



## A PERFECT MATCH



### A winning combination

#### Efficient CR and variable speed motor are a perfect match

Many pump applications involve varying flows and pressures, calling for solutions that adapt themselves perfectly to all situations and provide the results you want. The Grundfos CRE range is designed to do just that, with remarkable efficiency. The CRE pumps represent the union of the well-known Grundfos CR – the most efficient and reliable multistage centrifugal pump on the market today – and variable-speed motors developed by Grundfos with optimum electronic control in mind.

#### Grundfos innovation at work

You wouldn't think of driving by keeping the gas pedal to the floor and using the brakes to control your progress, yet that



is exactly how many pump systems work without electronic control. Significant amounts of energy and system wear can be saved by using electronic speed control. Separate frequency drives and sensors have been used to adjust speed for some time, but Grundfos wanted to take things further: to build the electronics into a single unit for “plug and play” convenience.

#### The benefits of the CRE

The CRE pump's integrated frequency drive provides a wide range of unique benefits:

- Energy consumption reduced by up to half compared to fixed speed pumps
- Remote control/fieldbus monitoring and data collection
- Reduced system wear
- Integrated sensor available
- Easy installation and operation — settings and internal connections done at factory
- Full range of pumps for all applications
- Superior user comfort



## CRE: A smart way to save

*A CRE from Grundfos is a CR pump with an integrated variable frequency drive that allows the pump to match output to demand for optimal operating efficiency.*





## Efficiency and comfort

### Substantial energy savings

Variable speed brings constant benefits. CRE pumps adjust their speed to exactly suit current demands, meaning energy is never wasted on generating pressure you don't require. The result is energy savings of up to 50% – year in and year out.

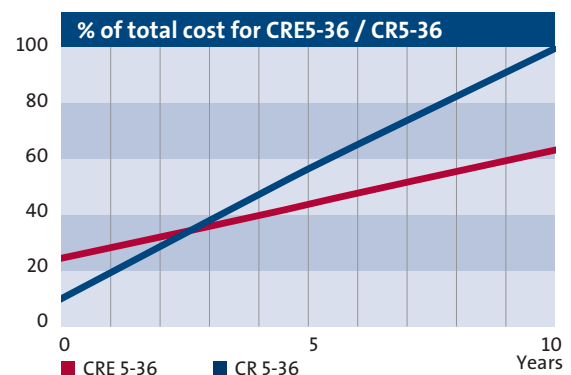
### Complete comfort with constant pressure

CRE pumps can maintain constant pressure in all water supply systems, even when faced with challenging variations in flow and demand. This contributes to everyday comfort which is much appreciated by end users worldwide.

### Easy installation

The CRE range has been designed as “plug-and-play” technology, making installation as easy. All user interfaces and functions are identical across the range. The integrated unit design makes it possible to eliminate system components that would be necessary in conventional solutions, thereby reducing initial investment costs.

*Hotel guests all over the world benefit from the superior comfort provided by CRE pumps. And hotel owners benefit from the significant energy savings the CRE provides.*



*This curve shows the typical impact of energy savings provided by the CRE pumps in water supply and boosting applications. Compared to a standard CR, the CRE begins to yield profits after just 2.5 years – and continues to do so for years thereafter.*



## Perfect precision

### Carefully controlled processes

Maintaining constant water pressure is just one of the many things that the CRE pumps can do with complete precision. Their adaptability enables them to deliver the exact flow and pressure required for almost any media and in almost any situation. Do you need constant differential pressure? Stable pH levels? Specific temperatures? Carefully timed operation? The CRE pumps can give you all of this and much more.

### Communication options

The CRE pumps can be remote-controlled and/or linked to management systems of your choice for perfect interaction. Their data collection ability offers unique opportunities for monitoring and directing operation performance and results. Remote control and monitoring can be carried out by means of the R100 remote control unit from Grundfos or via fieldbus communication.



### Reduced system wear

Constant pressure will minimize mechanical stress in certain systems. In other systems, speed adjustment to maintain constant flow or temperature will improve the performance of system components. And of course the CRE pumps can provide all this to match your specifications.

### CRE technical information

	Single-phase motors	Three-phase motors	
Power supply	1x200-240V, 50/60Hz	3x208-230V, 60Hz	3x460-480V, 60Hz
Power range	0.5 - 1.5 Hp	1.5 - 7.5 Hp	1 - 10 Hp
External setpoint signal	10kOhm potentiometer 0 - 10V 0 - 20 mA or 4 - 20 mA		
Built-in PI controller	Yes		
Sensor input signal	0 - 20 mA or 4 - 20 mA 0 - 10V 24V supply for sensor included		
Start/stop input	Input for external contact		
Signal relay	Potential-free signal relay is included		
Interface to R100	All CRE pumps can communicate with the Grundfos IR remote control unit R100		
RS485 Bus Interface	A RS485 Grundfos GENibus is included. Provides for communication via Grundfos Pump Management System 2000 or other building management systems		
EMC	All pumps comply with "The Electromagnetic Compatibility Directive 89/336/EEC" EN61800-3		
Enclosure class	TEFC, IP55 (IEC 34-5)		

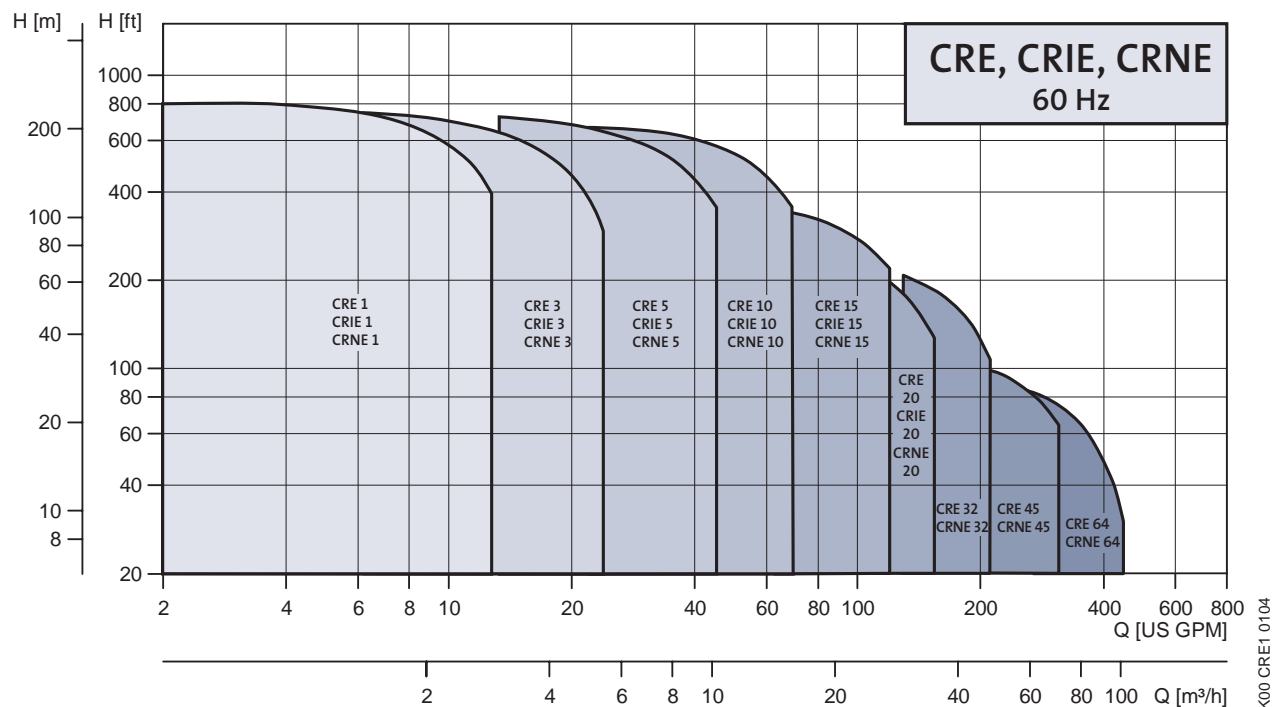
### Full range to accommodate all needs

The CRE range stands for unmatched reliability and the widest choice on the market. Grundfos variable frequency drive motors add the extra edge that makes the CRE pumps so special. The entire CR range of centrifugal pumps can be fitted with a variable-speed motor, meaning that you can enjoy the special CRE benefits regardless of your other requirements. Please consult our materials on the CR range for further details.

Combining Grundfos motor technology and pump expertise guarantees that CRE can improve the cost effectiveness of almost any system.

## CRE Product Range

Range	CRE 1	CRE 3	CRE 5	CRE 10	CRE 15	CRE 20	CRE 32	CRE 45	CRE 64
Nominal flow rate (US GPM)	8.5	15	30	55	95	110	140	220	340
Temperature range (°F)	-4 to +250						-22 to +250		
Temperature range (°F) - on request	-40 to +356						-40 to +356		
Max. pump efficiency (%)	49	59	67	70	72	73	76	78	79
<b>CRE pumps:</b>									
Flow range (US GPM)	0 - 12.8	0 - 23.8	0 - 45	0 - 70	0 - 125	0 - 155	0 - 210	0 - 310	0 - 450
Max. pump pressure (H[ft])	790	790	780	665	390	270	240	120	100
Motor power (HP)	1/2 - 3	1/2 - 5	3/4 - 7 1/2	3/4 - 10	2 - 10	3 - 10	3 - 10	7 1/2 - 10	7 1/2 - 10
<b>Version:</b>									
CRE: Cast Iron and stainless steel AISI 304	•	•	•	•	•	•	•	•	•
CRIE: Stainless steel AISI 304	•	•	•	•	•	•	-	-	-
CRNE: Stainless steel AISI 316	•	•	•	•	•	•	•	•	•
CRTE: Titanium	-	(CRTE 2)	(CRTE 4)	(CRTE 8)	(CRTE 16)	-	-	-	-



# Questions and answers about E-pumps

### How is a Grundfos E-pump (variable speed pump) different from a fixed-speed pump?

Grundfos E-pumps use a sensor to electronically vary motor output according to demand. They operate at maximum efficiency at all times, saving energy costs and system wear and tear. Unlike E-pumps, fixed-speed pumps may be operating at maximum performance and efficiency only a small part of the day.

### Is a Grundfos CRE more costly than a similar sized fixed-speed pump?

A CRE's initial investment costs are offset by the pump's superior efficiency, which often makes it possible to utilize a smaller motor to power the pump. Over the long term, a CRE can yield an energy savings of up to 50% over a fixed-speed pump.

### Is a Grundfos CRE pump the right choice for pressure boosting?

A Grundfos CRE with a factory installed pressure sensor and a small diaphragm tank\* can make up a complete pressure boosting system.

#### Pressure boosting for buildings

- apartment buildings
- churches
- convention centers
- retail centers, stores
- factories
- institutional buildings
- hospitals
- hotels, motels
- large homes
- schools

#### Pressure boosting for water supply

- distribution from water works
- pressure boosting in mains
- pressure boosting in any building
- water treatment systems
- irrigation systems
- other water supply applications

#### Pressure boosting for industry

- water supply
- process water systems
- washing/cleaning
- cooling in air conditioning systems
- machine tools
- other industrial applications

### Grundfos CRE is available with or without a factory installed sensor—what is the difference?

CRE pumps **with** a factory installed pressure sensor enable constant pressure control and are often used as booster pumps in systems with variable flow demands.

CRE pumps **without** a factory-installed pressure sensor can be connected to a field-installed sensor (requires a Grundfos R100 remote control). Installing the appropriate sensor enables control of these and other variables as demands change:

- constant pressure
- differential pressure
- temperature
- differential temperature
- flow
- fluid level
- pH level



The R100 controls the motor via infrared communication.



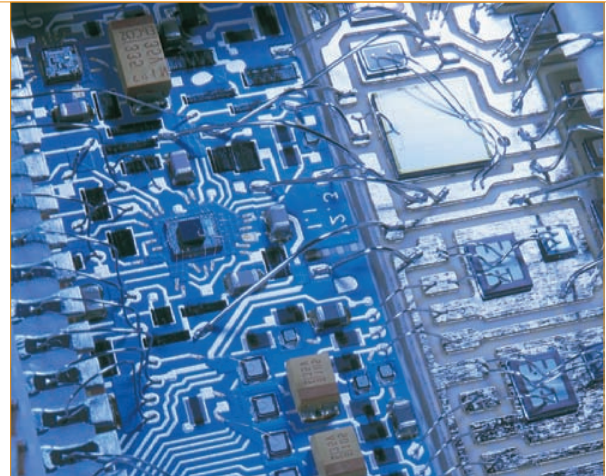
*Industries often demand exact flows and pressures for a wide range of media. For food industry and other applications, a CRE pump can handle many processes.*



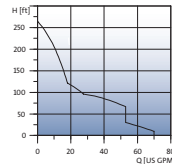
# A range of smart pumps

Grundfos offers a wide range of “E-pumps” with variable speed motors and integrated control features. The range includes pumps for almost any conceivable application. An E-pump can improve the life cycle costs of the system, whether it's for heating, air conditioning, water supply, pressure boosting, or processing systems in an industrial plant.

Grundfos E-pumps help streamline ordering and maintenance since the pump, motor with variable frequency drive, connections, and accessories come from one supplier.



## CHIE Compact horizontal multistage pumps



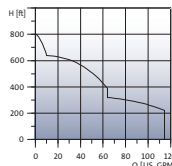
### Data

Flow, Q: Max. 70 gpm (16 m<sup>3</sup>/h)  
 Head, H: Max. 265 ft (80 m)  
 Liquid temp.: +5°F to +248°F (-15°C to +120°C)  
 Working press.: Max. 145 psi (10 bar)

### Main applications

- Water treatment
- Industrial washing systems
- Pressure boosting
- Heating and cooling in industrial processes

## SPKE, CRKE Multistage immersible pumps



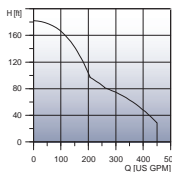
### Data

Flow, Q: Max. 115 gpm (26 m<sup>3</sup>/h)  
 Head, H: Max. 805 ft (245 m)  
 Liquid temp.: +14°F to +194°F (-10°C to +90°C)  
 Working press.: Max. 145/362 psi (10/25 bar)

### Main applications

- EDM machine tools
- Grinding machines
- Machining centers
- Lathes

## MTRE Extra heavy duty multistage immersible pumps



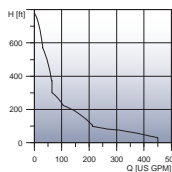
### Data

Flow, Q: Max. 450 gpm (102 m<sup>3</sup>/h)  
 Head, H: Max. 180 ft (55 m)  
 Liquid temp.: Max. +194°F (+90°C)  
 Working press.: Max. 125 psi (8.6 bar)

### Main applications

- EDM machine tools
- Grinding machines
- Machining centers
- Filtering systems

## CRE-Plus Complete pressure boosting systems



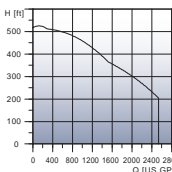
### Data

Flow, Q: Max. 450 gpm (102 m<sup>3</sup>/h)  
 Head, H: Max. 790 ft (241 m)  
 Liquid temp.: Max. +176°F (+80°C)  
 Working press.: Max. 362 psi (25 bar)

### Main applications

- Water supply
- Irrigation
- Water treatment
- Industrial plants

## BoosterpaQ Complete pressure boosting systems



### Data

Flow, Q (4 pumps): Max. 2540 gpm (556 m<sup>3</sup>/h)  
 Flow, Q (6 pumps): Max. 3800 gpm (864 m<sup>3</sup>/h)  
 Head, H: Max. 500 ft (152 m)  
 Liquid temp.: Max. +176°F (+80°C)  
 Working press.: Max. 232 psi (16 bar)

### Main applications

- Water supply
- Irrigation
- Water treatment
- Fire fighting
- Industrial plants

**The CR range from Grundfos**

Grundfos was the first company to develop a multi-stage in-line pump, and today the CR remains second to none. It is the most extensive in-line pump program on the market, matching customer requirements with many innovative features unique to Grundfos. CR provides superior reliability and the lowest possible cost of ownership to customers worldwide.

Impressive as the CR range is, Grundfos offers much more. Our complete range of pump solutions means that you can rely on Grundfos know-how and our complete dedication to quality and service for all pump applications — industrial and domestic.

L-CRE-SL-003	Rev. 5/07
PRINTED IN USA	

Subject to alterations

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