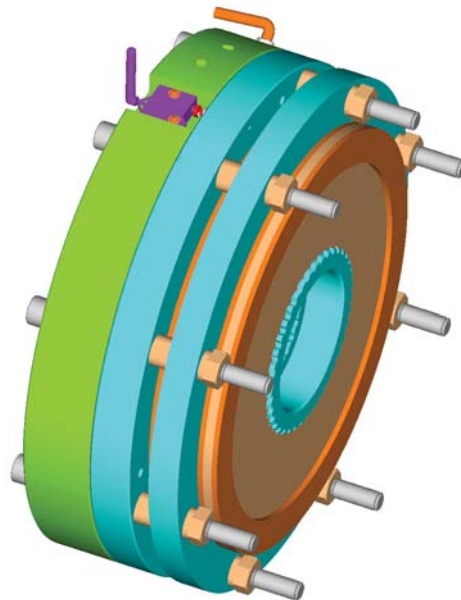


SM356gb - rev 01/06

## Electrically Released Brakes ERS VAR10 SZ 1000 to SZ 2500



We, **WARNER ELECTRIC EUROPE**, 7, rue Champfleu, B.P. 20095, F-49182 St Barthélemy d'Anjou Cedex declare that the brakes made in our factory from St Barthélemy d'Anjou,

and hereafter designated: **ERS VAR10**

Fully comply with directive 95/16/EC on Lifts, and are intended for incorporation into an installation or for assembly with other equipment, with the aim of constituting a machine subject to the application of directive 98/37/EC and the directive on Electromagnetic Compatibility 89/336 (modified).

Compliance with the basic requirements of the Low Voltage Directive 73/23 (modified) is guaranteed by our full compliance with the following standards: NFC 79300 and VDE 0580/8.65.

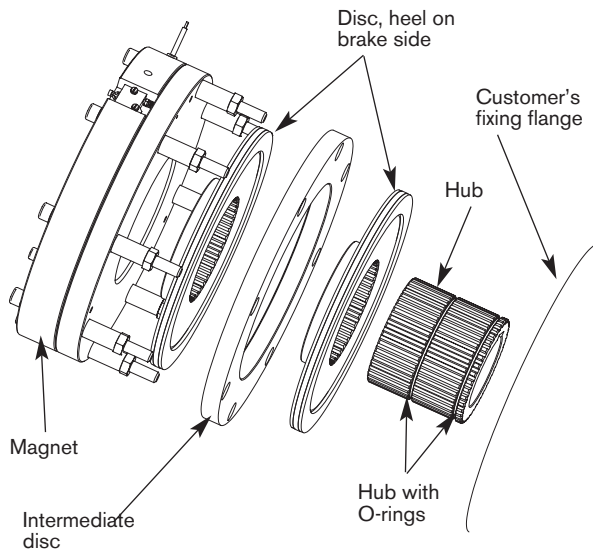
Drawn up in St Barthélemy d'Anjou, July 2002  
E. PRAT, General Managing Director

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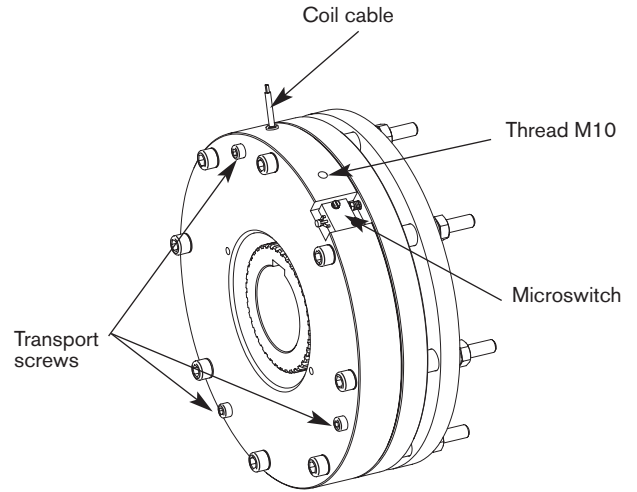


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### 1 Technical specifications



**Fig. 1**



**Fig. 2**

 <b>Table 1</b> Certificate TÜV N° according to drawing		<b>ERS VAR10</b>								
		ABV 725 1 12 106732			ABV 728 1 12 106726			ABV 592/1 1 12 106582		
Size		<b>SZ 1000/1000</b>			<b>SZ 1600/1600</b>			<b>SZ 2500/2500</b>		
Nominal torque	Nm	1000			1600			2500		
Maximum speed	min <sup>-1</sup>	250			250			250		
Nominal airgap	mm	0,35+0,1/-0,05			0,35+0,1/-0,05			0,45+0,1/-0,05		
Maximum airgap (after wear)	mm	0,7			0,7			0,7		
Voltage (overexcitation)	VDC	24	103,5	207	48	103,5	207	48	103,5	207
Voltage (holding)	VDC	24	52	103,5	24	52	103,5	24	52	103,5
Power (overexcitation)	Watt	138	132	148	207	188	199	209	232	315
Power (holding)	Watt	34	33	37	52	48	50	52	59	79
Cyclic duration factor	ED	60%			60%			60%		
Weight	kg	35			55			60		



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 installations, including the mandatory use of a speed limiting device, in compliance with EN 81-1 paragraphs 9.9 and 9.10.10., as stated in the EC type-examination certificate from TÜV Munich (see ABV number in Table 1).



This brake is designed to work in dry conditions. Friction faces must be kept completely clean of any oil, grease or abrasive dust.



If maximum rotation speeds are exceeded, the guarantee is no longer valid.



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 may be properly released.



This brake is designed for a maximum ambient temperature of 40°C (coating class 155°C). The maximum temperature in continual use is 100°C.



This brake is designed for static applications. Any dynamic braking is restricted to emergency braking and test braking. This brake can in no way replace the safety braking system used during lift descent.

### 2.2 Precautions and safety measures



During maintenance, make sure that the mechanism to be braked 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, owning 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.



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

## 3 Installation

### 3.1 Transport / storage

This brake is delivered in standard packaging that will keep it intact for a period of 6 months during ground, air or sea

transport towards neighbouring continents (without crossing the tropics).

### 3.2 Handling



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



When handling the brake it is recommended to use an eye hook (see Fig. 2 Thread M10).



Never lift the brake by its cables.

### 3.3 Installation



This brake is designed to operate in dry conditions. The friction faces must be completely clear of any oil, grease or abrasive dust.



Specifications for the customer's friction face:  
Material: Steel (150 to 250 HV) or Cast iron  
Roughness  $\leq$  Ra 3,2  
Protection: Phosphatizing (dry) or nitriding

#### Geometrical tolerances:

	0,1	Customer's shaft axis
	0,1	

The brake is delivered pre-assembled with pre-set microswitches and airgaps. Fixing screws, the hub and the O-rings are supplied separately, The O-rings are not pre-assembled on the hub.

- Tighten the three transport screws CHc M8
- Put the hub into position on the customer's shaft.
- Mount the O-rings on the hub (see Fig. 1)
- Engage the disc on the hub as illustrated in Fig. 1, the heel on the brake side
- Engage the rear disc the heel on the brake side with the intermediate disc and the brake on the hub
- Line the brake up with the customer fixing flange, using the fixing screws
- Switch on current to the magnet
- Tighten the fixing screws (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

Size	1000	1600	2500
Fixing screws	4 x M12	4 x M16	8 x M12
Final setting torque ± 10 % (Nm)	130	189	130
Initial setting torque (Nm)	50	50	50
Hexagonal head dimension of adjusting screw (mm)	21	26	21

**Table 2**

**NOTE:** Secure the fixing screws (safety washer or a thermoplastic liquid such as Loctite).

- Remove the three transport screws
- Make all the permanent electrical connections

## 4 Maintenance

### 4.1 Adjusting the airgap

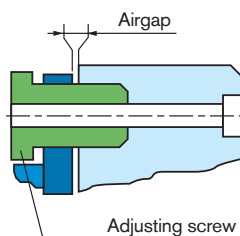


Check the airgap at each maintenance inspection.



**Reminder:** This brake is intended for a static application as a safety brake. Any dynamic braking is restricted to emergency and test braking. Normal use will not lead to any noticeable wear on the lining. If, for any reason, it should be necessary to adjust the airgap, proceed as follows:

- Loosen the fixing screws slightly
- Use the adjusting screws (see Table 2) to adjust the airgap (Fig. 3) until it slightly exceeds the nominal value (see table 1)
- Tighten the screws (refer to point 3.3 Installation)
- Carry out a few successive draws and releases
- Check the airgap at several points
- Repeat the process if necessary

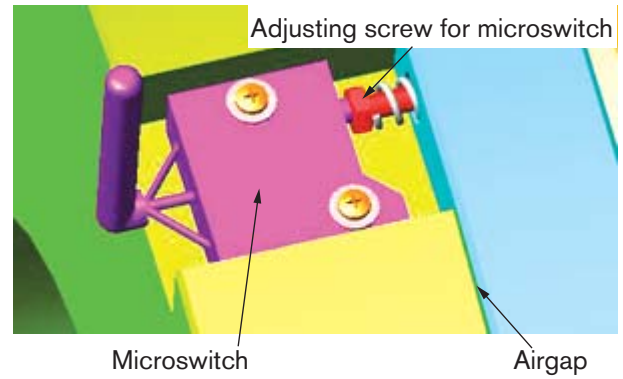


**Fig. 3**

### 4.1 Adjusting the microswitch

Slide a wedge 0,15mm thick close to the screw in the corresponding airgap. Switch on the current and tighten the adjusting screw H M4 (7/flat) in contact with the microswitch until you reach the commutation point. Remove the

wedge. Check that it functions correctly by a few successive draws and releases.



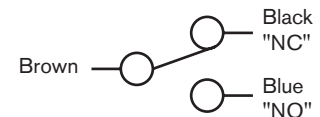
**Fig. 4**

## Operation microswitch

Current range 10 mA to 100 mA at 24 VDC

Maximum electrical lifetime of the microswitch ensure only by switching under resistive load.

### Microswitch connection



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

## 5 Electrical connection

Brakes **ERS VAR10** operate on a direct current supply. Polarity does not affect the way the brake operates.

### 5.1 Important recommendations



All works 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 maximal airgap).



**Emergency braking :** for emergency braking the switching OFF must be connected on DC current 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.

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

## 6 Spare parts

Size	Part number		
	1000	1600	2500
Friction disc	BT 2 12 095307	BT 2 12 095337	BT 2 12 095100
Microswitch	BT 7 67 000421	BT 7 67 000421	BT 7 67 000421
O-ring Kit	BT 2 12 095331	BT 2 12 095332	BT 2 12 095227

## 7 Tool

Size	1000	1600	2500	Function
	Airgap adjustment shims			Airgap and microswitch adjustment
	Open jawed spanner 21 mm A/F	Open jawed spanner 26 mm A/F	Open jawed spanner 21 mm A/F	Airgap adjustment
	Torque wrench (measurement range > 140 Nm) with hexagonal socket insert 10 mm A/F	Torque wrench (measurement range > 200 Nm) with hexagonal socket insert 14 mm A/F	Torque wrench (measurement range > 140 Nm) with hexagonal socket insert 10 mm A/F	Airgap adjustment
	Open jawed spanner 7 mm A/F			Microswitch adjustment
	Multimeter			Voltage checking
	Hexagon wrench key 6 mm A/F			Transport screws

## 6 Troubleshooting and fault elimination

Troubleshooting		
Fault	Cause	Remedy
<b>Brake does not release</b>	<ul style="list-style-type: none"> <li>Power supply is too low</li> <li>Power supply is interrupted</li> <li>Airgap too large</li> <li>Worn disc</li> <li>Coil is damaged</li> <li>Airgap too small</li> </ul>	<ul style="list-style-type: none"> <li>Adjust power supply</li> <li>Reconnect power supply, check the adjustment of microswitch</li> <li>Re-adjust the airgap (chapter 4.1)</li> <li>Change disc and readjust the airgap</li> <li>Replace the brake</li> <li>Re-adjust the airgap (chapter 4.1)</li> </ul>
<b>Brake does not brake</b>	<ul style="list-style-type: none"> <li>Voltage present at switch off position</li> <li>Grease on friction faces</li> </ul>	<ul style="list-style-type: none"> <li>Check the microswitch's adjustment and the customer's power supply</li> <li>Change the disc and re-adjust the airgap</li> </ul>
<b>Nuisance braking</b>	<ul style="list-style-type: none"> <li>Power supply is too low</li> <li>Wrong information from microswitch</li> </ul>	<ul style="list-style-type: none"> <li>Adjust power supply</li> <li>Re-adjust the microswitch</li> </ul>