SunMaxx Solar™
Hot Water Solutions

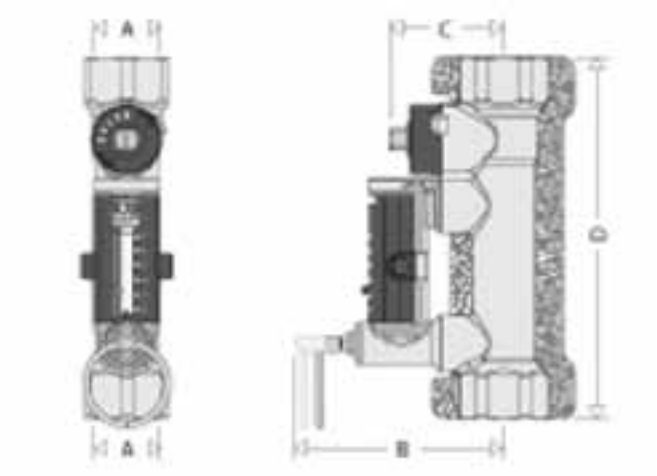
Product Data Sheet
XMaxx Balancing Valves

Technical Specifications

Materials	
Valve	
Body, Ball	Brass
Ball Control Stem	Brass, Chrome Plated
Ball Seal Seat	PTFE
Control Stem Guide	PSU
Seals	EPDM
Flow Meter	
Body	Brass
Bypass Valve Stem	Brass, Chrome Plated
Springs	Stainless Steel
Seals	EPDM
Float and Indicator Cover	PSU
Performance	
Suitable Fluids	Water, Glycol Mix
Max Glycol Percentage	50%
Max Working Pressure	150 psi
Working Temperature Range	14 - 230° F
Accuracy	±10%
Control Stem Angle Rotation	90°
Control Stem Adjustment Wrench	1/2" - 1 1/4" 1 1/2" - 2"
Threaded Connections	1/2" - 2" NPT
Flow Rate Correction Factor	20-30% Glycol: 0.9 40-50% Glycol: 0.8
Insulation	
Material & Thickness	Closed Cell Expanded PE-X - 25/64"
Density	Inner: 1.9 lb/ft3 Outer: 3.1 lb/ft3
Thermal Conductivity (DIN 52612)	@ 32°F: 0.263 @ 104°F: 0.312
Coefficient of Resistance to Water Vapor (DIN 52615)	> 1.300
Working Temperature Range	32 - 212°F
Reaction to Fire (DIN 4102)	Class B2

Flow Rate Ranges

Model	Connection (NPT)	Flow Rate (GPM)	Cv
.5IN-.5/1.75GPM	1/2"	1/2 - 1 3/4	1.0
.75IN-2/7GPM	3/4"	2.0 - 7.0	6.3
1IN-3/10GPM	1"	3.0 - 10.0	8.3
1.25IN-5/19GPM	1 1/4"	5.0 - 19.0	15.2
1.5IN-8/32GPM	1 1/2"	8.0 - 32.0	32.3
2IN-12/50GPM	2"	12.0 - 50.0	53.7



Dimensions & Weight

Model	A (in)	B (in)	C (in)	D (in)	Weight (lbs)
.5IN-.5/1.75GPM	1/2	3-5/16	1-13/16	5-3/4	2.0
.75IN-2/7GPM	3/4	3-5/16	1-13/16	5-3/4	1.8
1IN-3/10GPM	1	3-3/8	1-7/8	6-1/4	2.4
1.25IN-5/19GPM	1-1/4	3-1/2	2	6-1/2	2.8
1.5IN-8/32GPM	1-1/2	3-5/8	2-1/4	6-3/4	3.4
2IN-12/50GPM	2	3-3/4	2-1/2	7	4.4

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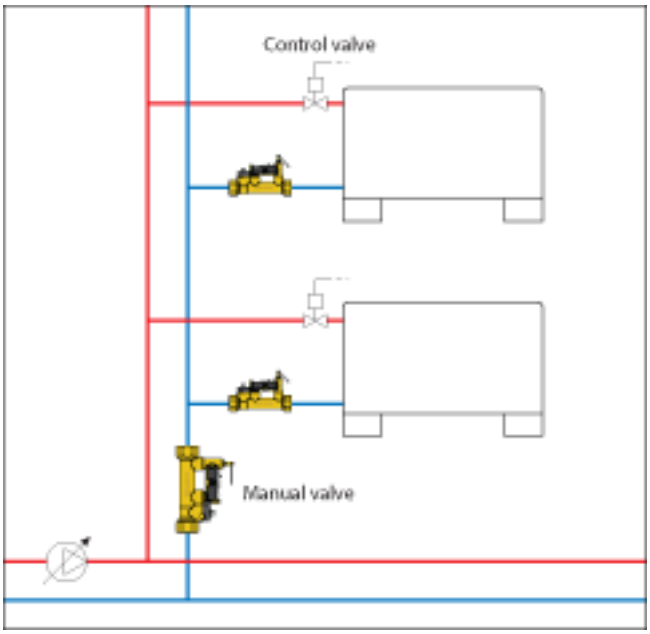
Specifications subject to change without notice

Advantages of Balanced Circuits

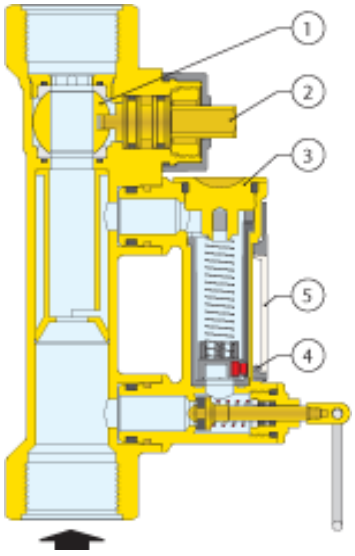
Balanced circuits have the following principal benefits:

1. The system emitters operate properly in heating, cooling and dehumidification, saving energy and providing greater comfort.
2. The zone circuit pumps operate at maximum efficiency, reducing the risk of overheating and excessive wear.
3. High fluid velocities which can result in noise and abrasion are avoided.
4. The differential pressures acting on the circuit control valves are reduced preventing faulty operation.



Operating Principle

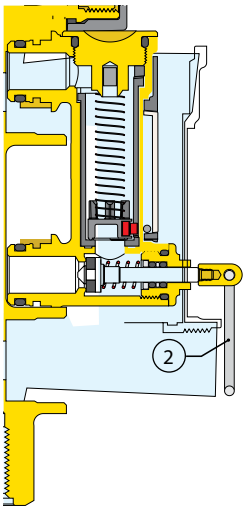
The balancing valve is a hydraulic device that controls the flow rate of the heating/cooling transfer fluid.



The control mechanism is a ball valve (1), operated by a control stem (2). The flow rate is manually and properly set by use of the convenient onboard flow meter (3) housed in a bypass circuit on the valve body. This circuit is automatically shut off during normal operation. The flow rate is indicated by a metal ball (4) sliding inside a transparent channel (5) with an integral graduated scale (6).

Construction Details

Flow meter

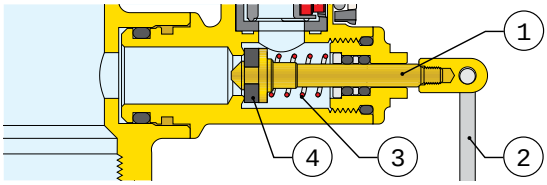


When activated, the flow rate is indicated on the flow meter housed in a bypass circuit on the valve body. When finished reading the flow rate, the flow meter is automatically shut off, isolating it during normal operation. Use of a flow meter greatly simplifies the process of system balancing since the flow rate can be measured and controlled at any time without differential pressure gauges or reference charts. The onboard flow meter eliminates the need to calculate valve settings during system setup. Additionally, the unique onboard flow meter offers unprecedented time and cost savings by eliminating the long and difficult procedure of calculating pre-settings associated with using traditional balancing devices.

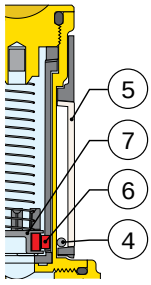
Flow meter bypass valve

The bypass valve (1) opens and closes the circuit between the flow meter and the valve. The bypass valve is easily opened by pulling the operating ring (2), and is automatically closed by the internal return spring (3) when finished reading the flow rate. The spring and the EPDM seal (4) provide a reliable seal to isolate the flow meter during normal operation.

The operating ring (2) material has low thermal conductivity to avoid burns if the flow meter is opened while hot fluid is passing through the valve



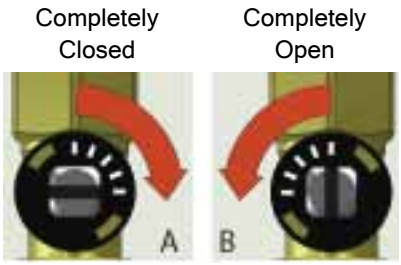
Ball/magnet indicator



The metal ball (4) that indicates the flow rate is not in direct contact with the heating/cooling transfer fluid passing through the flow meter. This is an effective and innovative measuring system in which the ball slides up and down inside a transparent channel (5) that is isolated from the fluid flowing through the body of the flow meter. The ball is moved by a magnet (6) connected to a float (7). In this way the flow rate indication system remains perfectly clean and provides reliable readings over time

Complete closing and opening of the valve

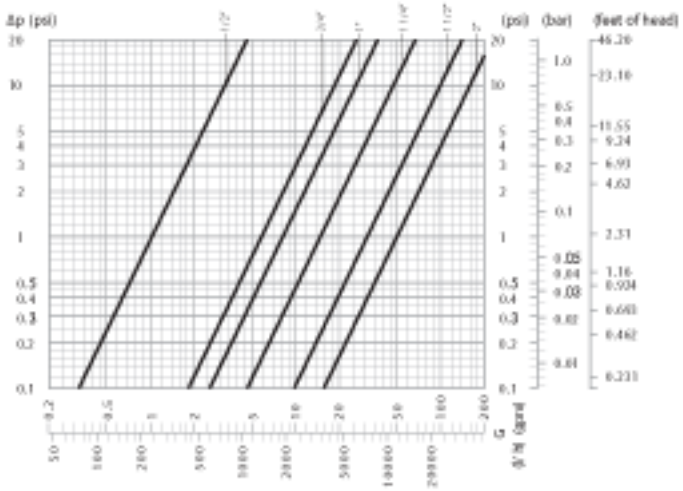
The valve can be completely closed and opened. A slot on the control stem indicates the valve position. When the control stem is turned fully clockwise (the slot is perpendicular to the axis of the valve), the valve is fully closed (A). When the control stem is turned fully counter-clockwise (the slot is parallel to the axis of the valve), the valve is fully open (B).



Insulation

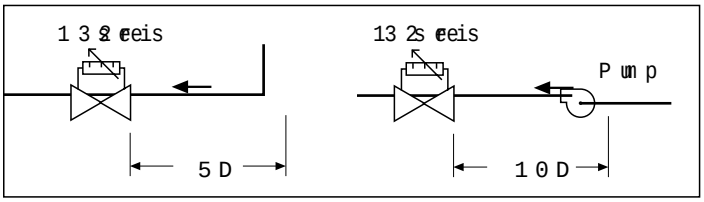
The 132 series balancing valve is supplied with a pre-formed insulating shell. This system ensures perfect thermal insulation and keeps out water vapor from the environment. Additionally, this type of insulation is ideal in cold water circuits as it prevents condensation from forming on the surface of the valve body.

Hydraulic Characteristics at 100% Open

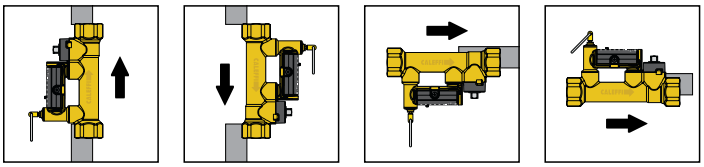


Installation

Install the balancing valve in a location that ensures free access to the flow meter shutoff valve, control stem and flow rate indicator. To ensure accurate flow measurement, straight sections of pipe installed as shown is recommended.



The valve can be installed in any position with respect to the flow direction shown on the valve body. Additionally, the valve can be installed either horizontally or vertically

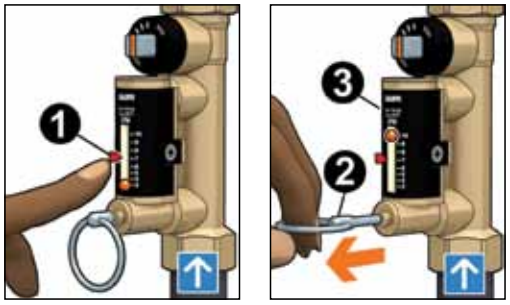


Hydraulic Characteristics at 100% Open

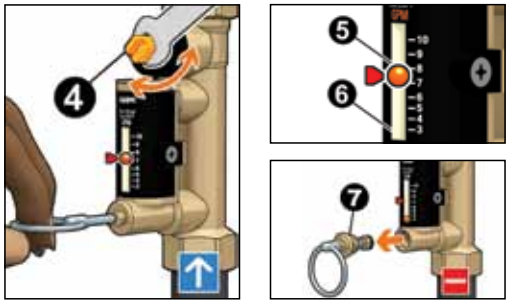
The flow rate is adjusted as follows:

A. With the aid of the flow rate indicator (1), mark the desired flow rate.

B. Use the operating ring (2) to open the bypass valve slowly. This allows fluid to flow through the flow meter (3). The bypass valve is automatically closed under normal operating conditions.



C. While holding the bypass valve open, use a wrench to turn the valve control stem (4) to adjust the flow rate slowly. The resulting flow rate is indicated by the metal ball (5) that slides up and down inside a transparent channel (6) marked by a graduated scale in gpm

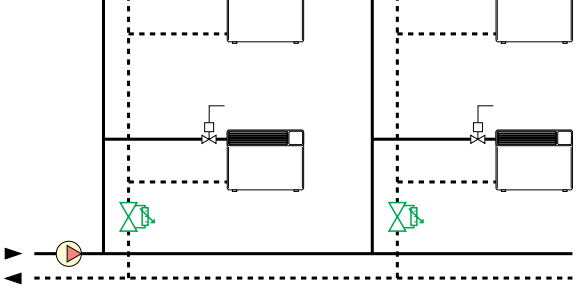


D. Once the flow rate is properly adjusted, release the operating ring (2) of the bypass valve. The valve will automatically return to the closed position by means of an internal spring.

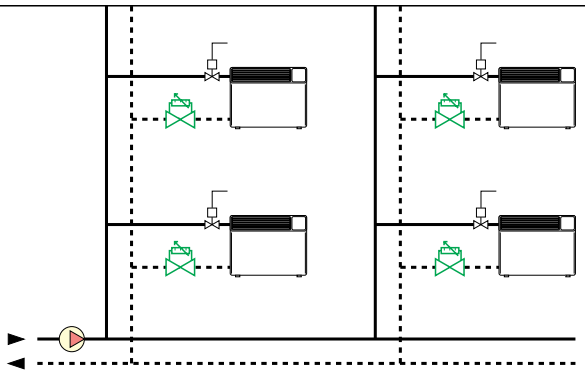
E. A replacement bypass valve stem (7) with operating ring is available in event it is damaged and inoperable. Order code F19346.

Application Diagrams

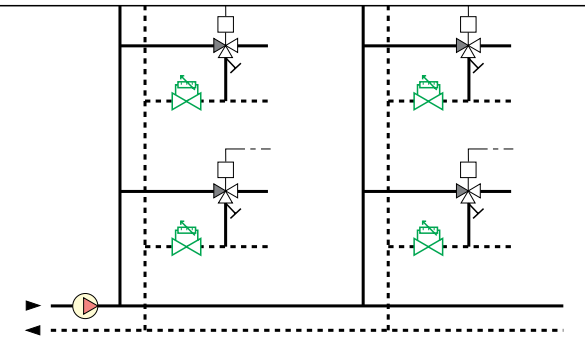
The balancing valve with the flow meter should be installed on the circuit return pipe.



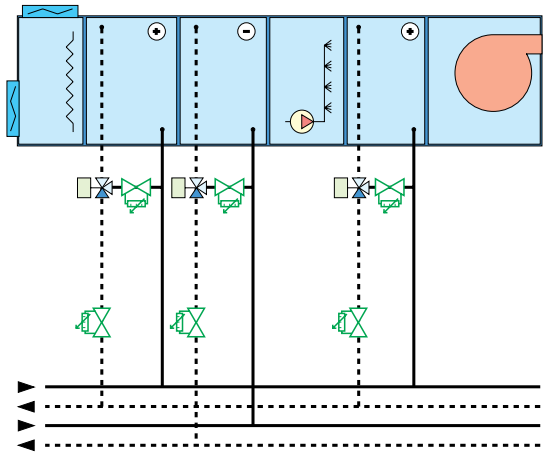
To adjust the flow rate to each riser



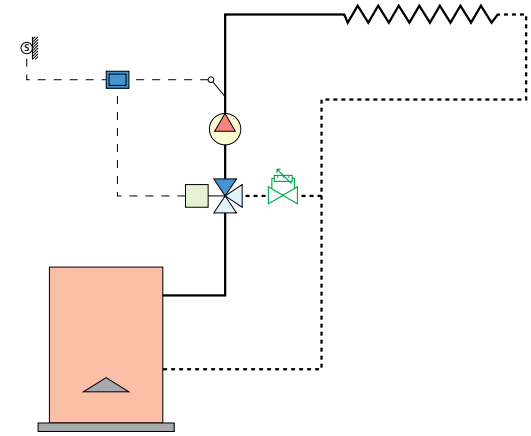
To adjust the flow rate to each emitter



To balance zone branches in circuits with three-way valves



To balance circuits serving air conditioning units



To balance the by-pass branch of outside compensated control circuits

Specification Summaries

Balancing valve with flow meter. Threaded connections 1/2", 3/4", 1", 1-1/4", 1-1/2", 2" NPT Female by Female. Brass body. Brass ball. Brass ball control stem, chrome plated. PTFE ball seal seat. PSU control stem guide. Brass flow meter body. Brass flow meter bypass valve stem, chrome plated. Stainless steel flow meter springs. PSU flow meter float and indicator cover. EPDM seals. With pre-formed shell insulation in expanded closed cell PE-X. Water and glycol solutions. Maximum percentage of glycol 50%. Maximum working pressure 150 psi (10 bar). Working temperature range 14 - 230 deg F (-10–110°C). Flow rate range unit of measurement gallons per minute (gpm). Accuracy ± 10%. Control stem angle of rotation 90°.

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