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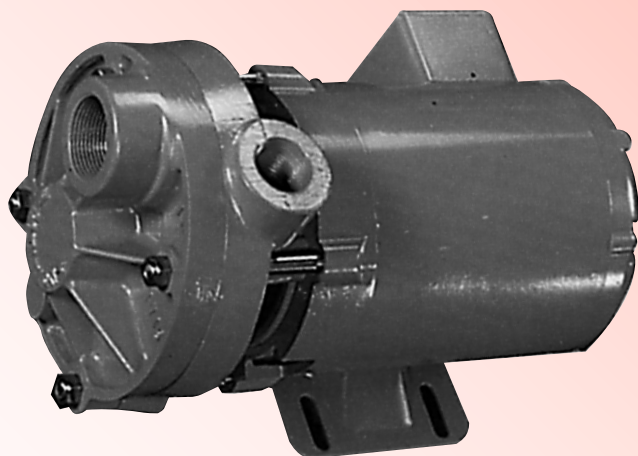
Pride

Quality

Craftsmanship

BULLETIN 131

Revised 6/2023



MODEL T
REGENERATIVE TURBINE PUMPS

SHIPCO®
PUMPS FOR MADE IN THE USA QUALITY YOU CAN COUNT ON!

MODEL T51 REGENERATIVE TURBINE PUMPS

SHIPCO® Model T51 close-coupled and pedestal mounted regenerative turbine pumps represent the best, least expensive alternative for low flow (to 30 GPM) applications involving moderate to high pressures (heads to 700 feet).

Combining latest concepts in turbine hydraulic design with computer controlled manufacturing, state-of-the-art Model T51 Pumps deliver high efficiency performance with low NPSH. Costs are controlled through efficient manufacturing, use of standard motors, lower horsepower for given pressure/capacity requirements, longer life, and easy serviceability.

WATER PASSAGE DESIGN

The Model T51 masters one of the most critical design considerations for regenerative turbines—the shaping of water passageways to achieve highest capacity and pressure with minimum horsepower.

By optimizing water passageway cross-sectional profiles for compatibility with each impeller diameter, **SHIPCO®** improves both efficiency and pressure in the Model T51, exceeding those realized by all previous techniques.

IMPELLER PROFILE

Perhaps the most notable improvement in regenerative turbine pump technology incorporated in Model T51 Pumps involves the ability to determine optimum impeller width versus blade length, which controls the required horsepower versus pressure curve

for regenerative turbine pumps. By optimizing its ratio for each Model T51 Pump, peak efficiency is improved, and “off-peak” horsepower requirements are reduced as well.

IMPELLER BLADES

After the most favorable impeller profile has been determined for a particular water passage cross-section, **SHIPCO®** calculates the number of blades needed to maximize performance of that pump. Blade selection in **SHIPCO®** designed pumps increases both efficiency and design pressure without accepting the manufacturing difficulties associated with producing contoured blade impellers.

State-of-the-art computer controlled machines simplify manufacturing the various **SHIPCO®** impellers utilized in the Model T51. The result is a high performance pump exhibiting efficiency characteristics of much more expensive units.

NPSH REQUIREMENTS

Model T51 regenerative turbine pumps meet low net positive suction head (NPSH) requirements without efficiency loss. **SHIPCO®** Pumps achieve this goal through low inlet fluid velocity and gentle acceleration to passageway velocity. Special ramps promote an almost shockless entry into the impeller blades where fluids reach their maximum velocities. These specially designed ramps account for the greater inlet efficiency in the Model T51 Pumps.

STANDARD MATERIALS

	BRONZE FITTED	ALL IRON	ALL BRONZE	316 STAINLESS STEEL
MOTOR BRACKET	CAST IRON ASTM A48	CAST IRON ASTM A48	BRONZE ASTM B62	STAINLESS STEEL AISI 316
COVER	CAST IRON ASTM A48	CAST IRON ASTM A48	BRONZE ASTM B62	STAINLESS STEEL AISI 316
IMPELLER	BRONZE ASTM A48	STAINLESS STEEL AISI 416	BRONZE ASTM B62	STAINLESS STEEL WAUKESHA 88
SLEEVE	BRONZE ASTM B16	STAINLESS STEEL AISI 316	BRONZE ASTM B16	STAINLESS STEEL AISI 316
“O” RINGS	ETHYLENE PROPYLENE	BUNA N	BUNA N	VITON A
SEALS	NI-RESIST®	CERAMIC	CERAMIC	CERAMIC

LIMITATIONS

Discharge Pressure 300 PSI
Seal Pressure* 200 PSI
Suction Pressure (Min) 26” HG. VAC.
Speed 3600 RPM

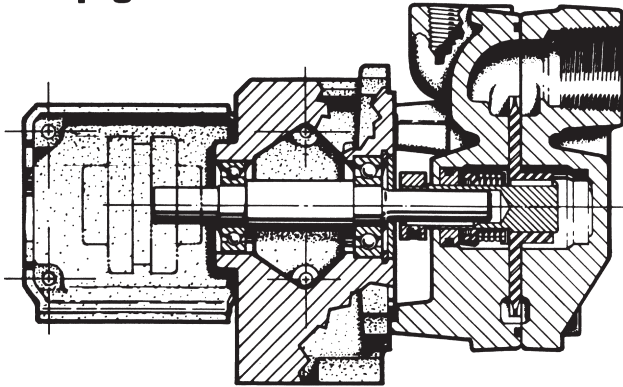
TEMPERATURE:

Standard Construction -20°F
Ceramic Seal Seat—Water +200°F
Ni-Resist® Seal Seat—Water +230°F
Silicon Carbide Seal Seat
and Internal Seal Flush +250°F
Horsepower: C3-P3 3 HP
C15-P15 15 HP

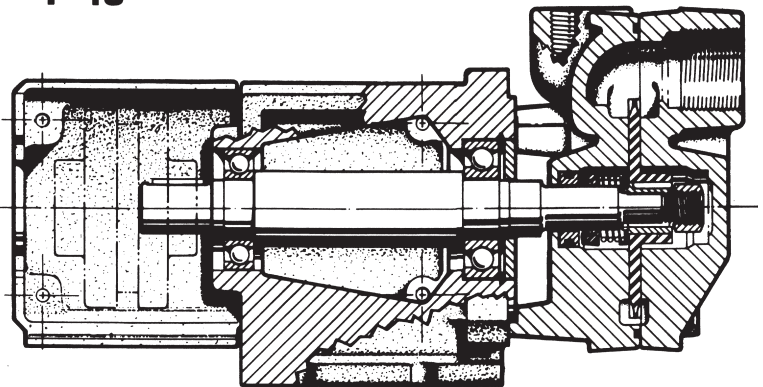
*Suction Pressure: Plus 50% of Differential Pressure

HORIZONTAL PEDESTAL MOUNTED

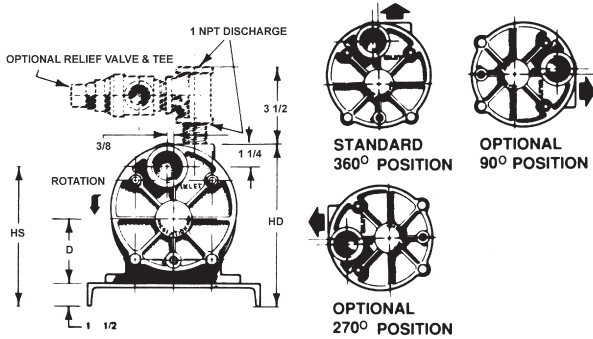
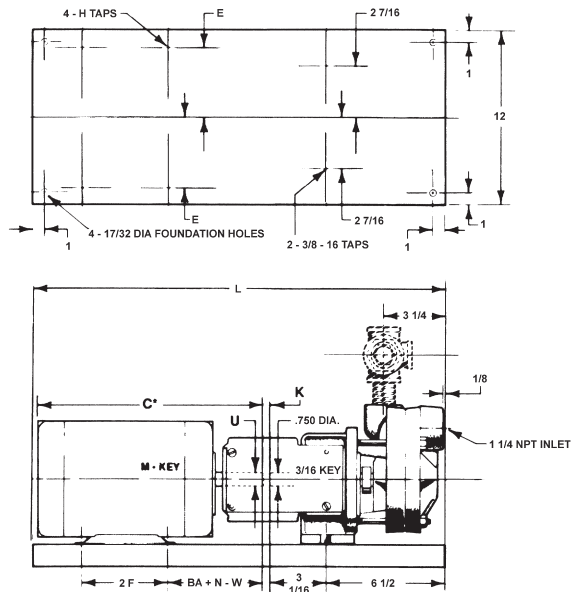
**MODEL
P-3**



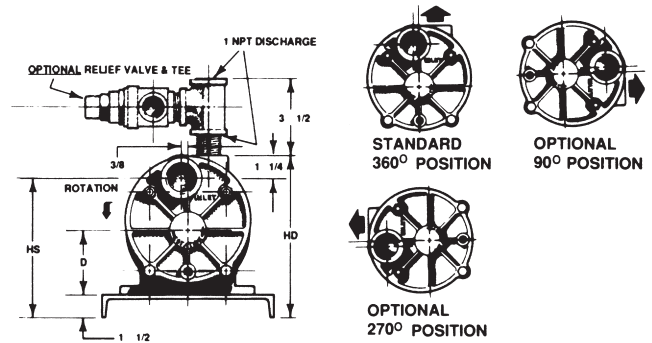
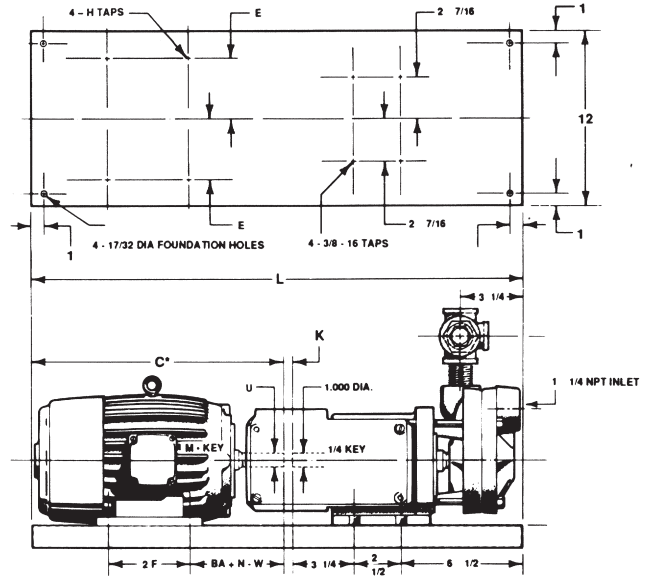
**MODEL
P-15**



DIMENSIONS: (IN INCHES)



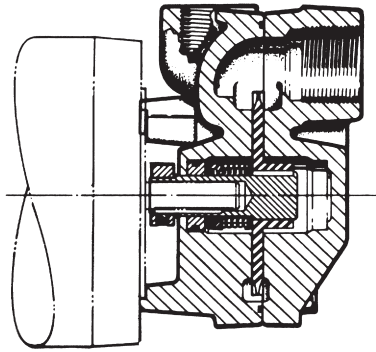
DIMENSIONS: (IN INCHES)



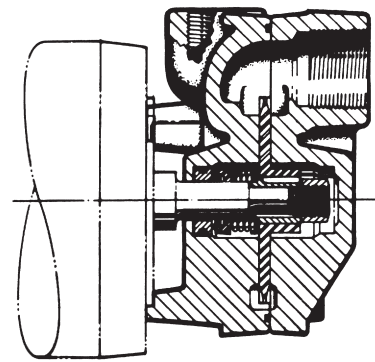
FRAME	D	HD	HS	L (P-3)	L (P-15)
56	3.50	10	8.75	24	
143T	3.50	10	8.75	24	28
145T	3.50	10	8.75	24	28
182T	4.50	11	9.75	26	30
184T	4.50	11	9.75	26	30
213T	5.25	11.75	10.50		33
215T	5.25	11.75	10.50		33

HORIZONTAL CLOSE COUPLED

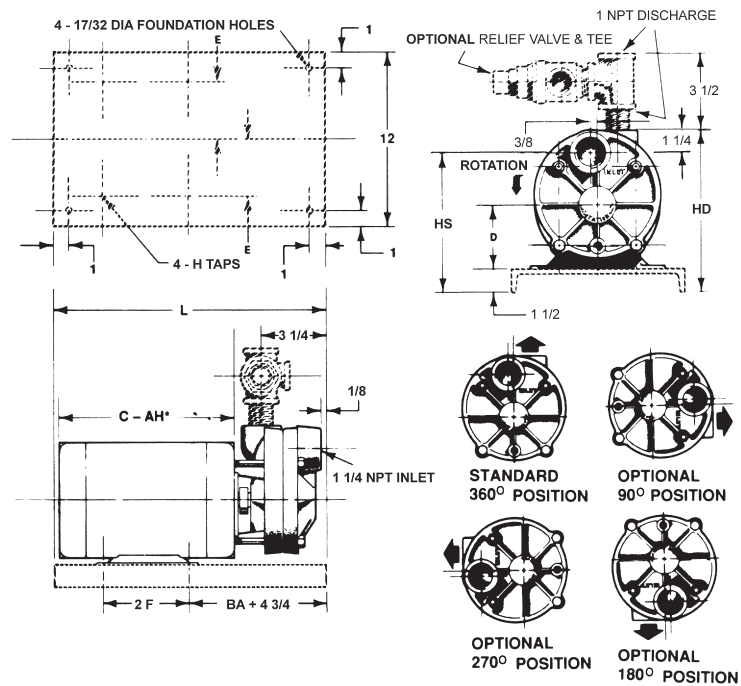
**MODEL
C-3**



**MODEL
C-15**

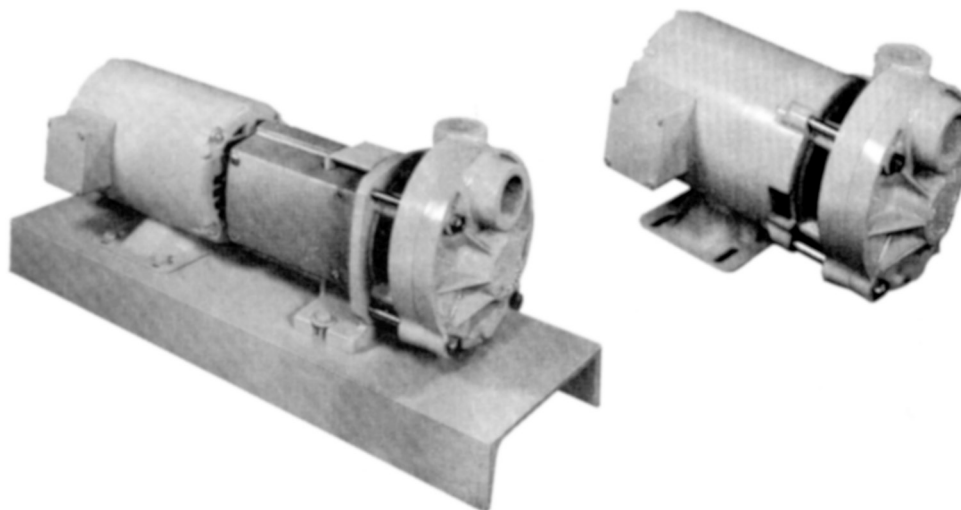


DIMENSIONS: (IN INCHES)



FRAME	D	HD	HS	L	C-AH
56	3.50	10.00	8.75	18	13
143TC	3.50	10.00	8.75	18	13
145TC	3.50	10.00	8.75	18	13
182TC	4.50	11.00	9.75	20	14.50
184TC	4.50	11.00	9.75	20	14.50

DESIGN DETAILS



STANDARD DESIGN FEATURES

Steep Head vs. Capacity Curve Pumping capacity varies only slightly as pressure changes. High Shut-off pressure overcomes temporary line resistance.

Standard Motor Close-coupled Model T51 Pumps use standard “C” face motors. Service and replacement motors up to three horsepower are stock items anywhere in the U.S. and at SHIPCO®.

Self-Adjusting Impeller A hydrodynamic film on each side of the impeller positions it for long life. The impeller exerts no thrust load on bearings. Pump operates equally well in a vertical or horizontal position.

Mechanical Seals Bronze fitted pumps have EPR rubber, high temperature carbon and Ni-resist® seats for best hot water service. Optional seats and materials also available.

300# Case Working Pressure Rigid structure is designed for maximum casing strength.

100% Tested Every pump is fully tested to verify performance prior to shipment.

Volatile Fluid Handling Turbine impeller handles vapors up to 20% by volume, minimizing the possibility of vapor locks.

“O” Ring Gaskets “O” ring seals are used throughout the Model 151 Pumps to assure sealing and ease of service.

Shaft Sleeve Units up to three horsepower have a shaft sleeve under the mechanical seal. Larger units have a 316 stainless steel shaft with an impeller sleeve.

Water Flinger A water flinger provides added protection to ball bearings in the event of seal leakage.

Simple Construction Model T51 Pumps contain only three major components, allowing for easy service.

End Suction Top Discharge. Model T51 Pumps fit into small spaces easily. Discharge can be rotated in 90°, 180° and 270° positions.

Best Efficiency New pump design optimizes efficiency for each size.

Non-Cavitating Model T51 Pumps may be operated under adverse inlet conditions without audible or measurable cavitation.

Low NPSH New inlet design provides superior fluid handling ability at low head inlet conditions.

OPTIONAL DESIGN FEATURES

Construction Materials Bronze fitted, all iron, all bronze, and 316 stainless steel are available stock materials.

Bearing Pedestals All models can be pedestal mounted for flexible drive.

Internal Flush Line Internal passageway flushes mechanical seal seats. When used with the optional silicon carbide seal seat, allows operation in water up to 250°.

External Water Seal Connection Tapped opening can be provided for seal flushing from an external source.