

ThermoSetter™ Recirculation thermal balancing valve



1164 Series 1/2" - 3/4"

Submittal Data 03302 NA — Issue Date 02/2024

Application

The ThermoSetter™ 1164 series adjustable thermal balancing valve is used for automatic balancing of recirculation loops in domestic hot water systems, to speed hot water delivery, reduce water waste and save energy. The internal thermostatic balancing cartridge automatically modulates flow to ensure a constant temperature in the recirculation piping system. The 116 Series has an adjustment knob with 105 °F to 150 °F (40 °C to 65 °C) temperature scale indication. The adjustment knob is lockable for tamper-proofing. An integral dry-well holds a slide-in temperature gauge for local indication, or a sensor for remote temperature sensing. The standard integral check valve protects against circuit thermo-syphoning. The ThermoSetter complies with NSF/ANSI/CAN 61, as certified by ICC-ES, file PMG-1512 (180 °F/82 °C Commercial Hot), and complies with NSF/ANSI/CAN 372, low lead laws, as certified by ICC-ES, file PMG-1360. It also meets codes IPC, IRC, UPC and NPC for use in accordance with the US and Canadian plumbing codes. The ThermoSetter 1164A series is also available pre-assembled with the Caleffi 290030 series low-lead brass full-port ball valve for isolation. This can be ordered with a code number specifically designating this feature.

Typical Specification

Furnish and install on the plans and describing herein, a ThermoSetter recirculation thermal balancing valve, as manufactured by Caleffi. Each balancing valve must be designed with a DZR low-lead brass body that complies to NSF/ANSI/CAN 372 low-lead laws, as certified by ICC-ES, file PMG-1360. The valve also complies to NSF/ANSI/CAN 61 (180 °F/82 °C Commercial Hot), as certified by ICC-ES, file PMG-1512. It also meets codes IPC, IRC, UPC and NPC for use in accordance with the US and Canadian plumbing codes. PSU adjustable cartridge, peroxide-cured EPDM seals, ABS adjustment knob. The balancing valve must include 1/2" or 3/4" union connections. Each valve has 230 psi (16 bar) maximum working pressure and 105 – 150 °F (40 – 65 °C) adjustable temperature range. Provide with optional outlet temperature gauge with 32 -180 °F (0 - 80 °C) temperature scale, standard check valve, and optional pre-formed insulation shell. Provide with optional inlet and outlet isolation low-lead ball valves, code 290030, factory-assembled; code 290030 or 290031 with extended stem, separately sourced, field installed. Each valve shall be Caleffi model 1164 or approved equal. (See product instructions for specific installation information.)

NSF/ANSI/CAN 61
NSF/ANSI/CAN 372



Technical specifications

Materials:

Body: DZR* low-lead brass EN 12165 CW724R
Adjustable cartridge: PSU
Springs: stainless steel AISI 302 (EN 10270-3)
Hydraulic seals: peroxide-cured EPDM
Adjustment knob: ABS
* Meets the "lead free" requirement of Section 1417 of the Safe Drinking Water Act (SDWA). This product has a weighted average lead content of less than 0.25% for its wetted surfaces contacted with consumable water.

Performance:

Suitable fluid: water
Max. working pressure: 230 psi (16 bar)
Max. differential pressure: 15 psi (1 bar)
Max. inlet temperature: 195 °F (90 °C)
Adjustment temperature range: 105 – 150 °F (40 – 65 °C)
Factory setting: 135 °F (58 °C)

Flow Cv (Kv) max: 2.1 (1.8)

Connections:

Main connections: 1/2" and 3/4" NPT female, sweat, press, PEX expansion, PEX crimp union connections
Temperature gauge/sensor dry-well: Ø 10 mm metric

Temperature gauge code 116010

Scale: 32 - 180°F (0 - 80°C)
Diameter: 1 1/2" (40 mm)
Stem diameter: 0.35" (9 mm)

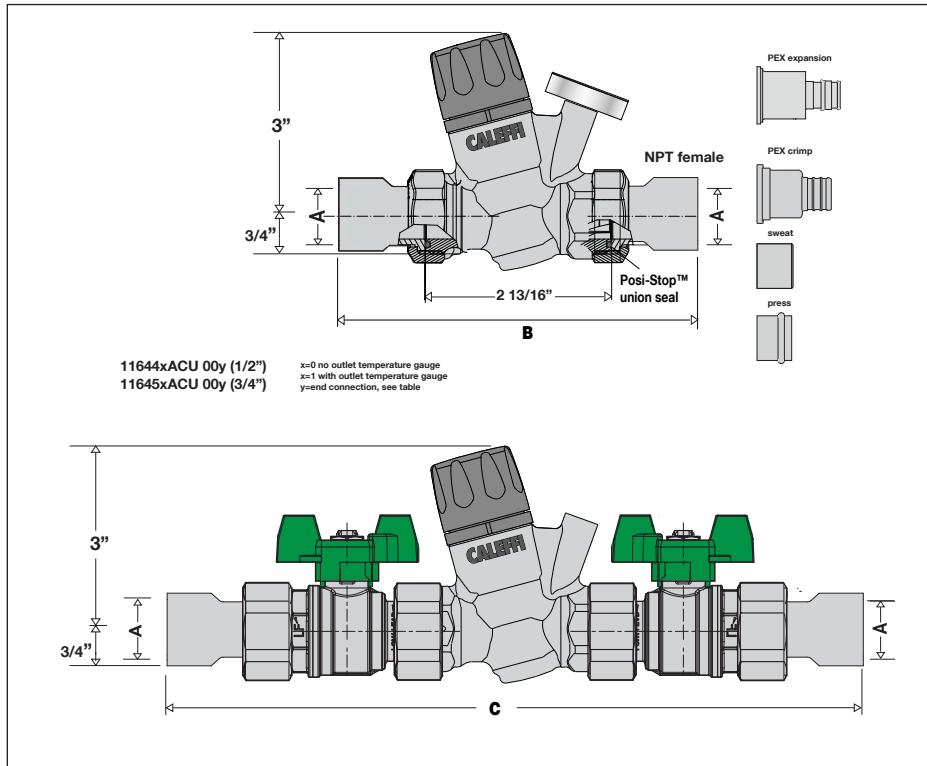
Technical specifications of insulation

Materials: closed cell expanded PE-X
Thickness: 1/2 inch (13 mm)
Density: -internal part: 1.9 lb/ft³ (30 kg/m³)
-external part: 5.0 lb/ ft³ (80 kg/m³)
Thermal conductivity (DIN52612):
- at 32 °F (0 °C): 0.82 BTU · in/hr · ft² · °F (0.0345 W/(m · K))
- at 105 °F (40 °C): 0.94 BTU · in/hr · ft² · °F (0.0398 W/(m · K))
Coefficient of resistance to the diffusion of vapor: > 1,300
Working temperature range: 32 – 212 °F (0 – 100 °C)
Flammability (ASTM D 635): Class VO

Certifications:

1. Complies with codes IPC, IRC, UPC and NPC and standard NSF/ANSI/CAN 61, as certified by ICC-ES, file PMG-1512 (180 °F/82 °C Commercial Hot).
2. Complies with NSF/ANSI/CAN 372, low lead, as certified by ICC-ES, file PMG-1360.
3. PEX crimp fittings certified to ASTM F 1807.
4. PEX expansion fittings certified to ASTM F 1960.

Dimensions



ThermoSetter 1164 series

Code	A	B	C	Wt w/o ball valves lb (kg)	Wt with ball valves lb (kg)
116440AC 002	1/2" NPT F	5"	---	3.0 (1.3)	---
116441AC 002*	1/2" NPT F	5"	---	3.0 (1.3)	---
116440AC 102	1/2" NPT F	---	10"	---	5.0 (2.2)
116441AC 102*	1/2" NPT F	---	10"	---	5.0 (2.2)
116450AC 002	3/4" NPT F	5 1/2"	---	3.0 (1.3)	---
116451AC 002*	3/4" NPT F	5 1/2"	---	3.0 (1.3)	---
116450AC 102	3/4" NPT F	---	11"	---	5.0 (2.2)
116451AC 102*	3/4" NPT F	---	11"	---	5.0 (2.2)

All codes INCLUDE a high temperature check valve.

*with integral outlet temperature gauge.

Dimensions

Code	A	B	C	Wt w/o ball valves lb (kg)	Wt with ball valves lb (kg)
116440AC 009	½" sweat	4 5/16"	---	2.4 (1.1)	---
116441AC 009*	½" sweat	4 5/16"	---	2.5 (1.1)	---
116440AC 109	½" sweat	---	9 13/16"	---	4.4 (2.0)
116441AC 109*	½" sweat	---	9 13/16"	---	4.5 (2.0)
116450AC 009	¾" sweat	4 13/16"	---	2.6 (1.1)	---
116451AC 009*	¾" sweat	4 13/16"	---	2.7 (1.2)	---
116450AC 109	¾" sweat	---	10 5/16"	---	4.6 (2.1)
116451AC 109*	¾" sweat	---	10 5/16"	---	4.7 (2.1)
116440AC 006	½" press**	5"	---	2.2 (1.0)	---
116441AC 006*	½" press**	5"	---	2.3 (1.0)	---
116440AC 106	½" press**	---	10 ½"	---	4.2 (1.9)
116441AC 106*	½" press**	---	10 ½"	---	4.3 (1.9)
116450AC 006	¾" press**	5"	---	2.2 (1.0)	---
116451AC 006*	¾" press**	5"	---	2.3 (1.0)	---
116450AC 106	¾" press**	---	10 ½"	---	4.2 (1.9)
116451AC 106*	¾" press**	---	10 ½"	---	4.3 (1.9)
116440AC 008	½" PEX exp	4 ¼"	---	2.2 (1.0)	---
116441AC 008*	½" PEX exp	4 ¼"	---	2.3 (1.0)	---
116440AC 108	½" PEX exp	---	9 ¾"	---	4.2 (1.9)
116441AC 108*	½" PEX exp	---	9 ¾"	---	4.3 (1.9)
116450AC 008	¾" PEX exp	7 3/16"	---	2.4 (1.1)	---
116451AC 008*	¾" PEX exp	7 3/16"	---	2.4 (1.1)	---
116450AC 108	¾" PEX exp	---	12 11/16"	---	4.4 (2.0)
116451AC 108*	¾" PEX exp	---	12 11/16"	---	4.4 (2.0)
116440AC 007	½" PEX crimp	4 3/16"	---	2.2 (1.0)	---
116441AC 007*	½" PEX crimp	4 3/16"	---	2.3 (1.0)	---
116440AC 107	½" PEX crimp	---	9 11/16"	---	4.2 (1.9)
116441AC 107*	½" PEX crimp	---	9 11/16"	---	4.3 (1.9)
116450AC 007	¾" PEX crimp	6 3/16"	---	2.4 (1.1)	---
116451AC 007*	¾" PEX crimp	6 3/16"	---	2.4 (1.1)	---
116450AC 107	¾" PEX crimp	---	11 13/16"	---	4.4 (2.0)
116451AC 107*	¾" PEX crimp	---	11 13/16"	---	4.4 (2.0)

All codes INCLUDE a high temperature check valve.

*with integral outlet temperature gauge.

**Lay Length: size 1/2": 3 ¼"; size 3/4": 2 7/16".

We reserve the right to change our products and their relevant technical data, contained in this publication, at any time and without prior notice. Contractors should request production drawings if prefabricating the system

Job name _____	Size _____
Job location _____	Quantity _____
Engineer _____	Approval _____
Mechanical contractor _____	Service _____
Contractor's P.O. No. _____	Tag No. _____
Representative _____	Notes _____