

Application story



High Pressure Coolant for Turbocharger Machining (1)

Location	Ireland	Hydra-Cell model	G03SKBTTHHCA
Type of application	High Pressure Coolant for Turbocharger Machining (1)	Flow rate	6-10 l/min (1.6-2.6 gpm)
Liquid	Machine Tool Coolant	Pressure	70 bar (1000 psi)
Application details	A leading manufacturer of turbo chargers for the automotive industry was experiencing high rates of drill failure and other machining problems at its Waterford, Ireland, plant – all associated with inadequate cooling at the work face. This was because the existing machine tool coolant systems, relying on multi-stage centrifugal pumps, could not deliver coolant at the flows and pressures required for efficient, fast cutting. For example, when drilling blind holes, pressures as high as 70 bar were needed to force coolant liquid to the cutting zone through a hole only 0.02 mm in diameter. Lower pressure delivery was doubly ineffective, in terms of both cooling efficiency and swarf removal. Drills frequently broke and long strings of uncut swarf accumulated in the collection bins, which then had to be emptied every 4 hours. On the advice of pump distributor ESI Technologies, the plant adopted the Hydra-Cell G03 for high-pressure coolant pumping. Delivered at 70 bar (1000 psi), liquid flow from the Hydra-Cell pump gave highly efficient cooling and increased tool life. The incidence of broken drills was massively reduced (down by as much as 80%). As a general system improvement, ESI designed mobile skid-mounted pumping and filtration units, making it easier to filter out swarf debris from the returning coolant and recycle the liquid.		
Advantages of Hydra-Cell pump on this application	High pressure capability, combined with seal-less design and ability to handle recycled liquids.		

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