

TECHNICAL DATA SHEET

TC HeatPro MONO 8 kW Air to Water Heat Pump



Model	TC HeatPro MONO 8 kW	
Power Supply / Refrigerant	V/Hz/Ph	220-240/50/1 - R290
Max. Heating Capacity (1)	kW	9,5
C.O.P. (1)	W/W	4,55
Heating Capacity Min./Max. (1)	kW	4,5 ~ 9,5
Heating Power Input Min./Max. (1)	W	585 ~ 2089
C.O.P. Min/Max (1)	W/W	4,67 ~ 5,43
Max. Heating Capacity (2)	kW	9
C.O.P. (2)	W/W	3,75
Heating Capacity Min./Max. (2)	kW	3,92 ~ 9,0
Heating power input Min./Max. (2)	W	725 ~ 2400
C.O.P. Min./Max. (2)	W/W	3,75 ~ 4,0
Max. Cooling Capacity (3)	kW	8
E.E.R (3)	W/W	3,8
Cooling Capacity Min./Max. (3)	kW	2,4 ~ 8,0
Cooling Power Input Min./Max. (3)	W	765 ~ 2100
E.E.R. Min/Max. (3)	W/W	3,8 ~ 4,0
Max. Cooling Capacity (4)	kW	6
E.E.R (4)	W/W	2,9
Cooling Capacity Min./Max. (4)	kW	1,8 ~ 6,0
Cooling Power Input Min./Max. (4)	W	720 ~ 1945
E.E.R. Min/Max. (4)	W/W	2,9 ~ 3,05
Circuit Breaker	A	16

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Model		TC HeatPro MONO 8 kW	
Workable Ambient Temperature Range		°C	-25 ~ 45
Min. System Water Temperature (Heating / Cooling)		°C	70/20
Min. Floor Area for installation, operation and storage		°C	20/7
Min. Area of Pipe-work		MPa	3,10
Max. Operation High Pressure		MPa	0,82
Compressor	Type - Quantity		Twin Rotary - 1
Refrigerant	Type / Amount	- / kg	R290/0,7 kg
	Global Warming Potential (GWP)		3
Fan	Quantity	db	1
	Airflow	m ³ /h	3150
	Rated power	W	62
Noise Level	Indoor/Outdoor	dB(A)	33/54
Water Side Heat Exchanger	Type		Plate Heat Exchanger
	Water Pressure Drop	kPa	23
	Piping Connection	Inch	G1"
Allowable Water Flow	Min./Rated./Max.	L/S	0,21/0,29/0,35
Net Dimension(L×D×H)	Indoor Unit	mm	553x261x650
	Outdoor Unit	mm	1204x515x812
Net Weight	Indoor Unit	Kg	25
	Outdoor Unit	Kg	98

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 HeatPro MONO 8 kW (Heating/Cooling) and COP at different ambient temperatures

Test report: Heating

35°C SCOP: 4.57 kWh/kWh Pdesignh:9.06kW

Ambient temp. (°C)	Water Outlet temp. (°C)	Compressor Speed (Hz)	Heating Capacity (W)	Input Power (W)	COP (W/W)	Other	
DB12/WB11	70,0	72	9511	3715	2.56		
		67	8704	3351	2.60		
		55	6302	2855	2.21		
		43	5014	2227	2.25		
	55,0	79	11136	3534	3,15		
		67	9443	2916	3,24		
		55	7776	2361	3,29		
		43	5998	1829	3,28		
	45,0	79	11362	3022	3,76		
		67	9610	2460	3,91		
		55	7968	1953	4,08		
		43	6503	1535	4,24		
	35,0	79	12125	2592	4,68		
		67	10374	2101	4,94		
		55	8559	1622	5,28		
		43	6734	1303	5,17		
24,0	30	5171	625,0	8,27			
DB7/WB6	70,0	72	7930	3625	2.19	No Ice	
		67	7743	3335	2,32		
		55	6115	2757	2,22		
		43	4878	2148	2,27		
	55,0	90	10988	4284	2,56		
		85	10552	3834	2,75		
		72	8802	3121	2,82		
		61	7473	2591	2,88		
	45,0	49	5719	1967	2,91		
		90	11660	3550	3,28		
		85	11003	3289	3,35		
		72	9312	2676	3,48		
	35,0	61	7918	2200	3,60		
		49	6219	1677	3,71		
		90	12030	3064	3,93		
		85	11047	2662	4,15		
27,0	72	10325	2345	4,40			
	61	8813	1883	4,68			
	49	7086	1450	4,89			
	30	4294	680,7	6,31			
DB2/WB1	70,0	72	7287	3461	2,11	Ice and Defrosted	
		67	6729	3178	2,12		
		55	5494	2665	2.06		
		43	4260	2064	2.06		
	55,0	90	9692	4105	2,36		
		85	9079	3730	2,43		
		72	7680	3185	2,41		
		61	6389	2624	2,43		
		Small Ice	49	4921	2063		2,39

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	45,0	90	10094	3681	2,74	Ice and Defrosted	
		85	9535	3378	2,82		
		72	7952	2780	2,86		
		61	6731	2323	2,90	Small Ice	
		49	5194	1793	2,90		
	35,0	90	10551	2830	3,73	Ice and Defrosted	
		85	9945	2629	3,78		
		72	8405	2145	3,92		
		61	7116	1747	4,07		
		49	5667	1399	4,05	Small Ice	
	/	/	/	/			
	30,0	43	5336	1151	4,64		
	DB-7°C/WB-8°C	55,0	90	7267	3600	2,02	No Ice
			85	6778	3353	2,02	
			72	5613	2726	2,06	
61			4651	2271	2,05		
49			3308	1843	1,80		
45,0		90	7593	3217	2,36		
		85	7108	2959	2,40		
		72	5939	2400	2,47		
		61	4970	1975	2,52		
		49	3878	1584	2,45		
35,0		90	7915	2865	2,76		
		85	7457	2636	2,83		
		72	6303	2155	2,93		
		61	5316	1741	3,05		
		49	4153	1334	3,11		
34,0	90	7984	2802,6	2,85			
DB-10°C/WB-11°C	35,3	90	7282	2788	2,61		
DB-15°C/WB-16°C	55,0	90	5582	3218	1,73	No Ice	
		85	5226	3008	1,74		
		72	4252	2519	1,69		
		61	3514	2104	1,67		
		49	2631	1690	1,56		
	45,0	90	5846	2895	2,02		
		85	5517	2687	2,05		
		72	4572	2226	2,05		
		61	3789	1848	2,05		
		49	2816	1489	1,89		
	35,0	90	6207	2608	2,38		
		85	5838	2395	2,44		
		72	4912	2004	2,45		
		61	4087	1640	2,49		
		49	3081	1287	2,39		

Test report: Cooling

Ambient temp. (°C)	Water Outlet temp. (°C)	Compressor Speed (Hz)	Heating Capacity (W)	Input Power (W)	COP (W/W)	Other
DB40/WB26	18,0	Frequency limit	/	/	/	
		61	7946	2494	3,19	
		56	7305	2246	3,25	
		47	6127	1798	3,41	
		36	4395	1336	3,29	
DB35/WB24	18,0	74	10095	2973	3,40	
		66	9216	2531	3,64	

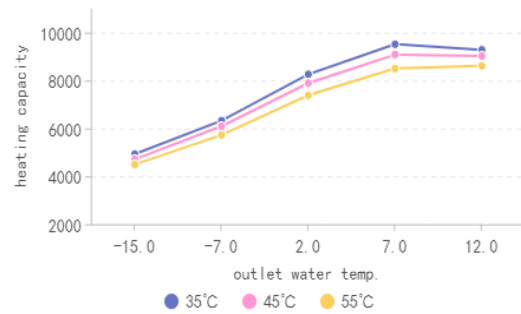
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		56	7834	2035	3,85	
		47	6361	1617	3,93	
		36	4489	1173	3,83	
DB35/WB24	7,0	74	7193	2763	2,60	
		66	6284	2376	2,64	
		56	5068	1942	2,61	
		47	4104	1580	2,60	
		36	2843	1182	2,41	

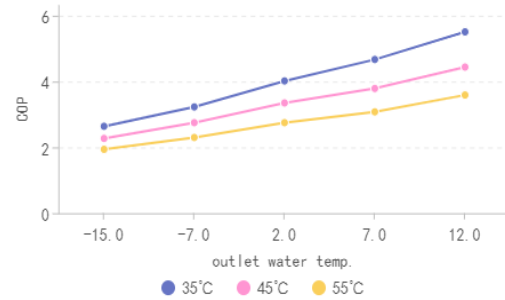
Note:

DB = Dry Bulb Temperature
WB = Wet Bulb Temperature

TC HeatPro MONO 8 kW			
Amient temp (°C)	35°C	45°C	55°C
-15,0	4930,38	4710,10	4496,19
-7,0	6324,18	6088,03	5724,63
2,0	8258,43	7889,10	7382,69
7,0	9514,77	9085,33	8500,83
12,0	9285,05	9022,28	8618,00

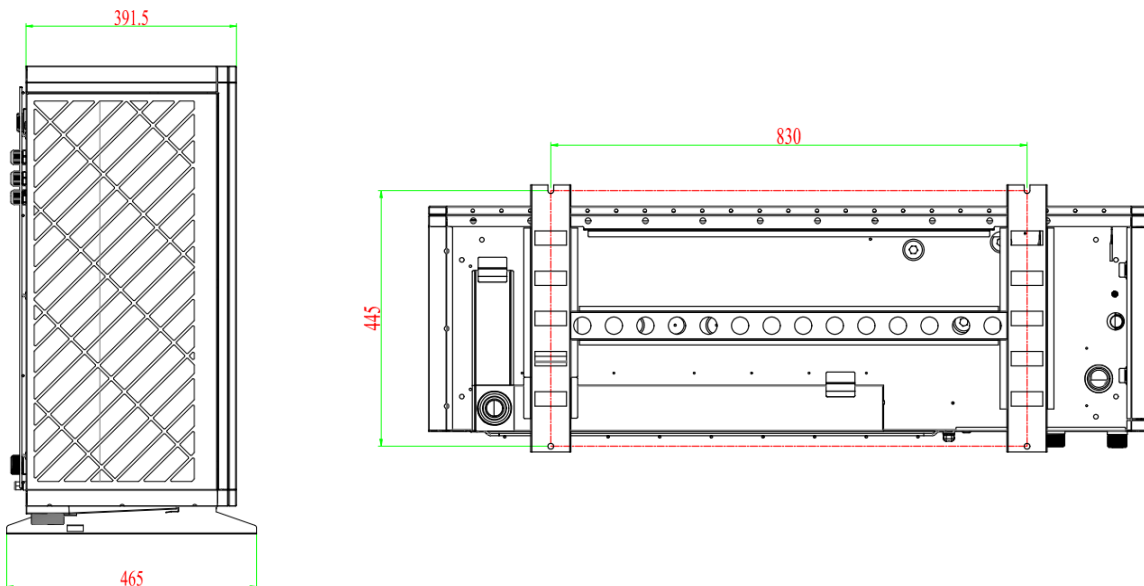
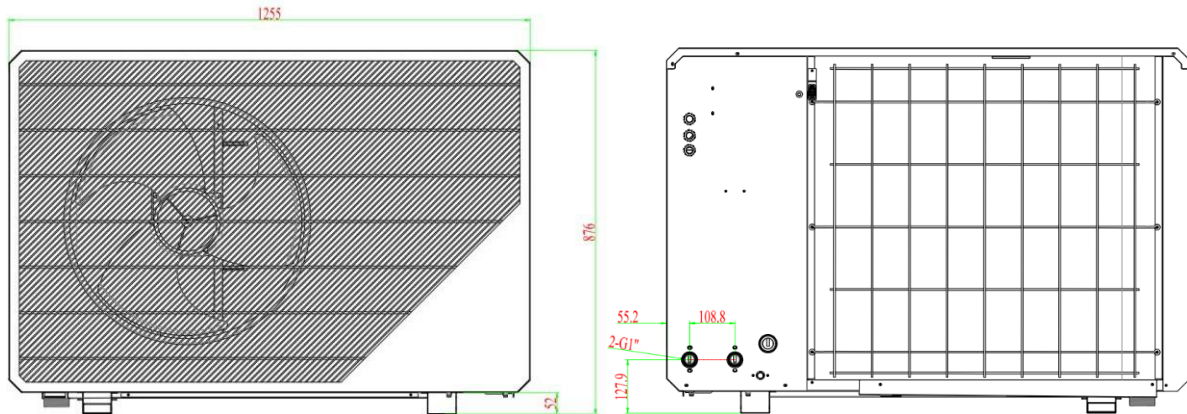


COP			
Amient temp (°C)	35°C	45°C	55°C
-15,0	2,64	2,27	1,94
-7,0	3,23	2,75	2,30
2,0	4,02	3,35	2,75
7,0	4,67	3,79	3,08
12,0	5,51	4,44	3,59

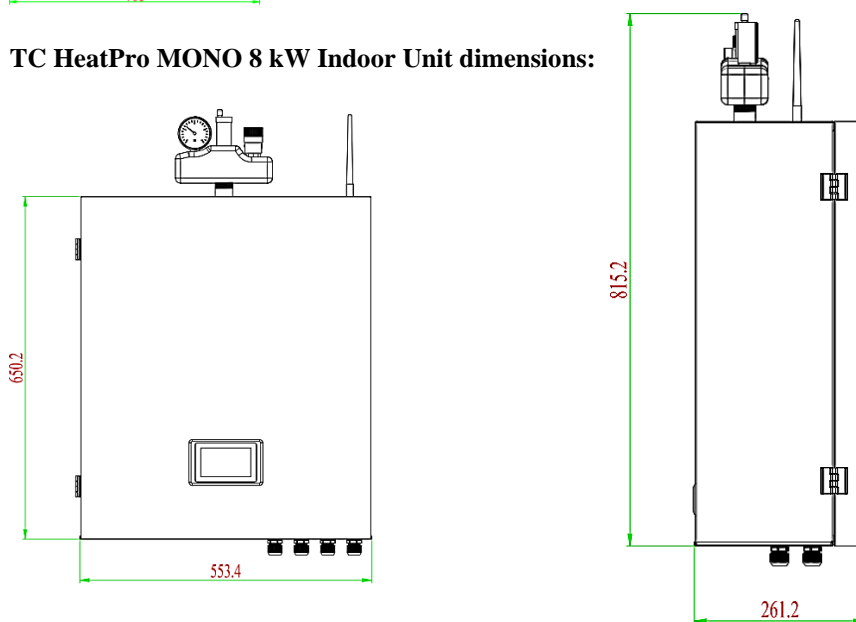


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TC HeatPro MONO 8 kW dimensions



TC HeatPro MONO 8 kW Indoor Unit dimensions:



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The values refer to use at low temperatures in average climatic conditions (W35).

Item	Symbol	Value	Unit
Rated Heat Output (1)	Prated	6,928	kW
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	Pdh	6,128	kW
Tj=+2°C	Pdh	3,826	kW
Tj=+7°C	Pdh	3,289	kW
Tj=+12°C	Pdh	3,887	kW
Tj= bivalent temperature	Pdh	5,636	kW
Tj= operation limit temperature	Pdh	6,128	kW
For air-to-water heat pumps: Tj= -15°C (if 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	0,020	kW
Thermostat off mode	CTU	0,023	kW
Standby mode	PSB	0,020	kW
Crankcase heater mode	PCK	0,030	kW
Other Items			
Capacity Control		Variable	
Sound power level, indoor/outdoor	LWA	33/54	dB
Annual energy consumption	QHE	2953	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	190,9	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	COPd	3,09	-
Tj=+2°C	COPd	4,67	-
Tj=+7°C	COPd	6,81	-
Tj=+12°C	COPd	9,50	-
Tj= bivalent temperature	COPd	2,98	-
Tj= operation limit temperature	COPd	3,09	-
For air-to-water heat pumps: Tj= -15°C (if TOL<-20°C)	COPd	-	-
For air-to-water heat pumps: Operating limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{psych}	-	-
Heating water operating limit temperature			
	WTOL	56	°C
Supplementary heater			
Rated heat output	Psup	1,292	kW
Type of energy input		Electric	

The values refer to use at high temperatures in average climatic conditions (W55).

Item	Symbol	Value	Unit
Rated Heat Output (1)	Prated	6,404	kW
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	Pdh	5,665	kW
Tj=+2°C	Pdh	3,590	kW
Tj=+7°C	Pdh	3,019	kW
Tj=+12°C	Pdh	3,623	kW
Tj= bivalent temperature	Pdh	5,088	kW
Tj= operation limit temperature	Pdh	5,665	kW
For air-to-water heat pumps: Tj= -15°C (if 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	0,020	kW
Thermostat off mode	CTU	0,023	kW
Standby mode	PSB	0,020	kW
Crankcase heater mode	PCK	0,030	kW
Other Items			
Capacity Control		Variable	
Sound power level, indoor/outdoor	LWA	33/56	dB
Annual energy consumption	QHE	3622	kWh

Item	Symbol	Value	Unit
Seasonal space heating energy efficiency	η_s	143,1	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature Tj:			
Tj=-7°C	COPd	2,29	-
Tj=+2°C	COPd	3,64	-
Tj=+7°C	COPd	4,99	-
Tj=+12°C	COPd	6,28	-
Tj= bivalent temperature	COPd	2,10	-
Tj= operation limit temperature	COPd	2,29	-
For air-to-water heat pumps: Tj= -15°C (if TOL<-20°C)	COPd	-	-
For air-to-water heat pumps: Operating limit temperature	TOL	-10	°C
Cycling interval efficiency	COP _{psych}	-	-
Heating water operating limit temperature			
	WTOL	56	°C
Supplementary heater			
Rated heat output	Psup	1,316	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.