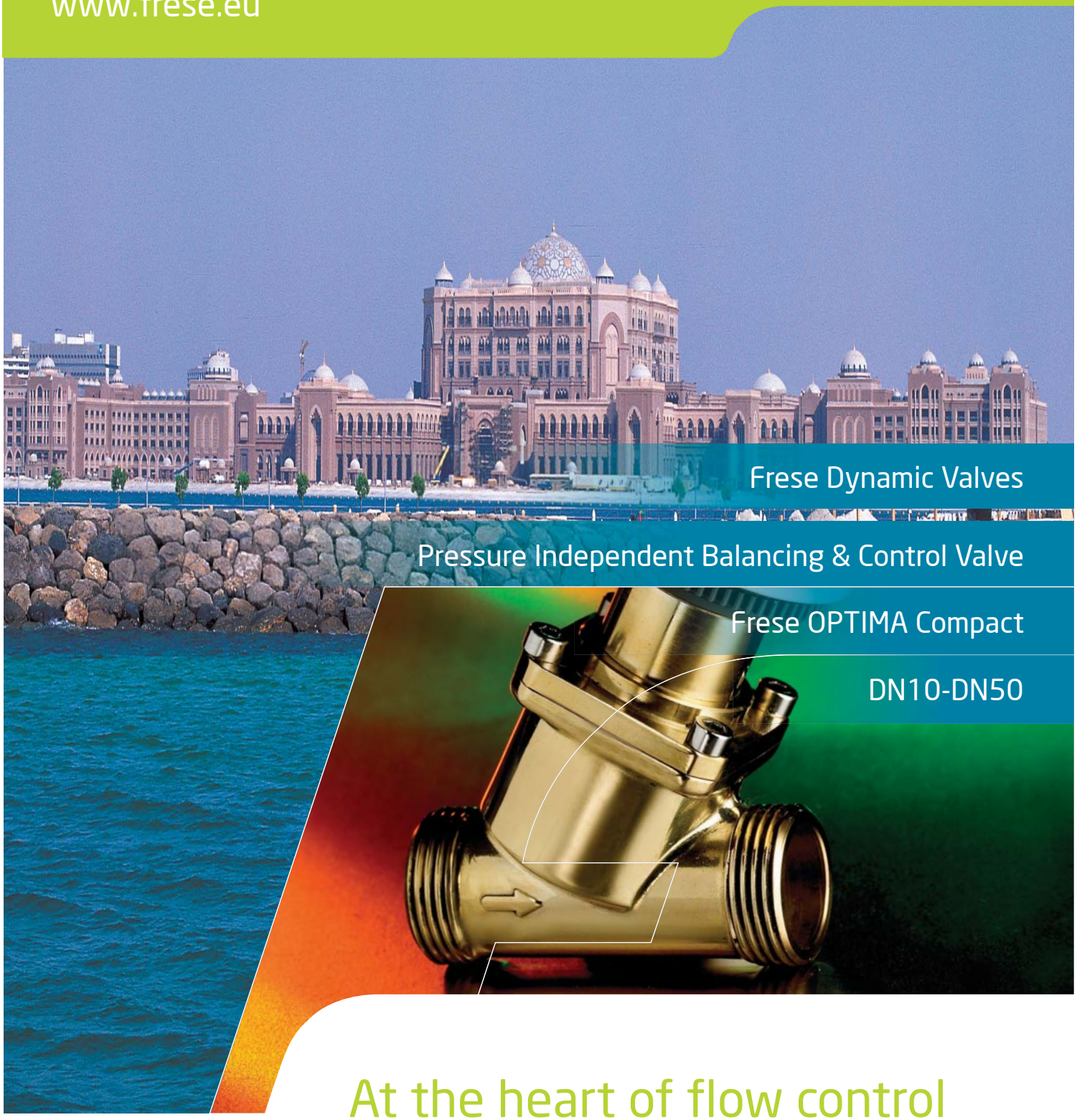
www.frese.eu



Frese Dynamic Valves

Pressure Independent Balancing & Control Valve

Frese OPTIMA Compact

DN10-DN50

At the heart of flow control

BHUTORIA

Is proud to be a Key Supply Chain Partner for Frese

KNOWLEDGE | QUALITY | INNOVATION | MANUFACTURING EXCELLENCE | CUSTOMER FOCUS

Frese

Energy-saving valves

Frese OPTIMA Compact actuator range

Frese OPTIMA Compact can be combined with both Thermo actuators and Motoric actuators.

The design of the valve, combined with the Frese actuator, produces a perfect control characteristic that utilises the full control range of the system.

					Thermo Actuators					Motoric Actuators			
					On/Off				0.....10V	0.....10V		3-pos	
Male/Male ISO 228	Type	Stroke	Flow l/h	Dim	24 V 2.5 mm	230V 2.5 mm	24V 5.0 - 5.5 mm	230V 5.0 - 5.5 mm	24V 2.5 - 5.0 - 5.5 mm	24V 2.5 mm	24V 5.0 - 5.5 mm	24V	230V
	DN10 M/M LOW 2.5	2.5	30-200	DN10	●	●			●	●		●	●
	DN10 M/M LOW 5.0	5.0	65-370	DN10			●	●	●		●	●	●
	DN15 M/M LOW 2.5	2.5	30-200	DN15	●	●			●	●		●	●
	DN15 M/M LOW 5.0	5.0	65-370	DN15			●	●	●		●	●	●
	DN15 M/M HIGH 2.5	2.5	100-575	DN15	●	●			●	●		●	●
	DN20 M/M HIGH 2.5	2.5	100-575	DN20	●	●			●	●		●	●
	DN20 M/M HIGH 5.0	5.0	220-1330	DN20			●	●	●		●	●	●
	DN25 M/M 5.5	5.5	600-3609	DN25			●	●	●		●	●	●
	DN32 M/M 5.5	5.5	550-4001	DN32			●	●	●		●	●	●
Female/Female ISO 228	Type	Stroke	Flow l/h	Dim									
	DN15 F/F LOW 2.5	2.5	30-200	DN15	●	●			●	●		●	●
	DN15 F/F LOW 5.0	5.0	65-370	DN15			●	●	●		●	●	●
	DN15 F/F HIGH 2.5	2.5	100-575	DN15	●	●			●	●		●	●
	DN20 F/F HIGH 2.5	2.5	100-575	DN20	●	●			●	●		●	●
	DN20 F/F HIGH 5.0	5.0	220-1330	DN20			●	●	●		●	●	●
	DN25 F/F 5.5	5.5	600-3609	DN25			●	●	●		●	●	●
	DN32 F/F 5.5	5.5	550-4001	DN32			●	●	●		●	●	●

In a world of Flow Control

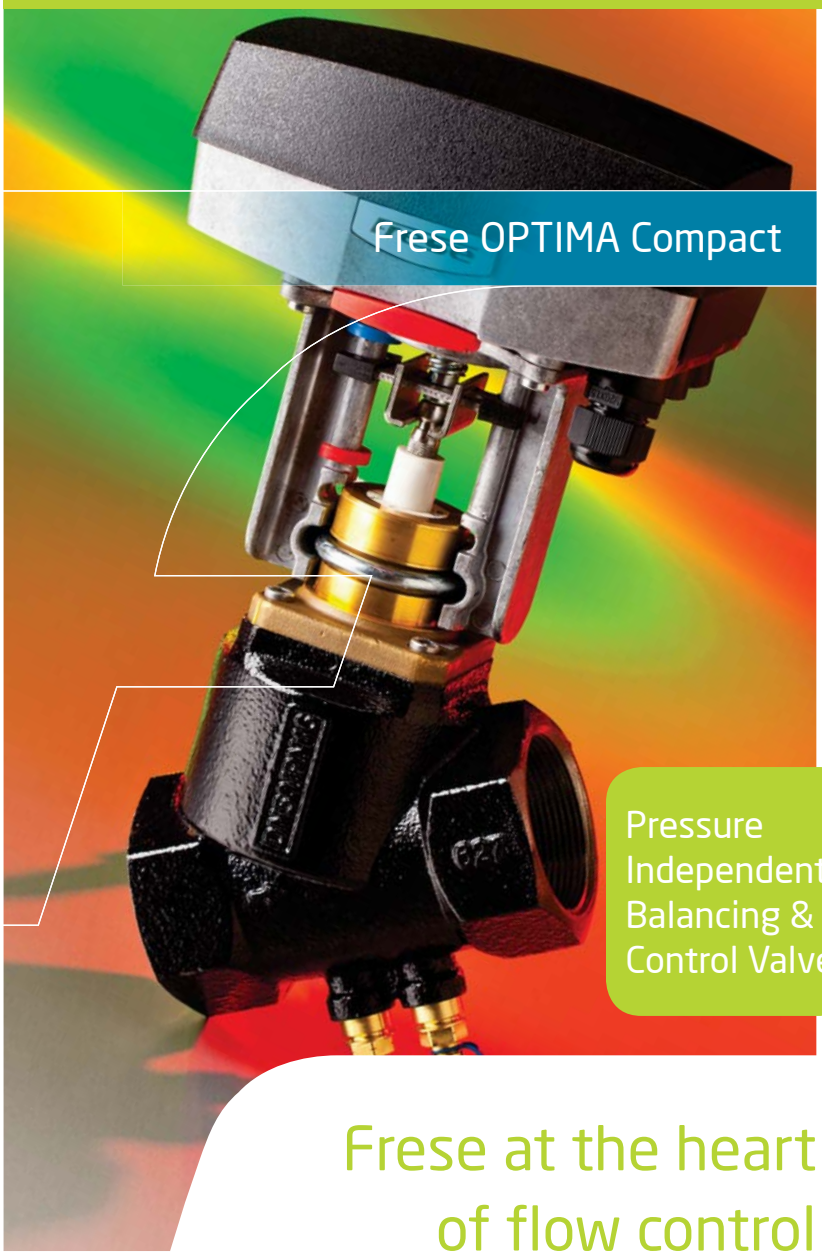
In the last 25 years Frese A/S has been a pioneer in the field of dynamic balancing. Our products are sold all over the world and known for their energy saving ability.

A study conducted by Frese in Denmark demonstrated a saving of 76% of electrical energy consumption using a variable speed pump with a Frese OPTIMA Compact PIBCV, relative to the same system fitted with a constant speed pump and manual balancing valves. Furthermore return water temperatures were guaranteed as the system remained dynamically balanced at all load conditions.

On top of the dramatic savings in pump electrical energy consumption, the effect of maximising ΔT improves efficiency of the chillers. It is also very important to maintain a high ΔT in efficient heating systems in order for boilers to work in condensing mode.

In a cooling system, the cost to operate the chillers can typically account for as much 40% of the energy use, but their efficient operation is often impaired due to elevated return temperatures caused by overflows in variable systems or blending of supply and return water.

In a heating system the heat losses from lengthy return pipe work can be minimised if the return temperature is maintained as low as possible. Pressure independent balancing & control valves maintain system design ΔT at all load conditions.



Frese at the heart of flow control

Innovative solutions from Frese balance global HVAC systems accurately and efficiently. From cooling systems in the Middle East to heating systems in Scandinavia, our products transform state of the art technology into everyday solutions.

Over 25 years' experience producing dynamic balancing solutions, has positioned Frese as the leading manufacturer of energy saving valves and through our commitment to innovation, we continue to be at the forefront of technological advancements in our areas of expertise.

To support our products, the knowledge, experience and dedication of our employees and partners ensure our solutions are applied correctly to maximise savings and position Frese as the authoritative voice for pressure independent and dynamic solutions.

The innovative design of Frese OPTIMA Compact introduces an intelligent control valve that adjusts automatically to the preset flow in order to provide full modulating control. When the installer presets the valve according to the maximum designed flow, the stroke of the control valve remains the same thus providing 100% modulating control.

In practical terms, Frese OPTIMA Compact ensures that there is no overflow and that below the design flow the actuator has absolute authority.

Furthermore, Frese OPTIMA Compact combines all those features that are necessary to ease the work of designers and installers:

- The wide (up to 400kPa) differential pressure range meets the requirements of most applications
- The compact design and the user-friendly presetting unit guarantee easy installation and commissioning.

Application & Benefits

Frese OPTIMA Compact pressure independent balancing & control valve (PIBCV) is used in heating and cooling systems with Fan Coil Units, Chilled Beams or other terminal unit applications.

Frese OPTIMA Compact:

- Provides modulating control with full authority regardless of any fluctuations in the differential pressure of the system.
- Combines an externally adjustable automatic balancing valve, a differential pressure control valve and a full authority modulating control valve.
- Makes it simple to achieve 100% control of the water flow in the building, while creating high comfort and energy savings at the same time. An additional benefit is that no balancing is required if further stages are added to the system, or if the total system flow is changed

Features

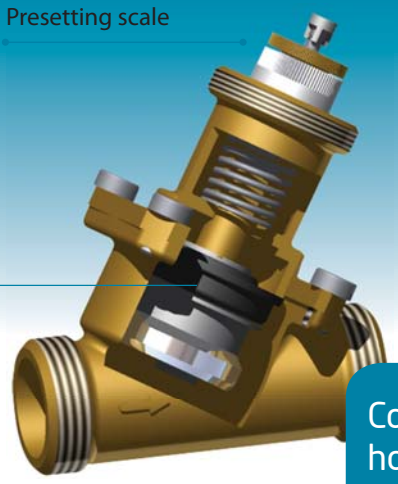
- The presetting function has no impact on the stroke; Full stroke modulation at all times, regardless of the preset flow.
- The constant differential pressure across the modulating control component guarantees 100% authority.
- Dynamic balancing eliminates overflows, regardless of fluctuating pressure conditions in the system.
- Thermal actuator On/Off or 0-10 V, normally closed
- Motoric actuator 0-10 V and 3 point control, normally closed
- Differential pressure operating range up to 400 kPa
- High flows with minimal required differential pressure due to advanced design of the valve
- Valve can be selected with different stroke to provide perfect characterisation with the selected actuator
- Higher presetting precision due to stepless analogue scale

Valve design

Frese OPTIMA Compact has a very compact design that provides high levels of performance.

The main components of the valve are:

Combined pressure control, flow balancing and modulating control assembly

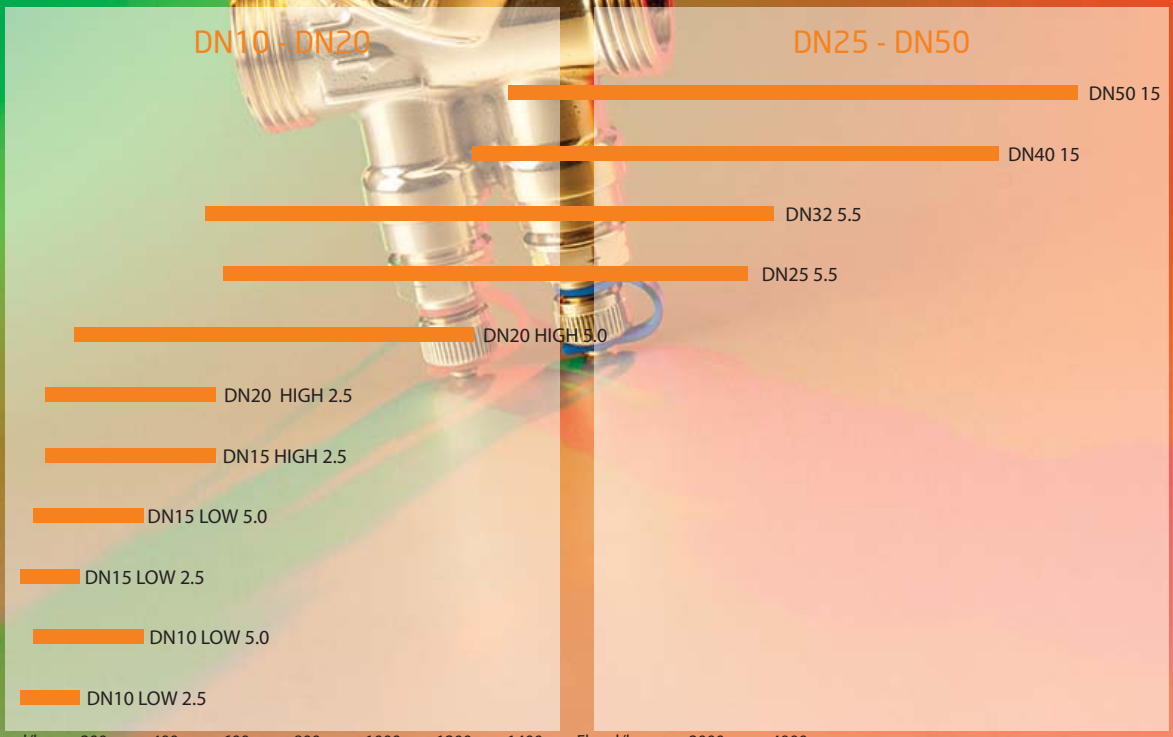


Compact housing for easy installation

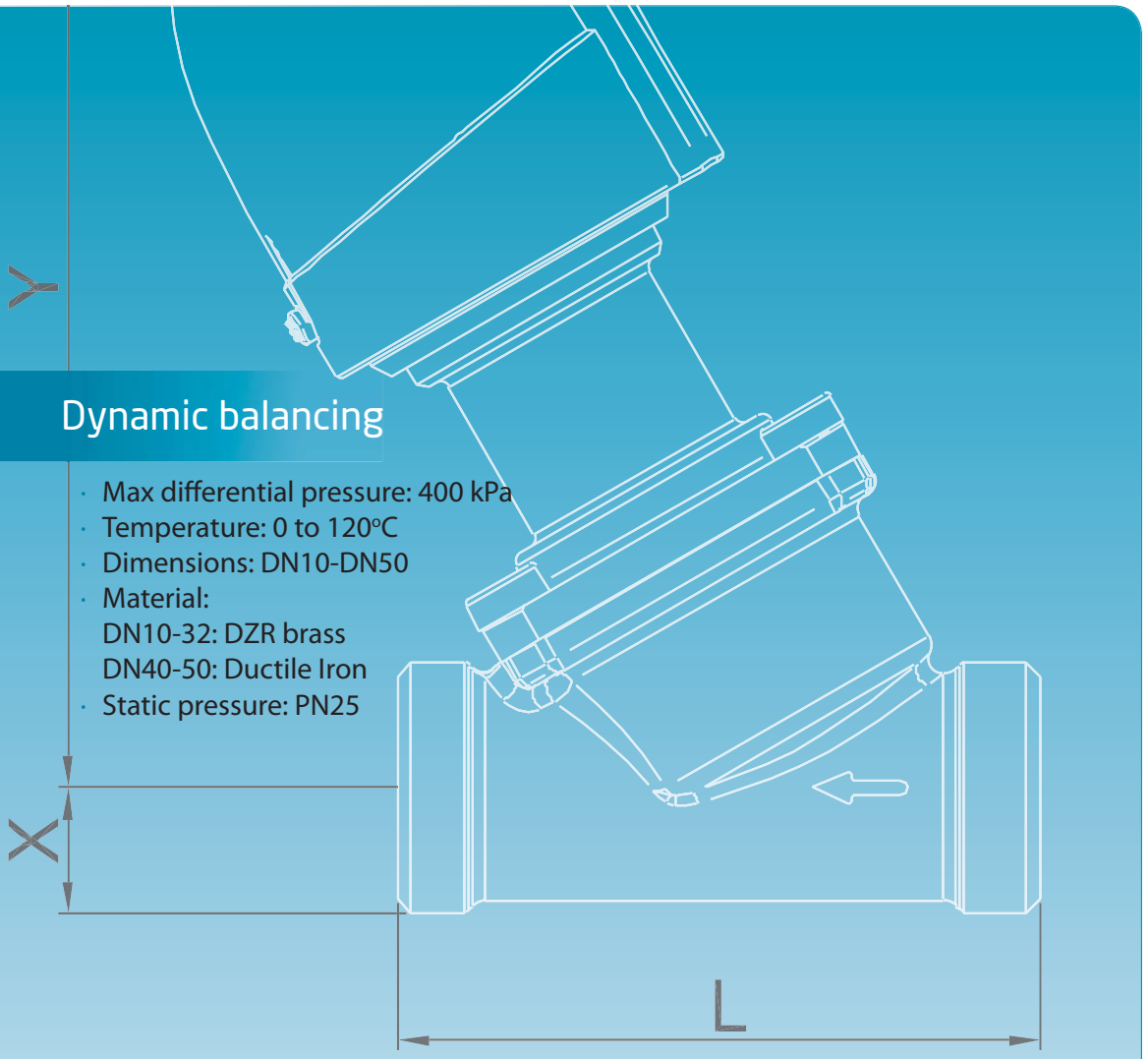
Frese OPTIMA Compact

Easy Valve Selection

Frese makes valve selection easy. Simply determine the flow rate of the coil, or load of the system, select the pipe size, and make the selection. Our charts make calculating minimum differential pressure a breeze.
Regardless of fluctuation in the differential pressure the design of the Frese OPTIMA Compact will ensure the most accurate flow control at the selected set point.

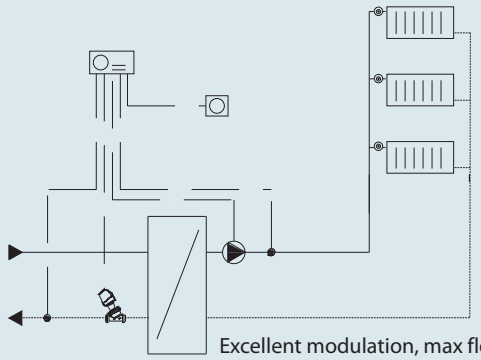


Flow l/h	200	400	600	800	1000	1200	1400	Flow l/h	2000	4000	6000	8000	10000	12000
Flow l/s	0.056	0.111	0.167	0.222	0.278	0.333	0.388	Flow l/s	0.555	1.111	1.666	2.222	2.777	3.333
Flow gpm	0.88	1.76	2.64	3.52	4.40	5.28	6.14	Flow gpm	8.79	17.60	26.40	35.21	44.01	52.82

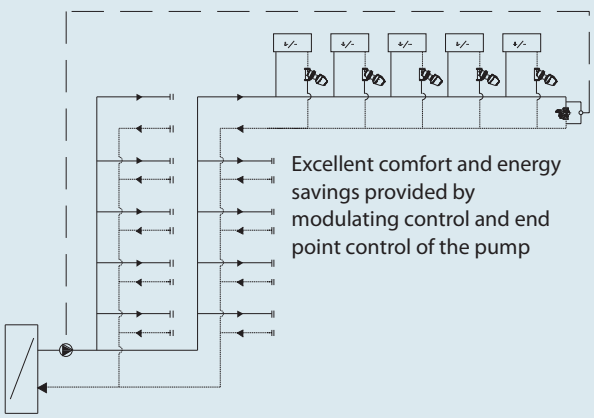


Dynamic balancing

- Max differential pressure: 400 kPa
- Temperature: 0 to 120ºC
- Dimensions: DN10-DN50
- Material:
  DN10-32: DZR brass
  DN40-50: Ductile Iron
- Static pressure: PN25



Excellent modulation, max flow setting and full authority without influence from external supplier.



Excellent comfort and energy savings provided by modulating control and end point control of the pump

Application Diagram

Indirect Heating

Frese OPTIMA Compact controlling the inlet temperature on the secondary side in an indirect system with a heat exhanger. Design flow from supplier can be controlled directly by Frese OPTIMA Compact setting.

Application Diagram

Air Conditioning

Frese OPTIMA Compact modulating control on a Fan Coil System. The pump can be controlled by an end point sensor as a consequence of Frese OPTIMA Compact being a Pressure Independent Balancing & Control Valve

BHUTORIA

Bhutoria Airconditioning Pvt Ltd
340/2722, Motilal Naga #2
Link Road, Opp Bangur Nagar
Goregaon (W), Mumbai 400090 India
Tel +91 22 2878 8849 Email: info@bria.net.in
www.bria.net.in

Frese
Energy-saving valves

KNOWLEDGE

QUALITY

INNOVATION

MANUFACTURING EXCELLENCE

CUSTOMER FOCUS

Denmark - Main Office
Frese A/S
Tel: +45 58 56 00 00

Germany
Frese Armaturen GmbH
Tel: +49 (0)241 475 82 333

United Kingdom
Frese Ltd
Tel: +44 (0) 1704 896 012

Turkey
Frese Eurasia DIS TIC. LTD. STI.
Tel: +90 216 580 93 60

China
Frese Valves (Ningbo) Co., Ltd.
Tel: +86 (21) 5110 3212

Saudi Arabia
Frese Saudi Arabia
Tel: +966 2 6608230

Australia & New Zealand
Frese Asia Pacific
Tel: +61431 794 414

South Africa
Frese Asia Pacific
Tel: +61431 794 414