

# PROJECT AND SERVICE CAPABILITIES

From solution development to operation and maintenance, Grundfos has the capabilities to help you meet today's challenges



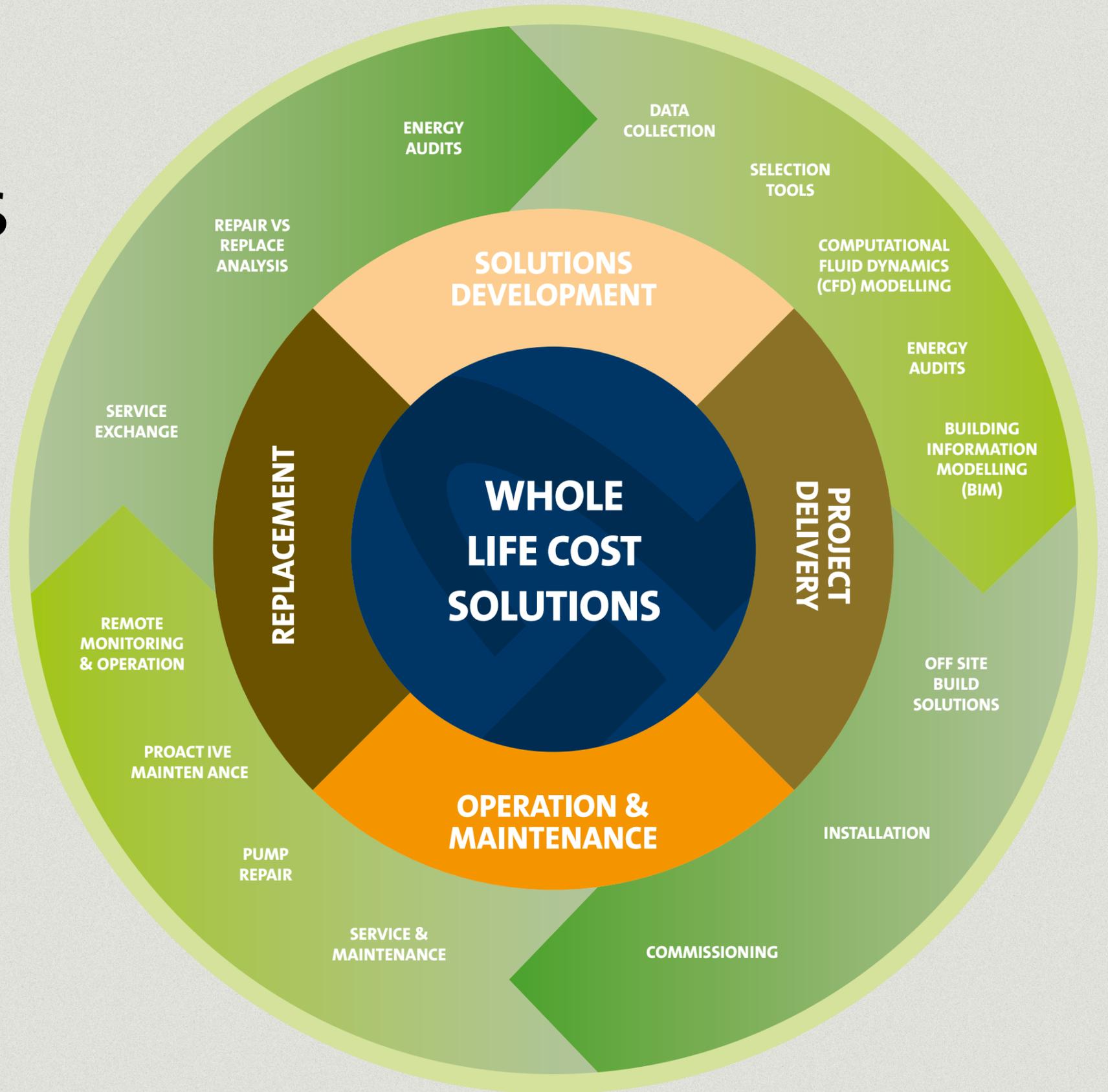
be  
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**GRUNDFOS** 

# HELPING CUSTOMERS TO MAKE GOOD ENGINEERING AND OPERATIONAL DECISIONS

At Grundfos we recognise the importance of making good decisions in the selection, delivery and ongoing operation and maintenance of assets to ensure smooth operation of water and wastewater facilities.

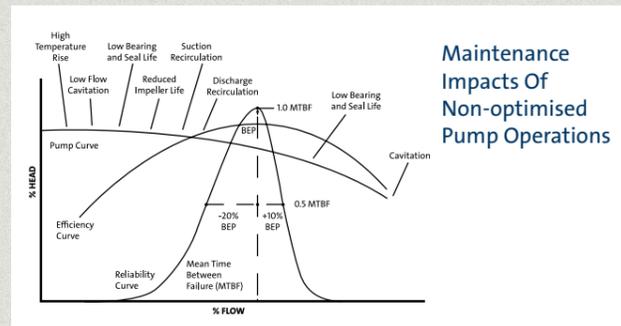
With ever increasing pressures to be more efficient in delivery of projects and to reduce running costs, Grundfos has a range of supporting products and services to help engineers and operators to achieve these requirements. From development of new projects to operation and subsequent replacement of assets Grundfos can help to continually optimise assets.



# SOLUTION DEVELOPMENT

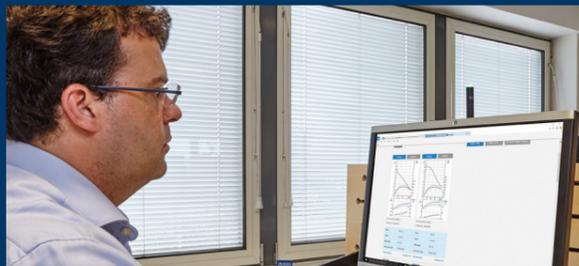
## WORKING WITH CUSTOMERS TO CREATE OPTIMUM SOLUTIONS AND DESIGNS

Correct product selection is essential to optimised whole life cost as it reduces operation and maintenance costs and lowers energy and chemical consumption.



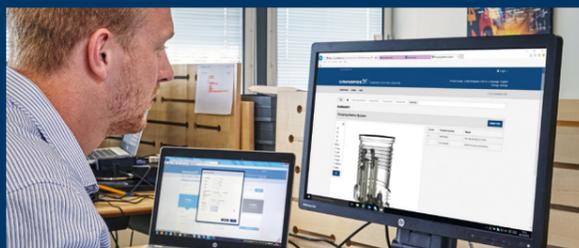
Grundfos has a wide range of tools and services to support the development of water and wastewater designs and solutions based on whole life cost and reliability.

### Grundfos Product Center



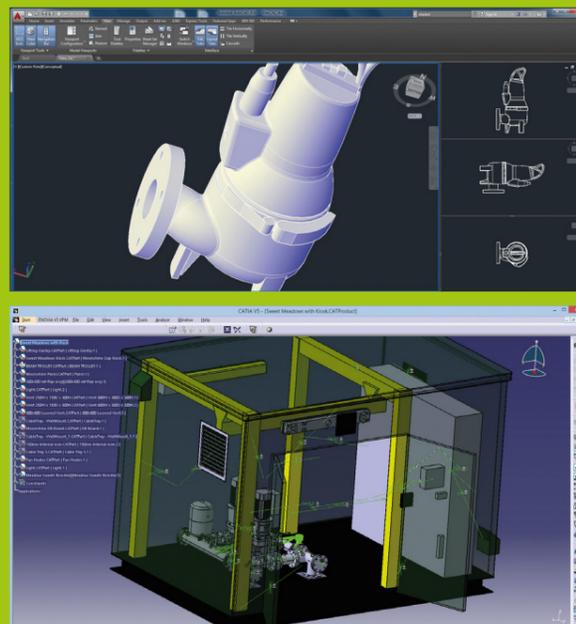
A web based tool providing selection and whole life cost comparison, product data and services information.

### Grundfos Off Site Build



Grundfos has design tools to configure and design off site build solutions for water and wastewater applications across a wide range of sizes and configurations.

### Building Information Modelling (BIM)



As BIM becomes much more widely used to develop solutions and designs, Grundfos has a range of supporting information:

- Data-light concept with purpose built Revit catalogues
- Delivers coarse, medium and fine renditions
- Exact geometry and electrical and piping connectors
- Access to operational, service and I&O data.

Additionally we use 3D CAD to model solutions for customers.

# ADDITIONAL DESIGN TOOLS

### CFD Modelling



CFD (Computational Fluid Dynamics) modelling is a virtual solution to predict fluid flows that is highly cost effective compared to investing in physical modelling investment. This results in improved pump selection, station design and reliability.

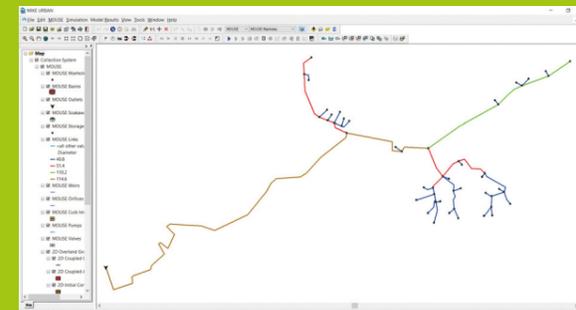
This tool can help improve flow systems design and identify critical flow as well as the causes of existing problems. Additionally CFD is used in the design of mixing and aeration systems and problem solving.

### Pit Creator



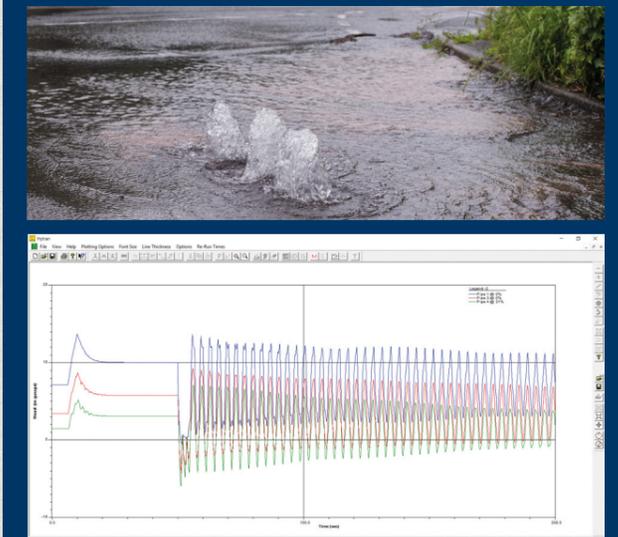
Supporting the civil design of pump stations to create initial station sizes to ensure optimum pump operation.

### MIKE URBAN Network Simulation Tool



MIKE URBAN is a GIS-based urban modelling system for wastewater collection and water distribution systems. It is able to simulate complex pressurised collection networks and combinations of gravity and pressurised collection networks.

### HYTRAN Water Hammer Analysis Tool



HYTRAN simulates water hammer issues in pipeline systems caused by the sudden velocity changes due to pump stop / start / trip operations and valve opening and closing. If unaddressed, water hammer can cause unwanted system noise, premature failure of joints and subsequent leakage.

# PROJECT DELIVERY

**WE WORK WITH OUR CUSTOMERS TO ENSURE PROJECTS ARE SAFELY DELIVERED TO TIME, COST AND QUALITY**

Grundfos has a dedicated team responsible for delivering projects. We provide project management, installation and commissioning of the solutions provided by Grundfos in collaboration with our customers in order to ensure safe and timely implementation of projects.

We work with customers, through detailed design to installation and commissioning, programming work to meet operational needs and providing specialist services to optimise the design when commissioned onsite ensuring the project meets the design objectives.

## Off site build solutions

Grundfos has over 8000 m<sup>2</sup> of factory space for off site build solutions. Off site build reduces project costs often by over 25% which has a major impact on the whole life cost of a project. It also reduces customer impact through reduced time onsite and improves safety. We work with our customers from design through to delivery and installation to optimise these off site build solutions.



## Safety

Safety is at the heart of everything we do at Grundfos. All of our project delivery team are fully qualified to ensure safe design and delivery of projects.



## Installation and Commissioning

Grundfos provide a wide range of products and we provide services to install and commission all of these products.



An Oxiperm disinfection unit being installed

Grundfos project office



Installation of a Grundfos Peerless vertical turbine pump

Grundfos mixed flow pump being installed

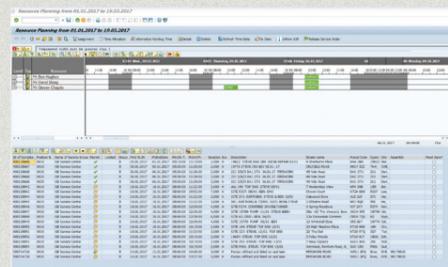
Installation of a dry well waste water pump

# OPERATION AND MAINTENANCE

The correct ongoing operation and maintenance of solutions is key to maintaining the optimum whole life cost. In addition, the ability to provide both reactive and proactive services to problems will ensure costs are reduced and reliability is maximised.

Grundfos can provide all of these services through a dedicated team of fully qualified engineers. We also have a number of control solutions that provide monitoring and control to quickly identify problems and proactively identify potential problems before they occur. In addition we carry out pump repair at our Grundfos repair centres ensuring pumps are returned to original manufacturers standards following the repairs.

## Offices and Repair Centres

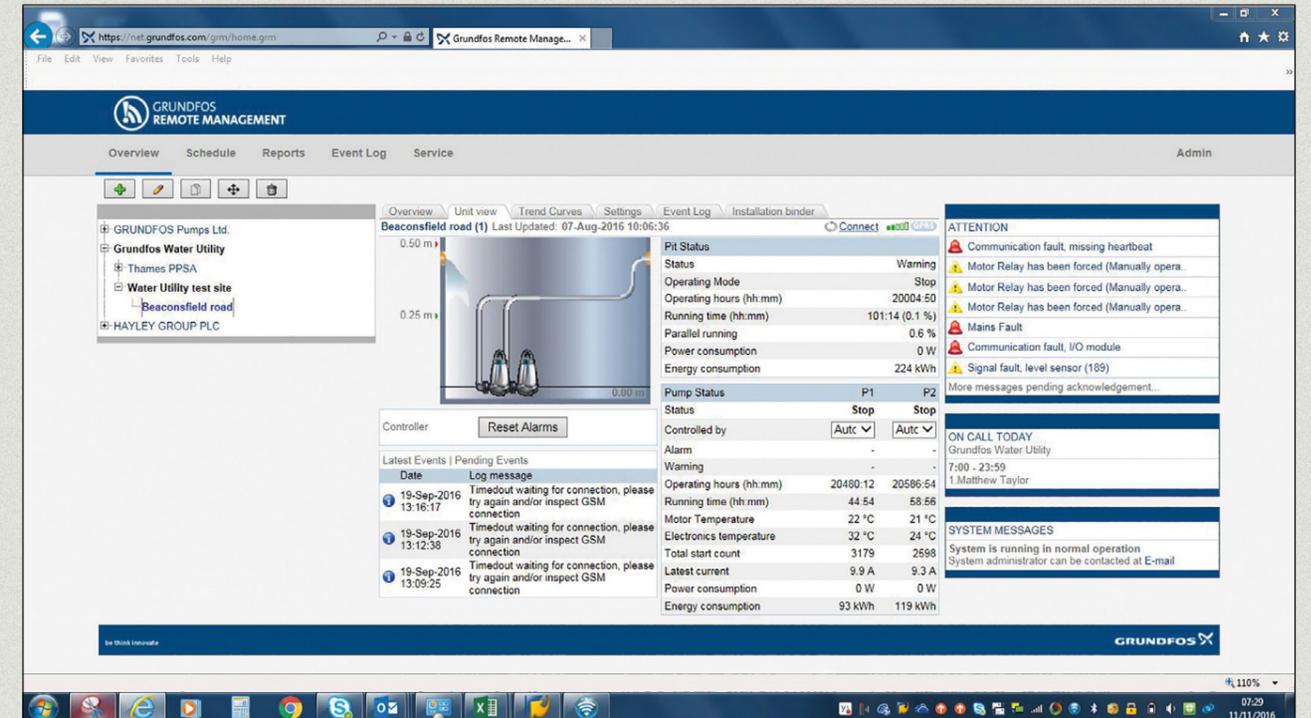


Service scheduling tool



## Proactive monitoring

Grundfos control solutions provide remote monitoring and even remote control of pumps. We work with our customers to ensure we monitor the right parameters and the right assets to reduce the impact to operations, minimizing downtime and cost.



Real time site reporting via Grundfos Remote Monitoring (GRM)



Waste water system controller showing levels integrated into a Grundfos panel



Clean water system controller



Grundfos Remote Monitoring (GRM) manager's dashboard

# ASSET REPLACEMENT

## KNOWING THE OPTIMUM TIME TO REPLACE ASSETS IS KEY TO MINIMISING WHOLE LIFE COSTS AND IMPROVING RELIABILITY

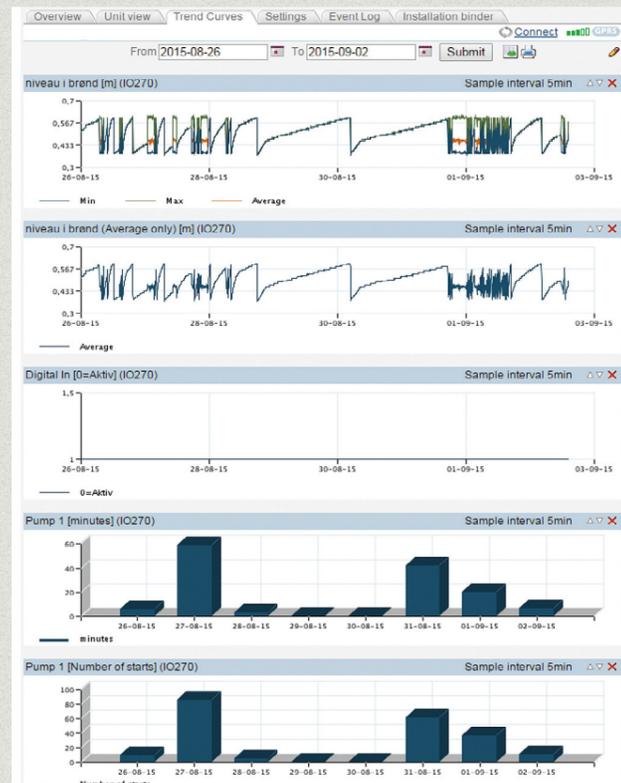
Grundfos has a number of ways in which we help our customers deliver this need.

There are a number of reasons why pumps should be replaced. These include energy reduction, decreased maintenance costs, changes in pumping requirement or new technology that will bring additional benefits from the existing assets. Grundfos work with customers to identify opportunities to replace assets to ensure optimum ongoing reliability and operation of the facility.

### Data – making good decisions needs good information.

Grundfos work with customers in a number of ways to support the collection of data to support decision making.

- Energy checks
- Pump audits - this can be through drop tests or temporary installation of measuring equipment to collect data
- ICA solutions that collect data on the assets



Graphs of pump performance



Pump monitoring equipment in use



Using the Grundfos Energy Check Tool

### Energy checks

Grundfos provide a range of solutions to identify pumps that would benefit from changes in control regime, replacement or upgrade to reduce energy costs. These checks result in a report that provides customers with information on the changes that will bring about energy savings.

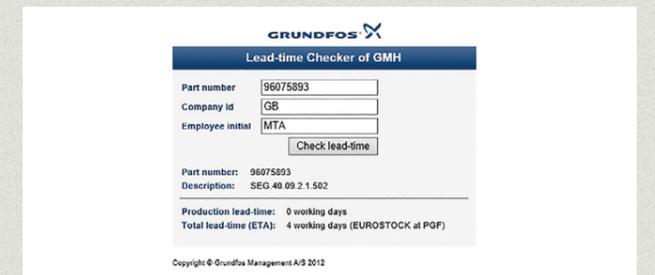
### Repair vs. Replace?

Grundfos work with our customers to support this decision. We provide cost information for repairing and replacing pumps that not only considers the costs but also the efficiency and therefore the whole life cost of the repair vs. replace decision. We also have datasheets that quickly indicates the typical break even point for replacing pumps depending on the type and size of the pumps.

When a decision is made to replace pumps it is often important that this replacement can be made quickly. Grundfos provides customers with pump stocking solutions that supports their need to replace pumps quickly to reduce the risk of process failure or supply/environmental risk.



On site stock management



Lead time check tool



Before refurbishment



After refurbishment

