

# technical catalogue

## omega v echos

172÷1555 KW

Chiller and heat pumps  
air/water



## TECHNICAL FEATURES

### OMEGA V ECHOS

Water-cooled water chillers with semi-hermetic screw compressors and shell and tube evaporators. Designed for indoor installation.

#### COMPRESSORS

Semi-hermetic single screw compressors with continuous capacity control from 50% to 100%, making it possible to maximize energy efficiency of the unit in all operating conditions. Unit starts and stops with 25% capacity control and star-delta switching of electrical windings.

Each compressor is equipped with a crankcase heater, lubrication is ensured by the pressure difference between discharge and suction; multi-compressor units are equipped with independent refrigerant circuits.

The motor features built-in electronic protection with temperature sensors located directly in the windings and on the compressor discharge line.

The compressor is installed on rubber anti-vibration mounts to minimize vibration transmission to the unit.

#### EVAPORATOR AND CONDENSER

Shell and tube jacket type with dry expansion evaporator; optimised for use with R134a refrigerant, the evaporator and condenser provide the facility to increase the unit's COP value while limiting the refrigerant charge and unit dimensions.

The evaporator is thermally insulated with closed cell expanded material and is equipped with a low water temperature probe for freeze protection.

#### REFRIGERANT CIRCUIT

Each refrigerant circuit includes: compressor delivery shut-off cock, liquid line shut-off valve, charge connection, liquid line sight glass, filter dryer, electronic thermostatic expansion valve, compressor cooling device with liquid injection, high pressure switches (the low pressure switch function is performed by the controller by means of pressure transducers), and relief valve.

#### ELECTRICAL PANEL

The electrical panel includes:

- main switch
- fuses to protect control and power circuits
- compressor contactors
- microprocessor to control the following functions:
  - water temperature regulation with measurement of outlet water temperature;
  - freeze protection;
  - compressor time intervals;
  - compressor start sequence and automatic lead/lag selection;
  - alarm signalling;
  - alarm reset;
  - common alarm contact for remote signalling;
  - forcing of capacity step control due to pressure limit;
  - storage of alarms historic data;
- display presentation of the following information:
  - outlet water temperature;
  - programmed temperature set-point and differential;
  - alarm descriptions;
  - compressor hours run meter and counter for number of starts of unit and compressors;
  - high and low pressure values and relative condensation and evaporation temperature values;
  - alarms historic data.

Electrical power supply [V/f/Hz]: 400/3~/50 ±5%.

### **CONTROLS AND SAFETY DEVICES**

- dual maximum pressure switch with manual reset;
- limited trip safety high pressure switch with automatic reset managed by controller;
- limited trip safety low pressure switch with automatic reset managed by controller;
- high pressure relief valve;
- freeze protection probe at the evaporator outlet;
- chilled water temperature probe located at evaporator outlet;
- compressor overtemperature protection;
- compressor cooling device with liquid injection;
- forcing of capacity step control due to reaching pressure limit.

### **TESTING**

The units are subjected to a dry run in the factory and supplied complete with oil and refrigerant.

## VERSIONS

### **OMEGA V ECHOS /LC: condenserless unit**

The unit is not equipped with a water-cooled condenser so that it can be connected to a remote air-cooled condenser. A liquid receiver and solenoid valve on the liquid line can be supplied as accessories. The unit is supplied without a refrigerant charge and is filled with nitrogen.

### **ACCESSORY VERSIONS**

#### **OMEGA V ECHOS/DC: unit with heat recovery condenser**

Available for all models, it allows total recovery of rejection heat.

In addition to the components of the basic OMEGA V ECHOS version, this unit includes a 100% heat recovery condenser on each refrigerant circuit for the production of hot water.

The microprocessor controls the recovery water temperature and deactivation of the heat recovery safety switch.

#### **OMEGA V ECHOS/DS: unit with desuperheaters**

Available for all models, it allows partial recovery (20%) of rejection heat.

In addition to the components featured on the basic OMEGA V ECHOS version, this unit includes a 20% heat recovery condenser on each refrigerant circuit for hot water production.

#### **OMEGA V ECHOS/LN: low noise unit**

In addition to the components featured on OMEGA V ECHOS version, this model includes sound insulating compressor cover made of a rigid outer jacket in painted galvanised sheet steel, clad internally with sound-absorbing matting with interposed layer of high-impedance sound deadening material.

#### **OMEGA V ECHOS/SLN: super low noise unit**

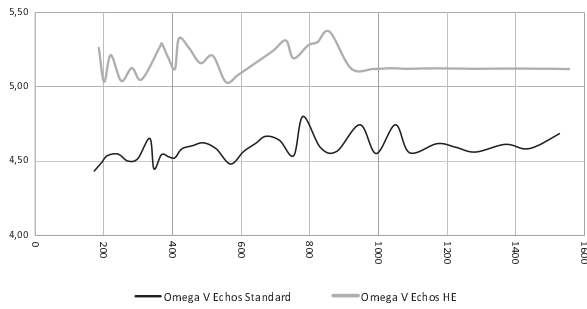
In addition to the components featured on OMEGA V ECHOS/LN, this model includes: sound insulation of compressor discharge and suction lines with lead-weighted sound-absorbing tape.

#### **OMEGA V ECHOS/HE: High Efficiency unit**

Customers are getting more and more sensitive about energy saving, and stricter rules in judge the environment impact of the industrial products brought Blue Box Group to the creation of a brand new range of High Efficiency chillers water/water. This machine is available in each version of the standard one.

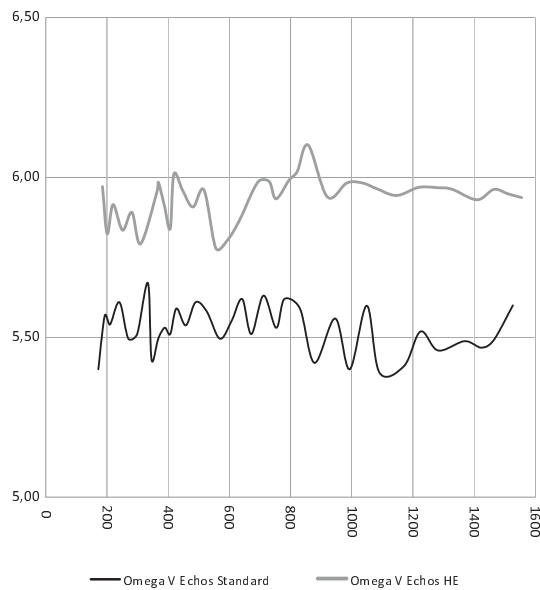
EER and ESEER are shown below and compared with the standard version. Please note that the efficiency level is high also in partial load.

## Full load EER



Cooling capacity [kW]

## ESEER



Cooling capacity [kW]

## ACCESSORIES

### REFRIGERANT CIRCUIT ACCESSORIES

- condensing pressure control valve;
- dual set point (high/low temperature) with single electronic thermostatic valve. The unit's evaporator is sized on the basis of high temperature operation. The set-point can be changed from the keypad or, when specifically requested at the time of the order, via a digital input;
- high and low pressure gauges available for all models. (Note that suction and discharge pressures are anyway measured by transducers which relay the relative signals for read-out on the controller display);
- compressor suction valves;
- liquid line solenoid valve ;
- kit for low water temperatures at the evaporator.

### ELECTRICAL ACCESSORIES

- RS 485 serial interface supporting Carel, Modbus, Echelon and Bacnet protocols; Compatible also with Trend and Johnson supervision systems;
- cos 0.9 power factor correction at nominal operating conditions;
- remote user terminal panel (in addition to the standard terminal);
- set-point modification with remote signal (0-1V, 0-10V, 0-4mA, 0-20mA);
- voltage-free contacts for unit operating status;

### MISCELLANEOUS ACCESSORIES

- Rubber anti-vibration mounts;
- Spring type anti-vibration mounts;
- Timber crate packing.

## technical data standard unit

UNIT SIZE			18.1	20.1	22.1	24.1	27.1	31.1	35.1
Nominal capacity	(1)	kW	172	193	210	241	270	299	334
Total power input for cooling	(1)	kW	39	43	46	53	60	66	72
EER	(1)		4,43	4,49	4,54	4,55	4,50	4,52	4,65
ESEER			5,40	5,57	5,54	5,61	5,50	5,51	5,67
<b>Compressors</b>									
Type							Screw		
Quantity / Circuits		n°/n°	1	1	1	1	1	1	1
Capacity steps		n°					Continue		
Total oil charge		l	14	16	16	16	15	18	20
Total refrigerant charge		kg	32	32	30	34	40	46	79
<b>Evaporator</b>									
Water flow	(1)	l/h	29.579	33.190	36.113	41.445	46.432	51.419	57.438
Pressure drop	(2)	kPa	35	51	49	44	43	52	40
<b>Condenser</b>									
Water flow	(1)	l/h	36.251	40.585	44.076	50.559	56.750	62.803	69.785
Pressure drop		kPa	29	29	32	30	33	37	38
<b>Sound level</b>									
Sound power value	(3)	dB(A)	84	84	84	87	89	91	93
Sound pressure value	(4)	dB(A)	67	67	67	70	72	74	75
Sound power value (LN version)	(3)	dB(A)	80	80	80	82	84	87	88
Sound pressure value (LN version)	(4)	dB(A)	63	63	63	65	67	70	70
Sound power value (SLN version)	(3)	dB(A)	73	73	73	76	78	80	81
Sound pressure value (SLN version)	(4)	dB(A)	56	56	56	59	61	63	63
<b>Basic unit size and weights</b>									
Length		mm	3.420	3.420	3.420	2.450	2.450	2.450	3.500
Width		mm	900	900	900	1.350	1.350	1.350	1.350
Height		mm	1.350	1.350	1.350	1.500	1.500	1.500	1.500
Operating weigh		kg	1.222	1.260	1.298	1.364	1.484	1.554	1.645

(1) Evaporator inlet/outlet water temperature 12-7 °C; condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.

## technical data standard unit

UNIT SIZE			36.2	38.2	41.2	42.1	45.2	46.2	49.2
Nominal capacity	(1)	kW	346	368	389	407	427	458	490
Total power input for cooling	(1)	kW	78	81	86	90	93	100	106
EER	(1)		4,45	4,54	4,53	4,52	4,58	4,60	4,62
ESEER			5,43	5,50	5,53	5,51	5,59	5,54	5,61
<b>Compressors</b>									
Type							Screw		
Quantity / Circuits		n°/n°	2	2	2	1	2	2	2
Capacity steps		n°				Continue			
Total oil charge		l	28	30	32	20	32	32	32
Total refrigerant charge		kg	62	62	62	74	60	60	71
<b>Evaporator</b>									
Water flow	(1)	l/h	59.501	63.285	66.896	69.991	73.431	78.762	84.265
Pressure drop	(2)	kPa	48	43	47	47	52	38	42
<b>Condenser</b>									
Water flow	(1)	l/h	72.880	77.214	81.668	85.469	89.458	95.873	102.494
Pressure drop		kPa	29	29	29	31	32	33	33
<b>Sound level</b>									
Sound power value	(3)	dB(A)	89	87	87	97	87	87	87
Sound pressure value	(4)	dB(A)	71	69	69	79	69	69	69
Sound power value (LN version)	(3)	dB(A)	85	83	83	93	82	82	82
Sound pressure value (LN version)	(4)	dB(A)	67	65	65	75	64	64	64
Sound power value (SLN version)	(3)	dB(A)	78	76	75	86	76	76	76
Sound pressure value (SLN version)	(4)	dB(A)	60	58	57	68	58	58	58
<b>Basic unit size and weights</b>									
Length		mm	3.500	3.500	3.500	3.530	3.500	3.500	3.500
Width		mm	1.350	1.350	1.350	1.350	1.350	1.350	1.350
Height		mm	1.650	1.650	1.650	1.500	1.650	1.800	1.800
Operating weigh		kg	2.167	2.205	2.251	1.792	2.335	2.417	2.462

(1) Evaporator inlet/outlet water temperature 12-7 °C; condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

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## technical data standard unit

UNIT SIZE			53.2	57.2	62.2	65.2	69.2	72.2	76.2
Nominal capacity	(1)	kW	527	569	607	642	672	712	753
Total power input for cooling	(1)	kW	115	127	133	139	144	154	166
EER	(1)		4,58	4,48	4,56	4,62	4,67	4,64	4,54
ESEER			5,58	5,50	5,55	5,62	5,51	5,63	5,53
<b>Compressors</b>									
Type							Screw		
Quantity / Circuits		n°/n°	2	2	2	2	2	2	2
Capacity steps		n°					Continue		
Total oil charge		l	30	33	36	38	40	43	46
Total refrigerant charge		kg	81	83	76	129	160	142	146
<b>Evaporator</b>									
Water flow	(1)	l/h	90.628	97.850	104.385	110.404	115.563	122.442	129.493
Pressure drop	(2)	kPa	43	55	60	37	39	36	40
<b>Condenser</b>									
Water flow	(1)	l/h	110.404	119.690	127.257	134.308	140.327	148.839	158.040
Pressure drop		kPa	32	33	33	33	38	33	32
<b>Sound level</b>									
Sound power value	(3)	dB(A)	87	91	93	91	96	96	97
Sound pressure value	(4)	dB(A)	69	73	75	72	77	77	78
Sound power value (LN version)	(3)	dB(A)	82	87	88	87	91	92	92
Sound pressure value (LN version)	(4)	dB(A)	64	69	70	68	72	73	73
Sound power value (SLN version)	(3)	dB(A)	75	80	81	80	84	85	85
Sound pressure value (SLN version)	(4)	dB(A)	57	62	63	61	65	66	66
<b>Basic unit size and weights</b>									
Length		mm	3.500	3.500	3.500	3.900	3.900	3.900	3.900
Width		mm	1.350	1.350	1.350	1.350	1.350	1.350	1.350
Height		mm	1.800	1.800	1.800	1.970	1.970	2.020	2.020
Operating weigh		kg	2.704	2.799	2.868	3.086	3.046	3.234	3.295

(1) Evaporator inlet/outlet water temperature 12-7 °C, condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

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## technical data standard unit

UNIT SIZE			78.2	83.2	88.2	95.2	100.2	105.2	110.2
Nominal capacity	(1)	kW	780	831	878	946	993	1049	1091
Total power input for cooling	(1)	kW	163	181	192	199	218	221	239
EER	(1)		4,80	4,59	4,57	4,74	4,55	4,74	4,56
ESEER			5,62	5,59	5,42	5,56	5,40	5,60	5,39
<b>Compressors</b>									
Type						Screw			
Quantity / Circuits		n°/n°	2	2	2	2	2	2	2
Capacity steps		n°	Continue						
Total oil charge		l	40	51	56	56	56	56	20
Total refrigerant charge		kg	160	180	190	195	203	210	79
<b>Evaporator</b>									
Water flow	(1)	l/h	142.906	151.055	162.683	170.835	180.467	187.566	57.438
Pressure drop	(2)	kPa	46	48	54	66	71	42	40
<b>Condenser</b>									
Water flow	(1)	l/h	174.033	184.141	196.973	208.376	218.506	228.735	69.785
Pressure drop		kPa	31	51	54	54	55	51	38
<b>Sound level</b>									
Sound power value	(3)	dB(A)	100	100	100	100	100	100	93
Sound pressure value	(4)	dB(A)	81	81	81	81	81	80	75
Sound power value (LN version)	(3)	dB(A)	95	95	95	95	95	96	88
Sound pressure value (LN version)	(4)	dB(A)	76	76	76	76	76	76	70
Sound power value (SLN version)	(3)	dB(A)	88	89	89	89	90	90	81
Sound pressure value (SLN version)	(4)	dB(A)	69	70	70	70	71	70	63
<b>Basic unit size and weights</b>									
Length		mm	3.900	3.900	4.700	4.700	4.700	4.700	4.700
Width		mm	1.350	1.350	1.500	1.500	1.500	1.500	1.500
Height		mm	2.020	2.020	2.100	2.100	2.100	2.100	2.200
Operating weigh		kg	3.279	3.284	3.924	4.030	4.143	4.232	4.678

(1) Evaporator inlet/outlet water temperature 12-7 °C; condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.

## technical data standard unit

UNIT SIZE			117.2	124.2	130.3	137.3	143.3	147.3	153.3
Nominal capacity	(1)	kW	1171	1225	1282	1369	1424	1464	1527
Total power input for cooling	(1)	kW	254	267	281	297	311	318	326
EER	(1)		4,62	4,59	4,56	4,61	4,58	4,60	4,68
ESEER			5,41	5,52	5,46	5,49	5,47	5,49	5,60
<b>Compressors</b>									
Type						Screw			
Quantity / Circuits		n°/n°	2	2	3	3	3	3	3
Capacity steps		n°				Continue			
Total oil charge		l	56	56	74	79	84	84	84
Total refrigerant charge		kg	220	230	225	250	270	280	290
<b>Evaporator</b>									
Water flow	(1)	l/h	201.431	210.711	220.546	235.409	244.911	251.752	262.622
Pressure drop	(2)	kPa	50	55	53	58	69	72	75
<b>Condenser</b>									
Water flow	(1)	l/h	245.059	256.592	268.904	286.450	298.359	306.438	318.684
Pressure drop		kPa	54	57	50	50	54	54	54
<b>Sound level</b>									
Sound power value	(3)	dB(A)	101	101	101	101	101	101	101
Sound pressure value	(4)	dB(A)	81	81	81	81	81	81	81
Sound power value (LN version)	(3)	dB(A)	96	96	96	96	96	97	97
Sound pressure value (LN version)	(4)	dB(A)	76	76	76	76	76	77	77
Sound power value (SLN version)	(3)	dB(A)	90	91	91	91	91	91	91
Sound pressure value (SLN version)	(4)	dB(A)	70	71	71	71	71	71	71
<b>Basic unit size and weights</b>									
Length		mm	4.700	4.700	4.900	4.900	4.900	4.900	4.900
Width		mm	1.500	1.500	2.000	2.000	2.000	2.000	2.000
Height		mm	2.200	2.200	2.300	2.300	2.300	2.300	2.300
Operating weigh		kg	4.708	4.738	6.192	6.297	6.402	6.492	6.581

(1) Evaporator inlet/outlet water temperature 12-7 °C, condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.

## Omega V Echos /HE - technical data

UNIT SIZE			18.1	20.1	22.1	24.1	27.1	31.1	35.1
Nominal capacity	(1)	kW	185	201	220	251	282	310	364
Total power input for cooling	(1)	kW	35	40	42	50	55	61	69
EER	(1)		5,26	5,03	5,21	5,04	5,13	5,05	5,27
ESEER			5,97	5,82	5,91	5,84	5,89	5,79	5,96
<b>Compressors</b>									
Type							Vite		
Quantity / Circuits		n°/n°	1	1	1	1	1	1	1
Capacity steps		n°					Continua		
Total oil charge		l	14	16	16	16	15	18	20
Total refrigerant charge		kg	35	35	33	37	44	51	87
<b>Evaporator</b>									
Water flow	(1)	l/h	31.860	34.529	37.863	43.128	48.443	53.368	62.592
Pressure drop	(2)	kPa	67	59	59	50	60	52	57
<b>Condenser</b>									
Water flow	(1)	l/h	37.913	41.390	45.137	51.692	57.884	63.927	74.475
Pressure drop		kPa	13	14	7	22	11	11	18
<b>Sound level</b>									
Sound power value	(3)	dB(A)	84	84	84	87	89	91	93
Sound pressure value	(4)	dB(A)	67	67	67	70	72	74	75
Sound power value (LN version)	(3)	dB(A)	80	80	80	82	84	87	88
Sound pressure value (LN version)	(4)	dB(A)	63	63	63	65	67	70	70
Sound power value (SLN version)	(3)	dB(A)	73	73	73	76	78	80	81
Sound pressure value (SLN version)	(4)	dB(A)	56	56	56	59	61	63	63
<b>Basic unit size and weights</b>									
Length		mm	3.420	3.420	3.420	2.450	2.450	2.450	3.500
Width		mm	900	900	900	1.350	1.350	1.350	1.350
Height		mm	1.350	1.350	1.350	1.500	1.500	1.500	1.500
Operating weigh		kg	1.222	1.260	1.298	1.364	1.484	1.554	1.645

(1) Evaporator inlet/outlet water temperature 12-7 °C, condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.

## Omega V Echos /HE - technical data

UNIT SIZE			36.2	38.2	41.2	42.1	45.2	46.2	49.2
Nominal capacity	(1)	kW	368	388	407	419	448	481	517
Total power input for cooling	(1)	kW	70	75	80	79	85	93	99
EER	(1)		5,28	5,19	5,11	5,33	5,27	5,15	5,20
ESEER			5,98	5,91	5,84	6,01	5,96	5,91	5,96
<b>Compressors</b>									
Type							Vite		
Quantity / Circuits		n°/n°	2	2	2	1	2	2	2
Capacity steps		n°				Continua			
Total oil charge		l	28	30	32	20	32	32	32
Total refrigerant charge		kg	68	68	68	81	66	66	78
<b>Evaporator</b>									
Water flow	(1)	l/h	63.354	66.711	70.001	71.991	77.007	82.784	88.967
Pressure drop	(2)	kPa	58	66	57	56	65	49	55
<b>Condenser</b>									
Water flow	(1)	l/h	75.357	79.574	83.689	85.508	91.625	98.846	106.061
Pressure drop		kPa	7	8	12	24	9	18	18
<b>Sound level</b>									
Sound power value	(3)	dB(A)	89	87	87	97	87	87	87
Sound pressure value	(4)	dB(A)	71	69	69	79	69	69	69
Sound power value (LN version)	(3)	dB(A)	85	83	83	93	82	82	82
Sound pressure value (LN version)	(4)	dB(A)	67	65	65	75	64	64	64
Sound power value (SLN version)	(3)	dB(A)	78	76	75	86	76	76	76
Sound pressure value (SLN version)	(4)	dB(A)	60	58	57	68	58	58	58
<b>Basic unit size and weights</b>									
Length		mm	3.500	3.500	3.500	3.530	3.500	3.500	3.500
Width		mm	1.350	1.350	1.350	1.350	1.350	1.350	1.350
Height		mm	1.650	1.650	1.650	1.500	1.650	1.800	1.800
Operating weigh		kg	2.167	2.205	2.251	1.792	2.335	2.417	2.462

(1) Evaporator inlet/outlet water temperature 12-7 °C, condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.

## Omega V Echos /HE - technical data

UNIT SIZE			53.2	57.2	62.2	65.2	69.2	72.2	76.2
Nominal capacity	(1)	kW	556	591	632	692	730	753	795
Total power input for cooling	(1)	kW	110	116	123	132	137	145	151
EER	(1)		5,03	5,08	5,15	5,24	5,31	5,19	5,27
ESEER			5,78	5,80	5,86	5,98	5,99	5,93	5,99
<b>Compressors</b>									
Type							Vite		
Quantity / Circuits		n°/n°	2	2	2	2	2	2	2
Capacity steps		n°					Continua		
Total oil charge		l	30	33	36	38	40	43	46
Total refrigerant charge		kg	89	91	84	142	176	156	161
<b>Evaporator</b>									
Water flow	(1)	l/h	95.561	101.662	108.694	119.077	125.584	129.444	136.767
Pressure drop	(2)	kPa	56	62	68	52	56	45	48
<b>Condenser</b>									
Water flow	(1)	l/h	114.546	121.679	129.812	141.794	149.212	154.397	162.700
Pressure drop		kPa	12	10	10	18	16	23	25
<b>Sound level</b>									
Sound power value	(3)	dB(A)	87	91	93	91	96	96	97
Sound pressure value	(4)	dB(A)	69	73	75	72	77	77	78
Sound power value (LN version)	(3)	dB(A)	82	87	88	87	91	92	92
Sound pressure value (LN version)	(4)	dB(A)	64	69	70	68	72	73	73
Sound power value (SLN version)	(3)	dB(A)	75	80	81	80	84	85	85
Sound pressure value (SLN version)	(4)	dB(A)	57	62	63	61	65	66	66
<b>Basic unit size and weights</b>									
Length		mm	3.500	3.500	3.500	3.900	3.900	3.900	3.900
Width		mm	1.350	1.350	1.350	1.350	1.350	1.350	1.350
Height		mm	1.800	1.800	1.800	1.970	1.970	2.020	2.020
Operating weigh		kg	2.704	2.799	2.868	3.086	3.046	3.234	3.295

(1) Evaporator inlet/outlet water temperature 12-7 °C; condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.

## Omega V Echos /HE - technical data

UNIT SIZE			78.2	83.2	88.2	95.2	100.2	105.2	110.2
Nominal capacity	(1)	kW	822	858	921	985	1037	1084	1147
Total power input for cooling	(1)	kW	155	160	180	192	202	212	224
EER	(1)		5,29	5,37	5,12	5,12	5,12	5,12	5,12
ESEER			6,02	6,10	5,94	5,98	5,98	5,96	5,94
<b>Compressors</b>									
Type						Vite			
Quantity / Circuits		n°/n°	2	2	2	1	2	2	2
Capacity steps		n°	Continua						
Total oil charge		l	43	40	51	56	56	56	56
Total refrigerant charge		kg	172	176	198	209	215	223	231
<b>Evaporator</b>									
Water flow	(1)	l/h	141.402	147.521	158.320	169.449	178.248	186.346	197.253
Pressure drop	(2)	kPa	50	53	57	64	53	57	49
<b>Condenser</b>									
Water flow	(1)	l/h	168.109	175.002	189.240	202.536	213.038	222.734	235.774
Pressure drop		kPa	29	33	29	27	26	24	33
<b>Sound level</b>									
Sound power value	(3)	dB(A)	98	100	100	100	100	100	100
Sound pressure value	(4)	dB(A)	79	81	81	81	81	81	80
Sound power value (LN version)	(3)	dB(A)	93	95	95	95	95	95	96
Sound pressure value (LN version)	(4)	dB(A)	74	76	76	76	76	76	76
Sound power value (SLN version)	(3)	dB(A)	86	88	89	89	89	90	90
Sound pressure value (SLN version)	(4)	dB(A)	67	69	70	70	70	71	70
<b>Basic unit size and weights</b>									
Length		mm	3.900	3.900	4.700	4.700	4.700	4.700	4.700
Width		mm	1.350	1.350	1.500	1.500	1.500	1.500	1.500
Height		mm	2.020	2.020	2.100	2.100	2.100	2.100	2.200
Operating weigh		kg	3.279	3.284	3.924	4.030	4.143	4.232	4.678

(1) Evaporator inlet/outlet water temperature 12-7 °C, condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.

## Omega V Echos /HE - technical data

UNIT SIZE			117.2	124.2	130.3	137.3	143.3	147.3	153.3
Nominal capacity	(1)	kW	1219	1281	1328	1410	1464	1510	1555
Total power input for cooling	(1)	kW	238	250	263	276	286	295	304
EER	(1)		5,12	5,12	5,06	5,12	5,12	5,12	5,12
ESEER			5,97	5,97	5,96	5,93	5,96	5,95	5,94
<b>Compressors</b>									
Type							Vite		
Quantity / Circuits		n°/n°	2	2	2	2	2	2	2
Capacity steps		n°					Continua		
Total oil charge		l	56	56	74	79	84	84	84
Total refrigerant charge		kg	242	253	248	275	297	308	319
<b>Evaporator</b>									
Water flow	(1)	l/h	209.657	220.213	228.421	242.416	251.844	259.664	267.484
Pressure drop	(2)	kPa	59	64	57	70	42	58	61
<b>Condenser</b>									
Water flow	(1)	l/h	250.620	263.240	273.580	289.793	301.061	310.412	319.762
Pressure drop		kPa	34	35	36	43	24	33	29
<b>Sound level</b>									
Sound power value	(3)	dB(A)	101	101	101	101	101	101	101
Sound pressure value	(4)	dB(A)	81	81	81	81	81	81	81
Sound power value (LN version)	(3)	dB(A)	96	96	96	96	96	97	97
Sound pressure value (LN version)	(4)	dB(A)	76	76	76	76	76	77	77
Sound power value (SLN version)	(3)	dB(A)	90	91	91	91	91	91	91
Sound pressure value (SLN version)	(4)	dB(A)	70	71	71	71	71	71	71
<b>Basic unit size and weights</b>									
Length		mm	4.700	4.700	4.900	4.900	4.900	4.900	4.900
Width		mm	1.500	1.500	2.000	2.000	2.000	2.000	2.000
Height		mm	2.200	2.200	2.300	2.300	2.300	2.300	2.300
Operating weigh		kg	4.708	4.738	6.192	6.297	6.402	6.492	6.581

(1) Evaporator inlet/outlet water temperature 12-7 °C, condenser inlet/outlet water temperature 30-35 °C

(2) Evaporator inlet/outlet water temperature 12-7 °C

(3) Calculated according to ISO 3744; nominal working conditions.

(4) Sound pressure values measured at 10 meters distance from the unit in free field and at nominal working conditions, in compliance with ISO 3744.

This datasheet gives the characteristic data of the basic and standard versions of the series; for details refer to the specific documentation.



## electrical data standard unit

UNIT SIZE			18.1	20.1	22.1	24.1	27.1
Maximum absorbed power	(1)	kW	63	72	78	89	100
Full load current	(3)	A	104	118	127	146	164
Maximum starting current	(4)	A	167	208	208	240	230
Power supply		V/ph/Hz			400/3~/50		
Control power supply		V/ph/Hz			230/1~/50		

UNIT SIZE			31.1	35.1	36.2	38.2	41.2
Maximum absorbed power	(1)	kW	112	123	126	135	144
Full load current	(3)	A	183	202	207	222	236
Maximum starting current	(4)	A	282	282	271	312	326
Power supply		V/ph/Hz			400/3~/50		
Control power supply		V/ph/Hz			230/1~/50		

UNIT SIZE			42.1	45.2	46.2	49.2	53.2
Maximum absorbed power	(1)	kW	140	155	166	178	200
Full load current	(3)	A	229	254	273	291	327
Maximum starting current	(4)	A	305	335	367	386	394
Power supply		V/ph/Hz			400/3~/50		
Control power supply		V/ph/Hz			230/1~/50		

UNIT SIZE			57.2	62.2	65.2	69.2	72.2
Maximum absorbed power	(1)	kW	212	224	235	246	256
Full load current	(3)	A	347	367	385	403	419
Maximum starting current	(4)	A	446	465	465	484	507
Power supply		V/ph/Hz			400/3~/50		
Control power supply		V/ph/Hz			230/1~/50		

(1) Mains power supply to allow unit operation

(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit)

(3) Maximum starting current calculated considering the bigger size compressor starting current plus the maximum absorbed power of the other electrical devices (pumps, fans)

## electrical data standard unit

UNIT SIZE			76.2	78.2	83.2	88.2	95.2
Maximum absorbed power	(1)	kW	265	272	279	315	339
Full load current	(3)	A	435	447	458	517	557
Maximum starting current	(4)	A	523	523	534	706	745
Power supply		V/ph/Hz			400/3~/50		
Control power supply		V/ph/Hz			230/1~/50		

UNIT SIZE			100.2	105.2	110.2	117.2	124.2
Maximum absorbed power	(1)	kW	358	376	393	415	437
Full load current	(3)	A	587	617	644	681	717
Maximum starting current	(4)	A	776	807	867	1.015	1.052
Power supply		V/ph/Hz			400/3~/50		
Control power supply		V/ph/Hz			230/1~/50		

UNIT SIZE			130.3	137.3	143.3	147.3	153.3
Maximum absorbed power	(1)	kW	460	485	509	527	546
Full load current	(3)	A	755	795	835	865	896
Maximum starting current	(4)	A	944	984	1.024	1.055	1.085
Power supply		V/ph/Hz			400/3~/50		
Control power supply		V/ph/Hz			230/1~/50		

(1) Mains power supply to allow unit operation

(2) Maximum current before safety cut-outs stop the unit. This value is never exceeded and must be used to size the electrical supply cables and relevant safety devices (refer to electrical wiring diagram supplied with the unit)

(3) Maximum starting current calculated considering the bigger size compressor starting current plus the maximum absorbed power of the other electrical devices (pumps, fans)

## Omega V Echos /HE - electrical data

UNIT SIZE			18.1	20.1	22.1	24.1	27.1
Maximum absorbed power	(1)	kW	63	72	78	89	100
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Maximum starting current	(4)	A	167	208	208	240	230
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Control power supply		V/ph/Hz			230/1~/50		

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Power supply		V/ph/Hz			400/3~/50		
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Power supply		V/ph/Hz			400/3~/50		
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