

**GRUNDFOS
PUMPS &
SOLUTIONS**

AQUACULTURE

**We don't know
how to grow fish,
but we do have
the pumps to
make it happen**

GRUNDFOS 

PUMPS FOR AQUACULTURE

A global leader in centrifugal pumping technology, Grundfos offers a family of pumps designed to maximize efficiency and reliability in your water transfer operations. Grundfos technology is widely known and accepted within the aquaculture market and is available globally built to meet local regulations regardless of plant location. Whether your application is a seawater, freshwater, water re-use, wash and clean or temperature control operation, we have a wide selection of pumps at the right price.

END-SUCTION PUMP - MODEL NB

APPLICATIONS
Oxygenation - Heating/Cooling Media

Q - Max Flow	H - Head max	Flange size
30,820 gpm	525 ft	1-1/4" to 20"

- Materials**
 - Cast Iron
 - Cast Iron with Seawater Suitable Epoxy
 - Stainless Steel
 - Duplex Stainless for Seawater
- Features & Benefits**
 - Compact Design
 - Affordable
 - Reliable
 - Standard Dimensions



MULTI-STAGE VERTICAL CENTRIFUGAL PUMPS – MODEL CR/CRN/CRI/CRT

APPLICATIONS
Wash and Clean - Water Treatment - Water Pressure Boosting

Q - Max Flow	H - Head max	Flange size
1,770 gpm	1,283 ft	1" to 8"

- Materials**
 - Cast Iron & 304S/S
 - 304 Stainless Steel
 - 316 Stainless Steel
 - Titanium
- Features & Benefits**
 - High Pressure Capability
 - Configuration Flexibility
 - Options for Integral PID Controller/Drive



SUBMERSIBLE PUMPS – MODEL S

APPLICATIONS
Effluent - Transfer of Unscreened Wastewater

Q - Max Flow	H - Head max	Flange size
1,385 gpm	230 ft	1" to 6"

- Materials**
 - Cast Iron
 - SS Impeller
 - Duplex Impeller
 - Epoxy Coated Cast Iron for Seawater
- Features & Benefits**
 - Submersible or Dry Pit Installation
 - High Durability
 - High Efficiency
 - Large Free Passage Area



IN-LINE CIRCULATORS – MODEL TP

APPLICATIONS
Water recirculation - Heating/Cooling Media - Pressure Boosting

Q - Max Flow	H - Head max	Flange size
20,253 gpm	557 ft	1-1/4" to 16"

- Materials**
 - Cast Iron
 - SS Impeller
 - Duplex Impeller
 - Epoxy Coated Cast Iron for Seawater
- Features & Benefits**
 - Compact Design
 - Affordable
 - High Reliability
 - High Efficiency
 - Option for Integral PID Controller/Drive up to 30 hp



MULTI-PUMP BOOSTER PUMP SYSTEMS

Turn-key packaged systems with energy saving, multi-pump control logic for pressure boosting operations and operations with widely varying flow rates.

Q - Max Flow	H - Head max	Flange size
20,253 gpm*	557 ft	1" to 16"*

*Custom Configurations Available

- Materials**
 - Cast Iron & 304S/S
 - 304 Stainless Steel
 - 316 Stainless Steel
 - Titanium
- Features & Benefits**
 - Easy to Install and Commission
 - High Reliability
 - High Efficiency
 - With or Without Controls
 - Optimize Services that are not Handled Well by a Single Pump



PUMPS WITH INTEGRAL MOTOR-DRIVE CONTROLLERS – MODEL CRE/TPE/NBE

E-Pumps are configured with Grundfos motors equipped with integral variable frequency drive/PID controllers designed with optimal electrical control in mind. Grundfos controllers are programmed with the operational characteristics of the pumps they are attached to resulting in more efficient pump operations when compared to conventional pump motor and basic, external VFD in the same service.

APPLICATIONS

All dry installation pumps with motor sizes up to 30 hp can be supplied with Grundfos motors with integral PID controller/drive.



SUBMERSIBLE GROUNDWATER PUMP – MODEL SP/SP-G

APPLICATIONS

Groundwater Lowering - Pressure Boosting - Industrial Applications

Q - Max Flow	H - Head max	Bore hole sizes	Motor size
1,500 gpm	2,173 ft	4" to 10"	0.50 to 335 hp

- Materials**

 - 304 Stainless Steel
 - 316 Stainless Steel
 - 904L Stainless Steel
- Features & Benefits**

 - Submersible Pumps
 - Slim Design
 - High Efficiency



SUBMERSIBLE DRAINAGE PUMPS – MODEL UNILIFT CC/KP/AP

APPLICATIONS

Freestanding Drainage, Effluent and Wastewater Pumps

Q - Max Flow	H - Head max	Flange size
118 gpm	59 ft	1.5" to 2"

- Materials**

 - Composite
 - Stainless Steel
- Features & Benefits**

 - Easy Installation and Commissioning
 - Service & Maintenance Free



HIGH ACCURACY DIAPHRAGM DOSING PUMPS – MODEL DDA/DDE/DME

APPLICATIONS

pH-Adjusting - Chemical Feed - High Accuracy Dosing

Q - Max Flow	Max Back Pressure
248 gph	Dependent on Tube Size and Material of Construction

- Materials**

Pump head:

 - Polypropylene
 - PVC (Polyvinylchloride) – Limited to 143 psi max
 - PVDF (Polyvinylidene Fluoride)
 - 316 Stainless Steel
- Features & Benefits**

 - High Accuracy Dosing
 - Analog, Pulse, Batch, Manual Operation
 - User Friendly Controls/Menus
 - Optional “FlowControl” Variant Keeps Dose Constant Regardless of Variations in Back Pressure



DOSING SYSTEMS

Factory Engineered Single, Duplex, Triplex or Custom Configurations Utilizing Models Above

- Materials**

 - Polypropylene
 - PVC (Polyvinylchloride) – Limited to 143 psi max
 - PVDF (Polyvinylidene Fluoride)
 - 316 Stainless Steel
- Features & Benefits**

 - Standard & Turnkey Solutions
 - Valves & Appurtenances
 - Pulsation Dampeners
 - Wall or Floor Mounts
 - Optional Enclosures



HIGH PRESSURE BOOSTER MODULES – MODEL BMS

APPLICATIONS

Pressure Boosting - Pressure Washing - Reverse Osmosis Systems

Q - Max Flow	H - Head max	Flange size	Materials
1,365 gpm	1200 psi	3"- 6"	904L (EN 1.4539)

- Features & Benefits**
- High Efficiency Operation
 - Easy Maintenance & Alignment
 - Proven Durability & Reliability
 - Small Footprint



HORIZONTAL SPLIT CASE PUMPS – MODEL LS

APPLICATIONS

Water Intake - Oxygenation - Recirculation - Heating/Cooling Media

Q - Max Flow	H - Head max	Connections
66,043 gpm	820 ft	2" to 42"

Materials	Features & Benefits
• Cast Iron • Stainless Steel • Impeller: 304S/S or Duplex	• High Efficiency Operation • Mechanically Robust Hydraulic Design • Low Lifecycle Cost



TANK MOUNTED IMMERSIBLE PUMP – MODEL MTR

APPLICATIONS

Recirculation - Heating/Cooling Media - Filter Flushing/Backwash

Q - Max Flow	H - Head max	Connections
440 gpm	984 ft	1-1/4" to 3" NPT

Materials	Features & Benefits
• 304 Stainless Steel • 316 Stainless Steel	• Space Saving • Reduce Piping Complexity



VARIABLE FREQUENCY DRIVES – MODEL CUE

Adapt pump operation to process demand by varying the operational frequency and reducing the energy consumption.

APPLICATIONS

Offering simple installation and operation coupled with extensive control and monitoring capabilities, the Grundfos CUE is perfectly suited for pump applications with varying flow or pressure demands. By varying the pump speed in response to the system demand, user realizes measurable energy savings when compared to traditional single speed operation in the same application. The CUE is offered with a series of predefined control modes, such as constant pressure, proportional pressure, constant level or constant flow, allowing the user to customize pump operation to their desired control logic in only a few steps.

Features & Benefits
• Intuitive Start-Up Guide • Multi-Pump System Function including Auto Change Over, Duty/Standby or Duty/Assist Modes • Advanced User Interface • Multiple System Parameter Measurement Capability



Ceramic Coating

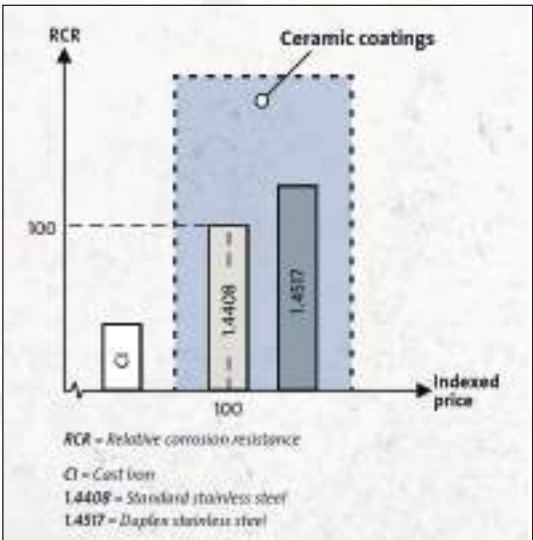
After years of supplying pumps to the aquaculture industry, Grundfos has established a list of material and coating combinations that perform well in the aggressive and corrosive environments that can be found in operations that recirculate saltwater of various concentrations and temperatures. Ceramic coatings are frequently used to provide the installation with superior performance against erosion, corrosion and chemical attack providing reliable performance and longer equipment life.

Grundfos offers coating options suitable for the following applications:

- Brackish water
- Sea Water < 77°F
- Sea Water Between 77°F and 149°F

The ceramic coatings can be applied to all material version for the NB/NBG/NK/NKG end suction pumps. As ceramic coatings wear, layers of the coating are colored and provide indication of the level of wear allowing for preventive maintenance to be scheduled when necessary. Additionally, as wear occurs it may be possible to rebuild or recoat internals rather than replace.

In addition to the internal coatings, all coated pumps are delivered with two additional layers of external paint in order to provide a ISO corrosion rating of C4-M indicating suitability for exterior industrial and moderate salinity coastal areas and interior environments in chemical plants, swimming pools, coastal ship and boat yards.



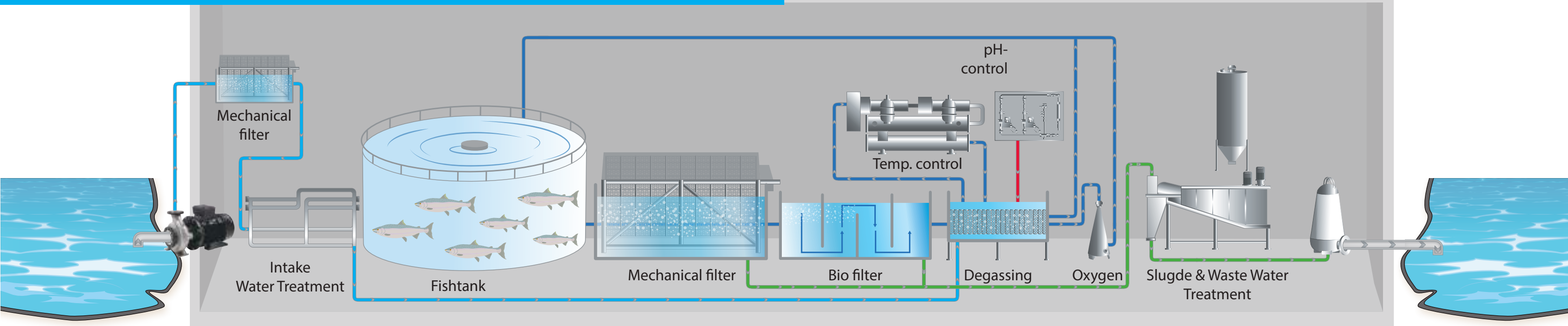
ADVANCED COATING POLYMER PROPERTIES

- 100% Surface Preparation Before Coating
- Extensive, Multi-Step Quality Control During Coating Process
- Silicon Carbide and Aluminum Oxide Reinforcement
- Very Low Coating Permeability
- Coating Ensures Smooth Surface During Lifetime of Pump
- High Temperature Resistance
- High Wear Resistance
- High Chemical Resistance
- Long Term Aquaculture Industry References

YOUR BENEFITS

- Resistance to Corrosion and Erosion Caused by Pumped Media
- Improved Equipment Reliability
- Improved Pump Efficiency and Performance
- Limit Equipment Downtime
- Lower Service Costs

GRUNDFOS PRODUCTS IN AQUACULTURE PROCESSING



Disclaimer: We do not supply pumps with hygienic design!

GRUNDFOS MACHINE HEALTH

GRUNDFOS iSOLUTIONS



In partnership with

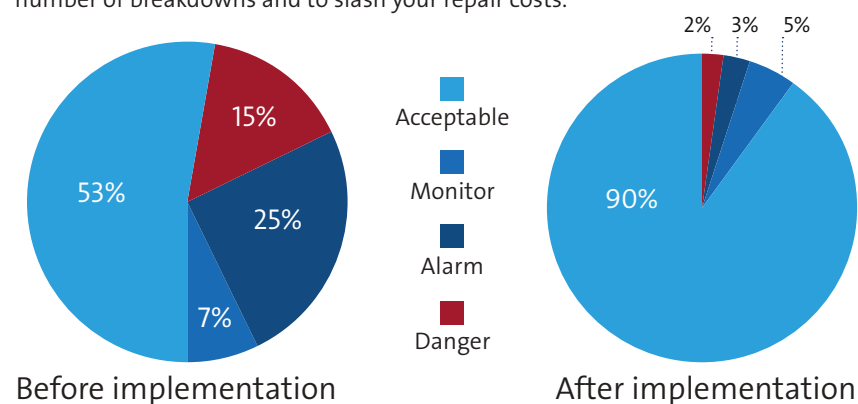


GUIDING YOU THROUGHOUT THE JOURNEY

Grundfos Machine Health is an end-to-end solution, which not only includes hardware and installation, but also training and support during the entire subscription period. The Grundfos Customer Service team is here to help you throughout the process, providing you with continuous and immediate support when you need it.

BUILT FOR SMART PERFORMANCE MANAGEMENT

Grundfos Machine Health has one reason of existence – to help you. To give you peace of mind and to ensure that your equipment is always performing at the optimal level. It's here to help you avoid unplanned downtime, to drastically reduce your number of breakdowns and to slash your repair costs.



Grundfos Service & Solutions

Customized solutions

Grundfos pumps are customized to the demands of the user's process specifications as much as possible. We choose the best pump for the intended installation depending on the operating parameters and the demands of the overall system. Pump selection goes well beyond flow and head and considers energy optimization, reliability and serviceability.

Grundfos Service - More Than Just Spare Parts

We know that reliability is important to our end users. We are constantly striving to develop innovative and first class service offerings to complement our best in class equipment.



Service Agreement

The Grundfos Standard Service Agreement includes a yearly inspection of pumps, motors, wear parts and controls (when integrated) by a Grundfos service engineer. Following the inspection, you will receive a report with an overview of pump performance and recommendations for improvements you can make to achieve long-term savings.

Benefits of a Grundfos Standard Service Agreement

- Enhanced operational reliability and safety
- Reduced and predictable operating costs
- Increased equipment life span
- Grundfos Inspection Report provides detailed entry in your equipment maintenance records



Grundfos Energy Check

Grundfos Energy Check is a detailed pump installation analysis carried out by trained Grundfos personnel wherein they evaluate the existing pump operations and compare the results to the optimal recommended configuration. The energy check includes a detailed analysis of energy consumption and CO2 emissions of existing pumps and the final report identifies the potential savings associated with a switch to an optimized Grundfos solution.

Benefits of a Grundfos Energy Check

- Reduce The Energy Consumption of Your Pumping Operations
- Document the Expected Return on Investment Prior to Purchase
- Target Sustainability Initiatives While Improving Process Performance



