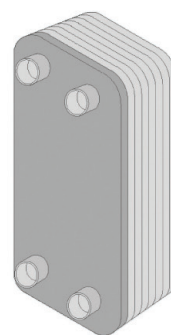


TWA 212-1102 S/K/P

**Agua
Cooling**



Incorporating



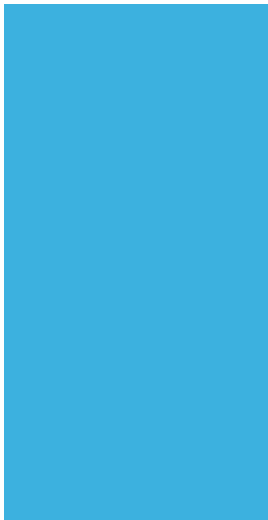
R410A

Air cooled water chillers with axial fans and scroll compressors from 189 kW to 1007 kW



n° 1370
according to
97/23/EC (P.E.D.)





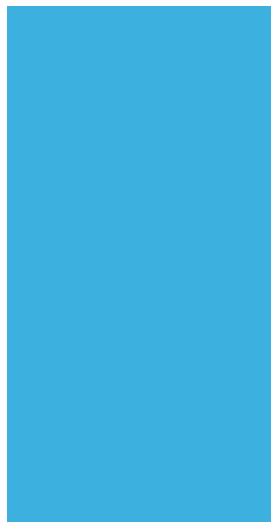
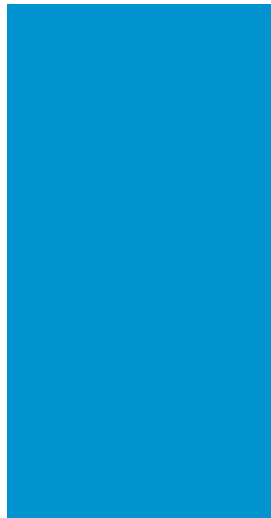
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TWA 212-1102 S/K/P

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TWA 212-1102 S/K/P

General Description

Air cooled water chiller units, with axial fans for outdoor installation. The range consists of 17 models covering a cooling capacity from 189 to 1007 kW.

Versions

- TWA – cooling only
- TWA/SSL – super silenced cooling only

Technical Features:

Frame

Self-supporting galvanized steel frame further protected with polyester powder painting. Easy to remove panels allow access to the inside of the unit for maintenance and other necessary operations.

Compressors

Scroll hermetic type with oil sight glass. They are fitted with internal overheat protection and crankcase heater if needed, installed on rubber shock absorbers.

Fans

Axial fans directly coupled to a three-phase electric motor with external rotor. A safety fan guard is fitted on the air flow discharge. On the super silenced units the fans have a low rpm.

Condenser

Two copper tube and aluminium finned coils.

Evaporator

In AISI 316 stainless steel braze plate type with two independent circuits on the refrigerant side and a common water side. **Shell and tube available on request.**

Electrical board

Includes: main switch with door safety interlock; fuses (212/682) or magnetothermic (762/1102), overload protection for compressors and thermocontacts for fans; interface relays, electrical terminals for external connections.

Microprocessor

For automatic control of the unit allowing continuous display of the operational status of the unit, control set point and actual water temperature and, in case of partial or total block of the unit, indication of low flow.

Refrigerant circuit versions TWA and TWA/SSL

Each unit includes two independent refrigerant circuits. Produced in copper tubing, all models have the following components: electronic expansion valve, electro valve on liquid line (pump down) (302/442), filter-drier, level and humidity indicator, high and low pressure switches (with fixed setting) and safety valve (302/1102).

Water circuit TWA and TWA/SSL version

Includes: evaporator, temperature sensor, antifreeze sensor, differential water pressure switch and manual air vent.



Factory Fitted Accessories

- IM** – **Magnetothermic switches** instead of fuses and thermal relays.
- SL** – **Unit silencing**. The compressors are equipped with sound-absorbing covering.
- CC** – **Condensation control** obtained by means of continuous adjustment of the fan rotation speed to allow the unit to work in ambients down to -20°C.
- DS** – **Desuperheater** with 20% heat recovery.
- RT** – **Total heat recovery** in series for 100%.
- PS** – **Circulating pump** installed inside the unit.
- PD** – **Double circulating pump** installed inside the unit, operating on run and stand-by, the pump with the least number of working hours is activated first.
- RF** – **Cooling circuit shut off** valve on liquid.
- FE** – **Evaporator heater** with thermostatic control.

Loose Accessories

- MN** – **High and low pressure gauges** for every refrigeration circuit.
- CR** – **Remote control panel** to be inserted in the room for remote control of the unit, with the same functions as the main controller.
- IS** – **RS 485 serial interface** for connection to controls and centralised supervision systems.
- RP** – **Coil protection guards** in steel with cataphoresis treatment and painting.
- FP** – **Coil protection grills** with woven metal filter.
- AG** – **Rubber vibration dampers** to be inserted at the bottom of the unit to dampen possible vibrations.

Reference Conditions

All technical data, indicated on pages 5 and 6, refer to the following unit operating conditions:

- entering water temperature 12°C
- leaving water temperature 6°C
- ambient air on condenser 32°C.

The sound pressure level is measured in free field conditions at a distance of 1m from the unit and at a height of 1.5 m opposite side electrical board and with machine running on full load; it does not take into account possible pumps installed inside the unit. This value can vary depending on the site of installation and has a tolerance of +/- 3dB(A) in accordance with DIN 45635. The power supply is 400V/3Ph/50Hz; auxiliary supply is 230V/1Ph/50Hz.

Operating Range		Cooling	
		Min.	Max.
Inlet water temperature	°C	8	25
Outlet water temperature	°C	5	20
Water thermal difference	°C	3	9
Ambient air temperature	°C	-20	46
Minimum chilled water outlet temperature with glycol mixture	°C	-8	
Max. operating pressure heat exchanger water side	kPa	1000	

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TWA 212-1102 S/K/P

Technical Data

Models 212-412

Model		212	222	242	272	302	342	362	412
Cooling									
Cooling capacity (1)		189	207	225	252	279	309	339	376
Absorbed power (1)	kW	65	76	79	85	101	107	113	126
Evaporator									
Water flow (1)	l/s	7.53	8.24	8.96	10.03	11.11	12.3	13.5	14.97
Pressure drops (1)	kPa	26	30	31	30	32	32	34	29
Water connections	"G	3"	3"	3"	3"	3"	3"	3"	3"
Water volume	dm ³	16	16	17	19	21	23	24	30
Compressors									
Unitary absorbed power (1)	kW	6x10.8	6x12.6	4x12.6+ 2x14.1	6x14.1	8x12.6	4x12.6+ 4x14.1	8x14.1	10x12.6
Unitary absorbed current (1)	A	6x18	6x19.8	4x19.8+ 2x25.5	6x25.5	8x19.8	4x19.8+ 4x25.5	8x25.5	10x19.8
Oil charge	kg	3.3	3.3	3.3-7	6.7	3.3	3.3-7	6.7	3.3
Version standard and with accessory SL									
Airflow	m ³ /s	20.55	20.55	20.55	19.44	22.5	21.77	21.77	29.66
Fans	n°	4	4	4	4	4	4	4	6
Nominal power - fans	kW	8	8	8	8	8	8	8	12
Nominal current - fans	A	17.2	17.2	17.2	17.2	17.2	17.2	17.2	25.8
Sound pressure level DIN (1)	dB(A)	77	77	78	80	78	80	81	79
Sound pressure level with SL accessory DIN (1)	dB(A)	74	74	75	77	75	76	78	76
Refrigerant charge R410A cooling only unit	kg	2x15	2x15	2x15	2x20	2x23	2x30	2x30	2x32
Length	mm	2800	2800	2800	2800	4000	4000	4000	4000
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200
Height	mm	2100	2100	2100	2100	2100	2100	2100	2100
Cooling only unit transport weight	kg	1654	1674	1763	1961	2199	2457	2566	2610
Cooling only unit transport weight with SL accessory	kg	1684	1704	1793	1991	2239	2497	2606	2660
SSL version									
Airflow	m ³ /s	15.33	15.33	15.33	25	25	23.33	23.33	32.22
Fans	n°	4	4	4	6	6	6	6	8
Nominal power - fans	kW	5.1	5.1	5.1	7.6	7.6	7.6	7.6	10.2
Nominal current - fans	A	10	10	10	15	15	15	15	20
Sound pressure level DIN (1)	dB(A)	69	69	70	72	70	72	73	71
Refrigerant charge R410A cooling only unit	kg	2x20	2x20	2x20	2x23	2x23	2x30	2x30	2x30
Length	mm	2800	2800	2800	2800	4000	4000	4000	4000
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200
Height	mm	2100	2100	2100	2100	2100	2100	2100	2100
Cooling only unit transport weight	kg	1764	1794	1883	2071	2329	2587	2696	2750
Total electrical consumption									
Power supply	V/Ph/Hz	<----- 400/3/50 ----->							
Starting current	A	282	304	311	332	356	373	394	473
Max. current	A	158	172	182	203	224	244	265	344

(1) Referential conditions on page 4.

Technical Data Models 442-1102

Model		442	482	562	622	682	762	862	962	1102
Cooling										
Cooling capacity (1)	kW	418	462	509	568	647	730	824	914	1007
Absorbed power (1)	kW	141	160	169	202	235	268	300	336	372
Evaporator										
Water flow (1)	l/s	16.64	18.39	20.27	22.61	25.76	29.06	32.81	36.39	40.09
Pressure drops (1)	kPa	33	31	34	30	32	29	33	30	32
Water connections	"G	3"	3"	3"	3"	3"	3"	3"	6"	6"
Water volume	dm ³	31	36	37	44	48	60	62	72	76
Compressors										
Unitary absorbed power (1)	kW	10x14.1	6x12.6 +6x14.1	12x14.1	6x14.1 +6x19.6	12x19.6	6x19.6+ 6x25	12x25	6x25 +6x31	12x31
Unitary absorbed current (1)	A	10x25.5	6x19.8 +6x25.5	12x25.5	6x25.5 +6x33.6	12x33.6	6x33.6+ 6x44.1	12x44.1	6x44.1 +6x47.8	12x47.8
Oil charge	kg	6.7	3.3-6.7	6.7	6.7	6.7	6.7	6.7	6.7-7.2	7.2
Version standard and with accessory SL										
Airflow	m ³ /s	41.11	31.66	31.66	31.66	38.61	47.77	47.77	57.22	57.22
Fans	n°	8	6	6	6	8	10	10	12	12
Nominal power - fans	kW	16	12	12	12	16	20	20	24	24
Nominal current - fans	A	34.4	25.8	25.8	25.8	34.4	43	43	51.6	51.6
Sound pressure level DIN (1)	dB(A)	81	80	82	84	85	85	86	86	87
Sound pressure level with SL accessory DIN (1)	dB(A)	78	77	79	81	82	82	83	83	84
Refrigerant charge R410A cooling only unit	kg	2x30	2x38	2x40	2x40	2x42	2x53	2x53	2x60	2x62
Length	mm	5000	5000	5000	5000	5000	6200	6200	7200	7200
Width	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200
Height	mm	2100	2100	2100	2100	2100	2100	2100	2100	2100
Cooling only unit transport weight	kg	3179	3294	3463	3517	3682	4200	4518	4918	5044
Cooling only unit transport weight with SL accessory	kg	3229	3354	3523	3577	3742	4270	4588	4998	5124
SSL version										
Airflow	m ³ /s	25.28	30.66	30.66	30.66	32.78	46.11	46.11	---	---
Fans	n°	6	8	8	8	8	12	12	---	---
Nominal power - fans	kW	7.6	10.2	10.2	10.2	10.2	15.2	15.2	---	---
Nominal current - fans	A	15	20	20	20	20	30	30	---	---
Sound pressure level DIN (1)	dB(A)	74	72	74	76	77	77	78	---	---
Refrigerant charge R410A cooling only unit	kg	2x40	2x38	2x39	2x39	2x52	2x62	2x62	---	---
Length	mm	5000	5000	5000	5000	6200	7200	7200	---	---
Width	mm	2200	2200	2200	2200	2200	2200	2200	---	---
Height	mm	2100	2100	2100	2100	2100	2100	2100	---	---
Cooling only unit transport weight	kg	3349	3464	3633	3687	3922	4650	4898	---	---
Total electrical consumption										
Power supply	V/Ph/Hz	-----400/3/50----->								
Starting current	A	473	496	527	632	702	810	875	979	1022
Max. current	A	344	367	398	458	528	602	667	718	761

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Cooling Capacity Models 212-442

Model	To (°C)	Ambient Air Temperature °C											
		25		28		32		35		40		45	
		kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe
212	5	195	57	189	60	181	65	175	68	165	75	153	83
	6	203	57	197	60	189	65	183	68	172	75	160	83
	7	211	57	205	60	197	65	190	69	179	75	166	83
	8	219	57	213	60	205	65	198	69	186	75	173	83
	9	228	57	222	60	213	65	206	69	194	75	181	83
	10	237	57	231	60	221	65	214	69	202	75	188	83
222	5	214	66	208	70	199	76	192	80	180	89	167	98
	6	222	66	216	70	207	76	200	80	187	89	174	98
	7	231	66	225	70	215	76	208	80	195	89	181	98
	8	240	66	234	70	224	76	216	80	203	89	189	99
	9	250	66	243	70	233	76	225	80	211	89	197	99
242	5	233	69	226	73	216	79	209	83	195	92	181	102
	6	243	69	235	73	225	79	217	83	203	92	189	102
	7	252	69	245	73	234	79	226	83	212	92	197	102
	8	262	69	254	73	243	79	235	83	220	92	205	102
	9	272	69	264	73	253	79	244	83	229	92	213	102
272	5	282	69	274	73	263	78	254	83	238	92	221	102
	6	263	74	254	78	242	85	234	90	227	99	212	110
	7	274	74	264	78	252	85	243	90	227	99	212	110
	8	284	74	275	78	262	84	252	90	236	99	220	110
	9	295	74	285	78	272	84	262	90	245	99	228	110
302	5	306	74	296	78	282	84	272	89	254	99	237	110
	6	317	73	307	77	293	84	282	89	264	99	246	109
	7	288	88	280	93	268	101	259	107	242	119	225	132
	8	300	88	291	93	279	101	269	107	252	119	234	132
	9	312	88	303	93	290	101	280	107	263	119	244	132
342	5	324	88	315	93	302	101	292	107	274	119	254	132
	6	337	88	327	93	314	101	303	107	285	119	265	132
	7	350	88	340	93	326	101	315	107	296	119	276	132
	8	321	93	311	99	297	107	286	114	268	126	249	139
	9	334	93	323	98	309	107	298	114	279	126	260	140
362	5	347	93	336	98	321	107	310	114	290	126	270	140
	6	360	93	349	98	334	107	322	113	302	126	281	140
	7	374	93	363	98	347	107	335	113	314	126	292	140
	8	388	93	376	98	360	107	348	113	326	126	303	140
	9	354	98	342	104	326	113	314	120	294	133	274	147
412	5	368	98	356	104	339	113	327	120	306	133	285	147
	6	382	98	369	104	352	113	339	120	318	133	296	147
	7	397	98	383	104	366	112	352	120	330	133	307	147
	8	412	98	398	104	380	112	366	119	342	132	319	147
	9	427	98	413	103	394	112	379	119	355	132	330	147
442	5	388	110	377	116	361	126	349	134	327	148	303	164
	6	404	110	392	116	376	126	363	134	340	148	316	165
	7	420	110	408	116	391	126	378	134	354	148	329	165
	8	437	110	424	117	407	126	393	134	369	149	343	165
	9	454	110	441	117	423	126	409	134	384	149	357	165
442	5	471	110	458	117	440	126	425	134	399	149	371	165
	6	437	123	422	130	402	141	387	150	363	166	338	183
	7	454	123	438	130	418	141	403	150	377	166	351	183
	8	471	123	455	130	434	141	418	150	392	165	365	183
	9	489	123	473	130	451	141	434	149	407	165	379	183
442	5	508	122	491	130	468	140	451	149	422	165	393	183
	10	526	122	509	129	486	140	468	149	438	165	407	183

kWf: Cooling capacity (kW)

kWe: Power input (kW)

To: Evaporator leaving water temperature (Δt in/out = 5K)



Incorporating



Cooling Capacity Models 482-1102

Model	Ambient Air Temperature °C												
	To (°C)	25		28		32		35		40		45	
		kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe	kWf	kWe
482	5	480	139	465	148	444	160	428	170	401	189	373	209
	6	499	139	483	148	462	160	446	170	417	189	388	209
	7	518	139	502	148	480	160	463	170	434	189	404	209
	8	539	139	522	148	499	160	482	170	451	189	420	209
	9	559	139	542	148	519	160	500	170	469	189	436	209
562	5	580	139	563	147	539	160	520	170	487	189	453	209
	6	532	147	514	156	490	169	472	180	442	199	412	220
	7	553	147	534	156	509	169	490	180	459	199	428	220
	8	574	147	555	156	529	169	509	180	477	199	444	220
	9	596	147	576	156	549	169	529	179	495	199	461	220
622	5	618	147	598	155	570	168	549	179	514	199	478	220
	6	641	146	620	155	591	168	570	179	533	198	496	220
	7	592	175	573	186	547	202	527	216	492	240	456	267
	8	615	175	595	186	568	202	547	215	511	240	474	267
	9	638	175	618	186	590	202	568	215	531	240	493	267
682	5	662	175	641	186	612	202	590	215	551	239	512	267
	6	686	175	664	186	634	202	612	215	572	239	531	266
	7	711	175	688	186	658	202	634	215	593	239	551	266
	8	738	175	717	186	683	202	659	215	615	239	572	266
	9	764	175	743	186	709	202	685	215	637	239	593	266
762	5	791	203	771	216	743	235	716	251	689	280	652	312
	6	816	203	796	216	768	235	741	251	714	280	677	312
	7	841	204	821	216	793	235	766	251	739	280	702	312
	8	866	204	846	217	818	235	791	251	764	279	727	311
	9	891	204	871	217	843	235	816	251	789	279	752	311
862	5	916	205	896	217	869	236	842	251	817	279	777	311
	6	941	204	921	216	894	235	867	251	842	280	802	312
	7	966	204	946	216	919	235	892	251	867	280	827	312
	8	991	204	971	217	944	235	917	251	892	279	852	311
	9	1016	204	996	217	969	235	942	251	917	279	877	311
962	5	1041	234	1021	247	994	268	967	284	940	315	893	349
	6	1066	234	1046	247	1019	268	992	284	965	315	918	349
	7	1091	234	1071	247	1044	268	1017	284	990	315	943	349
	8	1116	234	1096	248	1069	268	1042	284	1015	315	968	349
	9	1141	234	1121	248	1094	268	1067	284	1040	315	993	349
1102	5	1166	263	1146	278	1119	300	1092	318	1065	351	1018	388
	6	1191	263	1171	278	1144	300	1117	318	1090	351	1043	388
	7	1216	263	1196	278	1169	300	1142	318	1115	351	1068	388
	8	1241	263	1221	278	1194	300	1167	318	1140	351	1093	388
	9	1266	263	1246	278	1219	300	1192	318	1165	351	1118	388

kWf: Cooling capacity (kW)

kWe: Power input (kW)

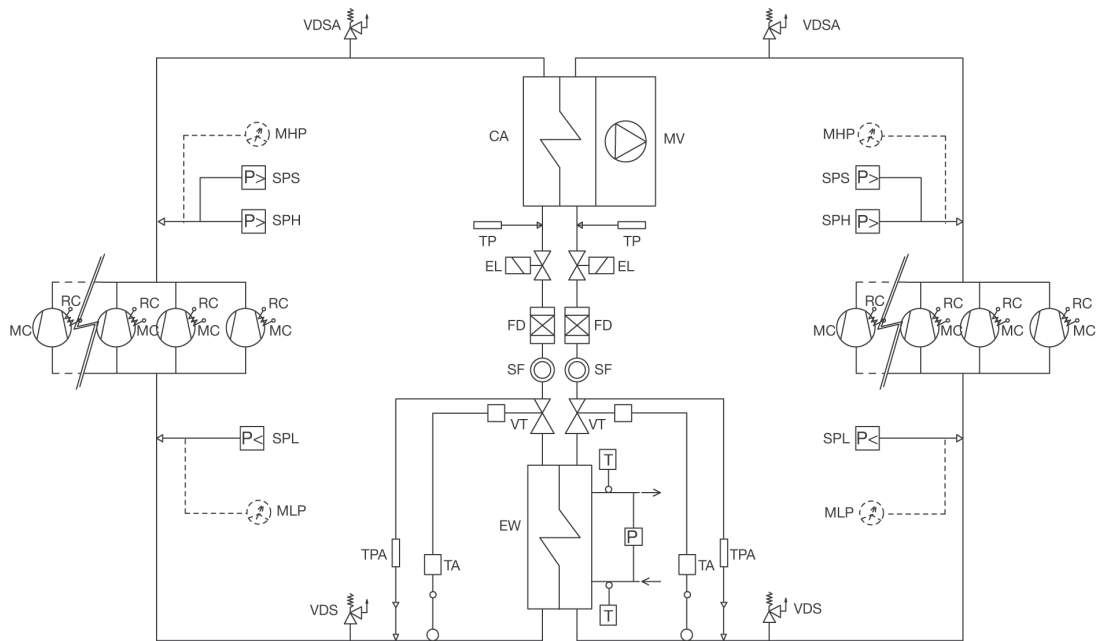
To: Evaporator leaving water temperature (Δt in/out = 5K)

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TWA 212-1102 S/K/P

Refrigeration Circuit Diagram



	Description		Description
CA	Condenser	SPH	High pressure switch
EL	Evaporator	SPL	Low pressure switch
EW	Filter-drier	SPS	Safety pressure gauges
FD	Filter-drier	TA	Temperature sensor (302/1102)
MC	Compressor	TP	Pressure transducer
MHP	High pressure gauge (accessory)	TPA	Pressure transducer (302/1102)
MLP	Low pressure gauge (accessory)	VDS	Safety valve
MV	Axial fans	VDSA	Safety valve (482/1102)
RC	Crank case heater	VT	Expansion valve
SF	Sight glass	VDSA	Safety valve (482/1102)

Water Circuit

General characteristics

Water circuit TWA and TWA/SSL version

Includes: evaporator, temperature sensor, antifreeze sensor, differential water pressure switch and manual air vent.

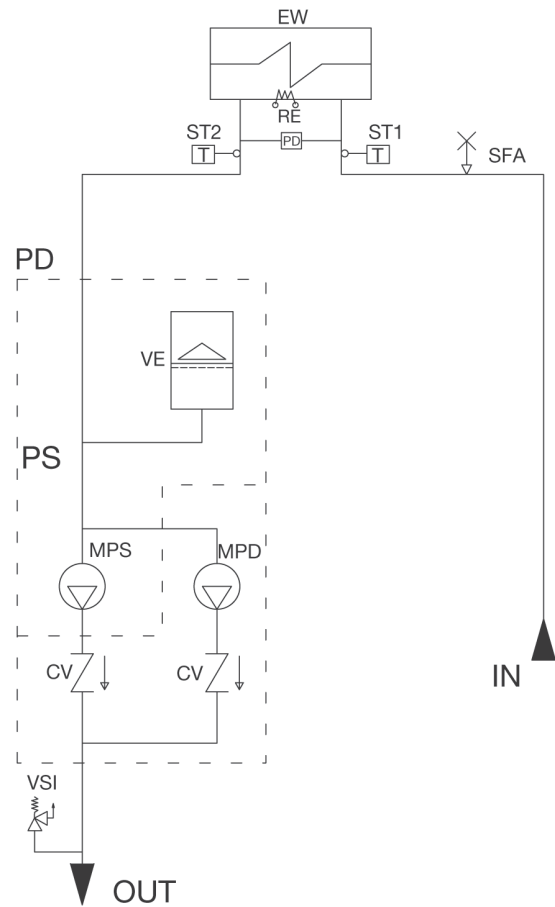
PS – Water circuit with additional circulation pump

Includes: evaporator, temperature sensor, antifreeze sensor, differential water pressure switch, circulation pump, expansion vessel, safety valve and thermal relay.

PD – Water circuit with additional double circulation pump

Includes: evaporator, temperature sensor, antifreeze sensor, differential water pressure switch, double circulation pump, expansion vessel, safety valve, check valve and thermal relay.

Water circuit diagram



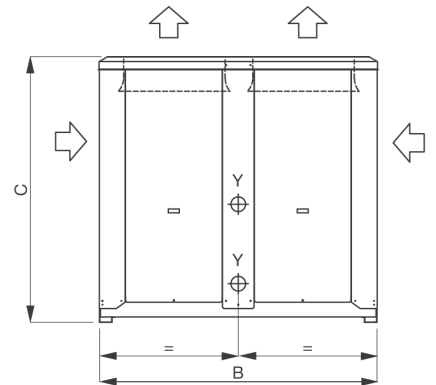
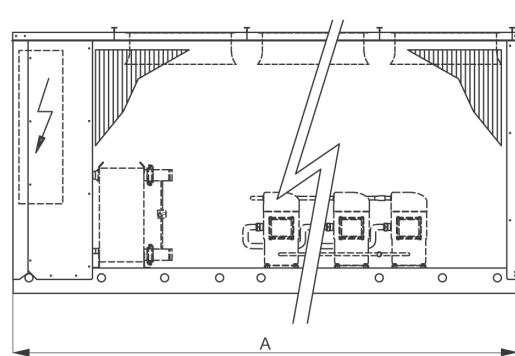
	Description
CV	Gate valve
EW	Evaporator
MPD	Double circulating pump
MPS	Single circulating pump
PD	Differential water pressure switch
SFA	Air vent
ST1	Sensor for unit operation
ST2	Antifreeze sensor
VE	Expansion vessel
VSI	Safety valve (600 kPa)

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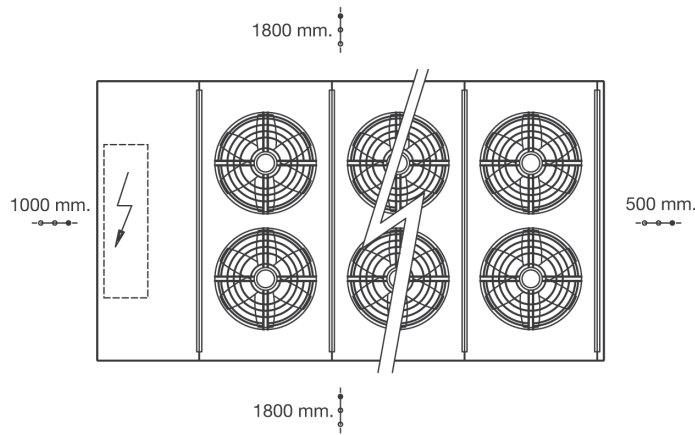


TWA 212-1102 S/K/P

Dimensions and Clearances



View "X-X"



Y - Water connections for standard units.

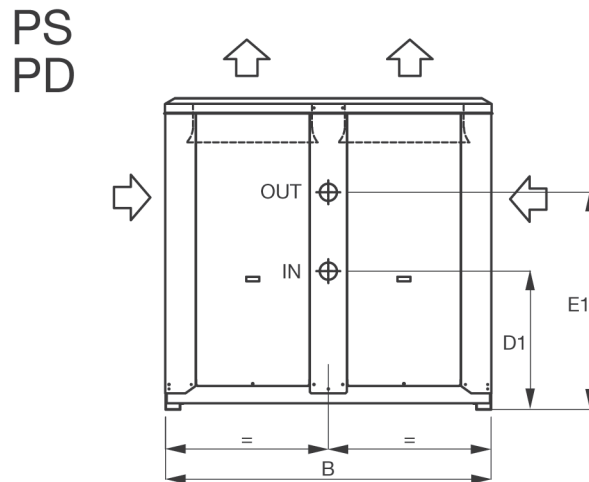
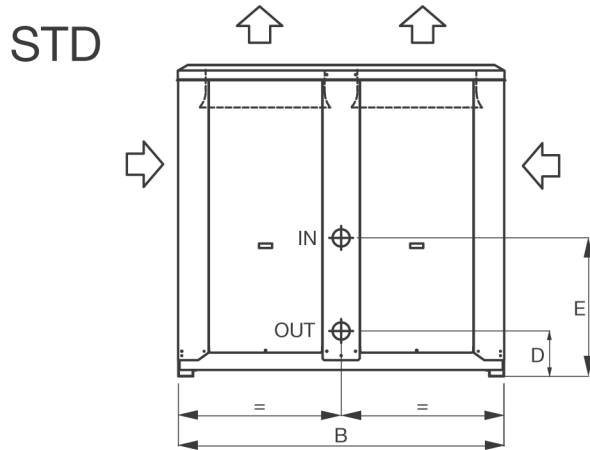
● ● ● Clearance area

Model		212			222			242			272			302			342			362			412			442					
		STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL			
A	mm	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	2800	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	5000	5000	5000			
B	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
C	mm	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100

Model		482			562			622			682			762			862			962			1102			
		STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	
A	mm	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	6200	6200	6200	6200	6200	6200	7200	7200	7200	---	7200	7200	---
B	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	---	2200	2200	---
C	mm	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	2100	---	2100	2100	---

Incorporating

Position of Water Connections



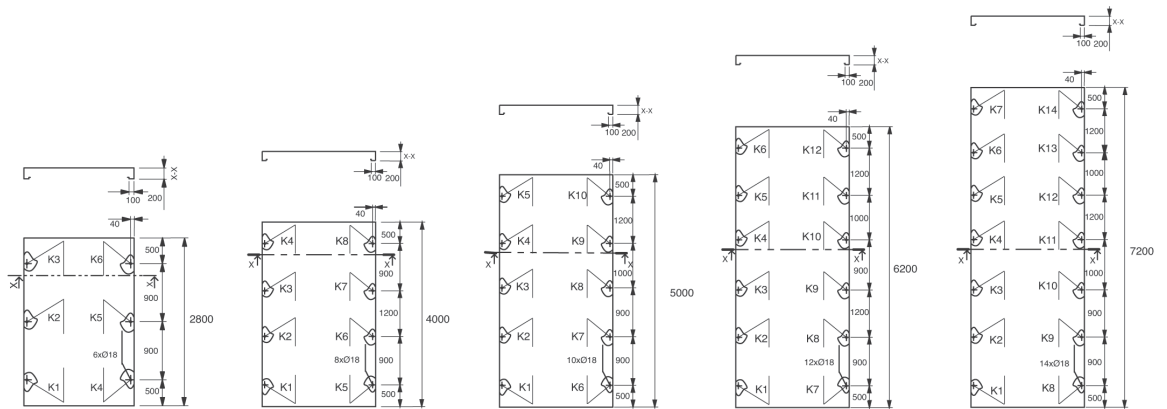
Model	212	222	242	272	302	342	362	412	442	482	562	622	682	762	862	962	1102
B	mm	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200
D	mm	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330	330
E	mm	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
D1	mm	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960	960
E1	mm	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500

The complete solution to all your cooling needs



TWA 212-1102 S/K/P

Weights



		Operating Weight (kg)																											
TWA		212			222			242			272			302			342			362			412			442			
		STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	
K1	kg	290	295	305	290	295	310	305	310	320	335	340	355	285	290	305	320	325	340	335	340	355	340	345	365	340	345	355	
K2	kg	280	285	300	285	290	305	300	305	315	330	335	350	280	285	295	315	320	330	325	330	340	335	340	350	335	340	345	
K3	kg	265	270	285	270	275	290	285	290	315	325	330	340	275	280	290	305	310	320	320	325	335	325	335	345	320	325	340	
K4	kg	290	295	305	290	295	310	305	310	320	335	340	355	270	275	285	300	305	315	315	320	330	320	325	330	310	315	330	
K5	kg	280	285	300	285	290	305	300	305	315	330	335	350	285	290	305	320	325	340	335	340	355	340	345	365	300	305	320	
K6	kg	265	270	285	270	275	290	285	290	315	325	330	340	280	285	295	315	320	330	325	330	340	335	340	350	340	345	355	
K7	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
K8	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
K9	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
K10	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
K11	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
K12	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
K13	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
K14	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Total	kg	1670	1700	1780	1690	1720	1810	1780	1810	1900	1980	2010	2090	2220	2260	2350	2480	2520	2610	2690	2630	2720	2640	2690	2780	3210	3260	3380	

TWA		482			562			622			682			762			862			962			1102			
		STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	STD	SL	SSL	
K1	kg	350	360	365	360	370	380	370	380	390	390	400	360	380	390	375	405	415	390	390	400	415	400	410	430	
K2	kg	345	350	355	355	360	375	360	365	380	380	385	350	375	380	365	400	405	380	385	390	400	395	400	415	
K3	kg	330	335	350	350	355	365	355	360	370	375	380	340	365	370	355	390	395	370	375	380	385	385	390	400	
K4	kg	325	330	345	345	350	360	350	355	365	365	370	325	350	355	340	380	385	360	360	365	355	370	375	375	
K5	kg	315	320	335	340	345	355	345	350	360	355	360	315	340	345	330	370	375	345	350	355	345	360	365	360	
K6	kg	350	360	365	360	370	380	370	380	390	390	400	295	320	325	305	345	350	330	330	335	310	340	345	335	
K7	kg	345	350	355	355	360	375	360	365	380	380	385	360	380	390	285	405	415	305	305	310	290	310	315	310	
K8	kg	330	335	350	350	355	365	355	360	370	375	380	350	375	380	375	400	405	390	390	400	415	400	410	430	
K9	kg	325	330	345	345	350	360	350	355	365	365	370	340	365	370	365	390	395	380	385	390	400	395	400	415	
K10	kg	315	320	335	340	345	355	345	350	360	355	360	325	350	355	355	380	385	370	375	380	385	385	390	400	
K11	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
K12	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
K13	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
K14	kg	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total	kg	3330	3390	3500	3500	3560	3670	3560	3620	3730	3730	3790	3970	4260	4330	4710	4580	4650	4960	4990	5070	5000	5120	5200	5250	



Incorporating



Sound Pressure Level

The sound level values indicated in dB(A) have been measured in free field conditions. The measurement is taken at 1 m distance from the side of condensing coil and at a height of 1.5 m with respect to the base of the machine. On the noise levels that are indicated, a tolerance of +/- 3dB(A) should be considered (according to DIN 45635). The values refer to a machine without pump.

STD	212	222	242	272	303	342	362	412	442	482	562	622	682	762	862	962	1102
	Hz	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
63	64.4	64.6	65.0	66.4	65.8	66.6	67.4	65.8	67.2	66.4	68.1	69.7	70.6	70.6	71.2	71.3	72.1
125	67.8	68.2	68.8	70.8	69.2	70.9	71.8	70.2	71.7	71.1	72.9	74.6	75.7	75.8	76.4	76.7	77.6
250	68.7	69.0	70.1	71.6	70.3	71.8	73.1	71.2	72.7	72.1	73.9	75.6	76.7	76.8	77.5	77.8	78.7
500	71.7	72.0	72.8	74.9	73.1	75.0	76.2	74.4	75.9	75.3	77.2	78.9	80.0	80.1	80.9	81.2	82.1
1000	69.2	69.6	70.5	72.5	70.6	72.4	73.6	71.8	73.3	72.7	74.6	76.3	77.4	77.5	78.2	78.5	79.4
2000	68.7	68.9	69.6	71.5	69.8	71.7	72.6	70.9	72.3	71.7	73.4	75.1	76.2	76.2	76.9	77.2	78.0
4000	64.2	64.4	65.2	67.1	65.5	67.2	68.3	66.5	68.0	67.4	69.1	70.8	71.9	72.0	72.7	72.9	73.8
8000	54.8	55.1	55.9	56.8	56.3	57.2	58.0	56.4	57.8	57.1	58.7	60.3	61.3	61.3	61.8	62.0	62.8
Total dB(A)	77.0	77.3	78.1	80.0	78.3	80.1	81.2	79.4	80.9	80.3	82.1	83.8	84.9	85.0	85.7	86.0	86.9

SL	212	222	242	272	303	342	362	412	442	482	562	622	682	762	862	962	1102
	Hz	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
63	62.0	62.1	62.8	64.0	63.3	63.5	64.9	63.3	64.8	64.0	65.3	67.3	68.2	68.4	68.9	69.3	69.9
125	65.1	65.4	66.3	68.1	66.3	67.4	69.0	67.3	69.0	68.3	69.7	71.9	72.9	73.2	73.9	74.4	75.1
250	65.6	65.8	67.2	68.4	67.0	67.7	69.8	67.9	69.6	68.9	70.3	72.5	73.6	73.9	74.6	75.2	75.8
500	68.3	68.4	69.6	71.4	69.5	70.5	72.6	70.7	72.5	71.7	73.2	75.5	76.5	76.9	77.7	78.3	78.9
1000	65.8	66.1	67.4	69.1	67.0	68.0	70.1	68.2	70.0	69.2	70.6	72.9	74.0	74.4	75.1	75.7	76.3
2000	65.7	65.8	66.9	68.5	66.7	67.9	69.5	67.7	69.4	68.6	70.0	72.2	73.2	73.5	74.1	74.7	75.3
4000	61.5	61.6	62.7	64.4	62.7	63.7	65.5	63.6	65.3	64.5	66.0	68.2	69.2	69.5	70.2	70.7	71.3
8000	52.4	52.6	53.7	54.3	53.7	54.0	55.4	53.8	55.4	54.5	55.9	57.9	58.8	59.0	59.6	60.0	60.5
Total dB(A)	73.9	74.0	75.2	76.8	75.1	76.0	77.9	76.1	77.8	77.0	78.5	80.7	81.7	82.1	82.8	83.3	84.0

SSL	212	222	242	272	303	342	362	412	442	482	562	622	682	762	862	962	1102
	Hz	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
63	57.5	57.5	58.6	60.3	58.4	59.5	61.0	58.8	60.7	60.3	61.4	62.9	64.3	64.7	64.9	---	---
125	59.8	59.9	61.9	63.7	60.8	63.3	64.4	62.1	64.7	64.0	65.1	67.3	68.4	69.0	69.8	---	---
250	60.0	59.2	62.4	63.8	60.2	63.3	65.0	61.6	64.8	64.4	64.6	67.4	68.8	68.7	69.9	---	---
500	61.7	61.1	63.8	66.0	61.8	65.1	66.9	63.5	66.7	66.4	66.7	69.3	70.8	71.0	72.1	---	---
1000	60.3	60.0	62.7	64.6	60.7	63.7	65.4	62.4	65.3	64.8	65.5	67.9	69.2	69.5	70.5	---	---
2000	60.1	59.9	62.0	63.9	60.5	63.3	64.6	62.0	64.5	64.0	64.8	67.0	68.2	68.7	69.4	---	---
4000	56.4	56.1	58.5	60.1	57.1	59.7	61.1	58.4	61.1	60.4	61.3	63.6	64.8	65.2	66.0	---	---
8000	47.5	47.5	49.7	50.3	48.4	50.3	51.2	48.9	51.5	50.6	51.4	53.7	54.7	54.9	55.8	---	---
Total dB(A)	68.2	67.9	70.3	72.1	68.7	71.4	73.0	70.1	72.9	72.4	73.1	75.4	76.8	77.1	78.0	---	---

The complete solution
to all your cooling needs



TWA 212-1102 S/K/P

Microprocessor Control System

A microprocessor controls all the functions of the unit and allows any adjustments to be made. The set-points and operating parameters are set directly into the microprocessor.

This type of microprocessor enables the adjustment of up to twelve compressors.

It has a visual alarm signal, pushbuttons for the various functions, and offers a continuous control of the system as well as saving all the data in case of a cut in the power supply.

Through the display, one can input and have an indication of set values.

Principal functions

Indication of entering and leaving water temperature; identification and display of blocks by means of alphanumerical code; control of one or two pumps; differential pressure switch alarm delay at start-up; pre-starting of the fans; hour counter of compressors in operation; automatic changeover of compressor and pump sequence; compressors start individually and not together; frost protection; remote on-off; operation signalling; manual operation; manual reset.

Alarms

High and low pressure and internal protection on each compressor; fans; antifreeze; differential pressure switch; configuration error.

Accessories

Electronic card for connection to management and service systems, remote display.

The data indicated in this manual is purely indicative. The manufacturer reserves the right to modify the data whenever it is considered necessary.

