# WSHN-XEE2 MF

**10.2÷120.2**

**Multifunction reversible heat pump**
Water cooled
Indoor installation
**Capacity from 30 to 345 kW**

## ELFOEnergy Ground Medium² MF

*The **ELFOEnergy Ground Medium² Multifunction** heat pumps are water-condensed units for indoor installation ideal for multi-family and commercial buildings. **They can generate thermal and cooling energy simultaneously and independently**.*
*The main features are:*

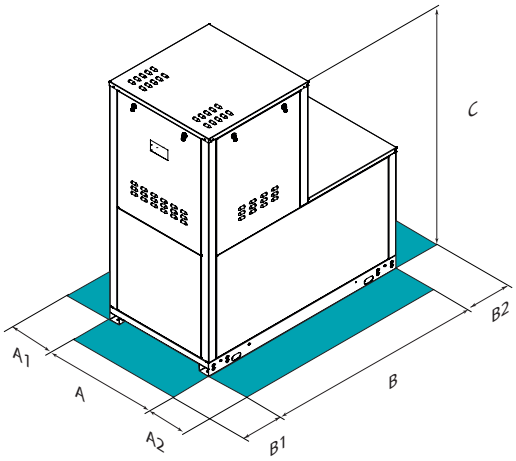
- ***HIGH SEASONAL EFFICIENCY** guaranteed by the combination of several control steps, which adapt the capacity supplied to the actual energy demand required by the system, and energy recovery, which recovers up to 100% of the capacity supplied, further increasing efficiency.*
- ***GROUNDWATER OR GEOTHERMAL WATER VERSION** - Using specific exchangers with groundwater or closed-loop geothermics allows energy efficiency to be maximised.*
- ***PRE-ASSEMBLED SYSTEM** - All the main components of the system are supplied 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.*

ErP compliant

## functions and features

Heat pump | Water cooled | Indoor installation | R-410A | Hermetic Scroll | Vary Flow

## dimensions and clearances




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

| Size – WSHN-XEE2 MF | | 10.2 | 12.2 | 14.2 | 16.2 | 19.2 | 22.2 | 27.2 | 30.2 |
|---|---|---|---|---|---|---|---|---|---|
| A - Length | mm | 900 | 900 | 900 | 900 | 900 | 900 | 900 | 900 |
| B - Width | mm | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 |
| C - Height | mm | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| A1 | mm | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| A2 | mm | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| B1 | mm | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 |
| B2 | mm | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 |
| Operating weight | kg | 403 | 403 | 400 | 471 | 491 | 497 | 550 | 555 |

| Size – WSHN-XEE2 MF | | 35.2 | 40.2 | 43.2 | 45.2 | 50.2 | 55.2 | 60.2 | 70.2 | 80.2 | 90.2 | 100.2 | 120.2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A - Length | mm | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 | 1100 |
| B - Width | mm | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 1700 | 2000 | 2000 | 2000 |
| C - Height | mm | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 | 1870 |
| A1 | mm | 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 |
| B1 | mm | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 |
| B2 | mm | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 | 700 |
| Operating weight | kg | 656 | 721 | 816 | 754 | 901 | 924 | 941 | 1045 | 1056 | 1186 | 1412 | 1539 |

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.
For further information contact our Technical Department

## versions and configurations

VERSION:
- **GW** Groundwater version (Standard)
- **GEO** Version for Geothermal application

CONFIGURATION:
- **4T** Configuration for 4-pipe system (Standard)
- **2T** Configuration for 2-pipe system

ENERGY RECOVERY:
- **R** Total energy recovery (Standard)



## technical data

| Size – WSHN-XEE2 MF | | | 10.2 | 12.2 | 14.2 | 16.2 | 19.2 | 22.2 | 27.2 | 30.2 |
|---|---|---|---|---|---|---|---|---|---|---|
| **COOLING 0% - HEATING 100%** | | | | | | | | | | |
| Heating capacity | (1) | kW | 34,3 | 40,3 | 48,0 | 56,6 | 66,8 | 79,2 | 93,7 | 106 |
| Total power input | (1) | kW | 7,72 | 9,02 | 10,7 | 12.4 | 14,5 | 17,4 | 20,3 | 23,3 |
| COP at full load | (1) | - | 4,44 | 4,47 | 4,49 | 4,56 | 4,61 | 4,55 | 4,62 | 4,57 |
| **COOLING 100% - HEATING 0%** | | | | | | | | | | |
| Cooling capacity | (2) | kW | 29,9 | 34,4 | 41,4 | 48,2 | 57,4 | 66,5 | 81,0 | 91,6 |
| Total power input | (2) | kW | 6,25 | 7,34 | 8,84 | 10,3 | 12,0 | 14,8 | 17,2 | 19,7 |
| EER at full load | (2) | - | 4,78 | 4,69 | 4,68 | 4,68 | 4,78 | 4,49 | 4,73 | 4,65 |
| **COOLING 100% - HEATING 100%** | | | | | | | | | | |
| Cooling capacity | (3) | kW | 27,2 | 31,3 | 37,4 | 43,9 | 52,1 | 61,2 | 73,8 | 83,0 |
| Heating capacity | (3) | kW | 35,0 | 40,4 | 48,3 | 56,4 | 66,7 | 78,8 | 94,4 | 107 |
| Total power input | (3) | kW | 7,75 | 9,12 | 10,9 | 12,5 | 14,6 | 17,6 | 20,6 | 23,8 |
| Overall efficiency | (4) | - | 8,03 | 7,86 | 7,86 | 8,02 | 8,14 | 7,95 | 8,16 | 7,98 |
| Refrigeration circuits | | Nr | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| No. of compressors | | Nr | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Type of compressors | | - | 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 |
| Sound pressure level | (5) | dB(A) | 44 | 44 | 45 | 49 | 49 | 49 | 49 | 49 |
| **Directive ErP (Energy Related Products)** | | | | | | | | | | |
| ErP Energy Class - AVERAGE Climate - W35 | | - | A++ | A++ | A++ | A++ | A++ | - | - | - |
| ErP Energy Class - AVERAGE Climate - W55 | | - | A++ | A++ | A++ | A++ | A++ | - | - | - |

| Size – WSHN-XEE2 MF | | | 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 0% - HEATING 100%** | | | | | | | | | | | | | | |
| Heating capacity | (1) | kW | 119 | 139 | 152 | 163 | 179 | 195 | 218 | 252 | 279 | 314 | 343 | 408 |
| Total power input | (1) | kW | 26,8 | 30,7 | 34,1 | 36,3 | 39,2 | 43,3 | 48,9 | 54,9 | 61,5 | 71,1 | 79,6 | 96,2 |
| COP at full load | (1) | - | 4,46 | 4,51 | 4,44 | 4,48 | 4,56 | 4,50 | 4,45 | 4,59 | 4,53 | 4,42 | 4,31 | 4,25 |
| **COOLING 100% - HEATING 0%** | | | | | | | | | | | | | | |
| Cooling capacity | (2) | kW | 105 | 120 | 131 | 142 | 155 | 167 | 190 | 215 | 242 | 271 | 296 | 345 |
| Total power input | (2) | kW | 22,9 | 26,0 | 29,0 | 30,7 | 33,3 | 36,8 | 41,5 | 47,0 | 53,3 | 60,1 | 68,1 | 81,8 |
| EER at full load | (2) | - | 4,60 | 4,61 | 4,53 | 4,63 | 4,64 | 4,54 | 4,59 | 4,56 | 4,53 | 4,52 | 4,34 | 4,22 |
| **COOLING 100% - HEATING 100%** | | | | | | | | | | | | | | |
| Cooling capacity | (3) | kW | 95,0 | 108 | 118 | 128 | 140 | 151 | 174 | 195 | 219 | 248 | 267 | 314 |
| Heating capacity | (3) | kW | 123 | 139 | 153 | 165 | 179 | 195 | 223 | 251 | 282 | 321 | 347 | 411 |
| Total power input | (3) | kW | 27,3 | 31,1 | 34,5 | 36,7 | 39,7 | 43,9 | 49,1 | 55,8 | 63,0 | 72,1 | 80,4 | 96,8 |
| Overall efficiency | (4) | - | 7,97 | 7,95 | 7,86 | 7,97 | 8,03 | 7,88 | 8,10 | 7,99 | 7,96 | 7,89 | 7,63 | 7,48 |
| Refrigeration circuits | | Nr | 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 |
| Type of compressors | | - | 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 |
| Sound pressure level | (5) | dB(A) | 58 | 58 | 60 | 58 | 60 | 60 | 61 | 63 | 63 | 64 | 64 | 65 |

**Notes**

(1) Data referred to the following conditions: Heating water circuit = 45/40°C; Water temperature to external exchanger 10/7 °C
(2) Data referred to the following conditions: Cooling water circuit = 7/12°C; External exchanger water = 30/35°C
(3) Data referred to the following conditions: Heating water circuit = 45/40°C; Cooling water circuit = 7/12°C
(4) Overall efficiency = (Cooling capacity + Heating capacity) / (Total power input)
(5) Sound levels refer to units with full load under nominal test conditions. The sound pressure is measured at 1 m from the external surface of the unit in open field conditions.

The Product 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

- **VARYU** VARYFLOW + (user side 2 inverter pumps)
- **VS2M** Source side 2-way modulating valve
- ▪ **VS2MX** Source side 2-way modulating valve
- **VS3M** Source side 3-way modulating valve
- ▪ **VS3MX** Source side 3-way modulating valve
- **VARYS** VARYFLOW + (source side 2 inverter pumps)
- **VARYR** VARYFLOW + (recovery side 2 inverter pumps)
- ▪ **VACSRX** Total recovery side DHW switching valve
- **SDV** Cutoff valve on compressor supply and return (sizes 10.2÷80.2)
- **MF2** Multi-function phase monitor
- **CMSC10** Serial communication module for LonWorks supervisor
- **CMSC8** Serial communication module for BACnet supervisor
- **CMSC9** Serial communication module for Modbus 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 (cosfi > 0.9)
- ▪ **AVIBX** Anti-vibration mount support
- ▪ **RCTX** Remote control
- ▪ **BACX** BACnet serial communication module
- ▪ **CMMBX** Serial communication module to supervisor (Modbus)
- ▪ **CMSLWX** LonWorks serial communication module

**Key to symbols:**

▪ Accessories separately supplied