



DB & DBH

Horizontal Multistage Pumps



DB2



DB4



DBH



DB8



DB12

**Installation &
Operating Manual**

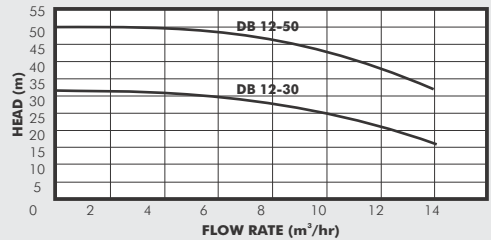
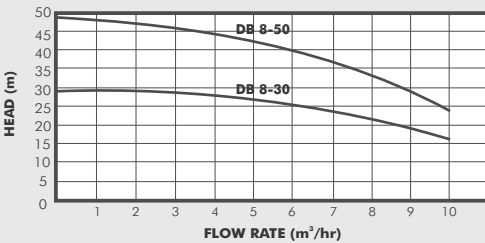
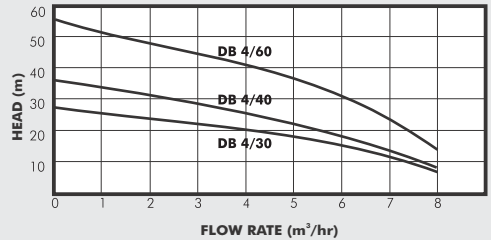
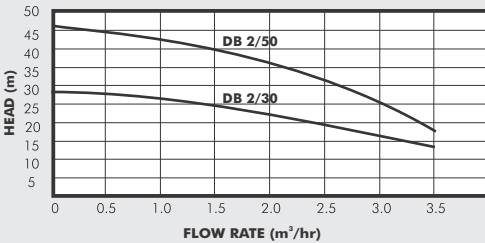
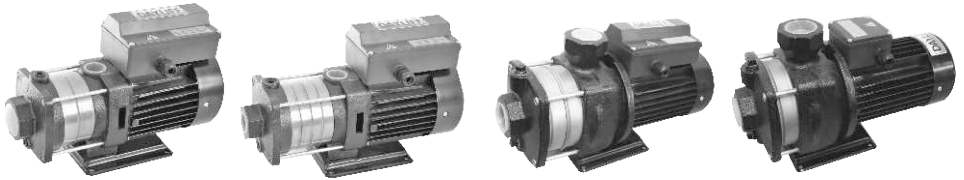
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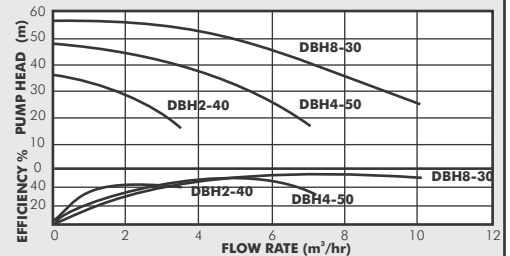
Congratulations on selecting a Dayliff DB/DBH Pump. They are manufactured to the highest standards and if installed and operated correctly will give many years of efficient and trouble free service. Careful reading of this Installation Manual is therefore important, though should there be any queries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

1. PUMP SPECIFICATIONS

DB2/DB4/DB8/DB12



DBH



PUMP

The Dayliff DB/DBH range of horizontal multistage centrifugal pumps are designed for continuous duty in various water transfer duties with particular application in pumping slightly corrosive liquids. The pump has small physical dimensions, axial suction port and radial discharge and is base plate mounted. DB suction chamber and pump head are made of grey cast iron while the impeller and impeller housing are of stainless steel. DBH pump body, suction and discharge ports are made from AISI 316 stainless steel as is all the other parts in contact with the pumped liquid. The mechanical seal is made from silicon carbide designed for easy replacement. Both pump and continuously rated motor unit are of monoblock design and particular attention has been paid to quietness and smooth operation.

MOTOR

The pump is coupled to a totally enclosed, fan cooled single phase squirrel-cage motor with built in thermal overload protection suitable for continuous duty. The motor can be connected to a power outlet fuse or MCB and protection must be provided.

Enclosure Class: DB2/4 & DBH - IP54, DB 8/12 - IP44

Insulation Class: F

Voltage: 1x220-240V, 3x380-415 (DB8-50, DB12-50)

Speed: 2900rpm

OPERATING CONDITIONS

Pumped Liquid: DB - Thin, clean, non-aggressive and non-explosive liquids solid particles.

DBH - Thin, clean, slightly aggressive but non-explosive liquid without solid particles or fibres.

Liquid Temperature: 0°C - 110°C

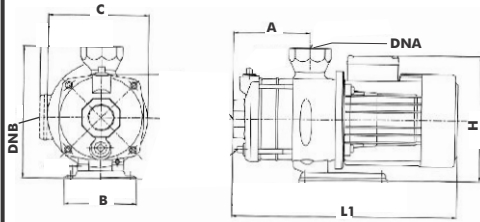
Max. Ambient Temperature: +40°C

Max. Suction Lift: According to NPSH curve plus a safety margin of 1

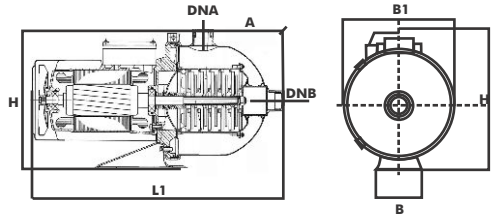
Max. Operating Pressure: 10 Bar up to 40°C
6 Bar up to 90°C

PUMP DATA

Model	Power (W)	Current (A)	Dimensions(mm)						Weight (kg)
			DNB	DNA	A	B	C	H	
DB 2-30	480	2.3	1"	119	130	141	228	327	12
DB 2-50	680	3.2	1"	155	130	141	228	363	11
DB 4-30	820	3.5	1¼"	137	130	141	228	344	12
DB 4-40	1020	4.3	1¼"	164	130	141	228	372	13
DB 4-60	1450	6.2	1¼"	218	130	141	228	465	15
DB 8-30	1080	5.1	1¼"	108	130	181	248	390	18
DB 8-50	1710	3.4	1¼"	138	130	181	248	420	29
DB 12-30	1500	6.8	1½"	108	130	181	248	390	19
DB 12-50	2700	4.8	1½"	138	130	181	248	450	27
DBH 2-40	370	4	1"	140	132	204	255	403	10
DBH 4-50	750	6	1¼"					441	12
DBH 8-30	1500	12	1½"					514	22



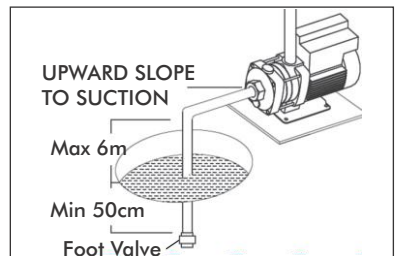
DB Cross Sectional Diagram



DBH Cross Sectional Diagram

2) INSTALLATION

- Site in a dry, well ventilated and weather proof location with an ambient temperature of no more than 40° C.
- Locate on a solid flat surface ensuring the shaft is in a horizontal position.
- Ensure that the diameter of the suction pipe is at least the size of the pump suction inlet. If the suction depth exceeds 4 meters then a one size larger diameter pipe. If the suction depth exceeds 4 meters then a one size larger diameter pipe should be used, though for maximum pump performance suction height should be minimised.



- If there is negative suction (i.e the pump is above the suction water level) the suction pipe must be slightly angled upwards towards the pump inlet to avoid the formation of air locks. It must also be immersed in water by at least 0.5m to avoid the formation of vortices and a good quality foot valve must be fitted.
- Ensure that all suction pipe connection are completely airtight or else the pump will not operate.
- The diameter of the delivery pipe must be chosen to suit the flow rate and pressure required at the delivery point though must not be smaller than the pump outlet size. It is also advisable to fit a non-return valve and isolating valve on the delivery outlet.
- This measure is essential if the delivery pressure exceeds 20 meters.
- The pipes must be fitted using suitable brackets to avoid transmitting stress to the pump body. Take care not to cause damage by over tightening the pipes during fitting.

3) ELECTRICAL CONNECTIONS



The installer is responsible for making electrical connections to the mains supply in compliance with relevant local regulations. Ensure that a professional electrician carries out the electrical connections and that the following guidelines are followed:-

- All installations must be provided with an isolator to cut off mains power supply and coarse current protection in the form of a fuse or MCB rated at 2-3 times the full load current as given on the pump plate.
- Ensure that the power supply rating complies with the specification on the pump rating plate.
- Electrical connections must be made according to details in the pump junction box cover and effective earthing must be provided according to local regulations.
- Single-phase motors are protected against overloads by a thermal overload fitted in the motor windings. Three phase motors should be installed with remote starter.

4) PRIMING



Serious damage will occur if a pump is not properly primed and runs without water.

The pump must be primed before operation. To do this completely fill the pump housing with clean water through the priming plug before switching it on.

When full replace the priming plug and start the pump checking there is a steady flow at the pump outlet. The pump should be primed whenever it has not been used for a long period of time or when air has made its way into the system.

5. MAINTENANCE



Never carry out any work on the pump without having first disconnected from the mains supply.

Pumps do not require routine maintenance provided the following precautions are taken:-

- Check that the foot valve is clean and unrestricted at regular intervals.
- If the pump is to remain unused for long periods of time it is advisable to empty it completely, rinse it with clean water and store in a dry place.
- If the shaft does not run freely, release it using a screwdriver by inserting it in the special slot on the rear of the pump shaft. If this is not sufficient to solve the problem remove the pump body by unscrewing the relevant mounting bolts and clean it thoroughly to remove any encrustation.

6. TROUBLE SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Motor won't start	No Power	Check connections and power supply
	Impeller stuck	See section on maintenance
Motor turns without pumping	Delivery head exceeds pump capacity	Reduce delivery head
	Clogged foot valve	Specify different pump
	Excessive suction height	Clean foot valve
	Air in suction	Move pump closer to water level
		Check suction pipe is airtight
Make sure foot valve is immersed by at least 50cm		
Flow rate insufficient	Pump needs to be primed	Reduce suction height
	Suction height at limit	Clean foot valve and, if necessary whole Intake pipe
	Foot valve partially clogged	Disassemble pump and carefully clean pump body and impeller
Tripped motor overload	Impeller blocked	Check voltage and ventilation
		Overheated motor
	Impeller stuck	Release impeller (See section on maintenance)

7. TERMS OF WARRANTY

i) General Liability

- In lieu of any warranty, condition or liability implied by law, the liability of Davis & Shirliff (hereafter called the Company) in respect of any defect or failure of equipment supplied **is limited to making good by replacement or repair** (at the Company's 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 Company 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 Company's 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 & Shirliff**

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for details of the nearest branch or stockist