

SOUTHERN CROSS
Established 1871

VERTICAL SHAFT DRIVEN
TURBINE
PUMPS

*** AVAILABLE WITH STANDARD
SOLID SHAFT ELECTRIC MOTOR DRIVE**

FEATURES

- Non-corrosive pump is of all gunmetal construction with stainless steel drive shaft and couplings.
- For installations where conditions will allow, cast iron pumps can be supplied giving less expensive units.
- Enclosed impellers are less subject to wear, allow easier adjustment when installing, and do not need continual adjustment to maintain maximum efficiency.
- Water lubricated neoprene rubber bearings for drive shaft in every stage of pump, and every 1.5m of column pipe.
- Water lubricated bearings and highly polished stainless steel shaft result in very low power loss due to friction.
- Non-reverse ratchet in driving heads prevents the pump from turning backwards and causing damage.
- Packing gland in discharge head easily accessible for occasional servicing.
- Interchangeability of spare parts assured by high manufacturing standards.

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VERTICAL SHAFT DRIVEN

TURBINE PUMPS

SOUTHERN CROSS Turbine Pumps suit boreholes of 152 mm (6 inch) casing or larger and have capacities of 4 to 63 litres per second (3000 to 50000 gallons per hour). The standard range of pumps is exceptionally well made with gunmetal impellers, stage-casings and inlet and outlet castings. Drive shaft and drive shaft couplings are of stainless steel. Inlet strainers are of gunmetal and stainless steel.

CAST IRON PUMPS: Where the water is suitable LAA, LAB and LAD turbine pumps can be supplied with stage casings and inlet and outlet castings of cast iron instead of gunmetal, giving less expensive pumps. However gunmetal pumps are generally chosen because of their resistance to corrosion.

SOUTHERN CROSS Turbine Pumps consist of a series of centrifugal impellers located below water level and connected to a vertical shaft which extends through a discharge tee, or head, at the surface. The shaft, in turn, is rotated by either a vertical shaft electric motor, a vertical belt drive from engine or motor, or by a right angle gear drive coupled to an engine, motor or tractor.

OPTIONAL EXTRAS AVAILABLE

PRE-LUBRICATION TANK AND FITTINGS: This is required to pre-lubricate the bearings before starting when the static water level is over 15m (50 ft.) below ground level.

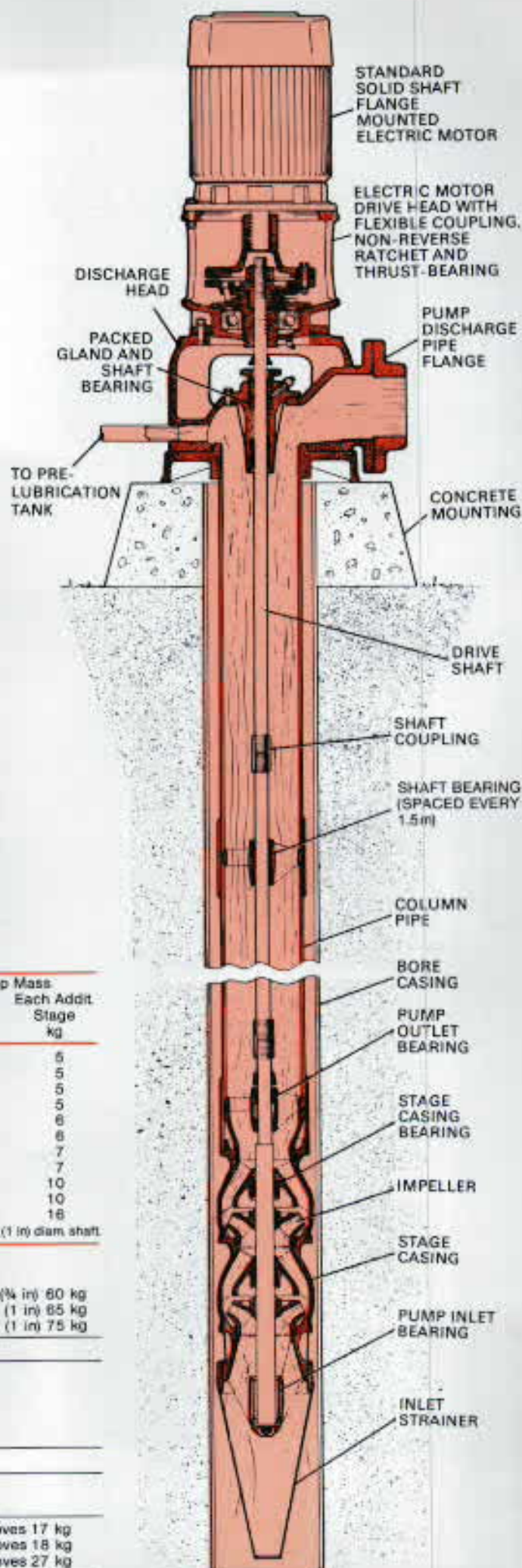
AIR LINE GAUGE AND FITTINGS: Used to measure the standing water level in the bore while pumping.

COLUMN PIPE LOWERING TOOL: A useful tool assisting in the correct installation of the pump and for servicing.

ZINC FREE PUMP ENDS: For those conditions where zinc free bronze castings are needed in preference to gunmetal.

FOOTVALVES AND STRAINERS: Consist of gunmetal footvalve and stainless steel strainer for fitting to bottom of pump to prevent line drainage when pump is stopped.

CERTIFIED WORKS TESTS AND WITNESSED WORKS TESTS: These tests can be carried out in the factory and performance tables supplied.



pump data

Pump	For Use in		Max. No. of Stages	Pump Shaft Screwed U.N.F.	Screwed B.S.P. for Size Pipe				Pump Mass	
	Min. Inside Diam. Casing	mm (in)			Outlet	Inlet	Single Stage	Each Addit. Stage		
	mm	(in)			mm (in)	mm (in)	mm (in)	kg	kg	
LAA	140	(5½)	15	¾ in	80 (3)	100 (4)	100 (4)	16	5	
LAA	140	(5½)	15	¾ in	100 (4)	100 (4)	100 (4)	16	5	
LAB	140	(5½)	15	¾ in	80 (3)	100 (4)	100 (4)	16	5	
LAB	140	(5½)	15	¾ in	100 (4)	100 (4)	100 (4)	16	5	
LAD	140	(5½)	15	¾ in	100 (4)	100 (4)	100 (4)	18	6	
LAD	165	(6½)	15	¾ in	125 (5)	100 (4)	100 (4)	18	6	
LAF	142	(5½)	12	¾ in	100 (4)	100 (4)	100 (4)	19	7	
LAF	165	(6½)	12	¾ in	125 (5)	100 (4)	100 (4)	19	7	
LAH	178	(7)	See Note	1 in	100 (4)	125 (5)	125 (5)	25	10	
LAH	178	(7)	See Note	1 in	125 (5)	125 (5)	125 (5)	25	10	
LAJ	192	(7½)	6	1 in	150 (6)	150 (6)	150 (6)	37	16	

Note: Maximum number of stages for LAH is 5 using 19 mm (¾ in) drive shaft and 12 using 25 mm (1 in) diam. shaft.

APPROXIMATE MASS:

Column Pipe and Shaft:

3 m x 80 mm (3 in) x 19 mm (¾ in)	35 kg	3 m x 125 mm (5 in) x 19 mm (¾ in)	60 kg
3 m x 100 mm (4 in) x 19 mm (¾ in)	46 kg	3 m x 125 mm (5 in) x 25 mm (1 in)	65 kg
3 m x 100 mm (4 in) x 25 mm (1 in)	52 kg	3 m x 150 mm (6 in) x 25 mm (1 in)	75 kg

Discharge Head: 81 kg

Electric Motor Drive Head (with totally enclosed fan cooled electric motor):

3.0 kW 70 kg	4.0 kW 80 kg	5.5 kW 87 kg
7.5 kW 107 kg	11.0 kW 149 kg	15.0 kW 154 kg
18.5 kW 169 kg	22.5 kW 219 kg	30.0 kW 279 kg
	37.0 kW 314 kg	

Vertical Belt Drive Head (less pulley): 37 kg

Angle Gear Drive Head (less pulley):

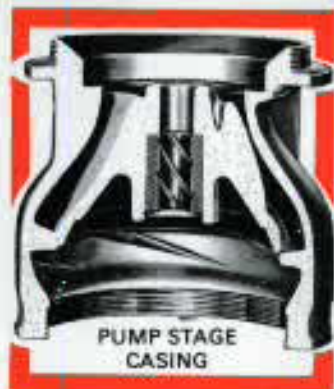
LFC 11 kW 110 kg	LFD 26 kW 120 kg	LFE 45 kW 138 kg
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Pulleys: Flat 127 mm Dia. x 203 mm Face 18 kg	Vee 152 mm PCD x 5B Grooves 17 kg
Flat 178 mm Dia. x 127 mm Face 27 kg	Vee 178 mm PCD x 5B Grooves 18 kg
Flat 229 mm Dia. x 152 mm Face 27 kg	Vee 229 mm PCD x 5C Grooves 27 kg

specifications

PUMP STAGE CASINGS:

Of cast gunmetal construction with water passages and guide vanes specially designed for smooth flow and efficient guiding of water between stages. Fitted with water lubricated neoprene rubber drive shaft bearing.



PUMP INLET AND OUTLET CASTINGS:

Of cast gunmetal designed to give turbulence-free entry and exit of water to and from pump stages. Fitted with water lubricated neoprene rubber and lead bronze bearings.

PUMP STRAINER:

Conical-shaped strainer of stainless steel of ample capacity, with gunmetal ring.

PUMP IMPELLERS:

Non-overloading type of impellers to protect the electric motor or engine from overload in cases where a drop in pressure or head occurs. Enclosed impellers of cast gunmetal, fully machined on outside and with finely finished waterways for smooth flow and improved efficiency. Advantages of the fully enclosed impellers are that the vanes are less subject to wear, the position of the impellers in the stage casings is not so critical as with open type impellers and the impellers do not need continual adjustment to maintain maximum efficiency. Held to drive shaft by tapered split collars giving secure fastenings.



COLUMN PIPE:

Rolled and welded steel piping of heavy section with ends accurately machined and screwed to give butt jointing with a resulting smooth pipe interior. Supplied in 3m lengths of two 1.5m sections with drive shaft bearing spider securely clamped between 1.5m sections by strong steel screwed coupling.

DRIVE SHAFT BEARING SPIDERS:

One-piece gunmetal casting. The bearing retainer is connected by three equally spaced arms to an outer ring. The outer ring thickness is accurately machined so that the ends of the column pipe butt against the outer ring of the spider allowing a smooth non-turbulent flow of water up the pipe. Securely held in each spider is a water lubricated neoprene rubber drive shaft bearing.

DRIVE SHAFT:

Solid bright shaft of stainless steel in 3m lengths. Ends accurately machined and screwed to ensure a butt fit on the shaft ends inside the joining couplings.



DISCHARGE HEAD:

Of cast iron construction fitted with outlet flange and 1.5m length of column pipe, grease lubricated packing gland with lantern ring and graphited packings and with a tapped hole for connecting to pre-lubricating tank when necessary. Top flange machined and spigotted to take driving head.

While every care was taken in the preparation of this leaflet the illustrations and specifications are not binding in detail and are subject to change without notice. Of necessity we reserve the right to make product improvement and alterations without updating descriptive literature. — Publication date April 1988.

driving heads

SOUTHERN CROSS offers a range of three driving heads for turbine pumps — vertical shaft electric motor drive head (with solid shaft or hollow shaft motor), vertical vee or flat belt drive head, and right angle gear drive head — allowing pumps to be driven from most types of power sources.



ELECTRIC MOTOR DRIVE HEAD

Consists of standard solid shaft drip proof or totally enclosed fan cooled electric motor, 415 volt, 50 cycle, 3 phase 2950 r.p.m. (approx.) flange mounted on electric motor drive head bracket which incorporates a non-reverse ratchet to prevent reverse rotation of pump when it is stopped. The head also houses a grease lubricated thrust bearing and flexible shaft coupling.

Motor sizes from 3 to 37 kW are available. Hollow shaft motors which include thrust bearings and non-reverse ratchet are available but are more expensive than the electric motor drive head with standard solid shaft electric motor.



VERTICAL BELT DRIVE HEAD

Consists of a vertical hollow spindle bearing housing fitted with heavy duty, oil lubricated thrust bearings of ample capacity and non-reverse ratchet to prevent reverse rotation of pump when it is stopped. Pulleys available: 127 mm dia. x 203 mm Face Flat Belt Pulley, 152 mm P/D x 5 "B" Groove Vee Belt Pulley.

kW Ratings:
26 kW for Straight Vee Drive.
18.5 kW for 1/4 Twist Vee Drive.
11 kW for Straight or 1/4 Twist Flat Belt Drive.



RIGHT ANGLE GEAR DRIVE HEAD

Cast iron housing fitted with bevel gears mounted on double row ball bearings of ample capacity. Gear ratio 1:2. Incorporates vertical hollow spindle and non-reverse rotation of pump when it is stopped. Bearings and gears are pressure lubricated by small centrifugal pump pumping from oil reservoir in drive head. Oil is cooled by spiral copper tube in reservoir carrying water by-passed from pump discharge.

Three sizes: 11 kW, 26kW and 45kW.

Pulleys Available:

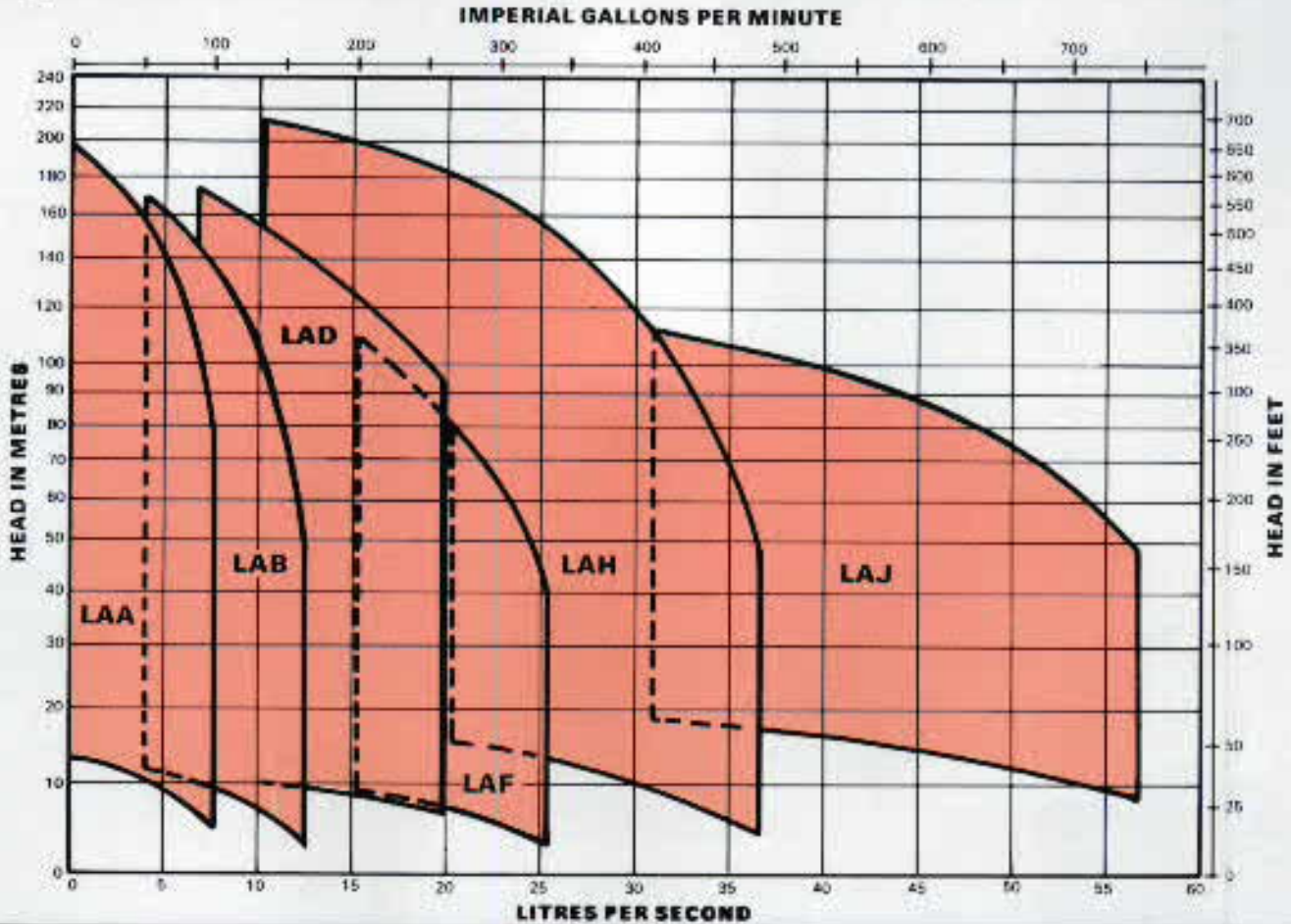
11 kW Drive,
178mm Dia. x 127 mm Face Flat Pulley,
178mm P/D x 5 "B" Groove Vee Pulley.
26 kW Drive,
229mm Dia. x 152 mm Face Flat Pulley,
229mm P/D x 5 "C" Groove Vee Pulley.
Pulleys for 45kW will be made as required.

NOTE: The drive heads shown above are illustrated with discharge head and concrete foundation block.

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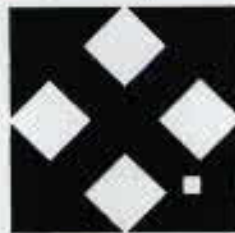
VERTICAL SHAFT DRIVEN TURBINE PUMPS

pump selection table . . . speed 2900 R.P.M. . . .



warranty

The Company agrees with the original purchaser of each SOUTHERN CROSS Turbine Pump that at any time within twelve months from the date of despatch of such pump by the Company, the Company will supply new part or parts without charge at the original point of despatch to replace any part or parts which, on return freight prepaid, prove to the satisfaction of the Company to be defective in material or workmanship, and providing the unit is installed and maintained in accordance with the instruction manual. Parts not manufactured by the Company carry the warranty, if any, given by the original manufacturer. Whilst the Company stands behind its own warranties, it cannot accept any responsibility or make any allowance for any consequential damages or any other expenses incurred. This warranty does not exclude rights conferred under State or Commonwealth Legislation.



SOUTHERN CROSS

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