SMHP - High performance combined buffer store for heat pumps Smartwarm HP

Smartwarm HP is a combined buffer store for primary water with instantaneous production of domestic hot water (DHW) through a high efficiency heat exchanger made of a corrugated stainless steel pipe.
It is available in two options: buffer store + DHW production (SM0HP) and buffer store + DWH production and auxiliary heat exchanger (SM1HP).

The high ratio between exchanging area and store volume, allows Smartwarm HP to deliver a high performance of DHW production even in combination with low temperature sources like the modern hydronic heat pumps
Cylinders are also prepared to host a backup immersion heater (not supplied).

HEAT SOURCE

APPLICATION

TECHNICAL FEATURES			
	Primary water buffer vessel	**Material**	S 235 Jr Carbon steel
		Internal protective treatment	None
		External protective treatment	Anti rust protection + epoxy painting
		Rating (P max. / T max.)	3 bar / 95°C
	DHW Heat exchanger	**Material**	AISI 316L Stainless steel (1.4404)
		Internal protective treatment	Pickling and passivation
		External protective treatment	Pickling and passivation
		Rating (P max. / T max.)	6 bar / 95°C
		Type	Corrugated pipe
	Auxiliary heat exchanger	**Material**	AISI 316L Stainless steel (1.4404)
		Internal protective treatment	Pickling and passivation
		External protective treatment	Pickling and passivation
		Type	Corrugated pipe
		Rating (P max. / T max.)	6 bar / 95°C
	General features	**Capacity**	300 - 400 L
		Warranty	5 years
		Insulation	Rigid polyurethane foam + PVC: Fire retardant class B3 (DIN 4102)
		In compliance with	- Pressure Equipment Directive (PED) 2014/68/UE Art. 4 Para 3 - Italian MOH specifications (products suitable to contain potable water) - Energy related Products (Erp) Directive 2009/125/CE

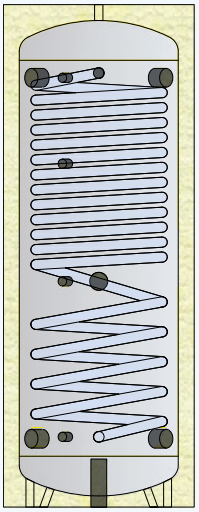
ACCESSORIES (page 218)


Electronic control unit


Thermostat

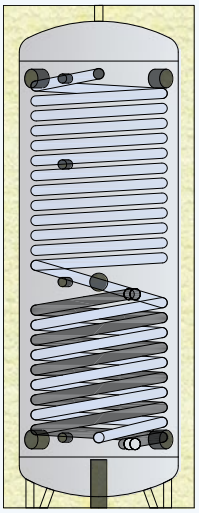

Thermometer


1"½ electric immersion heater



SM0HP - Hard insulation with rigid polyurethane foam and PVC jacket

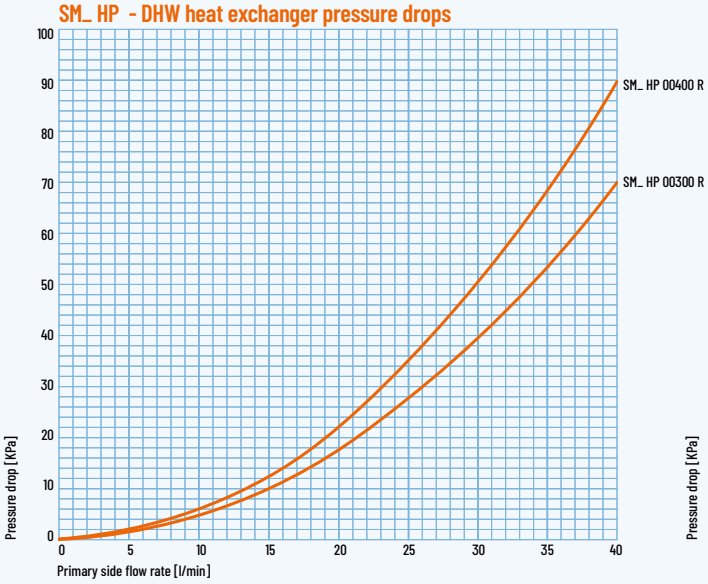
CODE	INSULATION THICK. (mm)	ErP CLASS	HEAT LOSS S (W)	REAL CAPACITY (L)	DHW HEAT EXCHANGER (m^2) / (L) *
SM0HP 00300 R	50	B	57,3	289,8	4,0 / 17,0
SM0HP 00400 R	50	B	69,8	404,9	5,0 / 20,6



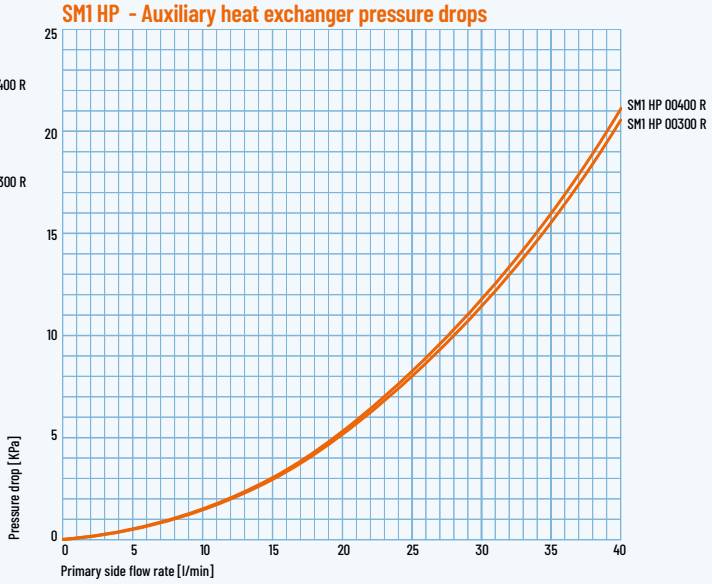
SM1HP - Hard insulation with rigid polyurethane foam and PVC jacket

CODE	INSULATION THICK. (mm)	ErP CLASS	HEAT LOSS S (W)	REAL CAPACITY (L)	DHW HEAT EXCHANGER (m^2) / (L) *	AUXILIARY HEAT EXCHANGER (m^2) / (L) *
SM1HP 00300 R	50	B	57,3	289,8	4,0 / 17,0	1,2 / 4,4
SM1HP 00400 R	50	B	69,8	404,9	5,0 / 20,6	1,4 / 5,3

SM_ HP - DHW heat exchanger pressure drops



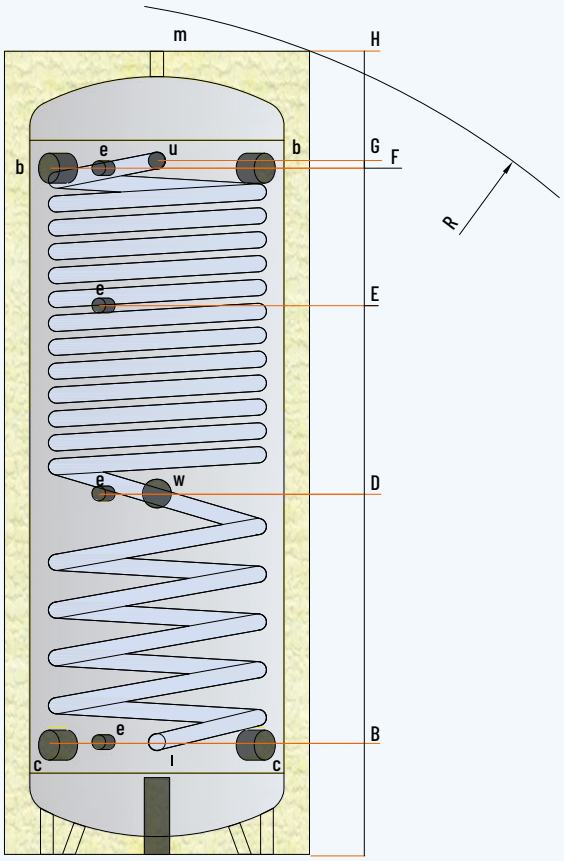
SM1 HP - Auxiliary heat exchanger pressure drops



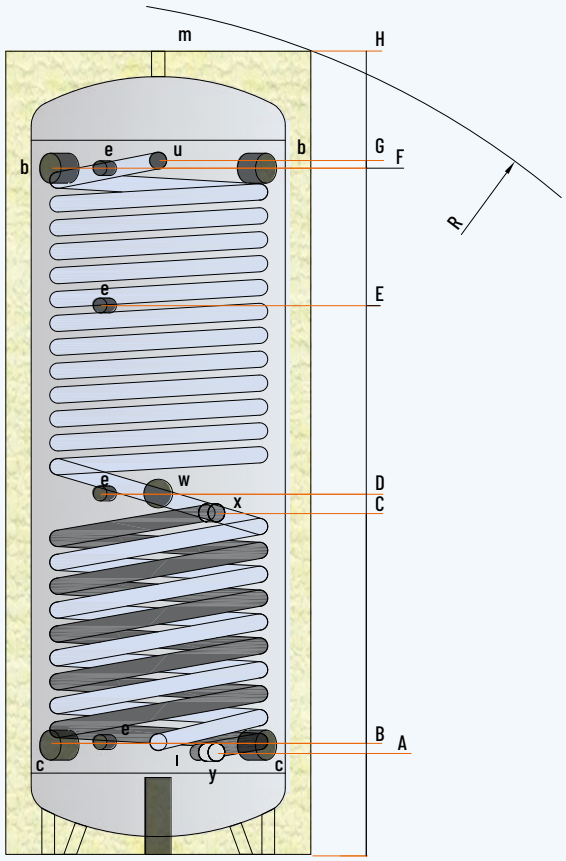
** Volume occupied by the heat exchanger and its support structure*

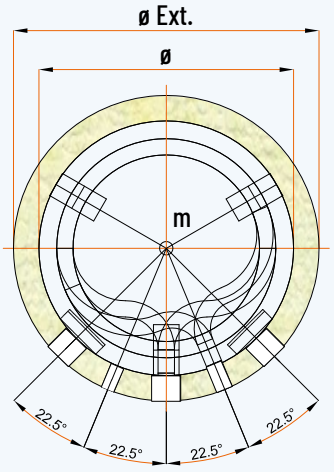
Dimensions and heights

SM0HP



SM1HP





LEGEND

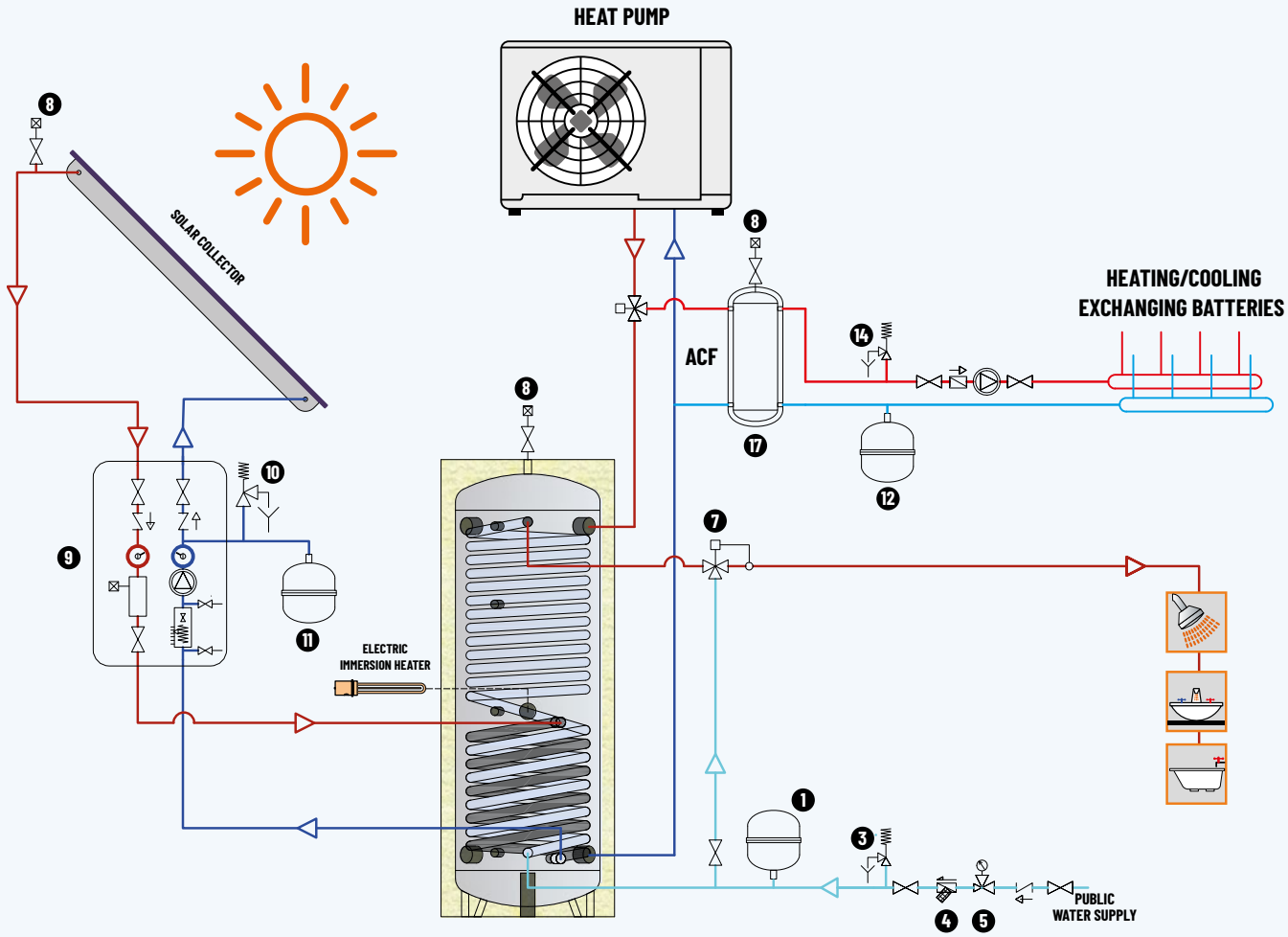
- **b .** Heat source flow
- **c .** Heat source return
- **e .** Thermometer - Sensor
- **i .** Domestic cold water inlet
- **m .** Buffer vent
- **u .** Domestic hot water outlet
- **w.** Opening for immersion heater
- **x .** Solar system flow
- **y .** Solar system return

MODEL	DIMENSIONS (mm) Ø	H	Ø EXT *	R	DHW HEAT EXCHANGER (m^2) / (L)	AUXILIARY HEAT EXCHANGER (m^2) / (L)	WEIGHT (kg)
SM_HP 00300 R	500	1580	600	1520	4,0 / 13,7	1,2 / 4,1	70
SM_HP 00400 R	600	1610	700	1660	5,0 / 17,0	1,4 / 4,8	104

** The insulation is not removable*

MODEL	HEIGHTS (mm) A	B	C	D	E	F	G	CONNECTIONS (GAS) b c	x y	e	i u	m	w
SM_HP 00300 R	201	221	672	710	1080	1350	1365	1"½	¾"	½"	¾"	½"	1"½
SM_HP 00400 R	210	230	606	644	1090	1350	1365	1"½	¾"	½"	¾"	½"	1"½

Disclaimer: *this layout is purely indicative. It does not replace consultant's design*



LEGEND

1 . Domestic water expansion vessel
3 . Domestic water safety valve (6 bar)
4 . Strainer
5 . Pressure reducing valve
7 . DHW 3-way valve
8 . Vent with valve
9 . Solar system control unit
10 . Solar system safety kit
11 . Solar system expansion vessel
12 . Heating system expansion vessel
14 . Heating system safety valve
17 . Low loss header ACF

SM_ HP Domestic Hot Water performance

CODE	SM_ HP 00300 R	SM_ HP 00300 R
DHW Heat exchanger m² (L)	4,0 (13,6)	5,0 (17,1)
Power (kW)	36,0	45,0
DHW Continuous draw[1] (L/h)	884	1105
DHW[2] producible with a 10 L/min flow rate, with a totally heated buffer and a not running heat source		
Buffer at 55 °C (L)	82	112
Buffer at 65 °C (L)	185	252
Buffer at 70 °C (L)	269	367
DHW[2] producible with a 20 L/min flow rate, with a totally heated buffer and a not running heat source		
Buffer at 55 °C (L)	45	61
Buffer at 65 °C (L)	112	153
Buffer at 70 °C (L)	175	139
NL [3]	1	1,2

(1) Average buffer temp. 65 °C, DHW from 10 to 45° C
(2) from 10 to 45 °C
(3) Buffer at 70 °C, DHW from 10 to 45° C

SM1 HP auxiliary heat exchanger performance

CODE	SM1 HP 00300 R	SM1 HP 00300 R
Heat exchanger m² (L)	1,2 (4,1)	1,3 (4,5)
Power (kW)		
ΔT[4] = 10° C	6,3	6,8
ΔT[4] = 15° C	9,5	10,2
ΔT[4] = 20° C	12,6	13,6
ΔT[4] = 25° C	15,8	17,0

(4): difference between the average temperature of the heating fluid (inside the heat exchanger) and the average temperature of the heated fluid (internal to the buffer in the area affected by the coil).