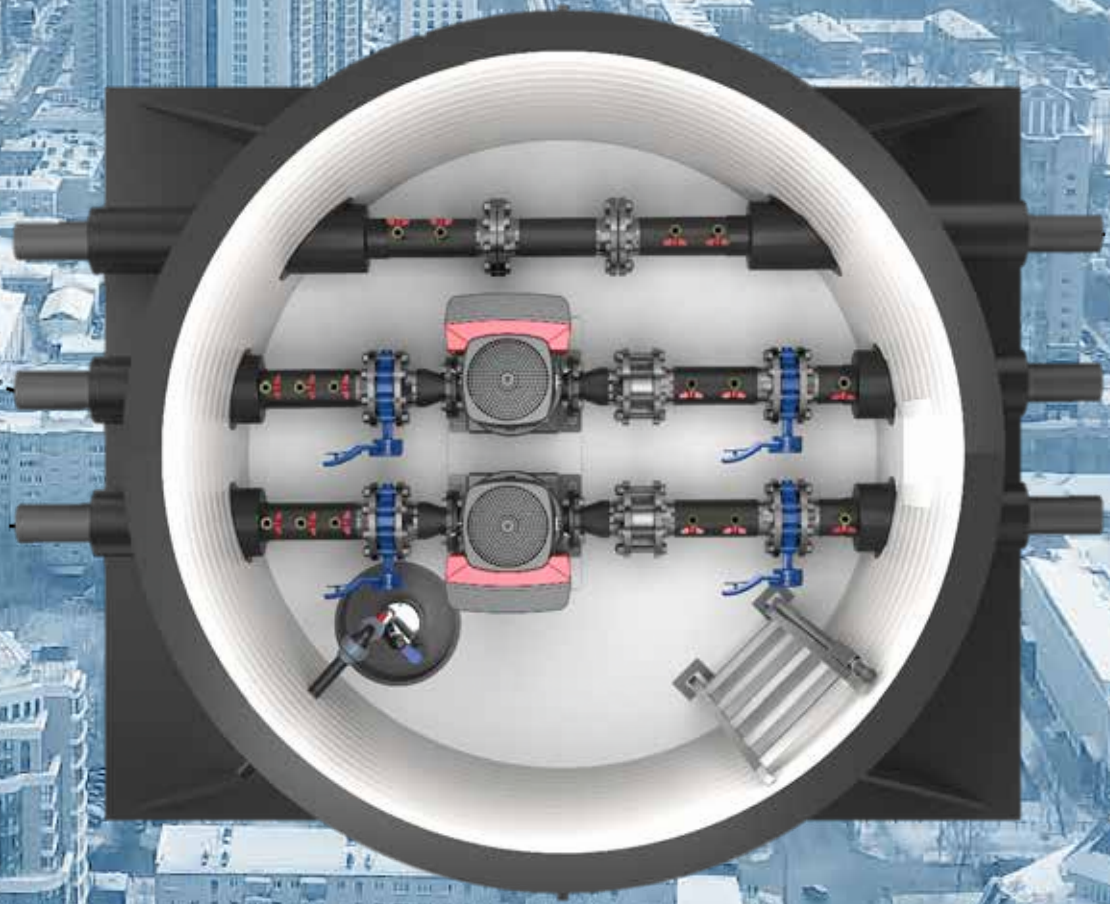
GRUNDFOS iGRID
PRESSURE ZONE

DESIGN AND CONFIGURATION GUIDE

GRUNDFOS iSOLUTIONS



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GRUNDFOS

GRUNDFOS iGRID PRESSURE ZONE
INTRODUCTION

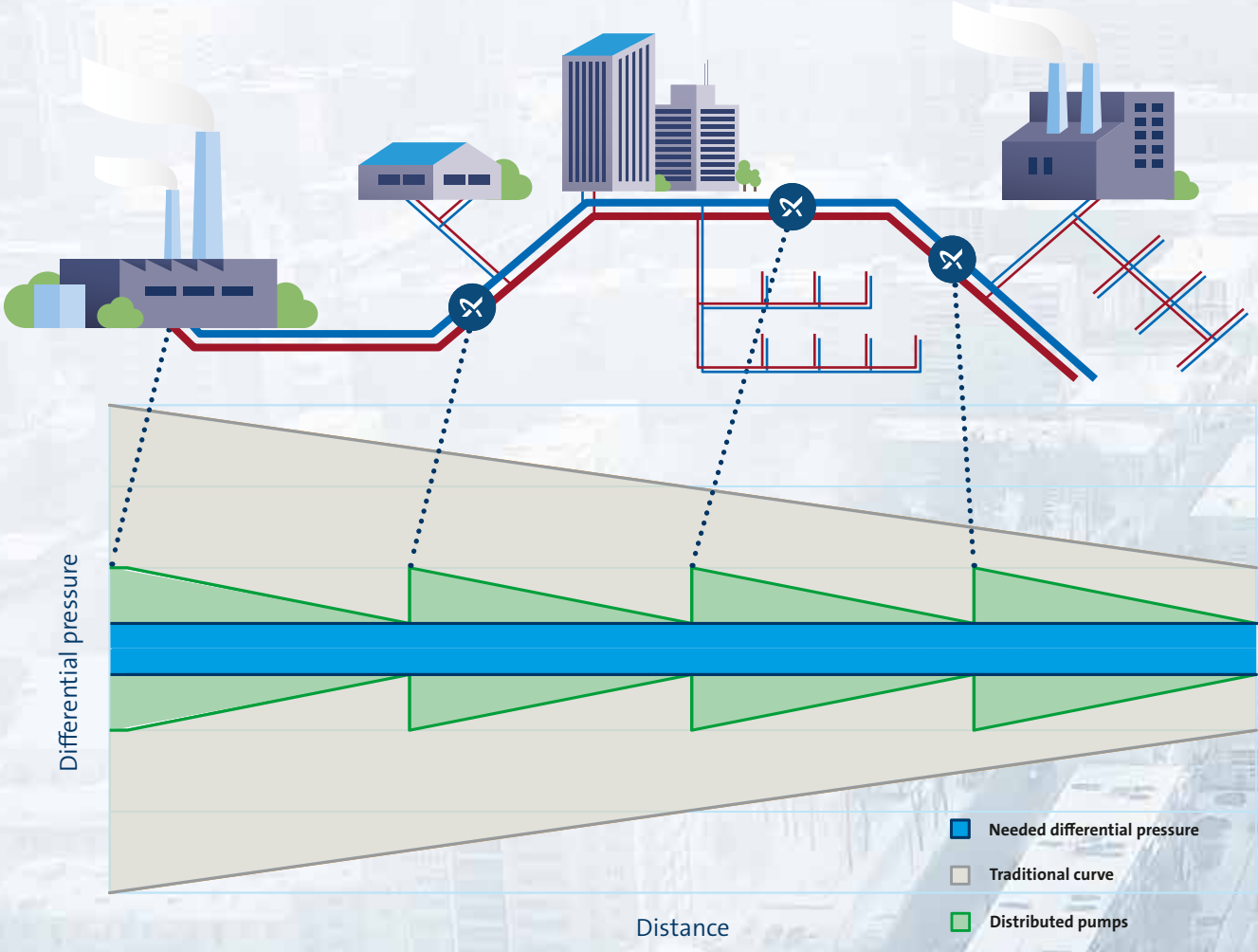
In district heating grids, large centralised pumps need to generate high pressure in order to deliver necessary flow to large parts of the grid, and at the same time satisfy the minimum pressure requirement at critical points. This presents a problem of excessive pressure close to main pumps and often too low pressure in other parts of the grid, especially where there is no real-time pressure feedback.

The Grundfos iGRID Pressure Zone allows for lower local pressures in the grid by means of decentralised pumps located around the system, which boost the pressure at points where it is actually required.

WHY USE iGRID PRESSURE ZONE?

Benefits from using decentralised pumping with the iGRID Pressure Zone solution include:

- Best comfort for all customers in the grid
- Reduced pressure loss in the main grid by adding pressure precisely where needed
- Improved efficiency when control is based on real-time data from iGRID Measure Points
- Better control and performance of the whole system
- Reduced pumping energy costs
- Lower system pressure rating (more choice of lower pressure components)
- Lower risk of leakages

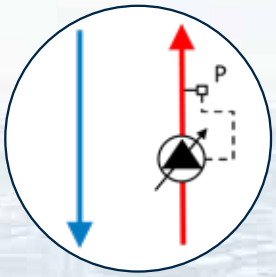


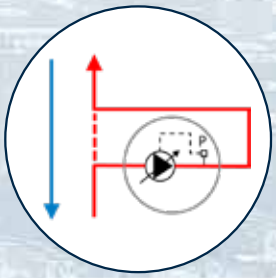
DESIGN OPTIONS

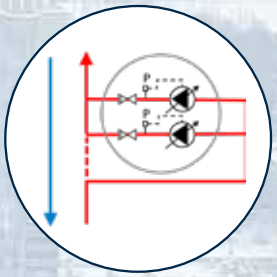
The iGRID Pressure Zone comprises of:
- Variable-speed pump controlled by the pressure in supply to the zone
- Pressure sensors (external or integral to the pump)

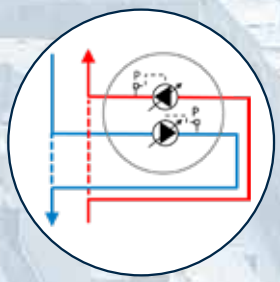
NOTE: pump bypass is not included

iGRID Pressure Zone is delivered with the following pre-assembled components as standard:
- Insulated inlet and outlet connection pipes
- Isolating valves
- Non-return valves (multiple pump version)
- Pump (or pumps) including control unit
- Pressure sensors (single point sensors)









iGRID Pressure Zone pipework options:

1. SUPPLY PRESSURE BOOST

Single pump – one pipe design

Multiple pump design – for redundancy and/or duty sharing

2. SUPPLY AND RETURN PRESSURE BOOST

– single or multiple pumps in supply and return lines

3. CUSTOM CONFIGURATION

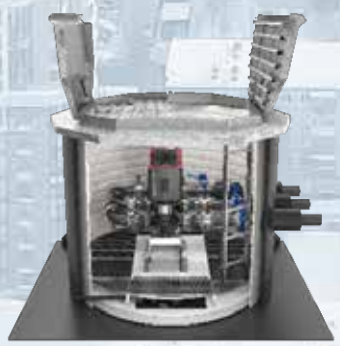
- enables configuration of additional sensors (flow, temperature) for heat energy estimation, leak detection or transmitting real-time measurements to external controllers

iGRID Pressure Zone enclosure options:

- **Prefabricated pit** - for installation in the ground. Compact solution with minimum above ground space requirement. Delivered to site in a CE marked 2000 mm diameter PE (polyethylene) well with a drainage sump pump and access ladder

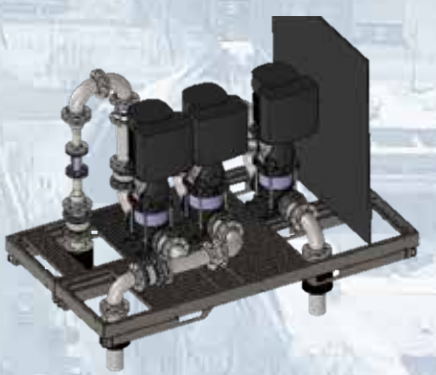
- **Cabinet** - for above ground installation. Hot-galvanised steel frame with powder-coated aluminium covers and doors, soundproofed with foam panels.

- **Packaged skid** - frame without enclosure for indoor installations - enables installation of larger or multiple pumps (custom option). After factory test, supplied as components for re-assembly on site



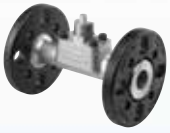
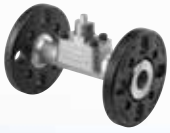
PIT

CABINET



SKID

GRUNDFOS iGRID PRESSURE ZONE **COMPONENTS**

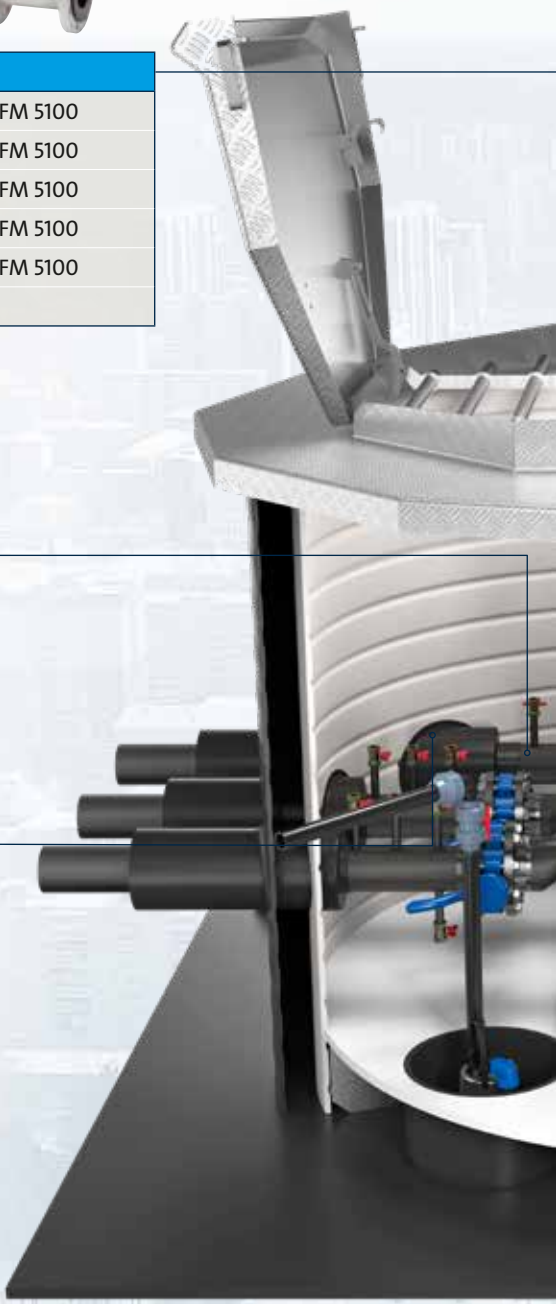



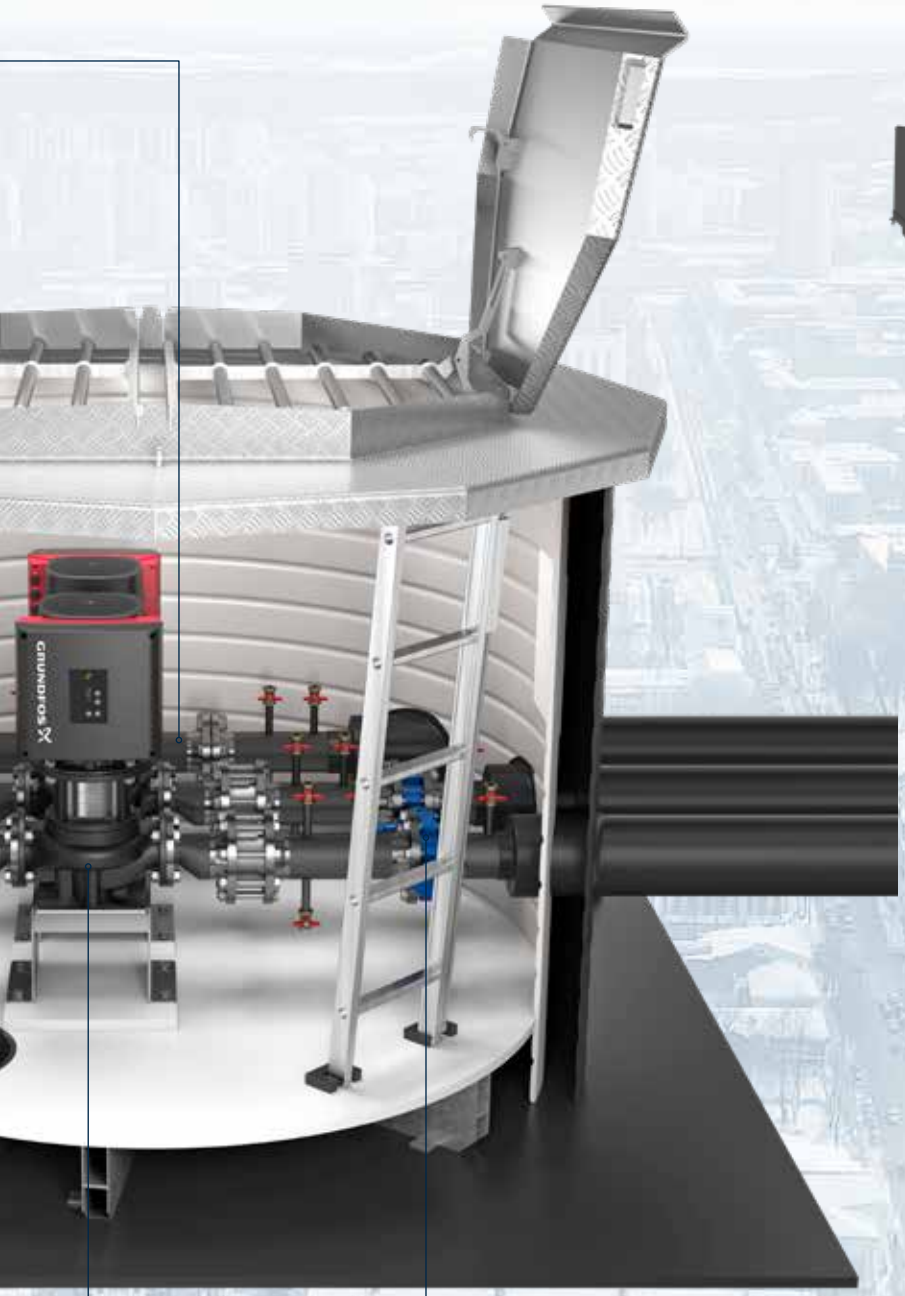

	Grundfos	Grundfos (+Temp)	Siemens
DN 150			SITRANS FM 5100
DN 125			SITRANS FM 5100
DN 100	VFI 12-240, 020 E	VFI+T 12-240, 020 E	SITRANS FM 5100
DN 80	VFI 8-160, 020 E	VFI+T 8-160, 020 E	SITRANS FM 5100
DN 65	VFI 5.2-104, 020 E	VFI+T 5.2-104, 020 E	SITRANS FM 5100
DN 50	VFI 3.2-64, 020 E	VFI+T 3.2-64, 020 E	

Range	Pressure sensor
0-16 bar	iGRID pressure sensor MBS 3200

Range	Temperature sensor
0-150°C	PT1000 sensor with insertion tube

	CRE
DN 150	CRE 155, CRE 125
DN 125	
DN 100	CRE 95, CRE 64
DN 80	CRE 45
DN 65	CRE 32
DN 50	CRE 20, CRE 15
DN 40	CRE 10
DN 32	





Pit cover	Pit Diameter
Aluminium	Ø1600 mm, Ø2000 mm
Heavy duty	Ø1600 mm, Ø2000 mm

Standard pipe
DN 200*
DN 150
DN 125
DN 100
DN 80

Isolating valves		
DN 200	Butterfly valve	Ball valve
DN 150	Butterfly valve	Ball valve
DN 125	Butterfly valve	Ball valve
DN 100	Butterfly valve	Ball valve
DN 80	Butterfly valve	Ball valve

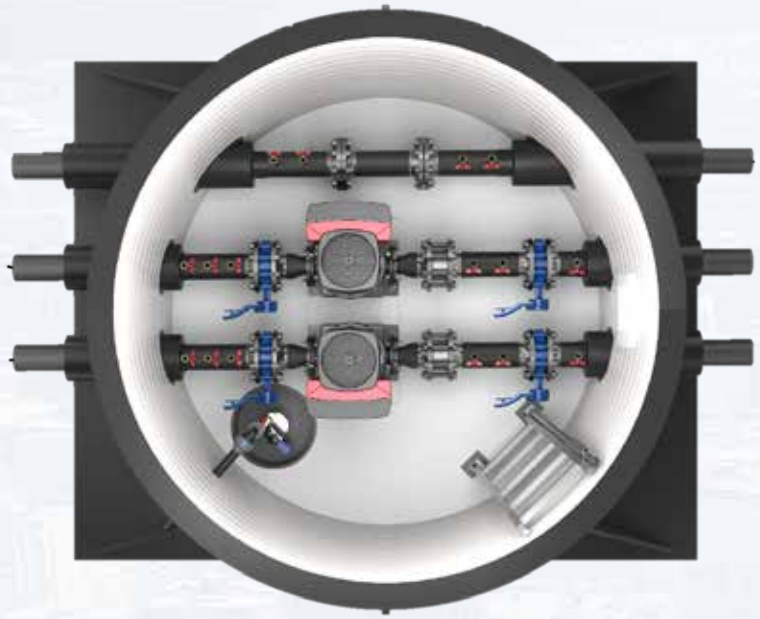
* Maximum pipe size depends on the solution (pit, cabinet or skid)

CONFIGURATION OPTIONS

Select options from the standard component range and configure your iGRID Pressure Zone.

Return line options
- Pump model
- Flow sensor
- Temperature sensor
- Pressure sensor

Pipework options:
- Pipe size (connection side)
- Isolating (shut off) Valves
- Pipework design (single or multiple pumps in supply or return)



Accessories
- Heavy duty pit cover
- Pipe insulation
- Building measure point
- Pit measure point
- Building bypass

Supply line options
- Pump model
- Flow sensor
- Temperature sensor
- Pressure sensor

Customisation

If the required solution cannot be configured based on standard components, bespoke design options are also available. Contact your local Grundfos sales office.

Custom options could include:
- Pipework size beyond configurable options
- Multiple booster pumps
- Bespoke skid-based solution

iGRID PRESSURE ZONE

Accessories/control options

iGRID Pit Measure Point

Real-time measurement of pressure and temperature in the grid, without the need of connecting to a power supply (powered by integral thermal electric generator). Measured data is transmitted via GSM

Configuration and Accessories	
Pipe size (connection side)	DN200 *, DN150, DN125, DN100, DN80
Isolating (shut off) Valves	Butterfly valves Ball valves
Pit cover	Heavy duty cover Ø1600 mm, Ø2000 mm Aluminium cover Ø1600 mm, Ø2000 mm
Pipe insulation	DN200 *, DN150, DN125, DN100, DN80
Control and communication options	iGRID Building Measure Point - 6 Bar iGRID Pit Measure Point - 10 Bar iGRID Building Bypass - 6 Bar

* Maximum pipe size depends on the solution (pit, cabinet or skid)

Supply and return line configuration options		
	Supply line options	**Return line options**
Booster pump options	CRE 10 to CRE 155	
Pressure sensor	iGRID pressure sensor MBS 3200 / A	
Temperature sensor	PT1000 sensor with insertion tube, 0-150 °C	
Flow sensor	Grundfos VFI, DN50 to DN100 Grundfos VFI+T, DN50 to DN100 Siemens SITRANS, DN65 to DN150	

iGRID Building Measure Point

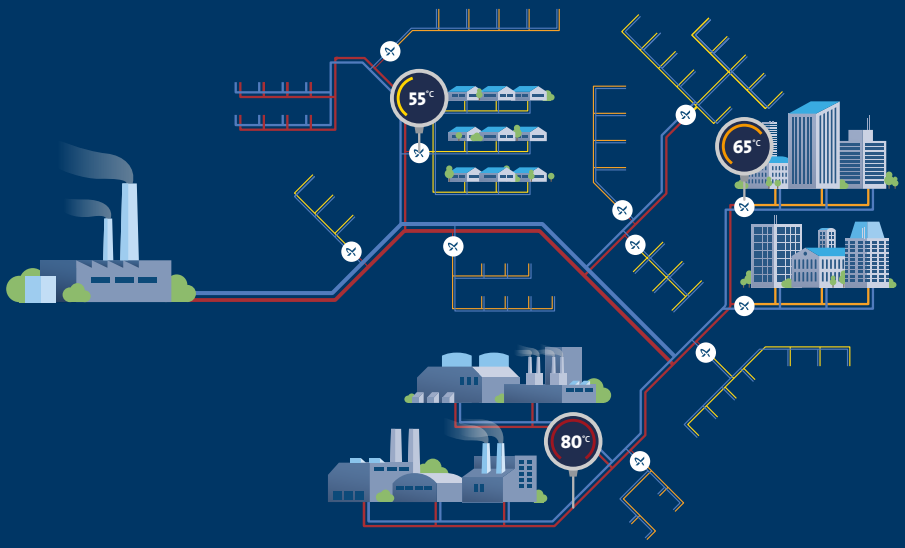
Real-time measurement of pressure and temperature in the building part of the grid. The device is powered from the building power supply. Measured data is transmitted via GSM

iGRID Building Bypass

Securing instant hot water for the building with minimum impact on return temperatures and the possibility to remotely close the valve during low demand (weekends or holidays)

GRUNDFOS iGRID - A SOLUTION RANGE FOR DISTRICT HEATING
With this range we fight heat losses and prepare for utilisation of renewable energy sources through intelligent temperature control. By creating city zones with mixing loops, temperatures can be lowered to meet the actual demands in those zones and thereby deliver exactly the heat energy needed – nothing more and nothing less.

Find out more about Grundfos iGRID solutions by contacting your local Grundfos sales company.



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