IMI Hydronic Engineering

IMI TA

IMI PNEUMATEX

111 YEARS OF EXPERTISE

Product Guide 2021

Balancing, Control and Actuators
Pressurisation and Water Quality

Breakthrough Engineering

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IMI TA Balancing, Control and Actuation

Solutions that give you control at every turn

The ethos of IMI TA is to help you achieve a comfortable, optimized and energy efficient indoor climate at minimum operating cost. This requires great technical solutions of course, but also great people. Which is why we complement our product offer with expert support. We stand by you through the entire project's lifetime and provide technical trainings and seminars to help solve your challenges and meet your needs.

Since its conception in 1897 in Ljung, Sweden, IMI TA has been building a 360° portfolio of quality balancing & control products that deliver optimal performance, maximize energy efficiency and help to create stable & long-lasting HVAC system.

2017 Our iconic measuring instrument **TA-SCOPE** gets an update with **DpS-Visio** to offer even simpler and accurate measuring and balancing.

2016 **TA-Slider**, our digitally configurable actuator - with or without BUS communication, is launched.

2015 **TA-Modulator**, our highly precise modulating control valve, is launched.

100 000

2008 IMI TA reaches **100 000 project wins**.

IMI TA

1997 IMI acquires TA and establishes IMI TA.

TA

1977 AHA and Tour Agenturer merge to form Tour & Andersson AB (TA).

1957 TA launches the world's 1st manual balancing valve.

1897 August Hilmer Andersson (AHA) began manufacturing water and heating fittings in Ljung, Sweden.

Over 4 million reasons every year to measure

Highly precise hydronic control you can measure and diagnose

TA-Modulator
with **TA-Slider 160**

TA-Modulator
with **TA-Slider 500**

TA-Modulator
with **TA-Slider 750**

The best energy efficiency can be achieved only when all processes inside the system are measurable and transparent. True system parameters and also possible system failures can be found only by precise and reliable measuring procedures. Thus, all our combined balancing and control valves are equipped with measuring points enabling you to measure flow, pressure drop, temperatures and even actual power. Patented features like fully adjustable Kvs, and the ability to measure available pump head differentiates us from the competition. The new TA-Slider actuators are the most flexible actuators on the market with unique tracking of the last 10 errors to ensure faster detection of any faults.

CONTROL VALVE AND ACTUATORS

TA-Control range

IMI TA

I need highly precise, efficient and innovative solutions.

You understand the importance of energy efficiency, high performance and flexibility. So do we! Our TA-Control solutions help you design HVAC systems that deliver optimal control, maximum efficiency and an enhanced professional reputation. Discover why our **TA-Control solutions** range is what you are looking for **www.imi-hydronic.com**

DIAN AGUNG
DESIGNER AND CONSULTANT

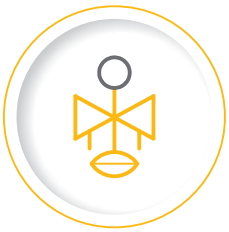
TA-CONTROL

You are looking for precision, innovation and high efficiency – our control valves and actuators will provide you with just that!

TA-Modulator Range
(DN 15 – DN 150)

TA-Slider Range
(160 – 1250)

IMI Hydronic Engineering



Pressure independent balancing and control valves

5 in 1 concept

Pressure independent balancing and control valves are the ideal solution for modern heating and cooling systems requiring low operating costs, and easy and flexible installation. Valves provide stable and precise temperature control under all working conditions due to the integrated differential pressure controller that maintains a constant differential pressure over the control part. Fully open valves limit maximum flow and ensure hydronic balancing.

Our valves are unique in the market, whereby you benefit from excellent diagnostic and measuring features that help you set the working point of pumps, save maximum energy and find possible system failures.

YOUR BENEFITS

- 5 in 1: control + balancing + diagnostics + Dp control + shut-off
- The best diagnostics possibilities on the market
- Small pressure drop, energy efficient and quiet operation
- High quality and longevity

KEY TECHNICAL PARAMETERS

A1 Pressure independent balancing and control valves	PN	Min. temp.	Max. temp.	Max. Dp	Control	Dimensions												
	bar	°C	°C	bar	character-istic	10	15	20	25	32	40	50	65	80	100	125	150	200
TA-COMPACT-P	16	-10	90	4	LIN	✓	✓	✓	✓	✓								
TA-Modulator	16	-10/-20	90/120	4/6	EQM		✓	✓	✓	✓	✓	✓						
TA-Modulator	16/25	-20	120	8	EQM								✓	✓	✓	✓	✓	
TA-FUSION-P	16/25	-20	120/150	8	EQM					✓	✓	✓					✓	
KTM 512	16/25	-10	120/150	16	EQM		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

FUNCTIONS

A1 Pressure independent balancing and control valves	Control	Max flow pre-setting	Differential pressure control	Shut-off	Flushing	Measurement				
						Flow	Pressure drop	Temperature	Available differential pressure	Power
TA-Modulator	✓	✓	✓	✓	✓ DN 40-80	✓	✓	✓	✓	✓
TA-COMPACT-P	✓	✓	✓	✓		✓	✓	✓	✓	✓
TA-FUSION-P	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
KTM 512	✓	✓	✓	✓		✓	✓	✓		✓

EQM

TA-Modulator

- Flow range up to 190 m³/h
- Perfect solution for precise temperature control using proportional actuators
- 6× better stroke control than linear valves
- Uniquely shaped EQM characteristic (patent pending)
- Compatible actuators TA-Slider 160, TA-Slider 500, TA-Slider 750, TA-Slider 1250 and TA-MC160 (Adapter included in the valve package (DN 150)
- Enables complete system diagnostics and flow measurement

Suitable actuators page 20

LIN

TA-COMPACT-P

- Flow range up to 3 700 l/h
- Very compact, slim and practical valve for small terminal units
- Easy access to all its functions from one side
- Actuator connection M30x1,5
- Enables total system diagnostics
- Linear characteristic, best suited for on/off control
- Made from patented alloy AMETAL®

Suitable actuators page 20

EQM

TA-FUSION-P

- Flow range up to 207 m³/h, hiflow version up to 261 m³/h
- The best solution for modulating control in HVAC systems
- Extensive range of actuators
- Enables total system diagnostics
- Unique flushing function (possibility to deactivate Dp controller)

Suitable actuators page 20

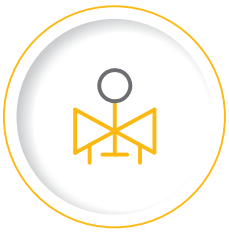
EQM

KTM 512

- Flow range up to 66,8 m³/h
- Ideal control valves for modulating control in district energy systems
- Wide range of actuators and adapters
- High resistance against corrosion

Suitable actuators page 20

See applications F1 F4 F5 F7 F9 F10 F11 F14



Combined balancing and control valves

KEY TECHNICAL PARAMETERS

A2 Combined balancing and control valves	PN	Min. temp.	Max. temp.	Max. Dp	Control charac-teristics	Dimensions											
	bar	°C	°C	bar		10	15	20	25	32	40	50	65	80	100	125	150
TBV-C	16	-20	120	9,7[1]	LIN[4]		✓	✓	✓								
TBV-CM	16	-20	120	9,7[1]	EQM		✓	✓	✓								
TA-COMPACT-T[2]	16	-10	50	2	LIN		✓	✓	✓								

1 According to DN and type of actuator
2 Only for cooling systems
4 Ideal for On-Off control

FUNCTIONS

A2 Combined balancing and control valves	Control			Kv/Kvs setting	Shut-off	Measurement				
	On-off	3-point	Modulating			Flow	Pressure drop	Temperature	Available differential pressure	Power
TBV-C	✓			✓	✓	✓	✓	✓	✓	✓
TBV-CM		✓	✓	✓	✓	✓	✓	✓	✓	✓
TA-COMPACT-T	✓			5	✓			✓		

5 Setting of requested return temperature within 8-18 °C, factory setting 12 °C

4 in 1 concept

IMI TA combined balancing and control valves have all the advantages of control and balancing valves built in one body. They dramatically reduce the required number of valves by decreasing installation time and costs. All our combined balancing and control valves are equipped with measuring nipples providing extensive diagnostic functions for hydronic balancing and easy commissioning. A wide variety of control characteristics and actuators offer a unique range for different applications.

YOUR BENEFITS

- 4 in 1: control + balancing + diagnostics + shut-off
- Faster and cheaper installation
- Modulating, 3-point or On-Off control possible
- High energy efficiency and low pumping costs

LIN

TBV-C

- Ideal valve for On-Off control of small terminal units
- Actuator connection M30x1,5
- Lift independent of Kv pre-setting
- Made from patented alloy AMETAL®

Suitable actuators page 20

EQM

TBV-CM

- EQM characteristics for precise modulating control
- Lift independent of Kv pre-setting
- Actuator connection M30x1,5
- Made from patented alloy AMETAL®

Suitable actuators page 20

LIN

TA-COMPACT-T

- The only on/off control valve with built in return temperature control on the market
- Only for cooling systems, ideal solution for renovation
- Guarantees requested return temperature from terminal units
- Limits overflow by means of return temperature control
- On-Off control valve modulating flow saves a vast amount of pumping energy
- Improves energy efficiency of the entire cooling system

Suitable actuators page 20

See applications F2 F7 F8 F9 F10

Standard control valves

KEY TECHNICAL PARAMETERS

	A3 Combined balancing and control valves	PN	Min. temp.	Max. temp.	Max. Dp	Control characteristics	Dimensions											
		bar	°C	°C	bar		15	20	25	32	40	50	65	80	100	125	150	200	300
HVAC	**CV216/316 MZ**	16	0	120	0,6[1]	EQM/ EQM-LIN [2]	✓	✓	✓										
HVAC	**CV216/316 RGA**	16	0 (-15)	150	1,6[1]	EQM/ EQM-LIN [2]	✓	✓	✓	✓	✓	✓							
HVAC	**CV206/216 GG, CV306/316 GG**	6/16	0 (-10)	150	1,6[1]	EQM/ EQM-LIN [2]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	TA-6-way valve	16	-10	120	2	LINEAR	✓	✓											
INDUSTRIAL [5]	**CV216/316**	16	0 (-30[1])	180 (350)[3]	1,6[1]	EQM/ EQM-LIN [2]										✓	✓	✓	✓
INDUSTRIAL [5]	**CV225/325**	16/25/40	0 (-30[1])	180 (350)[3]	4,0[1]	EQM/ EQM-LIN [2]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
INDUSTRIAL [5]	**CV240/340 S/E**	16/25/40	0 (-30[1])	180 (350)[3]	4,0[1]	EQM/ EQM-LIN [2]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
INDUSTRIAL [5]	**BR12WT**	6/16	-10	110	12[6]	N/A			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

1 According to DN and type of actuator
2 3-way control valves, EQM in direction A-AB, LIN in direction B-AB
3 Higher temperature available with special accessories
4 On request
5 For more information please visit www.imi-hydronic.com
6 Close off pressure according to DN and type of actuator

CV2xx = 2-way valves
CV3xx = 3-way valves

Full range from one supplier

The HVAC control valve product portfolio includes electrically operated control valves made of brass, gunmetal and cast iron (grey) as well as electrically operated butterfly valves. All standard control valves are equipped with our durable and flexible TA-MC linear actuators. The butterfly valves operate with the proven M series quarter-turn actuators.

Our standardized electrically operated industrial valves cover pressure stages up to PN 40 as well as temperatures up to 400°C and nominal sizes up to DN 300.

Select the perfect actuator to meet your needs from our comprehensive range whatever type of control is needed: modulating, 3-point, PWM or on/off available in all voltage variants.

CV216/316 MZ

- Kvs range: 2-way: 0,25- 8,0, 3-way: 0,16-6,3
- Compact valve for 3-point or modulating control of small terminal units
- Automatic coupling between stem and actuator for 100% push and pull thrust
- External threads for fast and easy connection

Suitable actuators page 23

CV216/316 RGA

- Kvs range: 0,63 - 40
- Ideal valve for 3-point or modulating control of mid sized HVAC applications
- Extensive actuator programme for different closing pressure and actuating time
- Delivered with connection fittings
- Wide range of accessories, silicon free version available

Suitable actuators page 23

CV206/216 GG, CV306/316 GG

- Kvs range: 0,63 - 315
- Suitable for wide range of HVAC applications
- Extensive actuator programme for different closing pressure and actuating time
- Tight closed in both end-positions
- Wide range of accessories, silicon free version available

Suitable actuators page 23

TA-6-WAY VALVE

- Kvs range: 1,25, 2,80 or 4,0 depending on type and size
- TA-6-Way Valve for change-over systems
- Ideal combination with TA-Modulator and TA-Slider 160 CO
- Full range of accessories

Suitable actuators page 23

CV240/340 S/E

- Kvs range: 0,16 - 1250, special Kvs values available
- Version S: made from cast steel
- Version E: made from stainless steel
- Extensive range of actuators and acessories
- Also suitable for different media on request

Suitable actuators page 23

CV216/316, CV225/325

- Kvs range: 0,16 - 1250, special Kvs values available
- Suitable in building and process engineering for various mediums
- 3-way version can be used as a mixing valve or a diverting valve
- Different body materials for various temperatures and pressures

Suitable actuators page 23

BR12WT

- Easy mounting by eyelets
- Centralised flap
- Manual operation with lever
- Rotation direction indication
- The flap and tight EPDM sealing for wide medium range

Suitable actuators page 23

See applications F3 F6 F9 F11 F14

TA-Slider

Digitally configurable actuators

TA-Slider are the most universal and flexible actuators for all modern HVAC systems from 160 N to 1250 N. Fully compatible with all control systems, the advanced built in technology allows full digital configuration via smart-phone.

For the first time you can digitally configure actuators also in buildings without BUS protocols. The modern way of setup is comfortable, intuitive and enables easy adjustment of all actuator parameters according to BMS requirements.

YOUR BENEFITS

- Up to 50% faster commissioning
- Installation flexibility in non-standard positions
- Reduced design complexity
- Easy diagnostics
- Unique error memory

FOR CONTROL VALVES FROM DN 10 UP TO DN 50

	TA-Slider versions for **Non-BUS Systems**	TA-Slider versions for **BUS Communication Systems**
TA-Slider 160	 Std, I/O, CO, Plus	 KNX, KNX R24, Modbus, Modbus CO, BACnet, BACnet CO
TA-Slider 500	 Std, I/O, Plus	 Modbus, Modbus R24, BACnet, BACnet R24

KEY FEATURES

Halogen free cables available

IP54 protection against air and dirt

Universal connectivity M30x1,5

Self-adjusting force from 160N to 1250N for IMI TA/IMI Heimeier valves

Tracking of up to 10 last errors

User friendly:
Red-Blue LED for heating/cooling mode in change-over system and Violet LED for easy indication of errors

Fully digitally configurable:
- input signal, also split range of input signal
- output signal
- control characteristic
- calibration regimes
- stroke limitation to set Kv_{max} or max. flow
- protection against valve blockage
- error safe position
- broken line detection

Additional features of I/O and Plus versions
+ adjustable output VDC signal
+ programmable binary input
+ programmable relay (Plus version only)

FOR CONTROL VALVES FROM DN 32 UP TO DN 200

TA-Slider 750

TA-Slider 750 Plus

TA-Slider 1250

TA-Slider 1250 Plus

Manual override

Green-red LED indication of operating statuses

Digitally fully configurable:

- input signal, also split range of input signal
- output signal
- control characteristic
- calibration regimes
- stroke limitation to set Kv_{max} or max. flow
- time for full stroke cycle to avoid blockage
- error safe position
- broken line detection

Tracking of last 10 errors

Additional features of Plus version:

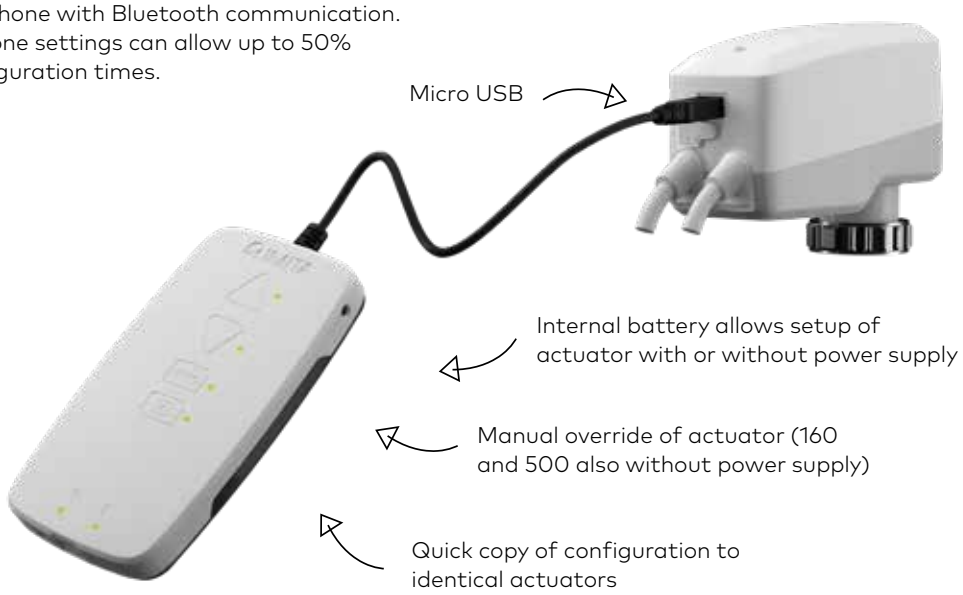
+ output mA signal (VDC as standard)
+ programmable binary input
+ programmable 2 relays
+ optional BUS communication boards

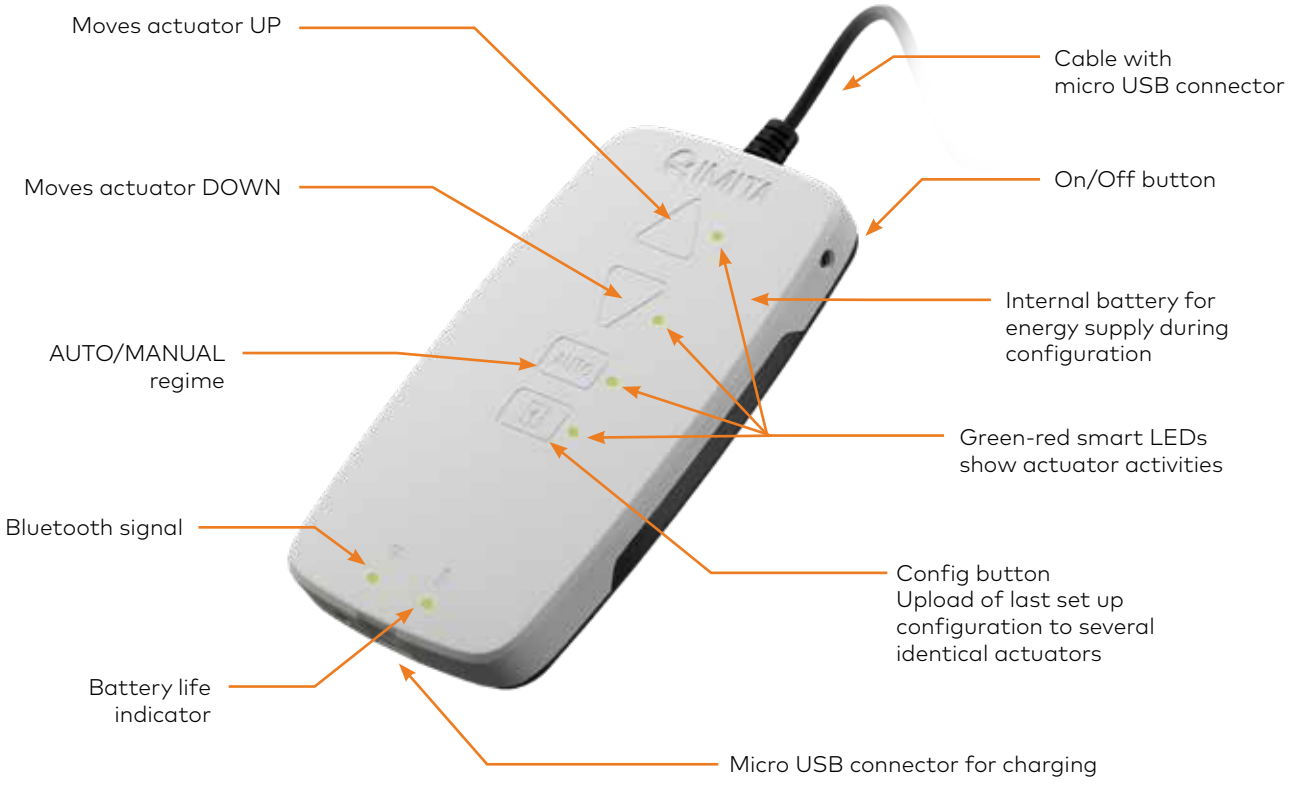
TA-Dongle

Remote configuration and control of TA-Sliders
with or without BUS communication

KEY FEATURES

Comfortable USB interface between actuator and smartphone with Bluetooth communication. Ability to clone settings can allow up to 50% faster configuration times.





HyTune

Mobile application for configuration
and control of TA-Sliders via TA-Dongle

Available on the App Store

GET IT ON Google play

BENEFITS

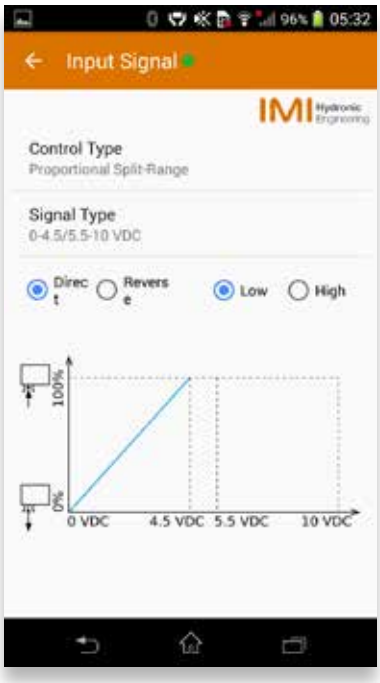
- Easy to use
- Comfortable set up of TA-Sliders even in poorly lit environments
- Added protection against human error
- Access list of last 10 errors and operating statistics

Auto-detection of TA-Slider

Visual control

Intuitive and comfortable operation

Overview of actual operating statuses and actuator parameters



For smartphones using iOS version 5 or later and Android version 4.3 or later.

Actuators for balancing and control valves

KEY TECHNICAL PARAMETERS

A4 Actuators for balancing and control valves	OPERATION PRINCIPLE	CONTROL	SUPPLY VOLTAGE [V]	INPUT SIGNAL	OUTPUT SIGNAL	STROKE [mm]	CONTROL VALVE COMPATIBILITY
TA-Slider 160 (optional I/O, CO, Plus)	MOTORIZED	MODULATING	24 VAC/VDC	0(2)-10VDC fully configurable [2]	0(2) -10 VDC	6.9	TBV-CM, TA-Modulator, TA-COMPACT-P
TA-Slider 160 BACnet, Modbus, KNX (optional KNX R24, Modbus CO, BACnet CO)	MOTORIZED	MODULATING	by BUS	by BUS	by BUS	6.9	TBV-CM, TA-Modulator, TA-COMPACT-P
TA-Slider 500 (optional I/O, Plus)	MOTORIZED	MODULATING	24 VAC/VDC	0(2)-10VDC fully configurable [2]	0(2)-10 VDC	16,2	TA-Modulator DN 40-50, KTM 512 DN 15-50
TA-Slider 500 BACnet, Modbus (optional Modbus R24, BACnet R24)	MOTORIZED	MODULATING	by BUS	by BUS	by BUS	16,2	TA-Modulator DN 40-50, KTM 512 DN 15-50
TA-Slider 750 (optional BACnet, Modbus)	MOTORIZED	MODULATING	24 VAC/VDC, 230 VAC	0(2)-10 VDC, 0(4)-20 mA, 3-POINT, on-off [3]	0(2)-10 VDC, 0(4)-20 mA	20	TA-FUSION-P DN 32-50, KTM 512 DN 65-125[1], TA-Modulator DN 65-80
TA-Slider 1250 (optional BACnet, Modbus)	MOTORIZED	MODULATING	24 VAC/VDC, 230 VAC	0(2)-10 VDC, 0(4)-20 mA, 3-POINT, on-off [3]	0(2)-10 VDC, 0(4)-20 mA	20	TA-FUSION-P DN 100-150, KTM 65-125[1], TA-Modulator DN 100-125
EMO T	THERMOELECTRIC	ON-OFF/PWM	24 VAC/VDC, 230 VAC	ON-OFF	-	4.7	TBV-C, TBV-CM, TA-Modulator DN 15-20, TA-COMPACT-T, TA-COMPACT-P
EMO TM	THERMOELECTRIC	MODULATING	24 VAC	0-10 / 10-0 / 2-10 / 10-2 VDC	-	4.7	TBV-CM, TA-Modulator DN 15-20
EMO 3/24	MOTORIZED	3-POINT	24 VAC	3-POINT	-	4.5	TBV-CM, TA-Modulator DN 15-20, TA-COMPACT-P
EMO 3/230	MOTORIZED	3-POINT	230 VAC	3-POINT	-	4.5	TBV-C, TBV-CM, TA-Modulator DN 15-20, TA-COMPACT-P
TA-MC15/24-C	MOTORIZED	MODULATING/ 3-POINT	24 VAC/VDC	0(2)-10 VDC, 3-POINT	-	4.8	TBV-C, TBV-CM, TA-Modulator DN 15-20, TA-COMPACT-P
TA-MC15/230-C	MOTORIZED	3-POINT	230 VAC	3-POINT	-	4.8	TBV-C, TBV-CM, TA-Modulator DN 15-20, TA-COMPACT-P
TA-MC50/24-C	MOTORIZED	MODULATING/ 3-POINT	24 VAC/VDC	0(2)-10 VDC, 3-POINT	-	10	KTM 512 DN 15-50
TA-MC50/230-C	MOTORIZED	3-POINT	230 VAC	230V	-	10	KTM 512 DN 15-50
TA-MC55	MOTORIZED	MODULATING/ 3-POINT	24 VAC/VDC, 230 VAC	0(2)-10 VDC, 3-POINT	0(2)-10 VDC	20	KTM 512 DN 15-80 TA-Modulator DN 65-80
TA-MC100	MOTORIZED	MODULATING/ 3-POINT	24 VAC/VDC, 230 VAC	0(2)-10 VDC, 3-POINT	0(2)-10 VDC	20	KTM 512 DN 15- 125 TA-Modulator DN 65-100

1 For KTM 512 DN 65-125 other actuators may be required depending upon the maximum static inlet pressure in the system. Please see full KTM 512 datasheet selection table for further details.
2 Also 2-10 or 10-2, proportional split range: 0-5, 5-0, 5-10 or 10-5 / 0-4.5, 4.5-0, 5.5-10 or 10-5.5/ 2-6, 6-2, 6-10 or 10-6 VDC.
3 Also inverted 2-10 or 10-2 VDC / 4-20 or 20-4 mA and split range: 0-5, 5-0, 5-10 or 10-5 / 0-4.5, 4.5-0, 5.5-10 or 10-5.5/ 2-6, 6-2, 6-10 or 10-6 VDC, 0-10, 10-0, 10-20, 20-10 / 4-12, 12-4, 12-20, 20-12 mA.

RECOMMENDED CONTROL VALVES

A4 Actuators for balancing and control valves	TBV-C	TBV-CM	TA-Modulator						TA-COMPACT-T	TA-COMPACT-P	KTM 512	KTM 512	TA-FUSION-P	TA-FUSION-P
	DN15-25	DN15-25	DN15-20	DN25-32	DN40-50	DN65-80	DN100-125	DN 150	DN15-25	DN10-32	DN15-50	DN65-125	DN32-50	DN150
TA-Slider 160	✓[4]	✓	✓	✓						✓				
TA-Slider 500					✓						✓			
TA-Slider 750					✓[6]	✓							✓	
TA-Slider 1250							✓							✓
EMO T	✓								✓	✓				
EMO TM	✓[5]	✓	✓							✓				
EMO 3	✓[5]	✓	✓							✓				
TA-MC15	✓	✓	✓							✓				
TA-MC50-C											✓			
TA-MC55											✓[6]	✓[6]	✓	
TA-MC55 Y											✓[6]	✓[6]	✓	
TA-MC100											✓[6]	✓[6]	✓	
TA-MC160								✓[7]						✓[6]

4 Possible but linear control characteristic of the valve must be compensated by actuator EQM control mode (TBV-CM recommended).
5 Both, actuator and valve have linear characteristics. TBV-CM is recommneded for modulating control.
6 Possible but special connection required.
7 Adapter included in the valve package

TA-Slider 160, 500

- Fully configurable by smartphone
- Manual override by TA-Dongle
- Memory for last up to 10 errors
- IP54 protection class in all positions
- Configurable relay and binary input
- BUS compatibility with BACnet, Modbus and KNX bus protocol
- Adjusting force: TA-Slider 160 (160/200N), TA-Slider 500 (500N)
- Change-over version available

Modulating control

TA-Slider 750, 1250

- Fully configurable by smartphone
- Manual override by hexagonal key or TA-Dongle
- Memory for last 10 errors
- IP54 protection class
- Configurable 2 relays and binary input
- BUS compatibility with BACnet, Modbus protocols
- Adjusting force: TA-Slider 750 (750N), TA-Slider 1250 (1250N)

Modulating, 3-point, On-off control

EMO T

- Visible position indicator
- IP54 protection in all positions
- Connection M30x1,5
- Adjusting force 125N

On-Off control

EMO TM

- Visible position indicator
- Auto-adaptation to input signal
- Automatic stroke adjustment
- IP54 protection class in all positions
- Connection M30x1,5
- Adjusting force 125N

Modulating control

EMO 3

- Automatic stroke adjustment
- Low-noise operation
- Low energy consumption
- Connection M30x1,5
- Adjusting force 150N

3-point control

TA-MC15-C

- For IMI TA balancing and control valves
- Connection M30x1,5
- Position indicator
- Low power consumption
- Adjusting force 200N

Modulating or 3-point control

TA-MC50-C

- For IMI TA pressure indepedent control valves KTM 512 DN 15-50
- Automatic stroke adaptation
- Position indicator
- Low power consumption
- Adjusting force 500N

Modulating or 3-point control

TA-MC55, TA-MC65

- Automatic stroke adaptation
- Min-Max position indicators
- Binary input for frost protection function
- Blockage detection
- Different actuating times
- Manual mode
- Low power consumption
- Adjusting force 600N

Modulating or 3-point control

TA-MC100

- 24V version enables modulating or 3-point control (switch)
- Automatic stroke adaptation
- Min-Max position indicators
- Binary input for frost protection function
- Blockage detection
- Wire breakage detection
- Adjustable hysteresis for input signal
- Different actuating times
- Manual mode
- Low power consumption
- Adjusting force 1000N

Modulating or 3-point control

Actuators for standard control valves

COMPATIBILITY WITH STANDARD CONTROL VALVES

A5 Actuators for standard control valves	CV216/316 RGA	CV206/306 GG			CV216/316 GG			
	DN 15-50	DN 15-50	DN 65	DN 80-100	DN 15-50	DN 65	DN 80-100	DN 125-150
TA-MC55	✓	✓			✓			
TA-MC65			✓[2]			✓		
TA-MC100	✓	✓	✓[2]		✓	✓[2]		
TA-MC100 FSE/FSR	✓	✓			✓			
TA-MC160			✓[3]	✓		✓[3]	✓	
TA-MC161	✓[1]		✓[2]			✓		
TA-MC250			✓[3]	✓		✓[3]	✓	✓
TA-MC400			✓[3]	✓		✓[3]	✓	✓
TA-MC500			✓[3]	✓		✓[3]	✓	✓
TA-MC1000								✓

1 For DN 32-50
2 For valves with 20 mm stroke
3 For valves with 30 mm stroke

KEY TECHNICAL PARAMETERS

A5 Actuators for standard control valves	OPERATION PRINCIPLE	FAIL SAFE	SUPPLY VOLTAGE [V]	INPUT SIGNAL	OUTPUT SIGNAL	STROKE [mm]
TA-MC55/24	3-POINT	-	24 V VAC/VDC	3-POINT	0-10 VDC	20
TA-MC55/230[4]	3-POINT	-	230 VAC	3-POINT	0-10 VDC	20
TA-MC55Y	MODULATING	-	24 V VAC/VDC	0(2)-10 VDC/0(4)-20 mA	0-10 VDC	20
TA-MC65/24	3-POINT	-	24 V VAC/VDC	3-POINT	0-10 VDC	20
TA-MC65/230[4]	3-POINT	-	230 VAC	3-POINT	0-10 VDC	20
TA-MC65Y	MODULATING	-	24 V VAC/VDC	0(2)-10 VDC/0(4)-20 mA	0-10 VDC	20
TA-MC100/24	MODULATING/3-POINT	-	24 V VAC/VDC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	20
TA-MC100/230[4]	MODULATING/3-POINT	-	230 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	20
TA-MC100 FSE/FSR	MODULATING	YES	24 V VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC / 0(4)-20 mA	20
TA-MC100 FSE/FSR	3-POINT	YES	230 VAC	3-POINT	0-10 VDC	20
TA-MC160/24	MODULATING/3-POINT	-	24 V VAC/VDC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	30
TA-MC160/230[4]	MODULATING/3-POINT	-	230 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	30
TA-MC161/24	MODULATING/3-POINT	-	24 V VAC/VDC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	20
TA-MC161/230[4]	MODULATING/3-POINT	-	230 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	20
MC250/24	MODULATING/3-POINT	-	24 V VAC/VDC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	50
MC250/230[4]	MODULATING/3-POINT	-	230 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	50
MC400/24	MODULATING/3-POINT	-	24 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	60
MC400/230[4]	MODULATING/3-POINT	-	230 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	60
MC500/24	MODULATING/3-POINT	-	24 V VAC/VDC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	50
MC500/230[4]	MODULATING/3-POINT	-	230 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	50
MC1000/24	MODULATING/3-POINT	-	24 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	50
MC1000/230[4]	MODULATING/3-POINT	-	230 VAC	0(2)-10 VDC/0(4)-20 mA 3-POINT	0-10 VDC[5]	50

4 Voltage 115 VAC available
5 Output signal 0(4)-20mA available as accessories
6 Max. differential pressure 3,5 bar

Actuators for standard control valves

TA-MC55, TA-MC65

- Automatic stroke adaptation
- Min-Max position indicators
- Binary input for frost protection function
- Blockage detection
- Different actuating times
- Manual mode
- Low power consumption
- Adjusting force 600N

Modulating or 3-point control

TA-MC100

- 24V version enables modulating or 3-point control (switch)
- Automatic stroke adaptation
- Min-Max position indicators
- Binary input for frost protection function
- Blockage detection
- Wire breakage detection
- Adjustable hysteresis for input signal
- Different actuating times
- Manual mode
- Low power consumption
- Adjusting force 1000N

Modulating or 3-point control

TA-MC100 FSE/FSR

- Visible switch to test fail-safe function
- TA-MC100FSE: Stem extended on power failure
- TA-MC100FSR: Stem retracted on power failure
- Automatic stroke adaptation
- Min-Max position indicators
- Binary input for frost protection function
- Blockage detection
- Wire breakage detection
- Protection against input signal oscillations
- Manual mode
- Low power consumption
- Adjusting force 1000N

Modulating or 3-point control

TA-MC160, TA-MC161

- 24V version enables modulating or 3-point control (switch)
- Automatic stroke adaptation
- Min-Max position indicators
- Binary input for frost protection function
- Blockage detection
- Wire breakage detection
- Adjustable hysteresis for input signal
- Different actuating times
- Manual mode
- Low power consumption
- Adjusting force 1600N

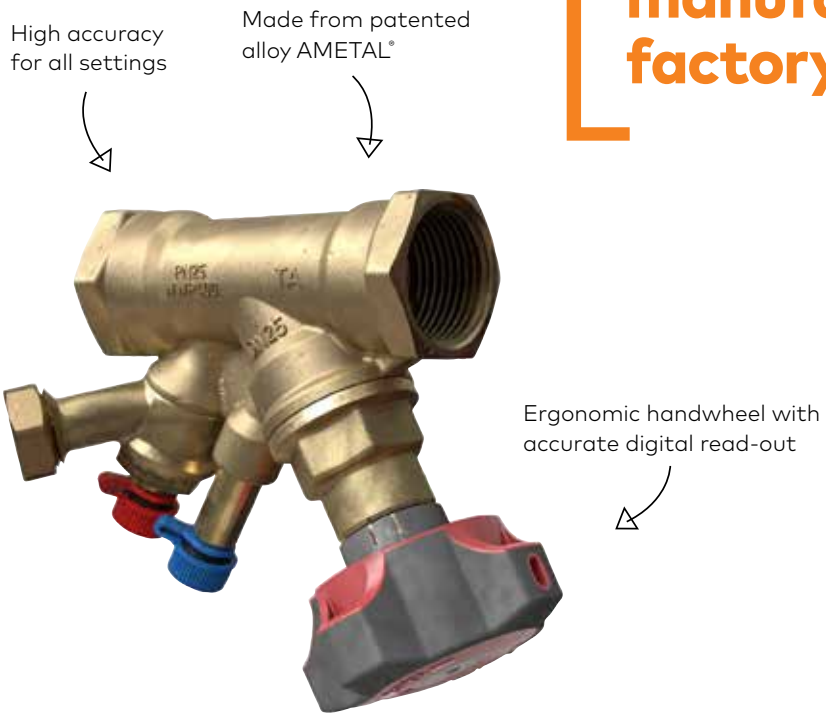
Modulating or 3-point control

MC250, 400, 500, 1000

- Automatic stroke adaptation
- Min-Max position indicators
- Binary input for frost protection function
- Blockage, wire breakage and lock detection
- Overheating protection
- Internal temperature monitoring
- Automatic actuator heating
- Open circuit detection
- Adjustable hysteresis for input signal
- Different actuating times
- Autopause to avoid control hunting
- Manual mode
- Low power consumption
- Adjusting force:
- - MC250 2.5 kN
- - MC400 4 kN
- - MC500 5 kN
- - MC1000 10 kN

Modulating or 3-point control

The first balancing valve in the World was manufactured in our factory in Sweden in 1957



Total hydronic balancing

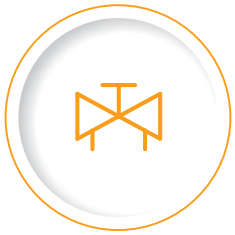
Rapid growth in energy prices and increasing comfort levels require a perfectly functioning system creating optimal conditions for the proper function of your building management system.

Perfect Hydronic balancing is a basic requirement to obtain genuine comfort at minimum energy cost.

Our **"Total hydronic balancing"** concept has been used for more than 50 years all over the world in millions of applications and it is constantly being improved by new experience from real installations.

It's a collection of unique balancing valves, pressure controllers, balancing instruments, patented balancing methods, smart balancing procedures and excellent training programs sharing our mutual experience.

TOTAL HYDRONIC BALANCING



Balancing valves

Full range

Available in sizes DN 10-400, IMI TA balancing valves are used in an impressive range of applications. Ideally suited for use in heating and cooling systems, tap water systems and industry. The STAD and STAF are the most well known balancing valves worldwide.

Absolute certainty

Balancing technology used by our customers has been developed thanks to 50 years of experience from more than 100 000 projects worldwide. Patented balancing methods like TA-Diagnostics and TA-Wireless give you the power and absolute confidence to successfully complete a project of any size. Our patented materials and technology features never disappoint.

KEY TECHNICAL PARAMETERS

B1 Balancing valves	PN	Min. temp.	Max. temp.	Dimensions															
	bar	°C	°C	10	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
TBV	16	-20	120		✓	✓														
STAD-R	25	-20	120		✓	✓	✓													
STAD	25	-20	120	✓	✓	✓	✓	✓	✓	✓										
STAD-C	20	-20	120/150	✓	✓	✓	✓	✓	✓	✓										
STAD-B	25	-20	120	✓	✓	✓	✓	✓	✓	✓										
STAD-D	25	-20	120	✓	✓	✓	✓	✓	✓	✓										
STAF	16	-10	120								✓	✓	✓	✓	✓					
STAF-R	16	-20	120								✓	✓	✓	✓	✓					
STAG	25	-20	120								✓	✓	✓	✓	✓	✓	✓	✓		
STAF-SG	16/25	-20	120			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TA-BVS 240/243	16/25/40	-30	200		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

FUNCTIONS

B1 Balancing valves	Valve Body Material	End Connection Type	Double Sealed Measuring Points	Drain Function	Pressure balanced plug	Drinking water certified
TBV	AMETAL®	Threaded				
STAD-R	AMETAL®	Threaded		✓		
STAD	AMETAL®	Threaded		✓[1]		
STAD-C	AMETAL®	Threaded	✓			
STAD-B	AMETAL® with electrophoretic layer	Threaded		✓		✓
STAD-D	AMETAL® with T.E.A. PLUS® surface treatment	Threaded		✓		✓
STAF	Cast iron	Flanged			✓	
STAF-R	Gunmetal	Flanged			✓	
STAG	Ductile iron	Grooved			✓	
STAF-SG	Ductile iron	Flanged			✓[2]	
TA-BVS 240/243	Stainless steel	Flanged / Welding				

1 Special version available
2 from DN 65

TBV

- Ideal valve for balancing small terminal units
- Compact size
- Full measuring capabilities
- Made from patented alloy AMETAL®

STAD

- The most popular balancing valve worldwide
- Excellent measuring accuracy
- Ergonomic handwheel with accurate digital display of the setting number
- available with / without 3/4" draining
- Made from patented alloy AMETAL®

STAD-C

- The STAD-C balancing valve has been specially developed for use in indirect cooling systems.
- Double sealed measuring points with high protection against leakages
- Ergonomic handwheel with accurate digital display of the setting number
- External threads or smooth ends for tight and reliable connection
- Made from patented alloy AMETAL®

See applications F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13

STAD-R

- Unique balancing valve for renovations with reduced Kvs values
- No need to reduce pipe dimensions; decreases installation costs
- Ergonomic handwheel with accurate digital display of the setting number
- Full measuring posibilities with high accuracy
- Made from patented alloy AMETAL®
- Draining adapter at serial delivery

STAD-D

- Balancing valve for hot tap water systems with special protection against oxygen corrosion
- Certified to be used in systems with drinking water by RISE (Research Institutes of Sweden).
- Ergonomic handwheel with accurate digital display of the setting number
- Excellent measuring accuracy
- Made from patented alloy AMETAL®
- Draining adapter at serial delivery

STAF, STAF-SG

- Equipped with a digital display for the setting number, the handwheel ensures accurate and straightforward balancing
- Self-sealing measuring points for simple, accurate balancing
- Positive shut-off function for easy maintenance

STAG

- Equipped with a digital display for the setting number, the handwheel ensures accurate and straightforward balancing
- Self-sealing measuring points for simple, accurate balancing
- Positive shut-off function for easy maintenance
- Grooved ends

STAF-R

- Made from gunmetal with high resistance to corrosion for tap/industrial water systems
- Pressure balanced plug for easy closing and opening under high differential pressure
- Excellent measuring accuracy
- Bonnet, cone and spindle made from patented alloy AMETAL®

TA-BVS 240/243

- Stainless steel balancing valve with flanges or welding ends
- Ideal for use mainly in industrial and high temperature applications
- Long life and maintenance free operation
- DN 200 and 250 with manual gear for easy shut-off

See applications F1 F2 F3 F4 F5 F6 F7 F8 F9 F10 F11 F12 F13

Fixed orifices

Flow measuring orifices with self-sealed measuring points are used for simple flow measuring in heating and cooling systems or systems in industries with constant flow.

Our fixed orifices are made precisely from stainless steel and guarantee longevity and very accurate measuring.

The orifice should be installed betweeen two counter flanges. It is recommended to install 10D straight lengths before and 5D straight lengths after the orifice for exact measuring.

KEY TECHNICAL PARAMETERS

B2 Fixed orifices	PN	Min. temp.	Max. temp.	Dimensions															
	bar	°C	°C	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500-900
MDF0	16	-20	120	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MDF0	25	-20	120		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
MDF0	40	-20	120						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

MDF0

- Made from stainless steel
- Suitable for heating/cooling and technology circuits
- Measuring points made from dezincification resistant alloy AMETAL®
- Excellent measuring accuracy

Double regulating valves

KEY TECHNICAL PARAMETERS

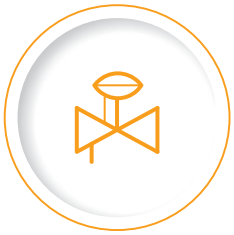
B3 Double regulating fittings	PN	Min. temp.	Max. temp.	Dimensions					
	bar	°C	°C	15	20	25	32	40	50
STK	16	-20	120	✓	✓				

FUNCTIONS

B3 Double regulating fittings	Pre-setting	Shut-off	Measuring	Draining
STK	✓	✓		

STK

- Return lockshield with direct Kv indicator
- Setting with lock ring
- Shut-off function
- Made from nickel-plated patented alloy AMETAL®



Differential pressure controllers

KEY TECHNICAL PARAMETERS

B4 Differential pressure controllers	PN	Min. temp.	Max. temp.	Max. Dp	Setting range	Dimensions											
	bar	°C	°C	bar	kPa	10	15	20	25	32	40	50	65	80	100	125	150	200
STAP	16	-20	120	2.5	5-80		✓	✓	✓	✓	✓	✓						
STAP	16	-10	120	3.5	20-160								✓	✓	✓			
DA 516	25	-10	120/150	16	5-150		✓	✓	✓	✓	✓	✓						
DAF 516	16/25	-10	150	16	5-150		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
TA-PILOT-R	16/25	-20	120/150	12	10-400								✓	✓	✓	✓	✓	✓
TA-COMPACT-DP	16	-20	120	4	5-18	✓	✓	✓	✓									

FUNCTIONS

B4 Differential pressure controllers	Return pipe	Supply pipe	Measuring	Shut-off	Draining (optional)	Measurement of flow and available differential pressure	Zone control
STAP	✓		✓	✓	✓		
DA 516	✓		✓				
DAF 516		✓	✓		✓		
TA-PILOT-R	✓		✓				
TA-COMPACT-DP		✓	✓	✓		✓	✓

DIFFERENTIAL PRESSURE RANGE (kPa)

STAP

DN	5-25	10-40	10-60	20-80	40-160
15	✓		✓		
20	✓		✓		
25			✓		
32		✓		✓	
40		✓		✓	
50				✓	
65				✓	✓
80				✓	✓
100				✓	✓

DA 516

DN	5-25	10-40	10-60	20-80	40-160
15	✓		✓		
20	✓		✓		
25			✓		
32		✓		✓	
40		✓		✓	
50				✓	

DAF 516

DN	5-30	10-60	10-100	60-150
15/20	✓	✓	✓	✓
25/32	✓	✓	✓	✓
40/50	✓	✓	✓	✓

DAF 516

DN	5-30	10-60	10-100	60-150
65	✓	✓	✓	✓
80	✓	✓	✓	✓
100	✓	✓	✓	✓
125	✓	✓	✓	✓

TA-PILOT-R

DN	10-50	30-150	80-400
65	✓	✓	✓
80	✓	✓	✓
100	✓	✓	✓
125	✓	✓	✓
150	✓	✓	✓
200	✓	✓	✓

Differential pressure controllers

STAP DN 15-50

- Ideal Dp controller with shut-off function for radiators/air conditioning circuits
- Measuring point for return temperature/pressure measurements
- Draining optional as an accessory, mounting without system draining
- Made from patented alloy AMETAL®

STAP DN 65-100

- Ideal Dp controller for secondary circuits in HVAC systems
- Two measuring points for system diagnostics enabling the measurement of temperature and differential pressure
- Special measuring point for capillary connection on STAF is a part of delivery
- Works in all positions

DA 516 / DAF 516

- Patented In-line body for quiet operation under high differential pressures
- Particularly effective in systems with high temperatures and differential pressures
- Highly accurate differential pressure control with very low hysteresis
- Rust protection thanks to the electrophoretically painted ductile iron body
- Small and compact body for easy installation in small spaces
- Easy to insulate
- DAF for use in supply pipe, 2 capillaries

TA-PILOT-R

- First in-line Dp controller operated by Pilot technology
- The smallest, the lightest and the most accurate Dp control on the market
- Clearly visible setting lockable against tampering
- Measuring points for system diagnostics and exact setting according to system true parameters

TA-COMPACT-DP

- All in one zone control valve, balancing valve and differential pressure controller
- Ideal solution for zone control in apartment buildings
- Compact valve fits in areas where space is limited
- Enables flow measurement and system diagnostics
- Recommended actuator: EMO T

See applications F2 F3 F4 F9 F10 F12 F13

Differential pressure relief valves

Differential pressure relief valves are used in heating and cooling systems to ensure a minimum flow level through the pump, maintaining the desired supply temperature when the system operates at low loads or keeps constant differential pressure for specific circuits with terminal units.

KEY TECHNICAL PARAMETERS

B5 Differential pressure controllers	PN	Min. temp.	Max. temp.	Setting range	Shut-off	Dimensions											
	bar	°C	°C	kPa		15	20	25	32	40	50	65	80	100	125	150	200
Hydrolux	16	-10	120	5-50, 30-180	NO		✓	✓	✓								
BPV	20	-20	120	10-60	YES	✓	✓	✓	✓								
DAB 50	16/25	-10	150	10-250	NO				✓	✓	✓	✓	✓	✓	✓	✓	✓
PM 512	16/25	-10	100	0-1600	NO	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		

BPV

- Setting scale with protective cap against dirt and tampering
- Shut-off function
- Easy setting with 3mm hexagonal key
- Made from patented alloy AMETAL®

Hydrolux

- Direct setting by handwheel with setting scale
- Low proportional hysteresis
- Very quiet in operation
- Made from corrosion resistant gunmetal

DAB 50

- Special internal geometry
- Quiet operation under high differential pressures
- Protected against corrosion
- Robust valve for demanding applications

PM 512

- Pneumatic principle allows adjustable set-point from 0 to 16 bar
- In-line design for quiet operation
- Opens at increasing inlet pressure
- Setting dependent on static pressure in the system

IMI PNEUMATEX

IMI Pneumatex Pressure Maintenance and Water Quality

Products that focus on tackling system problems before they appear.

With a firm belief that prevention is better than cure, IMI Pneumatex develops cutting-edge solutions and groundbreaking technologies that keep HVAC systems free of gas and sludge, ensuring longevity, stability and pressure maintenance.

Innovation, Swiss manufacturing quality and customer service excellence are what make us stand out from the crowd.

Founded in 1909 in Basel, Switzerland, IMI Pneumatex has been a true pioneer in the pressurisation market, developing products - such as the first-ever closed expansion system back in 1955 - that remain market leaders to this day.

2017 **Simply Compresso**, plug & play with pre-assembled compressor is launched.

2016 **Zeparo G-Force**, separator with Cyclonic Technology for large installations is launched.

2015 CONNECT range of pressurisation systems with **BrainCube** technology is launched.

2014 **Zeparo Cyclone**, dirt separator with the unique Cyclonic Technology is launched.

IMI PNEUMATEX

2007 IMI Pneumatex is established after acquisition by IMI.

1995 Launch of **Vento**, the 1st affordable vacuum degasser for heating installations.

1955 1st closed-system expansion vessels equipped with a Butyl Bag.

1909 Carl Stücklin opens the doors of "Carl Stücklin Sanitäre Anlagen" in Basel, Switzerland.

Effective pressurisation control is essential to ensure optimal system performance and protect components throughout their service life.

Why is pressurisation so important?

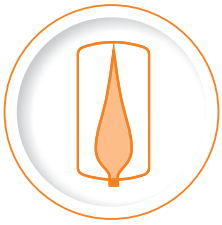
As temperatures inside heating, solar, and cooling water installations fluctuate, so does the incompressible media change its volume and thus system pressure.

Rising pressure puts a strain on individual components, which can lead to ruptures and premature failure. On the other hand, pressure drops can lead to air intake that causes corrosion, the single worst enemy of water-based HVAC installations.

It is therefore essential to invest in a high-quality pressurisation solution that is in line with your specific system needs.

Our intelligent and durable pressurisation technologies compensate for temperature-induced changes in system pressure, rendering the above concerns a thing of the past.

PRESSURE MAINTENANCE



Expansion vessels

Under the IMI Pneumatex brand, IMI Hydronic Engineering offers top-quality solutions to protect systems against pressure increase. The **Airproof** butyl bags inside IMI Pneumatex expansion vessels guarantee a very high resistance against diffusion. For several decades, materials used for the rubber compound have been sourced from the same handful of select suppliers. Butyl vulcanization is carried out in our plants on custom-built machinery.

YOUR BENEFITS

- Lowest gaseous diffusion coefficient on the market - 3.3% for expansion vessels
- Selection of different models according to the investor's needs
- 5-year warranty on the butyl bag

KEY TECHNICAL PARAMETERS

C1 Expansion vessels	PN class	T min/max of fluid	Vn	Coupling	Max% of glycol	Mounting type	Construction
	bar	°C	l	DN	%		
Statico SD	3 / 10	+5 / +70	8-80	R½" / R¾"	50%	hanging/lying	bag type
Statico SU	3 / 6 / 10	+5 / +70	140-800	R¾"	50%	standing	bag type
Statico SG	6 / 10	+5 / +70	1000 - 5000	R 1 ½"	50%	standing	bag type
Squeeze	6	+5 / +70	140-800	R 1"	50%	standing	membrane
Aquapresso AD	10	+5 / +70	8-80	R½" / R¾" / R 1"	-	hanging/lying	bag type
Aquapresso ADF	10	+5 / +70	8-80	2 x R½" / 2 x R¾" / 2 x R 1"	-	hanging/lying	bag type - flow
Aquapresso AU	10	+5 / +70	140-500	R 1¼"	-	standing	bag type
Aquapresso AUF	10	+5 / +70	140-600	2 x R 1¼"	-	standing	bag type - flow
Aquapresso AG	10	+5 / +70	700-3000 / 300-3000	DN 50 – DN 80	-	standing	bag type
Aquapresso AGF	10 / 16	+5 / +70	700-3000 / 300-3000	2x DN 50 – 2x DN 80	-	standing	bag type - flow

APPLICATIONS

Q / Power: 0 MW ▶ 160 MW

Static Pressure 0 bar ▶ 20 bar

C1 Expansion vessels	Pressure maintenance					Small Residential	Large Residential	Small Building	Supermarket	Shopping Mall	Large Commercial Building	Hospital	Skyscraper	District Energy	Industrial Facilities
	Heating systems	Refrigeration systems	Solar systems	Potable water systems	Glycol systems										
Statico SD, SU, SG	✓	✓	✓		✓	✓	✓	✓	✓						
Squeeze	✓	✓	✓		✓		✓	✓	✓						
Aquapresso ADF, AUF, AGF				✓		✓	✓	✓	✓	✓	✓	✓	✓		✓
Aquapresso AD, AU, AG				✓		✓	✓	✓	✓	✓	✓	✓	✓		✓

Statico SD

- Bag construction
- Welded shell joints
- Butyl rubber bag
- Media is closed in a bag without contact with the steel shell
- Gaseous diffusion coefficient below 3,3%
- Horizontal or vertical mounting

Statico SU

- Bag construction
- Welded shell joints
- Butyl rubber bag
- Media is closed in a bag without contact with the steel shell
- gaseous diffusion coefficient below 3,3%
- Upright installation

Statico SG

- Bag construction
- Welded shell joints
- Replaceable butyl rubber bag
- Media is closed in a bag without contact with the steel shell
- Gaseous diffusion coefficient below 3,3%
- Upright installation

Squeeze

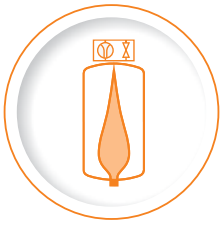
- Membrane construction
- Welded shell joints
- Upright installation

Aquapresso AD, ADF

- Bag construction
- Butyl rubber bag
- Media is closed in a bag without contact with the steel shell
- Gaseous diffusion coefficient below 3,3%
- Horizontal or vertical installation
- ADF -> flow - elimination of Legionella risk
- Inspection glass for bag leakage

Aquapresso AU, AUF, AG, AGF

- Bag construction
- Welded shell joints
- Butyl rubber bag
- Media is closed in a bag without contact with the steel shell
- Gaseous diffusion coefficient below 3,3%
- Upright installation
- AUF, AGF -> flow through - elimination of Legionella risk
- AG, AGF–> Replaceable butyl rubber bag



Automatic pressure maintenance systems

Automatic IMI Pneumatex pressure maintenance kits marked **Airproof** feature bag vessels. Sets in the Compresso range offer reduced noise levels thanks to the **SilentRun** feature. Transfero pump units with **VacuCyclonSplit** technology provide vacuum degassing.

Each product is equipped with a BrainCube Connect controller, which provides a number of unique operation functions as well as monitoring and on-line preview.

YOUR BENEFITS

- Innovative BrainCube Connect controller
- Bag vessels with the lowest diffusion coefficient of 3.3% on the market
- Multiple functions available as standard in one instrument

KEY TECHNICAL PARAMETERS

C2 TecBox Hydraulic module		PS class	Power supply U, P	Dimensions TecBox	TecBox weight	Scope of vessels
		bar	V, kW	mm	kg	l
Simply Compresso	C2.1-80 SWM	6	230; 0.6	603x481x1107	41	80/160
Compresso Connect F	C10.1-3.75 F C10.1-5F C10.1-6F	3,75 5 6	230; 0.6	370x370x315	14	200-800
Compresso Connect	C10.1-3 C10.1-3.75 C10.1-4.2 C10.1-5 C10.1-6 C15.1-6 C15.1-10	3 3.75 4.2 5 6 6 10	230; 0.6	520x350x1060	25	200-5000
	C10.2-3 C10.2-3.75 C10.2-4.2 C10.2-5 C10.2-6 C15.2-6 C15.2-10	3 3.75 4.2 5 6 6 10	230; 1.2		38	
Transfero TV	TV4.1E (H) (C) TV6.1E (H) (C) TV8.1E (H) (C) TV10.1E (H) C) TV14.1E (H) (C) TV4.2E (H) (C) TV6.2E (H) (C) TV8.2E (H) (C) TV10.2E (H) C) TV14.2E (H)(C)	10 10 10 10 13 10 10 10 10 13	230; 0.75 230; 1.1 230; 1.4 230; 1.7 230; 1.7 230; 1.5 230; 2.2 230; 2.8 230; 3.4 230; 3.4	500x530x920 500x530x920 500x530x920 500x530x1300 500x530x1300 500x530x920 500x530x920 500x530x920 500x530x1300 500x530x1300	42 45 46 51 73 51 54 57 71 98	200-5000
Transfero TVI	TVI 19.1EH (C) TVI 25.1EH (C) TVI 19.2EH (C) TVI 25.2EH (C)	16 25 16 25	230; 2,6 230; 3,4 230; 5,2 230; 6,8	570x1086x601 570x1258x601 751x1086x601 751x1258x601	85 94 132 150	200-5000
Transfero TI (The table contains selected models. More information available in the data sheet)	TI 90.2 PC1 TI 120.2 PC1 TI 150.2 PC1 TI 190.2 PC1 TI 230.2 PC1	16 16 16 25 25	3x400; 3,0 3x400; 3,8 3x400; 5,4 3x400; 5,4 3x400; 7,2	1100x1100x1200 1100x1100x1200 1100x1100x1200 1100x1100x1200 1100x1100x1300	135 145 170 195 215	1000-5000

APPLICATIONS

Q / Power: 0 MW ▶ 160 MW

Static Pressure 0 bar ▶ 20 bar

C2 TecBox Hydraulic module	Pressure maintenance compressor set	Pressure maintenance pump set	Vacuum degassing	Modbus communication	Ethernet communication	Small Residential	Large Residential	Small Building	Supermarket	Shopping Mall	Large Commercial Building	Hospital	Skyscraper	District Energy	Industrial Facilities
Simply Compresso	✓			✓	✓		✓	✓	✓						
Compresso C, C F	✓			✓	✓		✓	✓	✓	✓	✓	✓			
Transfero TV		✓	✓	✓	✓			✓	✓	✓	✓	✓	✓		
Transfero TVI		✓	✓	✓	✓						✓	✓	✓	✓	✓
Transfero TI		✓		✓	✓								✓	✓	✓

Simply Compresso

- Integrated compact design (TecBox with 80 litre vessel and extension by 80 l possible)
- BrainCube Connect controller
- Water refilling module
- Media is closed in a bag without contact with the steel shell
- Precise pressure maintenance ± 0.1 bar
- Plug and Play design
- Modbus and Ethernet communication as standard

COMPRESSO C F

- BrainCube Connect controller
- Modbus and Ethernet communication as standard
- Installation of the TecBox on the vessel, which reduces the space required
- Low noise level 59 dB(A) /1 bar
- Precise pressure maintenance ± 0.1 bar

COMPRESSO C

- BrainCube Connect controller
- Modbus and Ethernet communication as standard
- Low noise level: Silent-run compressor 53-62 dB(A) / 1-10 bar
- Precise pressure maintenance ± 0.1 bar
- Vessel range 200 - 5000 l

COMPRESSO CX

- BrainCube Connect controller for external compressed air supply
- Modbus and Ethernet communication as standard
- Precise pressure maintenance ± 0.1 bar
- Vessel range 200 - 5000 l

TRANSFERO TV

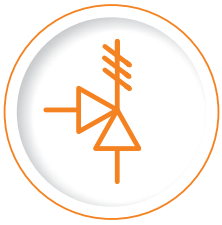
- BrainCube Connect controller
- Modbus and Ethernet communication as standard
- Vacuum degassing in a hydrocyclone with a capacity of ~ 1m³/h
- Precise pressure maintenance ± 0.2 bar
- Water refilling module
- Vessel range 200 - 5000 l

TRANSFERO TVI

- BrainCube Connect controller
- Modbus and Ethernet communication as standard
- Vacuum degassing in a hydrocyclone with a capacity of ~ 1m³/h
- Precise pressure maintenance ± 0.2 bar
- Water refilling module
- Suitable for systems with high static pressure
- Vessel range 200 - 5000 l

TRANSFERO TI

- Precise pressure maintenance ± 0.2 bar
- Suitable for systems with high static pressure
- Suitable for high temperature systems
- Vessel range 200 - 5000 l (unlimited on demand)



Safety valves

Under the IMI Pneumatex brand, IMI Hydronic Engineering offers top-quality components for safeguarding installations against pressure increase. IMI Pneumatex safety valves protect all system components against impermissible overpressure.

YOUR BENEFITS

- EN ISO 4126-1:2013 compliant,
- A choice of various models adequately to the needs of the investor
- 5-year warranty

FEATURES

C3 Safety valve	Heating systems	Cooling systems	Solar systems	Pressure range	Maximum addition of glycol at concentration of
DSV...H	✓			3,0 bar	30%
DSV...DGH	✓	✓	✓	2,0 – 16 bar	50%
DSV...SOL			✓	3,0 -16 bar	50%
DSV...F		✓		3,0 -16 bar	100%

DSV..H SAFETY VALVE

- Spring-loaded, manually released, membrane-secured spring chamber. Inlet and outlet sides with inner thread, outlet side enlarged.
- Vertical mounting.

DSV...DGH SAFETY VALVE

- Spring-loaded, aerated by hand lever, spring protected by a bellow, balanced pressure.
- Inlet and outlet sides with inner thread, outlet side enlarged.
- DN 15-50
- Vertical mounting.

DSV...DGH SAFETY VALVE

- Spring-loaded, aerated by hand lever, spring protected by a bellow.
- Flanged inlet and outlet connection, outlet side enlarged.
- DN 40-50
- Vertical mounting.

DSV...SOL SAFETY VALVE FOR SOLAR SYSTEMS

- Spring-loaded, manually released, membrane-secured spring chamber.
- Inlet and outlet sides with inner thread, outlet side enlarged.
- Vertical mounting.
- The valves are entirely made of metal; they can also be installed in high temperature or radiation environments.
- All materials are suitable for temperatures up to 160 °C.
- 2013 SOL type TÜV test certificate.

DSV...F SAFETY VALVE

- The temperature of the medium at atmospheric pressure must not reach boiling point.
- Spring-loaded, manually released, membrane secured spring chamber.
- Inlet and outlet sides with inner thread.
- Vertical mounting.
- The valves are entirely made of metal, and can also be installed in high temperature or radiation environments.
- All materials are suitable for temperatures up to 150°C.
- TÜV - 293 F conformity.

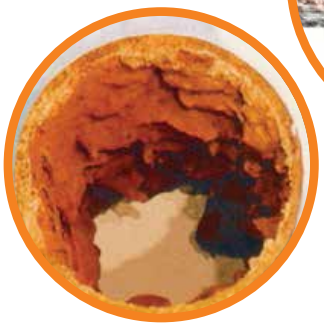
Why is Water Quality important?

Venting and degassing systems are essential components of a modern installation.

Only thorough pre-venting before startup and smoothly working operational degassing guarantee stable working conditions. This holds particularly true for long-span branched systems with horizontal heating pipes and cooling ceilings.

Appropriate system components must be carefully selected based on the operation principles and performance characteristics of air vents, separators and degassing units.

Damaged installation components due to water contamination

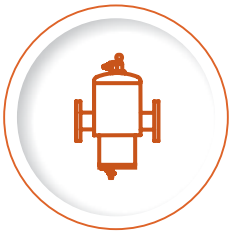


Zeparo Cyclone

Zeparo G-Force

Vento VI

MEDIUM QUALITY



Vacuum separators and degassing units

For the separation of gas and sludge, hydrocyclone technology offers the highest efficiency. Combined with vacuum generated in a single cycle, this enables our Vento products to remove more than 60 % of the air from system media - a feature called **VacuCyclonSplit**.

YOUR BENEFITS

- Hydrocyclone based effective separation of sludge and gas
- Separators with approval for mounting in various positions
- Vacuum Degassing units with Modbus and Ethernet communication as standard

KEY TECHNICAL PARAMETERS

D1 Automatic air vents	PN class	$T_{max.}$ of fluid	Range of diameters
	bar	°C	DN
Zeparo ZUT	10	110	15, 20, 25
Zeparo ZUTS	10	160	15

D1 Zeparo - Separators	PN class	$T_{max.}$ of fluid	Vnom (m^3/h)												
	bar	°C	20	25	32	40	50	65	80	100	125	150	200	250	300
Zeparo ZUV	10	110	1.0	1.6	3.3	4.5									
Zeparo ZUVS	10	160	1.0	1.6	3.3	4.5									
Zeparo Cyclone	10	120	1.18	1.47	3.50	4.75	6.88								
Zeparo G-Force	16 25	110 180						10	18	37	68	100	200	345	540
Zeparo ZIO	10	110					11	19	26	44	67	95	170	306	435

D1 Vento - vacuum degassing unit		PS class	$T_{min/max}$ of fluid	Power supply U, P	Dimensions TecBox	TecBox weight	P_{min}, P_{max}	Mounting type
		bar	°C	V, kW	mm	kg	bar	
Vento EcoEfficient	**V 2.1 F**	6	+0 / +70	230; 0,6	550x930x325	29	1.0 – 2.5	hanging
Vento V	**V 4.1 E (C)** **V 6.1 E (C)** **V 8.1 E (C)** **V 10.1 E (C)** **V 14.1 E (C)**	10 10 10 10 13	+0 / +90	230; 0,75 230; 1,1 230; 1,4 230; 1,7 230; 1,7	500x920x530 500x920x530 500x920x530 500x1300x530 500x1300x530	38 40 41 57 67	1.0 – 2.5 1.5 – 3.5 2.0 – 4.5 3.5 – 6.5 5.5 – 10.0	standing
Vento VI	**VI 19.1 E (C)** **VI 25.1 E (C)**	16 25	+0 / +90	3x400V; 2,6 3x400V; 3,4	570x1086x601 570x1258x601	86 94	6,5 – 15,5 10,5 – 20,5	standing

APPLICATIONS

Static Pressure 0 bar ⟶ 25 bar

D1 Model	Air removal	Sludge removal	Vacuum degassing	Hydrocyclone technology	Magnet option	Small Residential	Large Residential	Small Building	Supermarket	Shopping Mall	Large Commercial Building	Hospital	Skyscraper	District Energy	Industrial Facilities
Zeparo ZUT, ZUTS	✓					✓	✓	✓	✓	✓	✓	✓	✓		
Zeparo ZUV, ZUVS	✓					✓	✓	✓	✓						
Zeparo Cyclone		✓		✓	✓	✓	✓	✓	✓						
Zeparo G-Force		✓		✓	✓				✓	✓	✓	✓	✓	✓	✓
Zeparo ZIO	✓	✓			✓				✓	✓	✓	✓	✓	✓	✓
Vento EcoEfficient	✓		✓				✓	✓							
Vento V, VI	✓		✓	✓				✓	✓	✓	✓	✓	✓	✓	✓

Zeparo ZUT, ZUTS

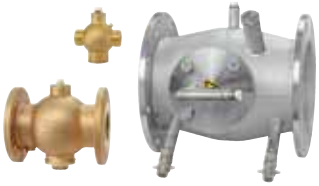
- Large anti-leakage float chamber: Leakfree function
- Ideal for installation on storage tanks and buffers
- Large connection diameters

Zeparo ZUV, ZUVS

- Helistill cartridge for effective separation and removal of air
- Equipped with ZUT air vent with Leakfree function
- Available in DN 20-40 with female threads

Zeparo Cyclone

- Hydrocyclone separation technology
- Low flow resistance thanks to unique solutions
- Separate sludge chamber protected against secondary entrainment of particles
- Corrosion-resistant material: Body -> brass, insert Cyclone ->PPS Ryton



Ferro Cleaner

- Magnetic flux filter system that system captures the finest magnetic particles
- Can be installed in any orientation
- Compact dimensions

Zeparo G-Force

- Hydrocyclone separation technology
- Separate sludge chamber protected against secondary entrainment of particles
- Can be mounted on horizontal and vertical pipe
- Air extraction function after installation of the ZUTX air vent

Zeparo ZIO

- Separation of sludge and air
- Separation based on particle density difference and stream calming
- Low flow resistance

Vento V...F EcoEfficient

- Vacuum degassing
- Compact design with wall mounting
- Optimal for systems up to 10 m^3

Vento V, VI

- Vacuum degassing with hydrocyclone technology - VacuCyclonSplit
- BrainCube Connect controller
- Modbus and Ethernet communication as standard
- ECO degassing function (gas presence monitoring)
- Refilling module as standard
- Available in pressure ranges from 1 to 20 bar

Water make-up and treatment systems

Besides pressure maintenance and air removal, another important aspect to consider is to refill whatever media gets lost during system operation. IMI Hydronic offers water make-up systems with softening option.

Water make-up is performed in a controlled process where refill quantities, durations and frequencies are closely monitored - **FillSafe** feature.

YOUR BENEFITS

- Innovative BrainCube controller regulates and monitors the refilling process
- Multiple features available as standard in one device

KEY TECHNICAL PARAMETERS

D2 Modul		PN	T min/max of fluid	Power supply U, P	Notes
		bar	°C	V, kW	
Pleno PX		10	0 / +65	230; 0,02	Kvs = 1,0
Pleno PIX Connect		10	0 / +65	230; 0,04	Kvs = 1,2
Pleno PI x.x Connect	**PI 9.1 F** **PI 9.1** **PI 9.2**	10	+0 / +30	230; 0,75	1-8 bar pump
Pleno Refill	**6000** **12000** **6000 filtr** **12000 filtr**	8	+5 / +45	n.d	Compatible with Vento Connect and Pleno Connect
Pleno Refill	**16000** **36000** **48000**	8	+5 / +45	n.d	Compatible with Transfero Connect

APPLICATIONS

D2 Modul	Refilling	Softening	Controller	Built-in pump	Volume measurement	Small Residential	Large Residential	Small Building	Supermarket	Shopping Mall	Large Commercial Building	Hospital	Skyscraper	District Energy	Industrial Facilities
Pleno PX	✓				✓			✓	✓	✓	✓	✓	✓		
Pleno PIX Connect	✓		✓		✓	✓	✓	✓	✓						
Pleno PI x.x Connect	✓		✓	✓	✓			✓	✓	✓	✓	✓			
Pleno Refill (Softening and/or decalcification)		✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Pleno PX

- Hydraulic unit
- Water make-up without pumps
- Wall mounting

Pleno PIX Connect

- Water make-up without pumps
- Control unit TecBox - BrainCube Connect
- Wall mounting

Pleno PI 9F Connect

- Water make-up with pump
- Control unit TecBox - BrainCube Connect
- Integrated wall mounting bracket.

Pleno PI 9.1, 9.2 Connect

- Water make-up with pumps
- Control unit TecBox - BrainCube Connect
- Standing mounting type

Pleno Refill 6000 - 12000

- Decalcification or demineralisation cartridge
- Mesh filter
- Wall mounting
- Compatible with Pleno Pleno P, Vento

Pleno Refill 16000 - 48000

- Decalcification resin
- Mesh filter
- Wall mounting
- Compatible with Compresso, Transfero


Take control of
your success

Until you can measure something and express it in numbers, you are only beginning to understand.

- Lord Kelvin

Your profesional insurance

Describing the real behavior of a system or turning unexpected operating problems into figures is not a simple task. It requires the right smart tools.

Working together with you on many projects during the year is the best way to fully understand your needs. Hydronic tools were specially tailored for you to simplify your job and above all to save your time and money.

If you run into trouble, you don't have to deal with it alone. You can always rely on our technical support, no matter where you are or how large your project is.

TA-SCOPE with DpS-Visio

TA Link

HYDRONIC TOOLS

IMI TA

I am looking for smart, accurate and insightful solutions.

Need smart, accurate and insightful? – our measuring instruments are your solution.

TA-SCOPE is now updated with new fine-tuned functionalities and smart technology to make hydronic balancing easier, faster and more accurate.

The DpS-Visio: 15% smaller and lighter

IMI Hydronic Engineering

www.imi-hydronic.com

Balancing instruments

TA-SCOPE with DpS-Visio

- TA-SCOPE and DpS-Visio: Advanced measuring instruments for optimal hydronic balancing
- DpS-Visio: 15% lighter and 15% more compact than its previous version
- Safer, easier and more accurate commissioning due to automatic electronic flushing and calibration
- Direct reading of measurement data thanks to OLED display on DpS-Visio
- Covers larger size installations up to 500 kPa. The high pressure (HP) version allows going up to 1000 kPa
- TA-Wireless – one person with one instrument can accurately balance complex systems with only one valve adjustment per valve necessary
- TA-Diagnostic – detects system errors, allowing for easy maintenance, troubleshooting and balancing calculations in existing buildings
- Self-sealing needles with integrated temperature sensor – designed to make measurement safer and more accurate
- System performance is improved, with more precise measurement and easier heating/ cooling power logging
- Precise diagnostics with the help of stand-alone data-logging for up to 100 days on battery power

Automatic electronic flushing and calibration

Direct reading of data through an OLED display

One-person balancing cuts time, effort and cost

Measuring tools

TA Link

- Provides an accurate measurement of the differential pressure
- The crucial connection between the hydronic system and the building management system (BMS)
- Max. differential pressure 2 or 5 bar, measuring range 0-40 kPa or 0-100 kPa
- Output signal 0-10V or 4-20mA

Software

HySelect

HySelect is computer software that:

- selects valves and determines the right valve size and setting
- helps to choose the correct type of actuator and available accessories
- calculates heating and cooling systems, also with diversity factors
- converts different units
- communicates with balancing instrument TA-SCOPE

HyTools is an app packed with hydronic calculation tools. You can have all our products, hydronic calculators and unit conversion tools on your iPhone, iPad, iPod Touch* or Android smartphone.

The HyTools functions include:

- Hydronic calculator: q-Kv-Dp; P-q-DT; q-Valve-Dp
- Zeparo Dp calculation
- Valve sizing and presetting
- Radiator power estimation (steel and cast iron)
- Sizing and presetting of thermostatic valves, balancing valves, Dp controllers and more
- Pipe sizing
- Unit conversion
- Run-time localisation selection (24 regions)
- Run-time language selection of 16 languages

Download HyTools now from the Apple* App Store or Google Play. With HyTools, everything you need for complex hydronic calculation is just one touch away.

IMI Hecos

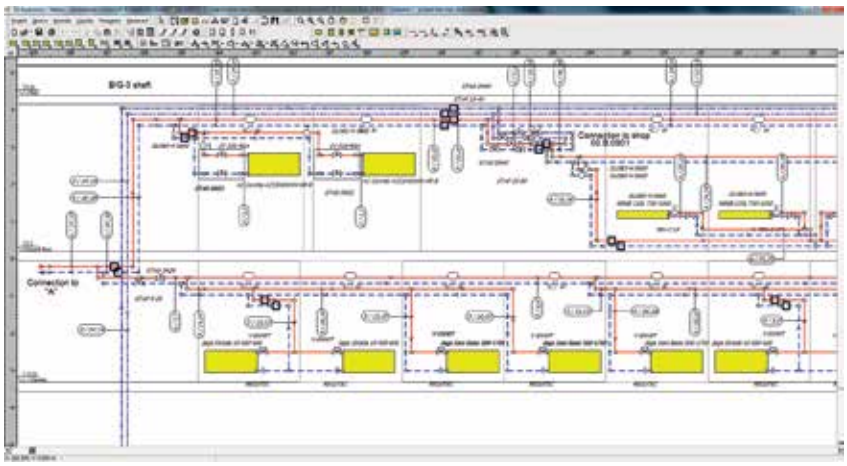
IMI Hecos is a fully graphical computer program that helps you design waterborne heating and cooling systems in the technically correct, most economical and efficient way.

It makes it easy to calculate all the parts of hydronic loops including terminal units, valves, pumps and pipes.

You just need to describe the building, rooms and temperatures and define what the system should look like.

In return you can get the required pump head, detailed lists of optimally sized components, water volume of the system for further pressurisation unit calculation, full system specification and most importantly, your full plant's scheme to print out or export into CAD program.

- Easy to modify the calculation parameters and retrieve new results.
- Interactive communication between the drawing and result sheets.
- Availability of software application for one pipe radiator systems as well as a reverse return system.
- Joint drawing for the software showing the heating and the cooling network (e.g. 4-pipe fan coil system).
- Glycol correction.



HyTune

Application for smartphones for digital configuration of TA-Slider actuators.

- Easy to use
- Comfortable set up of TA-Sliders even in poorly lit environments
- Added protection against human error
- Access list of up to 10 last errors and operating statistics

GET IT ON Google play

Available on the App Store


Take control
of where your
energy flows

Applications overview

BALANCING AND CONTROL SYSTEMS

Type	Solutions	Energy efficiency	Investment
F1 F7 Variable flow	Pressure-independent balancing and control valves	low ■□□□■ high	low □□□■□ high
F2 F8 Variable flow	Combined balancing and control valves	low □□■□□ high	low □□■□□ high
F3 F9 Variable flow	Balancing and standard control valves	low □□■□□ high	low □□■□□ high
F4 Variable flow	Thermostatic radiator valves with pre-setting	low □□□■□ high	low □□■□□ high
F5 Variable flow	AFC technology (Automatic Flow Control)	low □□□■□ high	low □□□■□ high
F10 Variable flow	Control valves with return temperature controller	low □□□■□ high	low □□■□□ high
F6 F11 Constant flow	Balancing and standard control valves	low ■□□□□ high	low □□■□□ high

SPECIAL SOLUTIONS

Type	Solutions	Energy efficiency	Investment
F12 Variable flow	Auto-adapting variable flow decoupling circuit	low □□□■□ high	low ■□□□□ high
F13 Variable flow	Zone temperature control (e.g. for use in apartments)	low □□□■□ high	low ■□□□□ high
F14 Variable flow	Four-pipe heating and cooling system	low □□□■□ high	low □□□■□ high

Solution examples show the most used applications in heating and cooling systems.
There are a large number of variants, combinations and unique solutions that are beyond the scope of the contents of this brochure.
Every system h as its own specifics with regard to the source of heat or cold, type of control, investment limits etc.
Please do not hesitate to ask our hydronic specialists for help to choose the best solution for your project.
Your success is the greatest reward of the work we do every day.

Heating system – variable flow

Pressure-independent balancing and control valves

ENERGY EFFICIENCY

- Ensuring stable and precise temperature control in all operating conditions
- Pressure-independent control with high valve authority for liquid/three-point control
- Low energy consumption when pumping (no overflow)
- Low required differential pressure on IMI TA valves minimizes pump lift height
- Optimisation of pump lift height possible thanks to unique valve diagnostic features
- Reduction of heat loss in return pipes

INVESTMENT

- Solution with minimum number of valves installed
- Use cheaper actuators (low required closing pressure)
- The extensive measurement and diagnostic capabilities of the IMI TA valves allow for complete system diagnostics without the need for additional equipment investments in other devices
- Quick return on investment (highest quality, long service life, significant energy savings)
- High flexibility. Possibility of phased start-up or expansion without rebalancing of an already functioning part

SIZING

- Simple matching of valves based on nominal flows
- Selection of flow-based settings without the need for complete hydraulic calculations
- No need to check the authority of the valves
- Easy match of the correct actuator
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

COMMISSIONING

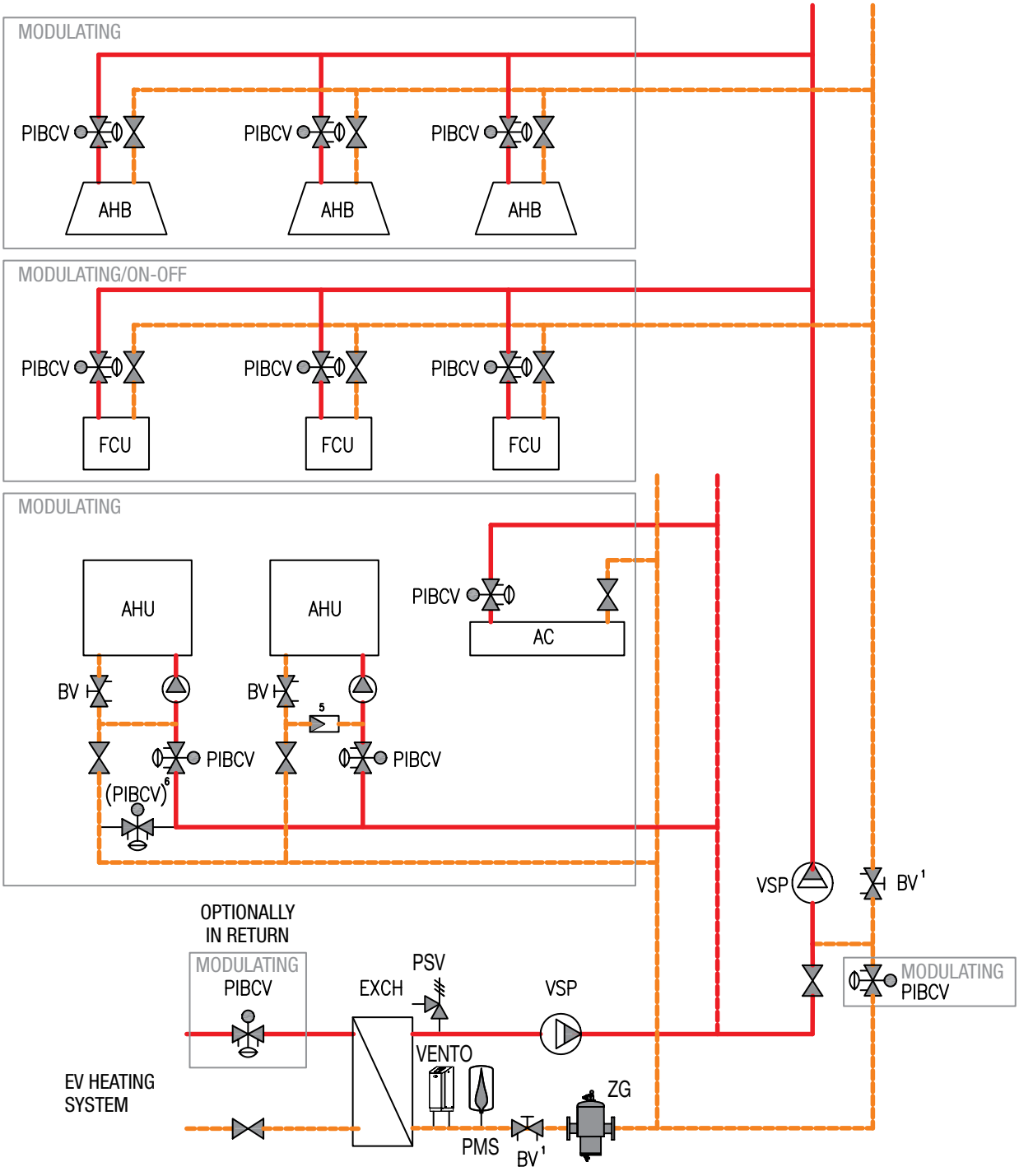
- Preset the required flow direct at the PIBCV, designed flow = real flow
- Direct measurement of the actual flow and available differential pressure helps to set the minimum required pump head to achieve maximum energy efficiency
- The extensive diagnostic capabilities of IMI TA valves in combination with TA-SCOPE make it easy to identify and solve any possible system faults

QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
B1	**BV**	Balancing valves	page 28
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low						High
Investment	Low						High

Recommended



1) Recommended for flow measuring and system diagnostics
5) Check valve is recommended to protect AHU against freezing up if secondary pump fails
6) Optional/recommended for obtaining medium circulation in the system. Without or with an actuator that is interlocked in an inverted way with the main panel actuator)

Legend:

AC Air curtain
AHB Active heating beam
AHU Air handling unit
BV Balancing valve
EXCH Heat exchanger
FCU Fan-coil
PIBCV Pressure independent balancing and control valve
PMS Pressure Maintenance System: Pressurisation System + Water make-up
PSV Safety valve
VENTO Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP Variable speed pump control
ZG Sludge separator

Heating system – variable flow

Multi-purpose balancing and control valves

ENERGY EFFICIENCY

- Ensuring stable and precise temperature control in all operating conditions
- Differential pressure regulators on branch connections stabilise the differential pressure for smoothly adjustable valves and provide good authority level
- Low energy consumption when pumping
- Optimisation of pump lift height possible thanks to unique valve diagnostic features
- Reduction of heat loss in return pipes
- Under certain conditions, on/off adjustment can cause overflow under partial load. This phenomenon can be limited already in the design phase

INVESTMENT

- Recommended solution with a good balance between energy efficiency and investment
- Depending on the system structure, this solution is usually cheaper compared to E1, despite the need for valves at the branches
- Extraordinary measurement and diagnostic capabilities of the IMI TA valves allow for complete system diagnostics without the need for additional equipment investments in other devices
- Quick return on investment (usually cost effective solutions, top quality products, long service life)
- High flexibility. Possibility of phased start-up or expansion without rebalancing of an already functioning part.

SIZING

- Simple valve matching based on nominal flow and minimum pressure drop (1/3 of the total pressure drop in the stabilized cycle) for the correct level of authority
- Need to check the closing pressure of the actuators
- Recommended pressure independent balancing and control valves for single receivers connected directly to the bus to ensure proper authority and limit overflows
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

COMMISSIONING

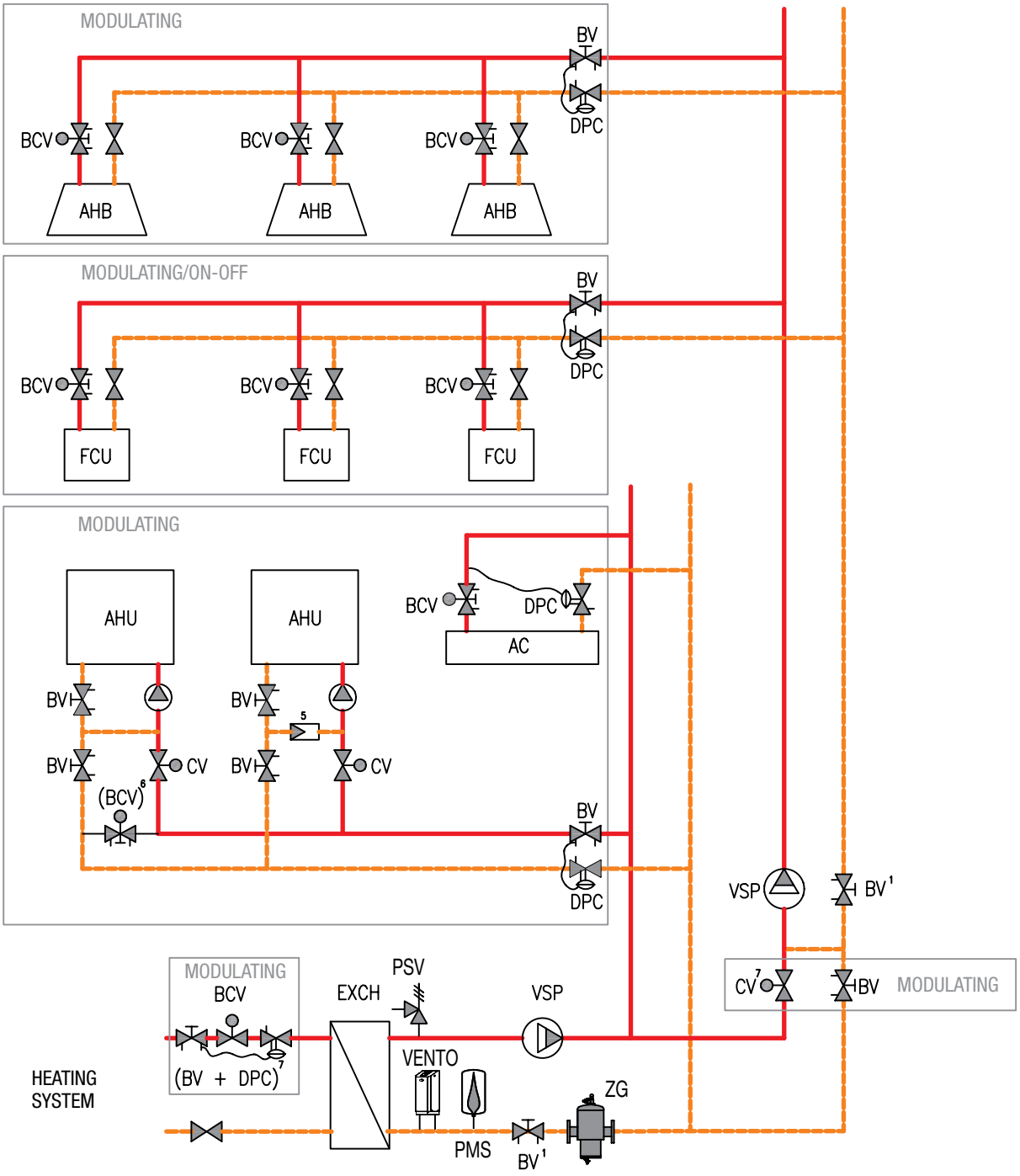
- Preset of the valves based on hydraulic calculations with the option of gentle correction on site
- Direct measurement of the actual flow and available differential pressure helps to set the minimum required lifting height of the pump
- Flow measurement on single control valves at the branch possible but not required
- The extensive diagnostic capabilities of IMI TA valves in combination with TA-SCOPE make it easy to identify and solve any possible system faults

QUICK LINKS

A2	**BCV**	Combined balancing and control valves	page 11
B1	**BV**	Balancing valves	page 28
B4	**DPC**	Differential pressure controllers	page 33
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low			■		High	
Investment	Low			■			High

Recommended



1 Recommended for flow measuring and system diagnostics

5) Check valve is recommended to protect AHU against freezing up if secondary pump fails

6) Optional/recommended for obtaining medium circulation in the system. Without or with an actuator that is interlocked in an inverted way with the main panel actuator

7) Dp control is recommended if the authority of the control valve may drop below 0.25 during system operation due to significant variations in pressure.

Legend:

AC	Air curtain
AHB	Active heating beam
AHU	Air handling unit
BCV	Combined balancing and control valve
BV	Balancing valve
DPC	Differential pressure controller
FCU	Fan-coil
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Heating system – variable flow

Balancing and standard control valves

ENERGY EFFICIENCY

- Stable and precise temperature control in all operating conditions is guaranteed, if control valves and differential pressure controllers are properly matched
- In the version with modulating control, the high authority of the valves is ensured by the differential pressure controllers, which stabilise the differential pressure
- Low energy consumption when pumping
- Reduction of heat loss in return pipes.

INVESTMENT

- Higher investment costs compared to E2 based on multi-purpose balancing and control valves
- High flow rates determine the large diameter of the Dp controllers (the use of TA-PILOT-R with its linear design reduces the diameter and thus the investment costs)
- Extraordinary measurement and diagnostic capabilities of the IMI TA valves allow for complete system diagnostics without the need for additional investments in other devices.
- High flexibility. Possibility of phased start-up or expansion without the need of rebalancing the already functioning part

SIZING

- Simple valve matching based on nominal flow and minimum pressure drop (1/3 of the total pressure drop in the stabilized cycle) for the correct authority level
- Need to check the closing pressure of the actuators
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

COMMISSIONING

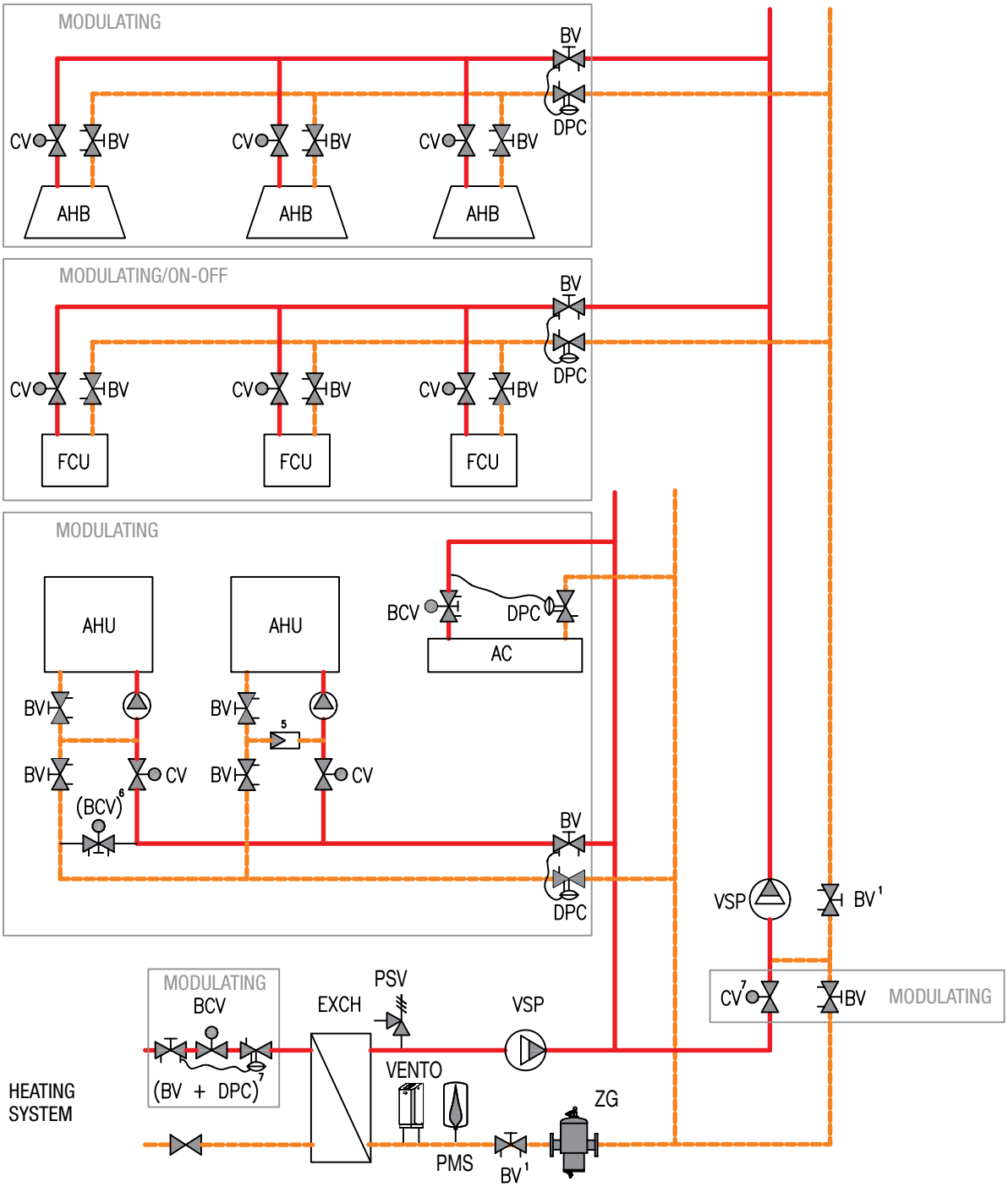
- Preset of the valves based on hydraulic calculations with the option of gentle correction on site
- The Dp controllers should be set according to the actual pressure drops on the branch
- Use precise IMI TA balancing methods to adjust flows while optimizing the pump's operating point
- The extensive diagnostic capabilities of IMI TA valves in combination with TA-SCOPE make it easy to identify and resolve any possible system failure.

QUICK LINKS

A3	**CV**	Standard control valves	page 13
B1	**BV**	Balancing valves	page 28
B4	**DPC**	Differential pressure controllers	page 33
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low			■			High
Investment	Low			■			Wysokie

Acceptable



1) Recommended for flow measuring and system diagnostics
5) Check valve is recommended to protect AHU against freezing up if secondary pump fails
6) Optional/recommended for obtaining medium circulation in the system. Without or with an actuator that is interlocked in an inverted way with the main panel actuator)
7) Dp control is recommended if the authority of the control valve may drop below 0.25 during system operation due to significant variations in pressure.

Legend:

AC	Air curtain
AHB	Active heating beam
AHU	Air handling unit
BCV	Combined balancing and control valve
BV	Balancing valve
CV	2-way control valve
DPC	Differential pressure controller
EXCH	Heat exchanger
FCU	Fan-coil
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Heating system – variable flow

Thermostatic radiator valves with pre-setting

ENERGY EFFICIENCY

- High level of thermal comfort and energy saving
- Variable speed pump control and Dp controllers for stable differential pressure conditions on thermostatic valves allow to obtain low temperature deviations and quiet operation
- Low energy consumption when pumping
- Reduction of heat loss in return pipes
- Low return temperature increases the energy efficiency of heat pumps and condensing boilers

INVESTMENT

- Low investment costs and fast return on investment
- Highest quality and long service life
- The return shut-off valves and connection kits facilitate maintenance work through the shut-off and drain functions of the radiator.
- Balancing valves and Dp controllers with outstanding measurement and diagnostic capabilities help you set the optimum pump lift height and identify possible system faults
- High flexibility. Possibility of phased start-up or expansion without the need of rebalancing the already functioning part

SIZING

- Matching of balancing valves and Dp controllers according to the differential pressure in the range of 1-2K, in relation to the minimum recommended pressure drop
- Balancing valves and Dp controllers in large systems are recommended for quiet and efficient operation
- IMI Heimeier's extensive product portfolio offers optimum solutions for any type of radiator or floor heating.
- NOTES: The use of pressure-independent balancing and control valves (PIBCV) is prohibited in systems with thermostatic valves. They only limit the maximum flow. At the same time, they increase the pump's lifting height by allowing excess pressure to pass through to the thermostatic valves during most of the heating season due to the fact that the flows are below the nominal values.
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

COMMISSIONING

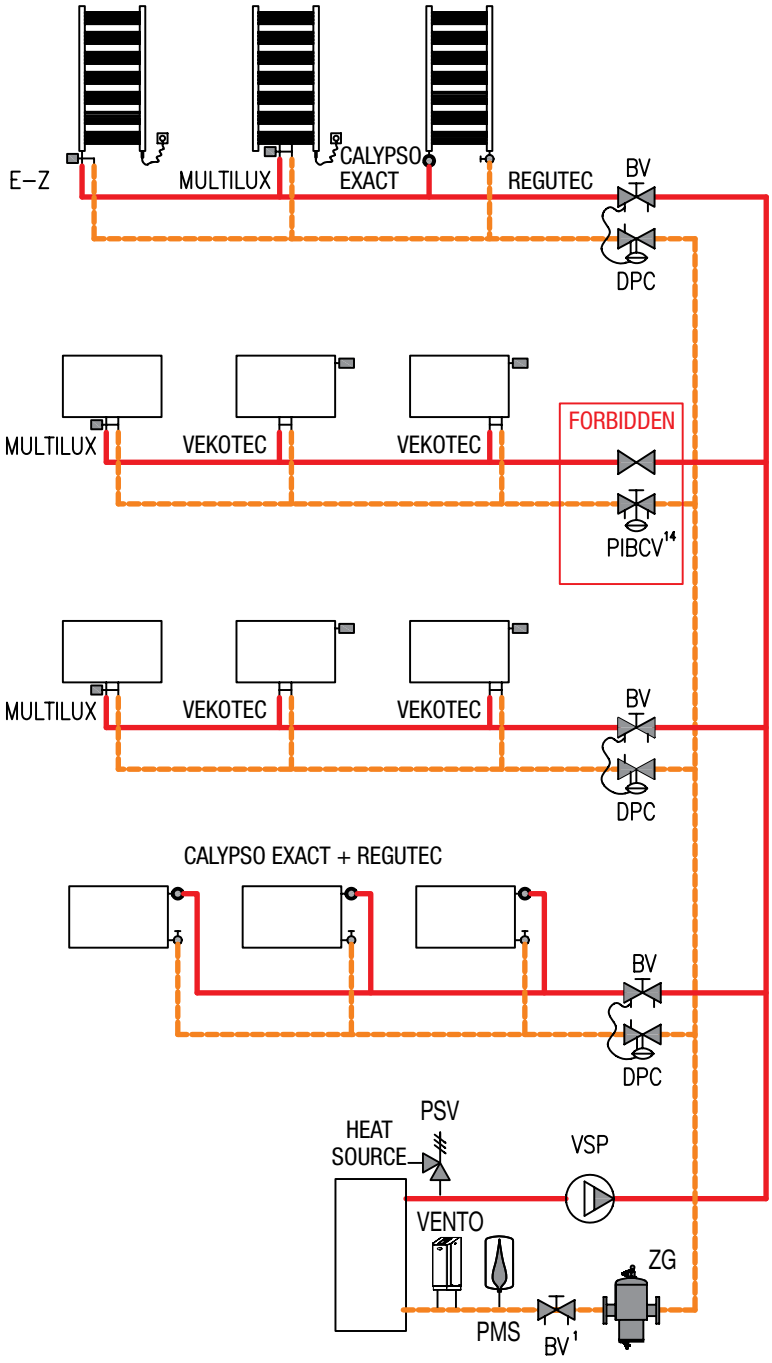
- Preset of the valves based on hydraulic calculations with the option of gentle correction on site
- Direct measurement of the actual flow and available differential pressure helps to set the minimum required lifting height of the pump and ensure quiet and efficient operation
- We recommend selecting the thermostatic heads depending on the room function and indicating the recommended temperature settings alternatively, they may be locked at the thermostatic head type B.

QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
B1	**BV**	Balancing valves	page 28
B4	**DPC**	Differential pressure controllers	page 33
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low			■		High	
Investment	Low		■			High	

Recommended



1) Recommended for flow measuring and system diagnostics

14) PIBCV (without actuator) limits the max. flow when all thermostatic valves (TRV) are open During partial load, the PIBCV remains fully open and does not take overpressure. The result is a large drop in pressure at the valves at the end receivers, causing serious noise problems.

Legend:

BV	Balancing valve
CALYPSO EXACT	Thermostatic radiator valve with preset
DPC	Differential pressure controller
E-Z	Thermostatic radiator valve with presetting for one-point connection
MULTILUX	Thermostatic radiator valve with preset for two-point connection
PIBCV	Pressure independent balancing and control valve
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
REGUTEC	Radiator lockshield
VEKOTEC	Radiator lockshield for two-point connection
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Heating system – variable flow

AFC technology (Automatic Flow Control)

ENERGY EFFICIENCY

- High level of thermal comfort in all working conditions
- Automatic flow control limits overflow and helps to avoid underflow.
- Low energy consumption when pumping
- Differential pressure control is required when the maximum available differential pressure for AFC technology can be exceeded
- Reduction of heat loss in return pipes
- Low return temperature increases the energy efficiency of heat pumps and condensing boilers

INVESTMENT

- Slightly higher investment costs are compensated for by very high energy efficiency, reliability of the system, quick cost recovery and easy installation and commissioning
- Proper functioning of all radiators and floor heating systems without any complaints or additional maintenance costs
- Quiet operation
- Ideal for renovation - immediate improvement in system performance
- High flexibility. The size of the installation can be increased or decreased without affecting the quality of the control system

SIZING

- Simple matching of AFC products based on nominal flows
- The requirements for minimum and maximum pressure must be observed
- Ideal for renovations in buildings with concealed pipes in walls or floors. Simplified hydraulic calculation can be applied
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Audytor and nomograms

COMMISSIONING

- Simple valve setting resulting directly from the flow
- Automatic hydraulic balancing
- The lifting height of the pump can be pre-set depending on the maximum flow rate. Proportional adjustment is recommended.
- In thermostatic valves, the insert can be dismantled under pressure using a special tool. Measurement of the pressure disposition is also available

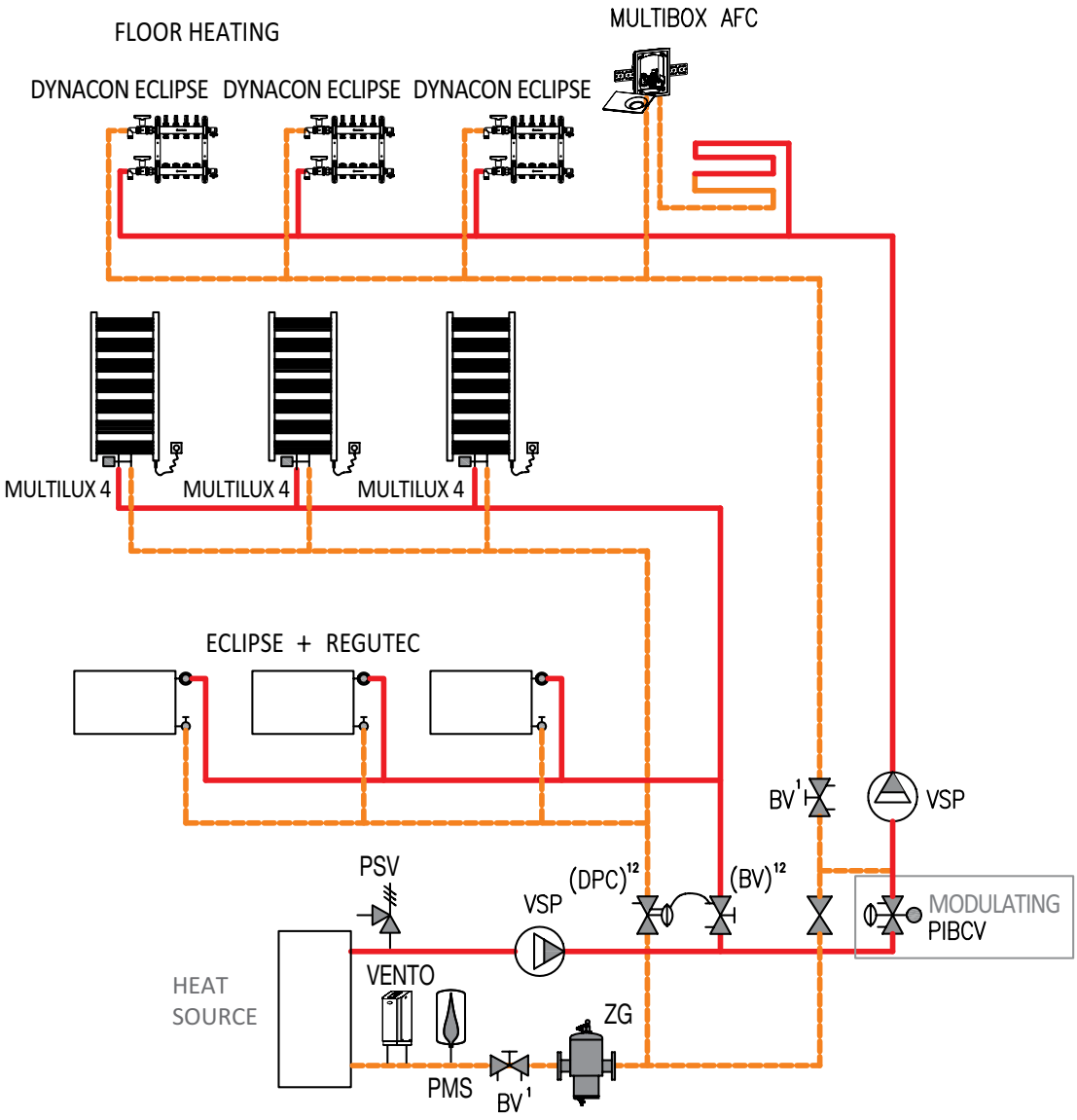
QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
B1	**BV**	Balancing valves	page 28
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Learn more about AFC technology at **www.imi-hydronic.com.**

Energy efficiency	Low					■	High
Investment	Low				■		High

Recommended



1) Recommended for flow measuring and system diagnostics
12) A Dp controller is only required if the available pressure difference is higher than the maximum pressure difference for AFC technology..

Legend:

BV	Balancing valve
DYNACON	Floor heating manifold with AFC technology
ECLIPSE	Thermostatic radiator valve with AFC technology
MULTIBOX AFC	Floor heating control with AFC technology
MULTILUX ECLIPSE	Thermostatic radiator valve with preset for two-point connection with AFC technology
PIBCV	Pressure independent balancing and control valve
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
REGUTEC	Radiator lockshield
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Heating system – constant flow

Balancing and standard control valves

ENERGY EFFICIENCY

- High control stability due to constant pressure distribution
- Increased energy consumption when pumping due to constant flow throughout the heating season
- High heat loss on return pipes under partial load.
- A high return temperature at partial heat demand reduces the efficiency of condensing boilers, and in the nodes, it raises the return water temperature on the network side.
- Dirty filters and overflow significantly increase annual operating costs

INVESTMENT

- Large number of valves installed.
- It is not possible to apply the coefficient of non-uniformity and reduce the size of pipes.
- Longer period of reimbursement of costs incurred for the purchase of electronic pumps and condensing boilers
- Constant operating mode reduces pump life.

SIZING

- A hydraulic calculation is required for 3-way control valves and balancing valves.
- Adequate Kvs value is essential for the high authority of a 3-way valve.
- 3-way valves regulating small end receivers need a reduced Kvs value in the bypass direction or an additional balancing valve to restrict excess flow by bypassing partial load or when the valve is fully closed.
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

COMMISSIONING

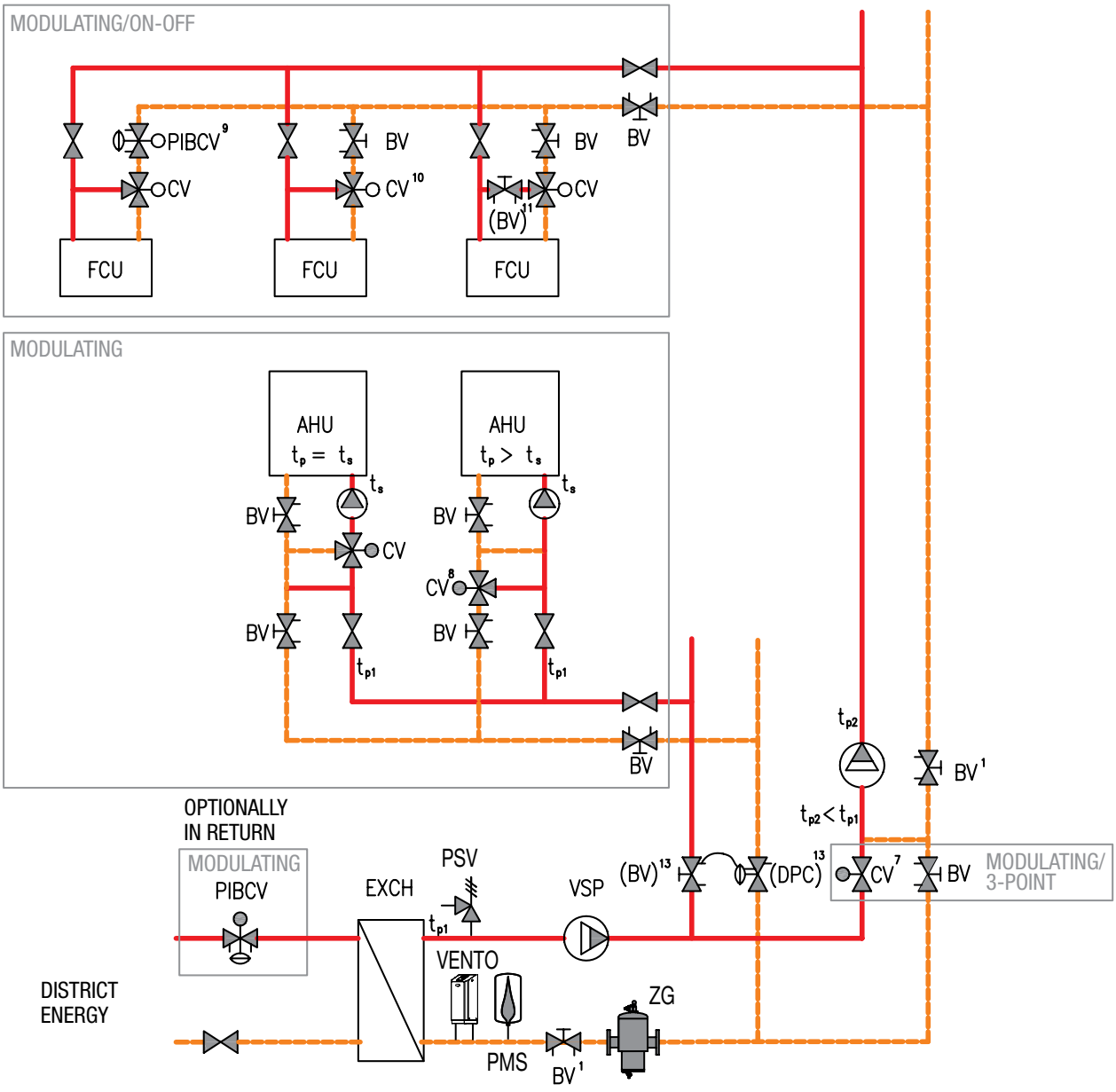
- Preset of the valves based on hydraulic calculations with optional correction according to measurement on the object
- Preset of the pumping heigth to achieve a constant nominal flow, a constant speed is necessary.
- During start-up, it is important to check the compatibility of the flow between primary and secondary flow in the air handling unit. The primary flow should be 5% higher if the nominal flow temperatures are identical.

QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
A5	**CV**	Actuators for standard control valves	page 23
B1	**BV**	Balancing valves	page 28
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low	■	□	□	□	□	High
Investment	Low	□	□	■	□	□	High

Acceptable



1) Recommended for flow measuring and system diagnostics
7) Dp control is recommended if the authority of the control valve may drop below 0.25 during system operation due to significant variations in pressure.
8) When the temperature difference in the primary circuit is higher, the size of the 3-way valve at this point may be smaller
9) 3-way valve without Kvs reduction in B-AB direction without bypass balancing, PIBCV without actuator is recommended for limiting the maximum flow
10) 3-way valve with Kvs reduction in B-AB direction
11) To balance the bypass in order to achieve the same pressure drop as the fan coil
13) It is recommended to use the Dp controller because the FCU circuit with variable flow rate runs parallel to the AHU circuit. This version occurs at different flow temperatures for AHU and small end users.

Legend:

AHU	Air handling unit
BV	Balancing valve
CV	2-way control valve
EXCH	Heat exchanger
FCU	Fan-coil
PIBCV	Pressure independent balancing and control valve
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Cooling system – variable flow

Pressure independent balancing and control valves

ENERGY EFFICIENCY

- Ensuring stable and precise temperature control in all operating conditions
- Pressure-independent control with high valve authority for liquid/three-point control
- Low energy consumption when pumping (no overflow)
- Very low pressure drop in IMI TA valves minimizes pump lift height requirements
- Optimisation of pump lift height is possible thanks to unique IMI TA valves diagnostic features
- Reduction of cooling loss in return pipes
- Minimal risk of low return temperatures and reduced energy efficiency of the refrigeration appliance.

INVESTMENT

- Solution with minimum number of valves installed
- The extensive measurement and diagnostic capabilities of the IMI TA valves allow for complete system diagnostics without the need for additional equipment investments in other devices
- Fast return on investment, usually under 3 years.
- High flexibility. Possibility of phased start-up or expansion without rebalancing of an already functioning part.

SIZING

- Simple matching of valves based on nominal flows
- Selection of flow-based settings without the need for complete hydraulic calculations
- No need to check the authority of the valves
- Easy matching of the correct actuator
- Complete range of valves for a wide range of flow rates
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

COMMISSIONING

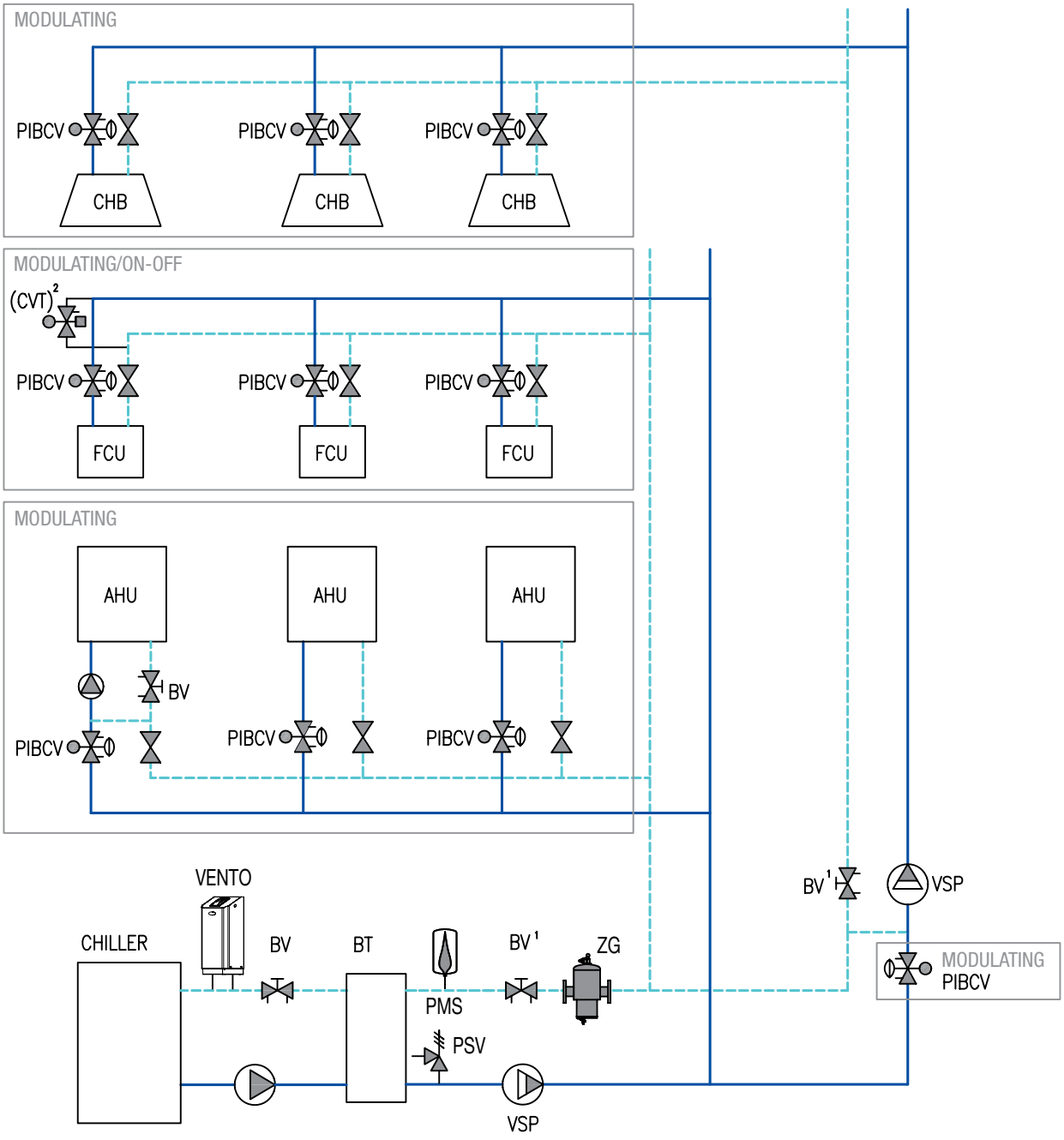
- Preset the required flow direct at the PIBCV, designed flow = real flow
- Direct measurement of the actual flow and available differential pressure helps to set the minimum required pump head to achieve maximum energy efficiency
- The extensive diagnostic capabilities of IMI TA valves in combination with TA-SCOPE make it easy to identify and solve any possible system faults

QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
B1	**BV**	Balancing valves	page 28
A2	**CVT**	Combined balancing and control valves	page 11
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low					■	High
Investment	Low				■		High

Recommended



1) Recommended for flow measuring and system diagnostics
2) Optional for maintaining the circulation of the refrigerant in the circuit, if necessary
TA-COMPACT-T, preset 2K above flow temperature
NOTE: maximum pressure difference - 2 bars

Legend:

AHU	Air handling unit
BT	Buffer tank
BV	Balancing valve
CHB	Chilled beam
CVT	Control valve with return temperature controller TA-COMPACT-T
EV	Expansion vessel
FCU	Fan-coil
PIBCV	Pressure independent balancing and control valve
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Cooling system – variable flow

Combined balancing and control valves

ENERGY EFFICIENCY

- Ensuring stable and precise temperature control in all operating conditions
- Differential pressure regulators on branch connections stabilise the differential pressure for modulating adjustable valves and provide good level of authority.
- Low energy consumption when pumping
- Optimisation of pump lift height possible thanks to unique valve diagnostic features
- Reduction of cooling loss in return pipes.
- Minimal risk of low return temperatures and reduced energy efficiency of the refrigeration appliance.

INVESTMENT

- Recommended solution with a good balance between energy efficiency and investment
- Depending on the system structure, this solution is usually cheaper compared to E1, despite the need for valves at the branches
- Extraordinary measurement and diagnostic capabilities of the IMI TA valves allow for complete system diagnostics without the need for additional equipment investments in other devices.
- Fast return on investment, usually under 3 years.
- High flexibility. Possibility of phased start-up or expansion without rebalancing the already functioning part

SIZING

- Simple valve matching based on nominal flow and minimum pressure drop (1/3 of the total pressure drop in the stabilized cycle) for the correct level of authority
- Under certain conditions, on/off adjustment can cause overflow under partial load. This phenomenon can be limited already in the design phase.
- Need to check the closing pressure of the actuators
- It is recommended to use pressure-independent balancing and control valves for separate small end receivers connected directly to the main pipe to ensure authority and limit overflow and noise
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

COMMISSIONING

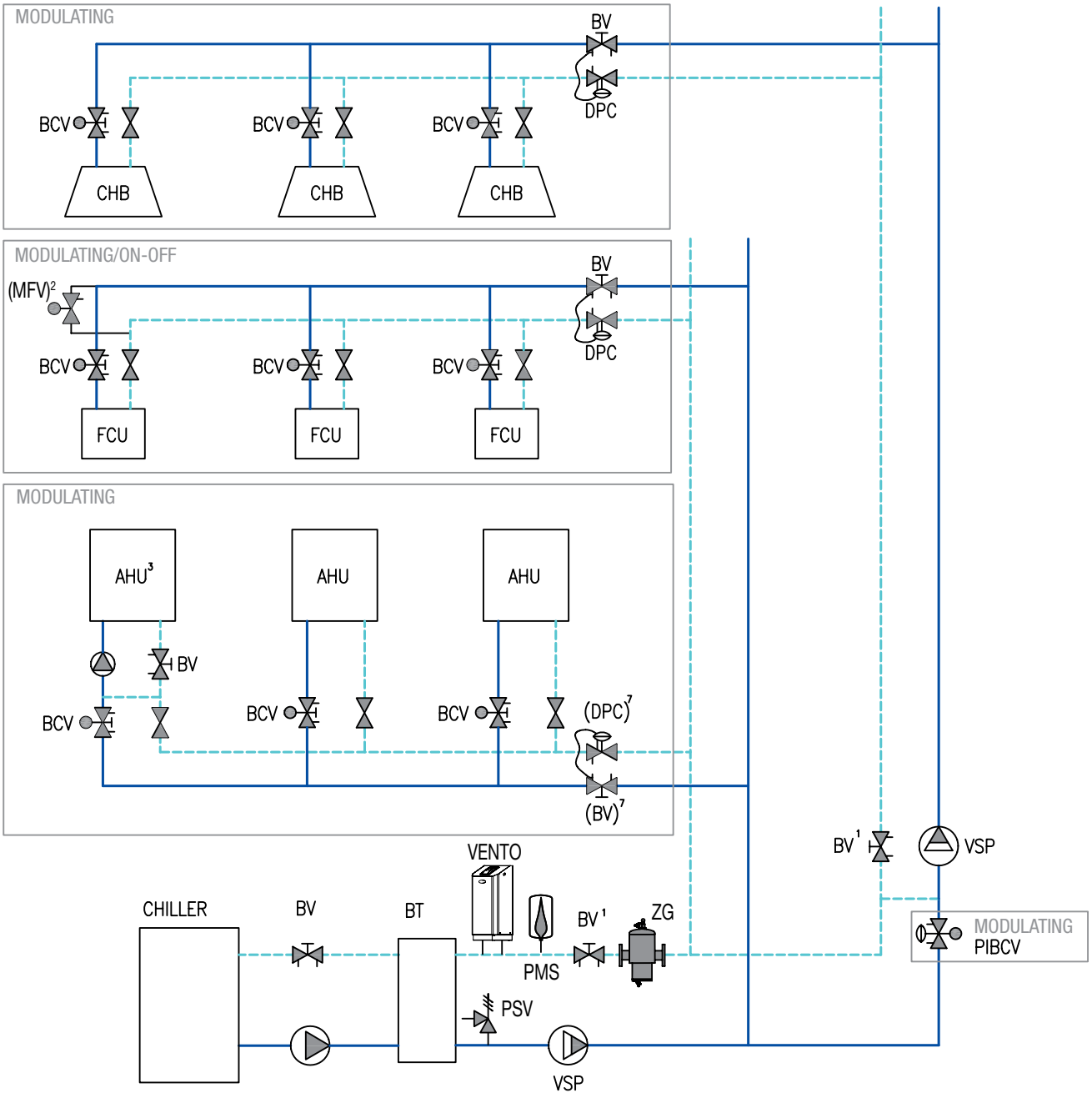
- Preset of the valves based on hydraulic calculations with the option of gentle correction on site
- Direct measurement of the actual flow and available differential pressure helps to set the minimum required lifting height of the pump.
- Flow measurement on single small control valves at the branch possible but not required
- The extensive diagnostic capabilities of IMI TA valves in combination with TA-SCOPE make it easy to identify and solve any possible system faults

QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
A2	**BCV**	Combined balancing and control valves	page 11
A2	**CVT**	Combined balancing and control valves	page 11
B1	**BV**	Balancing valves	page 28
B4	**DPC**	Differential pressure controllers	page 33
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low				■		High
Investment	Low			■			High

Recommended



1) Recommended for flow measuring and system diagnostics
2) Valve set to limit maximum flow required and controlled partially according to specified parameters
3) Example for a desired flow temperature for AHU lower than the general flow temperature.
7) Dp control is recommended if the authority of the control valve may drop below 0.25 during system operation due to significant variations in pressure.

Legend:

AHU Air handling unit
BCV Combined balancing and control valves
BT Buffer tank
BV Balancing valve
CHB Chilled beam
CVT Control valve with return temperature controller Of the return TA-COMPACT-T
DPC Differential pressure controller
FCU Fan coil
PIBCV Pressure independent balancing and control valve
PMS Pressure Maintenance System: Pressurisation System + Water make-up
PSV Safety valve
VENTO Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP Variable speed pump control
ZG Sludge separator

Cooling system – variable flow

Balancing and standard control valves

ENERGY EFFICIENCY

- Provides stable and precise temperature control under all operating conditions if control valves are appropriately matched and a good level of regulatory authority can be achieved
- In the version with modulating control, the high authority of the valves is ensured by the differential pressure controllers, which stabilise the differential pressure
- Low energy consumption when pumping
- Optimised lifting height of the pump can be optimised
- Reduction of loss in return pipes

INVESTMENT

- Higher investment costs compared to E2 based on multi-purpose balancing and control valves
- High flow rates determine the large diameter of the Dp controllers (the use of TA-PILOT-R with its linear design reduces the diameter and thus the investment costs)
- Extraordinary measurement and diagnostic capabilities of the IMI TA valves allow for complete system diagnostics without the need for additional equipment investments in other devices.
- High flexibility. Possibility of phased start-up or expansion without rebalancing of an already functioning part.

SIZING

- Simple valve matching based on nominal flow and minimum pressure drop (1/3 of the total pressure drop in the stabilized cycle) for correct level of authority
- Need to check the closing pressure of the actuators
- Quick matching with the use of software: HySelect, HyTools, Instal-therm, Auditor

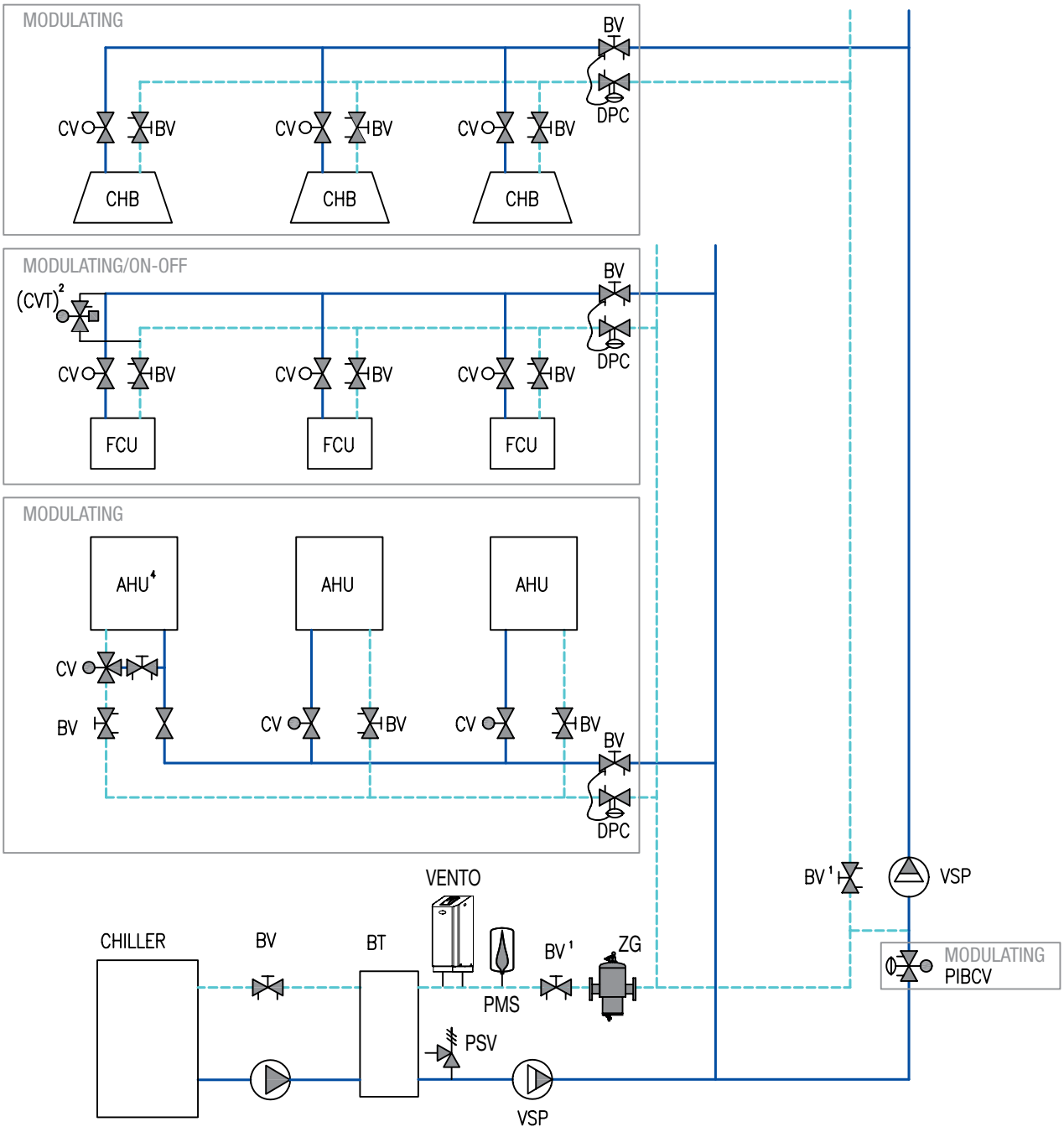
COMMISSIONING

- Preset of the valves based on hydraulic calculations with the option of gentle correction on site
- The Dp controllers should be set according to the actual pressure drops on the branch
- Use precise IMI TA balancing methods to adjust flows while optimizing the pump's operating point
- The extensive diagnostic capabilities of IMI TA valves in combination with TA-SCOPE make it easy to identify and solve any possible system faults.

QUICK LINKS

Energy efficiency	Low			■			High
Investment	Low			■			High

Acceptable



1) Recommended for flow measuring and system diagnostics
2) Optional for maintaining the circulation of the refrigerant in the circuit (TA-COMPACT-T)
4 Example where minimum flow in a cooling system is required

Legend:

AHU	Air handling unit
BCV	Combined balancing and control valves
BT	Buffer tank (hydraulic clutch function)
CHB	Chilled beam
CV	3-way / 2-way control valve
CVT	Control valve with return temperature controller Of the return TA-COMPACT-T
FCU	Fan coil
PIBCV	Pressure-independent balancing and control valve and control valve
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Cooling system – variable flow

Control valves with return temperature controller

ENERGY EFFICIENCY

- Unique combination of ON/OFF control and simultaneous flow correction on TA-COMPACT-T valve.
- Constant return temperature throughout the system
- No risk of low return temperatures and reduced energy efficiency of the refrigeration devices.
- Reduction of cooling loss in return pipes
- Low energy consumption when pumping
- Improved comfort in low gear FCU mode - reduced draught and local over-cooling

INVESTMENT

- Low cost of ON/OFF control with the advantages of close to modulating control.
- Simple installation, low number of valves
- High flexibility. Possibility of phased start-up or expansion without rebalancing of an already functioning part.

SIZING

- Ideal for renovations with incomplete data on the existing installation.
- Simple valve matching based on nominal flow and permissible water temperature deviation
- Δp controllers on branch connections are recommended
  - if the maximum pressure difference can be exceeded
  - in complex systems with elevated temperatures over the service life
- Easy matching of the correct on/off actuators
- Not recommended for systems where the flow temperature is not constant

COMMISSIONING

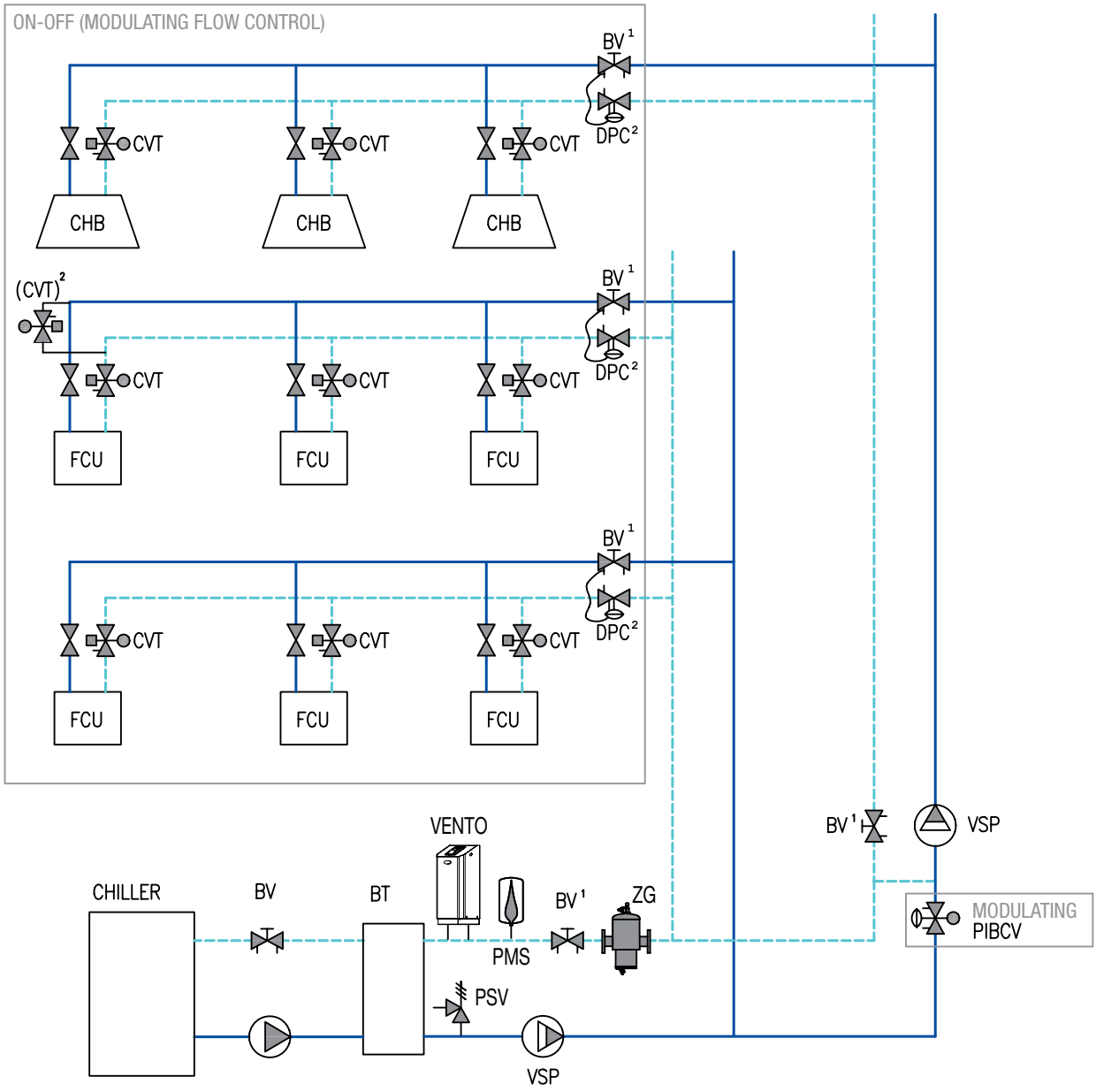
- Easy direct setting of the required return temperature
- Setting the pump lifting height according to hydraulic calculations
- TA-COMPACT-T allows you to measure and monitor the return temperature using TA-SCOPE

QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
A2	**CVT**	Combined balancing and control valves	page 11
B1	**BV**	Balancing valves	page 28
B4	**DPC**	Differential pressure controllers	page 33
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low					■	High
Investment	Low			■			High

Recommended



1) Recommended for flow measuring and system diagnostics
2) Differential pressure controllers are recommended when the maximum differential pressure for CVT valves can be exceeded

Legend:

BT	Buffer tank
BV	Balancing valve
CHB	Chilled beam
CVT	Control valve with return temperature controller TA-COMPACT-T
DPC	Differential pressure controller
FCU	Fan coil
PIBCV	Pressure independent balancing and control valve
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Cooling system – constant flow

Balancing and standard control valves

ENERGY EFFICIENCY

- High control stability due to constant pressure distribution
- Increased energy consumption when pumping due to constant flow throughout the non-heating season
- High cooling loss on return pipes under partial load.
- Low return temperature at partial cooling demand reduces the efficiency of cooling sources,
- Dirty filters and overflows significantly increase annual operating costs.

INVESTMENT

- Large number of valves installed.
- It is not possible to apply the coefficient of non-uniformity and reduce the size of pipes.
- Longer period of reimbursement of costs incurred for the purchase of electronic pumps.
- Constant operating mode reduces pump life.

SIZING

- A hydraulic calculation is required for 3-way control valves and balancing valves.
- Adequate Kvs value is essential for the high authority of a 3-way valve.
- 3-way valves regulating small end receivers need a reduced Kvs value in the bypass direction to limit overflow by bypassing partial load. A solution is also to use the PIBCV (TA-COMPACT-P) valve as a flow limiter.
- Quick matching with the use of software: HySelect, HyTools.

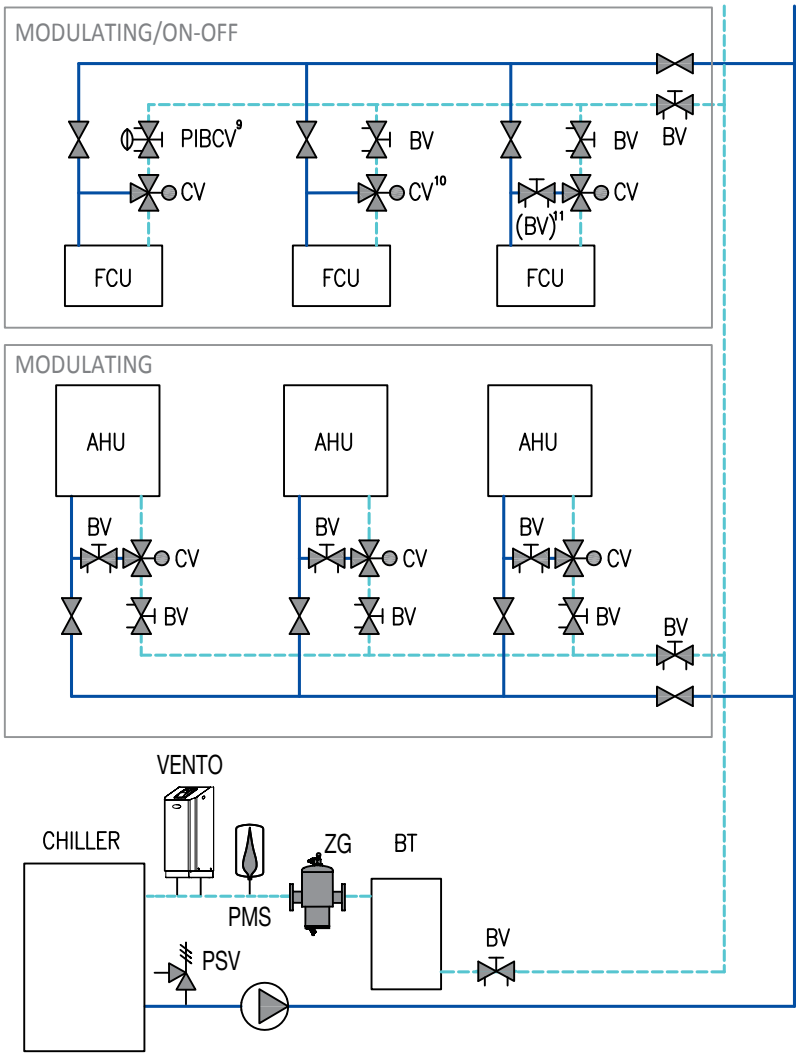
COMMISSIONING

- Preset of the valves based on hydraulic calculations with optional correction according to measurement on the object
- Preset of the pump's lifting height to achieve a constant nominal flow, a constant speed is necessary.
- It is recommended to balance the flows during start-up. With AHU it is necessary to set the valves on the bypass in accordance with the radiator resistance to avoid overflow through the bypass.

QUICK LINKS

Energy efficiency	Low	■	□	□	□	□	High
Investment	Low	□	□	■	□	□	High

Acceptable



9) 3-way valve without Kvs reduction in B-AB direction without bypass balancing, PIBCV without actuator is recommended for limiting the maximum flow rate
10) 3-way valve with Kvs reduction in B-AB direction
11) To balance the bypass in order to achieve the same pressure drop as the fan coil

Legend:

AHU	Air handling unit
BT	Buffer tank
BV	Balancing valve
CV	3-way / 2-way control valve
FCU	Fan coil
PIBCV	Pressure independent balancing and control valve
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
ZG	Sludge separator

Special solutions – variable flow

Auto-adapting variable flow decoupling circuit

ENERGY EFFICIENCY

- Ensuring proper working conditions for electronic pumps installed in the series
- Very high energy efficiency guaranteeing perfect and quiet operation of the system without negative hydraulic interactivity.
- The lifting height of the secondary pump can be reduced by the pressure difference stabilised on the dP controller (primary pump supports secondary pump). The primary pump can supply the secondary circuit in the event of a secondary pump failure.
- No risk of low (cooling) or high (heating) return temperature affecting the energy efficiency of the system.
- Low energy consumption when pumping (variable flow)
- Minimum heat loss/gain on return pipes.
- Constant temperature of the feed water on the secondary side according to the primary side water temperature
- Possibility to increase energy efficiency by using remote pressure relay for VSP
- Powerful control node without standard actuator control valve (no electrical controller required).

INVESTMENT

- Very low investment compared to alternatives that reduce energy efficiency and increase the level of the system complexity.
- Easy installation, space-saving.
- Ideal for connecting high resistance circuits to low pressure networks. Ideal for supplying a heating manifold with heat pumps from a heat substation with its own circulation pump.
- Quick return on investment.
- Quiet work, no complaints.

SIZING

- The bypass flow is usually no more than 10% of the source flow - that is why the bypass valve has small diameters
- No need for additional solutions to ensure minimum flow for the primary pump
- Size of the Dp controller selected for the secondary flow, the controller's resistance included in the primary pump

COMMISSIONING

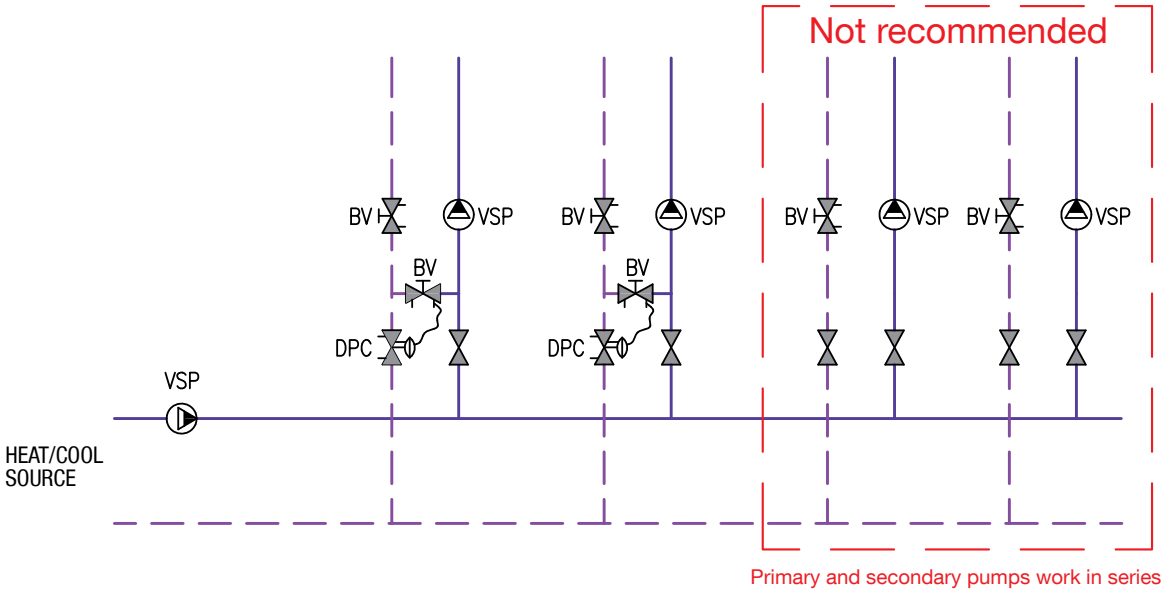
- Easy pre-setting of the balancing valve at the bypass.
- Setting the differential pressure on the Dp controller based on the flow measurement on the secondary side.

QUICK LINKS

B1	**BV**	Balancing valves	page 28
B4	**DPC**	Differential pressure controllers	page 33

Energy efficiency	Low						High
Investment	Low						High

Recommended



The self-regulating variable flow separation system is ideal for variable primary and secondary circuits where a secondary pump has to be used due to a lack of sufficient availability from the primary pump. Example: Compact heat node with integrated supply pump for the main distributor in the circulation pumps. The feed water temperature of individual circuits is maintained as supplied from the source. The nominal bypass flow is usually 10% of the total secondary flow, so the bypass balancing valve is small in size. The minimum flow through bypasses can also be determined by the minimum flow through the primary pump.

Ask your IMI technical advisor for more information on hydraulic balancing and selection.

Legend:

BV	Balancing valves
DPC	Differential pressure controllers
VSP	Variable speed pump

NEW

Special solutions – variable flow

Zone temperature control (e.g. for use in apartments)

ENERGY EFFICIENCY

- Zone temperature control can reduce energy bills by up to 20%.
- Maintains a lower temperature in the apartment when no one is present during the day.
- Enables central night-time temperature reduction.
- Limits the maximum flow to the apartment and saves pumping energy.
- Helps to protect the installation from noise.

INVESTMENT

- TA-COMPACT-DP replaces 3 valves: Zone Control Valve, Balancing Valve and Differential Pressure Controller - gives 60% cost savings.
- The installation is 3 times faster.
- Ideal solution for flats with central heat source (heat exchanger, boiler room, heat pump).
- Quiet operation without excessive flows, no complaints

SIZING

- Simple matching based on design flow and required stabilization pressure
- There is no need for additional Dp regulators and balancing valves, e.g. under verticals.
- Use IMI Hydronic Engineering's calculation software or technical support when matching the right solution

COMMISSIONING

- Easy setting of the desired project flow.
- Flow measurement with TA-SCOPE
- Very compact design also fits into very confined spaces.
- EMO T actuators with IP54 protection give you the freedom to choose the mounting position

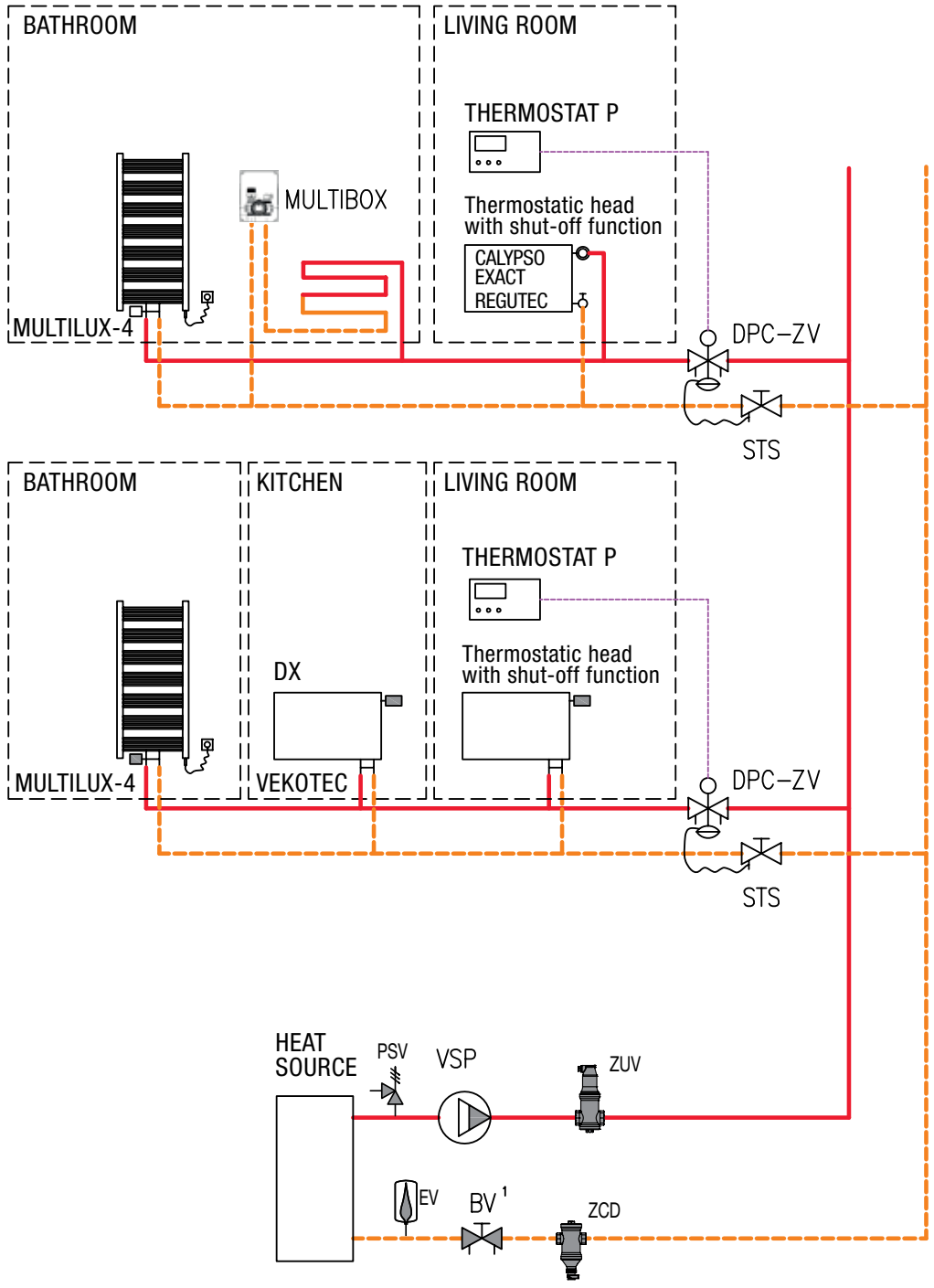
QUICK LINKS

B1	**BV**	Balancing valves	page 28
B4	**DPC-ZV**	Differential pressure controllers	page 33
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

For more information on IMI Heimeier products, please visit **www.imi-hydronic.com.**

Energy efficiency	Low	☐	☐	☐	☐	■	High
Investment	Low	■	☐	☐	☐	☐	High

Recommended



1) Recommended for flow measurement and diagnostics

Legend:

BV	Balancing valve
CALYPSO EXACT	Thermostatic radiator valve with preset
DPC-ZV	Differential pressure controller with zone control valve (TA-COMPACT-DP)
EV	Expansion vessel
K-Head	Thermostatic head
Multibox	Floor heating control in the wall
MULTILUX-4	Thermostatic radiator valve with preset
PSV	Safety valve
REGUTEC	Radiator lockshield
STS	Shut-off valve with measuring point and capillary connection
Thermostat P	Digital room temperature controller
VEKOTEC	Radiator shut-off valve
VSP	Variable speed pump control
ZCD	Dirt and sludge separator
ZUV	Separator for micro bubbles

Four-pipe heating and cooling system – variable flow

ENERGY EFFICIENCY

- Stable and precise temperature control in all operating conditions
- Precise volume flow for heating and cooling.
- Motorized drive with very low power consumption in standby mode.
- Pressure independent control with high authority for continuous control.
- Low energy consumption of the pump (no excessive flow).
- The very low pressure drop in the IMI TA valves reduces the required pump availability pressure.
- Lowest possible return temperatures for minimum heat loss in return lines.

INVESTMENT

- A solution with as few valves as possible.
- Possibility of using cheaper actuators (lower closing pressure required).
- IMI TA valves have unique measurement and diagnostic functions for full system diagnostics at no additional cost
- Quick return on investment (highest quality, extraordinary service life, large energy savings)
- Additional devices for stabilizing the differential pressure are not necessary.
- Economical 6-way valve without special Kvs inserts in the sockets.
- High flexibility. The heating system can be built or extended in stages without having to repeat the hydraulic balancing process. Simply adjust the pump settings to your new system requirements.

SIZING

- Simple matching of a valve based on nominal flow.
- Simple 6-way valve selection without the need to calculate the Kvs value, as it is only used as a switching valve.
- It is not necessary to verify the authority of the control valve.
- Easy matching of the correct actuator
- HySelect for hydraulic calculations can also be applied.

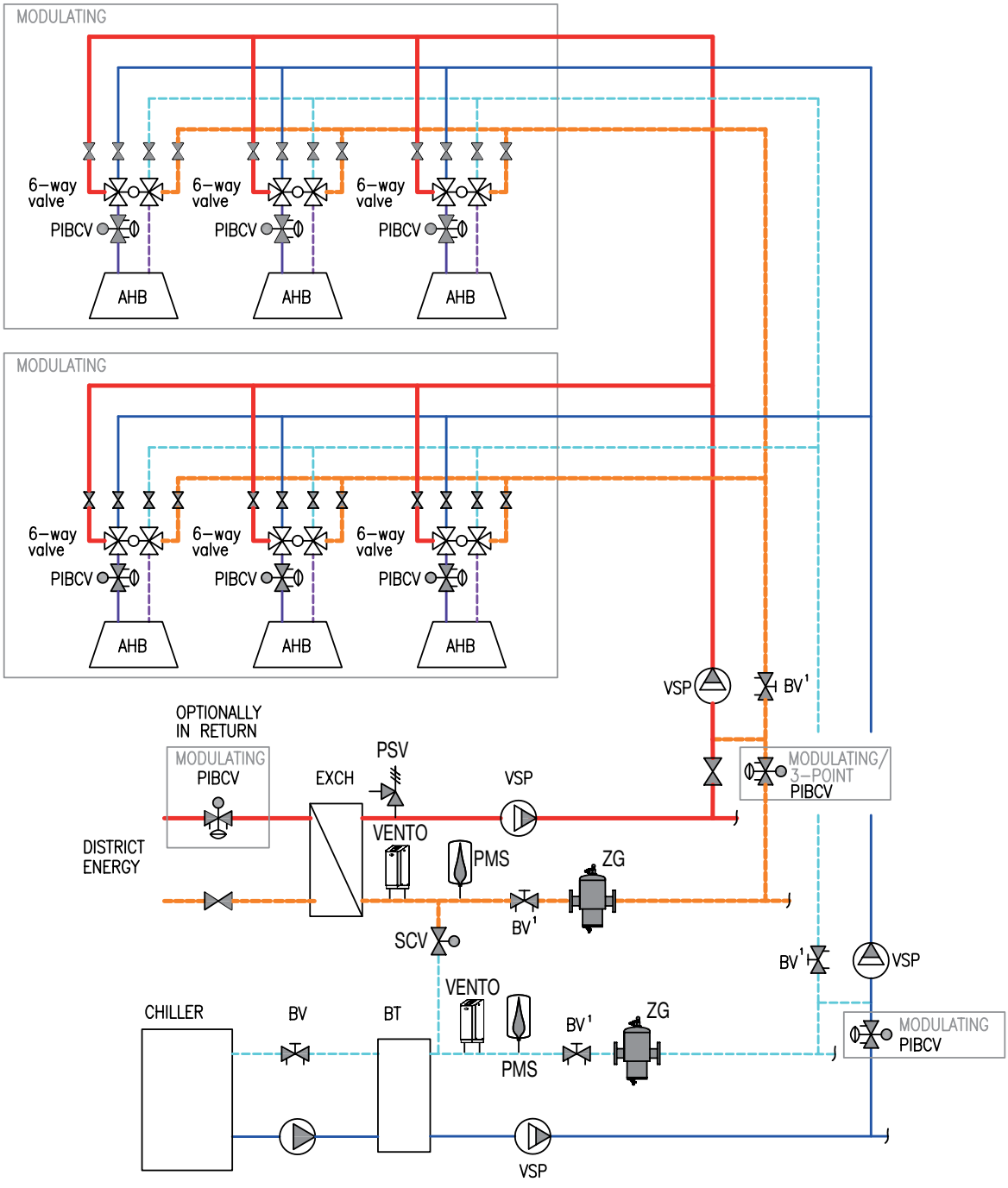
STAR-UP

- Simple setting of the maximum flow rate on each valve.
- Flows and all parameters are set directly with the use of HyTune.
- Menu settings that are displayed graphically in HyTune.
- Parameter settings of other identical drives can be easily copied.
- The flow and available differential pressure can be directly measured, helping to optimise pump operation.
- TA-SCOPE utilizes the outstanding diagnostic capabilities of IMI TA valves to detect and correct all potential faults.

QUICK LINKS

A1	**PIBCV**	Pressure independent balancing and control valves	page 9
A3	**TA-6-way valve**	Standard control valves	page 13
A4	**TA-Slider**	Actuators	page 19
B1	**BV**	Balancing valves	page 28
B4	**DPC-ZV**	Differential pressure controllers	page 33
C1	**EV**	Expansion vessels	page 39
C3	**PSV**	Safety valves	page 43
D1	**ZG**	Vacuum separators and degassing units	page 46

Energy efficiency	Low	☐	☐	☐	☐	■	High
Investment	Low	☐	☐	☐	■	☐	High



1) Recommended for flow measuring and system diagnostics

Legend:

AHB	Radiant ceiling panels
BT	Buffer Tank
BV	Balancing valve
EV	Expansion vessel
EXCH	Heat exchanger
FCU	Fan-coil
SCV	If PMS is a Transfero / Compresso Connect, it is recommended to operate the pressurisation units in Master Slave IO (isolated operation). This ensures automatic and economic volume compensation because of the naturally and inevitably volume transfer during the operation of changeover systems.
PIBCV	Pressure-independent balancing and control valve (TA-Modulator) with TA-Slider 160 CO actuator (automatic adjustment of planned flow for heating and cooling
PMS	Pressure Maintenance System: Pressurisation System + Water make-up
PSV	Safety valve
TA-6 way valve	Special valve to switch between heating and cooling
VENTO	Degasser (not necessary for Transfero Connect PMS as vacuum degassing is integrated)
VSP	Variable speed pump control
ZG	Sludge separator

Kalvebod Brygge

Discover how tailor-made products, value-enhancing services and commissioning efficiency were crucial for the success of this project.

OPP Kalvebod Brygge is a completely new office building in the centre of Copenhagen, which covers an area of 40.000 m². It hosts important players of the region such as the Danish Railroads, Danish Energy Agency, Danish Transport, Construction and Housing Authority and The Danish Road Directorate.

The challenge

The project is a partnership between the public and private sector where project handling, commissioning, daily operation, maintenance and financing were all covered by a single contract between the government and the private sector.

This demanded highly reliable solutions and timely delivery of products. In addition, the BMS (Building Management System) supplier had specific requirements since they had a strong preference for KNX solutions on field level and actuators with low light or noise emission to not disturb the environment.

The solution

Our TA-Slider 160 KNX solution was the perfect match to our customer's needs; it met the requirements of the BMS supplier and thanks to a tailor-made solution by IMI Hydronic Engineering the KNX protocol was adjusted to include an option to shut off the actuator's lights.

In addition, this digitally configurable actuator, gave the installation company a competitive advantage thanks to fast and reliable product commissioning.

Furthermore, the BMS management system will benefit the future of the operation by ensuring it is effectively working at all times.

The Outcome

IMI Hydronic Engineering delivered 1550 TA-Slider 160 KNX actuators and was also able to also cross sell 1550 Calypso TRV-3 radiator valves.

Reliable products, value-enhancing services and commissioning efficiency were definitely crucial aspects for the success of this collaboration.

FACTS

Project Type:	Office Building
Location:	Copenhagen,Denmark
Owner:	Bygningsstyrelsen
Consultant:	MOE A/S
Architect:	Arkitema Architects
System integrator:	Grue & Hornstrup
Gross area:	40,000 m²


© Arkitema Architects


© Arkitema Architects

PRODUCTS INSTALLED:

- TA-Slider 160 KNX
- Calypso TRV-3

NSHAMA Town Square

Discover how digitally configurable actuators could deliver high-performing climate control technologies to 18'000 apartments.

From concept to completion, planning and installing an ideal indoor climate for NSHAMA Town Square
A major new development offering the very latest in contemporary living, NSHAMA Town Square in Dubai comprises 3,000 townhouses, 18,000 apartments and a range of hospitality facilities spread across 750 acres of land.

The challenge

Guaranteeing effective, high-performing climate control technologies was critical to the project's success. IMI Hydronic Engineering's experts were involved from the earliest stage, using HySelect software to complete a range of hydronic calculations to help define an ideal system configuration for the customer.

HySelect enabled our engineers to verify the optimal system pump head, determine the index circuit and identify the ideal location and setting of the pump sensor to deliver the most energy-efficient chilled water network prior to installation.

The solution

The bespoke solution demanded an innovative combination of a range of leading-edge TA solutions to meet the customer's demanding requirements. Both standard and our ground-breaking digitally configurable actuators were installed, alongside combined balancing and control valves, balancing valves and a combination of other components.

The involvement of IMI Hydronic Engineering's experts from the planning stage onwards, has helped ensure significant value add throughout the project lifecycle. The solution will deliver an ideal indoor climate, minimise wear and tear on critical system components and deliver optimal energy efficiency for years to come.

FACTS

Project Type:	Residencial Complex
Location:	Dubai, UAE
Consultant:	Arif & Bintoak
Gross Area:	750 acres

PRODUCTS INSTALLED:

- TA-FUSION
- TA-Slider 160 standard version
- TA-Slider 750 standard version
- EMO TM
- STAF
- TA-BAV
- TA 60
- TA-BTV
- TA-STR
- TA-NRV

Harbord Diggers Memorial Club

Discover how the TA-6-way valve was able to deliver efficiency and control to a combined chilled and hot water climate control system.

A world's first for community hubs, Harbord Diggers Memorial Club is creating an ideal indoor climate for entertainment, leisure and wellbeing

Improving the lives of the local community, both young and old, is the main focus of the redevelopment of the Harbord Diggers Memorial Club. It will provide a safe and secure living accommodation for older residents, while simultaneously delivering superb leisure facilities for the community as a whole

The challenge

The mixed-use nature of the project demanded a hydronic system capable of handling both chilled and hot water climate control. The solution would also have to employ innovative sequencing technologies to minimise piping and controls components and make the best use of limited space.

The solution

A modulating system capable of providing accurate flow control to terminal units was seen as the ideal solution. IMI Hydronic Engineering specified a bespoke solution using a combination of our ground-breaking digitally configurable actuators TA-Slider 160 with bus communication, pressure independent balancing and control valves, TA-Modulator and the recently launched TA-6-way valve.

It's a revolutionary solution that enables heating and cooling modes to be precisely controlled via single pipe system. Aside from delivering unparalleled flow control accuracy, it eliminates the need for multiple valves and actuators and reduces both overall cost and the space taken up by the installation. And with the flexibility and ease-of-use provided by our leading-edge programmable digital actuators, ensuring maximum and minimum flow rates and a comfortable indoor climate at the touch of a button has never been easier.

FACTS

Project Type:	Leisure Facility
Location:	Australia
Developer:	Mounties Group
Gross area:	47'655 m^2

PRODUCTS INSTALLED:

- TA-6-way valve
- TA-Slider 160 Plus
- TA-Modulator

IMI TA

IMI PNEUMATEX

111 YEARS OF EXPERTISE

Your strong partner with global experience

Maracanã Stadium, Rio de Janeiro

Our control and balancing valves delivered an energy efficient indoor climate in Brazil's largest stadium with cooling capacity of 10,6 MW.

Gardens by the Bay, Singapore

IMI TA valves ensure accurate temperature control without compromising on energy efficiency for over 93,000 plants of more than 1,160 species.

Burj Khalifa Tower, Dubai

The world´s tallest building, 828 meters, 160 storeys, 8 000 IMI TA valves, commissioned by IMI Hydronic Engineering.

Orhideea Towers, Bucharest

A complete IMI TA controls solution was installed to deliver accurate temperature control in the 37'000 m² commercial property.

Le Trèfle Building, Geneva

Changeover system commissioned with 1'000 TA-Slider 160 Plus actuators. Digital configuration with TA-Dongle allowed to reduce by 50% the commissioning time versus the initial solution.

www.imi-hydronic.com