

**Grundfos brings you corrosion-free pumps at affordable prices**

Grundfos CRT is the only pump of its kind: a titanium, corrosion-free vertical multistage centrifugal pump. All components in contact with the pumped liquid are titanium.

Titanium wins out over stainless steel as the ideal material for pumping corrosive substances. Corrosion is the number two cause of premature pump failure (next to dry-running). CRT is the best choice for pumping corrosive sea water and many chemicals.

Grundfos CRT was designed to meet the market's demand for corrosion-free pumps at competitive prices. It's part of the Grundfos CR range, the world's most efficient vertical multistage centrifugal pumps.

**Titanium—naturally unaffected**

The excellent corrosion resistance of titanium results from the formation of very stable, continuous, highly adherent and protective oxide films on metal surfaces.

Because titanium is highly reactive and has an extremely high affinity for oxygen, these beneficial surface oxide films form spontaneously and instantly when fresh metal surfaces are exposed to air and/or moisture. In fact, a damaged oxide film can generally reheel itself instantaneously if traces of oxygen or water are present in the environment.

The oxide film formed on titanium is more protective than that on stainless steel, and it often performs well in media that cause pitting and crevice corrosion in the latter (e.g. seawater, wet chlorine, organic chlorides).



**What makes CRT so special?**

Titanium offers a reliability other materials cannot match. Even a decade of full immersion in salt water will not leave a blemish on a titanium metal surface.



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BE THINK INNOVATE

BEING RESPONSIBLE IS OUR FOUNDATION  
THINKING AHEAD MAKES IT POSSIBLE  
INNOVATION IS THE ESSENCE

GRUNDFOS CRT

**Flexible solutions**

The Grundfos CRT range is an integral part of a comprehensive series of pump solutions developed for use in industrial applications. Each pump type is available with a range of different specifications and accessories to meet your precise needs.

**Grundfos - a world-wide supplier**

Grundfos offers an efficient world-wide service network. Experienced service technicians and all necessary spare parts are available at short notice in all corners of the world.



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## CRT TITANIUM PUMPS

### CRT puts titanium to work for industry

There are many industrial pump applications involving aggressive liquids—and where stainless steel pumps can't do the job.

Titanium takes over where stainless steel gives up, as the ideal metal for use in pumps in industrial environments involving highly corrosive substances.

Corrosion means expensive down-time as well as costly, time-consuming maintenance and repairs.

In Grundfos CRT pumps, all components in contact with the pumped liquid are titanium.

#### CRT for demanding applications

Examples of industries where Grundfos CRT pumps provide operational benefits:

- ▶ Bleaching
  - Sodium hypochlorite
  - Chlorine dioxide
- ▶ Metal finishing, metal plating, PCB manufacturing
  - Copper chloride
  - Ammonium chloride
  - Ferric chloride
- ▶ Power generation plants
  - FGD (Flue Gas Desulphurization)
- ▶ Process industry
  - Oxidizing acids



### Titanium for sea water and desalination

With its titanium construction, CRT is the best choice for pumping sea water. Here's why.

If you are responsible for marine, offshore, or desalination operations, you know that corrosion caused by sea water is always one of the major challenges.

Many residential, commercial, industrial, and marine operations and processes such as cooling, firefighting, washing/cleaning, and salt removal depend on a reliable water source. A huge supply of water is nearby—but sea water is extremely corrosive to pumps and other equipment.

One structural metal makes it possible to resolve corrosion issues related to sea water—titanium. Sea water has no effect whatsoever on titanium surfaces or properties. In Grundfos CRT, all parts in contact with the pumped liquid are titanium.

#### CRT for sea water applications

CRT is the best choice for marine environments and offshore installations such as:

- ▶ Ballast pumps
- ▶ Washing and cleaning
- ▶ Cooling
- ▶ Firefighting
- ▶ Fish farming
- ▶ Aquariums
- ▶ Water sports
- ▶ Fun parks
- ▶ Desalination

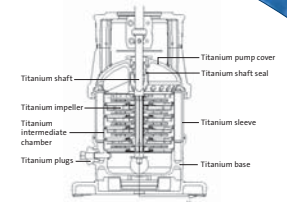


### Building on the titanium advantage

Titanium is unique among metals in being able to withstand attack by chlorides and oxidizing liquids due to a highly stable oxide film that completely protects the surface against corrosion.

This makes Grundfos CRT pumps fully resistant to solutions of the chlorites, hypochlorites, chlorates and chlorine dioxide used in the pulp and paper industry, and for disinfection purposes.

Grundfos CRT pumps are also fully resistant to oxidizing metallic chlorides, such as  $FeCl_3$ ,  $NiCl_2$  or  $CuCl_2$ , used in water treatment, the electronics industry, metal refining or plating.



### CRT pump performance curves

