

Reliable communication via Profibus with Grundfos machine tool pump for cooling

Grundfos interface CIU 150 ensures reliable pump communication

ŠKODA MACHINE TOOL a.s. relies on Grundfos CIU 150 communication interface, which communicates via Profibus between control system and frequency controlled Grundfos pump.



There is a nearly 100 years long history of producing machine tools by Škoda in Plzen, Czech Republic. ŠKODA MACHINE TOOL a.s. is world's leading producer of heavy horizontal milling and boring machines and heavy horizontal lathes. As accessories ŠKODA MACHINE TOOL a.s. can supply turntables with a maximum load up to 250 tons. Thus ŠKODA MACHINE TOOL a.s. becomes a preferred supplier for leading companies in the field of power engineering.

The problem

One manufacturer of steam turbines has recently installed a new heavy horizontal machine (type HCW-3, see picture above) and there was a need for regulation of cutting fluid flow by the automatic tool change. This heavy horizontal machine uses various types and sizes of tools, placed in the automatic tool changer, and every tool needs cooling liquid with different parameters. The designers of this machine were search-

ing for a sophisticated solution of a direct control of quantity of delivered liquid. This means that the quantity of liquid fed into the tool is driven directly from the machine control system (automatically loaded with information about the currently used tool).

The solution

Grundfos delivered a machine tool pump MTRE 3-26/11 and communication unit CIU 150 (for Profibus) for an efficient change of cooling liquid parameters by using automatic tool change.

The CIM/CIU 150 is a standard interface for data transmission between a Profibus DP network and a Grundfos pump or controller. It makes data exchange easy between Grundfos pumping systems and a PLC or SCADA system.

No custom programming is needed to integrate the

CIM/CIU 150 in a Profibus network. System integration is very straight-forward with standard GSD files and support for the standard profile "intelligent pumps" from Profibus International.

The interface module can be installed as an internal add-on or as a wall-mounted unit where internal connection is not supported. The wall-mounted unit is equipped with a 24-240 VAC/VDC power supply.

In addition to Profibus DP, interface modules are also available for GENIbus, BACnet, Modbus, LON, GSM and other systems.

At ŠKODA MACHINE TOOL a.s. the CIU 150 ensures direct communication via Profibus between Sinumerik control system and frequency controlled pump MTRE. The liquid's flow is now adjusted automatically at every change of working tool.

The outcome

The whole system now works reliably, i.e. the pump's performance is always automatically adjusted to the need for the currently used tools and technologies.

Michal Trejbal, designer of machines states: "We needed changes in flow of cooling liquid for a large machine. We looked for a speed controlled pump and something more, namely a communication system which is able to communicate between that pump used on large horizontal milling machines and our Sinumerik control system made by Siemens. Our traditional pump supplier Grundfos was able to offer a complex solution with MTRE pump and CIU 150 communication interface, which is prepared for direct communication via Profibus. In ŠKODA MACHINE TOOL a.s. we are very familiar with these surroundings and so our final work for establishing communication between pump and control system was not too hard."

Advantages at a glance

- Supports a wide range of Grundfos products
- Supports standard intelligent pump profile from Profibus International
- Modular design – prepared for future needs
- 24-240 VAC/VDC power supply in CIU
- Easy installation and commissioning



MTRE pumps are vertical multistage centrifugal pumps designed for pumping of cooling lubricants for machine tools, condensate transfer and similar applications. MTRE pumps are fitted with an E-motor, i.e. a motor with built-in frequency control.



Supported products by CIM/CIU communication interface for Profibus

- > Grundfos E-pumps: CRE/CRNE/CRIE, MTRE, CME, TPE Series 1000/2000, NBE/NKE
- > CUE frequency converter for standard pumps
- > Multi Pump Controller: Control MPC*
- > Boosters: Hydro Multi-E and Hydro MPC*

* additional add-on GENIbus module required.