**ANNEXURE "C"**

# SPECIFICATIONS OF FOUR COLUMNS 6000 TON UP-STROKING HYDRAULIC PRESS

## A. MAIN FEATURES

| Sr. # | Description | Details |
|---|---|---|
| 1. | Type | Up-Stroking |
| 2. | Nominal Force | 6000 Ton |
| 3. | Ejection Ram Force | 1000 Ton |
| 4. | Day Light | 1500 mm |
| 5. | Main Ram Stroke | 1400 mm |
| 6. | Ejection Ram Stroke | 500 mm |
| 7. | Ram/Working Table Size | LR=2600 mm<br>FB=2800 mm |
| 8. | Ram Speed | Up= 10 mm/sec<br>Working= 2 mm/sec<br>Return= 10 mm/sec |
| 9. | Ejection Speed | Working= 2 mm/sec<br>Return= 10 mm/sec |
| 10. | Motor Safety Classification | Ex II 2 D E Ex d IIC T4 IP-64 |

## B. PRESS MECHANICAL PARTS

1. Die-Loading Carriage should run on rails though a double acting jack. The die loading carriage would be used as Ram during pressing so the carriage should be capable of withstanding the pressing load during each pressure cycle. The wheels of carriage must be non-ferrous. The estimated length of rail for carriage is 5 meter. The exact length will be conveyed at time of contract.
2. Foundation/Anchor bolts with Nuts & base plates must be provided.
3. Lifting Gadgets (Eye Bolts & D-shackles etc.) as per size of all the Press Parts and weight lifting capacity must be provided for handling/rigging purposes.
4. Tool kit depending upon relevant size of connections and fittings of the Press parts must be provided.
5. All types of seals, rings, pipes, tubes and fittings for ten years with detailed specifications and drawings must be provided.
6. Spare Pump and motor assembly along its spare seal must be provided.
7. A Spare Pre-fill valve must be provided.

## C. ELECTRICAL SYSTEM

1. Provision of three modes of operation i. Auto ii. Semi Auto iii. Manual.
2. The control panel of Press must be PLC based with a touch screen (12" min.) for the control of Press functions. Protection of electrical elements should be at least IP-66 class, while protection of the electrical cabinet should be IP-54.
3. The copy of software for operation of Press must be provided on a CD.

4. Parameters of Electrical Power Supply available are 380 V AC, 50Hz, 3-Phase.
5. There should be no provision of any Web connection (i.e. Wi-Fi, Bluetooth or LAN) to remote access the control and operation of machine.

## D. DOCUMENTATION

**All the documentation should be in English language.**

1. Operational Manual.
2. Maintenance Manual.
3. Installation Manual.
4. Foundation Drawings/Lay outs (Civil).
5. Electrical Diagrams
6. Instrumentation & Control lay outs.
7. Hydraulic piping Lay outs and P & ID diagrams.
8. Material analysis report (Third Party Certification) of all parts.
9. Pressure testing certificate/report by third party or end user certification.
10. All detailed drawings of Press Parts & seals including their material of construction.
11. Any other document which deemed necessary for the operation and maintenance.

## E. GENERAL

1. Control panel & Hydraulic station should be 5-10 meters away from the press body. Exact distance will be conveyed at time of contract.
2. Material of columns and Piston of Pressing Cylinders = Chrome Plate and Forged Steel.
3. The individual weights of the Press parts must be mentioned.
4. The press should be designed for continuous operation.
5. Position of Pre-fill Valve: At Ground Level
6. Static Load bearing capacity of Carriage: 10 Ton
7. Size of Carriage: 2.5 m X 2.5 m (Approx.)
8. A provision to adjust the Hydraulic pressure at any point (**Range: 0-6000 Bar**, depending upon user requirement) on the Control panel must be provided.
9. Following details on the control panel must be provided.
    - Emergency stop
    - Emergency Alarm
    - Pressure indication
    - Main Ram up/Down
    - Oil temp
    - Ejector Extended/Retracted
    - No of Pressure cycles etc.
    - Over Travel Indication
10. An external gauge must be provided on high pressure line of Press.
11. One emergency stop on the press body must be provided.
12. At least 02 Years of Press Warranty is required.

## F. TRAINING AND INSPECTION

**Stage I:**

After placement of contract one engineer will visit the supplier's premises for capacity/ capability assessment and negotiation about the customized features of the Press.

**Stage II:**

Pre-Shipment inspection, Testing and training by two engineers.