Bulletin ST
October 2005

ST31 • ST41 • ST51 • SM50 • SL50 Series

# Sealless Canned Regenerative Turbine Pumps

- Capacities to 40 GPM
- Heads to 2300 Feet
- Temperatures -120 ~ 266°F (-85 ~ 130°C)

MTH PUMPS

## ST31 • ST41 • ST51 • SM50 • SL50 Series Sealless

# Regenerative Turbine Pumps

### Steep Operating Characteristics
Near-constant fluid delivery is maintained over wide variations in discharge pressure. High shut-off pressures can often overcome temporary line resistances to maintain flow. Superior to Centrifugal pumps when dual speed 50-60 Hertz operation is desired.

### Self-Adjusting Impeller
A hydrodynamic film on each side of the impeller centers it in the casing and minimizes friction, which lengthens pump life. The impeller also exerts no axial thrust load on the bearings. Pump operates equally well in a vertical or horizontal position.

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

### 100% Tested
Every pump is fully tested to verify performance and leak-free operation prior to shipment.

### Volatile Fluid Handling
Turbine impeller can handle vapors in excess of 20% by volume, minimizing the possibility of vapor locks.

### ”O”Ring Gaskets
“O”ring seals are used throughout the canned pumps to assure leak-free operation and ease of service.

### Simple Construction
Canned Sealless pumps have fewer components, allowing for easy service.

### End Suction • Top Discharge
ST31 • ST41 • ST51 Series canned pumps are extremely compact solutions for tight OEM enclosures. Discharge can be rotated in 90, 180, and 270 degree positions.

### Non-Cavitating
Sealless Turbine pumps may be operated under adverse inlet conditions without audible or measurable cavitation if fluid begins to vaporize.

### Best Efficiency
Designs optimize best efficiency for each size.

### Low NPSHR
New inlet designs provide superior fluid handling ability at low head inlet conditions.

### Zero Leakage Sealless Design
Ends down time and maintenance problems associated with mechanical seals. Environmentally safe leak-free design.

### Stainless Steel Construction
All fluid contact surfaces are made of corrosion-resistant materials to eliminate fluid contamination.

### Three Phase Motors
Motors operate at maximum efficiency using 3 phase power at 50/60 Hertz. (2880/3450RPM) Available voltages are 208-230VAC with options for 460VAC. Single phase and other voltages are available. Designed for variable speed operation. Tested for operation between 40 and 90 Hertz. See description below.

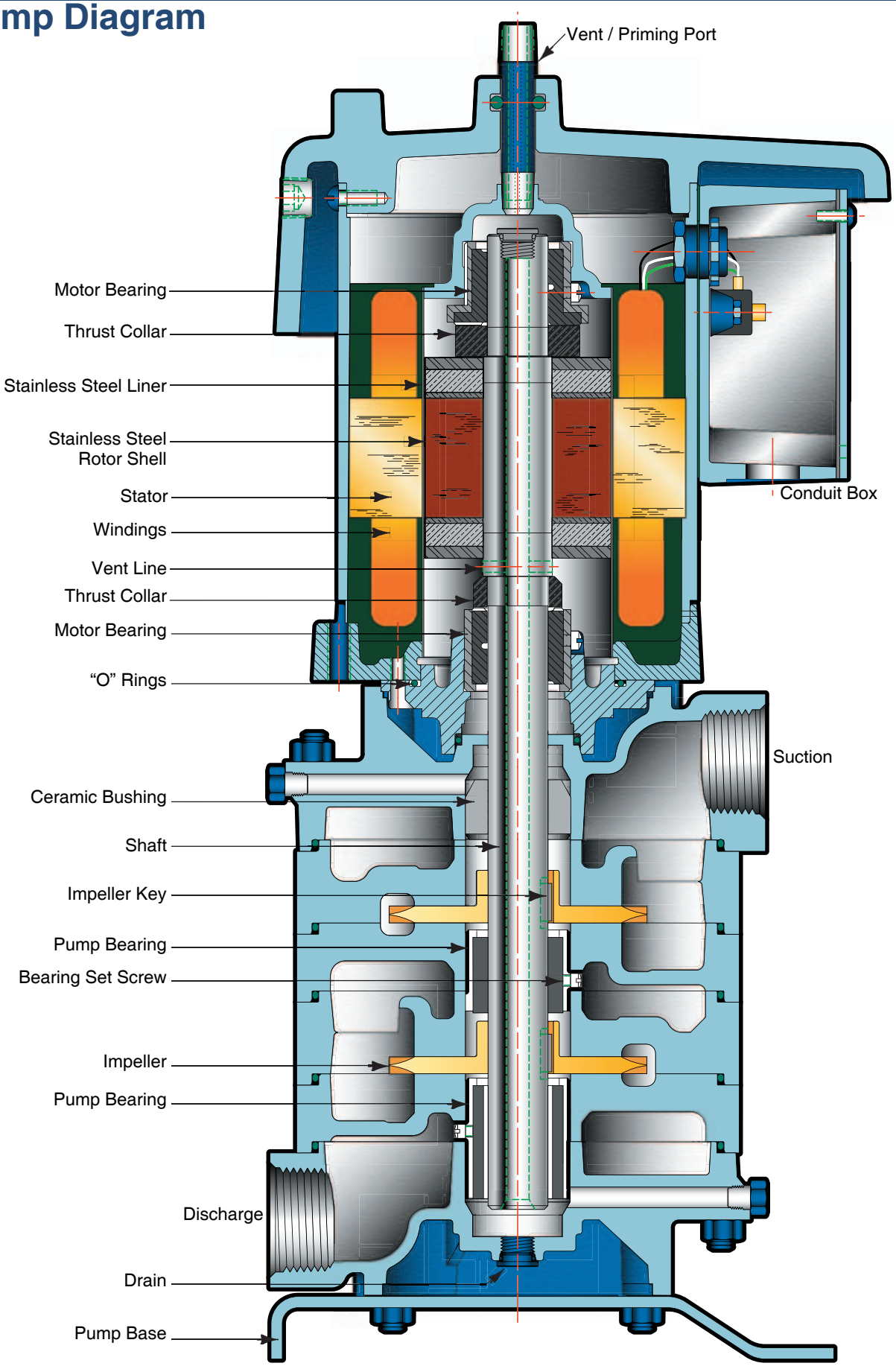
Sealless ST41

Sealless SM51

## Optional Features

### Variable Frequency Controller
Canned Sealless pumps are available with a variable frequency drive and pressure transducer in a completely assembled and tested unit.
This arrangement allows the system to maintain a constant preset discharge pressure via closed loop control over pump motor speed, and also eliminates costly and often troublesome pressure relief valves and their associated plumbing problems.
This package is particularly helpful to OEM manufacturers whose equipment is exported to countries utilizing 50 Hertz electrical supply systems.
Variable frequency controllers are also available for customer applications where flow, temperature, or other variables need to be maintained.

# Pump Diagram



# Design Specifications

## Standard Materials

| Part | Material |
|---|---|
| Pump Casing | 316 SS |
| Impeller | W88** |
| Rotor Can | 1 Phase - Teflon<br>3 Phase - 316 SS |
| Stator Liner | 316 SS |
| Shaft | 316 SS |
| Bearings | Carbon Graphite |
| "O"-rings | Viton |
| Heat Transfer Material | Ceramic |

Note: Other materials available by special order. **W88 is ASTM A494 Alloy


Sealless ST31

## Performance Range (60Hz)

| Series | Maximum* Capacity (GPM) | Maximum* Pressure (Feet) |
|---|---|---|
| ST31 | 9 | 230 |
| ST41 | 20 | 350 |
| ST51 | 40 | 580 |
| SM50 | 38 | 2300 |
| SL50 | 38 | 2300 |

*Higher capacities and pressures available through the use of a variable frequency drive between 40-90Hz.

## Motor Specifications

| Phase | Poles | Hz | Diameter | Insulation Class | Temperature Range | HP | Voltage*** |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 40 - 90 | 4" | F | -120°F~203°F<br>-85°C~95°C | .33 | 115//208-230 |
| | | | | | | .75 | 115//208-230 |
| 3 | 2 | 40 - 90 | 6" | C | -120°F~266°F<br>-85°C~130°C | .5 | 208-230 |
| | | | | | | 1.5 | 208-230//460 |
| | | | | | | 3 | 208-230//460 |
| | | | | | | 5 | 208-230/460 |
| | | | | | | 7.5 | 208-230/460 |

***Alternate voltages available through the use of a variable frequency drive, or by special order of custom wound motors with a minimum order of 10 units. Please consult factory.

## Mounting Options

Most units available in vertical or horizontal mounting configurations. Suction and Discharge connections are NPT standard, but are also available with SAE, ISO, or BSP threaded ports. ANSI flanges are available by special order. ST Series discharge can be rotated in 90° increments, while the vertical SM Series suction and discharge can be rotated independently in 90° increments in relation to the motor conduit box. Specify with order.

# Application Specifications

Type of Service_____
Fluid Name_____
Suction Pressure_____ Feet of Fluid Head
Maximum Flow_____GPM @ _____Feet Total Dynamic Head
Minimum Flow_____GPM @ _____Feet Total Dynamic Head
Typical Flow_____GPM @ _____Feet Total Dynamic Head
Maximum Fluid Temperature_____°C, °F
Minimum Fluid Temperature_____°C, °F
Typical Operating Fluid Temperature_____°C, °F
Net Positive Suction Head Available_____ Feet
Fluid Head Vapor Pressure_____ Feet at Max. Fluid Temp.
Surface Tension_____Dynes per Sq. Centimeter at Maximum Temp.
Viscosity of fluid_____ at Typical Operating Temp. (Centipoise)
Specific Gravity of Fluid_____ at Typical Operating Temp.
Known Compatible Construction Materials _____
Known Compatible Elastomers for Static Use_____
Known Non-Compatible Elastomers_____
Duty Cycle_____ Starts/Hour, Day, or Continuous
Duty Cycle_____ Hours per Day
Available Voltage_____(115/208-230/460) Phase_____(1 or 3)
Input Frequency_____(50 or 60 Hertz)
Maximum Current Available_____Amps.(Starter or Contactor)



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