

## **MINIBLOC MVA-MEVA**

**Installation and maintenance**

**GN 004001**

# Minibloc MVA - MEVA

## INSTALLATION RECOMMENDATIONS

### For the gearbox :

- Remove the protective material from the shafts (plastic coverings).
- Mount the gearboxes on flat rigid supports. They must be free from vibration.
- Mount the couplings, sprockets and pulleys with extreme care (they should be heated). Do not hammer the end of the shaft.
- Ensure that the radial force on the sprockets and pulleys is correct (see selection table).
- Ensure normal tension and correct alignment of the transmission. Check that the shafts are parallel.
- For direct couplings using a coupling sleeve, check the alignment of the axes.

NOTE : In the event of prolonged storage, turn the unit by hand before starting it, to avoid damaging the seals.

Despite all the precautions taken in the manufacture and the checking of equipment, LEROY-SOMER cannot guarantee 100 % against leakage of lubricant. If leaks occur which would risk the safety of equipment or personnel, it is the responsibility of the installer to take all necessary avoiding action.

**For the motor :** See recommendations on page 10.

## ORDERING SPARE PARTS

### Essential information to quote when ordering

#### a) From the gearbox identification plate :

- 1 - Gearbox reference
- 2 - Type of fixing
- 3 - Exact reduction ratio of the device
- 4 - Serial number

#### b) From the corresponding parts list :

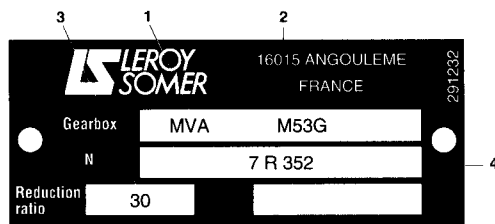
- Number and description of the part

#### c) If there is a motor connected to the gearbox, quote the following from the motor identification plate :

- (For the motor : see the corresponding manual)
- Motor type
  - Number of poles (or speed in min<sup>-1</sup>)
  - Power in kW

**Warning : special flange and motor shaft for these gearboxes.**

Example :



Type of gearbox	Fixing	Ratio	Serial number	Part number	Type of motor No. of poles - power
1	2	3	4		
Eg : MVA	M53G	30	7 R 352	Wheel No. 51	LS 63 - 0.18 kW

## LUBRICATION

These gearboxes are permanently greased. They have no draining, emptying or level plugs.

### -Original grease :

LUBRILOG LX DDEB 00 grease  
 Synthetic base  
 Grade 00  
 Worked penetration 400/430  
 Operating temperature -40°/+150°  
 Melting point >130  
 Supplier :

LUBRILOG - 26260 S<sup>t</sup> DONAT S/ L' HERBASSE

### In the event of dismantling :

Synthetic greases for wheels and worm screws with similar characteristics.

For example :

Structovis P 00 - from KLUBER  
 Tivella Compound A - from SHELL  
 Energrease GSF- from BP

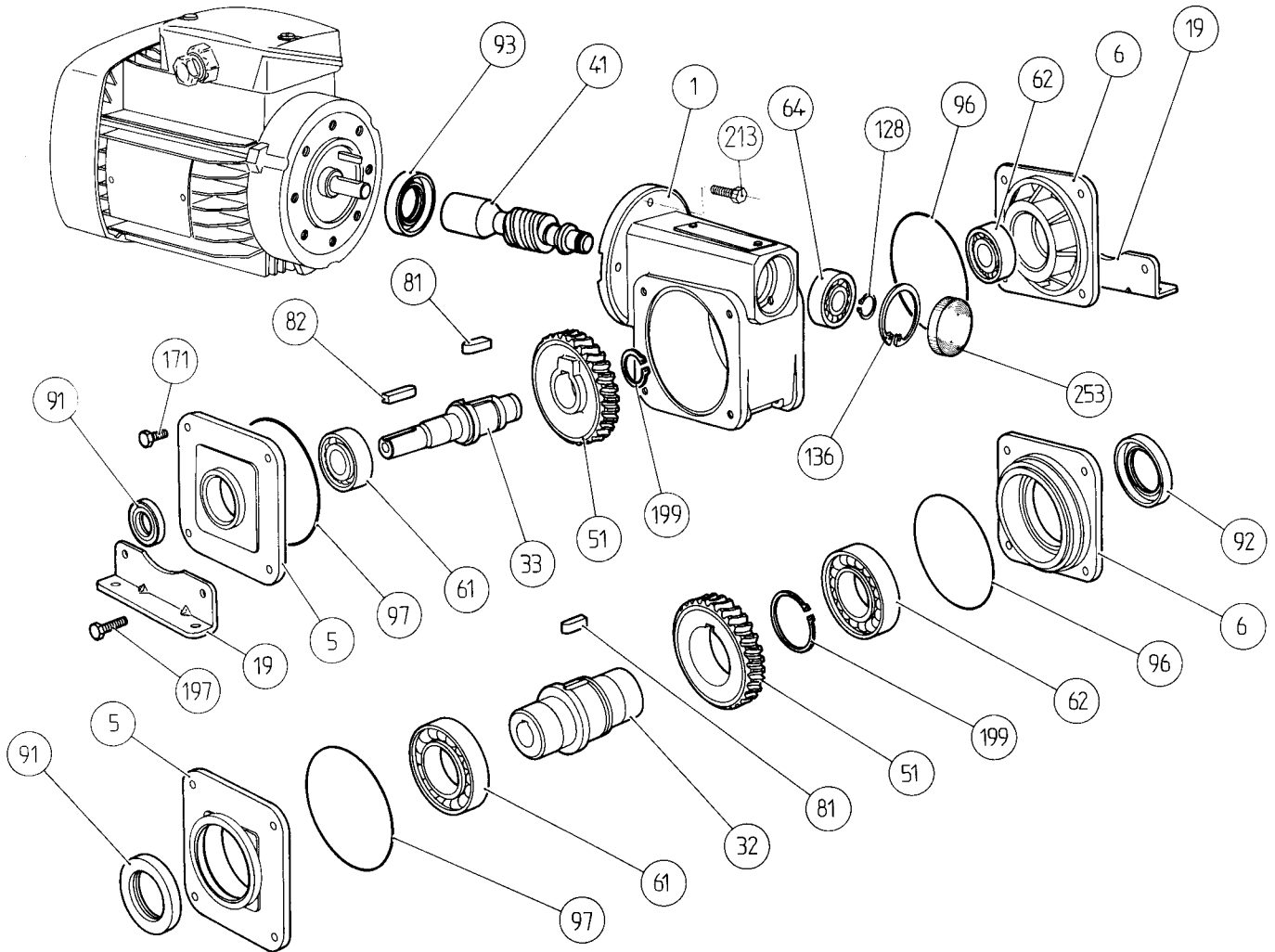
### Note :

Do not mix greases.

Drain, clean thoroughly with trichlorethylene or a similar product, and refill the housing 2/3 with new grease.

# Minibloc MVA

## EXPLODED VIEW OF MVA with feet

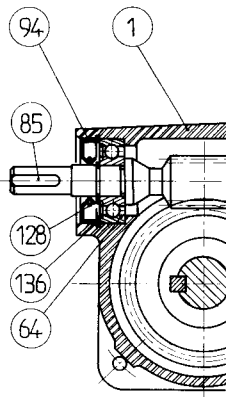


NO.	QTY	DESCRIPTION
1	1	Housing
5	1	Left side end shield
6	1	Right side end shield
19	2	Separate feet
32	1	Hollow output shaft
33	1	Left side output shaft
41	1	Worm screw
51	1	Bronze wheel
61	1	Output shaft left side bearing
62	1	Output shaft right side bearing
64	1	Worm screw bearing
81	1	Key for bronze wheel

NO.	QTY	DESCRIPTION
82	1	Output shaft extension key
91	1	Output shaft left side lipseal
92	1	Output shaft right side lipseal
93	1	Worm screw lipseal
96	1	O-Ring
97	1	O-Ring
128	1	Locking circlip for worm screw
136	1	Locking circlip for worm screw bearing
171	4	Screws for output shaft end shields
197	4	Screws for end shield and feet
199	1	Locking circlip for bronze wheel
213	3	Screw for mounting motor on gearbox
253	1	Cover

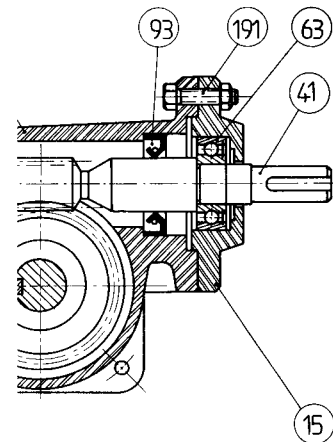
# Minibloc MVA

## Assembly with fast shaft extension



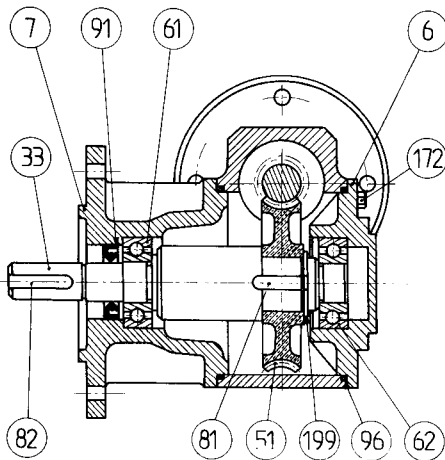
NO.	QTY	DESCRIPTION
1	1	Housing
64	1	Worm screw bearing
85	1	Fast shaft extension key
94	1	Worm screw lipseal
128	1	Worm screw locking circlip
136	1	Worm screw bearing locking circlip

## Assembly with input shaft extension



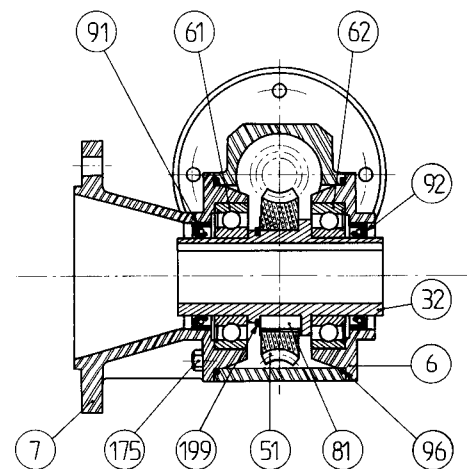
NO.	QTY	DESCRIPTION
15	1	Input shaft retainer
41	1	Worm screw
63	1	Worm screw input bearing
93	1	Worm screw input lipseal
191	3	Housing fixing screw /input shaft retainer

## Foot and face plate mounting/solid shaft



NO.	QTY	DESCRIPTION
6	1	Right end shield
7	1	Separate left flange
33	1	Left output shaft
51	1	Bronze wheel
61	1	Output shaft left bearing
62	1	Output shaft right bearing
81	1	Bronze wheel key
82	1	Output shaft extension key
91	1	Output shaft left lipseal
96	2	O-Ring
172	8	End shield flange/housing fixing screws
199	1	Bronze wheel locking circlip

## Foot and face plate mounting/hollow shaft



NO.	QTY	DESCRIPTION
6	1	Right end shield
7	1	Separate left flange
32	1	Hollow output shaft
51	1	Bronze wheel
61	1	Output shaft left bearing
62	1	Output shaft right bearing
81	1	Bronze wheel key
91	1	Output shaft left lipseal
92	1	Output shaft right lipseal
96	2	O-Ring
175	8	End shield flange/housing fixing screws
199	1	Bronze wheel locking circlip

# Minibloc MVA

## DISMANTLING AND REASSEMBLY

### 1° Dismantling :

#### Dismantling the motor

- Remove the 3 fixing screws which fix the gearbox to the motor ref. 213
- Disconnect the gearbox from the motor (to do this use 2 levers in the 2 notches for this purpose in the gearbox housing flange)

#### Dismantling the worm screw

- Remove cover no. 253 (generally necessary to break this and order a replacement)
- Remove circlip no. 136
- Remove screw no. 41 pushing it from the motor side
- Remove circlip no. 128 and bearing no. 64 (hub remover)

#### Dismantling the output shaft

- Remove 4 screws (2 no. 171 and 2 no. 197) from flange no. 6 opposite the shaft extension
- Tap on the shaft extension to make it come out (no. 33 or 32)
- Remove left flange no. 5 from the housing
- Dismantle the bronze wheel
- Remove flange no. 6 from on top of its bearing
- Take out the 2 bearings no. 61 and no. 62 (hub remover)
- Remove circlip no.199
- Take out bronze wheel no. 51 (hub remover)
- (label the direction of the bronze wheel on the side where the wheel hub protrudes beyond the circlip on the shaft)

### 2° Reassembly :

Before reassembling clean all the parts thoroughly. It is preferable to change all the seals

#### a/ Bronze wheel and output shaft

Perform the above operations in reverse order  
Before replacing the worm screw in the housing, fill the housing with grease (see paragraph on lubrication) - to approximately 2/3 of its internal volume

#### b/ Worm screw and motor

Perform the above operations in reverse order  
For all these operations it is important to use the correct tools (rings, circlip pliers)

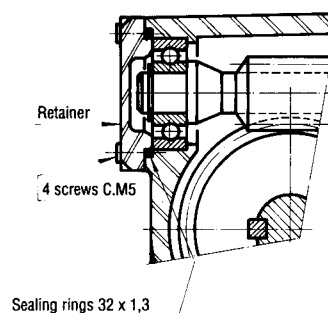
#### c/ Mount the gearbox on the motor

## Mounting the thrust bearing

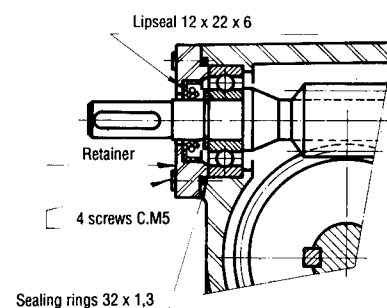
There are two ways of mounting the thrust bearing on the worm screw

### 1° Mounting using thrust bearing retainer (attached to the housing using 4 screws)

Without fast shaft extension

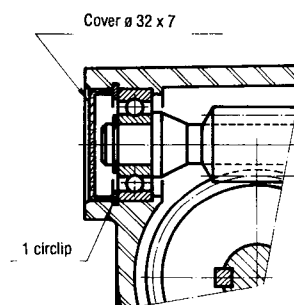


With fast shaft extension

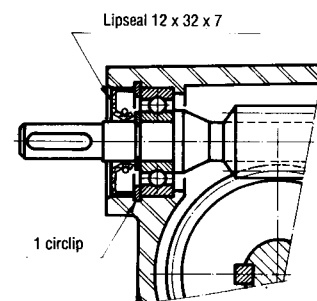


### 2° Mounting using a cover and circlip in the prebored hole on the housing. (Warning : if the screw is dismantled, the seal or the cover will be broken)

Without fast shaft extension

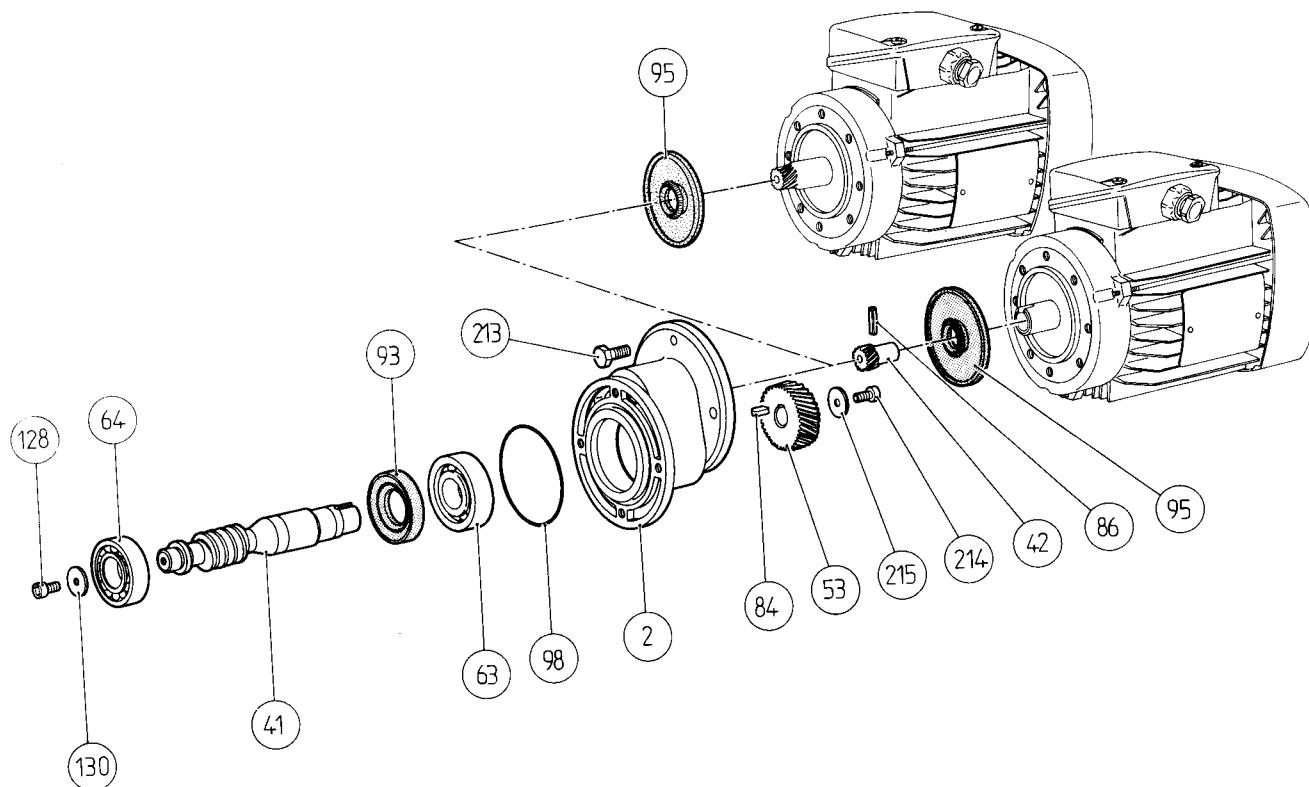


With fast shaft extension



# Minibloc MEVA

## EXPLODED VIEW OF MEVA



NO.	QTY	DESCRIPTION
2	1	Primary gear stage housing
41	1	Worm screw
42	1	Pinion
53	1	Steel fast wheel
63	1	Worm screw E bearing
64	1	Worm screw OE bearing
84	1	Fast wheel key
86	1	Steel pinion pin

NO.	QTY	DESCRIPTION
93	1	Worm screw E lipseal
95	1	Worm screw lipseal E (2 <sup>nd</sup> seal)
98	1	O-Ring
128	1	Screw
130	1	Washer for screw 128
213	3	Primary gear train/motor shaft fixing screw
214	1	Screw
215	1	Washer for screw 214

# Minibloc MEVA

## Dismantling and reassembly of primary gear train

### 1° Dismantling

-Loosen the 3 screws no. 213 fixing the worm gear housing onto the primary gear train housing  
Remove the worm gearbox from the primary gear train gearbox

-Remove screws no. 214, toothed wheel no. 53, key no. 84, and bearing no. 63

-To dismantle the worm gear (MVA) refer to page 6

-Remove the 3 external screws + **internal screw no. 213** which fix the housing no. 2 onto the motor flange  
Remove the primary gear stage housing no. 2

For the motor pinion : 2 possible options

1° Motor pinion on shaft

- remove seal no. 95 - change the seal if necessary  
If the pinion is worn, the rotor must be changed

2° Separate motor pinion

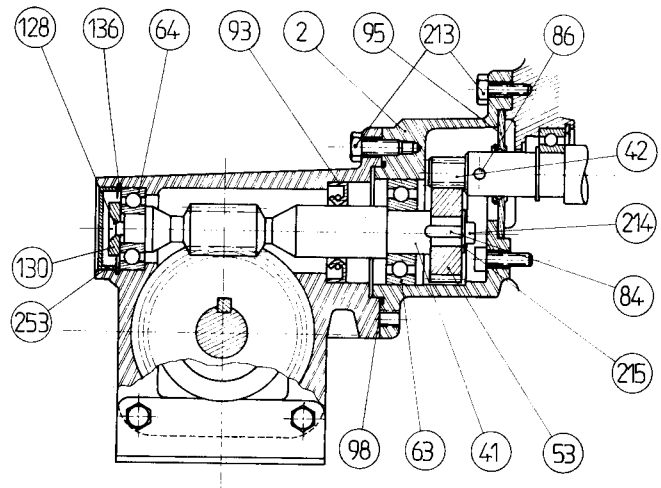
- remove pin no. 86
- pull out the pinion (using a vice)
- remove seal no. 95 and change it if necessary

**Warning :** If the external diameter of the pinion is greater than the diameter of the shaft, it is essential to pull out the pinion in order to change the seal. Change the seal and the pinion. Reassemble the seal and the pinion.

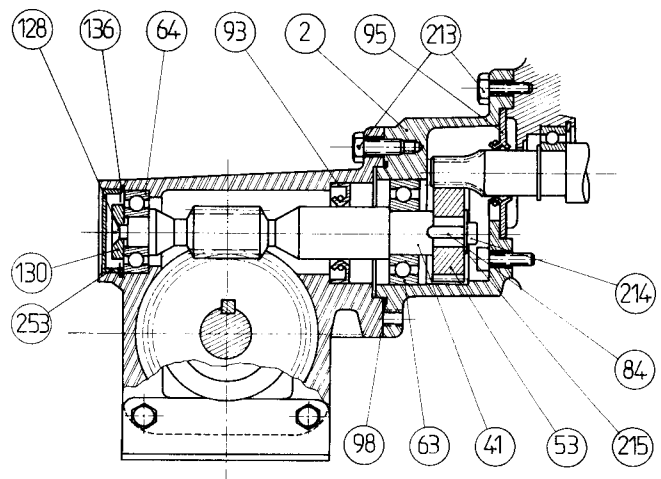
### 2° Reassembly

-Perform the dismantling operations in reverse order.

## Assembly with separate motor pinion



## Assembly with pinion on motor shaft



# Minibloc MVA - MEVA

## PARTS LIST FOR SEALED INDUCTION MOTORS WITH SQUIRREL CAGE ROTOR

Information which should be provided when ordering any spare parts

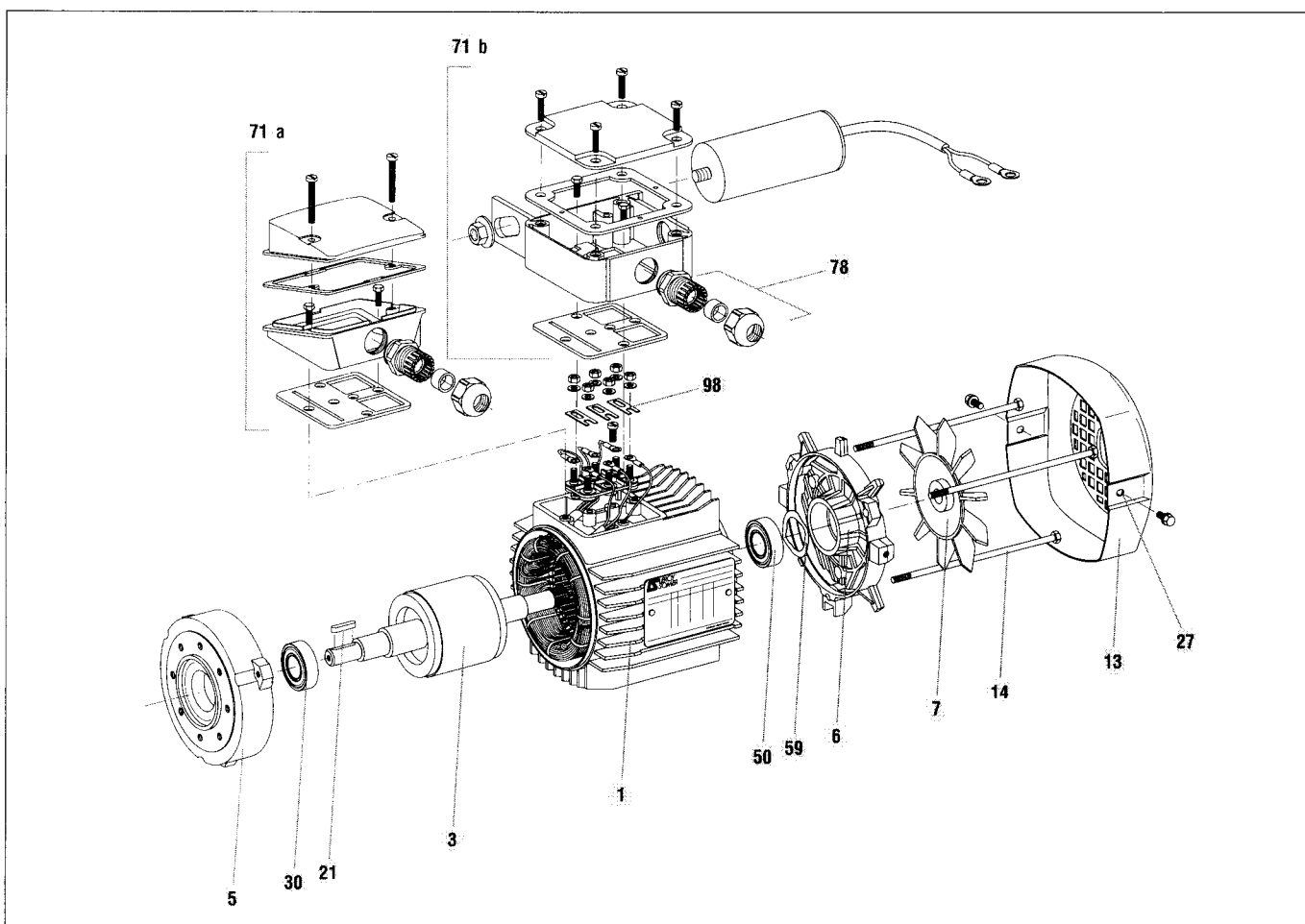
**Warning :** when ordering parts for a motor coupled to a gearbox, give full details of the gearbox (see previous pages).

Motor type 1	Speed min <sup>-1</sup> 2	Power kW 3
Example : LS 71	1500	0,37
Mounting-position	Serial number : 4	Identification n°
Special B14 flange	370058	Housing and wound stator no.1

<b>LEROY SOMER</b>		N° 370058	1993		
		MOT. 3 ~ LS 71			
IP 55	I.cl. F	40 °C	C		
S1	%	c/h	C		
			μf V		
			μf V		
V	Hz	min <sup>-1</sup>	kW	Cos φ	A
220/230	50	1500	.37	.75	1.85
240	50	1500	.37	.7	1.9
380/400	50	1500	.37	.75	1.05
415	50	1500	.37	.7	1.1

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**Note :** Motors for the MVA do not have the same shaft extensions as those for the MEVA

NO.	QTY	DESCRIPTION
1	1	Wound stator
3	1	Rotor
5	1	Drive end shield
6	1	Non-drive end shield
7	1	Fan
13	1	Fan cover
14	2,3,4	Tie rods
21	1	Shaft extension key

NO.	QTY	DESCRIPTION
27	2	Fan cover screw
30	1	Drive end bearing
50	1	Non-drive end bearing
59	1	Preloading (wavy) washer
71a	1	Plastic terminal box fitted for three-phase
71b	1	Metal terminal box fitted for single phase
78	1	Cable gland
98	3	Connecting bars



## THREE-PHASE MOTORS

### 1 - Starting up

Before starting up, check :

- that the shaft rotates freely when turned by hand.

#### Recommendation :

If the motor has been in a damp atmosphere, it is advisable to ask your electrician to check the isolation resistance.

The resistance should not be less than 5000 ohms per volt of rated voltage.

### 2 - Connection

- Select cables with a large enough cross-section to prevent excessive voltage drops (5 amperes per mm<sup>2</sup>).
- Connect the terminals according to the diagram inside the terminal box.
- Follow the wiring diagrams supplied with the equipment in the terminal boxes and the supply voltages indicated on the identification plate.

**Very important :** After connection, it is necessary to replace the terminal box cover with care, paying particular attention to the tightening of the cable gland on the power supply cable.

#### Earthing :

A terminal for connecting an earth conductor is provided inside the terminal box.

### 3 - Bearings (types)

Motor type	Drive end	Non-drive end	Non-drive end with shaft extension
LS 56	MVA 6201 MEVA 6202	6201	6201
LS 63	6202	6201	6002
LS 71	6202	6201	6002
LS 80	6204	6203	6204

Type ZZ bearings are used for IP 44 motors and type 2 RS for IP 55 motors. They are permanently greased : 15 000 hours at 3 000 min<sup>-1</sup>, 30 000 hours at 1 500 min<sup>-1</sup>).

## SINGLE PHASE MOTORS WITH PERMANENT CAPACITOR

These are mechanically identical to three-phase motors. They have an additional permanent capacitor fixed on the terminal box side.

To connect them, follow the voltage shown on the identification plate and the connection diagrams in the terminal boxes.