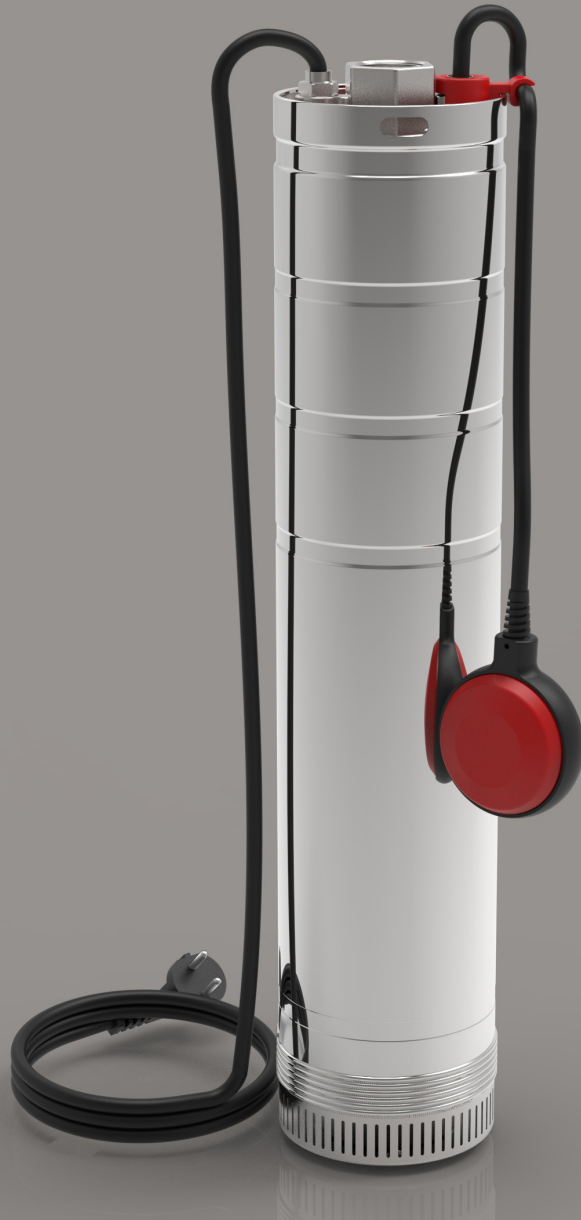


# FROG

50 Hz - 60 Hz



**5" SUBMERSIBLE MONOBLOCK  
ELECTROPUMPS**



**Made in Italy**



## TECHNICAL SPECIFICATIONS

### POWERS

3 m<sup>3</sup>/h: from 0,6 Hp to 2 Hp single-phase / three-phase 50 Hz  
 from 0,8 Hp to 2 Hp single-phase / three-phase 60 Hz  
 5 m<sup>3</sup>/h: from 0,8 Hp to 2 Hp single-phase / three-phase 50 Hz  
 from 1,2 Hp to 2 Hp single-phase / three-phase 60 Hz

### VOLTAGE

Single-phase: 230 V / 50 Hz - 220 V / 60 Hz  
 Three-phase: 230/400 V / 50 Hz - 220/380 V / 60 Hz

## CONSTRUCTION FEATURES

**CONNECTION SYSTEM** by means of connector.

**HEAD WITH MICRO-CAST PUMP OUTLET** made in AISI 304 stainless steel and equipped with a vent valve.

**ASYNCHRONOUS MOTOR COOLED BY PUMPED LIQUID**

**INTERNAL MOTOR TUBE** made in AISI 316L (Low carbon) stainless steel, ensuring excellent corrosion resistance.

**EXTERNAL SLEEVE** made in 304L stainless steel (Low carbon) to avoid possible corruptions of the welding.

**DOUBLE MECHANICAL SEAL** with interposed oil chamber.

**B-CLASS CAPACITOR**, meeting long-lasting features (three times compared to a standard one).

**IMPELLERS AND DIFFUSERS** made in techno-polymer:

- higher performance;
- higher resistance to sand.

**INTAKE FILTER** made in 304 stainless steel.

**REMOVABLE CABLE CONNECTOR** H07RN-F type with resin-sealed cable gland system to ensure a perfect watertight seal.

**AUTOMATIC VERSIONS WITH REMOVABLE FLOAT SWITCH** for applications at great depths (40 m). The float switch is connected via a resin-sealed cable gland system.

**100% TESTED**, all the electropumps are electrically and hydraulically tested at the end of the line.

## OPERATING LIMITS

### PROTECTION

IP 68

### INSULATION CLASS

F

### VOLTAGE TOLERANCE

-10% / +10%

### PUMPED LIQUID TEMPERATURE

0°C - 35°C

### MAX. STARTS / HOUR

40

### MAX. AMOUNT OF SAND TOLERATED IN WATER

50 g/m<sup>3</sup>

### MAX. IMMERSION DEPTH

40m

### SINGLE-PHASE VERSION

Featuring a condenser with overload protection and automatic resetting system.

### 3-20S, 5-20S, 3-20S6, 5-20S6 AND THREE-PHASE SERIES

Not feature overload protection.

## VERSIONS UPON REQUEST

Different thrust load

Different voltage

Version with KTW, WRAS, ACS type-approved cable

Versions with or without float switch

External capacitor (*minimum quantity required*)

## ACCESSORIES

Cable lengths: 10 m or 20 m

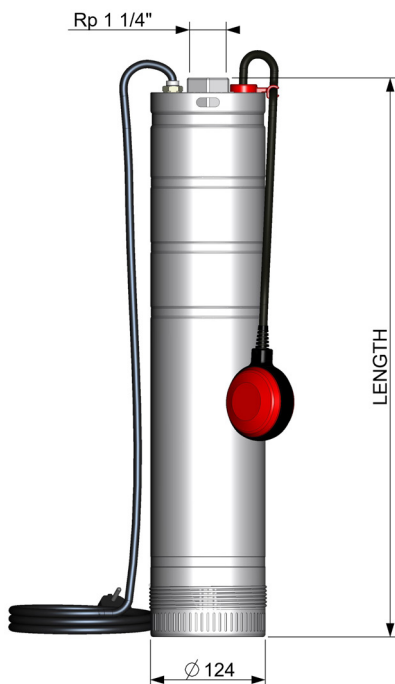
Sacrificial anode

Float switch with removable connector

FROG disassembly kit

Electrical plug of different standards

## DIMENSIONS



## MODELS

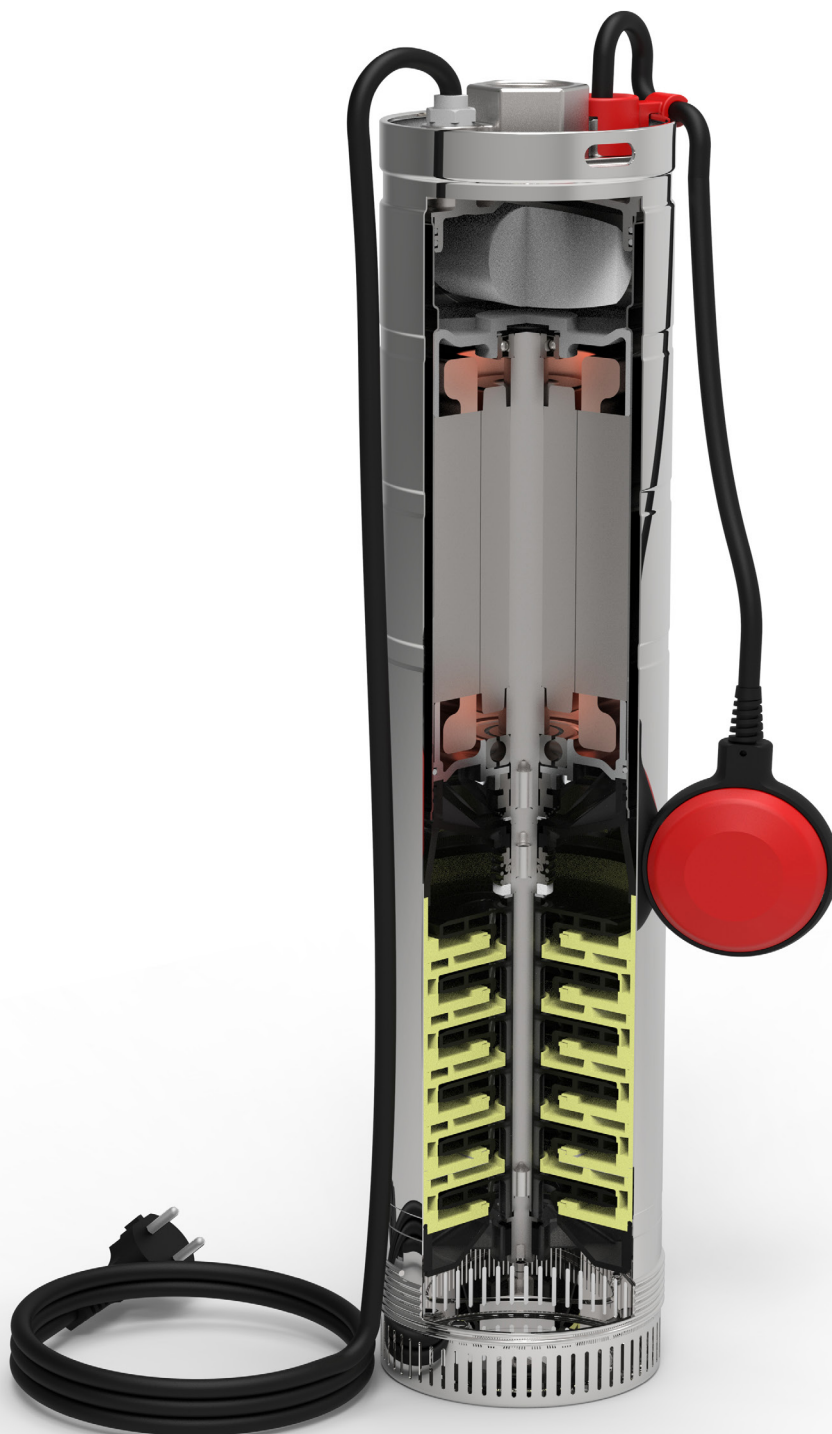
| 50Hz Model         |                       | 60Hz Model         |                       | Dimension   |                          |                         | Cable Length [m] |
|--------------------|-----------------------|--------------------|-----------------------|-------------|--------------------------|-------------------------|------------------|
| Single-phase 230 V | Three-phase 230/400 V | Single-phase 220 V | Three-phase 220/380 V | Length [mm] | Single-phase Weight [kg] | Three-phase Weight [kg] |                  |
| FROG 3 - 06S       | FROG 3 - 06T          | -                  | -                     | 439         | 9,1                      | 9,3                     | 10               |
| FROG 3 - 08S       | FROG 3 - 08T          | FROG 3 - 08S6      | FROG 3 - 08T6         | 495         | 11,6                     | 11,8                    |                  |
| FROG 3 - 10S       | FROG 3 - 10T          | FROG 3 - 10S6      | FROG 3 - 10T6         | 521         | 11,9                     | 12,1                    |                  |
| FROG 3 - 12S       | FROG 3 - 12T          | FROG 3 - 12S6      | FROG 3 - 12T6         | 590         | 13,8                     | 14                      |                  |
| FROG 3 - 15S       | FROG 3 - 15T          | FROG 3 - 15S6      | FROG 3 - 15T6         | 616         | 14                       | 14,2                    |                  |
| FROG 3 - 20S       | FROG 3 - 20T          | FROG 3 - 20S6      | FROG 3 - 20T6         | 698         | 16,7                     | 16,9                    |                  |
| FROG 5 - 08S       | FROG 5 - 08T          | -                  | -                     | 469         | 11,3                     | 11,5                    |                  |
| FROG 5 - 12S       | FROG 5 - 12T          | FROG 5 - 12S6      | FROG 5 - 12T6         | 515         | 12,9                     | 13,1                    |                  |
| FROG 5 - 15S       | FROG 5 - 15T          | FROG 5 - 15S6      | FROG 5 - 15T6         | 541         | 13,3                     | 13,5                    |                  |
| FROG 5 - 20S       | FROG 5 - 20T          | FROG 5 - 20S6      | FROG 5 - 20T6         | 620         | 15,9                     | 16,1                    |                  |

## BUILT-IN AUTOMATICAL VENT VALVE

- incorporated in the upper head to ensure the priming of the electropump under any condition.

## FLOAT SWITCH WITH “PLUG IN & PLUG OUT” SYSTEM

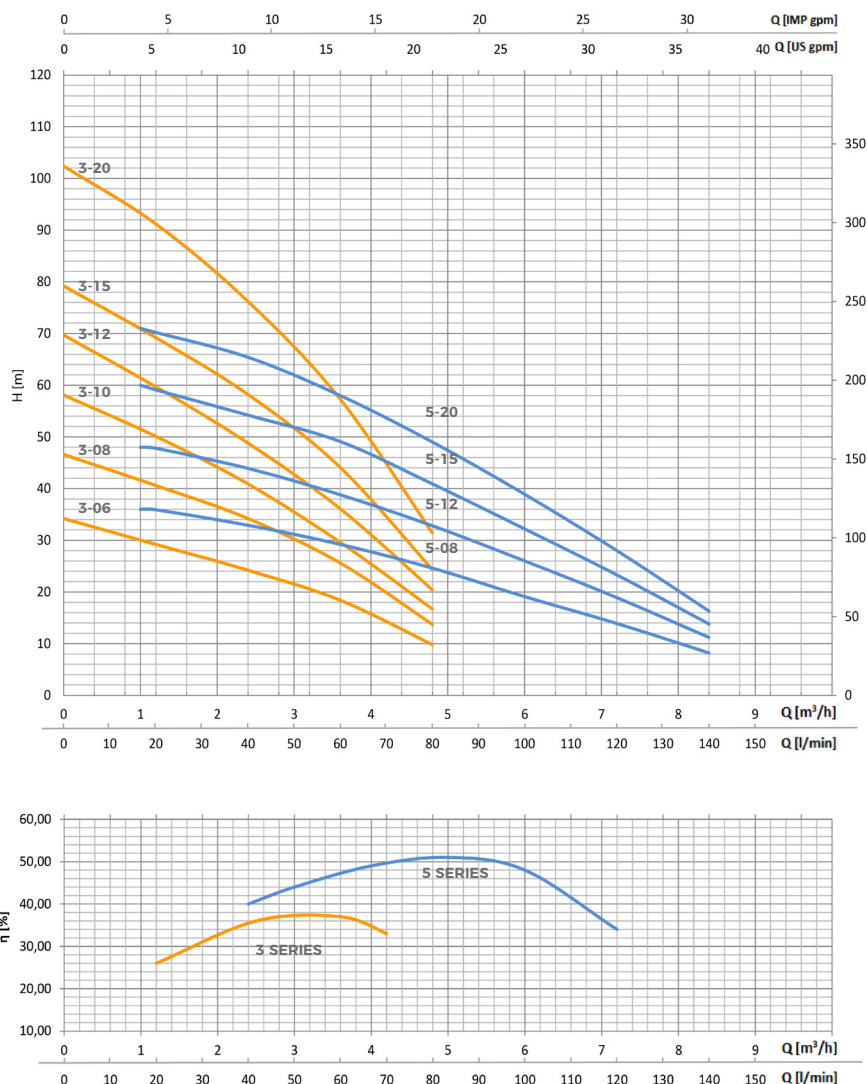
- Guarantees a perfect sealing
- Gives the option of using/selling the electropump with or without float switch just connecting or disconnecting it
- Reduces stock because electropump can be bought with or without float switch
- Allows a fast and safe maintenance because superior pump side can be completely removed



SCAN TO  
see how to install the  
float switch correctly.



## OPERATING CURVES FROG - 50Hz



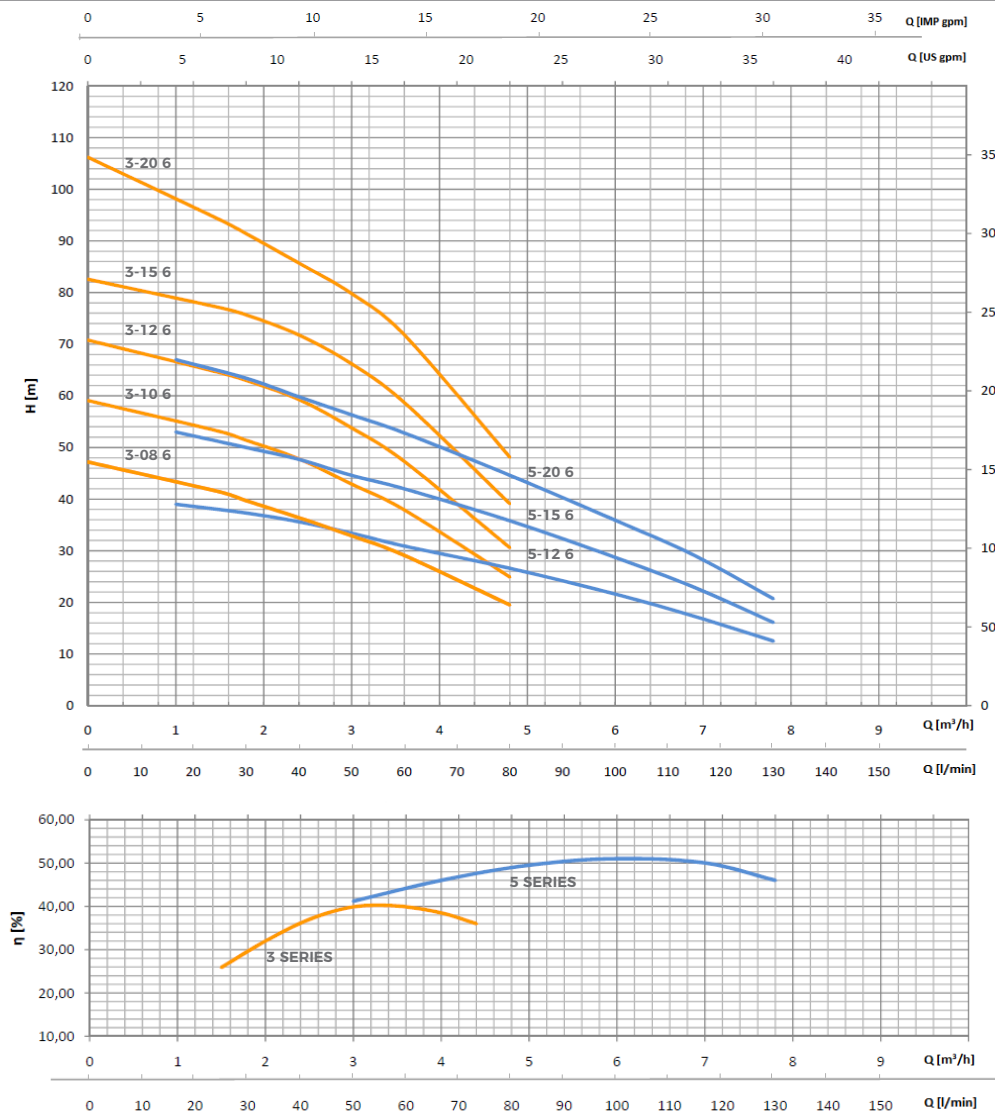
## HYDRAULIC PERFORMANCE TABLE FROG - 50Hz

| Type                  |                          | P <sub>2</sub> |      | N. of Stage | Q (Flow Rate)      |      |      |      |      |      |      |      |     |
|-----------------------|--------------------------|----------------|------|-------------|--------------------|------|------|------|------|------|------|------|-----|
| Single-phase<br>230 V | Three-phase<br>230/400 V | [Hp]           | [kW] |             | [l/min]            | 0    | 20   | 40   | 60   | 80   | 100  | 120  | 140 |
|                       |                          |                |      |             | [m³/h]             | 0    | 1,2  | 2,4  | 3,6  | 4,8  | 6    | 7,2  | 8,4 |
|                       |                          |                |      |             | H (Total Head) [m] |      |      |      |      |      |      |      |     |
| FROG 3 - 06S          | FROG 3 - 06T             | 0,6            | 0,45 | 3           | 34,2               | 29,2 | 24,2 | 18,4 | 9,8  | -    | -    | -    |     |
| FROG 3 - 08S          | FROG 3 - 08T             | 0,8            | 0,6  | 4           | 46,6               | 40,6 | 34,2 | 25,6 | 13,7 | -    | -    | -    |     |
| FROG 3 - 10S          | FROG 3 - 10T             | 1              | 0,75 | 5           | 58,1               | 50,1 | 40,9 | 29,6 | 16,7 | -    | -    | -    |     |
| FROG 3 - 12S          | FROG 3 - 12T             | 1,2            | 0,9  | 6           | 69,7               | 59,7 | 48,8 | 36,1 | 20,4 | -    | -    | -    |     |
| FROG 3 - 15S          | FROG 3 - 15T             | 1,5            | 1,1  | 7           | 79,2               | 69,2 | 58,2 | 44,1 | 24,3 | -    | -    | -    |     |
| FROG 3 - 20S          | FROG 3 - 20T             | 2              | 1,5  | 9           | 102,4              | 91,2 | 76,2 | 57,3 | 31,4 | -    | -    | -    |     |
| FROG 5 - 08S          | FROG 5 - 08T             | 0,8            | 0,6  | 3           | 37,2               | 35,9 | 32,9 | 29,2 | 24,6 | 19,1 | 13,9 | 8,2  |     |
| FROG 5 - 12S          | FROG 5 - 12T             | 1,2            | 0,9  | 4           | 49,6               | 47,8 | 43,9 | 38,8 | 32,8 | 26   | 18,9 | 11,2 |     |
| FROG 5 - 15S          | FROG 5 - 15T             | 1,5            | 1,1  | 5           | 61,5               | 59,1 | 54,2 | 49,1 | 40,9 | 32,2 | 23,3 | 13,8 |     |
| FROG 5 - 20S          | FROG 5 - 20T             | 2              | 1,5  | 6           | 74,4               | 70,2 | 65,4 | 58   | 49   | 38,9 | 28   | 16,3 |     |

## ELECTRICAL DATA FROG - 50Hz

| Type               | P <sub>i</sub> [kW]<br>(Max Absorbed Power) | I [A]<br>(Max Absorbed Current) | Capacitor<br>450 V<br>[μF] | Type                  | P <sub>i</sub> [kW]<br>(Max Absorbed Power) | I [A]<br>(Max Absorbed Current) |       |
|--------------------|---------------------------------------------|---------------------------------|----------------------------|-----------------------|---------------------------------------------|---------------------------------|-------|
|                    |                                             |                                 |                            |                       |                                             | 230 V                           | 400 V |
| Single-phase 230 V |                                             |                                 |                            | Three-phase 230/400 V |                                             |                                 |       |
| FROG 3 - 06S       | 0,81                                        | 3,7                             | 20                         | FROG 3 - 06T          | 0,82                                        | 2,4                             | 1,4   |
| FROG 3 - 08S       | 1                                           | 5,1                             | 25                         | FROG 3 - 08T          | 1,04                                        | 2,9                             | 1,9   |
| FROG 3 - 10S       | 1,22                                        | 5,7                             | 25                         | FROG 3 - 10T          | 1,3                                         | 3,8                             | 2,2   |
| FROG 3 - 12S       | 1,4                                         | 6,5                             | 35                         | FROG 3 - 12T          | 1,32                                        | 4,5                             | 2,6   |
| FROG 3 - 15S       | 1,65                                        | 7,6                             | 35                         | FROG 3 - 15T          | 1,51                                        | 4,8                             | 2,9   |
| FROG 3 - 20S       | 2,15                                        | 9,8                             | 40                         | FROG 3 - 20T          | 2,05                                        | 5,7                             | 3,5   |
| FROG 5 - 08S       | 1,1                                         | 5,2                             | 25                         | FROG 5 - 08T          | 1,12                                        | 4                               | 2,1   |
| FROG 5 - 12S       | 1,32                                        | 6,4                             | 35                         | FROG 5 - 12T          | 1,29                                        | 4,4                             | 2,5   |
| FROG 5 - 15S       | 1,7                                         | 8                               | 35                         | FROG 5 - 15T          | 1,64                                        | 4,9                             | 3     |
| FROG 5 - 20S       | 1,95                                        | 9,4                             | 40                         | FROG 5 - 20T          | 1,92                                        | 5,7                             | 3,7   |

## OPERATING CURVES FROG - 60Hz



## HYDRAULIC PERFORMANCE TABLE FROG - 60Hz

| Type                  |                          | P <sub>2</sub> |      | N. of Stage | Q (Flow Rate)      |      |      |      |      |      |      |      |      |      |     |
|-----------------------|--------------------------|----------------|------|-------------|--------------------|------|------|------|------|------|------|------|------|------|-----|
| Single-phase<br>220 V | Three-phase<br>220/380 V | [Hp]           | [kW] |             | [l/min]            | 0    | 25   | 30   | 40   | 50   | 60   | 80   | 100  | 115  | 130 |
|                       |                          |                |      |             | [m³/h]             | 0    | 1,5  | 1,8  | 2,4  | 3    | 3,6  | 4,8  | 6    | 6,9  | 7,8 |
|                       |                          |                |      |             | H (Total Head) [m] |      |      |      |      |      |      |      |      |      |     |
| FROG 3-08S6           | FROG 3-08T6              | 0,8            | 0,6  | 4           | 47,2               | 41,4 | 39,7 | 36,4 | 32,9 | 29,1 | 19,5 | -    | -    | -    |     |
| FROG 3-10S6           | FROG 3-10T6              | 1              | 0,75 | 5           | 59,1               | 53,1 | 51,4 | 47,8 | 42,9 | 37,9 | 24,9 | -    | -    | -    |     |
| FROG 3-12S6           | FROG 3-12T6              | 1,2            | 0,9  | 6           | 70,8               | 64,5 | 63   | 59,3 | 53,8 | 47,3 | 30,6 | -    | -    | -    |     |
| FROG 3-15S6           | FROG 3-15T6              | 1,5            | 1,1  | 7           | 82,6               | 77,1 | 75,1 | 71,8 | 66,2 | 58,7 | 39,1 | -    | -    | -    |     |
| FROG 3-20S6           | FROG 3-20T6              | 2              | 1,5  | 9           | 106,2              | 94,1 | 91,4 | 85,7 | 79,8 | 71,8 | 48,1 | -    | -    | -    |     |
| FROG 5-12S6           | FROG 5-12T6              | 1,2            | 0,9  | 4           | 45,4               | 42,6 | 37,3 | 35,6 | 33,4 | 30,9 | 26,6 | 21,6 | 17,3 | 12,5 |     |
| FROG 5-15S6           | FROG 5-15T6              | 1,5            | 1,1  | 5           | 56,7               | 53,8 | 50   | 47,7 | 44,6 | 42   | 35,8 | 28,7 | 22,9 | 16,1 |     |
| FROG 5-20S6           | FROG 5-20T6              | 2              | 1,5  | 6           | 68                 | 66,2 | 63,4 | 59,8 | 56,3 | 52,8 | 44,6 | 35,9 | 29,1 | 20,7 |     |

## ELECTRICAL DATA FROG - 60Hz

| Type               | P <sub>1</sub> [kW]<br>(Max Absorbed Power) | I [A]<br>(Max Absorbed Current) | Capacitor<br>450 V<br>[μF] | Type                  | P <sub>1</sub> [kW]<br>(Max Absorbed Power) | I [A]<br>(Max Absorbed Current) |       |
|--------------------|---------------------------------------------|---------------------------------|----------------------------|-----------------------|---------------------------------------------|---------------------------------|-------|
|                    |                                             |                                 |                            |                       |                                             | 220 V                           | 380 V |
| Single-phase 220 V |                                             |                                 |                            | Three-phase 220/380 V |                                             |                                 |       |
| FROG 3-08S6        | 1,05                                        | 4,8                             | 25                         | FROG 3-08T6           | 1,06                                        | 2,9                             | 1,7   |
| FROG 3-10S6        | 1,24                                        | 5,9                             | 25                         | FROG 3-10T6           | 1,31                                        | 3,6                             | 2,1   |
| FROG 3-12S6        | 1,42                                        | 7,1                             | 35                         | FROG 3-12T6           | 1,37                                        | 3,9                             | 2,3   |
| FROG 3-15S6        | 1,67                                        | 8                               | 35                         | FROG 3-15T6           | 1,56                                        | 4,4                             | 2,6   |
| FROG 3-20S6        | 2,16                                        | 10,1                            | 40                         | FROG 3-20T6           | 2,08                                        | 5,4                             | 3,2   |
| FROG 5-12S6        | 1,34                                        | 6,3                             | 35                         | FROG 5-12T6           | 1,31                                        | 3,6                             | 2,1   |
| FROG 5-15S6        | 1,72                                        | 7,3                             | 35                         | FROG 5-15T6           | 1,67                                        | 4,4                             | 2,6   |
| FROG 5-20S6        | 1,91                                        | 9,7                             | 40                         | FROG 5-20T6           | 1,89                                        | 4,9                             | 2,9   |



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EDIT: BROCHURE FROG EN/SEP/2025