



Manuale d'utilizzo e manutenzione di  
elettropompe sommergibili

Submersible elettropumps users and  
maintenance manual

Manuel d'utilisation et d'entretien de  
electropompes submersibles

Manual de uso y mantenimiento de  
las bombas eléctricas sumergibles

Gebrauchs- und Wartungsanleitung  
Tauchmotorpumpen

**Compatta PRO**  
**Alpha V PRO**  
**BIC PRO**  
**AM-AT**  
**G**  
**DNA -EX**  
**DNB -EX**

**DRENO POMPE** thanks you for having purchased our products

Please read carefully this user manual and keep it in a safe place for all time of use of the pump also recording the carried out maintenances in order to assure a safe, effective, efficient and correct use.

This user manual is subjected to copyright, therefore what described in this operating manual and the technical specifications regarding this product could be subjected to any modification without any advanced advice.

This operating manual and the product have been conceived and tested with specific procedures. In case of printing mistakes or others ones you could send information to our premises ([www.drenopompe.it](http://www.drenopompe.it)).

**DRENO POMPE** could not be considered as responsible for an incorrect use of this product, and also for direct and indirect damages. Before its use it is compulsory to read carefully this manual and take note about all the precautions described therein.

Anyhow pay particular attention every time the following symbol will be reproduced:



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## 1. General description of the ATEX electropumps of DRENO POMPE and service features

The strong and portable "DRENO POMPE" submersible electropumps of the series Compatta PRO, Alpha V PRO, AM-AT, BC PRO, G, DNA-EX, DNB-EX, are widely used in the housework, handicraft and industrial applications for the waste and raw waters pumping, sludge and sewage, mixtures of waters, light sewage drainage, they could also be used in areas with explosion risks accordingly with ATEX 2014/34/UE rules.

**Marking accordingly with Unit GAS IIB, category 2, gas protection (G), temperature class = T4**

**Temperature range of pumping liquid:** 0 ÷ 40°C

**Max submersion depth:** 20 m

**Minimum liquid level:** 0,1 m above pump body

**PH of pumped liquid:** 6 ÷ 10 PH

**Protection class:** IP 68

**Fluid density:** Not higher than < 1,1 kg/dm<sup>3</sup>. The pumping liquid may contain solid particles up to the diameter allowed by the impeller.

The maximum noise level of our pumps is ≤ 70 dB (A).

### DRENO POMPE GUARANTEES THE GOOD WORKING OF THEIR PUMPS UNDER THE HERE BELOW DESCRIBED USER CONDITIONS SOLELY

The electropumps could be used in area subjected to explosion risks accordingly with ATEX specifications and other ones described in the rating plate.

They have successfully passed the check and the verifications required by the directives, these evaluations are described and certified in the report n° EUM1 11 ATEX 364 X, please consult our website:

[www.drenopompe.it](http://www.drenopompe.it)

## 2. Design methods

The protection gears and systems meant to be used in hazardous area are entirely designed by DRENO POMPE SRL in accordance with the safety features and principles prescribed against risks of explosion.

DRENO POMPE SRL therefore declares to abide by all needed measures in order to avoid both that his protection gears and systems generate hazardous agents, and to prevent the priming of sparks inside a hazardous area, keeping into account and considering each and every source of potential priming either electric or non electric. To this purpose the most modern technology has been used for the design, and particularly by applying the internal procedure protocol PQ.D.03, IQ.A.01, by using CAD program as well as advanced simulator and by adhering to all norms governing the matter such UNI EN 1127-1:2008 and CEI EN 60079-0, CEI EN 60079-1, CEI UNI 60079-14, ATEX guideline 3rd edition june 2009.

### 3. Rating plate identification

#### RATING PLATE IDENTIFICATION (GENERAL PART)

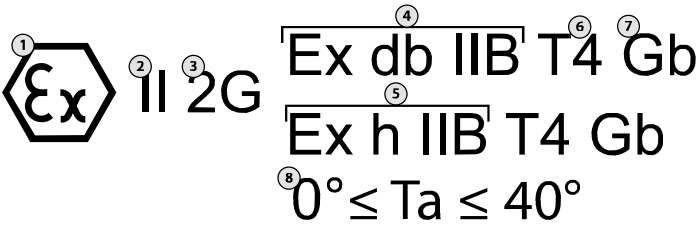
|                                                                                                                                                                                                                     |             |                                                                                                                                            |        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------|
|   047716<br>Monselice-PD ITALY EPT 17 ATEX 2701 X |             |  II 2G Ex db IIB T4 Gb<br>Ex h IIB T4 Gb<br>0° ≤ Ta ≤ 40° |        |
| Type : ①                                                                                                                                                                                                            |             | S/N° ②                                                                                                                                     |        |
| P2 ③                                                                                                                                                                                                                | kW          | V ④                                                                                                                                        |        |
| Hz ⑤                                                                                                                                                                                                                | °C ⑥        | A ⑦                                                                                                                                        | μF ⑧   |
| Year: ⑨                                                                                                                                                                                                             | CLASS F⑩ 68 |                                                                                                                                            | N/1' ⑪ |
| Q L/min ⑫                                                                                                                                                                                                           | Hm ⑬        | ⑭  20m                                                    | Kg ⑮   |

\*the sign -EX indicate the ATEX certified pumps

|   |                    |
|---|--------------------|
| 1 | Electropump type*  |
| 2 | Serial number      |
| 3 | Motor power        |
| 4 | Voltage rating     |
| 5 | Frequency          |
| 6 | Liquid temperature |
| 7 | Nominal absorption |
| 8 | Capacitor          |
| 9 | Manufacture year   |

|    |                                       |
|----|---------------------------------------|
| 10 | Insulation class and motor protection |
| 11 | R.P.M.                                |
| 12 | Capacity                              |
| 13 | Head                                  |
| 14 | Maximum depth of immersion            |
| 15 | Pump weight                           |
| 16 | ATEX string marking                   |
| 17 | ATEX string marking                   |

#### RATING PLATE IDENTIFICATION (ATEX STRING)



|   |                                                                                                                                                                 |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | European Parliament and Council Regulation (CE) no. 765/2008 dated July 9, 2008 annex II conformity symbol.                                                     |
| 2 | Equipment group. Group II: electrical equipment for use in potentially explosive atmospheres due to gas, other than mines.                                      |
| 3 | Equipment category subject to certification for potentially explosive atmospheres certification due to Gas, Mist (G). The equipment can be installed in zone 1. |
| 4 | The electrical protection mode used for equipment corresponding to the protection by explosion proof case - suited for gases in groups IIB and IIA.             |
| 5 | The mechanical protection mode for equipment is through emersion h – suited for gases in groups IIB and IIA.                                                    |
| 6 | Equipment temperature class (maximum surface temperature 135°C).                                                                                                |
| 7 | Equipment with high protection level (EPL Gb), suitable for installation in Zone 1.                                                                             |
| 8 | Working temperature.                                                                                                                                            |

## 4. Technical specifications

### 4.1 Materials used

The materials used to manufacture the components have been very carefully selected to ensure high reliability and a long life even in heavy duty conditions and also to comply with the ATEX requirements and regulation 2014/34/UE and accordingly with the CEI EN 60079-0 and CEI EN 60079-1 rules. The parts that compose the Series Compatta PRO, Alpha V PRO, AM-AT, BIC PRO, G, electropumps are: motor case, intermediate flange, pump body and cast iron impeller GG 25, steel motor shaft AISI 420, screws and bolts in AISI 304, steel cable gland in AISI 304, nitrile rubber O-Rings, neoprene rubber cable gland 50sh, and steel handle AISI 304. The grinding section of GM-GT 50/2/110 C.149-150 series is in hardened steel. All the materials assembled are laboratory tested on fitted pumps and have passed the ATEX laboratory tests, see paragraph 1. The upper and lower bearings are single crown radial bearing. The bearings are pre-greased and should be replaced after lengthy working periods if worn and only by qualified DRENO POMPE engineers.

### 4.2 Electric motor and temperature sensors

The electric motors are asynchronous, 2 poles, single-phase or three-phase, with squirrel-cage rotor. For 230 V single-phase voltages, powers range from 0,9 to 1,5 kW, while for 400V three-phase voltages, powers range from 0,9 to 2,2 kW. (refer to the table par. 5). The frequency is 50 Hz. (60 Hz available on request). These motors have been designed to deliver the highest rated voltage with a variation of up to 5% of the rated voltage. All stators have been designed with insulation class F (155°C) and protection degree IP 68; they can be used with fluid temperatures of 0÷40°C. Single-phase and three-phase windings are fitted with safety micro-thermostats to prevent the motor exceeding the fixed temperature limit of 130°C. The micro thermostats are bimetallic switches inserted in the windings, normally closed and at temperatures exceeding 130°C they open disconnecting the power supply to the electric pump. When these safety devices have cooled (75°C), the power supply to the electric pump returns. The electric motor is cooled by the same liquid in which the electric pump is submerged. A maximum of 15 regularly spaced start-ups/hour are allowed.

### 4.3 Electric cable

The standard supplied electric cable is of 10 metres length.

The single-phase electropumps are supplied completed with electric control panel, whereas the three-phase motor ones of the series are provided with free terminals.

### 4.4 Mechanical Seals

The Compatta PRO, Alpha V PRO, AM-AT, BIC PRO, G electropumps are supplied with two seals, in the series GM-GT 50/2/110 C.149-150, AM-AT 50/2/110 C.225-226 the seals are lubricated in the oil chamber; the upper mechanic seal is a lip seal, whereas the lower mechanical seal is made in silicon carbide + viton.

### 4.5 Impellers

The impeller installed on the pumps is made in Cast Iron G20. A balancing process is conducted on all impellers to guarantee perfect functionality in terms of minimising noise, vibration and working efficiency.

|                                                                                     |                                                                                     |                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |  |  |
| VORTEX                                                                              | TWIN CHANNEL                                                                        | GRINDER                                                                             | TWIN CHANNEL S-FLOW                                                                  |
| Compatta PRO -<br>Alpha V PRO<br>DNA-EX                                             | AM/AT - BIC PRO                                                                     | G                                                                                   | DNB-EX                                                                               |

# 5. Technical data

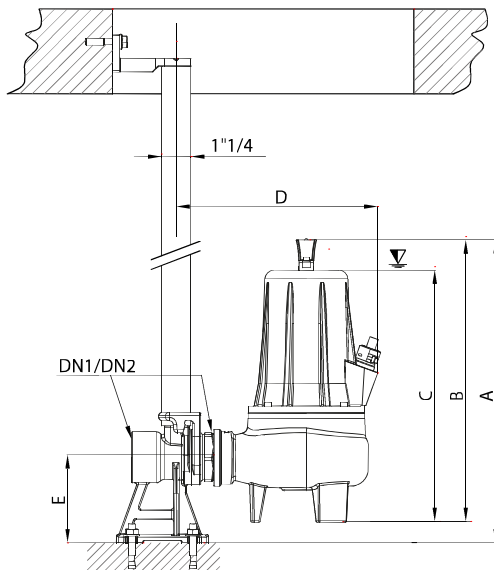
| Tipo                  | DN     | Passaggio<br>corpi solidi | R.P.M<br>min-1 | Potenza |      | Assorbimento |     |         | Cavo      | Kg   |     |      |
|-----------------------|--------|---------------------------|----------------|---------|------|--------------|-----|---------|-----------|------|-----|------|
|                       |        |                           |                | kW      | Hp   | 1 -FASE      |     | 3 -FASE |           |      |     |      |
|                       |        |                           |                |         |      | 230 V        | μ F | 400 V   |           |      |     |      |
| Compatta PRO          |        |                           |                |         |      |              |     |         |           |      |     |      |
| Compatta PRO 50-2/060 | G2"    | 50 mm                     | 2850           | 0,6     | 0,8  | 4,8          | 20  | 2,1     | (1) - (2) | 22   |     |      |
| Compatta PRO 50-2/080 |        |                           |                | 0,8     | 1,0  | 6,0          | 25  | 2,4     |           |      |     |      |
| Compatta PRO 50-2/110 |        |                           |                | 1,1     | 1,5  | 7,4          | 30  | 2,7     |           |      |     |      |
| Compatta PRO 50-2/150 |        |                           |                | 1,5     | 2,0  | 9,6          | 40  | 3,7     |           | 24   |     |      |
| Compatta PRO 50-2/220 |        |                           |                | 2,2     | 3,0  | -            | -   | 5,2     |           | 25   |     |      |
| Alpha V PRO           |        |                           |                |         |      |              |     |         |           |      |     |      |
| Alpha V PRO 50-2/060  | G2"    | 50 mm                     | 2850           | 0,6     | 0,8  | -            | -   | 2,1     | (1) - (2) | 25,5 |     |      |
| Alpha V PRO 50-2/080  |        |                           |                | 0,8     | 1,0  | 4,8          | 20  | 2,4     |           |      |     |      |
| Alpha V PRO 50-2/110  |        |                           |                | 1,1     | 1,5  | 6,0          | 25  | 2,9     |           |      |     |      |
| Alpha V PRO 50-2/150  |        |                           |                | 1,5     | 2,0  | 9,6          | 30  | 3,7     |           | 30   |     |      |
| Alpha V PRO 50-2/220  |        |                           |                | 2,2     | 3,0  | -            | -   | 5,2     |           | 28   |     |      |
| BIC PRO               |        |                           |                |         |      |              |     |         |           |      |     |      |
| BIC PRO 50-2/150      | G2"    | 20x10                     | 2850           | 1,5     | 1,5  | 8,8          | 40  | 3,5     | (1) - (2) | 29   |     |      |
| BIC PRO 50-2/220      |        |                           |                | 2,2     | 3    | -            | -   | 5,3     |           | 26   |     |      |
| AM-AT                 |        |                           |                |         |      |              |     |         |           |      |     |      |
| AM/AT 50/2/110 C.225  | G2"    | 20x10                     | 2850           | 1,1     | 1,5  | 6,2          | 25  | 3       | (1) - (2) | 25   |     |      |
| AM/AT 50/2/110 C.226  |        |                           |                | 1,5     | 2    | 9,6          | 40  | 3,5     |           | 26   |     |      |
| G                     |        |                           |                |         |      |              |     |         |           |      |     |      |
| GM-GT 50/2/110 C.149  | G2"    | -                         | 2850           | 0,9     | 1,2  | 5,5          | 25  | 2,3     | (1) - (2) | 25   |     |      |
| GM-GT 50/2/110 C.150  |        |                           |                | 1,1     | 1,5  | 8,0          | 30  | 3,1     |           |      |     |      |
| DNA                   |        |                           |                |         |      |              |     |         |           |      |     |      |
| DNA 50-2/110 -EX      | 50     | 50 mm                     | 2850           | 1,1     | 1,5  | 7,8          | 30  | 2,9     | (1) - (2) | 28   |     |      |
| DNA 50-2/150 -EX      |        |                           |                | 1,5     | 2,0  | 9,9          | 32  | 3,6     |           | 29   |     |      |
| DNA 50-2/220 -EX      |        |                           |                | 2,2     | 3,0  | -            | -   | 5,3     |           | 30   |     |      |
| DNA 50-2/220-1 -EX    |        |                           |                | 2,2     | 3,0  | -            | -   | 5,3     |           | 30   |     |      |
| DNA 50-4/090 -EX      | 65     | 65 mm                     | 1450           | 0,9     | 1,2  | 4,7          | 20  | 2,5     |           | 30   |     |      |
| DNA 65-2/110 -EX      |        |                           |                | 2850    | 1,1  | 1,5          | 7,4 | 30      |           | 2,7  | 28  |      |
| DNA 65-2/150 -EX      |        |                           |                |         | 1,5  | 2,0          | 9,9 | 32      |           | 3,4  | 30  |      |
| DNA 65-2/220 -EX      |        |                           | 80             | 80 mm   | 2850 | 2,2          | 3,0 | -       |           | -    | 5,2 | 30,5 |
| DNA 80-2/110 -EX      |        |                           |                |         |      | 1,1          | 1,5 | 7,4     |           | 30   | 2,8 | 32   |
| DNA 80-2/150 -EX      | 1,5    | 2,0                       |                |         |      | 9,9          | 32  | 3,6     |           | 34,5 |     |      |
| DNA 80-2/220 -EX      | 2,2    | 3,0                       |                |         | -    | -            | 5,2 | 35      |           |      |     |      |
| DNA 80-4/090 -EX      |        |                           | 1450           | 1,1     | 1,5  | 5,2          | 18  | 2,6     |           | 38   |     |      |
| DNB                   |        |                           |                |         |      |              |     |         |           |      |     |      |
| DNB 65-2/080 -EX      | G2"-65 | 50 mm                     | 2850           | 0,8     | 1,0  | 5,2          | 18  | 2,1     | (1) - (2) | 21   |     |      |
| DNB 65-2/110 -EX      | G2"-65 |                           |                | 1,1     | 1,5  | 7,5          | 30  | 2,8     |           | 29   |     |      |
| DNB 65-2/150 -EX      | 65     |                           |                | 1,5     | 2,0  | 9,9          | 32  | 3,7     |           | 31   |     |      |
| DNB 65-2/220 -EX      |        |                           |                | 2,2     | 3,0  | -            | -   | 5       |           | 35   |     |      |
| DNB 65-2/220-1 -EX    |        |                           |                | 2,2     | 3,0  | -            | -   | 5,3     |           | 36   |     |      |
| DNB 65-2/220-2 -EX    |        |                           |                | 2,2     | 3,0  | -            | -   | 5,3     |           | 36   |     |      |
| DNB 80-2/150 -EX      | 80     |                           |                | 70 mm   | 2850 | 1,5          | 2,0 | 9,9     |           | 32   | 3,7 | 32,5 |
| DNB 80-2/220 -EX      |        |                           |                |         |      | 2,2          | 3,0 | -       |           | -    | 5,5 | 34,5 |
| DNB 80-2/220-1 -EX    |        |                           |                |         |      | 2,2          | 3,0 | -       |           | -    | 5,3 | 35   |
| DNB 80-4/110 -EX      |        |                           |                |         | 1450 | 1,1          | 1,5 | 7,6     |           | 35   | 3,2 | 36   |

(1) Electric cable H07RN8F section 4x1,5+2x0,50 Ø14 Standard version

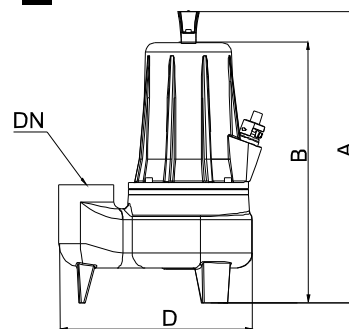
(2) Electric cable (N)SSHOU – J section 4x1,5+2x0,75 Ø14 ATEX version

# 6. Overall dimensions

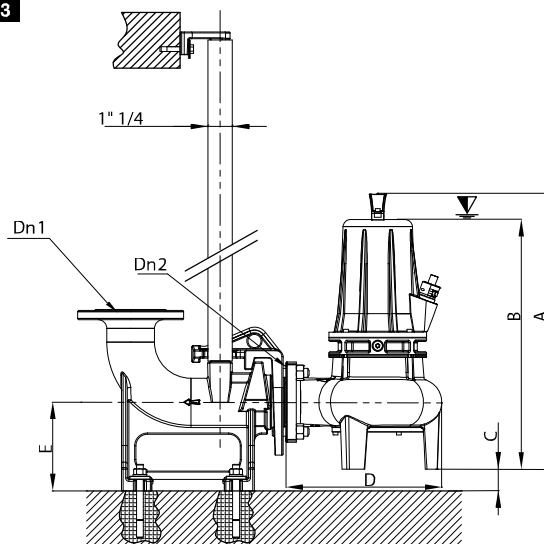
1



2



3



| RIF.                   | TIPO                          | A   | B   | C   | D   | E   | DN1   | DN2     |
|------------------------|-------------------------------|-----|-----|-----|-----|-----|-------|---------|
| <b>Compatta PRO</b>    |                               |     |     |     |     |     |       |         |
| <b>1</b>               | Compatta PRO 50-2/080         | 418 | 388 | 344 | 202 | -   | G2"   | G2"     |
|                        | Compatta PRO 50-2/110         | 418 | 388 | 344 | 202 | 124 | G2"   | G2"     |
|                        | Compatta PRO 50-2/150         | 418 | 388 | 344 | 202 | 124 | G2"   | G2"     |
|                        | Compatta PRO 50-2/220         | 439 | 409 | 365 | 202 | 124 | G2"   | G2"     |
| <b>Alpha V PRO</b>     |                               |     |     |     |     |     |       |         |
| <b>2</b>               | Alpha V PRO 50-2/080          | 388 | 344 | -   | 292 | -   | G2"   | -       |
|                        | Alpha V PRO 50-2/110          | 388 | 344 | -   | 292 | -   | G2"   | -       |
|                        | Alpha V PRO 50-2/150          | 388 | 344 | -   | 292 | -   | G2"   | -       |
|                        | Alpha V PRO 50-2/220          | 411 | 367 | -   | 292 | -   | G2"   | -       |
| <b>BIC PRO</b>         |                               |     |     |     |     |     |       |         |
| <b>2</b>               | BIC PRO 50-2/150M             | 380 | 336 | -   | 293 | -   | G2"   | -       |
|                        | BIC PRO 50-2/220T             | 380 | 336 | -   | 293 | -   | G2"   | -       |
| <b>AM-AT</b>           |                               |     |     |     |     |     |       |         |
| <b>1</b>               | AM-AT 50-2-110 C.225          | 420 | 378 | 344 | 223 | 124 | G2"   | G2"     |
|                        | AM-AT 50-2-110 C.226          | 420 | 378 | 344 | 223 | 124 | G2"   | G2"     |
| <b>G</b>               |                               |     |     |     |     |     |       |         |
| <b>1</b>               | GM-GT 50-2-110 C.149          | 418 | 376 | 410 | 274 | 124 | G2"   | G2"     |
|                        | GM-GT 50-2-110 C.150          | 418 | 376 | 410 | 274 | 124 | G2"   | G2"     |
| <b>DNA</b>             |                               |     |     |     |     |     |       |         |
|                        | DNA 50-2/110 - EX M-T         | 485 | 411 | 30  | 268 | 131 | G2"   | DN50-G2 |
|                        | DNA 50-2/150 - EX M-T         | 485 | 411 | 30  | 268 | 131 | G2"   | DN50-G2 |
|                        | DNA 50-2/220 - EX T           | 485 | 411 | 30  | 268 | 131 | G2"   | DN50-G2 |
|                        | DNA 50-2/220-1 - EX T         | 485 | 411 | 30  | 268 | 131 | G2"   | DN50-G2 |
|                        | DNA 50-4/090 -EX T            | 485 | 411 | 30  | 268 | 131 | G2"   | DN50-G2 |
| <b>3</b>               | DNA 65-2/110 - EX M-T         | 520 | 436 | 38  | 270 | 155 | DN 65 | DN 65   |
|                        | DNA 65-2/150 - EX M-T         | 520 | 436 | 38  | 270 | 155 | DN 65 | DN 65   |
|                        | DNA 65-2/220 - EX T           | 520 | 436 | 38  | 270 | 155 | DN 65 | DN 65   |
| <b>DNA-EX - DNB-EX</b> |                               |     |     |     |     |     |       |         |
| <b>3</b>               | DNB 65-2/080 - EX M-T         | 520 | 436 | 38  | 270 | 155 | DN 65 | DN 65   |
|                        | DNB 65-2/110 -EX M-T          | 520 | 436 | 38  | 270 | 155 | DN 65 | DN 65   |
|                        | DNB 65-2/150 -EX M-T          | 520 | 436 | 38  | 270 | 155 | DN 65 | DN 65   |
|                        | DNA 65-2/220 (-1) (-2) -EX T  | 520 | 436 | 38  | 270 | 155 | DN 65 | DN 65   |
| <b>3</b>               | DNA - DNB -EX 80-2/110 M-T    | 513 | 467 | 46  | 290 | 185 | DN 80 | DN 80   |
|                        | DNA - DNB -EX 80-2/150 M-T    | 513 | 467 | 46  | 290 | 185 | DN 80 | DN 80   |
|                        | DNA - DNB -EX 80-2/220 (-1) T | 513 | 467 | 46  | 290 | 185 | DN 80 | DN 80   |
|                        | DNA-DNB 80-4/.. - EX M-T      | 513 | 467 | 46  | 290 | 185 | DN 80 | DN 80   |

ENGLISH

# 7. Installation

## 7.1 Safety rules

For your and other person safety during the installation, operation and maintenance of the electropump, adhere to the following rules:

ENGLISH



A) It is extremely important that the electropump be installed by skilled staff (\*);

B) The appliance is not to be used by person (including children) with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction;

C) Children being supervised not to play with appliance;

D) Do not neglect health risks and adhere to hygiene rules;

E) The staff working at dirty water pumping stations shall be vaccinated against diseases that could be transmitted through wounds, contact or inhalation;

F) To prevent the skin touching contaminated fluids, wear suitable clothes and shoes. In addition, use a sling, a safety rope, a protective helmet, safety goggles as well as a gas mask if required; anyhow it should wear all individual suitable and required protection devices accordingly with the risk plan in force for a proper installation;

G) Do not neglect drowning risks. Never work alone; even in optimum conditions, there should always be another operator outside the tank;

H) Fence off the work area with barriers and suitable signs, especially if it is a trafficked area;

I) Make sure the lifting/lowering means are efficient and that you can quickly get back outdoors;

J) Make sure the tank contains an adequate amount of oxygen and no toxic gases;

K) Before working at the lifting station, check very carefully that all power lines contained in the tank have been cut off from their supply.

L) Installation is always carried out in connection with an automatic system with floats (see subsequent paragraphs).

**The use of this Instruction Manual does not cancel or make inefficient any general standard regulations, which are not specified in this manual. Always abide by safety regulations and the general rules of good technical conduct.**

**IN ALL CASES OF DOUBT, IT IS ALWAYS ADVISABLE TO CONTACT A QUALIFIED DRENO POMPE ENGINEER (\*) OR CONTACT DRENO POMPE ASSISTANCE DIRECT ON +39 0429 73276 OR VIA EMAIL TO: [ufficiotecnico@drenopompe.it](mailto:ufficiotecnico@drenopompe.it)**

*(\*) a qualified person is a certified Dreno Pompe Engineer.*

## 7.2 For a proper installation

The suction inlet on the pump should be positioned at the lowest point in the tank.  
To achieve the correct performance, it is advisable to connect the pump with a pipe of 2".  
Take great care that the electric pump does not sink in the mud, position it on a base or, take it overhead from the bottom. Electrical equipment installed outside the drain should be carefully protected against the weather and positioned in a safe place.

### 7.3 Installation

Example of portable installation with support base



ENGLISH

Example of fixed installation with coupling foot



The automatic pump mode is guaranteed by a float connected to the control box.

The float connected to the dedicated control box must have sufficient space to rise freely. It is advisable to install a ball check valve in the supply piping to prevent any reflow.

Dreno Pompe only authorises the use of the certified floats, as per the references contained in the catalogue and current price list. Dreno Pompe does not authorise the use of any floats different to those shown in its catalogue. For the use of different floats, the installer must contact the Technical Department at Dreno Pompe to obtain the necessary authorisation. Failure to comply with this requirement, Dreno Pompe cannot accept responsibility for operating anomalies.

For correct installation refer to the product technical sheet, supplied separately by Dreno Pompe. If the float is ATEX, it must be interfaced with an active electric ATEX intrinsic safety barrier. Only to be installed by specialised or qualified Dreno Pompe engineers.



**WARNING:** only use ATEX components authorised by Dreno Pompe.

**WARNING:** The ATEX float must be interfaced with an active electric intrinsic safety barrier almost certificated Exdb IIB Gb.

## 8. Electrical connections

All electrical connections should be carried out by qualified electricians, if it is possible by qualified DRENO POMPE personnel.

The frequency and the voltage should be complied with ones indicated on the pump plate.



**WARNING:** the electric power supply should be interrupted before opening the electropump.

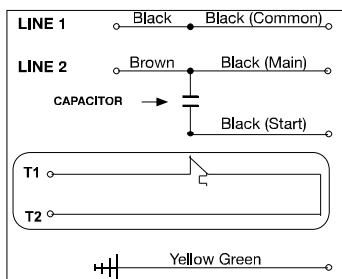
To access the connection area, unscrew the cable gland screwed in the motor support; however this operation should only be carried out by qualified DRENO POMPE Engineers failing which the pump will lose its ATEX characteristics.

- For external electrical connections, assigned personnel should use the following diagrams.
- In three-phase motors, check the rotation direction of the impeller (see rotation direction paragraph).
- In the case of doubt regarding the cause of poor pump operation, it is necessary to disconnect the electrical supply and contact qualified DRENO POMPE personnel.

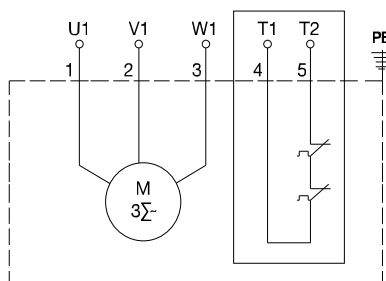
All electrical connections should be protected against humidity and all junctions must be fully waterproof and guarantee the IP 68 characteristics of the pump itself.

### 8.1 Wiring scheme

For single-phase motors 230 V - 50 Hz



For three-phase motors 230/400 V - 50 Hz



### 8.2 Motor protection T1-T2

All the models are fitted with thermal probes T1-T2 in winding (connected to a control board built with adequate safety devices), which promptly warn and switch off the pump in case of motor over temperature. This safety device is inserted normally closed and will open at 130°C disconnecting the power supply, only closing again when the temperature drops to 75°C (see paragraph 8.1).

### 8.3 Connection with the thermal probes

Submersible electric pumps should be protected by a cut-out device being able to disconnect the electric supply in case of over temperature of the windings with the intervention of a thermal protection device and in the case when the suction inlet is not below the liquid head; these devices should not be self-resetting, use devices that require manual resetting after checking the float functions correctly.

|                                                                                   |                                                                                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b><u>WARNING:</u></b> electric pumps should be protected by a cut-out device to disconnect the electric supply in case of over temperature.</p> |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|

### 8.4 Rotation direction (only for three-phase pumps)

After each new connection, phase or voltage failure, it is possible that the phases are inverted, therefore check the rotation direction. Incorrect rotation direction causes the motor to overheat involving strong vibrations and considerably reduces the performance of the pump.  
To check the exact rotation direction of the impeller, slant the pump slightly and run loadless for few seconds.

|                                                                                   |                                                                                                                                              |
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|  | <p><b><u>WARNING:</u></b> keep away from the impeller when starting up the pump.<br/>Danger! Pay attention to kick back at the start-up.</p> |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|

If, at start-up, the pump kicks back in an anticlockwise direction (view from above), check the connection is correct, failing which disconnect the electric supply and invert the two phases.  
In the view from below (suction inlet) the exact rotation of the impeller is anticlockwise.

## 9. Instructions and further warnings

### 9.1 Transport

|                                                                                     |                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b><u>WARNING:</u></b> Never lift the pump using the electric cable; always use the special supplied handle.<br/>If it is necessary to move the pump from one place to another, for safety reasons, it is compulsory to disconnect the power supply.</p> |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 9.2 Use

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
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|  | <p><b><u>WARNING:</u></b> Do not use the pump dry/loadless since in this case there is the danger of explosion; do not use the pump with flammable liquids such as petrol, etc.<br/>At subzero room temperatures, the pump will not freeze since the liquid in which it is immersed has a temperature between: 0 ÷ 40°C. If the electric pump is removed from the water and therefore exposed to subzero temperatures, there is a danger the impeller will freeze. Should the impeller freeze, submerge the pump in water until it defrosts.<br/>It is forbidden to use quicker methods (for ex. heat it), so as not to cause damage to the machine.<br/>Do not use the pump to pump aggressive liquids not within acceptable pH limits.<br/>Do not use the pump to pump liquids containing solid parts with dimensions larger than that those stated in the table in paragraph 5 Technical data.</p> |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 9.3 Cleaning

If the pump operates in liquids with suspended material, at the end of use it is necessary to run the pump for several minutes in clean water. The impurities (mud, stones, etc) should be eliminated to avoid any dry impurities blocking the impeller and seal, thus preventing the electric pump to function correctly.

### 9.4 Storage and conservation

If the pump is stored in a storeroom it is compulsory to:

- Store away from excessive heat and cold (acceptable range: 0÷40 °C)
- Position vertically, taking great care to ensure its stability to avoid rolling and falling.

During the storage period, it is advisable to manually rotate the impeller occasionally, for GM-GT rotating at least every two months, wearing individual safety gloves, to prevent the seals sticking. In any case, before using the pump again always ensure the impeller shaft rotates freely and the motor electric insulation exceeds 5Mohm.

Checking the oil lubrication level should only be carried out outside the pump operating areas. The oil level must be below the access hole by 1÷1.5 cm.

To top up or replace the oil, position the pump level. The oil may be also checked by non Dreno personnel on condition said personnel are skilled. Skilled personnel are persons competent in the maintenance of electromechanical equipment and possess at least 5 years relevant experience.

If necessary to top up or replace the oil, always use Q8 WF 15 or an equivalent product. Replace the oil every 4.000 operating hours (GM-GT 50/2/110 C.149-150, AT-AM 50/2/110 C.225-226 solely)

## 10. Checks and maintenance

### 10.1 For your safety during routine inspection

|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>• Check the electric supply is disconnected and that the pump cannot restart itself, even accidentally, before starting work on the pump.</li> <li>• To avoid biological contamination, ensure the pump is cleaned thoroughly with water and non-aggressive detergents that do not compromise the integrity of the pump itself.</li> <li>• The electric pump should only be disassembled by qualified DRENO POMPE engineers, taking care to handle the parts wearing safety gloves.</li> </ul> |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 10.2 Recommended checks

|                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <ul style="list-style-type: none"> <li>• Should the user detect the presence of anomalous pump noises, (for example, humming) it is essential to contact Dreno Pompe Technical Assistance, do not use the pump until the cause has been identified, which may be caused by a broken or worn bearing.</li> <li>• Should the user detect an abnormally high operating temperature it is essential to contact Dreno Pompe Technical Assistance, do not use the pump until the cause has been identified, which may be caused by a broken or worn bearing, or seizure of a seal.</li> </ul> |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Periodic checks and preventive maintenance guarantee the safest pump operation over time.

When the pump is newly installed or when mechanical parts are replaced, it is advisable to visually inspect the pump after one working week.

The pump should be regularly inspected after 2,000 working hours or at least once a year.

Frequent checks are necessary for demanding operating conditions or occasional use.

A routine check should be made on the following points:

- Visually check there are no seepages by the cable inlet point.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

In the event the cable or sheath are swollen or damaged, it must be replaced by the manufacturer, its support service or qualified personnel in order to avoid any risk.

Check the level and quality of the oil in the sump, oil filling is complete when, with the electric pump laid down on one side, the level is 1-1.5 cm below the oil filler cap (GM-GT 50/2/110 C.149-150, AT-AM 50/2/110 C.225-226 solely).

### 10.3 Motor insulation check

At least once a year or in any case after 4,000 operating hours it is compulsory to check motor isolation. Measure the end of the cable (detached from the control board) using a megaohmmeter.

The test voltage must comply with applicable reference standard.

To carry out the test, it is compulsory to disconnect the motor cable and measure the winding towards the mass, connecting all the winding ends.

The winding resistance towards the mass must be higher than 5 MΩ,

failing which it is necessary to take two measurements, one for the cable and the other for the motor.

If the cable isolation value is lower than 5MΩ, this means the cable is damaged.

If the motor has very low insulation values, this means there is a winding insulation failure.

## 11. Spare Part List

The spareparts list and related purchases, are available on-line at **Dreno Part Selector** through our web site [www.drenopompe.it](http://www.drenopompe.it), or contact us at [info@drenopompe.it](mailto:info@drenopompe.it).

## 12. Impeller replacing

### 12.1 GM-GT 50/2/110 C.149-150

The following operations should only be carried out by qualified DRENO POMPE engineers.

To replace the impeller, carry out these operations in sequence.

- A) Unscrew the 3 socket head screws that connect the closing plate with base to body pump.
- B) Now, extract the closing plate with base from pump body.
- C) Wearing safety gloves hold the rotating knife still; unscrew the hexagonal head screw connecting the motor shaft.
- D) By unscrewing this screw, you can easily remove the impeller with the rotating knife.

Before fitting a new impeller, pay attention that the end of the shaft is clean and has no imperfections.

### 12.2 AM-AT 50/2/110 C.225-226

The following operations should only be carried out by qualified DRENO POMPE engineers.

To replace the impeller, carry out these operations in sequence.

- A) Unscrew the 3 socket head screws that connect the supporting tripod with base to body pump.
- B) Now, extract the supporting tripod from body pump.
- C) Using a wrench, unscrew the self-locking nut that fastens the impeller.
- D) The impeller should now easily remove from the motor shaft.

Before fitting a new impeller, pay attention that the end of the shaft is clean and has no imperfections.

### 12.3 Compatta PRO - Alpha V PRO - DNB 65-EX

The following operations should only be carried out by qualified DRENO POMPE engineers.

To replace the impeller, carry out these operations in sequence.

- A) Unscrew the 3 socket head screws that connect the body pump with the motor casing.
- B) Now, extract the body pump from the motor casing.
- C) Using a wrench, unscrew the self-locking nut that fastens the impeller.
- D) The impeller should now easily remove from the motor shaft.

Before fitting a new impeller, pay attention that the end of the shaft is clean and has no imperfections.

### 12.4 BIC PRO

The following operations should only be carried out by qualified DRENO POMPE engineers.

To replace the impeller, carry out these operations in sequence.

- A) Unscrew the 3 socket head screws that connect the pump body with the motor casing.
  - B) Now, extract the pump body from the motor casing.
  - C) Using a wrench, unscrew the self-locking nut that fastens the impeller.
  - D) The impeller should now easily remove from the motor shaft.
- Before fitting a new impeller, pay attention that the end of the shaft is clean and has no imperfections.

### 12.5 DNA-EX - DNB 80-EX

- A) Unscrew the four screws that connect the motor casing to the body pump.
- B) Unscrew the four screws that connect body pump to closing plate and remove the closing plate.
- C) Keeping the impeller blocked, unscrew the hexagonal head screw or the self locking nut, which connect it to the motor shaft.
- D) Unscrewing this screw or nut, you can easily remove the impeller. Before mounting a new impeller, pay attention that the terminal part of the shaft is clean and without imperfections.

## 13. Lower mechanical seals replacing

The following operations should only be carried out by qualified DRENO POMPE engineers.  
To replace the mechanical seal, carry out these operations in sequence.

- A) Before replacing a mechanical seal, uncouple the impeller as indicated in paragraph 12.
- B) Using two cutting screwdrivers, remove the old seal, first lever the rotating part and then the fixed ring, paying attention to position the pump so that oil does not seep from the sump. (GM-GT 50/2/110 C.149-150 and AM-AT 50/2/110 C.225-226 solely)
- C) Before fitting a new seal, ensure the housings are clean, free from burrs or grooves that could damage the seal or in any case compromise the sealing to the shaft.

**WARNING:** It is advisable to avoid jamming, which may prejudice breakage of the fixed ring, after inserting the fixed ring insert the rotating part of the seal.

- D) For GM-GT 50/2/110 C.149-150 insert and fix the impeller fixing the screw UNI 5931 M5x50 A2 using a clamping torque of 9.5 Nm.  
For AM-AT 50/2/110 C.225-226, COMPATTA PRO, ALPHA V PRO, BIC PRO, DNA -EX, DNB -EX insert the impeller in the shaft paying attention to the key direction, tighten the self-locking nut by a torque of 9.5 Nm.

## 14. Tools

The tools used exclusively by qualified DRENO POMPE engineers are:

- Allen keys: 4 - 5 mm
- Phillips screwdriver
- 2 cutting screwdrivers
- Hexagonal wrench: 8-17 mm

- D) For GM-GT 50/2/110 C.149-150 insert and fix the impeller fixing the screw UNI 5931 M5x50 A2 using a clamping torque of 9.5 Nm.  
For AM-AT 50/2/110 C.225-226, COMPATTA PRO, ALPHA V PRO, BIC PRO, insert the impeller in the shaft paying attention to the key direction, tighten the self-locking nut by a torque of 9.5 Nm.

## 15. Troubleshooting



If the electropump **doesn't start**, one of the following cases could be happened :

- There is no power supply (Check the fuses to see if they are burnt or if a circuit protection relay has tripped.);
- The selector is on OFF (select ON.);
- A phase is missing (Check the line connections);
- The impeller is blocked;
- The mechanical seal or ball bearing have seized.

|                                                                                   |                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>If the user detects the electropump <b>starts and stops too frequently</b> it is extremely important to check the reason, that it could due to an incorrect use. Stop and re-start the pump, if the above condition continues, it is necessary to address to a Service Centre or put in touch directly with one of our skilled persons Dreno Pompe.</p> |
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|  | <p>If the electropump <b>works, but the flow rate is poor or non-existent</b>, one of the following cases could be happened:</p> <ul style="list-style-type: none"> <li>• The direction of rotation of the pump is not correct (three-phase motors only);</li> <li>• Check the wearing condition of the hydraulic part;</li> <li>• The pumps is working inside an air pocket (stop the electropump and start it after a few minutes, paying attention to carry out the hydraulic plant breathing);</li> <li>• The delivery piping is clogged, the check ball-valves and/or gate valves are partly closed;</li> <li>• The pump works on and off;</li> <li>• Check if one of the following conditions are present;</li> <li>• Too hot liquid (higher than 40°C);</li> <li>• Too cold liquid (lower than 0°C);</li> <li>• The voltage supply is higher compared to the required limits (+/- 5%);</li> <li>• The impeller/blades is clogged by an obstruction which prevent the right rotation;</li> <li>• It is suggested to contact the Service Centre in case the pump continues to not work properly.</li> </ul> |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>If the pump <b>stops suddenly</b>, one of the following cases could be happened:</p> <ul style="list-style-type: none"> <li>• Ball bearing failure;</li> <li>• Burnout or winding discharge, it results fault;</li> <li>• An high power supply overload;</li> <li>• If the reason is due to an overload, the installer could supply a right power supply, otherwise contact qualifies Service Centre.</li> </ul> |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p>If the pump <b>stops suddenly</b>, one of the following cases could be happened:</p> <ul style="list-style-type: none"> <li>• Ball bearing failure;</li> <li>• Burnout or winding discharge, it results fault;</li> <li>• An high power supply overload;</li> <li>• If the reason is due to an overload, the installer could supply a right power supply, otherwise contact qualifies Service Centre.</li> </ul> |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**IN ALL CASES OF DOUBT, IT IS ALWAYS ADVISABLE TO CONTACT A QUALIFIED DRENO POMPE ENGINEER (\*) OR CONTACT DRENO POMPE ASSISTANCE DIRECT ON +39 0429 73276 OR VIA EMAIL TO:**

**[ufficiotecnico@drenopompe.it](mailto:ufficiotecnico@drenopompe.it)**

*(\*) a qualified person is a certified Dreno Pompe Engineer.*

## 16. CE Conformity Declaration

The CE conformity declaration is available on our website: [www.drenopompe.it](http://www.drenopompe.it), on the product pages.

## 17. Maintenance registration

## INTERVENTION REGISTRATIONS

**SERIAL NUMBER:** \_\_\_\_\_

[illegible]



**DRENO** 

ELETTROPOMPE SOMMERGIBILI  
SUBMERSIBLE ELECTROPUMPS

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