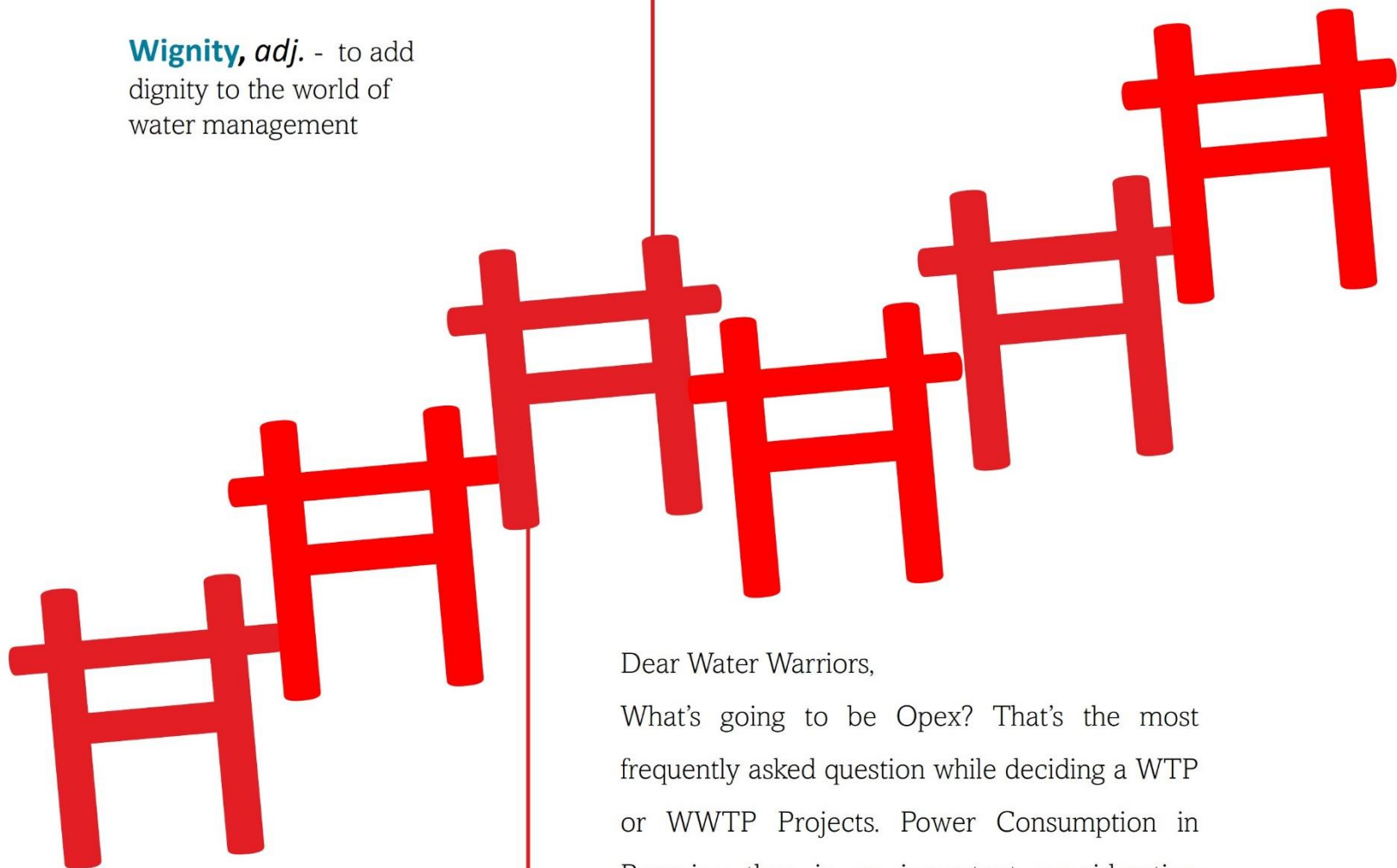


May, 2024
Vol 1, Edi 5

Wignity
Water Dignified

Wignity, adj. - to add dignity to the world of water management



Dear Water Warriors,

What's going to be Opex? That's the most frequently asked question while deciding a WTP or WWTP Projects. Power Consumption in Pumping thus is an important consideration while designing a Plant.

In the same way accurate dosing and reliability of correct flow, pressure is important to achieve process objectives.

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Pumps and Blowers form integral part of a Water or Wastewater Project. When we thought of covering Pumps, we approached industry leader Grundfos to support our cause.

The technical expertise available with their team as available for your study and for medium to large projects (where very high flow are not needed) the knowledge shared in this edition shall be good to readers. In future editions we shall consider discussing Semi-open impeller Pumps as well as sludge pumps from other leaders.

As an additional plus being vocal for local, we have also covered an Ahmedabad based company that is doing a lot of work in Dosing Pumps. Their automation expertise and control of dosing shall be useful in many unit operations.

For more, read on:

Pumping Lifeline ..Water.

We thank Grundfos that has contributed technical points on the Pumps for this edition of Wignity.

Grundfos is constantly striving to make its products more user-friendly and reliable, as well as more energy-efficient, so that both the users and the environment benefit from the improvements. Grundfos pumps are equipped with ultramodern electronics, allowing them to regulate the output according to current needs. This ensures convenience for the user and saves a lot of energy.

Sectors that rely on pumping are:

1. Heating
2. Air Conditioning
3. Pressure Boosting
4. Groundwater Supply
5. Domestic Water Supply
6. Wastewater
7. Industrial Application
8. Dosing & Disinfection
9. Solar Water Solutions
10. Motors, Controls & Accessories
11. Fire Systems

What if you could get pumps that consumed 37% less energy?

It's possible with intelligent and connected e-pumps and systems.

Industry processes consume too much energy. Take pumps, for example: They account for 25% of all electricity consumed by industrial electrical motors.

That's a fact, but it doesn't have to be that way – there's an intelligent answer. If we use intelligent, connected and energy-efficient solutions and systems, it's possible to reduce the energy consumption of pumps by as much as 37%.

At Grundfos, they offer a complete range of solutions that offer immediate energy cost savings and can help reduce energy use and emissions across a range of industrial processes. From cooling and water treatment to water reuse and ultra-clean water, you can start saving energy today.

As the world's first water solutions company with approved net-zero Science-Based Targets, Grundfos is determined to help decarbonize industrial applications. The company is committed to reaching net zero by 2050 and strives to help customers reduce emissions and reach their own sustainability targets.

Grundfos' wide range of intelligent e-pumps and energy optimization solutions and services are available today, offering the following key benefits:

Significant energy and cost savings

Most industrial systems run at full speed all the time. By using intelligent, connected and energy-efficient e-pump solutions instead of standard solutions, it's possible to reduce energy consumption by as much as 37%.

Optimized system performance

By combining energy-efficient pumps, motors and drives, it's possible to create an intelligent and connected solution that can improve the entire system. Integrated frequency converter and intelligent features make installation, operation and service exceptionally easy.

PureOx™

CHLORINE DIOXIDE GENERATOR

PureOx ClO₂ Generator is a very reliable and cost effective solution in disinfection technology combining high performance, simplicity of use and low maintenance.

PureOx produces chlorine dioxide safely and efficiently. The simple design reduces operational difficulties, resulting in lower operating cost and easy operator control.

PureOx finds application in almost every industry such as dairy, beverage, pulp and paper, f&b processing, poultry, chemical, power, textile, hotels, hospitals etc.

FEATURES:

- HAZOP study conducted
- Production technologies : gas and acid based
- High chlorine dioxide generation efficiency
- Low chlorine residual
- Auto/manual mode timer based operation
- Production capacity: Mentioned in specification chart

BENEFITS:

- Efficient bio-dispersant
- Efficient microbial control
- Approved for drinking water treatment
- Long shelf life in water
- Less corrosive
- Reacts with cyanides, nitrites, sulphides, phenols, Fe 2+



PureOx ClO₂ Generator - Installed at site

ADVANTAGES:

- Kills virus, bacteria, giardia, cryptosporidium, botulism, e.coli and cholera
- Effective in removing odour and taste caused by high organic loading, phenols, sulphides, etc
- No formation of trihalomethanes (THMs)
- Does not react with bromides to form bromine or bromate (a known carcinogen)
- Oxidises iron, manganese and sulfides
- Does not react with ammonia
- Enhances clarification process

INDUSTRIES:

- Cooling Towers
- Swimming Pools
- Paper & Pulp
- Food & Beverages
- Wastewater Treatment
- Drinking Water
- Process Water Treatment



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CO₂ emission reductions

E-pumps and other intelligent components can connect and communicate with each other to adapt to actual demands, thereby reducing CO₂ emissions.

Reduced service and maintenance

Intelligent, connected solutions like e-pumps can communicate with the entire system, reducing wear and tear. In addition to immediate energy consumption savings, e-pump solutions also offer significant reductions in service and maintenance costs, enabling users to get more out of a system.

Reduced lifecycle costs

The variable-speed drive's ability to continually adapt to actual application demands combined with the highest possible efficiency on the pump and motor helps reduce lifecycle costs.

Powerful high efficiency multistage pumps for industry:

The Grundfos CRE with IE5 MGE motor offers high efficiency performance and uses motor power optimally.

Did you know that you can get the same performance from a smaller pump while lowering energy use and running costs?

The Grundfos CRE is available with the IE5-rated MGE motor, which delivers the highest levels of energy efficiency and is optimized for maximum utilization of the motor's power output.

The CRE is a multi-purpose multistage pump with a built-in variable speed drive available in a wide variety of flow and pressure sizes.

Speed control continually adapts pump performance to match current conditions and desired pressure, temperature, or flow.

Find out how this powerful multi-purpose pump delivers the same performance from a smaller pump with lower energy use and running costs.



The CRE pump is based on a modular design, easily adapted within the well-proven CR basic pump concept. The compact in-line pump design enables installation in horizontal one-pipe systems. The multipurpose pump is designed for a variety of applications including:

- ⊗ Water supply
- ⊗ Washing and cleaning
- ⊗ Water treatment
- ⊗ Boiler feed
- ⊗ Chemical and Pharmaceutical industries
- ⊗ Temperature control
- ⊗ Mining
- ⊗ Industrial cooling
- ⊗ Irrigation

All variants in the CRE range are available in cast iron, stainless steel and titanium.

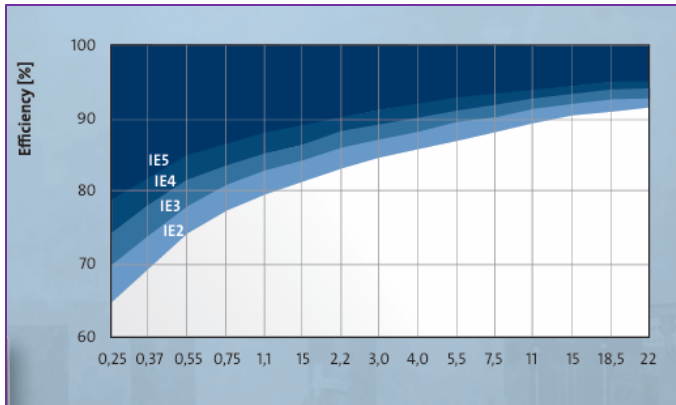
Experience Efficiency far beyond Requirements

The renowned CRE Pump has been upgraded with the latest motor technology to offer impressive energy that meets IE5 Level.

When you choose the optimized CRE pump, you will not only be rewarded with superior reliability and impeccable performance. As part of the Grundfos iSOLUTIONs programme, the pump also represents the ultimate in intelligent control and energy efficiency.

The new MGE motor goes far beyond that regulations required in terms of energy efficiency just as the advanced built-in control system makes it possible to enable application-related functions to optimize system performance.

CRE is also available with built-in sensor and pre-configured to constant pressure for complete plug-n-pump in the installation.



New CRE Functions

Run at power limit: Full load power output and optimal overload protection.

Advanced stop function: Prevents operation against operation damage and heat up.

Curve Compensation: Stabilizes unstable pump and load curves.

Activation and de-activation delay: Timer delay on digital Inputs and output.

Key data required for selection of Product:

1. Flow rate max
2. Head max
3. Liquid Temperature
4. Operating pressure max

Grundfos gives Extended Input and Output and gives below Specifications:

1. **Ambient temperature:** Full load continuous 50 °C, maximum allowed 60 °C
2. **Enclosure class:** IP55 and IP66
3. **Maximum speed:** 5900 rpm
4. **Wide supply voltage** Single-phase: 200-240 V, Three-phase: 380-500 V
5. **Approvals:** CE, R CM, cUR us, EAC

Extended Communication

As part of the Grundfos iSOLUTIONs the CRE pumps allow a variety of Communication Interface Modules (CIM) built into the pump to enable direct communication with process control systems; PLC, SCADA or BMS.

As a result, installation is made easier and the initial cost lower because there is no need for gateways. Adjust operation and monitor operating performance remotely with your preferred field bus:



1. Industrial Ethernet
The CRE pump supports the following industrial Ethernet standards:
 - Modbus TCP
 - PROFINET IO
 - BACnet/IP
2. Serial Fieldbuses
The CRE pump supports the following serial based communication standards:
 - Modbus RTU
 - PROFIBUS DP
 - BACnet MS/TP
 - LON
3. GENiBus
4. GSM
5. GRM
6. Grundfos GO

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To inject Chemicals...Dosing Pumps

Asha Technocrats offers solution for range of Chemical dosing pump, Controllers and Sensors for various dosing (Auto and Manual) application/technologies utilized in Water Treatment, Wastewater Treatment, ETP, STP, Raw water treatment, Cooling Water Treatment, Boiler Water Treatment, Desalination / RO Systems etc.

Addition of Chemicals/ dosing in Industrial sectors such as:

1. Power (Thermal/ Nuclear/ Gas) Industry
2. Cement Industry
3. Steel Industry
4. Sugar Industry
5. Paper Industry
6. Textile Industry
7. Chemical & Petrochemical
8. Oil & Gas Industry
9. PG bottling plants, Mining, Metallurgy, Minerals, Heat Treatment, Food Processing, Rice Polishing, Dairy, Drugs & Pharmaceuticals, Breweries & Distilleries, Plastics, Automotive, Heavy Engineering, Swimming pools in hotels/ resorts/ apartments, etc.



⊗ EMEC- ITALY make Chemical dosing pump (Manual and Auto)

⊗ EMEC- ITALY make Controllers and Sensors for controlling and measuring various water parameter like pH/ ORP/ Chlorine/ TDS- Conductivity/ Dissolved

Oxygen/ Ozone/ Turbidity etc

- ⊗ EMEC- ITALY make Auto chemical dosing system
- ⊗ EMEC- ITALY make Chlorine dioxide generator
- ⊗ MIXTRON- ITALY make non-electric water-driven proportional dosing pump
- ⊗ EMEC- ITALY make Cooling tower dosing system

Apart from that we are also supplying UV systems for various water disinfection application:

- ⊗ SUKRUT- INDIA make Ultraviolet UV disinfection Systems

Working Philosophy or operating Principles

Dosing generally applies to feeding chemicals or medicines when used in small quantities. For medicines the term dose is generally used. In the case of inanimate objects, the word dosing is typical.

Dosing pumps, also known as metering pumps are available in a variety of types and provide many years of reliable and efficient

operations. In most dosing applications, the accuracy of dosing is very important. The operation of a dosing pump is based on the principle of a positive displacement pump.



A dosing pump sucks a predetermined amount of liquid into the pump chamber and adds the liquid to a process. The pump is driven by an electric motor or an air actuator and has a controller that turns the pump on and off and manages the flow.

A major part of these pumps is a pump head and diaphragm that will suck the chemical liquid from the chemical tank to the pump. The foot valve/ strainer and injection valves are connected with pump head via tubing or piping. The discharge flow can be adjusted through stroke length adjustment or stroke speed adjustment.

Dosing pump/ Metering pumps are generally used in applications where one or more of the following conditions exist:

1. Low flow rates in ml/h or lph are required
2. High system pressure exists
3. High accuracy feed rate is demanded
4. Dosing is controlled by computer, microprocessor, DCS, PLC, or flow proportioning
5. Corrosive, hazardous, or high temperature fluids are handled
6. Viscous fluids or slurries need to be pumped

Suitable Applications

Dosing pumps are used for a huge range of applications. Mostly the pumps are used for pH adjustment of water and for protection against corrosion and precipitation.

The pumps are often used for mixing disinfectants, flocculants and scale inhibitors. The pumps can of course also be used for other purposes. Several examples of applications are given below:

1. Disinfection of process water
2. Chemical industrial applications
3. Food and beverages
4. Cleaning-In-Place
5. Ultrafiltration
6. Irrigation
7. Disinfection and pH adjustment

The pump is often used for various forms of water treatment, such as disinfection, pH adjustment, process water, drinking water and wastewater. But also, hygienic applications in the food industry and Cleaning-in-Place.



Other applications include ultrafiltration, reverse osmosis, flocculation, coagulation, irrigation and chemical applications.

Key data required for selection of right Product

For Dosing Pump:

1. Flow in LPH
2. Dosing or transferring line pressure in bar (if any)
3. Name of Chemical- liquid to be dose or transfer
4. Chemical contacted part- if known
5. Specific gravity of chemical- liquid (if known)
6. Chemical feed to dosing pump- positive or negative
7. Temp. in dosing line- if known
8. Temp. of liquid to be dose- if known
9. Application
10. Any Specific requirement considering installation zone/area like ATEX (Flame proof) or API standard.

For AUTO Dosing:

1. Control logic- parameter base, flow base or parameter and flow both
2. Parameter to be control
3. Flow in LPH
4. Dosing or transferring line pressure in bar (if any)
5. Name of Chemical- liquid to be dose or transfer
6. Chemical contacted part- if known
7. Specific gravity of chemical- liquid (if known)
8. Chemical feed to dosing pump- positive or negative
9. Temp. in dosing line- if known
10. Temp. of liquid to be dose- if known
11. Application
12. Modbus connection required or not?

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STRONGER
Together

Strength in Unity

Collaborative Excellence in Water Treatment



Join us in embracing the "Stronger Together"
This initiative aims to unite us all in our efforts, emphasizing collaboration, support, and synergy within our community.

Let's join hands and make a difference together!

