

# Operator and Parts Manual



## **COBRA** Electric Hi-Frequency poker system

### **Versions:**

**Cobra 115v - order code 93174**

**Cobra 31 poker - order code 93175**

**Cobra 51 poker - order code 93176**

**Cobra 61 poker - order code 93177**

Fairport Construction Equipment manufactures a wide range of products in Sheffield UK. This range is supplemented by high quality product sourced from the EU with full CE certification.

This product is fully supported in the UK by:

**Fairport Construction Equipment Ltd.  
Blagden Street  
Sheffield  
S2 5QS**



## **FAIRPORT**

**For Parts  
Accessories  
and Service**

**call:**

**0114 2767921**

**fax:**

**0114 2720965**

**email:**

**sales@fairport.uk.com**

**For a PDF copy of  
this manual visit:**

**www.fairport.uk.com**



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## 1 INTRODUCTION

Thank you for trusting the ENAR brand

For the maximum performance of the equipment, we recommend to read carefully the safety recommendations, maintenance, and usage listed in this manual.

Defective parts should be replaced immediately to avoid mayor problems.

The effective longevity of the equipment will increase if the manual instructions are followed.

We will glad to help you with any comments or suggestions in reference to our equipment.



## 2 CHARACTERICS

MODEL ..... **COBRA 2, COBRA 1**  
 TYPE.....Electronic frequency converter  
 APPLICATION.....Transform the input frequency 50/60Hz to three phase frequency of 200Hz to feed the motor-in -head pokers type **ENAR MB3, MB5, MB6 y MB7**.  
 FRAME.....Aluminium, protected against dust and water (IP67).  
 CORD.....15m length as standard, with schuko plug

Model	Weight	Voltage / Frequency input	Voltage / Frequency output	Power	Pokers
COBRA 2	9 Kg	230 1 50/60 Hz	220V 3 200Hz	1,5 kV	(1) MB32, MB52, MB62, MB72
COBRA 1	9 Kg	115 1 50/60 Hz	110V 3 200Hz	1,1 KV	(1) MB31, MB51

## 3 USAGE CONDITIONS

WARNING! Read and understand all instruction.

### 3.1 WORK AREA

KEEP your work area clean and well lit. Cluttered benches and dark areas invite accidents.  
 DO NOT OPERATE power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.  
 KEEP bystanders, children, and visitors away while operating a power tool. Distractions can cause you to lose control.

### 3.2 ELECTRICAL SAFETY

GROUNDING TOOLS MUST BE PLUGGED INTO an outlet properly installed and grounded in accordance with all codes and ordinances.  
 NEVER REMOVE the grounding prong or modify the plug in any way.  
 DO NOT USE any adapter plugs.  
 CHECK with a qualified electrician if you are in doubt as to whether the outlet is properly grounded.  
 AVOID body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators.  
 DON'T EXPOSE power tools to rain or wet conditions.  
 DO NOT ABUSE the cord. NEVER USE the cord to carry the tool.  
 KEEP cord away from heat, oil, sharp edges or moving parts.  
 REPLACE damaged cords immediately. Damaged cords increase the risk of electric shock.  
 WHEN OPERATING a power tool outside, use an outdoor extension cord marked "W-A", "W" or "H07RN-F".



### 3.3 PERSONAL SAFETY

STAY ALERT, watch what you are doing and use common sense when operating a power tool.

DO NOT USE TOOL while tired or under the influence of drugs, alcohol, or medication.

DRESS PROPERLY.

DO NOT WEAR loose clothing or jewellery.

CONTAIN long hair.

KEEP your hair, clothing, and gloves away from moving parts. Loose clothes, jewellery or long hair can be caught in moving parts.

AVOID accidental starting.

BE SURE switch is off before plugging in. Carry tools with your finger on the switch or plugging in tools that have the switch on invites accidents.

REMOVE adjusting keys or switches before turning the tool on.

DO NOT overreach.

KEEP proper footing and balance at all times.

USE safety equipment.

Always WEAR eye protection. Dust mask, non-skid safety shoes, hard hat, or hearing protection must be used for appropriate conditions.

### 3.4 TOOL USE AND CARE

USE clamps or other practical way to secure and support the work piece to a stable platform.

DO NOT FORCE tool.

USE the correct tool for your application. The correct tool will do the job better and safer at the rate for which it is designed.

DO NOT USE tool if switch does not turn it on or off.

DISCONNECT the plug from the power source before making any adjustments, changing accessories, or storing the tool.

STORE idle tools out of reach of children and other untrained persons.

MAINTAIN tool with care. KEEP cutting tools sharp and clean.

CHECK for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools operation. If damaged, have the tool serviced before using.

USE only accessories that are recommended by the manufacturer for your model.

### 3.5 SERVICE

Tool service **MUST BE PERFORMED** only by qualified repair personnel.

When servicing a tool, USE only identical replacement parts.

FOLLOW instructions in the Maintenance section of this manual.

### 3.6 SPECIFIC SAFETY RULES

For the proper operation of the converter, **MAKE SURE** that operators have been instructed in the proper management of this machine.

The converter **SHOULD ONLY BE USED** in the specific jobs for with it the help of this manual.

Before connecting the converter to the electrical system, **MAKE SURE** that the voltage and frequency coincide with the ones stated in the characteristics equipment plate, located in the top part.

ENSURE that all frame screws are tight before starting work.

The motor plug should not be used to start or stop the equipment.

The electrical feeding cable should not be used to remove the plug from the socket.

AVOID the flattening of the cable by heavy machinery which could cause breakage.

Be sure that the parts of the poker are tight before starting work.

Keep the converter clean and dry.



Make sure that the electrical cable is with the proper section and functioning properly.  
Before doing any work of maintenance, disconnect the motor from the electrical system.  
When connecting to a generator, make sure that the out tension and frequency is stable , right and has the proper power.  
(the converter feeding voltage should not vary than +/- 5% as stated on the converter plate.  
The level of acoustic pressure is less than 70 dB. Proper protective equipment should be used.  
The vibration that transmits to the operator does not exceed 2,5m/2 of acceleration.  
The vibrating pokers should not be working out of concrete more than 2 minutes.  
Be sure that the parts of the poker are tight before starting work.  
When finishing the job or when taking a break, the operator should switch off, disconnect it from the electrical system, place it in such a way that should not fall or tip.

**IN ADDITION, LOCAL COUNTRY STABLISHED ORDINANCES SHOULD BE RESPECTED.**

## **4 OPERATION AND MAINTENANCE**

### **4.1 GETTING STARTED**

Read item 3 USAGE CONDITIONS

### **4.2 VIBRATING POKER CONNECTION TO THE CONVERTERS**

The converter has a socket to connect the vibrating pokers. Be sure nut (n-26 part list page 14) is tight.

### **4.3 CONVERTER CONNECTION TO THE SYSTEM**

The model COBRA2 is connected to the main 230V / 50-60Hz (single phase) and the model COBRA1 is connected to the main 115V / 50-60Hz (single phase).

Use a residual current device ("rcd") with a rated tripping current of 30mA for each converter. Rcd should be installed either at the distribution board which feeds the mains supply sockets or at the fixed main supply socket. Do not plug others electric tools to the rcd where is plugged the converter.

### **4.4 DISCONNECTING THE EQUIPMENT.**

Stop the converter by disconnecting the proper switch, and finally remove the plug from the main.

### **4.5 EARTH CONNECTION**

To protect the user from an electrical shock, the converter should be correctly connected to earth.  
The converters are equipped with three cables and their respective plugs. The adequate earth socket should be used to connect the converters. If the socket with earth is not available, an earth adapter should be used before connecting the plugs.

### **4.6 EXTENSION CABLES**

Always use extension cables with earth wire and its respective plug with earth in the female and male plug.  
Do not use damaged or worn out cables.

Avoid heavy loads on cables.

To determine the transversal section, follow the following procedure:

#### **PROCEDURE TO DETERMINE THE NECESSARY TRANSVERSAL SECTION IN CABLE EXTENSION**



Do the following verifications and take the highest section of cable:

1. The ohmic resistance and inductive resistance of the cable with the permitted loss of voltage of 5%,  $\cos\phi=0.8$  through the frequency and voltage curve

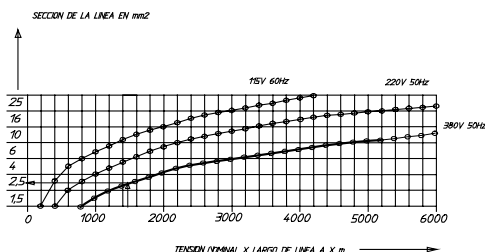
- I.e. Voltage nominal:.....380 V / 50 Hz  
 Nominal current:.....10 A  
 Cable length:.....150 m

Entering the curve with the product: Intensity x Length=10x150=1500 Am We obtain a 2.5 mm<sup>2</sup> section

2. The permitted heating of the cable according to VDE standard ( minimum transversal section table required).

- I. e. For 10 A, according to table for 15 A or less, the section is of 1 mm.

Therefore, the section chosen is equal to 2.5 mm<sup>2</sup>, Always choose the highest transversal section of the two verifications.



Line mm <sup>2</sup>	Maximum A	Max Fuse A
1	15	10
1,5	18	10 / 3 – 16 / 1 –
2,5	26	20
4	34	25
6	44	35
10	61	50
16	82	63
25	108	80

Table 1: Minimum section according VDE rules

#### 4.7 INSPECTION

Before starting the job, check the correct working of all handling and safety devices. Be sure the nut (26 part list page 23) is tight.

Inspect regularly the good conditions of the feeding cables.

Inspect regularly the connection voltage.

The converter should only be used in conjunction with all safety elements.

If defects are found in the safety devices or other defects which could reduce the safe handling of the equipment, notify immediately the proper responsible person.

#### 4.8 PERIODIC MAINTENANCE

1. Only an expert shall work on the electrical parts.
2. Make sure that the current is off during repairs.
3. In all maintenance operations, original parts will be used.
4. **For changing the cord**, look at the spare parts, the earth wire (green-yellow) should be longer to avoid being the first one in cutting in case of breaking wires. If the earth wire is broken, there is risk of death. After maintenance, control the current through the earth cable. Put in new packing gland.
5. **For changing the switch**, look the spare parts, put the seals and finally, tighten the bolts.
6. Every 12 months of working a lubrication of the bearings of the vibrating pokers is recommended. An expert should dismantle the vibrating poker. Clean the bearings with solvent and when this is dry fill with the specified grease the 70% to 80% of the clear space of the bearing. If you note an excessive play in the bearings proceed to change it. When you remount place the sealant in all the threads. Tighten and clean the excess of sealant. It is important all the parts are tight (600 to 800 Nm of torque) to avoid the water does not penetrate in the head. Finally, apply two weld spots to secure the parts do not loosen.



The recommended grease is ISOFLEX LDS 18 SPECIAL A of the trademark KLÜBER LUBRICATION or other similar with the following characteristics:

- Base.....Li-SE
- Dropping point acc. to DIN 51801/1 (°C).....>250 °C
- Temperature range (°C).....-50 a 120 °C
- Working penetration acc. to DIN 51 804 (0.1 mm).....295
- Consistence NLGI acc. to DIN 51 818.....2
- Dynamic viscosity (mPa s).....4500
- Speed factor (n dm).....1000000

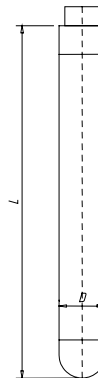
In the vibrating poker MB62 the recommended grease is Summit SH-46 of the trademark KLÜBER LUBRICATION or other similar with the following characteristics:

- ISO VG, DIN 51519 .....46
- Density, DIN 51757 a 20°C g/ml ..... 0,88
- Cinematic viscosity, DIN 51562, a 40°C, mm<sup>2</sup>/s, aprox ..... 44
- A 100°C, mm<sup>2</sup>/s, aprox .....7,8
- Viscosity index DIN ISO 2909 ..... 148
- Ignition temperature DIN ISO 2592, °C..... > 240
- Critical fluidity temperature, DIN ISO 3016, °C .....- 45
- Autoignition temperature, DIN 51794, °C .....> 390
- Corrosion on copper, DIN EN ISO 2160 (24h a 100°C), corrosion level ..... 1- 100
- Foam creation tendency, ASTM-D 892, ml steps I,II,III ..... 0 / 0 / 0
- Desemulsion capability, DIN 51599, ml ..... 40 / 38 / 2

7. After maintenance jobs all the parts must be assembled correctly.
8. Every 12 month or more frequently, depending on the use, it is recommended an inspection be done by an authorised dealer.
9. Check the wear of the poker controlling the outside diameter and length of the poker. Replace the housing or cap when the diameter or length in the least point is less than the specified in the table according to the model:

MODEL	DIAMETER (mm)	LENGTH (mm)
<b>MB3</b>	<b>34,5 (36)</b>	<b>345 (350)</b>
<b>MB5</b>	<b>48 (50)</b>	<b>395 (400)</b>
<b>MB6</b>	<b>58 (56)</b>	<b>420 (430)</b>
<b>MB7</b>	<b>63 (65)</b>	<b>425 (430)</b>

- a. The minimum dimensions are bold printed
- b. The dimensions into brackets are the original dimensions
- c. Replace the housing when reach the minimum diameter
- d. Replace the cap when reach the minimum length







#### 4.9 STORAGE

When the converter has not been used for long periods of time, it should be stored in clean, dry and protected areas.

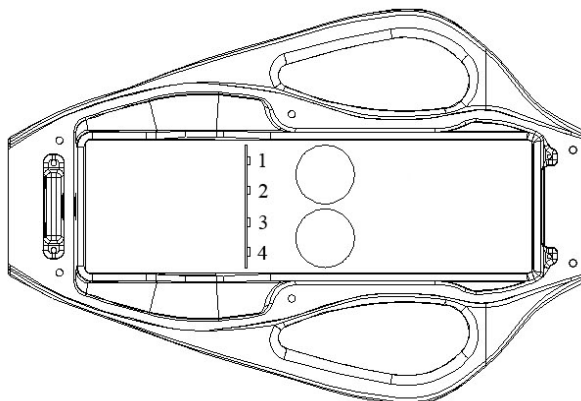
To store the converter link to poker.

#### 4.10 TRANSPORTATION

When transporting by vehicles, ensure the equipment is safe against slipping, overturning and blow

### 5. LOCATING MALFUNCTIONS

PROBLEM	CAUSE
Not working, green led (1) OFF	See if it has power
	Check cord
	Check plug
	Converter burnt
Red led (2) ON	Stator poker burnt
	Converter burnt
Red led (3) ON	Earth leakage current (check poker, connections)
	Water inside converter or poker
Red led (4) ON	Lack of phase in poker (3 phase motor)
The poker is noisier	Bearings are not in good conditions.
The vibrating poker works correctly but it overheats	Check the poker is not working out of concrete.
	Verify the input voltage of the converter.
	Bearings in bad conditions or without grease



Make sure that the current is off during repairs.

#### FREQUENCY CONVERTER AND POKERS



## 6. INSTRUCTIONS TO ORDER SPARE PARTS AND TO REQUEST WARRANTIES

### 6.1 INSTRUCTIONS TO ORDER SPARE PARTS

1. All spare parts request must include PART CODE NUMBER AS STATED IN THE PART LIST. We recommend to include ITEM'S MANUFACTURE NUMBER.
2. The identification plate with manufacture and model number is located in the top part of the motors' plastic frame. The transmission and pokers have the manufacture number engraved outside.
3. Let us to know the correct shipping instructions, including the wished route and the address and consignee's complete name.
4. Do not return the parts without authorisation, the return are done freight prepaid.

### 6.2 INSTRUCTIONS TO REQUEST WARRANTIES

1. The warranty is valid 1 year after the purchasing of the machine, The warranty will cover parts with manufactures' defects. In no case the warranty will cover a malfunction due to improper usage of the equipment. Labour and shipping fees will always be paid by the customer.
2. In all warranty requests THE MACHINE MUST BE SENT TO ENARCO, S.A. or to an AUTHORIZED SHOP, always including the complete address and name of the consignee.
3. The Technical Assistance Service will immediately notify you if it accepts the warranty and if requested, it will send a technical report.
4. The warranty will be void if any equipment has been previously handled by personnel outside of ENARCO, S.A. or not authorised by it.

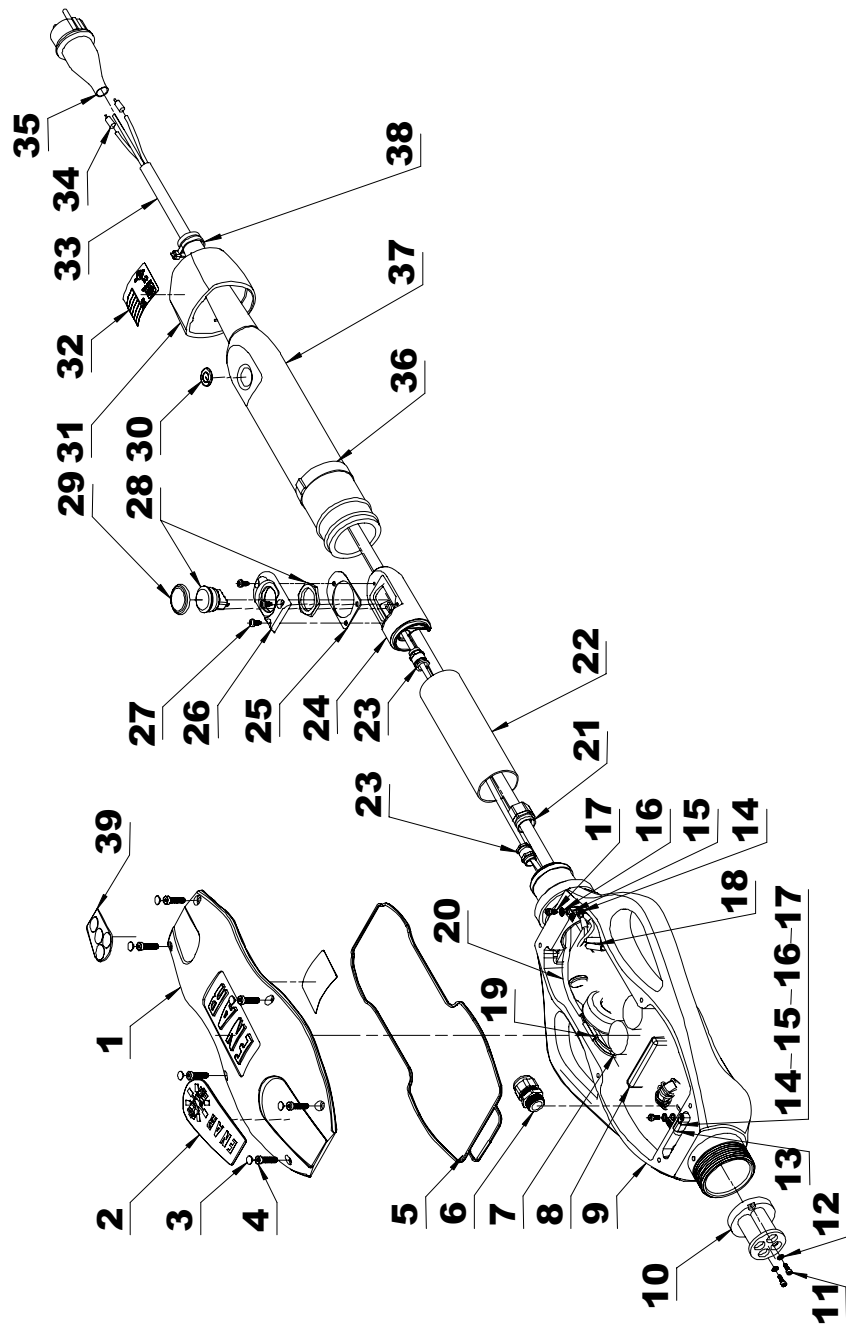
## 7 RECOMENDATIONS OF USE

1. choose the type of vibrator adequate to the dimensions of the structure to vibrate, the distance among the reinforcement and the slump cone. It is recommendable to have an additional concrete vibrator.
2. Before starting check that the concrete vibrator is in good use and it works correctly. Use the means of safety and protection.
3. Pour the concrete in the structure avoiding high heights. Try to pour levelled the concrete. The thickness of every layer should be less than 50 cm, it is recommendable between 30 and 50 cm.
4. Introduce the vibrator vertically in the concrete mass without moving it horizontally. Do not use the vibrator to push the concrete horizontally. The concrete vibrator should be introduced into the mass at regular intervals. The interval should be from 8 to 10 times the diameter of the poker. See the concrete in the process of vibrating to determine the field of action of the vibrator. This field should be overlapped to avoid areas without vibrating. To obtain an optimum compacting of the concrete, plunge it 10 cm into the precedent layer to assure a good adherence. The time in vibrating the different layers should not be big to avoid cold joints. Do not push or force the vibrator into the mass, it could be stuck in the reinforcements.
5. The time of vibration in each point depends on the type of the concrete, the size of the vibrator and other factors. This time can be from 5 to 15 seconds after the immersion in each point. The time is shorter for a fluid mass, a vibration in excess can produce segregation. It is considered the concrete to be well vibrated when the surface around the poker is shiny and compact and there is no more air bubbles, as well a change in the noise of the vibrator is produced. So much defects in structures are produced due to perform the vibration in an unmethodical way and in a hurry.



6. Do not push or force the vibrator against the reinforcement. Keep a distance of 7 cm minimum from the walls.
7. Always remove the poker vertically with movements upwards and downwards so the concrete fills the empty space again. Do not switch off until you stop the vibration completely. The speed of removing is approximately 8 cm per second. When the vibrator is nearly out extract quickly to avoid shaking the surface.
8. In order to vibrate slabs, the poker has to be kept oblique so that the contact superficies with mass is bigger and the compacting effect is better.
9. Do not keep the concrete vibrator out of the concrete during long periods. If you do not continue vibrating stop it.
10. Follow the maintenance instructions.

The concrete has to be carefully prepared to get the best effects of the vibration in terms of consistency and resistance.



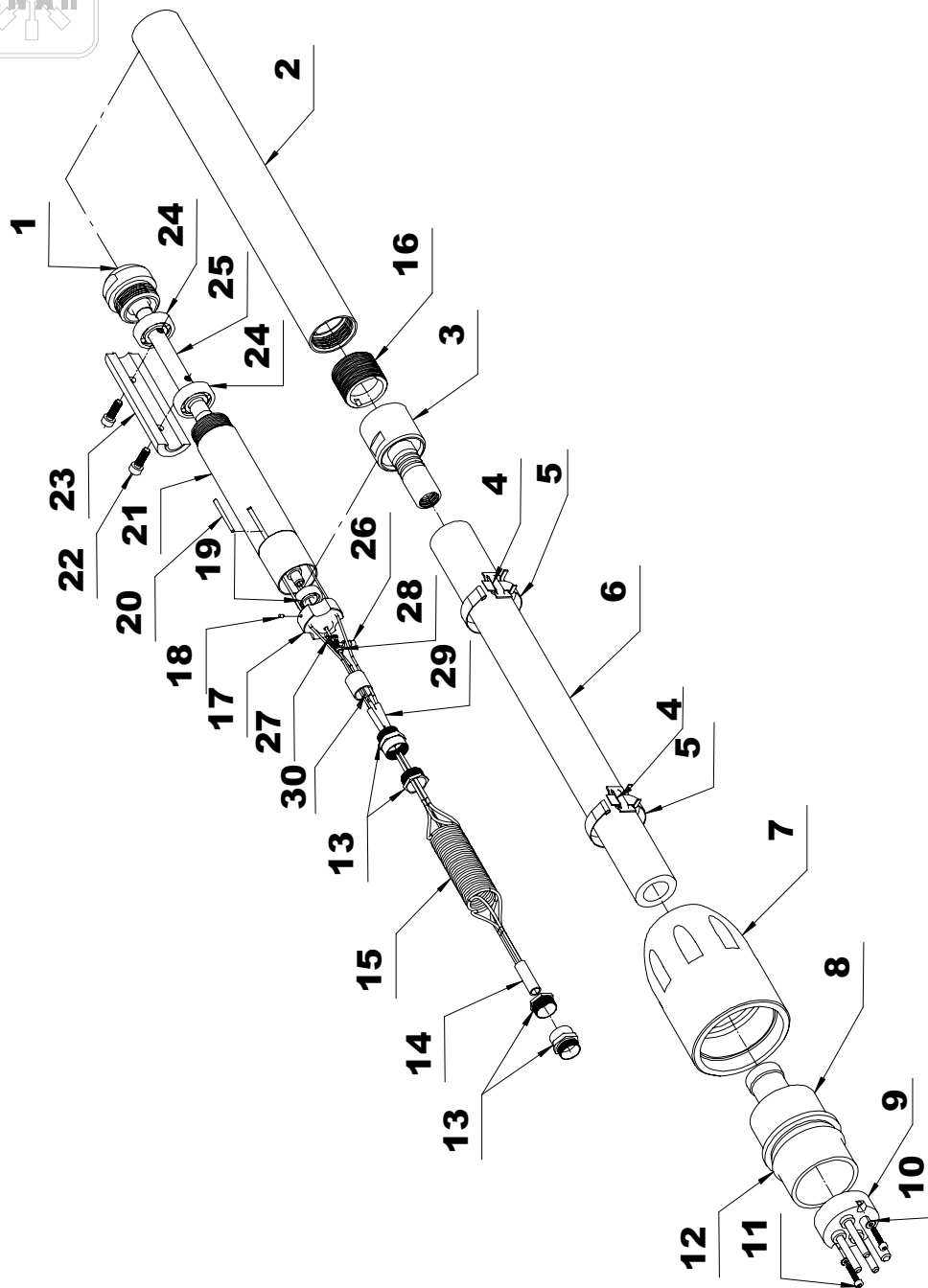


NUM	DENOMINACIÓN	COVER	DENOMINATION	COVERCLE	DENOMINATION	DECKEL	BEZEICHNUNG	COD
1	TAPA							
2	ADHESIVO ANAGRAMA ENAR 50.5x100	LOGO ENAR 50.5x100	AERIAL PLUG REF.17408.16A.2P+E	ANAGRAMME ENAR 50.5x100	SOCKELSTECKER.17408.16A.2P+E			81282
3	TAPON TORNILLO ALLEN M 5	PLUG BOLT ALLEN M5	BOLT ALLEN M3x16 DIN 912.8.8	BOUCHON BIS ALLEN M5	ALL SCHRAUBE M3x16 DIN 912.8.8			107338
4	TORN. ALLEN M 5x20 DIN 6912.8.8	BOLT ALLEN M5x20 DIN 6912.8.8	WASHER PL. BISEL. 3 DIN 125	VIS ALLEN M5x20 DIN 6912.8.8	SCHEIBE PL. BISEL. 3 DIN 125			107288
5	JUNTA CIERRE	CLOSING COUPLING	CABLE FLEX. 2.5 (YELLOW-GREEN)	JOINT FERMETURE	CABLE FLEX. 2.5 (GELB-GRUEN)			102295CB
6	PRENSAESTOPAS PG11 ref.1281134	PACKING GLAND PG11 ref.1281134	TERMINAL ELPRESS A 2543 R	PRESSE ETOUPE PG11 ref.1281134	TERMINAL ELPRESS A 2543 R			81284
7	PLACA CONVERTIDOR COBRA 220V	CONVERTER COBRA 220V PLATE	EARTH PLATE	PLAQUE DE MISE A TERRE	ERDUNGSPLATINE			103890
8	FUNDA TARIETA	CARD COVER	WASHER ESTR. 4.3 A DIN 6798	ETUI CARTE	KARTENTASCHE			81294
9	CAJA	BOX	BOLT CILINDR. M 4x8 DIN 84	BOITIER	KASTEN			81281
10	BASE AEREA REF.17408.16A.3P+T	AERIAL PLUG REF.17408.16A.3P+T	BOLT ALLEN M3x16 DIN 912.8.8	PRISE FEMELLE R.17408.16A.2P+T	SOCKELSTECKER.17408.16A.2P+E			103733
11	TORN. ALLEN M 3x16 DIN 912.8.8	BOLT ALLEN M3x16 DIN 912.8.8	WASHER PL. BISEL. 3 DIN 125	VIS ALLEN M3x16 DIN 912.8.8	ALL SCHRAUBE M3x16 DIN 912.8.8			102288
12	ARANDELA PL. BISEL. 3 DIN 125	WASHER PL. BISEL. 3 DIN 125	CABLE FLEX. 2.5 (AMAR.-VERDE)	RONDELLE PL. BISEL. 3 DIN 125	SCHEIBE PL. BISEL. 3 DIN 125			102101
13	CABLE FLEX. 2.5 (AMAR.-VERDE)	CABLE FLEX. 2.5 (AMAR.-VERDE)	TERMINAL ELPRESS A 2543 R	CABLE FLEX. 2.5 (VERT.-JAUNE)	CABLE FLEX. 2.5 (GELB-GRUEN)			103750
14	TERMINAL ELPRESS A 2543 R	TERMINAL ELPRESS A 2543 R	EARTH PLATE	TERMINAL ELPRESS A 2543 R	TERMINAL ELPRESS A 2543 R			103721
15	PLACA TOMA TIERRA	EARTH PLATE	WASHER ESTR. 4.3 A DIN 6798	PLAQUE DE MISE A TERRE	ERDUNGSPLATINE			107236
16	ARANDELA ESTR. 4.3 A DIN 6798	WASHER ESTR. 4.3 A DIN 6798	BOLT CILINDR. M 4x8 DIN 84	RONDELLE STREEF. 4.3 A DIN 6798	SCHEIBE ESTR. 4.3 A DIN 6798			102103CB
17	TORN. C/CLIND. M 4x8 DIN 84	BOLT CILINDR. M 4x8 DIN 84	TERMINAL ELPRESS A 2527 SK	VIS CYLINDRIQUE M 4x8 DIN 84	SCHRAUBE M 4x8 DIN 84			102708
18	TERMINAL ELPRESS A 2527 SK	TERMINAL ELPRESS A 2527 SK	TERMINAL ELPRESS A 0824 SK	TERMINAL ELPRESS A 2527 SK	KLEMMME ELPRESS A 2527 SK			103720
19	TERMINAL ELPRESS A 0824 SK	TERMINAL ELPRESS A 0824 SK	CABLE MANGUERA H03VV-F 2x0.5mm²	TERMINAL ELPRESS A 0824 SK	KLEMMME ELPRESS A 0824 SK			103909
20	CABLE MANGUERA H03VV-F 2x0.5mm²	CABLE HOSE H03VV-F 2x0.5mm²	PACKING GLAND S/T PG-11 METAL	CABLE GAINE H03VV-F 2x0.5mm²	SCHLAUCHKABEL H03VV-F 2x0.5mm²			103907
21	PRENSAESTOPAS S/T PG-11 METAL	PACKING GLAND S/T PG-11 METAL	REINFORCEMENT CABLE	PRESSE ETOUPE S/T PG-11 METAL	STUTZEN S/T PG-11 METALL			103908
22	REFUERZO	REINFORCEMENT CABLE	PACKING GLAND S/T PG-7 METAL	RENFORT	VERSTAERKUNG			81285
23	PRENSAESTOPAS S/T PG-7 METAL	PACKING GLAND S/T PG-7 METAL	BOX SWITCH	PRESSE ETOUPE S/T PG-7 METAL	STUTZEN S/T PG13.5 METALL			103879
24	CAJA INTERRUPTOR	BOX SWITCH	FLAT SEAL SWITCH	BOITIER. INTERRUPTEUR	SCHALTERDOOSE			81286
25	JUNTA PLANA INTERRUPTOR	FLAT SEAL SWITCH	SWITCH BOX LID	PLATE JOINT INTERRUPTEUR	FLACHE SCHALTTERDICHUNG			81288
26	TAPA INTERRUPTOR	SWITCH BOX LID	BOLT PARKER 4.2x9.5 DIN 7981 F	GOUVERCLE INTERRUPTEUR	SCHALTTERDICHUNG			81287
27	TORN. R/CHAPA 4.2x9.5 DIN 7981 F	BOLT PARKER 4.2x9.5 DIN 7981 F	SWITCH 733-799	VIS A TOLE 4.2x9.5 DIN 7981 F	SCHRAUBE 4.2x9.5 DIN 7981 F			102536
28	PULSADOR 733-799	SWITCH 733-799	CAPSULE	BOULTON 733-799	DRUCKTASTE 733-799			103905
29	CAPSULA	CAPSULE	STICKER "ESPERA"	ADHESIF "ESPERA"	KAPSEL			81293
30	ADHESIVO "ESPERA"	STICKER "ESPERA"	TRIM	ENJOLIVEUR	ZIERSTUECK			107340
31	EMBELLECEDOR	TRIM	STICKER 56x40mm 7872 PET PLATA	ADHESIF 56x40mm 7872 PET PLATA	KLEBSTOFF "ESPERA"			81290
32	ETIQUETA 56x40mm 7872 PET PLATA	STICKER 56x40mm 7872 PET PLATA	CABLE H07RN-F 3x2.5 mm²	CABLE H07RN-F 3x2.5 mm2	KABEL H07RN-F 3x2.5 mm2			107341
33	CABLE H07RN-F 3x2.5 mm²	CABLE H07RN-F 3x2.5 mm2	CABLE END SLEEVE 2.5x7	GOUVRE CABLE sans ISOLER 2.5x7	KABELSCHLUSS NACKT 2.5x7			103829
34	PUNTERA SIN AISLAR 2.5x7	CABLE END SLEEVE 2.5x7	PLUG COMA 1419-197	PRISE COMA 1419-197	STECKER COMA 1419-197			103731
35	CLAVIA COMA 1419-197	PLUG COMA 1419-197	CLAMP JS233 63.5x12.7	COLLIER JS233 63.5x12.7	KLEMME JS233 63.5x12.7			107343
36	ABRAZADERA JS233 63.5x12.7	CLAMP JS233 63.5x12.7	PROTECTOR	PROTECTEUR	SCHUTZ			81289
37	PROTECTOR	PROTECTOR	CLAMP PLAST. NEGRA L. 200	COLLIER PLAST. NEGRA L. 200	KLEMME PLAST. SCHWARZ L. 200			107052
38	ABRAZAD. NYLON NEGRA Long. 200	CLAMP PLAST. NEGRA L. 200	SECURITY STICKER 56.5x37.3	ADHESIF SECURITE 56.5x37.3	SICHERHEITKLEBSTOFF 56.5x37.3			107339
39	ADHESIVO SEGURIDAD 56.5x37.3	SECURITY STICKER 56.5x37.3						

**COBRA**

CONVERTIDORES DE FRECUENCIA Y AGUJAS

**COBRA1 / COBRA2**  
**MB32, MB52, MB62, MB72, MB31, MB51**



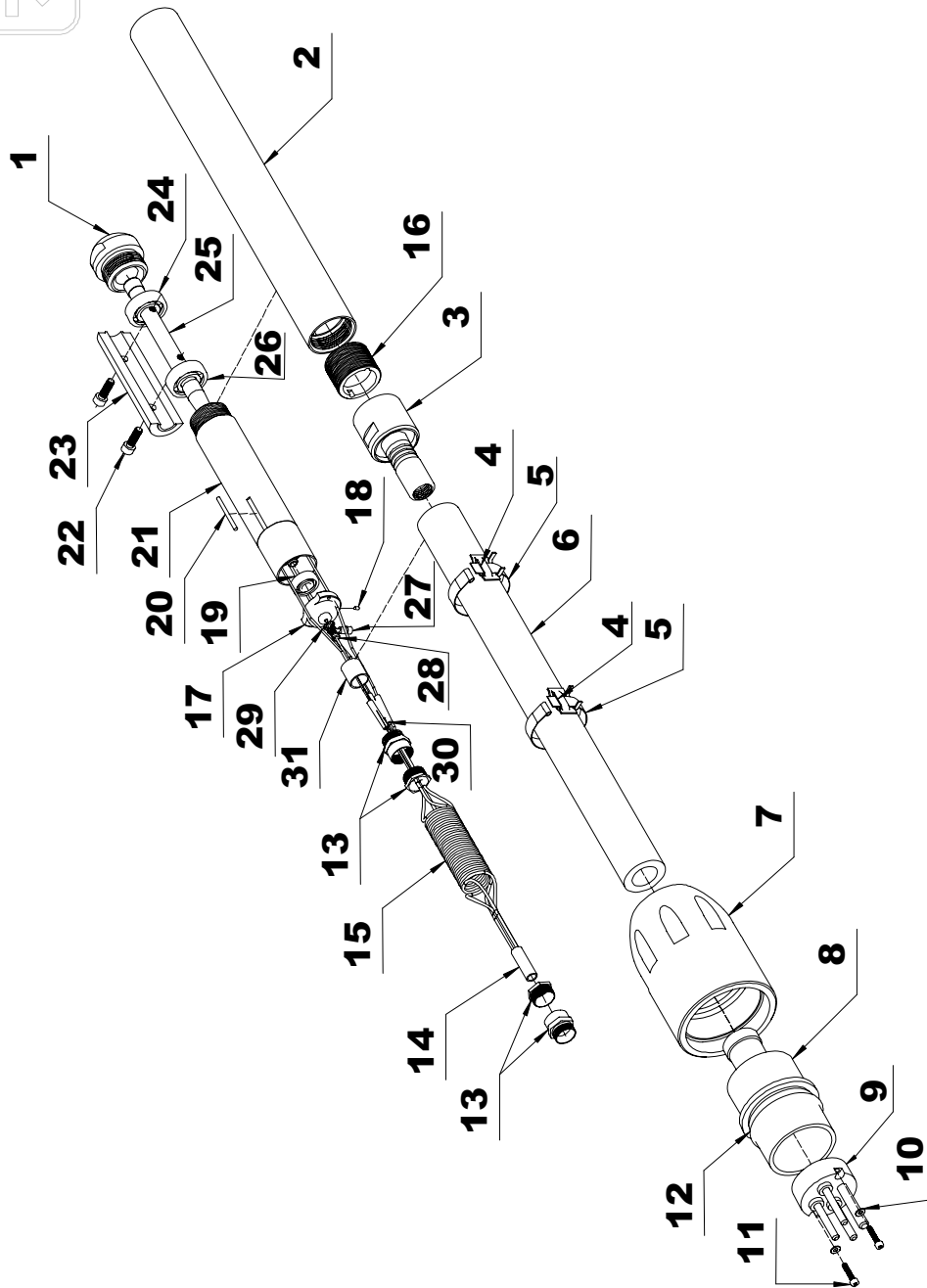
CONVERTIDORES DE FRECUENCIA Y AGUJAS



MB 32 / MB 31					
NUM	DENOMINACIÓN	DENOMINATION	POINTE	DENOMINATION	COD
1	PUNTA	END	POINTE	KAPPE	81401
2	TUBO	TUBE	TUBE	ROHR	81402
3	MANGUITO CIERRE	CLOSING HOSE	CULOT	ANSCHLUSSMANSCHETTE	81406
4	HEBILLA BAND-IT C253 (3/8)	BUCKLE BAND-IT C253 (3/8)	BOUCLE BAND-IT C253 (3/8)	SCHNALLE BAND-IT C253 (3/8)	107081
5	FLEJE INOX. C.203 9x6.65 30.5m	STRAP INOX. C.203 9x6.65 30.5m	FEUILLARD IN.C203 9x6.65 30.5m	BAND INOX. C.203 9x6.65 30.5m	107080
6	TUBO SAE 2ST 100 R2A 3/4" DIN 20022	TUBE MINIERA 19x30 20 ATM.	TUBE MINIER 19x30 20 ATM.	ROHR MINIERA 19x30 20 ATM.	122021
7	TUERCA APRIETE	NUT	ECROU DE SERRAGE	MUTTER	81233
8	CONEXION MANGUERA	CONVERTER HOSE JOINT	EMBOUT CONVERTISSEUR	ANSCHLUSSMUFFE	81232
9	CLAVIJA 3P+T 380/415V 16A-6h	PLUG 3P+E 380/415V 16A-6h	PRISE 3P+T 380/415V 16A-6h	STECKER 3P+E 380/415V 16A-6h	103870
10	ARANDELA PL. BISEL. 3 DIN 125	WASHER PL. BISEL. 3 DIN 125	RONDELLE PL. BISEL. 3 DIN 125	SCHIEBE PL. BISEL. 3 DIN 125	102101
11	TORN. ALLEN M 3*16 DIN 912 8.8	BOLT ALLEN M3x16 DIN 912 8.8	VIS ALLEN M3x16 DIN 912 8.8	ALL-SCHRAUBE M3x16 DIN 912 8.8	102298
12	JUNTA TORICA 47x3.5	O RING 47x3.5	JOINT THORIQUE 47x3.5	RUNDRINGDICHTUNG 47x3.5	101885
13	PRENSAESTOPAS S/T PG-9 METAL	PACKING GLAND S/T PG-9 METAL	PRESSE ETOUPE S/T PG-9 METAL	KABELFUEHRUNGSSUTZEN S/T PG-9	103764
14	CABLE INTERIOR ESPIRAL	SHEATH TEXPOL F ESP 8mm	PROTECTEUR CABLE TEXPOL F ESP 8mm	PLASTIKHÜLLE TXPOL F ESP 8mm	103887
15	CABLE INTERIOR ESPIRAL	SPRING INTERNAL CABLE	CABLE INTERIEUR SPIRALE	INNERES SPIRALKABEL	81658
16	CASQUILLO EMPALME	JOINT BEARING	DOUILLE RACCORD	ANSCHLUSSMUFFE	81405
17	GUALDERA	REAR BEARING SUPPORT	DOUILLE	LAFETTENWAND	81231
18	PASADOR CILINDRICO DIN 6325 2.5x4.5	SPLIT PIN CIL. DIN 6325 2.5x4.5	GOUJON CIL. DIN 6325 2.5x4.5	STIFT CIL. DIN 6325 2.5x4.5	103370
19	RODAMIENTO 607 Z C3	BEARING 607 Z C3	ROULEMENT 607 Z C3	KUGELLAGER 607 Z C3	101110
20	VARILLA POSICION 02,5x30 mm	BAR DIA.2.5x30 mm	VARILLA POSICION DIA.2.5x30 mm	POSITIONSSTANGE DIA.2.5x30 mm	81609
21	ESTATOR MB32 210V 200Hz	STATOR MB32 210V 200Hz	STATOR MB32 210V 200Hz	STATOR MB32 210V 200Hz	104369
21	ESTATOR MB31 100V 200Hz	STATOR MB31 100V 200Hz	STATOR MB31 100V 200Hz	STATOR MB31 100V 200Hz	104368
22	TORN. ALLEN M 5*15 DIN 912 8.8	BOLT ALLEN M5x15 DIN 912 8.8	VIS ALLEN M5x15 DIN 912 8.8	ALL-SCHRAUBE M5x15 DIN 912 8.8	102305
23	EXCENTRICA	ECCENTRIC	EXCENTRIQUE	EXZENTUR	81403
24	RODAMIENTO 6001 C3	BEARING 6001 C3	ROULEMENT 6001 C3	KUGELLAGER 6001 C3	101152
25	EJE ROTOR M35AF	ROTOR SHAFT M35AF	ROTOR M35AF	ROTORACHSE M35AF	104357
26	TERMINAL EL PRESS. A 2543 R	TERMINAL EL PRESS. A 2543 R	TERMINAL EL PRESS. A 2543 R	KLEMME EL PRESS. A 2543 R	103721
27	ARANDELA ESTR. 4.3 A DIN 6798	WASHER ESTR. 4.3 A DIN 6798	RONDELLE STRIEE 4.3 A DIN 6798	SCHIEBE ESTR. 4.3 A DIN 6798	102103
28	TORN.C/ALOMADA M 4x6 DIN 7985	BOLT M 4x6 DIN 7985	VIS TETE RONDE M 4x6 DIN 7985	SCHRAUBE M 4x6 DIN 7985	102702
29	TERMINAL EL PRESS. A 2527 SK	TERMINAL EL PRESS. A 2527 SK	TERMINAL EL PRESS. A 2527 SK	KLEMME EL PRESS. A 2527 SK	103720

CONVERTIDORES DE FRECUENCIA Y AGUJAS

COBRA1 / COBRA2  
MB32, MB52, MB62, MB72, MB31, MB51



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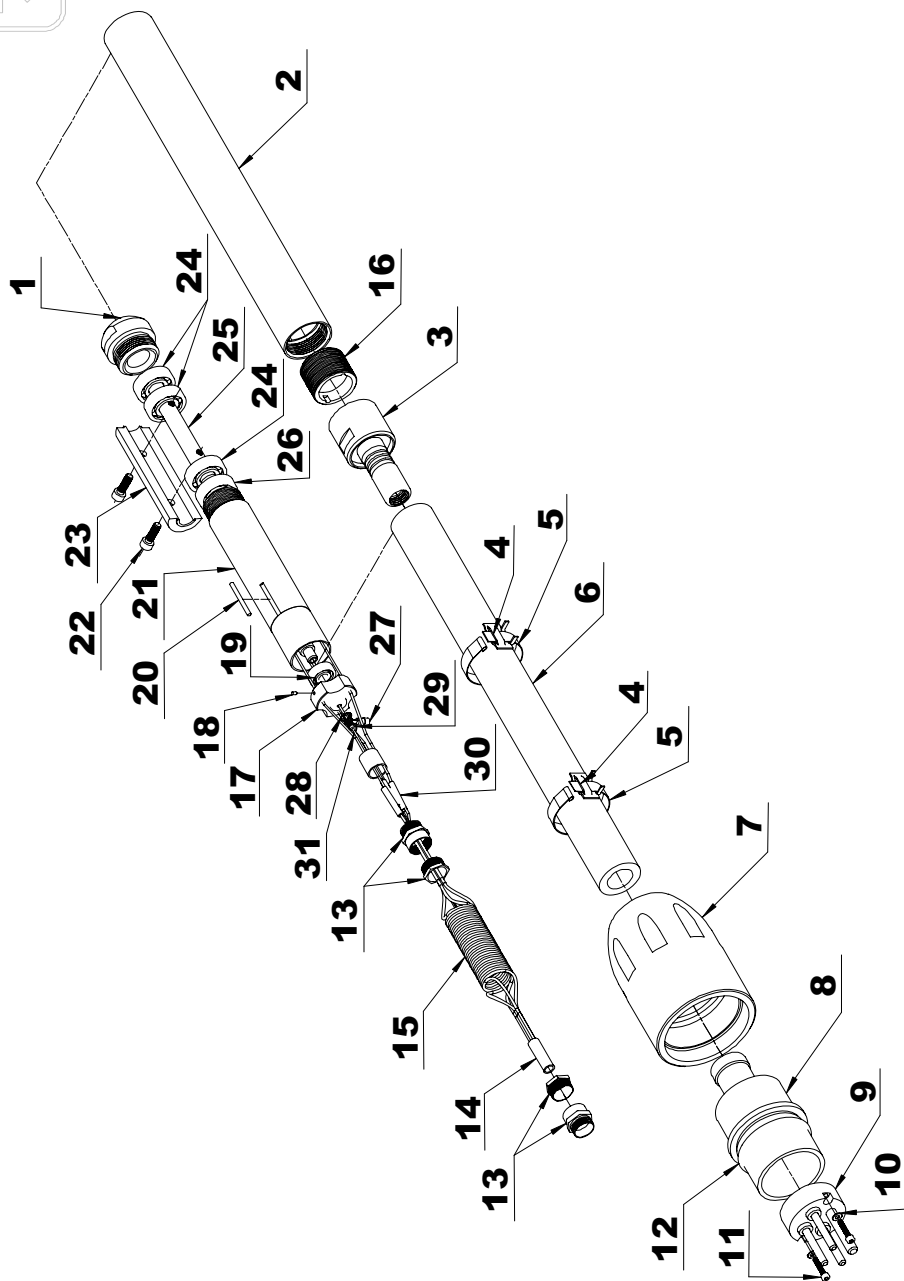




<b>MB 52 / 51</b>					
NUM	DENOMINACIÓN	DENOMINATION	DENOMINATION	BEZEICHNUNG	COD
1	PUNTA	END	POINTE	KAPPE	81601
2	TUBO	TUBE	TUBE	ROHR	81631
3	MANGUITO CIERRE	CLOSING HOSE	CULOT	ANSCHLUSSMANSCHETTE	81618
4	HEBILLA BAND-IT C253 (3/8)	BUCKLE BAND-IT C253 (3/8)	BOUCLE BAND-IT C253 (3/8)	SCHNALLE BAND-IT C253 (3/8)	107081
5	FLEJE INOX. C.203 9x6.65 30.5m	STRAP INOX. C.203 9x6.65 30.5m	FEUILLARD IN C203 9x6.65 30.5m	BAND INOX. C.203 9x6.65 30.5m	107080
6	MANGUERA GOMA 25 x 39 x 7000 mm.	RUBBER HOSE 25 x 39 x 7000 mm.	TUYAU GOMME 25 x 39 x 7000 mm.	GUMMI HUELSE 25 x 39 x 7000 mm.	81628
7	TUERCA APRIETE	NUT	ECROU DE SERRAGE	MUTTER	81233
8	CONEXION MANGUERA	CONVERTER HOSE JOINT	EMBOUT CONVERTISSEUR	ANSCHLUSSMUFFE	81252
9	CLAVIJA 3P+T 380/415V 16A-6h	PLUG 3P+T 380/415V 16A-6h	PRISE 3P+T 380/415V 16A-6h	STECKER 3P+T 380/415V 16A-6h	103870
10	ARANDELA PL. BISEL. 3 DIN 125	WASHER PL. BISEL. 3 DIN 125	RONDELLE PL. BISEL. 3 DIN 125	SCHIEBE PL. BISEL. 3 DIN 125	102101
11	TORN. ALLEN M 3x16 DIN 912 8.8	BOLT ALLEN M3x16 DIN 912 8.8	VIS ALLEN M3x16 DIN 912 8.8	ALL.SCHRAUBE M3x16 DIN 912 8.8	102298
12	JUNTA TORICA 47x3.5	O RING 47x3.5	JOINT THORIQUE 47x3.5	RUNDRINGDICHTUNG 47x3.5	101885
13	PRENSAESTOPAS S/T PG-9 METAL	PACKING GLAND S/T PG-9 METAL	PRESSE ETOUPE S/T PG-9 METAL	KABELFUEHRUNGSSTUTZEN S/T PG-9	103764
14	MACARRON TEXPOL F ESP 8mm	SHEATH TEXPOL F ESP 8 mm	PROTECTEUR CABLE TEXPOL F ESP 8mm	PLASTIKHÜLLE TXPOL F ESP 8mm	103887
15	CABLE INTERIOR ESPIRAL	SPRING INTERNAL CABLE	CABLE INTERIEUR SPIRALE	INNERES SPIRALKABEL	81658
16	CASQUILLO EMPALME	JOINT BEARING	DOUILLE RACCORD	ANSCHLUSSMUFFE	81617
17	GUALDERA	REAR BEARING SUPPORT	DOUILLE	LAFETTENWAND	81251
18	PASADOR CILINDRICO DIN 6325 2.5x6.5	SPLIT PIN CIL. DIN6325 2.5x6.5	GOUJON CIL. DIN 6325 2.5x6.5	STIFT CIL. DIN 6325 2.5x6.5	103375
19	RODAMIENTO 6000 Z C3	BEARING 6000 Z C3	ROULEMENT 6000 Z C3	KUGELLAGER 6000 Z C3	101151
20	VARILLA POSICION Ø2.5x30 mm	BAR DIA. 2.5x30 mm	VARILLA POSICION DIA.2.5x30 mm	POSITIONSSTANGE DIA.2.5x30 mm	81609
21	ESTATOR MBS2 210V 200Hz	STATOR MBS2 210V 200Hz	STATOR MBS2 210V 200Hz	STATOR MBS2 210V 200Hz	104365
21	ESTATOR MB51 100V 200Hz	STATOR MB51 100V 200Hz	STATOR MB51 100V 200Hz	STATOR MB51 100V 200Hz	104367
22	TORN. ALLEN M 6x20 DIN 912 8.8	BOLT ALLEN M6x20 DIN 912 8.8	VIS ALLEN M6x20 DIN 912 8.8	ALL.SCHRAUBE M6x20 DIN 912 8.8	102317
23	ECCENTRICA	ECCENTRIC	EXCENTRIQUE	EXZENTER	81603
24	RODAMIENTO 6203 C3	BEARING 6203 C3	ROULEMENT 6203 C3	KUGELLAGER 6203 C3	101181
25	EJE ROTOR M5AFP (A)	ROTOR SHAFT M5AFP (A)	ROTOR M5AFP (A)	ROTORACHSE M5AFP (A)	104269
26	RODAMIENTO 6203 Z C3	BEARING 6203 Z C3	ROULEMENT 6203 Z C3	KUGELLAGER 6203 Z C3	101178
27	TERMINAL ELPRESS A. 2543 R	TERMINAL ELPRESS A. 2543 R	TERMINAL ELPRESS A. 2543 R	KLEMME ELPRESS A.2543 R	103721
28	TORN.CALOMADA M 4x6 DIN 7985	BOLT M 4x6 DIN 7985	VIS TETE RONDE M 4x6 DIN 7985	SCHRAUBE M 4x6 DIN 7985	102702
29	ARANDELA ESTR. 4.3 A DIN 6798	WASHER ESTR. 4.3 A DIN 6798	RONDELLE STRIEE 4.3 A DIN 6798	SCHIEBE ESTR. 4.3 A DIN 6798	102103
30	TERMINAL ELPRESS A. 2527 SK	TERMINAL ELPRESS A. 2527 SK	TERMINAL ELPRESS A. 2527 SK	KLEMME ELPRESS A.2527 SK	103720
31	CABLE FLEX. 2.5 (AMAR-VERDE)	CABLE FLEX. 2.5 (YELLOW-GREEN)	CABLE FLEX. 2.5 (VERT-JAUNE)	KABEL FLEX. 2.5 (GELB-GRUEN)	103750

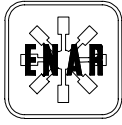
CONVERTIDORES DE FRECUENCIA Y AGUJAS

COBRA1 / COBRA2  
MB32, MB52, MB62, MB72, MB31, MB51





<b>MB 62</b>					
NUM	DENOMINACIÓN	DENOMINATION	DENOMINATION	BEZEICHNUNG	COD
1	PUNTA	END	POINTE	KAPPE	82031
2	TUBO	TUBE	TUBE	ROHR	82032
3	MANGUITO CIERRE	CLOSING HOSE	GULOT	ANSCHLUSSMANSCHETTE	82008
4	HEBILLA BAND-IT C253 (3/8)	BUCKLE BAND-IT C253 (3/8)	BOUCLE BAND-IT C253 (3/8)	SCHNALLE BAND-IT C253 (3/8)	107081
5	FLEJE INOX. C.203 9x6.65 30.5m	STRAP INOX. C.203 9x6.65 30.5m	FEUILLARD IN. C.203 9x6.65 30.5m	BAND INOX. C.203 9x6.65 30.5m	107080
6	MANGUERA GOMA. 25 x 39 x 7000 mm.	RUBBER HOSE 25 x 39 x 7000 mm.	TUYAU GOMME 25 x 39 x 7000 mm.	GUMMI HUELSE 25 x 39 x 7000 mm.	81268
7	TUERCA APRIETE	NUT	ECROU DE SERRAGE	MUTTER	81233
8	CONEXION MANGUERA	CONVERTER HOSE JOINT	EMBOUT CONVERTISSEUR	ANSCHLUSSMUFFE	81252
9	CLAVIJA 3P+T 380/415V 16A-6h	PLUG 3P+T 380/415V 16A-6h	PRISE 3P+T 380/415V 16A-6h	STECKER 3P+E 380/415V 16A-6h	103870
10	ARANDELA PL. BISEL. 3 DIN 125	WASHER PL. BISEL. 3 DIN 125	RONDELLE PL. BISEL. 3 DIN 125	SCHLEIBE PL. BISEL. 3 DIN 125	102101
11	TORN. ALLEN M3x16 DIN 912 8.8	BOLT ALLEN M3x16 DIN 912 8.8	VIS ALLEN M3x16 DIN 912 8.8	ALL.SCHRAUBE M3x16 DIN 912 8.8	102298
12	JUNTA TORICA 47x3.5	O RING 47x3.5	JOINT THORIQUE 47x3.5	RUNDRINGDICHTUNG 47x3.5	101885
13	PRENSAFESTOPAS S/T PG-9 METAL	PACKING GLAND S/T PG-9 METAL	PRESSE ETOUPE S/T PG-9 METAL	KABELFUEHRUNGSSTUTZEN S/T PG-9	103764
14	MACARRON TEXPOL F ESP 8mm	SHEATH TEXPOL F ESP 8 mm	PROTECTEUR CABLE TEXPOL F ESP 8mm	PLASTIKHÜLLE TXPOL F ESP 8mm	103887
15	CABLE INTERIOR ESPIRAL	SPRING INTERNAL CABLE	CABLE INTERIEUR SPIRALE	INNERES SPIRALKABEL	81658
16	CASQUILLO EMPALME	THREAD JOINT	BAGUE RACCORD	ANSCHLUSSMUFFE	82034
17	GUALDERA	REAR BEARING SUPPORT	DOUILLE	LAFETTENWAND	81261
18	PASADOR CILINDRICO DIN 6325 2.5x6.5	SPLIT PIN CIL. DIN6325 2.5x6.5	GOUJON CIL. DIN 6325 2.5x6.5	STIFT CIL. DIN 6325 2.5x6.5	103375
19	RODAMIENTO 6000 Z C3	BEARING 6000 Z C3	ROULEMENT 6000 Z C3	KUGELLAGER 6000 Z C3	101151
20	VARILLA POSICION Ø2.5x30 mm	BAR DIA.2.5x30 mm	VARILLA POSICION DIA.2.5x30 mm	POSITIONSSTANGE DIA.2.5x30 mm	81609
21	ESTATOR MB62 210V 200HZ	STATOR MB62 210V 200Hz	STATOR MB62 210V 200Hz	STATOR MB62 210V 200Hz	104370
22	TORN. ALLEN M 8x20 DIN 912 8.8	BOLT ALLEN M8x20 DIN 912 8.8	VIS ALLEN M8x20 DIN 912 8.8	ALL.SCHRAUBE M8x20 DIN 912 8.8	102332
23	EXCENTRICA	ECCENTRIC	EXCENTRIQUE	EXZENTER	82033
24	RODAMIENTO 6204 C3	BEARING 6204 C3	ROULEMENT 6204 C3	KUGELLAGER 6204 C3	101215
25	EJE ROTOR M6AFP (A)	ROTOR SHAFT M6AFP (A)	AXE ROTOR M6AFP (A)	ROTORACHSE M6AFP (A)	104376
26	RODAMIENTO 6204 Z C3	BEARING 6204 Z C3	ROULEMENT 6204 Z C3	KUGELLAGER 6204 Z C3	101205
27	TERMINAL ELPRESS A 2543 R	TERMINAL ELPRESS A 2543 R	TERMINAL ELPRESS A 2543 R	KLEMMEN ELPRESS A 2543 R	103721
28	ARANDELA ESTR. 4.3 A DIN 6798	WASHER ESTR. 4.3 A DIN 6798	RONDELLE STRIEE 4.3 A DIN 6798	SCHLEIBE ESTR. 4.3 A DIN 6798	102103
29	TORN./ALOMADAM 4x6 DIN 7985	BOLT M 4x6 DIN 7985	VIS TETE RONDE M 4x6 DIN 7985	SCHRAUBE M 4x6 DIN 7985	102702
30	TERMINAL ELPRESS A 2527 SK	TERMINAL ELPRESS A 2527 SK	TERMINAL ELPRESS A 2527 SK	KLEMMEN ELPRESS A 2527 SK	103720
31	CABLE FLEX. 2.5 (AMAR-VERDE)	CABLE FLEX. 2.5 (YELLOW-GREEN)	CABLE FLEX. 2.5 (VERT-JAUNE)	KABEL FLEX. 2.5 (GELB-GRUEN)	103750



ENARCO, S.A.



**CERTIFICADO DE CONFORMIDAD**

CONFORMITY CERTIFICATE ~ CERTIFICAT DE CONFORMITÉ  
INSTEMMING VERKLARING ~ KONFORMITÄTSBESCHEINIGUNG  
KONFORMITETS BEVIS ~ CERTIFICATO DE CONFORMIDADE

**ENARCO,S.A.**

**certifica que la máquina especificada**

*hereby certify that the equipment specified bellow ~ atteste que le equipment  
verklaart hierbij dat onderstaand gespecificeerde ~ bescheinigt, daß das Baugerät  
bekræfter, at følgende maskine ~ certifica que o equipamento especificação*

**TIPO DE MAQUINA** .....  
TYPE~TYPE~TYPE~TYP~TYPE~TIPO

**EQUIPO PARA VIBRACION**  
VIBRATION EQUIPEMENT

**MARCA**.....  
BRAND~MARQUE~MERK~MARKE~PRODUCENT~MARCA

**ENAR**

**MODELO** .....  
MODEL~MODÈLE~MODEL~MODELL~MODEL~MODELO

**CODIGO** .....  
CODE~CODE~CODE~CODE~CODE~CODIGO

**NUMERO DE FABRICACION**.....  
MANUFACTURE NBR.~NRO. DE FABRICACION~SERIENUMMER  
NUMMER~SERIENUMMER~NRO. DE FABRICAÇÃO

**AÑO DE FABRICACION**.....  
MANUFACTURE YEAR~ANNÉE DE FABRICATION~BOUWJAAR  
BAUJAHR~ÅRGANG~ANO DE FABRICAÇÃO

**ver fecha / see date**


**ha sido fabricada de acuerdo con las siguientes normas**

*has been manufactured according to the following standards ~ est produit conforme aux dispositions des directives ci-apres~  
in overeenstemming met de voldenge voorschriften gefabriceerd is ~ in Übereinstimmung mit folgenden Richtlinien hergestellt worden ist  
er blevet fremstillet i overenstemmelse med følgende retningslinier ~ é fabricado conforme as seguintes normas*

**98/37/EC, 89/392/EC, 91/368/EC, 93/44/EC, 93/68/EC\*, 73/23/EC\*, 89/336/EC\*, 92/31/EC\***

\* Aplicable for machines with electric motor

Zaragoza

  
JESÚS TABUENCA  
TECHNICAL MANAGER  
ENARCO, S.A.

**ENARCO,S.A.**  
C/ Tomás Edison, 19  
50.014 ZARAGOZA  
SPAIN

Tfno. (34) 976 470 836  
(34) 976 464 090  
Fax (34) 976 471 470  
e-mail: enar@enar.es  
comercial@enar.es



**EQUIPOS PARA LA CONSTRUCCIÓN ENAR**  
**BUILDING MACHINERY**