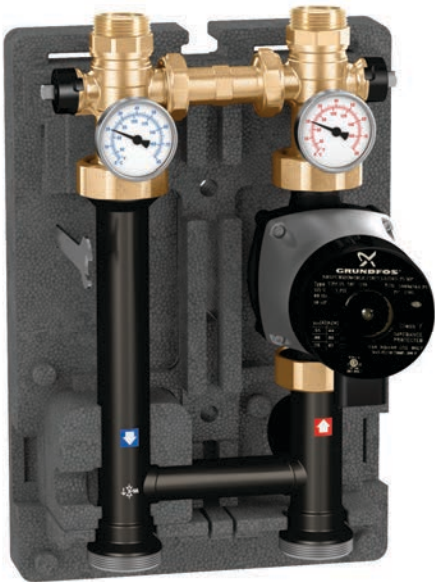


# HydroMixer™ direct distribution unit for heating systems

## 165 series



### Function

The 165 series HydroMixer™ provides high temperature flow direct to secondary heating circuits, complete with onboard three-speed or variable-speed pump, supply and return temperature gauges, secondary circuit shut-off ball valves and pre-formed insulation shell. Versions are available with either the three-speed Grundfos UPS 15-58 pump or the variable-speed Alpha 25-55U pump.

The unit can be ordered with supply flow and pump on the right or left side, and the unit is field reversible to accommodate changing installation requirements. The adjustable differential pressure by-pass valve, code 519600 and wall bracket code 165001 are optional. The unit comes with male union connections which require separately purchased, 1 inch sweat or HPT, top outlet or bottom inlet fitting kits.

### Product Range

Code 165600A	Direct distribution unit with Grundfos UPS 15-58 pump on right side.....connections 1" sweat or NPT union*
Code 165610A	Direct distribution unit with Grundfos UPS 15-58 pump on left side.....connections 1" sweat or NPT union*
Code 165602A	Direct distribution unit with Grundfos Alpha 25-55U pump on right side.....connections 1" sweat or NPT union*
Code 165612A	Direct distribution unit with Grundfos Alpha 25-55U pump on left side.....connections 1" sweat or NPT union*

\*Fitting sets sold separately

### Technical Characteristics

#### Materials

##### Connecting pipes

Material: steel

##### Check valve

Body: brass  
Shutter: PPAG40

##### Shut-off ball valves

Body: brass

#### Performance

Suitable fluids: water, glycol solutions  
Max. percentage of glycol: 30%  
Max. working pressure: 145 psi (10 bar)  
Max. working temperature: 212°F (100°C)

#### Connections:

male union threads  
- top outlets: 1-1/4" male straight  
- bottom inlets: 1-1/2" male straight  
- inlet/outlet center distance: 5 inches (125 mm)

#### Pump

Three-speed pump: Grundfos: UPS 15-58-130;  
Variable-speed pump: Grundfos: ALPHA 25-55U;

Body material: cast iron  
Power supply: 115 V 50/60 Hz  
Protection class: Class F  
Pump center distance: 5-1/8" (130 mm)  
Pump connections: 1 1/2" male straight

#### Temperature gauges

Dual scale: 32 –176°F (0 – 80°C)

#### Technical specification of insulation

Material: EPP  
Thickness: 1-1/8" (30 mm)  
Density: 3 lb/ft³(45 kg/m³)  
Working temperature range: 25 – 250°F (-5 – 120°C)  
Thermal conductivity: 0.256 BTU·in/hr·ft²· °F(0.037 W/m·K)  
at 50°F (10°C)  
Fire resistance (UL94): class HBF

#### Adjustable Differential by-pass valve code 519006 (optional)

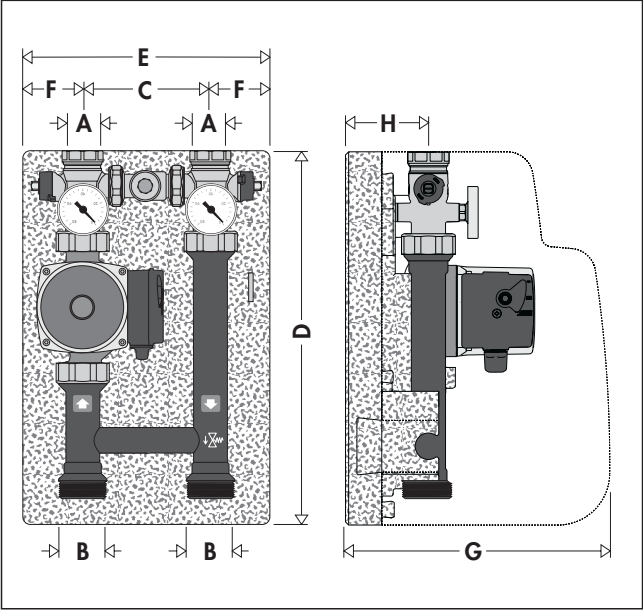
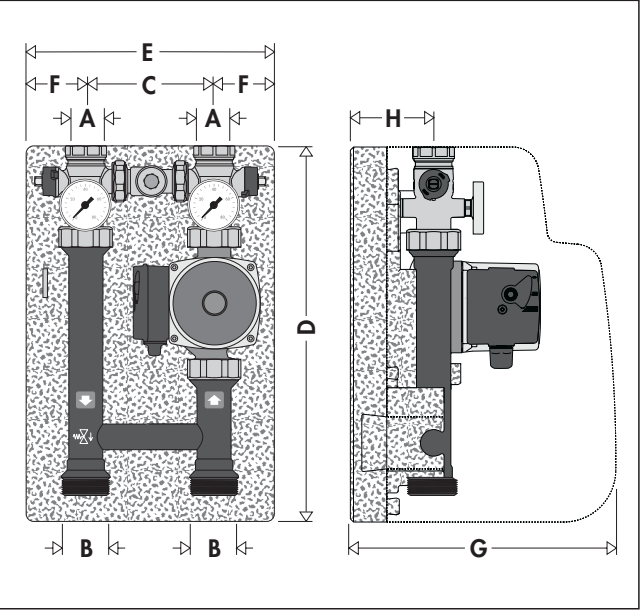
Body: brass  
Valve plug: EPDM

Spring: stainless steel  
Seals: EPDM  
Max. working pressure: 145 psi (10 bar)  
Max. working temperature: 212°F (100°C)  
By-pass differential pressure setting range: 0.3 – 4.3 psi (2 – 30 kPa)  
Connections: 1" male x 1" male (straight)

#### Wall bracket code 165001 (optional)

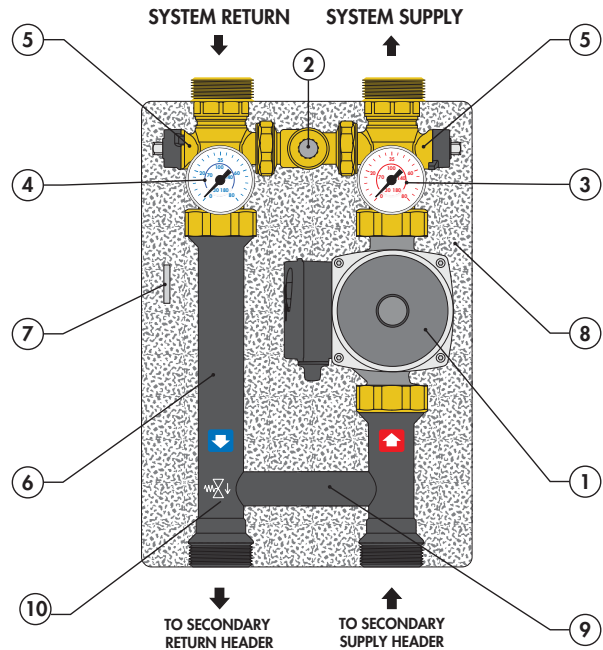
Material: stainless steel

Dimensions



A	B	C	D	E	F	G	H	Weight(lb)
1 1/4"	11/2"	5"	14 1/4"	9 3/4"	2 7/8"	10"	3 3/16"	21

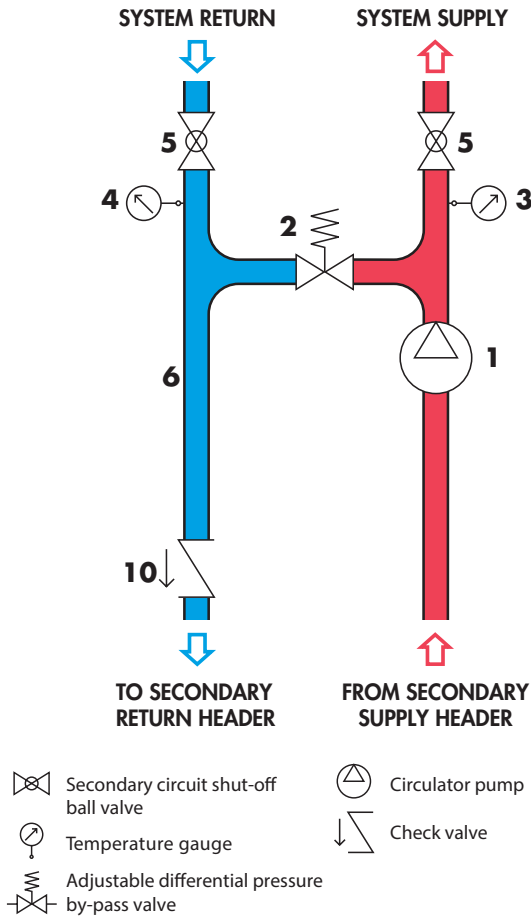
Code	Description
165600A	Dual line with 15-58 pump on right
165610A	Dual line with 15-58 pump on left
165602A	Dual line with Alpha pump on right
165612A	Dual line with Alpha pump on left



Component Characteristics

- Variable-speed pump Alpha 25-55U or three-speed pump UPS 15-58
  - Adjustable differential pressure by-pass valve (optional-shown in this view)\*
  - Supply temperature gauge
  - Return temperature gauge
  - Secondary circuit shut-off ball valves
  - Connecting pipes
  - Wrench to adjust secondary circuit shut-off ball valves
  - Insulation
  - Spacer (no flow path)
  - Check valve
- \*Factory set-up includes a blind spacer (no flow path)

Hydraulic diagram



## Wall bracket

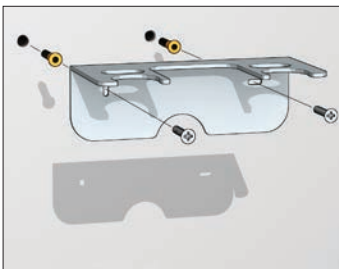


**165001**

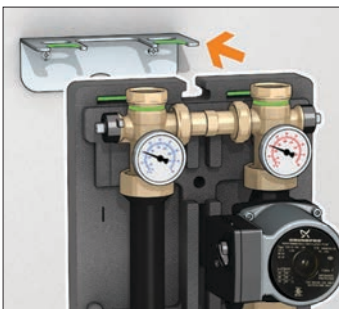
Wall mounting bracket for 165 series units. Stainless steel.

### Bracket installation

The mounting bracket for wall placement must be attached with dowels, using the special holes in the base.



The HydroMixer™ 165 series unit is applied to the bracket using the slots under the hex part of the shut-off ball valves.



## Adjustable differential pressure by-pass valve

**519006**

Differential pressure by-pass valve for 165 series.

Max. operating pressure: 145 psi (10 bar)

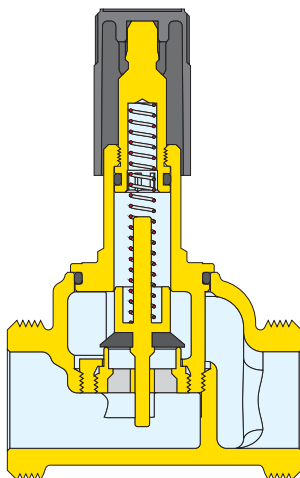
Max. operating temperature: 212°F (100°C)

By-pass differential pressure setting range:  
0.3 – 4.3 psi (2 – 30 kPa)

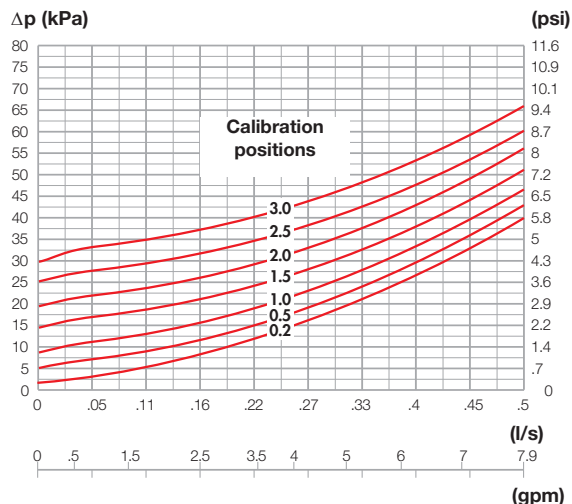
Connections : 1" male x 1" male (straight)



The adjustable differential pressure by-pass valve ensures the head pressure of the pump is proportional to the number of two-way on/off, modulating or thermostatic valves being closed in the secondary circuit, preventing pump overheating and excessive fluid velocity.



## Hydraulic characteristic of code 519006 Differential pressure by-pass valve



Hydraulic characteristics shown account for the presence of ball valves

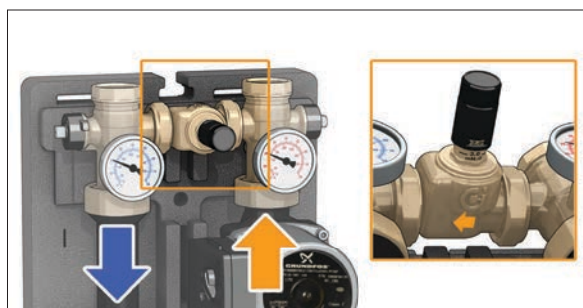
### Installation of adjustable differential pressure by-pass valve

To mount the differential pressure by-pass valve, insert it in place of the standard spacer. After closing the ball valves using the wrench provided, remove the spacer, as shown in the following figure.

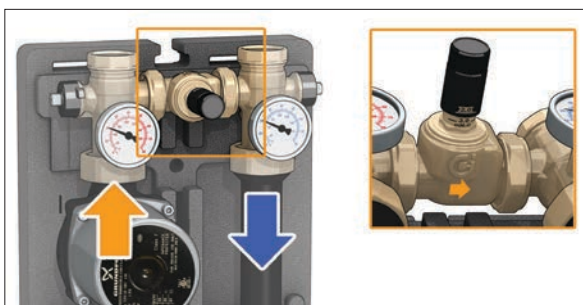


The mounting is different depending on the direction of the discharge flow:

- By-pass valve installed with flow direction as indicated below for unit with pump and upward discharge flow to secondary circuit on the right side:



- By-pass valve installed with flow direction as indicated below for unit with pump and upward discharge flow to secondary circuit on the left side:



## Reversible left-right

The group is assembled at the factory with right side discharge with upward flow, codes 165600A or 165602A, or with left side discharge with upward flow, codes 165620A or 165612A. If not acceptable, or field installation plans have changed, the position of the direction of flow can be switched. Follow the instructions below to switch sides as needed:

1. Remove insulation; front and rear shells.



2. Unscrew the connecting pipes and shut-off ball valve/spacer assembly and remove the pump.



3. Rotate the connecting pipe 180° relative to its axis.

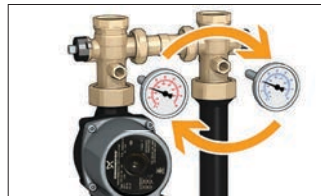


With UPS 15-58 pump the electronic housing of the pump must be removed by unscrewing the four screws indicated by the arrows and turning the body 90° counterclockwise and reinstalling. Without performing this task, it is not possible to push the group into the insulation. The ALPHA 25-55U pump will fit inside the insulation without any modifications.



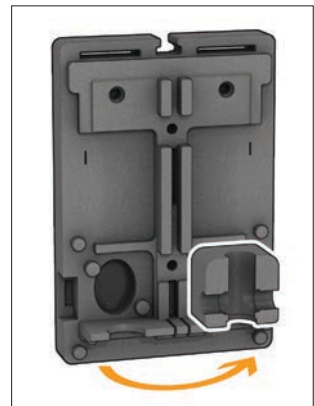
4. Reassemble the unit shown in the figure, tightening all union nut connections completely ensuring all seals are retained.

5. Reverse the position of temperature gauges as shown.



6. Move the spacer/insert square on the right.

**Note:** you can use the recess channel in the center of the insulation for electrical cords.




7. Reassemble the insulation.






Accessories




Top outlet fitting set fits 165 series. includes (2) union nuts, (2) tail pieces and (2) washers. Will not fit bottom inlet thread.

Code	Description
NA16069	1" sweat outlet union fitting




Bottom Inlet fitting set fits 165 series. Includes (2) union nuts, (2) tail pieces and (2) washers. Will not fit top outlet thread.

Code	Description
NA16169	1" sweat inlet union fittings



Top outlet fitting set fits 165 series. includes (2) union nuts, (2) tail pieces and (2) washers. Will not fit bottom inlet thread.

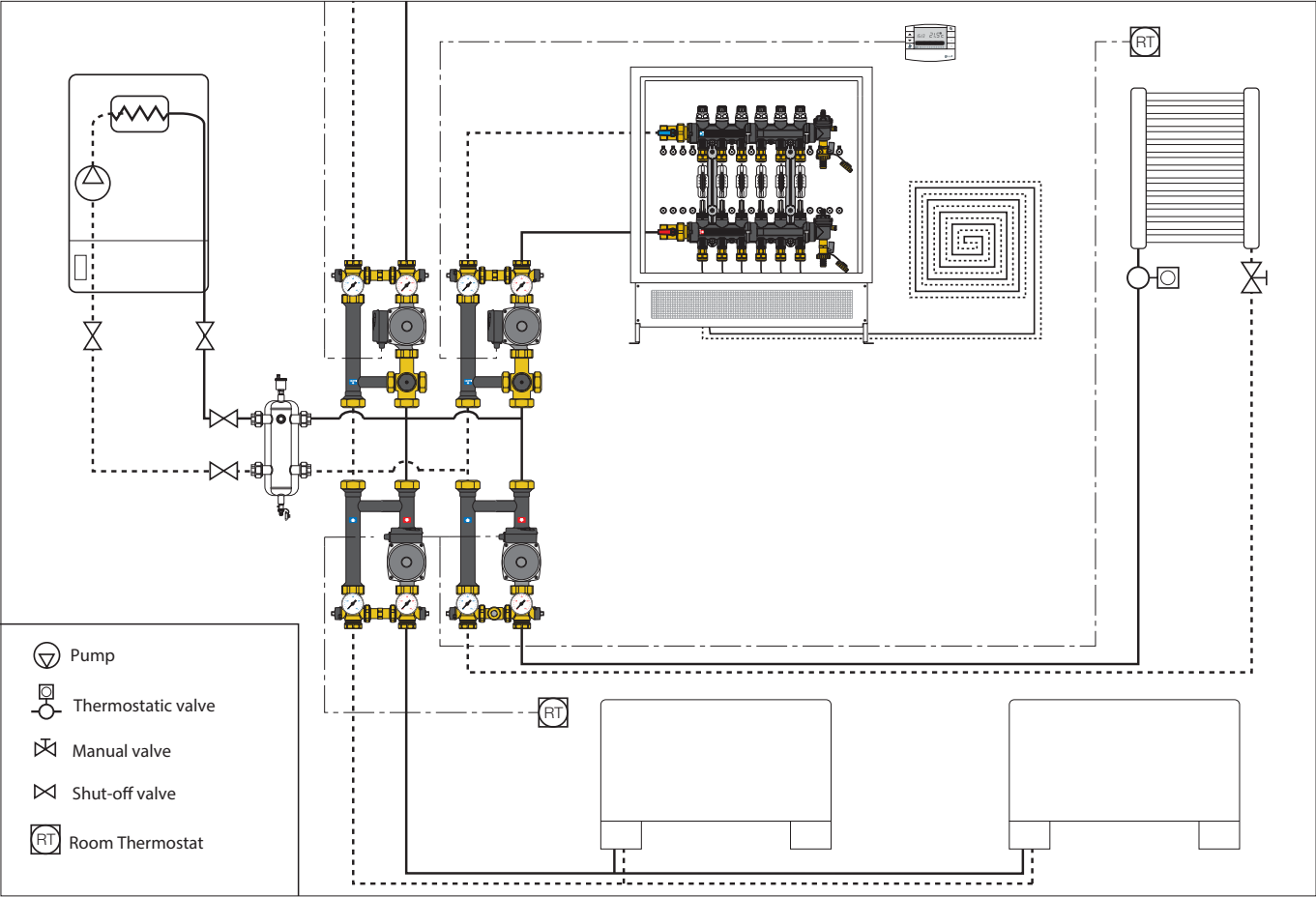
Code	Description
NA16060	1" NPT M outlet union fitting



Bottom Inlet fitting set fits 165 series. Includes (2) union nuts, (2) tail pieces and (2) washers. Will not fit top outlet thread.

Code	Description
NA16160	1" NPT F inlet union fitting

Application diagram



---

## SPECIFICATION SUMMARY

---

### HydroMixer™ 165 series

Direct distribution unit for high temperature heating systems. Factory pre-assembled configurations selectable either with upward flow and discharge (pump mounting) on right side or left side, and field reversible. Union connections to the secondary supply and return header (bottom connections) 1 1/2 " male straight threads. Union connections to the system supply and return circuit (top connections) 1 1/4" male straight threads. Center distance 5" (125 mm) between connections. Maximum working temperature 212°F (100°C). Maximum working pressure 145 psi (10 bar). Complete with Grundfos three-speed pump UPS 15-58 or variable-speed pump Alpha 25-55U, power supply 115 V 50/60 Hz, protection class F. Dual-scale temperature gauges 32 – 176°F (0 – 80° C). Brass secondary circuit shut-off ball valves. Connection pipe in steel. Check valve with brass body, shutter PPAG40. With pre-formed insulation shell in EPP. Provide with 1" sweat or NPT union inlet and outlet fittings code NA16 series.

---

### Code 519006

Adjustable differential pressure by-pass valve. Brass body. Connections 1" male x 1" male straight threads. Stainless steel spring. Pressure range from 0.3 – 4.3 psi (2 – 30 kPa) . Maximum working pressure 145 psi (10 bar). Maximum working temperature 212°F (100° C).

---

### Code 165001

Mounting bracket in stainless steel.

---

*We reserve the right to change our products and their relevant technical data, contained in this publication, at any time and without prior notice.*

---



Caleffi North America, Inc.  
3883 W. Milwaukee Road  
Milwaukee, WI 53208  
Tel: 414-238-2360 · Fax: 414-238-2366  
sales@caleffi.com · www.caleffi.us  
© Copyright 2013 Caleffi North America, Inc.