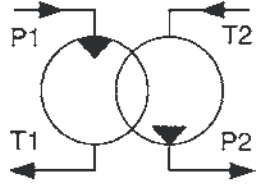


WORKING PRINCIPLE

The hydraulic system energy is used to activate three axial Pistons which are directly coupled to output pressure pump pistons which directly and continuously transfer available hydraulic power.

($P1 \times Q1$) Providing hydraulic pumping power transformed into outlet pressure ($P2$) at corresponding flows ($Q2$) to a fluid.

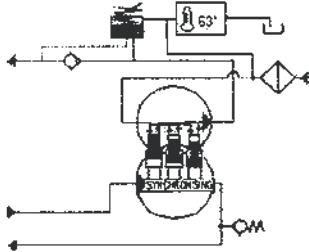
This design allows for a compact high pressure reliable pumping system.



DUAL FLUID ENERGY TRANSFORMATION

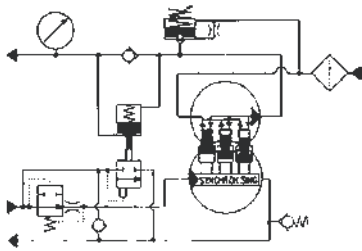
Primary and secondary circuits are hemispherically separated to allow for different drive and driven fluids.

- Oil → another liquid fluid (water)
- Oil → inflammable fluid
- Oil → Vegetable Oil
- Oil emulsion → oil



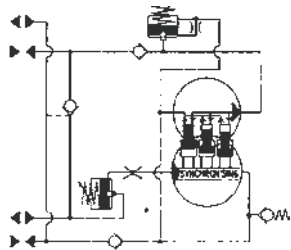
1. BYPASS (HWB 150-200-250-300)

- Primary circuit (drive)
 - Housing relief valve
 - Optional flow/pressure compensation valve
- Secondary Circuit
 - Adjustable pressure bypass valve
 - Thermal valve protection
 - Low pressure, bypass circuit
 - Low power consumption in by pass mode



2. Automatic (HPP318-615-813-415-418-613)

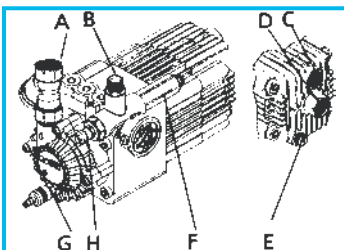
- Primary circuit (drive)
 - Housing relief valve
 - Optional flow/pressure compensation valve
- Secondary circuit
 - constant discharge pressure controlled by regulating primary oil flow
- Both primary and secondary pumps are over pressure protected.



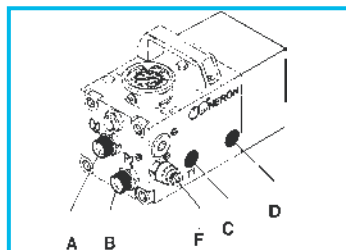
3. Base (HP 812-810-808-1408 HPP 415-418-613)

- Primary circuit (drive)
 - Housing relief valve
 - Optional flow/pressure compensation valve
- Secondary Circuit
 - Low pressure/high volume - high pressure/low volume staged system
 - Pump will begin operation once a preset pressure has been achieved.
 - Dual circuit allows for pump to be used as a boost system.

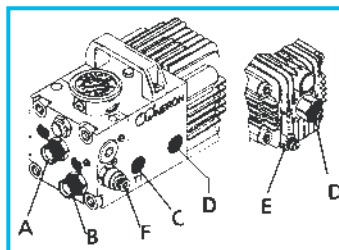
HWB BY-PASS



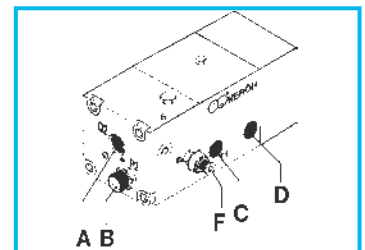
HPP 415-418-613



HPP 318-615-813



HPX



LEGEND:

- A = T2 Water inlet 3/4 ORB/Male
- B = P2 Water outlet M22M (HWB-HPP) + 1/4 GAS/F (HPX)
- C = T1 Oil return port to the tank 1/2 ORB/Female
- D = P1 Oil pressure port 1/2 ORB/Female
- E = Oil protection valve
- F = Pressure limiting valve at P2 for version By-Pass / Base / Automatic
- G = Chemical injector
- H = Thermal valve or water by-pass to tank

SPECIFICATIONS:

- Max height 5 mt
- Max water temperature 80°C; 145°F
- Minimum oil flow at P1: 10 l/m; 2.6 gpm (HWB) - 20 l/m; 5.2 gpm (HPP-HPX)
- Max oil temperature: 80°C; 145°F