ThermoSetter™ Recirculation thermal balancing valve

1161 Series ½" - ¾"

Submittal Data 03301 NA — Issue Date 10/2021

Application

The ThermoSetter™ 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 95°F to 140°F (35°C to 60°C) temperature scale indication. An integral dry-well holds a slide-in temperature gauge for local indication, or a sensor for remote temperature sensing. The optional check valve protects against circuit thermo-syphoning.

The ThermoSetter 116A series is also available pre-assembled with the Caleffi NA108 series low-lead brass full-port ball valve for isolation. This can be ordered complete with two of these ball valves plus low-lead close nipples by adding a suffix "001" to the order code number.

Typical Specification

Furnish and install on the plans and describing herein, a Caleffi recirculation thermal balancing valve, as manufactured by Caleffi. Each balancing valve must be designed with a DZR low-lead brass body that complies with NSF/ANSI 372, as certifed by ICC-ES, file PMG-1360. Complies with NSF/ANSI/CAN 61 (180°F/82°C Commercial Hot) as certified by ICC-ES, file PMG-1512. Stainless steel & copper adjustable cartridge, peroxide-cured EPDM seals, ABS adjustment knob. The balancing valve must include ½" or ¾" NPT female connections. Each valve has 230 psi (16 bar) maximum working pressure and 95-140°F (35–60°C) adjustable temperature range. Provide with optional outlet temperature gauge with 30-180°F (0–80°C) temperature scale, optional check valve. and optional pre-formed insulation shell. Provide with optional inlet and outlet low-lead brass full-port ball valves, NPT female x NPT female, for isolation, factory-assembled, or separately-sourced, Code NA108 series, with separately-sourced low-lead close nipples. Each valve shall be Caleffi model 1161 or approved equal. (See product instructions for specific installation information.)

Technical specifications

NSF/ANSI/CAN 61

ICC ES c PMG LOW LEAD

Materials

Body:	DZR low-lead brass
Adjustable cartridge:	stainless steel & copper
Springs:	stainless steel AISI 302 (EN 10270-3)
Hydraulic seals:	peroxide-cured EPDM
Adjustment knob:	ABS

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:	95-140°F (35–60°C)
Flow Cv (Kv) max:	2.1 (1.8)
Flow Cv (Kv) min:	0.23 (0.2)
Flow Cv (Kv) design:	0.52 (0.45)

Connections:

Main connections:	½" NPT female ¾" NPT female
Temperature gauge/sensor dry-well:	Ø 10 mm metric

Temperature gauge code 116010

Scale:	30 - 180°F (0–80°C)
Diameter:	1½" (40 mm)
Stem diameter:	0.35" (9 mm)

Technical specifications of insulation, code CBN116140

Materials:	closed cell expanded PE-X
Thickness:	½ 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 and UPC and standard NSF/ANSI/CAN 61(180°F/82°C Commercial Hot), as certified by ICC-ES, file PMG-1512.
2. Complies with NSF/ANSI 372, low lead, as certified by ICC-ES, file PMG-1360.

Technical specifications of isolation ball valves

Materials

Body and end connection:	high tensile strength forged low-lead brass C28500
Ball and stem:	low-lead brass C28500
Stem nut:	steel (CL04)
Seats (2):	PTFE
90° stop:	hot rolled steel (DD11)
O-ring stem seals (2):	nitrile butadiene rubber (NBR) & fluoro-elastomer (FKM)
Thrust washer and packing ring:	PTFE
Black T-handle:	polyamide thermal plastic (PA6.6)
Handle top cap:	acrylonitrile butadiene styrene (ABS)

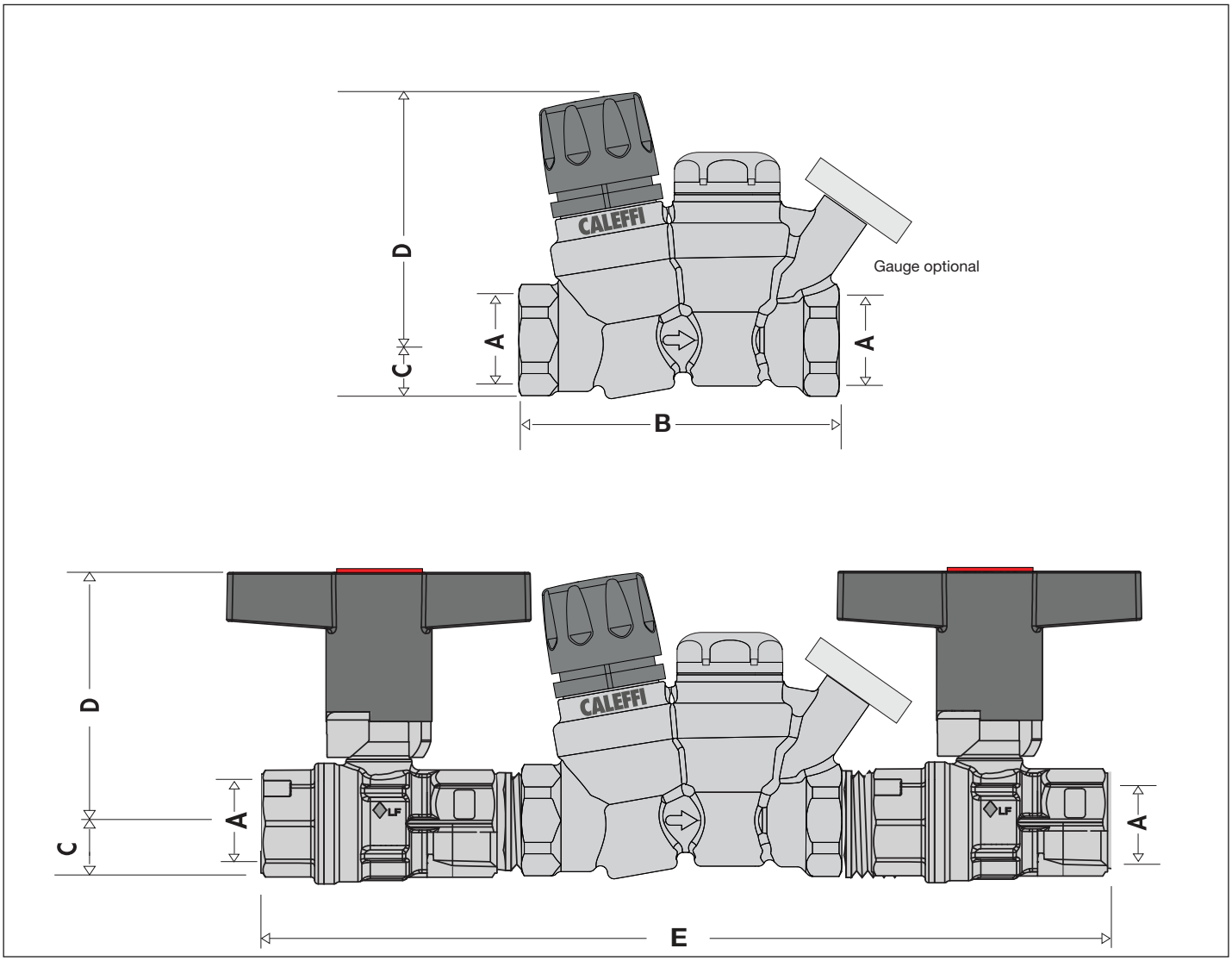
Performance

Suitable Fluids:	water, glycol solutions
Max. percentage of glycol:	50%
Pressure rating:	600 WOG-150WSP
Working temperature range:	-4 – 366°F (-20 – 186°C)
Shutoff performance:	bubble tight

Connections:

Main connections:	1/2", 3/4" NPT female inlet and outlet

Dimensions

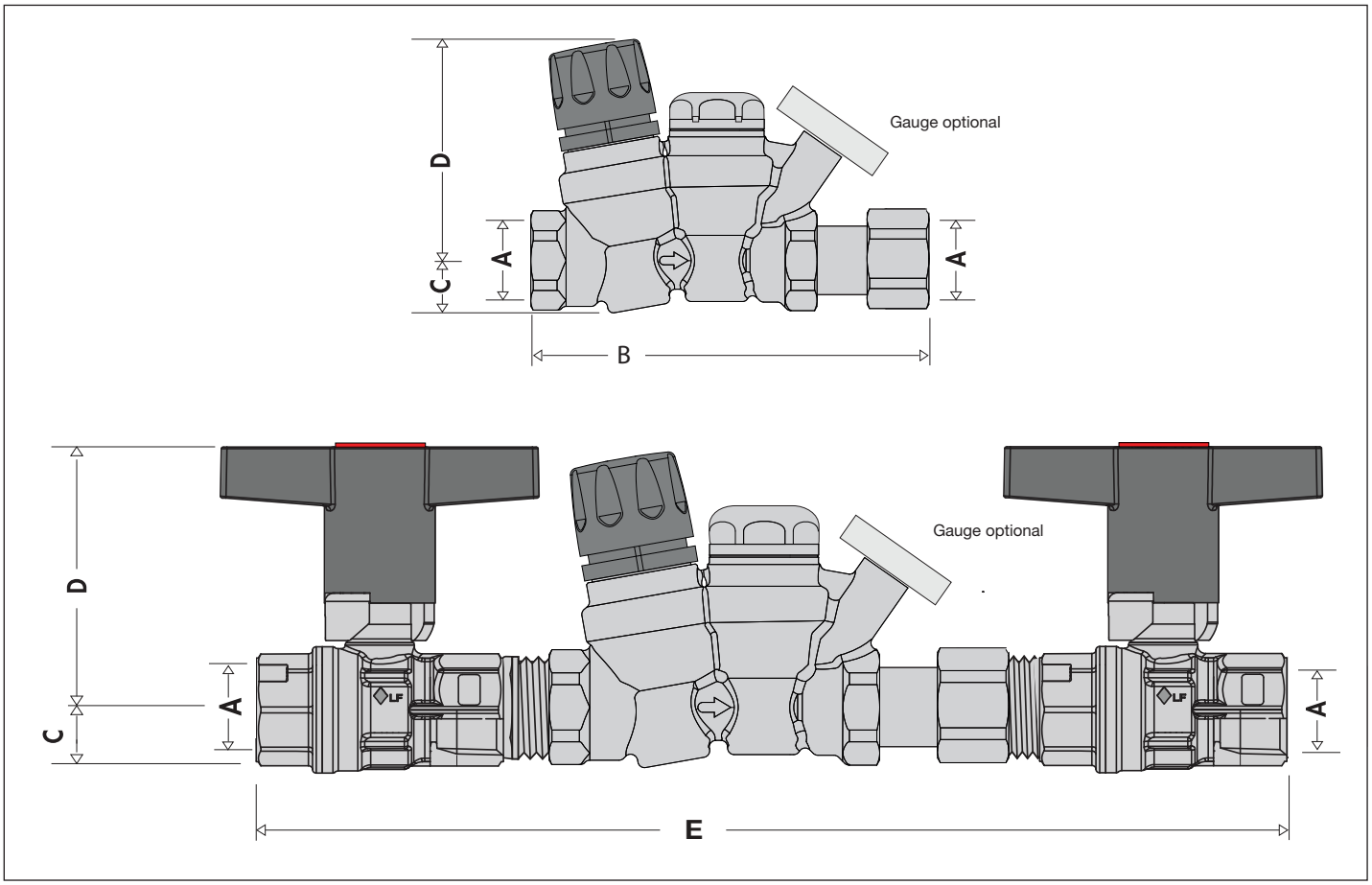


ThermoSetter 116A series without check valves

Code (1)	A	B	C	D	E	Wt w/o ball valves (lb/kg)	Wt with ball valves (lb/kg)
116140A	½" NPT F	4"	¾"	3"	--	1.6 / (0.7)	--
116140A 001	½" NPT F	--	¾"	3"	11¼"	--	2.6 (1.1)
116141A*	½" NPT F	4"	¾"	3"	--	1.7 / (0.8)	
116141A 001*	½" NPT F	--	¾"	3"	11¼"	--	2.7 (1.2)
116150A	¾" NPT F	4"	¾"	3"	--	1.6/ (0.7)	--
116150A 001	¾" NPT F	--	¾"	3"	10 9/16"	--	3.1 (1.4)
116151A*	¾" NPT F	4"	¾"	3"	--	1.7 / (0.8)	--
116151A 001*	¾" NPT F	--	¾"	3"	10 9/16"	--	3.2 (1.5)

Codes with suffix '001' come assembled with NA108 ball valves on the inlet and outlet.
* Models with integral outlet temperature gauge.

Dimensions



ThermoSetter 116A series with check valves

Code	A	B	C	D	E	Wt w/o ball valves (lb/kg)	Wt with ball valves (lb/kg)
116140AC	½" NPT F	5 7/16"	¾"	3"	--	1.8 / 0.8	--
116140AC 001	½" NPT F	--	¾"	3"	12 15/16"	--	2.8 (1.3)
116141AC*	½" NPT F	5 7/16"	¾"	3"	--	1.9 / 0.9	
116141AC 001*	½" NPT F	--	¾"	3"	12 15/16"	--	2.9 (1.3)
116150AC	¾" NPT F	5 5/8"	¾"	3"	--	1.8/ 0.8	--
116150AC 001	¾" NPT F	--	¾"	3"	13 1/8"	--	3.1 (1.4)
116151AC*	¾" NPT F	5 5/8"	¾"	3"	--	1.9 / 0.9	--
116151AC 001*	¾" NPT F	--	¾"	3"	13 1/8"	--	3.2 (1.5)

Codes with suffix '001' come assembled with NA108 ball valves on the inlet and outlet.
* Models with integral outlet temperature gauge.

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

Caleffi North America, Inc. 3883 W. Milwaukee Road / Milwaukee, WI 53208
Tel: 414-238-2360 / Fax: 414-238-2366 / www.caleffi.com

ThermoSetter™ Recirculation thermal balancing valve

1161 Series 1” - 1¼"

Submittal Data 03301.02 NA — Issue Date 10/2021

Application

The ThermoSetter™ 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 116A Series has an adjustment knob with 95°F to 150°F (35°C to 65°C) temperature scale indication. An integral dry-well holds a slide-in temperature gauge for local indication, or a sensor for remote temperature sensing. The optional check valve protects against circuit thermo-syphoning.

The ThermoSetter 116A series is also available pre-assembled with the Caleffi NA108 series low-lead brass full-port ball valve for isolation. This can be ordered complete with two of these ball valves plus low-lead close nipples by adding a suffix "001" to the order code number.

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 with NSF/ANSI 372, as certifed by ICC-ES, file PMG-1360. Complies with NSF/ANSI/CAN 61 (180°F/82°C Commercial Hot) as certified by ICC-ES, file PMG-1512. Stainless steel & copper adjustable cartridge; peroxide-cured EPDM seals, ABS adjustment knob. The balancing valve must include 1” or 1¼" NPT female connections. Each valve has 230 psi (16 bar) maximum working pressure and 95-150°F (35–65°C) adjustable temperature range. Provide with optional outlet temperature gauge with 30-180°F (0–80°C) temperature scale, optional check valve. and optional pre-formed insulation shell. Provide with optional inlet and outlet low-lead brass full-port ball valves, NPT female x NPT female, for isolation, factory-assembled, or separately-sourced, Code NA108 series, with separately-sourced low-lead close nipples. Each valve shall be Caleffi model 1161 or approved equal. (See product instructions for specific installation information.)

NSF/ANSI/CAN 61

ICC ES PMG LOW LEAD

Technical specifications

Materials

Body:	DZR low-lead brass
Adjustable cartridge:	stainless steel & copper
Springs:	stainless steel AISI 302 (EN 10270-3)
Hydraulic seals:	peroxide-cured EPDM
Adjustment knob:	ABS

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:	95-150°F (35–65°C)
Flow Cv (Kv) max:	4.4 (3.8)
Flow Cv (Kv) min:	1.0 (0.9)
Flow Cv (Kv) design:	1.9 (1.6)

Connections:

Main connections:	1" and 1¼" NPT female
Temperature gauge/sensor dry-well:	Ø 10 mm metric

Temperature gauge code 116010

Scale:	30 - 180°F (0–80°C)
Diameter:	1½" (40 mm)
Stem diameter:	0.35" (9 mm)

Technical specifications of insulation, code CBN116140

Materials:	closed cell expanded PE-X
Thickness:	½ 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 and UPC and standard NSF/ANSI/CAN 61(180°F/82°C Commercial Hot), as certified by ICC-ES, file PMG-1512.
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Technical specifications of isolation ball valves

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Ball and stem:	low-lead brass C28500
Stem nut:	steel (CL04)
Seats (2):	PTFE
90° stop:	hot rolled steel (DD11)
O-ring stem seals (2):	nitrile butadiene rubber (NBR) & fluoro-elastomer (FKM)
Thrust washer and packing ring:	PTFE
Black T-handle:	polyamide thermal plastic (PA6.6)
Handle top cap:	acrylonitrile butadiene styrene (ABS)

Performance

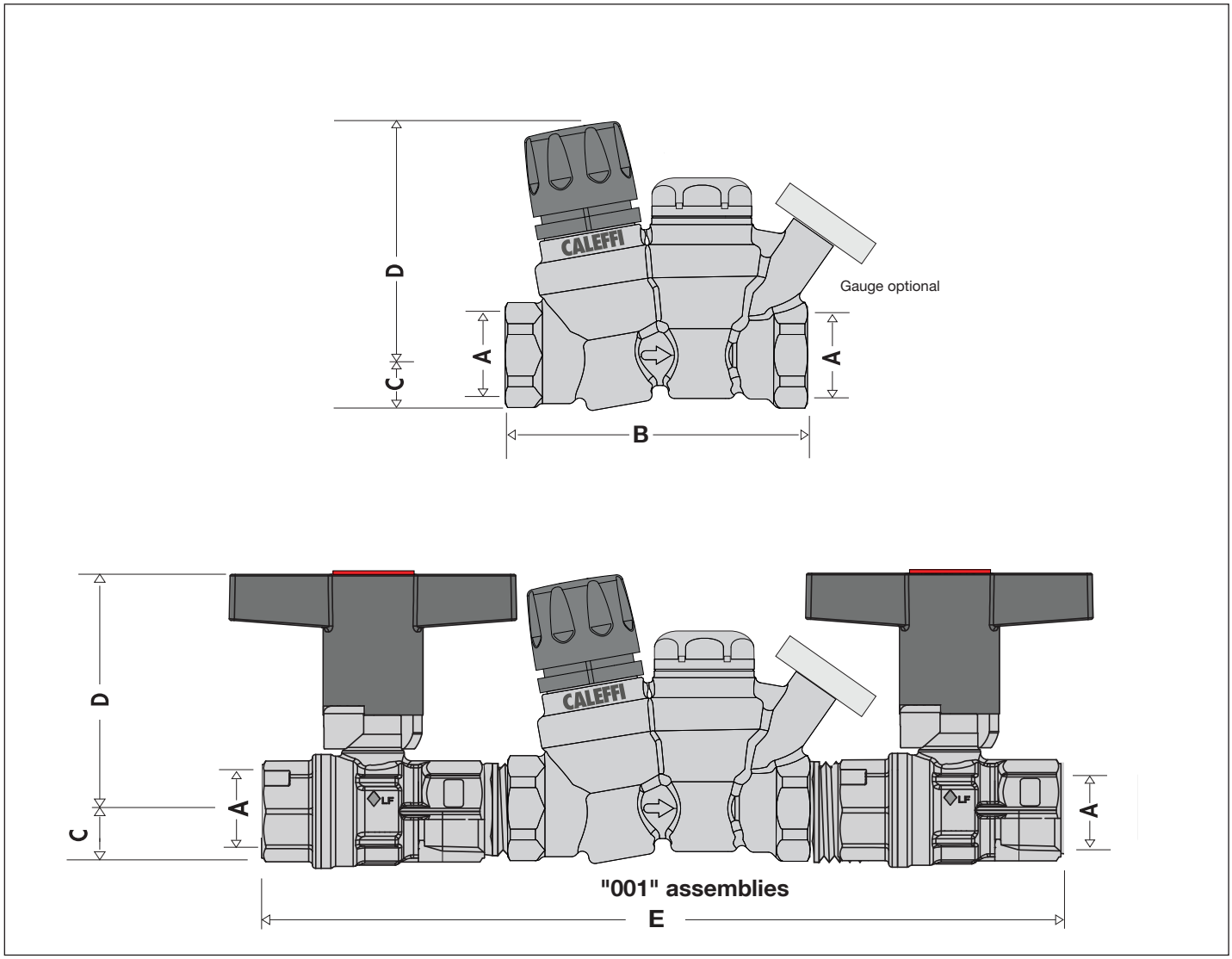
Suitable Fluids:	water, glycol solutions
Max. percentage of glycol:	50%
Pressure rating:	600 WOG-150WSP
Working temperature range:	-4 – 366°F (-20 – 186°C)
Shutoff performance:	bubble tight

Connections:

Main connections:	1", 1-1/4" NPT female inlet and outlet

Dimensions

ThermoSetter 116A series without check valves

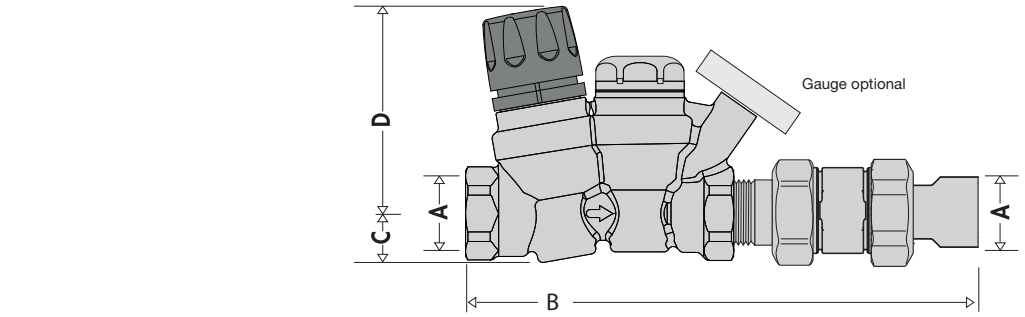


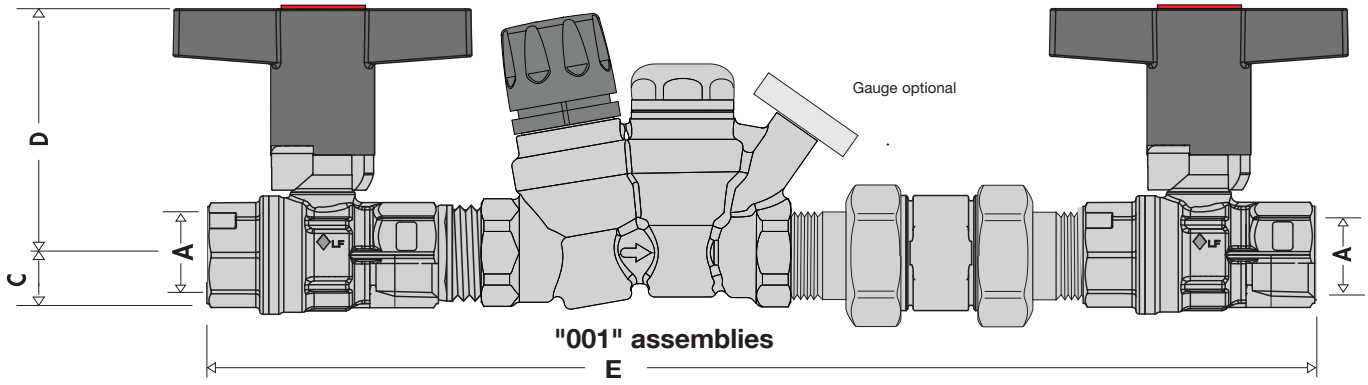
Code	A	B	C	D	E	Wt w/o ball valves (lb/kg)	Wt with ball valves (lb/kg)
116160A	1" NPT F	4½"	1"	4 3/8"	--	2.1 / (0.95)	--
116160A 001	1" NPT F	--	1"	4 3/8"	12"	--	4.1 (1.8)
116161A*	1" NPT F	4½"	1"	4 3/8"	--	2.2 / (1.00)	--
116161A 001*	1" NPT F	--	1"	4 3/8"	12"	--	4.2 (1.9)
116170A	1¼" NPT F	4½"	1"	4 3/8"	--	2.1 / (0.95)	--
116170A 001	1¼" NPT F	--	1"	4 3/8"	13 7/8"	--	5.6 (2.5)
116171A*	1¼" NPT F	4½"	1"	4 3/8"	--	2.2 / (1.00)	--
116171A 001*	1¼" NPT F	--	1"	4 3/8"	13 7/8"	--	5.7 (2.6)

Codes with suffix '001' come assembled with NA108 ball valves on the inlet and outlet.
* Models with integral outlet temperature gauge.

Dimensions

ThermoSetter 116A series with check valves





Code (1)	A	B	C	D	E	Wt w/o ball valves (lb/kg)	Wt with ball valves (lb/kg)
116160AC	1" NPT F	9 ½"	1"	4 3/8"	--	2.3 / 1.00	--
116160AC 001	1" NPT F	--	1"	4 3/8"	15 ¾"	--	4.3 (1.9)
116161AC*	1" NPT F	9 ½"	1"	4 3/8"	--	2.4 / 1.1	--
116161AC 001*	1" NPT F	--	1"	4 3/8"	15 ¾"	--	4.4 (2.0)
116170AC	1¼" NPT F	9 ¾"	1"	4 3/8"	--	2.3 / 1.00	--
116170AC 001	1¼" NPT F	--	1"	4 3/8"	17 3/8"	--	4.1 (1.8)
116171AC*	1¼" NPT F	9 ¾"	1"	4 3/8"	--	2.4 / 1.1	--
116171AC 001*	1¼" NPT F	--	1"	4 3/8"	17 3/8"	--	4.2 (1.9)

Codes with suffix '001' come assembled with NA108 ball valves on the inlet and outlet.
* Models with integral outlet temperature gauge.

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

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