

Variable-speed immersible pump cuts processing time when grinding

FOR MORE THAN 80 YEARS THE WALTER AG GROUP (TÜBINGEN), A COMPANY OWNED BY SANDVIK AB IN SWEDEN, HAS BEEN ACTIVE IN THE METAL PROCESSING MARKET, AND IT IS ONE OF THE LEADING COMPANIES IN THE WORLD IN THE SECTOR. THE COMPANY'S 2,000 OR SO EMPLOYEES GENERATE A TURNOVER OF 300 MILLION EUROS, AND THE PRODUCT RANGE INCLUDES GRINDING MACHINES AND PRECISION TOOLS, AS WELL AS SOFTWARE FOR TOOL MANAGEMENT.

The demands are tough in this extremely competitive international marketplace: What users demand of their machine tool suppliers is primarily high tool quality produced in a safe process, with short manufacturing times and a high output – all with the lowest possible costs.

THE SITUATION

Most machine tools used in metal processing have to be supplied with cooling lubricant. Whether the cooling lubricant system is centralised or decentralised – it is almost always served by singlestage multistage immersible pumps. Such pumps supply firstly the cleaning systems (filters) with the cooling lubricant, and secondly the machine tool, thus ensuring that the machine is cooled and lubricated, and also that swarf is removed.

In order to reduce the processing times when grinding, Walter AG designed the grinding machines in its Helitronic-Power range with an innovative 20 stage coolant pump operating with 7/20 bar. Once the blank is secured, the flute shape required by the customer is ground. The Walter designer's task was to provide significantly higher delivery pressure for cooling lubricant during

TOPIC:

Grundfos offers the most comprehensive range of immersible pumps for machine tools

LOCATION:

Sweden

COMPANY:

Walter AG Group (Tübingen)

flute grinding. This process demands higher pressure than stage 2 ('clearance angle grinding').

THE GRUNDFOS SOLUTION

For this purpose Grundfos offered Walter AG a variable-speed immersible pump from the CRKE 8-200/20 A-W-A-AQQV 3 x 380480V 7.5 kW range: 'Flute grinding' takes place at an increased pressure of 20 bar (this not only improves the cooling effect, the higher pressure also removes the swarf more quickly and efficiently); for the subsequent 'clearance angle grinding' program a delivery pressure of 7 bar is sufficient to cool the tool and to remove the grinding waste produced.

All grinding machines in the Helitronic-Power range operate with these speed-adjustable immersible pumps from Grundfos. Every year, Walter AG installs around 300 pumps in its grinding machines. The frequency-regulated MGE range motors used are pre-programmed at the factory by Grundfos at the two stages of 7 and 20 bar (they are thus delivered with an individual characteristic curve).

THE OUTCOME

Conventional grinding machines usually operate with a cooling lubricant supply that is constant at 7 bar – with a correspondingly longer processing time (slower feed rate). In most grinding tasks, it is the experience of Adolf Nill (Team Leader, Development and Design, Heli-Power) that about 20% can be saved in terms of time using a Helitronic machine and the 2-stage programming process: "If the user only has to plan for 8 minutes rather than 10 minutes of processing time for each tool, that's a significant competitive advantage." Ultimately, in this industry tool savings in terms of only a few seconds are considered to represent progress. For the operator there is also greater operating convenience (simpler setup and changing of system parameters; better control options).

"The advantage of the Grundfos solution is that the frequency converter could be integrated into the pump. This produces a very compact unit – other manufacturers don't have such a smart solution. This integration creates a solution that is optimally matched in technical terms, including space-saving benefits and, last but not least, a better visual impact."

Adolf Nill (Team Leader, Development and Design, Heli-Power, Walter AG, Tübingen, Germany)