EN

TECHNICAL MANUAL

V-IPER

Chillers and heat pumps

50 kW - 380 kW

Double class A Eurovent | Refrigerant R-410A | Cooling only | Heating/ Cooling | Monoblock execution | Axial fans | Hydro smart flow | Up-Wind | Continuous charge monitoring | Scroll compressor

PLUS

- High efficiency under part load conditions
- Class A in chiller and heat pump operating mode
- Extended operating range
- Intelligent modulation of the water flow rate
- Counterflow solutions in every operating mode
- Possibility to configure low-noise versions

EUROVENT CERTIFIED PERFORMANCE www.eurovent-certification.com

CE

RG66013806 03 / 2017

Galletti AIR CONDITIONING

ORIGINAL INSTRUCTIONS

Water chillers and heat pumps are in acordarce with the law 2014/68/UE (PED) filling in D1 form, approved by the third notified body ICIM n°0425

The technical and dimensional data reported in this manual may be modified in view of any product improvement.

For any information , please contact the company info@galletti.it

GENERAL INDEX

1 SERIES

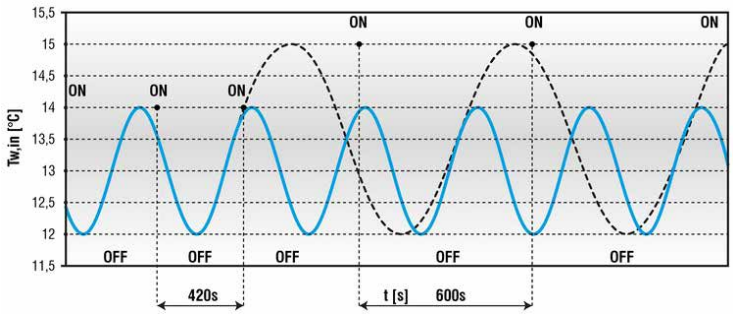
Water chillers and heat pumps of the V-IPER series are designed for outdoor installation in both residential and industrial applications.
The range uses R410A refrigerant, which assures high levels of performance with relatively low energy consumption and features 20 models in the chiller version and heat pump version, with cooling capacities ranging from 50 to 380 kW.

BEYOND CONVENTIONAL WORKING LIMITS

In the heat pump version the finned block heat exchangers have been optimised for R410A and use 8 mm copper pipes, which permit a better heat exchange and quiet operation of the fans. The new UP-WIND technology makes it possible to operate with an outside air temperature down to -15 °C, producing water with a temperature of 42 °C.
In the chiller version, the microchannel condensing coils, which are characterized by an extremely large heat exchange surface area, make it possible to produce chilled water down to -10 °C with an external temperature of 45 °C (50 °C at partial load).

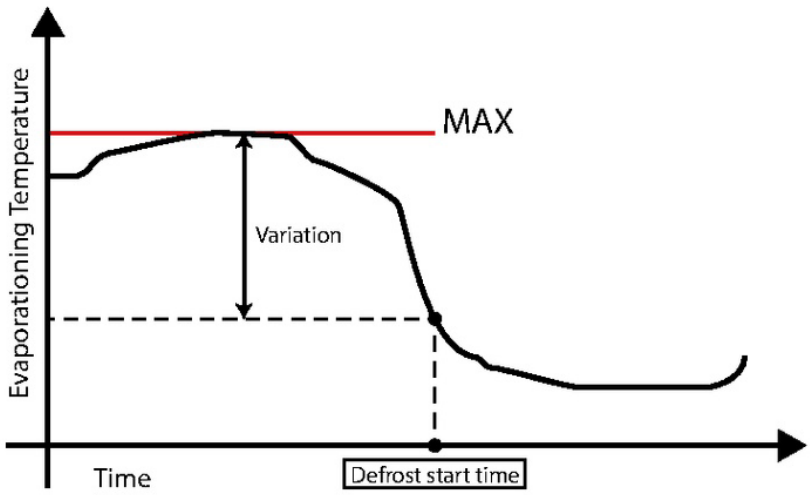
SELF - ADAPTIVE

The electronic control system allows the setpoint to be adjusted automatically according to the outdoor temperature in order to reduce consumption and broaden the working temperature range.
The unit can also function in systems with a low water content, even without the use of a storage reservoir, thanks to the automatic adjustment which limits the number of compressor starts and thus extends the life of the compressors themselves.



SMART DEFROST SYSTEM

The exclusive smart defrost system can correctly identify an impairment of performance in the outdoor exchanger due to the formation of ice and minimise the process time in relation to normal operation of the unit.
In the design phase it is necessary to consider the effects of the defrost cycles in order to correctly size the unit.



2 CONSTRUCTIVE FEATURES

STRUCTURE

Galvanised steel sheet base with a textured polyester powder coating for outdoors, colour RAL9002. Structure built from steel sheet, with a textured polyester powder coating for outdoors (colour RAL9002) to ensure effective resistance to corrosive agents. Fastening devices are made of non-oxidizable carbon steel that has undergone surface-passivating treatments. The frame has structural reinforcements in the most stressed node, highlighted by careful study fem through advanced software, to ensure maximum strength under all conditions.

CUSTOMISED HYDRAULIC KIT

- High head pump made entirely of stainless steel, already configured for use with mixtures of water and ethylene glycol up to 35% is provided with internal thermal protection and is easily accessible.
- Expansion vessel
- Security valve
- Filling cock (included).
- Automatic vent valve.
- Flow switch and outlet water temperature probe with anti-freeze thermostat function.
- Mechanical Y filter supplied as a standard feature on all models to protect the evaporator (included).

COOLING CIRCUIT

- Scroll type compressors in a tandem or trio configuration that can be sound insulated. The adopted components' efficiency, reliability, and noise emission levels represent the state of the art for scroll compressors.
- Brazed corrugated plate heat exchangers made of stainless steel and optimised for use with R410A. The heat exchanger design has been optimized for partial load operation and makes it possible to maintain optimal heat exchange with modulation of the water flow rate by up to 30% in relation to the nominal point. In the case of dual circuit units, a single plate heat exchanger with a dual cooling circuit and single hydraulic circuit is used, thus reducing overall dimensions and maximizing efficiency.
- Made of 8mm diameter copper pipes and aluminium fins. The special engineering of the heat exchangers allows defrost cycles to be carried out at maximum speed in the models with heat pump operation, which brings clear benefits in terms of the integrated efficiency of the whole cycle. For chiller only versions: microchannel heat exchanger consisting of aluminum-manganese alloy fins, long-life alloy channels and end sections, and coated copper user connection. Each microchannel contains partitions through which the coolant flows in the desuperheating, condensation, and supercooling stages. The condensing coils are mounted on vibration-damping mounts that allow expansion depending on the temperature.
- Dehydrating filter.
- Flow indicator with humidity indicator.
- Thermostatic valve with external equalisation and integrated MOP function.
- Cycle reversing valve (only VPR H)
- Check valve (VPR H)
- Liquid receiver
- High and low pressure switch
- Water safety valve
- Schrader valves for checks and/or maintenance
- Refrigerant pressure gauges (optional)

FAN DRIVE ASSEMBLY

Electric fan with 6-pole external rotor motor directly keyed to the axial fan, with internal thermal protection on the windings, complete with safety grille and dedicated supporting structure. The unique aerodynamic profile of the blades (HyBlade) results in outstanding aeraulic and acoustic performance. Electric fans with BLDC motor are available on request.

ELECTRONIC MICROPROCESSOR CONTROL

The electronic control enables the complete control of the **V-IPER** unit. It can be easily accessed through a polycarbonate flap with IP65 protection rating.
The self-adaptive logic enables the unit to operate even in systems where the water content is low, thus avoiding the use of inertial buffer tank. By reading the outdoor air temperature, it can automatically change the setpoint to adapt it to the outdoor load conditions or keep the unit running even in the harshest winter conditions.

» pGD1

Main functions:
- Control over the temperature of water entering the evaporator.
- Defrosting management (VPR H)
- Control of fan speed
- Complete alarm management.
- Dynamic control of the setpoint according to the outdoor air temperature.
- Can be connected to an RS485 serial line for supervisory / teleassistance operation
- Setup for connection to a remote terminal that duplicates the functions of the electronic control
- Algorithm for continuous monitoring of refrigerant charge and low refrigerant charge alarm.
- Low noise operation with splitting of the fan speed and the compressors that can be activated.
- Algorithm for modulating water flow to the primary and optimization of partial load operation.
- Management of the weekly scheduling.
- Remote communication via RS485 serial card (Carel or Modbus protocol), Lonworks, with GSM modem kit or PicoWeb Ethernet card.
- Recording of operating parameters and their storage in the memory as well as the ability to download via a control link.

Devices controlled
- Compressor
- Fans
- Reverse cycle valve (VPR H)
- Water circulation pump
- Antifreeze heating element (optional)
- Alarm signalling relay
- Modulation of the pump group, defrost (Smart Defrost System).
- LAN networks

ELECTRIC CONTROL BOARD

The electric control board is constructed and wired in accordance with EEC Directive 73/23, Directive 89/336 on electromagnetic compatibility and related standards. Made of steel sheet, it is also protected by the enclosing panels of the machine.

OPTIONS

- Hydro smart flow
- Incorporable hydraulic kit
- Low noise execution
- Refrigerant pressure gauges
- Antifreeze heating elements on the water circuit
- Heat recovery (CHILLER)
- Special coil treatment
- Intrusion prevention enclosure
- Heat exchanger metal protection net

3 CONFIGURATION OPTIONS

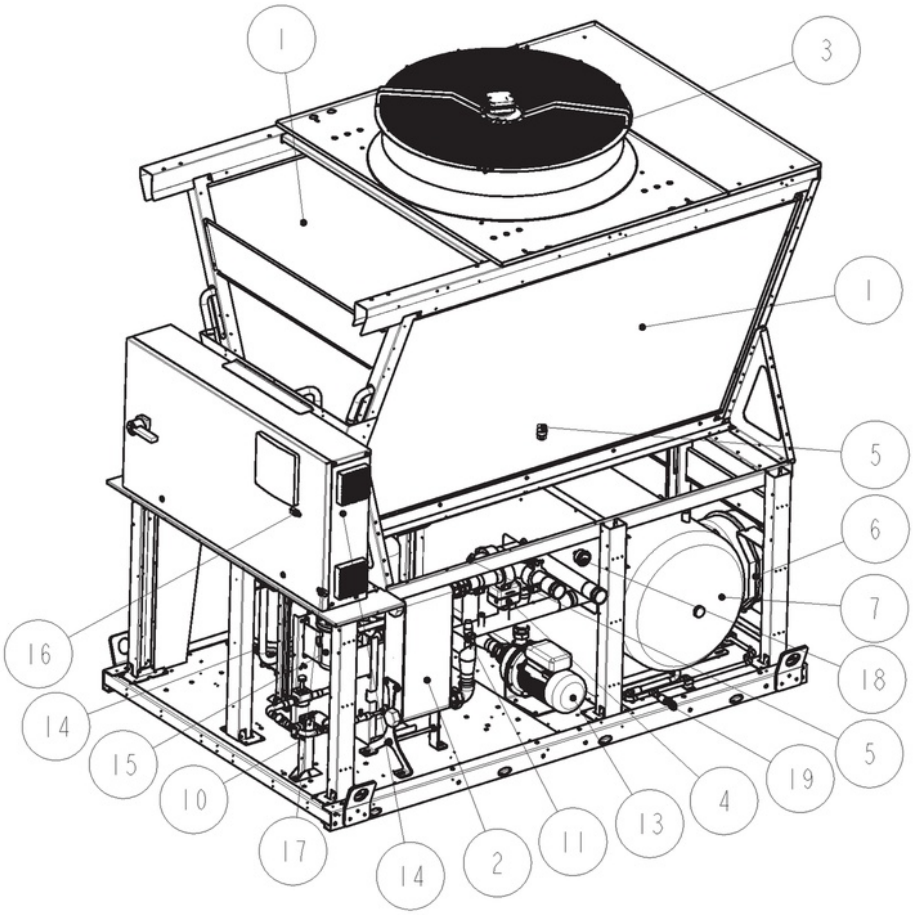
The V-IPER series consists of 20 models with cooling capacities from 50 to 380 kW, in cooling only version or reversible heat pump. All models operates with R410A refrigerant.

NOTE: The choice of some options can make the choice of some others forbidden or make some selection (fields) mandatory. Please contact Galletti S.p.A. for verification.

» Configuration options

1	Expansion valve
A	Electronic
2	Pumps and accessories
0	Not present
1	Standard pump + expansion vessel + water filling valve
2	Double Standard pump + expansion vessel + water filling valve
3	High pressure pump + expansion vessel + water filling valve
4	High pressure double pump + expansion vessel + water filling valve
5	Option 1 + inverter
6	Option 2 + inverter
7	Option 3 + inverter
8	Option 4 + inverter
3	Buffer tank
0	Not present
S	Present (EXCLUDES HYDRO SMART FLOW)
4	Partial heat recovery
0	Not present
D	Desuperheater with water pump free contact
5	Air flow modulation
C	Condensing control with standard AC fans
E	Condensing control with electronic EC fans
6	Antifreeze kit
0	Not present
E	Base (plate exchangers only)
P	Additional protection for pump
S	Additional protection for pump and buffer tank
7	Acoustic insulation
0	Not present
1	Compressor silencing housing + acoustical enclosures
2	Acoustic attenuation on fans(AXITOP® diffuser)
3	Opz. 1 + Opz. 2
8	Refrigerant circuit options
0	None
M	Refrigerant pressure gauges
9	Remote control
0	Not present
2	RS485 connection port (Modbus protocol or Carel)
S	Remote simplified control panel
T	Touch screen control panel
X	Microprocessor remote controller
L	LON FTT10 serial board
B	BACNET IP / pCOWeb serial board
G	Programmed pCOWeb board
10	Special coils
0	Standard copper - aluminium coil (VPR H only)
I	Hydrophilic coated copper - aluminium coils (VPR H only)
R	Copper / copper coil (VPR H only)
M	Microchannel condensing coils with epoxy resin + UV treatment (only VPR C)
11	Vibration dumpers
0	Not present
G	Base rubber vibration dampers
M	Base spring vibration dampers
12	Compressors options
0	Not present
1	Low air/water temp. = sump heater (chillers), coil heating cable (heat pumps)
13	Microprocessor controller
1	Advanced
2	Advanced + touch interface + USB
ACCESSORIES	
A	Coils protection grill
B	Hydro smart flow (EXCLUDES BUFFER TANK)
C	Pair of VIC-TAULIC quick couplings (and adapters if necessary)
D	ON/OFF status of the compressors
E	Remote control for power step limits
F	Configurable digital alarm card
G	Soft starter
H	Power factor correction capacitors
I	Dehydrating filter regulating kit
L	Double insulation - water side
M	0-10V signal for external user pump control (ONLY IF FIELD 2 = 0)
N	Regulating taps - tandem/trio

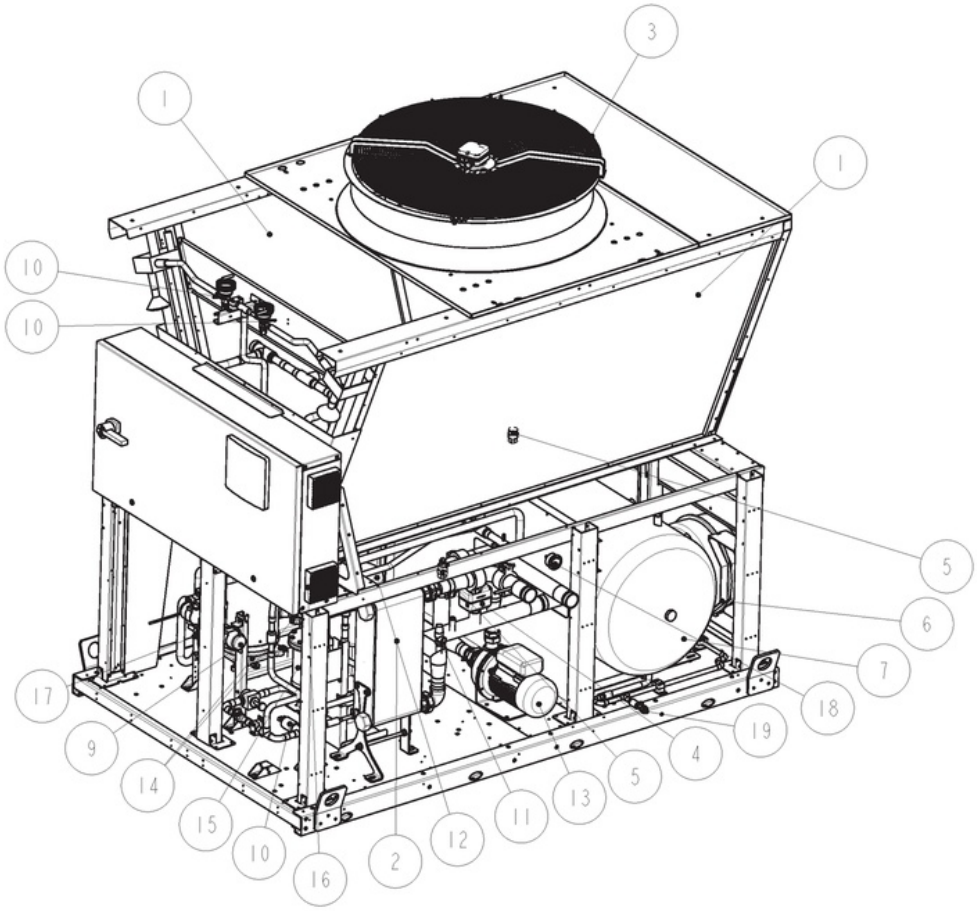
4 COMPONENTS DESCRIPTION



DESCRIPTION

1 R410A-air heat-exchanger
2 R410A-water heat-exchanger
3 Fans
4 Water differential pressure switch (fan housing)
5 Automatic air purge valve
6 Expansion vessel (fan housing)
7 Buffer tank (accessory)
8 -
9 4 Way valve (VPR H)
10 Thermostatic valve
11 Water safety valve
12 Liquid receiver (VPR H)
13 Circulation pump
14 Compressor
15 Refrigerant filter
16 Low pressure switch and charge port
17 High pressure switch and charge port
18 Water gauge
19 Water charge

» V-IPER H 52 - 62



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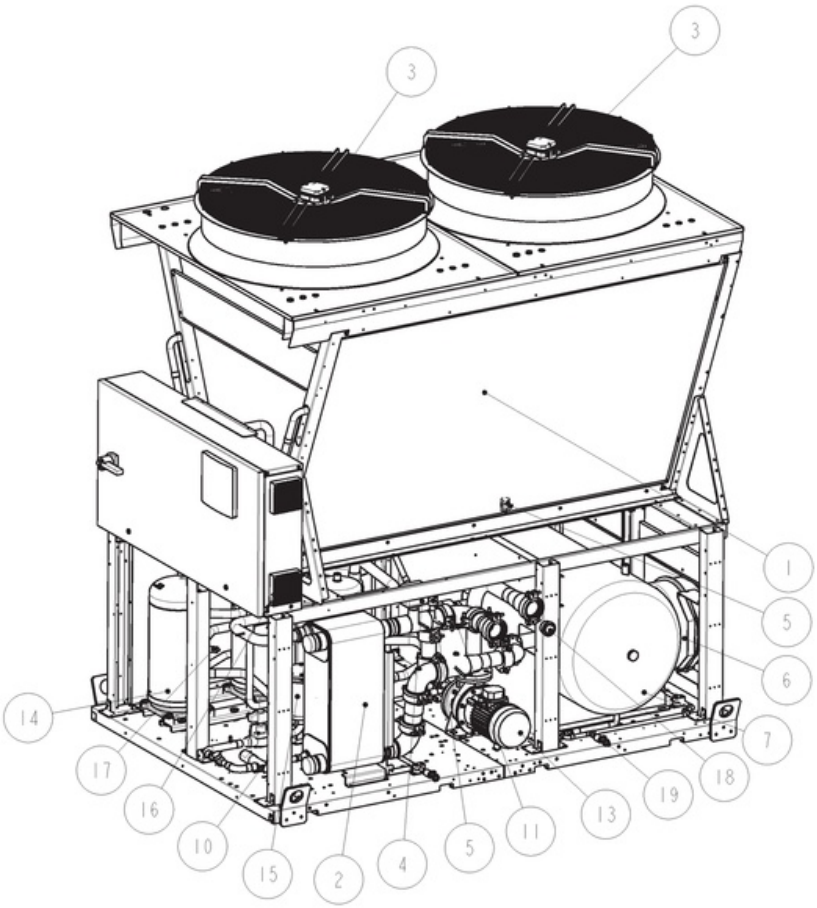
14 Compressor
15 Refrigerant filter
16 Low pressure switch and charge port
17 High pressure switch and charge port
18 Water gauge
19 Water charge

» V-IPER C 72 - 82 - 92 - 112 - 133



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15 Refrigerant filter
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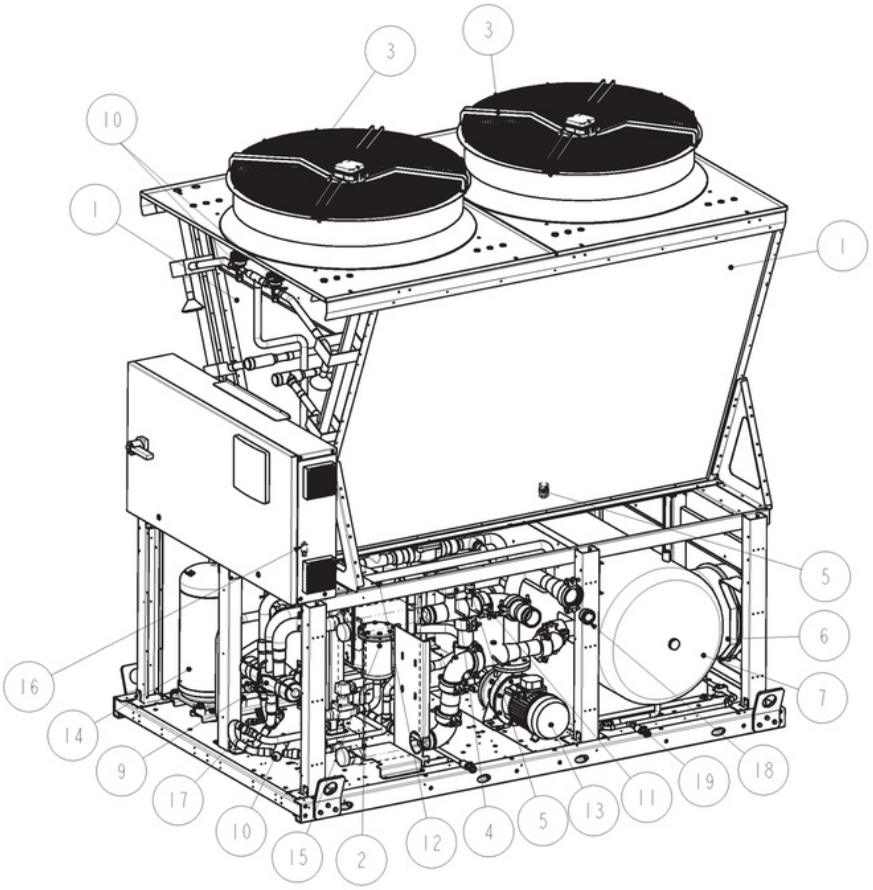
» V-IPER H 72 - 82 - 92 - 112 - 133



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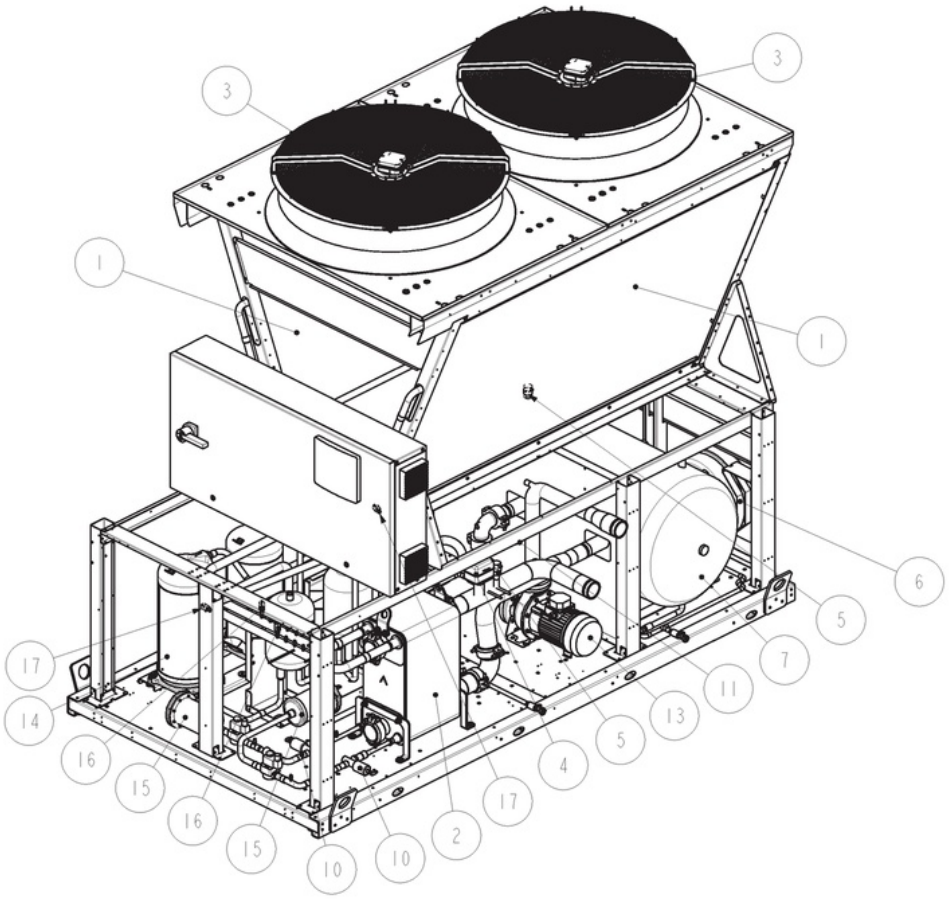
14 Compressor
15 Refrigerant filter
16 Low pressure switch and charge port
17 High pressure switch and charge port
18 Water gauge
19 Water charge

» V-IPER C 114 - 134



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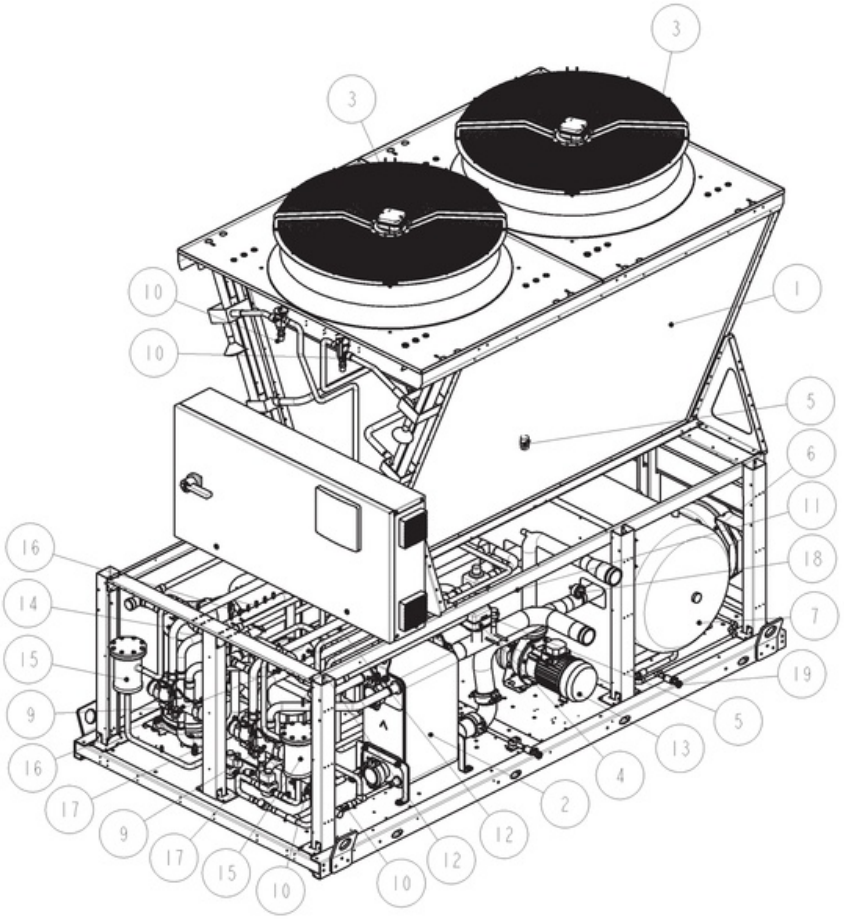
» V-IPER H 114 - 134



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16 Low pressure switch and charge port
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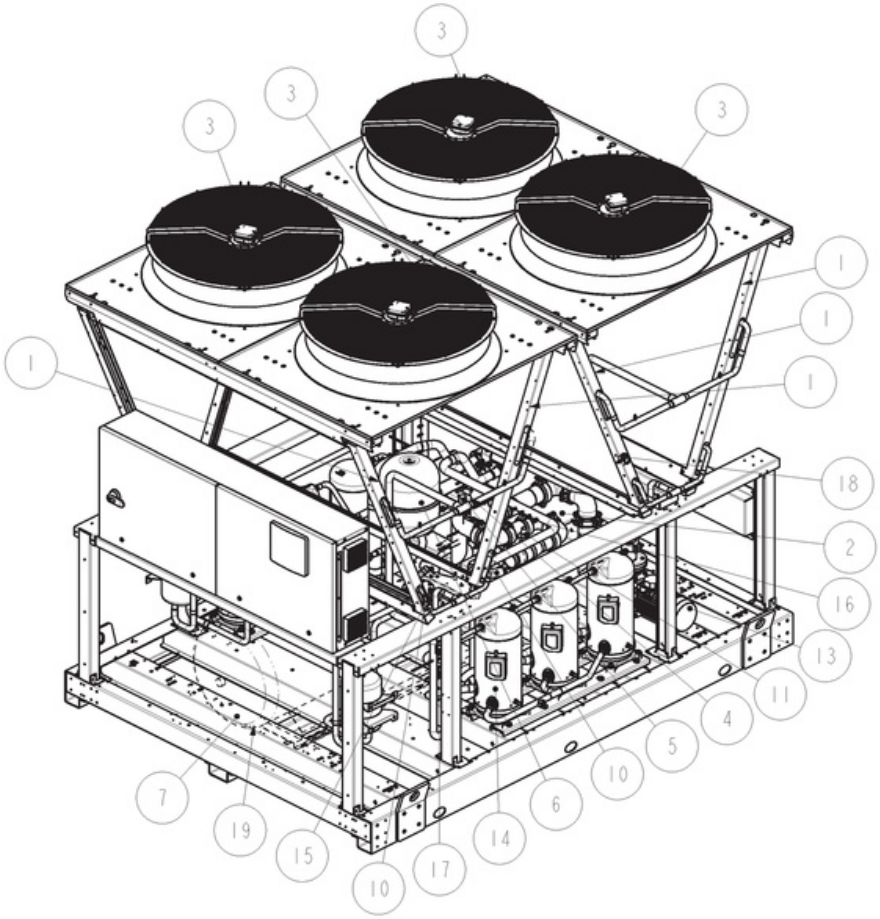
» V-IPER C 164 - 174 - 204 - 226 - 256



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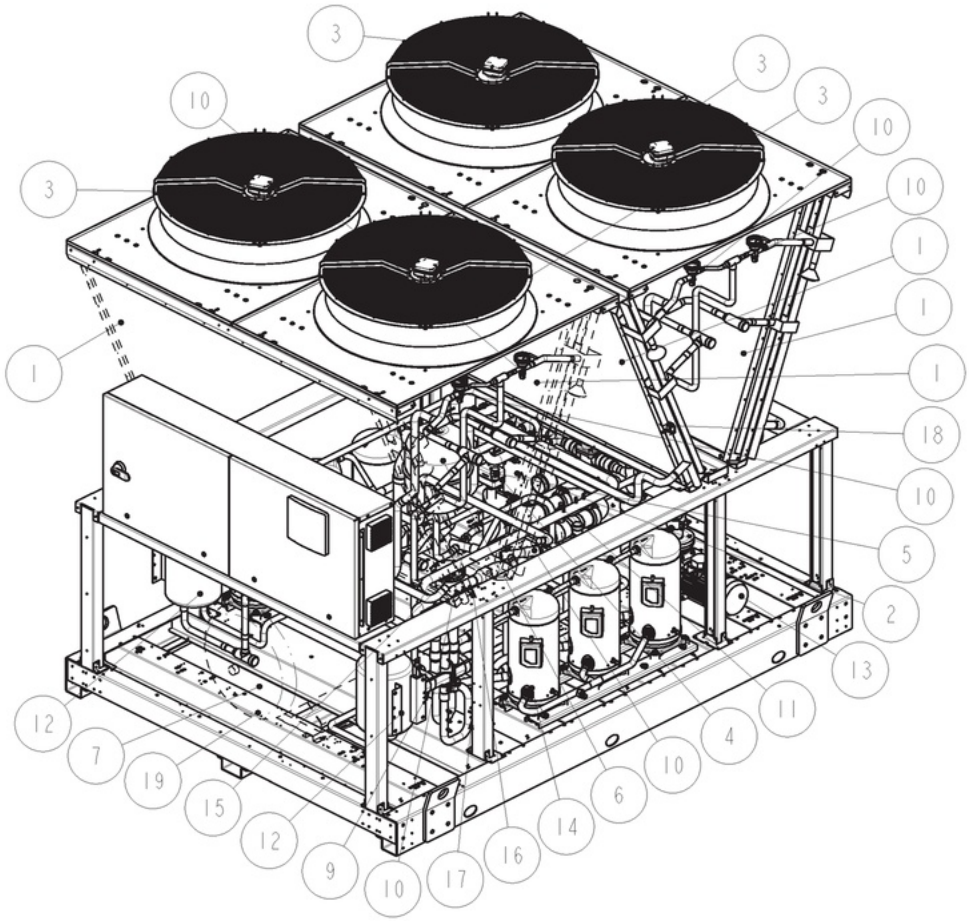
» V-IPER H 164 - 174 - 204 - 226 - 256



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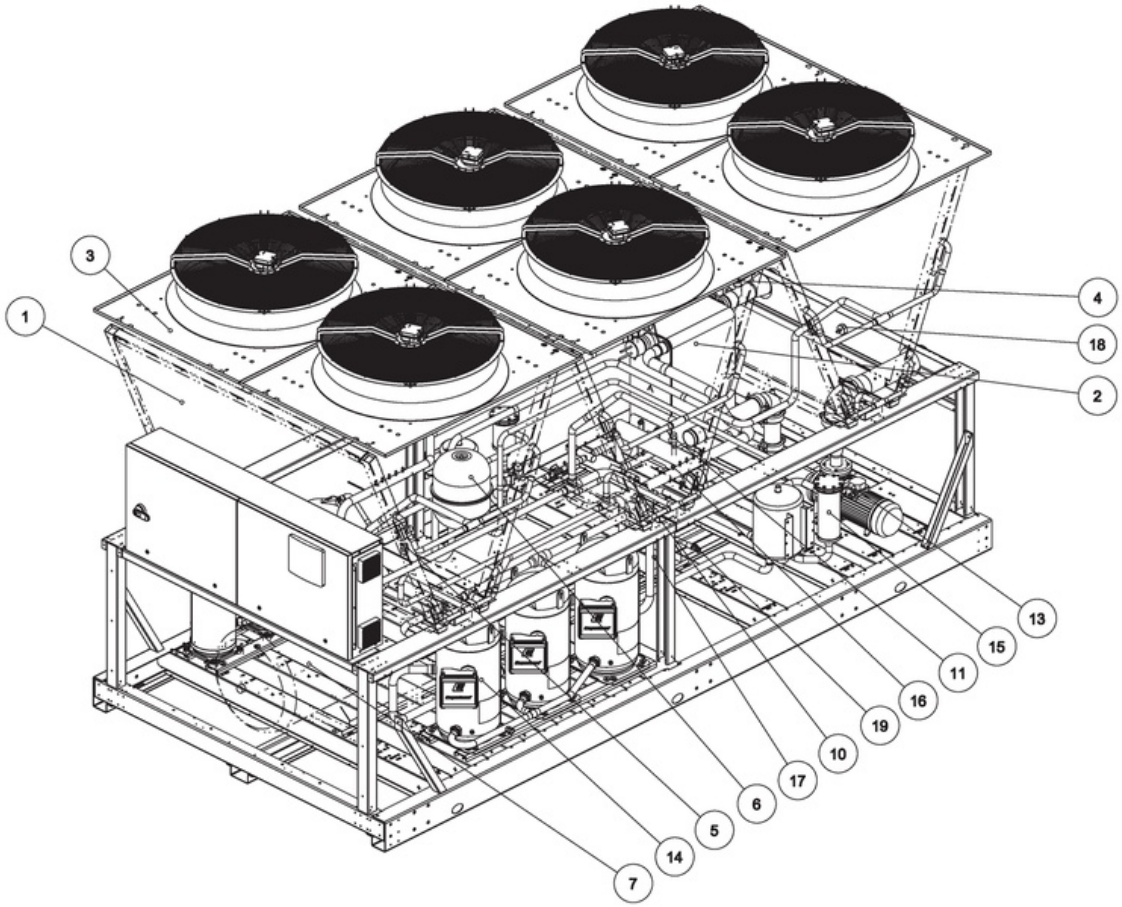
» V-IPER C 276 - 306 - 336



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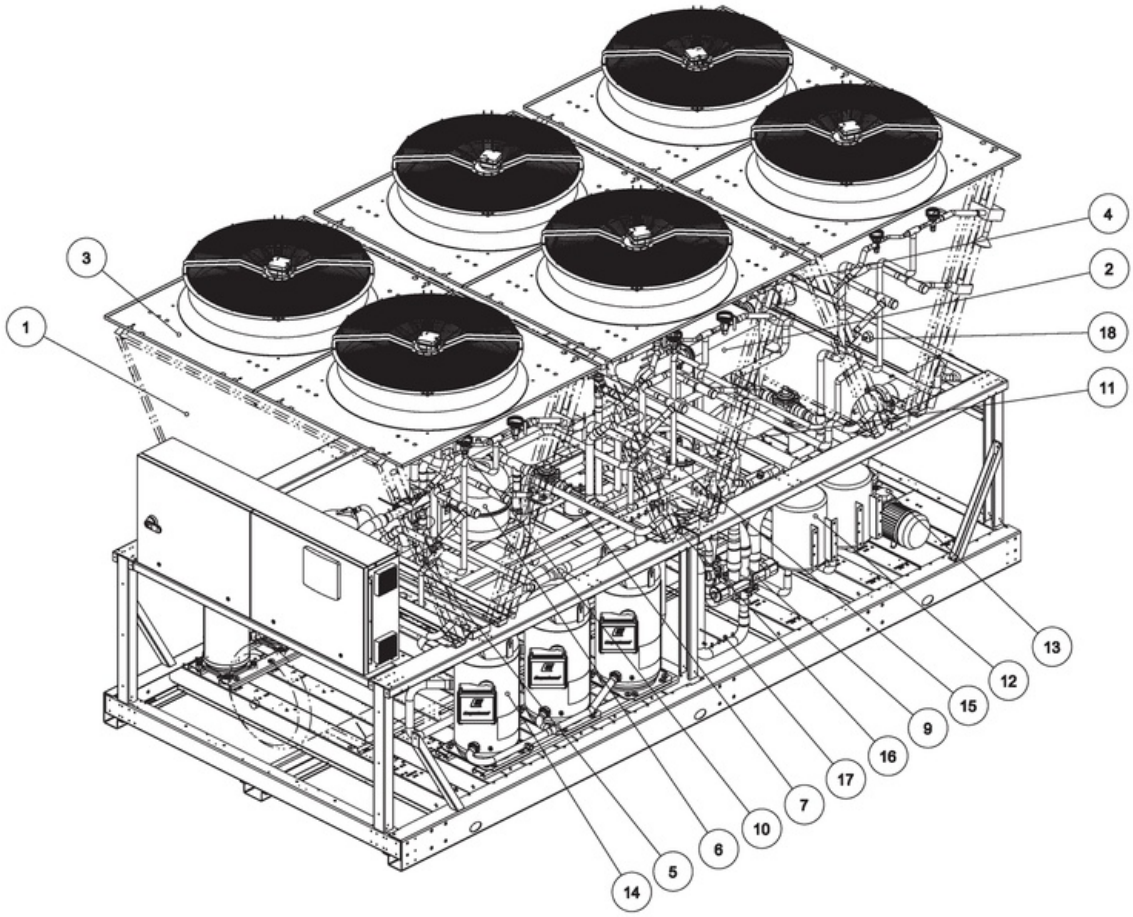

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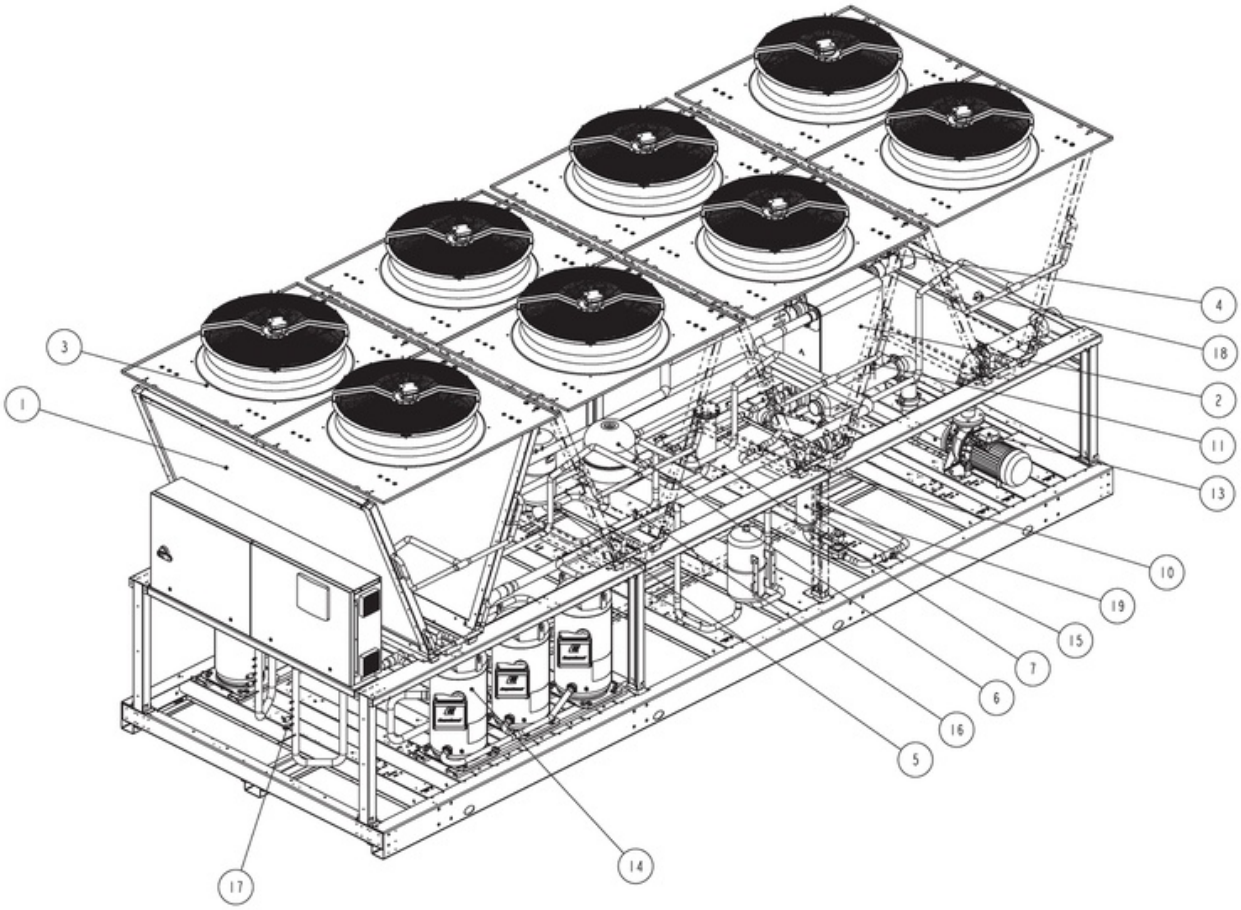
» V-IPER C 386



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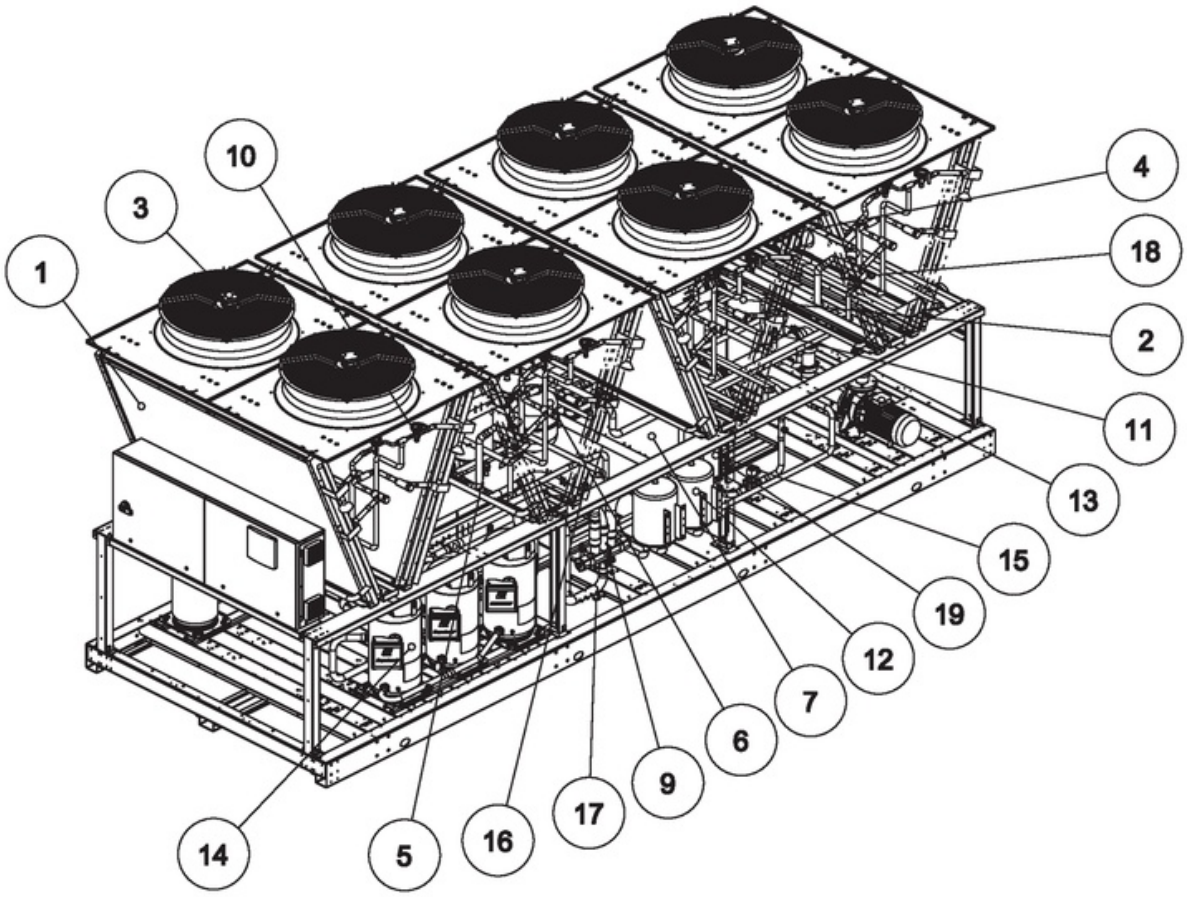

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13 Circulation pump
14 Compressor
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16 Low pressure switch and charge port
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5 TECHNICAL FEATURES

5.1 NOMINAL TECHNICAL DATA FOR THE V-IPER C WATER CHILLER

» V-IPER C water chillers rated technical data (first part)

VPR C		52	62	72	82	92	112	114	133	134	164
Power supply	V-ph-Hz	400 - 3N - 50									
Cooling capacity (1)(E)	kW	51,4	65,1	73,7	83,7	97,3	109	102	124	131	155
Total power input (1)(E)	kW	16,0	20,3	22,8	26,2	30,5	34,6	32,4	40,3	42,3	47,7
Absorbed rated current (1)	A	25,8	32,6	36,4	41,9	48,6	55,5	52,0	69,0	67,9	76,5
EER (1)(E)		3,21	3,21	3,23	3,19	3,19	3,16	3,16	3,10	3,10	3,26
Eurovent efficiency class (1)		A									
ESEER (E)		4,12	4,17	4,08	4,06	4,04	4,00	4,08	4,14	4,22	4,04
Maximum current absorption	A	40,0	50,0	59,0	68,0	74,0	81,0	79,0	98,0	101	125
Star up current	A	138	194	203	212	218	269	178	242	245	269
Compressors / circuits		2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	4 / 2	3 / 1	4 / 2	4 / 2
n° of axial fans		1	1	2	2	2	2	2	2	2	4
Air flow rate (1)	m^3/h	21800	25000	43200	43200	48000	50622	50622	50622	50622	86400
Water flow (1)	l/h	8875	11249	12737	14458	16777	18824	17654	21514	22580	26818
Water pressure drop (1)(E)	kPa	37	45	47	41	31	29	31	24	24	36
Available pressure head - LP pumps (1)	kPa	154	141	189	182	174	141	140	138	136	159
Buffer tank volume	dm^3	250	250	350	350	350	350	350	350	350	450
Expansion vessel volume	dm^3	18	18	18	18	18	18	18	18	18	24
Unit connections diameter	"	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	4
Height	mm	2459	2459	2459	2459	2459	2459	2461	2459	2461	2650
Depth	mm	1547	1547	1547	1547	1547	1547	1544	1547	1544	2252
Length	mm	2250	2250	2250	2250	2250	2250	2752	2250	2752	2959
Sound power level (2)(E)	dB(A)	80	84	83	83	87	88	87	87	87	86
Sound pressure level (3)	dB(A)	52	56	55	55	59	60	59	59	59	58
Refrigerant charge - circuit 1 (4)	kg	6,5	8,0	9,2	10,4	11,9	13,2	6,4	15,1	7,9	9,8
Refrigerant charge - circuit 2 (5)	kg	-	-	-	-	-	-	6,4	-	7,9	9,8
Transport weight unit with pump and tank	kg	813	823	875	888	968	1048	1866	981	1945	1710
Operating weight unit with pump and full tank	kg	1163	1173	1225	1238	1318	1398	2316	1331	2395	2160

(1) Outdood air temperature 35°C, water temperature 12°C / 7°C (14511:2013)
(2) Sound power level measured according to UNI EN ISO 9614
(3) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2
(4) If the two cooling circuits are unbalanced, it is the smaller circuit.
(5) If the two cooling circuits are unbalanced, it is the larger circuit.
(E) EUROVENT certified data

» V-IPER C water chillers rated technical data (second part)

VPR C		173	174	204	213	226	256	276	306	336	386
Power supply	V-ph-Hz	400 - 3N - 50									
Cooling capacity (1)(E)	kW	165	170	194	203	212	250	269	290	329	369
Total power input (1)(E)	kW	50,8	52,0	58,8	63,4	66,4	80,4	84,6	89,2	103	115
Absorbed rated current (1)	A	81,8	83,6	93,9	102	106	129	135	143	166	185
EER (1)(E)		3,26	3,28	3,30	3,21	3,20	3,12	3,18	3,26	3,18	3,20
Eurovent efficiency class (1)		A									
ESEER (E)		4,14	4,13	4,24	4,27	4,26	4,22	4,17	4,09	4,06	4,09
Maximum current absorption	A	125	136	148	149	162	195	206	222	247	274
Star up current	A	313	280	337	377	278	339	395	411	474	502
Compressors / circuits		3 / 1	4 / 2	4 / 2	3 / 1	6 / 2	6 / 2	6 / 2	6 / 2	6 / 2	6 / 2
n° of axial fans		4	4	4	4	4	4	6	6	6	8
Air flow rate (1)	m^3/h	86400	86400	101244	101244	101244	101244	129600	151866	151866	172800
Water flow (1)	l/h	28517	29397	33459	35038	36645	43148	46354	50075	56730	63598
Water pressure drop (1)(E)	kPa	31	24	29	34	27	31	32	37	41	45
Available pressure head - LP pumps (1)	kPa	162	167	154	145	149	135	176	162	142	161
Buffer tank volume	dm^3	450	450	450	450	450	450	750	750	750	750
Expansion vessel volume	dm^3	24	24	24	24	24	24	24	24	24	24
Unit connections diameter	"	4									
Height	mm	2650	2650	2650	2650	2650	2650	2642	2642	2642	2649
Depth	mm	2252	2252	2252	2252	2252	2252	2252	2252	2252	2155
Length	mm	2959	2959	2959	2959	2959	2959	4469	4469	4469	5978
Sound power level (2)(E)	dB(A)	88	87	90	92	90	90	90	92	93	93
Sound pressure level (3)	dB(A)	60	59	62	64	62	62	62	64	65	65
Refrigerant charge - circuit 1 (4)	kg	20,6	10,6	12,1	25,3	13,1	15,1	12,9	15,0	15,0	20,7
Refrigerant charge - circuit 2 (5)	kg	-	10,6	12,1	-	13,1	15,1	20,5	20,8	25,1	24,7
Transport weight unit with pump and tank	kg	1228	1746	1901	1271	1903	1916	2634	2640	2714	3831
Operating weight unit with pump and full tank	kg	1578	2196	2351	1621	2353	2366	3384	3390	3464	4581

(1) Outdood air temperature 35°C, water temperature 12°C / 7°C (14511:2013)
(2) Sound power level measured according to UNI EN ISO 9614
(3) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2
(4) If the two cooling circuits are unbalanced, it is the smaller circuit.
(5) If the two cooling circuits are unbalanced, it is the larger circuit.
(E) EUROVENT certified data

5.2 V-IPER H HEAT PUMPS RATED TECHNICAL DATA

» V-IPER H heat pumps rated technical data (first part)

VPR H		52	62	72	82	92	112	114	133	134	164
Power supply	V-ph-Hz	400 - 3N - 50									
Cooling capacity (1)(E)	kW	51,8	65,1	72,3	84,1	96,0	108	103	124	130	154
Total power input (1)(E)	kW	16,3	20,8	22,9	26,6	30,1	34,4	33,2	40,1	42,0	48,5
Absorbed rated current (1)	A	26,2	33,4	36,5	42,6	47,9	55,2	53,3	68,6	67,3	77,8
EER (1)(E)		3,18	3,13	3,16	3,16	3,19	3,14	3,11	3,10	3,10	3,18
Eurovent efficiency class (1)(E)		A									
ESEER (E)		4,07	4,13	3,96	3,94	3,92	3,92	3,74	4,00	3,83	4,01
Heating capacity (2)(E)	kW	54,4	67,6	78,0	87,9	99,8	110	107	126	131	161
Total power input (2)(E)	kW	16,5	20,2	23,9	26,8	30,1	33,5	32,8	38,2	40,2	49,8
Absorbed rated current (2)	A	26,5	32,4	38,0	42,8	47,9	53,8	52,6	65,6	64,4	79,8
COP (2)(E)		3,30	3,35	3,26	3,28	3,32	3,30	3,26	3,31	3,27	3,24
Eurovent efficiency class (2)		A									
SCOP (E)		3,88	3,95	3,60	3,72	3,82	3,87	3,96	3,91	3,81	3,71
Energy efficiency		152	155	141	146	150	152	156	154	150	146
Energy efficiency class (3)		A++	A++	A+	A+	A++	A++	A++	A++	A++	A+
Maximum current absorption	A	40,0	50,0	59,0	68,0	74,0	81,0	79,0	98,0	101	125
Star up current	A	138	194	203	212	218	269	178	242	245	269
Star up current with soft starter	A	97,0	134	142	151	157	190	137	181	184	208
Compressors / circuits		2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	4 / 2	3 / 1	4 / 2	4 / 2
Air flow rate (1)	m^3/h	21800	25000	42435	42435	48000	48000	48000	48000	48000	84870
Water flow (1)	l/h	8950	11252	12492	14522	16557	18638	17800	21400	22424	26572
Water pressure drop (1)(E)	kPa	38	45	45	41	30	28	32	23	28	35
Available pressure head - LP pumps (1)	kPa	153	139	189	182	174	142	140	139	132	159
Available pressure head - HP pumps (1)	kPa	243	226	262	255	248	239	237	235	229	198
Air flow rate (2)	m^3/h	21800	25000	42435	42435	48000	48000	48000	48000	48000	84870
Water flow (2)	l/h	9394	11671	13467	15188	17268	19161	18512	21892	22785	27896
Water pressure drop (2)(E)	kPa	41	49	52	45	32	30	35	24	29	38
Available pressure head - LP pumps (2)	kPa	142	124	173	164	155	132	128	127	118	149
Available pressure head - HP pumps (2)	kPa	229	210	246	238	230	228	224	222	213	183
Buffer tank volume	dm^3	250	250	350	350	350	350	350	350	350	450
Expansion vessel volume	dm^3	18	18	18	18	18	18	18	18	18	24
Unit connections diameter	"	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	4
Height	mm	2252	2252	2459	2459	2459	2459	2461	2459	2461	2650
Depth	mm	1547	1547	1547	1547	1547	1547	1544	1547	1544	2252
Length	mm	2250	2250	2250	2250	2250	2250	2752	2250	2752	2959
Sound power level (4)(E)	dB(A)	80	84	83	83	87	88	87	87	87	86
Sound pressure level (5)	dB(A)	52	56	55	55	59	60	59	59	59	58
Refrigerant charge - circuit 1 (6)	kg	2,0	2,0	2,0	2,0	2,0	2,0	2,5	2,0	2,5	4,0
Refrigerant charge - circuit 2 (7)	kg	18,0	18,0	18,0	18,0	18,0	18,0	18,0	18,0	18,0	24,0
Transport weight unit with pump and tank	kg	938	950	990	1006	1092	1177	1435	1114	1478	1941
Operating weight unit with pump and full tank	kg	1288	1300	1340	1356	1442	1527	1785	1464	1828	2391

(1) Outdood air temperature 35°C, water temperature 12°C / 7°C (14511:2013)
(2) Outdood air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (14511:2013)
(3) Seasonal energy efficiency class for LOW TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013]
(4) Sound power level measured according to UNI EN ISO 9614
(5) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2
(6) If the two cooling circuits are unbalanced, it is the smaller circuit.
(7) If the two cooling circuits are unbalanced, it is the larger circuit.
(E) EUROVENT certified data

» V-IPER H heat pumps rated technical data (second part)

VPR H		173	174	204	213	226	256	276	306	336	386
Power supply	V-ph-Hz	400 - 3N - 50									
Cooling capacity (1)(E)	kW	162	167	190	204	212	249	270	289	326	367
Total power input (1)(E)	kW	50,9	52,5	59,9	64,7	67,8	80,1	85,1	90,7	104	116
Absorbed rated current (1)	A	81,9	84,4	95,7	104	109	128	136	146	167	186
EER (1)(E)		3,20	3,20	3,19	3,17	3,13	3,11	3,18	3,19	3,13	3,16
Eurovent efficiency class (1)(E)		A									
ESEER (E)		4,01	4,11	3,99	3,90	3,98	4,01	4,05	3,93	3,94	3,97
Heating capacity (2)(E)	kW	166	175	199	210	219	252	279	297	337	379
Total power input (2)(E)	kW	51,8	53,1	59,9	63,8	66,3	76,3	84,8	89,4	101	115
Absorbed rated current (2)	A	83,4	85,3	95,6	102	106	122	136	144	163	185
COP (2)(E)		3,22	3,30	3,33	3,31	3,32	3,31	3,29	3,33	3,31	3,28
Eurovent efficiency class (2)		A									
SCOP (E)		3,58	3,82	3,86	3,80	4,25	4,33	4,02	4,14	4,22	3,94
Energy efficiency		140	150	151	150	167	170	158	163	166	155
Energy efficiency class (3)		A+	A++	A++	A++	A++	A++	A++	A++	A++	A++
Maximum current absorption	A	125	136	148	149	162	195	206	222	247	274
Star up current	A	313	280	337	377	278	339	395	411	474	502
Star up current with soft starter	A	235	219	258	281	229	278	316	332	379	407
Compressors / circuits		3 / 1	4 / 2	4 / 2	3 / 1	6 / 2	6 / 2	6 / 2	6 / 2	6 / 2	6 / 2
Air flow rate (1)	m^3/h	84870	84870	96000	96000	96000	96000	127305	144000	144000	169740
Water flow (1)	l/h	28058	28902	32873	35318	36553	42950	46552	49902	56273	63303
Water pressure drop (1)(E)	kPa	31	23	28	35	27	31	33	37	40	45
Available pressure head - LP pumps (1)	kPa	161	168	155	146	150	135	175	163	143	160
Available pressure head - HP pumps (1)	kPa	197	270	257	248	251	236	295	282	262	259
Air flow rate (2)	m^3/h	84870	84870	96000	96000	96000	96000	127305	144000	144000	169740
Water flow (2)	l/h	28899	30371	34553	36514	38078	43756	48326	51503	58364	65654
Water pressure drop (2)(E)	kPa	32	25	31	37	29	32	35	39	43	48
Available pressure head - LP pumps (2)	kPa	153	159	144	133	137	118	162	149	123	145
Available pressure head - HP pumps (2)	kPa	184	261	245	234	238	219	280	267	241	243
Buffer tank volume	dm^3	450	450	450	450	450	450	750	750	750	750
Expansion vessel volume	dm^3	24	24	24	24	24	24	24	24	24	24
Unit connections diameter	"	4									
Height	mm	2650	2650	2650	2650	2650	2650	2642	2642	2642	2649
Depth	mm	2252	2252	2252	2252	2252	2252	2252	2252	2252	2155
Length	mm	2959	2959	2959	2959	2959	2959	4469	4469	4469	5978
Sound power level (4)(E)	dB(A)	88	87	90	91	90	90	90	91	93	93
Sound pressure level (5)	dB(A)	60	59	62	63	62	62	62	63	65	65
Refrigerant charge - circuit 1 (6)	kg	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0	4,0
Refrigerant charge - circuit 2 (7)	kg	24,0	24,0	24,0	24,0	24,0	24,0	24,0	24,0	24,0	24,0
Transport weight unit with pump and tank	kg	2099	1981	2148	2196	2160	2186	2919	2926	3032	4329
Operating weight unit with pump and full tank	kg	2549	2431	2598	2646	2610	2636	3669	3676	3782	5079

(1) Outdood air temperature 35°C, water temperature 12°C / 7°C (14511:2013)
(2) Outdood air temperature dry bulb 7°C / wet bulb 6°C, water temperature 40°C / 45°C (14511:2013)
(3) Seasonal energy efficiency class for LOW TEMPERATURE room heating under AVERAGE climatic conditions [EUROPEAN REGULATION No 811/2013]
(4) Sound power level measured according to UNI EN ISO 9614
(5) Sound pressure measured at a distance of 10 m in a free field with a directivity factor of 2
(6) If the two cooling circuits are unbalanced, it is the smaller circuit.
(7) If the two cooling circuits are unbalanced, it is the larger circuit.
(E) EUROVENT certified data

5.3 PED CATEGORY

The water chillers and heat pumps comply with directive 2014/68//EC (PED) through module D1, approved by the notified body ICIM No. 0425.

Series	Size	Notified body	Conformity Compliance Module	PED Category	Marking
V-IPER	52-62-72-82-92-112-114-133-134	0425	Module D1	II	CE + PED
	164-173-174-204-213-226-256	0425	Module D1	II	CE + PED
	276-306-336-386	0425	Module D1	II	CE + PED

6 PERFORMANCES

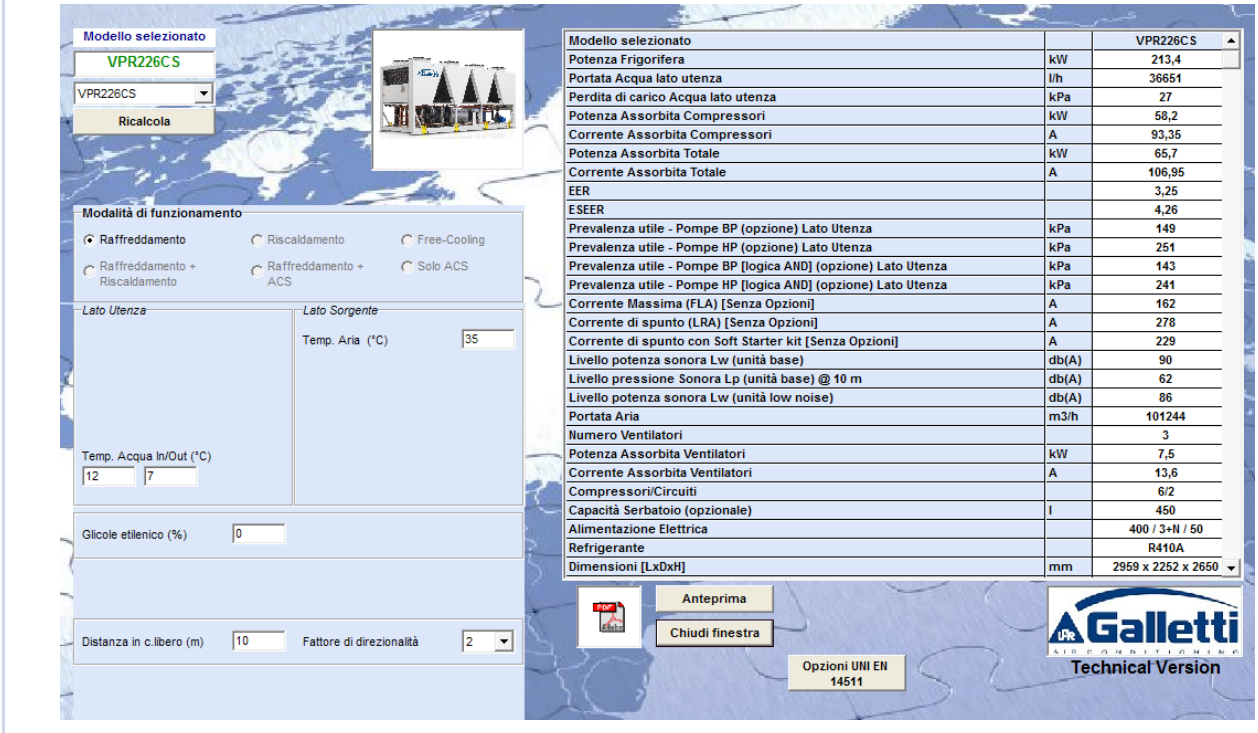
In order to define the performances of **V-IPER** subject to conditions different from rated conditions, Galletti S.p.A. a computer program for the correct choice of the units is provided.
With a few input data it will be possible to get information on the behaviour of V-IPER referring to the desired operating conditions.
It will be sufficient to enter the following data:

— Inlet air temperature
— Inlet water temperature
— Outlet water temperature
— Ethylene glycol percentage (default 0)
— Directivity factor and distance

Output data

— Cooling / heating capacity
— Water flow rate on user side
— Water pressure drop on user side
— Total power input
— Absorbed current
— Compressors power input
— Compressor absorbed current
— EER
— ESEER
— COP
— Pressure head
— Maximum current (FLA)
— Inrush current (LRA)
— Corrente di spunto con Soft Starter kit
— Sound pressure level Lw
— Sound pressure level Lp
— Air flow rate
— Number of fans
— Fan power input
— Fan absorbed current
— Compressors / circuits
— Tank capacity (optional)
— Power supply

The selection report generated by the software includes the drawing with overall dimensions.



Modello selezionato		VPR226CS
Potenza Frigorifera	kW	213,4
Portata Acqua lato utenza	l/h	36651
Perdita di carico Acqua lato utenza	kPa	27
Potenza Assorbita Compressori	kW	58,2
Corrente Assorbita Compressori	A	93,35
Potenza Assorbita Totale	kW	65,7
Corrente Assorbita Totale	A	106,95
EER		3,25
ESEER		4,26
Prevalenza utile - Pompe BP (opzione) Lato Utenza	kPa	149
Prevalenza utile - Pompe HP (opzione) Lato Utenza	kPa	251
Prevalenza utile - Pompe BP [logica AND] (opzione) Lato Utenza	kPa	143
Prevalenza utile - Pompe HP [logica AND] (opzione) Lato Utenza	kPa	241
Corrente Massima (FLA) [Senza Opzioni]	A	162
Corrente di spunto (LRA) [Senza Opzioni]	A	278
Corrente di spunto con Soft Starter kit [Senza Opzioni]	A	229
Livello potenza sonora Lw (unità base)	db(A)	90
Livello pressione Sonora Lp (unità base) @ 10 m	db(A)	62
Livello potenza sonora Lw (unità low noise)	db(A)	86
Portata Aria	m3/h	101244
Numero Ventilatori		3
Potenza Assorbita Ventilatori	kW	7,5
Corrente Assorbita Ventilatori	A	13,6
Compressori/Circuiti		6/2
Capacità Serbatoio (opzionale)	l	450
Alimentazione Elettrica		400 / 3+N / 50
Refrigerante		R410A
Dimensioni [LxDxH]	mm	2959 x 2252 x 2650

7 CALCULATIOS FACTORS

7.1 WATER AND GLYCOL MIXTURE

Based on the minimum outlet water temperature, you can derive the percentage of ethylene glycol and the corrective coefficient using the table below.

Percentage of ethylene glycol (%)	0%	10%	20%	30%	40%
Minimum temperature of water produced (°C)	5	2	-5	-10	-15
Mixture freezing temperature (°C)	0	-4	-14	-18	-24
Capacity correction factor	1	1,00	0,99	0,99	0,98
Water flow rate correction factor	1	1,05	1,09	1,14	1,20
Pressure drop correction factor	1	1,16	1,35	1,58	1,86

Important! The use of propylene glycol is not admitted with standard pumps. For further information, contact the manufacturer.

8 SOUND LEVELS

Mod.	125 Hz (1)	250 Hz (1)	500 Hz (1)	1000 Hz (1)	2000 Hz (1)	4000 Hz (1)	8000 Hz (1)	LwA (2)
	dB	dB	dB	dB	dB	dB	dB	dB(A)
VPR052C	79,4	80,8	78,2	75,4	69,0	62,9	51,2	80
VPR062C	83,4	84,8	82,8	79,4	73,0	66,9	55,2	84
VPR072C	82,4	83,8	81,2	78,4	72,0	65,9	54,2	83
VPR082C	82,4	83,8	81,2	78,4	72,0	65,9	54,2	83
VPR092C	86,4	87,8	85,2	82,4	76,0	69,9	58,2	87
VPR112C	87,4	88,9	86,2	83,4	77,1	70,9	59,2	88
VPR114C	86,4	87,8	85,2	82,4	76,0	69,9	58,2	87
VPR133C	86,4	87,8	85,2	82,4	76,0	69,9	58,2	87
VPR134C	86,4	87,8	85,2	82,4	76,0	69,9	58,2	87
VPR164C	85,4	86,8	84,2	81,4	75,0	68,9	57,2	86
VPR173C	87,4	88,8	86,2	83,4	77,0	70,9	59,2	88
VPR174C	86,4	87,8	85,2	82,4	76,0	69,9	58,2	87
VPR204C	89,4	90,8	88,2	85,4	79,0	72,9	61,2	90
VPR213C	91,4	92,8	90,2	87,4	81,0	74,9	63,2	92
VPR226C	89,4	90,8	88,2	85,4	79,0	72,9	61,2	90
VPR256C	89,4	90,8	88,2	85,4	79,0	72,9	61,2	90
VPR276C	89,4	90,8	88,2	85,4	79,0	72,9	61,2	90
VPR306C	91,4	92,8	90,2	87,4	81,0	74,9	63,2	92
VPR336C	92,4	93,8	91,2	88,4	82,0	75,9	64,2	93
VPR386C	92,4	93,8	91,2	88,4	82,0	75,9	64,2	93

1. Sound power level by octave band, not weighted
2. Total sound power level, weighted A

8.1 ACOUSTIC INSULATION OPTIONS

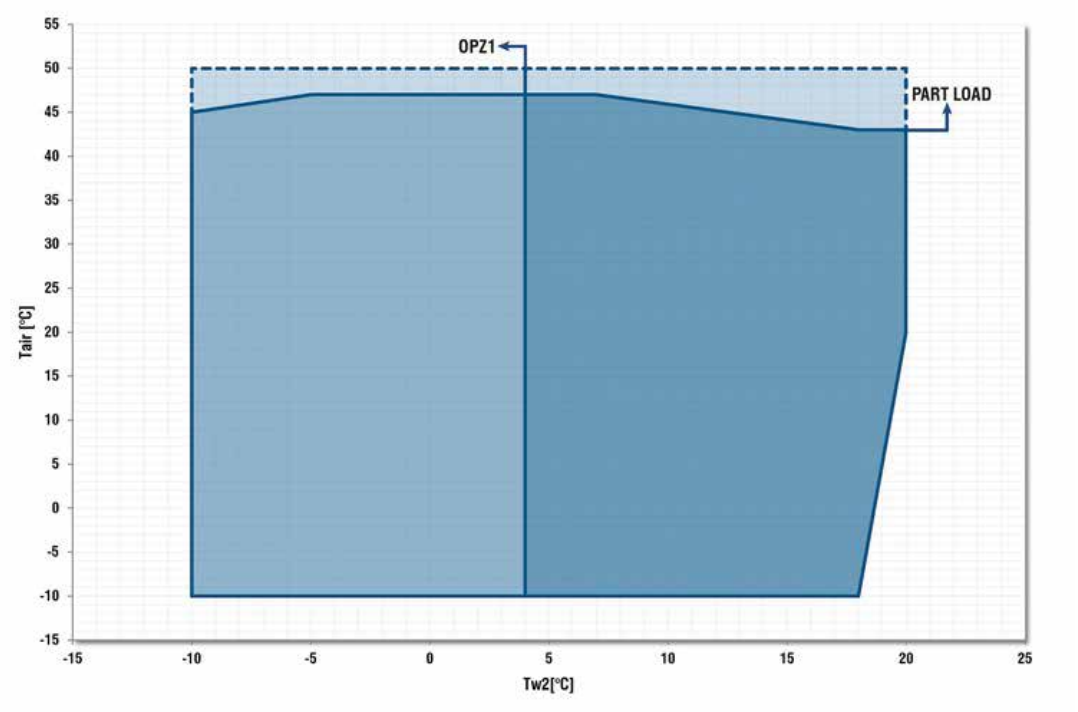
OPTION	ΔLw dB(A)
Silencing housings + acoustical enclosures	-3,0
Air diffuser AXITOP®	-2,0
OPZ1 + OPZ2	-4,0
OPZ1 + OPZ2 + EC Fans	-5.0
OPZ1+ OPZ2 + EC Fans + night time low-noise operation	-8.0

9 OPERATING LIMITS

The graphs below illustrate the operating limits of V-IPER units (in the case of continuous operation) in relation to the outlet water temperature and outdoor air temperature.
Warning The units are designed to work with water and air temperatures falling within the range defined by the operating limits. Attempting to operate the units beyond these limits could cause irreparable damage to the units themselves.

9.1 OPERATING LIMITS IN CHILLER MODE

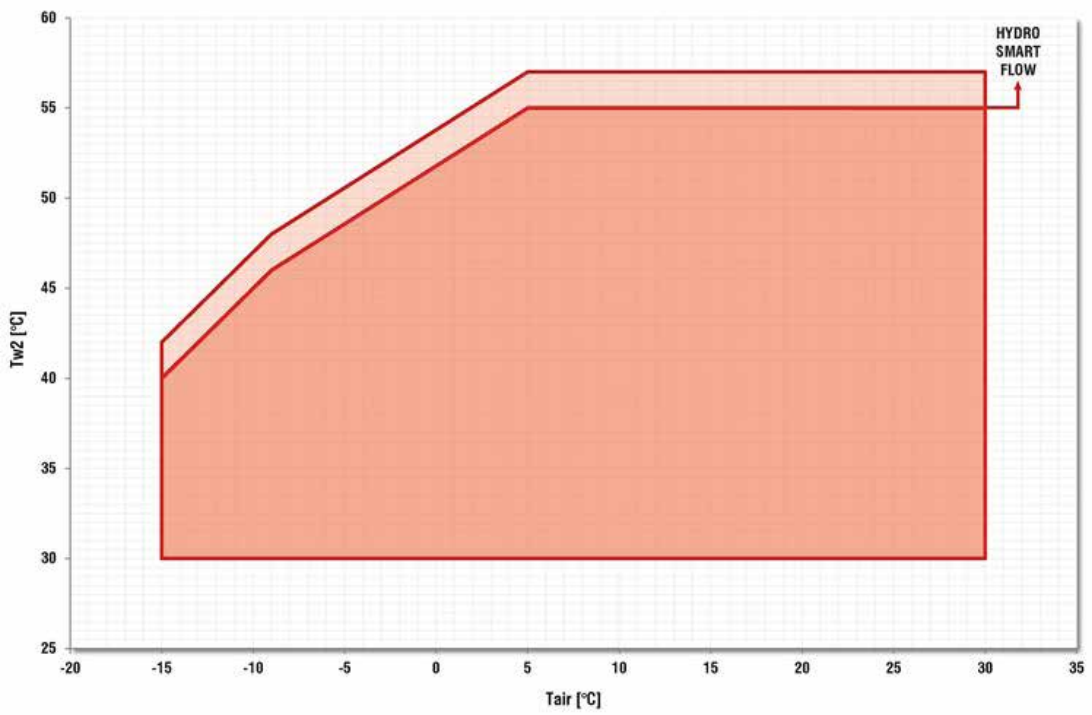
» Operating limits in chiller mode



OPT 1 Glycol + low temperature option
PART LOAD Partial load
Tair Outdoor temperature (dry bulb)
Tw2 Water outlet temperature
Operating range calculated with temperature difference of 5°C on the water side.

9.2 OPERATING LIMITS IN HEAT PUMP MODE

» Operating limits in heat pump mode



Tair Outdoor temperature (dry bulb)
Tw2 Outlet water temperature
Operating range calculated with temperature difference of 5°C on the water side.

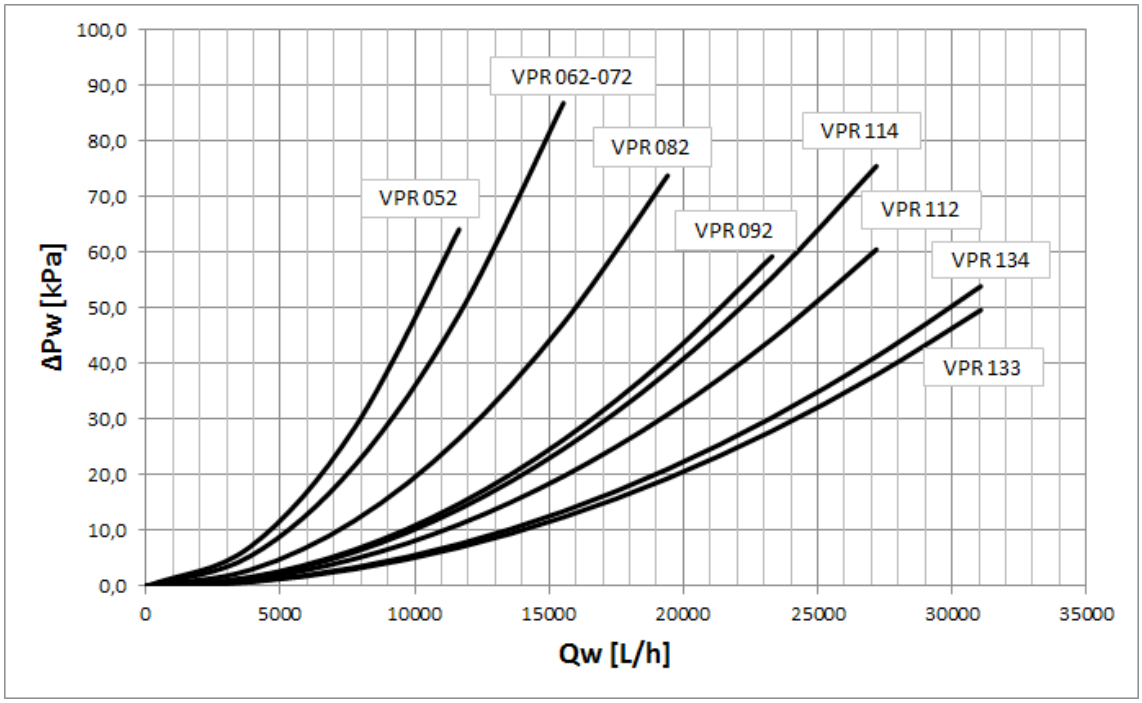
9.3 THERMAL CARRYING FLUID

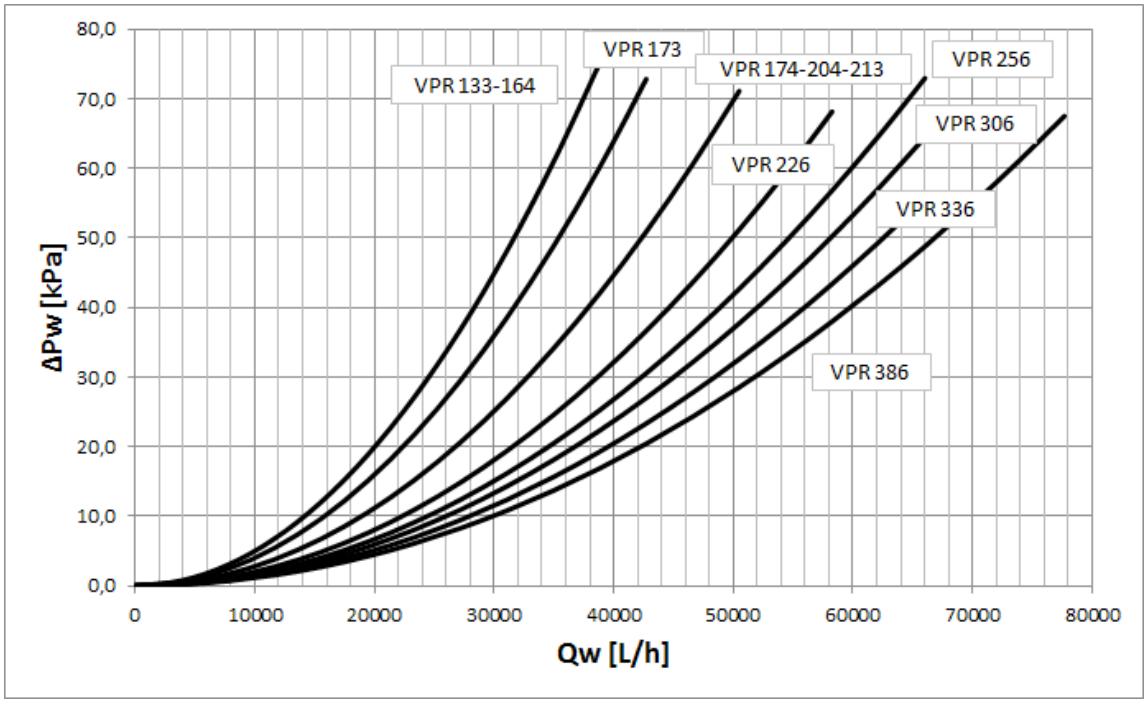
The units belonging to the V-IPERseries can work with mixtures of water and up to 35% ethylene glycol.

10 WATER PRESSURE DROP

10.1 WATER PRESSURE DROP

The table and diagrams shows the evaporator pressure drops (Δpw) as a function of the water flow rate (Qw), assuming an average water temperature of 10°C.



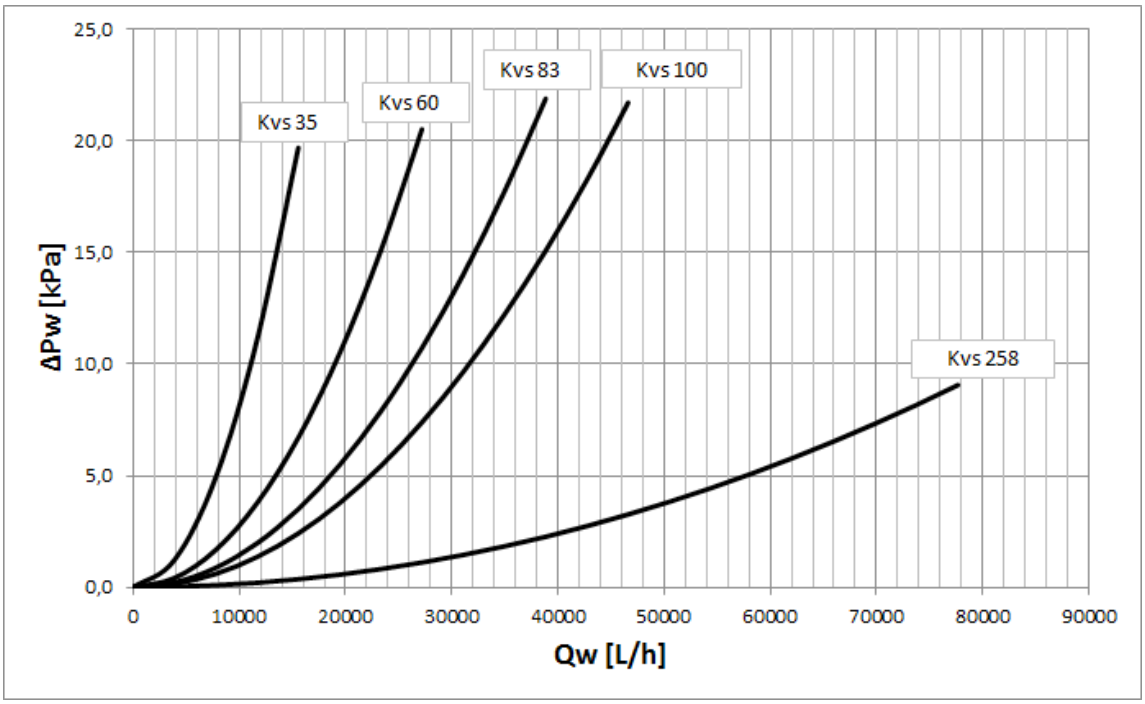


10.2 Y FILTER PRESSURE DROPS

The table below shows the pressure drops of the Y filter (Δp) as a function of the water flow rate (Qw), assuming an average water temperature of 10°C,

Frame		**1**		**2**				**2+**	**2**	**2+**	**3**
VPR C		**52**	**62**	**72**	**82**	**92**	**112**	**114**	**133**	**134**	**164**
Filter connections											
Filter connections type		Gas	Gas	Gas	Gas	Gas	Gas	Gas	Gas	Gas	Gas
Filter connections diameter	"	2	2	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	3
Kvs		35	35	35	60	60	60	60	83	83	83
Unit connections											
Unit connections type		Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic
Unit connections diameter	"	2	2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	4

Frame		**3**						**4**			**5**
VPR C		**173**	**174**	**204**	**213**	**226**	**256**	**276**	**306**	**336**	**386**
Filter connections											
Filter connections type		Gas	Gas	Gas	Gas	Gas	Flanges	Flanges	Flanges	Flanges	Flanges
Filter connections diameter	"	3	3	4	4	4	4	4	4	4	4
Kvs		100	100	100	60	258	258	258	258	258	258
Unit connections											
Unit connections type		Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic	Victaulic
Unit connections diameter	"	4									



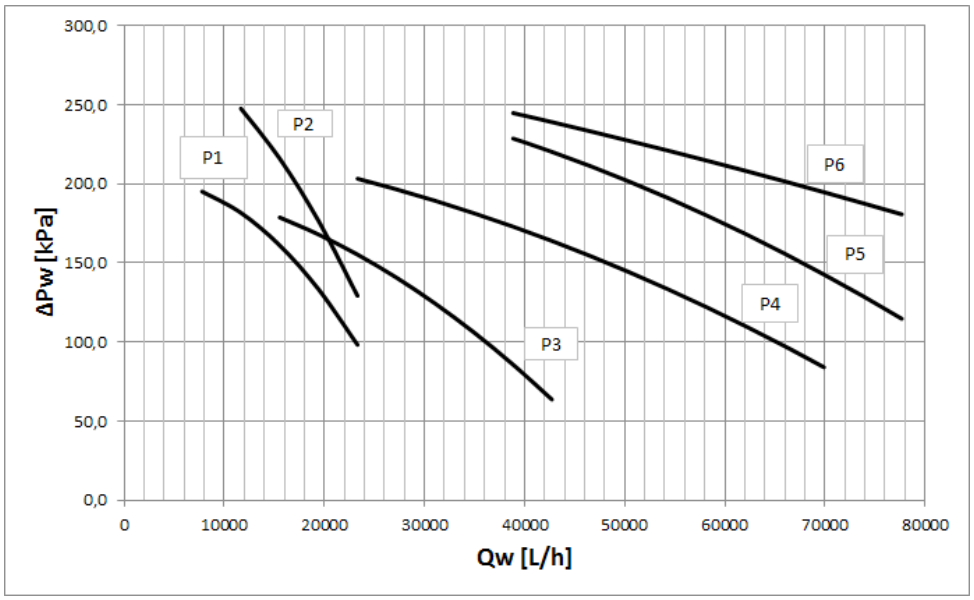
11 AVAILABLE PRESSURE HEAD

11.1 AVAILABLE PRESSURE HEAD - STANDARD PUMP

The tables and diagrams show the total head of the pump (Pump Head) as a function of the water flow rate (Qw), assuming an average water temperature of 10°C.
Note: in order to calculate the available head, subtract to the total pump head the pressure drop of the heat plate exchanger and the Y filter.

Frame	**1**		**2**				**2+**	**2**	**2+**	**3**
VPR C	**52**	**62**	**72**	**82**	**92**	**112**	**114**	**133**	**134**	**164**
Pump	P1	P1	P2	P2	P2	P3	P3	P3	P3	P4

Frame	**3**						**4**			**5**
VPR C	**173**	**174**	**204**	**213**	**226**	**256**	**276**	**306**	**336**	**386**
Pump	P4	P4	P4	P4	P4	P4	P5	P5	P5	P5

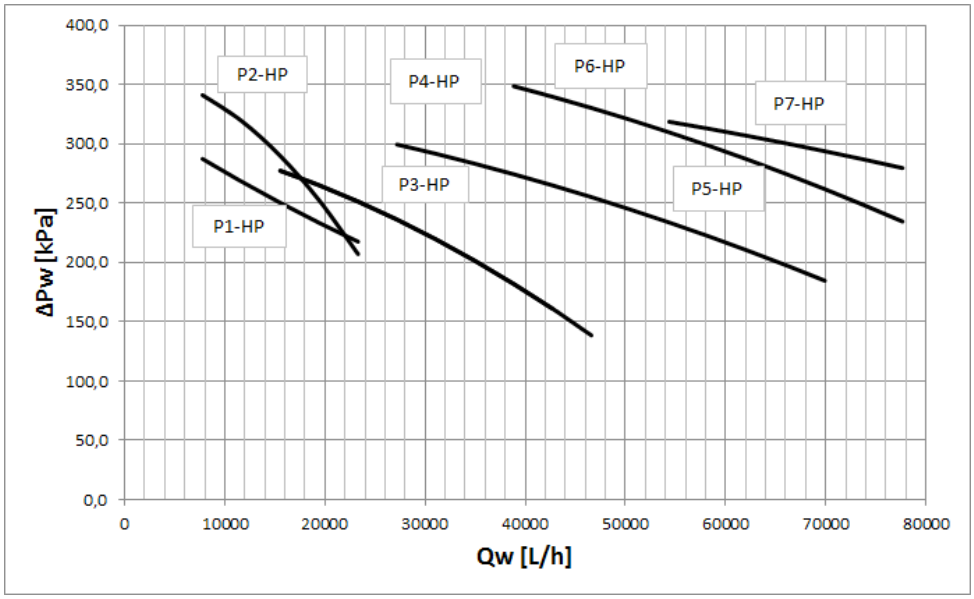


11.2 AVAILABLE PRESSURE HEAD HP PUMPS

The tables and diagrams show the total head of the pump (Pump Head) as a function of the water flow rate (Qw), assuming an average water temperature of 10°C.
Note: in order to calculate the available head, subtract to the total pump head the pressure drop of the heat plate exchanger and the Y filter.

Frame	**1**		**2**				**2+**	**2**	**2+**	**3**
VPR C	**52**	**62**	**72**	**82**	**92**	**112**	**114**	**133**	**134**	**164**
High prevalence pump	P1 HP	P1 HP	P2 HP	P2 HP	P2 HP	P3 HP	P3 HP	P3 HP	P3 HP	P3 HP

Frame	**3**						**4**			**5**
VPR C	**173**	**174**	**204**	**213**	**226**	**256**	**276**	**306**	**336**	**386**
High prevalence pump	P3 HP	P5 HP	P5 HP	P5 HP	P5 HP	P5 HP	P6 HP	P6 HP	P6 HP	P6 HP



12 WATER CIRCUIT

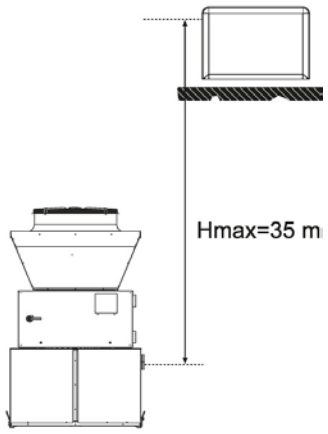
When setting up the water circuit of the unit, it is advisable to follow the directions below and in any case comply with local or national regulations.
Connect the pipes to the chiller using flexible couplings to prevent the transmission of vibrations and to compensate thermal expansions.
It is recommended to install the following components on the pipes:

— temperature and pressure indicators for routine maintenance and monitoring of the unit. Pressure control on the water side allows to assess the correct functioning of the expansion tank and to detect water leakage in advance.
— sumps on inlet and outlet piping for temperature detection, for a direct view of operating temperatures.
— cut-off valves (gate valves) to isolate the unit from the hydraulic circuit.
— **Metal mesh filter (supplied), with a mesh size no greater than 1 mm, to be fitted on the inlet pipe to protect the exchanger from scale or impurities present in the pipes.**
— Air vent valves, to be placed at the highest points of the water circuit for the purpose of bleeding air. (The internal pipes of the unit are fitted with small air vent valves for bleeding the unit itself: this operation may only be carried out when the unit is disconnected from the power supply).
— Drainage valve and, where necessary, a drainage tank for emptying out the equipment for maintenance purposes or when the unit is taken out of service at the end of the season. (A 1" drainage valve is provided on the optional water buffer tank: this operation may only be carried out when the unit is disconnected from the power supply).

It is of fundamental importance that the incoming water supply is hooked up to the connection marked "Water Inlet".
In caso contrario si correrebbe il rischio di gelare l'evaporatore, dal momento che il controllo da parte del termostato antigelo verrebbe vanificato ed inoltre non sarebbe rispettata la circuitazione in controcorrente nel funzionamento in raffreddamento con ulteriori rischi di malfunzionamento.
The dimensions and position of plumbing connections are shown in the dimension tables at the end of the manual.
The water circuit must be set up in such a way as to guarantee that the nominal flow rate of the water supplied to the evaporator remains constant (+/- 15%) in all operating conditions.
A standard feature of V-IPER units is a device for controlling the flow rate (flow switch or differential pressure switch) in the water circuit in the immediate vicinity of the evaporator.

12.1 WATER CONTENT AND CHARGING OF EXPANZION TANK SYSTEM

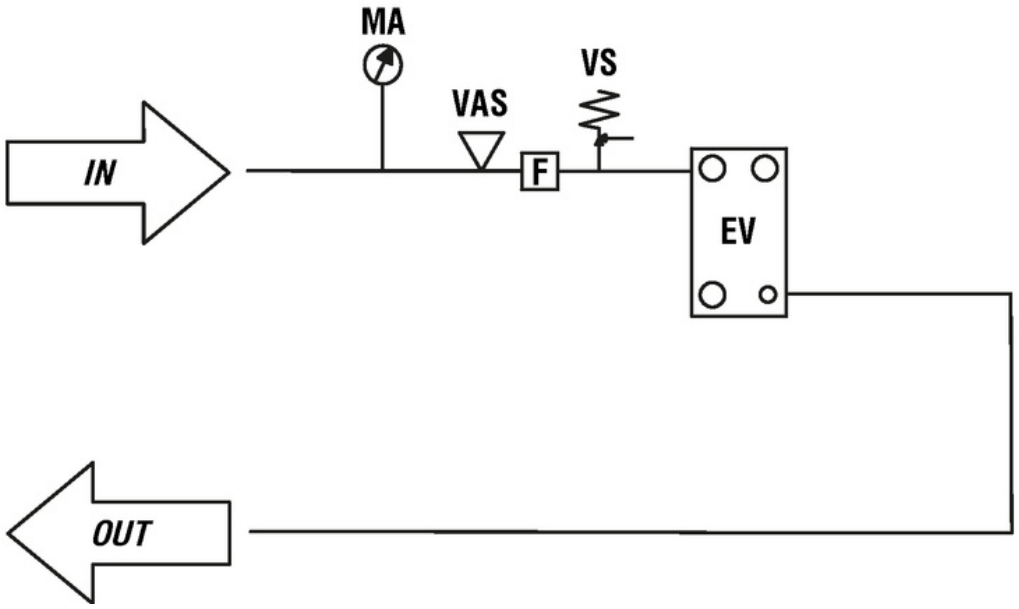
In models without a water storage reservoir it is necessary to assure that the content of water within the system does not fall below 3.5 litres/kW in the case of cooling-only models and 4.5 litres/kW in the case of heat pump models. This level is necessary to prevent the water temperature from falling below the indoor unit enabling threshold during defrost cycles.
N.B. kW in reference to rated capacity
The expansion tank is pre-charged to a pressure of 1.5 bars, sufficient for systems with a maximum height difference (H in the figure at the side) of 13 metres.
For greater height differences, refer to the table below in order to adjust the charging pressure of the expansion tank accordingly.
In no case should you exceed the maximum height difference Hmax = 35 m.



Height difference of system (m)	Charging pressure of expansion tank
<13	1,50
15	1,70
20	2,20
25	2,70
30	3,10

12.2 WATER CIRCUIT

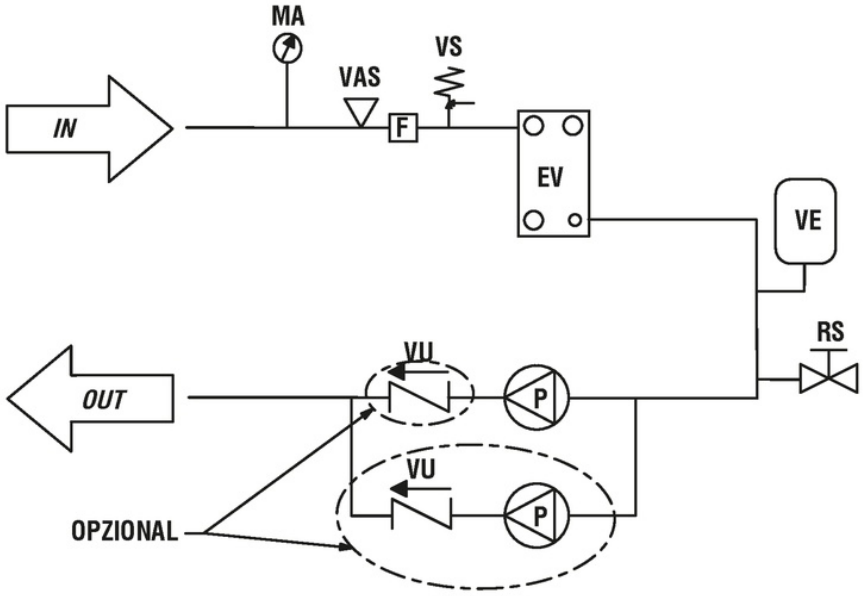
» V-IPER (evaporator)



LEGEND

VR	Water supply unit	SA	Storage tank
VS	Safety valve	VE	Expansion vessel
EV	Evaporator	P	Pump
F	Flow switch	RS	Drain
MA	Water gauge	VU	Check valve
VAS	Air bleed hole	RC	Water charge

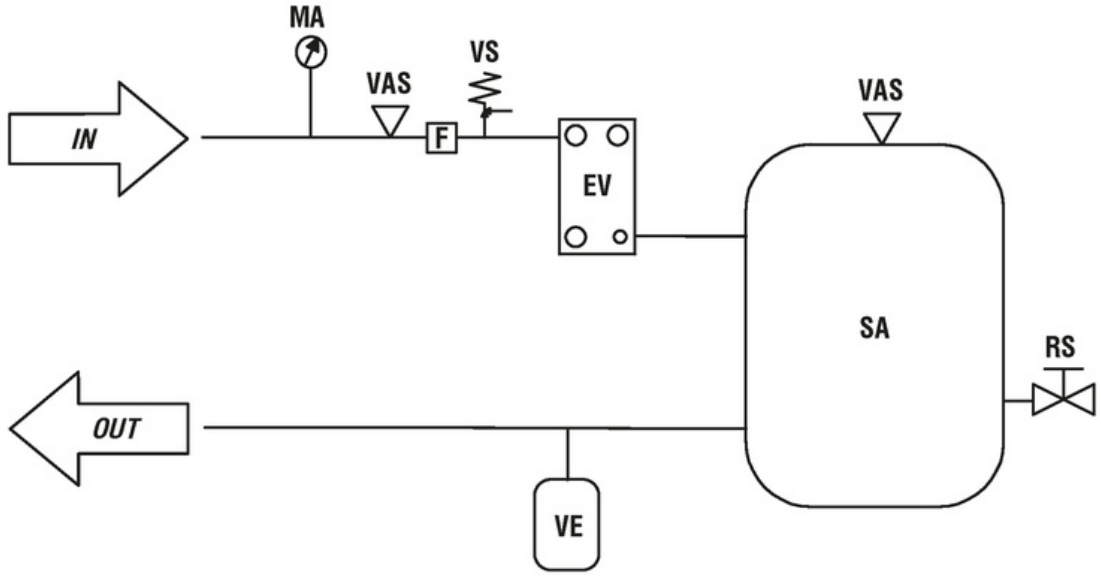
» V-IPER (evaporator and pump)



LEGEND

VR	Water supply unit	SA	Storage tank
VS	Safety valve	VE	Expansion vessel
EV	Evaporator	P	Pump
F	Flow switch	RS	Drain
MA	Water gauge	VU	Check valve
VAS	Air bleed hole	RC	Water charge

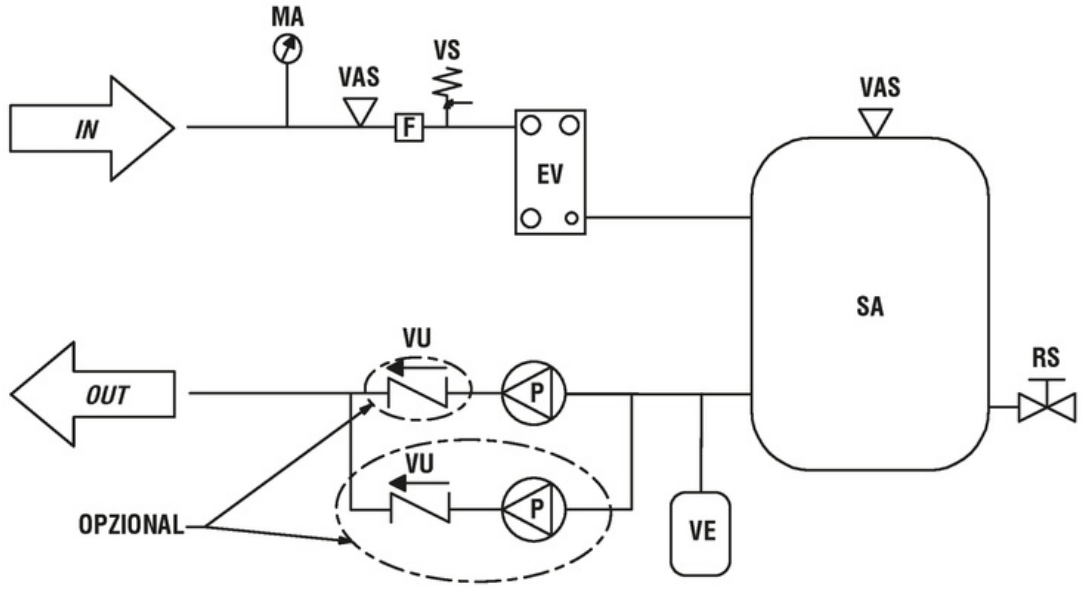
» V-IPER (evaporator and tank)



LEGEND

VR	Water supply unit	SA	Storage tank
VS	Safety valve	VE	Expansion vessel
EV	Evaporator	P	Pump
F	Flow switch	PD	Water differential pressure switch
MA	Water gauge	RS	Drain
VAS	Air bleed hole	RC	Water charge

» V-IPER (evaporator, pump and tank)



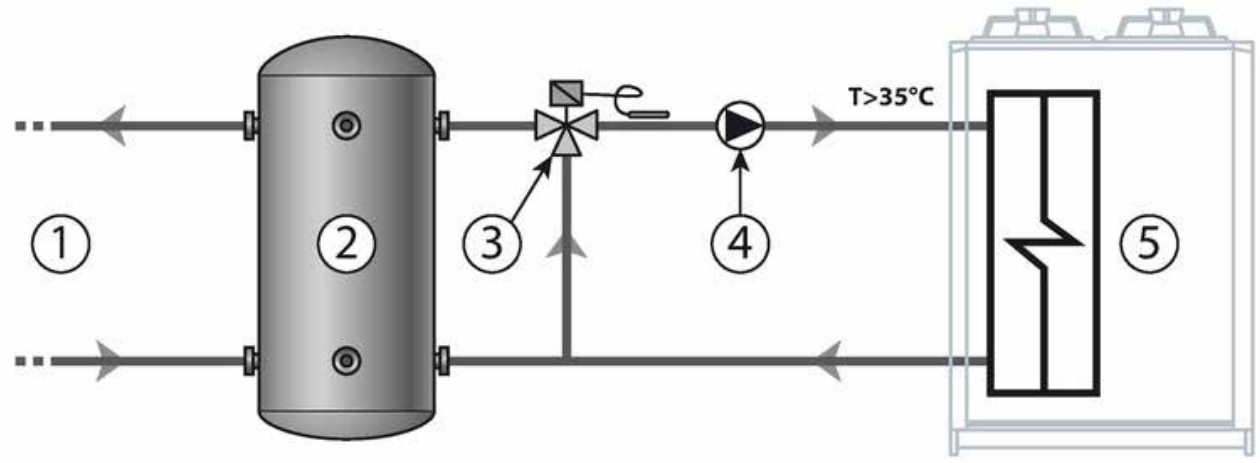
LEGEND

VR	Water supply unit	SA	Storage tank
VS	Safety valve	VE	Expansion vessel
EV	Evaporator	P	Pump
F	Flow switch	PD	Water differential pressure switch
MA	Water gauge	RS	Drain
VAS	Air bleed hole	RC	Water charge

12.3 DESUPERHEATER

12.3.1 Recommended water circuit

The partial heat recovery option is provided by a braze-welded plate heat exchanger placed in series on the compressor delivery (typically in series in relation to the finned pack condenser). Its size is designed to limit pressure drops on the refrigerant side to a minimum.
All machines configured with heat recovery use as per standard modulating condensation control. In order to avoid any unbalance in the cooling circuit, if there are start-ups with very low water temperatures at recovery (<35°C), the hydraulic recovery circuit must be set up as indicated in the following figure: a low water temperature at recovery would cause a drop in the condensation temperature and therefore an insufficient pressure jump on the expansion valve with the ensuing risk of the safety devices being triggered.



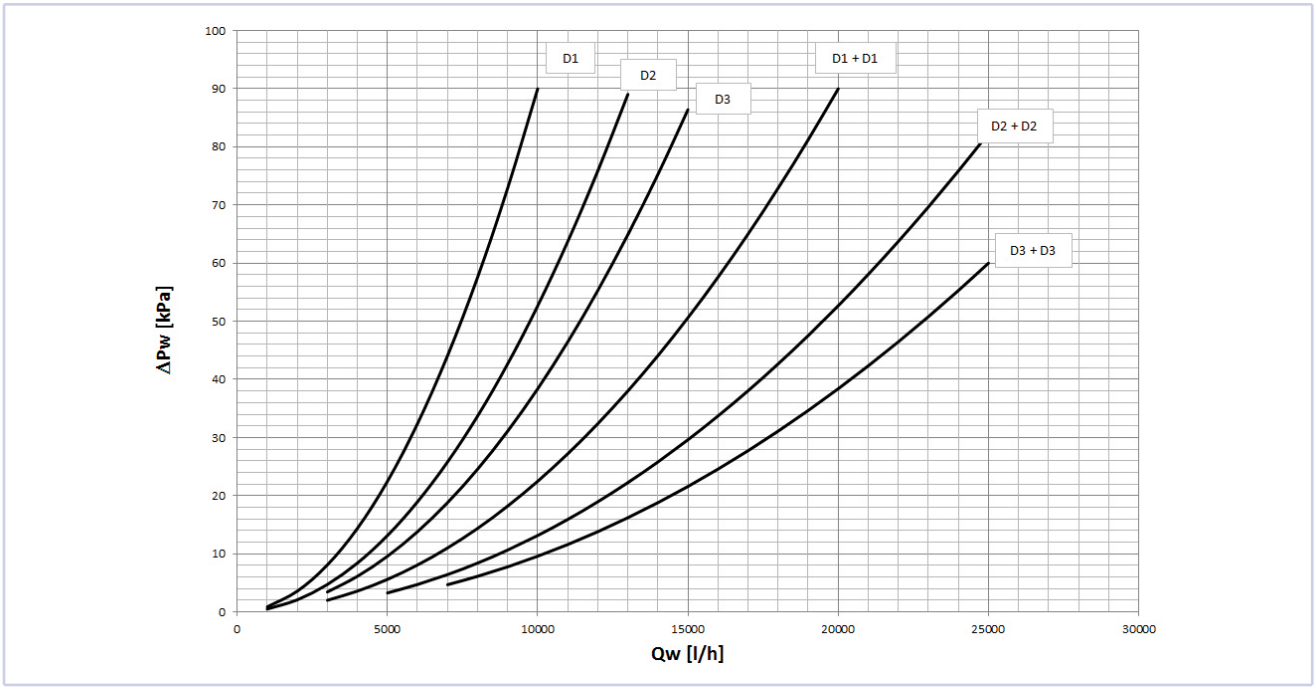
1 Utility side
2 Buffer tank
3 Mixing valve
4 Circulation pump
5 On-board desuperheater

The bulb of the 3-way mixer valve is placed at the de-superheater exchanger inlet. By mixing the hot water produced by the recovery with colder water from the tank, it reduces the time needed for the system to reach full operating capacity to a few moments.
A buffer tank must be placed between the unit and the utility since the demand for hot water and its availability are not simultaneous, because it needs the compressors to be running.
It should be pointed out that the heat recovery output is linked to the dispensed cooling output and that, therefore, in partial load situations it is also reduced just the same; this aspect must be taken into consideration for the dimensions of the buffer tank.
The partial heat recovery option is supplied only with the de-superheater exchanger. The other components of the circuit laid out in the previous figure are not included in the supply.

12.3.2 Water pressure drop

VPR C	52	62	72	82	92	112	114	133	134	164
n° of cooling circuits	1	1	1	1	1	1	1	1	1	1
n° of de-superheater (1 per circuit)	1	1	1	1	1	1	2	1	2	2
De-superheater type	D1	D1	D1	D1	D1	D2	D1 + D1	D2	D1 + D1	D1 + D1

VPR C	173	174	204	213	226	256	276	306	336	386
n° of cooling circuits	2	2	2	2	2	2	2	2	2	2
n° of de-superheater (1 per circuit)	1	2	2	1	2	2	2	2	2	2
De-superheater type	D3	D1 + D1	D2 + D2	D3	D2 + D2	D2 + D2	D3 + D3	D3 + D3	D3 + D3	D3 + D3



12.3.3 Heating capacities

Frame		1		2		
VPR C		**52**	**62**	**72**	**82**	**92**
Air temperature 35 °C						
De-superheater heating capacity (1)	kW	13	16	15	17	18
De-superheater water flow (1)	l/h	2267	2785	2531	2898	3181
Air temperature 40 °C						
De-superheater heating capacity (1)	kW	15	18	16	19	20
De-superheater water flow (1)	l/h	2534	3073	2804	3186	3483

(1) De-superheater water temperature 40 / 45°C, cooling water temperature 12 / 7°C

Frame		2	2+	2	2+	3
VPR C		**112**	**114**	**133**	**134**	**164**
Air temperature 35 °C						
De-superheater heating capacity (1)	kW	26	28	29	34	31
De-superheater water flow (1)	l/h	4392	4770	5017	5853	5364
Air temperature 40 °C						
De-superheater heating capacity (1)	kW	28	31	32	38	34
De-superheater water flow (1)	l/h	4838	5311	5495	6455	5927

(1) De-superheater water temperature 40 / 45°C, cooling water temperature 12 / 7°C

Frame		3				
VPR C		**173**	**174**	**204**	**213**	**226**
Air temperature 35 °C						
De-superheater heating capacity (1)	kW	33	34	45	40	51
De-superheater water flow (1)	l/h	5690	5788	7748	6893	8692
Air temperature 40 °C						
De-superheater heating capacity (1)	kW	37	37	50	44	56
De-superheater water flow (1)	l/h	6284	6377	8597	7523	9572

(1) De-superheater water temperature 40 / 45°C, cooling water temperature 12 / 7°C

Frame		3		4		5
VPR C		**256**	**276**	**306**	**336**	**386**
Air temperature 35 °C						
De-superheater heating capacity (1)	kW	58	63	66	73	74
De-superheater water flow (1)	l/h	10034	10826	11330	12636	12807
Air temperature 40 °C						
De-superheater heating capacity (1)	kW	64	70	73	81	82
De-superheater water flow (1)	l/h	10990	12002	12510	13870	14043

(1) De-superheater water temperature 40 / 45°C, cooling water temperature 12 / 7°C

12.3.4 Heating capacities corrective factors

Air temperature (K)	Inlet water temperature / Outlet water temperature		
-	40/50	50/55	50/60
35	0,93	0,73	0,66
40	1,02	0,80	0,74

13 INSTALLATION CLEARANCE REQUIREMENTS

All models belonging to the V-IPER series are designed and built for outdoor installation: avoid covering them with roof structures or positioning them near plants (even if they only partly cover the unit) which may interfere with the regular ventilation of the unit condenser.
It is a good idea to provide a supporting base of adequate dimensions. This precaution becomes an imperative when the unit is to be sited on unstable ground (various types of soil, gardens, etc.)
It is advisable to place a rigid rubber strip between the base frame and the supporting surface.
Whenever more effective insulation is required, it is recommended to use vibrating-damping spring supports.
In the case of installation on roofs or intermediate storeys, the unit and pipes must be insulated from walls and ceilings by placing rigid rubber joints in between and using supports that are not rigidly anchored to the walls.
In the case of installation on roofs or intermediate storeys, the unit and pipes must be insulated from walls and ceilings by placing rigid rubber joints in between and using supports that are not rigidly anchored to the walls.
It is of fundamental importance to ensure an adequate volume of air both on the intake and outlet sides of the condenser/evaporating finned coils; it is highly important to prevent the air delivered from being re-aspirated as this may impair the performance of the unit or even cause an interruption in normal operation.
For this reason it is necessary to guarantee the following clearances:

— Drear side/plumbing connections: min. 1,5 metres to guarantee access to plumbing connections and/or for any necessary maintenance on the pumps, tank, expansion tank and flow switch.
— Electric control board side: min. 1.5 metres to guarantee access for inspection and/or maintenance of cooling components.
— Finned block exchanger side: min. 1.5 metres to ensure proper air circulation and access to the compressor compartment, also from the side.
— Top side: there must be no obstacle to air outlet.

14 SITING AND DAMPERS

It is important to bear in mind the following aspects when choosing the best site for installing the unit:

— Size and origin of water pipes;
— Location of the power supply;
— Solidity of the supporting surface;
— Avoid obstacles to the outflow of air from the fan which could cause back suction (see section on Dimensions);
— Direction of prevalent winds: (position the unit so as to prevent prevalent winds from interfering with the fan air flow). Prevalent winds opposing the fan air flow will result in a maximum air temperature below the value indicated in the operating limits;
— Avoid the possible reverberation of sound waves; do not install the unit in narrow or cramped spaces;
— Ensure adequate accessibility for maintenance or repairs (see section on Dimensions).

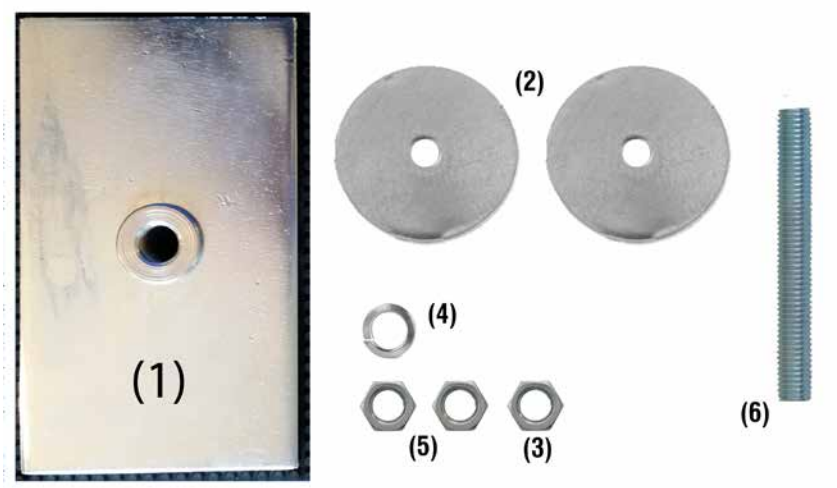
This appliance is not intended to be used by children or persons with physical, sensorial or mental problems, inexpert or unprepared, without supervision. Be careful that children do not approach the appliance.

When installing the vibration dampers follow the instructions below:

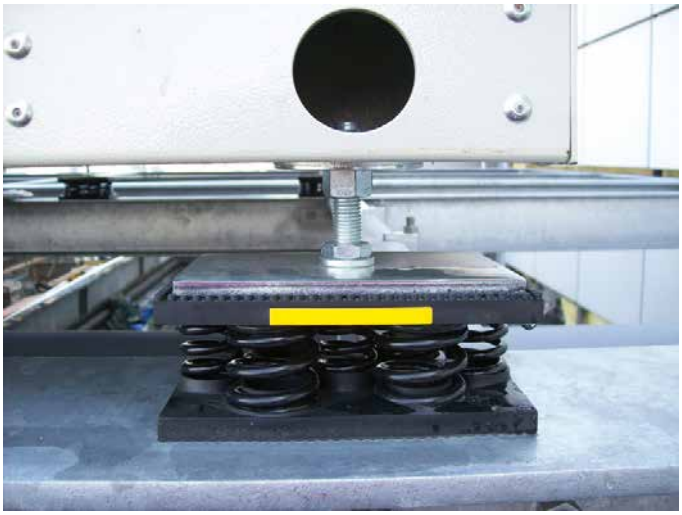
1. Screw the jack (6) into the vibration damper with jack support plate (1) all the way;
2. Screw the bolt (5) until the jack (6) is locked in place on the vibration damper (1);
3. Screw the bolt (3) and insert one of the two disks (2) into the jack (6);
4. Insert the jack (6) into the hole on the unit base;
5. Adjust the height by turning the bolt (3);
6. Insert the second disk (2) into the jack (6) until it makes contact with the base;
7. Tighten the vibration damper with the split washer (4) and the bolt (5) to the unit base.

V-IPER	Vibration dumpers
52 - 336	6
386	8

» Dampers components

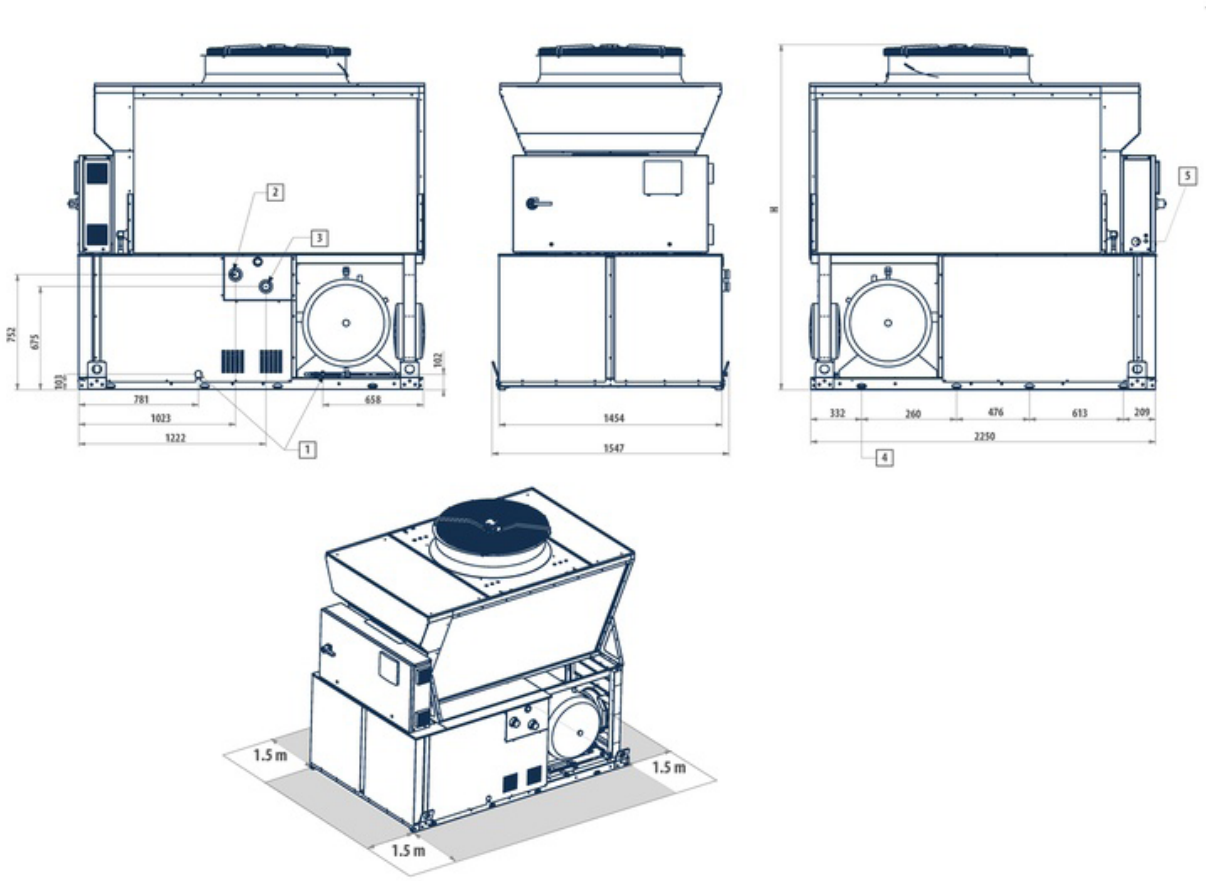


» Correct dumper installation



15 DIMENSIONS

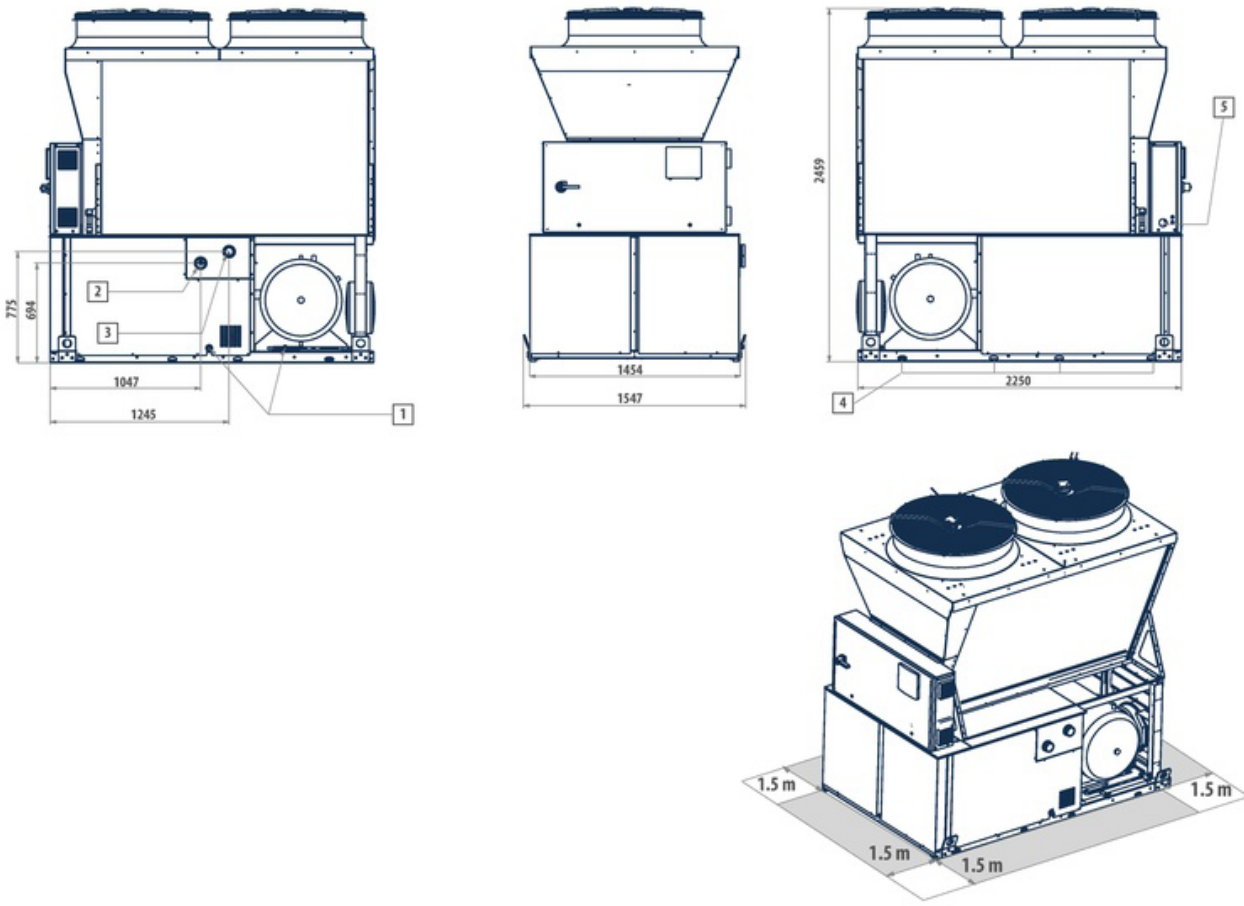
» V-IPER 52 - 62



LEGEND

1 Water drainage 1/2" female
2 Water inlet Victaulic 2"
3 Water outlet Victaulic 2"
4 Vibration dumpers
5 Ingressi alimentazione elettrica
H CHILLER VERSION = 2459
H HEAT PUMP VERSION = 2252

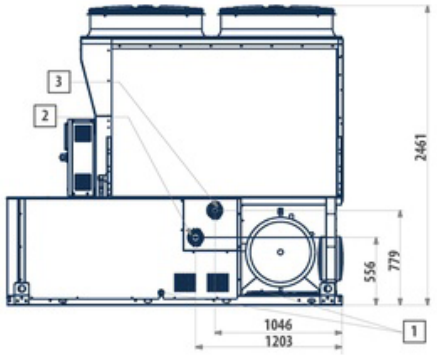
*For the C version increase the distance to be complied to ensure an easy access to the machine to 2m in the coil exctraction direction in order to allow the complete extraction of the microchannel coil.

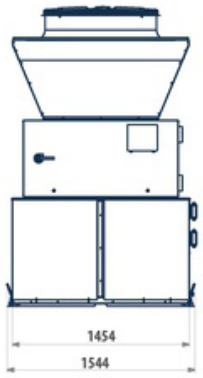


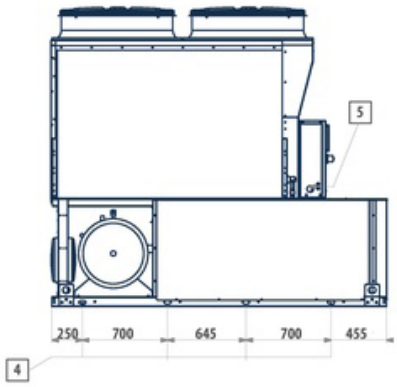
LEGEND

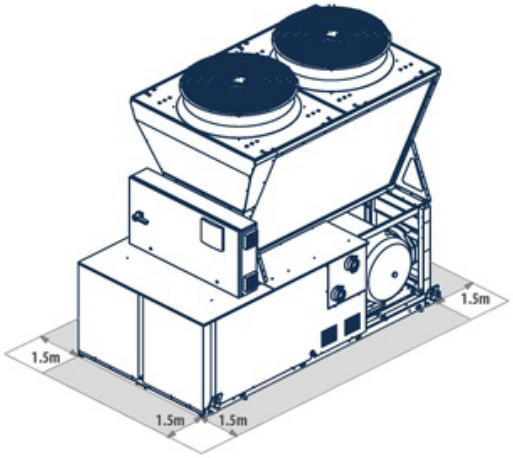
1 Water drainage 1/2" female
2 Water inlet Victaulic 2 1/2"
3 Water outlet Victaulic 2 1/2"
4 Vibration dumpers
5 Power supply input

*For the C version increase the distance to be complied to ensure an easy access to the machine to 2m in the coil exctraction direction in order to allow the complete extraction of the microchannel coil.





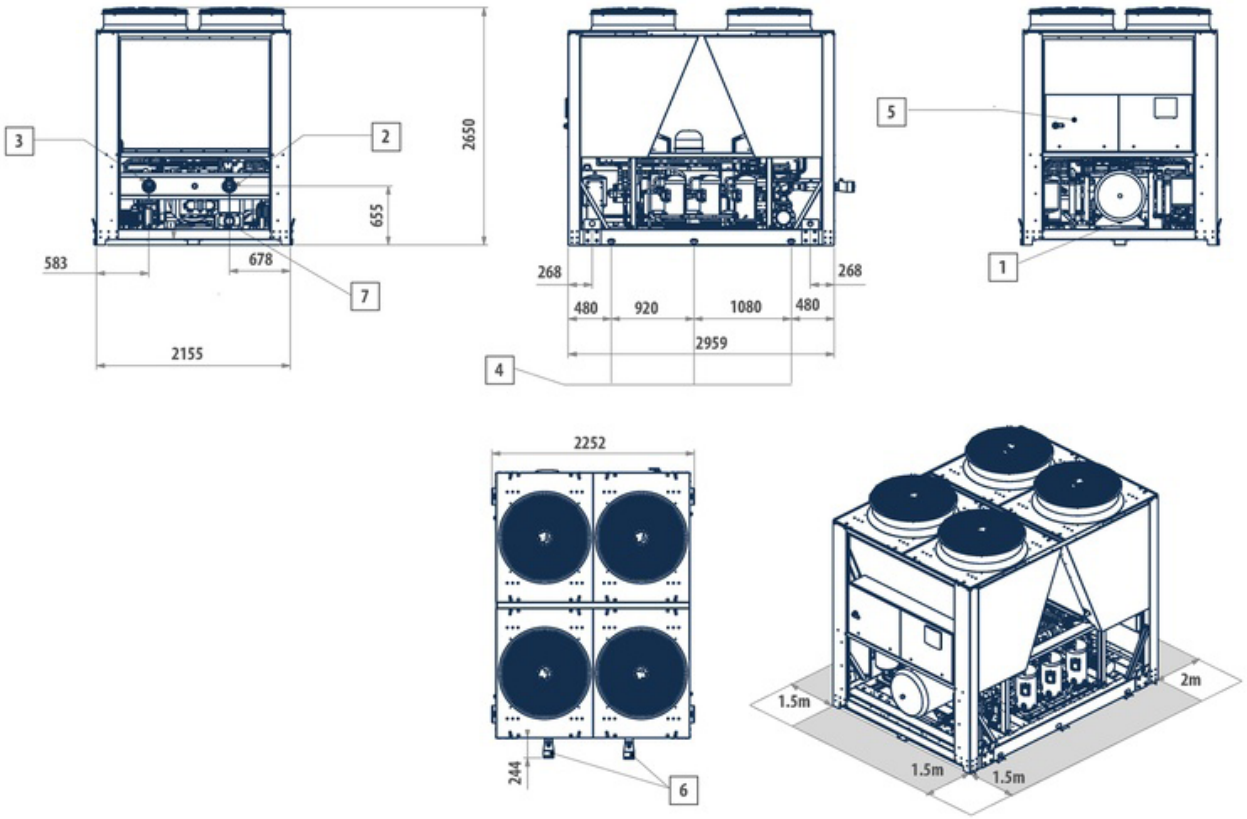




LEGEND

1 Water drainage
2 Water inlet Victaulic 2 1/2"
3 Water outlet Victaulic 2 1/2"
4 Vibration dumpers
5 Power supply input

*For the C version increase the distance to be complied to ensure an easy access to the machine to 2m in the coil exctraction direction in order to allow the complete extraction of the microchannel coil.



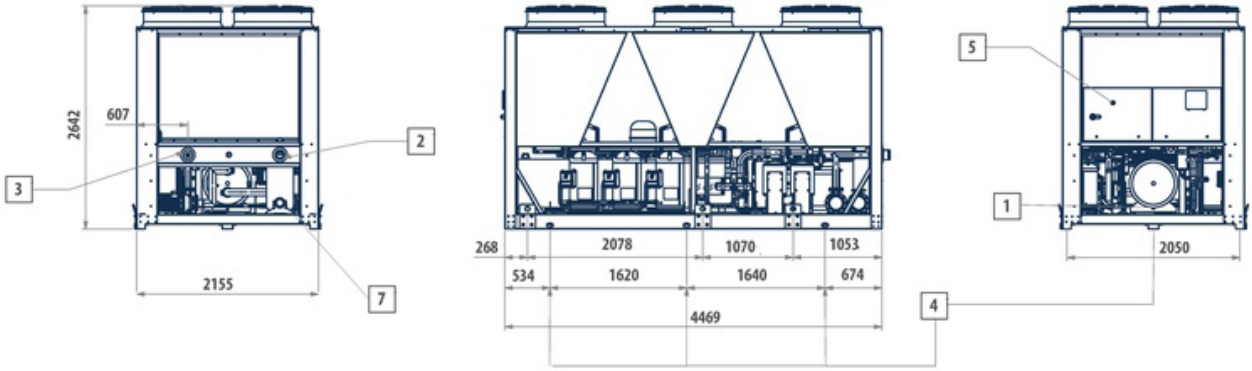
LEGEND

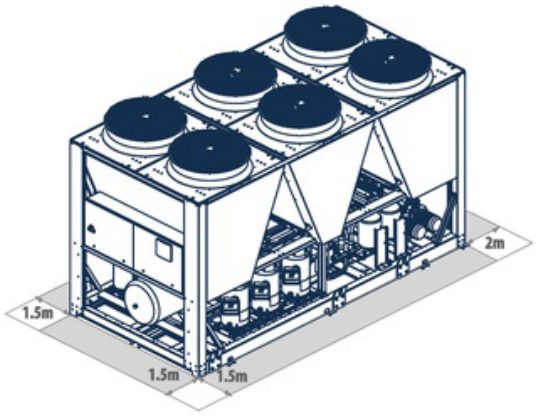
1 Water drainage
2 Water inlet Victaulic 4"
3 Water outlet Victaulic 4"
4 Vibration dumpers
5 Electric control board
6 Victaulic adapter from 4" to 3" to be mounted on-site
7 Water outlet, evaporator only

POWER SUPPLY INPUT IN THE LOWER PART OF THE ELECTRIC CONTROL BOARD

*For the C version increase the distance to be complied to ensure an easy access to the machine to 2m in the coil exctraction direction in order to allow the complete extraction of the microchannel coil.

» V-IPER 276 - 306 - 336



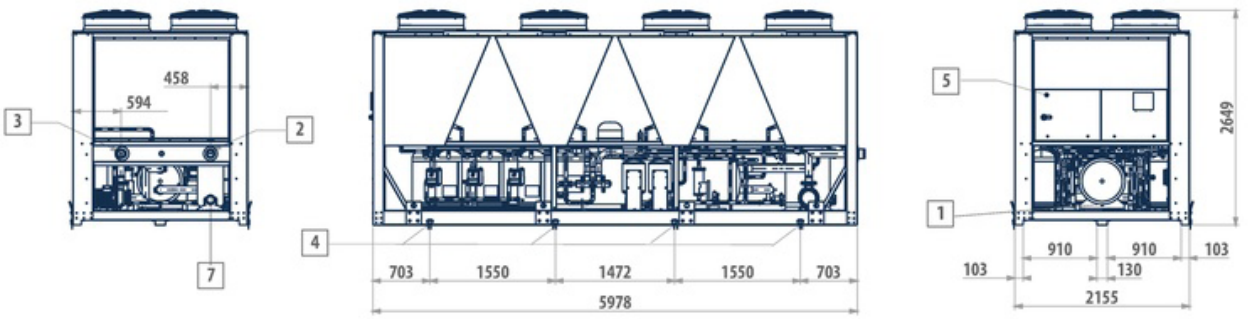


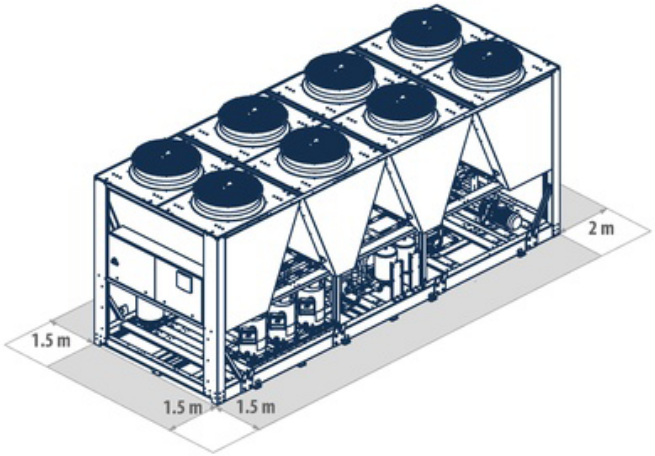
LEGEND

1 Water drainage
2 Water inlet Victaulic 4"
3 Water outlet Victaulic 4"
4 Vibration dumpers
5 Electric control board
6 -
7 Water outlet, evaporator only

POWER SUPPLY INPUT IN THE LOWER PART OF THE ELECTRIC CONTROL BOARD

*For the C version increase the distance to be complied to ensure an easy access to the machine to 2m in the coil exctraction direction in order to allow the complete extraction of the microchannel coil.





LEGEND

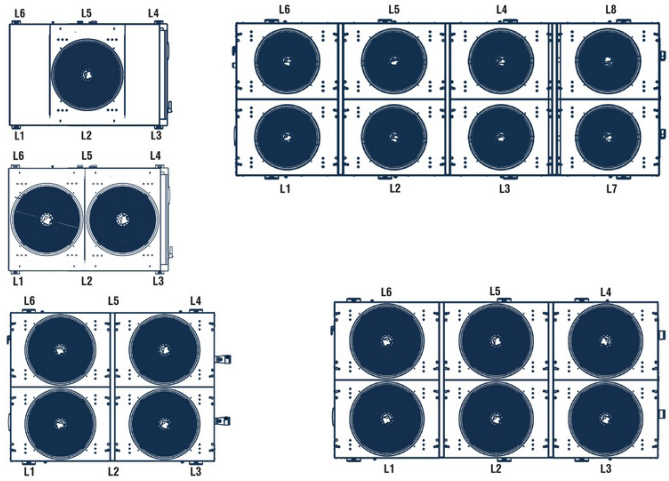
1 Water drainage
2 Water inlet Victaulic 4"
3 Water outlet Victaulic 4"
4 Vibration dumpers
5 Electric control board
6 -
7 Water outlet, evaporator only

POWER SUPPLY INPUT IN THE LOWER PART OF THE ELECTRIC CONTROL BOARD

*For the C version increase the distance to be complied to ensure an easy access to the machine to 2m in the coil exctraction direction in order to allow the complete extraction of the microchannel coil.

16 WEIGHTS

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.



Frame	Height	Depth	Length	Water tank content
1	2173	1286	2577	200
2	2168	1286	3503	340
3	2167	1746	4524	700
4	2174	2194	4507	700

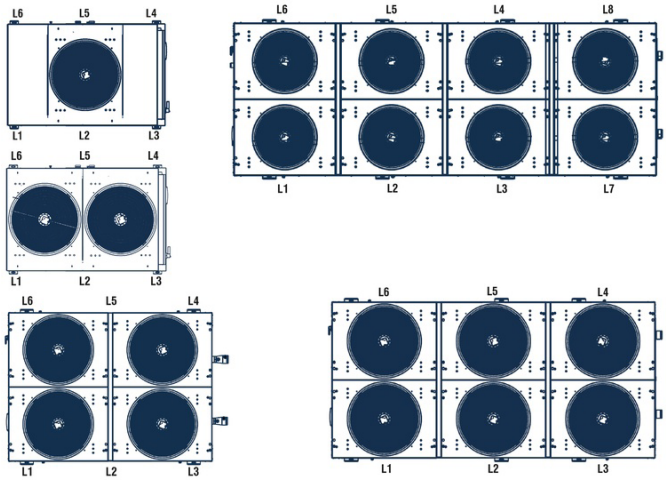
Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.

» Operating weight C version with pump and full buffer tank

VPR C		52	62	72	82	92	112	114	133	134	164
L1	kg	194	197	203	210	220	233	300	235	321	324
L2	kg	182	183	199	200	209	216	282	207	285	449
L3	kg	180	180	185	185	185	185	224	185	227	301
L4	kg	180	180	185	185	185	185	224	185	227	318
L5	kg	213	215	227	229	259	288	272	256	276	449
L6	kg	214	218	225	229	259	290	275	262	284	317
L7	kg	-	-	-	-	-	-	-	-	-	-
L8	kg	-	-	-	-	-	-	-	-	-	-
Total	kg	1163	1173	1225	1238	1318	1398	1578	1331	1621	2160

VPR C		173	174	204	213	226	256	276	306	336	386
L1	kg	324	325	326	326	327	328	641	643	669	674
L2	kg	380	450	526	390	519	519	632	633	659	674
L3	kg	301	311	311	307	314	316	473	474	476	450
L4	kg	318	342	343	325	354	362	530	531	539	439
L5	kg	676	450	526	728	519	519	554	555	560	666
L6	kg	317	318	319	319	320	321	554	555	560	654
L7	kg	-	-	-	-	-	-	-	-	-	480
L8	kg	-	-	-	-	-	-	-	-	-	544
Total	kg	2316	2196	2351	2395	2353	2366	3384	3390	3464	4581

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.



Frame	Height	Depth	Length	Water tank content
1	2173	1286	2577	200
2	2168	1286	3503	340
3	2167	1746	4524	700
4	2174	2194	4507	700

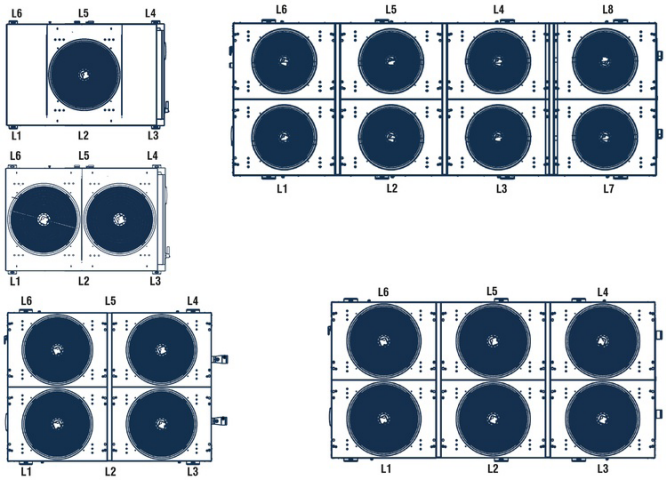
Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.

» Operating weight C version with pump

VPR C		52	62	72	82	92	112	114	133	134	164
L1	kg	136	139	145	151	162	175	242	177	263	225
L2	kg	123	124	141	141	151	158	224	149	227	351
L3	kg	92	92	97	97	97	97	136	97	139	226
L4	kg	92	92	97	97	97	97	136	97	139	243
L5	kg	154	157	169	171	201	230	214	198	217	351
L6	kg	156	159	167	170	201	232	217	203	225	219
L7	kg	-	-	-	-	-	-	-	-	-	-
L8	kg	-	-	-	-	-	-	-	-	-	-
Total	kg	753	763	815	828	908	988	1168	921	1211	1616

VPR C		173	174	204	213	226	256	276	306	336	386
L1	kg	225	226	228	227	228	230	493	494	520	563
L2	kg	281	352	427	292	420	421	484	485	511	563
L3	kg	226	236	236	232	239	241	325	325	327	339
L4	kg	243	267	268	250	279	287	382	382	391	327
L5	kg	578	352	427	629	420	421	405	406	412	554
L6	kg	219	220	221	221	222	223	405	406	412	542
L7	kg	-	-	-	-	-	-	-	-	-	368
L8	kg	-	-	-	-	-	-	-	-	-	433
Total	kg	1773	1652	1808	1851	1810	1823	2493	2498	2572	3690

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.



Frame	Height	Depth	Length	Water tank content
1	2173	1286	2577	200
2	2168	1286	3503	340
3	2167	1746	4524	700
4	2174	2194	4507	700

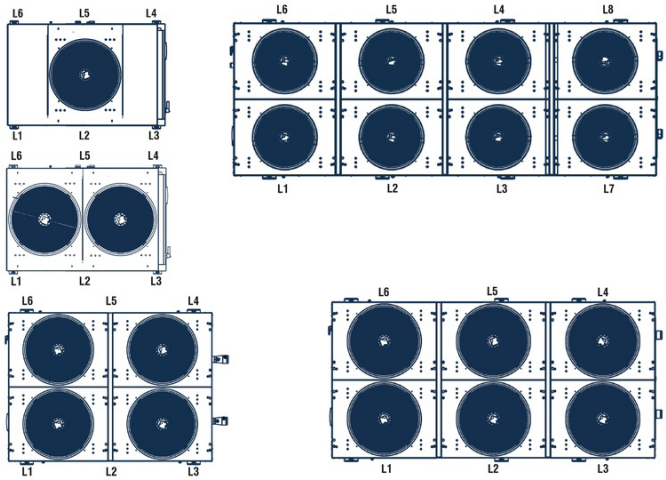
Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.

» Operating weight C version without hydraulic options

VPR C		52	62	72	82	92	112	114	133	134	164
L1	kg	136	139	145	151	162	175	242	177	263	225
L2	kg	115	116	122	123	132	140	207	132	210	351
L3	kg	92	92	97	97	97	97	136	97	139	205
L4	kg	92	92	97	97	97	97	136	97	139	238
L5	kg	151	153	161	162	192	222	207	190	210	351
L6	kg	156	159	167	170	201	232	217	203	225	219
L7	kg	-	-	-	-	-	-	-	-	-	-
L8	kg	-	-	-	-	-	-	-	-	-	-
Total	kg	741	752	788	801	881	964	1144	897	1186	1589

VPR C		173	174	204	213	226	256	276	306	336	386
L1	kg	225	226	228	227	228	230	493	494	520	563
L2	kg	281	352	427	292	420	421	484	485	511	563
L3	kg	205	211	212	207	215	217	292	293	295	339
L4	kg	237	261	261	244	273	281	373	374	383	327
L5	kg	578	352	427	629	420	421	405	406	412	554
L6	kg	219	220	221	221	222	223	405	406	412	542
L7	kg	-	-	-	-	-	-	-	-	-	330
L8	kg	-	-	-	-	-	-	-	-	-	423
Total	kg	1746	1621	1777	1820	1779	1792	2452	2458	2532	3641

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.



Frame	Height	Depth	Length	Water tank content
1	2173	1286	2577	200
2	2168	1286	3503	340
3	2167	1746	4524	700
4	2174	2194	4507	700

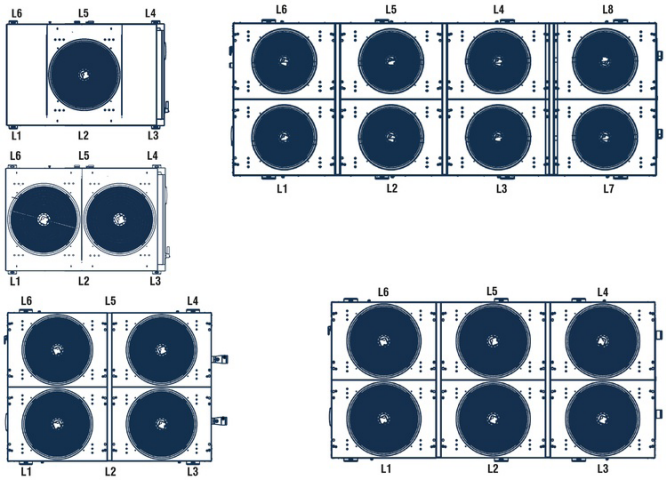
Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.

» Operating weight H version with pump and full buffer tank

VPR H		52	62	72	82	92	112	114	133	134	164
L1	kg	217	221	225	232	243	258	338	261	360	369
L2	kg	204	206	221	222	232	241	320	233	325	494
L3	kg	195	195	198	198	198	198	252	198	252	327
L4	kg	195	195	198	198	198	198	252	198	252	344
L5	kg	237	240	250	253	285	315	310	284	315	494
L6	kg	239	243	248	253	285	318	313	290	323	362
L7	kg	-	-	-	-	-	-	-	-	-	-
L8	kg	-	-	-	-	-	-	-	-	-	-
Total	kg	1288	1300	1340	1356	1442	1527	1785	1464	1828	2391

VPR H		173	174	204	213	226	256	276	306	336	386
L1	kg	369	371	375	376	379	383	697	699	729	741
L2	kg	425	496	575	440	570	574	688	690	720	741
L3	kg	327	336	337	332	339	341	504	504	515	527
L4	kg	344	368	368	351	379	387	561	561	578	505
L5	kg	722	496	575	778	570	574	609	611	621	743
L6	kg	362	364	368	369	372	376	609	611	621	721
L7	kg	-	-	-	-	-	-	-	-	-	518
L8	kg	-	-	-	-	-	-	-	-	-	583
Total	kg	2549	2431	2598	2646	2610	2636	3669	3676	3782	5079

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.



Frame	Height	Depth	Length	Water tank content
1	2173	1286	2577	200
2	2168	1286	3503	340
3	2167	1746	4524	700
4	2174	2194	4507	700

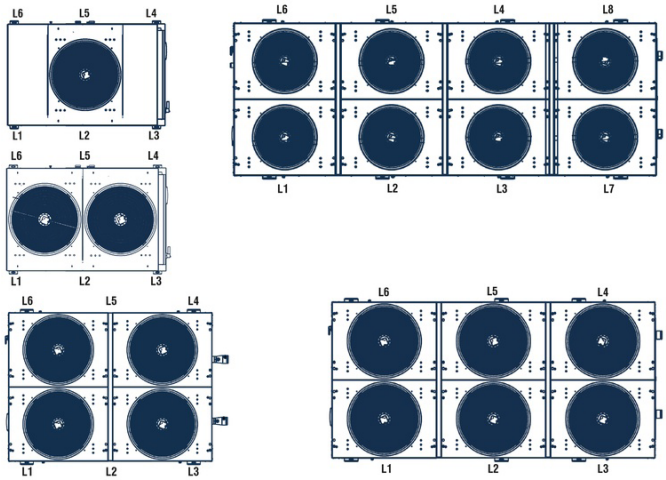
Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.

» Operating weight H version with pump

VPR H		52	62	72	82	92	112	114	133	134	164
L1	kg	159	163	166	174	185	199	279	203	302	270
L2	kg	146	148	162	164	174	182	262	175	266	396
L3	kg	107	107	110	110	110	110	164	110	164	252
L4	kg	107	107	110	110	110	110	164	110	164	269
L5	kg	179	182	192	195	227	257	252	226	257	396
L6	kg	181	184	190	194	227	259	254	232	265	264
L7	kg	-	-	-	-	-	-	-	-	-	-
L8	kg	-	-	-	-	-	-	-	-	-	-
Total	kg	878	891	930	947	1032	1118	1375	1055	1418	1847

VPR H		173	174	204	213	226	256	276	306	336	386
L1	kg	271	272	277	277	280	284	548	550	580	630
L2	kg	327	397	476	342	472	476	539	541	571	630
L3	kg	252	261	262	257	264	266	356	356	366	416
L4	kg	269	293	293	276	304	312	413	413	429	394
L5	kg	623	397	476	679	472	476	461	462	472	631
L6	kg	264	265	270	271	273	278	461	462	472	609
L7	kg	-	-	-	-	-	-	-	-	-	407
L8	kg	-	-	-	-	-	-	-	-	-	472
Total	kg	2005	1887	2054	2102	2066	2092	2778	2784	2891	4188

This drawing shows the points of the machine for which weights have been calculated, with respect to the basic chiller and heat pump model. The weights are shown in the tables below.



Frame	Height	Depth	Length	Water tank content
1	2173	1286	2577	200
2	2168	1286	3503	340
3	2167	1746	4524	700
4	2174	2194	4507	700

Important note: the weights of the hydronic modules must be added to the standard weights of the respective basic model (cooling only and heat pump).
All weights stated below include the refrigerant charge as well as the water contained in the circuit (very important when assessing the most suitable bearing surface for the unit especially in the presence of a tank).
To get an approximate estimate of the unit's weight when empty, subtract the weight (in kg) of the water contained in the tank (see table).
In other cases the water content is negligible for these purposes.

» Operating weight H version without hydraulic options

VPR H		52	62	72	82	92	112	114	133	134	164
L1	kg	159	163	166	174	185	199	279	203	302	270
L2	kg	138	140	143	145	155	165	244	157	249	396
L3	kg	107	107	110	110	110	110	164	110	164	231
L4	kg	107	107	110	110	110	110	164	110	164	264
L5	kg	175	178	184	186	219	250	244	219	249	396
L6	kg	181	184	190	194	227	259	254	232	265	264
L7	kg	-	-	-	-	-	-	-	-	-	-
L8	kg	-	-	-	-	-	-	-	-	-	-
Total	kg	866	879	903	920	1005	1093	1351	1030	1394	1821

VPR H		173	174	204	213	226	256	276	306	336	386
L1	kg	271	272	277	277	280	284	548	550	580	630
L2	kg	327	397	476	342	472	476	539	541	571	630
L3	kg	231	237	237	232	240	242	323	323	334	416
L4	kg	263	287	287	269	298	306	404	404	421	394
L5	kg	623	397	476	679	472	476	461	462	472	631
L6	kg	264	265	270	271	273	278	461	462	472	609
L7	kg	-	-	-	-	-	-	-	-	-	368
L8	kg	-	-	-	-	-	-	-	-	-	462
Total	kg	1978	1856	2023	2071	2036	2061	2737	2743	2850	4139

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