



# Grundfos immersible pumps – excellence for industries

# Strength through versatility

## Truly excellent immersible pumps

The Grundfos range of immersible pumps is the result of close collaboration between our in-house specialists, industry customers and stakeholders. Following careful research and analysis of user needs, our engineers have developed a full immersible pump range, comprising products from several pump series. Ranging from very compact to as long as you want, each model has its own unique characteristics, providing specific advantages for specific jobs.

At Grundfos, you can always find an immersible pump to suit your situation. And you can be sure that it will provide years of trouble-free performance.

## Choose Grundfos for real benefits

By choosing Grundfos as your pump solution partner, you will enjoy many benefits. These can be grouped under three main headings:

### Know-how

Tap into a rich source of pump expertise

### Pump solutions

Take part in the future of pump technology with cutting-edge solutions from Grundfos

### Co-operation

We take your needs seriously. Our customised solutions demonstrate our commitment to creating the right solution every time.



## Expert advice

The Grundfos range of immersible pumps represents a wealth of expertise and know-how that is second to none. Backed by many years of experience with all types of industrial applications, Grundfos is in an excellent position to offer recommendations on the right pump choice for any industrial process. Wherever you need to mount a pump in a tank – e.g. for cooling, chilling, wire cutting, filtration, boring, washing, or process cooling – we can help you find the right immersible pump to provide real reliability where you need it.

## Cutting-edge technology

The remarkable advantages of the Grundfos immersible pump range are based on a combination of superior materials and state-of-the-art technology. Many of these innovative technologies are unique to Grundfos, providing benefits you won't find anywhere else. Examples include the patented cartridge seal, guaranteeing minimum downtime. All technology aims for maximum efficiency, reliability and ease of service.



## Customisation made easy

Industries frequently find themselves wanting pumps that do not actually exist yet. To accommodate such wishes, Grundfos takes a unique "mix and match" approach to customised pump solutions. This means that the various pump components, features, and options should simply be regarded as modules that can be combined in countless ways to create the solution that is exactly right for you.



- Expertise
- Cutting-edge technology
- Customised solutions

*Grundfos offers a full range of immersible pumps for all industrial applications. The MT series will meet the vast majority of requirements and is supplemented by the MTR and SPK pumps for specific situations.*

# Excellence through expertise

## We know your business

Industries need suppliers who know their requirements inside out if the partnership is to be successful. Years of co-operation and partnership with industry customers of all kinds have given Grundfos in-depth knowledge of all industrial applications, allowing us to serve current and future customers the best way possible. Grundfos immersible pumps are made by specialists for specialists.

## All industrial applications covered

With a range capable of delivering from 0.5 to 90 m<sup>3</sup>/h at pressures of up to 35 bar, there is a Grundfos immersible pump for every process.



## Machine tool processing

Precise cooling is required to obtain a good finish and tolerances for machined parts. In addition to this, different coolant flows and pressures are required for each individual material, bore diameter, tool speed, and through-spindle boring. The immersible pumps from Grundfos can provide exactly the pressure and flow you need, however small or large.



## Temperature control

Grundfos immersible pumps can be used for exact temperature control. For example, chip washing requires precise temperature fine-tuned within a margin of 0.01°C. An immersible E-solution from Grundfos is just right for the job.



## Industrial washing

For industrial washing, the washing media is contained within a tank. Grundfos has immersible pumps that are compact enough to fit such tanks. They also do not require an inlet pipe, a fact which reduces installation costs. And to top it all off, all our stainless-steel MTRI/SPKI pumps are ideal for corrosive washing media.



*To us at Grundfos, service is about making things as easy for you as possible. For example, we test every single pump before it leaves the factory to make sure that you get only the very best.*

## Global service

Grundfos has a global service network with technical support centres in more than 50 countries. This gives all customers access to top-class expertise for all pump applications. Our service extends to every aspect of your pump solution and includes such important features as how to choose the right pump for the job.



*The Grundfos Academy trains our staff to meet your needs.*

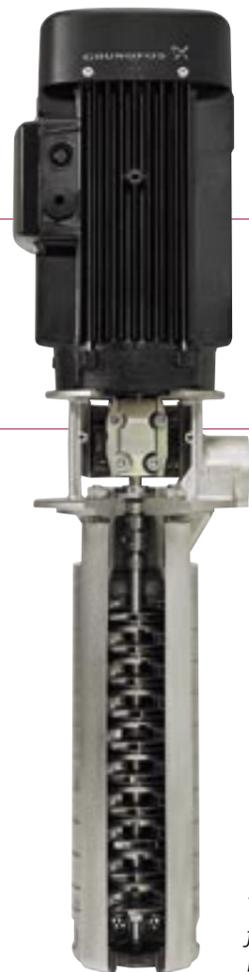
## Commitment to learning

All Grundfos' partners must meet competent and highly skilled staff. That is why Grundfos has established its own Academy, demonstrating the importance we attach to competency development. We believe in creating learning. In supporting innovation every way we can. And in using our rich store of knowledge to create real solutions in the real world.

# Cutting-edge technology

## Top-range technology for you

Grundfos customers benefit from the very highest product quality. The materials are first-rate, the craftsmanship is second to none, and patented technology developed by Grundfos provides added benefits. Some of the unique features are presented here. The main focus of any Grundfos pump is to provide completely trustworthy and reliable service, leaving you confident that your chosen solution will not let you down.



*The Grundfos MT pumps are carefully constructed from top-quality materials inside out.*

### Laser-welded impellers for minimum friction

Grundfos has developed an exceptional laser welding technology, allowing Grundfos impellers to be as perfect in real life as they are in the design sketches. The complete accuracy characteristic of laser welding ensures a more streamlined flow in the impeller, reducing eddy flow and friction losses. Naturally, this promotes pump efficiency.



### Minimal internal leakage

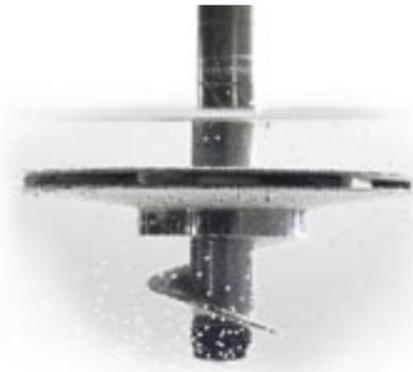
A floating seal ring between chambers reduces internal leakage to an absolute minimum. No energy is wasted on circulating liquid that seeps unintentionally into the pump, a fact which improves overall pump efficiency.



### Tackle dry running with Grundfos

Dry running is a major threat to pumps – which makes it a threat to overall equipment performance. In most pumps, the shaft seal and bearings will burn out almost immediately if liquid stops flowing in the pump.

The Grundfos range of immersible pumps is different. We have carefully tested new technologies and materials to bring you the best possible protection against dry-running. The Grundfos MT pumps are fitted with a special priming screw, allowing them to handle very shallow liquid levels without problems.



*The special priming screw in Grundfos MT pumps allows for liquid levels down to 25 mm.*

### New seal alternatives

The compact MTH range of immersible pumps has been supplemented by a version which combines the advantages of having a seal and allowing small amounts of the pumped liquid to return to the tank through channels in the pump.



### Complete protection with dry-running sensor

Available as an optional extra for a full range of pumps, the patented Grundfos LiqTec system completely eliminates the risk of breakdowns due to dry running. If there is no liquid in the pump, the LiqTec sensor system will immediately stop it, preventing any damage.



*The LiqTec sensor stops the pump immediately in the event of dry running.*

### Durable materials

Grundfos immersible pumps also have a particularly durable shaft seal and bearing system that can withstand extreme heat and friction for longer periods of time. A range of other design features also contribute to overall durability, making immersible pumps from Grundfos more resistant to damage if they should run dry.



## Unique cartridge seal design

One of the seals used in immersible pumps from Grundfos combines the best features of standard seals, wrapped up in an ingenious cartridge design to give you even more advantages. All of these ensure extra reliability.

The durable seal is made from hardwearing materials which prevent downtime and prolong the lifetime of the seal. The balanced cartridge seal reduces wear at high pressures. All axial movement has been eliminated, preventing wear of the shaft and rubber parts – a typical problem area for traditional seals.



*By collecting all the small components within a single unit, the cartridge design ensures maximum reliability.*

### Safe and easy handling

The patented Grundfos cartridge design ensures that the seal components will never be assembled wrongly, the spring will never be incorrectly preloaded, and that sensitive surfaces will never be subjected to greasy fingers or dirt. All these factors are common causes of short seal lifetimes in other pumps.

The cartridge configuration also enables rapid replacement when the seal ultimately needs changing. All in all, downtime is minimised.

*The cartridge design facilitates easy seal replacement in a matter of minutes.*



*Machine tool park at Grundfos factory.*



*Assembly line of immersible pumps at Grundfos.*

## The benefits brought by technology

### Never worry about your pumps again

Perhaps the most important aspect of the immersible pumps from Grundfos is their reliability. The fact that right from the second they are installed, they just keep on going. And going. Their durability allows you to trust them implicitly, safe in the knowledge that they handle all the processes you require with minimum risk of downtime. So take a load off your mind with a Grundfos pump solution.

### Real reliability

Grundfos uses technology and innovation to create real benefits for customers. As reliability is a top priority for users worldwide, all immersible pumps from Grundfos have been designed with durability and stable performance in mind.

As a Grundfos customer, you can be confident that your pump solution meets the same stringent requirements that you apply to all other aspects of your equipment. Emphasis is placed on minimising downtime. To you, this means that you can plug in a Grundfos pump and then forget all about it as it runs smoothly and efficiently day after day.



*Industries worldwide enjoy the peace of mind that a Grundfos solution brings. Here, a MTRÉ pump is being assembled at a factory in Denmark.*

## Improve efficiency with innovative technology

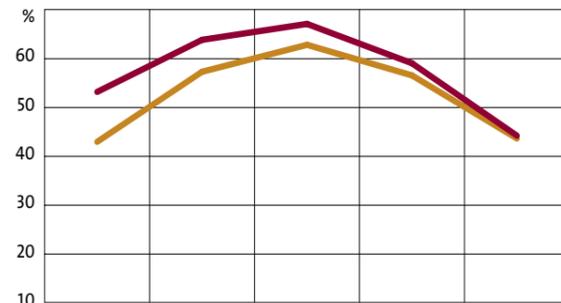
Reducing energy consumption of all types has obvious benefits. Meticulous research and consistent insistence on the best production methods available has allowed the Grundfos hydraulic engineering team to reduce power consumption by 15 to 20%. Depending on your needs, you can either benefit from the savings yourself or use the high-efficiency pumps from Grundfos to give your systems an extra competitive edge.



Grundfos pumps are not just reliable – they also save energy.

### Excellent efficiency

Several of the innovative technologies used by Grundfos, such as the laser-welded impellers, ensure maximum efficiency. See the table below for an example of how efficiency has been improved.



— New MTR pump  
— Old CRK pump

This figure illustrates the added efficiency provided by the new MTR pump.

Naturally, these savings will continue for years and years – for every pump you own. This translates into a lower total Cost of Ownership, proving once again that quality does pay off.

The total cost of owning a pump

- Initial investment 5%
- Maintenance 10%
- Energy 85%



### Lower total Cost of Ownership

It should always be borne in mind that electricity accounts for a full 85% of the total cost of owning a pump. This is food for thought to industries such as the metal processing sector, where each CNC controlled processing station can contain up to six pumps per machine. When you have dozens, even hundreds of such stations, superior efficiency very quickly translates into the lowest Cost of Ownership available on the market.

## Intelligent solutions to complex situations

To accommodate the many situations where the required flow and pressure vary considerably over time, the Grundfos range of immersible pumps includes variable speed versions. Known as E-pumps, these pumps (the Grundfos MTR, SPKE and CRKE) combine the very best of pump technology with remarkably efficient electronic variable speed motors.

Grundfos makes its own motors. This means you can be sure of a perfect match between all the technologies involved. And the net result is intelligent solutions that will take care of everything you need, carefully controlling even the most complex of processes and delivering the exact flow and pressure required. Do you need stable pH levels? Specific temperatures? Carefully timed operation? The E-pumps from Grundfos can give you all this and much more.



### Communication options

The E-solutions from Grundfos allow you to define industrial processes down to the smallest detail. They can also be remote controlled and/or linked to management systems of your choice for perfect interaction.

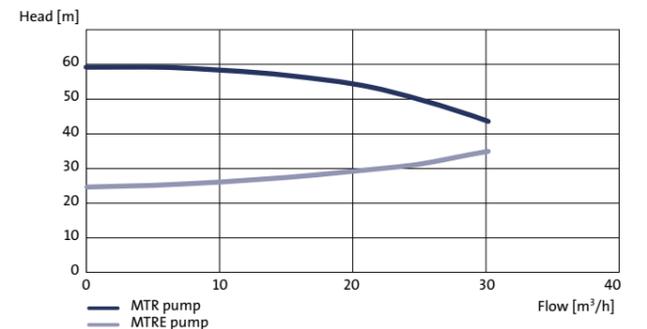
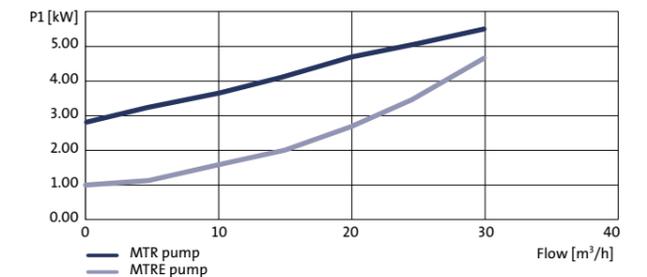
### Ultimate efficiency

Variable speed can certainly yield constant benefits. With their ability to change speed to suit pressures, an E-pump can do the job of two or even three standard pumps. The electronically controlled motors also give the final touch to the already highly efficient Grundfos immersible pumps, saving even more energy. Naturally, this contributes to a very low total Cost of Ownership.

In short, the combination of Grundfos pump expertise and special motor technology guarantee ultimate performance and efficiency.

### Highly efficient

Using a variable-speed motor gives the final touch to the already highly efficient Grundfos pumps.



The E-solutions from Grundfos are a happy union between high-quality pumps and superior variable-speed motors.



## Mix and match Grundfos elements to create your own solution

### Combine elements to create the perfect solution

Grundfos takes a modular approach to pump solutions. Rather than supplementing a restricted standard range with customised solutions built from scratch at prohibitive cost, we offer all customers the unique opportunity to mix and match a range of elements, materials, designs, and features to create the pump that is exactly right for the job at hand. As a result, industries can rely on Grundfos to be a true full-line supplier for any and all pumping tasks.

### Many elements – endless variety

Your potential range of choice goes far beyond what we can present here. But we can whet your appetite by giving you some idea of the many elements that can be combined.

### Motor options

MTR motors are available in many different configurations to meet the requirements presented by the power supply, the pumping environment and/or the pumped liquid itself.

- Power supply systems vary in terms of both frequency and voltage, and protection methods also differ greatly around the world.
- Your environment may be explosive, very hot and/or very humid. Special conditions also apply at high altitudes.
- The liquid pumped can call for a special motor solution. High or low viscosities and/or high or low densities may require non-standard motor sizes. You may also need an explosion-proof variant.

### Shaft seal options

With a choice of materials, configurations, and designs – many of them unique to Grundfos – the wide range of shaft seals and seal systems available will handle extreme temperatures, high pressure and difficult liquids with ease.

### Pump versions

The pump part in itself can also be adapted to accommodate specific needs. For example, pump modules are available in stainless steel, in different lengths with special pipes and many others.

### Even more options

Grundfos immersible pumps can be delivered with connections to suit your needs; with specialised flanges, flexible flanges and even with two outlet pipes.

### Ask us. We deliver

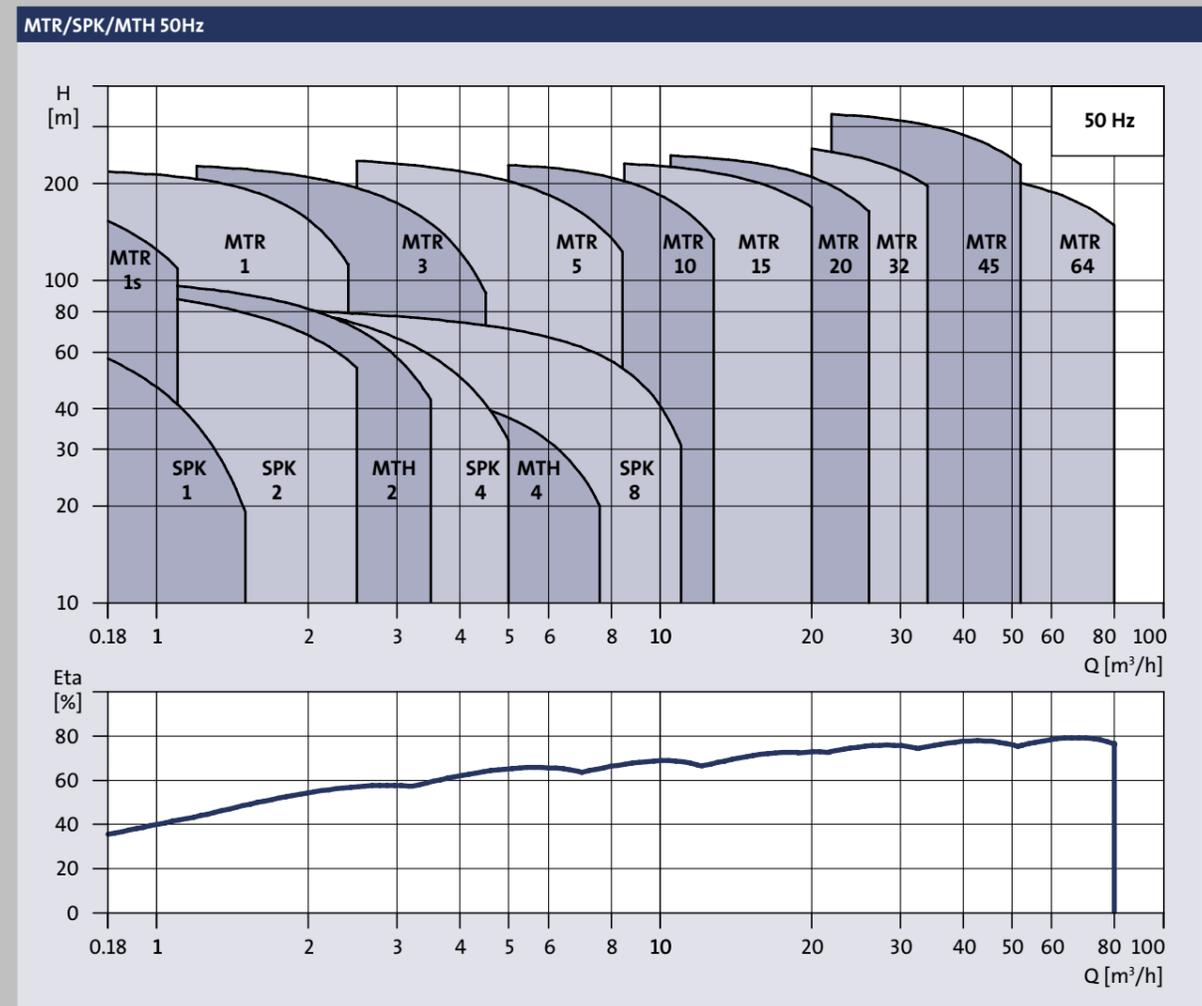
We are always ready to use our in-depth knowledge of industrial processes to help you select the best possible immersible pump for your situation. If that requires some unusual combinations, special materials, or design modifications, we will carry out all the necessary work for you. Just ask us. We deliver.

 <p><b>Single phase</b> Single phase motors</p>	 <p><b>High efficiency</b> CEMEP Eff1 motors</p>	 <p><b>Explosion proof</b> ATEX approved</p>	 <p><b>Multi plug</b> Connection 0.37 - 7.5 kW</p>	 <p><b>Metal terminal box</b> M671 - 80 0.37 - 1.1 kW</p>		
 <p><b>Seal face</b> Many seal face materials available</p>	 <p><b>Rubber</b> Variety of rubber (O-ring) materials</p>	 <p><b>Non-cartridge solution</b> Any EN12756 shaft seal</p>	 <p><b>Seal alternatives</b> Drainage back to tank</p>			
 <p><b>Flexible depth</b> Immersible depth 160 up to 1,200 mm</p>	 <p><b>Priming screw</b> Allows shallow liquid levels</p>	 <p><b>Mixer</b> Customized tool for mixing liquids</p>	 <p><b>O-ring pipe</b> Suction path for vacuum filtration</p>			
 <p><b>Flange</b> Squared flange for easy connection</p>	 <p><b>Pipe connection</b> NPT, G, RP connections</p>	 <p><b>Flexible flange</b> NPT, JIS/DIN</p>	 <p><b>Dual outlet connection</b> Two pumps in one for low pressure</p>			
 <p><b>Machine tool processing</b></p>	 <p><b>Chilling</b></p>	 <p><b>Filtration system</b></p>	 <p><b>Industrial washing</b></p>	 <p><b>Grinding</b></p>	 <p><b>Wire cutting</b></p>	 <p><b>Temperature control</b></p>

	MRT1s	MTR1	MTR3	MTR5	MTR10	MTR15	MTR20	MTR32	MTR45	MTR64
<b>Range:</b>										
Nominal flow m <sup>3</sup> /h / (l/min)	0.7 (12)	1 (17)	3 (50)	5 (84)	10 (167)	15 (250)	20 (333)	32 (533)	45 (750)	64 (1066)
Flow range (m <sup>3</sup> /h)	0.3-1.2	0.5-2	1.5-4	2.5-7.5				15-40	22-58	30-85
Max pressure (Bar)	21	22	24	24	22	24	25	28	26	20
Motor power (KW)		0.37-2.2	0.37-3	0.37-5.5	0.75-11	1.1-18.5		1.5-30	3.0-30	04-30
Temperature range (C)	-10 to 90									
Max. pump efficiency (%)	35	48	58	66	70	72	73	78	79	80
<b>Version:</b>										
MTR (AISI 304/ cast iron)	x	x	x	x	x	x	x	x	x	x
MTRI (AISI 304)	x	x	x	x	x	x	x			
<b>Pipe connection:</b>										
Internal G thread 5/4"	x	x	x	x						
Internal G thread 2"					x	x	x			
Flange rectangular	x	x	x	x						
Flange (DIN, JIS, ANSI)								x	x	x

	MTH2	MTH4		MTA3	MTA4	MTAD7/7			
<b>Range:</b>									
Nominal flow m <sup>3</sup> /h / (l/min)	0.7 (12)	1 (17)		3 (50)	4 (66)	2x7 (116)			
Flow range (m <sup>3</sup> /h)	1-3.5	02-08		1.5-4	2.5-7.5				
Max pressure (Bar)	10	10		1	1.1	2x1.1			
Motor power (KW)	0.37-1.1	0.37-1.1		0.18	0.25	0.75-1.1			
Temperature range (C)	-10 to 90	-10 to 90		-10 to 90	-10 to 90	-10 to 90			
<b>Version:</b>									
MTH/MTC (AISI 304/Cast iron)		x	x						
MTH-I / MTC-I (AISI 304)		x	x						
MTA (AISI 304/Cast iron)					x	x	x		
<b>Pipe connection:</b>									
Internal RP thread 3/4"		x	x		x	x			
Internal RP thread 5/4"								x	

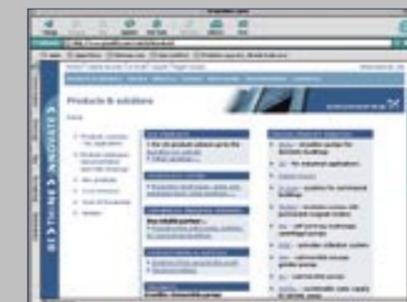
	SPK1	SPK2	SPK4	SPK8					
<b>Range:</b>									
Nominal flow m <sup>3</sup> /h / (l/min)	1 (17)	2 (33)	4 (67)	8 (133)					
Flow range (m <sup>3</sup> /h)	0.2-1.5	0.5-2.5	2.0-5.0	4.0-12					
Max pressure (Bar)	8.6	10.5	9.8	8.5					
Motor power (KW)	0.06-0.37	0.06-0.75	0.06-1.1	0.25-2.2					
Temperature range (C)	-10 to 90	-10 to 90	-10 to 90	-10 to 90					
Max. pump efficiency (%)	40	55	50	58					
<b>Version:</b>									
SPK (AISI304/Cast iron)	x	x	x	x					
SPK-I (AISI304)	x	x	x	x					
<b>Pipe connection:</b>									
Internal RP thread 3/4"	x	x	x						
Internal RP thread 5/4"				x					
Flange rectangular	x	x	x	x					



### Pump selection made easy

Ever eager to share our expertise with others, we also offer our special pump selection tool WinCAPS – short for **Windows-based Computer Aided Product Selection**. This very user-friendly database contains all the information you need to

find the right pump for a specific job. WinCAPS is excellently supplemented by the online Grundfos library WebGOLD (Grundfos Online Literature and Documentation), providing all the data necessary for successful pump operation.



WinCAPS makes pump selection easier than ever

### **The MT range from Grundfos**

The immersible pump range from Grundfos is ready for new challenges. The pumps have been fitted with new technology and features to further enhance their reliability and efficiency. The product portfolio has also been expanded by the addition of new models, making it simpler than ever to find a pump that exactly matches your system requirements. All improvements have one common goal: to provide excellence for industries.

### **A pump for every purpose**

Impressive as the MT range is, Grundfos offers much more. A complete range of pump solutions means that all applications – industrial and domestic – can benefit from the Grundfos touch. And you can always rely on our complete dedication to quality and service.