MACHINE TOOL COOLANT

Quick STUDY

Hydra-Cell® Seal-less Pumps

www.Hydra-Cell.com

Location:	Israel
Application:	Aero engine repair - grinding turbine blades
Media:	• Synthetic emulsion
Model No.:	D35XDCTHFEYB
Flow Rate:	16 gpm (60 l/min)
Pressure:	1160 psi (80 bar)
Hydra-Cell Advantages:	• Seal-less design • Ability to pump low-viscosity abrasive liquids • Pressure capability • Low energy consumption • Reliability • Low maintenance cost

Coolant for Grinding Turbine Blades

For efficient grinding of turbine blades, coolant must be delivered at high pressure to clean the grinding wheel and prevent build-up of metal particles. The twin-screw pumps originally used on the coolant system could work at pressure but could not tolerate the low viscosity of the coolant fluid (a synthetic emulsion). The fluid also contained fine particles. Labyrinth seals in the pumps rapidly wore out, reducing pump efficiency.

After a D35 pump replaced one of the twin-screw pumps, trials showed that the Hydra-Cell unit, delivering 16 gpm at 1160 bar on a 24-hour duty cycle, was more effective for the application than the screw pump working at 1450 psi and delivering 10.6 gpm. Moreover, running at less than 460 rpm, the D35 was quieter than the twin-screw pump and used less than half the energy. The D35 is operating well within its speed/flow capability - which further extends valve life - and the seal-less design of the pump has relieved the customer of the high replacement cost of labyrinth seals.

Characteristics of Fluid Pumped:

● Contains Abrasives ○ Corrosive ● Solids in Suspension ○ High-temp. (>158˚F/70˚C) ● Non-lubricating ○ High-viscosity (>500 cPs)