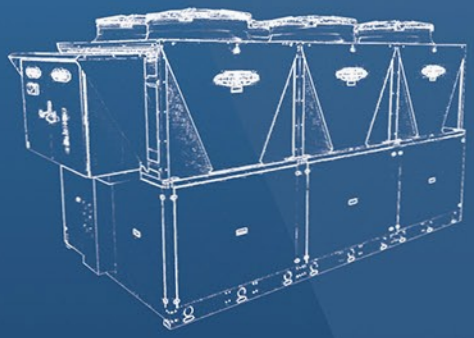
AIR CONDITIONERS
FROST
ITALY

AIR - COOLED
WATER CHILLERS WITH AXIAL FANS WITH FINNED COILS FROM 177,3 KW TO 957,2 KW ORION-VR HT



R134a

ORION VR HT

AIR COOLED WATER CHILLER
FROM 177,3 KW TO 957,2 KW

General Features

Air condensing refrigerant unit for outdoor installation, with axial fan and finned coil.
The modular constructive approach of the V-shaped coil layout permits less room taken while leaving whole suction surface.
Reduced dimensions mean reduced unit installation area, an optimization of the technical spaces and less room for the building site itself. Designed for a quite running, reliable and efficient, they result to be extremely easy to install and require lower maintenance.
Every single unit is tested in our company and supplied with oil and refrigerant agent required for functioning.

Technical Features

- **Frame:** Self-supporting galvanized steel frame protected with polyester powder painting RAL 7037PB. Steel screws and bolts. Compressors are situated in a sound proof vane and separated from the air box.
- **Compressors:** semi-hermetic compressor with 3-phase screw for high condensing temperature, complete with crankcase heater and electronical internal thermal protection. The lubrication system is forced. With "part winding" motor start-up for 180.2-520.5 sizes, "star-delta" starting for 550.5-960.9 sizes. 6 capacity steps with Continuous capacity control 25-100% on demand. The compressors are located in a sound proof vane.
- **Fans:** axial type , directly coupled to a six or eight pole three phase electric motor.
  It allows an optimal air flow through the finned coil with minimal noise level and power consumption.
  Internal electrical insulation second grade with protection IP 54 (DIN VDE 0470 / EN 60529:1991)
- **Water side heating exchanger :** plate type for units till 2 modules, optimized for modern refrigerants, designed for high performances and reliability. Shell and tube with double refrigerant circuit for units with more than 2 modules.
  Composed by: header, tube-plate, shell and refrigerant connections in stainless steel, exchanger tubes in copper SfCu DIN 1787, brass diaphragms, gasket in asbestos-free agglomerate, stainless steel screw. The exchanger is covered with insulation to avoid condensate and heat exchange with the external environment.
- **Air side heating exchanger:** it consists of an aluminum finned coil and copper tubes.
- **Refrigerant circuit:** made of pickled copper, it includes lamination device, dehydrator filter, high and low pressure switches, sight glass, liquid line solenoid valve and shut off faucet, security valve and service connections.
- **Electronic expansion valve:** for the condensed refrigerant rolling. In comparison with the thermostatic valve it enables fast response time according to the load variation by enhancing the unit performances.
- **Electrical board:** it includes automatic main circuit breaker, automatic control circuit breaker, compressor and fan contactor, and terminal board for the unit-microprocessor interface. All wires and clamps are numbered according to standard EN60204.
- **Microprocessor:** it controls automatically the regulation of the water temperature, the compressor timing, and the alarms. It visualizes on the display the running condition of the unit, the inlet temperature of the device, and the alarms' code.
- **Differential pressure switch water side:** it works as flow control, it operate when the flow water reach the minimum level.
- **Pressure trasductor:** detects the unit operating pressure, manages defrost and fan speed control functions.
- **Shut-off valves compressors outlet**

Model Number Nomenclature

ORION VR HT **X** **Y**

180.2 - 960.9
Size

R, H
Version*

*

Only cooling	R
Heat pump	H

Main components

Compressor: semi-hermetic screw compressor.

Fan: axial type with tube and guard net.

Water-cooler exchanger: Plates and shell and tube type. Suitable for modern refrigerants. For high efficiency and reliability.

Air-cooler exchanger: with aluminum finned coil.

Microprocessor: it controls all device functions.

Pressure differential detector water side: it works as flow control, it operate when pressure reach the minimum level.

Electronic expansion valve: it laminates the condensed refrigerant.

Pressure trasductor: detect the unit operating pressure, manages defrost and fan speed control functions.

Accessories

Compressors soft starters: enables the gradual start of compressors by limiting the initial starting current.

Control system and remote assistance: it allows the assistance and the unit control by means of web browser. Web server remote connection through corporate network. In case of alarm an alert can be sent via SMS or e-mail. For simultaneous control till 6 or 18 units.

Capacitor bank for compressor: the tools brings the consumption of the unit to cosϕ=0,95 by decreasing the absorbed reactive power

Refrigerant gauges: installed on the unit, they show the operative pressures of the cooling circuit on high and low pressure side.

Shut-off inlet compressor valves: they isolate the compressors from the cooling circuit by enhancing the maintenance operations.

Operating kit up to -25°C external air temperature: it allows to the chiller to operate with low external temperatures increasing the working limits.

De-superheaters: permits to recover till 25% of condensing heating for other purposes.

Total heat recovery: heat exchanger that allows the condensation heat recovery for others uses.

Liquid receiver: permits the correct refrigerant supply to the thermal expansion valve during external temperature variations.

Continuous capacity control 33-100%: It allows under every condition the unit to respond with the exact load required granting high efficiency part load performance.

Economizer kit: composed of brazed welded plate heat exchanger, thermostatic valve and bypass line solenoid valve. A kit to increase the sub-cooling process to allow higher cooling capacities under all thermal load requests.

Accessories

Pump kit: it gives to the water the pressure head necessary to pass through the hydraulic circuit and reach the terminals.

Complete Hydraulic kit
Pump: it gives to the water the pressure head necessary to pass through the hydraulic circuit and reach the terminals. **Tank:** made in high-quality carbon steel, insulated with injected rigid polyurethane with low thermal conductivity to minimize dispersions.

Expansion vessel: absorbs liquid volume variations caused by working temperature variations. In epoxy powder coated steel, long-lasting duration with steady membrane made in SBR rubber.

Inlet water filter: retains impurities of the water circuit which can damage the pumping unit and the exchanger.

Flow switch: mounted on the exit of the exchanger (user side) detects the water flow lack by an alarm to the control system.

Victaulic: hydro connections instead of flanges.

Metallic filter coil protection: galvanized sheet steel frame - 12,5 mm

Special treatment: In case the units are to be located near the seaside or in aggressive environment we recommend to protect the exchanger with suitable anti-corrosion treatments:
– Copper finned coils cu/cu
– Treated finned coils

Fans speed control: the phase cut speed controller adjusts the air flow in order to optimize the condensation (or heat pump evaporation); the device reduces the absorbed power and the noise during partial loads.

EC fans: With BLDC brushless motor, with internal protection and fan speed control integrated.
Internal electrical insolated with protection class I, IP 54, according to norm EN 61800-5-1.
The impellers are housed in aerodynamically shaped enclosures to increase the efficiency and decrease the noise level, complete with fan guards.

Noiseless version: with Flow grid tool, patented by EBM-papst it reduces the fan noise of about 3 dB(A) depending on the type of installation.

Super Low noise version: it includes the noiseless versions tools plus AxiTop diffuser that increases air performance with unchanged energy input. AxiTop diffuser also improves acoustic characteristics. In order to maximize AxiTop performance the use of fans speed control or EC fan is suggested.

Rubber anti-vibration dampers: they reduce the vibrations transmission produced by the device.

Spring anti-vibration dampers: they are more effective than rubber dampers, reduce the vibrations transmission produced by the device.

Technical Features

Model			180.2	220.2	240.2	270.2	300.3	330.3	400.4	450.4
Cooling Capacity		kW	177,37	218,45	236,38	273,58	292,24	338,62	396,34	447,34
EER			2,37	2,32	2,28	2,37	2,18	2,16	1,89	2,00
N° compressors / circuits			1/1	1/1	2/2	2/2	2/2	2/2	2/2	2/2
N° capacity steps			3	3	6	6	6	6	6	6
Compressors type			Vite – Screw							
Refrigerant type			R134a							
Nominal absorbed power		kW	74,98	93,97	103,56	115,50	134,30	157,02	210,16	223,56
Nominal absorbed current		A	131,44	163,40	175,00	195,22	223,60	262,64	349,14	376,40
Maximum peak current		A	505,00	587,00	460,50	502,61	599,80	636,32	761,57	917,20
N° fans		mm	4	4	4	4	6	6	8	8
Fans flow rate		m^3/h	82000	82000	82000	82000	123000	123000	164000	164000
Water flow		m^3/h	30,50	37,57	40,65	47,05	50,26	58,23	68,16	76,93
Water pressure drop		kPa	32	30	45	52	57	48	43	50
Evaporator type			Shell&tube							
Sound Pressure Level	Std	dB(A)	62	62	62	62	64	64	65	65
	LN	dB(A)	59	59	59	59	61	61	62	62
	SLN	dB(A)	55	55	55	55	57	57	58	58
Hydraulic connections			3"	3"	DN125	DN125	DN125	DN150	DN150	DN150
Electrical supply			V/Hz/ Ph 400/50/3+N+PE							
Shipping weight		kg	2.132	2.248	2.429	2.461	2.889	3.713	4.259	4.281
Operating weight		kg	2.259	2.399	2.551	2.597	3.025	3.892	4.456	4.485

Model			520.5	550.5	650.6	740.6	800.7	910.8	960.9
Cooling Capacity		kW	517,42	547,46	632,00	746,40	780,94	909,46	957,18
EER			1,94	2,04	2,08	2,21	2,02	2,15	2,02
N° compressors / circuits			2/2	2/2	2/2	2/2	2/2	2/2	2/2
N° capacity steps			6	6	6	6	6	6	6
Compressors type			Vite – Screw						
Refrigerant type			R134a						
Nominal absorbed power		kW	267,20	268,96	303,16	337,50	386,54	423,88	472,80
Nominal absorbed current		A	454,08	440,66	515,90	567,66	630,38	686,40	769,48
Maximum peak current		A	1013,04	685,33	844,95	933,83	1120,19	1148,20	1189,74
N° fans		mm	10	10	12	12	14	16	18
Fans flow rate		m^3/h	205000	205000	246000	246000	287000	328000	369000
Water flow		m^3/h	88,98	94,15	108,48	128,36	134,30	156,40	164,61
Water pressure drop		kPa	44	48	40	48	38	42	46
Evaporator type			Shell&tube						
Sound Pressure Level	Std	dB(A)	67	67	67	67	69	69	70
	LN	dB(A)	64	64	64	64	66	66	67
	SLN	dB(A)	60	60	60	60	62	62	63
Hydraulic connections			DN150	DN150	DN150	DN150	DN200	DN200	DN200
Electrical supply			V/Hz/ Ph 400/50/3+N+PE						
Shipping weight		kg	4.848	6.126	6.682	6.782	7.522	8.132	8.581
Operating weight		kg	5.081	6.359	6.938	7.038	7.809	8.466	8.915

References Conditions

(1) Nominal conditions:
Air ambient temperature T=45°C
Water temperature T=12/7°C

(2) Full sound pressure level measured at 10m
from the unit in free field (ISO3744)

Fouling Factor Correction

Unit performances reported in the table are given for the condition of clean exchanger (fouling factor=0). For different fouling factors values, unit performances should be corrected with the correction factors shown above.

Evaporator fouling factors (m^2 °C/W)	F1	F2
0 (Clean evaporator)	1	1
0.44×10^{-4}	0,98	0,99
0.88×10^{-4}	0,96	0,99
1.76×10^{-4}	0,93	0,98
F1 = capacity correction factors F2 = compressor power input correction factors		

Ethylene glycol percent by weight (%)	10	20	30	40	50
Freezing point	-3.6	-8.7	-15.3	-23.5	-35.5
Cooling capacity corr. Factor	0,986	0,980	0,973	0,966	0,960
Power input corr. Factor	1,000	0,995	0,990	0,985	0,975
Mixture flow corr. Factor	1,023	1,054	1,092	1,140	1,200
Pressure drop corr. Factor	1,061	1,114	1,190	1,244	1,310

ELEVATION CORRECTION FACTOR CHILLER AIR TO WATER

ELEVATION [m]	COOLING CAPACITY CORRECTION FACTOR	ELECTRIC POWER CORRECTION FACTOR
0	1	1
600	0,987	1,010
1.200	0,973	1,020
1.800	0,958	1,030
2.400	0,943	1,040

Cooling Performances

Model	ta	30		35		40		45		50	
	tu	Pf	Pa	Pf	Pa	Pf	Pa	Pf	Pa	Pf	Pa
180.2	5	191,7	58,3	182,7	63,2	174,0	68,4	165,6	74,0	157,7	80,0
	6	198,2	58,7	189,0	63,6	180,0	68,9	171,4	74,5	163,3	80,5
	7	204,9	59,1	195,4	64,0	186,2	69,3	**177,4**	**75,0**	169,0	81,0
	8	211,0	59,8	201,2	64,7	191,8	70,1	182,7	75,8	174,2	81,8
	9	217,3	60,4	207,2	65,4	197,5	70,8	188,2	76,6	179,4	82,7
	10	223,7	61,1	213,3	66,1	203,4	71,6	193,8	77,4	184,8	83,6
220.2	5	237,3	74,4	226,4	80,3	215,4	86,5	204,6	92,7	194,1	99,1
	6	245,1	74,9	233,8	80,9	222,6	87,1	211,5	93,4	200,6	99,7
	7	253,0	75,5	241,5	81,5	229,9	87,7	**218,5**	**94,0**	207,3	100,4
	8	260,4	76,3	248,4	82,3	236,5	88,6	224,7	94,9	213,2	101,4
	9	267,9	77,1	255,6	83,2	243,2	89,5	231,0	95,9	219,2	102,4
	10	275,6	77,9	262,8	84,1	250,1	90,4	237,5	96,9	225,3	103,5
240.2	5	262,8	82,4	248,7	88,7	234,6	95,3	220,5	102,1	206,6	109,1
	6	271,7	83,0	257,3	89,3	242,8	96,0	228,3	102,8	214,1	109,8
	7	280,8	83,6	266,0	90,0	251,2	96,7	**236,4**	**103,6**	221,8	110,6
	8	289,1	84,5	273,9	91,0	258,7	97,7	243,5	104,7	228,5	111,8
	9	297,6	85,4	282,0	91,9	266,3	98,8	250,7	105,8	235,3	113,0
	10	306,3	86,4	290,2	92,9	274,0	99,8	258,0	107,0	242,3	114,2
270.2	5	298,0	90,8	283,6	97,9	269,6	105,6	256,0	113,9	243,1	122,6
	6	307,9	91,6	293,1	98,7	278,6	106,4	264,7	114,7	251,4	123,4
	7	318,0	92,3	302,8	99,5	287,9	107,2	**273,6**	**115,5**	259,9	124,3
	8	327,3	93,4	311,6	100,6	296,3	108,4	281,5	116,8	267,4	125,7
	9	336,8	94,5	320,6	101,7	304,9	109,6	289,6	118,1	275,0	127,1
	10	346,5	95,5	329,8	102,9	313,5	110,9	297,8	119,4	282,8	128,5
300.3	5	318,3	105,2	302,9	113,6	287,9	122,6	273,5	132,4	259,7	142,6
	6	328,9	106,1	313,1	114,5	297,6	123,6	282,8	133,3	268,5	143,6
	7	339,7	107,0	323,4	115,4	307,6	124,5	**292,2**	**134,3**	277,6	144,6
	8	349,6	108,2	332,9	116,7	316,5	125,9	300,7	135,8	285,6	146,3
	9	359,8	109,5	342,5	118,1	325,7	127,4	309,3	137,4	293,8	147,9
	10	370,2	110,8	352,3	119,4	334,9	128,9	318,1	139,0	302,1	149,6
330.3	5	366,0	121,1	348,8	131,5	332,1	142,9	316,1	155,0	301,0	167,8
	6	378,4	122,0	360,7	132,4	343,6	143,8	327,2	156,0	311,8	168,9
	7	391,1	122,9	373,0	133,4	355,4	144,8	**338,6**	**157,0**	322,7	169,9
	8	402,9	124,2	384,2	134,9	366,2	146,4	348,9	158,8	332,5	171,8
	9	414,8	125,6	395,6	136,4	377,1	148,0	359,3	160,5	342,5	173,7
	10	427,1	127,0	407,3	137,9	388,2	149,7	370,0	162,3	352,7	175,6
400.4	5	430,5	165,2	410,7	178,9	390,9	193,0	371,3	207,4	352,2	221,9
	6	444,6	166,4	424,2	180,2	403,8	194,3	383,7	208,8	364,0	223,3
	7	459,1	167,7	438,1	181,4	417,1	195,7	**396,3**	**210,2**	376,1	224,8
	8	472,4	169,5	450,7	183,4	429,1	197,7	407,7	212,4	386,8	227,2
	9	486,1	171,4	463,7	185,4	441,3	199,9	419,2	214,6	397,7	229,5
	10	500,0	173,3	476,8	187,4	453,8	202,0	431,0	216,9	408,7	231,9
450.4	5	486,2	176,4	463,7	190,7	441,3	205,5	419,1	220,6	397,4	235,9
	6	502,1	177,6	479,0	192,0	455,9	206,9	433,0	222,1	410,8	237,4
	7	518,4	178,9	494,6	193,4	470,8	208,3	**447,3**	**223,6**	424,4	239,0
	8	533,4	180,9	508,9	195,5	484,4	210,5	460,1	225,9	436,5	241,4
	9	548,8	182,8	523,4	197,5	498,1	212,7	473,1	228,2	448,7	243,9
	10	564,5	184,8	538,3	199,7	512,2	215,0	486,4	230,6	461,2	246,4

Cooling Performances

Model	ta	30		35		40		45		50	
	tu	Pf	Pa	Pf	Pa	Pf	Pa	Pf	Pa	Pf	Pa
520.5	5	562,3	210,2	536,4	227,5	510,4	245,4	484,7	263,6	459,7	282,1
	6	580,7	211,7	554,0	229,1	527,3	247,1	500,9	265,4	475,1	283,9
	7	599,6	213,3	572,1	230,8	544,6	248,8	**517,4**	**267,2**	490,9	285,8
	8	617,0	215,6	588,6	233,2	560,2	251,4	532,2	270,0	504,8	288,8
	9	634,8	218,0	605,4	235,8	576,2	254,1	547,2	272,9	519,0	291,8
	10	653,0	220,4	622,6	238,3	592,4	256,8	562,6	275,7	533,4	294,8
550.5	5	591,5	207,5	563,7	225,4	536,8	244,8	511,2	265,4	486,9	287,1
	6	611,5	209,0	583,0	227,0	555,5	246,4	529,1	267,2	504,2	289,0
	7	632,0	210,5	602,7	228,6	574,5	248,1	**547,5**	**269,0**	521,9	290,8
	8	650,9	212,8	620,8	231,1	591,8	250,9	564,0	271,9	537,7	294,0
	9	670,2	215,2	639,3	233,7	609,5	253,7	580,9	275,0	553,9	297,3
	10	689,9	217,6	658,2	236,4	627,5	256,6	598,1	278,1	570,3	300,6
650.6	5	692,9	238,5	658,4	257,7	624,2	277,8	590,5	298,6	557,9	319,8
	6	716,2	240,4	680,8	259,7	645,6	279,9	611,0	300,9	577,5	322,2
	7	740,0	242,2	703,7	261,7	667,5	282,1	**632,0**	**303,2**	597,5	324,6
	8	761,9	245,0	724,5	264,7	687,3	285,3	650,7	306,6	615,2	328,3
	9	784,3	247,8	745,8	267,7	707,4	288,6	669,7	310,1	633,2	332,1
	10	807,1	250,6	767,4	270,8	727,9	291,9	689,1	313,7	651,5	335,9
740.6	5	800,7	264,3	766,0	287,1	732,1	310,1	699,3	333,1	668,0	355,8
	6	826,7	265,9	791,1	288,9	756,3	312,1	722,6	335,3	690,4	358,2
	7	853,4	267,6	816,8	290,7	781,0	314,1	**746,4**	**337,5**	713,3	360,7
	8	878,1	270,3	840,5	293,6	803,6	317,3	767,9	341,0	733,8	364,4
	9	903,3	273,0	864,6	296,6	826,7	320,5	789,9	344,5	754,8	368,2
	10	929,1	275,7	889,2	299,5	850,1	323,7	812,3	348,0	776,1	372,0
800.7	5	835,1	306,7	799,5	330,5	764,4	355,1	730,4	380,4	697,7	406,2
	6	862,6	309,2	826,1	333,2	790,2	358,0	755,4	383,5	721,8	409,4
	7	890,9	311,7	853,5	335,9	816,7	360,9	**780,9**	**386,5**	746,6	412,7
	8	917,2	315,4	878,7	339,8	841,0	365,1	804,2	391,1	768,9	417,5
	9	944,1	319,1	904,6	343,8	865,7	369,4	827,9	395,6	791,7	422,4
	10	971,6	322,8	930,9	347,8	891,0	373,7	852,2	400,3	815,0	427,3
910.8	5	964,4	334,5	926,0	361,5	888,4	389,1	851,9	417,3	816,8	445,6
	6	996,2	337,3	956,6	364,4	917,9	392,2	880,3	420,6	844,2	449,0
	7	1028,7	340,2	988,0	367,4	948,2	395,4	**909,5**	**423,9**	872,3	452,5
	8	1059,1	344,3	1017,1	371,8	976,0	400,1	936,0	428,8	897,6	457,7
	9	1090,2	348,4	1046,8	376,2	1004,4	404,8	963,1	433,8	923,5	463,0
	10	1121,9	352,6	1077,1	380,7	1033,3	409,6	990,8	438,9	949,9	468,3
960.9	5	1015,0	373,3	974,5	403,3	935,0	434,1	896,6	465,5	859,7	497,0
	6	1048,4	376,4	1006,8	406,6	966,1	437,6	926,5	469,1	888,5	500,8
	7	1082,7	379,6	1039,8	409,9	997,9	441,1	**957,2**	**472,8**	918,0	504,7
	8	1114,7	384,1	1070,5	414,8	1027,2	446,3	985,1	478,3	944,7	510,5
	9	1147,4	388,7	1101,7	419,7	1057,1	451,5	1013,7	483,8	971,9	516,3
	10	1180,8	393,4	1133,6	424,7	1087,6	456,8	1042,8	489,5	999,7	522,3

COMPLETE HYDRAULIC KIT

All the units can be provided with hydraulic kit with various configurations:
-pump kit
-double pump kit
-UP modul complete of pump kit and storage
-UP modul complete of double pump kit and storage

Kit pump: supplied with pump mounted inside the unit, with pump delivery connected to the evaporator inlet. (till size 170.1 the pump is supplied not mounted), circuit breaker and contactor.
The pump managing is provided by the microprocessor directly.

Kit double pump: supplied with n. 2 pumps mounted inside the unit, with pump delivery connected to the evaporator inlet. (not available till size 170.1). Supplied with check (non-return) valve on pump delivery, gate valves before and after every pump, circuit breaker and contactor on every pump.
The pump managing is determined by the microprocessor with time commutation (to balances operating hours).
or mounted on the **UP unit**

UP Pumping stations with water storage tank
Possibility of personalization for capacity and power, they are completed with water pump, storage tank, all hydraulic and electrical components.

Frame: Self-supporting galvanized steel sheet frame protected with polyester powder painting, to resist to the external agents. Steel screws and bolts.

Hydraulic components: centrifugal pump with stainless steel structure and single-phase electric motor or 2-pole three-phase, vertical water storage tank, safety valve, air vent valve and discharge faucet.

Electrical panel: composed of a general circuit breaker with door lock, automatic circuit breaker, remote control switch pump.
All wires and terminals are identified according to norm EN60204.

Pump: single-phase / three-phase centrifugal type available in 10 different models,
with mechanical seal for either pure water or mixtures with glycol greater than 30%.

Storage tank: vertical water storage with rigid polyurethane insulation with external aluminum covering.

VOLUME 300-500-800-1000-1500 litres.

Relief valve: it eliminates the air in the hydraulic circuit.

Security valve: it intervenes when the pressure in the hydraulic circuit reach an excessive value.

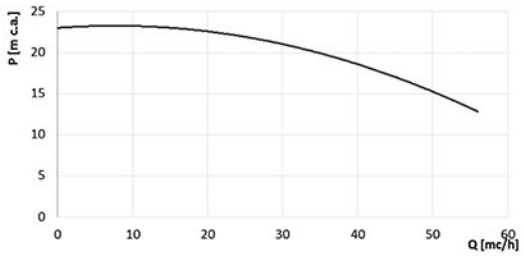
Discharge faucet

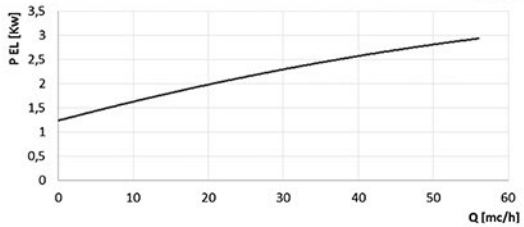
PUMP MODEL

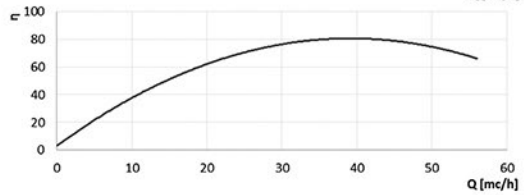
		G	H	I	L	M
ORION VR/MC HT	**Size**	**180-240**	**270-330**	**400-450**	**520-650**	**740-960**
STORAGE TANK (liter)	min max	500 1500	500 1500	800 1500	1000 1500	1000 1500
Absorbed power	kW	3,00	4,00	7,5	11,00	15,00
Absorbed current	A	6,33	7,62	14,10	20,20	26,60
Electrical supply	V/Hz/ Ph	400-50-3+N+PE				
Hydraulic connections	⌀/DN	80	100	150	150	200

PRESSURE HEAD PUMP GRAPHIC

VERSION G

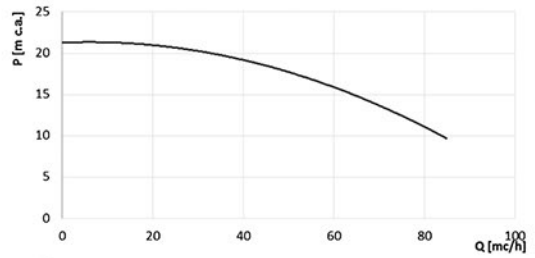


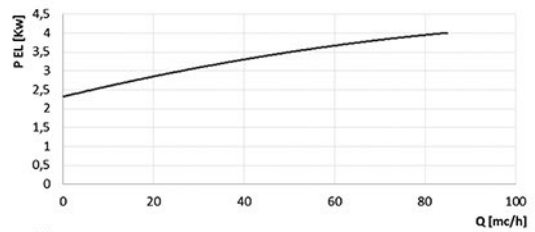


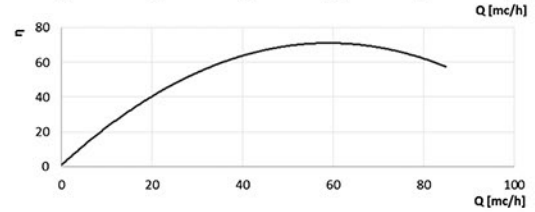


P (m c.a.)	Prevalenza (mt.colonna acq.) Head (m.water column)
Q (mc/h)	Portata acqua Water flow
P EL (kW)	Potenza elettrica ass. Absorbed power
η	Efficienza – Efficiency

VERSION H



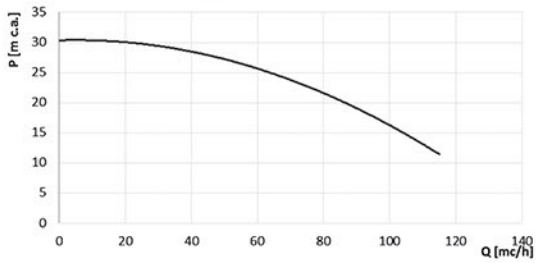


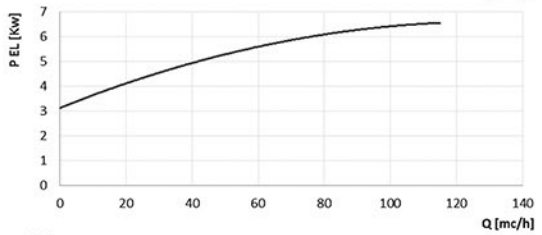


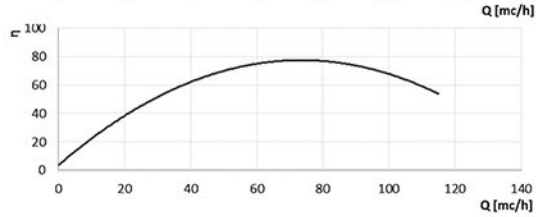
P (m c.a.)	Prevalenza (mt.colonna acq.) Head (m.water column)
Q (mc/h)	Portata acqua Water flow
P EL (kW)	Potenza elettrica ass. Absorbed power
η	Efficienza – Efficiency

PRESSURE HEAD PUMP GRAPHIC

VERSION I

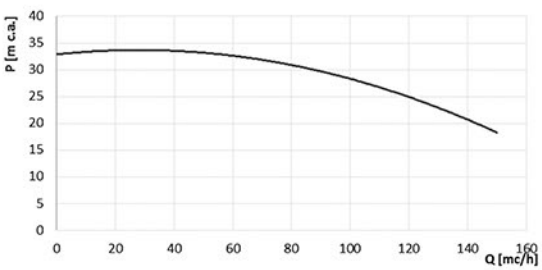


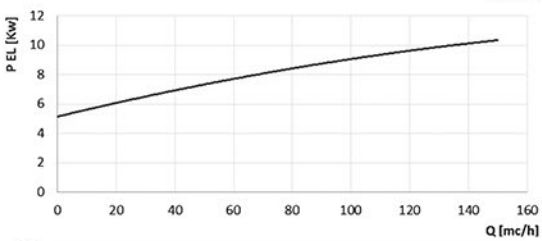


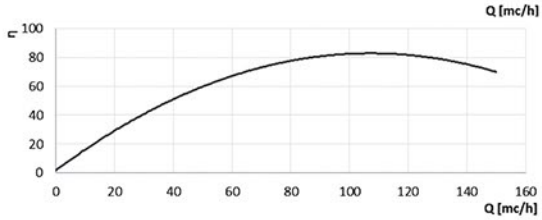


P (m c.a.)	Prevalenza (mt.colonna acq.) Head (m.water column)
Q (mc/h)	Portata acqua Water flow
P EL (kW)	Potenza elettrica ass. Absorbed power
η	Efficienza – Efficiency

VERSION L



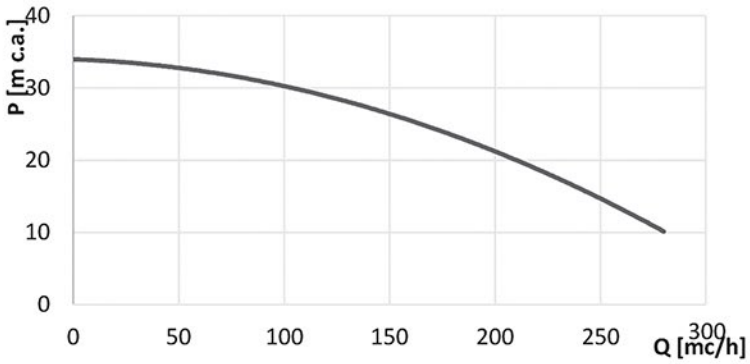




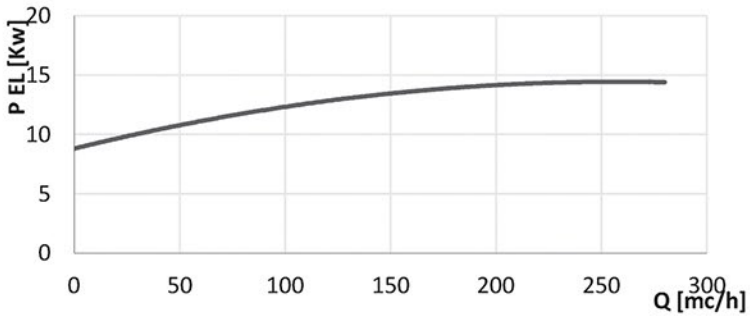
P (m c.a.)	Prevalenza (mt.colonna acq.) Head (m.water column)
Q (mc/h)	Portata acqua Water flow
P EL (kW)	Potenza elettrica ass. Absorbed power
η	Efficienza – Efficiency

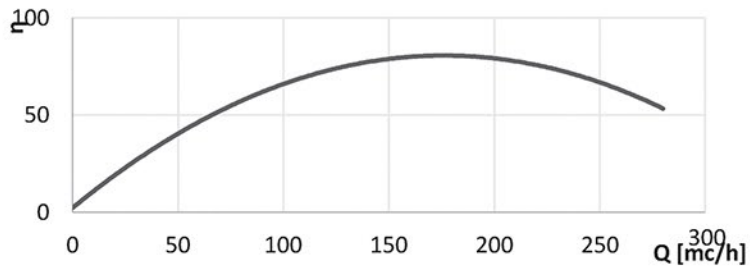
DIMENSIONAL DRAWING

VERSION M



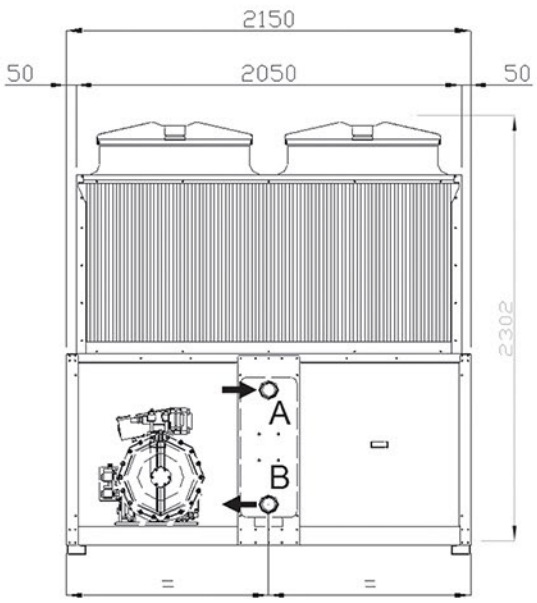
P (m c.a.)	Prevalenza (mt.colonna acq.) Head (m.water column)
Q (mc/h)	Portata acqua Water flow
P EL (kW)	Potenza elettrica ass. Absorbed power
η	Efficienza – Efficiency

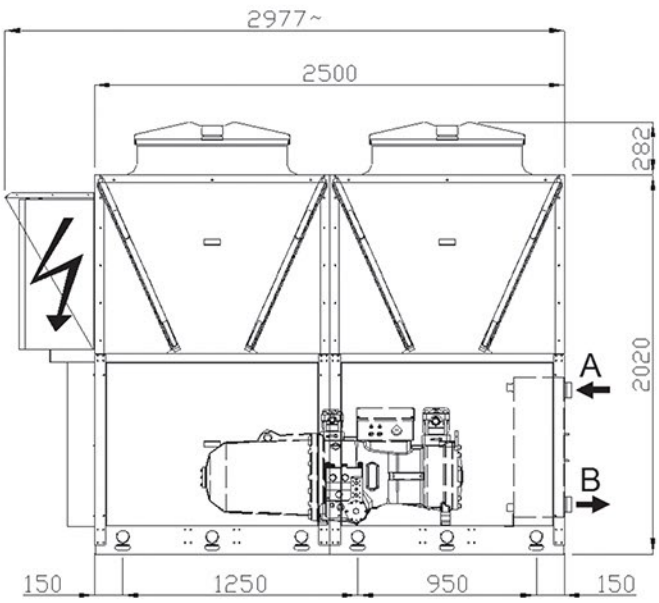




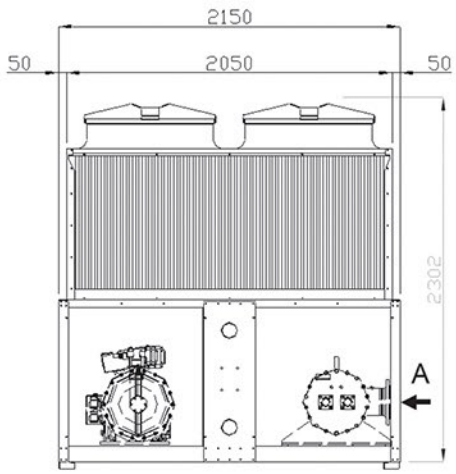
DIMENSIONAL DRAWING

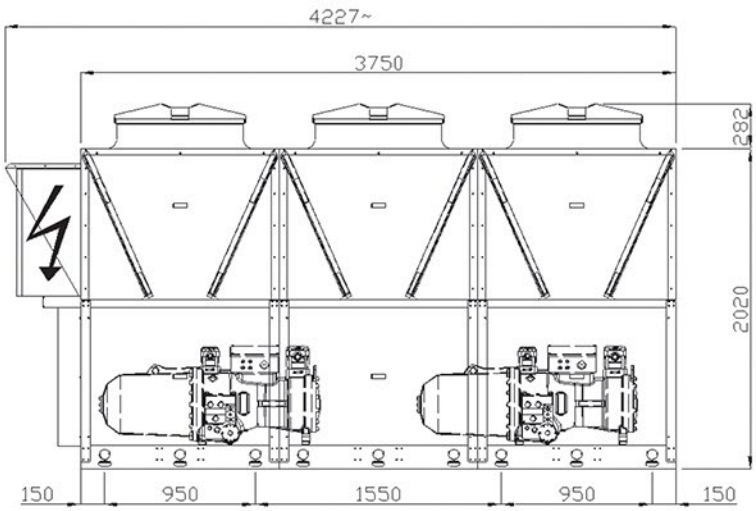
MODUL 2





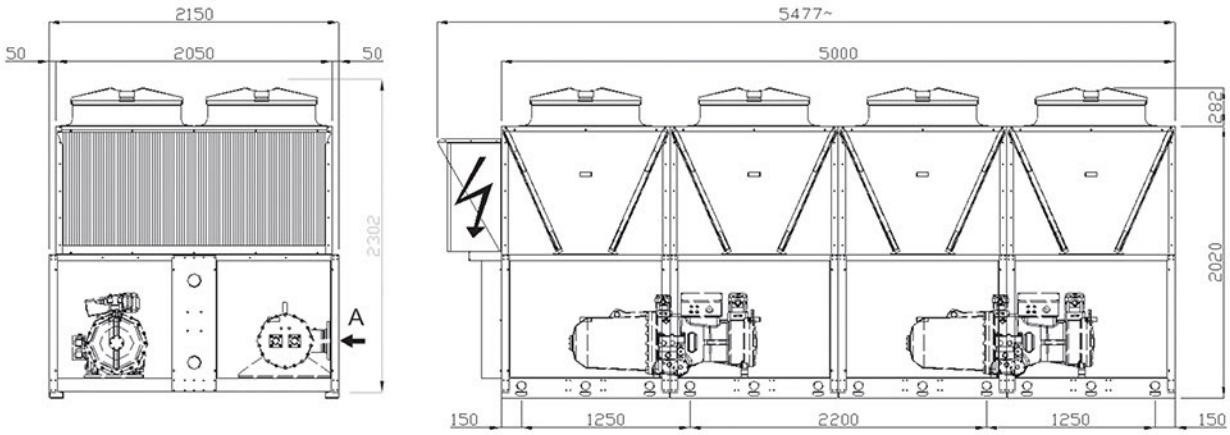
MODUL 3



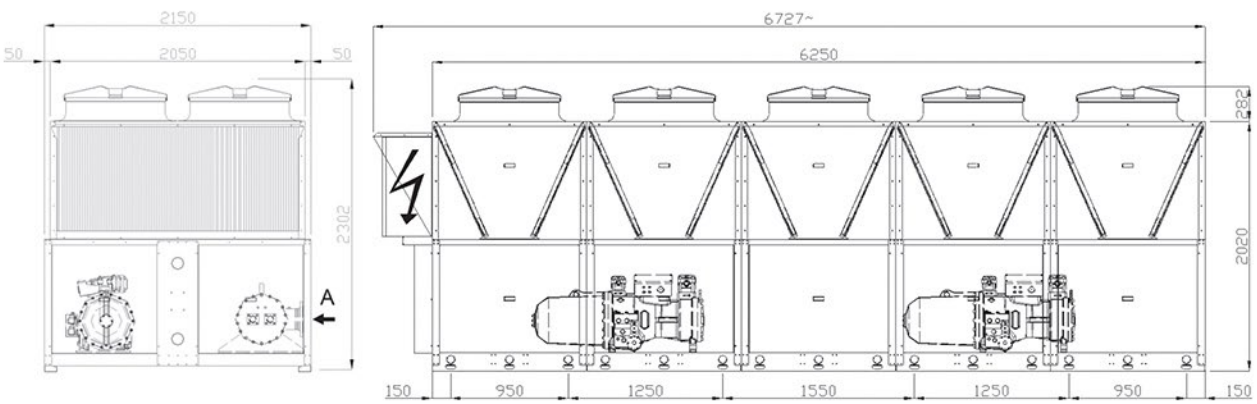


DIMENSIONAL DRAWING

MODUL 4

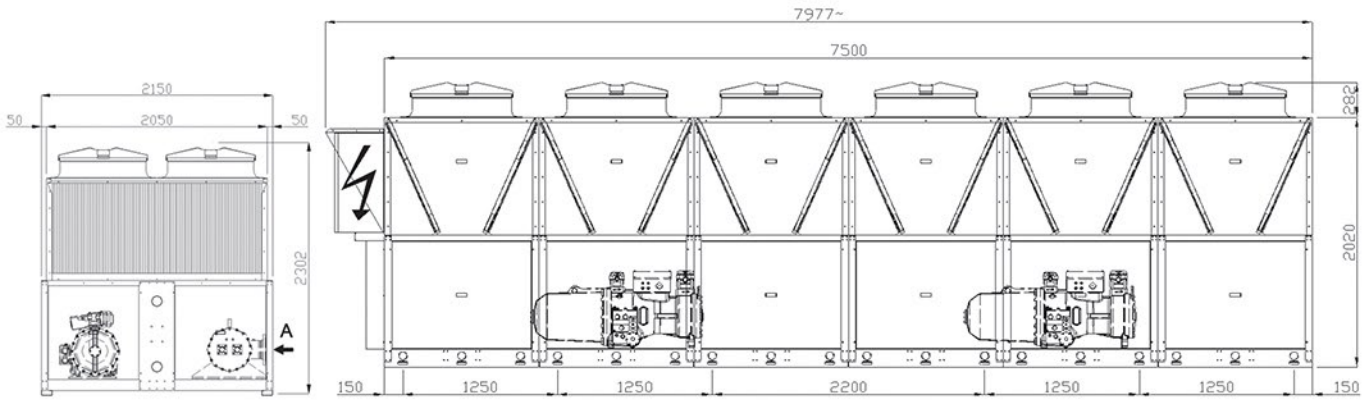


MODUL 5

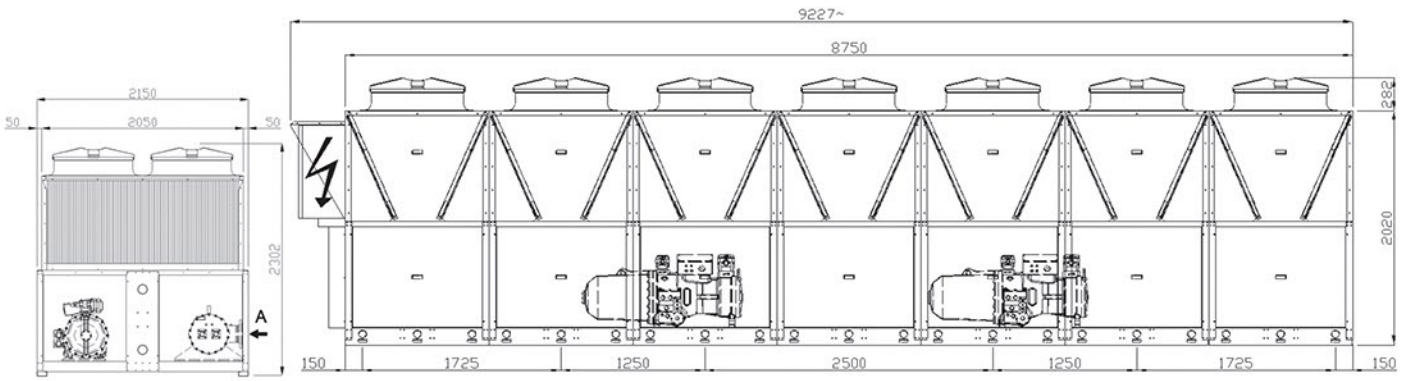


DIMENSIONAL DRAWING

MODUL 6

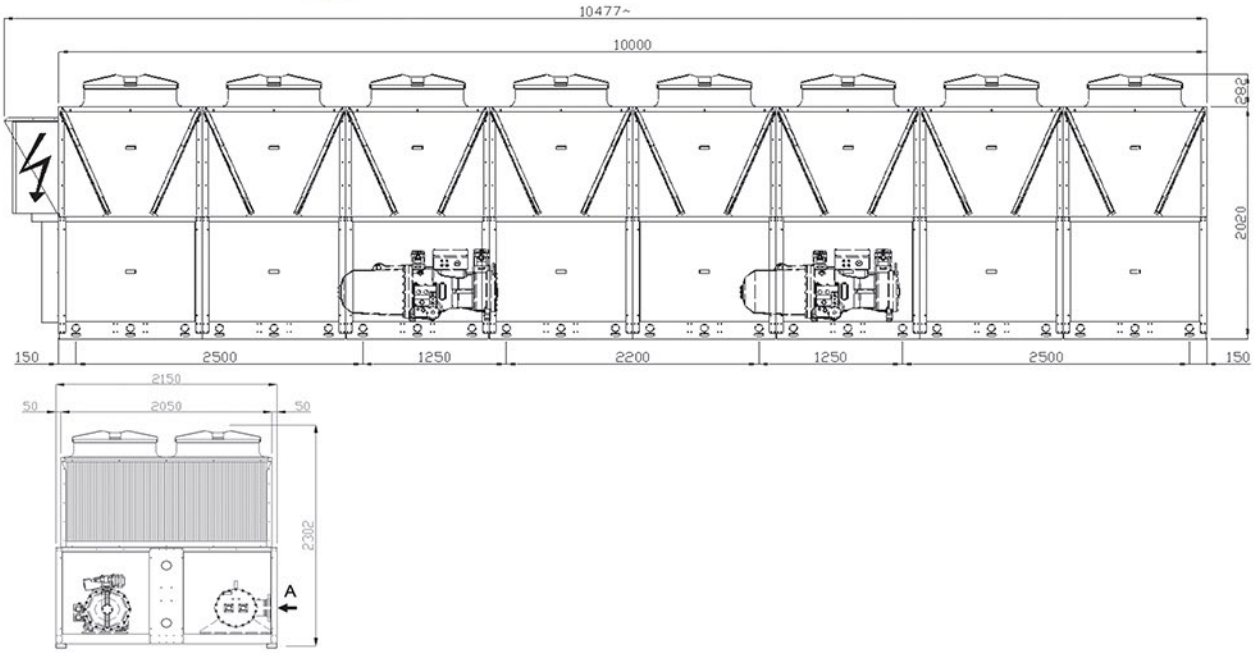


MODUL 7

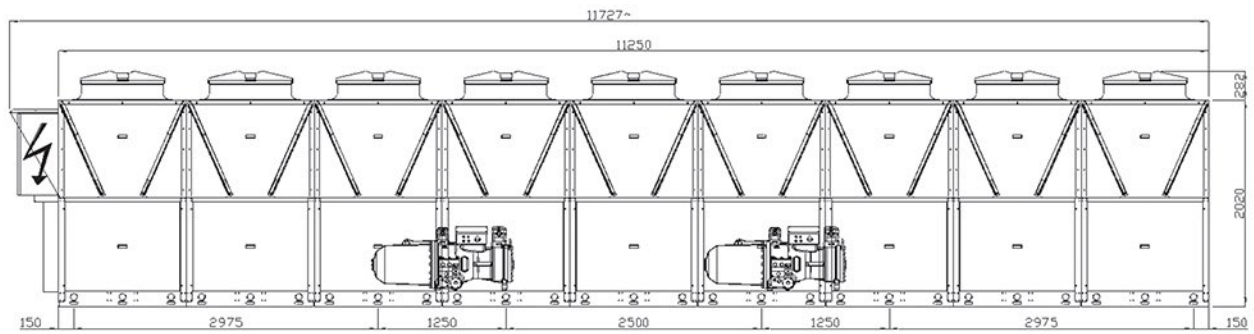


DIMENSIONAL DRAWING

MODUL 8



MODUL 9



Execution dimensions may vary according to specific operating conditions, final use application and type of operation. Dimensions listed are for units without accessories.

The technical present data in the technical bulletin are not binding. The FROST ITALY S.r.l. reserves the faculty of make in any moment all the modifications thought necessary to the improvement of the product.