

<b>1</b>	<b>GENERALS POINT</b>	<b>22</b>
<b>2</b>	<b>APPLICATIONS</b>	<b>22</b>
<b>3</b>	<b>PUMPED FLUIDS</b>	<b>22</b>
<b>4</b>	<b>TECHNICAL DATA AND USE LIMITATION</b>	<b>22</b>
<b>5</b>	<b>MANAGEMENT</b>	<b>23</b>
5.1	Storage	
5.2	Transport	
<b>6</b>	<b>WARNINGS</b>	<b>24 - 25</b>
6.1	Qualified personnel	
6.2	Safety	
6.3	Motor shaft rotation check	
6.4	Filter cleaning	
6.5	Single-phase pumps with connection plug	
6.6	Single-phase pumps without connection plug	
6.7	Three phase pumps	
6.8	Responsibility	
<b>7</b>	<b>INSTALLATION</b>	<b>25 - 26</b>
7.1	Installation site	
7.2	Working conditions	
7.3	Piping	
<b>8</b>	<b>ELECTRICAL CONNECTION: (8.1 - 8.2 - 8.3)</b>	<b>26 - 27</b>
8.4	Checking the direction of rotation for three-phase motors	
<b>9</b>	<b>STARTING UP: (9.1)</b>	<b>27 - 28</b>
9.2	Float switch regulating	
<b>10</b>	<b>PRECAUTIONS</b>	<b>28</b>
<b>11</b>	<b>MAINTENANCE AND CLEANING</b>	<b>28 - 29</b>
<b>12</b>	<b>MODIFICATIONS AND SPARE PARTS</b>	<b>29</b>
<b>13</b>	<b>TROUBLESHOOTING</b>	<b>29 - 30</b>
<b>14</b>	<b>TECHNICAL DATA</b>	<b>31 - 37</b>
<b>15</b>	<b>ELECTRICAL CONNECTIONS</b>	<b>128</b>

## **1 GENERAL POINTS**

**Read this documentation carefully before installation.**



Installation and functioning must comply with local and national safety regulations in force in the country where the product is to be installed.

The entire operation must be carried out in a workmanlike manner.

Failure to comply with the safety regulations not only causes risk to personal safety and damage to the equipment, but also invalidates any right to warranty assistance.

**Keep this manual in a safe place for further consultation even after the first installation.**

## **2 APPLICATIONS**

These electropumps (**MIZAR, REGAL, SPRING, DUMPER**) find use systems for lifting water from wells, first collection tanks or cisterns, streams, particularly suited to construction work site (**only REGAL PROFESSIONAL & DUMPER**), to basement pump out (cellar, garages), to swimming pools pump out and small agricultural installations, sprinkling systems for gardens and allotments. When installed in wells or tanks, the pump, which is particularly silent running, avoids all problems related to suction and loss of priming.

The pump may be supplied with a float switch cutting out operation automatically in the event of an insufficient water level.

**These pumps cannot be used in swimming pools, ponds or tanks in which people are present, or for pumping hydrocarbons (petrol, diesel fuel, fuel oils, solvents, etc.) in accordance with the accident-prevention regulations in force.**



**N.B.** : The liquid employed in the pump for lubricating the sealing device is not toxic, but it could alter the water properties (in the case of pure water) if there were any leaks in the seal.

## **3 PUMPED FLUIDS**

The machine has been designed and built for pumping water, free from explosive substances, and solid particles or fibres, with a density of 1 Kg/dm<sup>3</sup> and a kinematic viscosity of 1mm<sup>2</sup>/s, and chemically non-aggressive liquids.



## **4 TECHNICAL DATA AND USE LIMITATIONS**

- **Supply voltage:** see electric data plate
- **Absorbed power:** see electric data plate
- **Maximum ,working pressure:** 2,6 Bar
- **Pumped fluid:** clean (MIZAR), dirty, slyghtly sandy (REGAL)
- **Degree of motor protection:** IP 68
- **Thermal class:** F
- **Liquid temperature range:** **MIZAR, REGAL & SPRING:** from 0°C to +35°C  
**DUMPER:** from 0°C to 25°C part. submerged, from 25°C to 35°C totally submerged.
  
- **Maximum immersion:** 5 metres
- **Storage temperature:** from -10°C to +40°C
- **Noise level:** noise level is contained within the limits envisaged by EC Directive **EC 89/392/CEE** and subsequent modifications.  $\leq 70$  dB
  
- **Motor constructions:** in accordance with CEI 2-3 - CEI 61-69 (EN 60335-2-41) standards.

## **5 MANAGEMENT**

### **5.1. STORAGE**

All the pumps must be stored indoors. in a dry. vibration-free and dust-free environment, possibly at constant air humidity.

They are supplied in their original packaging and must be kept there until installation.

### **5.2. TRANSPORT**

Avoid subjecting the products to needless jolts or collisions.



**The electropumps must never be carried or lifted by their power cables.**

## **6 WARNINGS**

### **6.1. QUALIFIED PERSONNEL**



**Installation should be performed by skilled and qualified personnel, in possession of the technical qualifications required by the specific regulations in force.**

The term **qualified personnel** means persons who, because of their training, experience and regulations as well as all operating circumstances, have been entitled by the person responsible for the system to work on and with the system and to see and avoid all possible dangers (Definition for technical personnel. (Definition for technical personnel IEC 364).

### **6.2. SAFETY**

- Use is allowed only if the electric system is provided with safety precautions in accordance with the regulations in force in the country where the product is installed (for Italy, CEI 64/2).
- Never let the pump run dry.
- The pump cannot be used in swimmingpools, ponds or tanks in which people are present.
- The pump is provided with a handle to which a rope or cable may be connected to lower the machine into working position.

**The pumps must never be carried, lifted or operated hanging from their power cables.**

- Qualified personnel must be employed for all electrical repairs which, if badly carried out, could cause damage and accidents.

### **6.3. MOTOR SHAFT ROTATION CHECK**

If the motor does not work and the shaft does not turn when the switch and/or float is operated, you must check that all working parts are turning freely.

To do this:

- Completely disconnect the pump from the mains.
- Place the pump in a horizontal position.
- Remove the grill and the diffuser, and operating on the self-locking-nut with a fork wrench 13 (**from 10 for only REGAL 30**), rotate the shaft motor clockwise.
- Reassemble the grill and the conveyor and install the electropump as indicated in chapter 7.

### **6.4. FILTER CLEANING (SPRING)**

To clean the filter, proceed as follows:

- Completely disconnect the pump from the power mains.
- Place the pump in a horizontal position.
- Remove the grill.
- Clean the inside of the filter, removing any particles that may have been sucked in.
- Ensure that all filter slots are free from foreign bodies.
- Reassemble the grill and install the electropump as indicated in chapter 7.

### 6.5. SINGLE-PHASE PUMPS WITH CONNECTION PLUG

They are supplied with built-in capacitor and thermal protector, with H07RN-F, type power supply cable with connection plug and float switch. Connect the plug to a power outlet with protection wire (earth).

### 6.6. SINGLE-PHASE PUMPS WITHOUT CONNECTION PLUG

The specialised technician performing installation must make the electrical connection following the control board layout and, where required, must envision thermal protection and start-up capacitors. However, if a plug is used, it must be compliant with the country's legislation.

### 6.7. THREE-PHASE PUMPS

Install a suitable motor protector, with curve as per plate current, in the control board. With three-phase pumps, when it is not possible to visually check the water level, install a float switch connected to the control board to establish the automatic start and stop levels. The thermal protectors in three-phase motors protect from overloading and not from running with the motor blocked; the control board must therefore envision a suitable thermo-ampereometric relay coupled to the command contactor.

### 6.8 RESPONSIBILITY

 **The Manufacturer does not vouch for the correct operation of the pumps and will not be responsible for damages that might be caused by them, in case they are tampered with or modified, run outside the recommended work range or in contrast with the other instructions given in this manual.**

**The Manufacturer assumes no liability resulting from or omissions in this booklet, if due to misprints or errors in copying. The company reserves the right to make modifications to the products described herein, when considered necessary or useful, without changing the essential characteristics of the product itself.**

## 7 INSTALLATION

### 7.1 SITE OF INSTALLATION

- Pumps marked with maximum liquid temperature (°C) which not less than 35 °C.
- Before immersing the electropump in the pit or tank, ensure that the place is free from sand or solid sediment.
- In case there is sediment, accurately clean the site where it is to be placed..
- Keep the pump at least 1 mt. raised above the bottom of the pit so that any deposits that form after installation will not be sucked up.
- Remove the sediment periodically.
- It is very important to ensure that the water level never falls below the body of the pump.

### 7.2 WORKING CONDITIONS

- Pump body always completely immersed.
- The pump cannot operate dry.
- Installation in vertical or horizontal position.
- The housing pit must be frost-free.
- Maximum depth of immersion 5 mt. (below water level).

### 7.3 PIPING

- Put the pump into the liquid to be pumped (Inspect for the max. pumping height, refer to the performance curve)
- The hydraulic connection of the pump may be made with iron or plastic parts, either rigid or flexible.
- Avoid any kind of choking of the output pipe.
- It is advisable to use pipes with an internal diameter at least equal to that of the delivery pipe, so as to avoid a fall in the performance of the pump and the possibility of clogging.
- For the version with a float switch, ensure that the latter can move freely (see Paragraph 9.2. "REGULATING THE FLOAT SWITCH").

The size of the pit must always be calculated in relation to the quantity of incoming water and to the flow rate of the pump so as not to subject the motor to an excessive number of starts.

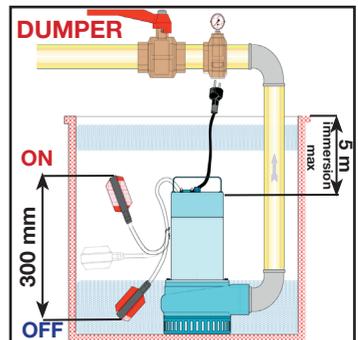
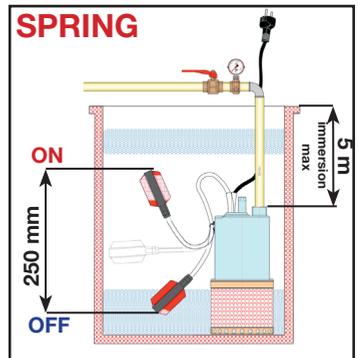
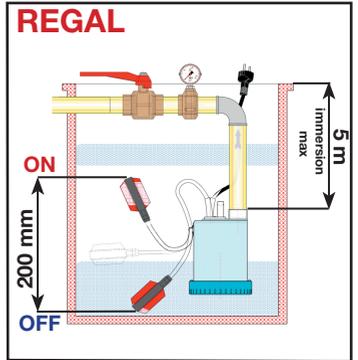
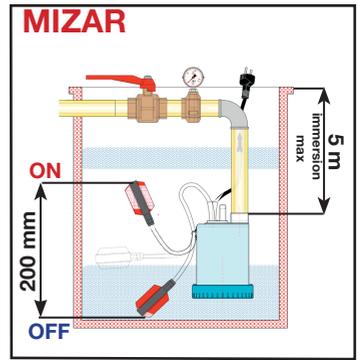
- To lower the pump, always use a rope or chain fixed beforehand to the upper handle on top of the pump.

### NEVER USE THE POWER CABLE TO LIFT THE ELECTROPUMP.

- When using in deep wells, it is advisable to secure the power cable to the delivery pipe with clamps, every two/three metres.

### INSTRUCTIONS FOR SAFE USE:

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack experience and knowledge, unless they have been given supervision or instruction.
- Children should be supervised to ensure that they do not play with the appliance.



 **WARNING!** The pump should not be run dry! It should be put fully into the liquid to be pumped. Slurping for long periods should be avoided.

 The length of the power cable on the electropump limits the maximum depth of immersion at which the pump may be used.

## **8 ELECTRICAL CONNECTIONS**



### **CAUTION! ALWAYS FOLLOW THE SAFETY REGULATIONS!**

**8.1 The electrical installation must be carried out by an authorized and competent electrician who assumes all the responsibilities.**

**8.2.** Ensure that the mains voltage is the same as shown on the plate of the motor to be fed and be sure **TO MAKE A GOOD GROUND CONNECTION.**

**8.3.** The electropump, both the single-phase and the three-phase version is supplied with an electric cable. If the power cable is damaged in any way it must be replaced, not repaired.

- It is advisable to connect the pump to a dedicated power line.
- Install a differential magnetothermal circuit breaker switch upstream from the pump, which is reserved exclusively for pump power supply, with residual current of  $(I\Delta N) \leq 30\text{mA}$ . Install a device for the omnipolar disconnection from the mains network (switch to disconnect the pump from the power supply).
- Switch off the power upstream from the system before making the electrical connection.
- Single-phase motors are provided with built-in thermal overload protection and may be connected directly to the mains.

**Warning: If the motor is overloaded it stops automatically. Once it has cooled down it starts again automatically without requiring any manual intervention.**

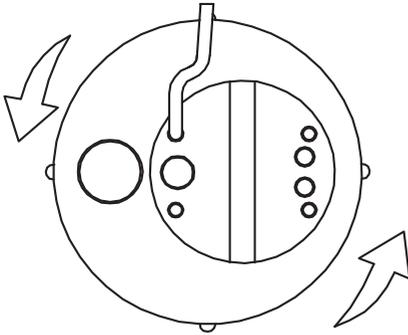
- Three-phase pumps must be protected with motor protectors suitably calibrated according to the values on the data plate of the pump to be installed.
- Connect the pump cable to the electric panel, ensuring that the following parts correspond:

**FOR ELECTRICAL CONNECTIONS SEE PAG. 128**

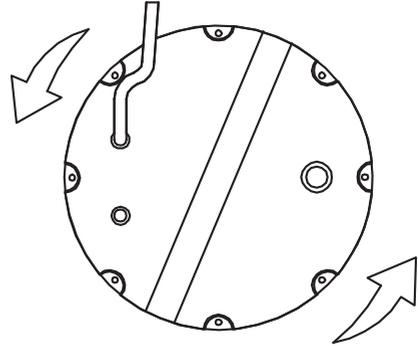
- Before making a test start, check the water level inside the well.

## 8.4 CHECKING THE DIRECTION OF ROTATION (for three-phase motors)

### MIZAR & REGAL



### SPRING & DUMPER



**Fig. 2**

### **CAUTION! ALWAYS FOLLOW THE SAFETY REGULATIONS**

The direction of rotation must be checked each time a new installation is carried out. Proceed as follows:

1. Place the pump on a flat surface;
2. Start the pump and stop it immediately;
3. Carefully observe the kick-back on starting, looking at the pump from above. If the direction of rotation is correct, the upper cap will turn counter-clockwise as indicated by the arrows in the drawing (Fig. 2).

If it is not possible to check as described above because the pump is already installed, check as follows:

1. Start the pump and observe the water flow rate.
2. Stop the pump, switch off the power and invert two phases on the supply line.
3. Restart the pump and check the water flow rate again.
4. Stop the pump.

**The correct direction of rotation is the one that gives the higher flow rate.**

## **9 START-UP**

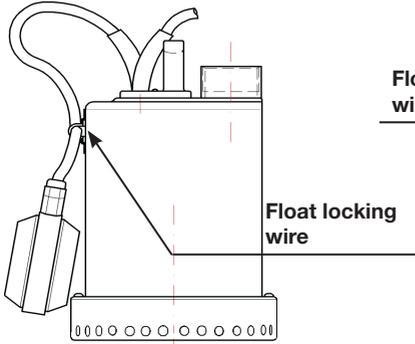
- 9.1 • Turn the differential magnetothermal switch upstream from the pump to position I (ON) and wait until the water comes out of the delivery pipe.
- If malfunctions are found, disconnect the pump from the power supply, turning the differential magnetothermal switch to position 0 (OFF) and consult the chapter 13 on **“TROUBLESHOOTING”**.
  - The pump may be started and stopped:
    - Manually by means of the differential magnetothermal switch upstream from the system.
    - Automatically when water level rises, for versions with a float switch.

## 9.2.FLOAT SWITCH SETTING

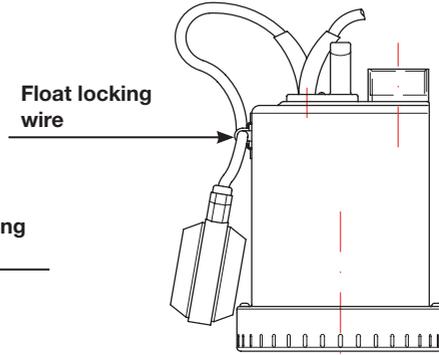
By lengthening or shortening the stretch of cable between the float and the fixed point (Float locking) it is possible to regulate the level at which the pump switches off. Ensure that the float witch can move freely when the pump is operating.

**Make sure the stop level does not uncover the filter.**

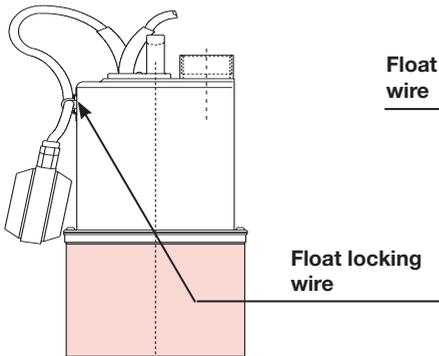
### MIZAR



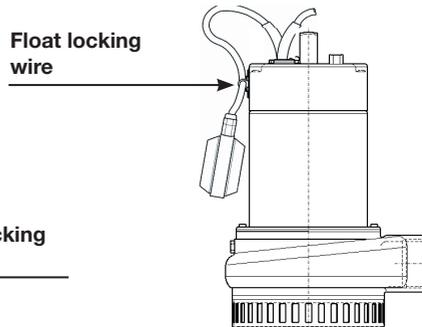
### REGAL



### SPRING



### DUMPER



## 10 PRECAUTIONS

- The suction filter must always be present when during pump is operating.
- The pump must not be started more than 15 time in one hour so as not to subject the motor to excessive thermal stress.
- DANGER OF FROST:** When the pump remains inactive at temperatures of less than 0°C, it is necessary to ensure that there is no water residue which might freeze, and cause cracking of the pump components.
- If the pump has been used with substances that tend to deposit, rinse it after use with a powerful jet of water so as to avoid the formation of deposits or scale which would, tend to reduce the pump characteristics.



## 11 MAINTENANCE AND CLEANING

In normal operation the pump does not require any type of maintenance, thanks to the oil bath lubricated seal and to the greased-for-life bearings.

**The electropump can only be dismantled by skilled and qualified personnel, in possession of the technical qualifications required by the specific regulations in force.**

In any case, all repair and maintenance jobs must be carried out only after having disconnected the pump from the power mains, once made sure that it cannot suddenly begin working. During dismantling it is necessary to pay great attention to sharp parts which may cause injury. The cutting edge flange of the electropump is provided of aspiration fans. It is advisable, every now and then, to clean these fans to avoid a loss of efficiency. Best cleaning is obtained through a throw of water. Sand and other abrasive materials cause precocious wear and tear, as well as loss of performances.



## **12 MODIFICATIONS AND SPARE PARTS**

**Any modification not authorized beforehand relieves the manufacturer of all responsibility.**

All the spare parts used in repairs must be original **ARVEN**. For codes and denominations see **enclosed sheet**.

All accessories must be approved by the manufacturer so as to be able to ensure maximum safety of the machines and systems in which they may be fitted.

## **13 TROUBLESHOOTING**

<b>FAULT</b>	<b>CHECK (possible cause)</b>	<b>REMEDY</b>
1.The motor does not start and makes no noise.	<p><b>A.</b> Make sure motor is live and check that the mains voltage corresponds to the one on the data plate.</p> <p><b>B.</b> Check the protection fuses.</p> <p><b>C.</b> The float switch prevents startup.</p> <p><b>D.</b> The shaft is not turning.</p>	<p><b>B.</b> If they are burnt-out, change them.</p> <p><b>C.</b> Make sure float moves freely and check its efficiency.</p> <p><b>D.</b> Turn the shaft as indicated in the Warnings chapter <b>(Paragraph 6.3. )</b>.</p>
2.The pump does not deliver.	<p><b>A.</b> The suction filter or the pipes are obstructed.</p> <p><b>B.</b> The impellers are worn or blocked.</p> <p><b>C.</b> The fluid level is too low. On starting, the water level must be higher than the filter level.</p> <p><b>D.</b> The head required is higher than the pump's characteristics</p>	<p><b>A.</b> Remove the obstructions, as indicated in the Warnings chapter (Paragraph 6.4).</p> <p><b>B.</b> Change the impellers or remove the obstruction.</p> <p><b>C.</b> Regulate the length of the float switch cable (See chapter on Warnings - Paragraph 9.2.)</p>
3.The pump does not stop.	<p><b>A.</b> The float does not interrupt the operating of the pump.</p>	<p><b>A.</b> Make sure float moves freely and check its efficient.</p>

FAULT	CHECK (Possible cause)	REMEDY
<p>4.The flow rate is insufficient.</p>	<p><b>A.</b> Ensure that the suction filter is not partly blocked.</p> <p><b>B.</b> Ensure that the impellers or the delivery pipe are not partly blocked or fouled with scale.</p> <p><b>C.</b> Ensure that the check valve (if fitted) is not partly clogged.</p> <p><b>D.</b> Check the direction of rotation in three-phase versions (See Chapter on Electrical connection - Paragraph 8.4.).</p>	<p><b>A.</b> Remove any obstructions, as indicated in the chapter on Warnings (Paragraph 6.4.).</p> <p><b>B.</b> Check good operation of the valve and replace it if necessary.</p> <p><b>C.</b> Accurately clean the check valve.</p> <p><b>D.</b> Invert two wires in the power cable.</p>
<p>5.The overload protection device stops the pump.</p>	<p><b>A.</b> Ensure that the fluid to be pumped is not too dense because it would cause overheating of the motor</p> <p><b>B.</b> Ensure that water temperature is not too high (see liquid temperature range).</p> <p><b>C.</b> The pump is partly blocked by impurities.</p> <p><b>D.</b> The pump is mechanically blocked.</p>	<p><b>B</b> Reduce liquid temperature. Wait until thermal protection switch resets, about 20 mins.</p> <p><b>C.</b> Accurately clean the pump.</p> <p><b>D.</b> Check for the occurrence of rubbing between moving and fixed parts; check the state of wear of the bearings (contact the supplier).</p>



The symbol of the crossed out wheeled bin on the product or on the packaging means that this product has to be disposed of separately from household waste at a collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of properly, you will help prevent potential negative effects for the environment and human health, which could be caused by inappropriate waste handling of EEE. For more detailed information about the recycling of this product, please contact your local Civic Office, your household waste disposal service or the shop where you purchased the product.

## 14 TECHNICAL DATA

TECHNICAL DATA	MIZAR 30 1~	MIZAR 60 1~ 3~	MIZAR 60 VOX 1~ 3~
Electric connection/voltage (Hz)	230 V/50 Hz ---	230 V/50 Hz 400 V/50 Hz	230 V/50 Hz 400 V/50 Hz
Power rating P1 (Kw)	0,5 ---	0.7 0.7	0.6 0,6
Current absorption (A)	2,2 ---	3,0 1.4	2.8 1.3
Max. High head pressure (mt)	8	10	7,5
Max. capacity (l/min)	150	175	175
Max temperature of liquid (°C)	35	35	35
Horizontal suction. (mm)	60	60	60
Max. submersion depth (mt)	5	5	5
N° of impellers	1	1	1
Electric cable (mt)	5 - 10	5 - 10	5 - 10
Foreign bodies aspir. up to ø... (mm)	10	10	20
Discharge connection thread <b>DNM</b>	1 1/4"	1 1/4"	1 1/4"
Pump dimension <b>BxD</b> (mm)	154 x 249	154 x 249	154 x 282
Packing dimension <b>LxMxN</b> (mm)	220 x 190 x 330	220 x 190 x 330	220 x 190 x 330
Weight (Kg)	5,5	6,2	6,5

Power supply voltage /frequency: up to 240V version 1~ 50/60Hz, or up to 415V version 3 ~ 50/60Hz.

The mains connection current and voltage must respect the data stated on the plate.

-The characteristics and technical data are not binding. **Arven** reserves the right to make modifications without notice.

Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding

TECHNICAL DATA	REGAL 80	REGAL 100	REGAL 150
	1~ 3~	1~ 3~	1~ 3~
Electric connection/voltage (Hz)	230 V/50 Hz 400 V/50 Hz	230 V/50 Hz 400 V/50 Hz	230 V/50 Hz 400 V/50 Hz
Power rating P1 (Kw)	1.1 0.9	1.5 1,3	2,2 2
Current absorption (A)	4,5 2,1	6,5 2,2	10,6 3,3
Max. High head pressure (mt)	11,5	14,5	16,5
Max. capacity (l/min)	250	300	450
Max temperature of liquid (°C)	35	35	35
Horizontal suction. (mm)	35	35	35
Max. submersion depth (mt)	5	5	5
N° of impellers	1	1	1
Electric cable (mt)	5-10	5-10	5-10
Foreign bodies aspir. up to ø... (mm)	10	10	10
Discharge connection thread <b>DNM</b>	1" 1/2	1" 1/2	2"
Pump dimension <b>BxD</b> (mm)	212,4 x 290,2	212,4 x 290,2	212,4 x 326,7
Packing dimension <b>LxMxN</b> (mm)	220 x 320 x 340	220 x 320 x 340	250 x 290 x 460
Weight (Kg)	9	11	18

Power supply voltage /frequency: up to 240V version 1~ 50/60Hz, or up to 415V version 3 ~ 50/60Hz.

The mains connection current and voltage must respect the data stated on the plate.

-The characteristics and technical data are not binding. **Arven** reserves the right to make modifications without notice.

Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding

<b>TECHNICAL DATA</b>	<b>REGAL 100 VOX</b> 1~ 3~	<b>REGAL 150 VOX</b> 1~ 3~	<b>REGAL 200 VOX</b> 3~
Electric connection/voltage (Hz)	230 V/50 Hz 400 V/50 Hz	230 V/50 Hz 400 V/50 Hz	--- 400 V/50 Hz
Power rating P1 (Kw)	1,5 1,5	2,2 2	--- 2,2
Current absorption (A)	6,8 2,4	9 3,3	--- 3,8
Max. High head pressure (mt)	10,5	12,5	14
Max. capacity (l/min)	350	400	450
Max temperature of liquid (°C)	35	35	35
Horizontal suction. (mm)	35	35	35
Max. submersion depth (mt)	5	5	5
N° of impellers	1	1	1
Electric cable (mt)	5-10	5-10	5-10
Foreign bodies aspir. up to ø... (mm)	30	30	30
Discharge connection thread <b>DNM</b>	1 1/2"	2"	2"
Pump dimension <b>BxD</b> (mm)	204 x 344,2	204 x 384,7	204 x 384,7
Packing dimension <b>LxMxN</b> (mm)	260 x 320 x 480	260 x 380 x 480	260 x 320 x 480
Weight (Kg)	13	20	21

Power supply voltage /frequency: up to 240V version 1~ 50/60Hz, or up to 415V version 3 ~ 50/60Hz.

The mains connection current and voltage must respect the data stated on the plate.

-The characteristics and technical data are not binding. **Arven** reserves the right to make modifications without notice.

Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding

<b>TECHNICAL DATA</b>	<b>SPRING 30</b> 1~	<b>SPRING 60</b> 1~ 3~
Electric connection/voltage (Hz)	220-230 V/50 Hz ---	220-230 V/50 Hz 380-400 V/50 Hz
Power rating P1 (Kw)	0.5 ---	0.7 0,7
Current absorption (A)	2,2 ---	3 3,14
Max. High head pressure (mt)	8	10
Max. capacity (l/min)	150	175
Max temperature of liquid (°C)	35	35
Horizontal suction. (mm)	136	136
Max. submersion depth (mt)	5	5
N° of impellers	1	1
Electric cable (mt)	5-10	5-10
Foreign bodies aspir. up to ø... (mm)	clean	clean
Discharge connection thread <b>DNM</b>	1 1/4"	1 1/4"
Pump dimension <b>BxD</b> (mm)	154 x 342	154 x 342
Packing dimension <b>LxMxN</b> (mm)	190 x 230 x 410	190 x 230 x 410
Weight (Kg)	5,5	6,2 6,5

Power supply voltage /frequency: up to 240V version 1~ 50/60Hz, or up to 415V version 3 ~ 50/60Hz.

The mains connection current and voltage must respect the data stated on the plate.

-The characteristics and technical data are not binding. **Arven** reserves the right to make modifications without notice.

Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding

<b>TECHNICAL DATA</b>	<b>SPRING 80</b> 1~ 3~	<b>SPRING 100</b> 1~ 3~	<b>SPRING 150</b> 1~ 3~
Electric connection/voltage (Hz)	220-230 V/50 Hz 380-400 V/50 Hz	220-230 V/50 Hz 380-400 V/50 Hz	220-230 V/50 Hz 380-400 V/50 Hz
Power rating P1 (Kw)	1,1 0,9	1,5 1,3	2 1,8
Current absorption (A)	4,5 2,1	6,5 2,2	10,6 3,3
Max. High head pressure (mt)	11,5	14,5	16,5
Max. capacity (l/min)	250	300	400
Max temperature of liquid (°C)	35	35	35
Horizontal suction. (mm)	160	160	160
Max. submersion depth (mt)	5	5	5
N° of impellers	1	1	1
Electric cable (mt)	5-10	5-10	5-10
Foreign bodies aspir. up to ø... (mm)	clean	clean	clean
Discharge connection thread <b>DNM</b>	1 1/2"	1 1/2"	2"
Pump dimension <b>BxD</b> (mm)	212,4 x 400	212,4 x 400	212,4 x 440,2
Packing dimension <b>LxMxN</b> (mm)	260 x 300 x 530	260 x 300 x 530	260 x 300 x 530
Weight (Kg)	9	11	18

Power supply voltage /frequency: up to 240V version 1~ 50/60Hz, or up to 415V version 3 ~ 50/60Hz.

The mains connection current and voltage must respect the data stated on the plate.

-The characteristics and technical data are not binding. **Arven** reserves the right to make modifications without notice.

Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding

<b>TECHNICAL DATA</b>	<b>DUMPER 70</b> 1~	<b>DUMPER 80</b> 1~ 3~	<b>DUMPER 100</b> 1~ 3~	<b>DUMPER 140</b> 1~ 3~
Electric connection/voltage (Hz)	230 V/50 Hz ---	230 V/50 Hz 400 V/50 Hz	230 V/50 Hz 400 V/50 Hz	230 V/50 Hz 400 V/50 Hz
Power rating P1 (Kw)	0,9 ---	1,1 1,0	1,3 1,1	2 1,7
Current absorption (A)	4,5 ---	4,5 2,1	6,5 2,6	9 3
Max. High head pressure (mt)	10,5	11,5	15	19,5
Max. capacity (l/min)	200	250	300	400
Max temperature of liquid (°C)	35	35	35	35
Horizontal suction. (mm)	40	40	40	40
Max. submersion depth (mt)	5	5	5	5
N° of impellers	1	1	1	1
Electric cable (mt)	5-10	5-10	5-10	5-10
Foreign bodies aspir. up to ø... (mm)	8	8	8	8
Discharge connection thread <b>DNM</b>	1 1/2"	1 1/2"	1 1/2"	1 1/2"
Pump dimension <b>BxD</b> (mm)	142 x 300	142 x 300	142 x 300	142 x 344
Packing dimension <b>LxMxN</b> (mm)	190 x 220 x 320	190 x 220 x 320	190 x 220 x 320	190 x 320 x 340
Weight (Kg)	13	13	13,5	18,5

Power supply voltage /frequency: up to 240V version 1~ 50/60Hz, or up to 415V version 3 ~ 50/60Hz.

The mains connection current and voltage must respect the data stated on the plate.

-The characteristics and technical data are not binding. **Arven** reserves the right to make modifications without notice.

Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding

<b>TECHNICAL DATA</b>	<b>DUMPER 150</b> 1~ 3~	<b>DUMPER 200</b> 1~ 3~	<b>DUMPER 300</b> 3~
Electric connection/voltage (Hz)	230 V/50 Hz 400 V/50 Hz	230 V/50 Hz 400 V/50 Hz	--- 400 V/50 Hz
Power rating P1 (Kw)	2,7 2,5	2.9 2.7	--- 3.4
Current absorption (A)	11 4,5	12,5 5	--- 6
Max. High head pressure (mt)	21	23	26,5
Max. capacity (l/min)	350	400	500
Max temperature of liquid (°C)	35	35	35
Horizontal suction. (mm)	40	40	40
Max. submersion depth (mt)	5	5	5
N° of impellers	1	1	1
Electric cable (mt)	5-10	5-10	5-10
Foreign bodies aspir. up to ø... (mm)	8	8	8
Discharge connection thread <b>DNM</b>	2"	2"	2"
Pump dimension <b>BxD</b> (mm)	190 x 378	190 x 378	190 x 378
Packing dimension <b>LxMxN</b> (mm)	260 x 300 x 530	260 x 300 x 530	260 x 300 x 530
Weight (Kg)	26,5	28,5	29,5

Power supply voltage /frequency: up to 240V version 1~ 50/60Hz, or up to 415V version 3 ~ 50/60Hz.

The mains connection current and voltage must respect the data stated on the plate.

-The characteristics and technical data are not binding. **Arven** reserves the right to make modifications without notice.

Therefore weights, dimensions, performances and any other stated issues are indicative only and not binding