

**9@97HF ⇒ 'DI A D': CF 'HF 5BG: 9FH  
TYPE I D' '57**



**PRODUCT DESCRIPTION****A**

Self-priming electric pump for the transfer of liquids of varied nature (except those listed in section G) for continuous usage.

The pumping elements are made up of PTFE gear drives which can possibly even run dry for brief periods. Completely equipped with in-line filter on the inlet side.

**TECHNICAL DETAILS****B**

CODICE	TIPO	VOLT	FUSIBILE	PORTATA (2m)	PRESSIONE	PESO	P.ZI x CART.
CODE	TYPE	VOLT	FUSE	FLOW RATE (2m)	PRESSURE	WEIGHT	PCS x CART.
164 001 1C	UP3/AC	220	1,2 A	10 l/min.	6 bar	4,6 kg	1

**AMBIENT CONDITIONS****C**

*Ambient operating conditions:*

**Temperature:** min. -10 °C / max. +60 °C **Relative humidity:** max. 90 %

**Warning:** the above indicated temperature ranges are applicable to all components of the pump and these limits must be respected in order to avoid any possible damage or malfunctioning.

**ELECTRICAL CONNECTIONS****D**

The electric pump must be connected to a 220VAC power. The pump must be protected by a suitable rated fuse.

**OPERATING CYCLE****E**

The pump has been designed for continuous use. Under conditions of high operating pressures (eg. with closed or blocked outlet, excessive length of the delivery circuit and/or excessive pressure due to accessories), the pump can be subjected to elevated stresses and overheating and therefore should not be used for prolonged periods under such conditions.

**APPLICATIONS****F**

There are numerous fields of applications for the pump, however only exclusively with the allowed liquids mentioned:

- transfer of diesel fuel between tanks, refuelling of tractors and earth moving equipment
- bilge pump for boats
- transfer of water
- transfer of light weight lube oils, antifreeze, etc.

**G****FLUIDS ALLOWED / NOT ALLOWED**

**Allowed:**

DIESEL FUEL with viscosity between 2 and 5.35 cSt (relative to 37,8°C temperature)  
Minimum flashpoint (PM): 55°C.

FRESH WATER

**Not allowed:**

PETROL (GASOLINE)  
FLAMMABLE LIQUIDS with PM < 55°C  
LIQUIDS WITH VISCOSITY > 20 cSt  
FOODSTUFF LIQUIDS  
CORROSIVE CHEMICAL PRODUCTS

SOLVENTS

**Related dangers**

FIRE EXPLOSION  
FIRE EXPLOSION  
MOTOR OVERHEATING  
FOODSTUFF LIQUID CONTAMINATION  
PUMP CORROSION -  
INJURY TO PERSONNEL  
FIRE EXPLOSION  
DAMAGE TO SEALS

**H****TRANSPORTATION AND HANDLING**

Due to limited weight and dimensions the pump does not require the use of any special handling or lifting equipment. When handling manually, normal personal protective gear should be worn (safety shoes with toe piece, etc.)

The pump is carefully packed prior to shipment. Upon receiving, the pump packaging should be inspected for damages and the pump stored in a dry area.

**I****INSTALLATION**

It is recommended that the use of the pump be according to normative safety standards and also as per the precautions listed below.

**I-1****PACKAGING ENVIRONMENTAL DISPOSAL**

The packaging material is not in any way polluting or dangerous and does not require any special environmental disposal precautions. Disposal should be carried out according to local regulations in place.

**I-2****PRELIMINARY CHECKS**

Check that there has been no damage to the pump during transportation or storage. Both inlet and outlet ports should be carefully cleaned removing possible dust or residual packaging material. Verify that the available electrical power supply corresponds to the pump specification requirements.

**I-3****POSITIONING OF THE PUMP**

The pump can be mounted in any position. Fix the pump utilizing suitable diameter screws corresponding to the holes of the flange.

**WARNING:** THE PUMP MOTOR IS NOT EXPLOSION PROOF. Do not install the pump where flammable vapours or gases may be present. Install the pump in an accessible place for inspection.

The pump is IP55 protection rated. It is good practice to avoid any pump contact with water splashes possibly causing water seepage into the motor with high risk of internal oxidation and/or short circuit.

#### TUBING CONNECTIONS

I-4

- Prior to making any tube/hose connections, check that the inlet ports have no end caps.
- Do not position the pump at a height greater than 1,5m with respect to the minimum level of the fluid to be transferred. Pump damage may occur if this height is exceeded as the pump may not draw fluid. Make sure that the outlet tube is empty and without chokes.
- Avoid choking the inlet or outlet tubes so that pump efficiency is optimized. The use of an inlet filter is mandatory especially with fluids containing impurities (filter grid gauge 0,5mm). In this case frequent cleaning and maintenance of the filter is advisable. Utilize tubes and connection pieces that are resistant to the fluid types handled and avoid any possible environmental dispersion.

#### PUMP INSTALLATION

I-5

The electrical installation of the pump must include a protection fuse which is suitably rated as indicated on the motor label and sized with reference to the chosen point of application.

#### WARRANTY EXPIRES IF NO FUSE IS UTILIZED

Electrical cabling size should depend on the distance between pump and power source.

Up to 40 m length: 0,75 mmq

The use of undersized cabling can cause overheating of the electrical wiring and subsequent fire hazard. There will also be a voltage drop at the motor terminals with a consequent reduction in efficiency.

The flow rate value indicated on the motor label is obtained with a 25 mm internal tube diameter. Tubes with inferior diameters will cause an increase in current with potential risk of motor overheating. On the outlet side it is advisable to use at least a short section of flexible tubing.

**WARNING:** it is the responsibility of the installation technician to ensure a correctly designed circuit installation fitted according to regulations. Environmental risks must be taken into account with the installation.

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### TROUBLESHOOTING

L-1

#### CHECK POINTS IF THE PUMP HAS STOPPED OR WILL NOT START

- Check the effectiveness of the battery power supply (voltage activity)
- Check if the fuse has blown
- Check for any foreign matter present in-between the pump gear drives. To do this, disconnect the power supply and unscrew the four fixing screws, remove the pump front cover plate and inspect the pump chamber. Replace the cover plate in the same initial position after inspection.
- Avoid running the pump dry for more than a few minutes. **Pumps found defective that have run dry in the absence of fluid are not covered by warranty.**

L-2

#### WHY THE PUMP WILL NOT PRIME ITSELF?

- The pump is fitted at a height greater than 1,5m above the fluid level.
- The pump has run dry for too long a period
- Long periods of inactivity. In this case it is advisable to add liquid directly into the pump chamber before start-up. It is also advisable to add, before running the pump, a drop of lubricating oil inside the pump only.
- Air leak at the suction pipe due to the following reasons:
  - Possible cuts in the pipe, inadequate hose clamps, malfunctioning of the filter due to defective/worn seals or filter clogged.
- Air leak at the pump front plate cover due to the following reasons:
  - Loose fixing screws, poor effectiveness of the seal.
- Presence of obstructions or restrictions in the suction or delivery pipes.

L-3

#### GOOD PRACTICES ENSURING A WELL FUNCTIONING PUMP

No particular maintenance is required if the pump is utilized for the transfer of diesel fluids. If it is expected that the pump will not be used for a period of at least 30 days, especially in the case of usage with fresh or salty water, it is advisable to run fresh water through the pump and to then loosen the pump front plate screws.

Upon re-use, run the pump briefly (a few seconds) and then tighten the screws again. Check under conditions of maximum operating pressure that the motor current value is within the motor label specifications.

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## NORMAL MAINTENANCE

L-4

Check frequently and keep the inlet filter clean.  
Check every month the pump chamber and keep clean from any foreign matter.  
Check every month that electrical wiring is in good condition.

## INDICATORS THAT THE PUMP IS FUNCTIONING CORRECTLY

L-5

- Regular flow and constant pump noise levels
- Amp-draw within the limits indicated in the technical details.

## TO OPEN THE PUMP

L-6

- It is recommended that a specialized service technician be consulted for any pump repair work or the replacement of worn out internal components, exclusively with original spare parts.
- During the warranty period, only by authorized Marco S.p.A. personnel, failing which the warranty will expire.

## ENVIRONMENTAL DISPOSAL

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Should the pump be discarded, do not pollute the environment. Please refer to the local environmental regulations.

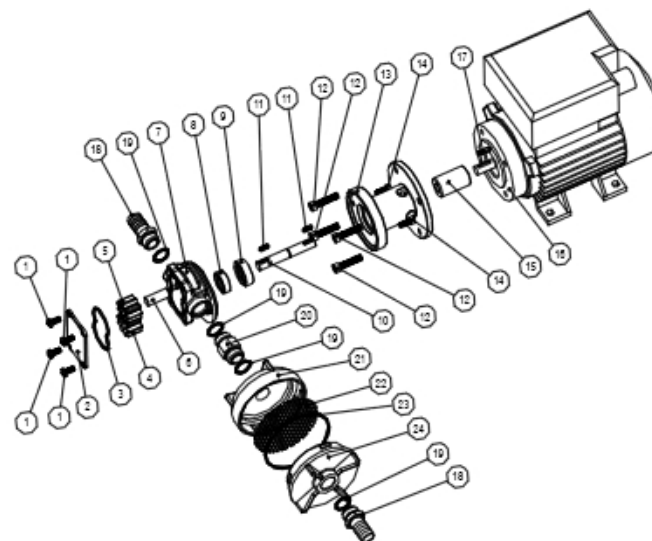
## WARRANTY

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- 1) The Warranty period is 2 years from date of purchase on production of the appropriate sales invoice.
- 2) Should the original sales invoice not be available, then the 2 year warranty period will be valid from date of production.
- 3) The Warranty becomes null and void in the case of incorrect utilization or disregard of the instructions contained herein.
- 4) The Warranty only covers original production defects.
- 5) The Warranty does not cover any related installation costs involved.

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## EXPLODED VIEW



ART.	QTY	DESCRIPTION
1	4	TOP PLATE SCREW M 4 X 10
2	1	TOP PLATE
3	1	TOP PLATE O-RING
4	1	DRIVING GEAR
5	1	IDLE GEAR
6	1	IDLE SHAFT
7	1	PUMP BODY
8	1	RUBBER LIP SEAL
9	1	BALL BEARING
10	1	SHAFT CONNECTION
11	2	KEY
12	4	SCREW M 5 X 25
13	1	COUPLING FLANGE
14	2	SCREW M 4 X 12
15	1	JOINT
16	1	TWO-POLE MOTOR SINGLE PHASE 220 V 0.12 KW 50 HZ
17	1	MOTOR KEY
18	2	TUBE OUTLET
19	4	O-RING
20	1	NIPPLE 3/8"
21	1	FILTER HOUSING ( FEMALE )
22	1	FILTER NET
23	1	FILTER O-RING
24	1	FILTER HOUSING ( MALE )

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## DIMENSIONS

