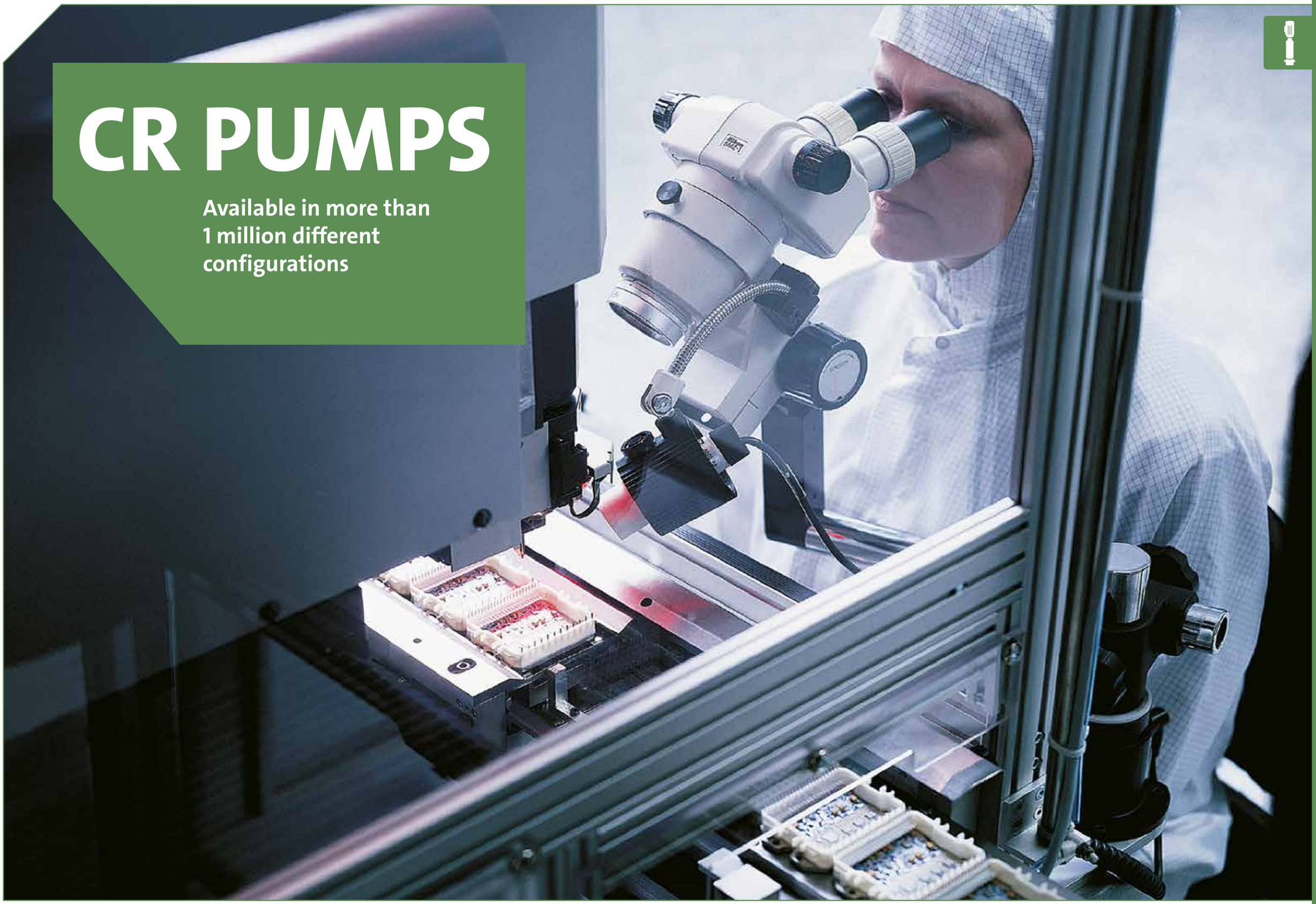
CR PUMPS

Available in more than 1 million different configurations



Motors

Grundfos Blueflux® technology represents the best from Grundfos within energy efficient motors and variable frequency drives.

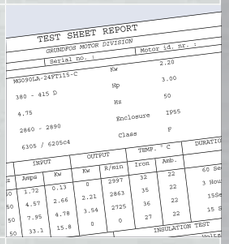
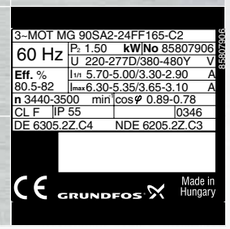
Products with Grundfos Blueflux® label either meet or exceed international legislation regarding motor efficiency.

Grundfos Blueflux® labelled motors are standard in CR pumps with motor size 0.75-75 kW and motors with integrated frequency converter from 0.75-22 kW.

What follows is an overview of some of the most common motor variants offered by Grundfos. However, the overview covers only a fragment of the total motor range. Please do not hesitate to contact Grundfos if your requirements are not covered by the overview.

- **Special supply voltages**
- **Extreme operating conditions**
- **Special motor protection**
- **Specific approval**
- **Special motor design**

Solution	Description	Photo
ATEX approved	A full range of special explosion-proof and dust ignition-proof motors is available with ATEX approved pumps.	
MGE motors	The Grundfos MGE motor with integrated frequency converter can operate at different speeds in order to optimise pump performance to the application: Low speed, to obtain e.g. - gentle handling of the liquid - pumping at low NPSH level - reduced noise emission Oversynchronous speed, to obtain e.g. - more flow and head on a given pump size - compact physical size The advanced control can measure and adapt to special applications, e.g. - Extended protection of process - Extended protection of pump and drive - Pump performance curve adjusted to match individual applications Standard MGE motors have built-in motor protection, pump monitoring, and on-board regulator and sensor supply for control of primary process. If special control is required, the MGE can be equipped with extended I/O cards and BUS connection. Customised software and add-on hardware can be tailored to match special demands. The MGE motor can be controlled by a variety of interfaces, i.e. - buttons on the pump - advanced R100 infra-red remote control - standard analogue signals - BUS communication	
Heating units	Anti-condensation heating can be supplied by a built-in heating unit.	
Multi-plug	Our motors are available with a multi-plug (Harting® plug) according to HAN 10 ES for fast mains connections.	
Thermal protection	Motors with a built-in bimetallic thermal protector (PTO) or a temperature depending resistance (PTC) are available.	

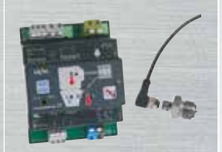
Solution	Description	Photo
cURus approval	Grundfos motors are available with the cURus approval covering USA and Canada. Dual frequency: 50 Hz: 3 x 208-230/460 V 60 Hz: 3 x 400 V	c UL us
Certificates	The Grundfos laboratory is authorised to issue various certificates for motors: - noise - vibration - performance - efficiency	
Four-pole motor	Four-pole motors for applications where very low noise levels are required or for applications that do not allow whipping of the pumped liquid.	
VIK approved motors	VIK approved motors are available according to German industrial electrical standard.	
Over or undersize motors	For use where the viscosity or density is different from that of water, installations where the altitude exceeds 1000m or where the ambient temperature is very high.	
Terminal box position	The motor can be mounted on the pump head in steps of 90°.	
Special voltage	A wide range of supply voltages within single three-phase as well as dual voltage can be supplied.	
Enclosure class	Enclosure class IP 55 is standard on Grundfos motors. Enclosure class IP 65, IP 54 and IP 44 are available as options.	

Shaft seals

Extreme liquids call for extreme measures. Most pumps are used for watery liquids at temperatures below 120°C and pressures lower than 30 bar. When liquids go beyond these limits, special shaft seal solutions are required to guarantee reliable operation.

What follows is an overview of some of the most common shaft seal variants for the CR range offered by Grundfos. However, the overview covers only a fragment of the total shaft seal range. Please do not hesitate to contact Grundfos if your requirements are not covered by the overview.

- **Aggressive or corrosive liquids**
- **Abrasive liquids**
- **Poisonous and/or explosive liquids**
- **High-viscosity and/or sticky liquids**
- **Extraordinary high pressure**
- **Extraordinary high or low temperature**

Solution	Description	Photo
Double shaft seal Back-to-back	For applications involving dangerous, flammable, or very abrasive liquids, a double shaft seal, back-to-back, fitted in a pressure chamber is available. The pressure in the chamber must be higher than the pump pressure to prevent leakage. The barrier fluid pressure can be supplied by either a Grundfos dosing pump arrangement (up to 16 bar) or an intensifier for pressure requirements above 16 bar.	
Double shaft seal Tandem	For applications involving a high risk of crystallisation (e.g. sugar solutions) or hardening (e.g. oil or paint) as well as pumps handling vacuum, a special double shaft seal in a tandem arrangement is available. Grundfos offers a quenching fluid system for the flushing of the shaft seal.	
Titanium shaft seal	For applications involving a high risk of corrosion, an all-titanium shaft seal variant is available for the all-titanium CRT pumps.	
LiqTec™ dry running protection	The Grundfos LiqTec™ is an electronic anti-dry-running sensor that stops the pump immediately if it senses no liquid. The LiqTec™ can also monitor the flow and temperature of the pumped liquid and can operate as a PTC relay for the motor monitoring motor overload.	

Solution	Description	Photo
MAGdrive (sealless)	MAGdrive pumps are completely leak-free. They use the power of strong magnets to turn the pump shaft from outside, so there are no seals or openings for the liquid to escape through. The result is safe, hermetically closed pumping.	
Shaft seal variants	Grundfos offers a wide range of balanced cartridge shaft seals with different seal faces such as Silicon Carbide, Carbon and Tungsten Carbide to handle almost any industrial liquid.	
Rubber materials	Seals fitted with chemical resistant FXM (Fluoraz®) or FFKM (Kalrez®) rubber O-rings are available for applications where the liquid may damage standard O-ring materials such as EPDM, FKM and Viton®.	
High temperatures	Pumps which handle high temperatures are fitted with a special air-cooled shaft seal chamber enabling them to withstand water temperatures of up to 180°C (thermal oil of up to 240°C). No external cooling is required.	

Pump modules

All the made-to-stock CR pump modules can handle the most demanding of liquids and pressures – and be adjustable to virtually any requirement. Of course, the modules can be combined in multiple ways making it possible for us to provide you with a pump solution that matches your specific needs. CR pumps come in many flow sizes and various grades of corrosion-resistant stainless steel – and an all-titanium variant.

What follows is an overview of some of the most common CR pump variants offered by Grundfos. However, the overview covers only a fragment of the total pump range. Please do not hesitate to contact Grundfos if your requirements are not covered by the overview.

- **High inlet pressure**
- **High-pressure pump systems required (up to 50 bar)**
- **Pumping of gas or particle-entrained liquids**
- **Pumping of high-viscosity or sticky liquids**
- **Low NPSH level**
- **Horizontal pump mounting**
- **No carbon or silicone allowed**
- **Special materials required**

Solution	Description	Photo
Low NPSH pump	For applications involving poor inlet conditions, e.g. boiler feed, special low NPSH versions are available to reduce NPSH and eliminate cavitation.	
Deep-well	For applications involving pumping from deep boreholes (down to 90 metres, a special deep-well CR pump with an ejector for above-ground installation is available.	
All stainless steel	For applications exposed to corrosive atmosphere, e.g. maritime applications or where frequent wash-down occurs, a stainless steel base plate and motor stool are available. All parts exposed to the corrosive installation environment is thus made of stainless steel.	
Horizontal mounting	Certain situations require the pumps to be mounted horizontally. The CR pumps can be designed to fit installations with limited height, vehicles, ships or earthquake prone areas. End-suction base can be supplied as option.	
Refrigerant pump	For applications handling temperatures down to -40°C, special coolant pumps are available. Because of different thermal coefficient of expansion, special design is required.	
Carbon-free solution	For processes that require carbon-free installations, e.g. electronics industry.	

Solution	Description	Photo
Silicon-free solution	For processes that require no silicon, e.g. paint industry, 100% silicon-free solutions are available.	
Rubber materials	Pumps fitted with chemical resistant FXM (Fluoraz®) or FFKM (Kalrez®) rubber O-rings are available for applications, where the liquid may damage standard O-ring materials such as EPDM, FKM and Viton®.	
Pump bearings	A wide variety of bearing materials are available to suit any application, e.g. silicium carbide, bronze, tungsten carbide, and carbon-filled PTFE.	
Bearing flange	For applications with extremely high inlet pressures, a special flange is necessary to counterhold the shaft. It also allows mounting of standard IEC34 or NEMA motors.	
High pressure pumps	For high pressure applications, special single or double pump solutions are available. These pumps are capable of generating up to nearly 50 bar pressure. To avoid high pressure near the vulnerable shaft seal, the hydraulic design of high pressure pumps ensures that the highest pressure is generated at the base of the pump, farthest away from the shaft seal.	
Belt-drive	For applications in remote areas or mobile applications, where electric power is not available, belt-driven pumps powered by e.g. a diesel engine or a steam turbine, can be supplied.	

Other options

In addition to the range of variants relating to the motor, shaft seal, or pump module of the CR products presented on the foregoing pages, Grundfos offers a variety of other customised solutions to suit almost any conceivable need or requirement that you may have. For instance a variety of connection options are available, as are pump models for additional corrosion requirements, hygienic demands or pumps in special colours.

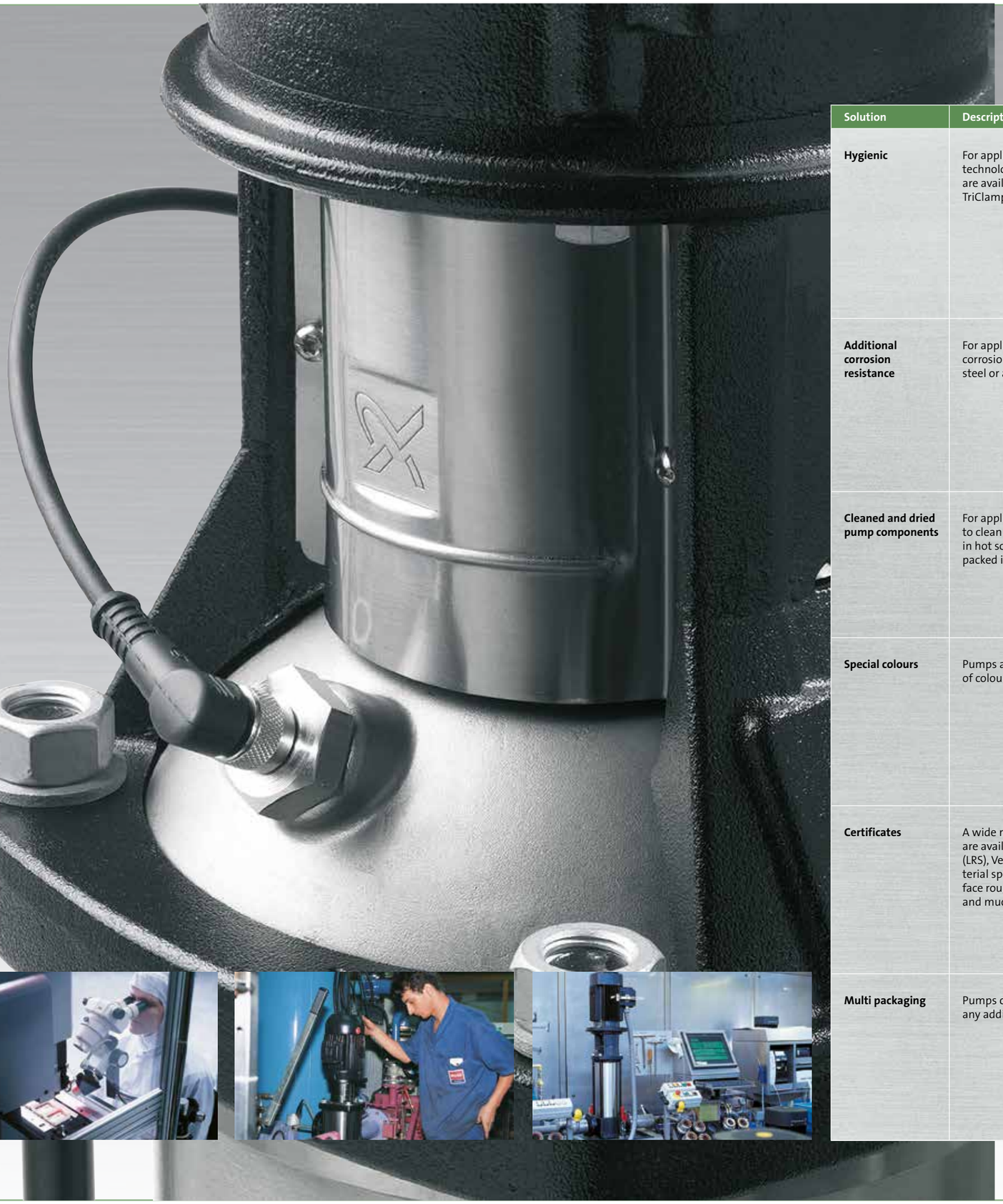
The following overview presents only a fraction of the many possibilities that we offer. Please do not hesitate to contact Grundfos if your requirements are not covered by the overview.

What you need. Guaranteed.

It is more than likely that we will be able to create exactly the right pump for you by combining the elements and options already available within the CR range. But if you have special requirements or a specific design in mind, let us know. We will do our best to provide full satisfaction.

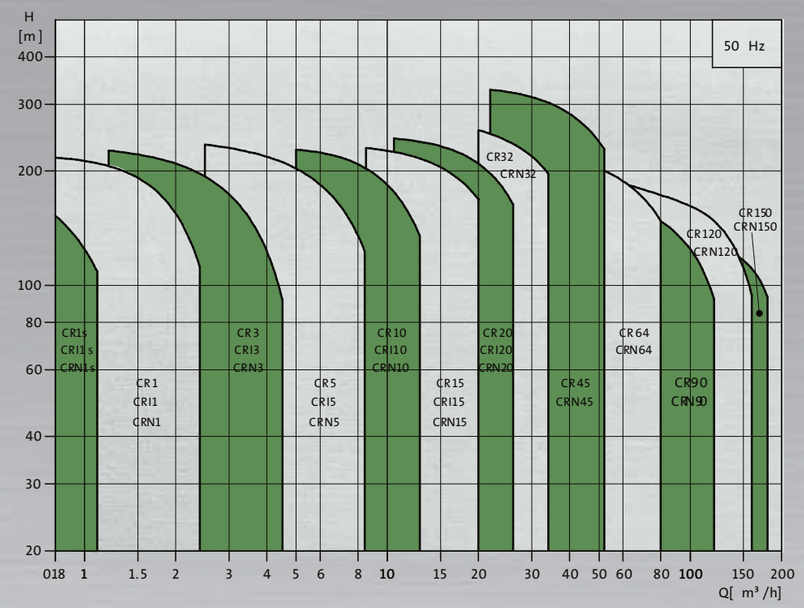
Great tools are just a mouse-click away!

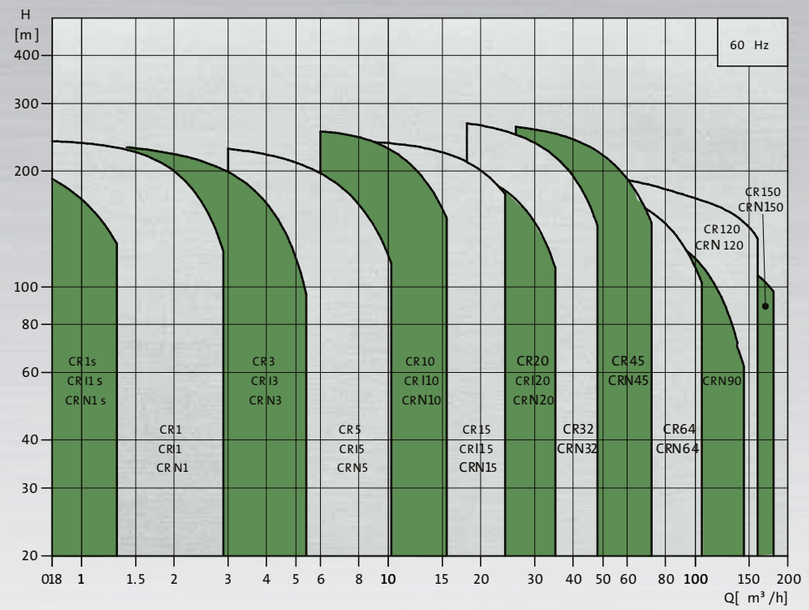
Grundfos offers the market's most comprehensive, 24-hour, online access to everything you need to maintain or service your system: from CAD drawings to installation videos and operating instructions. Go to www.grundfos.com, choose the WebCAPS symbol, and you are there: detailed technical information, drawings, wiring diagrams, dimensioning – everything!



Solution	Description	Photo
Hygienic	For applications in the pharmaceutical and bio-technology industry, special hygiene solutions are available, e.g. electropolished pumps with TriClamp connections.	
Additional corrosion resistance	For applications with a need for improved corrosion resistance, electropolished stainless steel or all-titanium pumps are available.	
Cleaned and dried pump components	For applications with very strict requirements to cleanliness. All pump parts have been cleaned in hot soap water, rinsed in de-ionised water and packed in silicon-free plastic bags.	
Special colours	Pumps are available in a multitude of colours to match any requirement.	
Certificates	A wide range of pump and material certificates are available, e.g. inspection certificates (Lloyds (LRS), Veritas (DNV), American (ABS), etc.), material specification, duty-point verification, surface roughness, vibration test, motor test, ATEX and much more.	
Multi packaging	Pumps can be delivered on pallets without any additional packaging (cardboard).	

Performance curves and technical data





	CR 1s	CR 1	CR 3	CR 5	CR 10	CR 15	CR 20	CR 32	CR 45	CR 64	CR 90	CR 120	CR 150
Range:													
Temperature range (°C)	-20 to +120							-30 to +120					
On request (°C)	- 40 to +180							-40 to +180					
Max. pump efficiency (%)	35	48	58	66	70	72	73	78	79	80	81	75	72
Flow range (m³/h)	0.3-1.1	0.7-2.4	1.2-4.5	2.5-8.5	5-13	9-24	11-29	15-40	22-58	30-85	45-120	60-160	75-180
Version:													
CR (AISI 304/Cast iron)	x	x	x	x	x	x	x	x	x	x	x	x	x
CRI (AISI 304)	x	x	x	x	x	x	x						
CRN (AISI 316)	x	x	x	x	x	x	x	x	x	x	x	x	x
CRT (Titanium)			x*	x*	x*	x*							
CR pipe connection:													
Oval flange (BSP)	Rp 1	Rp 1	Rp 1	Rp 1¼	Rp 1½	Rp 2	Rp 2½						
On request (BSP)	Rp 1¼	Rp 1¼	Rp 1¼	Rp 1	Rp 1¼ Rp 2	Rp 2½	Rp 2						
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50	DN 65	DN 80	DN 100	DN 100	DN 125	DN 125
On request					DN 50	DN 65	DN 65	DN 80	DN 100	DN 125	DN 125	DN 150	DN 150
CRI pipe connection:													
Oval flange (BSP)	Rp 1	Rp 1	Rp 1¼	Rp 1¼	Rp 1½	Rp 2	Rp 2						
On request (BSP)	Rp 1¼	Rp 1¼	Rp 1	Rp 1	Rp 2								
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50						
On request					DN 50	DN 65	DN 65						
PJE coupling (Victaulic)	Rp 1¼ DN 32	Rp 1¼ DN 32	Rp 1¼ DN 32	Rp 1¼ DN 32	Rp 2 DN 50	Rp 2 DN 50	Rp 2 DN 50						
Clamp coupling (L-coupling)	Ø48.3	Ø48.3	Ø48.3	Ø48.3	Ø60.3	Ø60.3	Ø60.3						
Union (+GF+)	Rp 2	Rp 2	Rp 2	Rp 2	Rp 2¼	Rp 2¼	Rp 2¼						
CRN pipe connections:													
Flange	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 25/ DN 32	DN 40	DN 50	DN 50	DN 65	DN 80	DN 100	DN 100	DN 125	DN 125
On request					DN 50	DN 65	DN 65	DN 80	DN 100	DN 125	DN 125	DN 150	DN 150
PJE coupling (Victaulic)	Rp 1¼ DN 32	Rp 1¼ DN 32	Rp 1¼ DN 32	Rp 1¼ DN 32	Rp 2 DN 50	Rp 2 DN 50	Rp 2 DN 50	Rp 3	Rp 4	Rp 4	Rp 5	Rp 5	Rp 5
Clamp coupling	x	x	x	x	x	x	x						
Union (+GF+)	x	x	x	x	x	x	x						
CRT pipe connections:													
PJE coupling (Victaulic)		x*	x*	x*	x*	x*							
Flange (on request)		x*	x*	x*	x*	x*							

*CRT 2,4,8 and 16.