BE > THINK > INNOVATE >

Being responsible is our foundation
Thinking ahead makes it possible
Innovation is the essence

GRUNDFOS **INDUSTRY**

The Grundfos approach to machine tools

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GRUNDFOS

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GRUNDFOS

Machine tools with Grundfos

Grundfos can supply all the pumps you need for all kinds of machine tool applications: boring, sawing, milling, grinding etc.

We have all the pumps for the entire process: cooling, filtration, circulation of lubricants, transfer of condensate, washing and cleaning.

But the Grundfos product range doesn't stop there. We don't offer only one product for one duty point; we offer a choice of materials, electronically controlled motors and customisable components for specific needs.

This means that you can rely on not just one Grundfos pump for one application, but you can rely on *only* Grundfos pumps for all your machine tools – one supplier every time.

Grundfos has a responsive, worldwide network of service and technical support centres in more than 50 countries. This gives our customers access to a pool of global expertise of pumps for all applications and helps keep delivery times short.

Your partnership with Grundfos has three benefits

Know-how

Tap into a pool of global expertise of pumps for all applications

Pump solutions

Be a part of the future of pump technology

Cooperation

Enter a continuous dialogue between your needs and our custom-built solutions

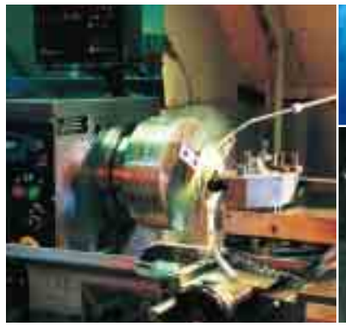
More than expertise

For all machine tool applications, Grundfos can supply the entire range of pressures and flows.

Our electronically controlled motors allow:

- Delivery of exactly the flow and pressure required to optimise the conditions for the process.
- Different speeds for different pressures, which means that the pump can do the job of two or three pumps.
- Energy-savings and reduced Cost of Ownership.

If space is an issue, Grundfos can also supply a very compact range of products.



Cooling

For a good finish and tolerance on the machined part, the cooling media should be approximately 20ºC. For adjustment of the media temperature, using small control units at the machines, Grundfos' compact programme of pumps, CHK/MTH/CHI, can deliver the full range of pressures and flows. To adjust the media temperature using a cooling tower, the MTR and CRK pumps can produce a flow of up to 1800 l/min and a pressure of up to 25 bar. All the pumps are highly efficient, reliable and service-friendly.

Filtration

Filtration is crucial in top quality machine tool applications. Good filtration of the coolant oil will extend the lifetime of both the tool and the coolant. Filtration also prevents chips damaging surfaces or tolerances.
For filtration at the machine, Grundfos MTA with open impellers for low pressure is ideal. Our CRK and SPK pumps provide medium pressure and medium flow. For large central filtration systems, the MTR pump range delivers up to 1800 l/min. All the pumps can be supplied in a length suitable for the tank and for the installation, making the system as compact as possible.

Boring

For each material, bore diameter, tool speed, and for through boring or blind boring, Grundfos can provide exactly the required pressure and flow. For large bore diameters, where high flow and low pressure are needed for cooling the tool and the material, the Grundfos MTA and SPK range are perfect. For deep blind holes, where internal tool cooling is needed to flush the chips back and out of the bore, medium to high pressure is needed and Grundfos' CRK pump is a good choice. For high pressure (up to 35 bar) Grundfos can provide a speed-controlled CRKE pump. The integrated frequency converter on the motor will regulate the speed of the pump to give the high pressure.

Wire cutting/Spark erosion

Here, the media must be clean. Demineralised water or petroleum is used. Grundfos' CRKI, SPKI and MTHI are made entirely of stainless steel, preventing corrosion and iron particles being deposited in the water. This means that the process will be more accurate and the filter in the system will last longer.
A steady temperature is necessary for this process. This temperature depends on the specific flow and pressure. Grundfos' CRKI and SPKI pumps can be supplied with the full range of performances, which make it easy to select the correct pump for your machines.

Industrial Washing

Metal machining components need washing after going through a process. A tank is used to keep the washing media inside the machine. Grundfos' immersible pumps are compact enough to fit in this tank. These pumps do not require an inlet pipe, which reduces installation costs. Our all-stainless steel CRKI or SPKI products are ideal for corrosive media. Grundfos' pumps with electronically controlled motors can be used to make the washing machine programme more 'intelligent'.

Process cooling (milling/turning)

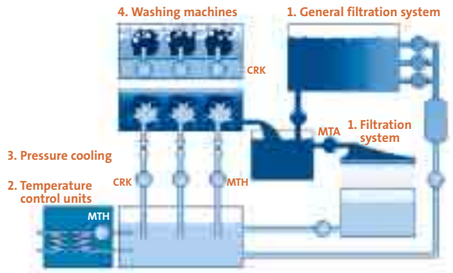
Milling and turning involve many different materials, all with their individual cooling requirements. For each of these materials, Grundfos CRK and SPK pumps can provide low pressure and flow up to high pressure (35 bar) and high flow. We can supply pumps in different immersible lengths, customised to fit into your specific tank size. Even when the space is limited, we can supply compact CHK/MTH pumps, which need very little space above the tank.

More than the full range

As well as offering this comprehensive range of products, Grundfos is dedicated to providing a customised solution for any individual need.

We custom-build:

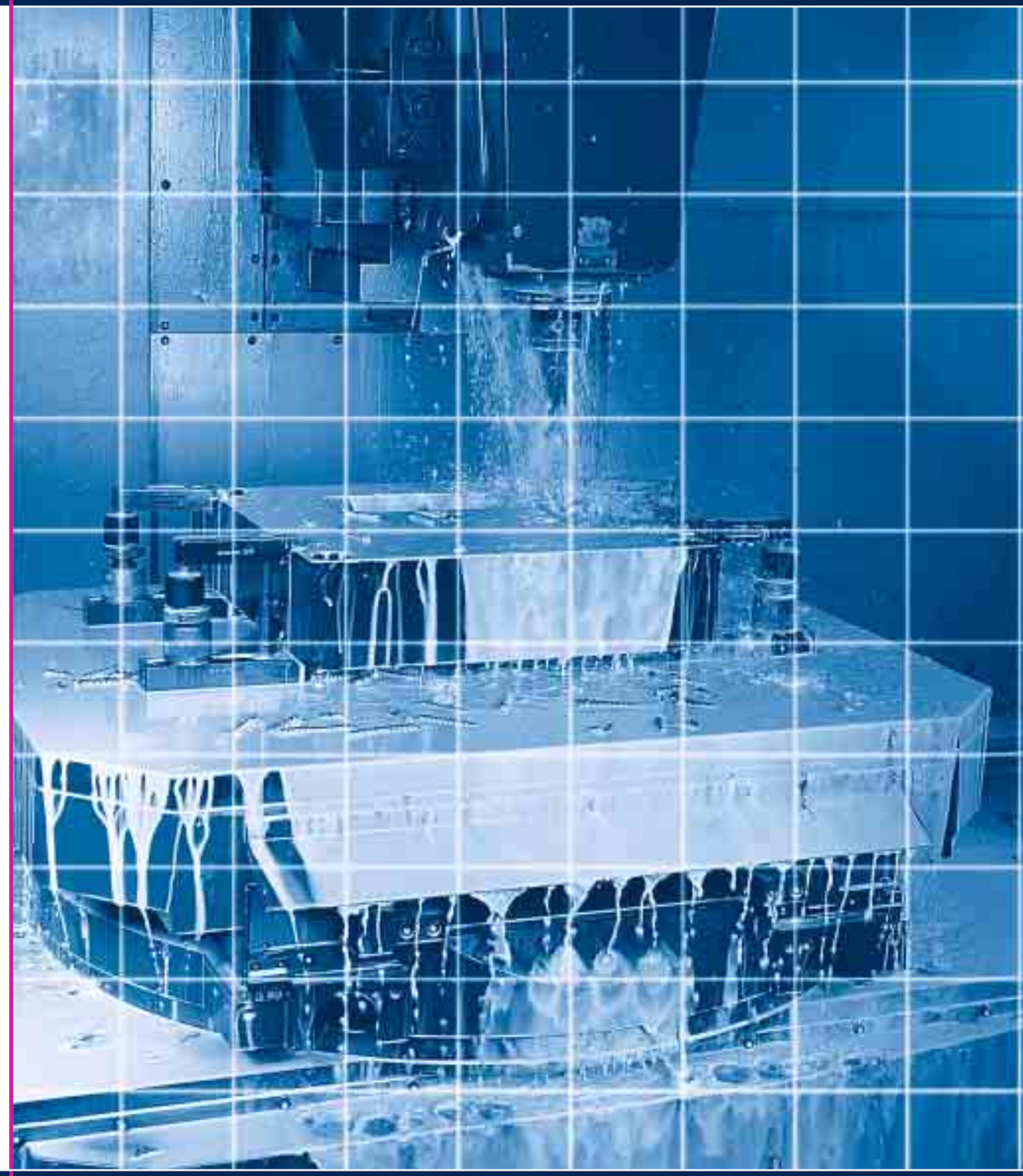
- All-stainless steel pumps for use with corrosive media.
- Bearings from bronze, ceramics or graflon.
- Shaft seals (sealless, EPDM, FKM, Kalrez) from tungsten, carbon or silicon.
- Motors for different voltages and frequencies, electronically controlled, in terminal boxes made from different materials.
- High-speed motors used for pressures up to 35 bar.
- Specialised flanges, multi plug connectors, impellers (e.g. for abrasive media).



The diagram shows a typical machine tool system. Both washing machines, temperature control units, process cooling and filtration systems.

Application / Type of pump	Boring	Sawing	Milling	Grinding	Spark erosion	Circulation	Turning	Cooling	Washing
MTA	●	●	●	●				●	
MTH & CHK	●		●	●	●	●	●	●	●
CRK & MTR	●		●	●	●	●	●	●	●
SPK	●		●	●	●	●	●	●	●

The Grundfos programme of immersible pumps are suitable for a variety of industrial applications as indicated in the table.



Working together to find the ideal solution

We have an entire department of highly skilled engineers dealing exclusively with the modification of our existing pumps to suit the individual customer's specific requirements. Through dialogue and the pooling of our expertise with that of the customer, we are able to identify and implement the most beneficial and effective solution.

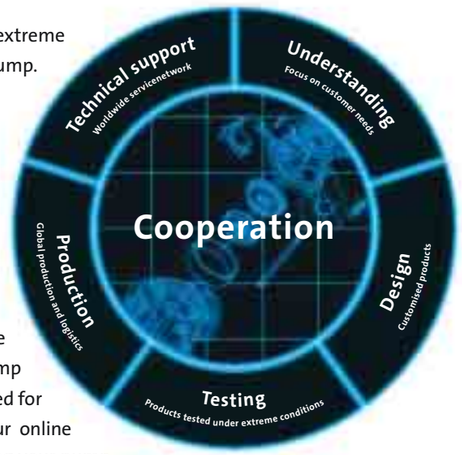
Understanding
As innovators, we must understand the demands you put on a pump; we must learn exactly how your processes work. Only then can we apply our extensive knowledge of materials, pumps and pumping systems to design the ideal pump for you.

Design
We have the most comprehensive ranges of pumping solutions on the market. But, we're not going to stop there! After listening very closely to user needs, our top designers extend functionality and incorporate elements from across our product range. Then we can match each individual customer's requirements.

Testing
Jointly with our customers, we test our solutions, both under the most extreme conditions and specifically in the environment in which you will use the pump.

Production
Grundfos exerts tight control over every aspect of production. Nothing is left to chance, because these are the pumps you will be using. All our production facilities meet the same high quality and environmental standards – wherever they are in the world.

Technical support
Our global operation means that help, after-sales service and training are nearby – wherever you are in the world. In addition, we can offer our pump selection tool, WinCAPS. This database contains all the information you need for finding the right pump for a certain job. And both WinCAPS and your online Grundfos library, WebGold, contain everything you need to succeed for using your pump.



SPK - Multistage centrifugal pump

Benefits	Technical data – SPK
> Reliability > Flexible installation length > Wide range > Service friendly > Simple installation	Flow (m^3/h): Max 12 Head (m): Max 100 Max operating pressure (bar): 15 Liquid temperature (°C): -20 to +90

CRK - Multistage centrifugal pump

Benefits	Technical data – CRK
> Reliability > Flexible installation length > Wide range > Service friendly > Simple installation	Flow (m^3/h): Max 26 Head (m): Max 250 Max operating pressure (bar): 25 Liquid temperature (°C): -20 to +90

MTR - Multistage centrifugal pump

Benefits	Technical data – MTR
> Reliability > Flexible installation length > Wide range > Service friendly > Simple installation	Technical data Flow (m^3/h): Max 110 Head (m): Max 230 Max operating pressure (bar): 25 Liquid temperature (°C): -20 to +90

MTH - Multistage centrifugal pump

Benefits	Technical data – MTH
> Reliability > Compact > Wide range > Service friendly > Simple installation	Flow (m^3/h): Max 25 Head (m): Max 120 Max operating pressure (bar): 15 Liquid temperature (°C): -20 to +90

MTA/D - Multistage centrifugal pump

Benefits	Technical data – MTA/D
> Reliability > Flexible installation length > Wide range > Service friendly > Simple installation	Technical data Flow (m^3/h): Max 7.2 Head (m): Max 15 Max operating pressure (bar): 1,5 Liquid temperature (°C): -20 to +90