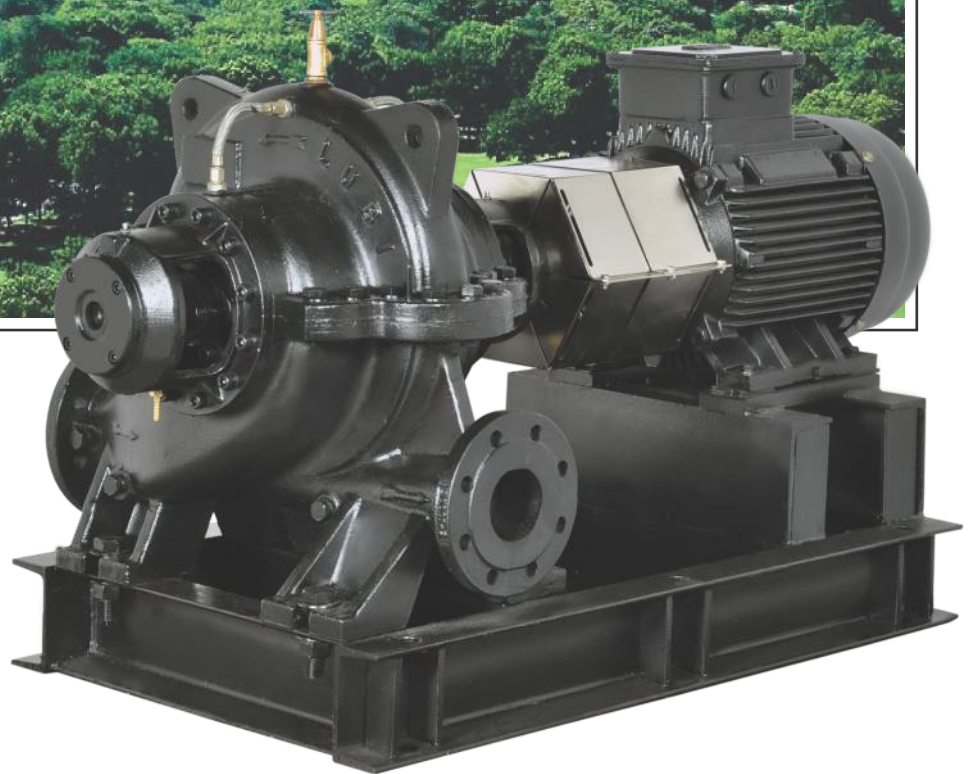


LHC SERIES

# Horizontal split case pumps 50 Hz



Pumping Solution

## INTRODUCTION

The Lubi LHC series are horizontal split case pumps. The pumps have horizontal pump shaft and the volute casing can be dismantled in the horizontal plane along the drive shaft.

LHC pumps are available in two main designs.

- Single-stage
- Two-stage.

## APPLICATIONS

- Water supply.
- Pressure boosting for high rise buildings, hotels industry etc.
- Industrial washing & cleaning systems.
- Fire protection systems.
- Cooling & Air Conditioning systems.
- Boiler feed and condensate transfer system.
- Irrigation systems for fields including sprinkler & drip irrigation systems.

## FEATURES AND BENEFITS

- The pumps are non-self priming, horizontal, split case pumps with radial suction port and radial discharge port.
- Standard flanges for suction and discharge ports will be PN 16 as per DIN standard EN 1092-2 and PN 25 as per DIN standard EN 1092-2. ANSI 125 and ANSI 250 as per ASME B16.1 are available on request.
- These pumps are long coupled pumps with TEFC squirrel cage induction motor with main dimensions complying to IEC standards and mounting designation B3 (IM 1001).
- These pumps are available with gland packing as well as mechanical shaft seal.
- The pump impellers are dynamically balanced to grade 6.3 of ISO 1940.
- These pumps can be supplied as a complete unit with motor, coupling, coupling guard and fabricated steel base frame.
- These pumps are available with our standard range of EFF2 motors. They can also be supplied with EFF1 motors on request.
- The split case construction enables removal and dismantling of the internal pump parts e.g. bearings, wear rings, shaft seal and impeller without disturbing the motor & pipe work.

## OPERATING CONDITIONS

Flow range : 20 to 2700 m<sup>3</sup>/h  
 Head range : 4 to 160 metres  
 Ambient temperature : Max. + 45°C for EFF2 motors,  
 Max. + 60°C for EFF1 motors.  
 Liquid temperature range: 0°C to +90°C (with Carbon/Ceramic/NBR/S.S.304 seal)  
 0°C to +90°C (with Sic/Sic/Viton/S.S.316 seal)  
 0°C to +140°C (with Carbon/Sic/Viton/S.S.316 seal)

## MOTOR

Motor type : TEFC squirrel cage induction motor  
 Ratings : 3 to 315 kW  
 Rated speed : 2900, 1450, 960 rpm  
 Enclosure class : IP 55  
 Insulation class : F  
 Nominal voltage : 3 phase 400 V  
 (Tolerance +5% / -10%)  
 Supply frequency : 50 Hz  
 Duty / Rating : S1 / Continuous  
 Direction of rotation : Clockwise as seen from the motor rear end

## PUMPED LIQUIDS

LHC pumps are designed for non explosive liquids which are clean and thin without any solid particles. For aggressive liquid please ensure that material of construction is suitable for liquid to be pumped.

If liquids with a viscosity higher than that of water, are to be pumped the power consumption of the pump will increase with increase in viscosity. This will require a large motor for the pump. Head, discharge and pump efficiency will reduce with increase in viscosity.

When pumping liquids with a density higher than that of water, the power consumption of the pump will increase at a ratio corresponding to increase in density.

## VOLUTE CASING

The volute casing of the pumps are designed to be robust in construction to take the undue stress offered by the pipe work. They have a radial suction port and radial discharge port. Standard flanges are PN 16 as per DIN standard EN 1092-2 and PN 25 as per DIN standard EN 1092-2. ANSI 125 and ANSI 250 as per ASME B16.1 are available on request. The volute casing are provided with a priming and drain hole closed by plugs. The single-stage pumps are of the in-line (symmetric) design, whereas the two-stage pumps have asymmetric design.

## SHAFT

The shaft is available in carbon steel as well as stainless steel. A bronze or stainless steel shaft sleeve is provided in the stuffing box to protect the shaft from wear & corrosion. As shaft and bearings are strong and properly sized the pump can be driven by a belt drive or diesel engine without any problem. A water thrower is provided on the shaft to prevent liquid from entering the bearing housing and damaging the bearing. The shaft is supported by bearings at both drive end and non-drive end of the pump.

## BEARINGS

The pumps are fitted with two standard single-row deep groove ball bearings, the bearings are of the open type permitting the bearings to be relubricated. The bearings are lubricated by Lubi prior to delivery.

## IMPELLER

The impeller is a closed impeller with single or double curved blades and extra smooth surface finish and machined completely from outside to ensure high efficiency.

The impeller comes in two variants.

- Double-suction impeller with inflow of liquid from both sides. Double suction impellers are used in single-stage pumps only.
- Single-suction impeller with inflow of liquid from one side. Single-suction impellers are used in two-stage pumps only.

Because of hydraulic balancing the axial thrust on bearings are compensated giving a longer bearing life.

Two stage pumps have two laterally reversed single-suction impellers mounted back-to-back.

They are dynamically balanced to grade 6.3 of ISO 1940.

All impeller can be trimmed to adopt them for the duty point requested by the customer.

Suggested trimmed impeller diameter as shown on the performance curves in data booklet are theoretical. Performance may vary from what is shown on the performance curve.

## WEAR RINGS

The pump have wear rings (pos.2) between impeller (pos.1) and volute casing.

The wear rings protect the volute casing against wear. Besides, the wear rings have a sealing function between impeller and volute casing.

When the wear rings worn out, the efficiency of the pump will be reduced, and wear rings should be replaced. The wear rings are made of same material as the impeller.

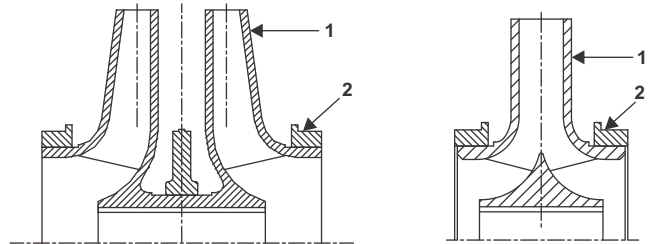


FIG. 1 SINGLE-SUCTION IMPELLER

FIG. 2 DOUBLE-SUCTION IMPELLER

## COUPLING

LHC pumps are fitted with a tyre type flexible cushion coupling.

These couplings are highly flexible, resilient and absorbs large misalignment.

Due to the coupling design, the rotating assembly of LHC pumps can be removed and serviced without dismantling the motor from the base frame.

## BASE FRAME

Pump and motor are mounted on a common steel base frame in the form of welded, steel c-channel profile.

## MECHANICAL SHAFT SEAL

The shaft seal is an unbalanced, mechanical shaft seal.

Two types are available as standard:

- A rubber bellows type (M1) for single-stage and two-stage pumps.
- A cartridge type (M2) with O-ring for single-stage and two-stage pumps.

## STUFFING BOX

Stuffing boxes are available with lantern rings & graphite gland packing rings.

## TEST PRESSURE

All impellers are hydrostatic tested for leakage as per the following test pressure using water containing corrosion inhibitor at room temperature.

PRESSURE RATING	OPERATING PRESSURE	TEST PRESSURE
PN 16	16 bar	24 bar
PN 25	25 bar	37.5 bar
ANSI 125	125 psi	188 psi
ANSI 250	250 psi	375 psi

## MOTORS

The motors are squirrel cage induction motors, Totally Enclosed Fan Cooled with main dimensions to IEC standards.

The standard motors with the pumps are all as per EFF2 efficiency. EFF1 efficiency motors can be available on request.

## COUNTER FLANGES

**Cast iron pumps (version-A,B,C,D):** For threaded connection, flanges are made of cast iron. For welding connection, flanges are made of carbon steel.

A set consist of one counter flange, one gasket of rubber material and the requisite number of bolts and nuts.

## SECTIONAL DRAWING & MATERIALS

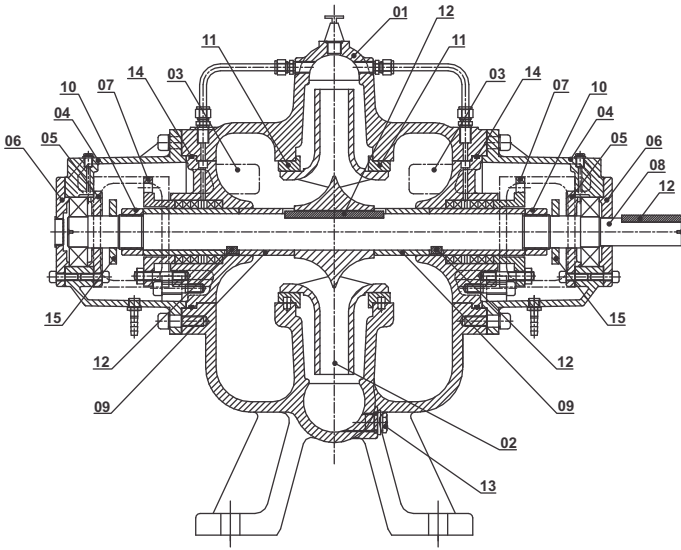


FIG. 3 SINGLE-STAGE LHC PUMP

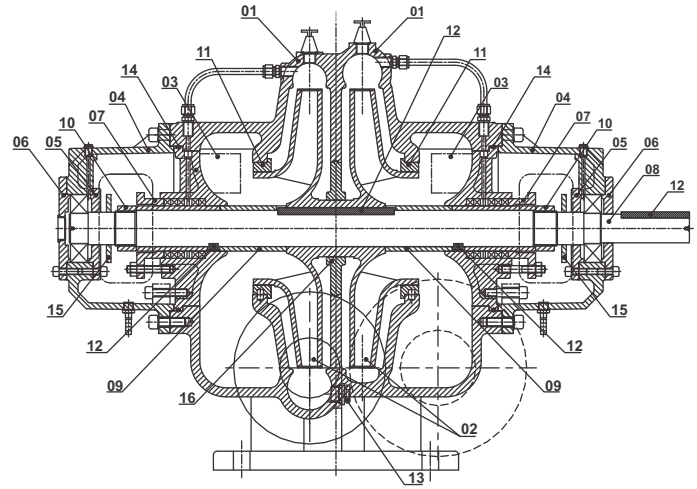
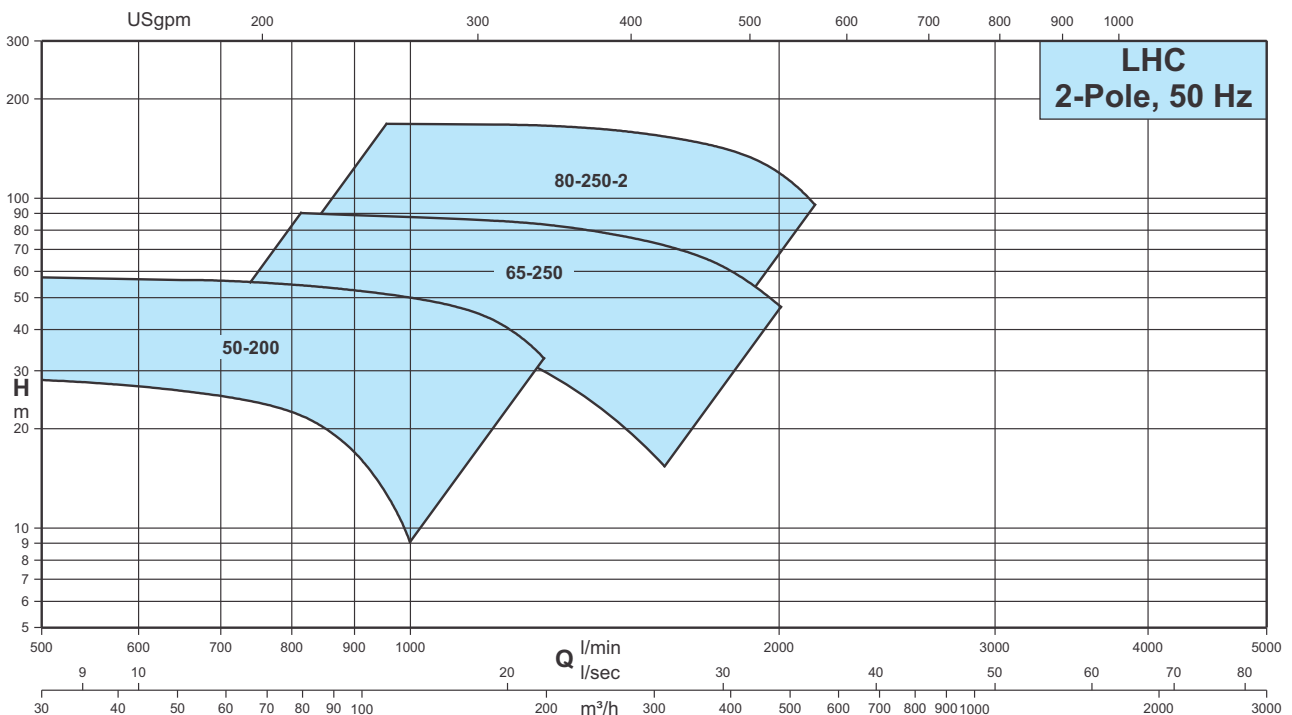


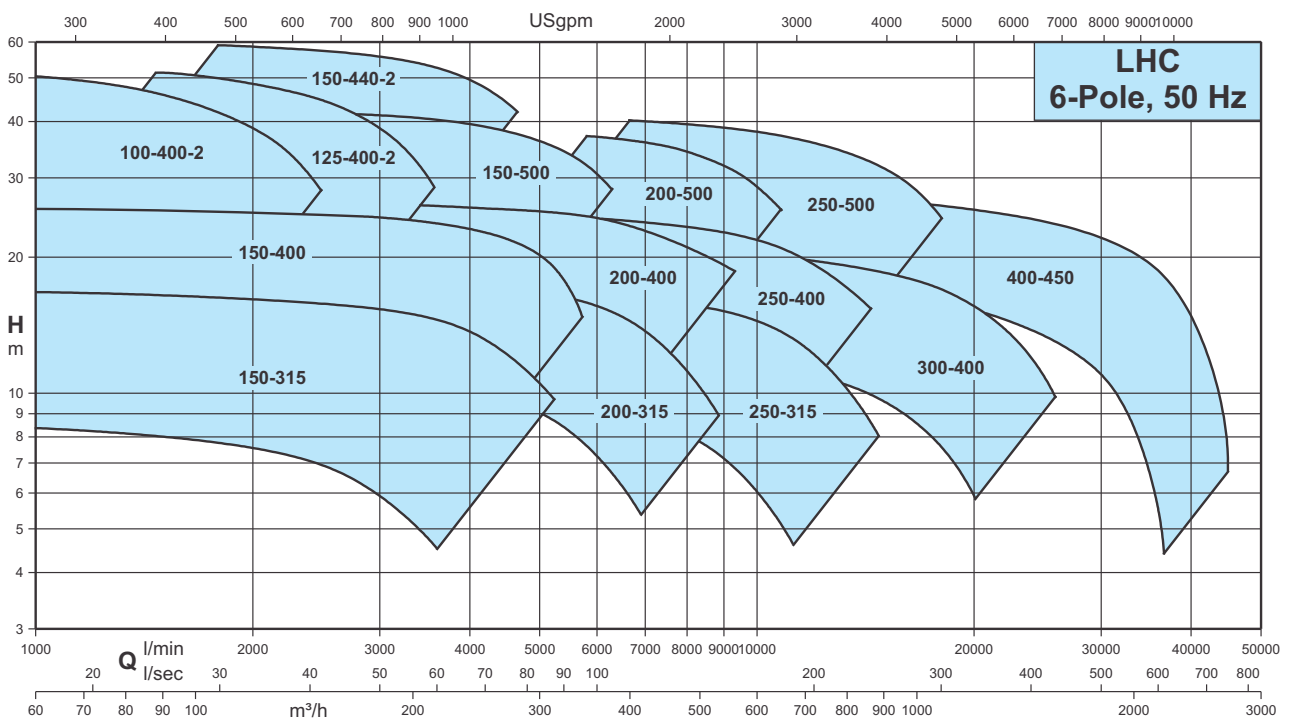
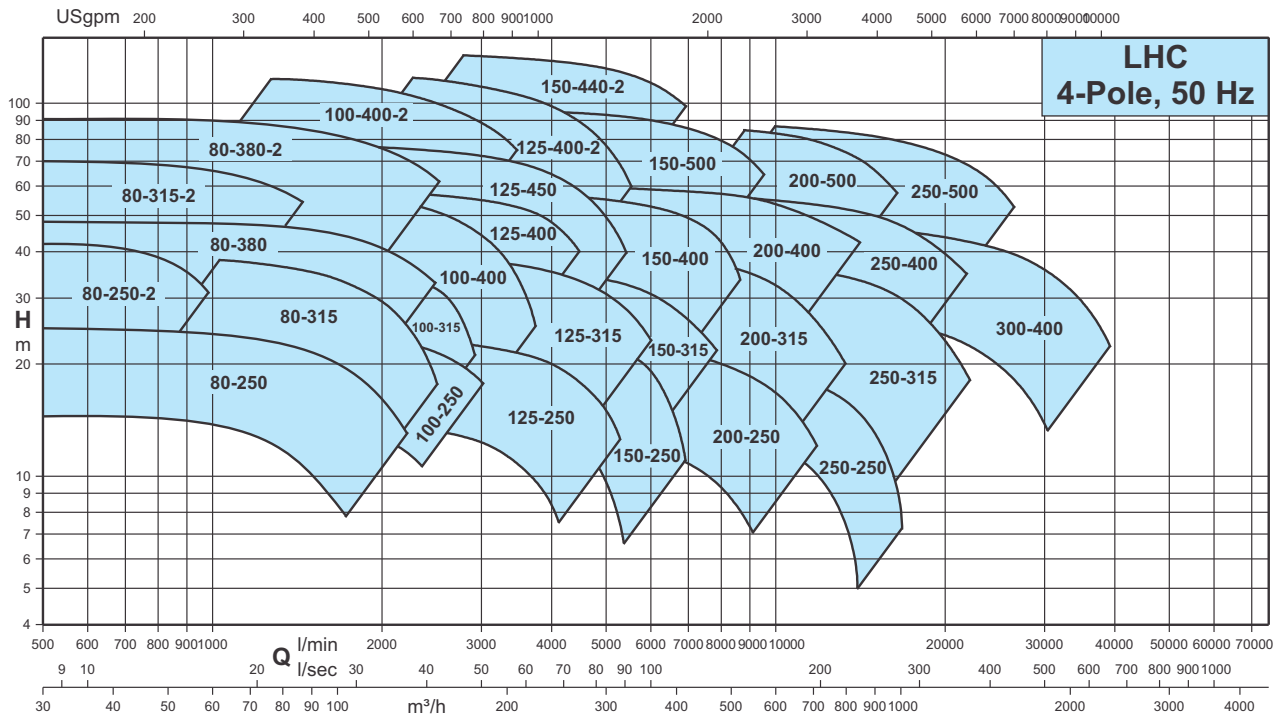
FIG. 4 TWO-STAGE LHC PUMP

POS.	COMPONENT	SINGLE-STAGE LHC PUMP				TWO-STAGE LHC PUMP			
		A-VERSION	B-VERSION	C-VERSION	D-VERSION	A-VERSION	B-VERSION	C-VERSION	D-VERSION
1	Volute casing	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
2	Impeller	Cast iron	Bronze	CF-8	CF-8M	Cast iron	Bronze	CF-8	CF-8M
3	Back cover	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
4	Bearing housing	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
5	Internal bearing cover	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
6	External bearing cover	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
7	Gland follower	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
8	Shaft	Carbon Steel	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316	Carbon Steel	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316
9	Shaft sleeve	S.S. AISI 410	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316	S.S. AISI 410	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316
10	Lock nut	S.S. AISI 410	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316	S.S. AISI 410	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316
11	Wear ring	Bronze	Bronze	CF-8	CF-8M	Bronze	Bronze	CF-8	CF-8M
12	Key	S.S. AISI 410	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316	S.S. AISI 410	S.S. AISI 410	S.S. AISI 304	S.S. AISI 316
13	Plugs	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
14	O-ring	NBR	NBR	NBR	NBR	NBR	NBR	NBR	NBR
15	Water thrower	NBR	NBR	NBR	NBR	NBR	NBR	NBR	NBR
16	Centre ring	-	-	-	-	Cast iron	Cast iron	Cast iron	Cast iron

## PERFORMANCE RANGE



## PERFORMANCE RANGE



**NOTE:** LHC 80-250-2, LHC 80-315-2, LHC 80-380-2, LHC 100-400-2, LHC 125-400-2 AND LHC 150-440-2 ARE TWO STAGE PUMPS.

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