be think innovate

PROFESSIONAL PUMPS AND SOLUTIONS

FOR COMMERCIAL BUILDING SERVICES

GRUNDFOS

BUILDING HIGHER PERFORMANCE IN COMMERCIAL BUILDING

In every high performing building there are high performing pumps. But pumps are only part of the story. Intelligent solutions allow you to take control of your entire system to achieve an even higher performing building with intelligent pumps and design, Grundfos is raising the bar to ensure exactly this

Intelligent control modes allow our pumps to automatically adjust to the most critical system demands. This ensures optimal temprature, flow and pressure without compromise, giving you a pumping solution that increases the performance and effciency of any application

WELCOME TO THE WORLD OF GRUNDFOS COMMERCIAL BUILDING SERVICES

INTELLIGENT SOLUTIONS
FOR EVERY APPLICATION

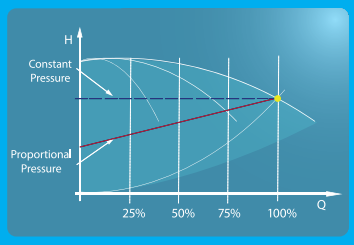
- HYDRO BOOSTER SYSTEMS
- WASTE WATER PUMPS
- BORE WELL SUBMERSIBLE PUMPS
- RENEWABLES IN BUILDING SERVICES
- WATER TRANSFER PUMPS
- AIR CONDITIONING
- FIRE PROTECTION SOLUTIONS
- DOSING AND DISINFECTION
- CONTROLS AND MONITORING
- PUMP AUDIT
- GRUNDFOS SERVICE & SOLUTIONS

NEW-GEN HYDRO BOOSTER SYSTEMS -HYDRO MPC

THE PREMIUM CHOICE FOR ANY JOB

With a goal to improvise energy efficiency and to reduce water consumption by optimized pressure management, Grundfos has improved several hydro MPC's functionalities making it a first choice amongst the plumbing industry.

Hydro MPC is Grundfos' premium product in the Hydro Booster portfolio. Its long list of unique features makes it able to handle the operational challenges of any water boosting application with ease

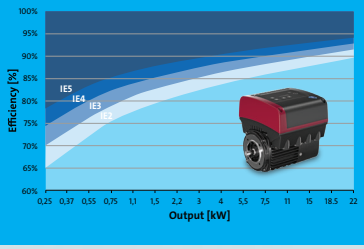


REDUCE WATER USE UPTO 32% BY PROPORTIONAL PRESSURE CONTROL

Proportional pressure control compensates for excessive system pressure at tap point by automatically adapting the setpoint to the actual flow which is unique to 'GRUNDFOS CU352' multi pump controller. This functionality further reduces the energy consumption upto 11% over the conventional start/stop booster systems

DESIGNED SYSTEM EFFICIENCY AT ALL LOADS

With HYDRO MPC's PILOT PUMP functionality, you have the opportunity to maintain the booster system efficiency close to its overall design, at all loads. This gives an additional energy savings upto 9% depending upon the consumption profile.



PERMANENT MAGNET MOTORS

Grundfos permanent magnet motors (PMSM) are designed especially for pump applications, delevering high part-load efficiency. This results in a lower specific energy consumption and lifecycle costs.

These motors offer upto 10% energy savings and 25% reduction in payback compared to IE3 motors.

SYSTEM EFFICIENCY COUNTS

WE AT GRUNDFOS, CONSIDER YOUR WATER DISTRIBUTION SYSTEM AS A WHOLE & OFFER SYSTEM SOLUTIONS WITH BEST POSSIBLE RECOMMENDATIONS ON THE SYSTEM DESIGN & CONTROLS

HIGH EFFICIENCY PUMPS

Grundfos CR/CRI/CRN range of pumps offer remarkable levels of hydraulic efficiency, With laser welded impellers and tight clearances between pressure stages - pump efficiency is assured for years together.

PUMP LOGIC CONTROLLER

Grundfos's Hydro MPC CU 352 controller - a 4th generation controller improvised with decades of field experience and customer feedback offers a host of unmatched unique features to optimize both energy & water consumption

SYSTEM CONFIGURATION

A pump configuration to suit the application's consumption profile does impact on improving overall system efficiency to large extent. Grundfos's pilot pump configuration aided by HYDRO MPC controller functionality & system design offers efficiency close to design at all load conditions

PERMANENT MAGNET MOTORS

Grundfos's new MGE range of motors (upto 11 kw) offer IE 5 level of efficiency - offering a stable motor efficiency especially at part load operations.

VARIABLE SPEED DRIVES

Due to varying consumption profile, its becomes inevitable to have variable speed drives in the booster system to control the hydraulic capacities inline with load changes.

With ultra modern sanitary fittings, hydralic parameters becomes so critical that dedicated variable speed drives for each pumps becomes absolutely a necessity

GRUNDFOS HYDRO BOOSTERS FOR EVERY APPLICATION

GRUNDFOS HYDRO MPC S/F/EF

A VERSATILE BOOSTER SYSTEM WITH GRUNDFOS CU352 CONTROLLER

- CR/CRI/CRN
- IE3 motors as standard
- CED coated or stainless steel manifolds
- System offered with fixed speed or with a single or multiple frequency drives

GRUNDFOS HYDRO Multi-E BOOSTER

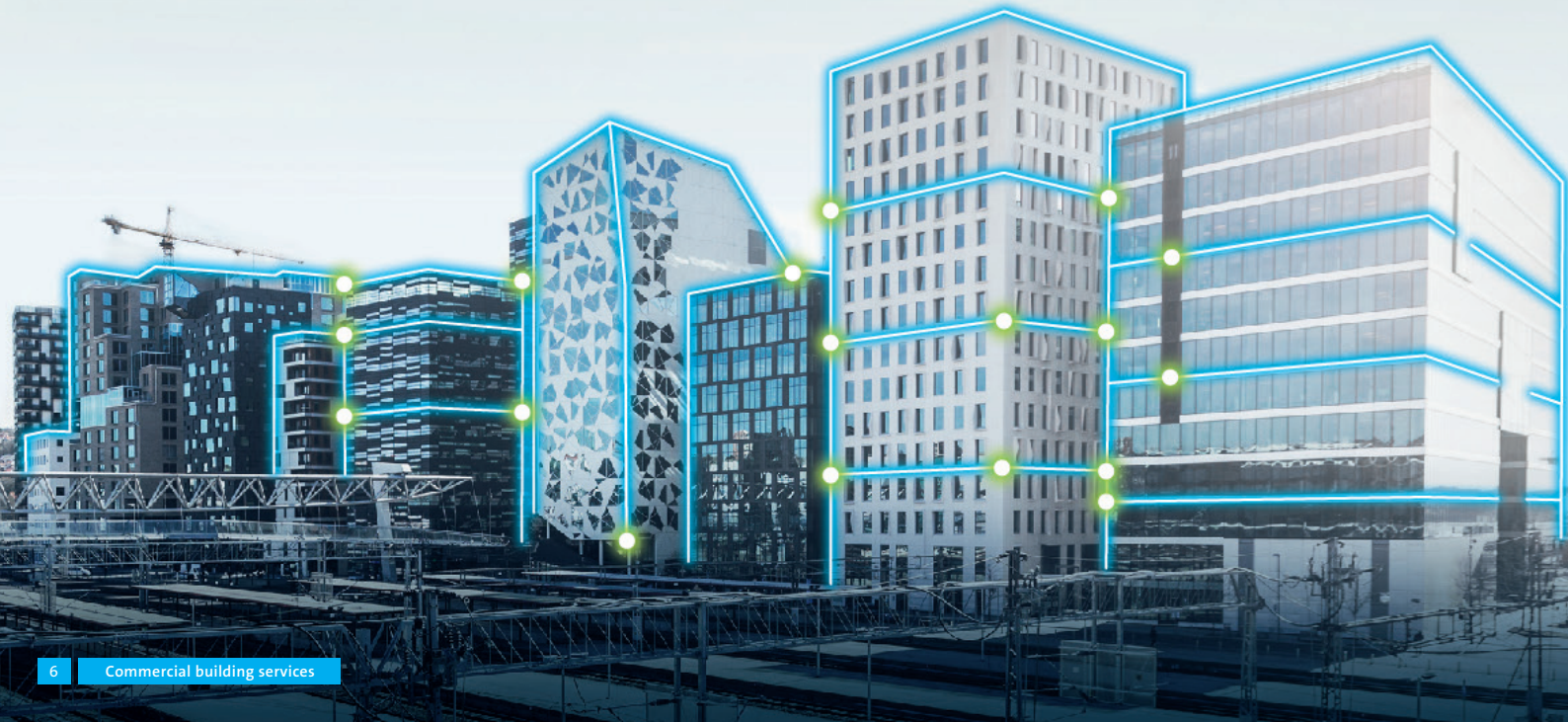
SIMPLE YET MOST EFFICIENT BOOSTER SYSTEM

- CRE/CRIE/CRNE pumps vertical multistage pumps
- Offered with IE3/IE5 motors
- Resident controller within pumps
- System offered with integrated frequency drives

GRUNDFOS HYDRO MULTI-B

SIMPLE - FUNCTIONAL - COST EFFECTIVE

- CR/CRI/CRN/CM Multistage pumps
- Offered with CU323 controller
- CED coated manifolds and baseframe
- System offerd with single or multiple frequency drives



Technical Information

FEATURES	HYDRO MPC				MULTI-E	MULTI-B		MULTI-S	
Control Variant	E	EF	F	S	CRE	E	ES	CM	CR
Picture									
Description	E system is with all integrated MGE motors which gives superior level of pressure regulation and energy performance.	EF system is with all external frequency converter which gives high level of pressure regulation and energy performance.	F System is with a single frequency convertor, giving user a cost effective system with pressure regulation	S system is with all constant speed pumps controlled by a CU 352 controller	Multi-E is all speed controlled system with controller resident inside the MGE motor (upto 11 kw (IE5) and 11 to 22kw (IE3)	Multi-B E system has all CM /CR pumps with Danfoss external frequency convertors. CU 323 controller gives a better cost to performance to the user	Multi-B ES system has only one speed controlled pump (External VFD) and rest are fixed speed pumps	Multi-S with CM horizontal fixed speed pumps, has advantages of being compact and sturdy	Multi-S is an optimal fixed speed booster with CR - vertical Multi stage pumps which has all basic functionality of a booster
Perfect for	Any application with changing flow where precise pressure control and high level of system optimization is needed	Any application with changing flow where precise pressure control is needed	Applications with changing flow, where user can accommodate a pressure variation	For transport of water and pressure boosting where the operating within a pressure band is accepted	For all buildings where constant pressure, low energy consumption and a small footprint is needed	Prefect booster for small and medium size commercial buildings, where limited functionality with precise pressure control is needed	Perfect booster for small and medium size commercial buildings where a pressure band is allowed	As competitive solution in the fixed speed booster market	As a competitive solution in the fixed speed booster market
Max Head [m]	155	155	155	155	100	120	125	84	103
Max Flow Rate [m3/h]	1088	1088	1088	1088	80	108	108	43,5	69
Max operating pressure [bar] std	16	16	16	16	10	16	16	10	16
Max operating pressure [bar] req.	40	40	40	40	-	-	-	-	-
Number of pumps	2 - 6	2 - 6	2 - 6	2 - 6	2 - 4	2 - 4	2 - 4	2 - 3	2 - 3
Motor Type	MGE 0.55 to 11KW (IE5)	75KW	75KW	37KW	0.55 to 11KW (IE5) 11 to 22KW (IE3)	7.5KW	7.5KW	5.5KW	7.5KW
Pump Type	CRE/CRIE/CRNE	CR/CRI/CRN	CR/CRI/CRN	CR/CRI/CRN	CRE/CRIE/CRNE	CRIE/CME/CM/CR	CRIE/CME/CM/CR	CM	CR
Energy Marking	IE5/IE3	IE3	IE3	IE3	IE5/IE3	IE5/IE3	IE5/IE3	-	IE3

FEATURES	HYDRO MPC				MULTI-E	MULTI-B		MULTI-S	
Control Variant	E	EF	F	S	CRE	E	ES	CM	CR
Controller	CU352	CU352	CU352	CU352	Grundfos GO	CU323	CU323	CS100	CS100
									
Advanced (Multiple settings and readouts)	✓	✓	✓	✓					
Medium (Basic settings and readouts)						✓	✓		
Simple (settings/readout Grundfos GO)					✓				
Basic (pressure switch adjustment)								✓	✓
Rating of most energy saving system	★★★★★	★★★★½	★★★½	★★½	★★★★½	★★★★	★★★	★★	★★
Specific energy consumption read out in display	✓	-	-	-	-	-	-	-	-
BUS Communication	✓	✓	✓	✓	✓	✓	✓	-	-
On board Ethernet Communication	✓	✓	✓	✓	-	-	-	-	-
Speed Controlled pumps	✓	✓	✓	-	✓	✓	✓	-	-
Automatic pump changeover	✓	✓	-	-	-	✓	-	-	-
Stop function	✓	✓	✓	✓	✓	✓	✓	-	-
Water shortage protection (opt)	✓	✓	✓	✓	✓	✓	✓	-	-
Tank filling application	-	-	✓	✓	✓	✓	-	✓	✓
Redundant Primary sensor	✓	✓	✓	✓	✓	-	-	-	-
Automatic resetting of dry-running fault	✓	✓	✓	✓	✓	✓	✓	✓	✓
Start-up delay between pumps	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alternative Set points	✓	✓	✓	✓	-	-	-	-	-
Proportional pressure function (DDD)	✓	✓	✓	✓	-	-	-	-	-
Pilot Pump	✓	✓	✓	✓	-	-	-	-	-
Clock Program	✓	✓	✓	✓	-	-	-	-	-
Soft Pressure Build Up	✓	✓	✓	✓	-	-	-	-	-
Pump curve data	✓	✓	✓	✓	-	-	-	-	-
Flow Estimation	✓	✓	✓	✓	-	-	-	-	-
Pumps outside duty range	✓	✓	✓	✓	✓	-	-	-	
Emergency Operation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Forced pump change over	✓	✓	✓	✓	✓	✓	✓	-	-
Password protection	✓	✓	✓	✓	✓	✓	✓	-	-
Pulse Meter Input for flow estimation	✓	✓	✓	✓	-	-	-	-	-
Multi-Sensor (fallback/secondary sensor)	✓	✓	✓	✓	-	-	-	-	-
Electrical overview of IO Points	✓	✓	✓	✓		-	-	-	-
Defect Non-Return valve Detection for E Pumps	✓	-	-	-	✓	-	-	-	-

WASTE WATER PUMPS

GETTING RID OF WASTE WATER IN A SAFE, EFFICIENT AND HYGENIC WAY IS JUST AS IMPORTANT AS ACCESS TO CLEAN DRINKING WATER

Grundfos offers a complete range of wastewater pumps for collecting and transporting wastewater, offering reliability and energy effciency. These pumps are enclosed units with a pump and motor making them suitable for submersible operation; however their construction means that service can be carried out without entering the pit by using auto coupling arrangement wherever feasible

Most common challenge faced with any waste water pump is due to improper

- Evaluation of pump operating head
- Impeller selection
- Installation

SE1/SL1 I SEV/SLV

To transfer domestic sewage in

- Lifting stations
- Public buildings
- Sewage treatment plants

Solid size : 50 - 125 mm

SEG

To transfer grey & black water in

- Restaurants & hotels
- Hospitals
- Commercial buildings

Soft solids

DWK.O/DWK.E/DPK

For dewatering of

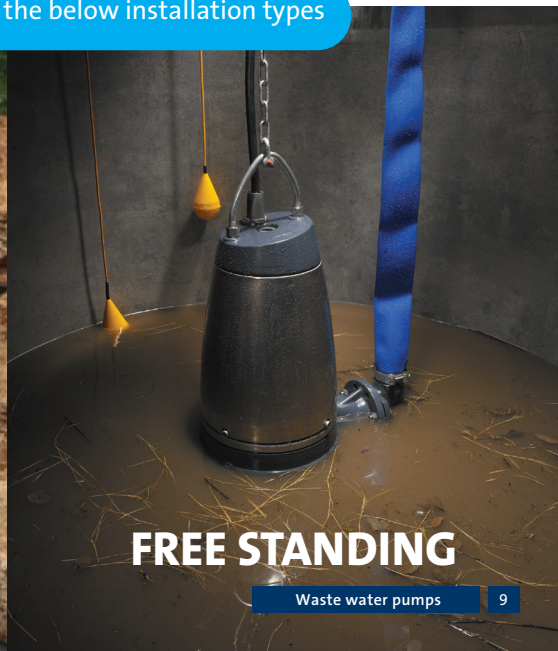
- Underground Garages / basements
- Car park / car wash areas Flood control

Solid size : Up to 20 mm

It is strongly recomended to install any waste water pumps in any of the below installation types

AUTO COUPLING

LOOSE FEET EXTENSIONS



FREE STANDING

NO COMPROMISE

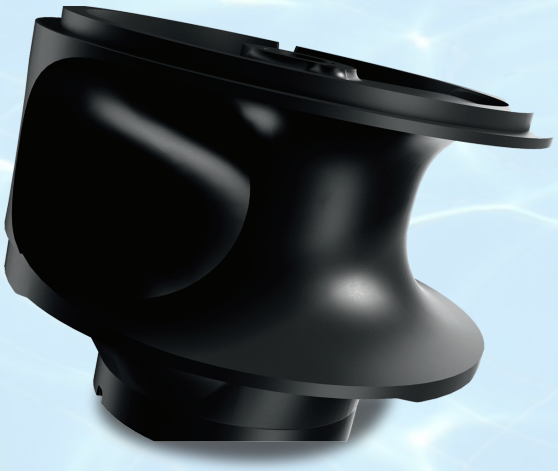
Highest hydraulic efficiency and best non-clogging capabilities

INTRODUCING THE GRUNDFOS S-TUBE IMPELLER

The S-tube offers greater hydraulic efficiency than any other type of wastewater impeller, without compromising free passage. This results in the lowest life cycle cost, trouble free operation and best-in-class non-clogging capabilities.

When you package this innovative, elegant and simple impeller design in the outstanding SE and SL ranges of submersible wastewater pumps and add IE3 motor components and super intelligent controls, we truly believe we are looking at the ultimate in wastewater pumping technology.

With the S- tube, Grundfos sets new standards for wastewater hydraulic design . The S-tube resolves the challenges with sealing, vibration abrasive wear and clogging that owners of wastewater pumping stations have lived with for way too long.



WHY FOCUS ON FREE PASSAGE?

Greater free passage means better solids handling and greater non-clogging capabilities.

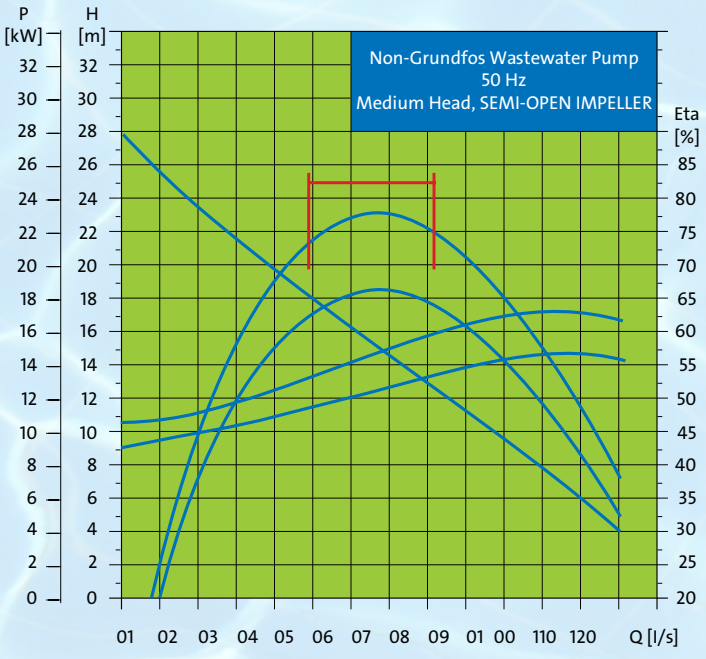
Better efficiency combined with better free passage, with lower vibrations and the same great features and benefits that the S-tube provides.

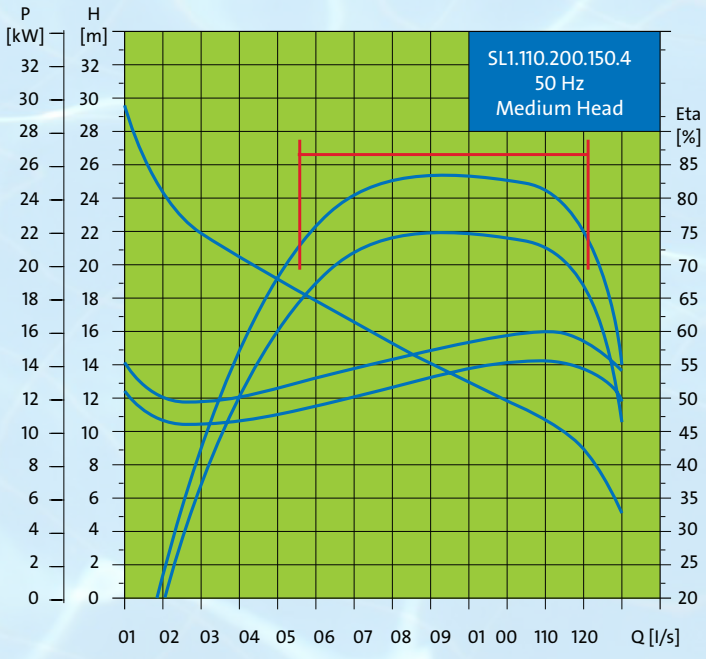
SEMI-OPEN IMPELLER

- BEP = 78.9% hydraulic efficiency
- BEP = 68.6% overall efficiency
- Approximately 22% of the curve is above 75% hydraulic efficiency
- Free passage 50mm

S-tube

- BEP = 83.3% hydraulic efficiency
- BEP = 74.5% overall efficiency
- Approximately 55% of the curve is above 75% hydraulic efficiency
- Free passage 110mm





SEWAGE & FLOOD CONTROL PUMPS
- S RANGE

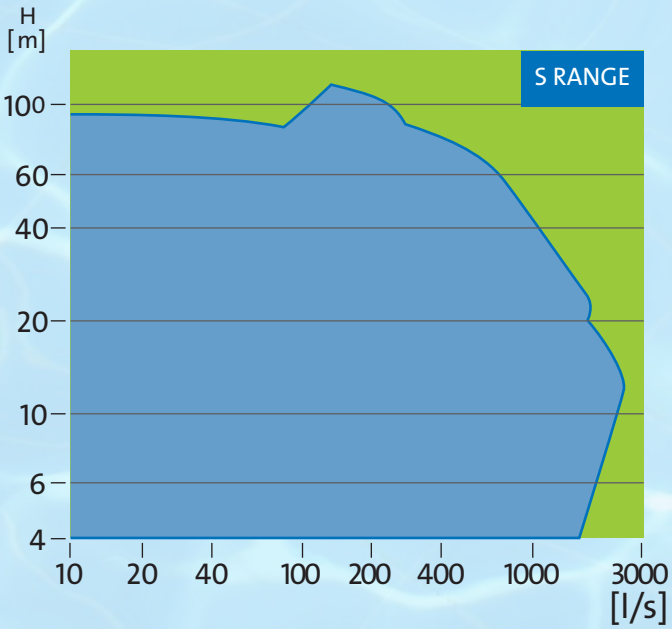
Highly dependable, powerful sewage pumps, designed for handling unscreened raw sewage, acknowledged for their strength, their durability, and for innovative features such as SmartTrim impeller clearance adjustment system and SmartSeal for leakage prevention.

Applications
- Wastewater transport
- Run Off Management
- Wastewater treatment

Benefits
- High efficiency and excellent non-clogging capabilities with large free passage of 80 to 145 mm
- Patented SmartTrim system for extremely easy impeller adjustment without dismantling the pump, to maintain peak performance and keep lifecycle costs low.
- The SmartSeal auto-coupling gasket provides a completely leak-proof connection between the pump and the base unit of the auto-coupling system.

Variants
- Stainless steel variants to EN 1.4408
- Sensors available for monitoring the pump: bearing and winding temperature, vibrations and water in oil
- A wide range of possibilities for customising to customers requirements

Technical data
- Motor size: Up to 520 kW
- Flow rate (Q): 2000 l/s
- Head (H): 116 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: 80 to 600 mm
- Free passage: Up to 145 mm
- Insulation class: F (H on request)
- Maximum system pressure: PN 10
- Maximum hydraulic efficiency: 85 %



SUBMERSIBLE WASTEWATER PUMPS
- SE/SL

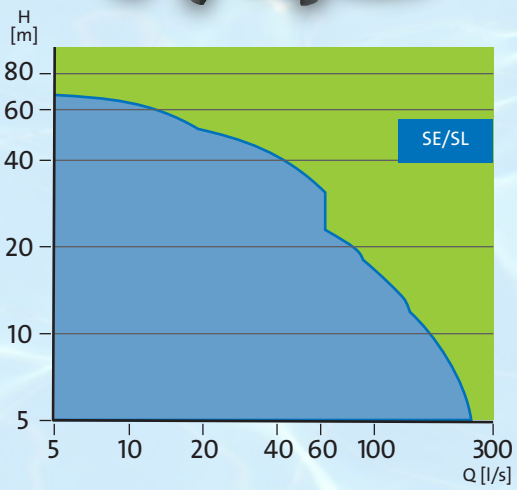
Designed for the handling of wastewater, process water and unscreened raw sewage. The pumps can be installed submerged and/or dry.

Benefits
- SE/SL pumps offer you the best level of reliability due to optimised hydraulics designed with large free passage
- Highest wire-to-water efficiency available, reducing your total costs
- Highest level of service friendliness, making service of the pump trouble-free and time saving

Technical data
- Motor size: 0.9 to 30 kW
- Flow rate (Q): Maximum 320 l/s (1008 m³/h)
- Head (H): Maximum 71.3 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: DN 65 to DN 300
- Free passage: Up to 125 mm
- Insulation class: H
- Maximum efficiency: 83.7 %
- Maximum system pressure: PN10

Applications
- Dewatering
- Run off Management
- Mild effluent
- Grey Water Transfer
- Black water / Raw Sewage Transfer

Available materials
- Stainless steel impeller (SE, SL)
- Stainless steel variants for standards EN 1.4408 and EN 1.4517/1.4539 (SE)



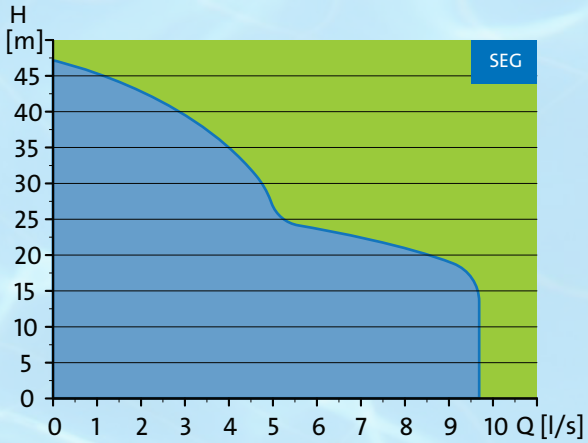
GRINDER PUMPS
- SEG/SEG AUTOADAPT

Submersible sewage grinder pumps for pressurised wastewater pumping designed to optimise performance in your system. The adaptive intelligence built into the AUTOADAPT versions minimises risk factors and reduces costs for installation, commissioning and maintenance.

Benefits
- High discharge pressure enables transfer of wastewater over longer distances
- Plug and pump – all necessary control and protection built into the pump, eliminating complexity (AUTOADAPT version)
- Wear resistant grinder system which grinds solids into small pieces, so they can be pumped away through discharge pipes of a small diameter

Technical data
- Motor size: 0.9 to 4 kW
- Flow rate (Q): 9.5 l/s (34m3/h)
- Head (H): 45.7 m
- Liquid temperature: 0 °C to +40 °C
- Discharge diameter: DN 40/50
- Insulation class: F
- Free passage: Grinder
- Insulation Class: IP68

Applications
- Wastewater transport



VORTEX SEWAGE PUMPS
- DPK.V

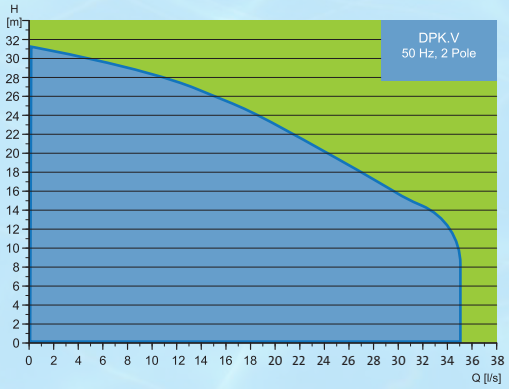
The DPK.V range of submersible sewage pumps from Grundfos combines durable performance with ease of installation, providing an immediate return on your building service investment.

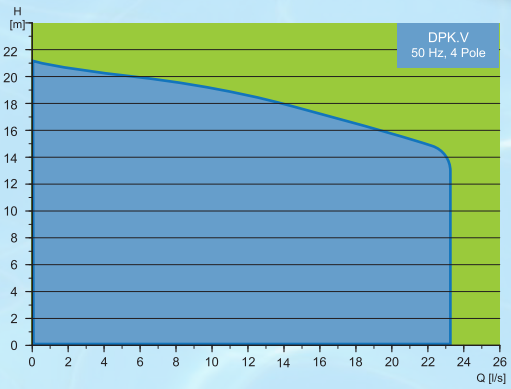
The DPK.V is intended for submersible use in underground sewage collection tanks in or around buildings when cost-effective and reliable sewage transport is required.

The compact & service-friendly design and the flexible installation options combine to make the DPK.V the perfect choice.

Applications
- Raw sewage transfer
- Waste water treatment

DPK.V PERFORMANCE CURVES





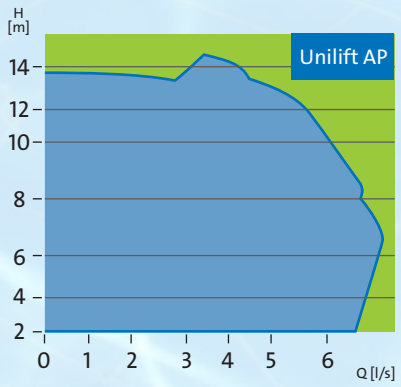
PORTABLE DE-WATERING PUMPS
- UNILIFT AP 12 RANGE

The AP/KP pump is designed for liquid transfer and drainage of clean or slightly dirty wastewater with the pump completely or partly submerged in the liquid. the pump can be used for automatic as well as manual operation and can be installed permanently or used as a portable pump.

Benefits
- Permanent as well as portable installation
- Simple installation
- Service friendly
- Optional automatic operation

Applications
- Rainwater, drainage water and water from flooding
- Pool water
- Effluents from showers, washing machines and sinks below sewer level
- Water and rainwater in horticulture

Technical data
- Max. flow rate, Q: 32 m³/h
- Max. head, H: 17 m
- Liquid temp.: 0 °C to +55 °C
- Max. particle size: 12mm
- Material: Stainless steel



SUBMERSIBLE DRAINAGE PUMPS

- DPK

Drainage pumps designed with semi-open or enclosed impeller for pumping water in a wide range of applications. the pumps are made of robust cast iron, ensuring durable operation.

Benefits

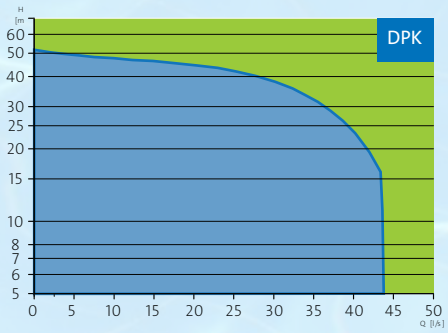
- Semi-open ductile cast iron impeller maintains its performance, ensuring an increased lifetime
- Submerged free-standing installation, or sub--merged installation in an autocoupling system. The double mechanical seal is positioned in the oil chamber and ensures trouble-free operation.

Technical data

- Motor size : 0.75 - 22 KW
- Flow rate (Q) : 45 l/s (165 m³/h)
- Head (H) : 56 m
- Liquid temperature : 0°C to +40°C
- Discharge diameter : DN 50-DN 150
- Free passage : 10 to 20 mm
- Insulation class : F
- Maximum hydraulic efficiency : Upto 74%

Applications

- Flood Control
- Underground drainage pits
- Courts drainage solutions



HEAVY-DUTY DEWATERING PUMPS

- DWK

Contractor pumps for construction dewatering in building and infrastructure sites, designed with semi-open or enclosed impeller. Made of corrosion-resistant materials such as cast iron and high chrome stainless steel. for harsh environments.

Benefits

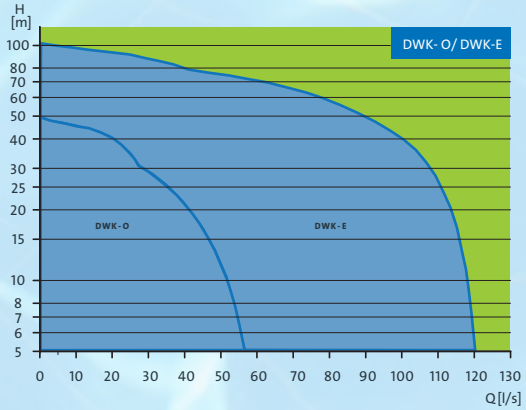
- High reliability and flexibility pumps with protection features for harsh operating environments.
- Top discharge with different connection types available for mulitiple use of the pump, depending on conditions and specific needs.
- Pumps up to 15 KW have a double mechanical seal and pumps from 22 KW to 90 KW have a triple-seal system, for longer operation and less downtime.

Technical data

- Motor size: 0.75 - 90 KW
- Flow rate (Q): 110 l/s (430 m³/h)
- Head (H): 160m
- Liquid temperature: 0 to +40°C
- Discharge diameter: 2" - 6"
- Free passage: Strainer
- Insulation class: F
- Maximun hydraulic efficiency: Upto 75%

Application

- Raw Water Intake
- Drinking Water Treatment
- Water Distribution
- Wastewater Transport and Flood Control
- Wastewater Treatment



WASTEWATER CONTROLS
- DEDICATED CONTROLS

dedicated controls is a pump control system that combines a large number of advanced function with a large, intuitive and easy-to-use graphic display.

Features

- Easy to read colour screen
- Overflow measurement
- Service Button
- User defined input parameters
- Naming of digital inputs
- Overview of available alarms and warnings
- SMA (transmit and receive if not on SCADA)
- Control of up to six pumps with optional grouping
- Automation function control, so the pumps do not jam
- Alternation of pumps
- A large number of Calculation for, for example, inlet, pump capacity, parallel pump operation and specific energy use [Wh/m3]
- Daily flushing function, overflow registration, or set any starting level

Applications

- Wastewater transport
- Flood control
- Wastewater treatment

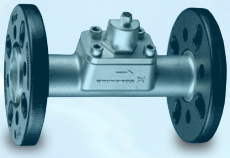
Integration with MP 204 and CUE via GENI bus

Connecting Dedicated Controls to MP 204 or CUE provides a wide range of operational benefits. For example, based on measured electrical pump data, Dedicated Controls can perform an "anti-blocking" function by automatically reversing the pump at next pump start, or it can perform a "Flush" function and flush the pressure pipe the next time the pump starts

MP204

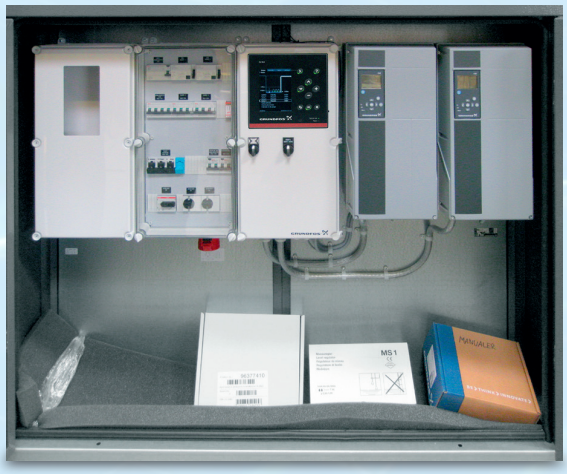
Level switch

CUE



Sensor

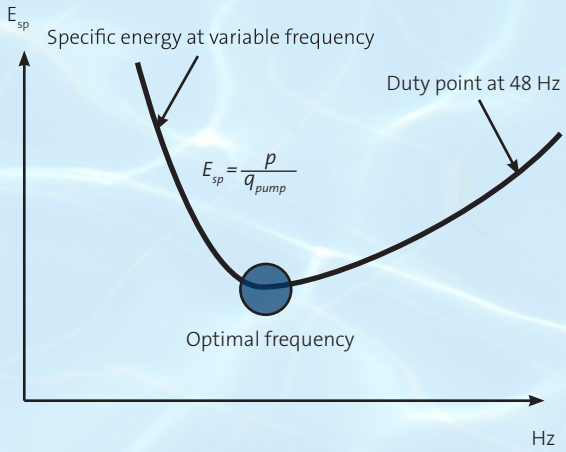
CIM



Energy optimizing

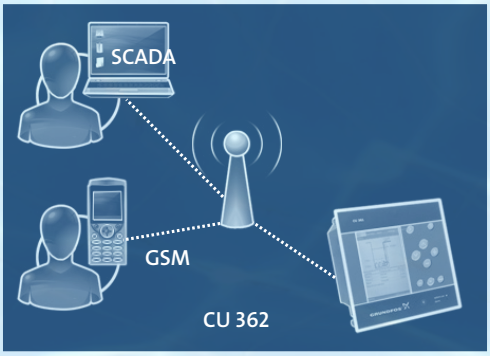
Dedicated Controls can even perform an automatic energy optimisation of the system by finding the Specific Energy [Wh/m] when connected to a CUE. As the system is updated once a day, changes in the pumping speed and back pressure in the pipeline are continuously being compensated for.

Energy optimisation with frequency converter operation usually requires flow measurement of specific energy. Grundfos has a patented algorithm that calculates flow without the need for an external flow meter, requiring only the measurement of pressure on the discharge side.



Communication

Full integration between Dedicated Controls and SCADA system via Modbus is done either wirelessly via GPRS/ GSM or Cable. It is also possible for a web-based solution by connecting to Grundfos.



MOTOR PROTECTION UNIT
- MP 204

Reliable, easy to set up and easy to use motor protection for all Grundfos pumps and applications, for motors ranging from 3 to 999 Amps and voltages from 100 to 480 VAC that protects the pump motors against under voltage, over voltage and other variations in power supply and overheating.

Communication

- Supports communication with monitoring equipment or other external protocols using the Communication Interface Unit (CIU)
- Compatible with Grundfos Remote Management
- Connect to any SCADA system, allowing remote access to pump data anywhere

Components

- The Control MP204 cabinet is also available with DOL (Direct on-Line), SD (Star Delta) and SS (Soft Starter) starting methods

Benefits

- Power factor measurement, giving an indication of clogging in the intake or impeller wear
- Motor power consumption continually checked with precision, stopping the pump before dry-running and preventing pump damage
- Alerts for ground failure/insulation resistance, allowing preventive maintenance of the motor, cables, or cable joints

Applications

- Raw water intake
- Drinking water treatment
- Water distribution
- Wastewater transport
- Flood control
- Wastewater treatment
- Air-conditioning

DIGITAL PUMP CONTROLLER
- GI DPC & GI DPC PLUS

Digital controller for water and wastewater application in residential or commercial buildings. GI DPC can also be used for tank filling or water transfer.

Benefits

- LCD screen displays pump
- Phase loss protection
- Individual pump overload protection
- Transient surge protection
- Auto/ manual switch
- MODBUS

Applications

- Dewatering
- Tank filling
- Pressure boosting

LIFTING STATION
- MULTI LIFT

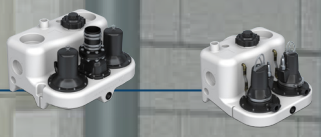
Planning to construct restrooms in lower basements? Worried on how to dispose the wastewater?

Look no beyond! Grundfos Multilift range of lifting stations.

A complete preassembled solution to lift wastewater from below sewer level in buildings of any size and into the main sewer system.

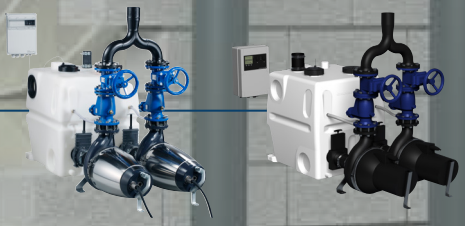
One-family houses and installations that do not require a back-up pump → **MSS/M/ MOG**

Two- and multiple-family houses, small commercial buildings, small hotels etc. → **MD/MDG**



Commercial buildings, public areas, restaurants etc. → **MLD**

Multiple-family houses, large public buildings (hospitals, schools etc.), large commercial buildings (shopping centres etc.), government buildings and industrial buildings → **MD1/V**

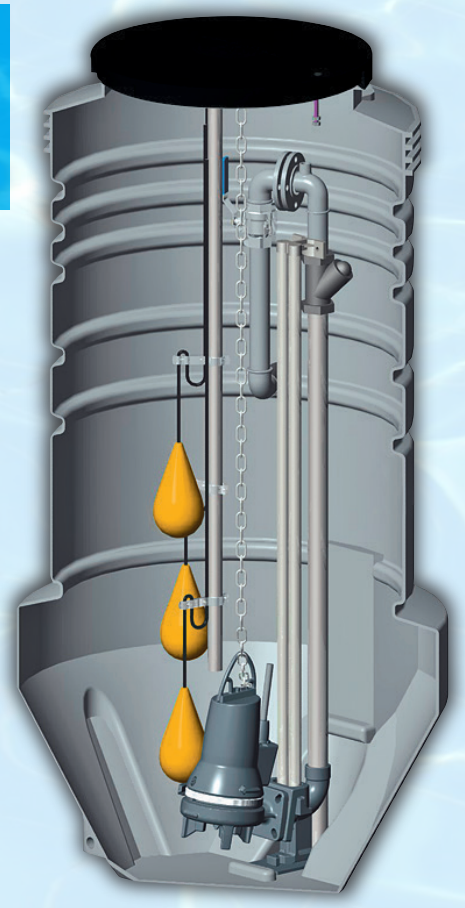


SELECTION OF MULTILIFT UNIT

				Peak flow performance***			Max. drain capacity [l/h]* = max. inflow [l/h] according to inlet pipe level and related pump start					
	Drain capacity	Number of pumps	Max. number of starts per unit /h **	"DN40 [l/s]"	"DN80 [l/s]"	"DN100 [l/s]"	180mm	250mm	315mm	560mm	450mm	700mm
Single Pump Units	Multilift MSS	1	40	-	3,5-8	5,6-8	800	1120	-	-	-	-
	Multilift M	1	40	-	3,5-16	5,6-16	1360	1960	2480	-	-	-
	Multilift MOG	1	40	0,5-4,5	-	-	920	1480	2000	-	-	-
Double Pump Units	Multilift MD	2	60	-	3,5-16	5,6-16	2940	4140	5160	-	-	-
	Multilift MDG	2	60	0,5-4,5	-	-	1380	2220	3000	-	-	-
	Multilift MLD	2	60	-	3,5-16	5,6-16	-	-	-	11400	-	-
	Multilift MD1/ MDV with 1 tank	2	60	-	3,5-18	5,6-28	-	-	-	-	7200	14400
	Multilift MD1/ MDV with 2 tanks	2	60	-	3,5-18	5,6-28	-	-	-	-	14400	28800
	Multilift MD1/ MDV with 3 tanks	2	60	-	3,5-18	5,6-28	-	-	-	-	21600	43200

PREFABRICATED PUMPING STATION
- PUST

Sturdy and well-designed pump pit sized to suit requirements, with up to three wastewater pumps easily installed on auto couplings. All necessary components such as piping and valves are built in or placed in a separate valve chamber. Grundfos dedicated control offers operational reliability, integration and automatic optimisation.



Benefits
- Sturdy construction from high quality corrosion-free materials; the tank is designed to withstand lifting from a high water table
- Easy and fast installation with inlet holes drilled on site
- The design of the pit sump limits sludge and odour problems and is for unattended operation and remote control

Components
- Primarily designed for up to three Grundfos wastewater pumps
- Grundfos controllers offers a full range of options for monitoring, control, communication and optimisation
- Options for level sensors, external control units and valves

Product data
- Maximum diameter: 400 - 4000 mm
- Maximum length: 12 m
- Material of tank: PEHD / GRP

Applications
- Wastewater Transport
- Flood Control

MOBILE PUMPING STATION
- MPS 101

The ultimate solution to flood relief

The Grundfos MPS 101 is a tailor made unit to suit your requirements for pumping the run-off water and to keep your place dry in no time.

Mobile pumping
The mobile pumping station consists of the following constituents:
- 50 /62.5 kVA diesel generator with control panel
- Dewatering pumps
- Control panel
- Rollable hose
- GIB type cantilever crane
- Mechanical hoist
- Mobile trolley
- Weatherproof enclosure

Applications
- Dewatering of construction sites
- Emergency flood control
- Dewatering of water logged basements

Product Data

Pump Type	Particles	Flow Range (Two Pumps)
SL	upto 100 mm	upto 300 m3/h

SUBMERSIBLE PUMPS

- SP Pump

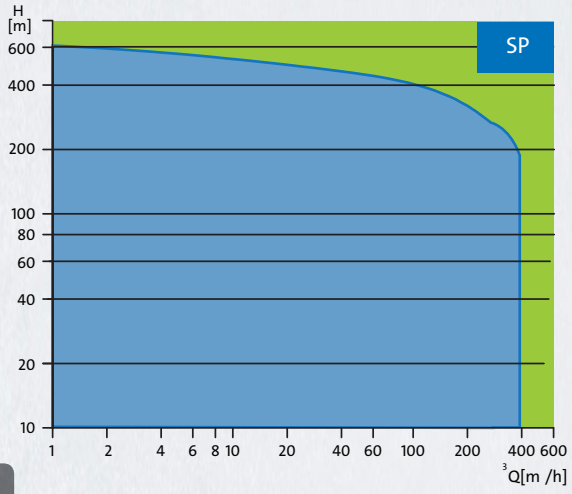
EFFECTIVE AND OPTIMISED RAW WATER INTAKE

When you team up with grundfos you benefit from an experienced system supplier who is dedicated to providing you with the best possible solution - underground as well as above ground. In addition to the pump itself, a complete system consists of a specially designed submersible motor, a dedicated electronic motor cycle protection unit and a remote monitoring system. Combining these products you are guaranteed a fully optimised water supply system that will save you energy as well as money.

The pump

SP pumps combine the very best materials with the superior hydraulic design and offer a variety of benefits

- Efficient,reliable products
- Customisation of products
- High availability through local sub factories and distributors
- Grade 3B test as standard, optional grade 1 and 2 test



- **Improved discharge**
  Easier and safer attachment to the riser pipe
- **Cable guard attachment**
  Improved screw-on attachment of the cable guard
- **Built-in non-return valve**
  All SP pumps are delivered with a non-return valve to minimise the risk of water hammering damage
- **Corrosion resistant**
  AISI 304 stainless steel inside and out makes the SP very resistant to corrosion and extra high-grade steel versions for aggressive liquids also available
- **Wear resistance**
  Less abrasive wear: Octagonal bearings and sand flush channels remove particles with the pumped water. Sand resistance is further increased by using the bearing that provides longer life time in sandy underground environments
- **Optimised hydraulics**
  For better performance and fewer breakdowns
- **FKM rubber parts**
  This option makes the SP suitable for water slightly contaminated with, for example, oil
- **Stop ring**
  Protect the pump in case of up thrust
- **Failure rate close to zero**
  Durable and well-protected: Statistics compiled since 1967 show that SP pumps have a warranty return rate close to zero
- **Customised solution**
  Contact your Grundfos distributor if you require a SP system tailored to your specific application

SUBMERSIBLE HYDRO BOOSTER SYSTEMS - SP HYDRO BOOSTERS

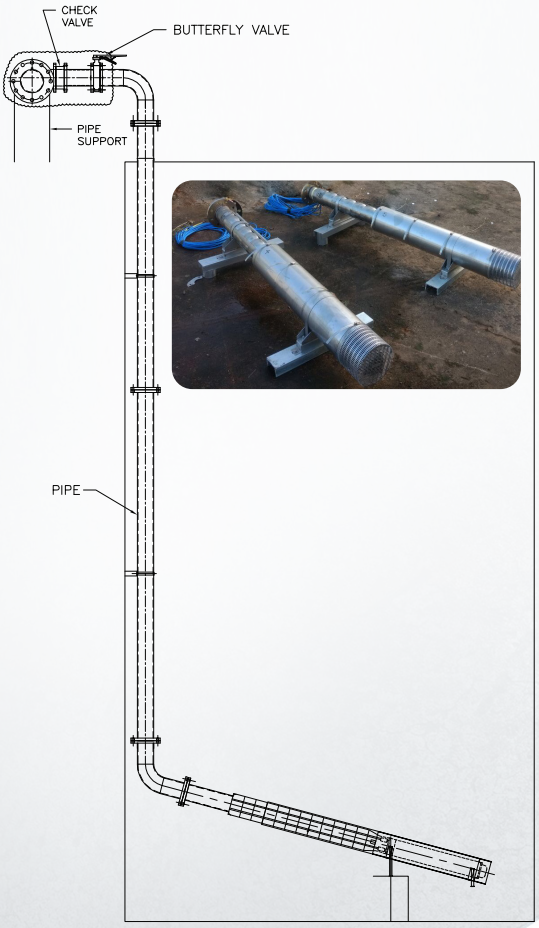
WITH THE HIGH COST OF REAL ESTATE IN DENSELY POPULATED CITIES, PROVIDING SPACE FOR UTILITIES IS OFTEN AN ISSUE. A 6 sqm OF SPACE WHICH WOULD BE OTHERWISE OCCUPIED BY A SURFACE MOUNTED HYDRO BOOSTER SYSTEM CAN BE SAVED BY OPTING FOR A SUBMERSIBLE HYDRO BOOSTER SYSTEM.

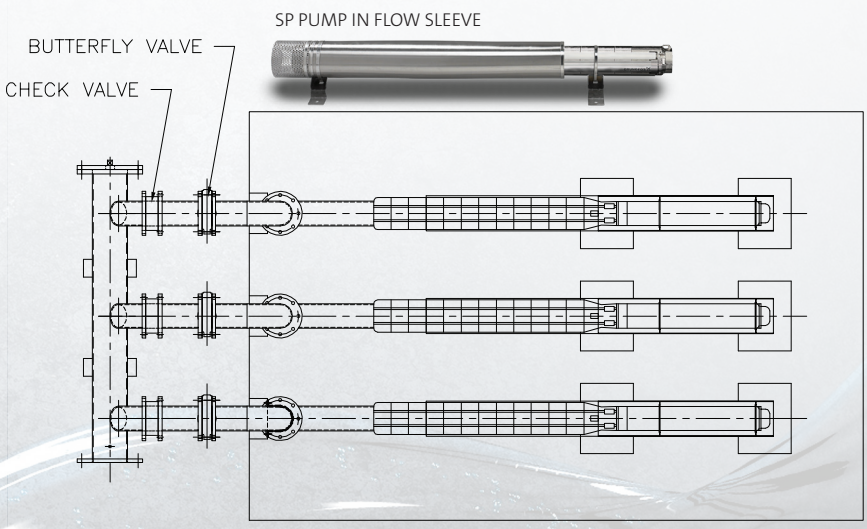
Grundfos offers submersible hydro booster system in two variants

Hydro MPC system with

- Grundfos CUE variable frequency drives as premium
- Danfoss FC 51/101 variable frequency drives as standard

It is advised to install the submersible hydro booster system with properly sized expansion tank, flow sleeves and manifold arrangements including service access





GRUNDFOS REMOTE MANAGEMENT - GRM

Grundfos Remote Management is an internet-based remote monitoring, management and reporting system for pump installations. It provides access to pumps and controllers using an internet browser. GRM offers efficient alarm management via its on-call schedule. The system ensures that the alarms go directly to the person on duty. From PC/ laptop/ smartphone, the system manager can log on and plan who is to receive alarm messages from each installation at any given time of the day.

Benefits

- Low cost solution to monitor and manage pump installations
- Communicates with a centrally hosted database and web server
- Optimization of the service and maintenance program by keeping the track of the status of each installation
- Trend curves helps to minimize the energy consumption of the system
- Alarm and warning logs are easy to view and manage
- Access to data is password protected using a security system

Communication

- The data collection uses SMS/GPRS
- Built-in multi-purpose I/O board allows the connection and monitoring of analog and digital field inputs
- Fixed low fee covers data traffic, hosting costs and system support, including back up of all data

Applications

- Water boosting systems
- HVAC systems
- Sewage/submersible systems
- Water purification systems
- Water distribution systems

EXTERNAL FREQUENCY CONVERTERS - CUE

A complete range of external frequency converters designed for speed control of a wide range of Grundfos pumps for water supply, wastewater and irrigation applications. A special start-up guide will lead you through the set-up of the CUE.

Components

- Additional functions available, that for example, provide better application support and system optimisation
- Additional analog input/output board, providing for additional inputs, for example temperature sensors for monitoring bearings
- A range of motor filters available
- MP 204 motor protection

Communication

- Supports communication with monitoring equipment or other external units via the Communication Interface Unit (CIU)
- Compatible with Grundfos Remote Management

Benefits

- Predefined control modes, sensor range and pump family data make it very easy to set up a system in only a few steps
- Shares the unique Grundfos intuitive interface with Grundfos control equipment
- Very easy installation and set-up just 16 steps to get a system up and running

Applications

- Water transfer
- Air-conditioning
- Hydro booster
- Wastewater

RENEWABLES IN BUILDING SERVICES

- SQ FLEX Pumps

Solar submersible pumps

Grundfos Solar surface pumps provided the perfect sustainable, and cost efficient alternative to irregular water supply solutions in remote locations, or for highly specific applications anywhere.These pumps provide individual solutions to water problems where conventional water supply systems fail or simply cannot reach.

SQ Flex PRODUCT RANGE:

PUMP MODEL	FLOW RANGE (Lph)	HEAD RANGE (mts)	POWER RANGE (watts)	PUMP TYPE
SQF 0.6-2	50 to 625	10 to 120	20 to 420	Helical rotor
SQF 0.6-3	50 to 625	80 to 200	40 to 580	Helical rotor
SQF 1.2-2	100 to 1350	10 to 120	40 to 700	Helical rotor
SQF 1.2-3	100 to 1350	90 to 250	100 to 1400	Helical rotor
SQF 2.5-2	200 to 2850	5 to 120	100 to 1400	Helical rotor
SQF 3A-10	500 to 5000	30 to 70	100 to 1400	Centrifugal
SQF 5A-3	1000 to 9000	2 to 15	40 to 740	Centrifugal
SQF 5A-7	1000 to 9000	10 to 50	100 to 1400	Centrifugal
SQF 8A-3	1000 to 16000	2 to 15	100 to 1200	Centrifugal
SQF 8A-5	1000 to 16000	2 to 30	100 to 1400	Centrifugal
SQF 11A-3	2000 to 19000	2 to 15	100 to 1400	Centrifugal

SQ Flex advantages

- SQ Flex pumps can run on both DC and AC input voltages with out any modification at site
- SQ flex pumps have in-built dry run protection.
- SQF motors have a high efficient permenent magnet rotors and can operate over a wide input voltage i.e. 30 - 300 V DC and 90 - 240V AC.
- Built in MPPT in the motor.
- Built in over voltage and under voltage protection - The pump will cut off if the voltage falls outside the permissible voltage range. The motor will automatically cut in when the voltage is again within the permissble voltage range.
- Built in Overload Protection - The overload protection prevents burnout of motor.
  In case the upper load limit is exceeded, the motor will aut--omatically compensate for this by reducing the speed. If the speed falls below 500 rpm, the motor will by cut out automatically.
- Over temperature protection – The electronic unit has built in temperature sensor when the temperature raises above 85^{0}C, the motor will automatically cut out. When the temperature dropped to 75^{0}C, the motor automatically cut in again.

SUSTAINABLE, RELIABLE AND COST EFFECTIVE - CR FLEX PUMPS

Applications:

- Irrigation
- Livestock
- Swimming pool
- Farm house

CR Flex ADVANTAGES:

- CR Flex can run on both AC as well as DC power inputs. The MG Flex motor developed by Grundfos can run on solar power/grid/ generator.
- Wide voltage range: The wide voltage range of the high efficiency MGFlex motor for DC voltage: 30 – 300 V DC and AC Voltage: 1 x 90 – 240 V, –10%/+6%, 50/60 Hz.
- Maximum system efficiency with MPPT: The motor will continuously optimize the speed according to the input power available. This is called Maximum Power Point Tracking (MPPT)
- Variable speed power transmission: The unique Grundfos frequency converter ensures variable-speed power transmission to the motor.
- Built-in motor protection: The motor is protected against Undervoltage/overvoltage, overloading and overheating, and load condition and voltage is monitored continuously.
- System monitoring: It is possible to connect the solar surface pump solution to Grundfos Remote Management (GRM) for system monitoring at a distance.
- Dry Running Protection: Being a surface pump, dry running protection to be external and to be ensured by proper piping design or the use of a contact sensor at the inlet.

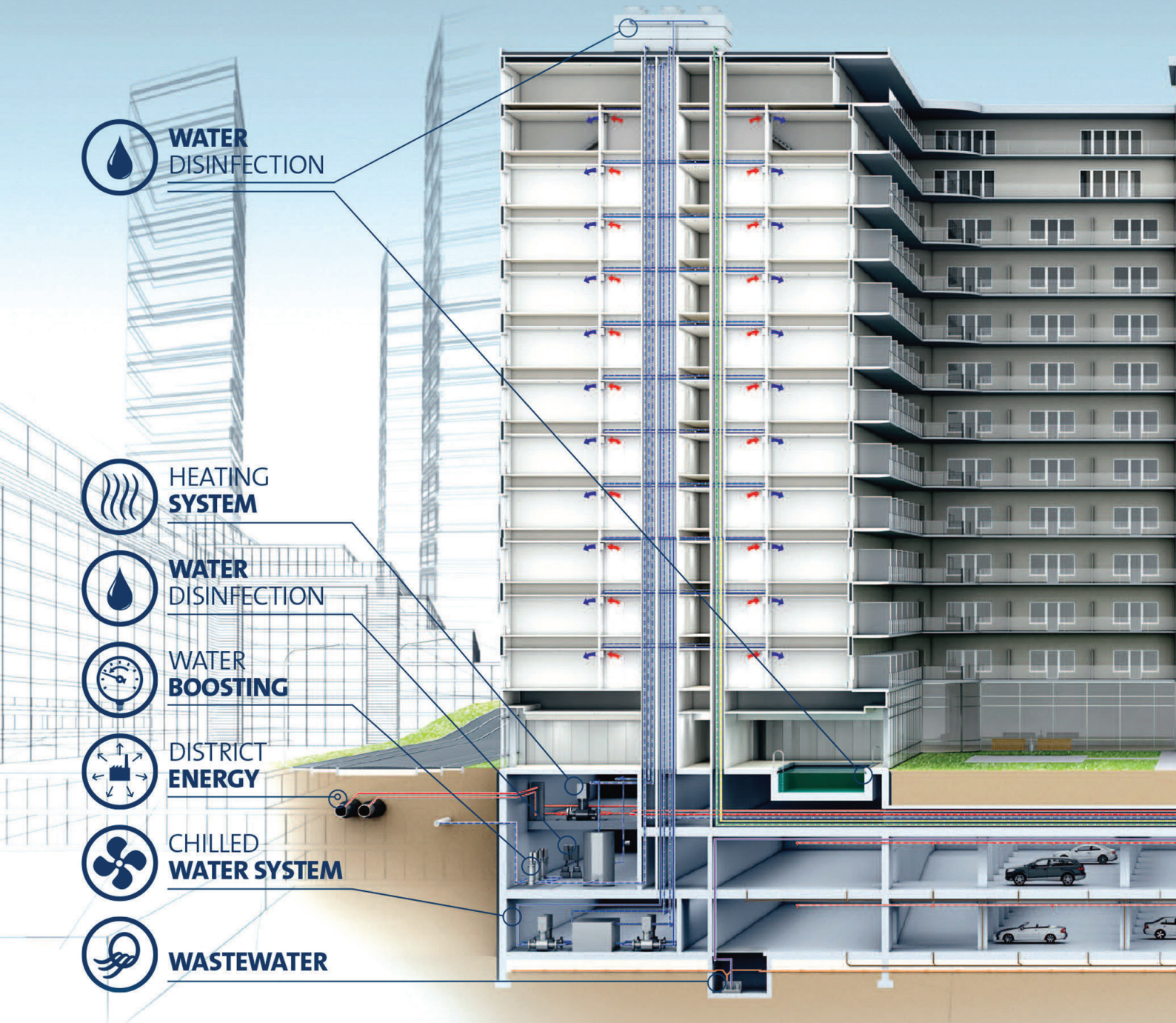
CR Flex PRODUCT RANGE:

PUMP MODEL	FLOW RANGE (Lph)	HEAD RANGE (mts)	POWER RANGE (watts)
CR Flex 1-9	500 to 4500	5 to 80	100 to 900
CR Flex 1-17	500 to 4000	20 to 150	100 to 1800
CR Flex 3-5	500 to 7000	5 to 45	50 to 1800
CR Flex 3-9	500 to 6000	5 to 70	70 to 1250
CR Flex 3-11	500 to 7000	5 to 100	100 to 1800
CR Flex 5-2	500 to 11000	2 to 100	25 to 600
CR Flex 5-5	1000 to 11500	5 to 40	50 to 1250
CR Flex 5-6	500 to 13000	5 to 55	50 to 1800
CR Flex 10-1	1000 to 18000	4 to 14	60 to 700
CR Flex 10-2	1000 to 20000	5 to 25	60 to 700
CR Flex 15-1	2000 to 32000	6 to 18	200 to 1800

GRUNDFOS

COMMERCIAL BUILDING

Modern buildings are living, breathing organisms powered by interconnected systems. Most of these are directly dependent on pumps to transport water efficiently and precisely. At Grundfos, we have a holistic approach to commercial buildings. Through intelligent technologies, we create systems that effectively boost performance and reduce energy consumption.



We at Grundfos understand all applicatio
wastewater discharge. With your exact dem
solutions that will raise the overall energy

GRUNDFOS

Breathing life into buildings

Whether you need a complete pumping system for a new build project or you are looking to replace existing pumps, we have a solution that will boost the comfort and energy efficiency of your building. How may we help you?

- Domestic cold water
- Domestic hot water
- Domestic water, circulation
- District Energy/heating, flow
- District Energy/heating, return
- Drainage water, discharge pipe
- Sub-building drainwater pipe
- Chilled water/condenser water, flow
- Chilled water/condenser water, return
- Fire sprinkler system
- Reclaimed rain water
- Rain water collection pipe
- Car park dewatering
- Wastewater stack

FIRE FIGHTING

RAINWATER HARVESTING

WASTEWATER

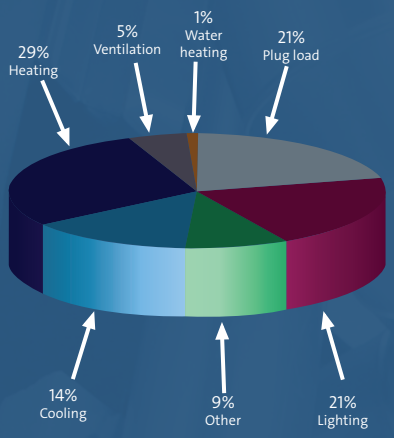
reas in the building from water supply to
nd as our starting point, we can tailor make
erformance of your building significantly.

AIR CONDITIONING

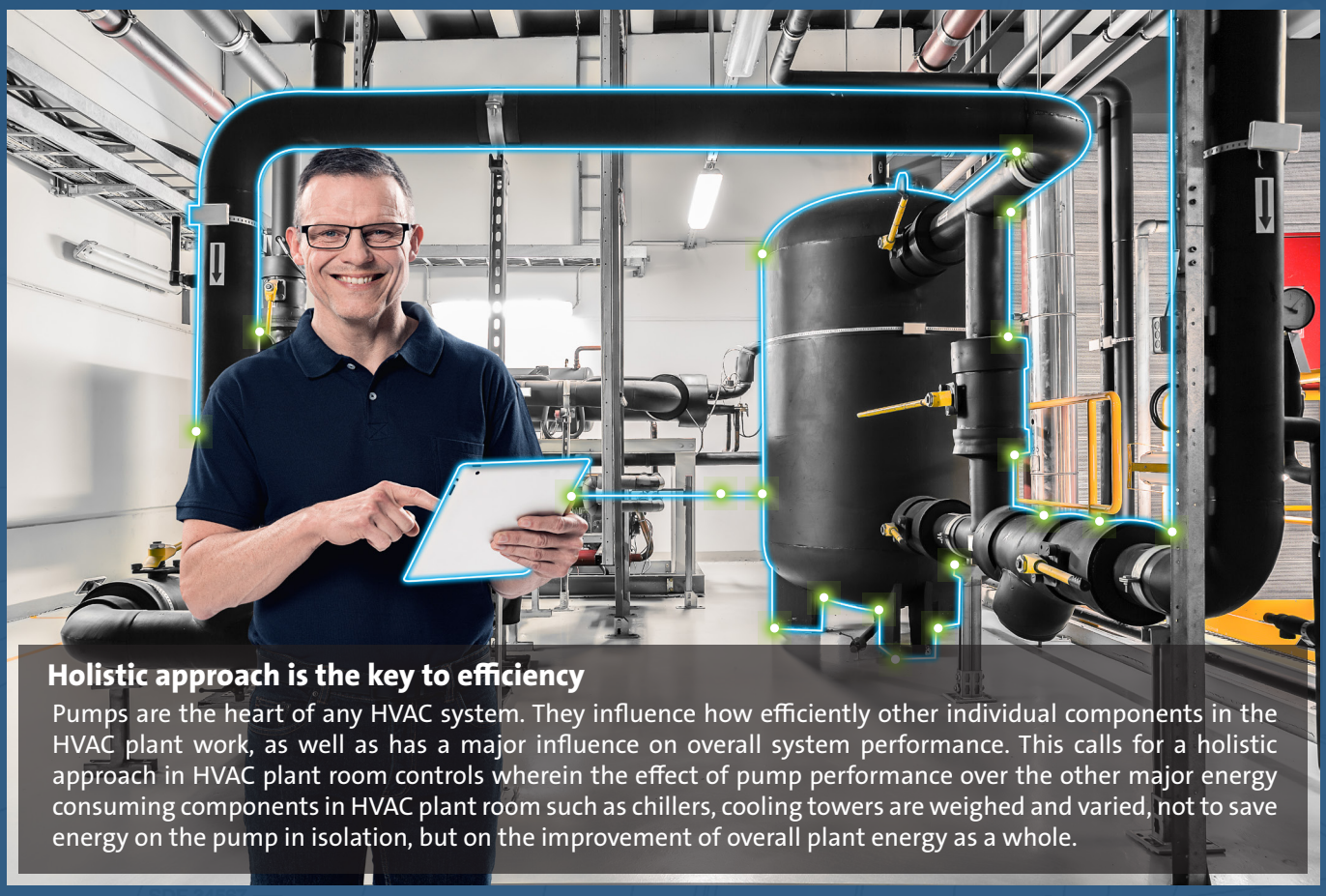
- In commercial buildings

Air conditioning which is termed as Heating Ventilation and Air Conditioning (HVAC), accounts for around 40% of energy consumption in commercial buildings. This value varies regionally based on climatic conditions and other factors.

Since HVAC is the key contributor to energy consumption, many governments have stepped in to implement efficiency regulations specific to commercial buildings. To name a few, voluntary efficiency standards such as U.S. Green building council (LEED certification), Energy Star ratings, BREEAM, DGNB and GRIHA standards of TERI in India are gaining significance in implementation of efficient HVAC systems globally.



Energy composition split in a typical commercial building



Holistic approach is the key to efficiency

Pumps are the heart of any HVAC system. They influence how efficiently other individual components in the HVAC plant work, as well as has a major influence on overall system performance. This calls for a holistic approach in HVAC plant room controls wherein the effect of pump performance over the other major energy consuming components in HVAC plant room such as chillers, cooling towers are weighed and varied, not to save energy on the pump in isolation, but on the improvement of overall plant energy as a whole.

Grundfos in HVAC

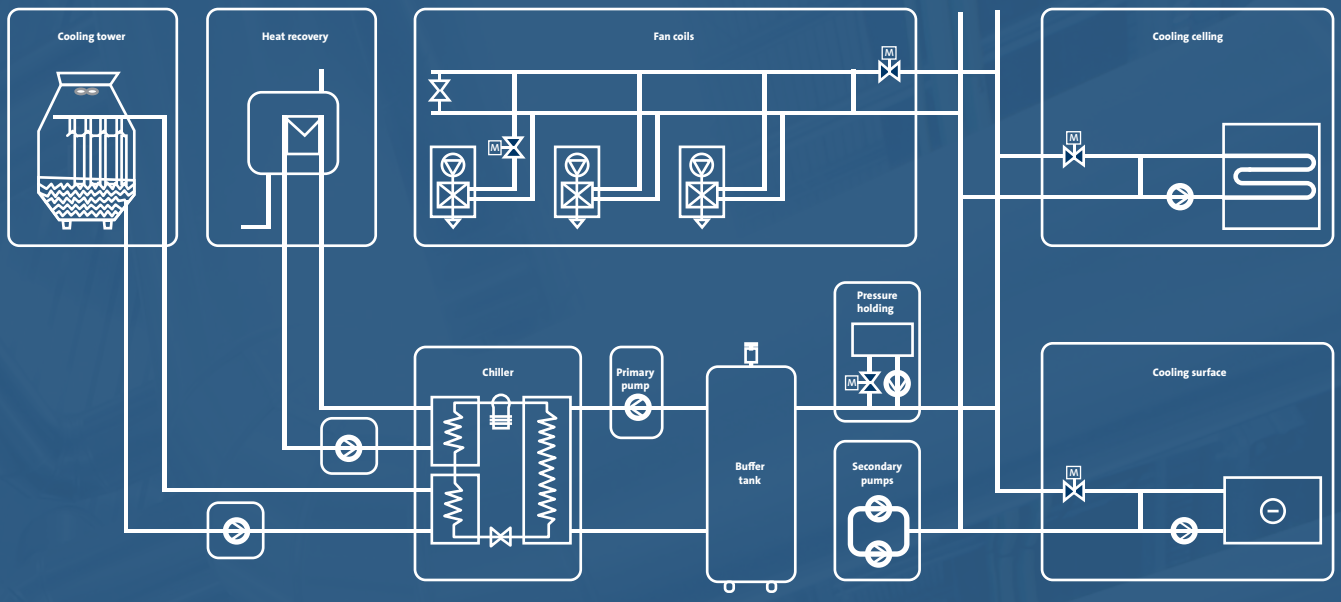
To deliver a system performance as intended by the designer, it is just not the mere supply of pumps that would bring in the plant efficiency, but it is about integrating with the right controls and instrumentation, which would bring in the desired results. Grundfos has decades of expertise in integrating pumps and controls together with its inhouse expertise both at pre and post sales, delivering value to HVAC projects through its holistic approach.

Apart from its wide range of pumps for HVAC industry, Grundfos offers controls and automation solutions in

› **Variable Secondary** › **Variable Primary** › **Mixing loop controls** › **System manager & optimizer**

meeting both the current and upcoming trends in the Industry keeping energy performance as the key driver

Grundfos pumps ensure full control of the entire air-conditioning system

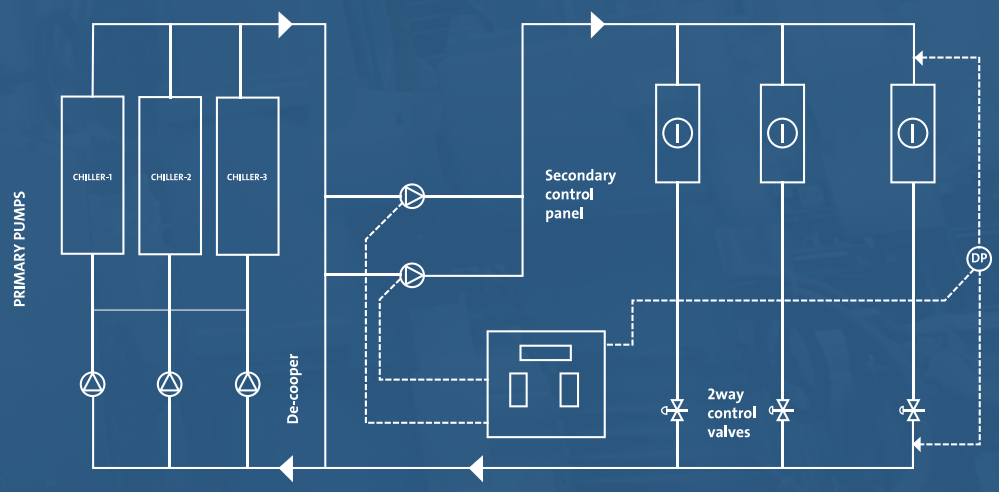


Variable Secondary Pumping System
- CONTROL HVAC

Workhorse of the chilled water pump control which is in use for more than 4 decades from its introduction is still the simpliest of choice when it comes to pump control in HVAC plant room. Grundfos Control MPC with CU 352 controller offers unique solution to HVAC industry by having the flexibility to use the pumps hydraulic data internally to optimise the pump performance at all loads precisely. Further all the system components required for the application are from Grundfos - right from controller, variable frequency drive and the differential pressure sensor

Technical data:

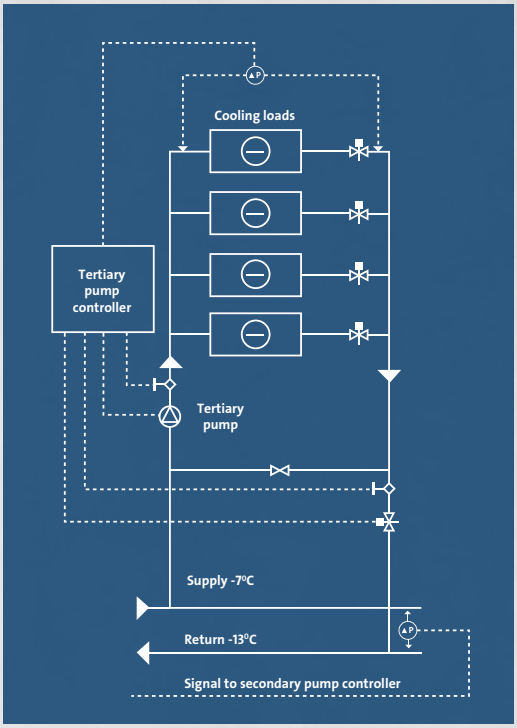
> Controls upto 6 pumps in parallel configuration
> Supports field differential pressure sensors upto 8 nos
> Plug in data communication modules
> Built in installation wizard for quick set-up
> Onboard help menu for easy guidance



Mixing Loop Controller
- MLC 4000

MLC 4000 gives flexibility to the user by optimising tertiary zone flow and distribution loop delta-T without sacrificing humidity control and comfort of the tertiary zones

Technical data:
> BTU monitor
> Optimizes the Delta T of distribution network
> Modbus Protocol as standard (BACnet & Remote monitoring as option)

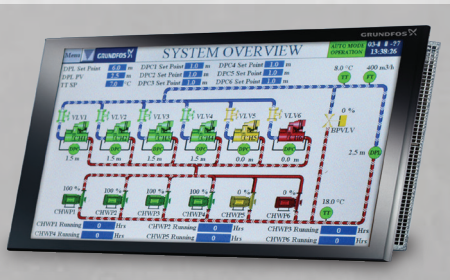


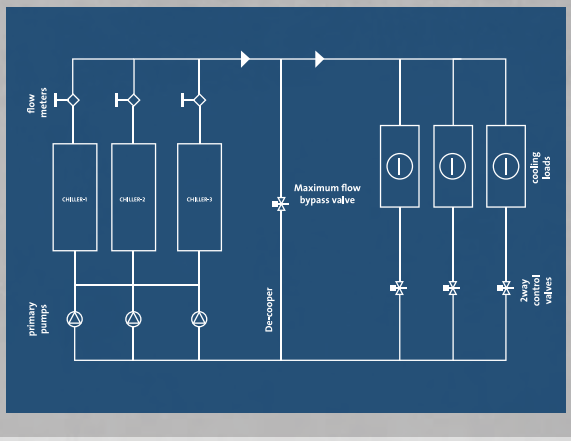
Variable primary flow controler
- VPC 3000

With the improvements in chiller technology over the past few decades, variable primary flow (VPF) systems are widely used now a days in the air conditioning industry. VPF systems provide immediate capital cost savings, as it eliminates secondary distribution pumps, associated pipes and accessories all together from the circuit.

VPC 3000 monitors and controls up to six pumps connected in parallel and allow varying flow through chiller evaporators. This system reduces energy consumption and initial cost relative to conventional pumping arrangements in HVAC plant room.

Technical data:
> Optimized Grundfos control algorithm
> 7” inch touch screen Display
> Flexible IO configuration
> Modbus Protocol as standard (BACnet & Remote monitoring as option)





System Manager + Optimizer
-VPC 3000.SMO

With the advent of integrated control strategies to arrive at lowest kw/ton performance in HVAC plant room, stand-alone controllers are becoming obsolete.Interoperable systems have become the industry’s norm and same is being looked at HVAC plant room encompassing the chillers, pumps, cooling tower fans and other ancillaries. VPC 3000.SMO is an Integrated control solution from Grundfos for managing and optimizing HVAC plant in more efficient way.

Technical data:
> Optimized Grundfos control algorithm
> Flexible IO configuration
> 10.4 inch touch screen display
> Modbus Protocol as standard (BACnet & Remote monitoring as option)
> Ensured savings over conventional plant controls

CED Coating

Pumps offered by Grundfos in HVAC application has CED (Cathodic Electrolytic Deposition) coating on all its cast iron parts. Unlike others who use traditional surface coating, this CED coating ensures pump performance for long periods of operation in harsh environments

What is CED coating ?
Cathodic Electro Deposit coating (CED coating) is a high-quality dip-painting process where an electrical weld around the products ensures deposition of paint particles as a thin well-controlled layer on the surfaces. The components are immersed in a bath of paint solution. Due to the attraction, paint starts depositing on the component. In spray painting or powder coating, the thickness of paint will not be uniform and it will not be possible to paint in the intricate profiles whereas CED coating will be uniform.

All the cast iron parts of CR / CM / NB / NK / TP pumps are with epoxy based CED coating

SINGLE-STAGE END-SUCTION PUMPS
-NB / NK (NBG / NKG)

Optimized for efficiency & reliability

These pumps are non-self-priming, single-stage, centrifugal volute pumps with axial suction port, radial discharge port and horizontal shaft.

Back pull-out design enables removal of the motor, coupling, bearing bracket and impeller without disturbing the pump housing or pipework

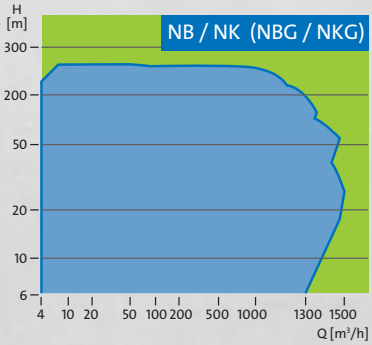
Dynamically balanced rotary assembly as per ISO 1940 - Gr 6.3, minimises vibration levels and improves seal and bearing life.

Features & Benefits

- Dimensions according to EN 733 and ISO 2858 standards
- Back pull-out design
- EN 12756 shaft seal
- Enclosed, balanced impeller
- CED coated cast iron parts
- Motors are with IE3 efficiency as standard (IE4 is offered as an option)

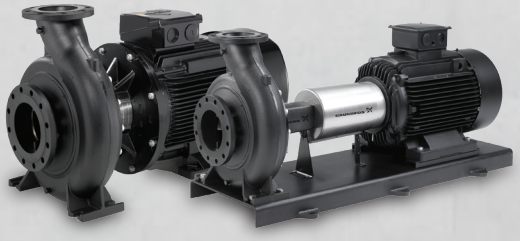
Application

- Water distribution
- Air conditioning



Technical data

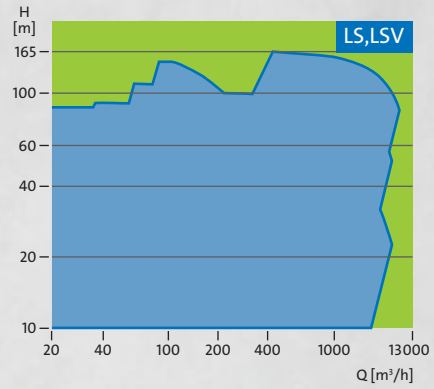
- Flow, Q: max. 1300 m3/h
- Head, H: max. 160 (250) m
- Liquid temperature: -35°C to +140°C (220°C)
- Operating pressures: 16 (25) bar
- Discharge diameter: DN32 - DN250



LONG COUPLED SPLIT CASE PUMPS

- LS, LSV

These are single-stage, non-self-priming, between bearing, centrifugal volute pumps. The axially split design allows easy removal of the top casing and access to the pump components without disturbing the motor or pipework. The compensated double-volute design virtually eliminates radial forces on the shaft and ensures smooth performance throughout the entire operating range

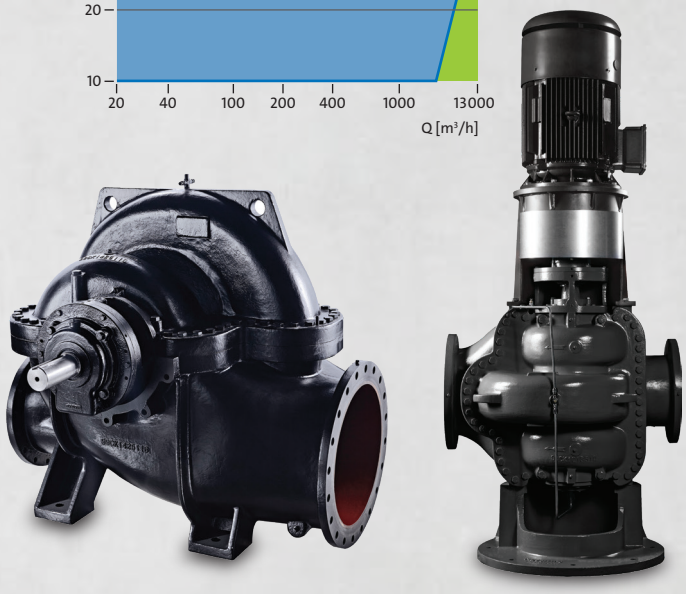


Benefits

- High energy efficiency and low life-cycle costs
- Extended service life
- Low noise and vibration
- Low NPSH requirement
- Easy access to pump internals without disturbing the motor or pipework

Technical data

• Flow, Q: max :	12000 m3/h
• Head, H: max :	165 m
• Liquid temperature :	-15 to 120°C
• Working pressure :	16 / 25 Bar
• Discharge sizes :	2” to 30”
• Motor rating :	1.5 - 600 kW



SINGLE-STAGE VERTICAL INLINE PUMPS

- TP

These pumps are single-stage, close-coupled pumps with in-line inlet and outlet ports of identical diameter. Is of top pull-out design, motor, pump head and/or motor stool and impeller can be accessed for service without disturbing pipework

Benefits

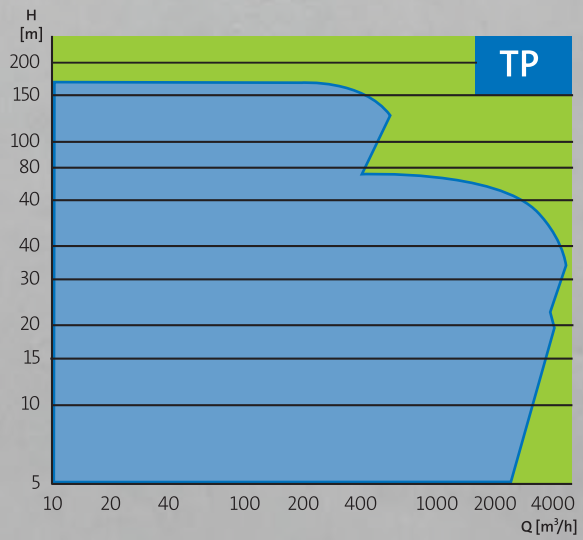
Optimised hydraulics for high efficiency
- Reduced power consumption
- High levels of reliability and efficiency from the quiet, highly-efficient IE3 motors
- Top pull out design

Technical data

• Motor size:	0.18 - 630 kW
• Flow rate (Q):	4500 m³/h
• Head (H):	168 m
• Liquid temperature:	-35 to +140 °C
• Discharge diameter:	DN 32 - DN 400
• Maximum system pressure:	25 bar
• Maximum hydraulic efficiency:	Upto 87%

Applications

- Air-conditioning systems
- Industrial Cooling systems
- Wash-down systems
- Water distribution



GRUNDFOS iSOLUTIONS IN AIRCON

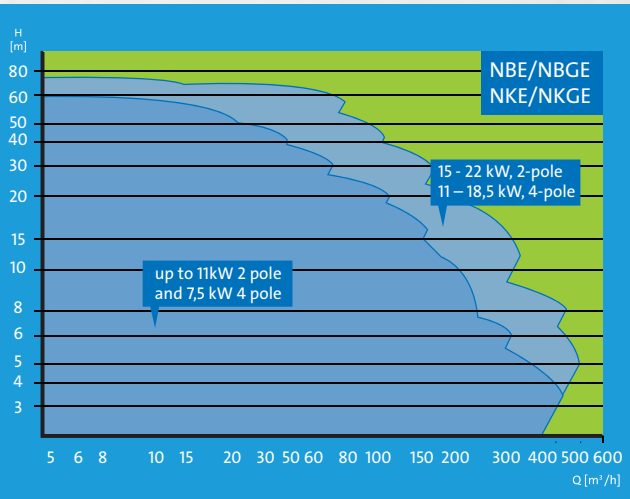
GRUNDFOS iSOLUTIONS | A SMART SOLUTION FOR YOU

To truly optimise system performance in buildings applications, it's time to look beyond individual components to intelligent solutions that take care of the entire system. With Grundfos iSOLUTIONS, you get intelligent pumps and components working seamlessly together to enable full system integration and reach a new level of performance with high energy efficiency, reduced complexity, low life-cycle costs and more.

By thinking beyond the pump, and taking the entire pumping system into account, it is possible to optimise the way pumps, drives, controls, protection, measurement and communication units work together as part of one system.

SINGLE-STAGE SOLUTIONS FOR AIRCONDITIONING IN COMMERCIAL BUILDINGS

End Suction NBE / NKE Range :
Close-coupled (NBE, NBGE) and long-coupled (NKE, NKGE) pumps are the perfect choices when you need an end-suction pump with integrated frequency converter for your application. The pumps are all non-self-priming, single-stage, centrifugal volute pumps with axial suction port, radial discharge port and horizontal shaft.



NBE/NBGE/NKE/NKGE FACTS

- End suction construction
- Back pull-out design
- Up to PN 25 bar
- Customized solutions
- Low NPSH

NBE, NKE Series 2000 & no-sensor version

2-POLE: 1.1 - 11 kW
4 - POLE: 0.25 - 7.5 kW

TECHNICAL DETAILS	
Flow rate	max. 210 m³/h
Head	max. 85 m
Liquid temperature	-45 to 140 °C
Operating pressure	max. 16 bar
Ambient temperature	-20 to 50 °C
Pump housing	Cast iron, Stainless steel 1.4408 , Duplex 1.4517

NBGE, NKGE no-sensor version

2-POLE: 1.1 - 11 kW
4-POLE: 0.25 - 7.5 kW

TECHNICAL DETAILS	
Flow rate	max. 210 m³/h
Head	max. 85 m
Liquid temperature	-45 to 220 °C
Operating pressure	max. 25 bar
Ambient temperature	-20 to 50 °C
Pump housing	Cast iron, Stainless steel 1.4408 , Duplex 1.4517

MOTOR DETAILS

NBE, NBGE, NKE, NKGE in the above mentioned power sizes are all fitted with IE5* permanent-magnet motors.

IEC 60034-30-2

NBE, NBGE, NKE, NKGE-no-sensor version

2-POLE: 15 - 22 kW
4-POLE: 11 - 18.5 kW

TECHNICAL DETAILS	
Flow rate	max. 290 m³/h
Head	max. 95 m
Liquid temperature	-45 to 220 °C
Operating pressure	max. 25 bar
Ambient temperature	-20 to 40 °C
Pump housing	Cast iron, Stainless steel 1.4408 , Duplex 1.4517

MOTOR DETAILS

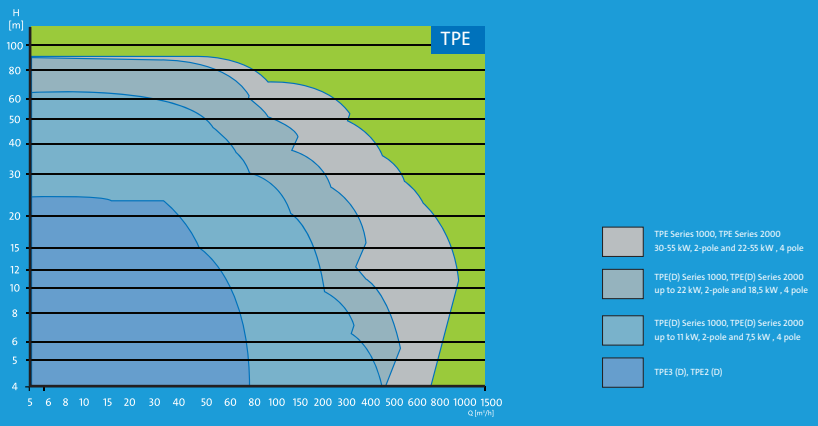
NBE, NBGE, NKE, NKGE in the above mentioned power sizes are all fitted with IE5* Permanent with integrated frequency converters. Only exemption is the 18.5 kW 4 pole, which exceeds the IE2 demands.

INLINE TPE / TPE2 / TPE3 RANGE

A TPE is the perfect choice when you need a single-stage, in-line solution with a state of-the-art motor with frequency drive and mechanical shaft seal. TPEs are close-coupled and thus less sensitive to impurities in the pumped liquid com pared to wet runner circulators. That makes the solution they are part of extra robust and reliable.

TPE FACTS

- Top pull-out design
- Operating pressure up to 16 bar
- Close coupled shaft
- Low noise levels
- Compact design with small footprint
- Twin pumps as option



TPE2, TPE3

2.25 - 2.2 kW

TECHNICAL DETAILS	
Flow rate	max. 78 m³/h
Head	max. 25 m

MOTOR DETAILS

TPE2 and TPE3 are fitted with IE5* permenent-magnet motors

TPE SERIES 1000, TPE SERIES 2000

2-POLE: 0.12 - 11 kW & 4-POLE: 1.1 - 7.5

TECHNICAL DETAILS	
Flow rate	max. 430 m³/h
Head	max. 65 m

MOTOR DETAILS

TPE Series 1000 and 2000 are fitted with IE5* permanent-magnet motors.

TPE SERIES 1000, TPE SERIES 2000

2-POLE: 15 - 22 kW & 4-POLE: 11 - 15.5 kW

TECHNICAL DETAILS	
Flow rate	max. 520 m³/h
Head	max. 90 m

MOTOR DETAILS

TPE Series 1000 and 2000 are fitted with IE3 motors with integrated frequency converter. The only exemption is the 18.5 kW, low speed motor, which exceeds the IE2 demands.

TPE SERIES 1000, TPE SERIES 2000

2-POLE: 30 - 55 kW & 4-POLE: 22 - 55 kW

TECHNICAL DETAILS	
Flow rate	max. 1100 m³/h
Head	max. 92 m

MOTOR DETAILS

TPE Series 1000 and 2000 are fitted with IE3 or IE4 motors with integrated CUE frequency converter.

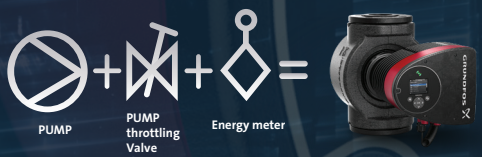
TPE, NBE, NKE PORTFOLIO OVERVIEW

	DESCRIPTION	**TPE3** IE5 MGE motor 0,37 - 2,2 kW	**TPE2** IE5 MGE motor 0,37 - 2,2 kW	**TPE SERIES 2000** **NBE SERIES 2000** **NKE SERIES 2000** IE5 MGE motor up to 11 kW	**TPE SERIES 1000** IE5 MGE motor up to 11 kW **NBE/NKE no sensor** IE5 MGE motor up to 11 kW	**TPE SERIES 2000** IE3 MGE motor 15 - 22 kW	**TPE SERIES 1000** IE3 MGE motor 15 - 22 kW **NBE/NKE no sensor** IE3 MGE motor 15 - 22 kW	**TPE SERIES 2000** IE3/IE4 motor with integrated CUE 22 - 55 kW	**TPE SERIES 1000** IE3/IE4 motor with integrated CUE 22 - 55 kW
SYSTEM INTELLIGENCE	Heat Energy Monitor	●							
	AUTOADAPT	●							
	FLOWLIMIT & FLOWADAPT	●							
	ΔT control with 2 sensors	1 internal + 1 external sensor or 2 external sensors	2 external sensors	2 external sensors	2 external sensors				
	ΔP control with 2 sensors	2 external sensors	2 external sensors	2 external sensors	2 external sensors				
CONTROL MODES		●		●		●		●	
	Constant flow	●	●	●	●		●	●	●
	Constant pressure	●	●	●	●		●	●	●
	Constant differential pressure	●	●	●	●	●	●	●	●
	Constant temperature	●	●	●	●		●	●	●
OTHER	Multipump	●	●	●	●				
	Standstill heating	●	●	●	●	●	●	●	●
	Setpoint influence	3 possibilities	3 possibilities	3 possibilities	3 possibilities	1 possibility	1 possibility	1 possibility	1 possibility
	Limit exceed	●	●	●	●				
	Operating log	●	Only limited via Grundfos GO	●	Only limited via Grundfos GO	Only limited via Grundfos GO	Only limited via Grundfos GO	●	●
	Display	●	Optional	●	Optional			●	●
	Signal relays	2	2	2	2	2	2	2	2

CIRCULATOR
- MAGNA 3

MAGNA3 pumps cover a broad range of small, medium and large circulator pumps – all fitted with communication equipment and state-of-the-art permenant magnet motors. These smart pumps are perfect for high performance building systems, and fit both heating and cooling applications.

Magna3
More than a Pump



HEAT ENERGY METER

Magna3 features a built-in heat energy meter to monitor system heat energy distribution and consumption in order to avoid system imbalances. The heat energy meter has an accuracy of upto +/-10%, depending on the duty point, and will save you the cost of installing a separate energy metering device within your system.

NO PUMP THROTTLING VALVES

Magna3- FLOW *LIMIT* function and FLOW *ADAPT* control mode allows you to set a maximum flow limit allowed. This eliminates the need for pump throttling valves, improving hereby system's overall energy-efficiency.

Magna3
Proven Reliablity

WET-RUNNING DESIGN

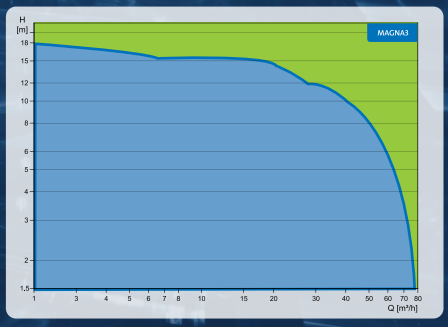
Grundfos MAGNA3 is a wet-runner pump with no shaft seals, known to operate for more than 30 years in their applications. This non-leakage design makes Magna3 maintenance-free resulting reliable operation through out its life.

RELIABILITY THROUGH GENERATIONS

The MAGNA3 electronic hardware is a third generation platform built on Grundfos' 65 years of pump experience, while the pump's new self-protecting electronics prove that we are still the industry's electronic pump pioneers.

1 MILLION TEST HOURS

At Grundfos, we believe in the value of thorough testing. The MAGN A3 has been submitted to more than 1 million test hours in extreme conditions, including alternating pressure tests, high humidity tests as well as high and low-temperature tests.



Technical data

- Max flow rate: Upto 80 m3/hr
- Max head: Upto 18 mm
- Liquid temperature: -10°c to +110°c
- Discharge diameter max: DN 100
- Maximum system pressure: 16 bar

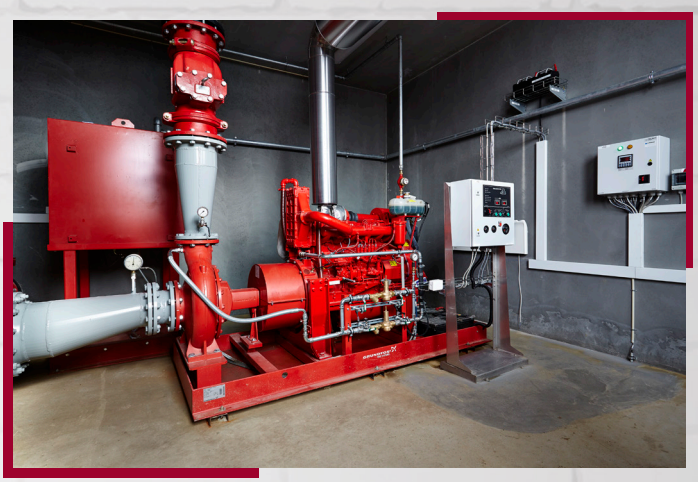
Applications

FIRE PROTECTION SOLUTIONS RELIABLE, EFFECTIVE & POWERFUL FIRE PROTECTION SOLUTIONS FROM GRUNDFOS PUMPS

A complete range of FM approved/UL listed pump sets complying with NFPA 20 as well as non-listed complying with local NBC standards.

GRUNDFOS - NON-LISTED FIRE PUMPS:

- Custom-built pumps
- Types includes Horizontal End suction & top discharge pumps,Horizontal split case pumps, In-line pumps for main pumps, both motor & engine Driven and Multistage in-line pumps and endsuction / top discharge type as Jockey pumps.
- The Engine driven pumps can be supplied at different Speeds from 1500 to 2400 RPM, to suit the requirement.
- Custom-built control panels can be designed as per Requirement / specification. These can be either common Panel (or) Individual panel to suit the needs.



GRUNDFOS PEERLESS PUMPS FM APPROVED & UL LISTED PUMPS (NFPA 20)

- Thousands of Peerless Pump installations (UL, ULC or FM approved) deliver superior fire protection to facilities world wide. For more than 80 years, Peerless Pump has been offering complete service, from engineering assistance to in-house fabrication to field start-up. Products are designed from a broad selection of pumps, drives, controls, baseplates and accessories. Pump choices include horizontal, in-line and end suction centrifugal fire pumps as well as vertical turbines.
- Pump choices include horizontal, in-line centrifugal fire pumps as well as vertical turbine pumps combined with right angle gear box.

Grundfos' Peerless Pump brand manufactures fire pump units, systems, and housed packaged systems as per NFPA 20.

A WIDE RANGE OF APPROVALS

VdS UL FM Approved LPCB

QUALITY WITH RELIABILITY & SAFETY INBUILT
- SKID MOUNTED FIRE SYSTEMS

Grundfos skid mounted Fire systems are pre-engineered, design-to-built systems meeting the customer requirements as per local codes and regulations.

Grundfos offers single stage end suction, horizontal split case pumps for sprinkler, hydrant and water curtain duties in fire application. All the pumps, accessories like fuel tank, batteries, common control panel, engine relief valve, test loop with flow meter are mounted in a common base frame. these skid systems are offered with flanged or grooved connections.

Advantages of skid mounted fire systems

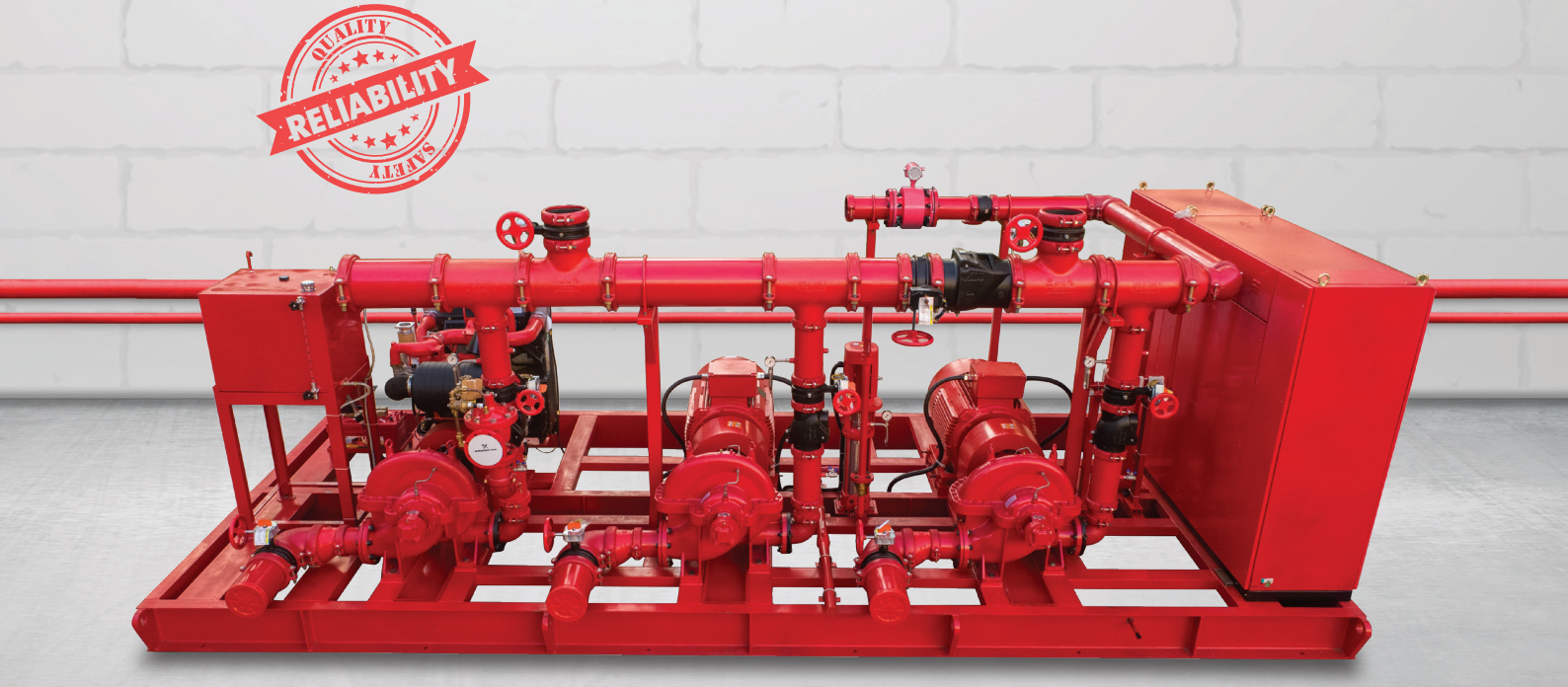
- Single point responsibilty
- Customized solutions
- Saves time and space
- Assured quality and performance

Features:

- Completely factory assembled. Pump sets comply with NFPA 20 & local NBC guidelines.
- Pump, driver and controller mounted on common base.
- Tailor made systems include accessories, fittings, and layouts meeting customers specifications.
- Eliminates the need for separate mounting surfaces thereby saving a lot of space.
- Reduced foundation works.
- Single supplier responsibility- units are fully assembled at the Grundfos factory, prior to delivery.
- In-house engineering and design expertise to ensure design requirements are realized.
- 'Plug-and-douse system' - Faster and simplified installation and handling

Applications

- Building Segment
- General industry
- Agriculture
- Power sector
- Municipal & process applications.



IF YOU ARE LOOKING AT A RELIABLE FIRE PUMP SYSTEM WITH PROVEN TECHNOLOGY & AFTER SALES NETWORK, DO NOT LOOK BEYOND GRUNDFOS FIRE PUMPS

DOSING AND DISINFECTION

Grundfos offers one of the most extensive product ranges in the market for dosing and disinfection, covering everything from water treatment to disinfection of drinking water in highly sensitive processes.

Grundfos can supply complete dosing pump system for large or small volumes and based on different technologies for cooling water treatment, disinfection, pH adjustment, more over, the Grundfos range of electronic and electrochemical accessories offers complete control of your dosing and disinfection processes and can be seamlessly integrated into your system. We can also advise and supply disinfection solutions using chlorine compounds such as sodium hypochlorite (NaOCl), and chlorine dioxide (ClO2).

SMART DIGITALS
- DDA & DDE

Diaphragm dosing pump with powerful variable speed stepper motor offers high dosing accuracy. longer maintenance interval due to the universal (chemical resistance of the full-PTFE diaphragm, and reduced energy consumption from the state-of-the-art drive technology.)

Benefits

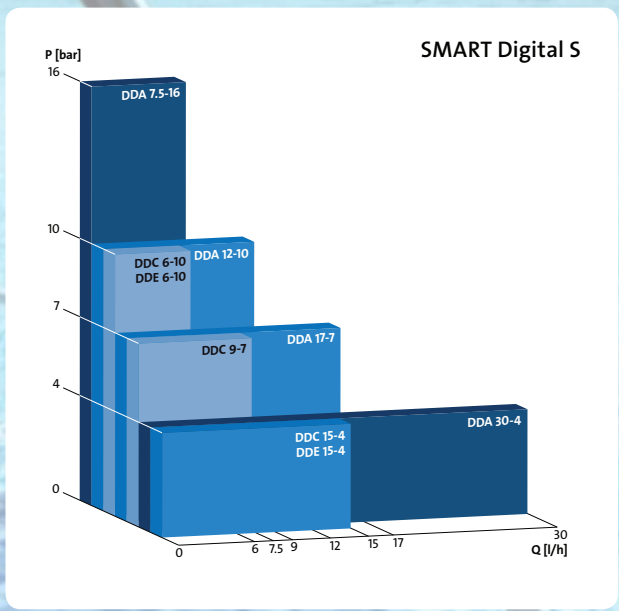
- Modularity: The included click-stop mounting plate is an example of the unique flexibility offered
- Simplicity: Easy handling and perfect overview and control ensure simple installation, commissioning and operation
- Flow intelligence: The pump monitors the dosing process of liquids when the Flow Control function is activated, for advanced process reliability

Technical data

- Flow Range: 18.2(L/h)
- Maximum Pressure: 2
- Maximum Turn down ratio: 1:1000

Applications

- Cooling tower
- Chilled water
- STP
- Swimming pool
- Water distribution
- Drinking water
- Raw water treatment



DOSING INSTRUMENTATION DIGITAL
- DID

Measurement and control of up to 3 water quality parameters

Monitoring of typical water quality parameters as well as precise control of disinfection addition or pH adjustment is essential for many water treatment processes. The new Grundfos by s::can DID systems are the perfect combination of s::can's state-of-the-art digital sensor technology and Grundfos' experience in PID controlling of dosing and disinfection processes. DID systems are designed to match perfectly with Grundfos dosing pumps, gas dosing systems as well as systems for generation and dosing of chlorine dioxide and hypochlorite.

CU382 Control unit

- Intuitive plain-text operation
- Data logger functionality
- Simultaneous display of 3 water parameters (pH, ORP & FCl)
- Data interchange with USB stick
- Wide-range power supply between 100 – 240 V

Application

- Swimming pool
- Cooling tower
- Chilled water circuit
- Raw water treatment
- Drinking water
- STP
- Fountain

CONTROLLING PARAMETERS

- Free chlorine (FCl),
- Total chlorine (TCl),
- Chlorine dioxide (ClO2),
- Hydrogen per oxide (H2O2),
- Peracetic acid (PAA),
- pH,
- ORP and conductivity.

DOSING TANK STATION
- DTS

DTS dosing tank stations are intended for storing and dosing liquids. Many different configurations can be selected flexibly to fulfil various dosing tasks. Due to the use of high-quality materials, DTS dosing tank stations can be employed for diverse dosing liquids. The selection of materials can be adapted via the configuration to match application and the selected dosing pump.

As they are easy to install, DTS dosing tank stations in combination with the digital dosing pumps DDA, DDC, DDE and DDI are the first choice in the matter of economic efficiency when adding liquids such as coagulants, disinfectants or neutralizing agents to a process in a precise and controlled way.

Components and Features

- Chemically resistant tank made of UV-stabilised, semi-transparent or black polyethylene, in 6 sizes from 60 to 1000 litres, with embossed litre scale and PE screw cover
- PE collecting tray
- Handheld mixer or electric stirrer (230 V, 50Hz) with level switch for dry-running protection
- Rigid suction lance or foot valve made of PE, with 2-step level switch for dry-running protection, suction line to the dosing pump
- PVC or PP injection unit with G ½ process connection
- PE or PVC discharge line (10m)
- Drain valve
- Filling armature with ball valve (for all tank sizes) or dissolving hopper (from 200 l)
- Multi-function valve
- Prepared for the installation of a dosing pump DDA, DDC, DDE DMX 221 or DDI 60-10 including necessary assembly materials (connectors, click-plate, and screws depending on pump type)

Applications

- Dosing of biocides and inhibitors into cooling tower
- Dosing of lyes and acids for pH regulation
- Dosing of coagulants, such as ferric(II) chloride or ferric(III) chloride, for waste water treatment
- Dosing of hypochlorite

CONTROL & MONITORING

Grundfos can supply dedicated communication modules and controls for every eventuality, ensuring trouble-free and continuous operation of complex pumping solutions, offering open protocols, control and monitoring with data collection options, all fully compatible with your management system.

For many of our monitoring and control solutions, the packaged software Grundfos PC Tool is used for commissioning, monitoring pump status, adjusting the settings, start/stop of the pumps, query data, generating reports on the operation, and establishing service reports. A huge range of main functions and specialised functions, depending on the application, is also easily accessible via the PC tool, or from the user interface.

WORLD OF DATA IN YOUR HAND
- GRUNDFOS GO

Grundfos GO gives you intuitive handheld pump control and full access to the Grundfos online tools on the go. So get ready to save valuable time on pump control, reporting and data collection with the most comprehensive mobile platform on the market.

Mobile Devices

ios or Android
mobile Devices
Phone or Tablet

Mobile APP

GO Remote
Free of charge

Communication

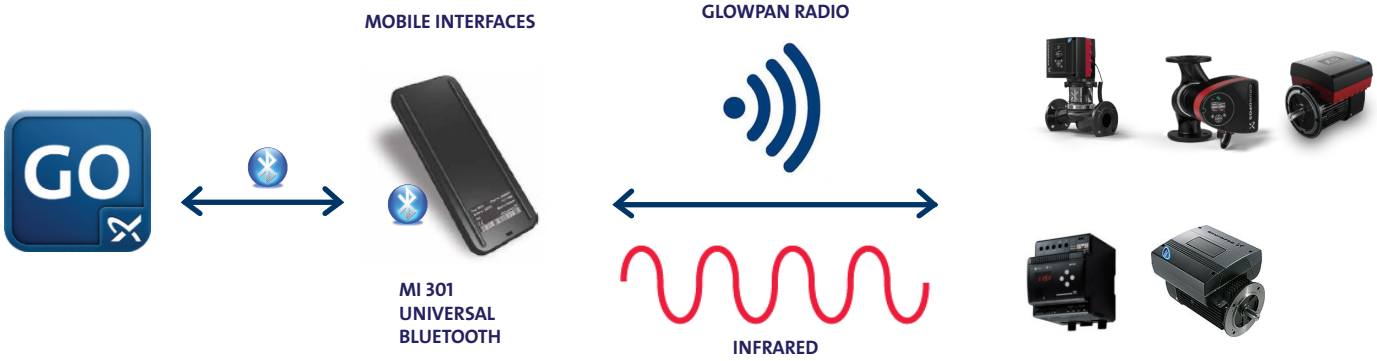
- Wink function, live data feed, frequently needed shortcuts (wizard), and improved alarm logging
- User-friendly interface
- Infrared, radio, or universal MI 301 dongle
- MI 201 is a complete box product including an iPod
- Supports infrared connection to existing products, and radio communication to newer products

Benefits

- One remote tool for all Grundfos E-Products
- Step by step assistance through whole life cycle
- Easy remote access to hard to reach installations
- Pump trouble shooting of connected products
- Easy reporting and access to product information (GDPR Complaint)

Applications

- Water distribution
- Wastewater transport



DATA COMMUNICATION INTERFACES

- CIM/CIU Modules

HARVEST DATA, MONITOR AND CONTROL.

Open and interoperable data bus networks with open protocols are becoming increasingly important for facility managers operating HVAC or plumbing systems. Grundfos iSOLUTIONS ensures a flexible and cost-effective integration of pumps, drives or controllers into any BMS, enabling data collection, monitoring and complete system control.

THE CIM/CIU CONCEPT

For complete control of pump systems, the Grundfos fieldbus concept is the right solution.The innovative Communication Interface Module (CIM) and Communication Interface Unit (CIU) enable data communication via open and interoperable networks such as PROFIBUS DP, Modbus RTU, LONWorks, BACnet MS/TP®, PROFINET IO, Modbus TCP, BACnet IP, and the Grundfos RTU, LONWorks, BACnet MS/TP®, PROFINET IO, Modbus TCP, BACnet IP, and the Grundfos

CIM/CIU INTERFACE PRODUCTS MAPPED TO PROTOCOLS

	 MAGNA3-D Twinpump 4)	 MAGNA 3	 TPED 11-22 kW Twinpump	 TPE Series 1000 & 2000 22-55 kW	 All other E-pumps with MGE motors 0,25 – 22 kW 1)	 CUE	 Hydro MPC (CU 352)	 Hydro Multi-B	 Multi-E Model H/I/J 2)	 MP 204	 Dedicated Controls (CU 362)	 DDA dosing 5)
GENIbus	CIM 050	CIM 050	built in	built in	built in	built in	CIM 050	CIM 050	built in	built in	CIM 050	built in
PROFIBUS DP	CIM 150	CIM 150	2x CIU 900 + 2x CIM 150	CIU 900 + CIM 150	CIM 150	CIU 900 + CIM 150	CIM 150		CIM 150	CIU 900 + CIM 150	CIM 150	E-Box + CIM 150
PROFINET IO	CIM 500	CIM 500	2x CIU 900 + 2x CIM 500	CIU 900 + CIM 500	CIM 500	CIU 900 + CIM 500	CIM 500		CIM 500	CIU 900 + CIM 500	CIM500	E-Box + CIM 500
Modbus TCP	CIM 500	CIM 500	2x CIU 900 + 2x CIM 500	CIU 900 + CIM 500	CIM 500	CIU 900 + CIM 500	CIM 500	CIM 500	CIM 500	CIU 900 + CIM 500	CIM 500	E-Box + CIM 500
Modbus RTU	CIM 200	CIM 200	2x CIU 900 + 2x CIM 200	CIU 900 + CIM 200	CIM 200	CIU 900 + CIM 200	CIM 200	CIM 200	CIM 200	CIU 900 + CIM 200	CIM 200	CIM 200 E-Box +
Cellular data and SMS	CIM 260	CIM 260	2x CIU 900 + 2x CIM 260	CIM 260	CIM 260	CIU 900 + CIM 260	CIM 260	CIM 260	CIM 260	CIU 900 + CIM 260	CIM 260	
BACnet MS/TP	CIM 300	CIM 300	2x CIU 900 + 2x CIM 300	CIM 300	CIM 300	CIU 900 + CIM 300	CIM 300	CIM 300	CIM 300			
BACnet IP	CIM 500	CIM 500	2x CIU 900 + 2x CIM 500	CIM 500	CIM 500	CIU 900 + CIM 500	CIM 500	CIM 500	CIM 500			
GiC (Grundfos iSolution Cloud)	CIM 280 or CIM 500	CIM 280 or CIM 500	CIM 280 or CIM 500	CIU 900 + CIM 280 or CIM 500	CIM 280 or CIM 500	CIU 900 + CIM 280 or CIM 500	CIM 280 or CIM 500	CIM 280 or CIM 500	CIM 280 or CIM 500	CIU 900 + CIM 280 or CIM 500	CIM 280 or CIM 500	CIU 900 + CIM 280 or CIM 500
Radio to Grundfos GO Remote	built in	built in			built in				built in		CIM 060	
EtherNet/IP	CIM 500	CIM 500	2x CIU 900 + 2x CIM 500	CIU 900 + CIM 500	CIM 500	CIU 900 + CIM 500	CIM 500		CIM 500			E-Box + CIM 500

- LON module for TPED Twin pumps up to 11 kW with MGE motors H/I/J: CIM 110
- Multi-E with 11-22 kW requires a CIU100 LON interface
- CIM 260 3G/4G and CIM 280 GiC/GRM 3G/4G are available in regional versions for EU and for USA (consider needed 3G/4G frequency bands)
- A second CIM module can optionally be mounted in pump no. 2 for redundancy
- MAGNA3-D 1x CIM in master head, MAGNA3-D model A requires a CIM in each head (for LON 2x CIM100)
- Large DDA XL pumps require a CIU box (cannot use an E- Box

A PUMP AUDIT CAN REALLY MAKE A DIFFERENCE

A pump audit is the ideal way to find out whether your company's pump system is operating efficiently. A pump audit is an optimal way to reduce CO2 emissions and save money by a thorough analysis of your installations.

DID YOU KNOW

That approximately 85% of a pumps Life Cycle Costs are incurred by power consumption?

THIS IS HOW IT WORKS:

A pump auditor will visit your site and conduct a survey in order to collect necessary data. After analysing the data a recommendation will be prepared for you. In this,the Life Cycle Costs of your company's current pump system will be compared with the system you could have if the pumps were changed to more efficient models.

Among other investigations, the auditor will check the overall efficiency of your company's pumps, look at the initial purchase price of a different pump solution and compare costs for both maintenace and power consumption.

Step 1

APPOINTMENT WITH THE CUSTOMER

Step 2

ON-SITE STUDY

Step 3

ANALYSE THE DATA

CUT ENERGY CONSUMPTION UP TO 60%

Grundfos' Pump Audit team has helped everyone from water supply companies to industries and public buildings to cut their energy consumption on average by 40% to 60% just by looking at their pumping systems.

An IT Building in Bangalore could improve their HVAC pumping system efficiency from 18.5% to 69.2% by Grundfos pump audit services. A whopping 72 kw/hr savings post modification (equivalent to 3 million INR per year) and with an ROI of less than a year, the customer was more than happy for the investment made in Grundfos pump audit

Step 4

RECOMMENDATIONS WITH ROI

Result

OPTIMISED PROCESSES

GRUNDFOS
SERVICE & SOLUTIONS

Leave your service, maintenance and system analysis to experienced Grundfos professionals.

No one knows the Grundfos solutions better than we do!

A Tailor-Made Solution

The Grundfos Service Contract can be customized to cover your unique service needs and requirements through the lifecycle of your pumps.

In your daily business, there will be plenty of things requiring your time and attention. Keeping your pumps running reliably and efficiently however, does not have to be one of them.
Leave your pump service and maintenance to our qualified Grundfos Service Engineers - no one does it better!

The Grundfos Service Contract can be customized across the following elements:

1. **Planned maintenance checks**
2. **Service options**
3. **Add-ons**

PLANNED MAINTENANCE

WHAT DO YOU GET?

The planned maintenance check by our qualified engineers includes:

- Equipment check
- Inspection report covering pumps, motors, wear parts and controls
- Recommendations for performance optimization

SERVICE OPTIONS

To enhance the value of your Grundfos Service Contract, you can choose from the following options:

- ☐ Frequency of planned maintenance calls
- ☐ Guaranteed response time
- ☐ 24/7 hotline to Grundfos Service professionals
- ☐ Preventive maintenance including recommended spare parts

ADD-ONS

A number of additional Grundfos service offerings can be included in the service contract or provided as a one-off service according to your needs and requirements.

How will you benefit from a Service Contract from Grundfos?

The customizable service contract gives you direct access to a wealth of expertise from our Grundfos professionals or trusted partner network, providing you with a number of clear benefits:

- Enhanced operational reliability and safety
- Opportunity to predict and reduce operating costs
- Optimized efficiency and energy consumption (in connection with Energ-Check and Pump Audit)
- Increased equipment life span
- Easy maintenance record keeping with the Grundfos inspection report
- Breakdown prevention and reduced down-time (in connection with Guaranteed response time)

ADD-ONS

LASER ALLIGNENT

Precise and correct alignment of pump and Motor shaft reducing pump wear and optimizing efficiency.

COMMISSIONING

Thorough and professional commissioning Services for optimum system performance.

ENERGY CHECK

Overview of the potential energy savings through analysis of the energy consumption Of your pump installations.

PUMP AUDIT

A comprehensive auditing service giving hard pump performance facts and identifying potential energy savings in your pumping system.

GRUNDFOS REMOTE MANAGEMENT

Get a complete overview with an efficient and cost-effective internet-based control, monitoring and alarm solution.

RECOMENDED SPARE PARTS

Fully documented spare parts for optional pump reliability , with flexible ordering and delivery options.

EXTENDED WARRANTY

Get an extended period of warranty to get Greater peace in mind.

VIBRATION MESUREMENT

Vibration measurement can detect the vibration levels of the equipment and therefore assess their condition , thus helping to reduce unnecessary downtime and repairs.

THERMAL IMAGING OF CONTROL PANEL

Infrared thermography allows us to see Invisible thermal signature of impending damage Before the dangerous occurs.

A little extra

That's the philosophy behind Grundfos Service & Solutions. Designed specifically to revolve around the needs of your business, our superior service products build on over 70 years of industry knowledge and pioneering innovation. With a truly global network and local presence across all markets, we give you a little extra that adds up to a huge amount of value.

NEED SERVICE FOR GRUNDFOS PRODUCTS & SOLUTIONS USE GRUNDFOS SmArt Serv APP

Being the world's largest pump manufacturer, we are always committed to delivering service excellence to our customers. In an endeavor to providing prompt service, we have come up with an intelligent solution - the Grundfos SmArt Serv app. It is the quickest way of getting service support for Grundfos products and solutions

With SmArt Serv App You can :

- Find the nearest service provider
- Track the status of service requests
- Escalate late responses
- Get a service report/quotation for spare parts
- Provide feedback on service quality

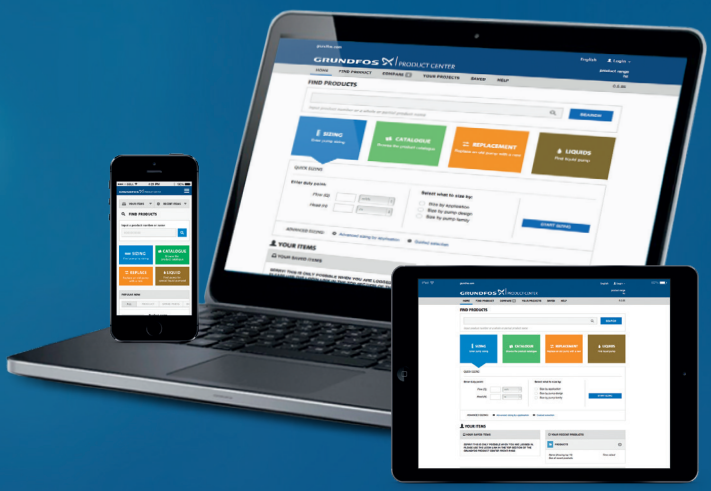
Available on the App Store

GET IT ON Google Play

SmArt Serv

Download this app to know more

WORLD OF **GRUNDFOS** IN YOUR HAND



THE GRUNDFOS PRODUCT CENTER ONLINE TOOL LETS YOU SIZE PUMPS, BROWSE THE GRUNDFOS PRODUCT CATALOGUE, FIND APPROPRIATE REPLACEMENT PUMPS AND FIND PUMPS FOR HANDLING SPECIFIC LIQUIDS

Search in the way that meets your needs by application, pump design or pump family.

Experience faster sizing thanks to a new intelligent “Quick Size” function.

Documentation includes pump curves, technical specs, CAD drawings, available spare parts, installation videos, and much more.

Optimised for your PC, tablet or smartphone.

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