



Direct Drive Piston Water Pumps

The B Series is a single cylinder double-acting piston pump especially adapted for open or pressure tank service. The enclosed type of crankcase is designed to meet a demand for a pump which has a minimum of exposed working parts, thereby securing maximum safety of operation as well as good lubrication. The pump is suitable where the vertical distance to the lowest water level does not exceed 7.6 metres (25 feet).

B1 Construction

Power End or Frame serves as the oil reservoir and contains removable bearings for eccentric shaft.

Piston Rod is stainless steel and works through stuffing box of nut and gland type.

Water End: Bolted to Power End is reversible if required, with replaceable brass cylinder liner and replaceable bronze valve grid seats which are pressed firmly in pump head casting.

Drive: Vee to vee. Fully adjustable. 14inch A on Pump, 2 1/2 inch A on Motor, 48 inch AV belt.

Crosshead prevents all side thrust on stuffing box and plunger.

Connecting Rod is of cast iron accurately machined, with large bearing surfaces.

Main Shaft is integral with eccentric and has bearing on each end. Direction of rotation not important.

Lubrication: Oil in the crankcase floods every moving part at each stroke of the pump. (1/2pint SAE30 Oil)

Valves are rubber, seating on bronze grid seats and are quickly accessible without disturbing suction or discharge connections.

Vacuum Chamber suction opening is high enough to ensure the cylinder being filled with water at all times. And the pump always "primed".

Suction and Discharge Lines: These are taken from the side of the cylinder body. It is never necessary to disconnect any of the piping to get at the inside of the pump.

Drive: Can be reversed to opposite side, if required. Generous table for prime mover with special Vee Belt tensioning.

Drain: To enable any gland losses to be piped away the well in the crankcase below the plunger rod is tapped to take 1/8inch BSP fitting.

Valves: Teflon valves accurately machined seating on bronze grid seats.

Piston: Special packed piston which is also accessible without dismantling pump.

Gland: Special packing to suit application.

Air Vessels: Provision for extra air vessels on both suction and delivery, ensures smooth, quiet and reliable operation.

B1 Specifications

			CAPACITY max.		HEAD max.						
	Bore	Stroke	G.P.H	Litres/min	Feet	kPa	H.P.	kW	Suction	Discharge	Code
STANDARD	1 1/2 inch	1 3/4 inch	300	23	250	750	3/4	0.55	1 inch	3/4 inch	B1
LOW PRESSURE	1 3/4 inch	1 3/4 inch	400	30	200	600	1	0.75	1 inch	3/4 inch	B1 LP
HIGH PRESSURE	1 1/4 inch	1 3/4 inch	200	15	400	1200	3/4	0.55	1 inch	3/4 inch	B1 HP
BOILER FEED	1 1/4 inch	1 3/4 inch	200	15	400	1200	3/4	0.55	1 inch	3/4 inch	B1 HP BF

B1 Dimensions—Approximately

Length 60cm Width 30cm Height 32cm

B1 Installation Instructions

The pump should be bolted down on a firm level surface to ensure sufficient lubrication of components in the crankcase.

The crankcase must be filled to the level of the filling plug on the rear of the crankcase with SAE30 oil **BEFORE STARTING THE PUMP.**

Ensure that the pulleys are correctly aligned and that they are free from foreign material which could cause the belts to splip.

Excessive belt tension will shorten belt and bearing life, correct tension when the pulleys are aligned is 1/8inch to 1/4inch deflection when a light force is applied to the mid point of the straight section of the belt. The belt tension is adjusted by altering the angle of the motor table through the adjustment bolt. When correct tension is applied the adjustment bolt must be locked in position by tightening the locknut up against the motor table.

The pump pulley may rotate in either direction.

The suction and discharge pipes should not be smaller than 1inch and 3/4inch diameter respectively and should rise gradually to and from the pump head to prevent formation of air locks within the pipes. All joints should be airtight to prevent loss of prime of the pump and eliminate air from the discharge pipe.

On suction lifts a good quality foot valve should fitted to the end of the suction lint to assist priming.

Prior to starting, the pump head should be primed through the priming plug located above the suction inlet. Once the head is primed the pump will then be able to exhaust any remaining air in the suction line.

B1 Maintenance

The gland should be checked periodically and tightened if necessary. Water should drip from the gland and if over tightened will increase wear on gland packing and plunger rod through lack of lubrication.

Check oil level regularly and change oil at least every 6 months. Belt tension should be checked one month after installation and six monthly thereafter.

We would recommend an annual service - although this can depend on the water quality and duty of the pump. McQuinn Pumps have engineers available to conduct annual servicing either on site or at the Service Centre.

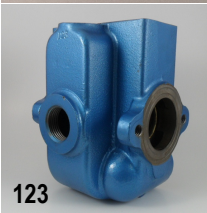
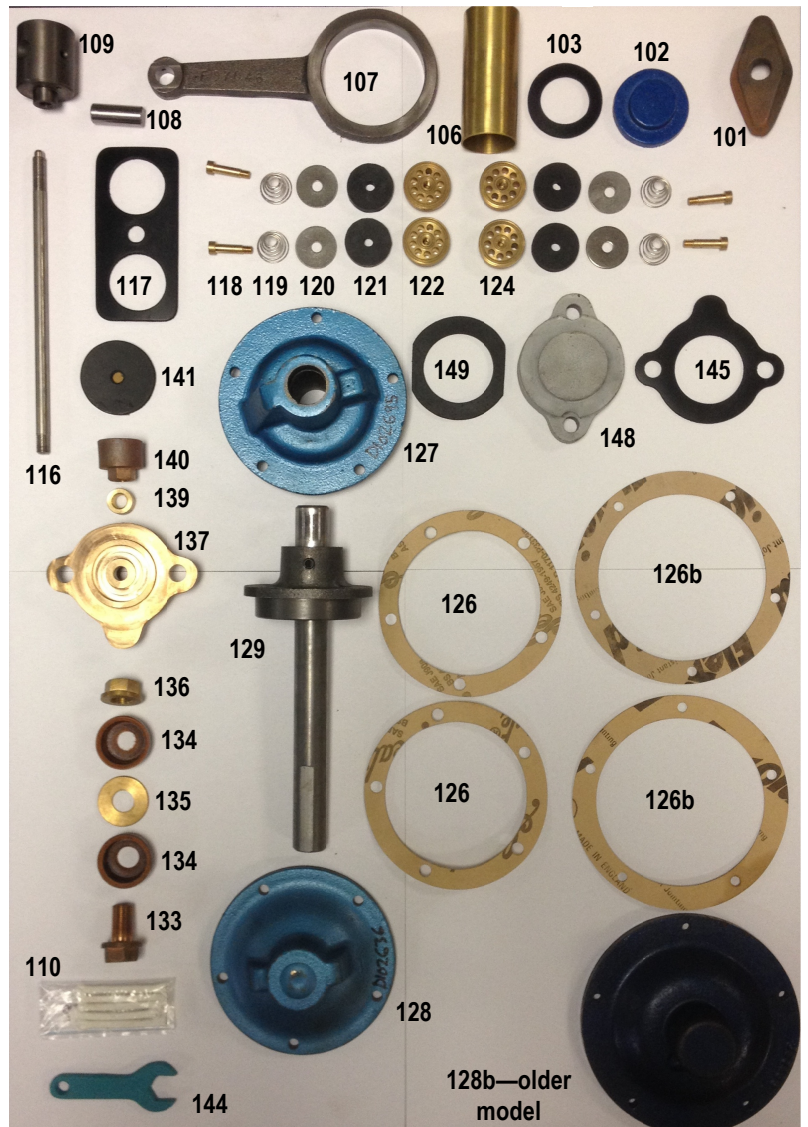
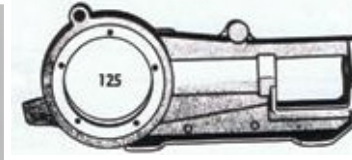
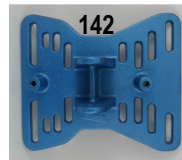
In order for the pump system to be pressurized a Pressure Tank would be required with a pressure switch. It is not recommended for positive displacement pumps to have bladder pressure tanks, as the pump can go and go until the bladder tank explodes—which is a significant Health and Safety issue! All steel pressure tanks, without a bladder are recommended.

McQuinn Pumps have available a range of Steel Pressure tanks suitable for use with Piston Pumps, along with the necessary equipment and experience. These Pressure Tanks will need to be bled—how often relates to the amount of use the pump has. Please contact McQuinn Pumps for further advise regarding Pressure tanks.



B1 Spare Parts

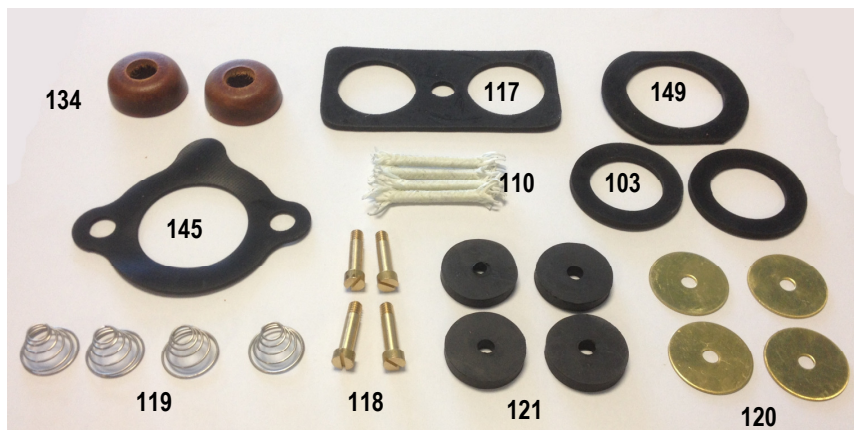
- 23 48" A Vee Belt
- 100 Service Kit—either STD/LP/HP (over page)
- 101 Valve Cover Clamp
- 102 Valve Cover (2 required)
- 103 Valve Cover Gasket (2 required)
- 104 Valve Cover Clamp Bolt
- 105 Cylinder Head Bolt
- 106 Cylinder Liner STD / LP / HP
- 107 Eccentric Strap (Or Conrod)
- 108 Cross Head Pin
- 109 Cross Head
- 110 Gland Packing
- 111 14inch A Vee Pulley
- 112 Frost Plug
- 113 Motor Pulley (Single)
- 114 Motor Bracket Adjusting Bolt & Nut
- 115 Motor Bracket Pin
- 116 Plunger Rod
- 117 Air Chamber Gasket
- 118 Valve Post (4 required)
- 119 Valve Spring (4 required)
- 120 Valve Plate (4 required)
- 121 Rubber Valve (4 required)
- 122 Outlet Valve Seat (2 required)
- 123 Cylinder Head Bare (available complete)
- 124 Suction Valve Seat (2 required)
- 125 Crankcase
- 126 Bearing Gaskets (2 required) Old model 126b
- 127 Short Bearing
- 128 Long Bearing
- 129 Eccentric & Shaft for Vee Pulley Drive
- 130 1inch Collar/ Bush for MK2 Bearing
- 131 Air Chamber Bolt
- 132 Air Chamber
- 133 Plunger
- 134 Leather or Fabric Cups (2 required) STD/LP/HP
- 135 Spacer
- 136 Plunger Nut
- 137 Gland Plate No.1
- 138 Water Deflector
- 139 Gland Follower
- 140 Gland Nut
- 141 Oil Seal
- 142 Single Motor Bracket (Bare)
- 143 Base
- 144 Gland Spanner
- 145 Cylinder Gasket with Ears
- 148 Cylinder Cover
- 149 Cylinder Gasket
- 150 Bearing Cover Bolt
- 151 Eccentric Taper Pin



Complete Head

B1 Service Contains:

- 100 Service Kit—either STD/LP/HP **CONTAINS:**
 103 Cylinder Cover Gasket
 110 Gland Packing
 117 Air Chamber Gasket
 118 Valve Post (4)
 119 Valve Spring (4)
 120 Valve Plate (4)
 121 Rubber Valve (4)
 134 Leather Cups (Size relates to model)
 145 Cylinder Gasket with Ears
 149 Cylinder Gasket



B1 Fault Finding:

Fault	Cause	Remedy or Action
No Discharge	Not primed Excessive suction lift Air leaks Blockage Deterioration	Prime Reduce static lift, eliminate or reduce friction on suction side with larger pipes. Check and eliminate air leaks by sealing. Check gland. Check for blockage in suction pipe, foot valve or strainer. Check suction valves. Check cylinder liner for wear, bucket leathers and valves.
Low Discharge Pressure and Single Acting	Faulty Valves Cylinder liner Bucket leathers Air Leaks	Check valves. Check liner. Check leathers. Check and rectify. Check gland.
Excessive Noise	No oil or contaminated oil Worn bearings, pinion, main gear, gear, shaft eccentric or strap. Excessive speed Excessive suction lift Worn valves or faulty valve operation	Drain, clean and refill. Check for worn parts. Reduce to maximum specified level. Reduce suction left and/or increase pipe size to reduce friction head. Check valves and springs and gland.
Excessive Vibration	Undersize piping Cavitation Deterioration	Fit large pipes to reduce flow velocity. Check against causes of cavitation. Increase pipe sizes or reduce suction lift. Check for loose gland. Check for and replace worn parts.