



*Specialist for Pumping Technology*

# LS BARGE

**Vertical high flow, self-priming pump**



For more than 60 years the name Ruhrpumpen™ has been synonymous worldwide with innovation and reliability for pumping technology

Ruhrpumpen is an innovative and efficient centrifugal pump technology company and offers operators of Pump Systems, a wide range of quality products. Ruhrpumpen is committed to global excellence with a complete range of Pumps, Fire Pump packages and related products, such as Decoking Systems and Tools to support the core markets, namely Oil & Gas, Petrochemical, Power, Heavy Industry applications, Mining and Water services. The broad product line complies with the most demanding quality specifications and go beyond stringent industry standards such as API, ANSI, Hydraulic Institute, Underwriter's Laboratories, Factory Mutual and ISO 9001.

Ruhrpumpen is a vertically integrated company with its own foundry, machine shop, pump manufacturing plants and service centers. With strategically located manufacturing plants, operating offices and service centers in many parts of the world, Ruhrpumpen truly is a global pump company which also has the strength to focus on the local necessities of each client.

The LS Barge Pump is a vertical self-contained pumping unit that efficiently handles relatively large volumes of liquids including gasoline, fuel oil, and sea water during barge unloading and transfer operations.

The pump is usually installed in a separate cylindrical pump compartment. Since the cargo compartment is practically full when the pump is first started, a positive suction head naturally prevails during initial start. As the fluid level in the cargo compartment is lowered, suction continues to drop until, at extremely low levels, the unit is required to pull a suction lift.

### Benefits

The LS Barge Pump can efficiently handle a relatively large volume of liquids. It is unique that the pump is arranged with a primary self priming stage which, when sealed with liquid, operates as a vacuum pump for exhausting air or vapors from the suction line, resulting in continuous operation without the need of a separate vacuum pump or other auxiliary apparatus.

Less space is required due to vertical orientation and the weight of the pump ensures easy installation. The pump is equipped with a high-speed gasoline or diesel engine, electric motor, or horizontal steam turbine.

Pollution Prevention design helps prevent costly oil spills. Leakage from the mechanical seal or stuffingbox is contained within the discharge head. A sight gage allows visual checks for the presence of liquid without removal of access part covers.

The LS Barge Pump embodies a special primary stage, an air relief and separation chamber, and a deep well pump assembly containing the requisite number of stages to meet predetermined capacity, head, and speed conditions.



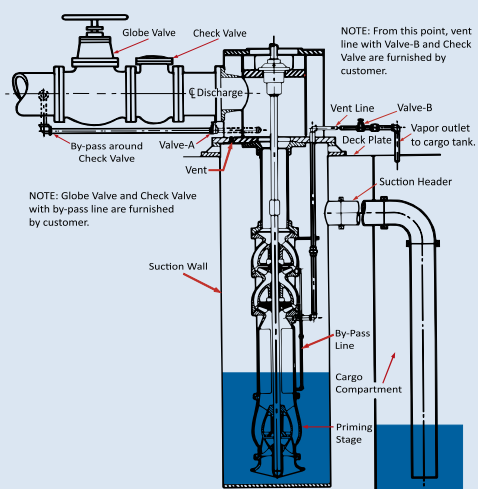
# LS BARGE

## Method of Operation

The four diagrams below illustrate the typical method for stripping a multi-tank barge carrying either single or compatible cargo. Stripping and turnaround times are kept to a minimum with this high efficiency Ruhrpumpen design. Special designs are available when transporting multiple cargo types, or where barge depths exceed 20 feet. Contact your Ruhrpumpen representative for methods of handling your specific needs.

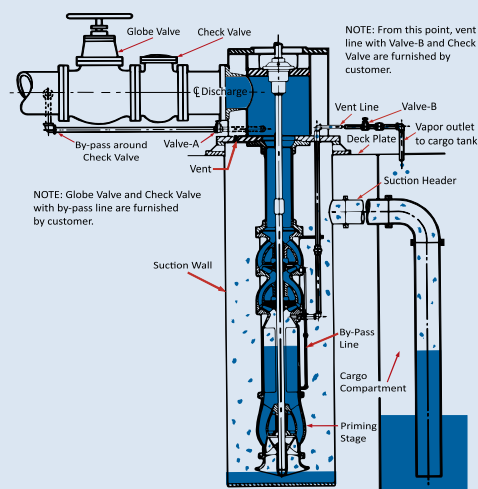
### Position of Liquid Before Starting

Before starting, the suction well must be partially filled with fluid (level shown is approximate). This fluid serves as a seal for the Priming Stage during priming operations.



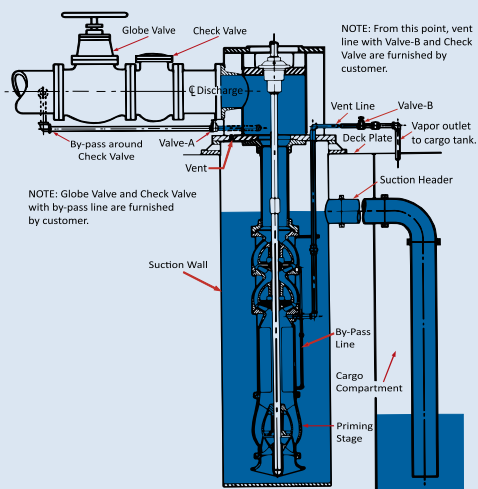
### Priming

Upon starting, the liquid in the suction well is forced to the level shown, sealing the Priming Stage. Vapors are exhausted through the vent line into the Cargo Compartment as the unit primes.



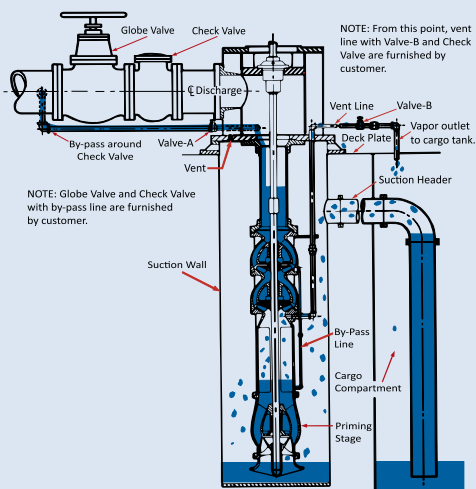
### Normal Operation

During normal operation, bypass line Valve A and vent line B valve are closed. The complete unit is now handling full flow of liquid.



### Stripping

A small amount of sealing liquid slips past the Priming Stage, back into the suction well. Occasionally, with long suction pipes or during prolonged periods of stripping, the sealing liquid must be replenished. This is usually accomplished by opening bypass line valve A, thus permitting liquid to enter from the discharge line.



# VERTICAL HIGH FLOW, SELF-PRIMING PUMPS

## Ruhrpumpen LS Barge Pollution Prevention Design

The Ruhrpumpen Pollution Prevention design accommodates a wide range of liquids used in today's petroleum and chemical industries. Standard pumps (to 6000 barrels per hour) can be assembled from stock components and shipped in a surprisingly short period of time.

### 1 SHAFT COUPLING.

Allows for removal of mechanical seal assembly without removing heavy driver or gear head

### 2 MOTOR SHAFT.

Male and female rabbeted fit for better alignment.

### 3 ACCESS PORT

### TWO 10" I.D. ACCESS PORTS.

These access ports, fitted with covers, allow full maintenance of the mechanical seal without removing the gear head or motor drive. They also allow pumping to continue even while the packing box or seal is leaking.

### 4 DRAIN LINE

### 5 HEAD SHAFT

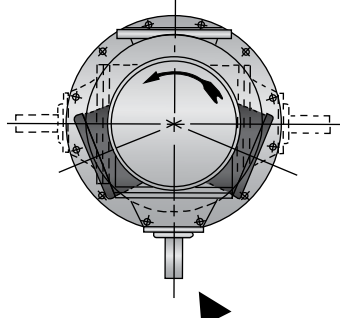
### 6 VAPOR OUTLET

### 7 BLEED OFF STUFFING BOX.

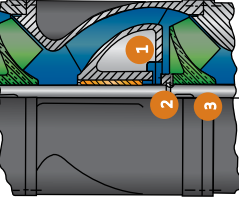
Stainless steel bleed line back to suction.

### 8 COLUMN BEARING.

Pressed into integrally welded spiders for longer life.



### 1 RETAINING RING GUARD



### 2 IMPELLER RETAINER RING.

And split key to provide axial positioning and transmit thrust in either direction.

### 3 IMPELLER KEY

### ALTERNATE CONSTRUCTION.

Keyed series stage impeller construction is available as an optional cost feature for pumping temperatures above 150°F. or below minus 20°F.

**9 PUMP SHAFT.**

Oversize stainless steel.

**10 SERIES IMPELLER.**

Semi-open construction can be adjusted to compensate for wear.

**11 SERIES CASE**

**12 IMPELLER COLLET.**

The time-tested method for impeller positioning while handling ambient temperature liquids.

**13 BYPASS LINE.**

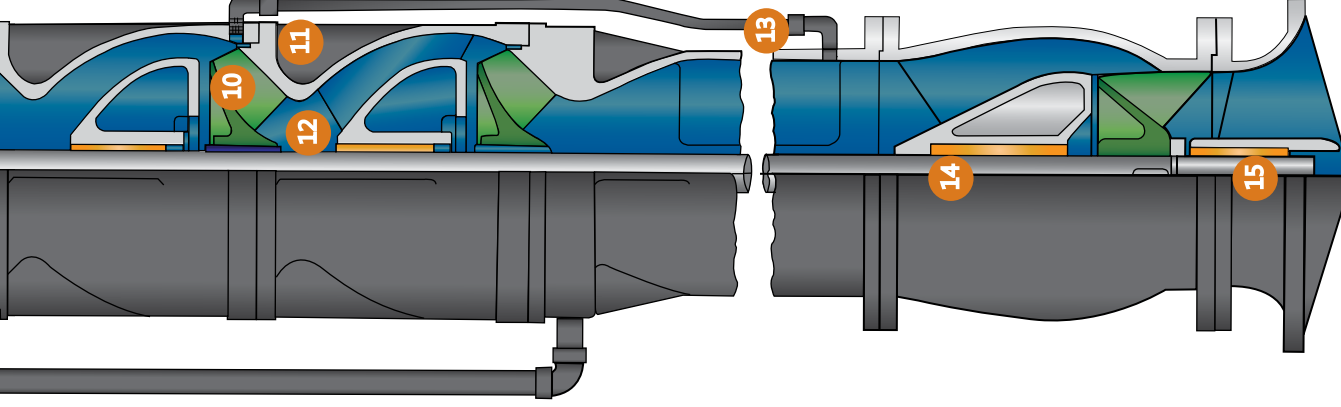
Used during stripping to provide make-up sealing liquids, to priming stage.

**14 STATOR BELL BEARING.**

Stripper stage: all first stage impellers are keyed as standard to resist the hydraulic shock often present in the suction stage.

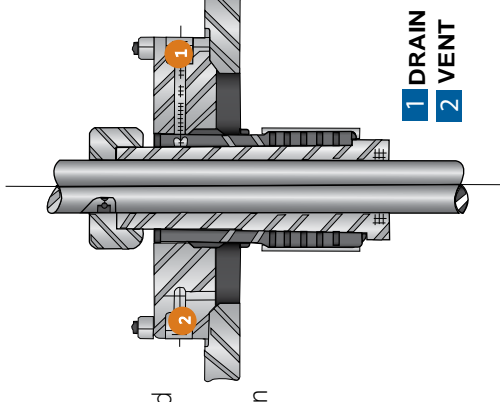
**15 SUCTION BELL BEARING.**

Located below first stage impeller to provide extra lift bearing support in this critical area.



**LONGER SEAL LIFE.**

The balanced mechanical seal is located in full flow of discharge for positive lubrication-cooling and is inherently self-venting and self-cleaning. Tungsten carbide face is standard.



**EASY TO INSTALL.**

Most pumps are shipped completely assembled (less driver and suction barrel). Field installation is simplified.

**LESS DOWNTIME.**

Better bearing construction and shaft alignment is possible because column bearing never exceeds 5' spacing on 1800 RPM applications. All bearing retainers are integrally fabricated into the column section for alignment and concentricity.

**LOWER OVERALL COST.**

Shorter turn-around time is achieved by replacing obsolete reciprocating pumps with Ruhrpumpen high-flow pumps.

**IMPROVED LUBRICATION QUALITY.**

All pumps fabricated by Ruhrpumpen use ASME Code VIII certified welders. Every weld is stamped.

**POLLUTION PREVENTION DESIGN.**

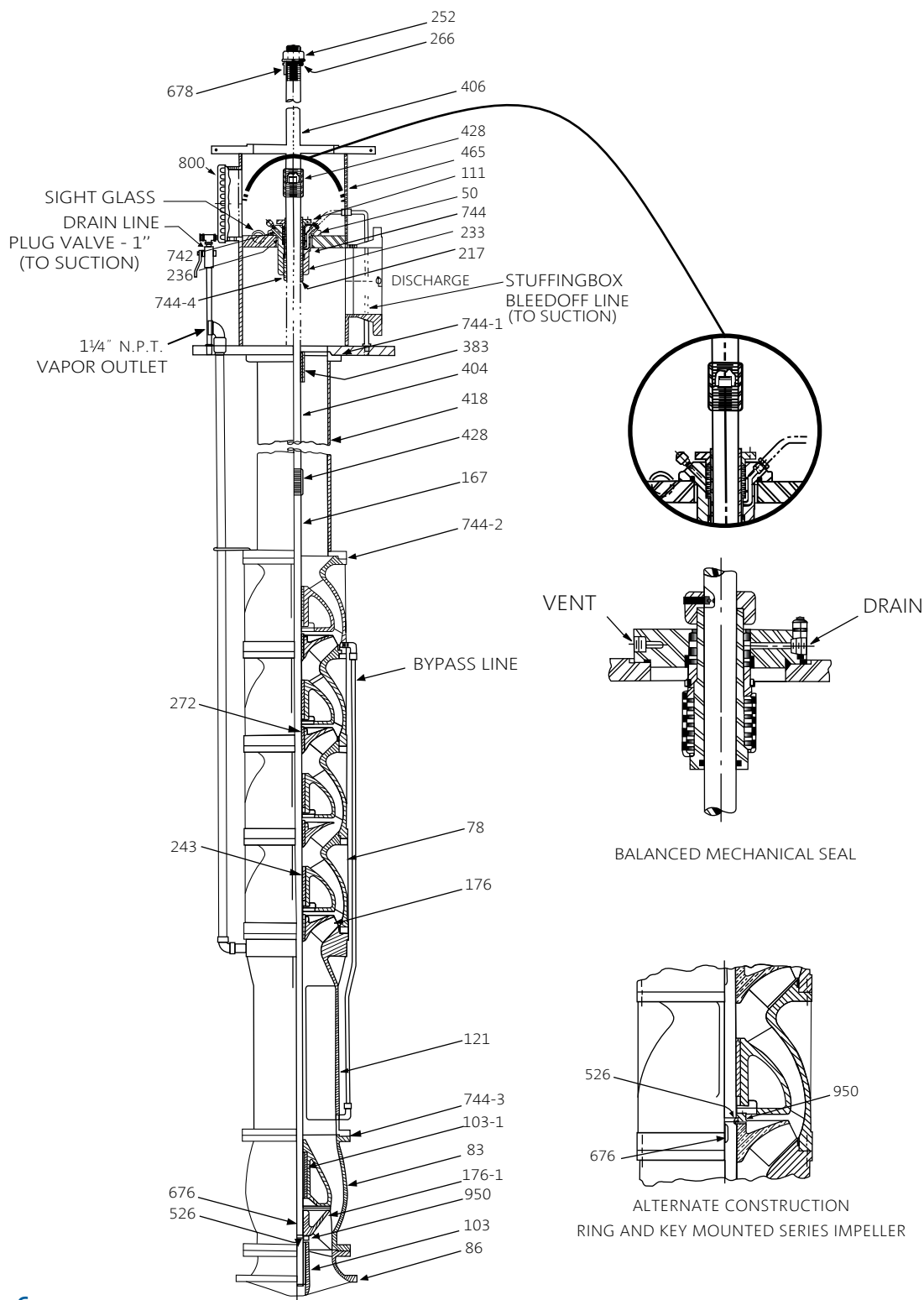
Costly oil spills can be prevented and leakage from the mechanical seal or stuffing-box is contained within the discharge head. A sight glass allows a visual check before access port covers are ever removed. If there is a question of leakage being contained in the head cavity, the manual valve in the drain line can be opened to pipe this leakage back to the suction well. This valve has a spring loaded dead-man handle to ensure the automatic closing. The drain line can be operated while unit is in operation, if necessary.

# VERTICAL HIGH FLOW, SELF-PRIMING PUMPS

## STANDARD MATERIAL SPECIFICATIONS.

The following specifications apply to standard construction although other combinations are possible.

## LS BARGE PUMP Pollution Prevention Design

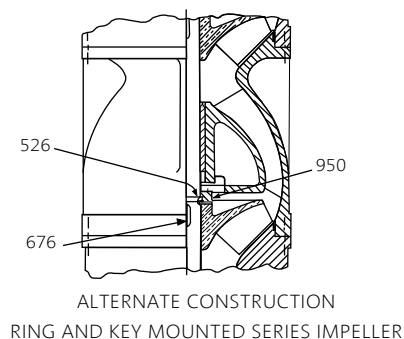


PART NO.	NAME OF PART
50	STUFFINGBOX
78	SERIES CASE
83	STATOR CASE
86	SUCTION BELL
103	BEARING - SUCTION BELL
103-1	BEARING - STATOR BELL
111	GLAND
121	AIR SEPARATOR CHAMBER
167	PUMP SHAFT
176	IMPELLER - SERIES
176-1	IMPELLER - 1st STG.
217	SLEEVE - SHAFT - STUFFINGBOX
233	BEARING - STUFFINGBOX
236	CASE RING
243	BEARING - SERIES CASE
252	NUT - MOTOR SHAFT
266	LOCK SCREW - NUT
272	COLLET
383	BEARING - COLUMN
404	HEAD SHAFT
406	MOTOR SHAFT
418	OUTER COLUMN
428	SHAFT COUPLING
465	DISCHARGE HEAD
526	RETAINING RING - IMPELLER
676	KEY - IMPELLER
678	GIB KEY
742	PACKING
744	"O" RING GASKET - STUFFINGBOX
744-1	GASKET - COLUMN TO HEAD
744-2	GASKET - SERIES CASE
744-3	GASKET - STATOR CASE
744-4	"O" RING GASKET - SLEEVE
800	COVER - ACCESS PORT
950	RETAINING RING GUARD

\*RECOMMENDED SPARE PARTS

### NOTES:

1. BLEED OFF is piped to return connection located 90 from suction flange.
2. All welding is performed by code certified welders.
3. All first stage impellers are keyed and Ni-Resist or standard.



ALTERNATE CONSTRUCTION  
RING AND KEY MOUNTED SERIES IMPELLER



## Other Ruhrpumpen Products



### Horizontal Process Pump

Axially split, horizontal multi-stage centrifugal pump. Near centerline mounted. Heavy duty process design according to API 610 latest edition (BB3).

Refinery, Oil Fields, Petrochemical, and Chemical Applications.



### Fire Pump

Horizontal split case, listed by Underwriters Laboratories Inc. and approved by Factory Mutual.

Water, Hydrocarbons, Chemical Solutions.



### End Suction Fire Pump

Single-stage, radially split casing with flanged connections, enclosed impeller, foot mounted.

Petrochemical, Oil & Gas, Steel Industry, Automotive, Power Generation, Water Treatment, Pharmaceutical and General Process.



### Vertical Axial Flow Pump

Multi-stage vertical centrifugal pump, diffuser type bowl. Axial flow impeller, high efficiency.

Drainage, Waste water, Flood control, Irrigation, Condenser Cooling, and Raw Water intake.



With every project you can count on **QUALITY, SERVICE, EXPERTISE, INNOVATION** and **COMPETITIVENESS**.  
Because we have a commitment to each customer, the community, and the world.  
We are Ruhrpumpen, the specialist for pumping technology!

## +65 years creating the pumping technology that moves our world

Ruhrpumpen is an innovative and efficient pump technology company that offers highly-engineered and standard pumping solutions for the oil & gas, power generation, industrial, water and chemical markets. We offer a broad range of centrifugal and reciprocating pumps that meet and exceed the requirements of the most demanding quality specifications and industry standards such as API, ANSI, UL, FM, ISO and Hydraulic Institute.

