

## Flexible Impeller Pump

F5B-19 12/24 V DC

IB-403 R06 (03/2018)

ORIGINAL INSTRUCTIONS/TRANSLATION OF ORIGINAL INSTRUCTIONS  
READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS  
PRODUCT



# Self-priming, flexible impeller pump flange mounted to DC motor 12/24 V

## Typical applications

Bilge pump, fuel oil transfer, deck washing, fire pump, fresh water pump, etc.

## Design features

Body: Bronze  
 Impeller: Nitrile  
 Shaft: Stainless steel  
 Seal: Mechanical seal  
 Connection: 3/4" BSP or NPTF  
 Liquid temp.: Max +80°C. See page 8, "Temperature".  
 Motor: 0.27 kW, 12/24 V DC  
 Note: Max continuous operation for motor 1 hour at 1 bar pressure

The motor is ignition protected according to ISO 8846 (Small craft - Electrical devices - Protection against ignition of surrounding flammable gases).

## Type designation

Type	Part No.
F5B-19, BSP (-1907, NPTF) 12 V	10-24188-1 (-4)
F5B-19, BSP (-1907, NPTF) 24 V	10-24188-2 (-5)

## Pressure and capacity data

(based on water at 20°C and at full voltage of the motor)

Bar	kPa	l/min (USGPM)	Ampere draw	
			12 V	24 V
0	0	55.0 (14.5)	23.2 A	11.9 A
0,1	10	53.0 (14.0)	23.8 A	12.2 A
0,3	30	49.4 (13.1)	24.2 A	12.8 A
0,6	60	39.9 (10.5)	25.1 A	13.3 A
0,9	90	30.1 (8.0)	26.2 A	14.0 A
1,2	120	19.3 (5.1)	29.0 A	14.7 A
1,5	150	9.3 (2.5)	29.8 A	15.3 A
Fuse required			50 A	25 A

## Installation recommendations

### Installation

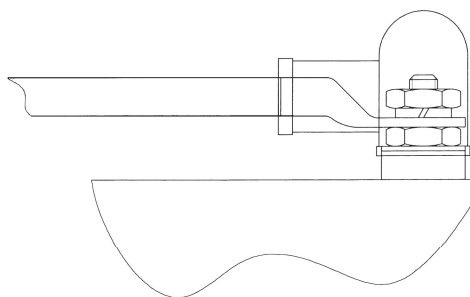
Pump may be mounted in any position without loss of efficiency; however, it is suggested that the pump head be down if vertical mounting is desired. Mount motor as close as possible to power source to obtain full voltage. Do not use lower fuses than those suggested. Note: Before installation with electrical control systems, check that equipment to be used is of sufficient rated capacity to accept ampere draw of motor. Low voltage will cause motor to overheat.



### Electrical installation

The pump must be installed in accordance with ISO 10133 (Boats-electrical system-Extra-low voltage installations for direct current, DC). The pump must be equipped with a separate fuse that acts as an overload circuitbreaker to protect the motor in the event of e.g. blocked rotation. The fuse must be of ignition-protected type.

Incorrect fuse size can lead to fire risk. The motor's terminals and wiring connections must be encapsulated in the enclosed rubber covers. See the figure.



The motor's terminals have no pre-defined polarity. The positive and negative leads may be connected to either terminal.

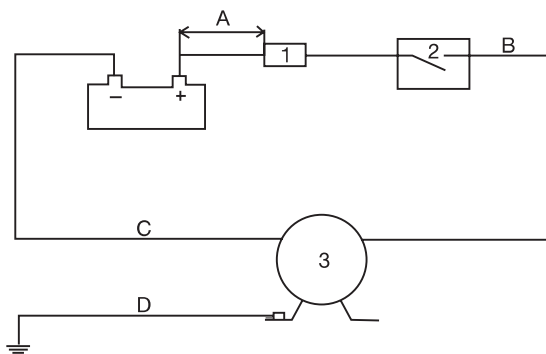
If the pump is to be connected with a separate grounded cable then the cable is to be yellow and green in color and connected to the foot of the pump. The negative lead should be black.

Choose your cable dimensions according to cable length as listed in the table.

NB! On installation electrical components and eventual control systems must be dimensioned for the motor's power consumption. Underdimensioned components can cause excessive heating and fires.

Switches, relays and fuses must be of ignition-protected type.

### Wiring scheme



- 1 Terminal fuse
- 2 Switch or circuit breaker
- 3 Pump
- A Max 0,2 m
- B Red
- C Black
- D Green/yellow

Electrical installation must be according to ISO 10133.

Other electrical devices, eg switch, circuit breaker, must be installed between the pump and the positive (+) lead on the battery (on the red wire).

### Wiring table

(based on 3 % voltage drop at 1,5 bar operating pressure)

Wire size	Max wire length*	
	12 V	24 V
4 mm <sup>2</sup> # 12 AWG		11.5 m
6 mm <sup>2</sup> # 10 AWG	4.4 m	17.2 m
10 mm <sup>2</sup> # 6 AWG	7.3 m	28.7 m
16 mm <sup>2</sup> # 4 AWG	11.7 m	
25 mm <sup>2</sup> # 2 AWG	18.3 m	
35 mm <sup>2</sup> # 1 AWG	25.6 m	

\* The wire length is the total distance from the battery to the pump and back to the battery. Use cord standing moist environment.

### When the pump is used as a bilge pump

Max total head 7 m.

The pump must be installed so that the motor is protected from splash from bilge water.

The pump must be fitted with a strainer or filter preventing debris from entering the pump.

### Self-priming

Pump is self-priming up to 4 m. Intake lines must be air-tight to ensure self-priming.

Note: Pump will prime when impeller is dry but suction lift up to 4 m is only obtainable when impeller is greased or lubricated with liquid being pumped. For permanent installations where suction lift exceeds 4 m, a foot valve should be used to assure priming on start up. All performance figures stated are for water at 20°C and at full voltage of the motor.

Note: Max continuous operation for motor 1 hour at 1 bar pressure.

### Dry running

Do not run dry for more than 30 seconds.

Lack of liquid will burn the impeller and damage the seals.



### Caution

Do not pump gasoline, solvents, thinners, highly concentrated or organic acids. If corrosive fluids must be handled, pump life will be prolonged if flushed with water after each use or after each work day.

### Temperature

The life of the impeller depends on the temperature of liquid being pumped. Temperatures between +5°C and +55°C give normal life. Higher or lower temperature will reduce the life.

### Freezing weather

Drain unit by loosening the endcover. Glycol based anti-freezes can be used but do not use petroleum based anti-freeze compounds.

### Endcover gasket

Use standard gasket. A thicker gasket will reduce priming ability. A thinner gasket will cause impeller to bind.

## Service instructions

(see page 22-23)

### Disassembly

1. Screw off the endcover screws (10) and remove the endcover (2) and gasket (7).
2. Pull out the impeller (4) using two screw drivers or other suitable implements.
3. Remove the cam (3) and wash away any traces of sealing compound on the cam and inside the body.
4. Remove the wear plate (5).
5. Remove the retaining ring (11) and washer (18) holding the mechanical seal. Lubricate the shaft in front of the seal with vaseline or the like and press down for easier removal from the shaft.
6. Back off the nut (15) of the motor flange and pull off the body with mechanical seal.
7. Remove the stationary ring of the mechanical seal (12) from the body. Note: Take care of the mechanical seal to avoid damaging the sealing surfaces.

### Assembly

1. Mount the stationary ring of the mechanical seal on the shaft.  
Note! Take care of the mechanical seal to avoid damaging the sealing surfaces.
2. Mount the body in the motor flange and lock with the nut.
3. Mount the rotating ring of the mechanical seal on the shaft, fit new washer and new retaining ring.
4. Mount the wear plate.
5. Apply sealing compound to the cam and cam screw in order to prevent leakage. Do not fasten the cam screw.
6. Lubricate the impeller with vaseline or the like and fit it with a rotating movement in the intended direction of pump rotation.
7. Lubricate the sealing surface of the pump body with vaseline or the like. Fit the new gasket in its position and fasten the endcover. Fasten the cam screw.

### Waste handling/material recycling

At the products end of life, please dispose of the product according to applicable law. Where applicable, please disassemble the product and recycle the parts material.