

► The power of proven technology

LS
LSM



Vertical spindle diffuser
Type centrifugal pump



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General design description

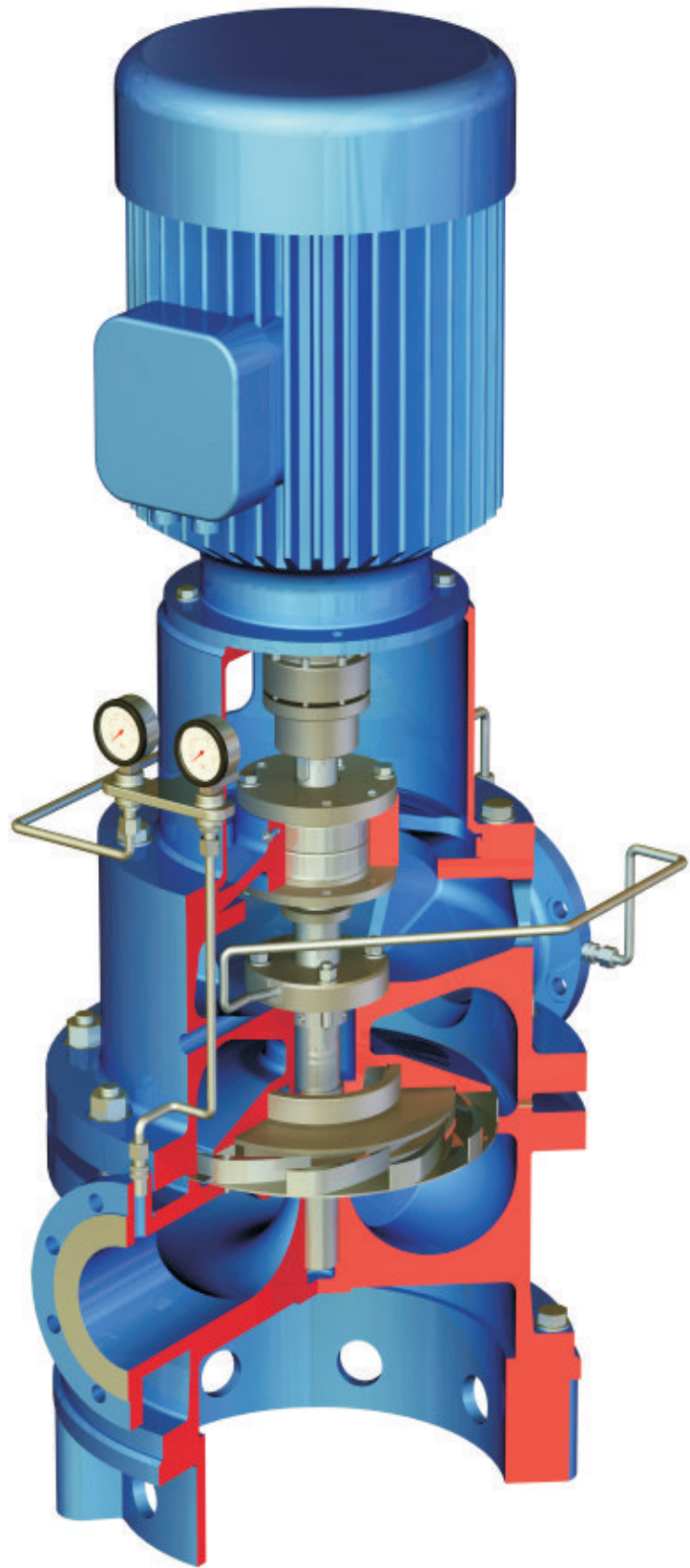
The LS, LSM is a series of vertical centrifugal pumps, suitable for pumping thin, clean or slightly contaminated liquids.

Suction and discharge connections can be mounted in several positions. Together with its vertical build this results in an economic space-saving installation. The LS, LSM is characterised by the compact build of the pump and by the flexible mounting.

The LS version, with spacer-coupling, has the benefit of the Top Pull Out principle, whereas the LSM version has a shorter construction with a standard coupling. Direct mounting to wall or floor is possible.

The availability of several materials and shaft sealings makes LS, LSM a versatile pump with a large application area.

The LS, LSM is a vertical single- or multistage centrifugal pump. The hydraulic field complies with DIN 24255. The space saving construction and the several positions of suction and discharge flange enable flexible mounting even in the smallest locations.





LS



LSM



LS

Pump characteristics

- Vertical space saving construction
- Several positions of suction and discharge flange
- Available in several materials
- High pump efficiency
- Suited for a wide span of duties
- Robust design
- Very rigid shaft construction
- Top Pull Out principle
- Easy maintenance

LS, LSM pumps can be used for thin and clean liquids. The 8 possible suction bend positions and its in-line characteristics makes the LS, LSM an easy-to-connect, versatile pump.

Applications

General industry

LS, LSM pumps can handle fresh water as well as sea water, both clean and slightly contaminated. Their space-saving vertical construction is a great benefit in narrow dimensional machine rooms. Common applications on board ships are for example as a general duty pump. Shipbuilding
Excellent performance.
Modest space needed.

Broad applications in:

- Drinking Water
- Pumping Stations
- Cooling Water Marine
- Process Water



- For transport of clean-, or slight polluted water, where high pump efficiency is required
- Pump-capacity up to 3500 m³/hr and differential head up to 220 m.l.c.



Features and benefits

Feet

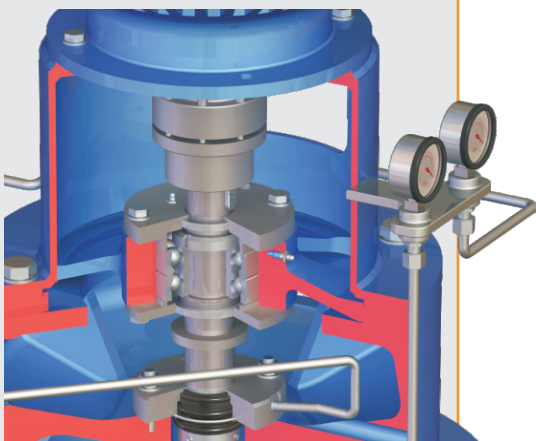
- Machined feet
- Can be omitted for direct floor mounting
- Exact positioning of pump
- Several mounting possibilities

Shaft sealing

- Mechanical seal acc. to DIN 24960
- Externally flushed by the pumped medium
- Standardised seal specifications longer seal life

Bearing

- 2 angular contact ball bearings in
- 'O'-arrangement
- Axially fixed with shaft nut and retaining ring
- Grease lubricated
- Proven arrangement for short shaft constructions
- Reliable bearing fixation, easy replaceable
- Re-greasing possible



Lantern elements

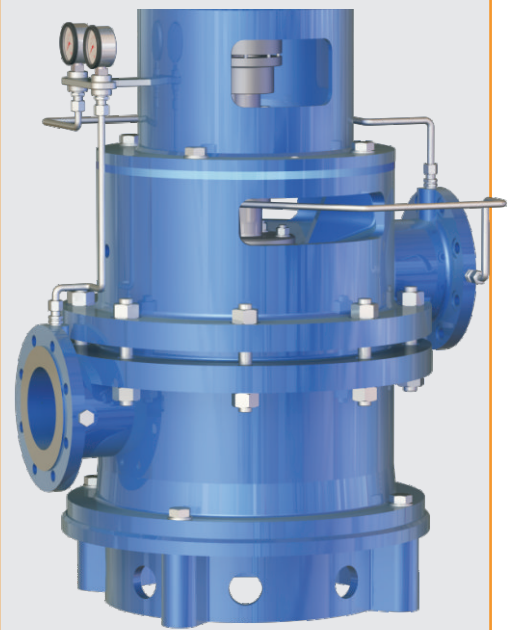
- 6 or 8 rods for smaller types
- 3 profile steel elements for the largest types
- Opening left for mounting/disassembling Top Pull Out-unit

Motor mounting flange

- Adjusting device for exact positioning of motor flange
- Thick machined flange with fitting rim
- Exact alignment of electric motor
- Sturdy, all-machined construction

Suction bend

The suction bend has a very flat construction which reduces the length of the pedestals for the pumpcasing. However, thanks to its special design it has a very low resistance. The suction bend can be mounted in 8 different positions in relation to the pressure connection.



- 8 different mounting positions
- Very flat design
- Low flow resistance
- Flexible mounting
- Space saving
- High pump efficiency

CombiPact

The basic module, consisting of pump cover, bearing and mechanical seal, is also available in a horizontal build.

This compact, space-saving horizontal pump is called CombiPact.

Coupling

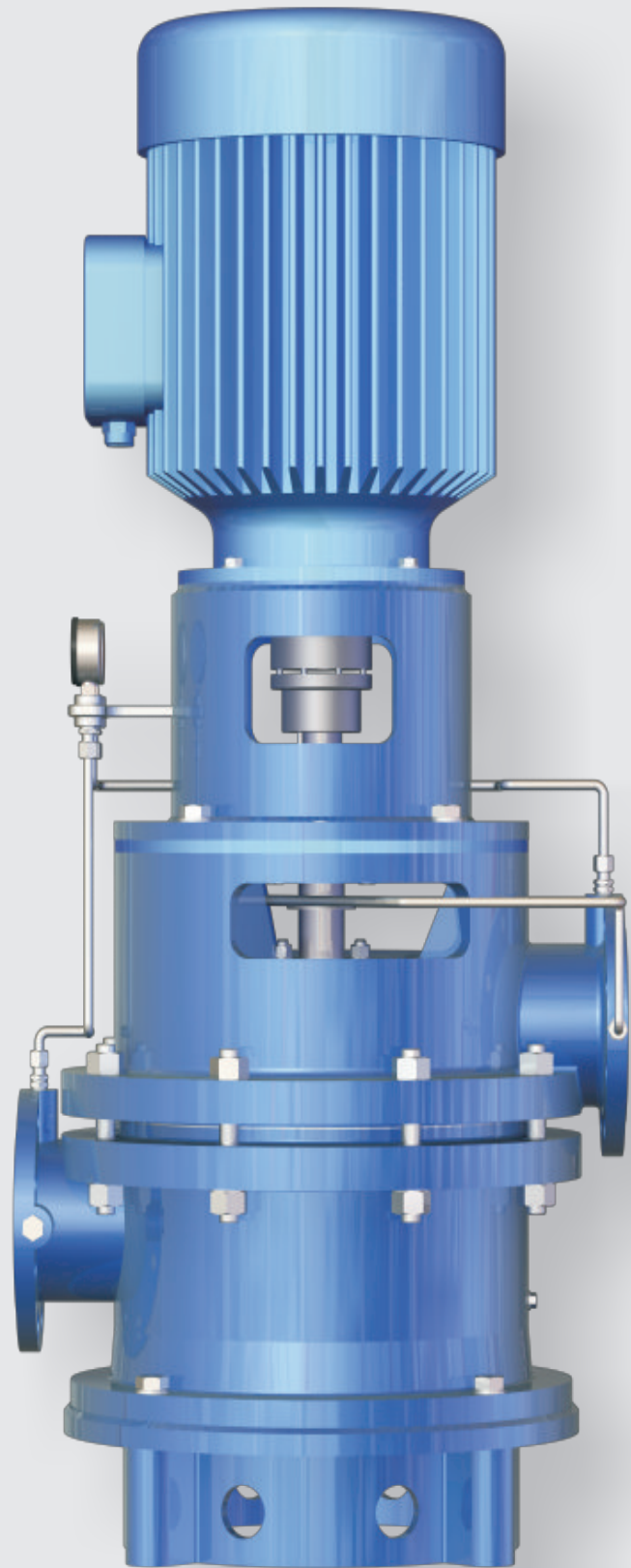
- Version K1 has 'spacer' coupling
- Version K2 has standard coupling
- Spacer coupling enabling Top Pull Out-principle
- Cost-effective solution

Coupling guard

- Protective cover around the coupling
- Protective elements between the lantern elements
- Covering the rotating parts
- Covering all the internal parts

Bearing Shaft sealing

- The LS, LSM is provided with a mechanical seal according to DIN 24960, mounted on a bronze shaft sleeve
- The version with bearing bracket has several possible shaft sealings, ranging from stuffing box packing to sophisticated mechanical seal options
- The bearing of the LS, LSM consists of 2 angular contact ball bearings in an "O"-arrangement
- Optionally, LS, LSM is also available with a bearing bracket with either 2 grease lubricated deep-groove ball bearings, or a roller bearing and a double-row angular contact bearing



Why vertical construction?

- Easy installation
- Easy alignment of electric motor with pump: installation cost reduction by 25%
- Less plot space needed; approx. 50% less space needed than for horizontal units
- High flexibility on discharge-, and suction nozzle position. Orientation can be fixed in steps of 15° from each other
- External nozzle loads cannot disturb alignment

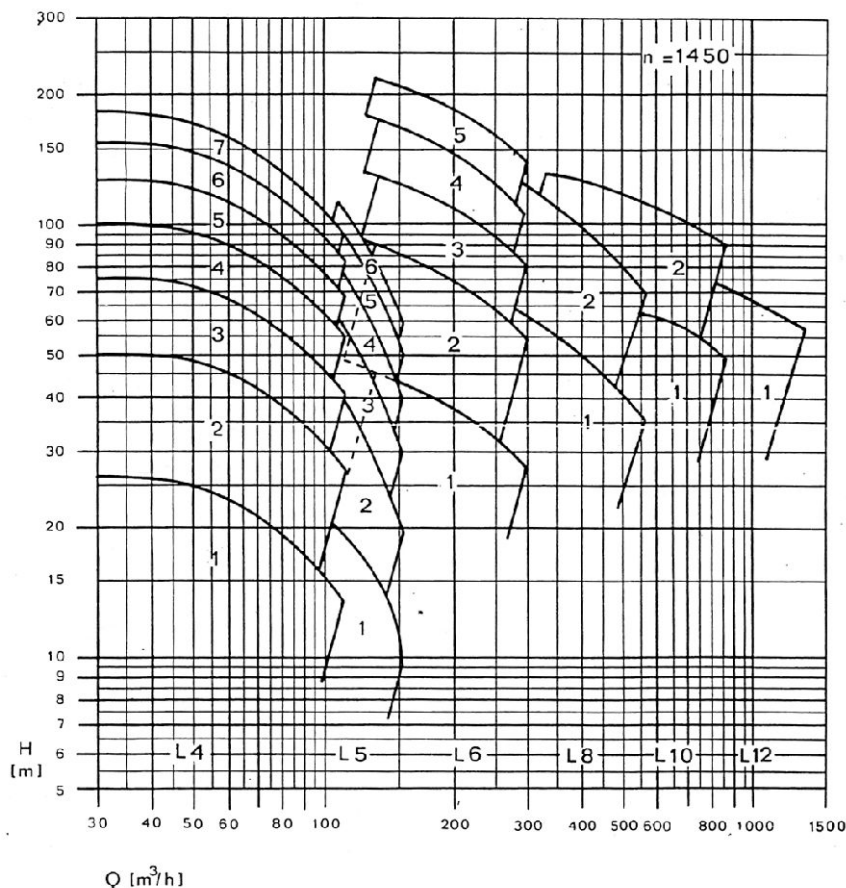
Other features LS pumps:

Diffuser type pump, having following advantages:

- Very low radial load, resulting in longer bearing-, and mechanical seal life-time
- Multiple choice of impeller-diffuser combination, resulting in an optimum hydraulic design, giving the highest possible efficiencies
- Lower noise levels than most volute pumps
- Low axial loads by applying balancing holes in the impeller in combination with replaceable impeller wear-rings and casing wear-rings

- Stiff and stable pump-shaft, supported by heavy, grease lubricated anti-friction bearings in the bearing bracket and by product lubricated sleeve bearing in the pump-casing
- Various combinations of materials
- Also available type LSM, being a so called close coupled version of the LS model. The close coupled construction, whereby the impeller is mounted directly on the extended motor-shaft, builds shorter and more compact

Curve



LS/LSM		
Material class	Standard	<u>1.4.5</u>
<i>Pump casing</i>	EN ASTM	EN-GJL-250 A 278 Class 30
<i>Suction casing</i>	EN ASTM	EN-GJL-250 A 278 Class 30
<i>Discharge casing</i>	EN ASTM	EN-GJL-250 A 278 Class 30
<i>Impeller</i>	EN ASTM	CuSn10-C
<i>Diffuser</i>	EN ASTM	CuSn10-C
<i>Wearing</i>	EN ASTM	CUSn12 (SnBz 12)
<i>Shaft sleeve</i>	EN ASTM	X 39 CrMo 17-1, HCr SA-815 WP430, HCr
<i>Pumpshaft (N.A. for LSM)</i>	EN ASTM	X 39 CrMo 17-1 SA-815 WP430
<i>Bearing bracket</i>	EN ASTM	S 235 JRG2 A 36



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