



DFP

Sanitary Pump



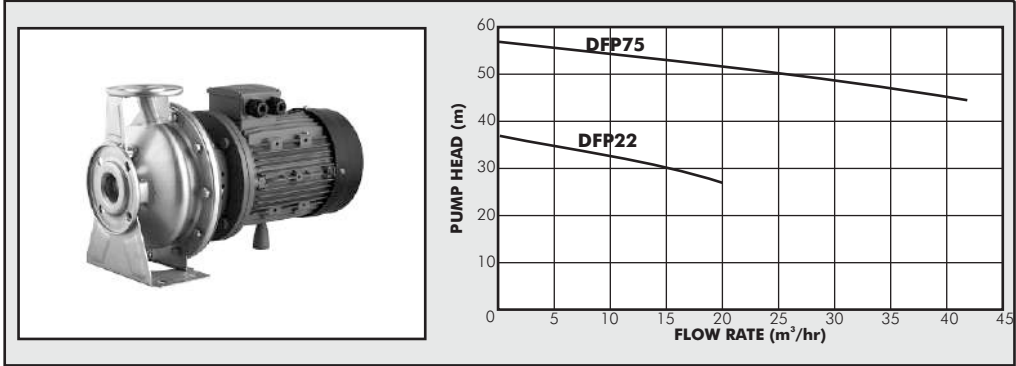
**Installation &
Operating Manual**

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Congratulations on selecting a Dayliff DFP Sanitary Pumps. They are manufactured to the highest standards and if installed and operated correctly will give many years of efficient and trouble free service. Careful reading of this Installation Manual is therefore important, though should there be any queries they should be referred to the equipment supplier.

1. PUMP SPECIFICATIONS



PUMP

Dayliff DFP sanitary pumps are of single stage centrifugal impeller type specifically designed to meet the hygiene requirements of sterile operating processes. They are suitable for various applications including water supply systems, pressure boiler feeding, pure water treating systems, pharmaceutical, food and refining chemical industries. The design features optimised hydraulics for high efficiency and polished internal finishes to prevent fouling by bacteria and germs. Pump hydraulic end construction is AISI 316L stainless steel throughout with specialised mechanical seal that can handle hot pumped media.

MOTOR

Pumps are close coupled to reliable TEFC electric motors designed for continuous duty. Single phase motors have integral thermal protection and can be connected directly to the mains power through a 10A fuse or MCB. Three phase motors require a remote DOL starter.

Enclosure Class: F

Insulation Class: IP57

Speed: 2900rpm

OPERATING CONDITIONS

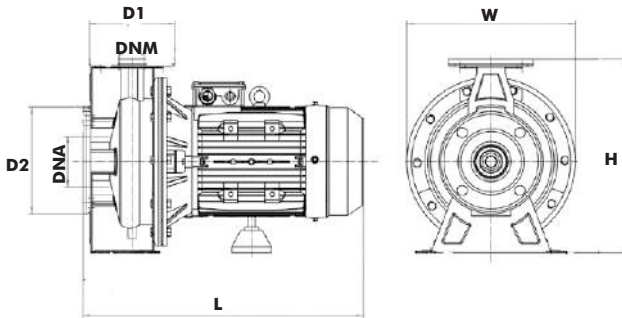
Pumped Liquid: Low viscosity fluids with a max. viscosity of 150mm²/s

Maximum Operating Pressure: 10 bar

Maximum Temperature : 110°C

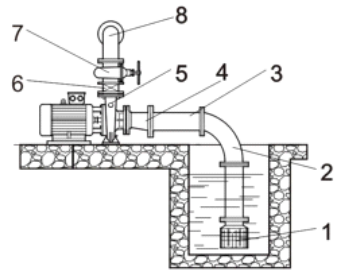
PUMP DATA

Model	Motor		Current (A)	Voltage (V)	DNA (")	DNM (")	Dimensions (mm)					Weight (kg)
	kW	HP					W	H	L	D2	D1	
DFP22	2.2	3	13.5	1x240	50	32	244	292	472	165	140	32
DFP75	7.5	10	15	3x415	65	40	300	340	535	185	150	67



2. INSTALLATION

- Pump location should be as close as possible to the liquid level, thus avoiding excessively long suction piping. Its position must meet the criterum that NPSHd is higher than NPSHr of the pump.
- For the pump to run properly, the layout and dimensional design of the suction piping should meet the following criteria.
 - The suction piping should be short, with as few bends as possible, any such bends should have wide curve radius, the last section before the pump being straight.
 - The diameter must be 1.5 to 2 times the diameter of the pump's suction flange.
 - The inlet cone must be eccentric when the pump works under depression. If it works under load this cone may be concentric.
 - The piping should be upwards towards the pump, with a slope of atleast 2%. It must be properly sealed, preventing the admission of air.



- 1. Foot valve with strainer**
- 2. Elbow**
- 3. Rising pipe. Inclination minimum 2%**
- 4. Eccentric cone**
- 5. Vent plug**
- 6. Non return valve**
- 7. Delivery valve**
- 8. Delivery pipe**

When the pump, is installed in negative suction, it should have a suitable foot valve placed at required depth to prevent air intake.

The delivery piping must;

- Be properly sealed
- Have proper dimensions to avoid excessive head losses
- Have a delivery valve at the outlet of the pump
- Where necessary, a non return valve should be installed between the pump and the delivery valve as well as other appropriate accessories to eliminate harmful effects of water hammer.



The pipes should be held on supports close to the body of the pump so that they do not transmit any stresses on the pump flanges.

3. ELECTRICAL CONNECTIONS



Electrical connection should be done by qualified personnel.

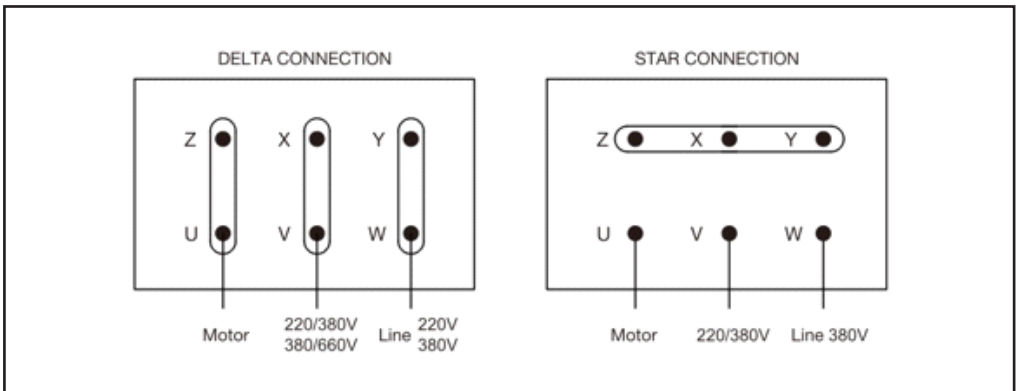


Before making the motor connections, check that the power supply is switched off.



Ensure that the pump is properly grounded before operation

The figures below show the proper connection for the case of direct starting and three phase line with 200V and 380V mains voltage.



Starting: Remove the bridge plates from the terminal box and connect the motor terminals to the corresponding ones on the starter.

Supply Voltage



Check that the values for the voltage and frequency of the supply mains coincide with the ones indicated on the motor nameplate, depending on star or delta connection.

4. OPERATION

Pump should not be used for any purpose other than the one it was designed for.

STARTING

Before starting, the following points should be taken into account;

- Check the proper priming of the pump and pipelines, as the fluid should overflow the system to ensure that all the air has been vented.
- Make sure that the direction of rotation coincides with the direction of the arrow located on the pump body.
- Centrifugal pumps performance is simple and safe and does not require any exhaustive checking to guarantee proper operation.
- Operation should be silent and vibration free. Check that the flow and service pressure match with demand/requirement.
- Check that the input current (consumption in amperes) is not over the values stated in the motor nameplate.
- When the equipment is to be left idle for long periods, the pump and piping should be completely drained to prevent possible rusting of the mechanical parts that might be caused through trapped liquid.

5. TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
The pump does not pump	Rotating the wrong way	Change connections of electric motor
	Pump not primed	Foot valve leaking. Leaks in gaskets or suction piping. Check and repair
	Low rotating speed	Check the reason for this low speed (excessive consumption or low frequency)
	Suction head too high	Take the pump closer to the water level. Change the pump for another with less NPHSr. Reduce leaks in the suction piping
	Air getting into suction pipe	Test pressure the suction pipeline including the pump and observe any liquid leak
	Insufficient liquid intake	Extend the suction pipeline increasing the submergence
Insufficient flow	Foot valve partially blocked	Clean footvalve
	Insufficient liquid intake	Submerge the foot valve more/ Reduce the flow
	Air pockets in suction line	Change the arrangement of the pipeline.
	Direction changed	Change connections of electric motor
	Internal parts worn	Replace the worn parts

PROBLEM**POSSIBLE CAUSE****SOLUTION**

The power consumption is higher than expected

Specific gravity and viscosity above design

Reduce the flow with the delivery valve or change the motor

Excessive consumption

Check the fastening of the terminals. Check the mains voltage and make sure the shaft turns gently by hand

Air trapped in the suction line

Test pressure the suction pipeline including the pump and observe any liquid leak

The pump vibrates

Impeller imbalanced through breakage or partial obstruction

Change the impeller, clean the impeller

Air in the liquid

Bleed the air from the liquid or prevent it from getting into the pump

Cavitation

Change the operating conditions or the pump in the installation.

The bearing gets too hot

Tension in the pipeline

Eliminate the tension by loosening the pipeline

6. TERMS OF WARRANTY

i) General Liability

- In lieu of any warranty, condition or liability implied by law, the liability of Dayliff (hereafter called the Distributor) in respect of any defect or failure of equipment supplied **is limited to making good by replacement or repair** (at the Distributor discretion) defects which under proper use appear therein and arise solely from faulty design, materials or workmanship within a specified period. This period commences **immediately after the equipment has been delivered to the customer** and at its termination all liability ceases. Also the warranty period will be assessed **on the basis of the date that the Distributor is informed of the failure.**
- This warranty applies solely to equipment supplied and **no claim for consequential damages**, however arising, will be entertained. Also the warranty specifically excludes defects caused by fair wear and tear, the effects of careless handling, lack of maintenance, faulty installation, incompetence on the part of the equipment user, Acts of God or any other cause beyond the Distributors reasonable control. Also, any repair or attempt at repair carried out by any other party **invalidates all warranties.**

ii) Standard Warranty

General Terms

If equipment failure occurs in the normal course of service having been competently installed and when operating within its specified duty limits warranty will be provided as follows:-

- **Up to two years - The item will be replaced or repaired at no charge.**
- **Over two years, less than three years - The item will be replaced or repaired at a cost to the customer of 50% of the Davis & Shirliff market price.**

The warranty on equipment supplied or installed by others is conditional upon the defective unit **being promptly returned free to a Davis & Shirliff office** and collected thereafter when repaired. No element of site repair is included in the warranty and any site attendance costs will be payable in full at standard chargeout rates.

Also proof of purchase including the purchase invoice must be provided for a warranty claim to be considered

DAYLIFF is a brand of **Davis & Shirtliff**

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