

LHCD SERIES

Horizontal Split Case Fire Pumpset Diesel Engine Driven



LISTED
EX26631

Selected Models

INTRODUCTION

Lubi offers **LHCD** series state-of-the-art fire pumpset with diesel engine driven, horizontal split case pump.

These pumpsets are typically used in fire-fighting applications for supplying water to fire hose reels, fire hydrants or sprinkler systems.

Pumps have a discharge range from 500 to 3000 USgpm and the head range from 40 to 230 psi.

These fire pumpsets meet or exceed the requirements of NFPA20.

Installations of these pumpsets would ensure the safety of human life, buildings, expensive plants and equipments.

LHCD fire pumpset shall be used only where a positive suction is provided as specified in NFPA20.

The fire pumpset typically consists of the following equipments:

- ☐ Pump
- ☐ Diesel engine assembled with
 - cooling system
 - fuel system
 - battery system
 - exhaust system
- ☐ Fire pump controller
- ☐ Suction and discharge gauges
- ☐ Air relief valve
- ☐ Common base plate

Note: For your jockey pump requirements kindly refer our literature for LCR and/or LES pumps.

All above equipments except fuel supply tank and fire pump controller are mounted on a common base frame.

Lubi can also supply Packaged fire pumping system with all required accessories ready for site installation.

APPLICATIONS

The LHCD fire pumpsets are used in fire-fighting applications for supplying water to fire hose reels, fire hydrants or sprinkler systems in areas which are prone to the hazards of fire. The typical applications are as follow:

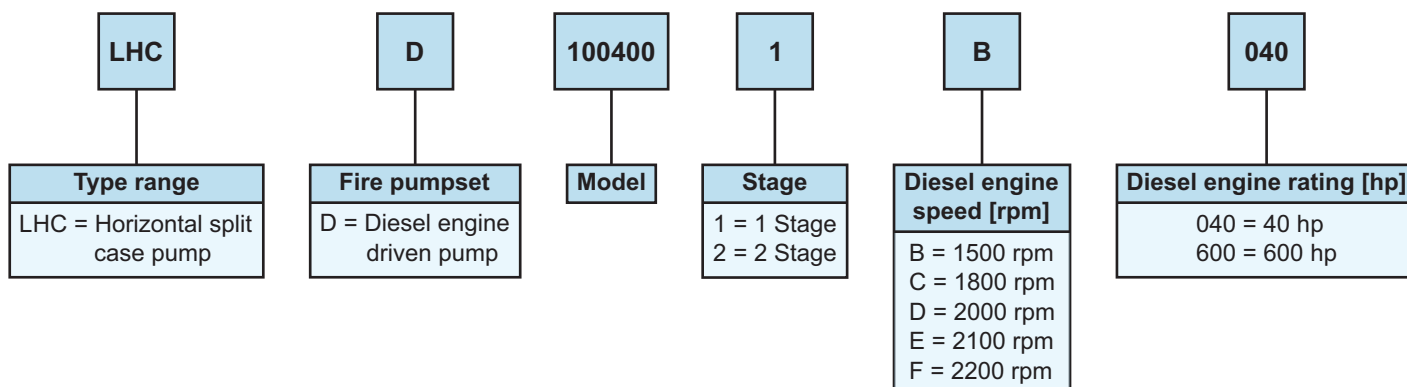
- ☐ Commercial complexes and high rise buildings
- ☐ Petrochemical industries and Gas plants
- ☐ Oil and Gas on-shore & off-shore platforms
- ☐ Oil terminals
- ☐ Airports and ports
- ☐ Jetties
- ☐ Marine applications
- ☐ Power stations and transformer stations
- ☐ Chemical industries
- ☐ Manufacturing plants
- ☐ Fire-work industries
- ☐ Warehouses/godowns.

FEATURES AND BENEFITS

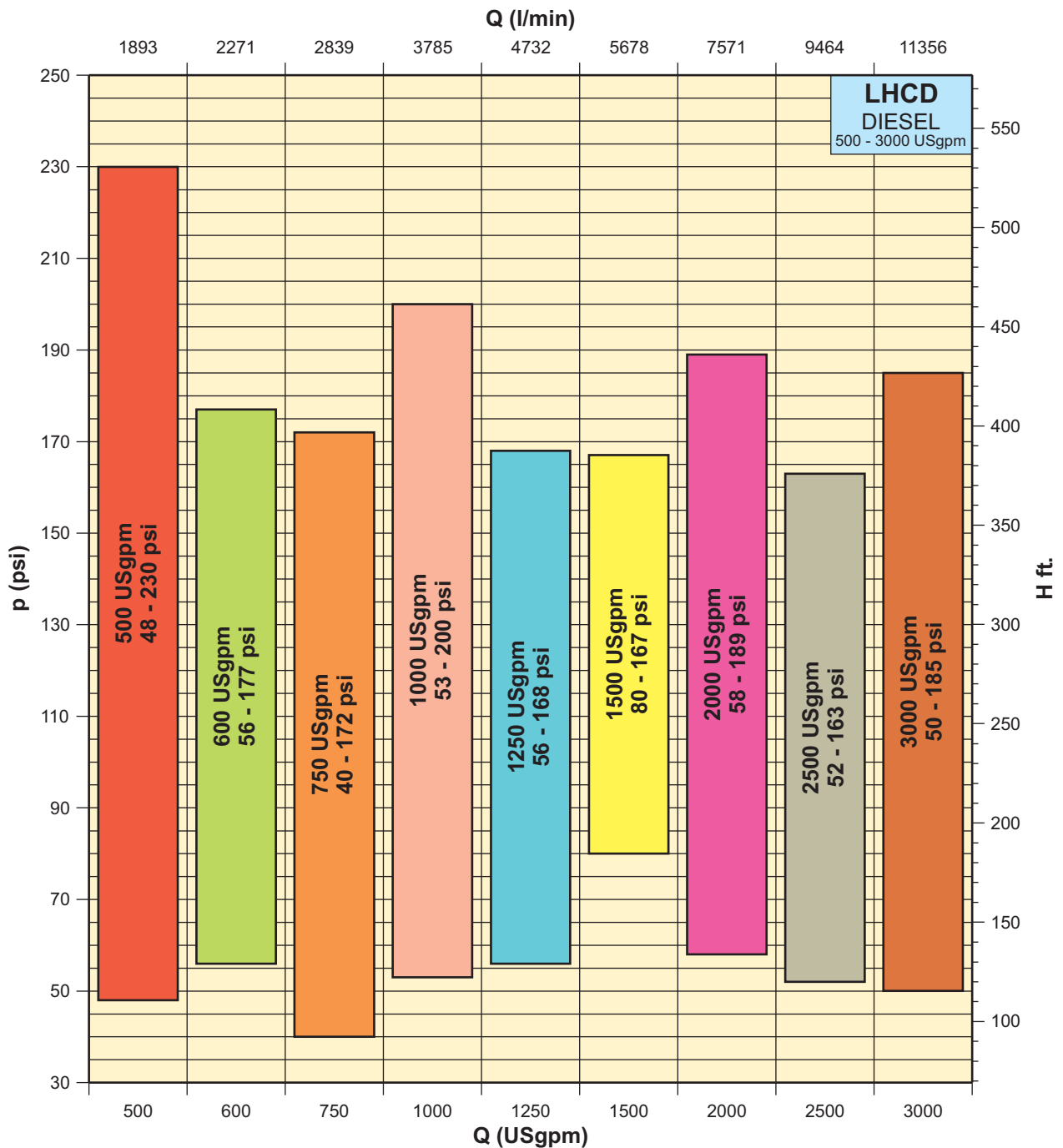
LHCD fire pumpset offers all features & benefits as mentioned in our LHC standard pump series data booklet. Following are the additional features & benefits offered by these pumpsets:

- ☐ State-of-the-art design fire pumping system.
- ☐ NFPA-20 design
- ☐ Diesel engine driven pump
- ☐ Rugged construction
- ☐ Liberal water passages
- ☐ Automatic air relief valve
- ☐ Efficient operation
- ☐ Lower initial cost
- ☐ Reduced installation time and cost
- ☐ Simplified piping design
- ☐ Suitable for space saving installation systems and retrofit applications
- ☐ Easy access to all working parts
- ☐ Ease of maintenance

TYPE KEY



PERFORMANCE RANGE - DIESEL ENGINE DRIVEN



NOMINAL FLOW [USgpm]	DIESEL ENGINE SPEED [rpm]			
	1500	1800	2000	2100
500	■	■	■	
600	■			
750	■	■		
1000	■	■	■	
1250	■	■		■
1500		■		■
2000	■	■		
2500	■	■		
3000	■	■		

■ AVAILABLE

DESIGN FEATURES - DIESEL ENGINE DRIVEN**FUEL SUPPLY TANK**

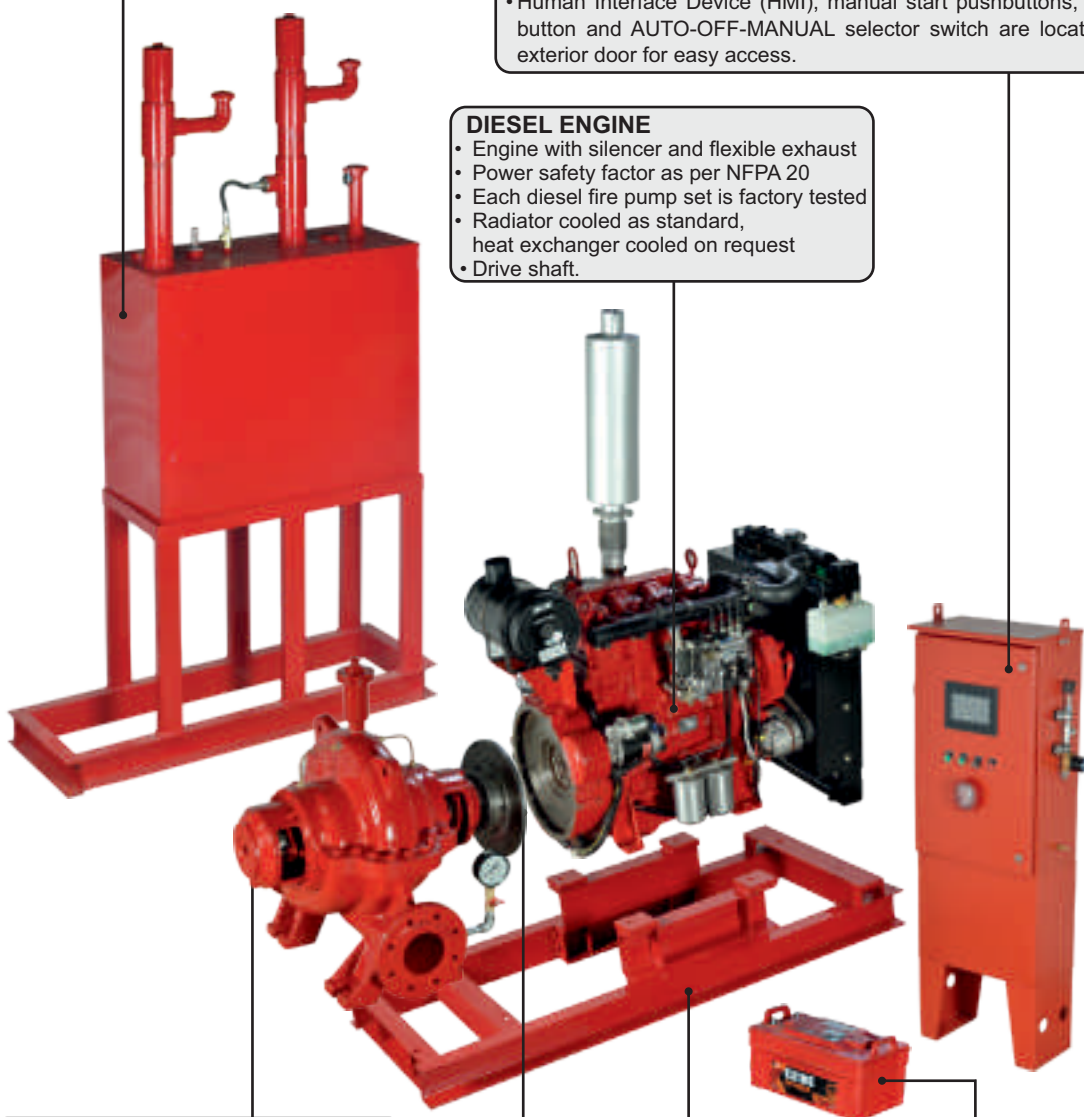
- Designed and sized according to NFPA 20.

PUMP CONTROLLER

- State-of-the-art designed to specifically to meet the NFPA 20
- Controller uses PLC technology to control automatic engine and alternation between batteries during cranking
- Monitors and records system alarms and pressure, battery voltage and engine functions
- Standard NEMA 2 enclosure, corresponding to IP 31
- Available with 12V DC operation as standard, 24V DC operation on request
- Simple start-up and maintenance procedures
- Human Interface Device (HMI), manual start pushbuttons, stop push button and AUTO-OFF-MANUAL selector switch are located on the exterior door for easy access.

DIESEL ENGINE

- Engine with silencer and flexible exhaust
- Power safety factor as per NFPA 20
- Each diesel fire pump set is factory tested
- Radiator cooled as standard, heat exchanger cooled on request
- Drive shaft.

**FIRE PUMP**

- Horizontal split case pump as standard
- Designed for high efficiency
- Pumps are tested for hydrostatic and performance test at factory as per NFPA 20 standards
- Pump casing is designed to be robust in construction to withstand high pressure requirement
- Casing is provided with drain plug
- Dynamically balanced pump impellers
- Replaceable wear ring
- Easy maintenance and service.

COUPLING

- Flexible pin-bush type coupling
- Highly flexible, resilient and absorbs large misalignment
- Maintenance free.

BATTERY SET

- 12V/24V battery set provide redundant power supply and ensure full reliability
- Sized according to NFPA 20.

BASE FRAME

- Robust designed fabricated steel base frame for stable mounting
- Lifting points provided on the base frame for loading and unloading.

TECHNICAL SPECIFICATIONS - DIESEL ENGINE DRIVEN

The fire pumpset supplied by Lubi shall include the pump, diesel engine, controller and fittings as detailed in the following technical specifications. All the materials supplied shall be installed as recommended in NFPA 20.

1. PUMP TECHNICAL DETAILS

The fire pump shall be horizontal, centrifugal single/two stage horizontal split case, construction specifically labeled for fire service and shall be a Lubi pump type _____. The fire pump shall be designed to deliver _____ USgpm of clear water at a total differential pressure of _____ psig. The pump shall be connected to the (fire standpipe) (fire sprinkler) (underground fire main) system. The suction supply for the fire pump shall be from a (public service water main) (elevated storage tank) (ground storage tank) (underground reservoir) at a maximum pressure of _____ psig and a minimum pressure of _____ psig. The pump shall be axially split into two half, upper half and lower half. Lower half shall comprise a radial suction port and radial discharge port. Suction and discharge connections shall be on the same plane. Upper half and rotating parts shall be removable and can be dismantled without disturbing the pipe work. Pump casing shall be of cast iron and fitted with replaceable bronze wear ring. Impeller shall be bronze, enclosed type dynamically balanced and keyed to an alloy steel shaft. Shaft shall to be fitted with replaceable S.S AISI 410 sleeves. Shaft shall be mounted in two deep grooves and regreasable ball bearings. Each stuffing box shall be fitted with lantern rings and graphite gland packing rings. Packing rings shall be

2. DIESEL ENGINE DETAILS

The fire pump driver shall be a horizontal shaft type internal combustion diesel engine manufactured by: _____ Model no. _____ with maximum power rated kW _____ at _____ rpm. The fire pump shall be directly coupled through flexible coupling to a diesel engine.

3. STANDARD ACCESSORIES DETAILS

The pump shall be supplied with the following accessories:

- Combination suction gauge, 3½" dial type with ¼" cock and lever handle - 1 no.
- Air release valve - 1 no.
- Discharge gauge, 3½" dial type with ¼" cock and lever handle - 1 no.

4. FIRE PUMP CONTROLLER DETAILS

The fire pump controller shall be factory assembled, wired and tested as a unit prior to shipment. The controller shall be available for either 12VDC or 24VDC systems. The controller shall include the following standard features:

- NEMA type 2 (IP 31) drip proof metal wall mount or freestanding enclosure
- Dual solid state battery chargers
- Two outer door mounted crank push buttons and two inner panel mounted battery on/off switches
- Outer door mounted key operated AUTO, OFF, MANUAL, mode selector switch
- The controller shall be supplied with a solid state pressure transducer with a range of _____ psi for monitoring system pressure and providing the feedback to the controller
- Touch screen color Human Interface Device (HMI) display shall be provided of minimum 5 inch size capable of being read in both direct sunlight or dark lighting conditions
- Touch screen pushbuttons shall be provided on HMI for easy screen navigation, alarm reset, and alarm silencing
- Controller settings shall be programmable through the HMI and shall be protected by passwords
- All features shall be enabled or disabled through the HMI, no jumpers or external wires shall be needed or allowed to activate or deactivate a feature
- The system status data shall be displayed on the HMI
- Audible alarm shall be provided with alarm silence feature for silenceable alarms
- Data logging shall be possible with real time/date clock to store the continuous pressure log, event log, alarm log and all user changeable set points and system data. Battery backup of any kind shall not be allowed
- The controller shall be provided with a USB port capable of accepting USB flash memory disk to download historical data of events, alarms and pressure logs
- The controller shall feature a RS 485 serial communication port for use with 2 or 4 wire ModBus RTU communication
- Anti condensation space heaters can be provided when controller is installed in a basement having high humidity

5. BATTERY SET DETAILS

- Each engine shall be provided with two storage battery units.
- Electrolyte shall be added a minimum of 24 hours prior to the time the engine has to be started
- Batteries shall be kept charged at all times and tested frequently (weekly test) to determine condition
- Only distilled water shall be used
- Battery plates shall be kept submerged at all times.

TECHNICAL SPECIFICATIONS - DIESEL ENGINE DRIVEN**6. FUEL SUPPLY TANK DETAILS**

- The fuel supply tank shall be single/double walled construction conforming to UL 142
- The fuel supply tank and fuel shall be reserved exclusively for the fire pump diesel engine
- There shall be separate fuel supply tank for each engine
- There shall be a separate fuel supply and return line (if required) for each engine
- The fuel supply tank outlet shall be located so that its opening is no lower than the level of the engine's fuel transfer pump
- In sites where temperatures below 0°C (32°F) could be encountered, the fuel supply tank shall be located in the pump room
- A mechanical fuel level gauge shall be provided to show approximate fuel level in the fuel supply tank
- The fuel supply tank shall have a fill connection with a 2 inch lockable fuel cap
- The fuel supply tank shall have a drain connection of at least 1 inch connection
- The fuel supply tank shall have regular and emergency screened vent connection as per UL 142
- Fuel supply pipe connection with valve shall be provided above 5% capacity of tank
- The fuel supply tank shall be provided with a 2 inch NPT threaded port on the top of the fuel supply tank to accommodate the low fuel level switch
- For double walled tank a 2 inch threaded port shall be provided in the outer tank to accommodate a fuel detector which will help in detection of inner tank leakage.

7. BASE FRAME DETAILS

- A pump and a engine shall be mounted on a common base frame
- The base frame shall have machined mounting surfaces for pumps as well as diesel engine
- Lifting points shall be provide on the base frame for loading and unloading
- The baseplate will be provided with holes to accommodate heavy duty anchor bolts for mounting it on the RCC foundation.

8. JOCKEY PUMP DETAILS

The jockey pump shall be manufactured by Lubi Model no. _____ for a capacity of _____ USgpm at a pressure boosting of _____ psig. The jockey pump shall be driven by a TEFC electric motor of _____ HP, _____ rpm, _____ Volt, _____ Phase, _____ Hz.

9. JOCKEY PUMP CONTROLLER DETAILS

The jockey pump shall be controlled by an automatic jockey pump controller model _____. The jockey pump controller shall be factory assembled, wired and tested as a unit prior to shipment. The controller shall include the following standard features:

- NEMA type 2 (IP 31) drip proof metal freestanding/wall mounting enclosure
- The controller shall have a fused horse power rated door interlocked rotary switch
- The controller shall be of combined manual and automatic type designed for one of the following starting methods
(a) DOL (b) Star/Delta (c) Soft starter
- The controller shall provide protection against overload and single phasing
- The controller shall be supplied with a solid state pressure transducer with a range of _____ psi for monitoring system pressure and providing the feedback to the controller
- Touch screen color Human Interface Device (HMI) display shall be provided of minimum 3 inch size capable of being read in both direct sunlight or dark lighting conditions
- Touch screen pushbuttons shall be provided on HMI for easy screen navigation, alarm reset, and alarm silencing
- Controller settings shall be programmable through the HMI and shall be protected by passwords
- All features shall be enabled or disabled through the HMI, no jumpers or external wires shall be needed or allowed to activate or deactivate a feature
- The system status data shall be displayed on the HMI
- Audible alarm shall be provided with alarm silence feature for silenceable alarms
- Data logging shall be possible with real time/date clock to store the continuous pressure log, event log, alarm log and all user changeable set points and system data. Battery backup of any kind shall not allowed
- The controller shall be provided with a USB port capable of accepting USB flash memory disk to download historical data of events, alarms and pressure logs.

10. MOUNTING AND TESTING DETAILS

The pump shall be suitable for a maximum working pressure of _____. Each pump shall be hydrostatically tested at a pressure of not less than 1.5 times the no flow (shut off) head of the pump's maximum diameter impeller plus the maximum allowable suction head but in no case less than 250 psig. The pump shall be performance tested at rated speed. The pump shall furnish not less than 150% of rated capacity at a pressure not less than 65% of rated head. The shut-off total head of the pump should not exceed 140% of total rated head. A certified test curve, indicating the flow, head, power and efficiency shall be supplied. The fire pump and diesel engine shall be base mounted and aligned at the pump manufacture's factory. Final alignment shall be made after installation on site.

11. PAINTING

Fire pump, Diesel engine & its controller, base plate and fuel tank are to be painted RAL 3002 as per NFPA 20.

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