

Nidec
All for dreams






Installazione e manutenzione

GEARLESS XAF

*Motori a corrente alternata
per ascensori*

Riferimento: 4317 it - 2017.08 / g

LEROY-SOMERTM

All'interno del documento, i simboli    vengono utilizzati ogni volta che è necessario adottare precauzioni particolari durante l'installazione, l'uso o la manutenzione ordinaria e straordinaria dei motori.

L'installazione dei motori elettrici deve essere obbligatoriamente effettuata da personale qualificato, competente e abilitato.

Durante l'installazione dei motori nelle macchine deve essere garantita la sicurezza delle persone, degli animali e dei beni, in applicazione dei requisiti essenziali previsti dalle Direttive CEE.

Prestare particolare attenzione ai collegamenti equipotenziali delle masse e alla messa a terra.

Prima di un intervento su un motore in blocco, adottare le seguenti precauzioni:

- verificare l'assenza di tensione di rete o di tensioni residue;
- effettuare un esame attento delle cause del blocco (blocco della trasmissione, interruzione di fase, interruzione dovuta alla protezione termica, guasto del sistema di lubrificazione...).



Anche in assenza di alimentazione, i morsetti di un motore sincrono a magneti in rotazione sono sotto tensione. Di conseguenza, prima di ogni intervento verificare attentamente che il motore non sia in rotazione. Di conseguenza, prima di ogni intervento verificare attentamente che il motore non sia in rotazione.



Solo nel caso di smontaggio del motore XAF

L'assemblaggio o la manutenzione del rotore non deve essere effettuato da persone con stimolatori cardiaci o altri dispositivi elettronici medici.

Il rotore del motore contiene un campo magnetico potente. Quando si separa il rotore del motore, il suo campo magnetico può pregiudicare il funzionamento degli stimolatori cardiaci o la regolazione di dispositivi digitali quali orologi, telefoni cellulari e così via.

Gentile Cliente,

avete appena acquistato un motore LEROY-SOMER.

Questo motore, frutto dell'esperienza di uno dei più importanti costruttori al mondo, utilizza tecnologie d'avanguardia – automazione, materiali selezionati, controllo qualità rigoroso – grazie alle quali i nostri motori hanno ottenuto dagli Organismi di Certificazione la certificazione internazionale **ISO 9001, Edizione 2000 del DNV**. Inoltre, il nostro approccio ecologicamente compatibile ci ha permesso di ottenere la certificazione **ISO 14001 : 2004**.


I prodotti per applicazioni particolari o destinati a funzionare in ambienti specifici sono anch'essi omologati o certificati da organismi quali CETIM, LCIE, DNV, ISSEP, INERIS, CTICM, UL, BSRIA, TUV, CCC e GOST che verificano le loro prestazioni tecniche in rapporto alle diverse norme o raccomandazioni.


Nel ringraziarvi per averci accordato la vostra preferenza, desideriamo attirare la vostra attenzione sul contenuto di questo manuale.

Il rispetto di alcune regole essenziali permetterà di utilizzare a lungo il prodotto senza problemi.

MOTORI LEROY-SOMER

Conformità CE

I motori sono a norma EN 60034 (IEC 34) e sono pertanto conformi alla Direttiva Bassa Tensione 73/23/CEE modificata dalla Direttiva 93/68, come indicato dalla sigla .

LEROY™ SOMER	
MOTEURS LEROY-SOMER USINE	
DICHIARAZIONE DI CONFORMITÀ E D'INCORPORAZIONE	
<p>Il costruttore MOTEURS LEROY-SOMER dichiara che i componenti :</p> <p>sono conformi alla norma armonizzata EN 60 034 (IEC 34) e soddisfano quindi le esigenze fondamentali della Direttiva Bassa Tensione 73-23 EEC del 19 febbraio modificata dalla Direttiva 93-68 EEC del 22 luglio 1993.</p> <p>I componenti così definiti soddisfano anche le esigenze fondamentali della Direttiva Compatibilità Elettromagnetica 89-336 EEC del 3 maggio 1989 modificata dalle Direttive 92-31 CEE del 28 aprile 1992 e 93-68 CEE del 22 luglio 1993, se vengono utilizzati in certi limiti di tensione (IEC 34).</p> <p>Queste conformità consentono l'uso di queste gamme di componenti in macchine che applicano la Direttiva Macchine 98/37/CE, con riserva che la loro integrazione o la loro incorporazione e/o assemblaggio siano effettuati conformemente, tra l'altro, alle regole della norma EN 60204 "Apparecchiatura Elettrica delle Macchine" e alle nostre istruzioni d'installazione.</p> <p>I componenti sopra definiti non potranno essere messi in servizio prima che la macchina in cui sono incorporati sia stata dichiarata conforme alle direttive applicabili.</p> <p>Nota : Quando i componenti sono alimentati con convertitori elettronici adattati e/o asserviti a dispositivi elettronici di controllo e di comando, devono essere installati da un professionista che si assuma la responsabilità del rispetto delle regole sulla compatibilità elettromagnetica vigenti nel paese in cui viene installata la macchina.</p>	
Autore della dichiarazione Direttore Qualità MOTEURS LEROY-SOMER	Redatto a il Firma
 <p>MOTEURS LEROY-SOMER GIEZE SOCIAL 80 MARCELLE LEROY - 10015 ANGOULEME CEDEX/ SOCIETE ANONYME AU CAPITAL DE 411 800 000 F - RCS ANGOULEME 8 138 567 258 - SIRET 138 567 258 00011</p>	

NOTA :

LEROY-SOMER si riserva il diritto di modificare le caratteristiche dei suoi prodotti in qualsiasi momento per aggiornarli con gli ultimi ritrovati della tecnologia. Le informazioni contenute in questo documento sono quindi soggette a modifiche senza preavviso.

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Non può essere riprodotto in nessuna forma senza previa autorizzazione.

Marche, modelli e brevetti sono depositati.

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Per utilizzare al meglio il motore Gearless XAF di LEROY-SOMER appena acquistato, è indispensabile seguire le seguenti avvertenze.



Il contatto con i componenti sotto tensione o in rotazione può causare ustioni. Non toccare la carcassa del motore quando è in funzione, dato che la sua temperatura raggiunge di norma valori molto elevati.

PROMEMORIA: l'installazione e la manutenzione ordinaria e straordinaria devono essere effettuate solo da personale qualificato.

In caso di mancata osservanza o errata applicazione delle istruzioni fornite nel presente manuale il costruttore non sarà responsabile di eventuali danni.

La garanzia è valida solo se il prodotto, durante il periodo di garanzia, non viene parzialmente o totalmente smontato senza l'assistenza o l'approvazione di LEROY-SOMER.



Prima di qualsiasi intervento sul motore o sui freni, assicurarsi che la cabina sia completamente immobile.

1 - RICEZIONE

Verifiche:

- alla ricezione del motore, assicurarsi che quanto riportato sulla targa di identificazione corrisponda alle specifiche contrattuali;

- alla consegna della macchina, ispezionarla immediatamente. Se la macchina ha subito danni durante il trasporto, comunicare al trasportatore le riserve del caso.

2 - STOCCAGGIO

2.1 - Locale di stoccaggio

Il locale deve essere asciutto, al riparo dalle intemperie, dal freddo (temperatura superiore a -15°C), dalle variazioni di temperatura frequenti (per eliminare i rischi di condensa) e privo di vibrazioni, polveri e gas corrosivi.

In caso di vibrazioni nel magazzino, si raccomanda di ruotare la puleggia di trazione almeno due volte al mese. Per ruotarla, alimentare i freni.

Durante il trasporto, le gole della puleggia vengono spesso protette per mezzo di una vernice speciale, la quale non deve essere tolta durante lo stoccaggio.

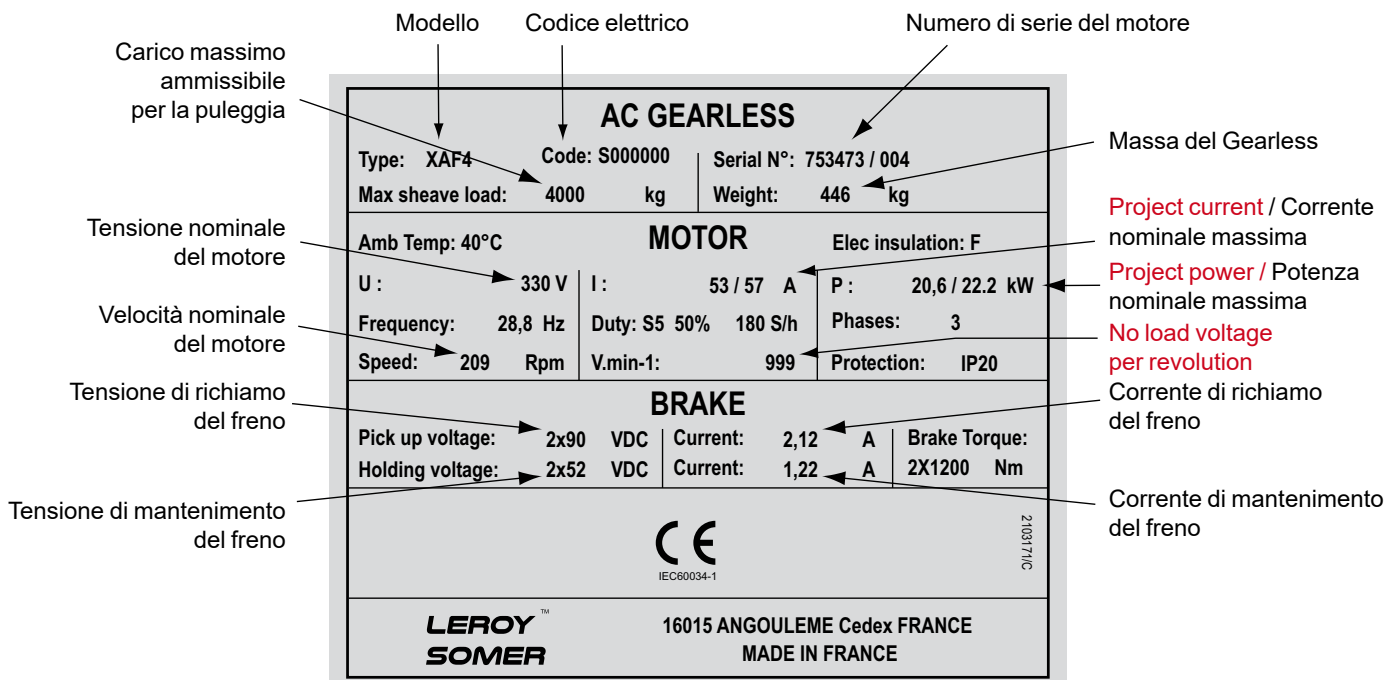


Fig. 1: Targa di identificazione

2.2 - Stoccaggio prolungato (> 3 mesi)

Chiudere la macchina in un rivestimento impermeabile sigillato con all'interno un sacchetto disidratante corrispondente al volume da proteggere e al grado di umidità del luogo.

Ingrassaggio

- Cuscinetti non rilubrificabili

Stoccaggio massimo: 3 anni. Dopo questo termine, sostituire i cuscinetti.

- Cuscinetti rilubrificabili

Periodo di stoccaggio	Meno di 6 mesi	La messa in esercizio del motore non richiede alcuna rilubrificazione.
	Più di 6 mesi Meno di 1 anno	Rilubrificare prima della messa in esercizio, come illustrato nella sezione 5.3
	Più di 1 anno Meno di 5 anni	Sostituire completamente il grasso lubrificante.

3 - AMBIENTE

Le caratteristiche nominali si riferiscono al funzionamento in un ambiente normalizzato (IEC 60034-5):


- altitudine inferiore o pari a 1000 m;
- tasso d'umidità massimo: 95%;
- temperatura compresa tra 0 e 40°C.

Se al momento dell'ordine vengono segnalate delle condizioni particolari, può essere previsto un declassamento.

4 - MESSA IN SERVIZIO

PRIMA DELL'INSTALLAZIONE

Se lo stoccaggio ha una durata di più mesi, è indispensabile verificare l'isolamento tra le fasi e il morsetto di massa del motore (minimo 100 MΩ con una tensione continua di 500 V per 60 secondi), dopo avere scollegato tutti i circuiti elettronici, se necessario.

 Non applicare il megohmetro ai morsetti dei rilevatori termici perché potrebbero danneggiarsi. Se il valore non viene raggiunto, effettuare un'asciugatura tramite riscaldamento esterno o interno.

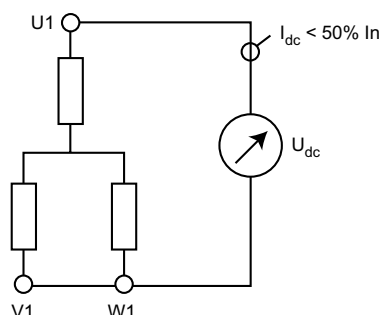


Fig. 2:


Collegamento degli avvolgimenti per l'asciugatura tramite riscaldamento interno

Asciugatura tramite riscaldamento esterno

- Mettere il motore in un forno a 70°C per almeno 24 ore, fino a ottenere l'isolamento corretto (100 MΩ).
- Fare attenzione ad aumentare gradualmente la temperatura, in modo da evacuare la condensa.
- Dopo la fase di raffreddamento, con asciugatura a temperatura ambiente, controllare periodicamente il valore di isolamento, il quale inizialmente avrà la tendenza a diminuire piuttosto che ad aumentare.

Asciugatura tramite riscaldamento interno (Fig 2)

- Collegare gli avvolgimenti dei motori V1 e W1 in parallelo in rapporto a U1.
- Misurare la resistenza tra U e V//W.
- Alimentare con una corrente continua a bassa tensione (per ottenere il 10% della corrente nominale calcolata con le resistenze degli avvolgimenti) e aumentare la tensione fino a quando la corrente raggiunge il 50% della corrente nominale.
- Alimentare per 4 ore. La temperatura del motore dovrebbe aumentare leggermente.

 Se i freni sono allentati, alla messa sotto tensione la puleggia si muoverà leggermente (bloccaggio angolare del rotore in rapporto allo statore).

4.1 - Installazione meccanica

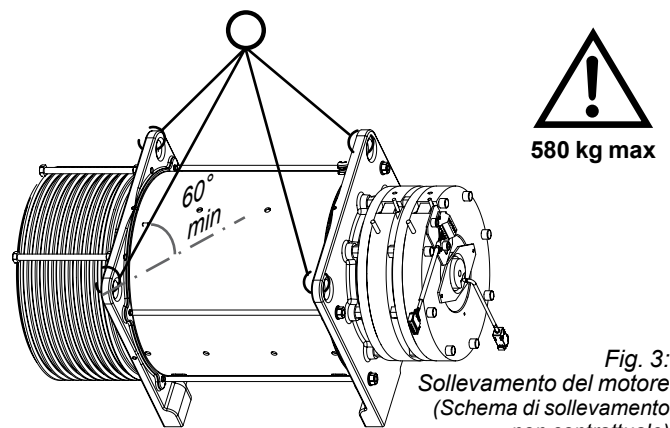


Fig. 3:
Sollevamento del motore
(Schema di sollevamento non contrattuale)

L'installazione deve essere conforme alle caratteristiche del motore indicate sulla targa di identificazione (vedere § 1). Deve inoltre prevedere l'uso dei dispositivi di sicurezza elettrici.

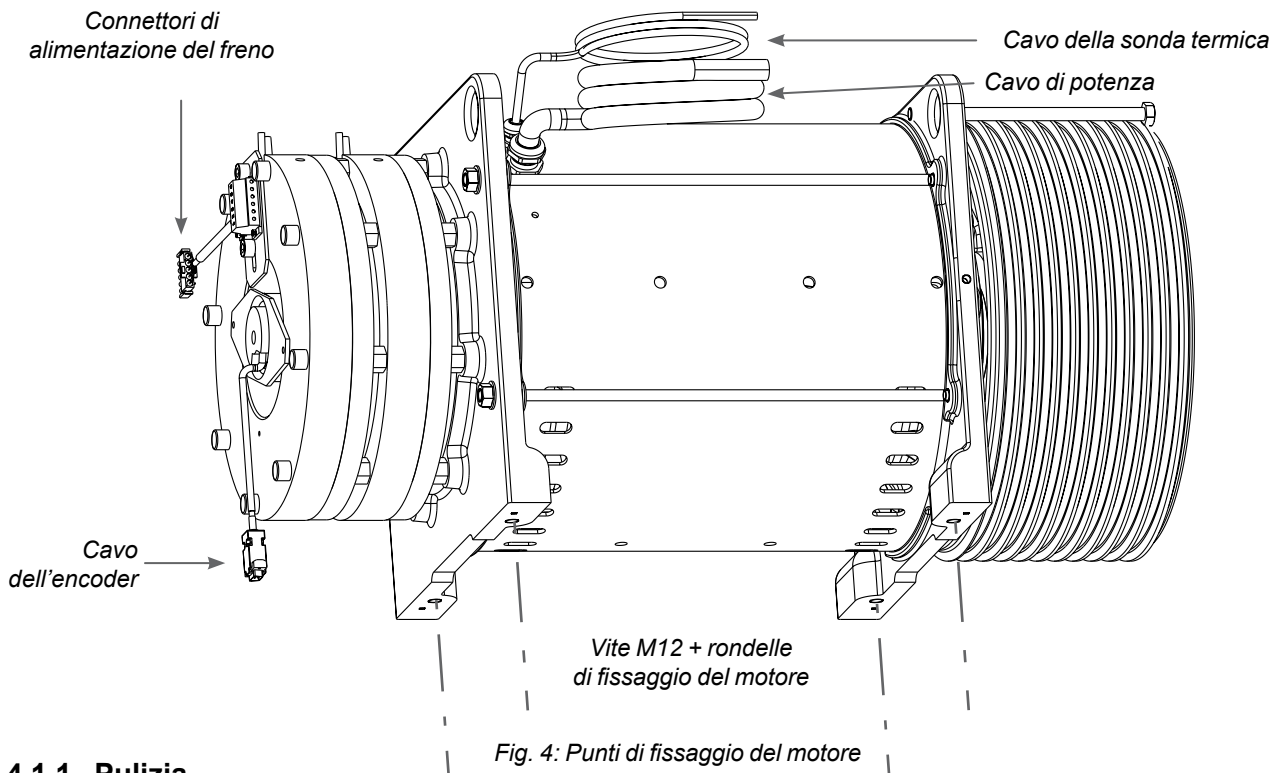
Assicurarsi che gli apparecchi di movimentazione (cinghie...) siano adatti al peso della macchina.

Utilizzare i punti di attacco appositi sulla macchina.

Controllare che i cavi siano nella posizione corretta, per evitare che possano danneggiarsi.

Utilizzare delle protezioni meccaniche per evitare che le persone che lavorano sulla macchina possano impigliarsi o ferirsi con la puleggia e/o gli altri cavi.

I motori devono essere installati in modo che l'aria di raffreddamento (non troppo carica di umidità e priva di polveri, vapori e gas corrosivi) possa circolare liberamente.



4.1.1 - Pulizia

- Alimentare il freno per liberarlo (§4.2.2).
- Togliere la vernice di protezione dalle gole della puleggia.

⚠ Non utilizzare materiali abrasivi, ma solo un panno imbevuto di alcool. Fare attenzione a evitare ogni contatto tra il disco del freno e l'alcool o qualsiasi materia grassa.

AVVERTENZA: utilizzare l'alcool in un ambiente ben ventilato.

4.1.2 - Installazione meccanica

- La macchina GEARLESS deve essere installata su un telaio non soggetto a vibrazioni e deve essere bloccata con 4 viti M12 cl. 8.8 e rondelle serrate a un valore di coppia di 83 Nm.
- Verificare che i cavi siano ben adattati alla puleggia.

⚠ Se il numero di cavi è inferiore al numero di gole della puleggia, i cavi devono essere il più vicino possibile al supporto del gearless.

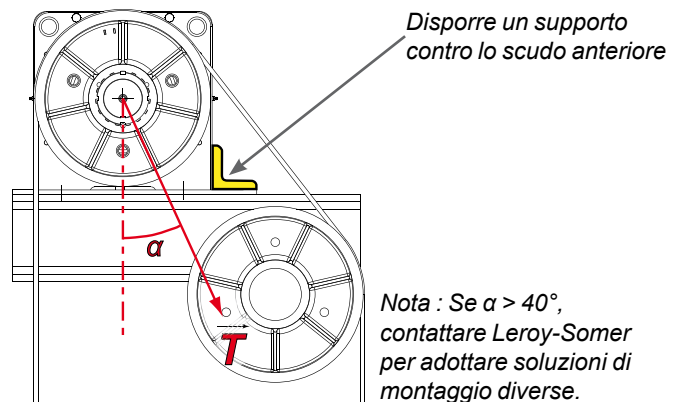
- Una volta installati i cavi, rimontare e bloccare le protezioni.

⚠ Fare molta attenzione al rischio di intrappolamento delle dita tra i cavi e la puleggia.

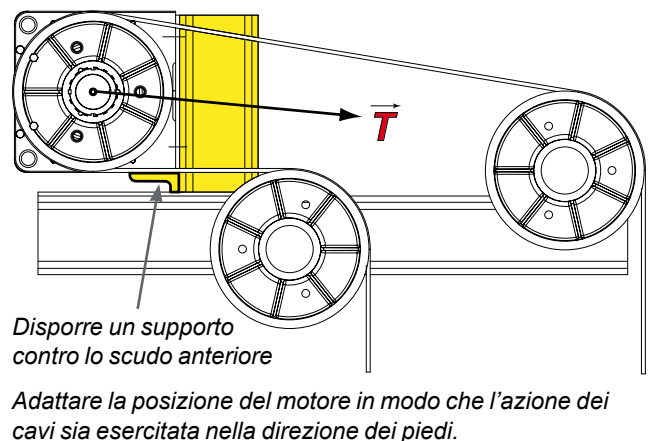
4.1.3 - Uso di una puleggia di deflessione

Se è necessario utilizzare una puleggia di deviazione, deve essere montata come indicato a lato (T è la forza generata dall'azione dei cavi sulla puleggia).

Deviazione semplice:



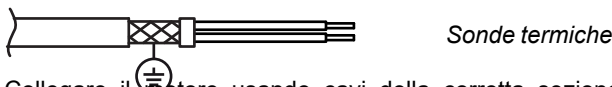
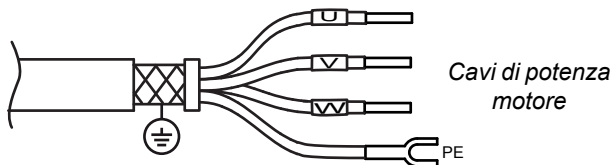
Deviazione doppia:



4.2 - Installazione elettrica

4.2.1 - connessione cavimotore e sondetermiche

Il cavo schermato deve essere collegato alla massa. All'uscita cavi vi è un pressacavo.



Collegare il motore usando cavi della corretta sezione (i cavi devono essere adeguati alla corrente, vedere tabella sottostante).

Nominale I (A) per fase	9,5	12	16	25	34	40	46
Sezione mini dei cavi (mm ²)	1,5	1,5	2,5	4	6	10	10

! È responsabilità dell'utente finale connettere il motore in accordo alla legislazione e regolamentazione del paese dove è in utilizzo il motore. è particolarmente importante la dimensione dei cavi, la taglia e il tipo dei fusibili, la massa o terra, la messa sotto tensione, la regolazione di default d'isolamento e le protezioni contro la sovra corrente.

Questa tabella è data unicamente per informazioni e non si sostituisce alle norme in vigore. le raccomandazioni della sezione sono date per il singolo cavo con una max lunghezza di 10 m.

sotto questa linea di guardia prendere in considerazione la caduta di linea.

Particolare attenzione va data al serraggio dei morsetti(un cattivo serraggio può danneggiare le connessioni(vedere fig in diag 6)

- connettere i cavi di potenza al terminale U1, V1 e W1 in accordo con IEC600034-1
- connettere le sonde termiche all'inverter
- connettere la massa del motore alla terra

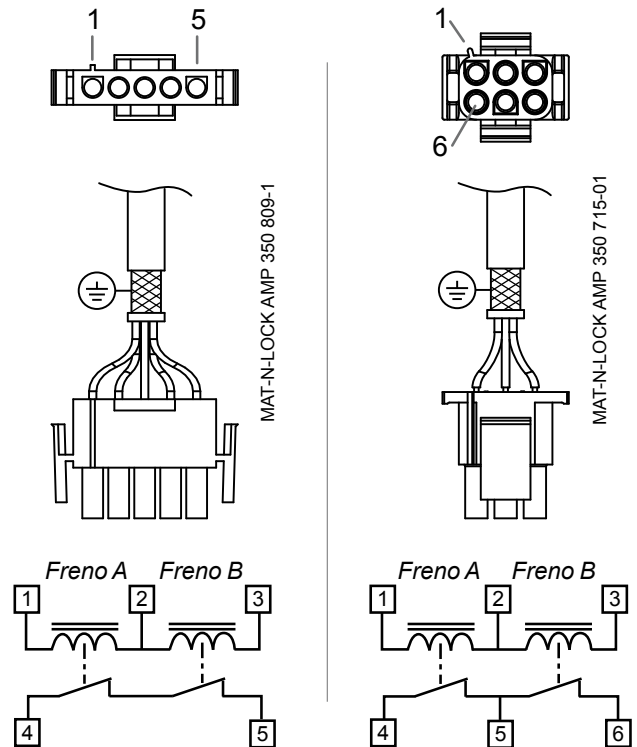
4.2.2 - Cablaggio dei freni e dei micro-contatti

I microcontatti sono di tipo «NF».

Se si utilizza una scheda gestione freno tipo CDF seguire le sue istruzioni. Se è necessario utilizzare una scheda di alimentazione CDF opzionale, consultare il manuale della scheda.

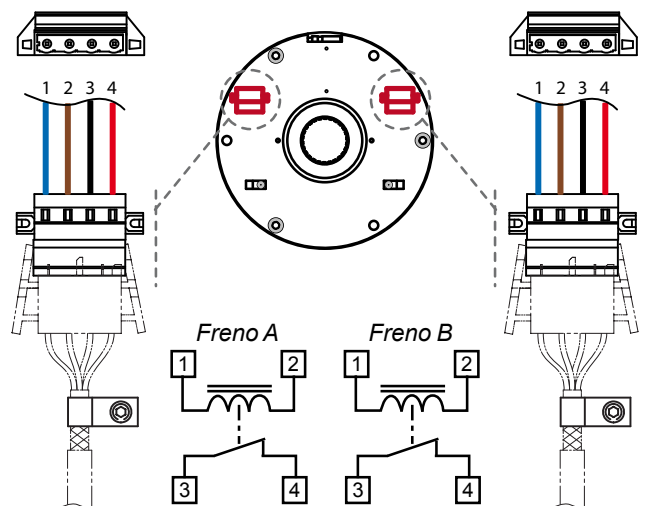
Sono possibili 3 versioni di connessione sul motore XAF (eccetto con la scatola morsettiera) :

cavi con 5 o 6 pin



Connettori 4 pin montati sul freno

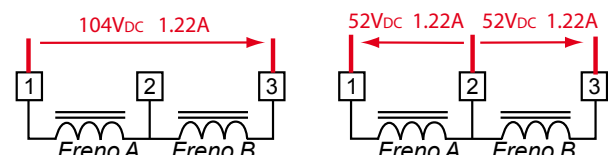
Due connettori WAGO 731-604/019-000. sono nella parte posteriore del motore/freno). Il fissaggio è sul connettore.



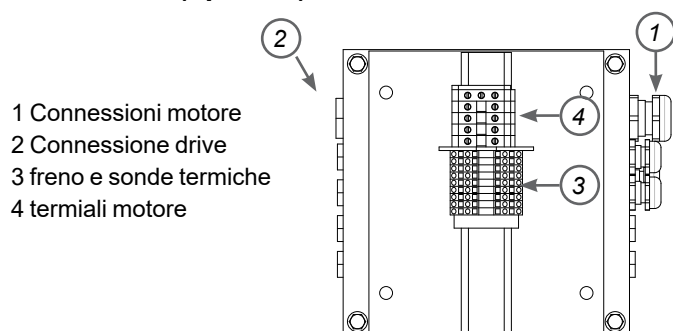
Connessione elettrica del freno:

I dati di tensione di induzione freno e valori di corrente sulla targa motore sono per ogni singolo freno

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



4.2.3 - Connessione del motore ad una scatola morsettiera (opzione)



- 1 Connessioni motore
- 2 Connessione drive
- 3 freno e sonde termiche
- 4 terminali motore

Uno schema di connessione è presente sulla cover della scatola morsettiera

4.2.4 - Cablaggio dell'encoder

Identificare l'encoder per mezzo del riferimento sull'etichetta (fig. 7).

Collegare l'encoder al variatore tramite la presa HD15.

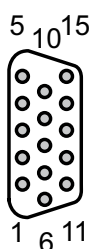
Encoder ECN 413: encoder SinCos con collegamento EnDat.

Encoder ERN 426: encoder incrementale.

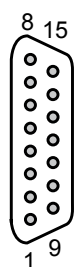
CONNETTORE			TIPO DI ENCODER	
SUB-D DE-15	SUB-D DA-15	M23 17 P	ECN 413	ERN 426
1	1	15	Cos	A
2	9	16	CosRef	A/
3	3	12	Sin	B
4	11	13	SinRef	B/
5	5	14	Data	Z
6	13	17	Data \	Z/
7	-	-	-	U
8	-	-	-	U/
9	-	-	-	V
10	-	-	-	V/
11	8	8	Clock _{out}	W
12	15	9	Clock _{out} \	W/
13	4 & 12	1 & 7	+ 5V	+ 5V
14	2 & 10	4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

connettore HD15 maschio

DE-15

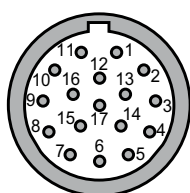


DA-15



connettore

M23 17p maschio



4.3 - Messa in servizio

Prima di eseguire la prima operazione, controllare che gli apparecchi elettrici siano collegati a terra in modo corretto.

Prima della messa in servizio della macchina, controllare che tutti i fissaggi e i collegamenti elettrici siano serrati correttamente. Dopo la messa in servizio, verificare: rumori, vibrazioni, funzionamento dei tasti e degli interruttori. Controllare inoltre l'intensità e la tensione sulla macchina in funzione al carico nominale.

4.4 - Potenza nominale massima

Questo motore XAF è stato studiato in base alle informazioni fornite per il progetto. Questo punto di funzionamento è indicato sulla targa di identificazione (corrente e potenza progetto).

A titolo informativo, è indicato sulla targa di identificazione con i valori «Corrente nominale massima» e «Potenza nominale massima».

Se durante la messa in servizio la corrente misurata è superiore a quella stabilita per il progetto, il tecnico dovrà accertarsi che non venga superata la corrente nominale massima.

5 - MANUTENZIONE ORDINARIA

5.1 - Dopo 1 mese di funzionamento

- Controllare il corretto serraggio delle viti o dei collegamenti elettrici.
- Controllare le vibrazioni. Verificare che non ci siano rumori anomali.
- Se è necessario verificare l'usura del freno: misurare che il traferro dei freni sia conforme al valore indicato nella tabella 1 dell'allegato 1.

5.2 - Ogni anno

Come §5.1.

5.3 - Ogni 3 anni

I motori XAF 4 e 6 sono dotati di ingrassatori. Lubrificare i cuscinetti come indicato sulla targa di identificazione (vedere più avanti). Alla prima lubrificazione, aumentare le quantità di 15 g.


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

6 - PROCEDURA DI REGOLAZIONE DEI FRENI E DEI MICRO-CONTATTI

Corrispondenze tipo di motore / tipo di freno:

Modello motore	Modello 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 - Regolazione dei freni


 Questa operazione deve essere effettuata presso un Centro di assistenza autorizzato Leroy-Somer.

6.2 - Regolazione dei micro-contatti

Consultare l'allegato 1 § 3.1

7 - SOSTITUZIONE DELL'ENCODERE DELLA PULEGGIA

7.1 - Sostituzione dell'encoder

 Mettere in sicurezza il carico prima di qualsiasi operazione sul motore. Assicurarsi che nessuna coppia sia applicata al rotore.

- Scollegare l'encoder.
- Scollegare i connettori dei freni.
- Verificare che il nuovo encoder sia identico a quello del motore.

IMPORTANTE: non smontare il pezzo di supporto dell'encoder (riferimento 2 fig. 7) fissato sul freno. Il pezzo viene centrato in fabbrica tramite un utensile speciale con una precisione di un decimo di grado.

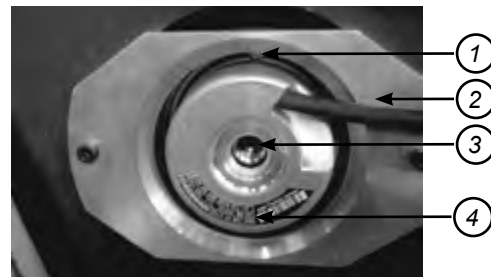


Fig. 7:
Fissaggio
dell'encoder

7.1.1 - Smontaggio dell'encoder

- Svitare (2 giri di chiave SW2) la vite di fissaggio della scatola dell'encoder (riferimento 1 fig. 7) nel pezzo di supporto.
- Svitare il tappo dell'encoder (chiave SW4 o cacciavite).
- Svitare la vite centrale (chiave SW4) di fissaggio dell'encoder (riferimento 3 fig. 7) sull'albero motore.
- Estrarre l'encoder dal supporto (secondo il modello).

7.1.2 - Rimontaggio dell'encoder

- Introdurre la rondella di supporto dell'encoder (riferimento 1 fig. 9) sull'estremità dell'albero motore. Assicurarsi che sia posizionata correttamente picchiando leggermente con una chiave e un martello.
- Svitare il tappo del nuovo encoder (chiave SW4 o cacciavite).
- Introdurre l'encoder nel pezzo di supporto (riferimento 2 fig. 9) fissato sul freno, poi serrare la vite centrale Chc M5 X 50 (chiave dinamometrica SW4) a un valore di coppia di 5 Nm 0/+0,5 Nm. La Vite con bloccafiletto può essere utilizzata al massimo 3 volte.



Fig. 9:
Supporti encoder

- Serrare la vite piccola Chc M2.5 (riferimento 1 fig. 7) (chiave cacciavite dinamometrico SW2) della scatola dell'encoder a un valore di coppia di 1,25 Nm 0/-0,2 Nm.
- Riavvitare il tappo dell'encoder (chiave SW4 o cacciavite).
- Procedere, se necessario, al bloccaggio dell'encoder (vedere il manuale del variatore).

7.2 - Sostituzione della puleggia

7.2.1 - Rimozione della puleggia

! Mettere in sicurezza il carico prima di qualsiasi operazione sul motore. Assicurarsi che nessuna coppia sia applicata al rotore.

- Allentare il dado SKF.
- Togliere il dado SKF.
- Creare una piastra di estrazione secondo lo schema seguente (diametri da misurare sulla puleggia). Installare 3 viti e 3 dadi sul supporto (Fig. 10).
- Smontare la puleggia. **ATTENZIONE:** la puleggia rischia di cadere.

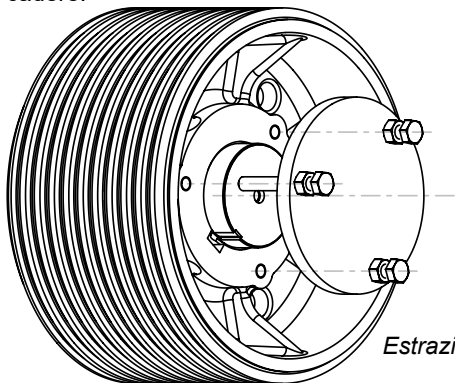


Fig. 10:
Estrazione della puleggia

7.2.2 - Reinstallazione della puleggia

- Pulire tutte le parti e verificare la buona confizione
- Mettere la chiave sull'albero
- Portare la puleggia in prossimità del cono
- Inserire una rondella spessore (spessore 2mm)
- Serrare il dado freno SKF secondo la tabella qui sotto (step 1)
- Togliere il dado e la rondella distanziale
- Montare la rondella SKF
- Serrare il dado freno SKF secondo la tabella qui sotto (step 2)
- Bloccare il dado di bloccaggio con la rondella

XAF	Step 1 (Nm ± 10%)	Step 2 (Nm ± 10%)	Formato dado	Formato boccola di serraggio
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 - SOSTITUZIONE DEI FRENI E DEI MICRO-CONTATTI

! Questa operazione deve essere effettuata presso un Centro di assistenza autorizzato Leroy-Somer.

9 - ORDINE DEI PEZZI DI RICAMBIO

Per usufruire di un servizio post-vendita ottimale, è necessario indicare quanto segue all'atto dell'ordine:

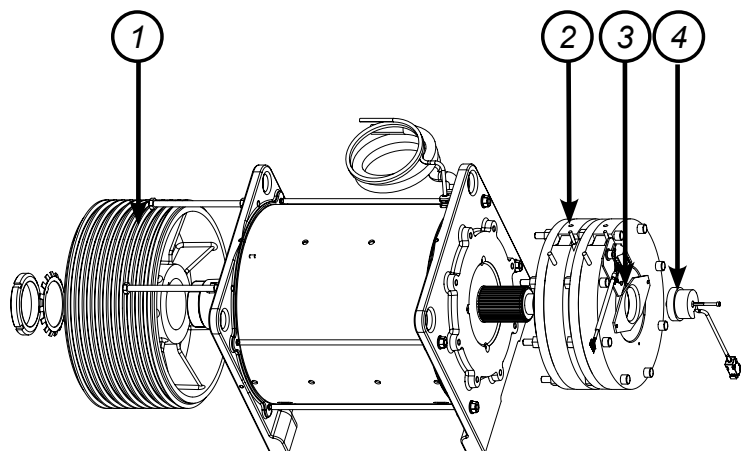
- tipo e numero di serie del motore;
- per ogni pezzo:
- designazione del pezzo e (o) codice di riferimento;
- quantità ordinata.

Per un'identificazione immediata, si prega di indicare il riferimento del documento utilizzato per l'ordine (numero del disegno o della nota). Il tipo e il numero di serie sono riportati sulla targa di identificazione del motore.

I cuscinetti e il freno devono essere smontati solo presso un Centro di assistenza autorizzato da Motori Leroy-Somer.

Designazione dei pezzi:

Riferim.	Designazione
1	Puleggia
2	Freno completo
3	Supporto encoder
4	Kit encoder
Opzione	Alimentazione del freno CDF



SM411gb - rev 09/12

Electrically Released Brakes

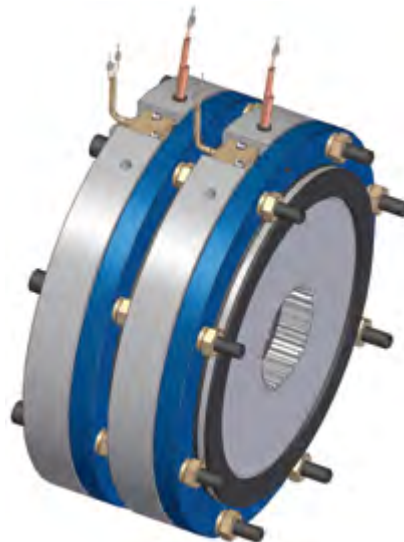
ERS VAR07 SZ 300/300

ERS VAR09 SZ 600/500

ERS VAR09 SZ 600/600

ERS VAR09 SZ 1000/800

ERS VAR09 SZ 1700/1200



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

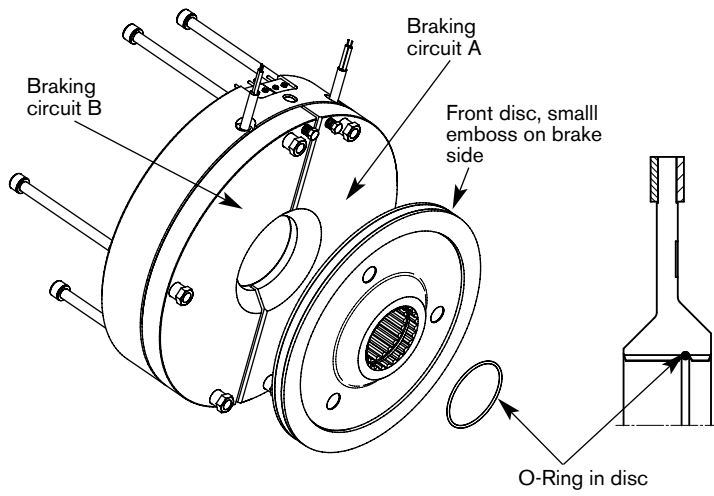


Fig. 1a

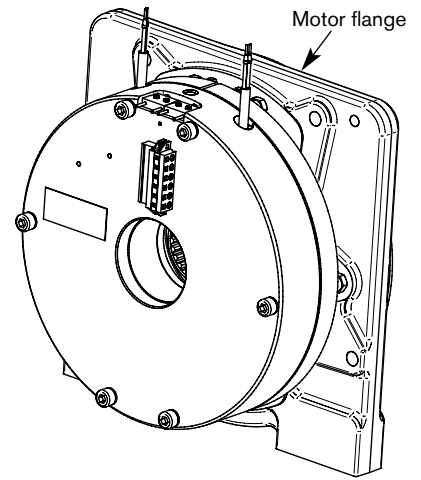


Fig. 2a

ERS VAR09 SZ 600/500, SZ 600/600

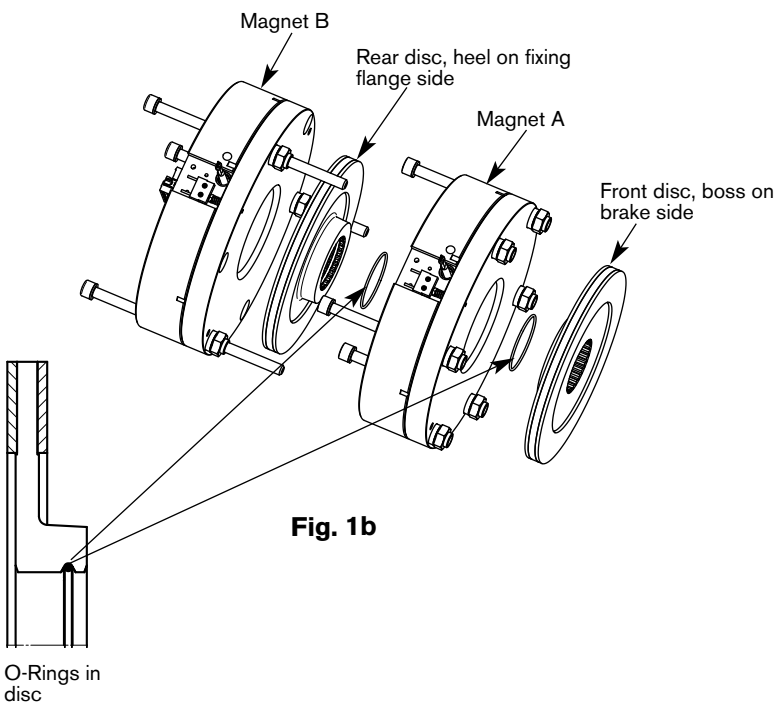


Fig. 1b

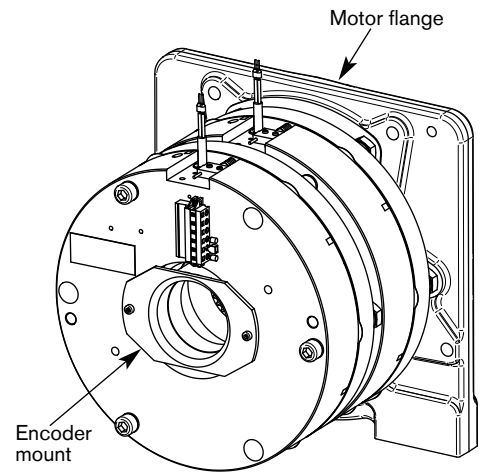


Fig. 2b

ERS VAR09 SZ 1000/800

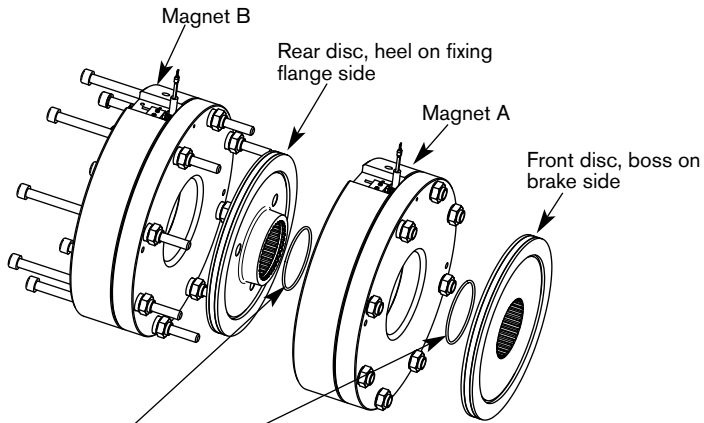


Fig. 1c

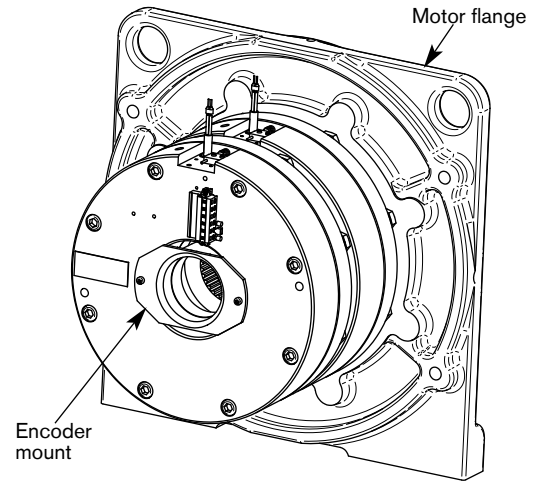


Fig. 2c

ERS VAR09 SZ 1700/1200

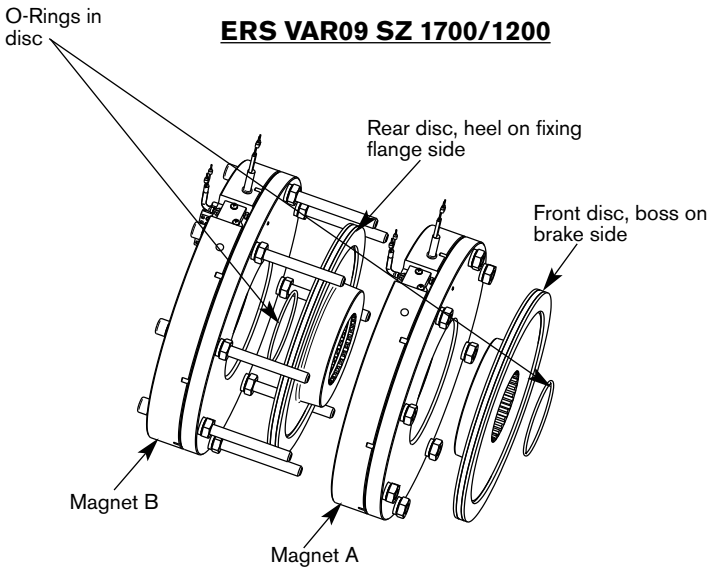


Fig. 1d

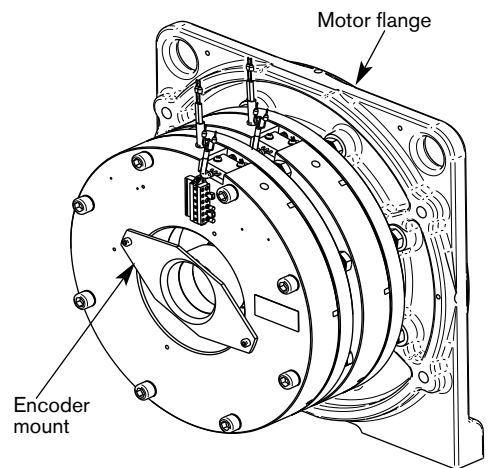







Fig. 2d



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	GAF300FD011	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
	Voltage (holding) +5%/-10%	VDC	24	52	103,5	24	52	103,5
	Power (inrush)	Watt	199	217	207	199	217	207
	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	GAF500FD017	/	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
	Voltage (holding) +5%/-10%	VDC	24	52	103,5	24	52	103,5
	Power (inrush)	Watt	/	205	239	/	205	239
	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	GAF600FD013	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
	Voltage (holding) +5%/-10%	VDC	24	52	103,5	24	52	103,5
	Power (inrush)	Watt	233	205	239	233	205	239
	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
	Voltage (holding) +5%/-10%	VDC	24	52	103,5	24	52	103,5
	Power (inrush)	Watt	/	141	/	/	141	/
	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
	Voltage (holding) +5%/-10%	VDC	24	52	103,5	24	52	103,5
	Power (inrush)	Watt	/	257	325	/	257	325
	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
	Voltage (holding) +5%/-10%	VDC	24	52	103,5	24	52	103,5
	Power (inrush)	Watt	/	293	377	/	293	377
	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 replaced after water contamination.
- This product is not suitable for use according to ATEX/94/9/EC.
- These units are designed for use in an ambient 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 responsibility 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 intended 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 $\leq Ra 3,2$

Protection: Phosphatizing dry or nitriding

Geometrical tolerances:

	0,1	Customer's shaft axis
	0,1	

The brakes are delivered pre-assembled with pre-set micro-switches 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 the customer'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 $\pm 10\%$ (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

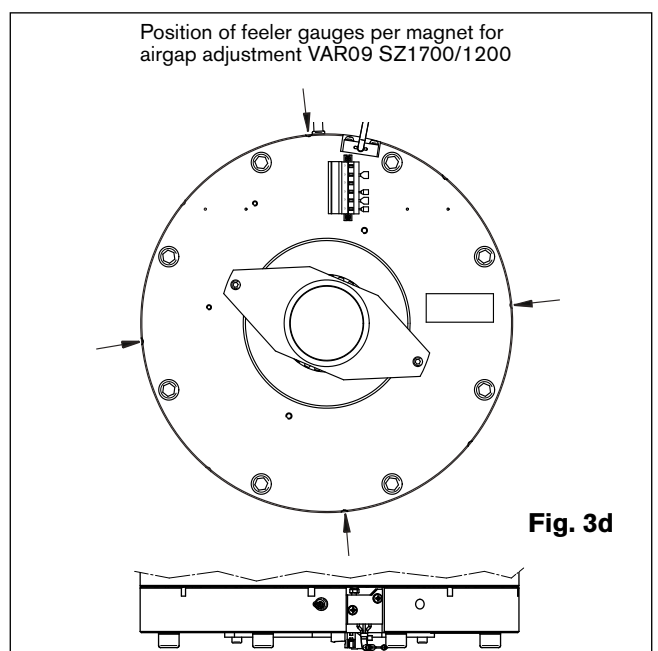
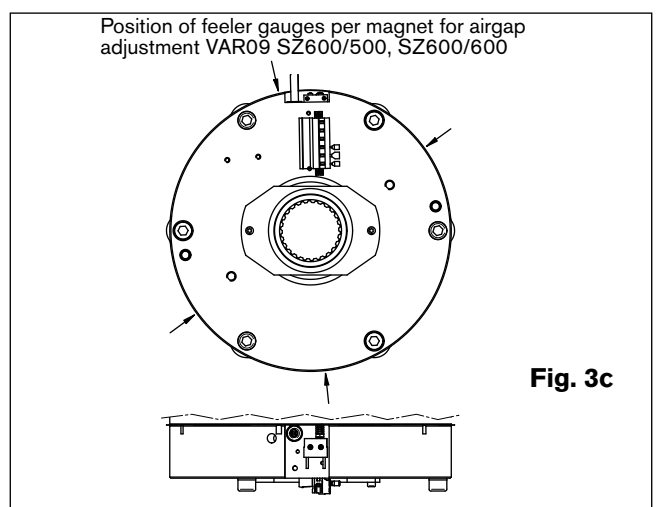
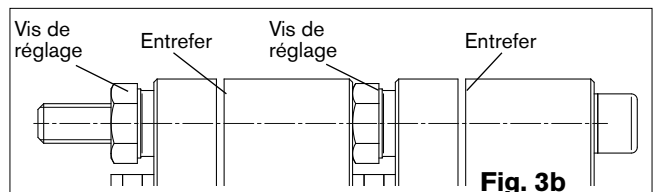
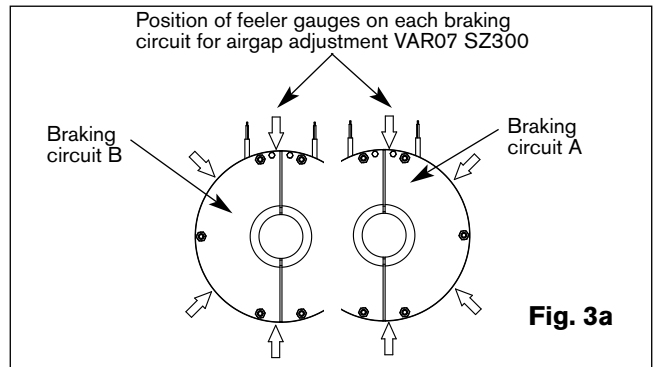


Check the airgap at each maintenance inspection.



Reminder: Normal use will not lead to any noticeable wear on the lining. Any dynamic braking is restricted to emergency and test braking. If, for any reason, it should be necessary to adjust the 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).



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

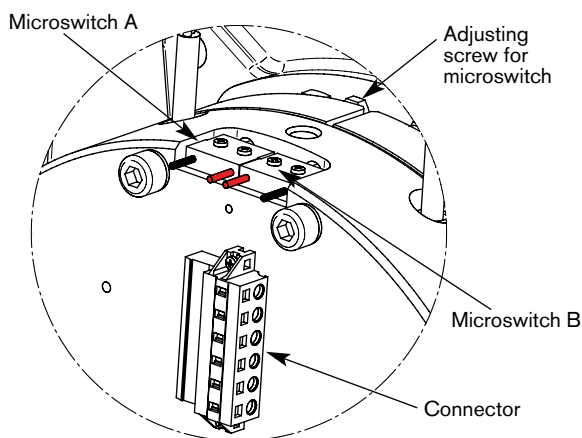


Fig. 5a

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

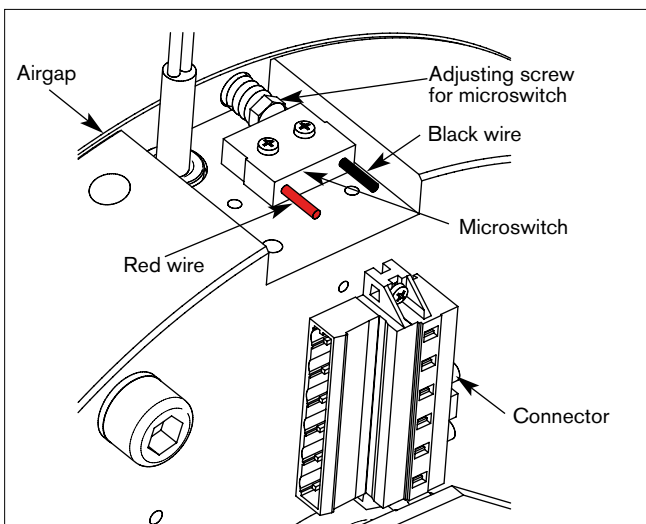


Fig. 5b

ERS VAR09 SZ 1700/1200

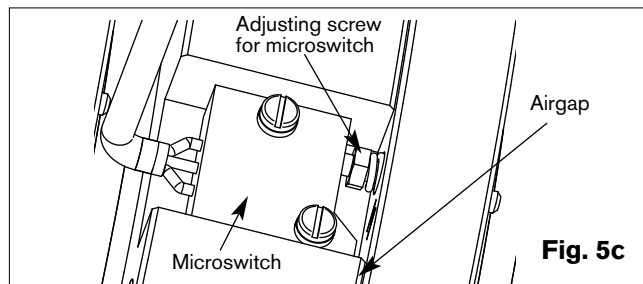
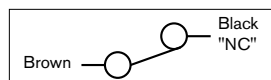


Fig. 5c

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.

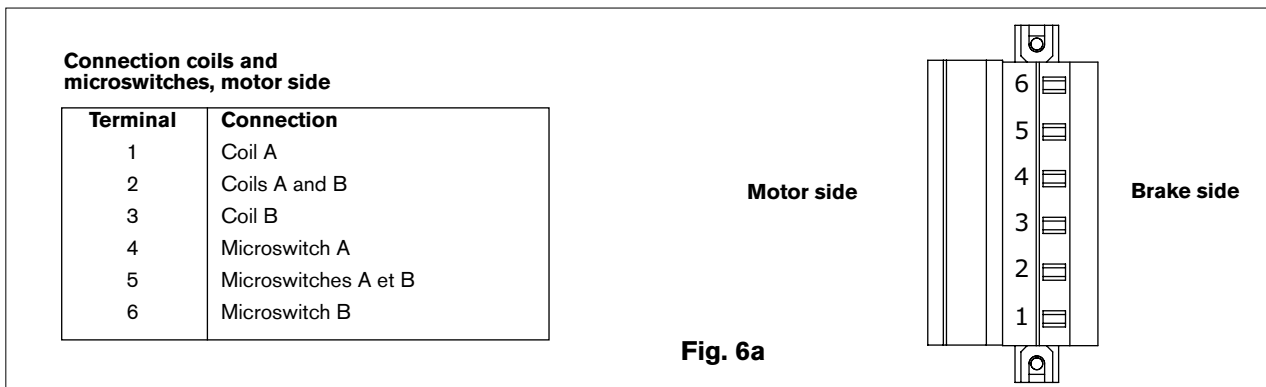
Length of cable	0 - 10 m	from 10 to 20 m
Cross section	1,5 mm ²	2,5 mm ²

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

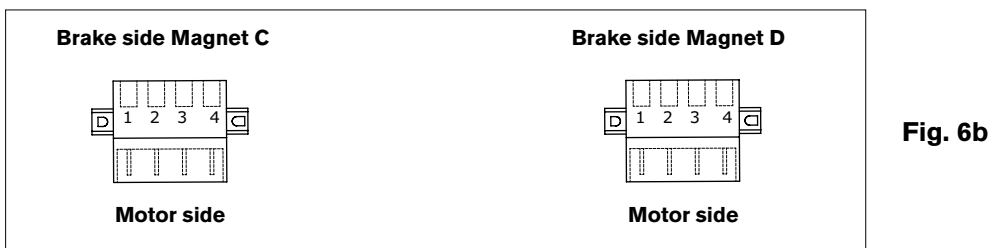
5.2 Electric connection

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



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



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)

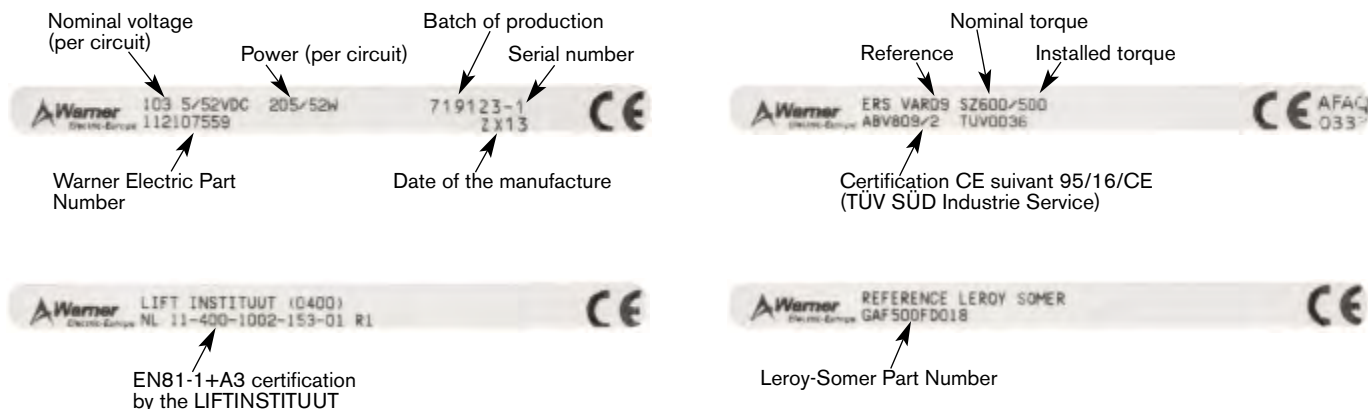
WARNING: in the event of connection in series of the magnets, the values of tension to be applied between terminals 1 and 3 with motor side, must be adapted.

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 6/flat (M8 VAR07 SZ300) 8/flat (M10 BVAR09 SZ600 et SZ 1000) 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	<ul style="list-style-type: none"> Power supply is too low Power supply is interrupted Airgap too large Worn disc Coil is damaged Airgap too small 	<ul style="list-style-type: none"> Adjust power supply Reconnect power supply, check the adjustment of microswitch Re-adjust the airgap (chapter 4.1) Change disc and readjust the airgap Replace the brake Re-adjust the airgap (chapter 4.1)
Brake does not brake	<ul style="list-style-type: none"> Voltage present at switch off position Grease on friction faces 	<ul style="list-style-type: none"> Check the microswitch's adjustment and the customer's power supply Clean the friction faces, change the disc
Nuisance braking	<ul style="list-style-type: none"> Power supply is too low Wrong information from microswitch 	<ul style="list-style-type: none"> Adjust power supply Re-adjust the microswitch

Subject to alteration without prior notice



EC type-examination certificate

Certificate no.: ABV 819

Notified body: TÜV SÜD Industrie Service GmbH
Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
Westendstraße 199
80686 München - Germany

**Applicant/
Certificate holder:** WARNER Electric Europe
7, rue de Champfleür
BP 20095
49124 St. Barthelemy D'Anjou - France

Date of application: 2009-04-21

Manufacturer: WARNER Electric Europe
7, rue de Champfleür
BP 20095
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
Prüflaboratorium für Produkte der Fördertechnik
Prüfbereich Aufzüge und Sicherheitsbauteile
Westendstrasse 199
80686 München - Germany

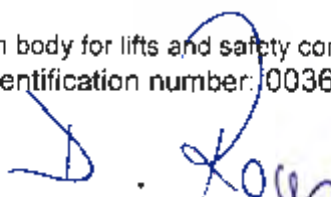
**Date and
number of test report:** 2009-06-29
819

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



**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)
 $\pi = 3,14$
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 off 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 from 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.

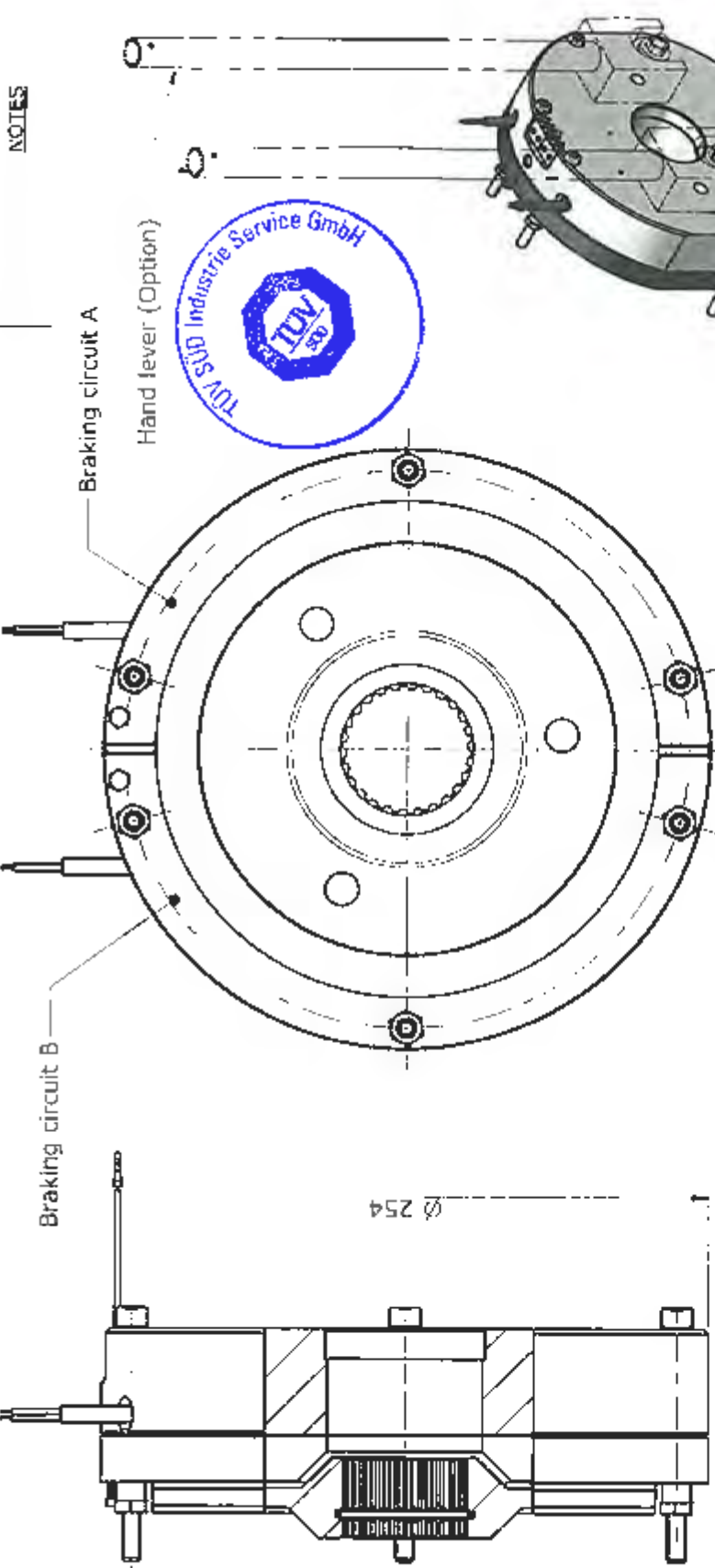
Shaft failure in this area must therefore be ruled out by appropriate design and sufficient dimensioning. In order to eliminate or reduce influencing factors which may lead to failure wherever possible, the following requirements must be satisfied:

- 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

- 1 Juli 2009

- GEPRÜFT -
 TÜV SÜD Industrie Service GmbH
 Zentralbereich Fördertechnik-Sonderbauten
 Abteilung Aufzüge und Sicherheitsbauteile
 Westendstr. 199, D-80699 München
 Der Sachverständige



TUV DIFFUSION

Customer no.:		Customer no.:	
Dimensions in mm:		Drawn:	G. Ferrand Date: 21.04.09
Material/Process:		Checked:	J.G.J. Date: 21.04.09
Mass:		FM	LT
Insulator class (°C):	1:1:1	REVISION	DATE
By Ch:			
Design: Frein électromagnétique Electromagnetic brake			
Type: ERS VAR07 52300/300			
No 1 12 107185			

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EC type-examination certificate

Certificate no.: ABV 809

Notified body: TÜV SÜD Industrie Service GmbH
Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
Westendstrasse 199
80686 München - Germany

**Applicant/
Certificate holder:** WARNER Electric Europe
7, rue de Champfleür
BP 20095
49124 St. Barthelemy D'Anjou - France

Date of submission: 2008-11-18

Manufacturer: WARNER Electric Europe
7, rue de Champfleür
BP 20095
49124 St. Barthelemy D'Anjou – France

Altra Industrial Motion (Shenzhen)
Songshan Industry Zone
12 Songshan Western Road
Bogang county, Shajing town
Baoan district, Shenzhen city
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
Abteilung Aufzüge und Sicherheitsbauteile
Westendstrasse 199
80686 München - Germany

**Date and number
of test report:** 2009-02-06
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



**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 of the protection device against overspeed for the car moving in upwards direction an overspeed governor as per EN 81-1, paragraph 9.9 must be used to monitor the upward speed and the 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 from 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.

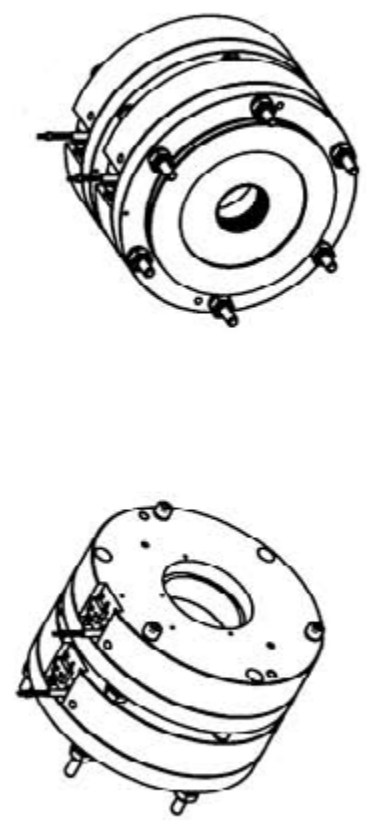
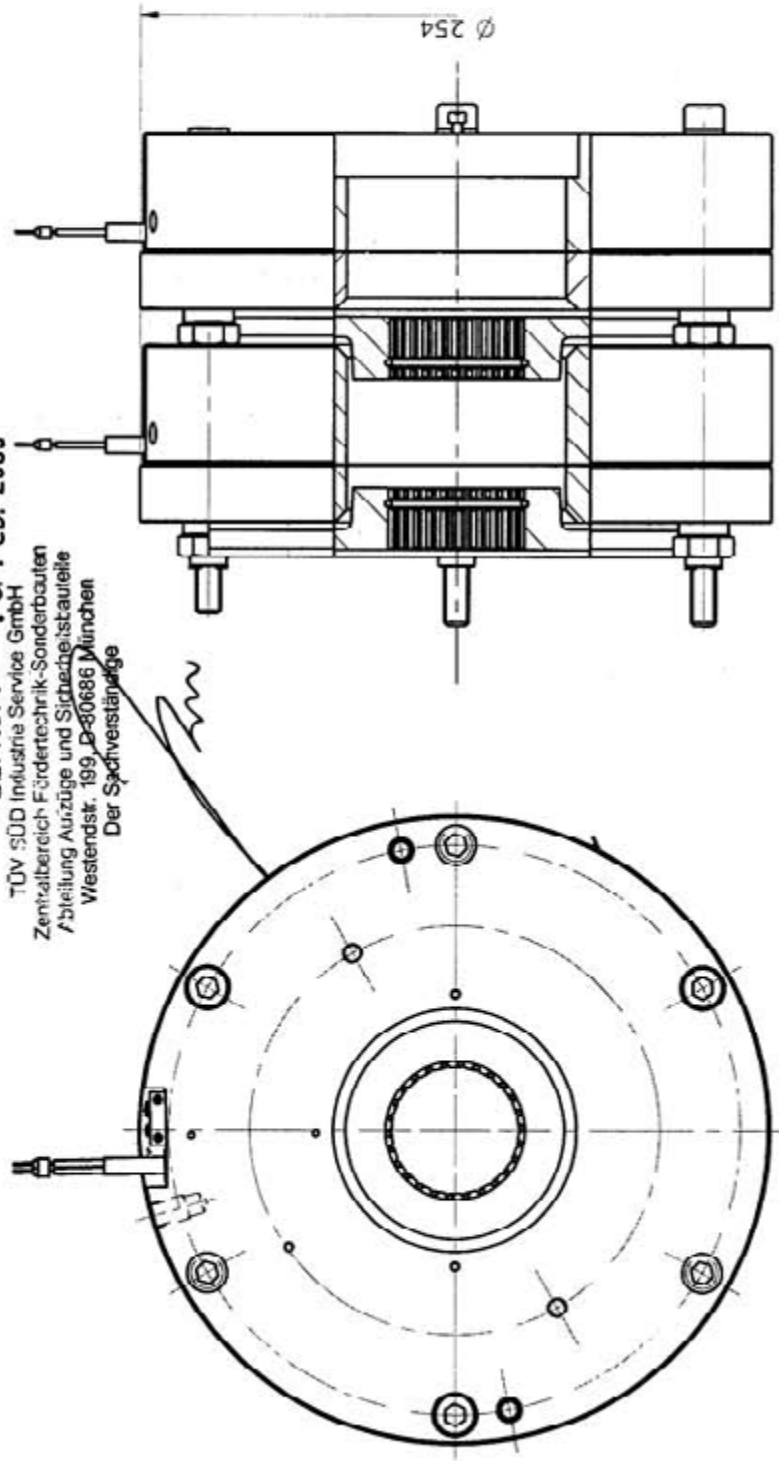
Les cotes sans indicateur de tolérances sont des cotes nominales.
 Intoleranced dimensions are nominal dimensions.

NOTES

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



1-9 NOV. 2008



Client/customer:		Customer ref:	
Mq (Nm) :		Dimensions in mm:	
Mq (Nm) :		Manual/Notice :	
n (min-1) :		Mass :	
n max (min-1) :		Scale:	1:1
U (Vdc) :		Insulation class (°C):	
p23°C (W) :		Capable to provide the Warner Electric products and services. The product is not a reproduction of the original without the permission of the manufacturer.	
		This document is the property of Warner Electric Europe. It is not to be copied or reproduced totally or partially without written permission.	
Design: Frein électromagnétique Electromagnetic brake		Type: ERS VAR09 SZ600 / ---	
Drawn : G. Ferrand Date: 07.11.08 Checked: MP Date: 18.11.08		N° 1 12 107132	
PM	LT	REVISION	DATE
By	Ch.		



Industrie Service

EC type-examination certificate

Certificate no.: ABV 811

Notified body: TÜV SÜD Industrie Service GmbH
Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
Westendstrasse 199
80686 München - Germany

**Applicant/
Certificate holder:** WARNER Electric Europe
7, rue de Champfleür
BP 20095
49124 St. Barthelemy D'Anjou - France

Date of submission: 2009-01-12

Manufacturer: WARNER Electric Europe
7, rue de Champfleür
BP 20095
49124 St. Barthelemy D'Anjou - France

Altra Industrial Motion (Shenzhen)
Songshan Industry Zone
12 Songshan Western Road
Bogang county, Shajing town
Baoan district, Shenzhen city
518104 Guangdong 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
Abteilung Aufzüge und Sicherheitsbauteile
Westendstrasse 199
80686 München - Germany

**Date and number
of test report:** 2009-02-06
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. Meizer

Siegfried Meizer





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 of the protection device against overspeed for the car moving in upwards direction an overspeed governor as per EN 81-1, paragraph 9.9 must be used to monitor the upward speed and the 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 from 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 ÉRS 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.

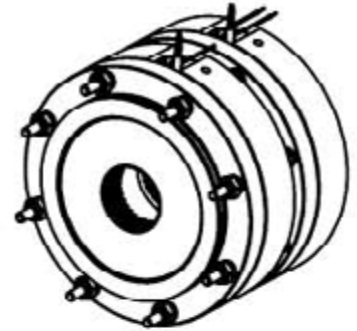
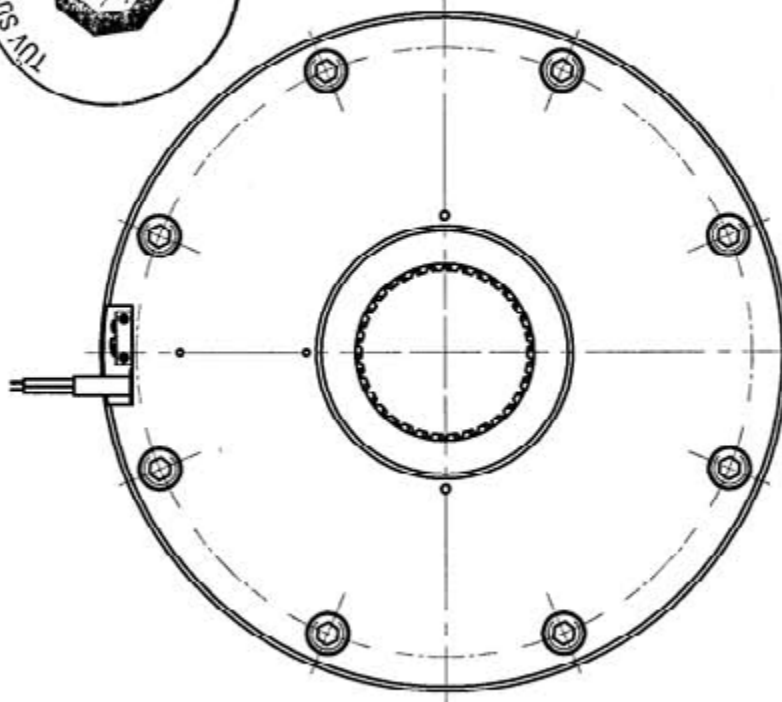
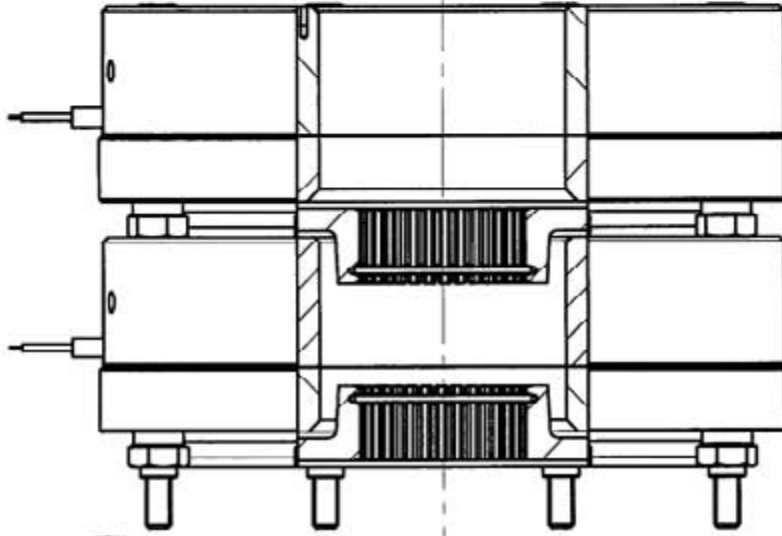
Les cotes sans indication de tolérances sont des cotes nominales.
 Untoleranced dimensions are nominal dimensions.

NOTES

10. Feb. 2009

- GEPRÜFT -
 TÜV SÜD Industrie Service GmbH
 Zentralelekt. Fachtechnik-Sonderbauten
 Abteilung Auszüge und Sicherheitsbauteile
 Westendstr. 199, D-80636 München
 Der Sachverständige

Ø 273



Client/customer:	Customer ref :
M _s (Nm) :	Dimensions in mm :
M _d (Nm) :	Manual/Notice : SM
n Hd (min-1) :	Mass :
n max (min-1) :	Scale: 1:2
U (Vdc) :	Insulation class (°C):
P20°C (W) :	

FM	LT	REVISION	DATE	By	Ch.
Draws : G. Ferrand			Date: 12.01.2009		
Checked: JcJ			Date: 13.01.2009		
Design: Frein électromagnétique					
Electromagnetic brake					
Type: ERS VAR09 SZ1000/800					
N° I-1 12 107136					

Warner
 Electric
 Europe

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EC type-examination certificate

Certificate no.: ABV 591/1

Notified body: TÜV SÜD Industrie Service GmbH
Zertifizierungsstelle für Aufzüge und Sicherheitsbauteile
Westendstraße 199, 80686 München - Germany

**Applicant/
Certificate holder:** WARNER Electric Europe
7, rue de Champfleür
BP 20095
49124 St. Barthélemy D'Anjou - France

Date of submission: 2007-10-31

Manufacturer: WARNER Electric Europe
7, rue de Champfleür
BP 20095
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
Abteilung Aufzüge und Sicherheitsbauteile
Westendstraße 199, 80686 München - Germany

**Date and number
of test report:** 2007-11-15
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





**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)
 π = 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 of the protection device against overspeed for the car moving in upwards direction an overspeed governor as per EN 81-1, paragraph 9.9 must be used to monitor the upward speed and the 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 from 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

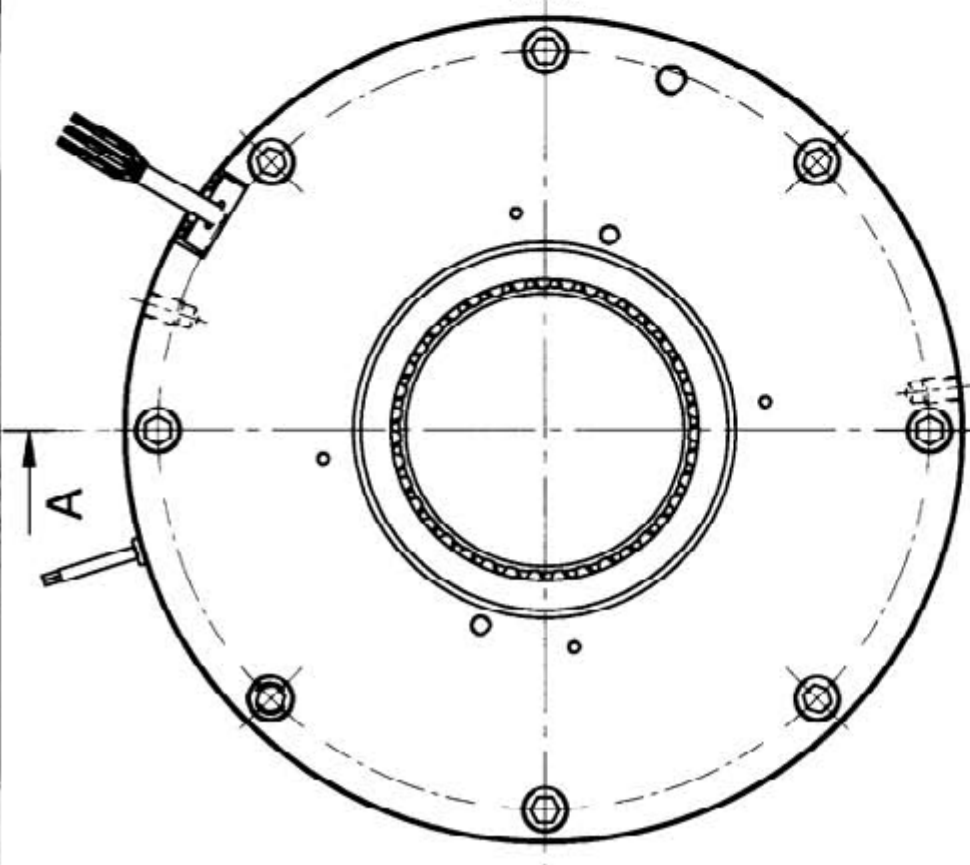
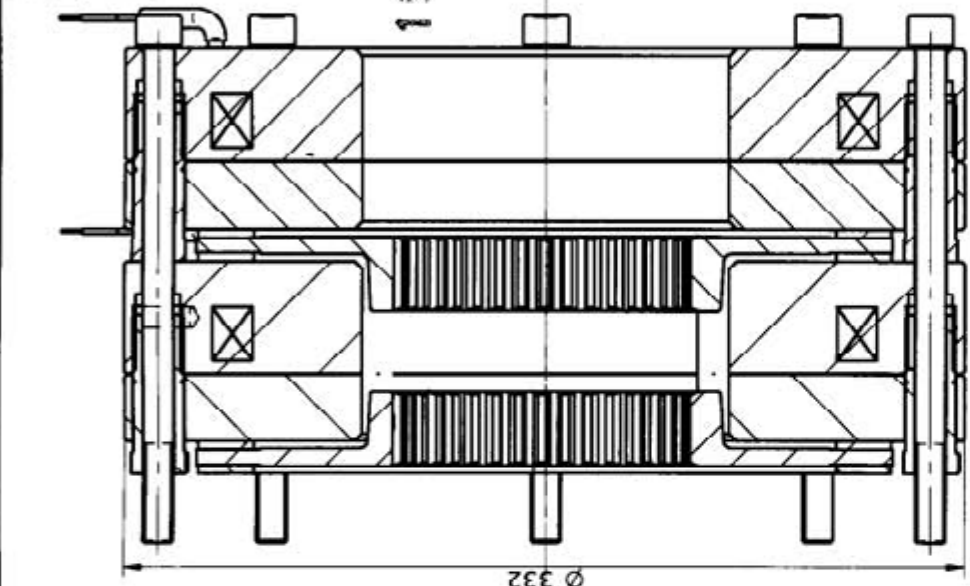
- 3.1 The brake moment effectively adjusted of one brake circuit will be marked at the blank after the type designation ÉRS VAR 09 SZ 1700/___ .
- 3.2 The permissible braking moments must be applied to the lift system in such a manner that they do not decelerate more than $1 g_n$ if the empty car is 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.

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

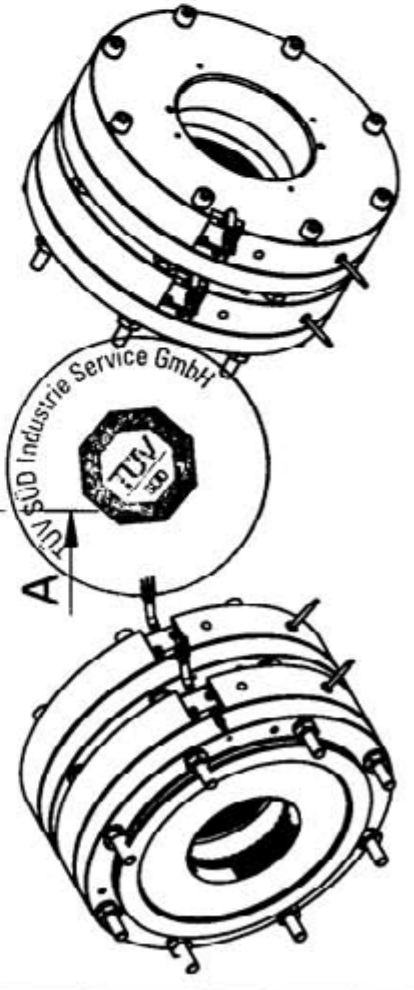
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- GEPRÜFT -


TÜV SÜD Industrie Service GmbH
 Zenträrbereich Förder- und Antriebstechnik
 Abteilung Aufzüge und Stiegeleinbauteile
 Westerntor (EG, D-60588 München
 Der Sachverständige
 Hand lever (option)



A-A



Customer ref :	
Dimensions in mm	
Manual/Notice :	
Mass :	Scale :
Insulation class (°C) :	
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FM	LT	Up to date	REVISION	DATE	By	Ch.
				14.11.07	GFE	
		Drawn : M. Peiraud Checked : B. Pito Date: 12.07.01				
Design: Frein électromagnétique Electromagnetic brake						
Type: ERS VAR09 SZ1700/----						
					N° 1 12 106581	
					A	

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