The first dedicated CO₂ pump is developed by Grundfos
You can already find pumps capable of using CO₂ as a refrigerant on the market. But we found that the offerings to the commercial and industrial refrigeration sectors could be greatly improved. As a result, we have, designed a pump for high-pressure CO₂ applications – a pump optimised for these particular markets. The barrel type pump with a canned motor has a semi-hermetic design with only one central seal between the pump sleeve and motor housing. These features make it ideal for refrigeration applications – especially for those with CO₂ as refrigerant.

More compact, more efficient solutions
Designing a pump for a specific type of application has many advantages. We can start from scratch, taking particular needs into consideration. For example, the pump has been made much more compact, allowing for easier integration into overall system designs.

And you do not have to settle for less efficiency! – Due to the modular hydraulics and high efficiency motor, you will have maximum energy efficiency with the pump. The multi-stage hydraulics has been optimised for the operating conditions of modern refrigeration systems. Use of the loss generating safety devices (maximum flow orifice and permanent by-pass) is not required.

Better control
Creating a new pump from scratch also gives us the chance to create better control options. Whereas existing pumps effectively go at full speed all the time, we can prepare the pump for situation-specific control. The effects are immediately apparent as variable-flow capabilities and lower energy consumption. Additional benefits could include process optimisation, simpler systems, reduced component use, etc.
Being responsible is our foundation
Thinking ahead makes it possible
Innovation is the essence

For more information, go to www.grundfos.com

**APPLICATIONS**
Liquid distribution to evaporators
Liquid pressure amplification
Liquid transport

**PERFORMANCE CURVE** (Preliminary data)
The two performance curves below are for application with CO₂

**BENEFITS**
High energy efficiency
Wide range for capacity control
Robust to vapour bubbles in inlet
Service friendly
Low weight

**TECHNICAL DATA**
- **Mains voltage:** 3 x 400 V, 50 Hz or 3 x 220 V, 50 Hz
- **Enclosure class:** IP66
- **Insulation class:** F
- **Marking:** CE
- **Winding protection:** Thermistor
- **Medias:** R744 (CO2), R717 (Ammonia, NH3), R22, R134a, R404A, R407C, R410A, R507A

**OPERATING CONDITIONS**
- **Volume flow:** Pump series includes three models: 2 m³/h (9 GPM), 5 m³/h (22 GPM), and 8.0 m³/h (35 GPM). A flow range for each model can be obtained by variable speed (25 to 50 Hz, or 30 to 60 Hz). Minimum volume flow according to pump variant and operating conditions
- **Head:** Maximum and minimum head according to pump variant and operating conditions
- **Max. system pressure:** 25 bar g (360 psig), 40 bar g (580 psig), or 52 bar g (750 psig) depending on pump variant
- **Min. liquid temperature:** -55 °C (-70 °F)
- **Max. liquid temperature:** 55°C (130 °F) for operation, but 70 °C (160 °F) for stand-still. However the limit for maximum system pressure must not be compromised. For liquid temperatures above 20 °C (70 °F) the pump motor may not be insulated.

The Grundfos cooling and refrigeration range

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