

Water chiller

WSH-XEE2: cooling only
 WSHN-XEE2: reversible heat pump
 Water cooled
 Indoor installation
Capacity from 29,2 to 356 kW



ELFOEnergy Ground Medium²

ELFOEnergy Ground Medium² are water cooled water chillers and heat pumps for indoor installation, ideal for multi-family and commercial buildings.

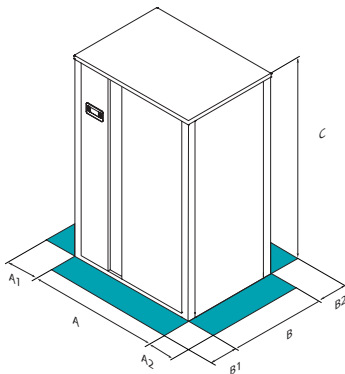
The main features are:

- ▶ **HIGH SEASONALEFFICIENCY** - The combination of different size compressors allows to gain more control steps, to provide the energy actually required by the system, to reduce the consumption and to achieve the high seasonal efficiency. The unit reaches the Eurovent Class A heating and cooling for use with underfloor heating.
- ▶ **VERSION GROUND WATER OR GEOTHERMAL** - The use of heat exchangers for specific applications with ground water or geothermal closed loop maximize the energy efficiency.
- ▶ **PREASSEMBLED UNIT** - All major components are provided on the unit, ensuring maximum reliability and ease of installation.
- ▶ **MODULARITY AND MANAGEMENT OF MORE UNITS IN CASCADE** - The compact construction allows to combine multiple units in confined spaces, realizing a high power system. The control allows to coordinate up to 7 units managing automatically the operation with maximum efficiency.

functions and features



dimensions and clearances



Size – WSH-XEE2		10.2	12.2	14.2	16.2	19.2	22.2	27.2	30.2	35.2	40.2	43.2	45.2	50.2	55.2	60.2	70.2	80.2	90.2	110.2	120.2	
A - Length	mm	837	837	837	837	837	837	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110
B - Width	mm	607	607	607	607	607	607	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040
C - Height	mm	1481	1481	1481	1481	1481	1481	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907
A1	mm	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
A2	mm	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B1	mm	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
B2	mm	300	300	300	300	300	300	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Operating weight	kg	260	260	277	328	355	361	471	476	580	631	710	675	792	814	863	932	990	1075	1410	1533	

Size – WSHN-XEE2		10.2	12.2	14.2	16.2	19.2	22.2	27.2	30.2	35.2	40.2	43.2	45.2	50.2	55.2	60.2	70.2	80.2	90.2	110.2	120.2	
A - Length	mm	837	837	837	837	837	837	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110	1110
B - Width	mm	607	607	607	607	607	607	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040	1040
C - Height	mm	1481	1481	1481	1481	1481	1481	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907	1907
A1	mm	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
A2	mm	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
B1	mm	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
B2	mm	300	300	300	300	300	300	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350
Operating weight	kg	279	279	286	356	377	383	501	506	592	670	749	687	838	861	878	995	1006	1106	1504	1666	

The above mentioned data are referred to standard units for the constructive configurations indicated. For all the other configurations, refer to the relative Technical Bulletin.

CAUTION! For trouble-free operation of the unit it is essential to maintain the safety distances indicated by the green areas.

versions and configurations

VERSION:

- ▶ **GW** Groundwater version (Standard)
- ▶ **GE0** Version for Geothermal application

ENERGY RECOVERY:

- ▶ - Energy recovery: not required (Standard)
- ▶ **D** Partial energy recovery (sizes 10.2÷90.2)

OPERATION (WSH-XEE2 ONLY):

- ▶ **OCO** Cooling-only operation (Standard)
- ▶ **OHO** Heating-only operation
- ▶ **OHI** Operation with water circuit change-over

technical data

Size – WSH-XEE2			10.2	12.2	14.2	16.2	19.2	22.2	27.2	30.2	35.2	40.2	43.2	45.2	50.2	55.2	60.2	70.2	80.2	90.2	100.2	120.2
▶ Cooling capacity (EN14511:2013)	(1)	kW	30,8	35,4	42,7	49,6	59,1	68,4	83,8	94,4	109	123	135	147	159	172	197	221	249	280	305	356
Total power input (EN14511:2013)	(1)	kW	6,45	7,63	9,22	10,8	12,5	15,6	17,5	20,4	23,5	26,6	29,8	31,5	34,1	37,7	42,7	48,2	54,7	61,5	68,4	82,4
EER (EN 14511:2013)	(1)	-	4,77	4,64	4,63	4,61	4,72	4,39	4,80	4,63	4,62	4,63	4,53	4,65	4,68	4,58	4,60	4,59	4,55	4,56	4,46	4,32
ESEER	(1)	-	6,31	6,20	5,65	5,52	5,71	5,51	6,19	6,05	6,03	6,02	5,78	6,00	5,97	5,79	5,62	5,78	5,48	5,52	5,48	5,31
▶ Heating capacity (EN14511:2013)	(2)	kW	35,8	41,4	49,6	57,8	68,6	81,0	96,7	109	126	143	157	169	184	200	227	257	290	328	355	420
Total power input (EN14511:2013)	(2)	kW	8,27	9,79	11,6	13,5	15,7	19,2	21,8	25,3	28,9	32,8	36,7	38,7	41,9	46,5	52,4	59,2	66,7	76,6	83,4	101
COP (EN 14511:2013)	(2)	-	4,33	4,23	4,26	4,29	4,37	4,23	4,43	4,32	4,35	4,35	4,27	4,37	4,39	4,30	4,33	4,34	4,34	4,28	4,25	4,16
Refrigeration circuits	Nr		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
No. of compressors	Nr		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Type of compressors	-		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Standard power supply	V		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Max. leaving water temperature	°C		60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	-	-	-	-	-
Sound pressure level	(3)	dB(A)	44	44	45	49	49	49	49	49	58	58	60	58	60	60	61	63	63	64	64	65
Size – WSHN-XEE2			10.2	12.2	14.2	16.2	19.2	22.2	27.2	30.2	35.2	40.2	43.2	45.2	50.2	55.2	60.2	70.2	80.2	90.2	100.2	120.2
▶ Cooling capacity (EN14511:2013)	(1)	kW	29,2	34,4	40,7	48,4	57,7	67,6	82,0	91,8	102	120	131	138	155	168	187	217	240	265	292	347
Total power input (EN14511:2013)	(1)	kW	6,40	7,50	9,10	10,6	12,5	15,4	17,5	20,5	23,6	26,8	29,9	31,7	34,2	37,7	42,6	48,2	54,5	61,4	67,8	81,7
EER (EN 14511:2013)	(1)	-	4,57	4,58	4,47	4,56	4,62	4,38	4,68	4,49	4,32	4,47	4,38	4,37	4,52	4,46	4,38	4,50	4,40	4,31	4,31	4,25
ESEER	(1)	-	5,99	5,77	5,39	5,27	5,44	5,25	5,87	5,66	5,71	5,69	5,49	5,74	5,65	5,50	5,41	5,54	5,24	5,28	5,34	5,28
▶ Heating capacity (EN14511:2013)	(2)	kW	34,4	40,4	48,0	56,8	67,0	79,5	93,8	107	119	139	151	163	178	195	218	252	280	314	343	408
Total power input (EN14511:2013)	(2)	kW	8,18	9,65	11,6	13,4	15,7	19,1	21,4	24,7	28,3	32,3	36,0	38,4	41,3	45,7	51,9	58,0	65,5	75,3	82,5	100
COP (EN 14511:2013)	(2)	-	4,20	4,19	4,15	4,25	4,27	4,15	4,38	4,32	4,21	4,30	4,18	4,24	4,32	4,27	4,20	4,34	4,27	4,17	4,16	4,07
Refrigeration circuits	Nr		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
No. of compressors	Nr		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Type of compressors	-		Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll	Scroll
Standard power supply	V		400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Directive ErP (Energy Related Products)																						
ErP Energy Class - AVERAGE Climate - W35	(3)	-	A++	A++	A++	A++	A++	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ErP Energy Class - AVERAGE Climate - W55	-	-	A++	A++	A++	A++	A++	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Max. leaving water temperature	°C		60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
Sound pressure level	(3)	dB(A)	44	44	45	49	49	49	49	49	58	58	60	58	60	60	61	63	63	64	64	65

Notes

- (1) Data referred to the following conditions: Internal exchanger water = 12/7°C; External exchanger water = 30/35°C; Performance data calculated in accordance with UNI-EN14511:2013
- (2) Data referred to the following conditions: Water to internal exchanger 40/45°C; Water temperature to external exchanger 10/7 °C; Performance data calculated in accordance with UNI-EN14511:2013;
- (3) The sound levels refer to the unit at full load, in the rated test conditions. The sound pressure level refers to a distance of 1m from the external surface of the units operating in an open field. Noise levels are determined using the tensiometric method (UNI EN ISO 9614-2); Data referred to the following conditions: Entering / leaving exchanger water temperature user side 12/7°C; Entering / leaving exchanger water temperature source side 30/35°C

The Heat Pump is compliant with the ErP (Energy Related Products) European Directive. It includes the Commission delegated Regulation (EU) No 811/2013 (rated heat output ≤ 70 kW at specified reference conditions) and the Commission delegated Regulation (EU) No 813/2013 (rated heat output ≤ 400 kW at specified reference conditions)

accessories

- ▶ **SDV** Cutoff valve on compressor supply and return (sizes 10.2÷80.2)
- ▶ **MOBMAC** Larger units
- ▶ **MF2** Multi-function phase monitor
- ▶ **RCTX** Remote control
- ▶ **CMSC10** Serial communication module for LonWorks supervisor
- ▶ **CMSC8** Serial communication module for BACnet supervisor
- ▶ **CMSC9** Serial communication module for Modbus supervisor
- ▶ **CMMBX** Serial communication module to supervisor (Modbus)
- ▶ **CMSLWX** Serial communication module for LonWorks
- ▶ **BACX** Serial communication module for BACnet supervisor
- ▶ **SPCX** Set-point compensation with outdoor air temperature probe
- ▶ **IFWX** Steel mesh strainer on the water side
- ▶ **SFSTR** Disposal for inrush current reduction (sizes 10.2÷80.2)
- ▶ **PFCP** Power factor correction capacitors (cosφ > 0.9)
- ▶ **AVIBX** Anti-vibration mount support

WSH-XEE2 only:

- ▶ **VS2MC** Cooling side two-way modulating valve (sizes 10.2÷80.2)
- ▶ **VS2MCX** Cooling side two-way modulating valve
- ▶ **VS3MC** Cooling side three-way modulating valve (sizes 10.2÷80.2)
- ▶ **VS3MCX** Cooling side three-way modulating valve
- ▶ **VARYC** VARYFLOW + (cooling side 2 inverter pumps)
- ▶ **HYGC1** Cooling side hydronic unit with an on-off pump

- ▶ **HYGC2** Cooling side hydronic unit with two on-off pumps
- ▶ **VS2MH** Heating side two-way modulating valve (sizes 10.2÷80.2)
- ▶ **VS2MHX** Heating side two-way modulating valve
- ▶ **VS3MH** Heating side three-way modulating valve (sizes 10.2÷80.2)
- ▶ **VS3MHX** Heating side three-way modulating valve
- ▶ **VARYH** VARYFLOW + (heating side 2 inverter pumps)
- ▶ **HYGH1** Heating side hydronic unit with an on-off pump
- ▶ **HYGH2** Heating side hydronic unit with two on-off pumps
- ▶ **VACSHX** Heating side DHW switching valve

WSHN-XEE2 only:

- ▶ **VACSUX** User side DHW switching valve
- ▶ **VARYU** VARYFLOW + (user side 2 inverter pumps)
- ▶ **HYGU1** User side hydronic assembly with 1 ON/OFF pump
- ▶ **HYGU2** User side hydronic assembly with 2 ON/OFF pumps
- ▶ **VS2M** Source side 2-way modulating valve (sizes 10.2÷80.2)
- ▶ **VS2MX** Source side 2-way modulating valve
- ▶ **VS3M** Source side 3-way modulating valve (sizes 10.2÷80.2)
- ▶ **VS3MX** Source side 3-way modulating valve
- ▶ **VARYS** VARYFLOW + (source side 2 inverter pumps)
- ▶ **HYGS1** Source side hydronic unit with 1 ON/OFF pump
- ▶ **HYGS2** Source side hydronic unit with 2 ON/OFF pumps

Key to symbols:

- Accessories separately supplied