EcoDesign Manual

Water-to-water heat pumps production

MEDEA PRO KZVB

COMFORT

EN

KEYTER TECHNOLOGIES, S.L. – P.I. Los Santos, s/n – Post Office Apt. 650 – 14900 Lucena, Córdoba, Spain | Tel: +34 957 510 752 | www.keyter.com | info@keyter.com

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Reversible Heat Pump (Cooling Mode)

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MEDEA PRO REVERSIBLE HEAT PUMP

Information requirements according to Regulation (EU) 2016/2281

Model:	**KZVB1015IVS4D**
Refrigerant fluid:	R290
Outdoor side heat exchanger chiller:	water
Indoor side heat exchanger chiller:	water
Type:	compressor driven vapour compression
Driver of compressor:	electric motor
Application temperatures:	12/7˚C

COOLING MODE

Item	Symbol	Value	Unit
Rated cooling capacity	$P_{rated,c}$	17.0	kW
Declared cooling capacity for part load at given outdoor temperatures T_j			
T_j = + 35 °C	**Pdc**	17.0	kW
T_j = + 30 °C	**Pdc**	12.5	kW
T_j = + 25 °C	**Pdc**	8.0	kW
T_j = + 20 °C	**Pdc**	5.5	kW
Degradation co-efficient	**Cdc**	0.9	---

Item	Symbol	Value	Unit
Seasonal space cooling energy efficiency	$\eta_{s,c}$	259.5	%
Declared energy efficiency ratio or gas utilisation efficiency/auxiliary energy factor for part load at given outdoor temperatures T_j			
T_j = + 35 °C	EER_d	4.6	%
T_j = + 30 °C	EER_d	6.2	%
T_j = + 25 °C	EER_d	7.6	%
T_j = + 20 °C	EER_d	8.0	%

Power consumption in modes other than active mode

Off mode	P_{OFF}	0.000	kW
Thermostat-off mode	P_{TO}	0.024	kW

Crankcase heater mode	P_{CK}	0.000	kW
Standby mode	P_{SB}	0.024	kW

Other items

Capacity control	Variable		
Water flow rate capacity control	Fixed		
Outlet temperature capacity control, indoor side exchanger heat pump	Variable		
Sound power level	L_{WA}	62.6	dB
Emissions of nitrogen oxides	NO_X	0	mg/kWh input *GCV*
GWP of the refrigerant	---	3	kg CO_2 eq (100 years)

For air-to-water comfort chillers: air flow rate, outdoor measured	---	N/A	m^3/h
For water/brine-to-water chillers: rated brine or water flow rate, outdoor side heat exchanger	---	5	m^3/h

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Reversible Heat Pump (Heating Mode)

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MEDEA PRO KZVB

COMFORT

Reversible Heat Pump (Heating Mode)

Average climate 30/35ºC

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MEDEA PRO REVERSIBLE HEAT PUMP

Information requirements according to Regulation (EU) 813/2013

Model:	**KZVB1015IVS4D**
Refrigerant fluid:	R290
Heat pump type:	water-water
Application temperatures:	30/35˚C
Equipped with a supplementary heater:	no
Heat pump combination heater:	no

HEATING MODE

Parameters declared for average climate conditions

Item	Symbol	Value	Unit
Rated heat output (*)	***Prated***	21	kW
Declared capacity for heating for part load at indoor temperature 20 ºC and outdoor temperature T_j			
T_j = - 7 ºC	***Pdh***	18.3	kW
T_j = + 2 ºC	***Pdh***	11.1	kW
T_j = + 7 ºC	***Pdh***	7.2	kW
T_j = + 12 ºC	***Pdh***	5.5	kW
T_j = bivalent temperature	***Pdh***	20.7	kW
T_j = operation limit temperature	***Pdh***	20.7	kW
For air-to-water heat pumps: T_j = - 15 ºC (if *TOL* < - 20 ºC)	***Pdh***	N/A	kW
Bivalent temperature	***Tbiv***	-10	ºC
Degradation co-efficient	***Cdh***	0.9	---

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	$\eta_{s,h}$	250.2	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20ºC and outdoor temperature T_j			
T_j = - 7 ºC	***COPd***	5.5	---
T_j = + 2 ºC	***COPd***	6.6	---
T_j = + 7 ºC	***COPd***	7.2	---
T_j = + 12 ºC	***COPd***	7.2	---
T_j = bivalent temperature	***COPd***	5.3	---
T_j = operation limit temperature	***COPd***	5.3	---
For air-to-water heat pumps: T_j = - 15 ºC (if *TOL* < - 20 ºC)	***COPd***	N/A	---
Operation limit temperature	***TOL***	-10	ºC
Heating water operation limit temperature	***WTOL***	77	ºC

Power consumption in modes other than active mode

Off mode	P_{OFF}	0.000	kW
Thermostat-off mode	P_{TO}	0.024	kW
Standby mode	P_{SB}	0.024	kW
Crankcase heater mode	P_{CK}	0.450	kW

Supplementary heater

Rated heat output (*)	***Psup***	0.0	kW
Type of energy input	N/A		

Other items

Capacity control	Variable		
Water flow rate capacity control	Fixed		
Outlet temperature capacity control, indoor side exchanger heat pump	Variable		
Sound power level	L_{WA}	62.6	dB
Emissions of nitrogen oxides	NO_X	0	mg/kWh

For air-to-water heat pumps: rated air flow rate, outdoors	---	N/A	m^3/h
For water-/brine-to-water heat pumps: rated brine or water flow rate, outdoor heat exchanger	---	26	m^3/h

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(*) For heat pump space heaters and heat pump combination heaters, the rated heat output ***Prated*** is equal to the design load for heating ***Pdesign,h*** , and the rated heat output of a supplementary heater ***Psup*** is equal to the supplementary capacity for heating ***sup(Tj)*** .

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COMFORT

Reversible Heat Pump (Heating Mode)

Average climate 47/55ºC

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MEDEA PRO REVERSIBLE HEAT PUMP

Information requirements according to Regulation (EU) 813/2013

Model:	**KZVB1015IVS4D**
Refrigerant fluid:	R290
Heat pump type:	water-water
Application temperatures:	47/55ºC
Equipped with a supplementary heater:	no
Heat pump combination heater:	no

HEATING MODE

Parameters declared for average climate conditions

Item	Symbol	Value	Unit
Rated heat output (*)	***Prated***	20	kW
Declared capacity for heating for part load at indoor temperature 20 ºC and outdoor temperature T_j			
T_j = - 7 ºC	***Pdh***	17.5	kW
T_j = + 2 ºC	***Pdh***	10.7	kW
T_j = + 7 ºC	***Pdh***	6.9	kW
T_j = + 12 ºC	***Pdh***	5.4	kW
T_j = bivalent temperature	***Pdh***	19.8	kW
T_j = operation limit temperature	***Pdh***	19.8	kW
For air-to-water heat pumps: T_j = - 15 ºC (if *TOL* < - 20 ºC)	***Pdh***	N/A	kW
Bivalent temperature	***Tbiv***	-10	ºC
Degradation co-efficient	***Cdh***	0.9	---

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	$\eta_{s,h}$	198.2	%
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20ºC and outdoor temperature T_j			
T_j = - 7 ºC	***COPd***	3.9	---
T_j = + 2 ºC	***COPd***	5.2	---
T_j = + 7 ºC	***COPd***	5.9	---
T_j = + 12 ºC	***COPd***	6.6	---
T_j = bivalent temperature	***COPd***	3.6	---
T_j = operation limit temperature	***COPd***	3.6	---
For air-to-water heat pumps: T_j = - 15 ºC (if *TOL* < - 20 ºC)	***COPd***	N/A	---
Operation limit temperature	***TOL***	-10	ºC
Heating water operation limit temperature	***WTOL***	77	ºC

Power consumption in modes other than active mode

Off mode	P_{OFF}	0.000	kW
Thermostat-off mode	P_{TO}	0.024	kW
Standby mode	P_{SB}	0.024	kW
Crankcase heater mode	P_{CK}	0.450	kW

Supplementary heater

Rated heat output (*)	***Psup***	0.0	kW
Type of energy input	N/A		

Other items

Capacity control	Variable		
Water flow rate capacity control	Fixed		
Outlet temperature capacity control, indoor side exchanger heat pump	Variable		
Sound power level	L_{WA}	62.6	dB
Emissions of nitrogen oxides	NO_X	0	mg/kWh

For air-to-water heat pumps: rated air flow rate, outdoors	---	N/A	m^3/h
For water-/brine-to-water heat pumps: rated brine or water flow rate, outdoor heat exchanger	---	26	m^3/h

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(*) For heat pump space heaters and heat pump combination heaters, the rated heat output ***Prated*** is equal to the design load for heating ***Pdesign,h*** , and the rated heat output of a supplementary heater ***Psup*** is equal to the supplementary capacity for heating ***sup(Tj)*** .