

NEOMETRIX

Test Rig for 130LPM Pump of LCA

About

The Test Rig is self-contained, Electro Hydraulic Test Rig. Safety & user Friendliness are the key features of the provided Test Rig. The Test Rig provided has been designed to address all the requirements testing of 130 LPM Pump. The brief spec and tests of this pump is given below as:

The brief specs of the pump-

Rated Pressure = 270 bars

Rated Flow = 130 LPM at 270 bar

Rated Speed = 6000 RPM



Specifications

| Drive System | | |
|----------------------|---|---|
| SNo. | Characteristic | Value of Characteristic |
| 1 | Motor | Squirrel cage Induction Motor, 160 kW, Rated Speed:2980 RPM, 2 pole, 415 Volts, 50 Hz, 3-Ø, Frame Size : M2BA315MLC2 |
| 2 | AC Drive | 250Hertz, Rating: 160kW, Model: ACS 800 with Control Panel |
| 3 | Gear Box | Max. output Speed :10000 RPM |
| 4 | Mounting and coupling for UNIT | Flange and spline shaft |
| 5 | Coupling between Gear Box and Torque Sensor | Flexible Disc Coupling with Shear Pin option for protecting the UUT |
| 6 | Torque Sensor | Range 0-200N-meter, Model Lebow-1703 |
| Lubrication System | | |
| 1 | Pump Type used | Gear Pump, parker make |
| 2 | Max Output Pressure | 2 bar |
| 3 | Max Output Flow | 20 LPM |
| 4 | Sampling port with Minimes | 1/4" - 1 No |
| 5 | Filtration capacity | up to 10 micron |
| 6 | power supply | 3 Ø , 415 ± 5 V |
| 7 | Tank size | 50 Liters oil Capacity |
| 8 | Working media | ISO VG 46 |
| 9 | | |
| High Pressure System | | |
| 1 | Pump Type | Fix Displacement Piston Pump, Parker, Model F12-30 |
| 2 | Max Pressure | 480 bar |
| 3 | Max Flow | 27 LPM |
| 4 | Motor | A.B.B make Standard Horizontal Foot mounted (B3const.) Squirrel cage induction motor, 415+/-10% volts, 50Hz+/-5%, 3 phase, AC supply, insulation F, Deg. Of Protection IP55, TEFC. Ambient Temperature 50 ° C, 30KW/40HP, 1000 RPM,(syn), Frame size HX+225SMC6 |
| 5 | Line size with their respective QCDC's | 1/2" (1 No each) |

NEOMETRIX DEFENCE LIMITED

E-148, Sector-63, Noida India 201301

Email – contact@neometrixgroup.com, Contact No.- +91-0120-4500800, 7777-876-876

Website – www.neometrixgroup.com

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| | | |
|----------------------------|--|--|
| 6 | Sampling port/Calibration Port with Mininess | 1/4" - 1 No |
| 7 | Power pack return port | 1/2" - 1 No |
| 8 | Temperature gauge Calibration Port | ½. BSPP(Female)-one port |
| 9 | Filtration capacity | Up to 2 micron |
| 10 | Working media | Hydraulic oil MIL-H-5606E |
| LOW PRESSURE SYSTEM | | |
| 1 | Pump type | Centrifugal Pump, KSB |
| 2 | Motor KW/HP | 5.5 KW/ 7.5 HP, ABB Make |
| 3 | Max Supply Pressure (UUT Suction Pressure) | 3.5 to 4 bar |
| 4 | Max Flow | 200LPM |
| 5 | Return Line Maximum Pressure(UUT Delivery Pressure) | 270 bar |
| 6 | Filtration capacity | Up to 2 micron |
| 7 | Max. flow @269 bar pressure | 130 LPM |
| 8 | Flow Meter | Two Flow Meters(7.5 to 150 LPM and 1 to 15 LPM) |
| 9 | Servo Valve for Cyclic Test | Two Servo Valve of moog make(one at Return line and one at Case Drain line) |
| 10 | Supply and Return Port | 1". |
| 11 | Case Drain Port | 1". |
| 12 | Sampling/Calibration Port with micro bore hose | ¼". (3 no.) |
| 13 | Calibration Port for Temperature Gauge | ½". BSPP (Female)-3 no. |
| 14 | Working media | Hydraulic oil MIL-H-5606 |
| 15 | Working Temperature | 120 °C |

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Application

The Test Rig provided has been designed to address all the requirements testing of 130 LPM Pump.



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Key features

- Drive System with Gear Box Lube Oil System
- High Pressure System for Pressure Proof Testing
- Low Pressure System for Functional Test
- Control and Indicator Panel
- Data Acquisition System.
- The test rig is design to work up to 120°C.
- Two moog make servo valves have been provided in Rig for Cyclic Test.
- **Cooling System:** We are using water as the medium for the cooling purpose, with the help of Heat Exchanger. Total three heat exchanger has been provided in system.
- **Filtration:** Proper filtration has been provided and the filters have electronic clogging indicators.
- The rig is developed for Hydraulic Oil (MIL-H- 5606E) or equivalent.
- Three SS 304 Reservoirs of oil capacity 90, 225 and 50 liters have been provided with all related fittings.

Safety Interlocks

- The Pump will not start in case the Reservoir oil level is low/ high.
- The Pump will stop/ will not start, in case the oil temperature goes beyond a set limit.
- There would be alarm and indication, in case any abnormality happens.
- In case any of the filters are clogged, there would be alarm; Indication and the Test rig will stop.
- It is also independent of the Computer automation system.
- **Computer:** The Rig Diagnostics/ Monitoring & Recording are implemented Through the National Instruments data acquisition System and PC. The customized Software is implemented in Lab View.