

Application story



Spray Drying Colour Dye (1)

Location	India	Hydra-Cell model	G25EKSGNNECB
Type of application	Spray Drying Colour Dye	Flow rate	Up to 40 l/min (10 gpm)
Liquid	Dye	Pressure	Up to 40 bar (580 psi)
Application details	Frequent and expensive pump repairs and product losses were among problems facing a progressive colour dye manufacturer at its plant in the Gujarat region in India. The company was pumping abrasive slurries at high pressure in the main production process. A new spraying system developed and installed by a spray drying specialist OEM overcame these problems and also reduced energy costs. The decisive bold step, involving higher initial investment but rapidly paying dividends, was the introduction of a seal-less Hydra-Cell pump for feeding material to the spray head. Seal-reliant piston-plunger pumps were normally used for this task, despite their known limitations. Spray drying operations at the plant presented a double challenge. The liquids pumped were abrasive slurries with 50% solids content and they had to be delivered to the atomising nozzles at high pressures – a combined requirement the piston-plunger pumps could not meet. Though built to a specification that included ceramic plungers and other wear resistant components, the pumps were failing through premature seal wear, resulting in internal leaks, performance loss and heavy costs for repairs and replacement parts. By its basic seal-less design, with total isolation of liquid end from drive end, the Hydra-Cell pump avoided these problems – even when handling abrasive slurries. Other significant advantages were smooth output flow and sustainably high operating efficiency – the latter enabling the pump to be fitted with a 5 hp motor, as compared with the 20 hp motor required by the previous pumps. Energy consumption was reduced accordingly. This spray dryer, installed at Ahmedabad in 2007, was the first by this system builder to incorporate Hydra-Cell pumps. The OEM continued to fit Hydra-Cell pumps as standard equipment on all spray dryers operating above 30-40 bar and up to 120 bar, wherever the solids content of the liquid is 30% or higher.		
Advantages of Hydra-Cell pump on this application	Seal-less design. Ability to pump abrasive solids at high pressure. Virtually pulse-free flow. Low energy consumption.		

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