# PUMP SOLUTIONS FOR AGGRESSIVE ENVIRONMENTS

**Grundfos CRN multistage pumps are available in a wide range of material variants. Common to the CRN pumps is that all parts in contact with the pumped liquid are made of stainless steel EN 1.4401/AISI 316 or equivalent.**

Some applications place even greater demands on the pumps. Aggressive environments such as the marine and offshore sector require unconditionally that also parts not in contact with the pumped liquid are upgraded to stainless steel EN 1.4401/AISI 316 or equivalent. The Grundfos CRN pump model GS pump meets those requirements.

The CRN pump model GS is also available in explosion-proof versions according to the ATEX directive or equivalent. Grundfos has a longstanding cooperation with motor suppliers of explosion-proof motors. In addition, to ensure that also the motor is designed for use in aggressive environments, Grundfos offers motors with corrosion protection according to ISO 12944 C5M, NORSOK System 1 and 2, MOTS 34 or equivalent.

## Additional protection for hazardous environments

The motors typically comply with the Norwegian NORSOK standard. A framework agreement concluded between supplier and end-user ensures that the motor is specified precisely to the site in question.

The CRN pump model GS complies with the ATEX Group II Category 2G or ATEX Group II Category 3G directive. In addition, the pumps are fitted with coupling guards made of non-sparking material for improved safety.

The pumps are designed to pump aggressive liquids in hazardous environments in onshore, offshore, oil, gas, marine and firefighting applications.

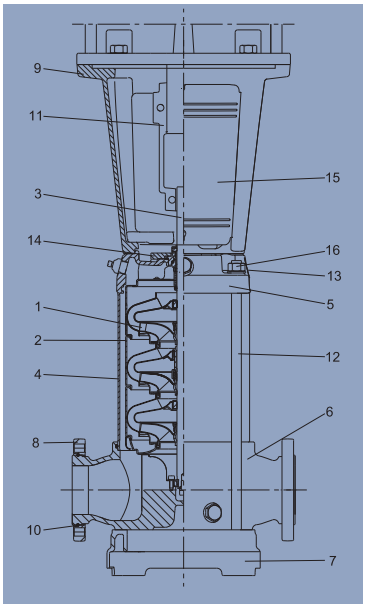
# CRN variants

The correct material protects the product against corrosion, even in extreme environments.

All cast parts, sleeve and flanges are available on demand with Materials Inspection Certificate with full traceability.

Inspection certificates issued by well-known classification societies such as LRS, DNV-GL, BV and ABS can be supplied with the pump. In addition, a factory acceptance test (FAT) is available as part of the approval. For a complete list of certificates and reports, contact Grundfos.

Customer-specific solutions such as double shaft seals, low NPSH, horizontal installation, dry-running protection etc., as known from the wide range of CRN pumps, are also available for CRN pump model GS.



| Pos. | Variant, CRN pump model | G | | GI | | GX | | GS | |
|---|---|---|---|---|---|---|---|---|---|
| | Part | Materials | | Materials | | Materials | | Materials | |
| 1 | Impeller | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 |
| 2 | Chamber | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 |
| 3 | Shaft, Small | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 |
| | Shaft, Medium | ■ | EN 1.4460 | ■ | EN 1.4460 | ■ | EN 1.4460 | ■ | EN 1.4460 |
| | Shaft, Large | ■ | EN 1.4462 | ■ | EN 1.4462 | ■ | EN 1.4462 | ■ | EN 1.4462 |
| 4 | Sleeve | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 |
| 5 | Cover in pump head (Size: 1 - 20) | ■ | EN 1.4408 | ■ | EN 1.4408 | ■ | EN 1.4408 | ■ | EN 1.4408 |
| 6 | Base | ■ | EN 1.4408 | ■ | EN 1.4408 | ■ | EN 1.4408 | ■ | EN 1.4408 |
| 7 | Base plate | O | Cast iron/GG20 | ■ | EN 1.4408 | ■ | EN 1.4408 | ■ | EN 1.4408 |
| 8 | Flange | O | Cast iron/EN 0.7050 | ■ | EN 1.4408 | ■ | EN 1.4408 | ■ | EN 1.4408 |
| 9 | Pump head (Size: 1 - 20) | O | Cast iron/EN-JL 1030 | O | Cast iron/EN-JL 1030 | ■ | EN 1.4408 | ■ | EN 1.4408 |
| | Motor stool (Size: 32 - 150) | O | Cast iron/EN-JL 1030 | O | Cast iron/EN-JL 1030 | ■ | EN 1.4408 | ■ | EN 1.4408 |
| 10 | Lock ring | O | EN 1.4301 | O | EN 1.4301 | O | EN 1.4301 | ■ | EN 1.4401 |
| 11 | Coupling (Size: 1 - 20) | O | Sinter steel PNC45 | O | Sinter steel PNC45 | O | Sinter steel PNC45 | ■ | EN 1.4401 |
| | Coupling (Size: 32 - 150) | O | Cast iron/EN 0.7050 | O | Cast iron/EN 0.7050 | O | Cast iron/EN 0.7050 | ■ | EN 1.4401 |
| 12 | Staybolts (Size: 1 - 5) | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 | ■ | EN 1.4401 |
| | Staybolts (Size: 10 - 20) | O | EN 1.4057 | O | EN 1.4057 | O | EN 1.4057 | ■ | EN 1.4462 |
| | Staybolts (Size: 32 - 150) | O | EN 1.4057 | O | EN 1.4057 | O | EN 1.4057 | ■ | EN 1.4462 |
| 13 | Name plate | O | EN 1.4301 | O | EN 1.4301 | O | EN 1.4301 | ■ | EN 1.4401 |
| 14 | Cover for shaft seal (Size: 32 - 150) | O | EN 1.0120 | O | EN 1.0120 | O | EN 1.0120 | ■ | EN 1.4401 |
| 15 | Coupling guard | O | EN 1.4016 | O | EN 1.4016 | O | EN 1.4016 | ■ | Copper/EN 2.0090 |
| 16 | Outer Screws, nuts, washers | * | | * | | * | | ■ | A4 or similar |

* Various materials ■ EN 1.4401 / AISI 316 or similar

## Custom-built solutions

The comprehensive standard Grundfos CR range covers a wide range of pumps for a wide range of different industrial applications. The modular building system allows you to mix and match to suit almost any pump requirement, handle difficult liquids and meet the most demanding operating conditions.

The Grundfos custom-built pump solutions handle high pressures, extreme temperatures as well as very aggressive, abrasive, hazardous, hardening or flammable liquids.

## Worldwide pump supplier

With Grundfos service centres in more than 50 countries around the world supplemented by more than 600 authorised Grundfos Service Partners, we are never far away. As a Grundfos Service customer, you enjoy prompt and reliable service wherever you are, with emergency access to service personnel as well.

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