

# Hydronic separator-manifold

## HydroLink™



cert. n° 0003  
ISO 9001



### Function

The Hydrolink, a new device combining a hydronic separator and distribution manifold, is used in heating and air-conditioning systems to allow different heat adjustments of the various rooms when there is only one boiler or chiller.

The various configurations are compact, and can be easily fitted in any kind of hydronic circuit, with the advantages of ease of installation and a saving of useful living space.

Patent application No. MI2001A001270

### Product range

Part # 31091	External 2+2 separator-manifold. Complete with support brackets and pre-formed insulation _____	Size 1 1/4"; branches 1"
Part # 31092	External 3+1 separator-manifold. Complete with support brackets and pre-formed insulation _____	Size 1 1/4"; branches 1"
Part # 31090	Built-in 2+1 separator-manifold. Complete with pre-formed insulation _____	Size 1"; branches 1"

### Technical characteristics

#### Body

Material: - Body:	Painted steel	
Medium:	Water and non-hazardous glycol solutions	
Max percentage of glycole:	50%	
Max. working pressure:	90 psi (6 bar)	
Temperature range:	32 to 230°F (0 ÷ 110°C)	
Connections: - main:	3+1 and 2+2:	1 1/4" F NPT
	2+1:	1" F NPT
- branches:	3+1 and 2+2:	1" M NPT
	2+1 (bottom):	1" M NPT
	2+1 (side):	1" F NPT
- air vent valve:	3+1, 2+2 and 2+1:	1/2" F straight
- drain cock:	3+1, 2+2 and 2+1:	1/2" F straight
Center distances: - main:	3+1 and 2+2:	3 1/8" (80 mm)
	2+1:	2 3/8" (60 mm)
- branches:	3+1 and 2+2:	3 1/2" (90 mm)
	2+1:	3 1/2" (90 mm)

#### Insulation

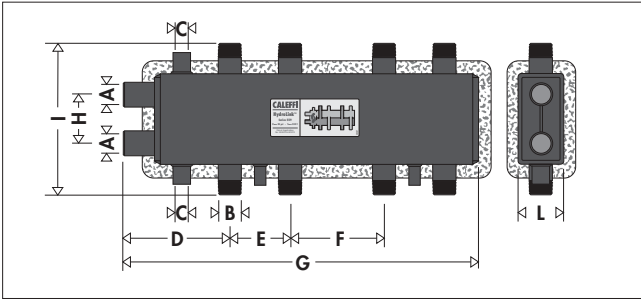
Material:	Closed-cell expanded PEX	
Thickness:	3/4" (20 mm)	
Density:	- inner part:	2 lb/ft³ (30 kg/m³)
	- outer part:	3 lb/ft³ (50 kg/m³)
Thermal conductivity:	- at 32°F (0°C):	0.26 BTU/in (.038 W/mK)
	- at 100°F (40°C):	0.31 BTU/in (.045 W/mK)
Vapor resistance coefficient (DIN 52615):	> 1,300	
Temperature range:	32 to 212°F (0÷100°C)	
Fire resistance (DIN 4102):	Class 1 (Class B2)	

#### Flow Characteristics

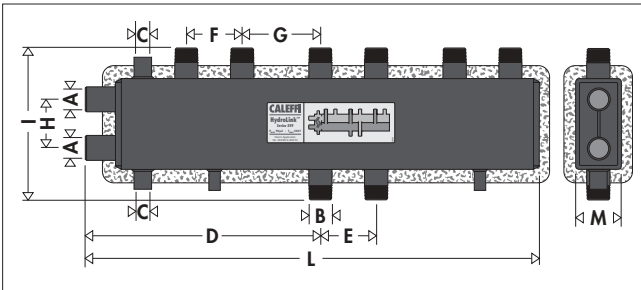
Maximum recommended flow rates at connections:

Branches	Primary	Secondary (total)
2+1	9 gpm (2.0 m³/h)	22 gpm (5 m³/h)
2+2	11 gpm (2.5 m³/h)	26 gpm (6 m³/h)
3+1	11 gpm (2.5 m³/h)	26 gpm (6 m³/h)

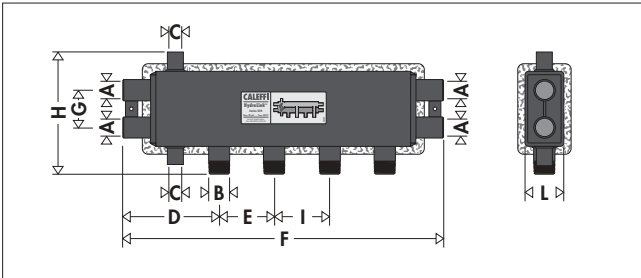
## Dimensions



Code	A	B	C	D	E	F	G	H	I	L	Weight (lb)	Volume (gal)
559022A	1 1/4"	1"	1/2"	6 5/16"	3 9/16"	5 1/2"	20 7/8"	3 1/8"	9 7/8"	3 1/8"	29	1,8



Code	A	B	C	D	E/F	G	H	I	L	M	Weight (lb)	Volume (gal)
559031A	1 1/4"	1"	1/2"	15 3/8"	3 9/16"	5 1/2"	3 1/8"	9 7/8"	29 15/16"	3 1/8"	39	2,6



Code	A	B	C	D	E	F	H	I	L	Weight (lb)	Volume (gal)
559021A	1"	1"	1/2"	6 1/8"	3 9/16"	20 1/2"	7 11/16"	3 9/16"	2 3/8"	16	1

## Operating principle

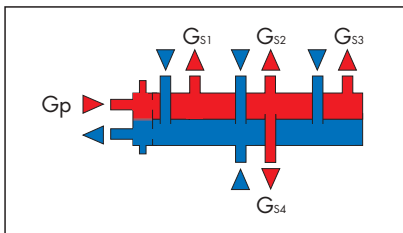
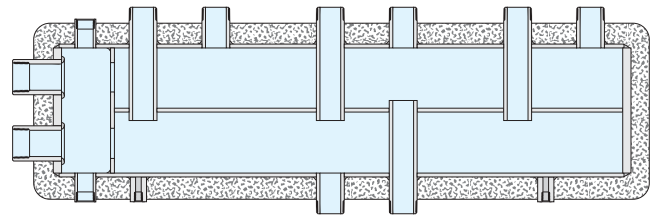
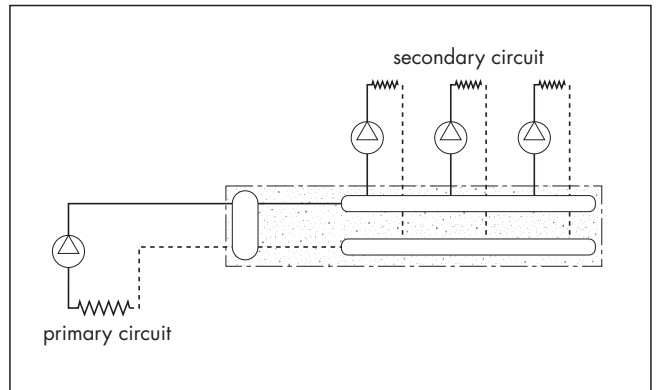
When a single system contains a primary generating circuit, with its own pump, and a secondary user circuit, with one or more distribution pumps, operating conditions may arise in the system where the pumps interact, creating abnormal variations in flow rates and pressures in the circuits.

In the HydroLink there is a low pressure loss zone, which enables the primary and secondary circuits connected to it to be hydraulically independent of each other; **the flow in one circuit does not create a flow in the other if the pressure loss in the common section is negligible.**

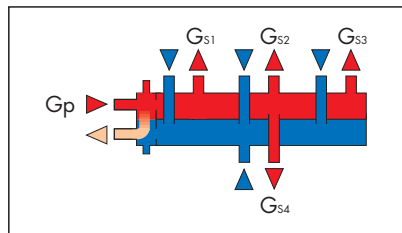
In this case, the flow rates passing through the respective circuits depend exclusively on the flow characteristics of the pumps, preventing reciprocal influence due to connection in series.

Downstream of the hydronic separation zone are the flow and return manifolds to which the various secondary distribution circuits can be connected.

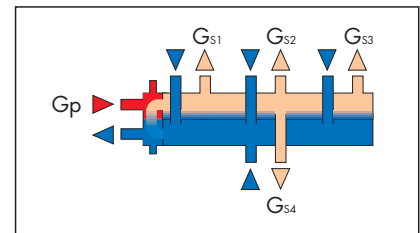
Three possible hydronic balance situations are shown below as examples.



$$G_{\text{primary}} = G_{\text{secondary}} (G_{51} + G_{52} + G_{53} + G_{54})$$



$$G_{\text{primary}} > G_{\text{secondary}} (G_{51} + G_{52} + G_{53} + G_{54})$$



$$G_{\text{primary}} < G_{\text{secondary}} (G_{51} + G_{52} + G_{53} + G_{54})$$



