

Application story



High Pressure Coolant for Grinding Turbine Blades (2)

Location	Israel	Hydra-Cell model	G35XDCTHFEYA
Type of application	High Pressure Coolant for Grinding Machines	Flow rate	60 l/min (16 gpm)
Liquid	Synthetic Emulsion	Pressure	80 bar (1160 psi)
Application details	This is one of three plants in Israel which, from modest beginnings, now handle the machining of a substantial share of the world's output of turbine blades for aero engines. Equipment investments include a variety of sophisticated grinding machines from leading manufacturers. But sustained cutting efficiency depends on effective cleaning of grinding wheels, which means that coolant pumps must be able to deliver low-lubricity synthetic coolant emulsions reliably at high pressure, on continuous duty. Early experience with twin screw pumps (often incorporated as original equipment in the coolant delivery system) had exposed vulnerability to these thin non-lubricants carrying abrasive particles too fine to filter out. Labrynth seals soon wore out and the screw pumps became inefficient. In plant trials proposed by Hydra-Cell's specialist engineering distributor ITL (subsequently regrouped as Amit-Or) the seal-less G35 outperformed the screw pump it replaced. Reliably delivering 60 l/min at 80 bar on a 24-hour duty cycle it was more effective than the leading twin-screw pump working at 100 bar and delivering 40 l/min. The G35 used less energy, was quieter and totally free of seal problems. It handled the abrasive synthetic coolant with ease. In two years from 2012, Amit-Or has installed 76 x G25 pumps on Bridgeport grinders, 5 x G35 pumps on Makino grinders and latterly 2 x G35 pumps on Blohm grinding machines.		
Advantages of Hydra-Cell pump on this application	Seal-less design. Able to handle low-lubricity coolants with fine particles. Long-term reliability on continuous duty. Minimal maintenance and repair costs. Low energy consumption.		

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