

TECHNICAL DATA SHEET

TC HeatEco MONO 12 kW Air to Water Heat Pump



Model		TC HeatEco MONO 12 kW	
Power Supply / Refrigerant	V/Hz/Ph	380-415/50/3 - R290	
Max. Heating Capacity (1)	kW	11,2	
C.O.P. (1)	W/W	4,31	
Heating Capacity Min./Max. (1)	kW	5,55 ~ 11,2	
Heating Power Input Min./Max. (1)	kW	1,01 ~ 2,6	
C.O.P. Min/Max (1)	W/W	4,31 ~ 5,50	
Fan speed	rpm	660	
Max. Heating Capacity (2)	kW	10,2	
C.O.P. (2)	W/W	3,62	
Heating Capacity Min./Max. (2)	kW	5,1 ~ 10,2	
Heating power input Min./Max. (2)	kW	1,02 ~ 2,81	
C.O.P. Min./Max. (2)	W/W	3,21 ~ 5,0	
Fan speed	rpm	634	
Max. Cooling Capacity (3)	kW	6,85	
E.E.R (3)	W/W	2,44	
Cooling Capacity Min./Max. (3)	kW	3,98 ~ 6,85	
Cooling Power Input Min./Max. (3)	kW	1,1 ~ 2,96	
E.E.R. Min/Max. (3)	W/W	2,29 ~ 4,45	
Fan speed	rpm	705	
Max. Cooling Capacity (4)	kW	5,61	
E.E.R (4)	W/W	2,40	
Cooling Capacity Min./Max. (4)	kW	3,61 ~ 5,61	
Cooling Power Input Min./Max. (4)	kW	1,01 ~ 2,58	
E.E.R. Min/Max. (4)	W/W	1,56 ~ 4,27	
Fan speed	rpm	700	
Recommended circuit breaker	A	16	
IP rating		IPX4	
Max. power consumption	Fan	W	205
	Outdoor unit	kW	3,9
	Secondary pump	W	95

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Model		TC HeatEco MONO 12 kW	
Workable Ambient Temperature Range		°C	-25~43
Max. Air intake temperature (Heating/Cooling)		°C	43/43
Min. Air intake temperature (Heating/Cooling)		°C	-25/21
Max. System Water Temperature (Heating / Cooling)		°C	75/35
Min. System Water Temperature (Heating / Cooling)		°C	10/5
Max. Operation High Pressure		MPa	3,0
Max. Operation Low Pressure		MPa	0,8
Compressor	Type		EDTF420D62EMT
	Oil in compressor		PAG XS-601C1
	Oil volume in compressor	ml	830
Refrigerant	Type / Amount	- / kg	R290/0,7
	Global warming potential (GWP)		3
	CO2 equivalent		0
	Max. refrigerant operating pressure	MPa	3
Fan	Quantity	db	1
	Airflow	m ³ /h	3500
	Rated power	W	120
Noise Level (sound power)		dB(A)	66
Water Side Heat Exchanger	Type		Plate Heat Exchanger
	Water Pressure Drop	kPa	20
	Piping Connection	Inch	1
Allowable Water Flow	Min./Rated./Max.	L/S	0,5/0,57/0,69
Max. flow temperature		°C	75
SCOP			4,92
Energy efficiency class			A+++
Net Dimension(L×D×H)		mm	1204x515x812
Net Weight		Kg	105

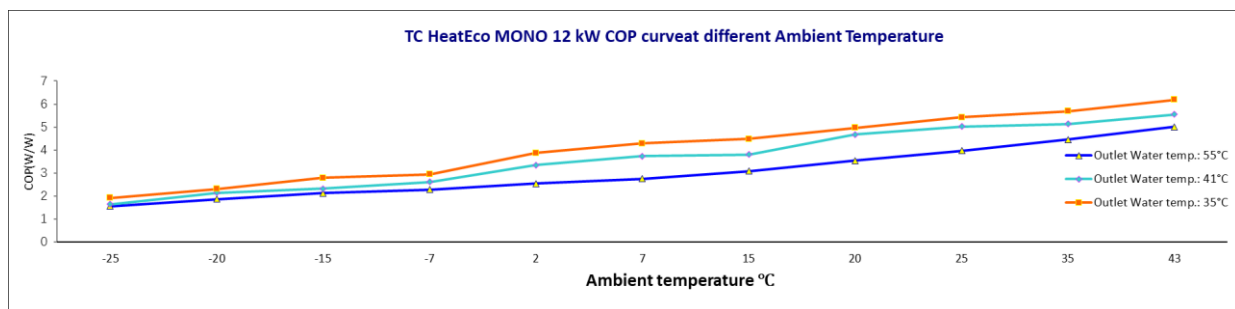
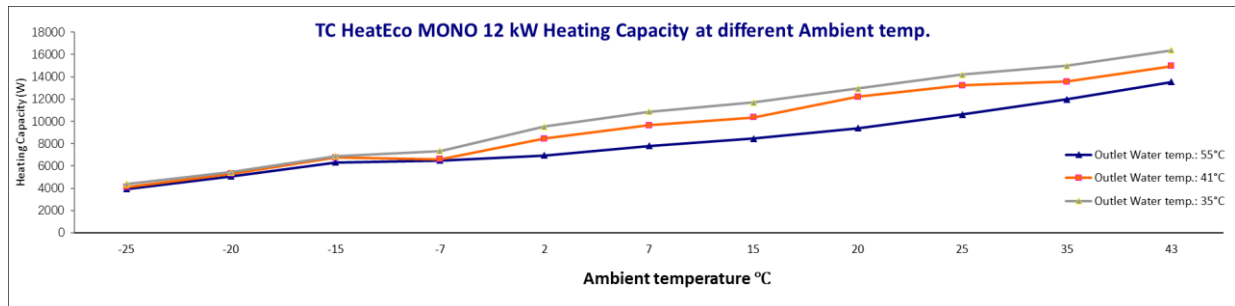
Note:

- (1) Heating condition: water inlet/outlet temperature: 30°C/35°C, Ambient temperature: DB 7°C/WB 6°C;
- (2) Heating condition: water inlet/outlet temperature: 40°C/45°C, Ambient temperature: DB 7°C/WB 6°C;
- (3) Cooling condition: water inlet/outlet temperature: 23°C/18°C, Ambient temperature: DB 35°C/WB 24°C;
- (4) Cooling condition: water inlet/outlet temperature: 12°C/7°C, Ambient temperature: DB 35°C/WB 24°C;
- (5) The specifications are subject to change without prior notice. For actual specifications of unit, please refer to the stickers on the unit.

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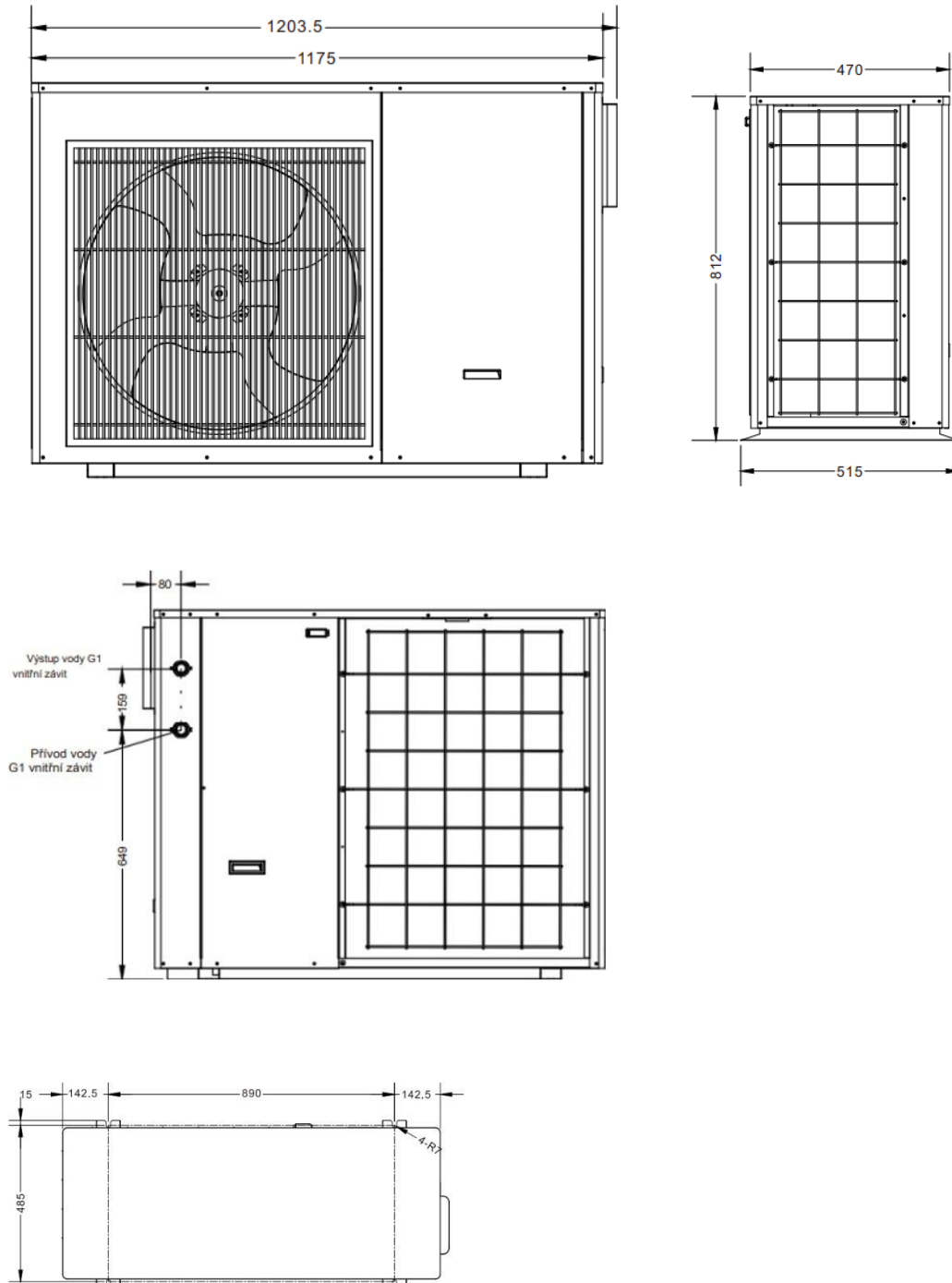
Test report of TC HeatEco MONO 12 kW Heating Capacity, Power Input and COP at different Ambient temperatures

Ambient Temp. (°C)	-25	-20	-15	-7	2	7	15	20	25	35	43
Heating Capacity (W) (Outlet Water Temp. 55°C)	3924	5068	6332	6481	6952	7786	8461	9377	10617	11979	13542
Heating Capacity (W) (Outlet Water Temp. 41°C)	4100	5303	6755	6618	8453	9654	10356	12192	13234	13571	14967
Heating Capacity (W) (Outlet Water Temp. 35°C)	4387	5432	6891	7351	9540	10865	11682	12934	14199	14973	16385
Power Input (W) (Outlet Water Temp. 55°C)	2507	2718	2976	2851	2739	2834	2738	2651	2671	2686	2705
Power Input (W) (Outlet Water Temp. 41°C)	2493	2470	2913	2531	2523	2582	2719	2609	2635	2644	2694
Power Input (W) (Outlet Water Temp. 35°C)	2289	2350	2468	2501	2459	2534	2603	2605	2614	2634	2651
COP (Outlet Water Temp. 55°C)	1,57	1,86	2,13	2,27	2,54	2,75	3,09	3,54	3,97	4,46	5,01
COP (Outlet Water Temp. 41°C)	1,64	2,15	2,32	2,61	3,35	3,74	3,81	4,67	5,02	5,13	5,56
COP (Outlet Water Temp. 35°C)	1,92	2,31	2,79	2,94	3,88	4,29	4,49	4,97	5,43	5,68	6,18



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TC HeatEco MONO 12 kW dimensions



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Parameters shall be declared for medium temperature application and for low-temperature application.

Item	Symbol	Value	Unit
Rated Heat Output (1)	Prated	7,88	kW
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	Pdh	7,011	kW
Tj=+2°C	Pdh	4,313	kW
Tj=+7°C	Pdh	3,101	kW
Tj=+12°C	Pdh	3,706	kW
Tj=bivalent temperature	Pdh	7,011	kW
Tj= operation limit temperature	Pdh	6,933	kW
For air-to-water heat pumps: Tj= -15°C (ha TOL<-20°C)	Pdh	-	kW
Bivalent Temperature	Tbiv	-7	°C
Cycling interval capacity for heating	Ppsych	-	kW
Degradation co-efficient (2)	Cdh	0,9	-
Power Consumption in modes other than active mode::			
Off Mode	POFF	0,008	kW
Thermostat off mode	CTU	0,008	kW
Standby mode	PSB	0,008	kW
Crankcase heater mode	PCK	0,046	kW
Other Items			
Capacity Control		Variable	
Sound power level, indoor/outdoor	LWA	-/66	dB
Annual energy consumption	QHE	3329	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	193,6	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	PERd	89	%
Tj=+2°C	PERd	55	%
Tj=+7°C	PERd	39	%
Tj=+12°C	PERd	47	%
Tj=bivalent temperature	PERd	89	%
Tj= operation limit temperature	PERd	88	%
For air-to-water heat pumps: Tj= -15°C (ha TOL<-20°C)	PERd	-	%
For air-to-water heat pumps: Operating limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{psych}	-	-
Heating water operating limit temperature			
	WTOL	75	°C
Supplementary heater			
Rated heat output	P _{sup}		kW
Type of energy input	Electric		

Parameters shall be declared for medium temperature application and for low-temperature application.

Item	Symbol	Value	Unit
Rated Heat Output (1)	Prated	7,143	kW
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	Pdh	6,551	kW
Tj=+2°C	Pdh	3,988	kW
Tj=+7°C	Pdh	3,011	kW
Tj=+12°C	Pdh	3,489	kW
Tj= bivalent temperature	Pdh	6,551	kW
Tj= operation limit temperature	Pdh	7,688	kW
For air-to-water heat pumps: Tj= -15°C (ha TOL<-20°C)	Pdh	-	kW
Bivalent Temperature	T _{biv}	-7	°C
Cycling interval capacity for heating	P _{psych}	-	kW
Degradation co-efficient (2)	Cdh	0,9	-
Power Consumption in modes other than active mode			
Off Mode	POFF	0,008	kW
Thermostat off mode	CTU	0,008	kW
Standby mode	PSB	0,008	kW
Crankcase heater mode	PCK	0,046	kW
Other Items			
Capacity Control		Variable	
Sound power level, indoor/outdoor	LWA	-/66	dB
Annual energy consumption	QHE	3931	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	152,8	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	PERd	88	%
Tj=+2°C	PERd	54	%
Tj=+7°C	PERd	41	%
Tj=+12°C	PERd	47	%
Tj= bivalent temperature	PERd	88	%
Tj= operation limit temperature	PERd	104	%
For air-to-water heat pumps: Tj= -15°C (ha TOL<-20°C)	PERd	-	%
For air-to-water heat pumps: Operating limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{psych}	-	-
Heating water operating limit temperature			
	WTOL	75	°C
Supplementary heater			
Rated heat output	P _{sup}		kW
Type of energy input	Electric		

- (1) For heat pump heaters and combined heat pump heaters, the rated thermal output Prated must equal the design heating load Pdesign, and the rated thermal output Psup of the auxiliary heater must equal the auxiliary heating output sup(Tj).
- (2) If the Cdh value is not determined by measurement, the default degradation coefficient is Cdh= 0.9.