Hydronic Kits







Hydronic kit

The VKB 2.0, HPT and HP 2.0 units are meant to optimize the performance of heating and cooling installations and to reduce the installation time.

The units have an integrated system, which contains all the needed components for an efficient functioning of the hydraulic circuit (or for the distribution of chilled water).

They are designed, pre-assembled and every unit is tested in our factory. In this way we guarantee quality in our products and a fast and simple installation. The kits are available with a broad range of Pump/ Tank combinations which can be used with any kind of cooling device or heat pump.

The units are made of materials and finished in a certain way which makes it possible to install outdoor. They can be customized according to the client's specific requirements.

Advantages

- ✔ Easy installation
- ✔ All units are tested
- ✔ Pre-assembled system
- ✔ Fast installation
- ✔ Excellent dimensions
- ✔ Low energy consumption



HPT
Unit with tank, pump
and accessories



VKB 2.0
Unit with tank
and accessories



HP 2.0
Unit with pump
and accessories





The units are in accordance with the directives emitted by the European Union and labelled with the CE mark.



In accordance with the ErP directive
Efficient usage of energy



Pre-assembled accessories and tested for a fast and secure installation

Tank units for chilled water Hydronic systems: HPT

The HPT units are hydraulic units with buffer tanks designed to reduce the production time of conditioning and cooling systems. They can be equipped with all different kinds of water coolers.

Standard equipment

Capacity: from 100 to 2.500 l
Tank material: carbon steel
Fluid types:
- water
- Ethylene glycol up to 40%
- Propylene glycol up to 40%

Insulation: anti-condensate elastomer
Pumps: 1 or 2
Execution: Layout 1 or 2
Inverter: with or without



Standard equipment usage limit

Fluid temperature	Environment temp.	Max. pressure
5°C / +60°C	10°C / +40°C	3 bar

Special equipment usage limit available on configurator (see page 108)

Fluid temperature	Environment temp.	Max. pressure
-20°C / +60°C	-20 / +40°C	3 bar

The HPT units are made of:

- carbon steel tank and tubes insulated with anti-condensate elastomer
- Centrifugal single or double pump with a shut-off valve
- Expansion vessel
- Safety valve
- Deaerator
- Manometer
- Fill-up/drain valve
- Base and self-supporting panels made of galvanized and coated steel sheets, suitable for outdoor installations
- Switchboard (standard or with inverter)

Accessories: For the accessories list see pag. 128

Start-up: the first start-up is recommended. See page 361

Upon request, it is possible to produce versions with special equipment to operate at temperatures and pressures outside the standard usage limits. These equipments include, for example, increased insulation, antifreeze kits, pumps for low temperature operation, stainless steel connections and tank.

Standard switchboard

Switchboard with possibility to alternate pumps with every start-up (2 pumps verision), to start-up the backup pump in case of breakdown (2 pumps version), magnetothermic protection, free contacts to detect alarms and turned-on pumps, free contact to control remotely on/off pumps, protection category IP55.
Electric data: 400V/3/50Hz

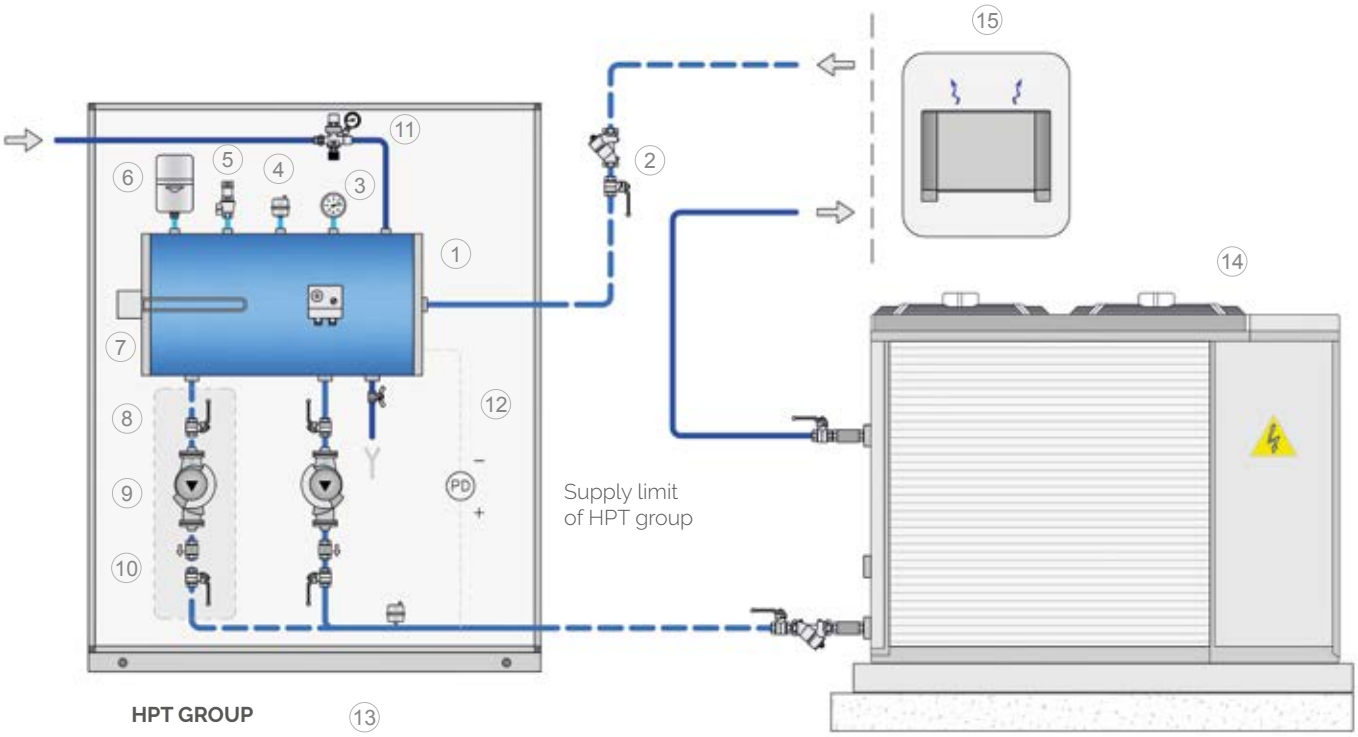
Switchboard with inverter

Each pump can be managed by an inverter. Units equipped with inverters have a pressure transducer which communicates with the inverter through a 4-20 mA signal. All adjustment parameters are pre-loaded during the test run at the company. The user must choose only the desired pressure value set point.
It is possible to remotely control pump 1 and 2. Free contacts available used to verify pumps status.

HPT hydronic systems
Layout 1 - STANDARD

Layout 1 Features: Hydronic kit, chiller and system connected in series, hence the water flow is constant throughout the plant.

NOTE: All HPT Fiorini standard kit kits are Layout 1
NOTE: Layout 1 is available as standard with and without inverter



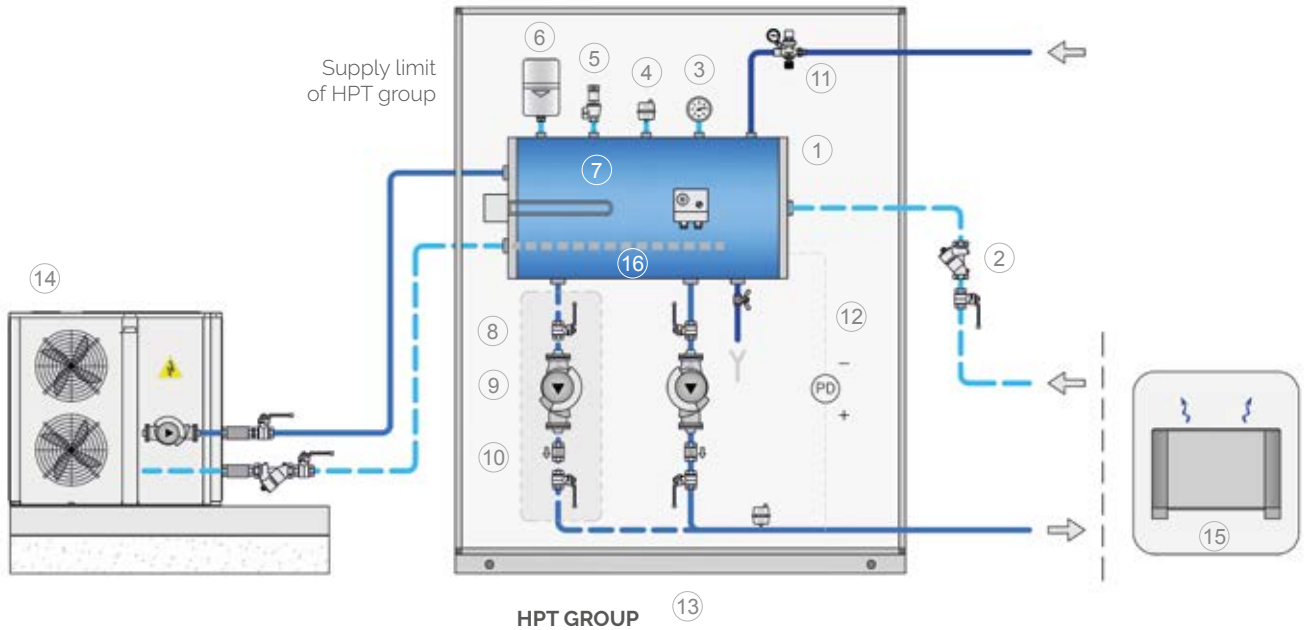
Legend

1. Storage tank
2. Y filter. Optional, supplied non-assembled
3. Manometer
4. Deaerator
5. Safety valve
6. Expansion vessel
7. Kit with electric anti-freeze resistance and anti-freeze thermostat (optional)
8. On-off valve
9. Circulator
10. Check valve (only version with 2 pumps)
11. Automatic filling unit
12. Differential pressure switch (optional)
13. Self-supporting sturdy structure for outside placement
14. Chiller
15. Device

HPT hydronic system
Layout 2 - SPECIAL VERSION

Layout 2 Features: Hydronic Kit and Chiller create the primary circuit, Hydronic Kit and Plant create the secondary circuit. Hence, the two circuits have independent flow rates.

NOTE: Pump unit supplied only on one of the two circuits.
NOTE: Layout 2 is available as standard with and without inverter



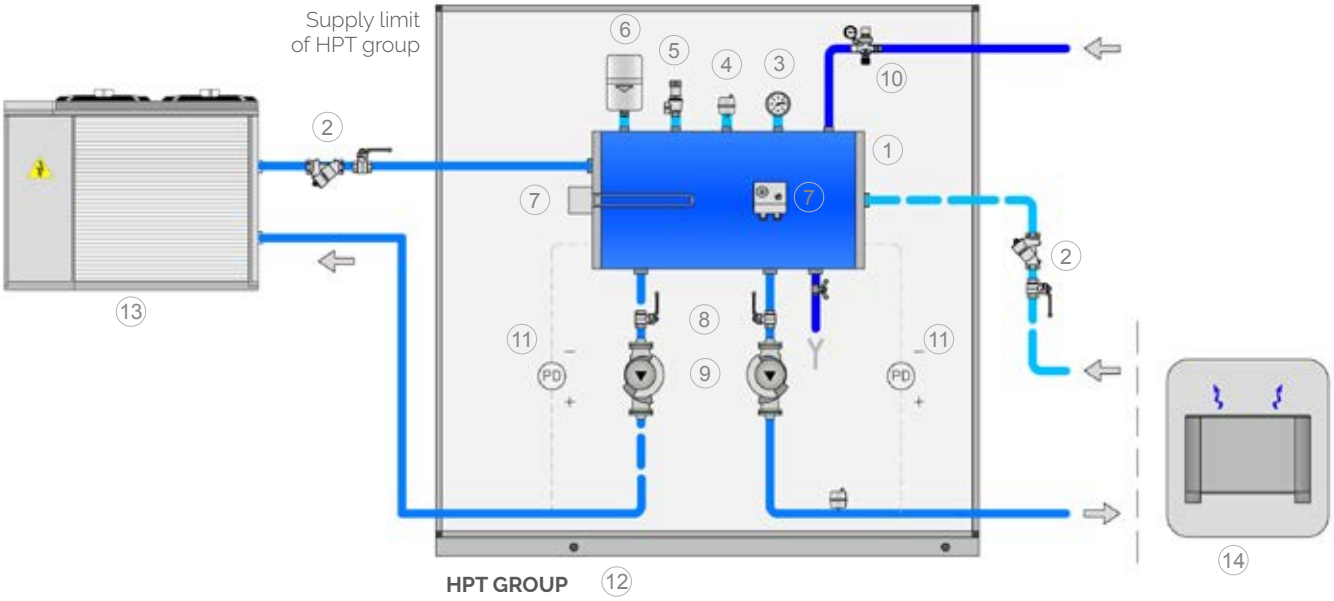
Legend

1. Storage tank
2. Y filter. Optional, supplied non-assembled
3. Manometer
4. Deaerator
5. Safety valve
6. Expansion vessel
7. Kit with electric anti-freeze resistance and anti-freeze thermostat (optional)
8. On-off valve
9. Circulator
10. Check valve (only version with 2 pumps)
11. Automatic filling unit
12. Differential pressure switch (optional)
13. Self-supporting sturdy structure for outdoor placement
14. Chiller
15. Device

HPT hydronic system
Layout 3 - SPECIAL VERSION

Layout 3 features: Hydronic Kit and Chiller create the primary circuit, Hydronic Kit and the system create the independent secondary circuit. Then the two circuits have independent flow rates.

NOTE: Pump assembly supplied on both circuits.

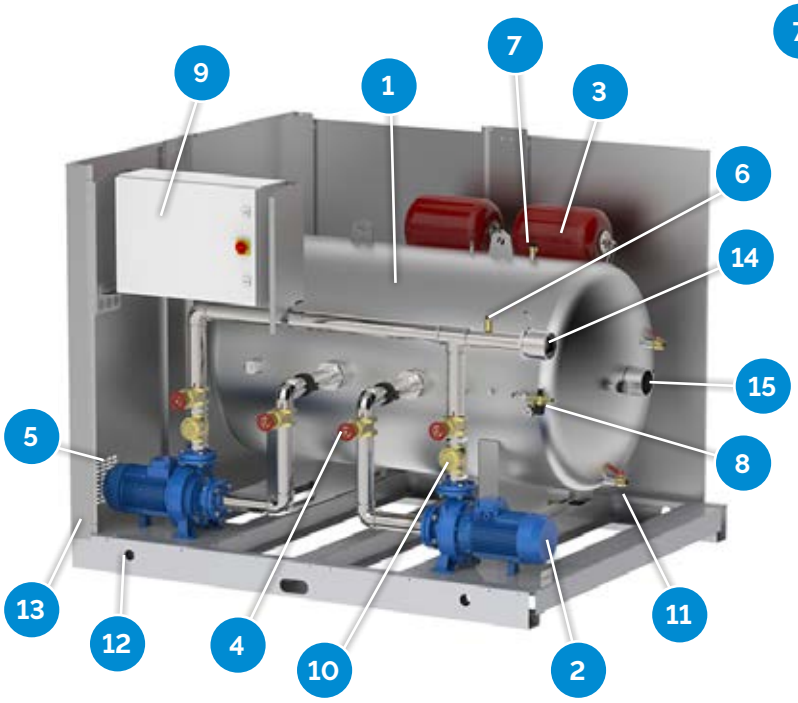


Legend

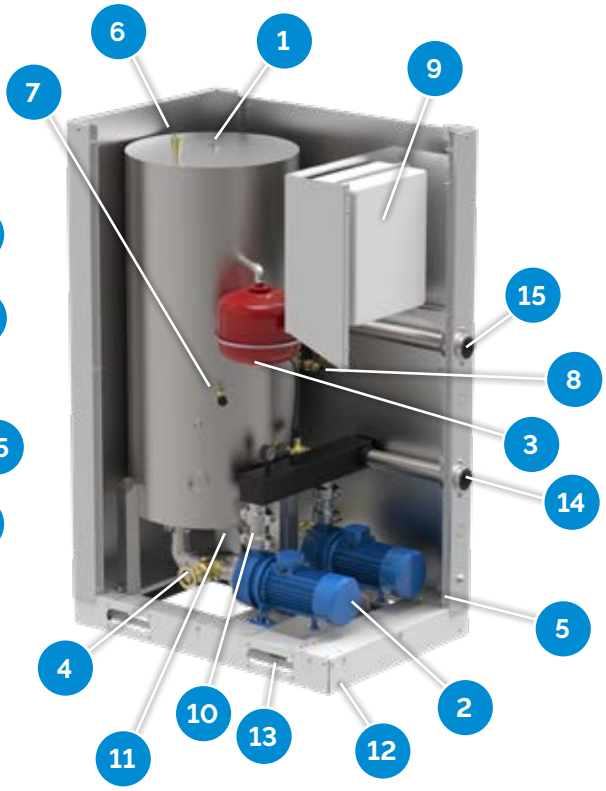
1. Storage tank
2. Y filter. Optional, supplied non-assembled
3. Manometer
4. Deaerator
5. Safety valve
6. Expansion vessel
7. Kit with electric anti-freeze resistance and anti-freeze thermostat (optional)
8. On-off valve
9. Circulator
10. Automatic filling unit
11. Differential pressure switch (optional)
12. Self-supporting sturdy structure for outside placement
13. Chiller
14. Device

Hydronic systems
HPT: components

Horizontal HPT



Vertical HPT

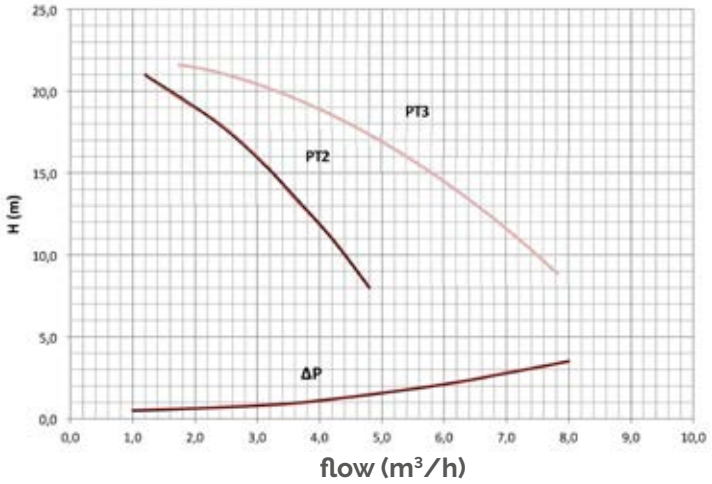


	Components
1	Tank
2	Circulator
3	Expansion vessel
4	On-off valve
5	Automatic ventilation system
6	Pressure relief valve
7	Safety valve
8	Automatic filling unit
9	Switchboard
10	Control valve (version with 2 pumps)
11	Drain
12	Anchoring point (4-6 holes m12/ ø14)
13	Inlet power grid
14	Water outlet
15	Water inlet

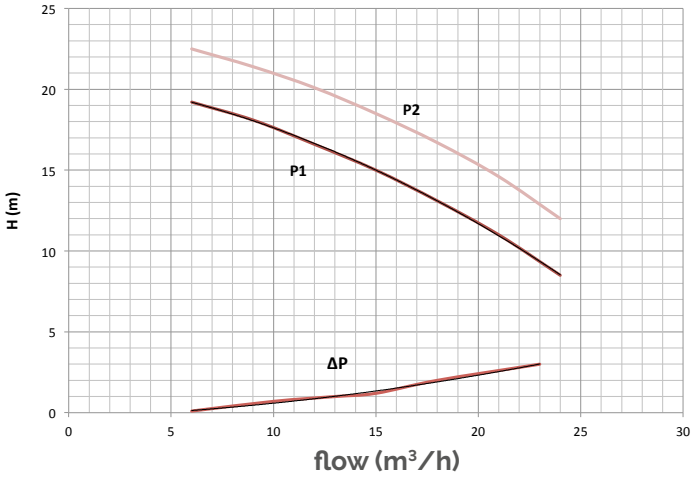
	Components
1	Tank
2	Circulator
3	Expansion vessel
4	On-off valve
5	Automatic ventilation system
6	Pressure relief valve
7	Safety valve
8	Automatic filling unit
9	Switchboard
10	Control valve (version with 2 pumps)
11	Drain
12	Inlet power grid
13	Jacking points
14	Water outlet
15	Water inlet

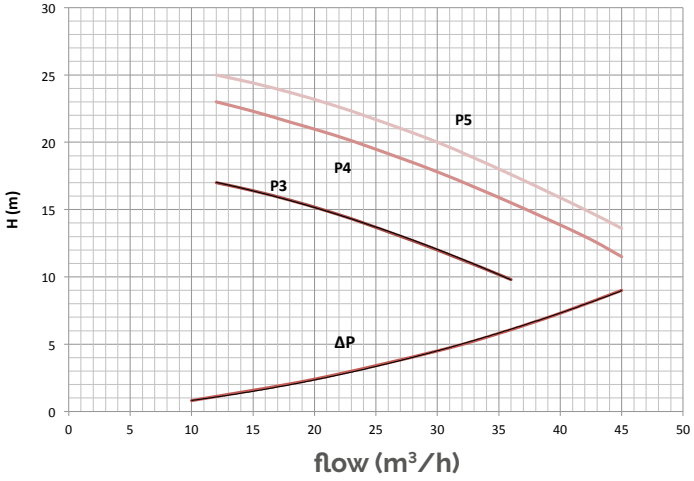
HPT hydronic systems
Prevalence and pressure loss curve

HPT-V 100-200



HPT 300-500

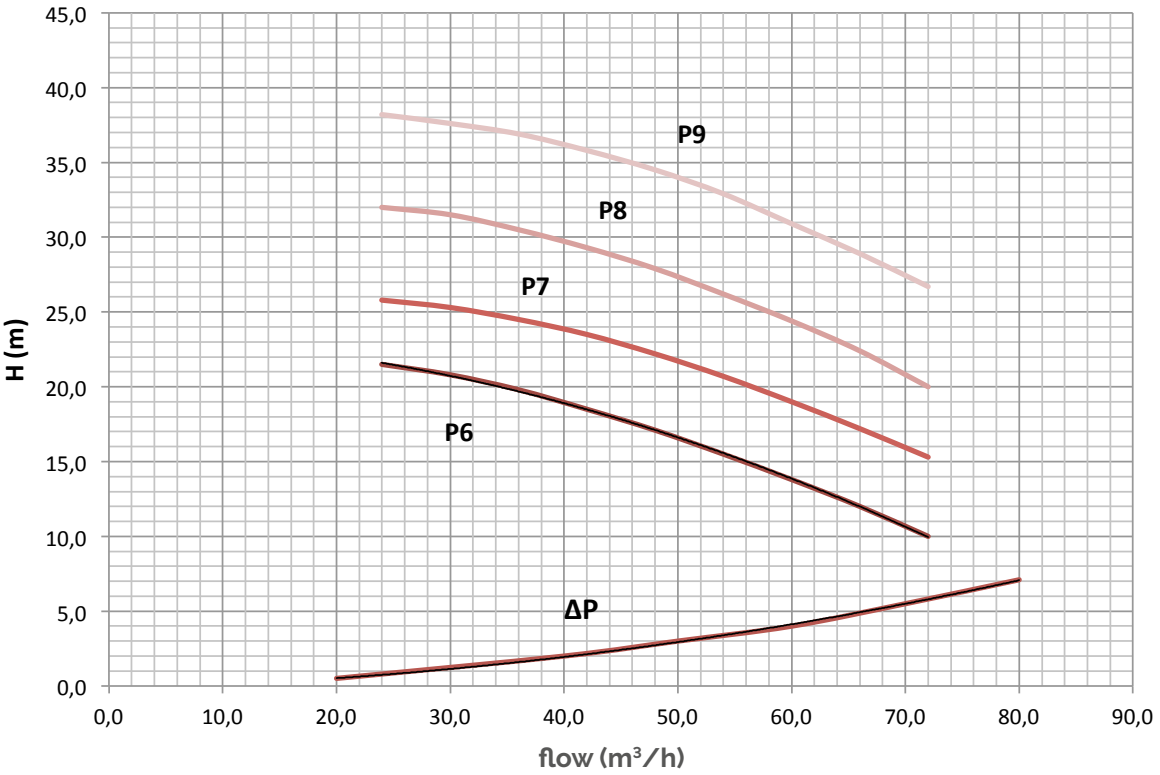


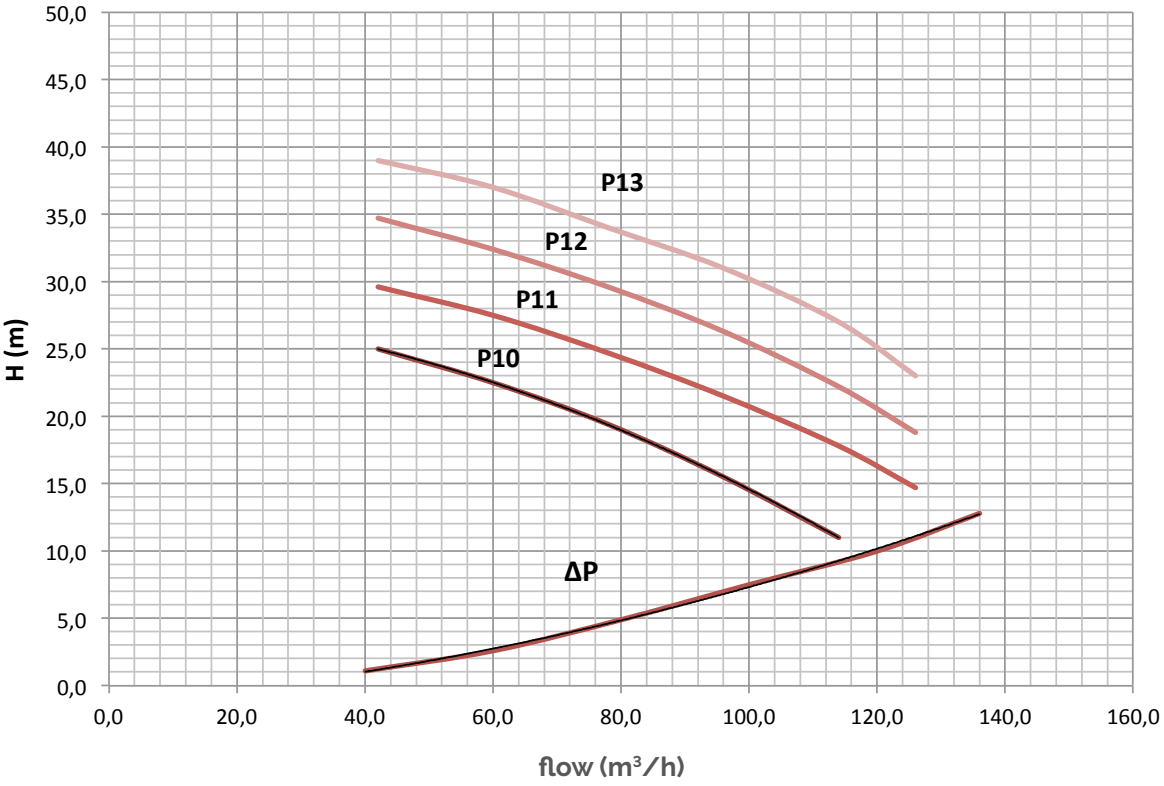


ΔP: pressure loss of the HPT unit

HPT hydronic systems
Prevalence and pressure loss curve

HPT 750-1000

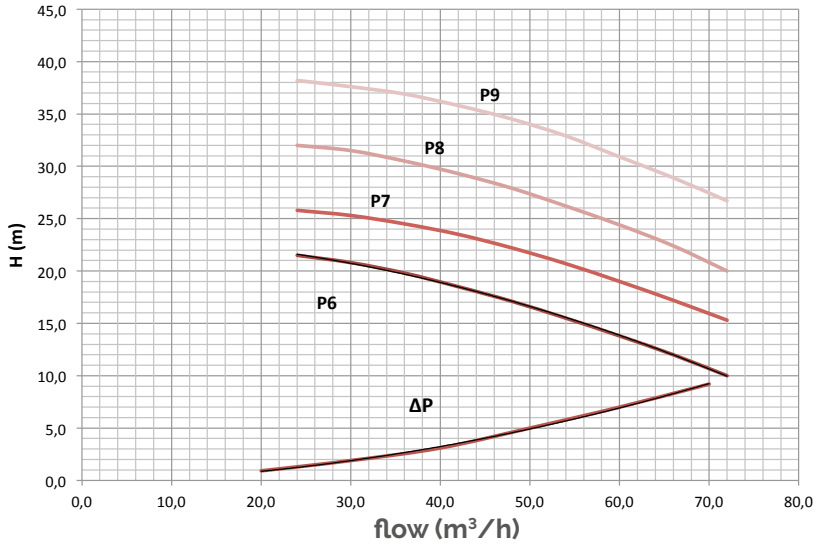


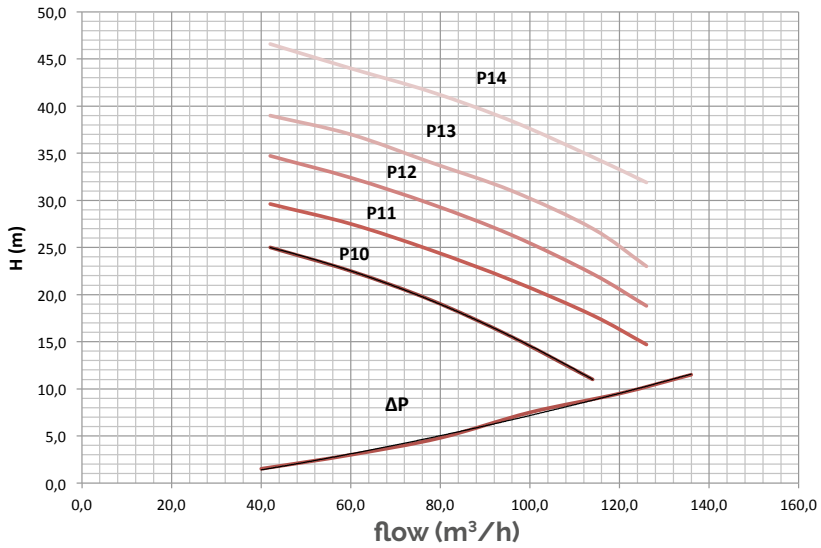


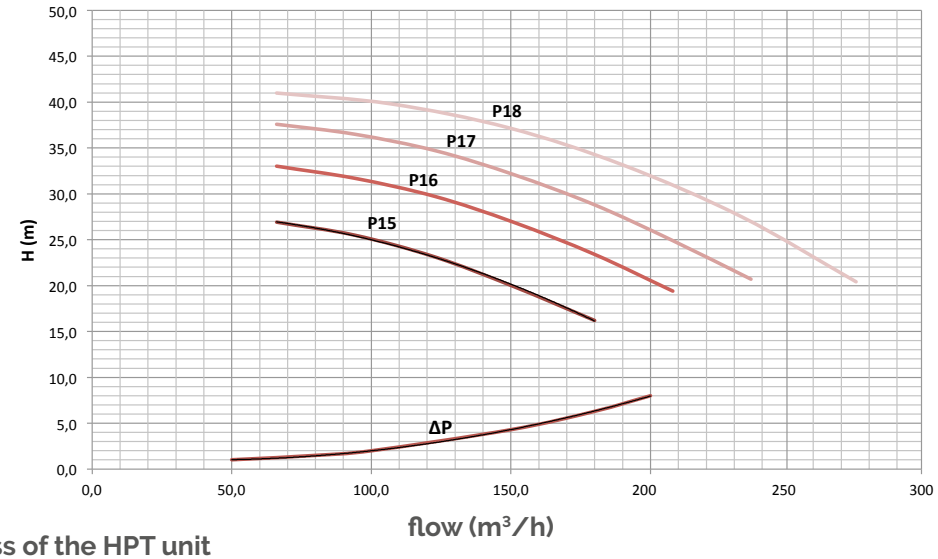
ΔP: pressure loss of the HPT unit

HPT hydronic systems
Prevalence and pressure loss curve

HPT 1500-2500



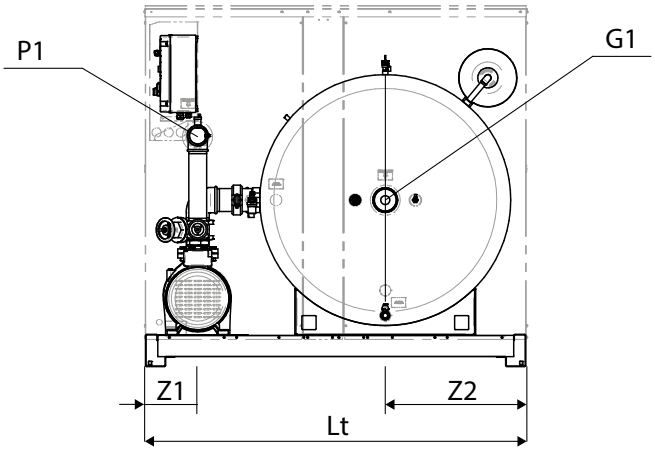


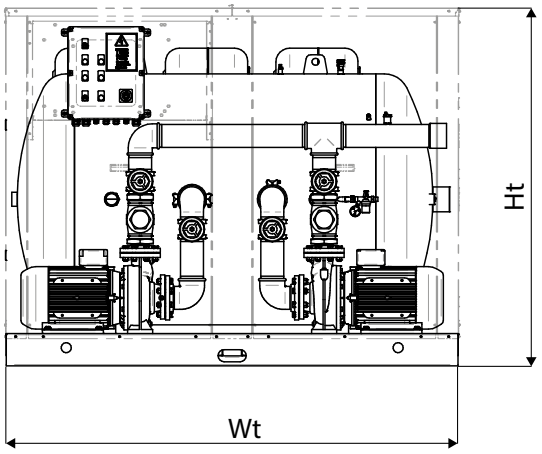


ΔP: pressure loss of the HPT unit

Hydronic systems
HPT: dimensions and connections

Horizontal version





Horizontal HPT dimensions

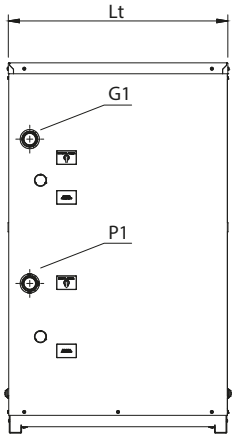
Capacity l	Wt mm	Lt mm	Ht mm	P1 mm	G1 mm	Z1 mm	Z2 mm	G1 inch	P1 inch
300	1504	1120	1265	738	490	212	388	2"1/2	2"1/2
500	1504	1120	1265	738	490	212	388	2"1/2	2"1/2
750	2044	1200	1510	940	604	185	440	3"	3"
1000	2044	1200	1510	940	604	185	440	3"	3"
1500	2260	1900	1782	1145	829	262	703	4"	4"
2500	2260	1900	1782	1145	829	262	703	4"	4"

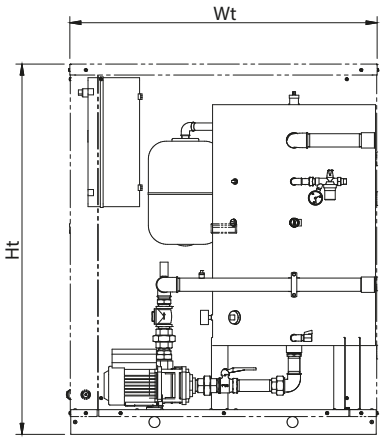
Couplings legend

G1	From plant threaded connection
P1	To energy source threaded connection

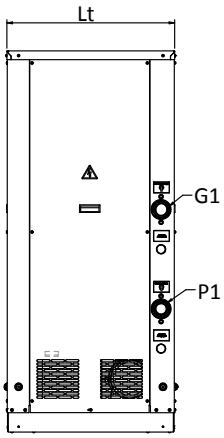
Vertical version

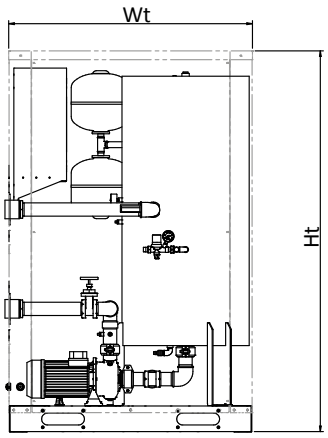
HPT 100-200





HPT 300





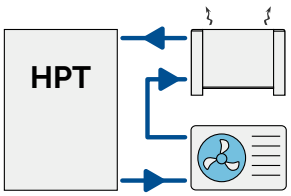
Vertical HPT dimensions

Capacity l	Wt mm	Lt mm	Ht mm	P1 mm	G1 mm	P1 inch	G1 inch
100	1120	800	1350	546	1002	1" 1/2	1" 1/2
200	1120	800	1350	546	1072	1" 1/2	1" 1/2
300	1100	760	1726	558	1008	2" 1/2	2" 1/2

Couplings legend

G1	From plant threaded connection
P1	To energy source threaded connection

HPT Layout 1 without Inverter



HPT	1 pump				2 pumps (1 redundant)				F.L.I kW	F.L.A. (400/3/50) A	Ve l
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg			
100 vertical	PT2*	838011493X		171	PT2*	838011494X		176	0,45	1,3	18
	PT3*	838011495X		172	PT3*	838011496X		176	0,45	1,3	18
200 vertical	PT2*	838011497X		193	PT2*	838011498X		198	0,45	1,3	18
	PT3*	838011499X		194	PT3*	838011500X		198	0,45	1,3	18
300 vertical	P1	838010891X		231	P1	838010896X		251	1,1	3,3	25
	P2	838010892X		233	P2	838010897X		254	1,5	3,8	25
	P3	838010893X		233	P3	838010898X		255	1,5	3,8	25
	P4	838010894X		237	P4	838010899X		262	2,2	4,7	25
	P5	838010895X		239	P5	838010900X		266	3	6,4	25
300 horizontal	P1	838010349		260	P1	838010354		305	1,1	3,3	25
	P2	838010350		262	P2	838010355		308	1,5	3,8	25
	P3	838010351		262	P3	838010356		309	1,5	3,4	25
	P4	838010352		266	P4	838010357		316	2,2	4,7	25
	P5	838010353		297	P5	838010358		320	3	6,4	25
500 horizontal	P1	838010359		283	P1	838010364		318	1,1	3,3	25
	P2	838010360		285	P2	838010365		321	1,5	3,8	25
	P3	838010361		285	P3	838010366		322	1,5	3,8	25
	P4	838010362		289	P4	838010367		330	2,2	4,7	25
	P5	838010363		320	P5	838010368		334	3	6,4	25
	P6	838010879X		313	P6	838011056X		369	3	6,1	25
750 horizontal	P6	838010374		425	P6	838010379		476	3	6,1	25
	P7	838011384X		428	P7	838011385X		481	4	8,7	25
	P8	838010375		442	P8	838010380		542	5,5	10,4	25
	P9	838011392X		446	P9	838011393X		550	7,5	13,6	25
	P10	838010376		460	P10	838010381		559	5,5	10,4	25
	P11	838010377		464	P11	838010382		568	7,5	13,6	25
	P12	838011400X		477	P12	838011401X		605	9,2	17,2	25
	P13	838010378		477	P13	838010383		605	11	21,3	25
1000 horizontal	P6	838010384		445	P6	838010389		531	3	6,1	25
	P7	838011386X		447	P7	838011387X		536	4	8,7	25
	P8	838010385		461	P8	838010390		598	5,5	10,4	25
	P9	838011394X		465	P9	838011395X		606	7,5	13,6	25
	P10	838010386		479	P10	838010391		615	5,5	10,4	25
	P11	838010387		484	P11	838010392		624	7,5	13,6	25
	P12	838011402X		496	P12	838011403X		661	9,2	17,2	25
	P13	838010388		496	P13	838010393		661	11	21,3	25

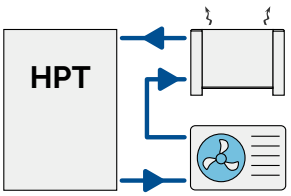
Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

HPT Layout 1 without Inverter



HPT	1 pump				2 pumps (1 redundant)						
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg	F.L.I kW	F.L.A. (400/3/50) A	Ve l
1500 horizontal	P6	838010705		653	P6	838010458		716	3	6,1	2x25
	P7	838011388X		656	P7	838011389X		721	4	8,7	2x25
	P8	838010704		670	P8	838010630		783	5,5	10,4	2x25
	P9	838011396X		674	P9	838011397X		791	7,5	13,6	2x25
	P10	838010703		688	P10	838010696		803	5,5	10,4	2x25
	P11	838010702		692	P11	838010695		812	7,5	13,6	2x25
	P12	838011404X		705	P12	838011405X		846	9,2	17,2	2x25
	P13	838010701		705	P13	838010694		849	11	21,3	2x25
	P14	838010700		749	P14	838010693		939	15	27,7	2x25
	P15	838011380X		739	P15	838011381X		921	11	20,2	2x25
	P16	838010699		776	P16	838010692		995	15	27,5	2x25
	P17	838010698		786	P17	838010691		1015	18,5	33	2x25
	P18	838010697		795	P18	838010690		1033	22	40,9	2x25
2500 horizontal	P6	838010689		706	P6	838010682		763	3	6,1	3x25
	P7	838011390X		708	P7	838011391X		768	4	8,7	3x25
	P8	838010688		722	P8	838010681		830	5,5	10,4	3x25
	P9	838011398X		726	P9	838011399X		838	7,5	13,6	3x25
	P10	838010687		740	P10	838010680		843	5,5	10,4	3x25
	P11	838010686		745	P11	838010679		852	7,5	13,6	3x25
	P12	838011406X		757	P12	838011407X		889	9,2	17,2	3x25
	P13	838010685		757	P13	838010678		889	11	21,3	3x25
	P14	838010684		801	P14	838010677		980	15	27,7	3x25
	P15	838011382X		791	P15	838011383X		967	11	20,2	3x25
	P16	838010707		828	P16	838010459		1041	15	27,5	3x25
	P17	838010683		838	P17	838010676		1061	18,5	33	3x25
	P18	838010706		847	P18	838010633		1079	22	40,9	3x25

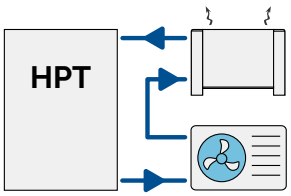
Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

HPT Layout 1 with Inverter



HPT	1 pump				2 pumps (1 redundant)				F.L.I kW	F.L.A. (400/3/50) A	Ve l
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg			
100 vertical	PT2*	838011747X		171	PT2*	838011740X		176	0,45	1,3	18
	PT3*	838011748X		172	PT3*	838011741X		176	0,45	1,3	18
200 vertical	PT2*	838011749X		193	PT2*	838011742X		198	0,45	1,3	18
	PT3*	838011750X		194	PT3*	838011636X		198	0,45	1,3	18
300 vertical	P1	838011751X		231	P1	838011743X		251	1,1	2,5	25
	P2	838011752X		233	P2	838011744X		254	1,5	3,2	25
	P3	838011753X		233	P3	838011745X		255	1,5	3,4	25
	P4	838011754X		237	P4	838011746X		262	2,2	4,8	25
	P5	838011755X		239	P5	838011578X		266	3	5,6	25
300 horizontal	P1	838011666X		260	P1	83801A677X		305	1,1	2,5	25
	P2	838011667X		262	P2	838011709X		308	1,5	3,2	25
	P3	838011668X		262	P3	838011710X		309	1,5	3,4	25
	P4	838011669X		266	P4	838011711X		316	2,2	4,8	25
	P5	838011670X		297	P5	83801A573X		320	3	5,6	25
500 horizontal	P1	838011671X		283	P1	838011712X		318	1,1	2,5	25
	P2	838011672X		285	P2	838011713X		321	1,5	3,2	25
	P3	838011491X		285	P3	838011366X		322	1,5	3,4	25
	P4	838011673X		289	P4	838011714X		330	2,2	4,8	25
	P5	838011674X		320	P5	838011715X		334	3	5,6	25
	P6	838011996X		357	P6	838011469X		408	3	6,4	25
750 horizontal	P6	838011675X		425	P6	83801A603X		476	3	6,4	25
	P7	838011676X		428	P7	838011716X		481	4	8,7	25
	P8	838011677X		442	P8	838011717X		542	5,5	10,6	25
	P9	838011678X		446	P9	838011718X		550	7,5	13,6	25
	P10	838011679X		460	P10	838011719X		559	5,5	10,6	25
	P11	838011680X		464	P11	838011720X		568	7,5	13,6	25
	P12	838011681X		477	P12	838011721X		605	9,2	17,2	25
	P13	838011682X		477	P13	838011612X		605	11	21,3	25
1000 horizontal	P6	838011683X		445	P6	838011577X		531	3	6,4	25
	P7	838011573X		447	P7	838011722X		536	4	8,7	25
	P8	838011684X		461	P8	838011336X		598	5,5	10,6	25
	P9	838011685X		465	P9	838011656X		606	7,5	13,6	25
	P10	838011686X		479	P10	838011723X		615	5,5	10,6	25
	P11	838011687X		484	P11	838011724X		624	7,5	13,6	25
	P12	838011688X		496	P12	83801A809X		661	9,2	17,2	25
	P13	838011689X		496	P13	838011988X		661	11	21,3	25

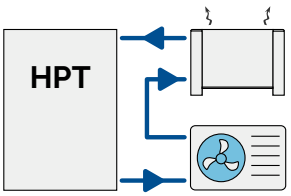
Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

HPT Layout 1 with Inverter



HPT	1 pump				2 pumps (1 redundant)				F.L.I kW	F.L.A. (400/3/50) A	Ve l
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg			
1500 horizontal	P6	838011690X		653	P6	838011725X		716	3	6,4	2x25
	P7	838011691X		656	P7	838011628X		721	4	8,7	2x25
	P8	838011413X		670	P8	838011367X		783	5,5	10,6	2x25
	P9	838011457X		674	P9	838011726X		791	7,5	13,6	2x25
	P10	838011417X		688	P10	838011727X		803	5,5	10,6	2x25
	P11	838011586X		692	P11	838011562X		812	7,5	13,6	2x25
	P12	838011692X		705	P12	83801A802X		846	9,2	17,2	2x25
	P13	838011453X		705	P13	838011616X		849	11	21,3	2x25
	P14	838011693X		749	P14	838011728X		939	15	27,7	2x25
	P15	838011694X		739	P15	838011729X		921	11	20,2	2x25
	P16	838011695X		776	P16	838011730X		995	15	26,6	2x25
	P17	838011696X		786	P17	838011731X		1015	18,5	33	2x25
	P18	838011697X		795	P18	83801A801X		1033	22	40,4	2x25
2500 horizontal	P6	838011698X		706	P6	838011526X		763	3	6,4	3x25
	P7	838011699X		708	P7	838011732X		768	4	8,7	3x25
	P8	838011583X		722	P8	838011733X		830	5,5	10,6	3x25
	P9	838011700X		726	P9	838011734X		838	7,5	13,6	3x25
	P10	838011701X		740	P10	838011735X		843	5,5	10,6	3x25
	P11	83801A308X		745	P11	83801A550X		852	7,5	13,6	3x25
	P12	838011702X		757	P12	838011736X		889	9,2	17,2	3x25
	P13	838011703X		757	P13	838011737X		889	11	21,3	3x25
	P14	838011704X		801	P14	838011632X		980	15	27,7	3x25
	P15	838011705X		791	P15	838011738X		967	11	20,2	3x25
	P16	838011706X		828	P16	83801A657X		1041	15	26,6	3x25
	P17	838011707X		838	P17	83801B008X		1061	18,5	33	3x25
	P18	838011708X		847	P18	838011739X		1079	22	40,4	3x25

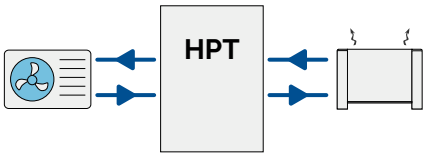
Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

HPT Layout 2 without Inverter



HPT	1 pump				2 pumps (1 redundant)				F.L.I kW	F.L.A. (400/3/50) A	Ve l
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg			
100 vertical	PT2*	838011800X		171	PT2*	838011846X		176	0,45	1,3	18
	PT3*	838011801X		172	PT3*	83801A908X		176	0,45	1,3	18
200 vertical	PT2*	838011802X		193	PT2*	838011847X		198	0,45	1,3	18
	PT3*	838011803X		194	PT3*	838011848X		198	0,45	1,3	18
300 vertical	P1	838011646X		231	P1	838011849X		251	1,1	2,5	25
	P2	838011538X		233	P2	838011850X		254	1,5	3,2	25
	P3	838011537X		233	P3	838011851X		255	1,5	3,4	25
	P4	838011804X		237	P4	838011852X		262	2,2	4,8	25
	P5	838011805X		239	P5	838011853X		266	3	5,6	25
300 horizontal	P1	83801A580X		260	P1	838011806X		305	1,1	2,5	25
	P2	83801A211X		262	P2	838011807X		308	1,5	3,2	25
	P3	83801A810X		262	P3	83801A561X		309	1,5	3,4	25
	P4	838011756X		266	P4	838011808X		316	2,2	4,8	25
	P5	838011757X		297	P5	83801A699X		320	3	5,6	25
500 horizontal	P1	83801A777X		283	P1	83801A271X		318	1,1	2,5	25
	P2	83801A445X		285	P2	83801A244X		321	1,5	3,2	25
	P3	838011758X		285	P3	83801A671X		322	1,5	3,4	25
	P4	83801A512X		289	P4	838011809X		330	2,2	4,8	25
	P5	838011759X		320	P5	838011810X		334	3	5,6	25
	P6	838011994X		357	P6	838011995X		408	3	6,4	25
750 horizontal	P6	838011760X		425	P6	838011811X		476	3	6,4	25
	P7	838011761X		428	P7	838011812X		481	4	8,7	25
	P8	838011762X		442	P8	838011813X		542	5,5	10,6	25
	P9	838011763X		446	P9	838011814X		550	7,5	13,6	25
	P10	838011764X		460	P10	838011815X		559	5,5	10,6	25
	P11	838011765X		464	P11	838011816X		568	7,5	13,6	25
	P12	838011766X		477	P12	838011817X		605	9,2	17,2	25
	P13	838011767X		477	P13	838011818X		605	11	21,3	25
1000 horizontal	P6	838011768X		445	P6	838011819X		531	3	6,4	25
	P7	838011769X		447	P7	83801A304X		536	4	8,7	25
	P8	838011770X		461	P8	838011820X		598	5,5	10,6	25
	P9	838011771X		465	P9	838011821X		606	7,5	13,6	25
	P10	838011772X		479	P10	838011822X		615	5,5	10,6	25
	P11	838011773X		484	P11	838011550X		624	7,5	13,6	25
	P12	838011774X		496	P12	838011823X		661	9,2	17,2	25
	P13	838011775X		496	P13	83801A192		661	11	21,3	25

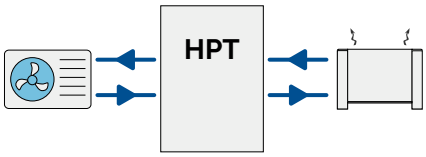
Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

HPT Layout 2 without Inverter



HPT	1 pump				2 pumps (1 redundant)				F.L.I kW	F.L.A. (400/3/50) A	Ve l
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg			
1500 horizontal	P6	838011248X		653	P6	83801A305X		716	3	6,4	2x25
	P7	838011776X		656	P7	838011824X		721	4	8,7	2x25
	P8	838011415X		670	P8	838011825X		783	5,5	10,6	2x25
	P9	838011777X		674	P9	838011595X		791	7,5	13,6	2x25
	P10	838011778X		688	P10	838011826X		803	5,5	10,6	2x25
	P11	838011779X		692	P11	838011827X		812	7,5	13,6	2x25
	P12	838011780X		705	P12	838011828X		846	9,2	17,2	2x25
	P13	838011781X		705	P13	838011829X		849	11	21,3	2x25
	P14	838011782X		749	P14	838011830X		939	15	27,7	2x25
	P15	838011783X		739	P15	838011831X		921	11	20,2	2x25
	P16	838011784X		776	P16	838011832X		995	15	26,6	2x25
	P17	838011785X		786	P17	838011833X		1015	18,5	33	2x25
	P18	838011786X		795	P18	838011834X		1033	22	40,4	2x25
2500 horizontal	P6	838011787X		706	P6	838011835X		763	3	6,4	3x25
	P7	838011788X		708	P7	838011836X		768	4	8,7	3x25
	P8	838011789X		722	P8	838011837X		830	5,5	10,6	3x25
	P9	838011790X		726	P9	838011838X		838	7,5	13,6	3x25
	P10	838011791X		740	P10	838011839X		843	5,5	10,6	3x25
	P11	838011792X		745	P11	83801A303X		852	7,5	13,6	3x25
	P12	838011793X		757	P12	838011840X		889	9,2	17,2	3x25
	P13	838011794X		757	P13	838011841X		889	11	21,3	3x25
	P14	838011795X		801	P14	838011842X		980	15	27,7	3x25
	P15	838011796X		791	P15	838011553X		967	11	20,2	3x25
	P16	838011797X		828	P16	838011843X		1041	15	26,6	3x25
	P17	838011798X		838	P17	838011844X		1061	18,5	33	3x25
	P18	838011799X		847	P18	838011845X		1079	22	40,4	3x25

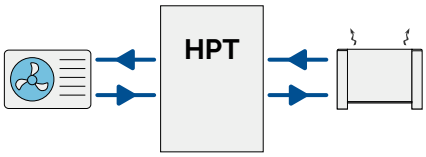
Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

HPT Layout 2 with Inverter



HPT	1 pump				2 pumps (1 redundant)				F.L.I kW	F.L.A. (400/3/50) A	Ve l
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg			
100 vertical	PT2*	838011903X		171	PT2*	838011949X		176	0,45	1,3	18
	PT3*	838011904X		172	PT3*	838011950X		176	0,45	1,3	18
200 vertical	PT2*	838011905X		193	PT2*	838011951X		198	0,45	1,3	18
	PT3*	838011906X		194	PT3*	838011952X		198	0,45	1,3	18
300 vertical	P1	838011907X		231	P1	838011953X		251	1,1	2,5	25
	P2	838011908X		233	P2	838011954X		254	1,5	3,2	25
	P3	838011909X		233	P3	838011955X		255	1,5	3,4	25
	P4	838011910X		237	P4	838011956X		262	2,2	4,8	25
	P5	838011911X		239	P5	838011957X		266	3	5,6	25
300 horizontal	P1	838011854X		260	P1	838011912X		305	1,1	2,5	25
	P2	838011855X		262	P2	838011913X		308	1,5	3,2	25
	P3	838011856X		262	P3	838011914X		309	1,5	3,4	25
	P4	838011857X		266	P4	838011915X		316	2,2	4,8	25
	P5	838011858X		297	P5	838011916X		320	3	5,6	25
500 horizontal	P1	838011664X		283	P1	838011917X		318	1,1	2,5	25
	P2	838011859X		285	P2	838011643X		321	1,5	3,2	25
	P3	83801A307X		285	P3	838011918X		322	1,5	3,4	25
	P4	838011860X		289	P4	838011919X		330	2,2	4,8	25
	P5	838011861X		320	P5	838011920X		334	3	5,6	25
	P6	838011992X		357	P6	838011993X		408	3	6,4	25
750 horizontal	P6	838011862X		425	P6	83801A612X		476	3	6,4	25
	P7	838011863X		428	P7	838011605X		481	4	8,7	25
	P8	838011864X		442	P8	838011921X		542	5,5	10,6	25
	P9	838011865X		446	P9	838011922X		550	7,5	13,6	25
	P10	838011866X		460	P10	838011923X		559	5,5	10,6	25
	P11	838011867X		464	P11	838011924X		568	7,5	13,6	25
	P12	838011868X		477	P12	838011925X		605	9,2	17,2	25
	P13	838011869X		477	P13	838011926X		605	11	21,3	25
1000 horizontal	P6	838011870X		445	P6	83801A715X		531	3	6,4	25
	P7	838011871X		447	P7	838011551X		536	4	8,7	25
	P8	838011872X		461	P8	838011927X		598	5,5	10,6	25
	P9	838011525X		465	P9	838011928X		606	7,5	13,6	25
	P10	838011873X		479	P10	838011929X		615	5,5	10,6	25
	P11	838011874X		484	P11	838011930X		624	7,5	13,6	25
	P12	838011875X		496	P12	83801A788X		661	9,2	17,2	25
	P13	838011876X		496	P13	838011558X		661	11	21,3	25

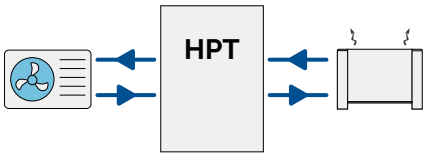
Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

HPT Layout 2 with Inverter



HPT	1 pump				2 pumps (1 redundant)				F.L.I kW	F.L.A. (400/3/50) A	Ve l
Capacity	Model	Code	Price	Weight kg	Model	Code	Price	Weight kg			
1500 horizontal	P6	838011877X		653	P6	838011931X		716	3	6,4	2x25
	P7	838011878X		656	P7	838011590X		721	4	8,7	2x25
	P8	838011879X		670	P8	838011661X		783	5,5	10,6	2x25
	P9	838011880X		674	P9	838011932X		791	7,5	13,6	2x25
	P10	838011881X		688	P10	838011933X		803	5,5	10,6	2x25
	P11	838011882X		692	P11	838011934X		812	7,5	13,6	2x25
	P12	838011883X		705	P12	838011935X		846	9,2	17,2	2x25
	P13	838011884X		705	P13	838011936X		849	11	21,3	2x25
	P14	838011885X		749	P14	838011937X		939	15	27,7	2x25
	P15	838011886X		739	P15	838011938X		921	11	20,2	2x25
	P16	838011887X		776	P16	838011939X		995	15	26,6	2x25
	P17	838011888X		786	P17	838011940X		1015	18,5	33	2x25
	P18	838011889X		795	P18	838011941X		1033	22	40,4	2x25
2500 horizontal	P6	838011890X		706	P6	838011527X		763	3	6,4	3x25
	P7	838011891X		708	P7	838011531X		768	4	8,7	3x25
	P8	838011892X		722	P8	838011530X		830	5,5	10,6	3x25
	P9	838011893X		726	P9	838011942X		838	7,5	13,6	3x25
	P10	838011894X		740	P10	838011943X		843	5,5	10,6	3x25
	P11	838011895X		745	P11	838011532X		852	7,5	13,6	3x25
	P12	838011896X		757	P12	838011512X		889	9,2	17,2	3x25
	P13	838011897X		757	P13	838011944X		889	11	21,3	3x25
	P14	838011898X		801	P14	838011945X		980	15	27,7	3x25
	P15	838011899X		791	P15	838011946X		967	11	20,2	3x25
	P16	838011900X		828	P16	838011533X		1041	15	26,6	3x25
	P17	838011901X		838	P17	838011947X		1061	18,5	33	3x25
	P18	838011902X		847	P18	838011948X		1079	22	40,4	3x25

Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

NOTE - Layout 1 is the standard execution unless otherwise stated in the order. Layout 2 and Layout 3 on request.

Legend

F.L.I. Maximum absorbed power
F.L.A. Maximum current absorbed
Ve Expansion vessel capacity
Pve Expansion vessel pre-charge
Ps Maximum operating pressure
T min Minimum liquid temperature

Hydronic systems
HPT accessories

1 **Programmable timer for alternating pumps**
In the dual pump configuration, the timer can be used to handle alternating pump operation at specified time intervals. Without the timer, the alternating pump operation occurs at each startup of the group. Default alternation every 48 hours programmable.

*** WARNING:** If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory.

Code	Description	Price
838081104X	TIMER OPTION 48H	

2 **Differential pressure switch**
Security device that allows you to verify that there is flow inside the system. The device generates an alarm signal but does not automatically stop the machine.

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	

3 **Anti-vibrating feet**
Set of anti-vibrating feet to be placed on the machine's support points. The feet are supplied disassembled.

Code	Description	Price
838080917X	ANTIVIBRATION FOR HPT 300/500	
838080936X	ANTIVIBRATION FOR HPT 750/1000	
838080938X	ANTIVIBRATION FOR HPT 1500/2500L	

4 **Antifreeze electric resistance kit (special version)**
This specification is aimed at ensuring the operation of the machine under severe temperature conditions (from +4°C to -20°C), preventing the formation of ice, especially during start-up and shutdown phases. **see page: 150**

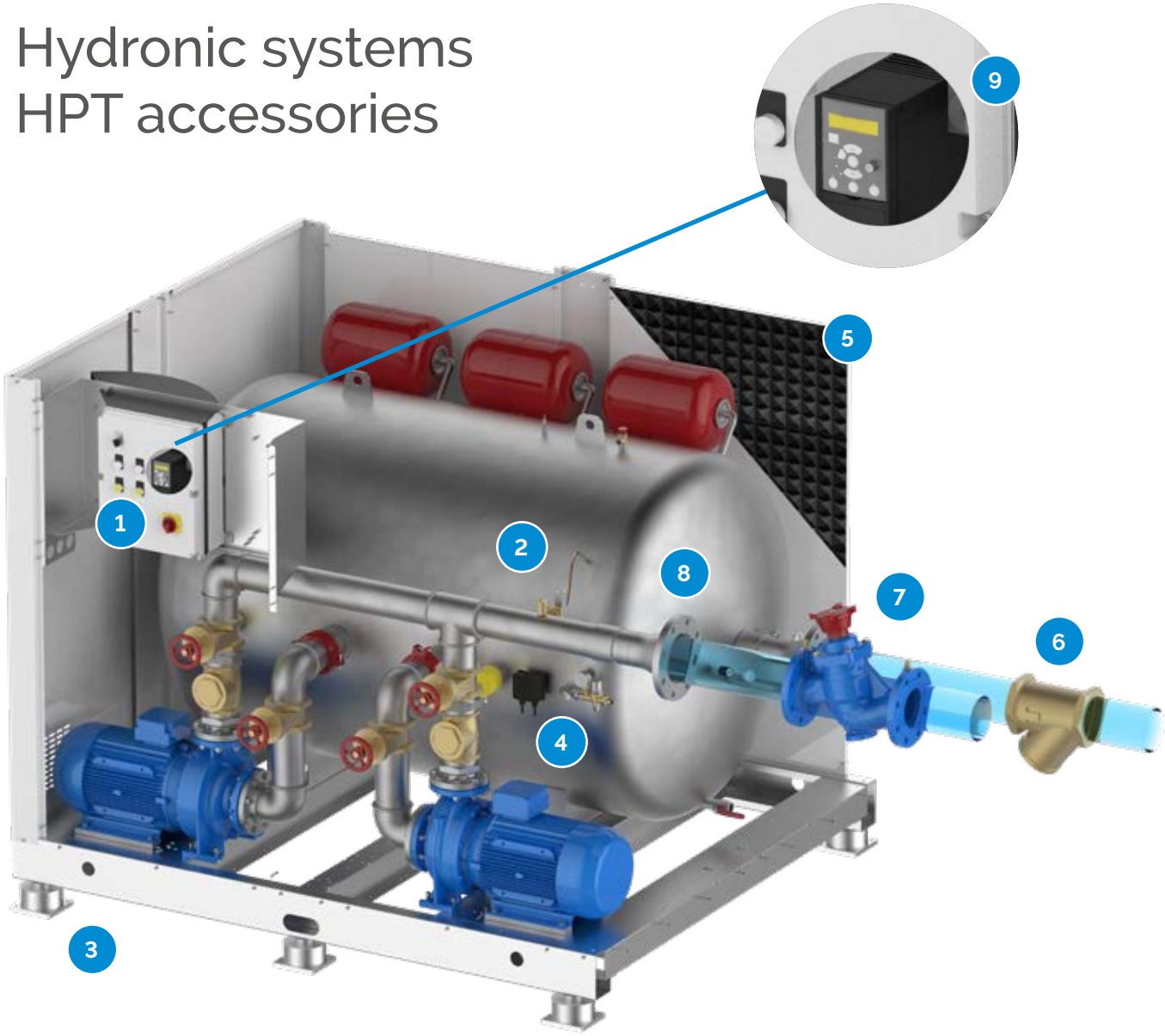
5 **Soundproof coating (special version)**
Soundproofing cladding for the framework is available, which significantly reduces the noise emission level of the machine.
see page: 150

6 **Filter (special version)**
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.
see page: 150

7 **Balancing valves (special version)**
Valve can be connected externally to balance the flow within the circuit.
see page: 150

8 **Tailored connections**
From Threaded to Flanged/Grooved Standard **see page: 148**
Special version for larger size, flanged grooved in various materials **see page: 150**

Hydronic systems
HPT accessories



9 **Standard switchboard with BMS**
Integration of BMS module to control remotely pumps and availability to check pump status remotely (pump on and/or alarms). In the case of application with an inverter, it is also possible to vary the pressure set point. Communication protocol Modbus through serial port RS-485.

Stainless steel execution
In projects where the fluid temperature is between -11°C and -20°C, the hydronic kits are produced in a special configuration by replacing the standard hydraulic components with components suitable for working at low temperatures by exploiting the characteristics of the stainless steel material.
see page: 150

Wooden box packing (special version)
Extra protective packing suitable for risky and long-distance transport.
see page: 150

Increased insulation
This increased insulation compared to the standard allows the use of the kit in particularly harsh temperature conditions (from +4°C to -20°C), avoiding the formation of ice or condensation.
see page: 150

Low temperature pump
In projects where the fluid temperature is between -11°C and -20°C, the standard pump is replaced with a special pump suitable for working in the aforementioned conditions.
see page: 150

HP 2.0
Hydronic system

The HP 2.0 units are hydraulic stations meant to reduce the set-up time of the conditioning and cooling devices. They can be linked to any kind of water cooler.

Standard equipment

Fluid types:
- water
- Ethylene glycol up to 40%
- Propylene glycol up to 40%

Insulation: anti-condensate elastomer
Pumps: 1 or 2
Execution: Layout 1
Inverter: with or without

Standard equipment usage limit

Fluid temperature	Environment temp.	Max. pressure
5°C / +60°C	10°C / +40°C	3 bar

Special equipment usage limit available on configurator (see page 108)

Fluid temperature	Environment temp.	Max. pressure
-20°C / +60°C	-20 / +40°C	3 bar

The HP unit has:

- piping insulated with anti-condensate elastomere
- Single or double centrifugal pump with shut-off valve
- Safety valve
- Deaerator
- Fill-up/drain valve
- Base and self-supporting panels made of galvanized and coated steel sheets, suitable for outdoor installations
- Panels that can be quickly and easily removed
- Easy and quick access to the switchboard
- Switchboard (standard or with inverter)

The broad range of combinations offers a solution for every single type of installation.
Expansion vessel available on request.

Accessories: See pag. 140 for the list of available accessories

Start-up: the first start-up is recommended. See page 361



Upon request, it is possible to produce versions with special equipment to operate at temperatures and pressures outside the standard usage limits. These equipments include, for example, increased insulation, antifreeze kits, pumps for low temperature operation, stainless steel connections.

Standard switchboard

Switchboard with possibility to alternate pumps with every start-up (2 pumps version), to start-up the backup pump in case of breakdown (2 pumps version), magnetothermic protection, free contacts to detect alarms and turned-on pumps, free contact to control remotely on/off pumps, protection category IP55.
Electric data: 400V/3/50Hz

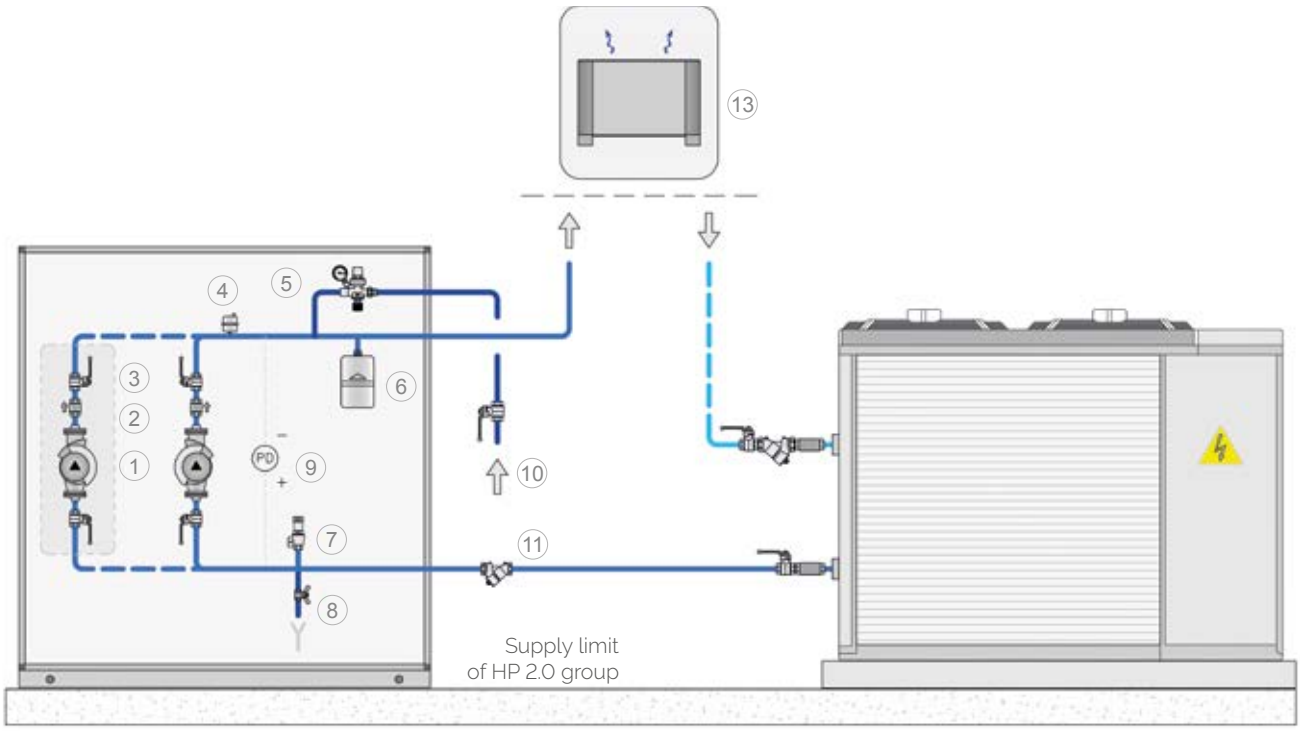
Standard switchboard with inverter

Each pump can be managed by an inverter. Units equipped with inverters have a pressure transducer which communicates with the inverter through a 4-20 mA signal. All adjustment parameters are pre-loaded during the test run at the company. The user must choose only the desired pressure value set point.
It is possible to remotely control pump 1 and 2. Free contacts available used to verify pumps status.

HP 2.0 hydronic systems: hydraulic chart

Features: Hydronic kit, chiller and plant connected in series, hence the water flow is constant throughout the plant.

NOTE: All HPT Fiorini standard kit kits are designed according to the following chart.

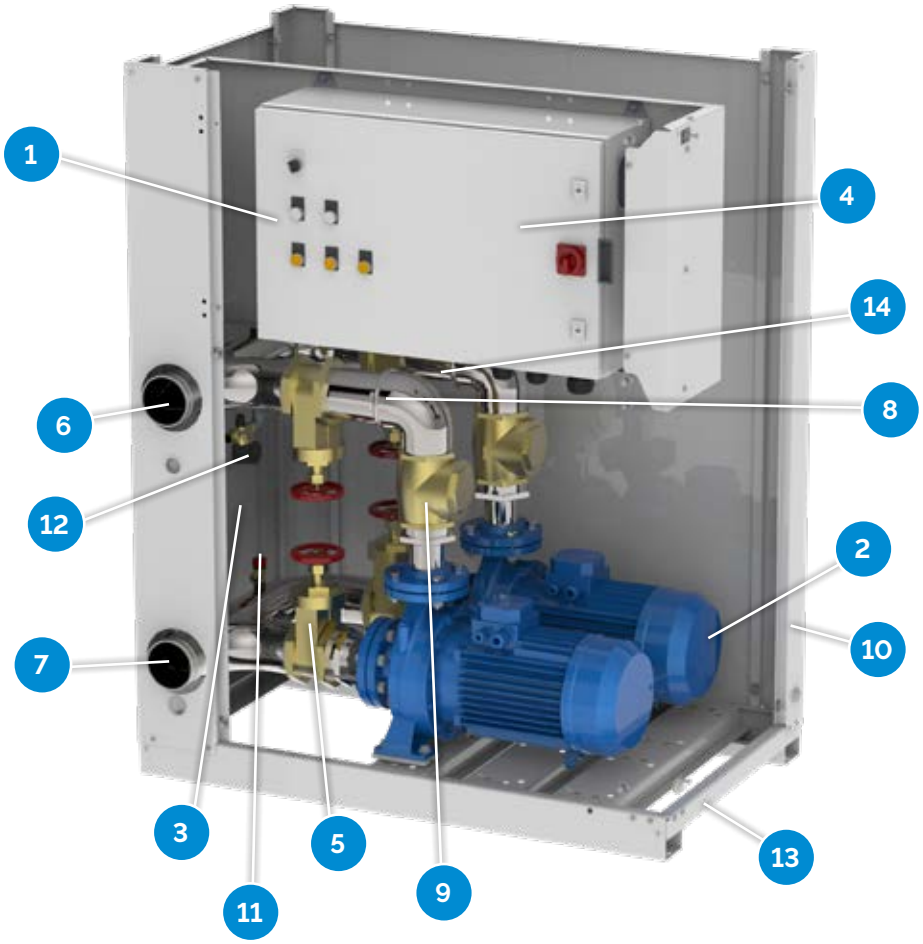


HP 2.0 Group

Legend

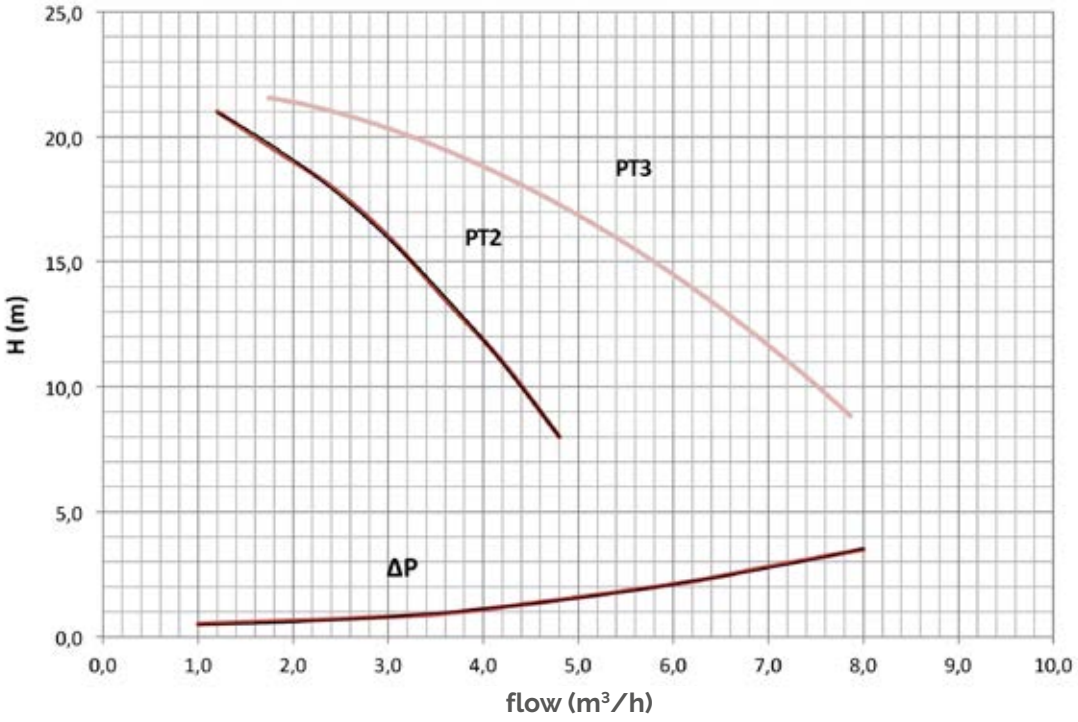
1. Circulator
2. Shut-off valve (only version with 2 pumps)
3. On-off valve
4. Deaerator
5. Automatic filling unit
6. Expansion vessel (optional)
7. Safety valve
8. Drain
9. Differential pressure switch (optional)
10. Inlet returning fluid
11. Y filter. Optional, supplied non-assembled
12. Chiller
13. Device

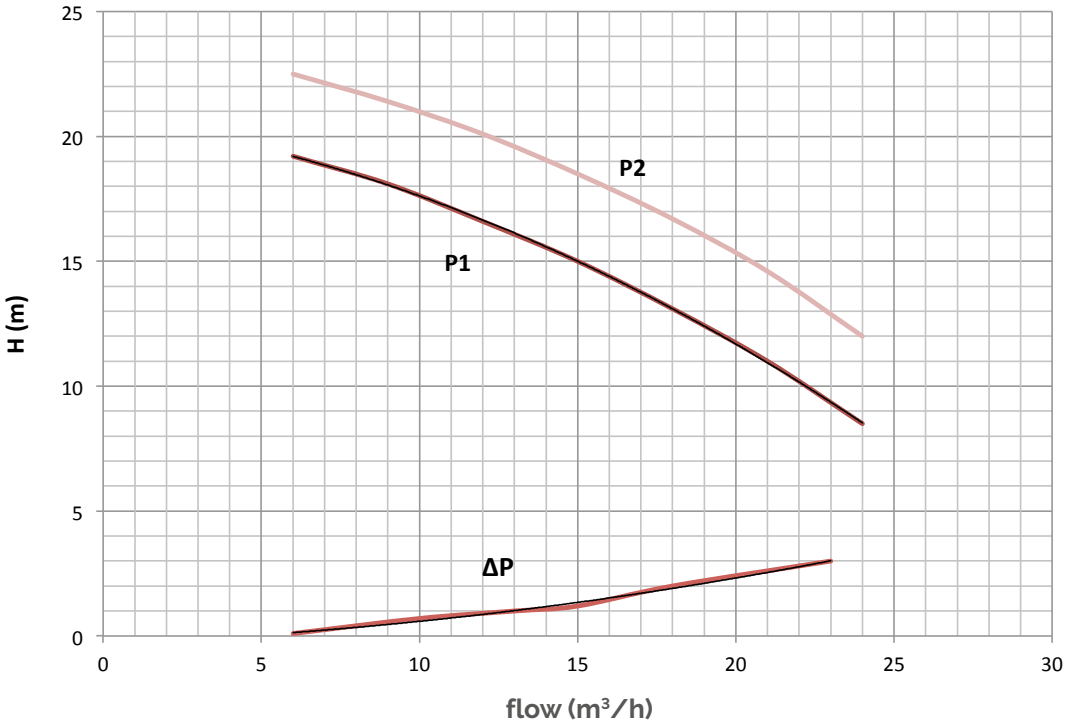
HP 2.0 hydronic system: components



Components	
1	Switchboard
2	Circulation pump (version with double pump, optional)
3	Removable bolted panel
4	Hinged panel
5	Shut-off valve
6	Water outlet
7	Water inlet
8	Pressure transmitter (only version with inverter)
9	Check valve (only version with double pump)
10	Ventilation grid
11	Safety valve
12	Automatic filling unit
13	Base
14	Deaerator

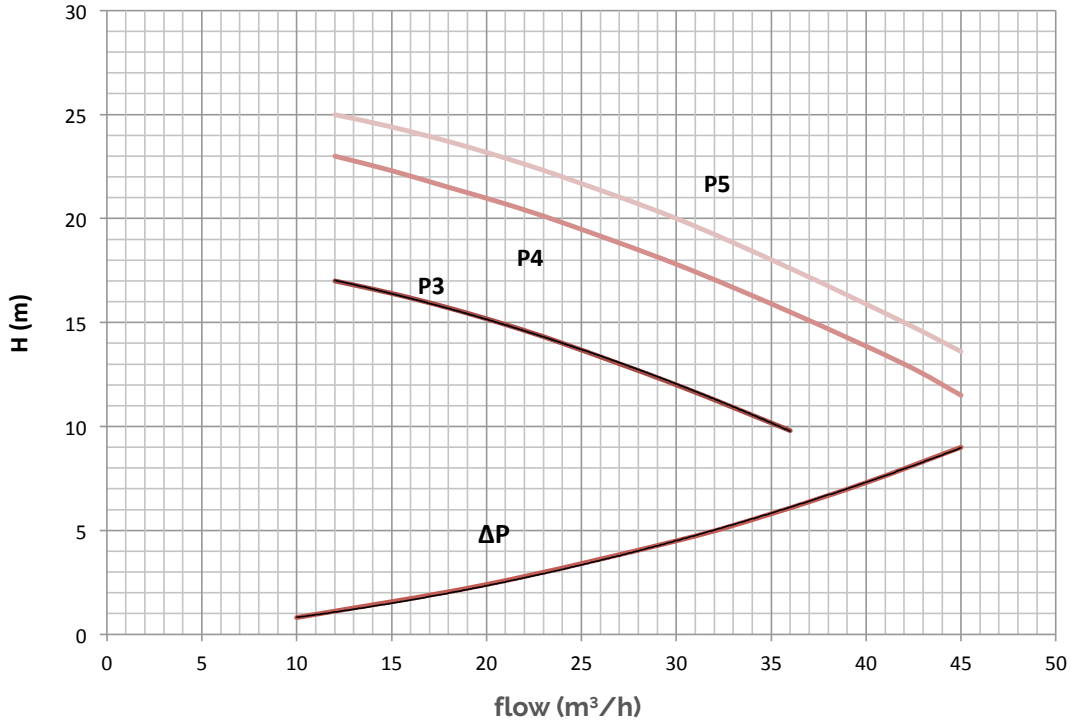
HP 2.0 Hydronic systems
Prevalence and pressure loss curve

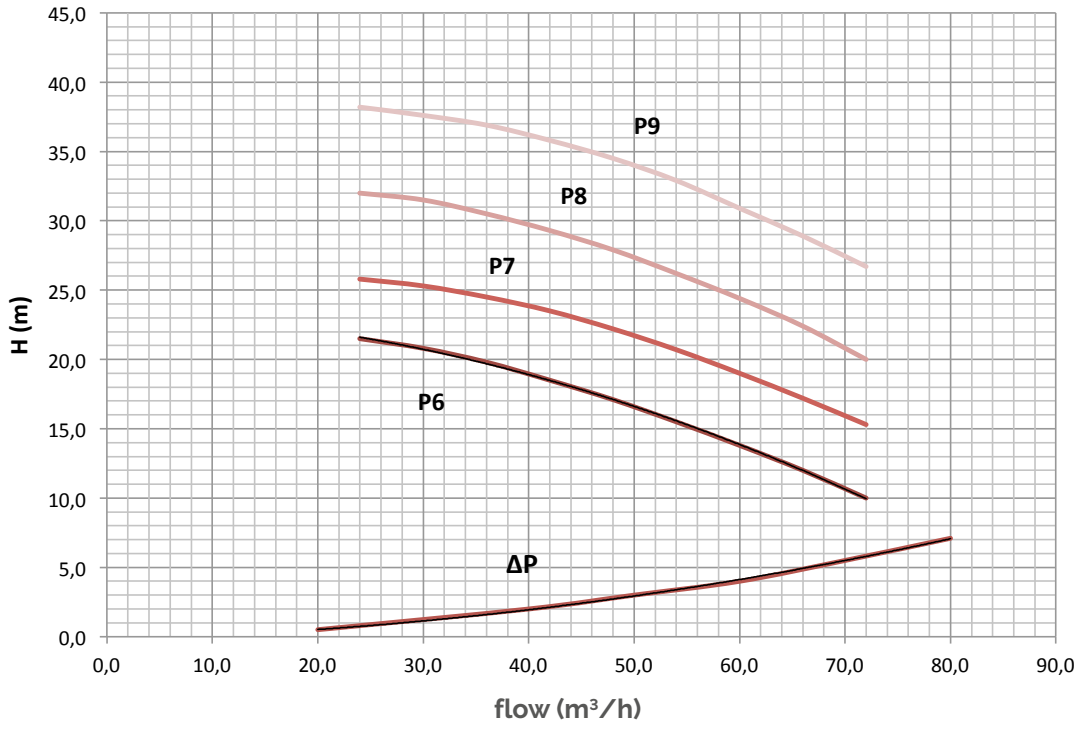




ΔP: Pressure drop HP unit

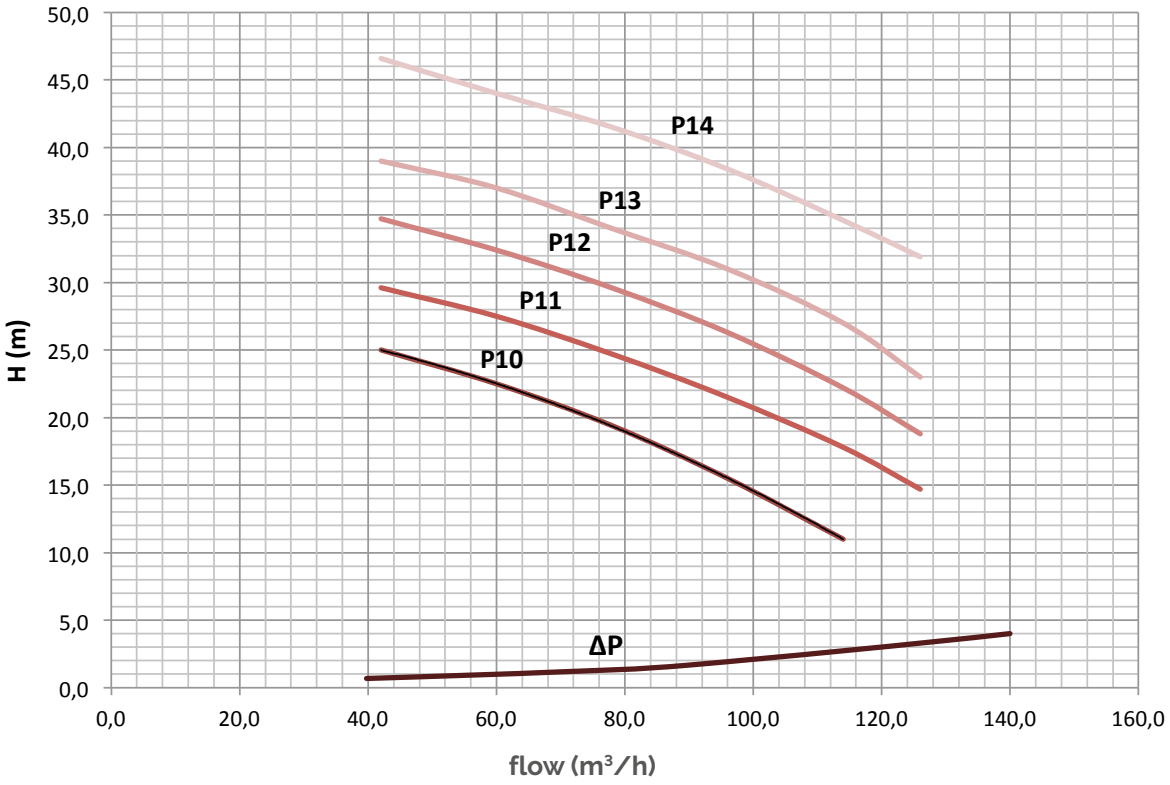
HP 2.0 Hydronic systems
Prevalence and pressure loss curve

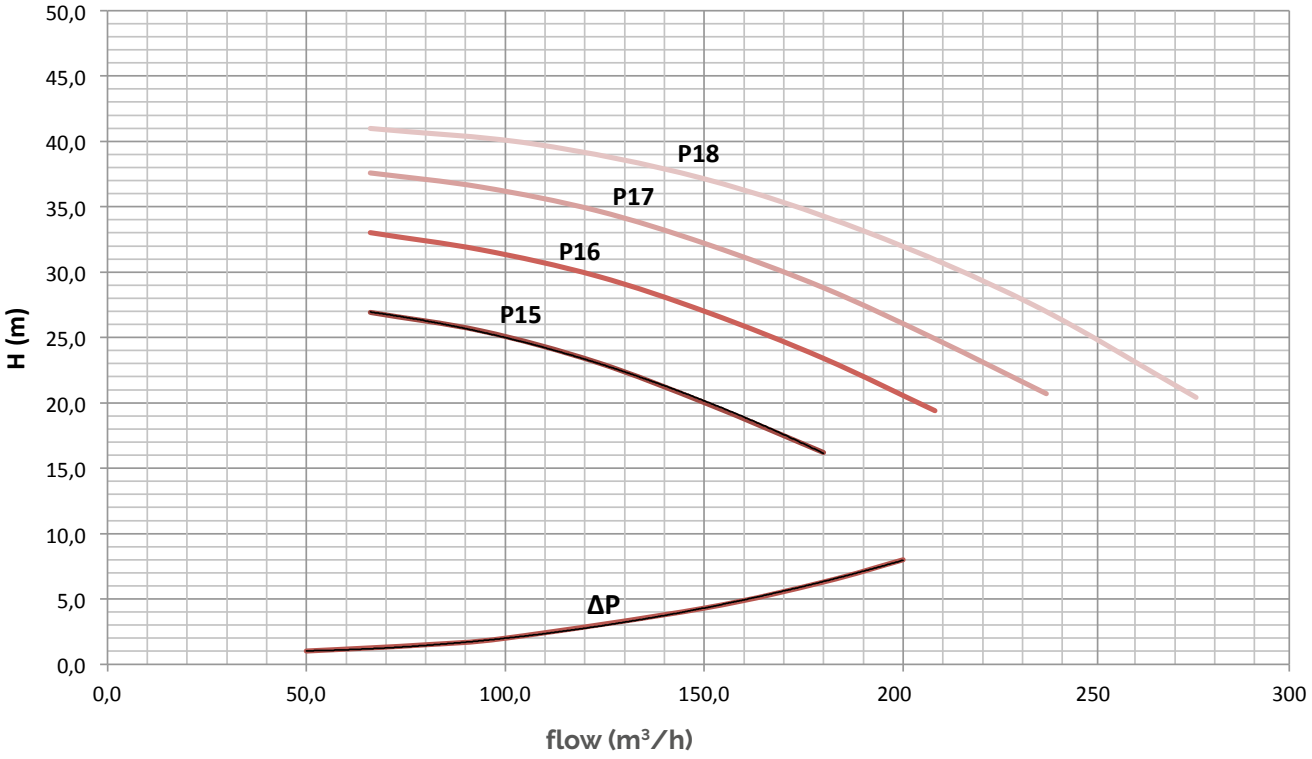




ΔP: Pressure drop HP unit

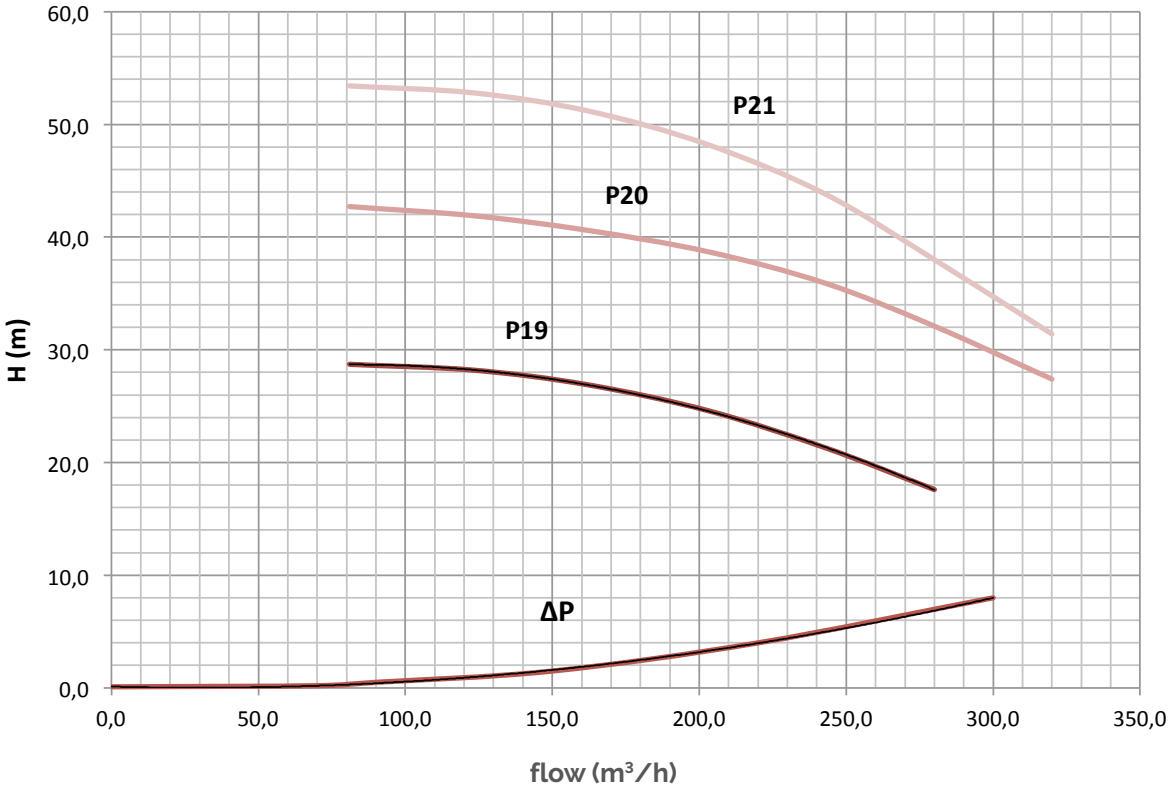
HP 2.0 Hydronic systems
Prevalence and pressure loss curve





ΔP: Pressure drop HP unit

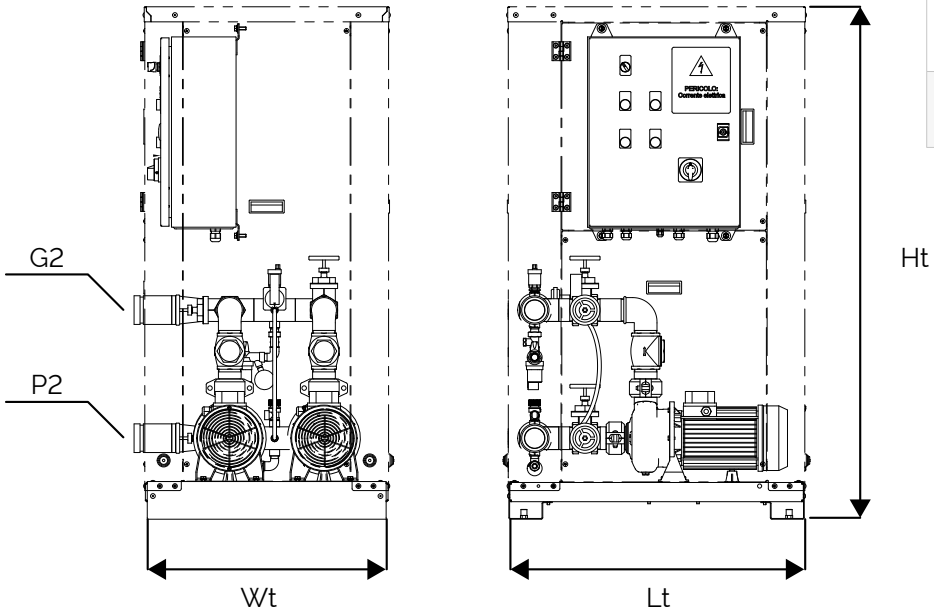
HP 2.0 Hydronic systems
Prevalence and pressure loss curve



ΔP: Pressure drop HP unit

HP 2.0 hydronic system: dimensions

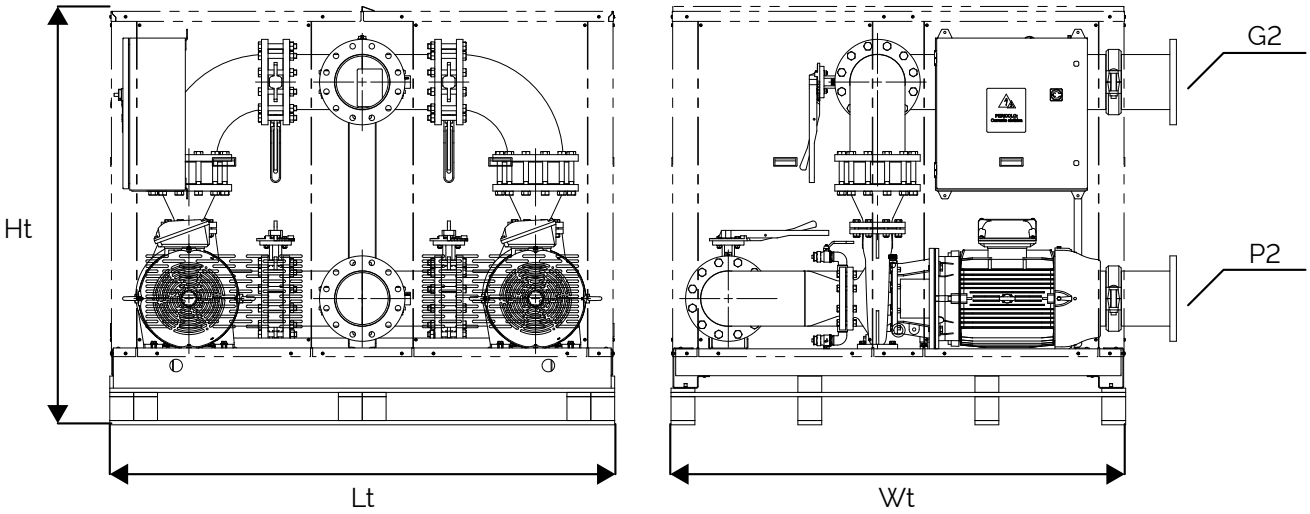
Layout of pump models PT2, PT3, from P1 to P18



Couplings legend

G2	To plant Grooved connection
P2	From energy source Grooved connection

Layout of pump models from P19 to P21



	1 pump Dimensions			2 pumps (1 redundant) Dimensions				
Pump model	**Lt mm**	**Wt mm**	**Ht mm**	**Lt mm**	**Wt mm**	**Ht mm**	**G2 inch**	**P2 inch**
PT2-PT3	790	650	1360	790	650	1360	1"1/2	1"1/2
P1-P2-P3-P4-P5	790	650	1360	790	650	1360	2"1/2	2"1/2
P6-P7-P8-P9	1200	790	1360	1200	790	1360	3"	3"
P10-P11-P12-P13-P14-P15-P16-P17-P18	1280	790	1360	1280	790	1600	4"	4"
P19-P20-P21	1300	1800	1560	2000	1800	1575	DN 200 UNI PN16	DN 200 UNI PN16

HP 2.0 hydronic systems: technical information

			1 pump			2 pumps (1 redundant)		
Pump model	F.L.I kW	F.L.A. (400/3/50) A	Code	Price	Weight kg	Code	Price	Weight kg
PT2*	0,45	1,3	838060261X		100	838060262X		114
PT3*	0,45	1,3	838060263X		100	838060264X		114
P1	1,1	3,3	838060129X		129	838060119X		150
P2	1,5	3,8	838060130X		130	838060120X		151
P3	1,5	3,8	838060131X		131	838060121X		153
P4	2,2	4,7	838060132X		135	838060122X		157
P5	3	6,4	838060133X		137	838060123X		163
P6	3	6,1	838060107X		183	838060193X		256
P7	4	8,7	838060108X		190	838060194X		272
P8	5,5	10,4	838060109X		208	838060195X		311
P9	7,5	13,6	838060110X		224	838060196X		343
P10	5,5	10,4	838060111X		215	838060197X		323
P11	7,5	13,6	838060112X		231	838060198X		355
P12	9,2	17,2	838060235X		284	838060236X		407
P13	11	21,3	838060183X		284	838060217X		412
P14	15	27,7	838060184X		309	838060218X		503
P15	11	20,2	838060227X		279	838060228X		460
P16	15	26,6	838060185X		316	838060219X		549
P17	18,5	33	838060186X		319	838060220X		569
P18	22	40,4	838060187X		340	838060221X		587
P19	18,5	33	838060229X		903	838060230X		1265
P20	30	53,5	838060231X		1030	838060232X		1519
P21	37	65,6	838060233X		1055	838060234X		1557

Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

Legend

F.L.I. Max absorbed power
F.L.A. Max absorbed current
Pve Preload of expansion vessel
Ps Max operating pressure
Tmin Min temperature of the liquid

HP 2.0 hydronic systems: technical information

			1 pump			2 pumps (1 redundant)		
Pump model	F.L.I kW	F.L.A. (400/3/50) A	Code	Price	Weight kg	Code	Price	Weight kg
PT2*	0,45	1,3	838060290X		100	838060291X		114
PT3*	0,45	1,3	838060269X		100	838060278X		114
P1	1,1	3,3	838060161X		129	838060095X		150
P2	1,5	3,8	838060162X		130	838060096X		151
P3	1,5	3,8	838060163X		131	838060097X		153
P4	2,2	4,7	838060164X		135	838060099X		157
P5	3	6,4	838060165X		137	838060100X		163
P6	3	6,1	838060171X		183	838060205X		256
P7	4	8,7	838060172X		190	838060206X		272
P8	5,5	10,4	838060173X		208	838060207X		311
P9	7,5	13,6	838060174X		224	838060208X		343
P10	5,5	10,4	838060175X		215	838060209X		323
P11	7,5	13,6	838060176X		231	838060210X		355
P12	9,2	17,2	838060250X		284	838060254X		407
P13	11	21,3	838060141X		284	838060151X		412
P14	15	27,7	838060142X		309	838060152X		503
P15	11	20,2	838060251X		279	838060255X		460
P16	15	26,6	838060143X		316	838060153X		549
P17	18,5	33	838060144X		319	838060154X		569
P18	22	40,4	838060145X		340	838060155X		587
P19	18,5	33	838060292X		903	838060296X		1265
P20	30	53,5	838060293X		1030	838060297X		1519
P21	37	65,6	838060295X		1055	838060299X		1557

Pve (bar) 1,5 Ps (bar) 3 T min (°C) 0
Nominal conditions for the sizing of the expansion vessels: 4-40°C 100% water head 10 mwc and pre-charge 1.5 bar. In design conditions different from the nominal ones it is necessary to check the volume of the expansion vessels.
*** PT2 and PT3 available in single-phase version on request**

Legend

F.L.I. Max absorbed power
F.L.A. Max absorbed current
Pve Preload of expansion vessel
Ps Max operating pressure
Tmin Min temperature of the liquid

Hydronic systems
HP 2.0: accessories

1 Programmable timer for alternating pumps

In the dual pump configuration, the timer can be used to handle alternating pump operation at specified time intervals. Without the timer, the alternating pump operation occurs at each startup of the group. Default alternation every 48 hours programmable.

* **WARNING:** If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory.

Code	Description	Price
838081104X	TIMER OPTION 48H	

2 Differential pressure switch

Security device that allows you to verify that there is flow inside the system. The device generates an alarm signal but does not automatically stop the machine.

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	

3 Anti-vibrating feet

Set of anti-vibrating feet to be placed on the machine's support points. The feet are supplied disassembled.

Code	Description	Price
838080861X	ANTI-VIBRATING FOR HP PT2/PT3 AND FOR P1 A P18	
838081286X	ANTI-VIBRATING FOR HP P19/P20/P21	

4 Expansion vessel kit

Code	Description	Compatible with	Price
838081187X	EXPANSION VESSEL 12L INNER	HP 2.0 UP TO P18	
838081195X	EXPANSION VESSEL 25L INNER	HP 2.0 UP TO P18	
838081480X	EXPANSION VESSEL 2x25L INNER	HP 2.0 UP TO P18	
838081616X	EXPANSION VESSEL 3x25L INNER	HP 2.0 UP TO P18	
838081234X	EXPANSION VESSEL 2x25L INNER	HP 2.0 FOR P19/P20/P21 VERSIONS	

5 Manometer kit

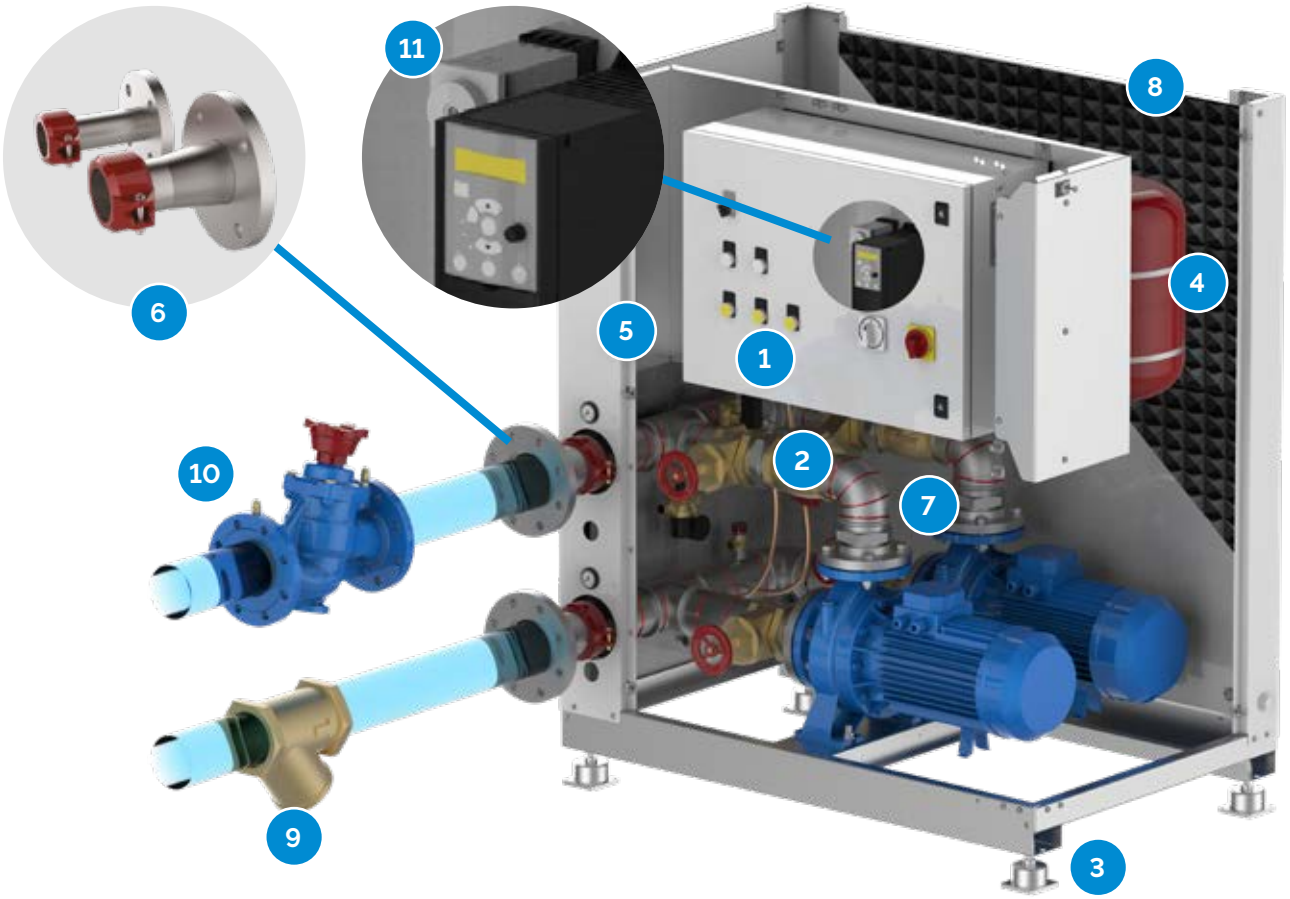
Code	Description	Price
838081583X	MANOMETER KIT	

6 Transformation of painted grooved connections

They transform the grooved connections into UNI-EN PN 16 flanged connections. A version with the same diameter and one with a larger diameter is available. The codes and prices below are for single piece.

Original conncetion Grooved (Victaulic)	Transformed connection UNI-EN PN 16	Code	Price
1"1/2	DN40	838081247X	
	DN50	838081248X	
2"	DN50	838081249X	
	DN65	838081250X	
2"1/2	DN65	838081251X	
	DN80	838081252X	
3"	DN80	838081253X	
	DN100	838081254X	
4"	DN100	838081255X	
	DN125	838081256X	





7 **Antifreeze kit (special version)** The kit provides protection against freezing by means of a heating cable wound around piping. The kit also includes a bi-thermostatic antifreeze adjustment (-35 / + 35 ° C) and is supplied assembled, wired and tested.
see page: 150

8 **Soundproof coating (special version)**
The soundproofing is available, which attenuates the sound level of the machine significantly.
see page: 150

9 **Filter (special version)**
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.
see page: 150

10 **Balancing valves (special version)**
Valve can be connected externally to balance the flow within the circuit.
see page: 150

11 **Standard switchboard with BMS**
Integration of BMS module to control remotely pumps and availability to check pump status remotely (pump on and/or alarms). In the case of application with an inverter, it is also possible to vary the pressure set point. Communication protocol Modbus through serial port RS-485.

Wooden box packing (special version)
Extra protective packing suitable for risky and long-distance transport.
see page: 150

Stainless steel execution
In projects where the fluid temperature is between -11°C and -20°C, the hydronic kits are produced in a special configuration by replacing the standard hydraulic components with components suitable for working at low temperatures by exploiting the characteristics of the stainless steel material.
see page: 150

Increased insulation
This increased insulation compared to the standard allows the use of the kit in particularly harsh temperature conditions (from +4°C to -20°C), avoiding the formation of ice or condensation.
see page: 150

Low temperature pump
In projects where the fluid temperature is between -11°C and -20°C, the standard pump is replaced with a special pump suitable for working in the aforementioned conditions.
see page: 150

Hydronic systems
VKB 2.0

The VKB 2.0 units are buffer storage tanks with accessories (without circulation pump) designed in order to significantly reduce the set-up time for the conditioning and cooling devices.

Standard equipment

Capacity: from 250 to 1.500 l
Tank material: carbon steel
Fluid types:
- water
- Ethylene glycol up to 40%
- Propylene glycol up to 40%

Insulation: anti-condensate elastomer
Execution: Layout 1

Standard equipment usage limit

Fluid temperature	Environment temp.	Max. pressure
5°C / +60°C	10°C / +40°C	3 bar

Complete with all hydraulic components which are indispensable for the correct functioning of the hydraulic circuit for the distribution of chilled water, the components can be coupled with all kind of water coolers. The units consist of an insulated buffer tank, an expansion vessel, a safety valve, a deaerator, a fill/drain valve and a manometer.

The VKB 2.0 units are enveloped in a supporting structure in a galvanized steel and powder coated panels and base. They are designed to guarantee an easy inspection and maintenance of the components. The tank, which is hydraulically inserted between the cooling station and the fan-coils, makes the water content in the entire installation increase, by increasing the pause between the shutdown of the compressor and the next start-up. In this way, the number of start-ups is significantly reduced, which improves the life span and performance of the compressor. The broad range of storage tanks makes it possible to meet every requirement. Every unit is assembled in our factory and tested to guarantee our trustworthiness.

Accessories: See pag. 146 for the list of available accessories



Special equipment usage limit available on configurator (see page 108)

Fluid temperature	Environment temp.	Max. pressure
-20°C / +60°C	-20 / +40°C	3 bar

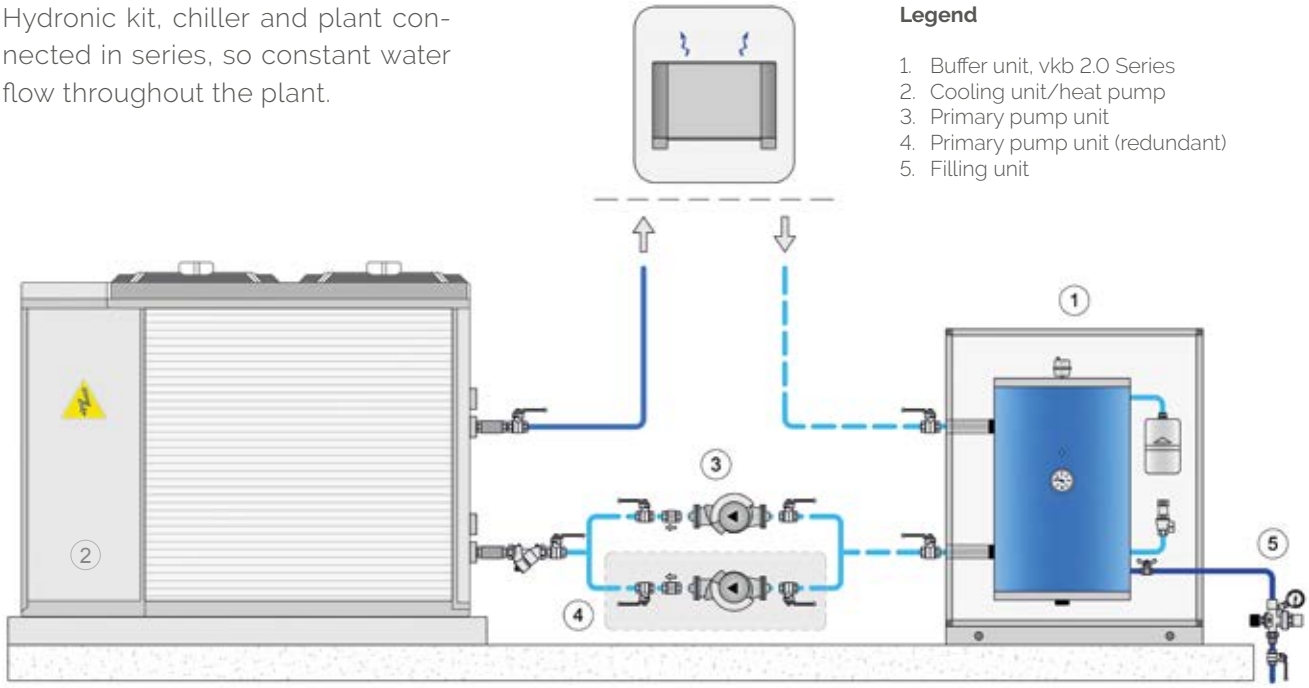
Upon request, it is possible to produce versions with special equipment to operate at temperatures and pressures outside the standard usage limits. These equipments include, for example, increased insulation, antifreeze kits, stainless steel connections and tank.

Hydronic systems
VKB 2.0 Layout 1 STANDARD

Hydronic kit, chiller and plant connected in series, so constant water flow throughout the plant.

Legend

1. Buffer unit, vkb 2.0 Series
2. Cooling unit/heat pump
3. Primary pump unit
4. Primary pump unit (redundant)
5. Filling unit

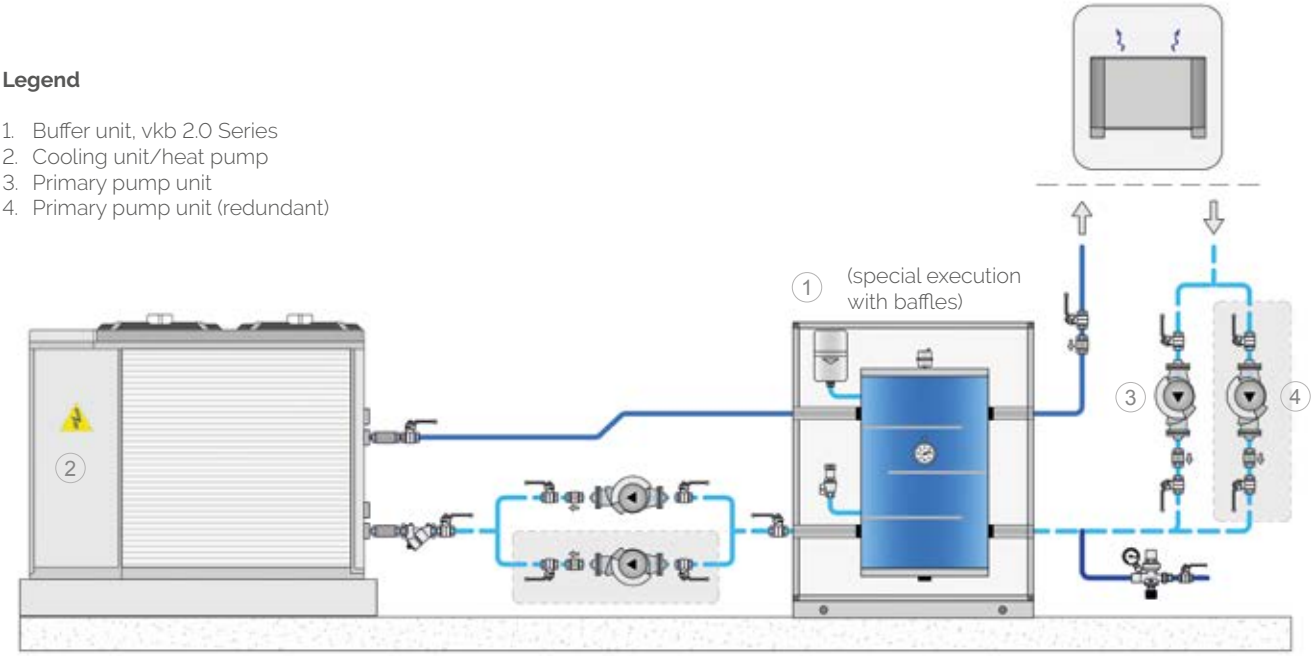


Hydronic systems
VKB 2.0 Layout 2 SPECIAL VERSION

Hydronic Kit and Chiller create the primary circuit, Hydronic Kit and Plant create the secondary circuit. Hence, the two circuits have independent flow rates. The VKB shown below is a special execution with baffles.

Legend

1. Buffer unit, vkb 2.0 Series
2. Cooling unit/heat pump
3. Primary pump unit
4. Primary pump unit (redundant)

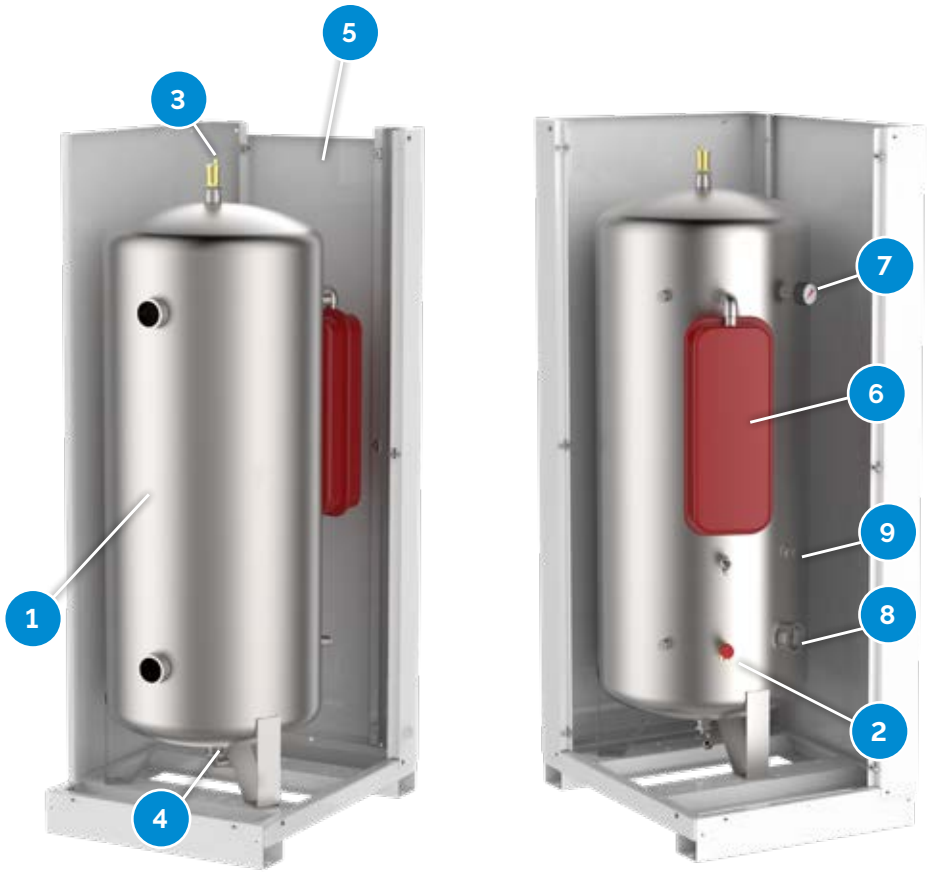


Hydronic systems
VKB 2.0

VKB 2.0 Description of the main components

- **Storage tank**
  The storage tank is made of varnished carbon steel plates and is insulated with closed cell elastomer . This type of insulation, guarantees an excellent resistance to condensate formation.
- **Fill up valve**
  This valve refills the hydraulic circuit in the demand peak phase as well as during normal functioning.
- **Safety valve**
  Calibrated at 6 bar and with canalised drain. It protects the unit from possible overpressure.
- **Automatic valve for air drain**
  Placed on the upper part of the unit, it drains air from the unit.
- **Drain valve**
  It drains air from the lowest point of the tank to make drainage possible.
- **Supporting structure**
  The base is made of thick steel plates varnished. The basement and panels are made in galvanized steel and powder coated which are resistant to atmospheric agents. All this makes it possible for the VKB 2.0 to be installed in non-technical spaces and in places exposed to atmospheric agents.
- **Expansion vessel**
  Supplied with a membrane, preloaded nitrogen and with dimensions that can absorb varying volumes of liquid derived from the various temperatures.
- **Manometer**
  This device is placed on the tank and indicates the internal pressure.

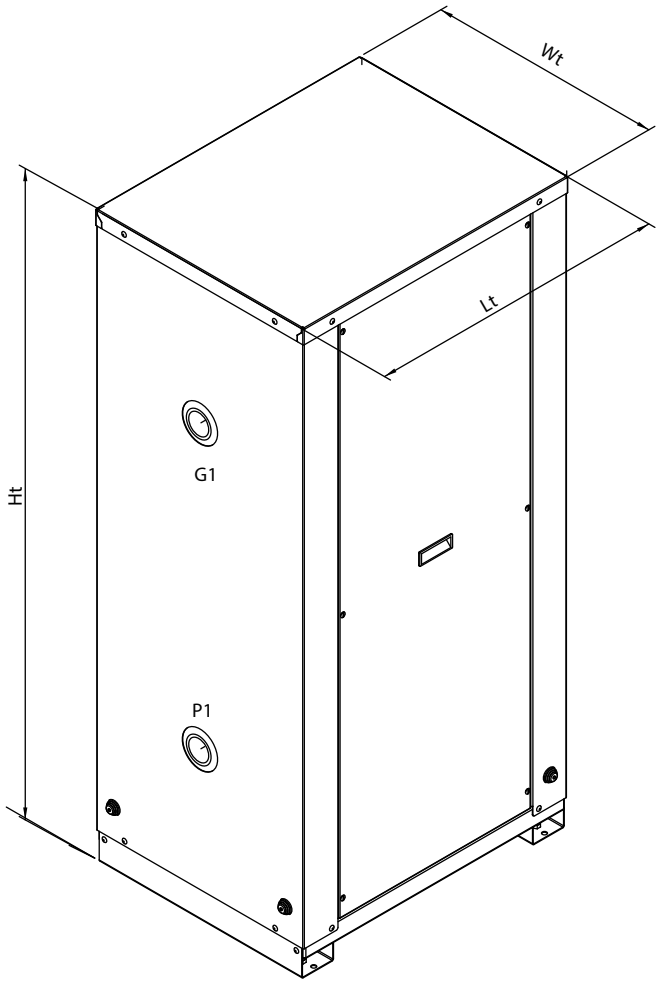
Components	
1	Storage tank
2	Safety valve
3	Automatic safety valve
4	Drain
5	Supporting structure
6	Expansion vessel
7	Manometer
8	Predisposition for electrical resistance
9	Predisposition for thermostat



Hydronic systems
VKB 2.0

Capacity l	Vessel l	Vessel calibration bar	Safety valve bar	Couplings inch	Wt mm	Lt mm	Ht mm	P1 mm	G1 mm
250	12	1	6	2"	590	750	1600	420	1220
500	18	1,5	6	3"	750	1000	1850	420	1470
1000	25	1,5	6	4"	1100	1100	1850	610	1410
1500	2x25	1,5	6	4"	1200	1200	1950	650	1450

Capacity l	Code	Price	Dimensions with packaging mm	Weight kg
250	838050090X		625x785x1670	95
500	838050091X		800x1050x1920	155
1000	838050092X		1150x1150x1920	255
1500	838050016		1250X1250X2020	313



Couplings legend

G1	From plant Threaded connection
P1	To energy source Threaded connection

Hydronic systems
VKB 2.0 accessories

1 From threaded to flanged galvanized connections

The codes and prices below are for single item. The adapter must be screwed onto the existing connection. The adapter is not welded on the ferrule, for special executions ask for a quote.



Original connection	Transformed connection uni-en pn 16	Code	Price
1"1/2	DN 40	838081200X	
	DN 50	838081201X	
2"	DN 50	838081202X	
	DN 65	838081203X	
2"1/2	DN 65	838081204X	
	DN 80	838081205X	
3"	DN 80	838081206X	
	DN 100	838081207X	
4"	DN 100	838081208X	
	DN 125	838081209X	

2 From threaded to Grooved galvanized connections

The codes and prices below are for single item.
The adapter must be screwed onto the existing connection. The adapter is not welded on the ferrule, for special executions ask for a quote.



Original connection	Transformed connection	Code	Price
1"1/2	1"1/2	838081211X	
	2"	838081212X	
2"	2"	838081213X	
	2"1/2	838081214X	
2"1/2	2"1/2	838081215X	
	3"	838081216X	
3"	3"	838081217X	
	4"	838081218X	
4"	4"	838081219X	
	5"	838081220X	

3 Electrical resistor

IP 65 Protection



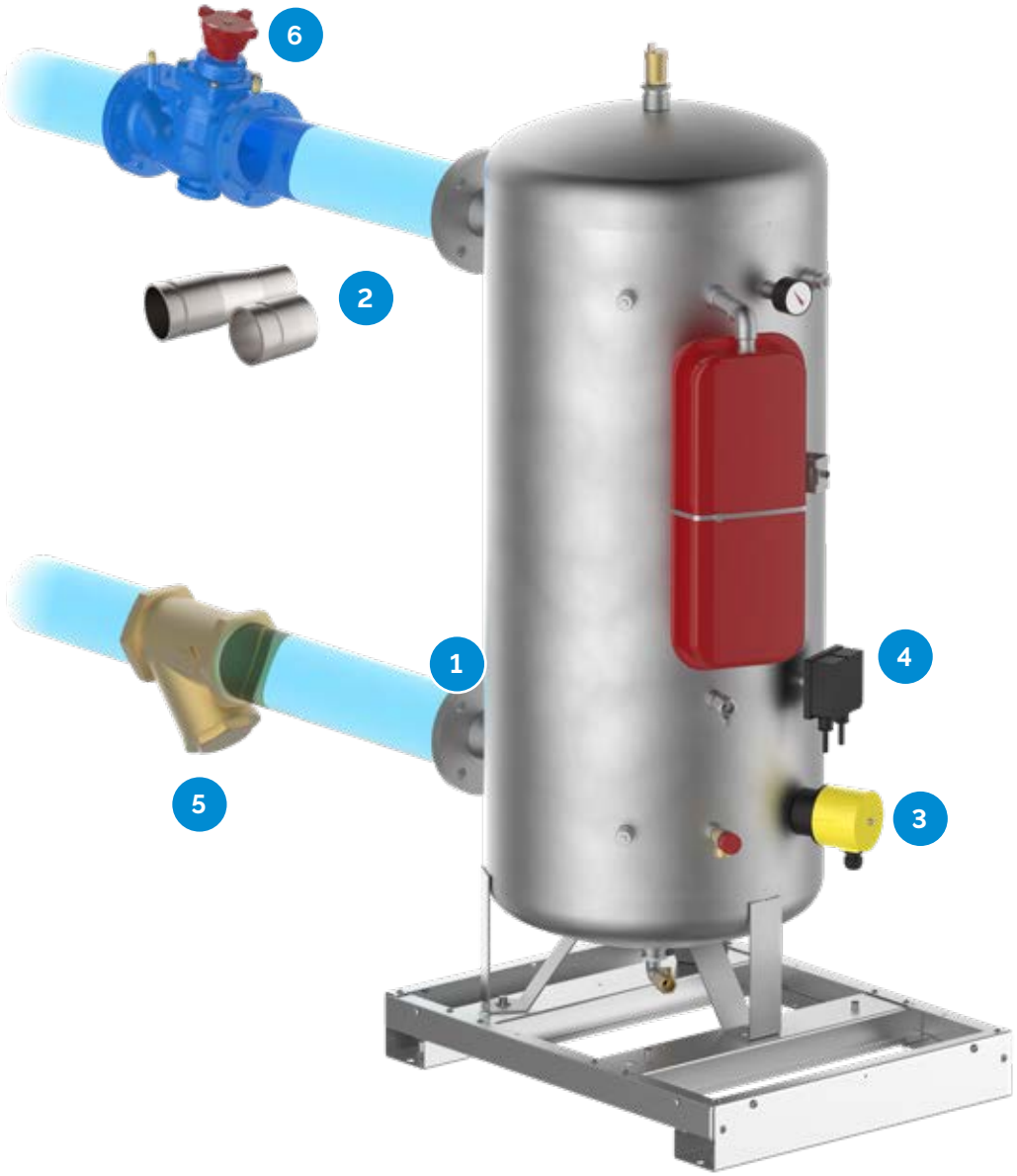
Power W	Voltage V	Element number	Connection diameter inch	Length mm	Code	Price
1300	230/380	3	2"	220	C24100008	
2000	230/380	3	2"	290	C24100009	
3000	230/380	3	2"	340	C24100010	
4000	230/380	3	2"	390	C24100012	

4 Temperature controls



Description	Temperature range	Safety range	Code	Price
Thermostat	0 ÷ 90 °C	-	C22010004	
Bithermostat	0 ÷ 90 °C	fix 100 °C	C22010006	
Antifreeze Bithermostat	-30 ÷ 30 °C	0 ÷ 90 °C	C22010007	

Hydronic systems
VKB 2.0 accessories



5 **Filter (special version)**
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.
see page: 133

6 **Balancing valves (special version)**
Valve can be connected externally to balance the flow within the circuit.
see page: 133

Tailored connections (special version)
Flangiate (in various materials), Grooved (in various materials), Larger
see page: 133

Stainless steel execution
In projects where the fluid temperature is between -11°C and -20°C, the hydronic kits are produced in a special configuration by replacing the standard hydraulic components with components suitable for working at low temperatures by exploiting the characteristics of the stainless steel material.
see page: 133

Increased insulation
This increased insulation compared to the standard allows the use of the kit in particularly harsh temperature conditions (from +4°C to -20°C), avoiding the formation of ice or condensation.
see page: 133

Standard Accessories for Hydronic kits HPT and HP

Accessories for HPT kit

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	
838081104X	TIMER OPTION 48H*	
838080917X	ANTIVIBRATING FEET FOR HPT 300/500L	
838080936X	ANTIVIBRATING FEET FOR HPT 750/1000L	
838080938X	ANTIVIBRATING FEET FOR HPT 1500/2500L	

* WARNING If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory

Compatible with HPT kit see pag. 128



Accessories for HP 2.0 kit

Code	Description	Price
838081000X	DIFFERENTIAL PRESSURE SWITCH	
838081104X	TIMER OPTION 48H*	
838081583X	MANOMETER KIT	
838080861X	ANTIVIBRATING FEET UP TO P18	
838081286X	ANTIVIBRATING FEET FOR P19, P20, P21	
838081187X	EXPANSION VESSEL 12L UP TO P18	
838081195X	EXPANSION VESSEL 25L UP TO P18	
838081480X	EXPANSION VESSEL 2x25L UP TO P18	
838081234X	EXPANSION VESSEL 2x25L FOR P19, P20, P21	

* WARNING If the system operates 24 hours a day, 7 days a week, the pump alternation is not guaranteed by the standard group. In this case, we recommend the use of this accessory

Compatible with HP kit see pag. 140



Transformation in flange connection for HP 2.0 kit

The codes and prices below are for single item.



Original connection Grooved (Victaulic)	Transformed connection UNI-EN PN 16	Code	Price
1"1/2	DN40	838081247X	
	DN50	838081248X	
2"	DN50	838081249X	
	DN65	838081250X	
2"1/2	DN65	838081251X	
	DN80	838081252X	
3"	DN80	838081253X	
	DN100	838081254X	
4"	DN100	838081255X	
	DN125	838081256X	

Compatible with HP kit see pag. 140

Standard Accessories for Hydronic kits VKB

Galvanized Connections Adapters from threaded to flanged type

The codes and prices below are for single item.
The adapter must be screwed onto the existing connection.
The adapter is not welded on the ferrule, for special executions ask for a quote.



Original connection	Transformed connection uni-en pn 16	Code	Price
1"1/2	DN 40	838081200X	
	DN 50	838081201X	
2"	DN 50	838081202X	
	DN 65	838081203X	
2"1/2	DN 65	838081204X	
	DN 80	838081205X	
3"	DN 80	838081206X	
	DN 100	838081207X	
4"	DN 100	838081208X	
	DN 125	838081209X	



Galvanized Connection Transformation from threaded to Grooved (Victaulic)

The codes and prices below are for single item.
The adapter must be screwed onto the existing connection.
The adapter is not welded on the ferrule, for special executions ask for a quote.



Original connection	Transformed connection	Code	Price
1"1/2	1"1/2	838081211X	
	2"	838081212X	
2"	2"	838081213X	
	2"1/2	838081214X	
2"1/2	2"1/2	838081215X	
	3"	838081216X	
3"	3"	838081217X	
	4"	838081218X	
4"	4"	838081219X	
	5"	838081220X	

Electrical resistors for VKB 2.0 kit

IP 65 Protection



Power W	Voltage V	Element number	Connection Diameter inch	Length mm	Code	Price
1300	230/380	3	2"	220	C24100008	
2000	230/380	3	2"	290	C24100009	
3000	230/380	3	2"	340	C24100010	
4000	230/380	3	2"	390	C24100012	

Temperature controls for VKB 2.0 kit



Description	Temperature range	Safety range	Code	Price
Thermostat	0 ÷ 90 °C	-	C22010004	
Bithermostat	0 ÷ 90 °C	fix 100 °C	C22010006	
Antifreeze Bithermostat	-30 ÷ 30 °C	0 ÷ 90 °C	C22010007	

Compatible with VKB kit see pag. 146

Special versions for Hydronic kits

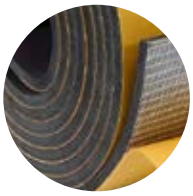
Special versions change the conformation of the products and hence the sales code will be different depending on the customisation required. Fiorini is able to provide any tailored solution quickly, providing the customer with the support they need to guide them to the solution that best suits their needs.
Here are some examples of special executions:



Antifreeze Kit
This specification is aimed at the operation of the machine in severe temperature conditions (from +4°C to -20 °C) avoiding the formation of ice especially during the starting and stopping phases of the machine. The resistors and the cable heating are activated via the fluid side bit-thermostat, while the heater is managed by the electrical panel, via a room thermostat, already included in the supply of the electrical panel.
The antifreeze kit is composed as follows:
• **For HPT from 100 to 1000 L**: 1.3kW electric resistance complete with antifreeze bit-thermostat (-35+35°C) wired to the electrical panel; heating cables wrapped around pipes, wired to the electrical panel; Heater in the electrical panel.
• **For HPT from 1500 to 2500 L**: 2x 1.3kW electric heaters complete with anti-freeze bit-thermostat (-35+35°C) wired to the electrical panel; heating cables wrapped around pipes, wired to the electrical panel; Heater in the electrical panel
• **For HP:** Heating cables wrapped around the pipes, wired to the electrical panel; anti-freeze bit-thermostat (-30+35°C); Heater in the electrical panel.



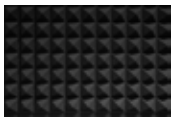
Stainless steel execution
In projects where the fluid temperature is between -11°C and -20°C, the hydronic kits are produced in a special configuration by replacing the standard hydraulic components with components suitable for working at low temperatures by exploiting the characteristics of the stainless steel material.
In particular, in cases of particularly severe fluid and ambient temperatures, the hydronic kit will be supplied as follows:
• Pipes and fittings in AISI304 stainless steel (HP and HPT);
• AISI304 stainless steel tank (HPT and VKB);
• Expansion tank(s) in AISI304 stainless steel
• AISI304 stainless steel valves



Increased insulation
This increased insulation compared to the standard allows the use of the kit in particularly harsh temperature conditions (from +4°C to -20°C), avoiding the formation of ice or condensation.
The majority insulation option includes:
• Double layer of anti-condensation insulation applied on the tank (for HPT and VKB);
• Double layer of anti-condensation insulation applied on the pipes and fittings (for HP and HPT);
• Insulation applied to each accessory included in the kit: expansion tanks, valves, vent, drain, brackets, tank feet;



Low temperature pump
In projects where the fluid temperature is between -11°C and -20°C, the standard pump is replaced with a special pump suitable for working in the aforementioned conditions.



Soundproof coating
Soundproofing is available and attenuates significantly the sound level of the machine.



Filter
Mesh filter, with 1000 micron holes, can be placed outside the unit to protect the pumps from any impurities in the equipment.



Balancing valves
Valve can be connected externally to balance the flow within the circuit.



Wooden box packing
Extra protective packing suitable for risky and long-distance transport.



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