

GET MORE WATER AT LOWER COST

SOUTHERN CROSS

SHAFT-DRIVE

VERTICAL TURBINE PUMP

*A non-corrosive, high capacity pump
with average peak efficiency of 75%*

SOUTHERN CROSS has in its large range of pumping equipment, a series of shaft drive, vertical turbine pumps which will cover the need for greater quantities of water at low operating cost. With a backing of more than 90 years of experience in manufacturing, selling and servicing water supply equipment, you can have every faith in the operation and workmanship of these pumps.

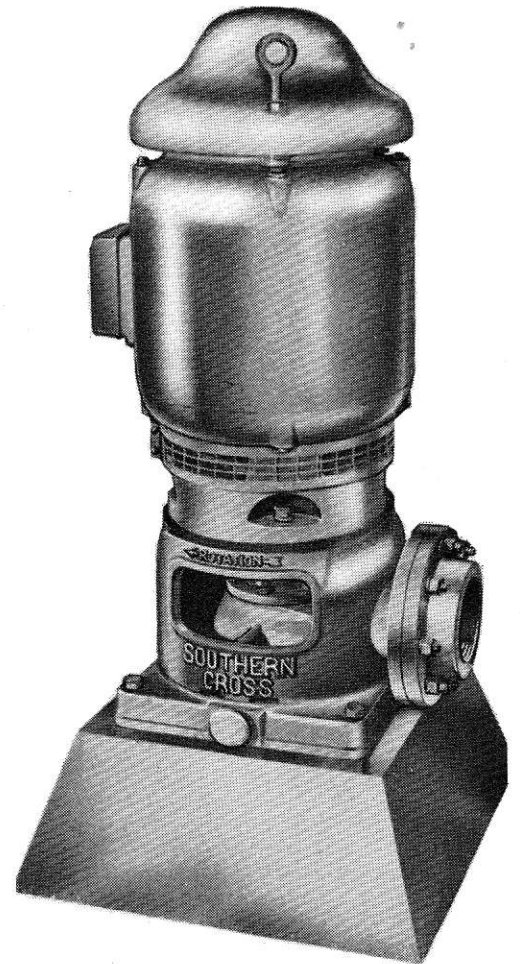
The operation is simple. A series of centrifugal impellers is located below the water level and connected to a vertical shaft which extends through a discharge tee, or head, at the surface. This shaft, in turn, is rotated by a drive, either a vertical shaft electric motor, a belt drive from an engine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

SOUTHERN CROSS Turbine Pumps have been designed with non-overloading type of impellers. This protects the electric motor or engine from overload in cases where a drop in pressure or head occurs. This is particularly useful for such jobs as irrigation work.

NOTE THESE FEATURES

incorporated to give you reliable, efficient and economical service over many years.

- Non-corrosive stainless steel drive shaft throughout allows use of smaller diameter shafting with less friction losses.
- Non-corrosive pump is of all gunmetal construction with stainless steel shaft.
- 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 5ft. of column pipe.
- Good bearing qualities of water lubricated bearings and highly polished stainless steel shaft result in very low power loss due to friction.
- Non-reverse ratchet in driving head 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.
- Servicing can be carried out in the field.



THESE ARE THE SOUTHERN CROSS TURBINES AVAILABLE

Pump	Capacity	Size Casing Pump Will Fit
	G.P.H.	
Mark LA-C type "A"	3,800 to 5,600	6in. and larger
Mark LA-C type "B"	5,200 to 8,200	6in. and larger
Mark LA-D	8,800 to 14,200	6in. and larger
Mark LA-F	13,000 to 15,800	6in. and larger
Mark LA-H	13,000 to 25,000	8in. and larger
Mark LA-J	22,000 to 40,000	8in. and larger

THE PUMPING TABLES (PAGE 64) FOR EACH SIZE TURBINE PUMP SHOW CAPACITIES WHICH ARE FOR EFFICIENCIES OF 60% OR MORE, BUT THE AVERAGE PEAK EFFICIENCY IS 75%. FOR THE MOST ECONOMICAL RUNNING THE PUMPS SHOULD BE USED NEAR THEIR HIGHER EFFICIENCIES.

IT'S THE EFFICIENCIES THAT COUNT

SOUTHERN CROSS Turbine Pumps have been built with the idea that their efficiencies must be good — so that the cost of pumping large quantities of water is reduced to a minimum.

To get top efficiencies, waterways must be finely finished to lessen water friction, design must be correct and bearing friction must be reduced to the lowest limit. ALL these features are built into every SOUTHERN CROSS Turbine Pump — plus the fact that the pumps are non-corrosive.

With the correct pump it is possible to save tremendously on operating costs, a saving that keeps on building up — so it is important that whenever you have a pumping job you look for SOUTHERN CROSS.

THIS IS WHAT A SOUTHERN CROSS TURBINE PUMP COMPRISES

The pump itself, made up of the correct number of stages to deliver water against the required head, plus a suction strainer.

The column pipe and stainless steel drive shaft, connecting the pump to the driving head.

The discharge tee, or head, at the top of the bore.

The driving head —

Either a vertical, flange mounted hollow shaft electric motor, or

A vertical belt drive head for flat or vee belt drive, to be driven by an engine or electric motor, or

A 2 : 1 ratio, right angle gear drive head to be driven by a tailshaft from an engine or tractor or to be driven by a belt drive.

EXTRAS WHICH ARE AVAILABLE

- (1) PRE-LUBRICATION TANK AND FITTINGS : This is required to pre-lubricate the bearings before starting when static water level is over 50ft. below ground level.
- (2) AIR LINE GAUGE AND FITTINGS : This is used for measuring the standing water level in the bore while pumping.

NETT WEIGHTS (Approx.)

	LAC types A & B	LAD	LAF	LAH	LAJ
Pump — Single Stage	36lb.	39lb.	41lb.	54lb.	82lb.
Each Additional Stage	12lb.	13½lb.	15lb.	23lb.	35lb.
Column Pipe:					
10ft. x 3" x ¾" shaft	—	76lb.	10ft. x 5" x ¾" shaft	—	132lb.
10ft. x 4" x ¾" shaft	—	101lb.	10ft. x 5" x 1" shaft	—	144lb.
10ft. x 4" x 1" shaft	—	114lb.	10ft. x 6" x 1" shaft	—	166lb.

Discharge Head: 178lb.

Electric Motor:					
3HP	—	130lb.	25HP	—	420lb.
5HP	—	195lb.	30HP	—	440lb.
7½HP	—	205lb.	35HP	—	560lb.
10HP	—	255lb.	40HP	—	608lb.
12½HP	—	268lb.	45HP	—	654lb.
15HP	—	386lb.	50HP	—	670lb.
20HP	—	402lb.			

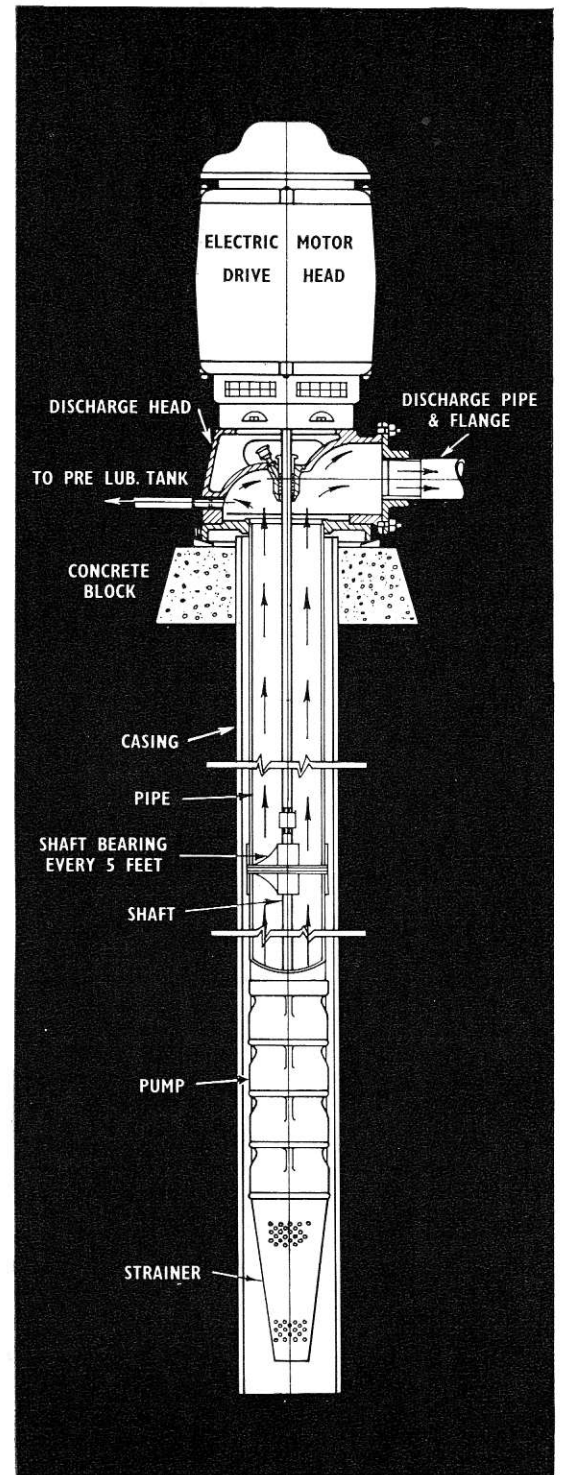
Belt Drive (less Pulley) (for up to 20H.P.): 82lb.

2 : 1 Angle Gear Drive (less Pulley) LF-C 15H.P.: 242lb.

2 : 1 Angle Gear Drive (less Pulley) LF-D 35H.P.: 265lb.

2 : 1 Angle Gear Drive (less Pulley) LF-E 60H.P.: 305lb.

Pulleys:							
Flat	5" Dia. x 8" Face	—	40lb.	Vee	6" PCD x 5B Grooves	—	38lb.
	7" Dia. x 5" Face	—	40lb.		7" PCD x 5B Grooves	—	40lb.
	9" Dia. x 6" Face	—	60lb.		9" PCD x 5C Grooves	—	60lb.

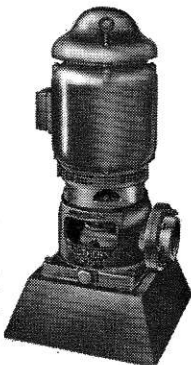


DRIVING HEADS —

There are three different types of Driving Heads available:—

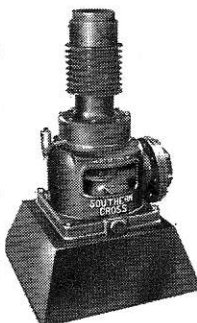
ELECTRIC MOTOR DRIVE

Consists of special, vertical, hollow spindle, electric motor, 415 volt, 50 cycle, 3 phase, 2945 R.P.M. (approx.) fitted with non-reverse ratchet to prevent reverse rotation of the pump when it is stopped, and heavy duty grease lubricated thrust bearings of ample capacity.



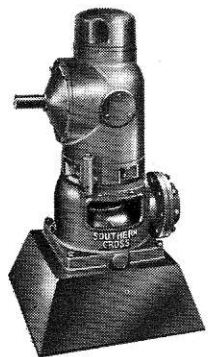
VERTICAL BELT DRIVE

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: 5in. dia. x 8in. Face Flat Belt Pulley. 6in. P/D x 5 "B" Groove Vee Belt Pulley.



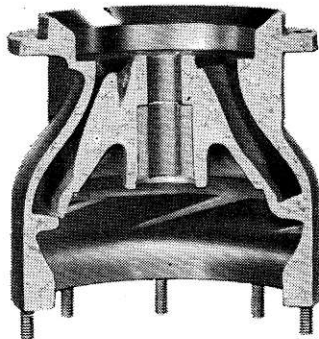
RIGHT ANGLE DRIVE

Cast iron housing fitted with special bevel gears mounted on double row ball bearings of ample capacity. Gear ratio 2 : 1. Incorporates vertical hollow spindle and non-reverse ratchet to prevent reverse rotation of pump when it is stopped. Bearings and gears 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:** 15 H.P., 35 H.P., and 60 H.P. **Pulleys available:** 7in. Dia x 5in. Face Flat Pulley, 15 H.P. Drive. 7in. P/D x 5 "B" Groove Vee Pulley, 15 H.P. Drive. 9" Dia. x 6" Face Flat Pulley, 35 H.P. Drive. 9" P/D x 5 "C" Groove Vee Pulley, 35 H.P. Drive. Pulleys for 60 H.P. drive will be made as required. Common to all these Drive Heads is the hollow shaft through which the pump drive shaft passes and which is fitted to the driving head by means of a key and nut. This allows simple installation and adjustment of impeller clearance in the pump.

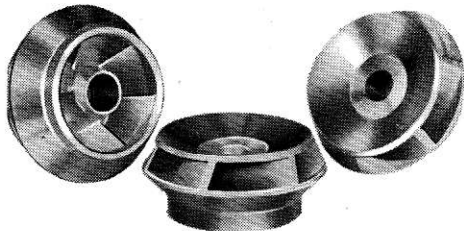


SOUTHERN CROSS TURBINE PUMP SPECIFICATIONS

PUMP STAGE CASINGS : Of heavy 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 IMPELLERS : 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 with no possibility of impellers loosening.



PUMP STRAINER : Conical-shaped strainer of bronze fabricated perforated sheet of ample capacity.

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 bearings.

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 10 ft. lengths of two 5 ft. sections with drive shaft bearing spider securely clamped between ends of pipe by strong steel screwed coupling.

DRIVE SHAFT BEARING SPIDER : One-piece gunmetal casting. The bearing retainer is connected by three equally spaced arms to an outer ring which is accurately threaded to engage the threads in the column pipe coupling. The outer ring thickness is accurately machined so that the ends of the column pipe butt against the outer ring of the spider. The inside of the ring is the same diameter as the pipe, 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 10 ft. lengths. Ends accurately machined and screwed to ensure a perfect butt fit of the shaft ends inside a stainless steel coupling.

DISCHARGE HEAD : Of heavy cast iron construction fitted with outlet flange and 5ft. 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.



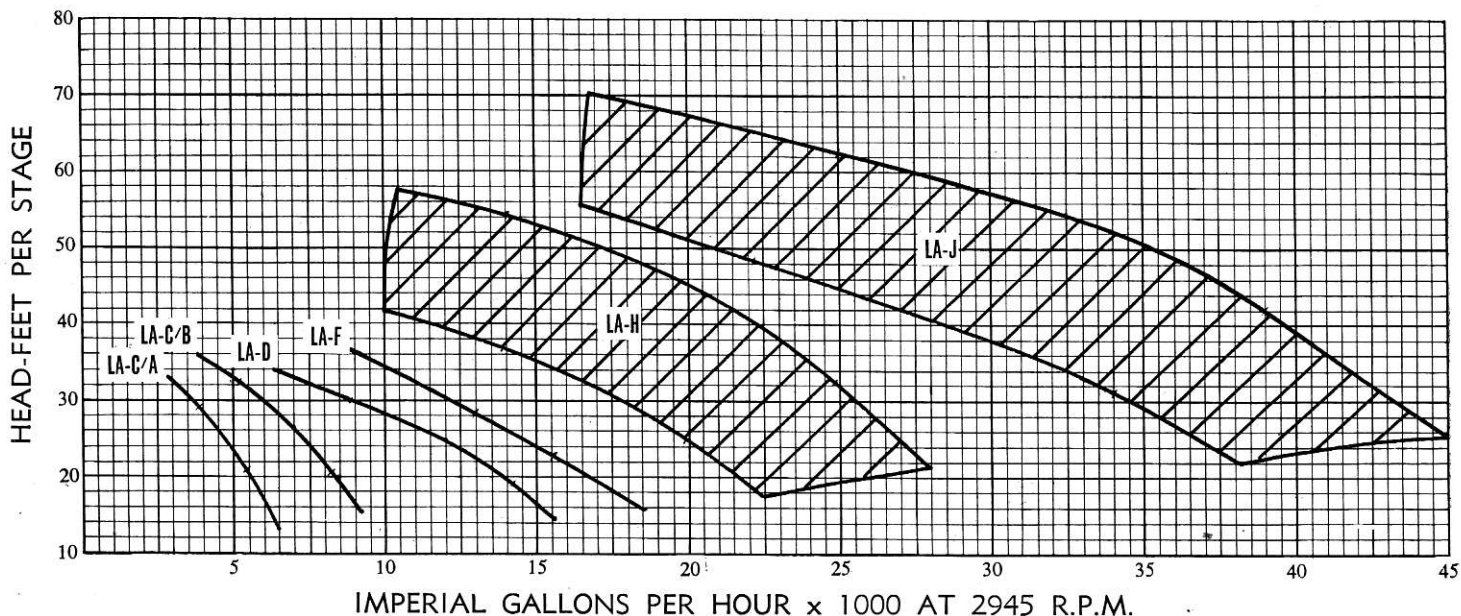
DRIVING HEADS : See page 63 for details.

INSTRUCTION BOOK : An Instruction Book is supplied with each pump setting out installation and maintenance procedure.

PUMPING TABLE FOR SOUTHERN CROSS TURBINE PUMPS

The capacities shown are for efficiencies of 60% or more. However, the average peak efficiency is 75%.

The shaded areas for the LA-H and LA-J Pumps cover the capacities available with different sizes of impellers.



MARK LA-J TURBINE PUMP

(Parts Illustration No. 1)

Sym. No.	Name of Part.	Number Off.						
		No. of Pump Stages.						
		1	2	3	4	5	6	7
LA-J 1	Impeller — 5 15/6in. Dia. (As Req'd, Max. 5/Pump)	—	—	—	—	—	—	—
LA-J 2	Impeller Sleeve	1	2	3	4	5	6	7
LB-E 2	Column Pipe Coupling — 6in.	1	1	1	1	1	1	1
LA-J 4	Pump Shaft	1						
LA-J 5	Pump Shaft		1					
LA-J 6	Pump Shaft			1				
LA-J 7	Pump Shaft				1			
LB-E 7	Outlet Bearing Housing	1	1	1	1	1	1	1
LA-J 8	Pump Shaft					1		
LA-J 9	Pump Shaft						1	
LA-J 10	Pump Shaft							1
LA-J 14	Impeller — 5 5/8in. Dia. (As Req'd — Max. 5/Pump)	—	—	—	—	—	—	—
LA-J 15	Impeller — 5 1/2in. Dia. (As Req'd — Max. 6/Pump)	—	—	—	—	—	—	—
LA-J 16	Impeller — 5 5/8in. Dia. (As Req'd — Max. 6/Pump)	—	—	—	—	—	—	—
LA-J 17	Impeller — 5 1/2in. Dia. (As Req'd. — Max. 7/Pump)	—	—	—	—	—	—	—
LA-J 21	Inlet Casing	1	1	1	1	1	1	1
LA-J 24	Stage Casing Bearing Bush	1	2	3	4	5	6	7
LA-J 25	Stage Casing Bearing Bush Retaining Circlip	1	2	3	4	5	6	7
LA-H26	Outlet Bearing Bush Sand Flinger	1	1	1	1	1	1	1
LB-C26	Outlet Bearing Retaining Circlip	1	1	1	1	1	1	1
LA-J 27	Inlet Bearing Bush — Bronze	1	1	1	1	1	1	1
LA-H28	Outlet Bearing Bush — Bronze	1	1	1	1	1	1	1
LB-C28	Pump Shaft Coupling	1	1	1	1	1	1	1
LA-C29	Inlet Bearing Bush Lubrication Filter	1	1	1	1	1	1	1
LA-J 36	Outlet for 6in. Column Pipe	1	1	1	1	1	1	1
LA-J 41	First Stage Casing	1	1	1	1	1	1	1
LA-J 41	Multi-Stage Casing		1	2	3	4	5	6
LA-H45	Outlet Bearing Bush — Rubber	1	1	1	1	1	1	1
LA-J 53B	Strainer and Connection (if ordered)	1	1	1	1	1	1	1
LA-H54	Warning Label Fixing Strip	1	1	1	1	1	1	1
NB-B89	Warning Plate	1	1	1	1	1	1	1

Mark LA-H TURBINE PUMP

(Parts Illustration No. 1)

Sym. No.	Name of Part.	Number Of.											
		No. of Pump Stages.											
		1	2	3	4	5	6	7	8	9	10	11	12
LA-H 2	Impeller Sleeve	1	2	3	4	5	6	7	8	9	10	11	12
LA-H 3	Impeller — 5 9/32in. Dia. (As Req'd)	—	—	—	—	—	—	—	—	—	—	—	—
LA-H 4	Pump Shaft	1	—	—	—	—	—	—	—	—	—	—	—
LA-H 5	Pump Shaft	—	1	—	—	—	—	—	—	—	—	—	—
LA-H 6	Pump Shaft	—	—	1	—	—	—	—	—	—	—	—	—
LA-H 7	Pump Shaft	—	—	—	1	—	—	—	—	—	—	—	—
LB-C 8B	Outlet Bearing Housing—4in. (As Req'd)	1	1	1	1	1	1	1	1	1	1	1	1
LB-D 8B	Outlet Bearing Housing—5in. (As Req'd)	1	1	1	1	1	1	1	1	1	1	1	1
LA-H 8	Pump Shaft	—	—	—	—	1	—	—	—	—	—	—	—
LA-H 9	Pump Shaft	—	—	—	—	—	1	—	—	—	—	—	—
LA-H10	Pump Shaft	—	—	—	—	—	—	1	—	—	—	—	—
LA-H11	Pump Shaft	—	—	—	—	—	—	—	1	—	—	—	—
LA-H14	Impeller — 5 5/32in. Dia. (As Req'd)	—	—	—	—	—	—	—	—	—	—	—	—
LA-H15	Impeller — 5in. Dia. (As Req'd)	—	—	—	—	—	—	—	—	—	—	—	—
LA-H16	Impeller — 4 1/2in. Dia. (As Req'd)	—	—	—	—	—	—	—	—	—	—	—	—
LA-H17	Impeller — 4 3/4in. Dia. (As Req'd)	—	—	—	—	—	—	—	—	—	—	—	—
LA-H21	Inlet Casing	1	1	1	1	1	1	1	1	1	1	1	1
LA-H22	Pump Shaft	—	—	—	—	—	—	—	—	1	—	—	—
LA-H23	Pump Shaft	—	—	—	—	—	—	—	—	—	1	—	—
LA-H24	Pump Shaft	—	—	—	—	—	—	—	—	—	—	1	—
LA-H25	Pump Shaft	—	—	—	—	—	—	—	—	—	—	—	1
LB-C25	Stage Casing Brg. Bush Retaining Circlip	1	2	3	4	5	6	7	8	9	10	11	12
LB-C26	Outlet Bearing Bush Retaining Circlip	1	1	1	1	1	1	1	1	1	1	1	1
LA-H26	Outlet Bearing Bush Sand Flinger	1	1	1	1	1	1	1	1	1	1	1	1
LA-H27	Inlet Bearing Bush — Bronze	1	1	1	1	1	1	1	1	1	1	1	1
LA-H28	Outlet Bearing Bush — Bronze	1	1	1	1	1	1	1	1	1	1	1	1
LB-C28	Pump Shaft to Drive Shaft Coupling	1	1	1	1	1	1	1	1	1	1	1	1
LA-C29	Inlet Bearing Bush Lubrication Filter	1	1	1	1	1	1	1	1	1	1	1	1
LA-H34B	4in. Column Pipe to Pump Coupling	1	1	1	1	1	1	1	1	1	1	1	1
LA-H35	5in. Column Pipe to Pump Coupling	1	1	1	1	1	1	1	1	1	1	1	1
LA-H36	Outlet — 5in. Column Pipe (As Req'd)	1	1	1	1	1	1	1	1	1	1	1	1
LA-H37	Outlet — 4in. Column Pipe (As Req'd)	1	1	1	1	1	1	1	1	1	1	1	1
LA-H41	First Stage Casing Body	1	1	1	1	1	1	1	1	1	1	1	1
LA-H41	Multi-Stage Casing Body	1	1	1	1	1	1	1	1	1	1	1	1
LA-H45	Stage Casing Bearing Bush	1	2	3	4	5	6	7	8	9	10	11	12
LA-H45	Outlet Bearing Bush — Rubber	1	1	1	1	1	1	1	1	1	1	1	1
LA-H53	Strainer and Connection (if ordered)	1	1	1	1	1	1	1	1	1	1	1	1
LA-H54	Warning Label Fixing Strip	1	1	1	1	1	1	1	1	1	1	1	1
NB-B89	Warning Plate	1	1	1	1	1	1	1	1	1	1	1	1
	Stage Casing Body Sealing Ring (383 002 032/G)	1	2	3	4	5	6	7	8	9	10	11	12