



Frese OPTIMIZER 6-way  
Pressure Independent Control Group

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### Pressure Independent Control Group

## Frese at the heart of flow control

### Frese

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.

### Pressure Independent Balancing and Control

Pressure independent balancing and control is an innovative, energy saving alternative to traditional hydronic balancing and control methods that use separate static balancing valves, differential pressure control valves and two port control valves. A system with pressure independent balancing and control valves provides efficient and accurate flow limitation, differential pressure control and temperature control ensuring the design flow conditions are realised at all times irrespective of pressure fluctuations in the system at part load conditions.

A hydronic system designed and fitted with pressure independent balancing and control valves offers many advantages over traditionally designed, static systems. These advantages include a simplified system design, ease of selection, system flexibility and a minimised commissioning process. The major benefit is the significant energy saving benefits that can be achieved through maximising Delta T and eliminating overflows in the system.

## Frese OPTIMIZER 6-way • Pressure Independent Control Group

The Frese OPTIMIZER 6-way Pressure Independent Control Group provides complete pressure independent balancing and control for 4-pipe heating and cooling systems.

The Frese OPTIMIZER 6-way provides modulating control which works independently of any variations in the differential pressure of the system.

The group consists of an OPTIMA Compact pressure independent control valve (PICV) with a 0-10V modulating actuator, a 6-way control valve with a rotating actuator and the Control Unit.

The Frese OPTIMIZER 6-way can be used in 4-pipe systems, such as:

- Heating and cooling ceilings
- Convectors
- Decentralised ventilation units
- Fan coil systems
- Convection heating & cooling units



## Benefits

- Only one data point for the BMS needed
- Energy saving through optimum pressure independent flow limitation and regulation
- Modulating control for both cooling and heating with only one data point
- No balancing valves required in the system
- Less time spent in selection and sizing as only the design flow and minimum differential pressure are required
- Full comfort without recommissioning should the system be extended during the construction phase
- Small space requirements for OPTIMIZER 6-way Pressure Independent Control Group
- Simple, flexible and quick installation
- Stand alone or central room temperature control

## Features

- The pre-setting function of the PICV has no impact on the stroke - full stroke modulation at all times, regardless the pre-set flow
- The constant differential pressure across the modulating control component of the PICV guarantees 100% authority
- Automatic balancing eliminates overflows, regardless of fluctuating pressure conditions in the system
- Motoric on/off actuator (for the 6-way) and thermic 0-10V normally closed actuator (for the PICV) provide near silent operation
- Achieves high flows with minimal required differential pressure due to the advanced design of the PICV
- Higher pre-setting precision due to the stepless analogue scale of the PICV
- Ultra-high KVS value on the 6-way valve to provide minimal pressure loss
- Automatic exercising of the 6-way valve
- Control unit with 0-10 V DC feedback signal



### Technical Data - OPTIMA Compact PICV

Valve housing:	DZR Brass, CW602N
DP controller:	PPS 40% glass
Spring:	Stainless steel
Diaphragm:	HNBR
O-rings:	EPDM
Pressure class:	PN25
Max. differential pressure:	800 kPa
Medium temperature range:	0°C to 120°C



### Technical Data - Thermic Actuator for PICV

Characteristics:	Thermic actuator, normally closed
Protection class:	IP 54 to EN 60529
Frequency:	50/60 Hz
Control signal:	0-10V DC
Actuating force:	100 N
Stroke:	max. 5.5 mm
Running time:	30 s/mm, 0-10 V DC
Ambient operating conditions:	0°C to 60°C



### Technical Data - 6-way Valve

Valve housing:	Brass CW617N
Sealings:	PTFE
Pressure class:	PN16
Medium temperature range:	0°C to 90°C
Kvs (DN15 total valve):	1.9
Kvs (DN20 total valve):	4.25
Kvs (DN25 total valve):	4.25



### Technical Data - Rotating Actuator for 6-way Valve

Characteristics:	Motoric rotating actuator
Protection class:	IP 54 to EN 60529
Frequency:	50/60 Hz
Control signal:	3-point on/off
Turning force:	5 Nm
Running time:	120 s, 90°
Ambient operating conditions:	-20° to 50° C



### Technical Data - Control Unit

Material:	ABS/PC
Protection class:	IP 23 to EN 60529
Supply:	24V AC/DC
Power consumption:	Max 4 VA
Control signal:	0-10V DC
Ambient operating conditions:	0°C to 50°C, 20-90% RH

## Function & Setting

The Frese OPTIMIZER 6-way controls both heating and cooling with only one single data point from the BMS system, through a 0 -10V external control signal.

Full modulation is provided at all times even with different design flows for heating and cooling.

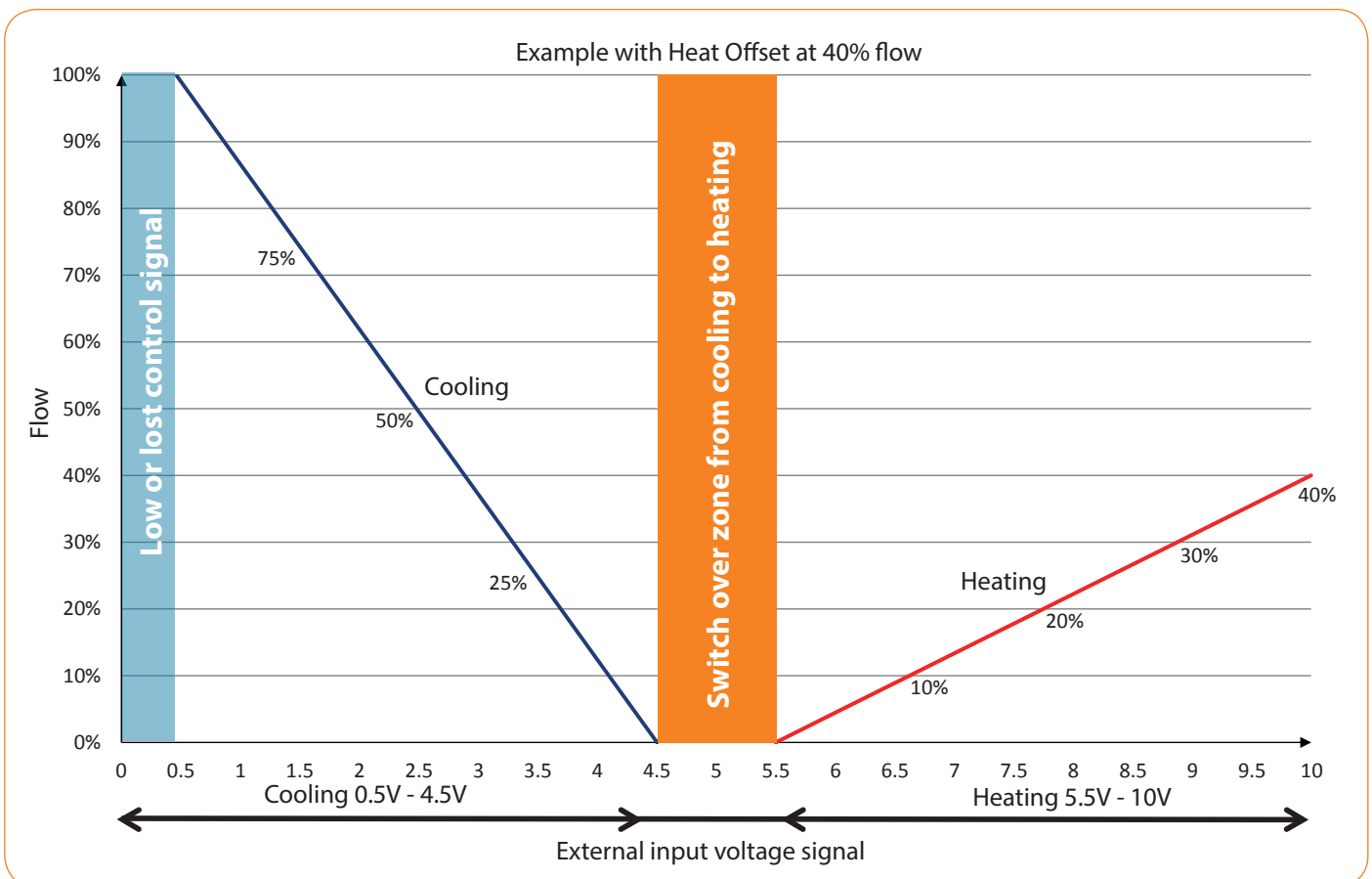
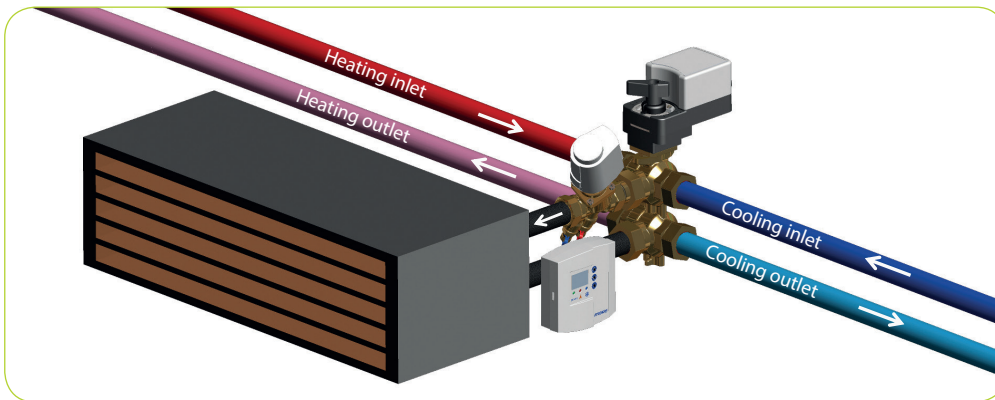
The design flow rate for the cooling system defines the maximum flow through the coil and it is set using the Pressure Independent Control Valve, Frese OPTIMA Compact.

The Frese OPTIMIZER 6-way Control Unit allows the setting of hot water maximum flow, from 100% down to 10% of the maximum cooling flow.

The heat offset flow can be set using the buttons on the Frese OPTIMIZER 6-way Control Unit and the set value is confirmed by pressing OK **(1)**

The switch over from cooling to heating is automatically changed via the signal from the BMS data point.

The Frese OPTIMA Compact pressure independent control valve is closed during the switch over and remains closed for approximately 5 minutes until the switching of the 6 port valve has been safely completed. The switch over condition is signalled by the simultaneous flashing of the red & blue LEDs. **(2)**





KNOWLEDGE

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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 DISTIC. LTD. STI.  
Tel: +90 216 580 93 60

**China**  
Frese Valves (Ningbo) Co., Ltd.  
Tel: +86 (21) 51103212

**Saudi Arabia**  
Frese Saudi Arabia  
Tel: +966 5410 25 405

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

**South Africa**  
Frese Asia Pacific  
Tel: +61431 794 414