al mes. Para girarla, alimente los frenos.

Durante el transporte las gargantas de la polea a menudo se protegen mediante un barniz especial, el cual no se debe eliminar durante el almacenaje.

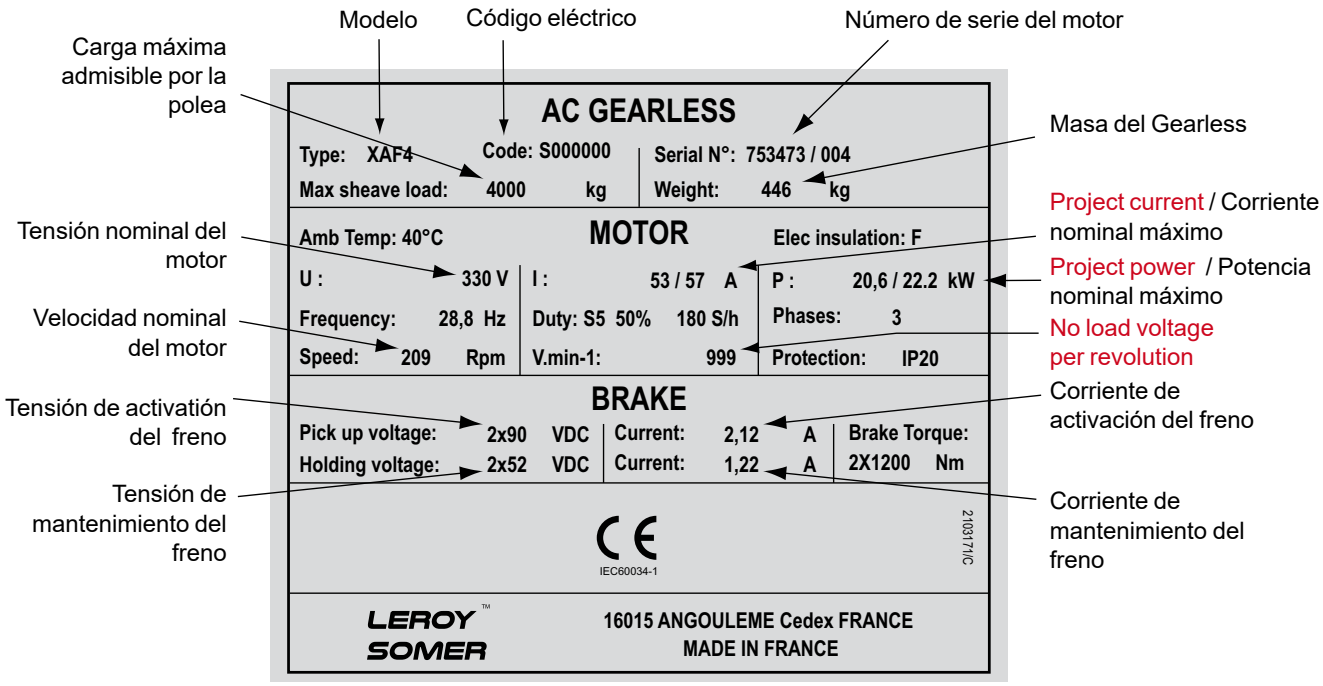



*Fig. 1: Placa de identificación*

## 2.2 - Almacenaje prolongado (> 3 meses)

Coloque la máquina en una envolvente impermeable precintada con una bolsa deshidratante correspondiente al volumen a proteger y al grado de humedad del lugar.

**Engrase**

**- Cojinetes no rengrasables**

Almacenaje máximo: 3 años. Una vez transcurrido este periodo, sustituya los cojinetes.

**- Cojinetes rengrasables**

| | | |
|---|---|---|
| Tiempo de almacenaje | Menos de 6 meses | La puesta en servicio del motor no requiere relubricación |
| | Más de 6 meses Menos de 1 año | Relubricar antes de la puesta en servicio, como se explica en la sección 5.3 |
| | Más de 1 año Menos de 5 años | Reemplazar totalmente el lubricante |

# 3 - AMBIENTE

Las características nominales se refieren al funcionamiento en un ambiente normalizado (IEC 60034-5):
- altura inferior o igual a 1000 m;
- índice de humedad máximo: 95%;
- temperatura comprendida entre 0 y 40°C.

Si en el momento del pedido se indican unas condiciones particulares, puede ser necesario desclasificar el motor.

# 4 - PUESTA EN SERVICIO

**ANTES DE LA INSTALACIÓN**

Si el almacenaje tiene una duración de varios meses, es indispensable comprobar el aislamiento entre las fases y el borne de masa del motor (mínimo 100 MΩ con una tensión continua de 500 V durante 60 segundos), después de haber desconectado todos los circuitos electrónicos, en caso necesario.

⚠ **No aplique el megóhmetro a los bornes de los detectores térmicos porque podrían dañarse.**

Si el valor no se alcanza, efectúe un secado por medio de calentamiento externo o interno.

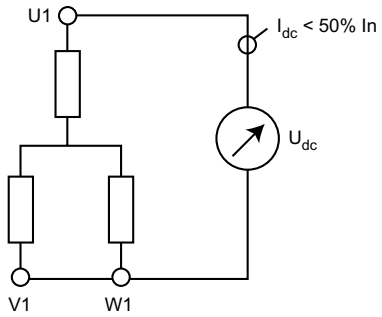



*Fig. 2:*

*Conexión de los bobinados para el secado a través de calentamiento interno*

**Secado por medio de calentamiento externo**

- Ponga el motor en un horno a 70°C un mínimo de 24 horas, hasta que se obtenga el aislamiento correcto (100 MΩ).
- Preste atención a aumentar gradualmente la temperatura, de manera que se evacue la condensación.
- Después de la fase de enfriamiento, con secado a temperatura ambiente, compruebe periódicamente el valor de aislamiento, el cual inicialmente tendrá la tendencia a disminuir más que a aumentar.

**Secado a través de calentamiento interno (Fig 2)**

- Conecte los bobinados de los motores V1 y W1 en paralelo con respecto a U1.
- Mida la resistencia entre U y V/W.
- Alimente con una corriente continua de baja tensión (para obtener el 10% de la corriente nominal calculada con las resistencias de los bobinados) y aumente la tensión hasta que la corriente alcance el 50% de la corriente nominal.
- Alimente el motor 4 horas. La temperatura del motor debería aumentar ligeramente.

⚠ **Si los frenos están aflojados, al ponerse en tensión, la polea se moverá ligeramente (bloqueo angular del rotor en relación con el estator).**

## 4.1 - INSTALACIÓN MECÁNICA

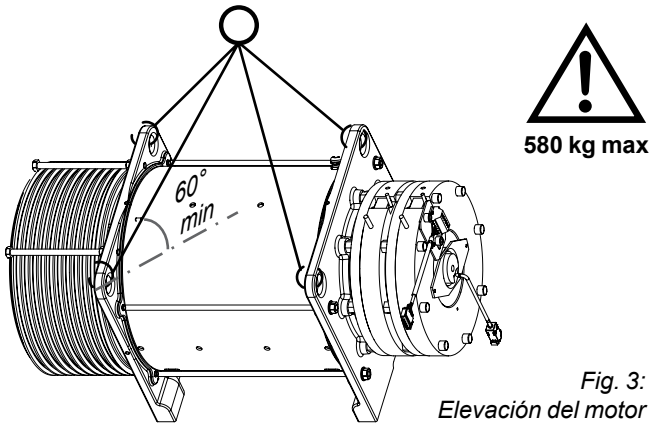



*Fig. 3:*
*Elevación del motor*
*(esquema de elevación no contractual)*

La instalación debe ser conforme con las características del motor indicadas en la placa de identificación (véase § 1).

Asimismo, debe prever el uso de dispositivos de seguridad eléctricos.

Asegúrese de que los aparatos de movilización (correas...) sean adecuados para el peso de la máquina.

Utilice los puntos de enganche disponibles en la máquina.

Compruebe que los cables estén en la posición correcta, para evitar que puedan dañarse.

Utilice protecciones mecánicas para evitar que las personas que trabajan en la máquina puedan engancharse o hacerse daño con la polea y/u otros cables.

Los motores deben instalarse de manera tal que el aire de enfriamiento (no demasiado cargado de humedad y sin polvo, vapor ni gases corrosivos) pueda circular libremente.

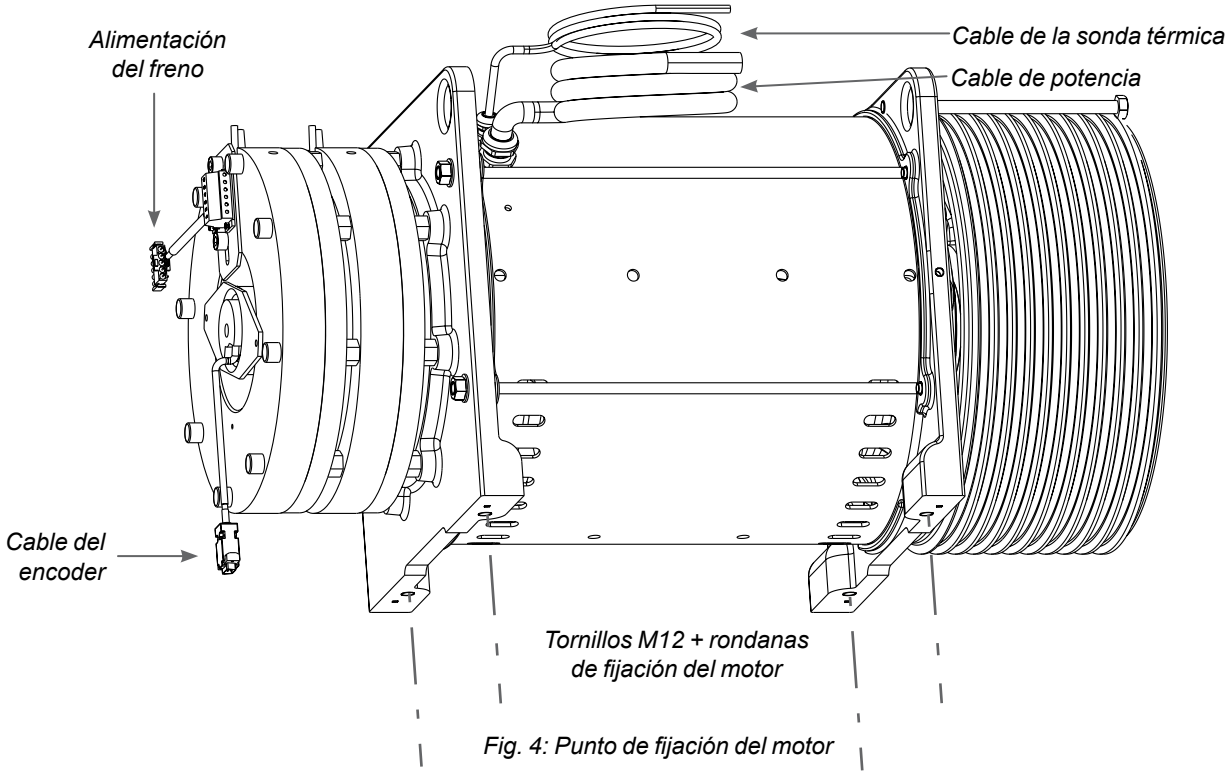



*Fig. 4: Punto de fijación del motor*

### 4.1.1 - Limpieza

- Alimente el freno para soltarlo (§4.2.2).
- Quite el barniz de protección de las gargantas de la polea.

⚠ **No utilice materiales abrasivos, sino sólo un paño humedecido en alcohol. Preste atención para evitar todo contacto entre el disco del freno y el alcohol o cualquier materia grasa.**

**ADVERTENCIA:** Utilice el alcohol en un ambiente bien ventilado.

### 4.1.2 - Instalación mecánica

- La máquina GEARLESS debe instalarse sobre un bastidor que no esté sometido a vibraciones y debe bloquearse con 4 tornillos M12 cl. 8.8 y rondanas apretadas a un valor de par de 83 Nm.
- Compruebe que los cables estén bien adaptados a la polea.

⚠ **Si el número de cables es inferior al número de gargantas de la polea, los cables deben estar lo más cerca posible del soporte del motor gearless.**

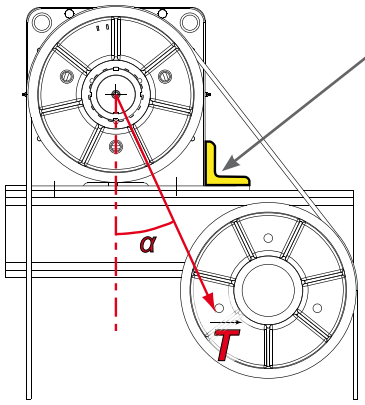
- Una vez instalados los cables, vuelva a montar y bloquee las protecciones.

⚠ **Preste mucha atención al riesgo de que los dedos queden atrapados entre los cables y la polea.**

### 4.1.3 - Uso de una polea de deflexión

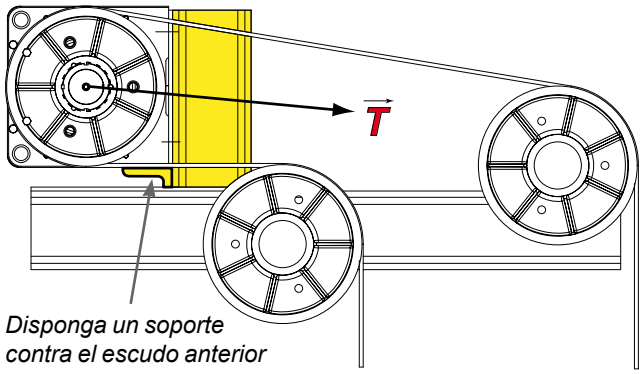
Si fuera necesario, utilice una polea de deflexión, debe estar montada tal y como se indica al margen ($\vec{T}$ es la fuerza generada por la acción de los cables sobre la polea).

**Deflexión simple:**




*Nota: si α > 40°, contacte con Motores Leroy-Somer para adoptar soluciones de montaje distintas*

**Deflexión doble:**

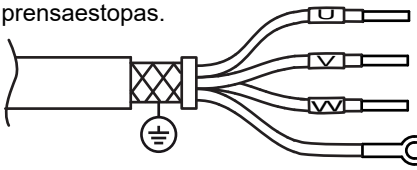



*Adapte la posición del motor de manera tal que la acción de los cables se ejerza en la dirección de los pies.*

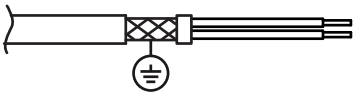
## 4.2 - Instalación eléctrica

### 4.2.1 - Cableado del motor y de la sonda térmica

Los blindajes de los cables deben estar conectados a la masa. En las salidas de los cables es necesario instalar unos prensaestopas.




*Cable alimentación motor*



*sonda térmica*

Connecte el motor por medio de cables de sección adecuada (las dimensiones de los cables y de las lengüetas dependen de la intensidad: véase la tabla siguiente).

| Nominal I (A) para fase | 9.5 | 12 | 16 | 25 | 34 | 40 | 46 |
|---|---|---|---|---|---|---|---|
| Sección mini cable (mm²) | 1.5 | 1.5 | 2.5 | 4 | 6 | 10 | 10 |

**El usuario deberá efectuar las conexiones según la legislación y las normas vigentes en el país de instalación. Esto es particularmente importante por lo que respecta a la sección de los cables, el tipo y la talla de los fusibles, la conexión de la tierra o de la masa, la interrupción de la tensión, la eliminación de las averías de aislamiento y la protección contra las sobrecorrientes. Esta tabla se proporciona a título de ejemplo y en ningún caso puede sustituir a las normas vigentes.**

**Las secciones aconsejadas están pensadas para un cable monoconductor de una longitud máxima de 10 metros; para medidas superiores tenga en cuenta las caídas en línea debidas a la longitud.**

Compruebe, en particular, el ajuste de las tuercas en los bornes. Un ajuste inadecuado puede causar la destrucción de las conexiones por efecto del calentamiento (véase la fig. 6).

- Connecte los cables de potencia a los bornes U1, V1 y W1, según la norma IEC 600034-1.
- Conecte la sonda térmica al variador.
- Conecte la masa del motor a tierra.

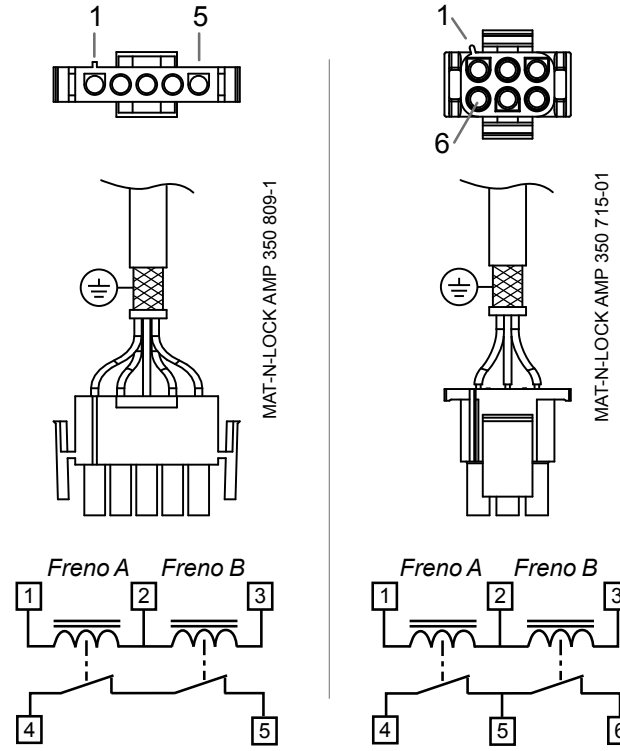
### 4.2.2 - Cableado de los frenos y de los microcontactos

Los micro-contactos de los frenos son de tipo «NC»

Si es necesario utilizar una tarjeta de alimentación CDF opcional, consulte el manual de la tarjeta.

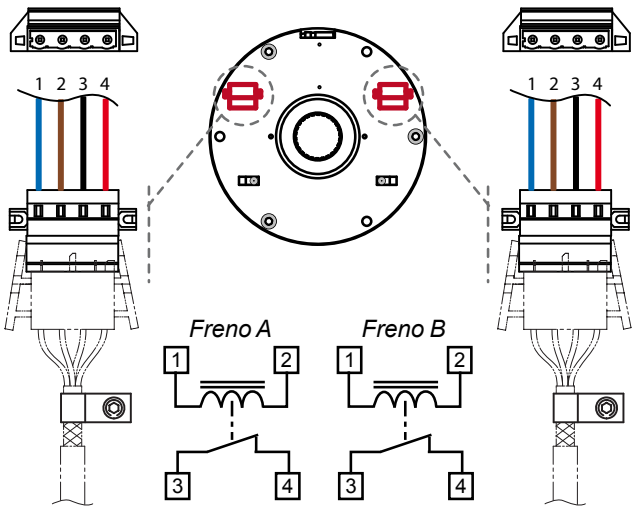
Existen 3 versiones de conectividad freno en la gama XAF (aparte de la opción «caja de bornas deportada»).

**Cable con conector 5 bornas o 6 bornas:**




**Conectores 4 bornas montados en freno:**

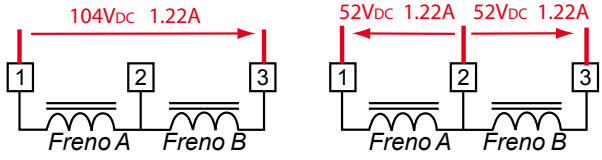
2 Conectores WAGO 731-604/019-000 en la parte trasera motor (freno). Pinza de malla de cable en la parte inferior de los conectores.




**Conexión eléctrica de frenos:**

Los valores de tensión y corriente de las bobinas indicados en la placa corresponden a los valores por cada freno.

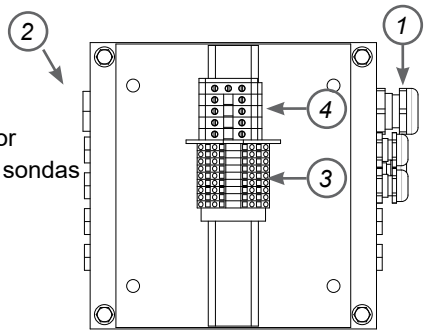
Ejemplo : Holding Voltage : $52V_{DC}$ / Current : 1.22A



### 4.2.3 - Cableado del motor con la opción «borne remoto»

Marcas :

1: Conexión motor
2: Conexión variador
3: Bornero frenos y sondas
4: Bornero motor




Esquema de conexión
detallado en la tapa de la caja de bornas

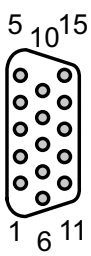
### 4.2.4 - Cableado del encoder

Identifique el encoder por medio de la referencia en la etiqueta (fig. 7).
Conecte el encoder al variador a través de la toma HD15.
**ECN 413 encoder:** encoder SinCos con conexión EnDat.
**ERN 426 encoder:** encoder incremental

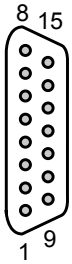
| CONECTOR | | | TIPO DE ENCODER | |
|---|---|---|---|---|
| SUB-D DE-15 | SUB-D DA-15 | M23 17p | ECN 413 | ERN 426 |
| 1 | 1 | 15 | Cos | A |
| 2 | 9 | 16 | CosRef | A / |
| 3 | 3 | 12 | Sin | B |
| 4 | 11 | 13 | SinRef | B / |
| 5 | 5 | 14 | Data | - |
| 6 | 13 | 17 | Data \ | - |
| 7 | - | - | - | U |
| 8 | - | - | - | U / |
| 9 | - | - | - | V |
| 10 | - | - | - | V / |
| 11 | 8 | 8 | $Clock_{out}$ | W |
| 12 | 15 | 9 | $Clock_{out}$ \ | W / |
| 13 | 4 & 12 | 1 & 7 | + 5V | + 5V |
| 14 | 2 & 10 | 4 & 10 | 0V | 0V |
| 15 | | 11 | - | - |

*HD15 conector macho*

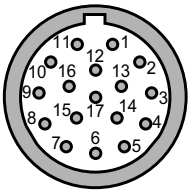
*DE-15*




*DA-15*




*M23 17p conector macho*




## 4.3 - Puesta en servicio

Antes de efectuar la primera operación, compruebe que los aparatos eléctricos estén conectados a tierra de manera correcta. Antes de la puesta en servicio de la máquina, compruebe que todas las fijaciones y las conexiones eléctricas estén ajustadas correctamente. Después de la puesta en servicio, compruebe: ruido, vibraciones, funcionamiento de los botones y de los interruptores. Compruebe también la intensidad y la tensión en la máquina en funcionamiento a la carga nominal.

## 4.4 - Potencia nominal máxima

La potencia del motor XAF se ha calculado en base a las informaciones suministradas en el proyecto. Este punto de funcionamiento está indicado en la placa de características (proyecto de corriente y potencia).
Si desea obtener dicha información, consulte los valores “Corriente nominal máxima” y “Potencia nominal máxima” en la placa de características.
Durante la puesta en marcha, si la corriente medida es superior a la definida en el proyecto, el técnico deberá comprobar que ésta no supera la corriente nominal máxima.

# 5 - MANTENIMIENTO ORDINARIO

## 5.1 - Después de 1 mes de funcionamiento

- Compruebe que el ajuste de los tornillos o de las conexiones eléctricas sea correcto.
- Compruebe las vibraciones. Compruebe que no haya ruidos anómalos.
- Si es necesario compruebe el desgaste del freno: mida el entrehierro de los frenos para confirmar que sea conforme con el valor indicado en la tabla 1 del anexo 1.

## 5.2 - Cada año

Como §5.1.

## 5.3 - Cada 3 años

Los motores XAF 4 y 6 están provistos de engrasadores. Lubrifique los cojinetes tal y como se indica en la placa de identificación C (véase más adelante). En la primera lubricación, aumente las cantidades 15 gr.

| Motor Bearings | | |
|---|---|---|
| 2103202.A | DE | NDE |
| Type : | 21320E | 6217 2RS C0 |
| Grease : | MOBILITH SHC220 | |
| | 60 g | |
| Regreasing interval | 3 YEARS | |

# 6 - PROCEDIMIENTO DE REGULACIÓN DE LOS FRENOS Y DE LOS MICROCONTACTOS

Correspondencias entre tipo de motor y tipo de freno:

| Modelo motor | Modelo freno |
|---|---|
| XAF 2 S | VAR07 SZ 300/300 |
| XAF 2 M | VAR09 SZ 600/500 |
| XAF 2 L | VAR09 SZ 600/600 |
| XAF 3 | VAR09 SZ 1000/800 |
| XAF 4 | VAR09 SZ 1700/1200 |
| XAF 6 | VAR09 SZ 1700/1700 |

## 6.1 - Regulación de los frenos

⚠ **Esta operación debe efectuarse en un Centro de asistencia autorizado por Leroy-Somer.**

## 6.2 - Regulación de los frenos y de los microcontactos

Consulte el anexo 1 § 3.1.

# 7 - SUSTITUCIÓN DEL ENCODER Y DE LA POLEA

## 7.1 - Sustitución del encoder

⚠ **Ponga al seguro la carga antes de toda operación sobre el motor. Asegúrese de que no se esté aplicando ningún par al rotor.**

- Desconecte el encoder.
- Desconecte los conectores de los frenos.
- Compruebe que el nuevo encoder sea idéntico al del motor.

**IMPORTANTE: no desmonte la pieza de soporte del encoder (referencia 2 fig. 7) fijada en el freno. La pieza se centra en fábrica a través de una herramienta especial con una precisión de una décima de grado.**

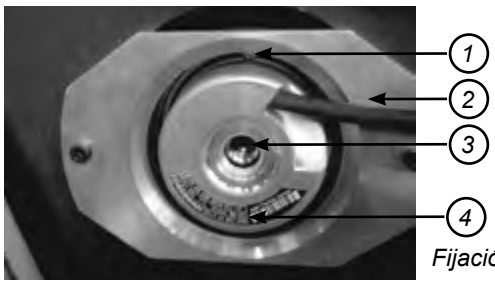



*Fig. 7: Fijación del encoder*

### 7.1.1 - Desmontaje del encoder

- Desatornille (2 vueltas de llave SW2) el tornillo de fijación de la caja del encoder (referencia 1 fig. 7) en la pieza de soporte.
- Desatornille el tapón del encoder (llave SW4 o destornillador).
- Desatornille el tornillo central (llave SW4) de fijación del encoder (referencia 3 fig. 7) en el eje motor.
- Extraiga el encoder del soporte (según el modelo).

### 7.1.2 - Reensamblaje del encoder

- Introduzca la rondana de soporte del encoder (referencia 1 fig. 9) en la extremidad del árbol motor. Asegúrese de que esté colocada correctamente golpeando ligeramente con una llave y un martillo.
- Desatornille el tapón del nuevo encoder (llave SW4 o destornillador).
- Introduzca el encoder en la pieza de soporte (referencia 2 fig. 9) fijada en el freno, seguidamente apriete el tornillo central Chc M5 x 50 (llave dinamométrica SW4) a un valor de par de 5 Nm 0/+0,5 Nm. El Tornillo con bloqueo de rosca puede utilizarse como máximo 3 veces.

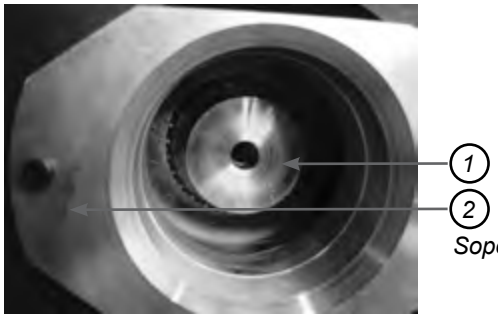



*Fig. 9: Soportes encoder*

- Apriete el tornillo pequeño Chc M2.5 (referencia 1 fig. 7) (llave destornillador dinamométrico SW2) de la caja del encoder a un valor de par de 1,25 Nm 0/-0,2 Nm.
- Vuelva a atornillar el tapón del encoder (llave SW4 o destornillador).
- Proceda, en caso necesario, con el bloqueo del encoder (véase el manual del variador).

## 7.2 - Sustitución de la polea

### 7.2.1 - Extracción de la polea

⚠ **Ponga al seguro la carga antes de toda operación sobre el motor. Asegúrese de que no se esté aplicando ningún par al rotor.**

- Afloje la tuerca SKF.
- Quite la tuerca SKF.
- Cree una placa de extracción según el siguiente esquema (los diámetros deberán medirse en la polea). Instale 3 tornillos y 3 tuercas en el soporte (Fig. 10).
- Desmonte la polea. ATENCIÓN: la polea corre el riesgo de caer.

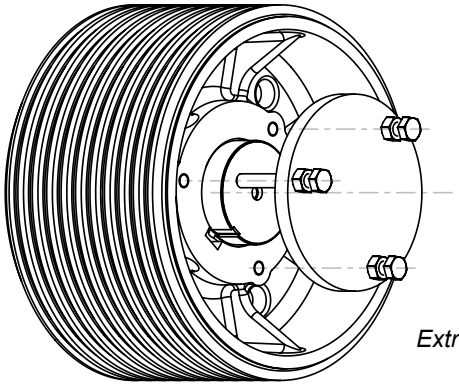


*Fig. 10: Extracción de la polea*

### 7.2.2 - Reinstalación de la polea

- Limpiar y verificar el correcto estado de las piezas
- Colocar la chaveta en el eje
- Acercar la polea al eje cónico
- Colocar la arandela galga (espesor 2mm)
- Apretar la tuerca freno SKF con el par de apriete segun tabla adjunta (etapa 1)
- Quitar la tuerca y la arandela galga
- Colocar la arandela freno SKF.
- Apretar la tuerca freno SKF con el par de apriete segun tabla adjunta (etapa 2)
- Bloquear la tuerca con la arandela

| XAF | Etapa 1 (Nm ± 10%) | Etapa 2 (Nm ± 10%) | Formato tuerca | Formato buje de apriete |
|---|---|---|---|---|
| **2** | 370 | 95 | KM 14 | TMFS 14 |
| **3** | 640 | 160 | KM 18 | TMFS 18 |
| **4** | 860 | 215 | KM 18 | TMFS 18 |
| **6** | 1120 | 280 | KM 18 | TMFS 18 |

# 8 - SUSTITUCIÓN DE LOS FRENOS Y DE LOS MICROCONTACTOS

⚠ **Esta operación debe efectuarse en un Centro de asistencia autorizado por Leroy-Somer.**

# 9 - PEDIDO DE LAS PIEZAS DE REPUESTO

Para poder contar con un servicio de postventa óptimo, es necesario indicar en el momento del pedido lo siguiente:
- tipo y número de serie del motor;

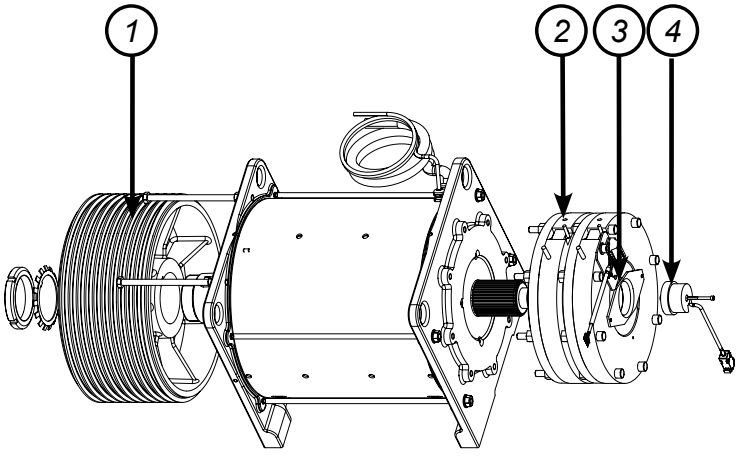
y para cada pieza:
- designación de la pieza y (o) código de referencia;
- cantidad pedida.

Para una identificación inmediata, le rogamos indique la referencia del documento utilizado para el pedido (número del dibujo o de la nota). El tipo y el número de serie están inscritos en la placa de identificación del motor.

⚠ **Los cojinetes y el freno deben desmontarse sólo en un Centro de asistencia autorizado por Motores Leroy-Somer.**

**Designación de las piezas:**

| Referenc. | Designación |
|---|---|
| 1 | Polea |
| 2 | Freno completo |
| 3 | Soportes Encoder |
| 4 | Kit Encoder |
| Opción | Adaptador de potencia del freno CDF |



WARNER ELECTRIC

SERVICE MANUAL

SM411gb - rev 09/12

# Electrically Released Brakes

## ERS VAR07 SZ 300/300

## ERS VAR09 SZ 600/500

## ERS VAR09 SZ 600/600

## ERS VAR09 SZ 1000/800

## ERS VAR09 SZ 1700/1200

WARNER ELECTRIC EUROPE
Rue Champfleur, B.P. 20095, F- 49182 St Barthélemy d'Anjou Cedex
Tél. +33 (0)2 41 21 24 24, Fax + 33 (0)2 41 21 24 00
www.warnerelectric-eu.com

Warner Electric

**Declaration of conformity:**
During the design of this product, the EU directives applicables were taken into account.
An attestation of conformity is available on request.
For Incorporating the product, the manufacturer of a machine or system needs to take into account the EU directives applicables.

**Summary of the directives and standards used:**

**Directives:**

| | | | |
|---|---|---|---|
| 2006/95/EC | Low voltage equipment directive | 95/16/EC | Lifts directive |
| 2004/108/EC | Electromagnetic compatibility directive | | |

**Standards:**

| | |
|---|---|
| DIN VDE 0580 | Electromagnetic devices and components, General requirements |
| EN 81-1 | Safety rules for the construction and installation of lifts - Part 1: Electric lifts |
| NFC 79300 | Industrial electrical apparatus. Electromagnetic apparatus for mechanical applications. Requirements. |

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## 1 Technical specifications

### ERS VAR07 SZ 300/300

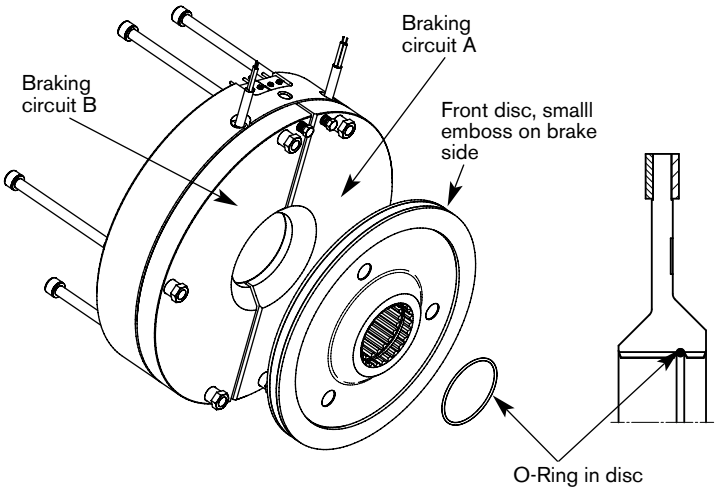



**Fig. 1a**

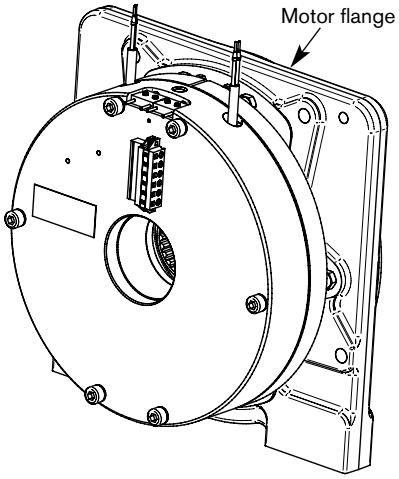



**Fig. 2a**

### ERS VAR09 SZ 600/500, SZ 600/600

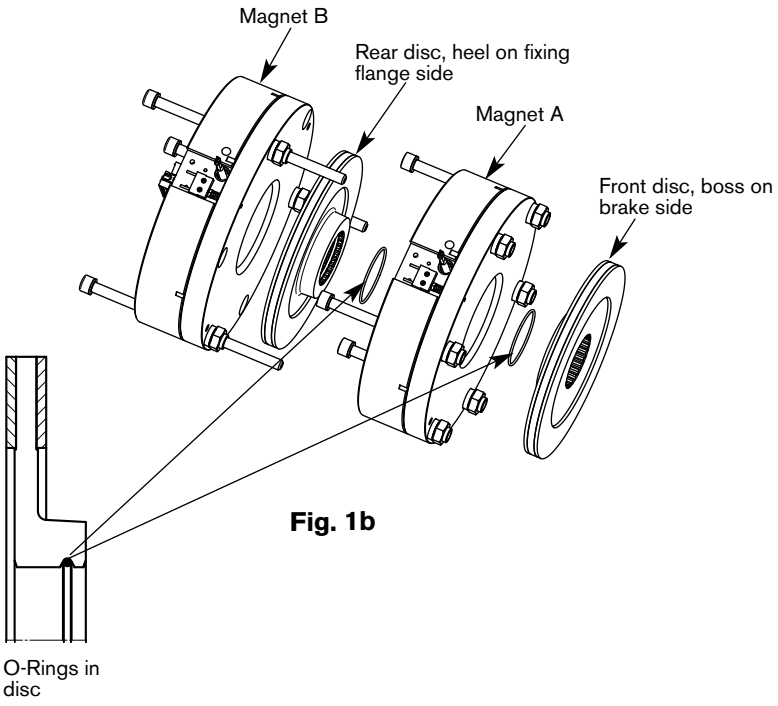



**Fig. 1b**

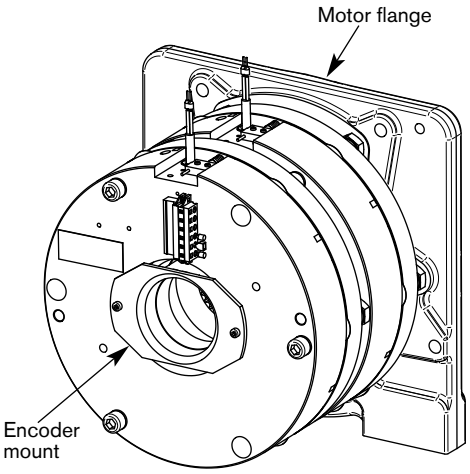



**Fig. 2b**

## ERS VAR09 SZ 1000/800

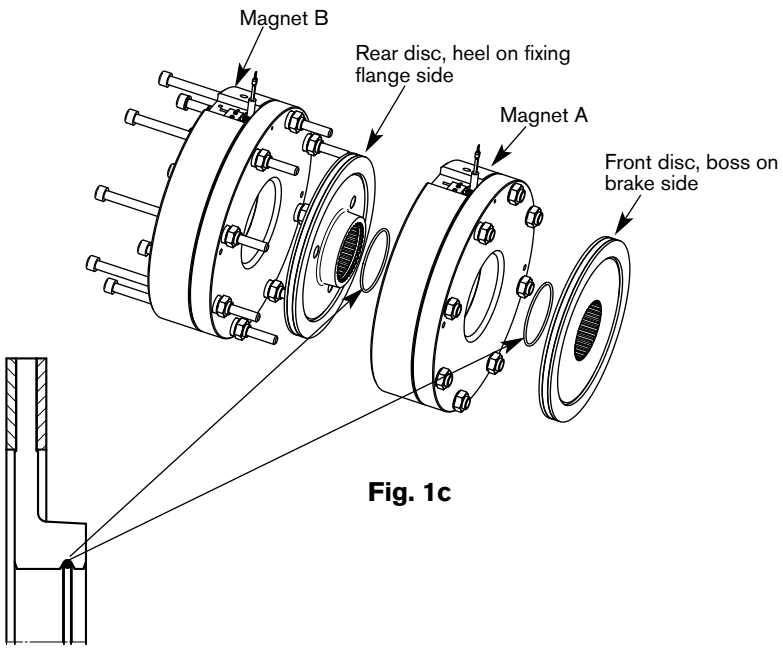



**Fig. 1c**

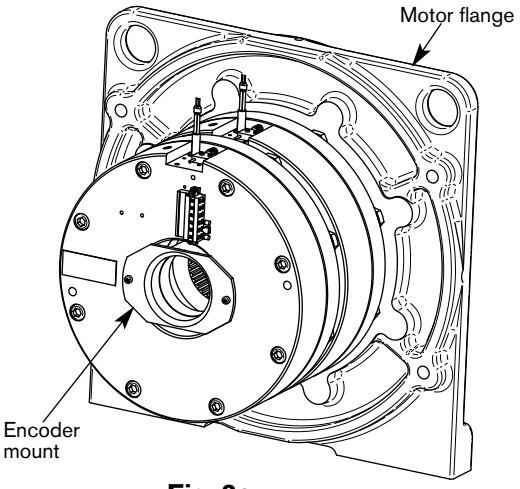



**Fig. 2c**

## ERS VAR09 SZ 1700/1200

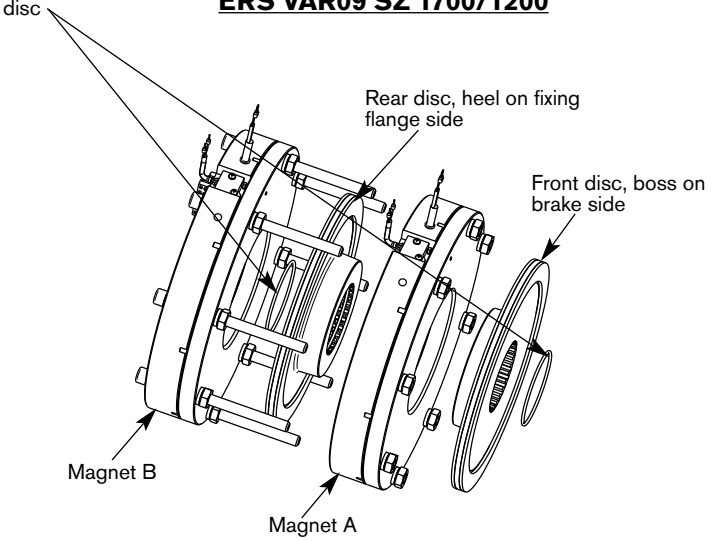



**Fig. 1d**

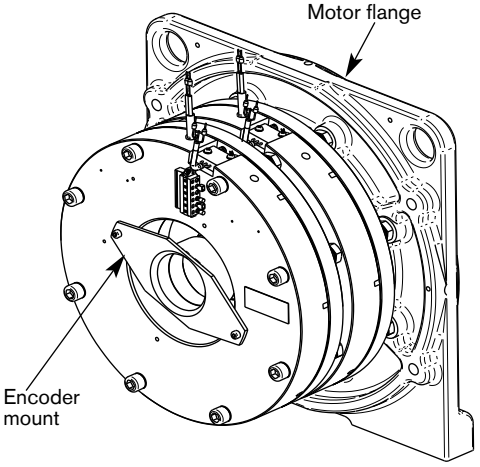



**Fig. 2d**

**Table 1**

| | Size | | **ERS VAR07 SZ 300/300** | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Certification 95/16/EC EN81-1+A3 (UCMP) | | ABV819/1 (TÜV) ESV819 (TÜV) | | | | | |
| | Leroy Somer Part Number | | GAF300FD012 | GAF300FD013 | GAF300FD0011 | GAF300FD015 | GAF300FD016 | GAF300FD017 |
| | Flange Part Number | | / | | | LSY160-4-77 | | |
| | Warner Electric Part Number | | 1 12 107308 | 1 12 107309 | 1 12 107310 | 1 12 107311 | 1 12 107312 | 121 107313 |
| | Nominal torque | Nm | 2 x 300 | | | | | |
| | | | Unit with overexcitation | | | | | |
| Per magnet | Voltage (inrush) (1 sec.) +5%/-10% | VDC | 48 | 103,5 (*) | 207 | 48 | 103,5 (*) | 207 |
| Per magnet | Voltage (holding) +5%/-10% | VDC | 24 | 52 | 103,5 | 24 | 52 | 103,5 |
| Per magnet | Power (inrush) | Watt | 199 | 217 | 207 | 199 | 217 | 207 |
| Per magnet | Power (holding) | Watt | 50 | 55 | 52 | 55 | 55 | 52 |
| | Maximum speed | $min^{-1}$ | 400 | | | | | |
| | Nominal airgap | mm | $0,35^{+0,1/0}$ | | | | | |
| | Maximum airgap (after wear) | mm | 0,6 | | | | | |
| | Cyclic duration factor | ED | 50% | | | | | |
| | Weight | kg | 25 | | | 37,6 | | |

| | Size | | **ERS VAR09 SZ 600/500** | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Certification 95/16/EC EN81-1+A3 (UCMP) | | ABV809/2 (TÜV) NL 11-400-1002-153-01 Rev1 (LIFTINSTITUUT) | | | | | |
| | Leroy Somer Part Number | | / | GAF500FD016 | GAF500FD0017 | / | GAF500FD020 | GAF500FD021 |
| | Flange Part Number | | / | | | LSY160-4-72 | | |
| | Warner Electric Part Number | | 1 12 107556 | 1 12 107558 | 1 12 107560 | 1 12 107563 | 1 12 107564 | 121 107565 |
| | Nominal torque | Nm | 2 x 500 | | | | | |
| | | | Unit with overexcitation | | | | | |
| Per magnet | Voltage (inrush) (1 sec.) +5%/-10% | VDC | 48 | 103,5 (*) | 207 | 48 | 103,5 (*) | 207 |
| Per magnet | Voltage (holding) +5%/-10% | VDC | 24 | 52 | 103,5 | 24 | 52 | 103,5 |
| Per magnet | Power (inrush) | Watt | / | 205 | 239 | / | 205 | 239 |
| Per magnet | Power (holding) | Watt | / | 52 | 60 | / | 52 | 60 |
| | Maximum speed | $min^{-1}$ | 400 | | | | | |
| | Nominal airgap | mm | $0,35^{+0,1/0}$ | | | | | |
| | Maximum airgap (after wear) | mm | 0,6 | | | | | |
| | Cyclic duration factor | ED | 50% | | | | | |
| | Weight | kg | 47 | | | 58 | | |

| | Size | | **ERS VAR09 SZ 600/600** | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Certification 95/16/EC EN81-1+A3 (UCMP) | | ABV809/2 (TÜV) NL 11-400-1002-153-01 Rev1 (LIFTINSTITUUT) | | | | | |
| | Leroy Somer Part Number | | GAF600FD016 | GAF600FD012 | GAF600FD0013 | GAF600FD018 | GAF600FD014 | GAF600FD015 |
| | Flange Part Number | | / | | | LSY180-4-32 | | |
| | Warner Electric Part Number | | 1 12 107582 | 1 12 107577 | 1 12 107580 | 1 12 107581 | 1 12 107578 | 112 107579 |
| | Nominal torque | Nm | 2 x 600 | | | | | |
| | | | Unit with overexcitation | | | | | |
| Per magnet | Voltage (inrush) (1 sec.) +5%/-10% | VDC | 48 | 103,5 (*) | 207 | 48 | 103,5 (*) | 207 |
| Per magnet | Voltage (holding) +5%/-10% | VDC | 24 | 52 | 103,5 | 24 | 52 | 103,5 |
| Per magnet | Power (inrush) | Watt | 233 | 205 | 239 | 233 | 205 | 239 |
| Per magnet | Power (holding) | Watt | 58 | 52 | 60 | 58 | 52 | 60 |
| | Maximum speed | $min^{-1}$ | 400 | | | | | |
| | Nominal airgap | mm | $0,35^{+0,1/0}$ | | | | | |
| | Maximum airgap (after wear) | mm | 0,6 | | | | | |
| | Cyclic duration factor | ED | 50% | | | | | |
| | Weight | kg | 47 | | | 58 | | |

(*) Suitable for 90V nominal

| | Size | | ERS VAR09 SZ 600/600 (2 connecteurs) | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Certification 95/16/EC EN81-1+A3 (UCMP) | | ABV809/2 (TÜV) NL 11-400-1002-153-01 Rev1 (LIFTINSTITUUT) | | | | | |
| | Leroy Somer Part Number | | / | GAF600FD017 | / | / | GAF600FD019 | / |
| | Flange Part Number | | / | | | LSY180-4-32 | | |
| | Warner Electric Part Number | | / | 1 12 107590 | / | / | 1 12 107589 | / |
| | Nominal torque | Nm | 2 x 600 | | | | | |
| | | | Unit with overexcitation | | | | | |
| Per magnet | Voltage (inrush) (1 sec.) +5%/-10% | VDC | 48 | 103,5 (*) | 207 | 48 | 103,5 (*) | 207 |
| Per magnet | Voltage (holding) +5%/-10% | VDC | 24 | 52 | 103,5 | 24 | 52 | 103,5 |
| Per magnet | Power (inrush) | Watt | / | 141 | / | / | 141 | / |
| Per magnet | Power (holding) | Watt | / | 47 | / | / | 47 | / |
| | Maximum speed | $min^{-1}$ | 400 | | | | | |
| | Nominal airgap | mm | $0,35^{+0,1/0}$ | | | | | |
| | Maximum airgap (after wear) | mm | 0,7 | | | | | |
| | Cyclic duration factor | ED | 50% | | | | | |
| | Weight | kg | 47 | | | 58 | | |

| | Size | | ERS VAR09 SZ 1000/800 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Certification 95/16/EC EN81-1+A3 (UCMP) | | ABV811/1 (TÜV) NL 11-400-1002-153-02 Rev1 (LIFTINSTITUUT) | | | | | |
| | Leroy Somer Part Number | | / | GAF800FD009 | GAF800FD010 | / | GAF800FD011 | GAF800FD012 |
| | Flange Part Number | | / | | | LSY200-4-43 | | |
| | Warner Electric Part Number | | 1 12 107567 | 1 12 107569 | 1 12 107571 | 1 12 107568 | 1 12 107570 | 1 12 107572 |
| | Nominal torque | Nm | 2 x 800 | | | | | |
| | | | Unit with overexcitation | | | | | |
| Per magnet | Voltage (inrush) (1 sec.) +5%/-10% | VDC | 48 | 103,5 (*) | 207 | 48 | 103,5 (*) | 207 |
| Per magnet | Voltage (holding) +5%/-10% | VDC | 24 | 52 | 103,5 | 24 | 52 | 103,5 |
| Per magnet | Power (inrush) | Watt | / | 257 | 325 | / | 257 | 325 |
| Per magnet | Power (holding) | Watt | / | 65 | 81,3 | / | 65 | 81,3 |
| | Maximum speed | $min^{-1}$ | 400 | | | | | |
| | Nominal airgap | mm | $0,35^{+0,1/0}$ | | | | | |
| | Maximum airgap (after wear) | mm | 0,6 | | | | | |
| | Cyclic duration factor | ED | 50% | | | | | |
| | Weight | kg | 61 | | | 83 | | |

| | Size | | ERS VAR09 SZ 1700/1200 | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Certification 95/16/EC EN81-1+A3 (UCMP) | | ABV591/2 (TÜV) ESV591/7 (TÜV) | | | | | |
| | Leroy Somer Part Number | | / | GAF999FD025 | GAF999FD026 | / | GAF999FD027 | GAF999FD028 |
| | Flange Part Number | | / | | | LSY200-4-44 | | |
| | Warner Electric Part Number | | 1 12 107552 | 1 12 107609 | 1 12 107611 | 1 12 107553 | 1 12 107610 | 1 12 107612 |
| | Nominal torque | Nm | 2 x 1200 | | | | | |
| | | | Unit with overexcitation | | | | | |
| Per magnet | Voltage (inrush) (1 sec.) +5%/-10% | VDC | 48 | 103,5 (*) | 207 | 48 | 103,5 (*) | 207 |
| Per magnet | Voltage (holding) +5%/-10% | VDC | 24 | 52 | 103,5 | 24 | 52 | 103,5 |
| Per magnet | Power (inrush) | Watt | / | 293 | 377 | / | 293 | 377 |
| Per magnet | Power (holding) | Watt | / | 74 | 94,2 | / | 74 | 94,2 |
| | Maximum speed | $min^{-1}$ | 400 | | | | | |
| | Nominal airgap | mm | $0,35^{+0,1/-0,1}$ | | | | | |
| | Maximum airgap (after wear) | mm | 0,6 | | | | | |
| | Cyclic duration factor | ED | 50% | | | | | |
| | Weight | kg | 66 | | | 93,7 | | |

*) Suitable for 90V nominal

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Size | | **ERS VAR09 SZ 1700/1200 (2 connecteurs)** | | | | | |
| | Certification 95/16/EC EN81-1+A3 (UCMP) | | ABV591/2 (TÜV) ESV591/7 (TÜV) | | | | | |
| | Leroy Somer Part Number | | / | GAF999FD030 | / | / | GAF999FD029 | / |
| | Flange Part Number | | / | | | LSY200-4-44 | | |
| | Warner Electric Part Number | | / | 1 12 107607 | / | / | 1 12 107606 | / |
| | Nominal torque | Nm | 2 x 1200 | | | | | |
| | | | Unit with overexcitation | | | | | |
| Per magnet | Voltage (inrush) (1 sec.) +5%/-10% | VDC | 48 | 103,5 (*) | 207 | 48 | 103,5 (*) | 207 |
| | Voltage (holding) +5%/-10% | VDC | 24 | 52 | 103,5 | 24 | 52 | 103,5 |
| | Power (inrush) | Watt | / | 293 | / | / | 293 | / |
| | Power (holding) | Watt | / | 74 | / | / | 74 | / |
| | Maximum speed | $min^{-1}$ | 400 | | | | | |
| | Nominal airgap | mm | $0,35^{+0,1/-0,1}$ | | | | | |
| | Maximum airgap (after wear) | mm | 0,6 | | | | | |
| | Cyclic duration factor | ED | 50% | | | | | |
| | Weight | kg | 66 | | | 93,7 | | |

(*) Suitable for 90V nominal

Symbol designating an action that might damage the brake

Symbol designating an action that might be dangerous to human safety

Symbol designating an electrical action that might be dangerous to human safety

## 2 Precautions and restrictions on use

### 2.1 Restrictions on use

- For the brake to comply with directive 95/16/EC, the integrator must observe the general conditions for installation, as stated in the EC type-examination certificate from TÜV SÜD Industrie Service (ABV number in Table 1). These brakes can in no way replace the system against the overspeed of the cabin downwards.
- These brakes are designed to work in dry conditions. Any contact with oil, grease, water or abrasive dust generate a decreased torque. **Warning :** it is the responsibility of the customer to install the necessary protection to prevent pollution of the friction surfaces and to ensure that the motor flange is thoroughly degreased and clean before mounting the brake.
- Torque subject to decrease in case of water contamination. Use of both brake circuits mandatory.
  **Warning :** the brake must be replace after water contamination.
- This product is not suitable for use according to ATEX/94/9/EC.
- These units are designed for use in an ambiant temperature between 0° C and +40° C maximum.
  **Warning :** at low temperature, any freezing of the friction face, due to condensation, generates a loss of torque. It is the responsability of the customer to take measures to avoid this problem.

- If maximum rotation speeds are exceeded, the guarantee is no longer valid.
- It is mandatory to follow instructions and datas given in documentation and marking of the units, in order to ensure the performance of the brake.
- This brake may only be used in a "horizontal axis".
- The customer must be careful not to alter the factory-set airgap. This is in order to ensure the brakes will be properly released.
- Protection class
  Electrical : IP42
  Mechanical : IP10
- Insulation class F 155 °C
- Normal use will not lead to any noticeable wear on the lining. Any dynamic braking is restricted to emergency and test braking.

### 2.2 Precautions and safety measures

- During maintenance, make sure that the mechanism to be held by the brake, is stopped and that there is no risk of it accidentally starting up. All intervention have to be made by qualified personnel, using this manual.

- Any modification made to the brake without the express authorisation of a representative of Warner Electric, in the same way than any use out of the contractual specifications accepted by "Warner Electric", will result in the warranty being invalidated and Warner Electric will no longer be liable in any way with regard to conformity.

- In the frame of the EC Type Certification, the response time specified are measured on new brakes and are in some cases influenced by the dampening system. During standard periodical inspection, a response time check will have to be performed in order to ensure the conformity of the overall elevator system. In case the measured response time is not appropriate for the system, then the replacement of the brake might have to be considered.

## 3 Installation

### 3.1 Transport / storage

These devices are delivered in a package guaranteeing the preservation of the product providing it is by surface transportation.
In case of a specific request (air or sea transport, long-term storage, etc) contact our factory.

### 3.2 Handling

- Avoid any impact to the brake so that its performance is not impaired.

- Never lift the brake by its cables.

When handling, use the handling holes intented for this purpose (see Fig. 2, thread M10).

.

### 3.3 Mounting

Specifications for the customer's friction face:
Material: Steel (150 to 250 HV) or Lamellar graphite cast iron
Roughness ≤ Ra 3,2
Protection: Phosphatizing dry or nitriding

**Geometrical tolerances:**

| | | |
|---|---|---|
| ↗ | 0,1 | Customer's shaft axis |
| ▱ | 0,1 | |

The brakes are delivered pre-assembled with pre-set microswitches and airgaps. Fixing screws are supplied separately.

**ERS VAR07 SZ300/300** (Fig. 1a)

- Put the O-ring into the disc.
- Slide the disc (small emboss on brake side)
- Engage magnet, energize magnet.

**NOTE:** Secure the fixing screws using the safety washer.

- Put in position and tighten the fixing screws of magnet, (star sequence tightening, first to initial torque, final setting torque after, see Table 2). The supply of current to the brake should be switched on throughout this operation.
- Make all electrical connections permanent.

**ERS VAR09 SZ600/500, SZ600/600 et SZ1000/800** (Fig. 1b and Fig. 1c)

- Put the O-rings into the discs.
- Engage the front disc on the customer's shaft, the boss on the brake side.
- Engage magnet A, energize magnet A.

**NOTE:** Secure the fixing screws using the safety washer.

- Put in position and tighten the fixing screws of magnet A, (star sequence tightening, first to initial torque, final setting torque after, see Table 2). The supply of current to the brake should be switched on throughout this operation.
- Engage the rear disc on the customer's shaft, with the boss on the customer fixing flange side.
- Engage magnet B, energize magnet B.

**NOTE:** Secure the fixing screws using the safety washer.

- Put in position and tighten the fixing screws of magnet B, (star sequence tightening, first to initial torque, final setting torque after, see Table 2). The supply of current to the brake should be switched on throughout this operation.
- Make all electrical connections permanent.

**VAR09 SZ1700/1200** (Fig. 1d)

- Put the O-rings into the discs.
- Engage the front disc on the customer's shaft as illustrated in Fig. 1, the boss on the brake side.
- Engager l'inducteur A.
- Engage the rear disc on thecustomer's shaft as illustrated, with the boss on the customer fixing flange side.
- Engage magnet B, repositioning magnet A using the fixing screws.
- Switch on the current to magnets A and B.
- Line the brake up with the customer fixing flange, using the fixing screws.

**NOTE:** Secure the fixing screws using the safety washer supplied.

- Tighten the fixing screws, (star sequence tightening, first to initial torque, final setting torque after, see Table 2). The supply of current to the brakes should be switched on throughout this operation.
- Make all the permanent electrical connections.

| Taille | 300 | 500 | 600 | 800 | 1200 |
|---|---|---|---|---|---|
| Vis fixation | 6xM8 | 6xM10 | 6xM10 | 8xM10 | 8xM12 |
| Cs approche (Nm) | 9 | 30 | 30 | 30 | 50 |
| Cs ± 10 % (Nm) | 22 | 64 | 64 | 64 | 111 |
| Hexagone de manoeuvre des vis de réglage (mm) | 13 | 21 | 21 | 21 | 21 |

**Tableau 2**

### 3.4 Demounting

**ERS VAR07 SZ300/300**

- The car must be stopped by another system than the brake.
- Do not energise the brake.
- Untight the fixing screws (star sequence, several turns, the brake must stay straight).
- Unmount the magnet.
- Remove the disc.
- Change the fixing screws.

**ERS VAR09**

- The car must be stopped by another system than the brake.
- Do not energise the brake.
- Untight the fixing screws of the magnet B (star sequence, several turns, the brake must stay straight).
- Unmount the magnet B.
- Remove the rear disc.
- Untight the fixing screws of the magnet A (star sequence, several turns, the brake must stay straight).
- Unmount the magnet A.
- Remove the front disc.
- Change the fixing screws.

## 4 Maintenance

### 4.1 Adjusting the airgap

Check the airgap at each maintenance inspection.

**Reminder:** Normal use will not lead to anynoticeable wear on the lining. Any dynamicbraking is restricted to emergency and test braking.If, for any reason, it should be necessary to adjustthe airgap, proceed as follows:

- Loosen the fixing screws slightly.
- Slide into the airgap 4 feeler gauges 0,35 mm thick, or according Fig. 3a (VAR07) and, Fig. 3c (VAR09 SZ600/500, SZ600/600) and Fig. 3d (VAR09 SZ1700/1200) (put the feeler gauges near the marks on the magnet).
- Set the fixation screws to contact.
- Adjust the adjusting screws.
- Remove the 4 feeler gauges.
- Tighten the screws (refer to note point 3.3 Installation).
- Carry out a few successive energising and releases.
- Check the airgap at several points.
- Repeat the process if necessary.
- Repeat the entire process for the second braking circuit (VAR07) / Magnet (VAR09).

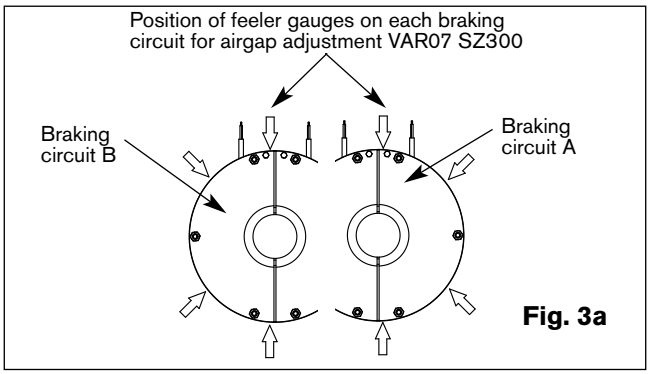


**Fig. 3a**

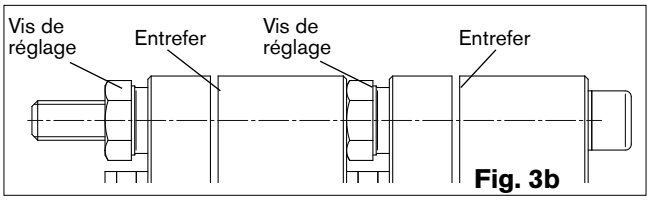


**Fig. 3b**

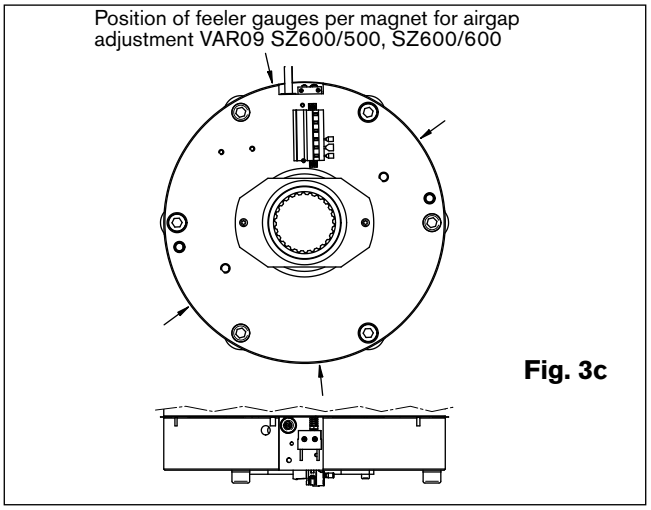


**Fig. 3c**

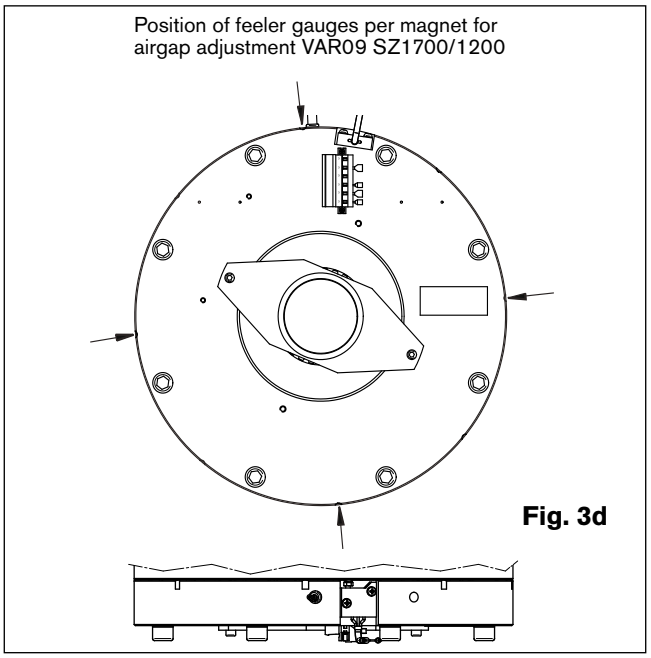


**Fig. 3d**

**Nota :**
- Do not introduce the feeler gauges more than 10 mm into the airgap.
- Avoid the springs and the dampers of noise.

### 4.2 Adjusting the microswitch

Slide a shim thickness 0,20mm, near screw in the corresponding airgap. Switch on the current and tighten (the M4 adjusting screw 7 A/F for ERS VAR09 or the M5 adjusting screw 8 A/F for ERS VAR07) in contact with the microswitch until you reach the actuation point. Then turn the screw in the opposite direction until the microswitch does not actuate. Check, by 3 successive energisings of the brake, that the microswitch does not actuate with the shim thickness of 0.20mm.
Then slide a shim thickness 0.178mm or 0.007" and check that the adjustment is stable (the microswitch actuates), by 3 successive energizings of the brake, see Fig. 5a for VAR07 and Fig. 5b or Fig. 5c for VAR09.

**ERS VAR07 SZ 300/300**

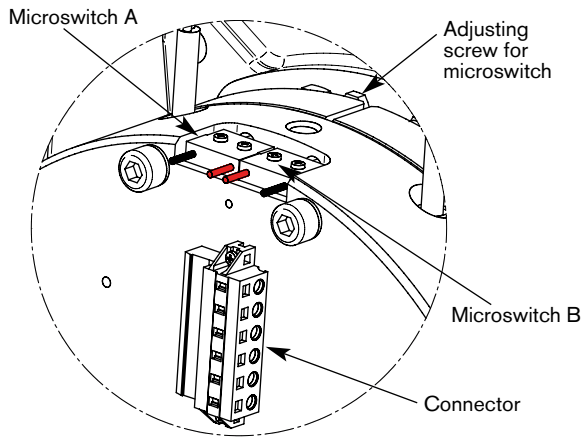



**Fig. 5a**

**ERS VAR09 SZ600/500, SZ600/600 et SZ1000/800**

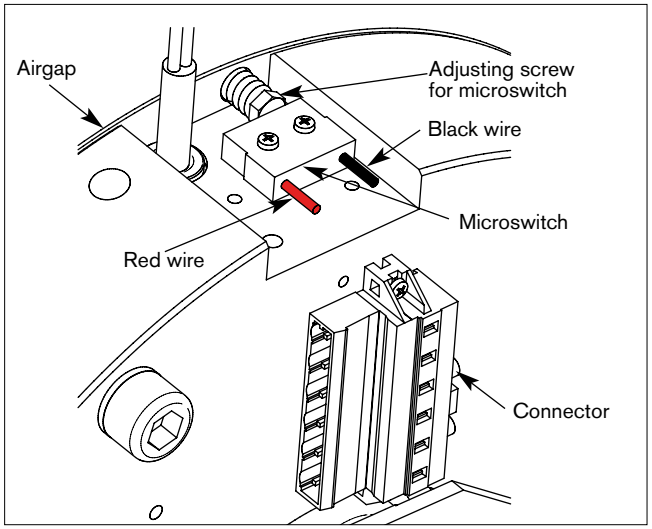
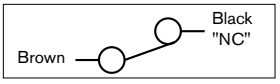



**Fig. 5b**

**ERS VAR09 SZ 1700/1200**



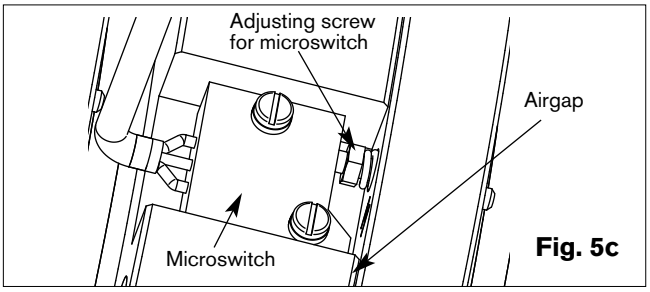




**Fig. 5c**

**Operation microswitch**

Current range 10 mA min. to 100 mA max. at 24 VDC.

For maximum electrical lifetime of the microswitch ensure switching under resistive load only.

**Microswitches connection**

Serial connections of the microswitches, using NC output,connected on the junction block on brake side, see Fig. 2a, 2b ou 2c.

When there is no current in the coils (customer's shaft-braked), the microswitch contacts are in closed position.

## 5 Electrical connection

Brakes **ERS VAR07** and **ERS VAR09** operate on a direct current supply.

### 5.1 Important recommendations

All work on the electrical connections have to be made with power off.

Make sure that the nominal supply voltage is always maintained (a lack of power results in a reduced maximum airgap).

When switching on DC-side the coil must be protected against voltage spikes.

**Emergency braking :** for emergency braking the switching OFF must be connected on DC side, in order to obtain short engaging time of the brake.

**Service braking :** for service braking, the switching OFF and the switching ON must be connected on AC current side, in order to obtain silent switching.

The connecting wires must be thick enough to help prevent sudden drops in voltage between the source and the brake.

| | | |
|---|---|---|
| Length of cable | 0 - 10 m | from 10 to 20 m |
| Cross section | 1,5 $mm^2$ | 2,5 $mm^2$ |

Tolerances on the supply voltage at the brake terminals +5% / -10% (NF C 79-300).

## 5.2 Electric connection

The brakes are equipped with a plug connector WAGO (fig. 6a) or with two plug connectors WAGO (fig. 6b).

**Connector WAGO réf.: 731-606/019-000**

**Connection coils and microswitches, motor side**

| Terminal | Connection |
|---|---|
| 1 | Coil A |
| 2 | Coils A and B |
| 3 | Coil B |
| 4 | Microswitch A |
| 5 | Microswitches A et B |
| 6 | Microswitch B |

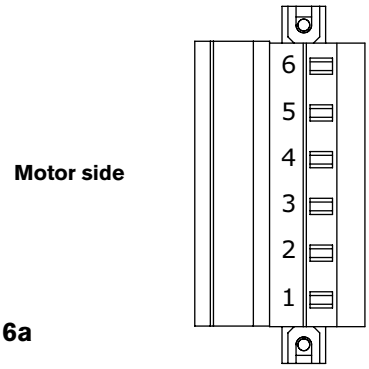



**Fig. 6a**

**Two connectors WAGO réf.: 731-604/019-000**


**Fig. 6b**

**Connection coils and microswitches, Brake side magnet C**

| Terminal | Connection |
|---|---|
| 1 | Coil C |
| 2 | Coil C |
| 3 | Microswitch C (fil brown SZ1200) |
| | Microswitch C (fil black SZ600) |
| 4 | Microswitch C (fil black SZ1200) |
| | Microswitch C (fil red SZ600) |

**Connection coils and microswitches, Brake side magnet D**

| Terminal | Connection |
|---|---|
| 1 | Coil D |
| 2 | Coil D |
| 3 | Microswitch D (fil brown SZ1200) |
| | Microswitch D (fil black SZ600) |
| 4 | Microswitch D (fil black SZ1200) |
| | Microswitch D (fil red SZ600) |

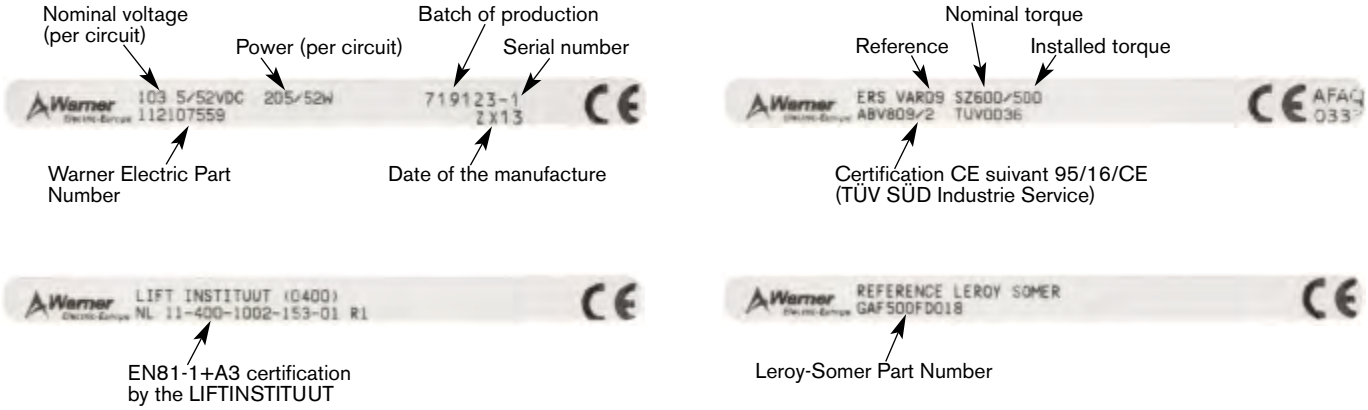
**WARNING:** in the event of connection in series of the magnets, the values of tension to be applied between terminals 1 and 3 with motor side, must be adapted.

| Per magnet | In serie (terminals 1 and 3) |
|---|---|
| 103,5 / 52 VDC | 207 / 103,5 VDC |
| 48 / 24 VDC | 96 / 48 VDC |

## 6 Spare parts

| Part |
|---|
| Friction disc |
| Microswitch |
| O-ring in the disc |

Thank you to join to your request for spare part, the reference and the part number of the brake (see example below).




## 7 Tools

| Tools | Function |
|---|---|
| Airgap adjustment shims | Airgap and microswitch adjustment |
| Open jawed spanner 13 mm A/F (VAR07) and 21 mm A/F (VAR09) | Airgap adjustment |
| Torque wrench (measurement range > 140 Nm) with hexagonal socket<br>6/flat (M8 VAR07 SZ300)<br>8/flat (M10 BVAR09 SZ600 et SZ 1000)<br>10/flat (M12 VAR09 SZ1700) | Airgap adjustment |
| Open jawed spanner 7 mm A/F | Microswitch adjustment |
| Multimeter | Voltage checking |

## 8 Troubleshooting and fault elimination

| Troubleshooting | | |
|---|---|---|
| **Fault** | **Cause** | **Remedy** |
| **Brake does not release** | • Power supply is too low<br>• Power supply is interrupted<br>• Airgap too large<br>• Worn disc<br>• Coil is damaged<br>• Airgap too small | • Adjust power supply<br>• Reconnect power supply, check the adjustement of microswitch<br>• Re-adjust the airgap (chapter 4.1)<br>• Change disc and readjust the airgap<br>• Replace the brake<br>• Re-adjust the airgap (chapter 4.1) |
| **Brake does not brake** | • Voltage present at switch off position<br>• Grease on friction faces | • Check the microswitch's adjustment and the customer's power supply<br>• Clean the friction faces, change the disc |
| **Nuisance braking** | • Power supply is too low<br>• Wrong information from microswitch | • Adjust power supply<br>• Re-adjust the microswitch |

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Industrie Service

# EC type-examination certificate

| | |
|---|---|
| **Certificate no.:** | ABV 819 |
| **Notified body:** | TÜV SÜD Industrie Service GmbH<br>Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile<br>Westendstraße 199<br>80686 München - Germany |
| **Applicant/<br>Certificate holder:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou - France |
| **Date of application:** | 2009-04-21 |
| **Manufacturer:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou – France |
| **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:** | ERS VAR07 SZ 300/_ _ _ |
| **Test laboratory:** | TÜV SÜD Industrie Service GmbH<br>Prüflaboratorium für Produkte der Fördertechnik<br>Prüfbereich Aufzüge und Sicherheitsbauteile<br>Westendstrasse 199<br>80686 München - Germany |
| **Date and<br>number of test report:** | 2009-06-29<br>819 |
| **EC-directive:** | 95 / 16 / EC |
| **Result:** | The safety component conforms to the directive's essential safety requirements for the respective scope of application stated on page 1 - 2 of the annex to this EC type-examination certificate. |
| **Date of issue:** | 2009-07-01 |

Certification body for lifts and safety components
Identification number: 0036

p. p. Dieter Roas

TÜV SÜD Industrie Service GmbH 09 36 Benannte Stelle

TÜV®

Industrie Service

# Annex to the EC type-examination certificate no. ABV 819 dated 2009-07-01

## 1. Scope of Application

1.1 Permissible brake moment when the braking device acts on the shaft of the traction sheave while the car is moving upward — **447 - 642 Nm**

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 sheave's maximum tripping rotary speed and maximum rated rotary speed as outlined in sections 1.2.1 and 1.2.2 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 center to rope's center (m)
Π = 3,14
n = Rotary speed ($min^{-1}$)
i = Ratio of the car suspension

1.2.1 Maximum tripping rotary speed of the traction sheave — **500 $min^{-1}$**

1.2.2 Maximum rated rotary speed of the traction sheave — **435 $min^{-1}$**

## 2. Conditions

2.1 Since the braking 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 braking device must be triggered (engaged) via the overspeed governor's electric safety device.

Alternatively, the speed may also be monitored and the braking 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 The movement of each brake circuit (each anchor) 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 travelling 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 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 this 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)
- 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).

2.5 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. The calculation evidence must be enclosed with the technical documentation of the lift.

## 3. Remarks

3.1 The brake moment effectively adjusted of one brake circuit will be marked at the blank after the type designation ÈRS VAR07 SZ 300/_ _ _ .

3.2 The permissible braking 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.

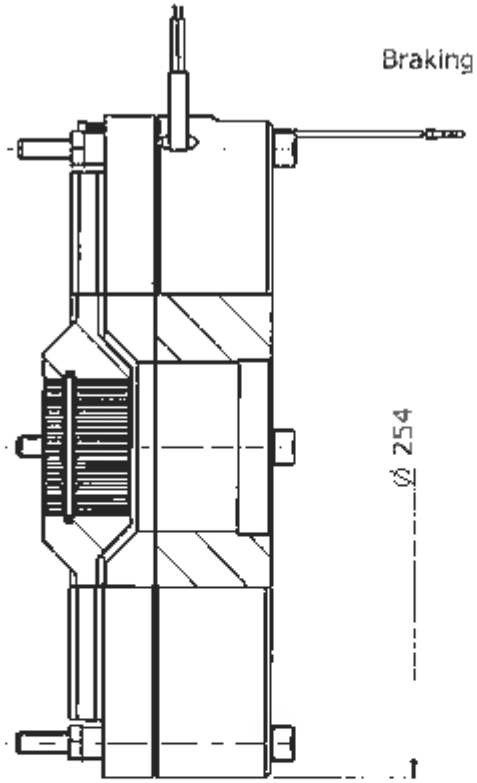
3.3 In the scope of this type-examination it was found out, that the brake device also functions as a brake for normal operation, is designed as a redundant system and therefore meets the requirements to be used also as a part of the protection device against overspeed for the car moving in upwards direction.
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.

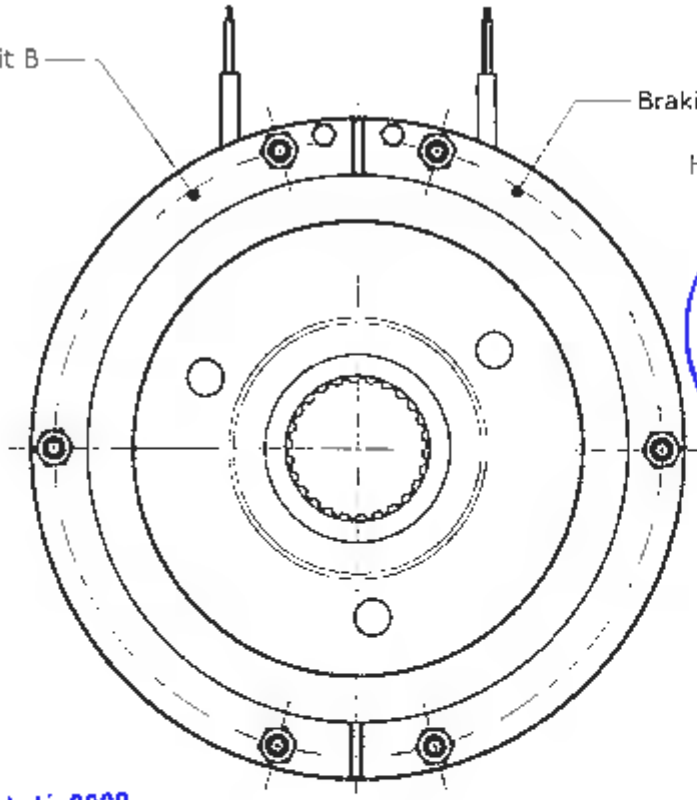
3.4 In order to provide identification and information about the design and its functioning drawing No. 1 12 107185, dated 21 April 2009 is to be enclosed with the EC type-examination certificate and the Annex thereto. The installation conditions and connection requirements are presented or described in separate documents.

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

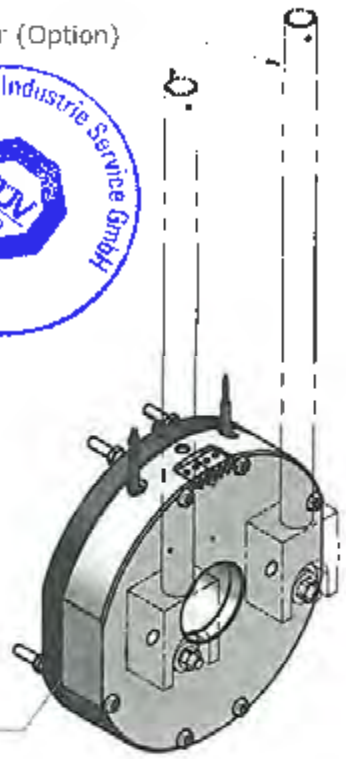
Les cotes sans indication de tolérances sont
des cotes nominales.
Untoleranced dimensions are nominal dimensions.

NOTES




Hand lever (Option)



Alternative shape (option)

TÜV SÜD Industrie Service GmbH

- 1. Juli 2009

- GEPRÜFT -
TÜV SÜD Industrie Service GmbH
Zentralbereich Fördertechnik-Sonderbauten
Abteilung Aufzüge und Sicherheitsbauteile
Westendstr. 199, D-80686 München
Der Sachverständige

TUV DIFFUSION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Client/customer: | | | | | | | |
| Ms (Nm) : | Customer ref. : | | | | | | |
| Mc (Nm) : | | | | | | | |
| n red (min-1) : | Dimensions in mm | | | | | | |
| n max (min-1) : | | | | | | | |
| U (Vdc) : | Manual/Notice : SM | | | | | | |
| P20°C (W) : | Mass | Scale 1:1 | | | | | |
| Insulation class (°C): | | | | | | | |
| | | FM | LT | REVISION | DATE | By | Ch. |
| | | | | | | | |
| | | Drawn : G. Ferrand | | | Date: 21.04.09 | | |
| | | Checked: | | | Date: 21.04.09 | | |
| | | Design: Frein électromagnétique<br>Electromagnetic brake | | | | | |
| | | Type: ERS VAR07 SZ300/300 | | | | | |
| | | N° 1 12 107185 | | | | | |



Warner Electric Europe

A3 CAD SE

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD Industrie Service

# EC type-examination certificate

| | |
|---|---|
| **Certificate no.:** | ABV 809 |
| **Notified body:** | TÜV SÜD Industrie Service GmbH<br>Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile<br>Westendstrasse 199<br>80686 München - Germany |
| **Applicant/<br>Certificate holder:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou - France |
| **Date of submission:** | 2008-11-18 |
| **Manufacturer:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou – France<br><br>Altra Industrial Motion (Shenzhen)<br>Songshan Industry Zone<br>12 Songshan Western Road<br>Bogang county, Shajing town<br>Baoan district, Shenzhen city<br>518104 Guandong Province - China (PRC) |
| **Product:** | Braking device acting on the traction sheave, as part of the protection device against overspeed for the car moving in upwards direction |
| **Type:** | ERS VAR 09 SZ 600/_ _ _ |
| **Test laboratory:** | TÜV SÜD Industrie Service GmbH<br>Abteilung Aufzüge und Sicherheitsbauteile<br>Westendstrasse 199<br>80686 München - Germany |
| **Date and number<br>of test report:** | 2009-02-06<br>809 |
| **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 - 2 of the annex to this EC type-examination certificate. |
| **Certificate date:** | 2009-02-10 |

Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
EC-Identification number: 0036

S. Melzer

Siegfried Melzer

TÜV Süd Industrie Service GmbH 00 36 Benannte Stelle

TÜV®

Industrie Service

# Annex to the EC type-examination certificate no. ABV 809 dated 2009-02-10

## 1. Scope of Application

1.1 Permissible brake moment when the braking device acts on the shaft of the traction sheave while the car is moving upward — 841 - 1529 Nm

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 sheave's maximum tripping rotary speed and maximum rated rotary speed as outlined in sections 1.2.1 and 1.2.2 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 center to rope's center (m)
Π = 3,14
n = Rotary speed ($min^{-1}$)
i = Ratio of the car suspension

1.2.1 Maximum tripping rotary speed of the traction sheave — 400 $min^{-1}$

1.2.2 Maximum rated rotary speed of the traction sheave — 348 $min^{-1}$

## 2. Conditions

2.1 Since the braking 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 braking device must be triggered (engaged) via the overspeed governor's electric safety device.

Alternatively, the speed may also be monitored and the braking 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 The movement of each brake circuit (each anchor) 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 travelling 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 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 this 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)
- 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).

2.5 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. The calculation evidence must be enclosed with the technical documentation of the lift.

## 3. Remarks

3.1 The brake moment effectively adjusted of one brake circuit will be marked at the blank after the type designation ÈRS VAR 09 SZ 600/_ _ _ .

3.2 The permissible braking 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 and information about the design and its functioning drawing No. 1 12 107132, dated 07 November 2008 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.

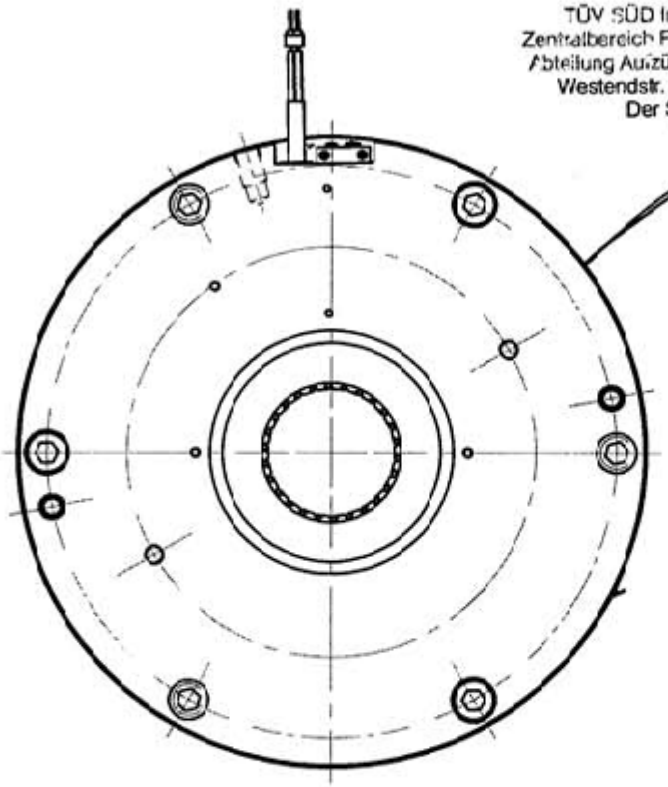
3.5 The EC type-examination certificate may only be used in connection with the pertinent Annex.

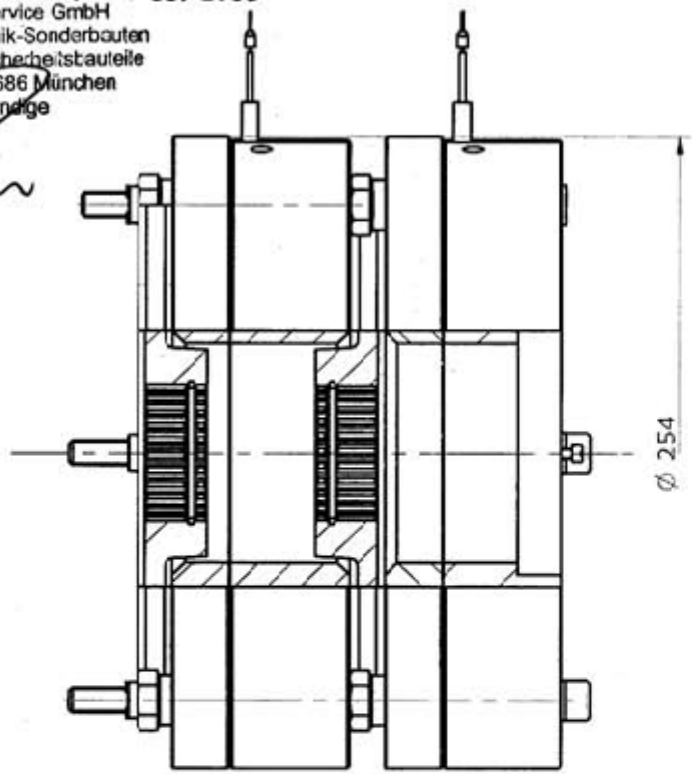
Les cotes sans indication de tolérances sont des cotes nominales.
Untoleranced dimensions are nominal dimensions.

NOTES

- GEPRÜFT - 10. Feb. 2009
TÜV SÜD Industrie Service GmbH
Zentralbereich Fördertechnik-Sonderbauten
Abteilung Aufzüge und Sicherheitsbauteile
Westendstr. 199, D-80686 München
Der Sachverständige

TÜV SÜD Industrie Service GmbH



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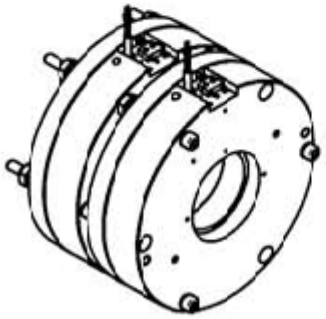

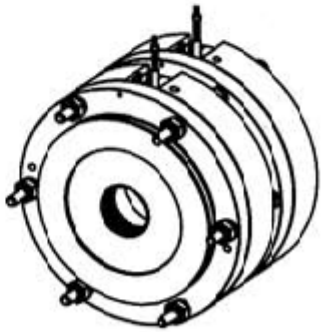

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| Md (Nm) : | | | | | | | |
| n Md (min-1) : | Dimensions in mm | | | | | | |
| n max (min-1) : | | FM | LT | REVISION | DATE | By | Ch. |
| U (Vdc) : | Manual/Notice : | | | | | | |
| P20°C (W) : | Mass : | Scale: 1:1 | Drawn : G. Ferrand | | Date: 07.11.08 | | |
| Insulation class (°C): | | | Checked: MP. | | Date: 18.11.08 | | |



Warner Electric Europe

Design.: Frein électromagnétique
Electromagnetic brake

Type: ERS VAR09 SZ600/---

N° 1 12 107132

CAD SE

A3

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Industrie Service

# EC type-examination certificate

| | |
|---|---|
| **Certificate no.:** | ABV 811 |
| **Notified body:** | TÜV SÜD Industrie Service GmbH<br>Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile<br>Westendstrasse 199<br>80686 München Germany |
| **Applicant/<br>Certificate holder:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou - France |
| **Date of submission:** | 2009-01-12 |
| **Manufacturer:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthelemy D'Anjou – France<br><br>Altra Industrial Motion (Shenzhen)<br>Songshan Industry Zone<br>12 Songshan Western Road<br>Bogang county, Shajing town<br>Baoan district, Shenzhen city<br>518104 Guandong Province - China (PRC) |
| **Product:** | Braking device acting on the traction sheave, as part of the protection device against overspeed for the car moving in upwards direction |
| **Type:** | ERS VAR 09 SZ 1000/_ _ _ |
| **Test laboratory:** | TÜV SÜD Industrie Service GmbH<br>Abteilung Aufzüge und Sicherheitsbauteile<br>Westendstrasse 199<br>80686 München - Germany |
| **Date and number<br>of test report:** | 2009-02-06<br>811 |
| **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 - 2 of the annex to this EC type-examination certificate. |
| **Certificate date:** | 2009-02-10 |

Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
EC-Identification number: 0036

S. Melzer

Siegfried Melzer

TÜV SÜD Industrie Service GmbH 00 36 Benannte Stelle

TÜV®

Industrie Service

# Annex to the EC type-examination certificate no. ABV 811 dated 2009-02-10

## 1. Scope of Application

1.1 Permissible brake moment when the braking device acts on the brake disk while the car is moving upward, depends on the maximum tripping rotary speed

| Max. tripping rotary speed [rpm] | Brake Moment [Nm] |
|---|---|
| 300 | 1231 – 2081 |
| 400 | 1164 - 1991 |

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 sheave's maximum tripping rotary speed and maximum rated rotary speed as outlined in sections 1.2.1 and 1.2.2 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 center to rope's center (m)
$\Pi$ =3,14
n = Rotary speed ($min^{-1}$)
i = Ratio of the car suspension

1.2.1 Maximum tripping rotary speeds of the traction sheave 300 / 400 rpm

1.2.2 Maximum rated rotary speeds of the traction sheave 261 / 348 rpm

## 2. Conditions

2.1 Since the braking 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 braking device must be triggered (engaged) via the overspeed governor's electric safety device.

Alternatively, the speed may also be monitored and the braking 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 The movement of each brake circuit (each anchor) 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 travelling 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 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 this 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)
- 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).

2.5 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. The calculation evidence must be enclosed with the technical documentation of the lift.

## 3. Remarks

3.1 The brake moment effectively adjusted of one brake circuit will be marked at the blank after the type designation ÈRS VAR 09 SZ 1000/_ _ _ .

3.2 The permissible braking 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.

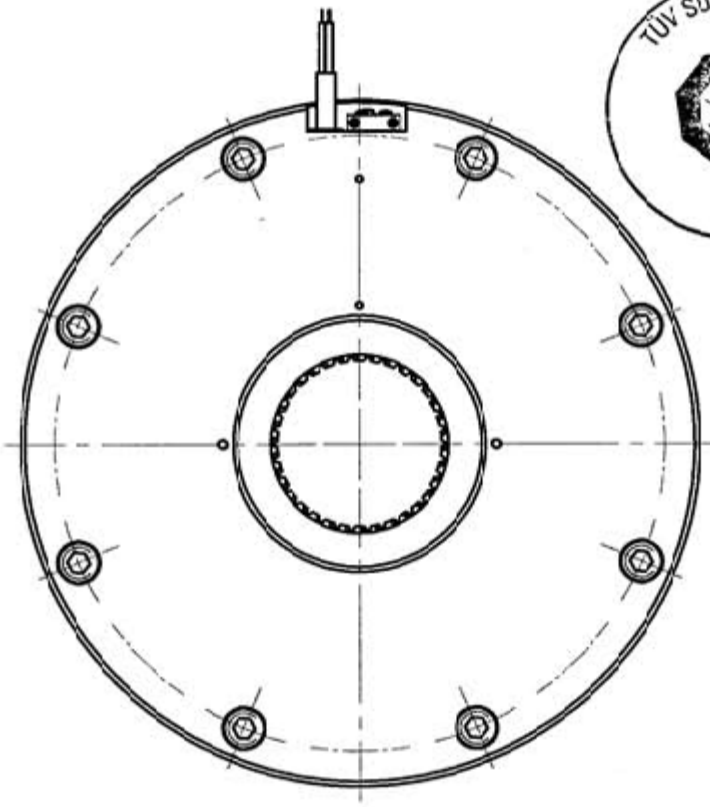
3.3 In the scope of this type-examination it was found out, that the brake device also functions as a brake for normal operation, is designed as a redundant system and therefore meets the requirements to be used also as a part of the protection device against overspeed for the car moving in upwards direction.
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.

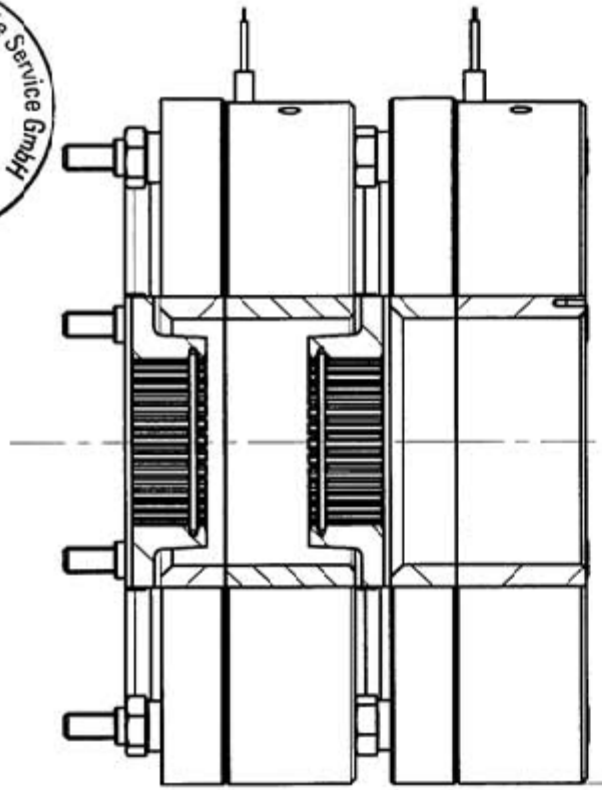
3.4 In order to provide identification and information about the design and its functioning drawing No. I-1 12 107136, dated 12 January 2009 is to be enclosed with the EC type-examination certificate and the Annex thereto. The installation conditions and connection requirements are presented or described in separate documents.

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

Les cotes sans indication de tolérances sont des cotes nominales.
Untoleranced dimensions are nominal dimensions.

NOTES

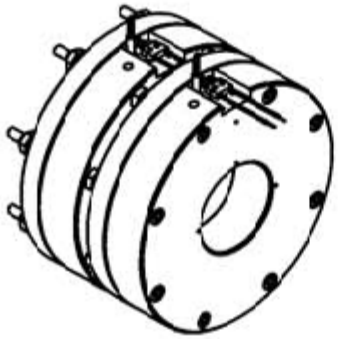


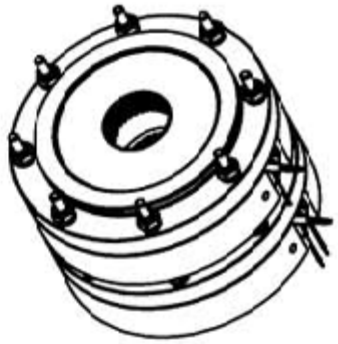



TÜV SÜD Industrie Service GmbH

10. Feb. 2009

- GEPRÜFT -
TÜV SÜD Industrie Service GmbH
Zentrabereich Fördertechnik-Sonderbauten
Abteilung Aufzüge und Sicherheitsbauteile
Westendstr. 199, D-80636 München
Der Sachverständige





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| Md (Nm) : | | | | | | | | |
| n Md (min-1) : | Dimensions in mm | FM | LT | REVISION | DATE | By | Ch. | |
| n max (min-1) : | | | | | | | | |
| U (Vdc) : | Manual/Notice : SM | Drawn : G. Ferrand | Date: 12.01.2009 | | | | | |
| P20°C (W) : | Mass : | Scale: 1:2 | Checked: | Date: 13.01.2009 | | | | |
| Insulation class (°C): | | | Design.: | Frein électromagnétique<br>Electromagnetic brake | | | | |
| | | | Type: | ERS VAR09 SZ1000/800 | | | | |
| | | | N° | I-1 12 107136 | | | | |



Warner Electric Europe

CAD SE

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ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Industrie Service

# EC type-examination certificate

| | |
|---|---|
| **Certificate no.:** | ABV 591/1 |
| **Notified body:** | TÜV SÜD Industrie Service GmbH<br>Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile<br>Westendstraße 199, 80686 München - Germany |
| **Applicant/<br>Certificate holder:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthélemy D'Anjou - France |
| **Date of submission:** | 2007-10-31 |
| **Manufacturer:** | WARNER Electric Europe<br>7, rue de Champfleur<br>BP 20095<br>49124 St. Barthélemy D'Anjou - France |
| **Product:** | Braking device acting on the traction sheave, as part of the protection device against overspeed for the car moving in upwards direction |
| **Type:** | ERS VAR 09 SZ 1700/_ _ _ |
| **Test laboratory:** | TÜV SÜD Industrie Service GmbH<br>Abteilung Aufzüge und Sicherheitsbauteile<br>Westendstraße 199, 80686 München - Germany |
| **Date and number of test report:** | 2007-11-15<br>591/1 |
| **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 - 2 of the annex to this EC type-examination certificate. |
| **Certificate date:** | 2007-11-19 |

Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
EC-Identification number: 0036

D. Roas

Dieter Roas

TÜV SÜD Industrie Service GmbH 00 36 Benannte Stelle

Industrie Service

# Annex to the EC type-examination certificate no. ABV 591/1 dated 2007-11-19

## 1. Scope of Application

1.1 Permissible brake moment when the braking device acts on the brake disk while the car is moving upward, depends on the maximum tripping rotary speed

| Max. tripping rotary speed [rpm] | Brake Moment [Nm] |
|---|---|
| 250 | 1445 – 3980 |
| 400 | 1390 - 3114 |

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 1.2.1 and 1.2.2 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 center to rope's center (m)
$\Pi = 3.14$
n = Rotary speed ($min^{-1}$)
i = Ratio of the car suspension

1.2.1 Maximum tripping rotary speeds of the traction sheave 250 / 400 rpm

1.2.2 Maximum rated rotary speeds of the traction sheave 217 / 348 rpm

## 2. Conditions

2.1 Since the braking 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 braking device must be triggered (engaged) via the overspeed governor's electric safety device.

Alternatively, the speed may also be monitored and the braking 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 The movement of each brake circuit (each anchor) 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 travelling 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 The braking device must act on the shaft of the traction sheave in the immediate vicinity of the traction sheave. 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. The calculation evidence must be enclosed with the technical documentation of the lift.

2.5 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 requirements outlined below must be satisfied to ensure safe operation:

- The braking device must be positioned directly at the side of the motor opposite the traction sheave (joint bearing with motor).
- The traction sheave must be placed in the direct vicinity of the motor (bending length minimized, no bearings or other components between traction sheave and motor).
- The joint shaft must be continuous and made from one piece. It may only be affected by cross-sectional influences acting on the connection to the traction sheave, motor and brake (it may not be affected, however, by a reduction in the load bearing capacity caused by stress concentration and cross-sectional reductions in the region exposed to reversed bending stress).

If the above requirements are satisfied, it can be assumed that the stress acting on the (traction-sheave) shaft is more favourable than if the overspeed protection device is placed in the direct vicinity of the traction sheave or between traction sheave and motor.

## 3. Remarks

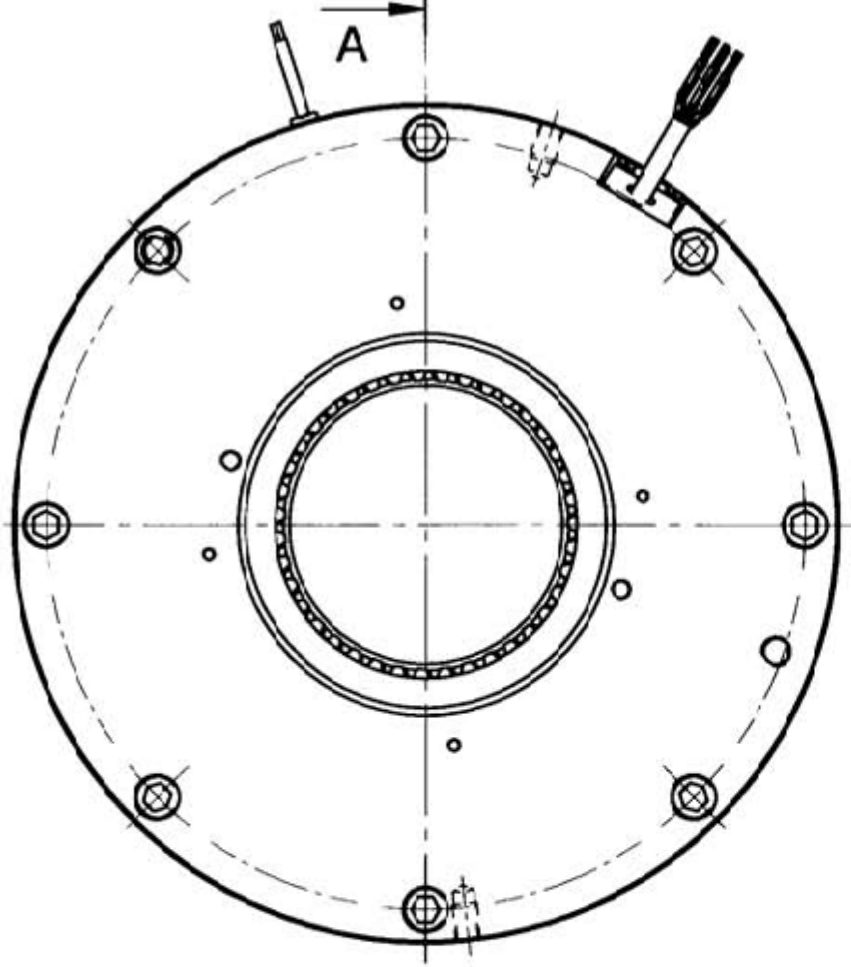
3.1 The brake moment effectively adjusted of one brake circuit will be marked at the blank after the type designation ÈRS VAR 09 SZ 1700/_ _ _ .

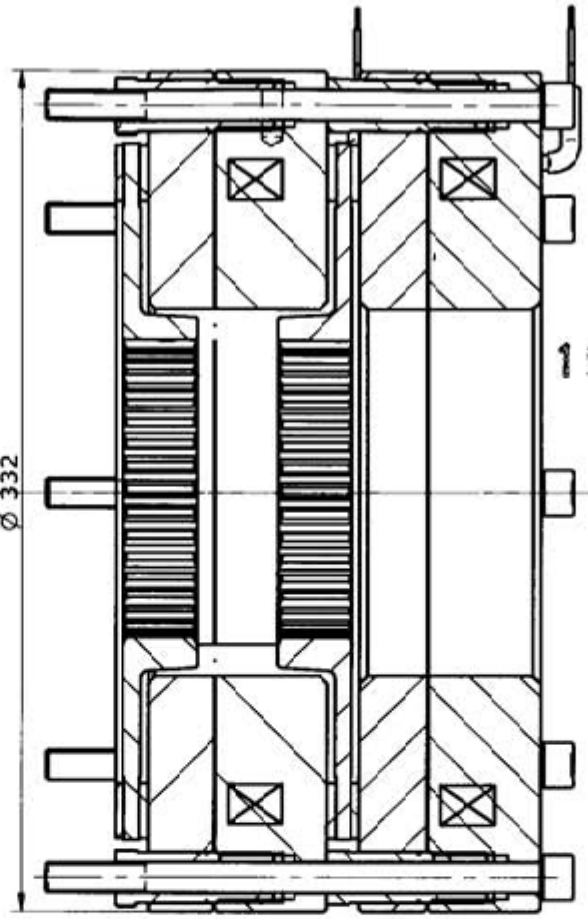
3.2 The permissible braking moments must be applied to the lift system in such a manner that they do not decelerate more than 1 $g_n$, if the empty car is moving upwards.

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 and information about the design and its functioning drawing no. 1 12 106581, dated 12 July 2001 with last modification dated 17 November 2007 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. operating instructions).

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

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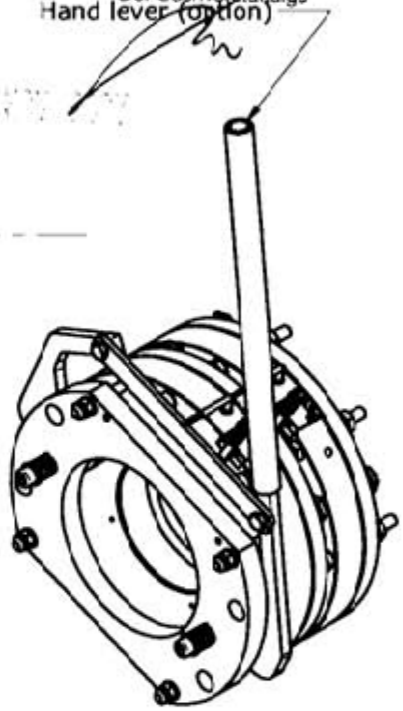
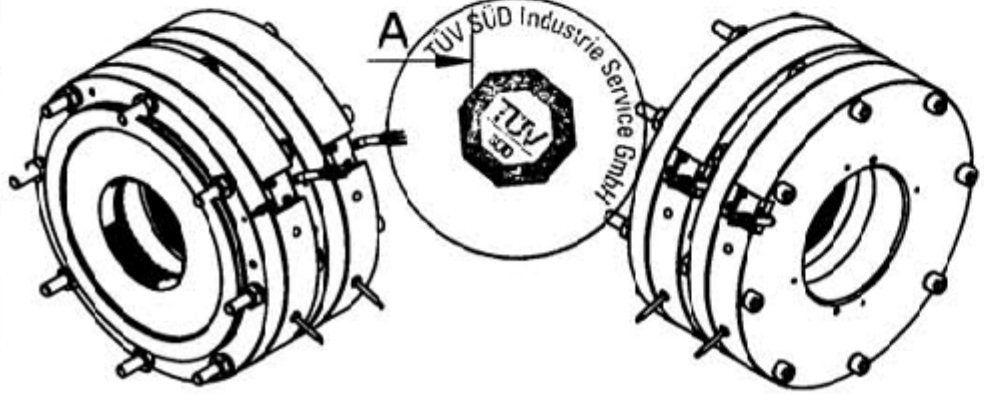
Les cotes sans indication de tolérances sont des cotes nominales.
Untoleranced dimensions are nominal dimensions.

**NOTES**

**- GEPRÜFT -**
TÜV SÜD Industrie Service GmbH
Zentralbereich Fördertechnik-Sonderbauten
Abtlg. Aufzüge und Sicherheitsbauteile
Westendstr. 199, D-80686 München
Der Sachverständige

Hand lever (option)






TUV DIFFUSION

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| Md (Nm) : | | | | | |
| n Md (min-1) : | Dimensions in mm | A | Up to date | 14.11.07 | GFE |
| n max (min-1) : | | FM | LT | REVISION | DATE | By | Ch. |
| U (Vdc) : | Manual/Notice : | | | | |
| P20°C (W) : | Mass : | Scale: | Drawn : M. Poiraud | Date: 12.07.01 | |
| Insulation class (°C): | | | Checked: B. Pitto | Date: 12.07.01 | |



**Warner Electric Europe**

Design.: **Frein électromagnétique**
Electromagnetic brake

Type: **ERS VAR09 SZ1700/----**

**N°1 12 106581** | **A** | A3

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