

## Manifold Mixing Station

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**172 series**

### Installation, commissioning and servicing instructions

#### Function

The 172 series manifold mixing station is designed for use in manifold-based hydronic distribution systems. The manifold mixing station incorporates a pump and a thermostatic mixing valve which keeps the flow temperature at a constant set value for use in low temperature systems such as floor radiant panels. A removable primary circuit hydraulic separator with check valve is also supplied. The hydraulic separator is essential when there is a primary circuit circulation pump and when radiator circuits or fan coils are controlled by thermostatic or thermo-electric valves. When connecting to a Caleffi HYDROLINK™ or hydraulic separator without a primary pump, the hydraulic separator can be removed and the manifold mixing station can be connected directly. The 172 station, like the TWISTFLOW™ Series 668S1 distribution manifolds, can be configured with 3 to 13 circuit outlets offering similar benefits with built-in sight flow meters/adjustable balancing valves and optional TWISTOP™ thermo-electric zone actuators.

#### Product range



172 series Pre-assembled Manifold Mixing Station with flow gauges and thermostatic fixed point mixing, three speed pump.....  
.....3 to 13 outlets 3/4" conical circuit connections,  
3/4" supply and return connections



172HE series Pre-assembled Manifold Mixing Station with flow gauges and thermostatic fixed point mixing, high efficiency pump...  
.....3 to 13 outlets 3/4" conical circuit connections,  
3/4" supply and return connections

Scan to view



172 Manifold

**Installation Tip**

## Technical specifications

### Materials

Three-way mixing valve unit:

Body:	brass
Bonnet:	brass
Shutter:	PSU
Seals:	EPDM
Top elbow with supply temperature gauge:	brass

Primary circuit hydraulic separator:

Body:	brass
Check valve:	POM
Spring:	stainless steel

Shut-off valves:

Body:	brass
Ball: brass,	chrome plated

Supply and Return Manifolds:

Body:	brass
Springs:	stainless steel
Seals:	EPDM
End fittings:	brass
Automatic air vent:	brass
Drain valve:	brass

### Performance

Suitable fluids:	water, glycol solutions
Max. percentage of glycol:	30%
Control temperature range:	80–130°F (25–55°C)
Accuracy:	±4°F (±2°C)
Primary inlet max. temperature:	195°F (90°C)
Max. working pressure:	150 psi (10 bar)
Min. opening pressure for primary circuit check valve:	1.5 psi (10 kPa)
Mixed outlet temperature gauge:	2" diameter
	Dual-scale from 30° F to 210° F and 0° C to 100° C

Connections: - primary circuit:

- to mixing valve unit:	3/4" NPT male
- manifold circuit outlets:	1" Female with nut
- outlet center distance:	3/4" male "eurocone" (requires Caleffi manifold fitting)
	2" (50 mm)

### Pump

Three-speed pump ‡: Grundfos model UPS 15-58

Body: cast iron

Electric supply: 115 V - 60 Hz

Max. ambient temperature: 105°F (40°C)

Protection class: IP 44

Pump center distance: 6 1/2" (165 mm)

Pump connections: 1 1/2"

‡ Alpha 25-55U pump available on 172 HE models. Refer to the mfr manuals for information.



## SAFETY INSTRUCTION / CONSIGNE DE SÉCURITÉ

This safety alert symbol will be used in this manual to draw attention to safety related **instructions**. When used, the **safety alert symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN A SAFETY HAZARD.**

*Ce symbole d'avertissement servira dans ce manuel à attirer l'attention sur la sécurité concernant instructions. Lorsqu'il est utilisé, ce symbole signifie ATTENTION ! DEVENEZ ALERTE ! VOTRE SÉCURITÉ EST EN JEU ! NE PAS SUIVRE CES INSTRUCTIONS PEUT PROVOQUER UN RISQUE DE SÉCURITÉ.*



**WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**AVERTISSEMENT:** Ce produit peut vous exposer à des produits chimiques comme le plomb, qui est connu dans l'État de Californie pour causer le cancer, dommages à la naissance ou autre. Pour plus d'informations rendez-vous [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).



**WARNING:** Caleffi shall not be liable for damages resulting from stress corrosion, misapplication or misuse of its products.

**AVERTISSEMENT:** *Caleffi ne sera pas responsable des dommages résultant de la corrosion sous tension, d'une mauvaise application ou d'une mauvaise utilisation de ses produits.*



**CAUTION:** All work must be performed by qualified personnel trained in the proper application, installation, and maintenance of systems in accordance with all applicable codes and ordinances.

**ATTENTION:** *Tous les travaux doivent être effectués par du personnel qualifié formé à la bonne application, installation et maintenance des systèmes conformément aux codes et règlements locaux.*



**CAUTION:** If the manifold is not installed, commissioned and maintained properly, according to the instructions contained in this manual, it may not operate correctly and may endanger the user.

**ATTENTION:** *Si la station de mélange de collecteur-collectore n'est pas installée, mise en service et entretenue correctement, selon les instructions contenues dans ce manuel, il peut ne pas fonctionner correctement et peut mettre en danger l'utilisateur.*



**CAUTION:** Make sure that all the connecting pipework is water tight.

**ATTENTION:** *S'assurer que tous les raccordements sont étanches.*



**CAUTION:** Over-tightening and breakage can occur with the use of Teflon® pipe joint compounds. Teflon® provides lubricity so that care must be exercised not to over-tighten joints. Failure to follow these instructions could result in property damage and /or personal injury.

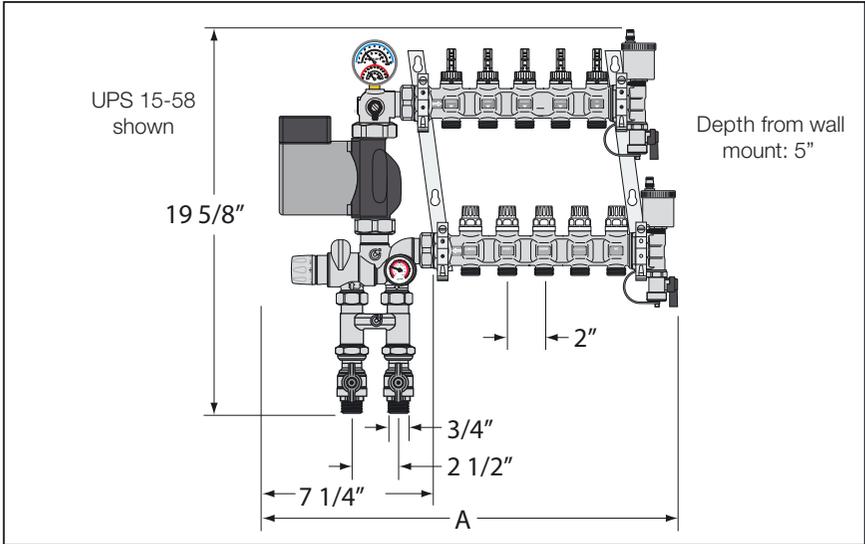
**ATTENTION:** *Un serrage excessif et une rupture peuvent survenir avec l'utilisation de Teflon® composés de joint de tuyau. Le Teflon® offre un pouvoir lubrifiant de sorte que les soins doivent être exercés pour ne pas trop serrer les joints. Non-respect de ces instructions pourrait entraîner des dommages matériels et / ou des blessures corporelles.*



**WARNING:** System fluids are under pressure or temperature can be hazardous. Be sure the pressure has been reduced to zero and the system temperature is below 100°F (38°C). Failure to follow these instructions could result in property damage and/or personal injury.

**ATTENTION:** *Les fluides du système sont sous pression ou la température peut être hasardeux. Assurez-vous que la pression a été réduite à zéro et que la température du système est inférieure à 38° C (100° F). Non-respect de ces instructions peuvent entraîner des dommages matériels et / ou des blessures corporelles.*

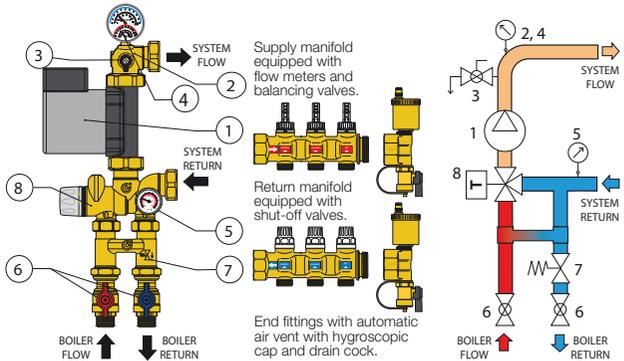
## Dimensions



<b>Outlets</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>A</b>	17"	19"	21"	23"	25"	27"
<b>Outlets</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>	
<b>A</b>	30"	32"	34"	36"	38"	

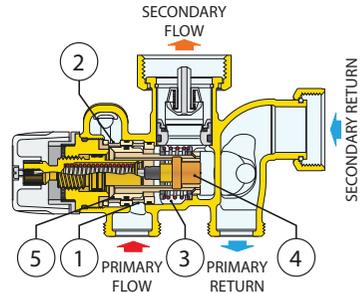
## Characteristic components / hydraulic diagram

Item	Description	Symbol
1	Circulation pump UPS 15-58 pictured	
2	Top elbow with supply temperature and pressure gauge	
3	Purge valve	
4	Supply temperature and pressure gage	
5	Return temperature gage	
6	Primary circuit shut-off valves	
7	Primary circuit hydraulic separator with check valve	
8	Thermostatic three-way mixing valve with built-in sensor	



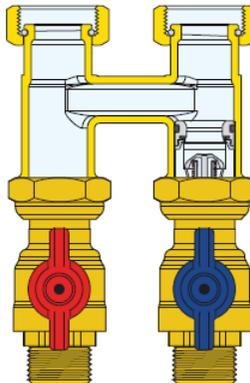
## Operating principle

The fluid temperature is controlled by a thermostatic three-way mixing valve regulated by a thermostatic sensor (4) located in the mixed water outlet chamber (3) of the valve. By expanding and contracting, it continuously ensures a correct proportioning of hot water coming from the boiler, and water returning from the manifold circuit. The water intake is regulated by an internal cartridge, consisting of a piston (5) that slides inside a cylinder, located between the hot water flow (1) and the water returning from the circuit (2). Even if the secondary circuit thermal load or the inlet temperature from the boiler changes, the mixing valve automatically adjusts the flow rates until it obtains the set secondary flow temperature.

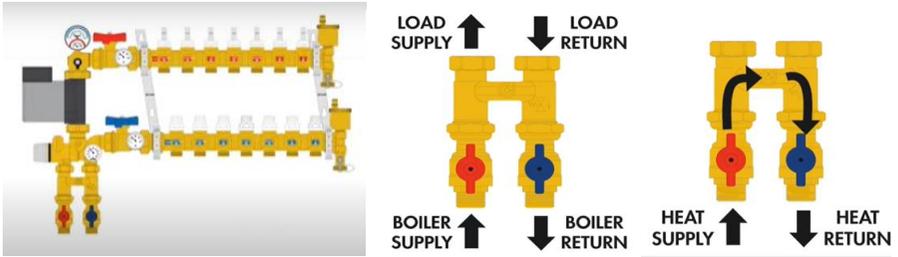


## (H pattern) Hydraulic separator with check valve (item 7)

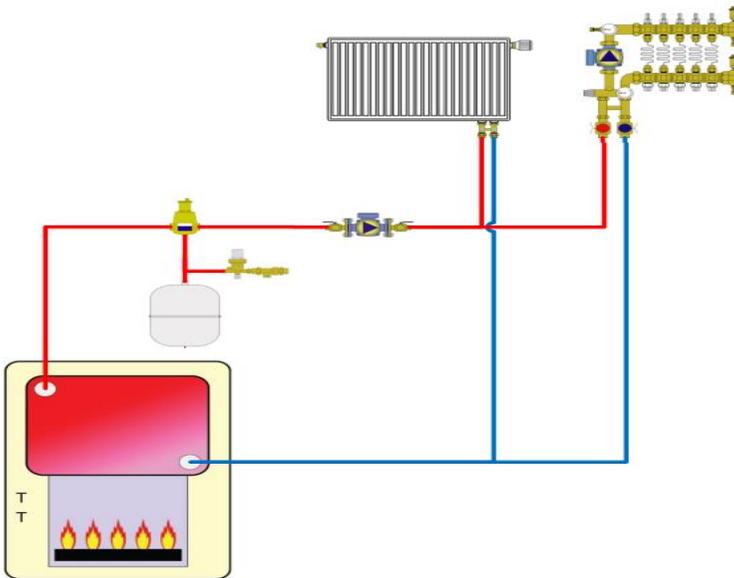
The hydraulic separator permits hydraulic separation between the primary and secondary circuits, preventing flow in one circuit from interfering with flow in the other. It can be removed if connecting directly to a HYDROLINK™ or hydraulic separator or buffer tank without a primary pump.



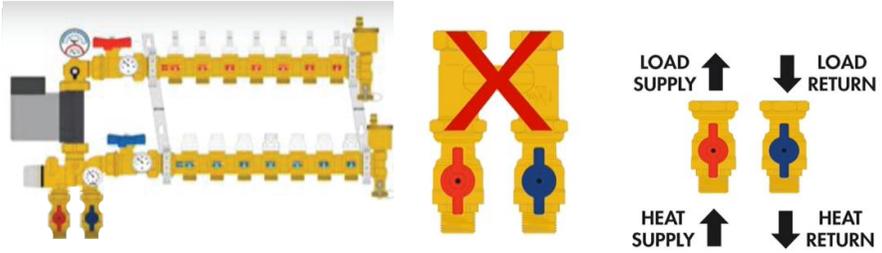
## Application using the H hydraulic separator



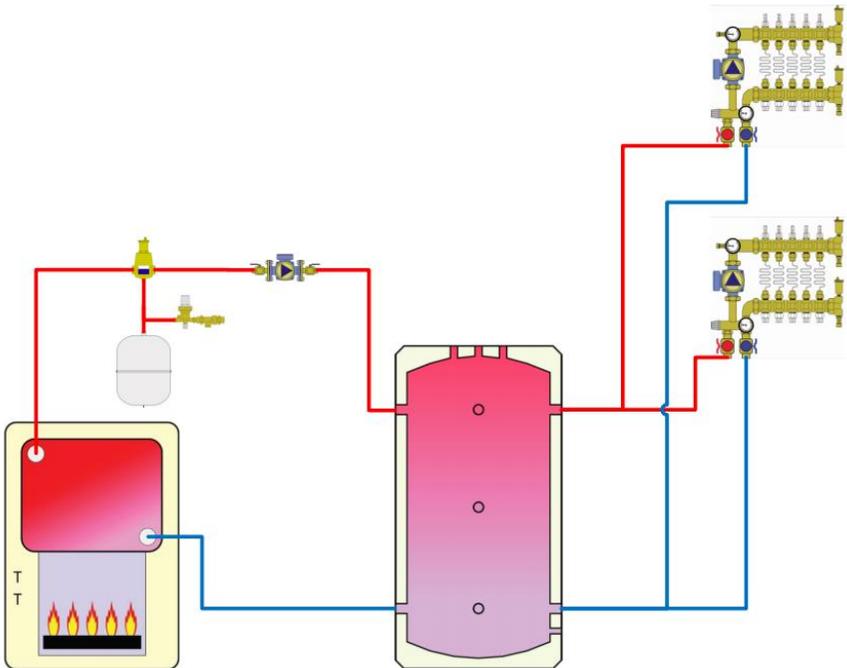
The H separator is used in applications to provide primary/secondary hydraulic separation at the mixing station. This application will require a primary pump pumping to the mixing station and will allow the pump in the mixing station to act as the secondary pump for the manifold.



### Applications not using the H hydraulic separator



- With systems designed to have the mixing manifold pump also act as the primary system pump it will require removing the H shaped hydraulic separator.
- Remove the separator and separator and connect the supply/return valves directly to the mixing valve. Be sure to remove the check valve retainer from the return valve (sometimes it sticks) or it will not connect to the mixing valve.
- This application will not require a pump between the buffer tank and the manifold mixing station.



**LEAVE THIS MANUAL FOR THE USER.**



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