IT **MANUALE ISTRUZIONI PER L'USO E LA MANUTENZIONE**

GB **INSTRUCTION MANUAL FOR USE AND MAINTENANCE**

DE **GEBRAUCHS-UND WARTUNGSANLEITUNGEN**

N **BEDIENUNGSANLEITUNG FÜR GEBRAUCH UND WARTUNG**

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Pagani

ELBA

FOREWORD

The ELBA series centrifugal pumps were designed and constructed in compliance with the EEC safety regulations and were assessed for risks according to the standard UNI EN ISO 12100:2010; in particular they are in conformity with machinery directive 2006/42/CE and subsequent modifications and additions.
This manual contains the declaration of incorporation of partly completed machinery and all the instructions required by the users and by the manufacturers of systems to use our products safely; therefore, the manual must always be kept near the centrifugal pump.
The instructions contained in this manual must be read carefully before performing any operation on or with the centrifugal pump.

This danger symbol in the manual means that important instructions relating to safety are being provided. The operators are the first recipients of this information and are responsible for compliance, not only in relation to themselves, but also in relation to other persons exposed to the risks associated with use.

The descriptions and illustrations in this manual are purely indicative.
The manufacturer reserves the right to make any type of change to this manual at any time.

WARRANTY

Upon receipt of the product, check that the centrifugal pump is complete with all its parts.
Any anomalies or missing parts must be notified within 8 days of receipt of the product.
The Supplier guarantees that the product sold is free from defects and undertakes to repair or, by final decision, to replace the faulty parts only if the defects are clearly attributed to the manufacturing process or to the materials used. In any case the costs of labour, travel and transport, and any customs expenses, shall be paid by the Purchaser. The vendor is not obliged to pay damages except in the case of fraud or serious offence. All parts subject to normal wear are excluded from the warranty. The warranty will cease to be valid if:

- the faults reported are the result of accidents or obvious carelessness or negligence by the Purchaser,
- the parts have been modified, repaired or fitted by persons not authorised by the vendor,
- the failures and breakages have been caused by use that is unsuitable or heavier than that provided for by the vendor,
- the Purchaser has failed to make the payments as agreed under the contract

The Purchaser loses the right to warranty if the defects are not notified within eight days from the discovery, notwithstanding art. 1512 of the Italian Civil Code. The Vendor reserves the right to make changes or improvements to its products without any obligation to make such changes or improvements to the units already previously produced and/or delivered. The Vendor reserves the right to make changes or improvements to his/her products without being obliged to make the same changes or improvements to the units already produced and/or delivered previously.

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COMPULSORY SAFETY SIGNS THAT THE MANUFACTURER OF THE SYSTEM MUST DISPLAY IN THE WORK PLACE AND AROUND THE CENTRIFUGAL PUMP

PERSONAL PROTECTIVE EQUIPMENT THAT MUST BE USED

INDICATIONS OF THE DIRECTION OF ROTATION

CONDITIONS AND LIMITS OF USE – LIST OF DANGERS

The installation must comply with directive 2006/42/EC for the countries of the Common Market, whereas for other countries it must comply with the local safety standards.
This centrifugal pump has been designed with the function of sucking liquids in a container in order to spray them or make them flow.

No solid materials of any type of size greater than the output hole of the swivel jet must enter the centrifugal pump, in any case.
Any other use of the centrifugal pump, excluding the use specified above, is strictly forbidden, not provided for by the manufacturer and therefore extremely dangerous.
Do not use the centrifugal pump to handle flammable and/or explosive liquids and materials or for materials that release flammable gasses.
Do not use the centrifugal pump in potentially explosive atmospheres.
Never remove the guards fitted on the centrifugal pump and always check their efficiency every time the machine is used.
Any work on the machine must be carried out while it is not running.

Failure to comply with the instructions provided in this manual may result in the following dangers:

- Danger of being crushed by the weight of the vacuum/pressure blowers pump during handling and transport;
- Danger of becoming entangled in the shaft transmission parts if the necessary guards are removed;
- Acoustic danger due to the noise generated and to failure to use personal means of protection;
- Danger of severing for the operator during testing with the suction and delivery tubes detached from the pump;
- Danger of being knocked down by the outgoing sewage, due to the rotary motion of the swivel jet.

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GENERAL INFORMATION

VERSION	CENTR. STANDARD	CENTR. Ø 140	VERSION HD	CHOPPER	FLAT FLANGE
ELBA 3500 WITH MECHANICAL SEAL RATIO 1:3	O	-	O	-	-
ELBA 3500 WITH MECHANICAL SEAL RATIO 1:4	O	-	O	-	-
ELBA 3500 WITH PREFORMED ROPE RATIO 1:3	O	-	O	-	-
ELBA 3500 WITH PREFORMED ROPE RATIO 1:4	O	-	O	-	-
ELBA 6500 WITH MECHANICAL SEAL RATIO 1:3	O	O	O	O	O
ELBA 6500 WITH MECHANICAL SEAL RATIO 1:4	O	O	O	O	O

- NOT AVAILABLE O AVAILABLE

1 - VERSIONS OF THE CENTRIFUGAL PUMP

Elba is a centrifugal pump is used for the handling of sewage and liquids in general. It is used in sewage suction and continuous discharge systems.

VERSIONS

ELBA 3500 1:3
PTO
1”3/8 - Z6 ISO 500

ELBA 3500 1:4
PTO
1”3/8 - Z6 ISO 500

ELBA 6500 1:3
PTO
1”3/8 - Z6 ISO 500

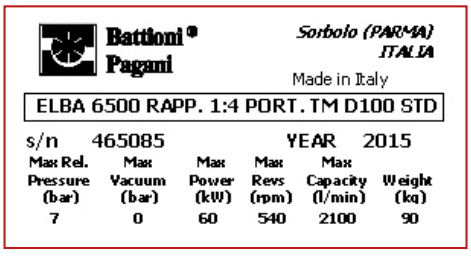
ELBA 6500 1:4
PTO
1”3/8 - Z6 ISO 500

	MAX capacity with jet with ø 34 mm nozzle	Working rate max rpm		Head m	Power at max vacuum kW (HP)	Weight kg
	l/min	1:3	1:4			
ELBA 3500	1600	750	540	38	24 (32,2)	59
ELBA 6500	2100	750	540	70	60 (80,4)	90

Table 1

1.1 IDENTIFICATION LABEL

Each pump is supplied with an identification label, indicating:
- model of centrifugal pump
- serial number
- production year
- max relative pressure
- max vacuum
- max absorbed power
- max r.p.m.
- max rate of flow
- weight of pump



IDENTIFICATION PLATE
WITH PROTECTIVE FILM FOR PAINTING

Each identification plate is protected by a special film, to remove after painting.
This film has been introduced to guarantee the tracing of the pump for warranty purposes.

ENGLISH

INSTRUCTIONS FOR USE AND MAINTENANCE

2 -PACKAGING, STORAGE, HANDLING AND TRANSPORTATION

2.1 PACKAGING

The ELBA series centrifugal pumps are supplied unpackaged. On request the following packaging can be used:

- cardboard boxes, for individual packaging;
- wooden base and shrink-wrap;
- wooden cases and shrink-wrap for shipment by sea or air.

2.2 STORAGE

For proper storage of the centrifugal pump, it must be sd:

- indoors, sheltered from adverse weather conditions;
- resting horizontally on its four feet.

2.3 HANDLING AND TRANSPORT

Mass of the centrifugal pump: (see Table 1).

The centrifugal pump must be:
• Harnessed by means of metal hooks inserted in the hole for gripping, or a sling;
• Lifted by means of a forklift truck (if on a pallet), bridge crane, crane.

The centrifugal pump is supplied with a guard that is in compliance with EC directives. This guard should be installed by the fitter using the four screws supplied.

3 - ASSEMBLY, FITTING, INSTALLATION, DISASSEMBLY

3.1 ASSEMBLY AND FITTING - INSTALLATION

The ELBA centrifugal pump must be fitted and installed according to the following procedure:

1) Assemblethe ELBA pump horizontally with its feet facing downwards.
   The assembly position on the vehicle should be easy to access and be protected.
   A 5° maximum longitudinal slope of the ELBA pump with respect to the horizontal plane must not be exceeded.
2) Bolt the gearbox of the ELBA pump using screws and nuts passing through the specially provided holes in the feet of the box;
3) The centrifugal pump, connected to the gearbox, does not feature support means;
4) Connect the centrifugal pump to the tank by means of a Ø 200 mm suction pipe for ELBA/6500 and Ø 150 mm for ELBA/3500, interrupted by a flexible connection placed outside the tank itself;
5) Connect the centrifugal pump to the swivel jet by means of a 3” or 4” metal gas pipe, on which there must be a flexible connection and a gate valve that must be closed when the tank car is being filled;
6) Connect the drive shaft of the tractor to the PTO of the ELBA pump.

The maximum permissible angle of the drive shaft is 15°. For no reason must this inclination be exceeded.

The centrifugal pump, when being installed on a machine, must be equipped with protective devices to isolate the moving parts and prevent the operators from accessing.

When operating the centrifugal pump, it is necessary to use the personal protective equipment prescribed by the Manufacturer of the machine on which the centrifugal pump has been installed.

3.2 INSTALLATION DIAGRAM

3.3 UNINSTALLING

The ELBA centrifugal pump must be uninstalled according to the following procedure:
1) Stop the PTO of the tractor;
2) Remove the drive shaft from the PTO;
3) Disconnect the centrifugal pump from the tank;
4) Remove the screws of the gearbox;
5) Uninstall the ELBA pump.

To reinstall, proceed as for the first installation.

4 - START-UP, SETTING UP, TESTING, RUNNING

4.1 DIRECTION OF ROTATION

The STANDARD direction of rotation of the PTO shaft of the ELBA centrifugal pump is LEFT.
Never allow the centrifugal pump to turn in the direction of rotation opposite to the one for which it has been prepared (indicated by the arrow) as this could damage some components as well as prevent the operation of the pump.

4.2 RECOMMENDED OIL

The quantity of oil to be put in the gearbox is 1.5 litres, check the oil level as shown in the figure.
The type of oil to use is an additivated mineral oil ISO VG 460. Perform the initial oil change after approximately 100 hours of actual work and perform subsequent changes after approximately every 300 hours of actual work.

The ELBA centrifugal pump features an oil level inspection point.
If the oil level is particularly low after an inspection, add some.

4.3 TESTING

To carry out the testing of the centrifugal pump verify the previous steps, possibly using a workbench. Make sure that the shaft of the power take-off (PTO) turns freely and that the direction of rotation is the same as that indicated by the arrow.
In case of verification of operation of the pump without connection to the intake/discharge pipes, there is a danger of shearing for the operators due to access to the inside of the centrifuge through the rear opening.

4.4 RUNNING

A running period is not needed.
The maximum rate of revolutions of the PTO shaft is 540 rpm for the ELBA centrifugal pump ratio 1:4 and 750 rpm for the ELBA centrifugal pump ratio 1:2. 1:3
During the normal operating phases, it is recommended not to exceed 400/500 rpm for the 1:4 ratio version and 550/600 rpm for the 1:3 ratio version. 1:3

5 - START, OPERATION, STOP

5.1 START

Start the centrifugal pump by inserting the drive shaft on the PTO shaft, after making sure that it is correctly secured, and activating the PTO of the tractor.

Make sure, before starting the ELBA pump, that there is oil in the gearbox and that the transmission guards are present and efficient. Any damaged or missing components must be replaced and installed correctly before using the transmission.

WARNING: the pump is not self-priming.
Do not use the pump dry, otherwise the mechanical seal may burn.

5.2 CONTROL DEVICES

The ELBA centrifugal pump does not feature a start command. Therefore, to start it, it is sufficient to transmit the drive to the PTO. Clean and grease the PTO of the centrifugal pump before installing the drive shaft.

5.3 DISCHARGE

For the discharge procedure, proceed as follows:
1) open the gate valve with the level located in the top part of the centrifugal pump;
2) start the pump by connecting it to the PTO of the tractor.

5.4 SUCTION AND CONTINUOUS DISCHARGE

For the suction and continuous discharge procedure, proceed as follows:
1) fill the tank;
2) when the tank is full, close the rear gate valve and leave the dip tube immersed (full);
3) open the gate valve with the level located on the centrifugal pump;
4) activate the drive shaft and start the ELBA pump;
5) open the rear gate valve on the tank;
6) open an air passage in the top part of the tank, so as to allow an inflow of air to compensate for the amount of sewage that initially comes out of the tank-car;
7) decant the liquid.

5.5 STOPPING

To stop the ELBA centrifugal pump, stop the engine and disconnect the PTO in order to prevent the accidental operation of it.

5.6 WASHING THE GEARBOX

At least once a year, wash the gearbox:
1) remove the oil from the gearbox;
2) remove the cover;
3) Wash the box using suitable solvents;
4) res the lubrication oil;
5) replace the cover.

While washing, it is recommended to use gloves, goggles (if using a compressor) and a mask.

6 - MALFUNCTION, FAULT, FAILURE, PROBLEM, CAUSE AND SOLUTION

PROBLEM	CAUSE	SOLUTION
Irregular outflow of sewage from the supply pipe of the centrifugal pump	The sewage is too thick	Dilute the sewage
	Air infiltration	Eliminate infiltration
Irregular outflow of sewage from the supply pipe of the centrifugal pump	The supply piping is blocked	Remove the obstruction
	The gate valve, located on the centrifugal pump, is closed	Open the gate valve
The mechanical seal of the centrifugal pump whistles	The mechanical seal is burnt because of the lack of sewage/liquid	Replace the mechanical seal
The PTO does not rotate	A foreign body is blocking the centrifuge	Remove the foreign body
The supply pressure of the centrifugal pump does not reach the operating values	The impeller blades are worn or broken	Replace the impeller
	Rate of revs is too low	Increase rate of revs
	The PTO of the tractor does not have enough power to reach the maximum pressure	Increase the power
	The diameter of the output hole of the nozzle of the swivel jet is too wide	Decrease the diameter of the output hole

7 - MAINTENANCE, INSPECTIONS AND CHECKS, REPAIRS, TECHNICAL ASSISTANCE

When carrying out maintenance operations, inspections, checks or repairs it is advisable to wear the personal protective equipment listed in this manual.

All maintenance, inspections and checks and repairs must be carried out very carefully, with the centrifugal pump disconnected from the PTO.

7.1 REPLACING THE MECHANICAL SEAL

1) remove the screw nut complete with the flange from its support by unscrewing the eight front screws;
2) unscrew the self-locking nut and remove the impeller from its pin;
3) remove the screw nut support from the body of the gearbox by unscrewing the four screws;
4) remove the mechanical seal from the screw nut support and replace it with a new one;
5) replace the screw nut support by tightening the four screws;
6) insert the impeller on the pin and tighten the self-locking nut;
7) replace the screw nut by tightening the eight screws.

7.2 REPLACING THE IMPELLER

1) unscrew the eight screws of the external flange of the screw nut;
2) remove the external flange of the screw nut;
3) unscrew the self-locking nut;
4) remove the impeller to be replaced from the shaft of the centrifugal pump;
5) secure the new impeller to the shaft;
6) tighten the self-locking nut;
7) attach the external flange to the screw nut;
8) tighten the eight screws to fasten the flange.

7.3 REPLACING THE SCREW NUT

1) unscrew the eight screws of the external flange of the screw nut;
2) remove the external flange of the screw nut;
3) unscrew the eight screws fastening the screw nut to the support;
4) remove the screw nut to be replaced by extracting it from the support;
5) insert the new screw nut;
6) tighten the eight screws fastening the screw nut to the support;
7) attach the external flange to the screw nut;
8) tighten the eight screws of the external flange of the screw nut;

7.4 REPLACING THE SCREW NUT SUPPORT

1) unscrew the eight screws fastening the screw nut to the support;
2) remove the screw nut, along with the external flange, by extracting it from the support;
3) unscrew the self-locking nut;
4) remove the impeller from the shaft of the centrifugal pump;

5) remove the little key from the shaft;
6) unscrew the four screws fastening the centrifugal pump support to the gearbox;
7) remove the oil seal from the support;
8) replace the support;
9) attach the oil seal to the new support;
10) attach the little key to the shaft;
11) attach the impeller to the shaft;
12) tighten the self-locking nut;
13) attach the screw nut to the support, together with the external flange;
14) tighten the eight screws fastening the screw nut to the support;

7.5 PROLONGED DOWNTIME

When the centrifugal pump remains inactive for a long time, it is recommended to act as in chapter 5.6 **(WASHING THE GEARBOX).**

7.6 TECHNICAL ASSISTANCE

For technical assistance or the supply of accessories and spare parts, contact the supplier of the complete system.

8 - PUTTING OUT OF SERVICE AND DEMOLITION

Before demolishing the centrifugal pump, the following materials should be separated:
- lubricating oil;
- rubber and plastic parts;
- cast iron and steel parts;

and disposed of correctly.
Do not dispose of the centrifugal pump into the environment.
For disposal of the lubricating oil make use of specialised treatment services.

9 - DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINERY

Below is an example of the declaration of incorporation of partly completed machinery which you will find attached to this manual:

The Manufacturer
Battioni Pagani Pompe S.p.A.
Via Cav. Enzo Ferrari, 2
43058 Ramoscello di Sorbolo (PR) - Italy

in the person of the Managing Director, Engineer Federico Zanotti, authorised to compile the technical documentation, declares that:

• The description and identification of the partly completed machine is the following:

Generic name: centrifugal pump with gearbox
Function: Sewage spilling, irrigation, umbilical systems
Model: Elba
Type:
Serial number:
Trade name: Elba

• The partly completed machinery is intended to be incorporated or assembled with other machinery to build a machine considered by directive 2006/42/EC and it therefore complies with the essential requirements of this relevant directive.

• The relevant technical documentation has been compiled in accordance with Annex VII B.

• In response to a request adequately reasoned by the national authorities, information on the partly completed machinery in question will be given.
This includes the method of transmission and does not affect the intellectual property rights of the manufacturer of the partly completed machinery.
diritti di proprietà intellettuale del fabbricante della quasi-macchina.

• The partly completed machinery covered by the declaration must not be put into service until the machine (or system) in which it will be incorporated or assembled, has been declared compliant with the provisions of directive 2006/42/EC and with those of the applicable directives.

Ramoscello di Sorbolo,

Battioni Pagani Pompe S.p.A.
Managing Director
Federico Zanotti

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3	15.04.2015	REVISIONE	R AQ	R DT	PRES
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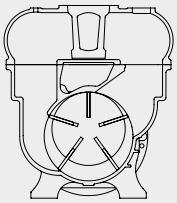
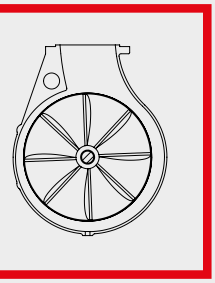
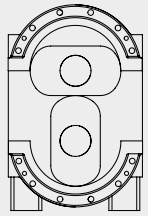
0	01.07.2001	I° EMISSIONE	UT	DT	PRES
Rev.	***Data***	***Motivo***	***Preparato***	***Approvato***	***Autorizzato***



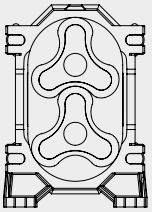
Rotary vanes
vacuum pump



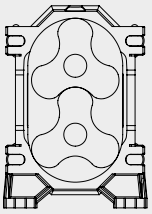
Centrifugal pump



Rotary postive displacement
lobes pump



Rotary postive displacement
lobes pump



Rotary lobes
vacuum pump

Battioni ®
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Setting the pace since 1953

Via Cav. Enzo Ferrari, 2
43058 Ramoscello di Sorbolo (PR) - Italy

Ph. +39 0521 663203
Fax +39 0521 663206

www.bapag.it
info@bapag.it

Litografia Reverberi - Pr

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