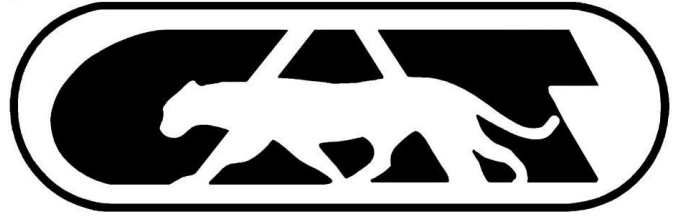


# CURTIS ASSEMBLE & TEST LIMITED

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## CURTIS HPF300 FLUSHING MACHINE

### **Description:**

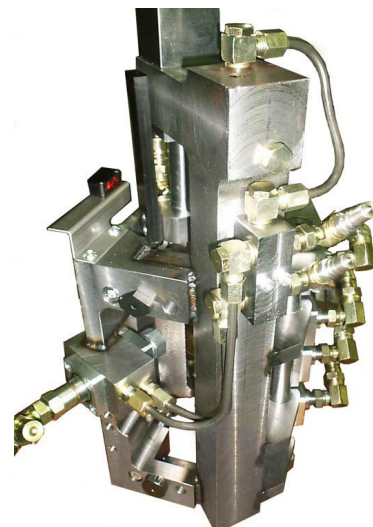
Designed primarily for diesel injection system rails, the system is capable of cleaning both spherical and linear rails and has been adapted for other components. Oil at variable pressures is flushed through the components and a lance arrangement directs high pressure oil at specific locations where intense cleaning is required. Rails with greatly varying internal orifices may be tested with no modification to system.

Suitable for use in a clean room environment, with the power pack unit housing the main fluid reservoir with filtration external to the room. The machine has two independent stations each capable of running a separate product simultaneously. The flexible cycle start sequence will allow twin load/unload, individual load/unload or single load/unload. The NC control of the lance allows static and dynamic linear and rotational positions to be set and dynamic interpolation between linear and angular positions to be achieved.

The frame is of stainless steel construction with tooling blocks etc being electro-plated as appropriate. The flushing machine has a footprint of approximately 1.3m x 1.3m excluding the power pack.



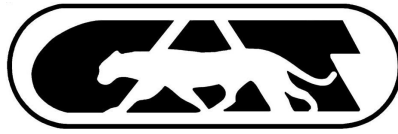
*Flushing Machine and Power Pack*



*Tooling Fixture*

### **Operation:**

The component to be cleaned is loaded into one of the fixtures where it is hydraulically clamped when the door is closed. The pre selected automatic flushing sequence then controls the linear and angular position of the lance, the oil pressures and the air and oil supply valves. The system executes each step in the sequence sequentially until it reaches the end, when flushing with factory air may be introduced to aid drying/purging of the component.



# **CURTIS HPF300 FLUSHING MACHINE**

## **The Flushing Sequence:**

Controlled by a PLC a flushing sequence is constructed in excel or directly on the machine, to clean a component in the most efficient manner. The open or closed state of each of the air, oil and exhaust valves may be set independently, also the linear and angular position of the lance and the pump pressures. A sequence may have up to 64 steps. Existing steps can be copied from the machine for editing off line and then copied back in using a memory card.

## **Specification:**

### **Cleanliness:**

Typical cleanliness of parts supplied to m/c i.e. before flush, Class 7:-  $600\mu\text{m}$ ,  $15\text{mg}/1000\text{cm}^2$   
Cleanliness of parts from Curtis HPF 300 flushing machine, Class 1:  $150\mu\text{m}$ ,  $2\text{mg}/1000\text{cm}^2$

### **Flushing Capacity per station:**

High Pressure Flush : Up to 300 bar, 7 L/min  
High Volume Flush : Up to 100 bar, 100L/min  
Fluid Temperature : Ambient  
Air Purge : 4-5 bar from factory supply

### **Pressure Stability:**

The servo control employed for the pressure generation system can achieve infinitely variable pressures up to the maximum with a stability of better than  $\pm 0.5$  bar.

### **Lance Positional Accuracy:**

The linear position of the lance may be controlled to better than  $\pm 0.5\text{mm}$   
The rotational position of the lance may be controlled to better than  $\pm 1^\circ$

### **External Power Pack:**

- Oil foam eliminator
- Ease of maintenance on all parts
- Level controls on all tanks for warning and e-stop
- Constant temperature monitoring at critical points would allow safety shutdown for over temperature.
- Pressure and flow monitored and displayed on operator interface status bar.
- Power pack footprint approximately 2 m square

The cleaning fluid employed is ISO test oil. The cleanliness standard depends on the nature of the contamination in the components before flushing, and the length of time taken for flushing.