

TECHNICAL DATA SHEET



TSE

**CONDENSERLESS
WATER CHILLER WITH
CENTRIFUGAL COMPRESSORS TO
BE CONNECTED WITH A REMOTE
CONDENSER (RCE)
FOR INDOOR INSTALLATION**



TSE Range 200 - 2.400 kW

TSE Range

Condenserless water chiller with centrifugal compressors to be connected with a remote condenser (RCE) for indoor installation



Centrifugal compressors
Flooded evaporator (R134a)
Dry expansion evaporator (HFO-1234ze)

R134a

HFO
1234ze

General Description

Available on several models equipped with one or more centrifugal compressors, dimensioned to be used with refrigerant type R134a or with the new HFO-1234ze low GWP refrigerant.

The units of the TSE series are assembled on a strong self-supporting metal screwed and welded structure, painted with epoxy powder with anti-rust coating for outdoor installation. All units are supplied completely wired and ready to be connected to the user's plant.

Prior to delivery every machine is submitted to a performance test, with intervention tests of all the safety systems and components installed.

Each unit is available with low-speed fans and compressor sound insulation kit (Low Noise LN version or Super Low Noise LLN) for installation in areas where sound levels must be kept to a minimum.

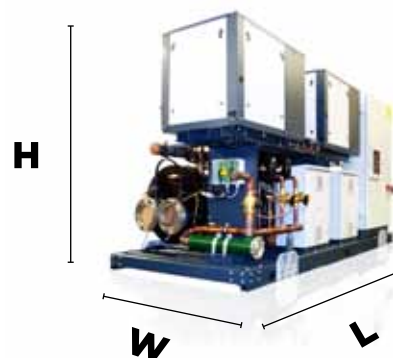
Typical units dimensions

Length: from 2.800 to 6.000 mm

Width: from 1.000 to 2.250 mm

Height: from 1.630 to 2.100 mm

Operating Weight: from 1.587 kg to 7.614 kg



Length from 2.800 mm to 6.000 mm

Condenserless water chiller with centrifugal compressors to be connected with a remote condenser (RCE) for indoor installation

TSE		TSE 1A 200 DC	TSE 1A 250 DC	TSE 1A 300 DC	TSE 1A 350 DC	TSE 1B 400 DC	TSE 2A 500 DC
CHILLER PERFORMANCE							
Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a
Total cooling capacity	kW	200	250	300	350	400	500
Nominal power input	kW	51,9	63,6	78,9	91,7	106,5	127,2
E.E.R.	Coef.	3,85	3,93	3,80	3,82	3,76	3,93
Energy class		D	D	E	E	E	D
E.S.E.E.R.	Coef.	-	-	-	-	-	-
Noise Pressure Level	dB(A)	55,00	55,00	55,00	59,00	59,00	59,00
Distance	m	10,00	10,00	10,00	10,00	10,00	10,00
WORKING CONDITIONS							
Inlet water temperature	°C	12,00	12,00	12,00	12,00	12,00	12,00
Outlet water temperature	°C	6,00	6,00	6,00	6,00	6,00	6,00
Compressors type (*1)	Type	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free
Compressors number	n°	1	1	1	1	1	2
Evaporator type (*2)	Type	FL	FL	FL	FL	FL	FL
Power circuit voltage	V/Ph/Hz	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
Control circuit voltage	V/Ph/Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50
Total power input	kW	51,9	63,6	78,9	91,7	106,5	127,2
Total running current	A	83,3	101,0	124,1	150,9	174,1	202,0
Total max current	A	140,0	140,0	140,0	210,0	210,0	280,0
Total starting current	A	5,0	5,0	5,0	5,0	5,0	106,0
DIMENSIONS							
Length with cabinet	mm	2800	2800	2800	2800	2800	3400
Width	mm	1000	1000	1000	1000	1000	1250
Height	mm	1630	1630	1630	1630	1630	1830
Shipping weight	kg	1560	1730	1760	1780	1960	2470
Operating weight	kg	1587	1763	1800	1828	2017	2535
(*1) Oil Free: Centrifugal Oil Free Compressor							
(*2) FL: Flooded							

Condenserless water chiller with centrifugal compressors to be connected with a remote condenser (RCE) for indoor installation

TSE 2A 600 DC	TSE 2B 700 DC	TSE 2B 800 DC	TSE 3A 900 DC	TSE 3B 1000 DC	TSE 3B 1100 DC	TSE 3B 1200 DC	TSE 3B 1300 DC	TSE 4B 1400 DC	TSE 4B 1600 DC	TSE 5B 1800 DC
R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
600	700	800	900	1000	1100	1200	1300	1400	1600	1800
157,8	183,4	213,0	236,7	263,4	288,3	319,5	363,3	366,8	426,0	471,5
3,80	3,82	3,76	3,80	3,80	3,82	3,76	3,58	3,82	3,76	3,82
E	E	E	E	E	E	E	E	E	E	E
-	-	-	-	-	-	-	-	-	-	-
59,00	63,00	63,00	63,00	64,00	64,00	64,00	64,00	66,00	66,00	66,00
10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00
12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00
6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00
Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free
2	2	2	3	3	3	3	3	4	4	5
FL	FL	FL	FL	FL	FL	FL	FL	FL	FL	FL
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
230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50
157,8	183,4	213,0	236,7	263,4	288,3	319,5	363,3	366,8	426,0	471,5
248,2	301,8	348,2	372,3	434,4	473,1	522,3	590,7	603,6	696,4	774,5
280,0	420,0	420,0	420,0	630,0	630,0	630,0	630,0	840,0	840,0	1050,0
129,1	155,9	179,1	253,2	294,6	320,4	353,2	398,8	457,7	527,3	624,6
3400	3400	3400	4000	4000	4000	4000	4000	4700	4700	5000
1250	1250	1250	1600	1600	1600	1600	1600	1600	1600	1600
1830	1830	1830	1860	1860	1860	1860	1860	2060	2060	2060
2830	2920	3170	3670	4140	4190	4190	4190	5050	5530	6040
2909	3015	3281	3793	4278	4344	4352	4352	5241	5752	6286

Condenserless water chiller with centrifugal compressors to be connected with a remote condenser (RCE) for indoor installation

TSE		TSE 5B 2000 DC	TSE 6B 2200 DC	TSE 6B 2400 DC			
CHILLER PERFORMANCE							
Refrigerant		R134a	R134a	R134a			
Total cooling capacity	kW	2000	2200	2400			
Nominal power input	kW	532,5	576,6	639,0			
E.E.R.	Coef.	3,76	3,82	3,76			
Energy class		E	E	E			
E.S.E.E.R.	Coef.	-	-	-			
Noise Pressure Level	dB(A)	66,00	67,00	67,00			
Distance	m	10,00	10,00	10,00			
WORKING CONDITIONS							
Inlet water temperature	°C	12,00	12,00	12,00			
Outlet water temperature	°C	6,00	6,00	6,00			
Compressors type (*1)	Type	Oil Free	Oil Free	Oil Free			
Compressors number	n°	5	6	6			
Evaporator type (*2)	Type	FL	FL	FL			
Power circuit voltage	V/Ph/Hz	400-3-50	400-3-50	400-3-50			
Control circuit voltage	V/Ph/Hz	230-1-50	230-1-50	230-1-50			
Total power input	kW	532,5	576,6	639,0			
Total running current	A	870,5	946,2	1044,6			
Total max current	A	1050,0	1260,0	1260,0			
Total starting current	A	701,4	793,5	875,5			
DIMENSIONS							
Length with cabinet	mm	5000	5200	5200			
Width	mm	1600	1600	1600			
Height	mm	2060	2060	2060			
Shipping weight	kg	6810	7300	7290			
Operating weight	kg	7086	7608	7614			
(*1) Oil Free: Centrifugal Oil Free Compressor (*2) FL: Flooded							



Condenserless water chiller with centrifugal compressors to be connected with a remote condenser (RCE) for indoor installation

TSE		TSE 1Z 200 DC	TSE 1Z 250 DC	TSE 1Z 300 DC	TSE 1Z 350 DC	TSE 2Z 400 DC	TSE 2Z 500 DC
CHILLER PERFORMANCE							
Refrigerant		HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze
Total cooling capacity	kW	200	250	300	350	400	500
Nominal power input	kW	52,6	61,9	76,8	92,9	105,2	123,8
E.E.R.	Coef.	3,80	4,04	3,91	3,77	3,80	4,04
Energy class		E	D	D	E	E	D
E.S.E.E.R.	Coef.	-	-	-	-	-	-
Noise Pressure Level	dB(A)	58,00	58,00	58,00	58,00	62,00	62,00
Distance	m	10,00	10,00	10,00	10,00	10,00	10,00
WORKING CONDITIONS							
Inlet water temperature	°C	12,00	12,00	12,00	12,00	12,00	12,00
Outlet water temperature	°C	6,00	6,00	6,00	6,00	6,00	6,00
Compressors type (*1)	Type	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free
Compressors number	n°	1	1	1	1	2	2
Evaporator type (*2)	Type	S&T	S&T	S&T	S&T	S&T	S&T
Power circuit voltage	V/Ph/Hz	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
Control circuit voltage	V/Ph/Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50
Total power input	kW	52,6	61,9	76,8	92,9	105,2	123,8
Total running current	A	88,4	102,8	125,9	151,1	176,8	205,6
Total max current	A	210,0	210,0	210,0	210,0	420,0	420,0
Total starting current	A	5,0	5,0	5,0	5,0	93,4	107,8
DIMENSIONS							
Length with cabinet	mm	4200	4200	4200	4200	4600	4600
Width	mm	1000	1000	1000	1000	1000	1250
Height	mm	1630	1630	1630	1830	1830	2100
Shipping weight	kg	2040	2050	2050	2160	2630	2850
Operating weight	kg	2149	2155	2151	2312	2770	3105
(*1) Oil Free: Centrifugal Oil Free Compressor							
(*2) S&T: Shell&Tube							

Condenserless water chiller with centrifugal compressors to be connected with a remote condenser (RCE) for indoor installation

TSE 2Z 600 DC	TSE 2Z 700 DC	TSE 3Z 800 DC	TSE 3Z 900 DC	TSE 3Z 1000 DC	TSE 3Z 1050 DC	TSE 4Z 1200 DC	TSE 4Z 1300 DC	TSE 4Z 1400 DC	TSE 6Z 1600 DC	TSE 6Z 1800 DC
HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze	HFO-1234ze
600	700	800	900	1000	1050	1200	1300	1400	1600	1800
153,6	185,8	198,3	230,4	276,6	278,7	307,2	352,8	371,6	396,6	460,8
3,91	3,77	4,03	3,91	3,62	3,77	3,91	3,68	3,77	4,03	3,91
D	E	D	D	E	E	D	E	E	D	D
-	-	-	-	-	-	-	-	-	-	-
62,00	62,00	63,00	63,00	63,00	63,00	65,00	65,00	65,00	66,00	66,00
10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00	10,00
12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00
6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00	6,00
Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free	Oil Free
2	2	3	3	3	3	4	4	4	6	6
S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T
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
230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50
153,6	185,8	198,3	230,4	276,6	278,7	307,2	352,8	371,6	396,6	460,8
251,8	302,2	327,9	377,7	450,0	453,3	503,6	574,8	604,4	655,8	755,4
420,0	420,0	630,0	630,0	630,0	630,0	840,0	840,0	840,0	1260,0	1260,0
130,9	156,1	223,6	256,8	305,0	307,2	382,7	436,1	458,3	551,5	634,5
4600	4600	4600	4600	4600	5000	5000	5000	5000	6000	6000
1250	1250	1250	1600	1600	1600	2250	2250	2250	2250	2250
2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100
2880	2900	3490	3500	3520	3670	4360	4360	4400	5900	5900
3127	3140	3902	3905	3917	4056	4855	4855	4881	6725	6725

Condenserless water chiller with centrifugal compressors to be connected with a remote condenser (RCE) for indoor installation

TSE		TSE 6Z 1900 DC	TSE 6Z 2000 DC	TSE 6Z 2100 DC			
CHILLER PERFORMANCE							
Refrigerant		HFO-1234ze	HFO-1234ze	HFO-1234ze			
Total cooling capacity	kW	1900	2000	2100			
Nominal power input	kW	504,0	553,2	557,4			
E.E.R.	Coef.	3,77	3,62	3,77			
Energy class		E	E	E			
E.S.E.E.R.	Coef.	-	-	-			
Noise Pressure Level	dB(A)	66,00	66,00	66,00			
Distance	m	10,00	10,00	10,00			
WORKING CONDITIONS							
Inlet water temperature	°C	12,00	12,00	12,00			
Outlet water temperature	°C	6,00	6,00	6,00			
Compressors type (*1)	Type	Oil Free	Oil Free	Oil Free			
Compressors number	n°	6	6	6			
Evaporator type (*2)	Type	S&T	S&T	S&T			
Power circuit voltage	V/Ph/Hz	400-3-50	400-3-50	400-3-50			
Control circuit voltage	V/Ph/Hz	230-1-50	230-1-50	230-1-50			
Total power input	Kw	504,0	553,2	557,4			
Total running current	A	822,6	900,0	906,6			
Total max current	A	1260,0	1260,0	1260,0			
Total starting current	A	690,5	755,0	760,5			
DIMENSIONS							
Length with cabinet	mm	6000	6000	6000			
Width	mm	2250	2250	2250			
Height	mm	2100	2100	2100			
Shipping weight	kg	5930	5970	6010			
Operating weight	kg	6741	6765	6783			
(*1) Oil Free: Centrifugal Oil Free Compressor (*2) S&T: Shell&Tube							

