Jet Pump

THE TOTAL SLURRY SOLUTION
**Warman Jet Pump**

Designed and developed in direct response to customer needs, the innovative Warman Jet Pump is capable of meeting the arduous high wear conditions associated with large particle transportation. This pump is particularly suited to applications where increased pump life and reliability become a major priority. Crucial to its low maintenance characteristics is the fact that the Warman Jet Pump has no moving parts, is subjected mainly to sliding abrasion and a low amount of impingement wear resulting in very low overall wear rates.

The Warman Jet Pump (JP) is particularly suited to dredging, marine mining and diamond pumping applications. The range includes 50 JP, 100 JP, 150 JP, 200 JP, 300 JP and 350 JP, with the number indicating the discharge diameter of the pump.

**Jet Pump Configuration**

The Warman Jet Pump is available in two different configurations dependent on the application requirements. The Suction Feed (C) arrangement, designated JPC, is the standard and preferred option. The Hopper Feed (H) arrangement, designated JPH, caters for applications where a “zero dead box area” principle is essential. The JPH configuration has an inspection hatch for easy access to the nozzle and header box area.

The schematic diagram below depicts the typical components that can be found in a Warman Jet Pump.
**Operating Principle**

A high energy motive stream is injected at high pressure into the Warman Jet Pump generating low pressure or suction in the header and inducing a low energy stream which can be either hopper or suction fed. The energy is transferred from the high energy stream to the low energy stream in the mixing chamber, and the high kinetic energy of the mixed stream is then converted into potential energy through a diffuser. This process is represented schematically.

![SCHEMATIC 2](image)

**Typical Areas of Application**

- General Gravel Dredging Operations
- Diamond Transportation
- Heavy Minerals Sand Mining
- Slurry Fluidization
- River Bed and Beach Diamond Dredging
- Gravel Jetting
- Slimes and Stockpile Reclamation
- Gravel and Slurry Mixing
- Carbon Transportation

**Advantages Over Normal Pumping**

- Induced concentrations up to 70% by volume
- Ease of use and control
- Virtually zero particle degradation diamond transportation
- Homogenous slurry mixtures
- Able to start-up under full load conditions
- Versatility of application in various arrangements
- Ability to handle large particles
- Reduced wear rates due to low impingement angles
- Accurate density control-hopper feed arrangement
Selection Chart

Approximate clear water performance to be used for preliminary selection only

Qs Litres/Second

Metres (Hd-Hs)

0.1 1 10 100

0

10

20

30

40

50 JP

100 JP

150 JP

200 JP

300 JP

350 JP

Qn Hn = Required Nozzle Duty
Qd & Hd = Total Delivered Duty
Qs & Hs = Induced Duty

The Warman Jet Pump consists of four basic parts:
1 Interchangeable and removable nozzle
2 Header Box
3 Mixing chamber
4 Diffuser

Zero Dead Box Area

This option is available with the Hopper Feed Arrangement. The “Zero Dead Box” principal is essential in industries where high security requirements need to be met, for example diamond and precious gem industries.

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