

## Subtype M thermal N series 12 14 16 kW

Certificate Holder	Enpal Production GmbH
Address	Koppenstrasse 8
ZIP	10243
City	Berlin
Country	DE
Certification Body	ICIM S.p.A.
Subtype title	M thermal N series 12 14 16 kW
Registration number	ICIM-PDC-000266
Heat Pump Type	Outdoor Air/Water
Refrigerant	R290
Mass of Refrigerant	1.1 kg
Certification Date	29.08.2024
Testing basis	V12

## Model EODU-V12-M1-AW-9E

Model name	EODU-V12-M1-AW-9E
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	Colder, Warmer
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	n/a

## Outdoor Air/Water

### EN 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

### EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	12.1 kW	11.9 kW
El input	2.44 kW	3.66 kW
COP	4.95	3.25

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	194 %	155 %
Prated	12.1 kW	12.1 kW
SCOP	4.93	3.95
Tbiv	-7 °C	-7 °C
TOL	-10.00 °C	-10.00 °C
Pdh Tj = -7°C	10.70 kW	10.70 kW
COP Tj = -7°C	2.89	2.52
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	6.51 kW	6.74 kW
COP Tj = +2°C	4.71	3.83
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.46 kW	5.32 kW
COP Tj = +7°C	7.04	5.25

Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.30 kW	5.94 kW
COP Tj = 12°C	8.64	6.46
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	10.70 kW	10.70 kW
COP Tj = Tbiv	2.89	2.52
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.72 kW	11.27 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.59	2.01
WTOL	80.00 °C	80.00 °C
Poff	11.00 W	11.00 W
PTO	16.00 W	16.00 W
PSB	11.00 W	11.00 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.38 kW	0.83 kW
Annual energy consumption Qhe	5064 kWh	6312 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	178 %	139 %
Prated	12.2 kW	12.0 kW
SCOP	4.53	3.55
Tbiv	-15.00 °C	-15.00 °C
TOL	-22.00 °C	-22.00 °C
Pdh Tj = -7°C	7.42 kW	7.28 kW
COP Tj = -7°C	3.66	2.89
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.60 kW	4.50 kW
COP Tj = +2°C	5.67	4.36
Cdh Tj = +2 °C	0.98	0.98
Pdh Tj = +7°C	5.48 kW	5.17 kW
COP Tj = +7°C	7.16	5.50
Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.30 kW	5.94 kW
COP Tj = 12°C	8.55	6.97
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	9.95 kW	9.79 kW
COP Tj = Tbiv	2.65	2.17
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.33 kW	8.69 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.14	1.72
WTOL	66.00 °C	66.00 °C
Poff	11.00 W	11.00 W
PTO	16 W	16 W
PSB	11.00 W	11.00 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.87 kW	3.31 kW
Annual energy consumption Qhe	6637.00 kWh	8299.00 kWh
Pdh Tj = -15°C (if TOL	9.95	9.79
COP Tj = -15°C (if TOL	2.65	2.17
Cdh Tj = -15 °C	1	1

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	55 dB(A)	55 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
$\eta_s$	269.00 %	192.00 %
Prated	12.1 kW	12.1 kW
SCOP	6.80	4.88
Tbiv	7.00 °C	7.00 °C
TOL	2.00 °C	2.00 °C
Pdh Tj = +2°C	11.96 kW	11.90 kW
COP Tj = +2°C	3.59	2.59
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	7.78 kW	7.78 kW
COP Tj = +7°C	6.03	4.18
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	6.34 kW	6.13 kW
COP Tj = 12°C	8.67	6.43
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	7.78 kW	7.78 kW
COP Tj = Tbiv	6.03	4.18
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.96 kW	11.90 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.59
WTOL	80.00 °C	80.00 °C
Poff	11.00 W	11.00 W
PTO	16.00 W	16.00 W
PSB	11 W	11 W
PCK	0.00 W	0.00 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.14 kW	0.20 kW
Annual energy consumption Q <sub>he</sub>	2377.00 kWh	3304.00 kWh

## Model EODU-V14-M1-AW-9E

Model name	EODU-V14-M1-AW-9E
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	Colder, Warmer
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	n/a

## Outdoor Air/Water

### EN 14511-4 | Heating

Shutting off the heat transfer medium flow passed

Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

### EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	14.0 kW	13.8 kW
El input	2.98 kW	4.38 kW
COP	4.70	3.15

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	187 %	151 %
Prated	14.1 kW	13.8 kW
SCOP	4.75	3.85
Tbiv	-7 °C	-7 °C
TOL	-10.00 °C	-10.00 °C
Pdh Tj = -7°C	12.47 kW	12.21 kW
COP Tj = -7°C	2.63	2.23
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	7.60 kW	7.51 kW
COP Tj = +2°C	4.52	3.71
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.49 kW	5.15 kW
COP Tj = +7°C	7.16	5.39

Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.30 kW	6.13 kW
COP Tj = 12°C	8.66	6.84
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	12.47 kW	12.21 kW
COP Tj = Tbiv	2.63	2.23
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.63 kW	12.25 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.53	1.97
WTOL	80.00 °C	80.00 °C
Poff	11.00 W	11.00 W
PTO	16.00 W	16.00 W
PSB	11.00 W	11.00 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.47 kW	1.55 kW
Annual energy consumption Qhe	6118 kWh	7405 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	175 %	138 %
Prated	14.2 kW	13.2 kW
SCOP	4.45	3.53
Tbiv	-15.00 °C	-15.00 °C
TOL	-22.00 °C	-22.00 °C
Pdh Tj = -7°C	8.54 kW	7.86 kW
COP Tj = -7°C	3.54	2.81
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.18 kW	4.88 kW
COP Tj = +2°C	5.68	4.40
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	5.52 kW	5.39 kW
COP Tj = +7°C	7.04	5.71
Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.22 kW	5.95 kW
COP Tj = 12°C	8.53	7.03
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	11.58 kW	10.77 kW
COP Tj = Tbiv	2.58	2.12
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.04 kW	9.30 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.00	1.64
WTOL	66.00 °C	66.00 °C
Poff	11.00 W	11.00 W
PTO	16 W	16 W
PSB	11.00 W	11.00 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.15 kW	3.90 kW
Annual energy consumption Qhe	7868.00 kWh	9186.00 kWh
Pdh Tj = -15°C (if TOL	11.58	10.77
COP Tj = -15°C (if TOL	2.58	2.12
Cdh Tj = -15 °C	1	1

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	57 dB(A)	57 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
$\eta_s$	266.00 %	191.00 %
Prated	13.0 kW	14.1 kW
SCOP	6.73	4.85
Tbiv	7.00 °C	7.00 °C
TOL	2.00 °C	2.00 °C
Pdh Tj = +2°C	12.86 kW	13.56 kW
COP Tj = +2°C	3.46	2.45
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	8.37 kW	9.06 kW
COP Tj = +7°C	5.91	4.14
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	6.34 kW	6.15 kW
COP Tj = 12°C	8.70	6.56
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	8.37 kW	9.06 kW
COP Tj = Tbiv	5.91	4.14
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.86 kW	13.56 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.46	2.44
WTOL	80.00 °C	80.00 °C
Poff	11.00 W	11.00 W
PTO	16.00 W	16.00 W
PSB	11 W	11 W
PCK	0.00 W	0.00 W



Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.14 kW	0.53 kW
Annual energy consumption Q <sub>he</sub>	2575.00 kWh	3865.00 kWh

## Model EODU-V16-M1-AW-9E

Model name	EODU-V16-M1-AW-9E
Application	Heating (medium temp)
Units	Outdoor
Climate zone (for heating)	Colder, Warmer
Cooling mode application (optional)	n/a
Any additional heat sources	n/a

## General data

Power supply	3x400V 50Hz
Off-peak product	n/a

## Outdoor Air/Water

### EN 14511-4 | Heating

Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

### EN 14511-2 | Heating

	Low temperature	Medium temperature
Heat output	15.5 kW	16.0 kW
El input	3.44 kW	5.25 kW
COP	4.50	3.05

### EN 12102-1 | Average Climate

	Low temperature	Medium temperature
Sound power level outdoor	59 dB(A)	59 dB(A)

### EN 14825 | Average Climate

	Low temperature	Medium temperature
$\eta_s$	185 %	151 %
Prated	15.9 kW	14.7 kW
SCOP	4.70	3.85
Tbiv	-7 °C	-7 °C
TOL	-10.00 °C	-10.00 °C
Pdh Tj = -7°C	14.07 kW	13.00 kW
COP Tj = -7°C	2.45	2.33
Cdh Tj = -7 °C	1.00	1.00
Pdh Tj = +2°C	8.54 kW	7.96 kW
COP Tj = +2°C	4.53	3.68
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	5.50 kW	5.34 kW
COP Tj = +7°C	7.25	5.40

Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.27 kW	5.98 kW
COP Tj = 12°C	8.80	6.58
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	14.07 kW	13.00 kW
COP Tj = Tbiv	2.45	2.33
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.42 kW	13.39 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.43	1.95
WTOL	80.00 °C	80.00 °C
Poff	11.00 W	11.00 W
PTO	16.00 W	16.00 W
PSB	11.00 W	11.00 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.48 kW	1.31 kW
Annual energy consumption Qhe	6966 kWh	7862 kWh

#### EN 12102-1 | Colder Climate

	Low temperature	Medium temperature
Sound power level outdoor	59 dB(A)	59 dB(A)

#### EN 14825 | Colder Climate

	Low temperature	Medium temperature
ηs	169 %	137 %
Prated	15.0 kW	14.9 kW
SCOP	4.30	3.50
Tbiv	-15.00 °C	-15.00 °C
TOL	-22.00 °C	-22.00 °C
Pdh Tj = -7°C	9.26 kW	9.04 kW
COP Tj = -7°C	3.27	2.83
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	5.61 kW	5.39 kW
COP Tj = +2°C	5.64	4.44
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	5.44 kW	5.34 kW
COP Tj = +7°C	7.22	5.73
Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.30 kW	6.16 kW
COP Tj = 12°C	8.59	7.20
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	12.24 kW	12.15 kW
COP Tj = Tbiv	2.44	1.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.97 kW	10.12 kW

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.92	1.62
WTOL	66.00 °C	66.00 °C
Poff	11.00 W	11.00 W
PTO	16 W	16 W
PSB	11.00 W	11.00 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.03 kW	4.77 kW
Annual energy consumption Qhe	8587.00 kWh	10462.00 kWh
Pdh Tj = -15°C (if TOL	12.24	12.15
COP Tj = -15°C (if TOL	2.44	1.89
Cdh Tj = -15 °C	1	1

#### EN 12102-1 | Warmer Climate

	Low temperature	Medium temperature
Sound power level outdoor	59 dB(A)	59 dB(A)

#### EN 14825 | Warmer Climate

	Low temperature	Medium temperature
$\eta_s$	267.00 %	191.00 %
Prated	14.0 kW	15.0 kW
SCOP	6.75	4.85
Tbiv	7.00 °C	7.00 °C
TOL	2.00 °C	2.00 °C
Pdh Tj = +2°C	14.00 kW	14.29 kW
COP Tj = +2°C	3.14	2.40
Cdh Tj = +2 °C	1.00	1.00
Pdh Tj = +7°C	9.00 kW	9.64 kW
COP Tj = +7°C	5.83	4.09
Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	6.35 kW	6.14 kW
COP Tj = 12°C	8.92	6.65
Cdh Tj = +12 °C	0.98	0.98
Pdh Tj = Tbiv	9.00 kW	9.64 kW
COP Tj = Tbiv	5.83	4.09
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	14.00 kW	14.29 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.14	2.40
WTOL	80.00 °C	80.00 °C
Poff	11.00 W	11.00 W
PTO	16.00 W	16.00 W
PSB	11 W	11 W
PCK	0.00 W	0.00 W

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.71 kW
Annual energy consumption Q <sub>he</sub>	2763.00 kWh	4124.00 kWh