Chillers

Commercial and Technical Data

Water cooled chiller

- **Wide capacity range (330kW – 1,500kW)**
- **Indoor installations**
- **Independent refrigerant circuits with single screw compressor**
- **Water supply down to -8°C (optional)**
- **Two efficiency versions available**
- **New Microtech III controller**

ECDEN12-424

EWWD-I-SS
330~1,500 kW

R-134a

Daikin Europe N.V.

About Daikin

Daikin has a worldwide reputation based on over 85 years' experience in the successful manufacture of high quality air conditioning equipment for industrial, commercial and residential use. Daikin's much envied quality quite simply stems from the close attention paid to design, production and testing, as well as aftersales support. To this end, every component is carefully selected and rigorously tested to verify its contribution to product quality and reliability.

New Daikin EWWD-I- water cooled chiller range with upgraded controller

In order to upgrade the chiller portfolio with a superior control logic, Daikin enhances today the EWWD-I- series incorporating the new Microtech III controller.

Microtech III ensures maximum efficiency and reliability, stable operating conditions and protection of critical components.

The new range is composed of 18 sizes and available in two efficiency versions (standard and high), with EER up to 5.12 and ESEER up to 6.31. Each unit is equipped with one, two or three R-134a refrigerant circuits, featuring shell & tube heat exchangers and single screw compressors with stepless capacity control, allowing the chiller to modulate its capacity from 100% to 8.33%.

Moreover, the range features an extensive option list including the heat recovery and the low water leaving temperature version, to provide water down to -8°C.

Table of Contents

Chiller features

Application flexibility

The EWWD-I- series is available in a wide range of capacities (330 - 1,500kW), allowing project solutions for an extensive range of applications.
The most commonly serviced parts are easily accessible, simplifying maintenance and service. Moreover, the new chillers allow flexible integration into a wide range of control and building management systems.

Large operation range

With the 'brine' option the new range is able to provide water down to -8°C, making the chiller models suitable also for some typical industrial applications.

Compact design for indoor installations

Water cooled units are typically intended for indoor installation and operation, resulting in acoustic isolation and also zero impact on the building layout.
The EWWD-I-series features a compact design, ideal for easy replacement, retrofit or new constructions.

Superior control logic

The new Microtech III controller provides an easy to use control environmental. The control logic is designed to provide maximum efficiency, to continue operation in unusual operating conditions and to provide a history of unit operation. One of the greatest benefits is the easy interface with Lonwork, BACnet, Ethernet TCP/IP or Modbus communications.

Extensive option list

The base model includes several standard factory mounted options such as: electronic expansion valve, phase monitor, wye – delta starter, etc. Moreover, the new range features an extensive option list, including heat recovery, brine version, soft starter, energy meter, etc.

1 Features

- All models are PED pressure vessel approved
- Stepless single-screw compressor
- Optimised for use with R-134a
- Cooling range: 333–1,510kW
- EER range: 4.28 to 4.66
- 1-2-3 truly independent refrigerant circuits
- Standard electronic expansion valve
- DX shell and tube evaporator – one pass refrigerant side to minimize pressure drops
- Partial and total heat recovery option available
- MicroTech III controller

2 Specifications

2-1 Technical Specifications					EWWD340I-SS	EWWD400I-SS	EWWD460I-SS	EWWD550I-SS	EWWD650I-SS	EWWD700I-SS	EWWD800I-SS	EWWD850I-SS	EWWD900I-SS
Cooling capacity	Nom.			kW	333 (1)	394 (1)	460 (1)	538 (1)	640 (1)	705 (1)	782 (1)	844 (1)	910 (1)
Heating capacity	Nom.			kW	388 (2)	460 (2)	538 (2)	630 (2)	757 (2)	832 (2)	919 (2)	993 (2)	1,072 (2)
Capacity control	Method				Stepless								
	Minimum capacity			%	25.0				12.5				
Power input	Cooling	Nom.		kW	71.5 (1)	85.8 (1)	101 (1)	120 (1)	141 (1)	156 (1)	171 (1)	186 (1)	200 (1)
	Heating	Nom.		kW	87.4 (2)	104 (2)	122 (2)	143 (2)	174 (2)	191 (2)	208 (2)	225 (2)	243 (2)
EER					4.66 (1)	4.59 (1)	4.56 (1)	4.47 (1)	4.53 (1)	4.52 (1)	4.57 (1)	4.55 (1)	
ESEER					5.06	4.96	4.93	4.86	5.54	5.75	5.56	5.70	5.47
COP					4.44 (2)	4.42 (2)	4.41 (2)		4.35 (2)	4.36 (2)	4.42 (2)	4.41 (2)	
IPLV					5.41	5.28	5.27	5.20	5.83	6.27	5.81	6.16	5.76
Casing	Colour				Ivory white								
	Material				Galvanized and painted steel sheet								
Dimensions	Unit	Height		mm	1,821				2,103				
		Width		mm	1,466				1,350				
		Depth		mm	3,298				4,116				
Weight	Unit			kg	2,150	2,160	2,179	2,224	3,909	3,927	3,945	3,971	3,996
	Operation weight			kg	2,380	2,396	2,410	2,457	4,217	4,228	4,243	4,262	4,288
Water heat exchanger - evaporator	Type				Single pass shell and tube								
	Water volume			l	193		183	172	271	263	256	248	241
	Water flow rate	Nom.		l/s	15.9	18.8	21.9	25.7	30.5	33.6	37.3	40.3	43.4
	Nominal water pressure drop	Cooling	Heat exchanger	kPa	37	50	54	62	55	44	57	53	44
	Insulation material				Closed cell								
Water heat exchanger - condenser	Type				Single pass shell and tube								
	Water flow rate	Nom.		l/s	19.5	23.1	27.0	31.7	18.8	19.1	23	23.2	26.8
	Nominal water pressure drop	Cooling		kPa	26	28	30	26	25		27	28	26
	Nominal water pressure drop 2	Cooling		kPa	-				25	26	27	26	
	Model	Quantity			1				2				
Sound power level	Cooling	Nom.		dBA	93.7	96.6	96.7		96.9	97.3	97.8	98.9	99.8
Sound pressure level	Cooling	Nom.		dBA	75.2 (3)	76.2 (3)	78.2 (3)		77.8 (3)	78.2 (3)	78.7 (3)	79.8 (3)	80.7 (3)
Compressor	Type				Single screw compressor								
	Quantity				1				2				
	Oil	Charged volume		l	16				32				
Operation range	Evaporator	Cooling	Min.	ºCDB	-8								
			Max.	ºCDB	15								
	Condenser	Cooling	Min.	ºCDB	20								
			Max.	ºCDB	55								
Refrigerant	Type				R-134a								
	Circuits	Quantity			1				2				
Refrigerant circuit	Charge			kg	54	52	51	50	108	106	104		
Piping connections	Evaporator water inlet/outlet (OD)				168.3mm								
	Condenser water inlet/outlet (OD)				5"								
Safety devices	Item	01			High discharge pressure (pressure switch)								
		02			High discharge pressure (pressure transducer)								
		03			Low suction pressure (pressure transducer)								
		04			Compressor motor protection								
		05			High discharge temperature								
		06			Low oil pressure								
		07			Low pressure ratio								
		08			High oil filter pressure drop								
		09			Phase monitor								
		10			Emergency stop button								
		11			Water freeze protection controller								

2 Specifications

2-1 Technical Specifications					EWWD950I-SS	EWWDC10I-SS	EWWDC12I-SS	EWWDC13I-SS	EWWDC14I-SS	EWWDC15I-SS	EWWDC16I-SS	EWWDC17I-SS	EWWDC18I-SS
Cooling capacity	Nom.			kW	986 (1)	1,027 (1)	1,155 (1)	1,204 (1)	1,274 (1)	1,346 (1)	1,401 (1)	1,455 (1)	1,510 (1)
Heating capacity	Nom.			kW	1,161 (2)	1,217 (2)	1,363 (2)	1,427 (2)	1,507 (2)	1,227 (2)	1,661 (2)	1,730 (2)	1,790 (2)
Capacity control	Method				Stepless								
	Minimum capacity			%	12.5		8.3						
Power input	Cooling	Nom.		kW	219 (1)	237 (1)	254 (1)	268 (1)	282 (1)	298 (1)	316 (1)	334 (1)	353 (1)
	Heating	Nom.		kW	262 (2)	282 (2)	309 (2)	326 (2)	344 (2)	363 (2)	383 (2)	401 (2)	420 (2)
EER					4.51 (1)	4.33 (1)	4.54 (1)	4.50 (1)	4.51 (1)		4.43 (1)	4.35 (1)	4.28 (1)
ESEER					5.61	5.36	5.51	5.56		5.54	5.55	5.45	5.27
COP					4.43 (2)	4.32 (2)	4.41 (2)	4.38 (2)		3.38 (2)	4.34 (2)	4.31 (2)	4.26 (2)
IPLV					5.90	5.64	5.71	5.74	5.76	5.74		5.65	5.45
Casing	Colour				Ivory white								
	Material				Galvanized and painted steel sheet								
Dimensions	Unit	Height		mm	2,103		2,323						
		Width		mm	1,350		2,130						
		Depth		mm	4,116		4,439						
Weight	Unit			kg	4,080	4,092	6,079	6,097	6,136	6,174	6,192	6,210	6,228
	Operation weight			kg	4,369	4,386	6,628	6,646	6,670	6,699	6,717	6,735	6,761
Water heat exchanger - evaporator	Type				Single pass shell and tube								
	Water volume			l	233		472	504	489	472			
	Water flow rate	Nom.		l/s	47.0	49.0	55.1	57.4	60.8	64.2	66.8	69.4	72.0
	Nominal water pressure drop	Cooling	Heat exchanger	kPa	54	39	52	55	46	57	62	66	71
	Insulation material				Closed cell								
Water heat exchanger - condenser	Type				Single pass shell and tube								
	Water flow rate	Nom.		l/s	27.2	30.5	22.6		22.9	26.4			29.9
	Nominal water pressure drop	Cooling		kPa	22	23	24		25	24			23
	Nominal water pressure drop 2	Cooling		kPa	23		24		23	24		23	
	Model	Quantity			2		3						
Sound power level	Cooling	Nom.		dBA	99.8		100.4	100.8	101.2	103.0			
Sound pressure level	Cooling	Nom.		dBA	80.7 (3)		80.4 (3)	80.8 (3)	81.2 (3)	83.0 (3)			
Compressor	Type				Single screw compressor								
	Quantity				2		3						
	Oil	Charged volume		l	32		48						
Operation range	Evaporator	Cooling	Min.	ºCDB	-8								
			Max.	ºCDB	15								
	Condenser	Cooling	Min.	ºCDB	20								
			Max.	ºCDB	55								
Refrigerant	Type				R-134a								
	Circuits	Quantity			2		3						
Refrigerant circuit	Charge			kg	100		156	155	154	153	152	151	150
Piping connections	Evaporator water inlet/outlet (OD)				168.3mm		219.1mm						
	Condenser water inlet/outlet (OD)				5"								
Safety devices	Item	01			High discharge pressure (pressure switch)								
		02			High discharge pressure (pressure transducer)								
		03			Low suction pressure (pressure transducer)								
		04			Compressor motor protection								
		05			High discharge temperature								
		06			Low oil pressure								
		07			Low pressure ratio								
		08			High oil filter pressure drop								
		09			Phase monitor								
		10			Emergency stop button								
		11			Water freeze protection controller								

2 Specifications

2-2 Electrical Specifications				EWWD340I-SS	EWWD400I-SS	EWWD460I-SS	EWWD550I-SS	EWWD650I-SS	EWWD700I-SS	EWWD800I-SS	EWWD850I-SS	EWWD900I-SS
Compressor	Phase			3~								
	Voltage		V	400								
	Voltage range	Min.	%	-10								
		Max.	%	10								
	Maximum running current		A	204	233	271	299	204		233		271
	Starting method			Wye-delta								
Compressor 2	Maximum running current		A	-				204	233		271	
Power supply	Phase			3~								
	Frequency		Hz	50								
	Voltage		V	400								
	Voltage range	Min.	%	-10								
		Max.	%	10								
Unit	Maximum starting current		A	330	464			493	627	650	681	
	Nominal running current (RLA)	Cooling	A	119	145	166	196	236	262	288	310	329
	Maximum running current		A	204	233	271	299	407	436	465	504	542
	Max unit current for wires sizing		A	224	256	298	328	448	480	512	554	597

2-2 Electrical Specifications				EWWD950I-SS	EWWDC10I-SS	EWWDC12I-SS	EWWDC13I-SS	EWWDC14I-SS	EWWDC15I-SS	EWWDC16I-SS	EWWDC17I-SS	EWWDC18I-SS
Compressor	Phase			3~								
	Voltage		V	400								
	Voltage range	Min.	%	-10								
		Max.	%	10								
	Maximum running current		A	271	299	233		271				299
	Starting method			Wye-delta								
Compressor 2	Maximum running current		A	299		233		271			299	
Power supply	Phase			3~								
	Frequency		Hz	50								
	Voltage		V	400								
	Voltage range	Min.	%	-10								
		Max.	%	10								
Unit	Maximum starting current		A	703		836	867	898		920	942	
	Nominal running current (RLA)	Cooling	A	355	382	431	450	470	493	520	547	574
	Maximum running current		A	570	597	698	736	775	814	841	868	896
	Max unit current for wires sizing		A	627	657	768	810	853	895	925	955	985

Notes

(1) Cooling: entering evaporator water temp. 12ºC; leaving evaporator water temp. 7ºC; entering condenser water temp. 30ºC; leaving condenser water temp. 35ºC; full load operation.

(2) Heating: entering evaporator water temp. 12ºC; leaving evaporator water temp. 7ºC; entering condenser water temp. 40ºC; leaving condenser water temp. 45ºC; unit at full load operation

(3) Sound level data are measured at entering evaporator water temp. 12ºC; leaving evaporator water temp. 7ºC; entering condenser water temp. 30ºC; leaving condenser water temp. 35ºC; full load operation; standard: ISO3744

(4) Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.

(5) Maximum starting current: starting current of biggest compressor + current of the other compressor at 75 % of maximum load

(6) Nominal current in cooling mode: entering evaporator water temp. 12ºC; leaving evaporator water temp. 7ºC; entering condenser water temp. 30ºC; leaving condenser water temp. 35ºC; compressors.

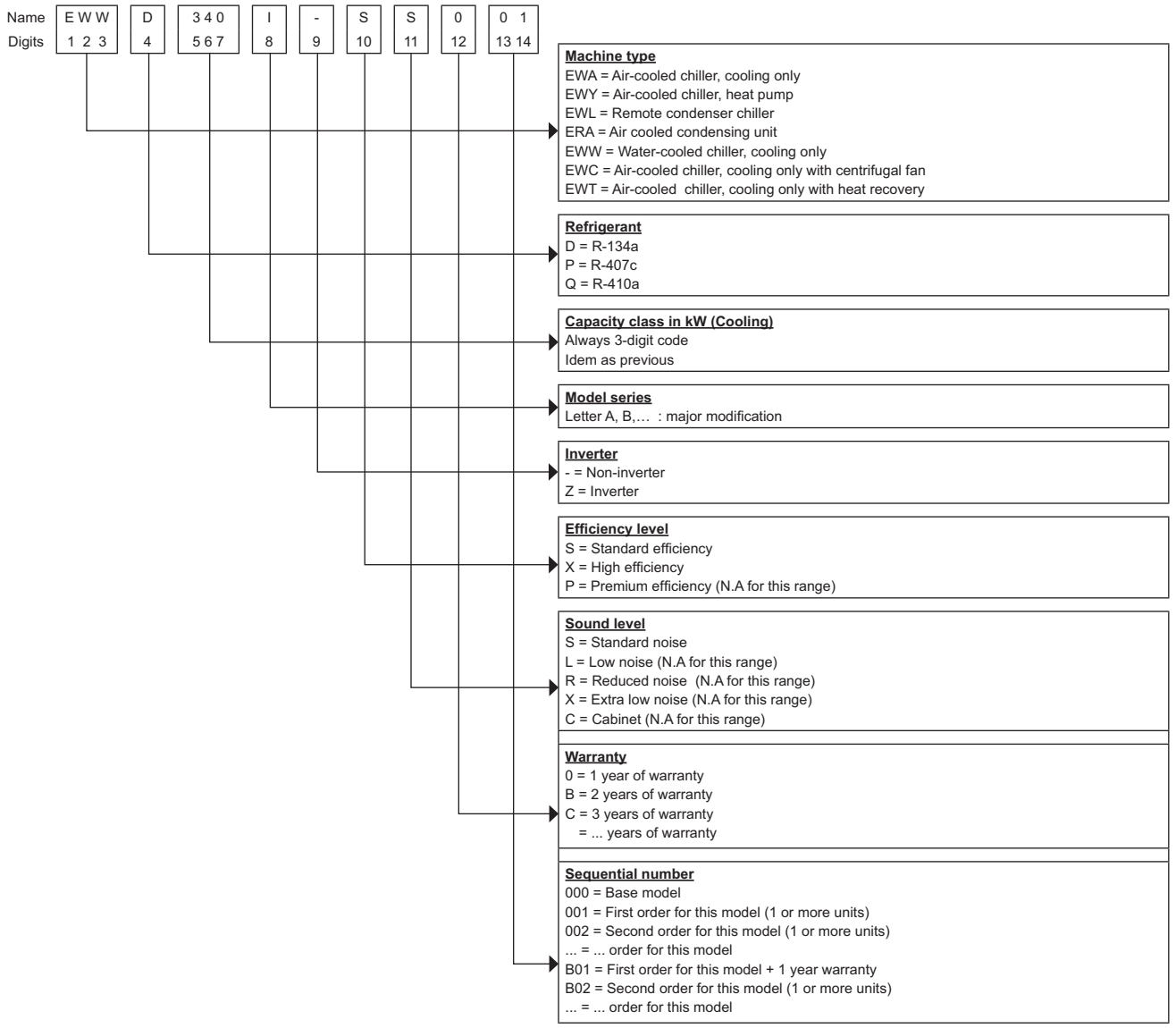
(7) Maximum running current is based on max compressor absorbed current in its envelope

(8) Maximum unit current for wires sizing is based on minimum allowed voltage.

(9) Maximum current for wires sizing: compressor full load ampere x 1.1

3 Nomenclature

3 - 1 Nomenclature



NMC_1-2_Rev.00_1-2

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWD340~850I-SS

Size	Twe	5							7						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
340	30	325	63.5	15.5	35	389	18,7	24	348	64,9	16,6	40	413	19,9	27
	35	311	70.2	14.8	32	381	18,4	24	333	71,5	15,9	37	405	19,5	26
	40	295	77.8	14.1	30	373	18	23	317	79	15,1	34	396	19,1	25
	45	280	86.5	13.3	27	366	17,7	22	301	87,5	14,3	31	388	18,8	25
	50	263	96.6	12.5	24	360	17,4	22	283	97,3	13,5	28	381	18,5	24
	55	246	108	11.7	*21*	355	17.2	21	266	109	12.7	25	374	18.2	23
400	30	385	76.4	18.4	48	461	22.2	26	412	78.1	19.7	54	490	23.6	29
	35	368	84.1	17.5	44	452	21.8	25	394	85.8	18.8	50	480	23.1	28
	40	350	92.7	16.7	40	443	21.4	24	375	94.4	17.9	46	470	22.7	27
	45	332	102	15.8	37	434	21	23	356	104	17.0	42	460	22.3	26
	50	313	114	14.9	33	426	20.7	23	336	115	16.0	37	451	21.9	25
	55	293	126	14.0	29	419	20.3	22	315	127	15.0	33	443	21.5	24
460	30	450	89.8	21.4	51	539	26	28	481	91.8	22.9	58	573	27.6	31
	35	430	98.9	20.5	47	529	25.5	27	460	101	21.9	54	561	27	30
	40	409	109	19.5	43	518	25	26	438	111	20.9	49	549	26.5	29
	45	387	121	18.5	39	508	24.6	25	416	122	19.8	45	538	26	28
	50	365	134	17.4	35	499	24.2	24	393	135	18.7	40	528	25.6	27
	55	342	148	16.3	31	490	23.8	24	368	150	17.6	36	518	25.1	26
550	30	526	107	25.1	59	633	30.5	24	562	110	26.8	67	672	32.3	27
	35	502	118	23.9	54	620	29.9	23	538	120	25.7	62	658	31.7	26
	40	478	128	22.8	50	607	29.3	22	513	131	24.5	57	644	31.1	25
	45	453	139	21.6	45	593	28.7	21	487	143	23.2	51	629	30.4	24
	50	427	151	20.4	41	578	28	20	459	154	21.9	46	614	29.8	23
	55	400	163	19.1	36	563	27.4	20	431	167	20.6	41	598	29	22
650	30	626	126	29.9	53	752	18.1 18.1	23 23	667	128	31.8	59	795	19.1 19.1	25 25
	35	600	139	28.6	49	739	17.8 17.8	22 22	640	141	30.5	55	781	18.8 18.8	25 25
	40	573	154	27.3	45	727	17.6 17.6	22 22	612	156	29.2	51	768	18.5 18.5	24 24
	45	544	172	25.9	41	716	17.3 17.3	21 21	582	174	27.8	46	756	18.3 18.3	23 23
	50	514	193	24.5	37	707	17.1 17.1	21 21	551	194	26.3	42	745	18.1 18.1	23 23
	55	483	216	23.0	33	699	17.0 17.0	21 21	519	217	24.7	38	735	17.9 17.9	22 22
700	30	690	139	32.9	42	829	18.4 21.5	24 25	735	141	35.1	47	876	19.4 22.7	26 27
	35	661	153	31.5	39	815	18.1 21.2	23 24	705	156	33.6	44	861	19.1 22.4	25 26
	40	631	170	30.1	36	801	17.8 20.9	22 23	674	172	32.2	41	846	18.8 22.1	25 26
	45	600	188	28.6	33	788	17.5 20.6	22 23	642	191	30.6	37	832	18.5 21.7	24 25
	50	567	210	27.0	30	776	17.3 20.3	21 22	607	212	29.0	34	819	18.2 21.4	23 24
	55	532	234	25.3	26	766	17.1 20.1	21 22	571	236	27.3	30	807	18.0 21.2	23 24
800	30	763	152	36.4	54	915	22.0 22.0	25 25	820	156	39.1	62	976	23.5 23.5	28 28
	35	728	168	34.7	50	896	21.6 21.6	24 24	782	171	37.3	57	953	23.0 23.0	27 27
	40	693	185	33.0	46	878	21.2 21.2	23 23	744	188	35.5	52	932	22.5 22.5	26 26
	45	654	205	31.2	41	859	20.8 20.8	23 23	705	207	33.6	47	912	22.1 22.1	25 25
	50	615	227	29.3	37	841	20.4 20.4	22 22	664	229	31.7	42	893	21.6 21.6	24 24
	55	574	252	27.3	32	826	20.1 20.1	21 21	620	254	29.6	37	875	21.2 21.2	24 24
850	30	826	165	39.4	51	991	22.2 25.4	26 24	880	169	42.0	57	1049	23.6 26.9	29 27
	35	791	182	37.7	47	973	21.9 25.0	25 24	844	186	40.3	53	1030	23.2 26.5	28 26
	40	755	201	36.0	43	956	21.5 24.7	25 23	807	204	38.5	49	1011	22.7 26.1	27 25
	45	717	222	34.2	40	939	21.1 24.3	24 22	767	225	36.6	45	993	22.4 25.7	26 25
	50	677	246	32.3	36	924	20.8 24.0	23 22	726	249	34.6	41	975	22.0 25.3	25 24
	55	636	274	30.3	32	909	20.5 23.7	22 21	683	276	32.6	36	959	21.6 24.9	25 23

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(1-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWD340~850I-SS

Size	Twe	9							11						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
340	30	373	66.2	17.8	45	439	21.1	30	398	67.7	19.0	51	465	22.4	34
	35	356	72.9	17.0	42	429	20.7	29	381	74.4	18.2	47	455	21.9	33
	40	340	80.3	16.2	38	420	20.3	28	364	81.7	17.4	43	445	21.5	31
	45	323	88.6	15.4	35	411	19.9	27	345	90	16.5	39	435	21.1	30
	50	305	98.2	14.5	31	403	19.5	26	327	99.3	15.6	36	426	20.6	29
	55	286	109	13.7	28	395	19.2	26	307	110	14.7	32	417	20.3	28
400	30	440	79.9	21.0	61	520	25	32	469	81.8	22.4	68	551	26.5	36
	35	421	87.6	20.1	56	509	24.5	31	450	89.5	21.5	63	539	26	34
	40	402	96.1	19.2	52	498	24	30	429	98	20.5	58	527	25.5	33
	45	382	106	18.2	47	487	23.6	29	408	107	19.5	53	516	25	32
	50	361	116	17.2	43	477	23.1	28	387	118	18.5	48	505	24.5	31
	55	339	128	16.2	38	467	22.7	27	364	130	17.4	43	494	24	30
460	30	513	93.9	24.5	65	607	29.2	34	547	96.1	26.2	73	643	31	38
	35	492	103	23.5	60	595	28.7	33	525	105	25.1	68	630	30.4	37
	40	469	113	22.4	56	582	28.1	32	501	115	24.0	63	616	29.8	35
	45	446	124	21.3	51	570	27.6	31	477	126	22.8	57	603	29.2	34
	50	421	137	20.1	46	558	27	30	451	139	21.6	52	590	28.6	33
	55	396	151	18.9	41	547	26.6	29	425	153	20.3	46	577	28	32
550	30	600	112	28.7	75	713	34.3	29	640	115	30.6	84	755	36.3	33
	35	575	123	27.5	70	698	33.6	28	613	126	29.3	78	739	35.6	32
	40	549	134	26.2	64	683	33	27	586	137	28.0	72	723	34.9	30
	45	521	146	24.9	58	667	32.3	26	558	149	26.7	66	707	34.2	29
	50	493	158	23.5	53	651	31.6	25	528	162	25.2	60	690	33.4	28
	55	464	171	22.1	47	634	30.8	24	497	175	23.8	54	672	32.6	27
650	30	709	130	33.9	66	839	20.2 20.2	28 28	752	133	36.0	74	885	21.3 21.3	31 31
	35	681	144	32.5	62	825	19.9 19.9	27 27	723	146	34.6	69	870	21.0 21.0	30 30
	40	652	159	31.1	57	811	19.6 19.6	27 27	693	161	33.1	64	855	20.6 20.6	29 29
	45	622	176	29.7	52	797	19.3 19.3	26 26	662	178	31.6	59	840	20.3 20.3	28 28
	50	590	195	28.2	47	785	19.0 19.0	25 25	629	197	30.1	53	826	20.0 20.0	28 28
	55	556	218	26.5	43	773	18.8 18.8	25 25	594	219	28.4	48	813	19.7 19.7	27 27
700	30	781	144	37.3	53	925	20.5 24.0	29 30	828	147	39.6	59	976	21.7 25.3	32 33
	35	750	159	35.8	49	909	20.2 23.6	28 29	797	162	38.1	55	959	21.3 24.9	31 32
	40	718	175	34.3	46	893	19.9 23.3	27 28	764	178	36.5	51	942	21.0 24.5	30 31
	45	685	193	32.7	42	878	19.5 22.9	26 27	729	196	34.9	47	925	20.6 24.1	29 30
	50	649	214	31.0	38	863	19.2 22.6	26 27	693	216	33.1	43	909	20.3 23.8	28 29
	55	612	237	29.2	34	849	19.0 22.3	25 26	655	239	31.3	39	894	20.0 23.4	27 28
800	30	881	160	42.1	70	1040	25.0 25.0	32 32	944	164	45.1	80	1107	26.6 26.6	35 35
	35	840	175	40.1	65	1015	24.5 24.5	30 30	902	179	43.1	73	1080	26.0 26.0	34 34
	40	799	192	38.1	59	991	23.9 23.9	29 29	858	196	41.0	67	1054	25.4 25.4	32 32
	45	757	211	36.1	54	967	23.4 23.4	28 28	813	214	38.9	61	1027	24.8 24.8	31 31
	50	714	232	34.1	48	946	22.9 22.9	27 27	766	235	36.6	55	1002	24.3 24.3	30 30
	55	670	257	32.0	43	926	22.5 22.5	26 26	720	259	34.4	49	980	23.8 23.8	29 29
850	30	936	172	44.7	64	1108	24.9 28.4	32 29	994	176	47.5	72	1170	26.3 30.0	35 32
	35	899	189	42.9	60	1088	24.5 27.9	31 29	955	193	45.7	67	1148	25.9 29.5	34 31
	40	860	208	41.1	55	1068	24.1 27.5	30 28	915	212	43.7	62	1127	25.4 29.0	33 31
	45	819	229	39.1	51	1048	23.6 27.1	29 27	873	232	41.7	57	1105	24.9 28.5	32 30
	50	777	252	37.1	46	1029	23.2 26.7	28 26	829	255	39.6	52	1084	24.5 28.1	31 29
	55	732	278	35.0	41	1011	22.8 26.3	27 26	783	281	37.4	47	1064	24.1 27.6	30 28

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(2-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWD340~850I-SS

Size	Twe	13							15						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
340	30	424	69.2	20.3	57	493	23.7	37	451	70.7	21.6	64	522	25.1	42
	35	406	76	19.4	53	482	23.3	36	433	77.6	20.7	59	511	24.6	40
	40	388	83.3	18.6	49	472	22.8	35	414	85	19.8	55	499	24.1	38
	45	369	91.5	17.7	45	461	22.3	33	394	93.1	18.9	50	487	23.6	37
	50	350	101	16.7	40	450	21.8	32	374	102	17.9	46	476	23.1	36
	55	329	111	15.8	36	440	21.4	31	353	112	16.9	41	465	22.6	34
400	30	499	83.7	23.9	77	583	28.1	40	531	85.7	25.4	86	617	29.7	44
	35	479	91.5	22.9	71	571	27.5	38	510	93.6	24.4	80	603	29.1	42
	40	458	100	21.9	66	558	26.9	37	488	102	23.3	74	590	28.5	41
	45	436	109	20.9	60	545	26.4	35	465	111	22.3	68	576	27.9	39
	50	413	120	19.8	55	533	25.8	34	441	122	21.1	61	563	27.3	37
	55	390	131	18.6	49	521	25.3	33	417	133	19.9	55	550	26.7	36
460	30	583	98.4	27.9	82	681	32.8	42	619	101	29.6	92	720	34.6	46
	35	559	108	26.7	76	666	32.1	41	594	110	28.5	85	704	34	45
	40	534	118	25.6	70	652	31.5	39	569	120	27.2	79	689	33.3	43
	45	509	129	24.3	64	637	30.8	38	542	131	26.0	72	673	32.6	41
	50	482	141	23.1	59	623	30.2	36	515	143	24.6	66	658	31.9	40
	55	455	155	21.8	53	609	29.6	35	486	157	23.3	59	643	31.2	38
550	30	681	117	32.6	94	798	38.4	36	723	120	34.6	105	843	40.5	40
	35	653	129	31.3	88	782	37.7	35	694	131	33.2	98	826	39.8	38
	40	625	140	29.9	81	765	36.9	34	665	143	31.8	91	808	39	37
	45	595	153	28.5	74	748	36.2	32	634	156	30.4	83	790	38.2	36
	50	565	165	27.0	68	730	35.4	31	602	169	28.8	76	771	37.4	34
	55	533	179	25.5	61	711	34.5	30	569	183	27.3	69	752	36.5	33
650	30	797	135	38.1	82	933	22.4 22.4	34 34	844	138	40.4	91	982	23.6 23.6	37 37
	35	767	149	36.7	76	916	22.1 22.1	33 33	813	152	38.9	85	965	23.2 23.2	36 36
	40	736	164	35.2	71	900	21.7 21.7	32 32	780	167	37.4	79	947	22.9 22.9	35 35
	45	704	180	33.7	65	884	21.4 21.4	31 31	747	183	35.7	73	930	22.5 22.5	34 34
	50	670	199	32.0	60	869	21.1 21.1	30 30	711	202	34.1	67	913	22.1 22.1	33 33
	55	634	221	30.3	54	854	20.7 20.7	29 29	674	223	32.3	61	897	21.8 21.8	32 32
700	30	878	150	42.0	65	1028	22.8 26.6	35 36	928	153	44.4	72	1081	24.1 28.0	38 39
	35	845	165	40.4	61	1010	22.5 26.2	34 35	894	168	42.8	68	1062	23.7 27.5	37 38
	40	811	181	38.8	57	992	22.1 25.8	33 34	859	184	41.1	63	1043	23.3 27.1	36 37
	45	775	199	37.1	52	974	21.7 25.4	32 33	822	202	39.4	58	1024	22.9 26.7	35 36
	50	737	219	35.3	48	956	21.4 25.0	31 32	783	222	37.5	53	1005	22.5 26.2	34 35
	55	698	241	33.4	43	939	21.0 24.6	30 31	743	244	35.6	49	987	22.1 25.8	33 34
800	30	1010	168	48.3	90	1178	28.3 28.3	39 39	1080	172	51.7	102	1252	30.1 30.1	44 44
	35	966	183	46.2	83	1149	27.7 27.7	38 38	1033	188	49.4	94	1221	29.4 29.4	42 42
	40	920	200	44.0	76	1120	27.0 27.0	36 36	985	205	47.1	86	1189	28.7 28.7	40 40
	45	872	219	41.7	69	1091	26.4 26.4	35 35	935	223	44.8	79	1158	28.0 28.0	39 39
	50	823	239	39.4	62	1063	25.8 25.8	33 33	883	243	42.3	71	1127	27.3 27.3	37 37
	55	773	263	37.0	56	1035	25.1 25.1	32 32	830	266	39.8	64	1097	26.6 26.6	35 35
850	30	1054	180	50.4	80	1233	27.8 31.6	39 36	1115	184	53.4	88	1299	29.3 33.2	43 39
	35	1014	197	48.5	74	1210	27.3 31.1	38 35	1074	201	51.4	82	1275	28.8 32.7	41 38
	40	972	215	46.5	69	1187	26.8 30.5	36 34	1031	220	49.3	77	1250	28.2 32.1	40 37
	45	929	236	44.4	63	1165	26.3 30.0	35 32	986	240	47.2	71	1226	27.7 31.6	39 36
	50	883	259	42.2	58	1142	25.8 29.5	34 32	939	263	44.9	65	1202	27.2 31.1	37 34
	55	835	285	40.0	52	1120	25.3 29.1	33 31	890	288	42.6	59	1178	26.7 30.5	36 33

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(3-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWD900~C13I-SS

Size	Twe	5							7						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
900	30	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	35	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	40	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	45	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	50	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	55	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
950	30	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	35	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	40	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	45	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	50	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
	55	891	178	42,5	42	1069	25.7 25.7	24 24	891	178	42,5	42	1069	25.7 25.7	24 24
C10	30	1005	212	47,9	38	1217	29.3 29.3	21 21	1069	216	51,0	42	1285	30.9 30.9	23 23
	35	965	232	46,0	35	1197	28.8 28.8	21 21	1027	237	49,0	39	1264	30.5 30.5	23 23
	40	922	254	43,9	32	1176	28.4 28.4	20 20	983	259	46,9	36	1242	30.0 30.0	22 22
	45	878	276	41,8	29	1154	27.9 27.9	20 20	937	282	44,7	33	1219	29.5 29.5	22 22
	50	830	299	39,6	27	1130	27.4 27.4	19 19	889	306	42,4	30	1195	29.0 29.0	21 21
	55	780	324	37,2	24	1104	26.8 26.8	18 18	838	331	40,0	27	1169	28.4 28.4	20 20
C12	30	1131	226	53,9	50	1357	21.8 21.8 21.8	22 22 22	1201	231	57,3	55	1432	23.0 23.0 23.0	25 25 25
	35	1085	250	51,7	46	1335	21.4 21.4 21.4	22 22 22	1155	254	55,1	52	1409	22.6 22.6 22.6	24 24 24
	40	1036	276	49,4	42	1312	21.1 21.1 21.1	21 21 21	1105	280	52,7	48	1386	22.3 22.3 22.3	23 23 23
	45	986	306	47,0	39	1291	20.8 20.8 20.8	21 21 21	1053	309	50,3	44	1363	22.0 22.0 22.0	23 23 23
	50	932	339	44,4	35	1271	20.5 20.5 20.5	20 20 20	998	342	47,6	40	1341	21.7 21.7 21.7	22 22 22
	55	877	377	41,8	31	1253	20.3 20.3 20.3	20 20 20	941	379	44,9	36	1320	21.4 21.4 21.4	22 22 22
C13	30	1179	238	56,2	53	1417	21.8 21.8 24.7	22 22 21	1251	243	59,7	59	1494	23.0 23.0 26.0	25 25 23
	35	1132	263	54,0	50	1395	21.4 21.4 24.4	22 22 20	1204	268	57,4	55	1472	22.6 22.6 25.6	24 24 22
	40	1083	291	51,6	46	1374	21.1 21.1 24.1	21 21 20	1153	295	55,0	51	1449	22.3 22.3 25.3	23 23 22
	45	1031	322	49,1	42	1353	20.8 20.8 23.8	21 21 20	1100	326	52,5	47	1426	22.0 22.0 25.1	23 23 21
	50	976	357	46,5	38	1334	20.5 20.5 23.6	20 20 19	1044	361	49,8	43	1405	21.7 21.7 24.8	22 22 21
	55	918	398	43,8	34	1316	20.3 20.3 23.3	20 20 19	985	400	47,0	39	1385	21.4 21.4 24.5	22 22 21

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(1-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWD900~C13I-SS

Size	Twe	9							11						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
900	30	1008	185	48.1	53	1193	28.7 28.7	29 29	1070	189	51.1	59	1259	30.3 30.3	32 32
	35	968	204	46.2	49	1172	28.2 28.2	28 28	1028	208	49.2	55	1236	29.8 29.8	31 31
	40	927	224	44.3	45	1151	27.8 27.8	28 28	986	228	47.1	51	1214	29.3 29.3	30 30
	45	884	247	42.2	42	1131	27.3 27.3	27 27	941	251	45.0	47	1191	28.8 28.8	30 30
	50	839	272	40.1	38	1111	26.9 26.9	26 26	894	276	42.7	42	1170	28.4 28.4	29 29
	55	791	301	37.8	34	1092	26.5 26.5	25 25	845	304	40.4	38	1149	27.9 27.9	28 28
950	30	1090	203	52.1	64	1293	29.2 33.0	25 26	1155	207	55.2	71	1363	30.8 34.7	27 28
	35	1048	223	50.1	60	1271	28.8 32.5	24 25	1112	227	53.2	67	1339	30.3 34.2	26 28
	40	1004	244	48.0	55	1249	28.3 32.0	23 25	1067	249	51.0	62	1316	29.8 33.7	26 27
	45	958	267	45.8	51	1226	27.8 31.5	23 24	1020	272	48.7	57	1292	29.3 33.2	25 26
	50	910	292	43.5	46	1202	27.4 30.9	22 23	970	297	46.4	52	1267	28.8 32.6	24 25
	55	859	319	41.0	42	1179	26.9 30.3	21 22	918	324	43.9	47	1242	28.4 32.0	23 25
C10	30	1136	220	54.2	47	1356	32.6 32.6	26 26	1204	225	57.5	52	1429	34.4 34.4	28 28
	35	1092	242	52.1	44	1334	32.1 32.1	25 25	1158	247	55.4	49	1405	33.9 33.9	28 28
	40	1046	265	50.0	41	1311	31.6 31.6	24 24	1111	270	53.1	45	1381	33.3 33.3	27 27
	45	998	288	47.7	37	1286	31.1 31.1	24 24	1062	294	50.8	42	1356	32.8 32.8	26 26
	50	948	313	45.3	34	1261	30.6 30.6	23 23	1010	319	48.3	38	1329	32.2 32.2	25 25
	55	896	338	42.8	31	1234	30.0 30.0	22 22	956	345	45.7	35	1301	31.6 31.6	24 24
C12	30	1272	235	60.7	61	1507	24.2 24.2 24.2	27 27 27	1345	240	64.3	68	1586	25.4 25.4 25.4	30 30 30
	35	1225	259	58.5	57	1484	23.8 23.8 23.8	650	1297	264	62.0	64	1560	25.1 25.1 25.1	29 29 29
	40	1175	285	56.1	53	1460	23.5 23.5 23.5	26 26 26	1246	290	59.5	59	1535	24.7 24.7 24.7	28 28 28
	45	1123	314	53.6	49	1436	23.2 23.2 23.2	25 25 25	1192	318	57.0	55	1511	24.4 24.4 24.4	27 27 27
	50	1066	346	50.9	45	1412	22.8 22.8 22.8	24 24 24	1136	351	54.3	50	1486	24.0 24.0 24.0	27 27 27
	55	1007	383	48.1	40	1389	22.5 22.5 22.5	24 24 24	1075	387	51.4	45	1461	23.7 23.7 23.7	26 26 26
C13	30	1325	247	63.3	66	1572	24.2 24.2 27.3	27 27 25	1401	252	66.9	73	1653	25.4 25.4 28.7	30 30 27
	35	1276	272	60.9	62	1548	23.8 23.8 26.9	26 26 24	1350	277	64.5	68	1627	25.1 25.1 28.3	29 29 27
	40	1225	300	58.5	57	1525	23.5 23.5 26.6	26 26 24	1298	305	62.0	64	1602	24.7 24.7 27.9	28 28 26
	45	1171	330	55.9	53	1501	23.2 23.2 26.3	25 25 23	1243	335	59.4	59	1578	24.4 24.4 27.6	27 27 25
	50	1114	365	53.2	48	1478	22.8 22.8 26.0	24 24 23	1185	369	56.6	54	1554	24.0 24.0 27.3	27 27 25
	55	1053	404	50.3	44	1456	22.5 22.5 25.8	24 24 22	1122	407	53.6	49	1530	23.7 23.7 27.0	26 26 24

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(2-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWD900~C13I-SS

Size	Twe	13							15						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
900	30	1133	193	54.2	65	1327	31.9 31.9	35 35	1199	198	57.4	72	1397	33.6 33.6	39 39
	35	1091	212	52.2	61	1303	31.4 31.4	34 34	1155	216	55.3	67	1371	33.0 33.0	38 38
	40	1046	232	50.1	56	1279	30.9 30.9	33 33	1109	236	53.1	63	1346	32.5 32.5	37 37
	45	1000	255	47.8	52	1255	30.3 30.3	32 32	1061	259	50.8	58	1320	31.9 31.9	35 35
	50	952	279	45.5	48	1231	29.8 29.8	31 31	1011	284	48.4	53	1295	31.4 31.4	34 34
	55	901	307	43.1	43	1208	29.3 29.3	30 30	959	311	45.9	48	1270	30.8 30.8	33 33
950	30	1223	211	58.5	79	1434	32.5 36.5	30 31	1293	215	61.9	88	1508	34.2 38.4	33 34
	35	1178	232	56.4	74	1410	31.9 36.0	29 30	1246	236	59.7	82	1483	33.6 37.8	32 33
	40	1131	254	54.1	69	1385	31.4 35.5	28 30	1198	258	57.4	76	1456	33.0 37.3	31 32
	45	1082	277	51.8	64	1360	30.9 34.9	27 29	1147	282	54.9	71	1430	32.5 36.7	30 31
	50	1031	302	49.3	58	1334	30.4 34.3	26 28	1095	308	52.4	65	1402	31.9 36.0	29 30
	55	978	330	46.8	53	1307	29.8 33.6	26 27	1039	335	49.8	59	1374	31.4 35.4	28 29
C10	30	1275	229	61.0	58	1504	36.2 36.2	31 31	1348	234	64.5	64	1581	38.0 38.0	34 34
	35	1228	252	58.7	54	1479	35.7 35.7	30 30	1299	257	62.2	60	1556	37.5 37.5	33 33
	40	1179	275	56.4	50	1454	35.1 35.1	29 29	1248	281	59.8	56	1529	36.9 36.9	32 32
	45	1127	300	53.9	46	1427	34.5 34.5	29 29	1195	306	57.2	52	1501	36.3 36.3	31 31
	50	1074	326	51.4	43	1400	33.9 33.9	28 28	1140	332	54.6	47	1472	35.7 35.7	30 30
	55	1018	352	48.7	39	1370	33.3 33.3	27 27	1082	359	51.8	43	1442	35.0 35.0	29 29
C12	30	1421	245	68.0	75	1666	26.7 26.7 26.7	32 32 32	1499	250	71.8	83	1749	28.1 28.1 28.1	35 35 35
	35	1371	269	65.6	70	1639	26.3 26.3 26.3	32 32 32	1447	274	69.3	78	1721	27.6 27.6 27.6	34 34 34
	40	1318	295	63.1	66	1613	26.0 26.0 26.0	31 31 31	1393	300	66.7	73	1693	27.2 27.2 27.2	34 34 34
	45	1263	323	60.4	61	1586	25.6 25.6 25.6	30 30 30	1336	328	64.0	67	1664	26.8 26.8 26.8	33 33 33
	50	1206	355	57.7	56	1561	25.2 25.2 25.2	29 29 29	1277	360	61.1	62	1637	26.4 26.4 26.4	32 32 32
	55	1145	391	54.8	51	1535	24.9 24.9 24.9	28 28 28	1214	395	58.1	57	1609	26.1 26.1 26.1	31 31 31
C13	30	1479	257	70.7	81	1736	26.7 26.7 30.1	32 32 30	1559	262	74.6	89	1821	28.1 28.1 31.5	35 35 32
	35	1427	282	68.3	76	1709	26.3 26.3 29.7	32 32 29	1505	287	72.1	83	1793	27.6 27.6 31.1	34 34 32
	40	1373	310	65.7	71	1682	26.0 26.0 29.3	31 31 28	1450	315	69.4	78	1764	27.2 27.2 30.7	34 34 31
	45	1316	340	62.9	65	1656	25.6 25.6 28.9	30 30 28	1391	345	66.6	72	1736	26.8 26.8 30.3	33 33 30
	50	1256	374	60.1	60	1630	25.2 25.2 28.6	29 29 27	1330	379	63.7	67	1708	26.4 26.4 29.9	32 32 29
	55	1193	412	57.1	55	1605	24.9 24.9 28.2	28 28 26	1265	416	60.6	61	1681	26.1 26.1 29.6	31 31 29

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
*** For working condition where dpw value is Italic please contact factory**

SRC_1a-3a_Rev.01_1a_(3-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWDC14~C18I-SS

Size	Twe	5							7						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
C14	30	1247	251	59.5	45	1499	22.0 25.1 25.1	23 21 21	1326	256	63.3	50	1583	23.3 26.4 26.4	25 24 24
	35	1197	278	57.0	41	1475	21.6 24.7 24.7	22 21 21	1274	282	60.8	46	1556	22.9 26.1 26.1	25 23 23
	40	1144	307	54.5	38	1451	21.3 24.4 24.4	22 20 20	1220	311	58.2	43	1531	22.5 25.7 25.7	24 22 22
	45	1088	340	51.9	35	1428	21.0 24.1 24.1	21 20 20	1163	344	55.5	39	1507	22.2 25.4 25.4	23 22 22
	50	1030	377	49.1	32	1406	20.7 23.8 23.8	20 19 19	1102	381	52.6	36	1483	21.8 25.0 25.0	22 21 21
	55	968	419	46.1	28	1387	20.4 23.5 23.5	20 19 19	1038	422	49.5	32	1461	21.5 24.7 24.7	22 21 21
C15	30	1317	266	62.8	55	1583	25.4 25.4 25.4	22 22 22	1402	271	66.9	62	1673	26.8 26.8 26.8	25 25 25
	35	1263	293	60.2	51	1556	25.0 25.0 25.0	22 22 22	1346	298	64.2	57	1644	26.4 26.4 26.4	24 24 24
	40	1206	324	57.5	47	1530	24.6 24.6 24.6	21 21 21	1287	329	61.4	53	1616	26.0 26.0 26.0	23 23 23
	45	1147	358	54.7	43	1505	24.3 24.3 24.3	20 20 20	1226	363	58.5	49	1589	25.6 25.6 25.6	23 23 23
	50	1084	397	51.7	39	1482	23.9 23.9 23.9	20 20 20	1162	401	55.4	44	1563	25.2 25.2 25.2	22 22 22
	55	1019	441	48.6	35	1460	23.6 23.6 23.6	19 19 19	1094	445	52.2	40	1539	24.9 24.9 24.9	21 21 21
C16	30	1371	282	65.4	59	1653	25.4 25.4 28.8	22 22 22	1459	288	69.6	66	1747	26.8 26.8 30.4	25 25 24
	35	1315	310	62.7	55	1626	25.0 25.0 28.4	22 22 21	1401	316	66.8	62	1717	26.4 26.4 29.9	24 24 23
	40	1257	341	59.9	51	1598	24.6 24.6 27.9	21 21 20	1341	347	64.0	57	1688	26.0 26.0 29.5	23 23 22
	45	1195	375	57.0	46	1571	24.3 24.3 27.5	20 20 20	1277	381	60.9	52	1659	25.6 25.6 29.0	23 23 22
	50	1131	413	53.9	42	1544	23.9 23.9 27.0	20 20 19	1211	419	57.8	47	1630	25.2 25.2 28.5	22 22 21
	55	1064	455	50.7	37	1518	23.6 23.6 26.5	19 19 18	1141	460	54.4	43	1601	24.9 24.9 28.0	21 21 20
C17	30	1425	298	67.9	64	1723	25.4 28.8 28.8	22 22 22	1515	304	72.3	71	1819	26.8 30.4 30.4	25 24 24
	35	1367	328	65.1	59	1695	25.0 28.3 28.3	22 21 21	1455	334	69.4	66	1789	26.4 29.9 29.9	24 23 23
	40	1306	359	62.3	54	1666	24.6 27.9 27.9	21 20 20	1393	366	66.4	61	1759	26.0 29.5 29.5	23 22 22
	45	1243	393	59.3	50	1636	24.3 27.5 27.5	20 20 20	1328	401	63.3	56	1728	25.6 29.0 29.0	23 22 22
	50	1177	429	56.1	45	1607	23.9 27.0 27.0	20 19 19	1259	437	60.1	51	1696	25.2 28.5 28.5	22 21 21
	55	1108	468	52.8	40	1576	23.6 26.4 26.4	19 18 18	1188	476	56.7	46	1664	24.9 28.0 28.0	21 20 20
C18	30	1479	315	70.5	68	1793	28.8 28.8 28.8	22 22 22	1572	321	75.0	76	1893	30.4 30.4 30.4	24 24 24
	35	1419	346	67.6	63	1765	28.4 28.4 28.4	21 21 21	1510	353	72.0	71	1863	29.9 29.9 29.9	23 23 23
	40	1357	378	64.7	58	1735	27.9 27.9 27.9	20 20 20	1446	386	69.0	65	1831	29.5 29.5 29.5	22 22 22
	45	1292	411	61.6	53	1703	27.5 27.5 27.5	20 20 20	1379	420	65.8	60	1798	29.0 29.0 29.0	22 22 22
	50	1224	446	58.3	48	1670	27.0 27.0 27.0	19 19 19	1309	455	62.4	55	1764	28.5 28.5 28.5	21 21 21
	55	1152	482	54.9	43	1634	26.5 26.5 26.5	18 18 18	1235	493	58.9	49	1727	28.0 28.0 28.0	20 20 20

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(1-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWDC14~C18I-SS

Size	Twe	9							11						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
C14	30	1407	262	67.2	56	1669	24.6 27.9 27.9	28 26 26	1491	267	71.3	62	1758	25.9 29.3 29.3	31 28 28
	35	1353	288	64.6	52	1641	24.2 27.5 27.5	27 25 25	1435	293	68.6	58	1728	25.5 28.9 28.9	30 28 28
	40	1297	316	62.0	48	1614	23.8 27.1 27.1	26 25 25	1377	322	65.8	54	1699	25.1 28.5 28.5	29 27 27
	45	1239	349	59.1	44	1587	23.4 26.7 26.7	25 24 24	1317	354	62.9	49	1671	24.7 28.1 28.1	28 26 26
	50	1177	385	56.2	40	1562	23.0 26.3 26.3	25 23 23	1253	390	59.9	45	1643	24.2 27.7 27.7	27 26 26
	55	1111	426	53.1	36	1537	22.7 26.0 26.0	24 23 23	1186	430	56.7	41	1616	23.9 27.3 27.3	26 25 25
C15	30	1490	277	71.2	69	1767	28.3 28.3 28.3	27 27 27	1581	283	75.6	77	1863	29.9 29.9 29.9	30 30 30
	35	1432	304	68.4	64	1736	27.9 27.9 27.9	26 26 26	1520	310	72.7	72	1830	29.4 29.4 29.4	29 29 29
	40	1371	334	65.5	59	1705	27.4 27.4 27.4	26 26 26	1458	340	69.7	66	1798	28.9 28.9 28.9	28 28 28
	45	1308	368	62.5	55	1676	27.0 27.0 27.0	25 25 25	1392	374	66.5	61	1766	28.5 28.5 28.5	27 27 27
	50	1241	406	59.3	50	1647	26.6 26.6 26.6	24 24 24	1324	411	63.3	56	1735	28.0 28.0 28.0	26 26 26
	55	1171	449	55.9	45	1620	26.2 26.2 26.2	23 23 23	1252	453	59.8	51	1705	27.6 27.6 27.6	26 26 26
C16	30	1550	294	74.0	74	1843	28.3 28.3 32.0	27 27 26	1644	300	78.6	82	1943	29.9 29.9 33.7	30 30 29
	35	1490	322	71.1	69	1812	27.9 27.9 31.6	26 26 25	1581	329	75.6	77	1910	29.4 29.4 33.2	29 29 28
	40	1427	354	68.1	64	1781	27.4 27.4 31.1	26 26 25	1516	360	72.5	71	1877	28.9 28.9 32.7	28 28 27
	45	1362	388	65.0	59	1749	27.0 27.0 30.6	25 25 24	1449	394	69.2	66	1843	28.5 28.5 32.2	27 27 26
	50	1293	425	61.8	53	1718	26.6 26.6 30.1	24 24 23	1378	432	65.9	60	1810	28.0 28.0 31.7	26 26 25
	55	1221	466	58.3	48	1687	26.2 26.2 29.5	23 23 22	1304	473	62.3	54	1776	27.6 27.6 31.1	26 26 25
C17	30	1608	311	76.8	79	1919	28.3 32.0 32.0	27 26 26	1705	317	81.5	88	2022	29.9 33.7 33.7	30 29 29
	35	1546	341	73.8	74	1888	27.9 31.6 31.6	26 25 25	1641	348	78.4	82	1989	29.4 33.2 33.2	29 28 28
	40	1482	374	70.8	68	1855	27.4 31.1 31.1	26 25 25	1574	381	75.2	76	1955	28.9 32.7 32.7	28 27 27
	45	1414	408	67.5	63	1822	27.0 30.6 30.6	25 24 24	1504	416	71.9	70	1920	28.5 32.2 32.2	27 26 26
	50	1344	445	64.2	57	1789	26.6 30.0 30.0	24 23 23	1431	453	68.4	64	1884	28.0 31.7 31.7	26 25 25
	55	1270	485	60.6	52	1754	26.2 29.5 29.5	23 22 22	1355	493	64.8	58	1848	27.6 31.1 31.1	26 25 25
C18	30	1668	328	79.7	85	1996	32.0 32.0 32.0	26 26 26	1768	334	84.5	94	2102	33.7 33.7 33.7	29 29 29
	35	1604	360	76.6	79	1964	31.6 31.6 31.6	25 25 25	1702	367	81.3	88	2069	33.2 33.2 33.2	28 28 28
	40	1538	394	73.4	73	1931	31.1 31.1 31.1	25 25 25	1633	402	78.0	81	2034	32.7 32.7 32.7	27 27 27
	45	1468	429	70.1	67	1897	30.6 30.6 30.6	24 24 24	1561	437	74.6	75	1998	32.2 32.2 32.2	26 26 26
	50	1396	465	66.6	61	1860	30.1 30.1 30.1	23 23 23	1485	475	71.0	69	1960	31.7 31.7 31.7	25 25 25
	55	1319	503	63.0	55	1822	29.5 29.5 29.5	22 22 22	1407	513	67.2	62	1920	31.1 31.1 31.1	25 25 25

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(2-3)

4 Capacity tables

4 - 1 Cooling Capacity Tables

EWWDC14~C18I-SS

Size	Twe	13							15						
	Twc	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)	Cc (kW)	Pi (kW)	qwe (l/s)	dpwe (kPa)	HC (kW)	qwc (l/s)	dpwc (kPa)
C14	30	1577	272	75.5	69	1850	27.3 30.9 30.9	34 31 31	1666	278	79.8	76	1944	28.7 32.4 32.4	37 34 34
	35	1520	299	72.7	64	1818	26.8 30.4 30.4	33 30 30	1607	304	76.9	71	1911	28.2 31.9 31.9	36 33 33
	40	1460	327	69.8	60	1787	26.4 29.9 29.9	32 29 29	1545	333	74.0	66	1878	27.8 31.5 31.5	35 32 32
	45	1397	359	66.8	55	1756	26.0 29.5 29.5	31 29 29	1480	365	70.9	61	1845	27.3 31.0 31.0	34 31 31
	50	1332	395	63.7	51	1726	25.5 29.1 29.1	30 28 28	1413	400	67.6	56	1813	26.8 30.5 30.5	33 30 30
	55	1263	434	60.4	46	1697	25.1 28.7 28.7	29 27 27	1342	440	64.2	51	1781	26.4 30.1 30.1	32 30 30
C15	30	1675	289	80.1	85	1963	31.5 31.5 31.5	33 33 33	1772	295	84.8	95	2066	33.1 33.1 33.1	36 36 36
	35	1612	316	77.1	80	1928	31.0 31.0 31.0	32 32 32	1707	323	81.7	89	2030	32.6 32.6 32.6	35 35 35
	40	1547	346	74.0	74	1893	30.5 30.5 30.5	31 31 31	1640	353	78.5	82	1992	32.1 32.1 32.1	34 34 34
	45	1479	380	70.8	68	1859	30.0 30.0 30.0	30 30 30	1569	386	75.1	76	1955	31.5 31.5 31.5	33 33 33
	50	1408	417	67.4	63	1825	29.5 29.5 29.5	29 29 29	1496	423	71.6	70	1918	31.0 31.0 31.0	32 32 32
	55	1334	458	63.8	57	1792	29.0 29.0 29.0	28 28 28	1419	464	67.9	63	1883	30.5 30.5 30.5	31 31 31
C16	30	1740	306	83.3	92	2046	31.5 31.5 35.5	33 33 31	1841	312	88.1	101	2152	33.1 33.1 37.3	36 36 34
	35	1676	335	80.2	86	2011	31.0 31.0 35.0	32 32 31	1774	342	84.9	95	2116	32.6 32.6 36.8	35 35 33
	40	1609	367	77.0	79	1976	30.5 30.5 34.5	31 31 30	1704	374	81.6	88	2078	32.1 32.1 36.2	34 34 32
	45	1539	401	73.6	73	1940	30.0 30.0 33.9	30 30 29	1632	408	78.1	82	2040	31.5 31.5 35.6	33 33 31
	50	1465	439	70.1	67	1904	29.5 29.5 33.3	29 29 28	1556	446	74.5	75	2002	31.0 31.0 35.0	32 32 31
	55	1389	480	66.4	61	1868	29.0 29.0 32.7	28 28 27	1476	487	70.7	68	1963	30.5 30.5 34.4	31 31 29
C17	30	1805	323	86.3	98	2128	31.5 35.5 35.5	33 31 31	1908	330	91.3	108	2237	33.1 37.3 37.3	36 34 34
	35	1738	355	83.2	91	2093	31.0 35.0 35.0	32 31 31	1839	362	88.0	101	2201	32.6 36.7 36.7	35 33 33
	40	1669	388	79.8	85	2057	30.5 34.4 34.4	31 30 30	1767	396	84.6	94	2163	32.0 36.2 36.2	34 32 32
	45	1597	424	76.4	78	2020	30.0 33.9 33.9	30 29 29	1693	432	81.0	87	2124	31.5 35.6 35.6	33 31 31
	50	1521	461	72.8	72	1983	29.5 33.3 33.3	29 28 28	1615	470	77.3	80	2084	31.0 35.0 35.0	32 31 31
	55	1442	502	69.0	65	1944	29.0 32.7 32.7	28 27 27	1533	511	73.4	73	2043	30.5 34.4 34.4	31 29 29
C18	30	1871	341	89.5	104	2211	35.5 35.5 35.5	31 31 31	1977	347	94.6	115	2324	37.3 37.3 37.3	34 34 34
	35	1802	374	86.2	97	2177	35.0 35.0 35.0	31 31 31	1906	382	91.2	108	2287	36.8 36.8 36.8	33 33 33
	40	1731	410	82.8	91	2140	34.4 34.4 34.4	30 30 30	1832	418	87.7	101	2250	36.2 36.2 36.2	32 32 32
	45	1656	446	79.2	84	2102	33.9 33.9 33.9	29 29 29	1755	455	84.0	93	2210	35.6 35.6 35.6	31 31 31
	50	1578	484	75.5	77	2063	33.3 33.3 33.3	28 28 28	1675	494	80.2	85	2168	35.0 35.0 35.0	31 31 31
	55	1497	524	71.6	70	2021	32.7 32.7 32.7	27 27 27	1590	534	76.1	78	2125	34.4 34.4 34.4	29 29 29

NOTES

Twe: Evaporator leaving water temperature (Δt 5°C) - Twc: Condenser leaving water temperature (Δt 5°C)
HC: Heat capacity at condenser - qwc: Fluid flow rate at condenser - dpwc: Fluid pressure drop at condenser
* For working condition where dpw value is Italic please contact factory

SRC_1a-3a_Rev.01_1a_(3-3)

4 Capacity tables

4 - 2 Partial Heat Recovery Capacity tables

Partial Heat Recovery Ratings
EWWD~I-SS

Size	ELWT (°C)	Leaving Condenser Water Temperature (°C)				
		35	**40**	**45**	**50**	**55**
		Hc (kW)	Hc (kW)	Hc (kW)	Hc (kW)	Hc (kW)
340	40	33	45	57	57	58
	45	25	36	48	61	56
	50	16	28	39	52	51
400	40	37	50	62	68	68
	45	28	40	53	65	67
	50	18	31	44	55	61
460	40	48	62	77	79	80
	45	36	51	66	83	78
	50	24	39	55	75	71
550	40	55	73	91	94	95
	45	40	59	78	91	92
	50	26	45	65	78	84
650	40	65	86	107	111	111
	45	48	70	92	107	108
	50	32	54	76	92	99
700	40	68	93	118	122	123
	45	51	76	101	118	119
	50	34	59	84	101	109
800	40	73	101	130	135	136
	45	54	83	112	130	132
	50	36	65	93	112	121
850	40	83	112	141	146	147
	45	62	91	121	141	143
	50	41	71	101	121	131
900	40	93	123	152	157	158
	45	70	100	130	152	154
	50	46	77	108	130	141
950	40	99	132	165	171	172
	45	73	107	141	165	167
	50	48	83	118	141	153
C10	40	103	138	174	180	182
	45	76	113	149	174	177
	50	50	87	124	149	162
C12	40	123	158	193	200	201
	45	92	128	165	193	195
	50	60	97	133	165	179
C13	40	127	164	201	208	210
	45	94	133	172	201	204
	50	62	101	139	172	187
C14	40	132	172	213	220	222
	45	98	140	182	213	216
	50	64	106	147	182	198
C15	40	138	182	227	235	236
	45	102	148	194	227	230
	50	67	108	148	194	210
C16	40	143	190	237	245	247
	45	105	154	203	237	240
	50	69	112	155	203	220
C17	40	149	198	247	255	257
	45	109	160	211	247	250
	50	71	117	162	211	229
C18	40	154	205	257	266	268
	45	126	173	220	257	260
	50	73	117	161	220	238

NOTES

Leaving Evaporator Water Temperature 7°C, ΔT 5°C; ΔT Condenser Water Temperature 5°C

OPT_1-2-3-4-5-6-7-8_Rev.00_4

4 Capacity tables

4 - 3 Total Heat Recovery Capacity Tables

Total Heat Recovery Ratings
EWWD340~460I-SS

Size	ELWT (°C)	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE °C											
		40			45			50			55		
		Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)
340	4	285	77.1	362	270	85.9	356	254	96.1	350	237	108	345
	5	295	77.7	373	280	86.3	366	263	96.4	359	247	108	355
	6	306	78.3	384	290	86.8	377	273	96.7	370	256	108	364
	7	317	78.9	396	301	87.4	388	284	97.1	381	266	109	375
	8	328	79.6	408	311	88.0	399	294	97.6	392	276	109	385
	9	340	80.3	420	322	88.6	411	305	98.1	403	286	109	395
	10	341	81.0	422	324	89.3	413	306	98.7	405	288	110	398
	11	353	81.8	434	335	90.0	425	317	99.3	416	298	110	408
	12	365	82.6	447	347	90.7	437	328	99.9	428	309	111	420
	13	377	83.4	460	358	91.5	450	339	101	440	320	111	431
	14	389	84.3	473	370	92.4	463	351	101	452	331	112	443
	15	401	85.1	487	382	93.2	476	363	102	465	342	112	455
400	4	338	92.0	430	320	102	422	301	113	414	282	126	408
	5	350	92.7	443	332	103	435	313	114	427	293	126	419
	6	363	93.6	457	344	103	447	324	114	438	304	127	431
	7	375	94.4	469	356	104	460	336	115	451	316	127	443
	8	388	95.3	483	369	105	474	348	116	464	327	128	455
	9	402	96.2	498	382	106	488	361	116	477	339	128	467
	10	403	97.2	500	383	107	490	363	117	480	341	129	470
	11	416	98.2	515	396	108	504	375	118	493	353	130	483
	12	430	99.2	529	409	109	518	388	119	507	366	131	496
	13	444	100	544	423	110	533	401	120	521	378	132	510
	14	458	101	560	437	111	547	414	121	535	391	133	524
	15	473	102	575	451	112	562	428	122	550	404	134	538
460	4	395	108	503	374	120	494	352	133	485	329	148	477
	5	409	109	518	388	120	508	365	133	498	342	148	490
	6	423	110	533	402	121	523	379	134	513	355	149	504
	7	438	111	549	416	122	538	393	135	528	369	150	519
	8	453	112	565	431	123	554	407	136	543	382	150	532
	9	469	113	582	446	124	570	421	137	558	396	151	547
	10	471	114	585	447	125	573	423	138	561	398	152	550
	11	486	115	601	463	126	589	438	139	577	412	153	565
	12	502	117	618	478	128	606	453	140	593	427	154	580
	13	518	118	636	494	129	622	468	141	609	441	155	596
	14	535	119	654	510	130	640	483	142	626	456	156	612
	15	551	120	672	526	131	657	499	144	643	471	157	628

NOTES

Nominal cooling capacity and power input are based on ΔT = 5°C entering/leaving evaporator and heat recovery condenser water temperature; evaporator fouling factor = 0.0176 m² °C/kW; condenser fouling factor = 0.0440 m² °C/kW

OPT_1-2-3-4-5-6-7-8_Rev.00_1 (1-2)

4 Capacity tables

4 - 3 Total Heat Recovery Capacity Tables

Total Heat Recovery Ratings
EWWD550~700I-SS

Size	ELWT (°C)	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE °C											
		40			45			50			55		
		Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)
550	4	462	127	589	438	138	576	412	149	561	386	161	547
	5	478	128	606	454	139	593	428	151	579	401	163	564
	6	496	130	626	470	141	611	444	153	597	416	165	581
	7	513	131	644	487	143	630	460	155	615	432	167	599
	8	531	133	664	504	144	648	477	156	633	448	169	617
	9	549	134	683	522	146	668	493	158	651	464	171	635
	10	556	136	692	529	148	677	501	160	661	472	173	644
	11	575	138	712	547	150	696	518	162	680	488	175	663
	12	593	139	732	565	151	716	536	164	700	505	177	682
	13	612	141	753	584	153	737	554	166	719	523	179	701
	14	632	142	774	602	155	757	572	168	739	540	181	721
	15	652	144	795	622	156	778	591	169	760	558	183	741
650	4	554	153	707	526	171	697	497	192	689	466	216	682
	5	573	154	727	545	172	717	515	193	708	483	216	699
	6	592	155	747	563	173	736	533	193	726	501	216	717
	7	612	157	769	583	174	757	552	194	746	519	217	736
	8	632	158	790	602	175	777	571	194	765	538	217	755
	9	652	159	811	622	176	798	590	195	785	556	218	774
	10	653	160	813	623	177	800	592	196	788	559	218	777
	11	673	161	834	643	178	821	611	197	808	577	219	796
	12	694	163	856	663	179	842	630	198	829	596	220	816
	13	714	164	879	683	181	864	650	200	850	616	221	836
	14	736	166	901	704	182	886	670	201	871	635	222	857
	15	757	167	924	725	184	908	691	202	893	655	223	878
700	4	610	168	778	579	187	766	547	209	756	513	234	747
	5	631	170	801	600	188	788	567	210	777	532	234	766
	6	652	171	823	620	189	809	587	210	797	552	235	787
	7	674	172	846	641	191	832	607	211	818	572	235	807
	8	696	174	870	663	192	855	628	212	840	592	236	828
	9	718	175	893	684	193	877	649	214	863	613	237	850
	10	719	176	895	686	194	880	651	215	866	615	238	853
	11	741	178	919	707	196	903	672	216	889	636	239	874
	12	763	180	943	729	197	927	694	217	911	656	240	897
	13	786	181	967	752	199	951	716	219	934	678	241	919
	14	809	183	992	774	201	975	738	220	958	699	243	942
	15	833	185	1017	797	202	999	760	222	982	721	244	965

NOTES

Nominal cooling capacity and power input are based on ΔT = 5°C entering/leaving evaporator and heat recovery condenser water temperature; evaporator fouling factor = 0.0176 m² °C/kW; condenser fouling factor = 0.0440 m² °C/kW

OPT_1-2-3-4-5-6-7-8_Rev.00_1 (2-2)

4 Capacity tables

4 - 3 Total Heat Recovery Capacity Tables

Total Heat Recovery Ratings
EWWD800~900I-SS

Size	ELWT (°C)	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE °C											
		35			40			45			50		
		Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)
800	4	677	184	861	642	204	846	606	226	832	568	252	820
	5	700	186	886	665	205	870	628	227	855	590	252	842
	6	723	187	910	688	207	895	651	228	879	612	253	865
	7	748	189	937	711	208	919	674	230	904	634	254	888
	8	772	190	962	735	210	945	697	231	928	656	256	912
	9	797	192	989	759	211	970	720	233	953	679	257	936
	10	798	194	992	762	213	975	724	234	959	685	259	943
	11	823	196	1018	786	215	1001	747	236	983	707	260	967
	12	848	197	1045	810	217	1027	771	238	1009	730	262	991
	13	873	199	1072	835	218	1053	795	240	1034	753	263	1016
	14	899	201	1100	860	220	1080	819	241	1060	776	265	1041
	15	925	203	1128	885	222	1107	844	243	1087	800	267	1067
850	4	730	199	929	693	221	914	655	245	900	614	273	887
	5	756	201	957	718	222	940	678	246	924	637	274	911
	6	781	203	984	743	224	967	702	248	950	660	275	935
	7	807	204	1011	768	225	993	727	249	976	684	276	960
	8	833	206	1039	794	227	1021	752	251	1003	708	277	985
	9	860	208	1068	820	229	1049	778	252	1030	733	279	1012
	10	862	210	1072	822	231	1052	780	254	1034	736	280	1016
	11	889	212	1100	848	233	1081	806	256	1061	761	282	1043
	12	916	214	1130	875	235	1109	831	258	1089	786	283	1070
	13	944	216	1159	902	237	1138	858	259	1117	812	285	1097
	14	972	218	1190	929	239	1168	884	261	1146	838	287	1125
	15	1000	220	1221	957	241	1198	912	264	1175	864	289	1153
900	4	789	215	1004	750	238	988	708	264	972	665	294	959
	5	816	217	1033	776	240	1016	734	266	1000	689	295	984
	6	843	219	1062	802	241	1043	759	267	1026	714	296	1010
	7	871	220	1091	829	243	1072	786	269	1055	740	298	1038
	8	899	222	1121	857	245	1102	812	270	1082	766	299	1065
	9	927	224	1151	885	247	1132	839	272	1111	792	300	1092
	10	915	225	1140	873	248	1121	830	273	1103	784	301	1085
	11	943	227	1171	901	250	1150	856	275	1131	810	303	1113
	12	972	229	1202	929	252	1181	884	277	1160	836	305	1141
	13	1001	232	1233	957	254	1211	911	279	1190	863	306	1169
	14	1031	234	1265	986	256	1242	939	281	1220	890	308	1198
	15	1061	236	1297	1015	258	1274	968	283	1251	918	310	1228

NOTES

Nominal cooling capacity and power input are based on ΔT = 5°C entering/leaving evaporator and heat recovery condenser water temperature; evaporator fouling factor = 0.0176 m² °C/kW; condenser fouling factor = 0.0440 m² °C/kW

OPT_1-2-3-4-5-6-7-8_Rev.00_2 (1-2)

4 Capacity tables

4 - 3 Total Heat Recovery Capacity Tables

Total Heat Recovery Ratings
EWWD950~C12I-SS

Size	ELWT (°C)	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE °C											
		35			40			45			50		
		Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)
950	4	855	233	1088	813	255	1068	768	280	1048	721	306	1027
	5	884	235	1119	841	258	1099	796	282	1078	748	309	1057
	6	914	237	1151	870	260	1130	824	284	1108	775	311	1086
	7	944	240	1184	899	262	1161	852	287	1139	803	314	1117
	8	974	242	1216	929	265	1194	881	289	1170	831	316	1147
	9	1005	244	1249	959	267	1226	910	292	1202	860	319	1179
	10	978	244	1223	935	267	1202	889	292	1181	840	319	1159
	11	1008	247	1255	964	270	1233	917	295	1212	868	322	1189
	12	1038	249	1287	993	272	1265	946	297	1243	896	324	1220
	13	1069	252	1320	1023	275	1298	975	300	1275	924	327	1251
	14	1100	254	1354	1053	277	1330	1004	303	1307	953	330	1283
	15	1131	256	1388	1084	280	1364	1034	305	1339	982	332	1315
C10	4	889	251	1140	845	273	1118	798	295	1093	750	319	1069
	5	920	253	1173	875	276	1151	827	299	1126	778	323	1101
	6	951	256	1207	905	279	1184	856	302	1158	806	327	1133
	7	982	259	1241	935	282	1217	886	305	1191	835	330	1165
	8	1014	262	1276	966	285	1251	916	309	1225	864	334	1198
	9	1046	265	1311	998	288	1286	947	312	1259	894	338	1232
	10	1030	265	1295	984	288	1272	936	313	1249	885	339	1224
	11	1061	268	1329	1015	291	1306	965	316	1282	914	342	1256
	12	1093	270	1364	1046	294	1340	996	320	1315	943	346	1289
	13	1126	273	1399	1077	297	1374	1026	323	1349	973	349	1322
	14	1158	276	1434	1109	300	1409	1057	326	1383	1003	353	1356
	15	1192	279	1470	1142	303	1445	1089	329	1418	1034	357	1391
C12	4	1004	274	1278	954	304	1258	902	337	1239	847	375	1222
	5	1037	276	1313	987	305	1292	934	339	1273	878	376	1254
	6	1072	278	1350	1020	307	1327	966	340	1306	910	378	1288
	7	1106	280	1386	1054	309	1363	1000	342	1342	942	379	1321
	8	1141	283	1424	1089	312	1401	1033	344	1377	975	381	1356
	9	1176	285	1461	1123	314	1437	1067	346	1413	1008	383	1391
	10	1093	271	1364	1045	298	1344	995	329	1324	942	365	1306
	11	1126	273	1399	1077	300	1377	1026	331	1357	972	366	1338
	12	1159	275	1434	1109	303	1412	1057	333	1391	1003	368	1371
	13	1192	277	1470	1142	305	1447	1089	336	1425	1034	370	1404
	14	1226	280	1506	1175	307	1482	1122	338	1459	1065	372	1437
	15	1261	282	1543	1209	310	1518	1154	340	1494	1097	374	1471

NOTES

Nominal cooling capacity and power input are based on ΔT = 5°C entering/leaving evaporator and heat recovery condenser water temperature; evaporator fouling factor = 0.0176 m² °C/kW; condenser fouling factor = 0.0440 m² °C/kW

OPT_1-2-3-4-5-6-7-8_Rev.00_2 (2-2)

4 Capacity tables

4 - 3 Total Heat Recovery Capacity Tables

Total Heat Recovery Ratings
EWWDC13~C15I-SS

Size	ELWT (°C)	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE °C											
		35			40			45			50		
		Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)
C13	4	1049	289	1338	998	320	1318	944	356	1300	887	396	1283
	5	1084	291	1375	1032	322	1354	977	357	1334	920	398	1318
	6	1118	293	1411	1066	324	1390	1011	359	1370	953	399	1352
	7	1154	295	1449	1101	326	1427	1045	361	1406	986	400	1386
	8	1190	298	1488	1136	328	1464	1080	363	1443	1020	402	1422
	9	1225	300	1525	1171	331	1502	1114	365	1479	1054	404	1458
	10	1175	287	1463	1125	316	1441	1070	348	1418	1012	385	1396
	11	1210	290	1500	1158	319	1477	1104	351	1454	1045	387	1431
	12	1245	292	1537	1192	321	1513	1137	353	1490	1078	389	1467
	13	1280	295	1575	1227	324	1550	1171	355	1526	1112	391	1503
	14	1316	298	1613	1262	326	1588	1205	358	1563	1146	393	1539
	15	1352	300	1652	1297	329	1626	1240	361	1600	1179	396	1575
C14	4	1107	304	1411	1053	338	1391	995	375	1370	935	418	1353
	5	1144	307	1451	1089	340	1429	1031	377	1408	969	419	1388
	6	1182	309	1491	1126	342	1468	1067	379	1446	1004	420	1424
	7	1220	312	1532	1163	344	1507	1103	381	1484	1040	422	1462
	8	1258	314	1572	1201	346	1547	1140	383	1523	1076	424	1500
	9	1297	317	1614	1239	349	1588	1177	385	1562	1112	426	1538
	10	1298	319	1617	1240	351	1592	1180	387	1567	1116	428	1544
	11	1337	322	1659	1279	354	1633	1217	390	1607	1152	430	1582
	12	1377	325	1702	1317	357	1674	1255	392	1647	1189	432	1622
	13	1417	328	1745	1356	360	1716	1293	395	1688	1226	435	1661
	14	1458	331	1789	1396	363	1759	1332	398	1730	1264	437	1702
	15	1499	334	1833	1437	366	1802	1371	401	1772	1303	440	1743
C15	4	1167	321	1488	1109	356	1465	1048	395	1443	984	439	1423
	5	1207	323	1530	1148	358	1506	1086	397	1483	1020	441	1461
	6	1247	326	1573	1187	360	1547	1124	399	1523	1058	442	1500
	7	1288	329	1617	1227	363	1590	1163	401	1564	1095	444	1539
	8	1329	331	1660	1267	365	1632	1202	403	1605	1134	446	1580
	9	1371	334	1705	1308	368	1676	1242	406	1648	1173	448	1621
	10	1386	337	1724	1324	371	1694	1258	408	1666	1189	451	1639
	11	1429	340	1769	1365	374	1739	1298	411	1709	1228	453	1681
	12	1472	343	1816	1407	377	1784	1339	414	1753	1268	456	1724
	13	1516	347	1863	1450	380	1830	1381	417	1798	1308	458	1767
	14	1561	350	1911	1494	383	1877	1423	420	1843	1350	461	1811
	15	1607	353	1960	1538	386	1924	1466	423	1890	1391	464	1855

NOTES

Nominal cooling capacity and power input are based on ΔT = 5°C entering/leaving evaporator and heat recovery condenser water temperature; evaporator fouling factor = 0.0176 m² °C/kW; condenser fouling factor = 0.0440 m² °C/kW

OPT_1-2-3-4-5-6-7-8_Rev.00_3 (1-2)

4 Capacity tables

4 - 3 Total Heat Recovery Capacity Tables

Total Heat Recovery Ratings
EWWDC16~C18I-SS

Size	ELWT (°C)	LEAVING HEAT RECOVERY CONDENSER WATER TEMPERATURE °C											
		35			40			45			50		
		Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)	Cc (kW)	Pi (kW)	Hc (kW)
C16	4	1216	339	1555	1156	373	1529	1093	410	1503	1027	452	1479
	5	1257	342	1599	1196	376	1572	1132	413	1545	1065	455	1520
	6	1299	345	1644	1237	379	1616	1172	416	1588	1103	458	1561
	7	1341	348	1689	1278	382	1660	1212	419	1631	1142	461	1603
	8	1383	351	1734	1319	385	1704	1252	422	1674	1182	464	1646
	9	1427	354	1781	1362	388	1750	1294	426	1720	1222	467	1689
	10	1442	358	1800	1377	392	1769	1309	429	1738	1238	470	1708
	11	1486	361	1847	1420	395	1815	1351	432	1784	1279	474	1752
	12	1531	364	1895	1464	399	1862	1394	436	1830	1320	477	1797
	13	1576	368	1944	1508	402	1910	1437	440	1876	1362	481	1842
	14	1623	371	1994	1553	406	1959	1480	443	1924	1404	484	1888
	15	1670	375	2044	1599	410	2008	1525	447	1972	1447	488	1935
C17	4	1265	356	1621	1204	390	1594	1139	426	1565	1071	465	1536
	5	1307	360	1667	1245	394	1639	1179	430	1609	1109	469	1578
	6	1350	363	1713	1286	397	1683	1219	434	1653	1149	473	1622
	7	1393	367	1760	1329	401	1730	1261	438	1699	1189	477	1666
	8	1437	370	1807	1371	405	1776	1302	442	1744	1230	481	1711
	9	1482	374	1856	1415	409	1824	1345	446	1791	1271	485	1756
	10	1498	378	1876	1431	413	1844	1361	450	1811	1288	490	1777
	11	1543	382	1925	1475	417	1892	1404	454	1858	1329	494	1823
	12	1589	385	1975	1520	421	1941	1448	458	1906	1372	498	1870
	13	1636	389	2025	1566	425	1990	1492	462	1954	1415	503	1918
	14	1684	393	2077	1612	429	2041	1537	467	2004	1459	507	1966
	15	1732	397	2129	1659	433	2092	1583	471	2054	1503	512	2015
C18	4	1314	374	1688	1251	407	1658	1184	441	1625	1114	477	1591
	5	1357	378	1735	1293	411	1704	1225	446	1671	1154	483	1637
	6	1401	382	1783	1336	416	1752	1267	451	1718	1195	488	1683
	7	1446	386	1832	1379	420	1799	1309	456	1765	1236	493	1729
	8	1491	390	1881	1424	425	1849	1353	461	1814	1278	499	1777
	9	1538	394	1932	1468	429	1897	1396	466	1862	1321	504	1825
	10	1554	398	1952	1485	434	1918	1413	471	1883	1337	509	1846
	11	1600	402	2003	1530	438	1968	1457	475	1932	1380	514	1895
	12	1648	406	2054	1577	442	2019	1502	480	1982	1424	520	1944
	13	1696	410	2107	1624	447	2071	1548	485	2033	1468	525	1993
	14	1745	414	2160	1672	451	2123	1594	490	2084	1514	530	2044
	15	1795	418	2214	1720	456	2176	1642	495	2137	1559	536	2095

NOTES

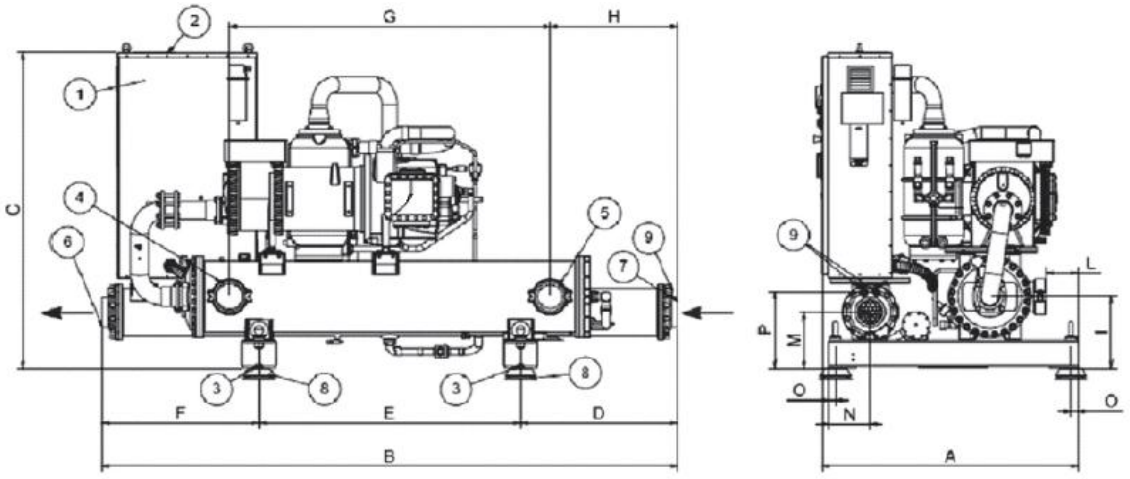
Nominal cooling capacity and power input are based on ΔT = 5°C entering/leaving evaporator and heat recovery condenser water temperature; evaporator fouling factor = 0.0176 m² °C/kW; condenser fouling factor = 0.0440 m² °C/kW

OPT_1-2-3-4-5-6-7-8_Rev.00_3 (2-2)

5 Dimensional drawings

5 - 1 Dimensional Drawings

EWWD340~550I-SS [Partial Heat Recovery]



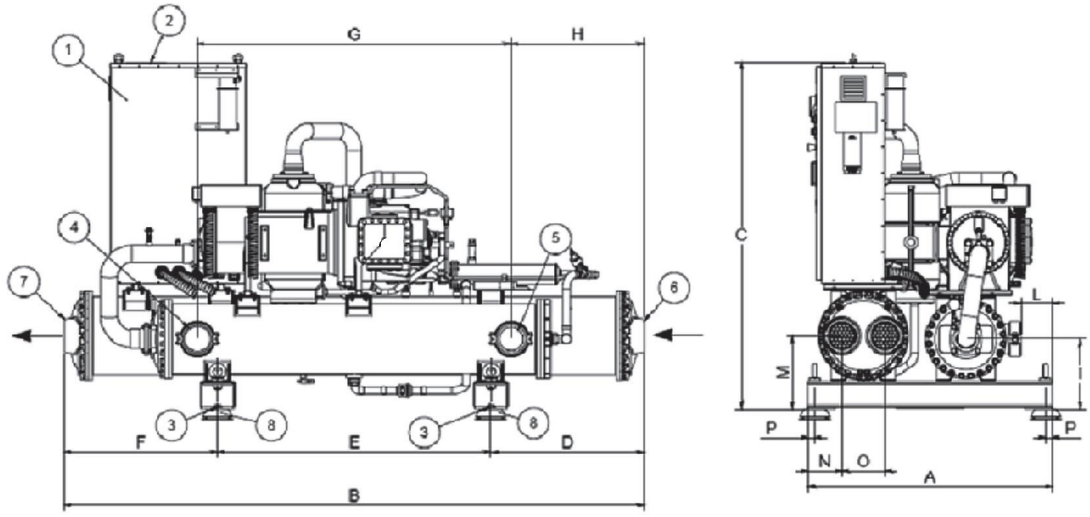
	Dimensions													
EWWD~I-	A	B	C	D	E	F	G	H	I	L	M	N	O	P
340~550I-SS	1466	3298	1821	899	1500	899	1837	731	412	182	323	240	40	--
340~550I-SS (PHR)	1466	3298	1821	899	1500	899	1837	731	412	182	323	240	40	437

LEGEND

1 - Electrical Panel
2 - Power connections slot 150x200
3 - Four (4) holes Ø21 for isolator mounting
4 - Evaporator water inlet (Victaulic connection) [168.3mm]
5 - Evaporator water outlet (Victaulic connection) [168.3mm]
6 - Condenser water inlet connection [Ø5"]
7 - Condenser water outlet connection [Ø5"]
8 - Isolators (optional)
9 - Partial heat recovery connection (optional)

DMN_1a-2a-3a-4a-5a-6a-7a-8a_Rev.00_1

EWWD340~550I-SS Total Heat Recovery



	Dimensions													
EWWD~I-	A	B	C	D	E	F	G	H	I	L	M	N	O	P
340~550I-SS (THR)	1430	3455	2037	948	1600	907	1837	830	412	182	431	199	252	40

LEGEND

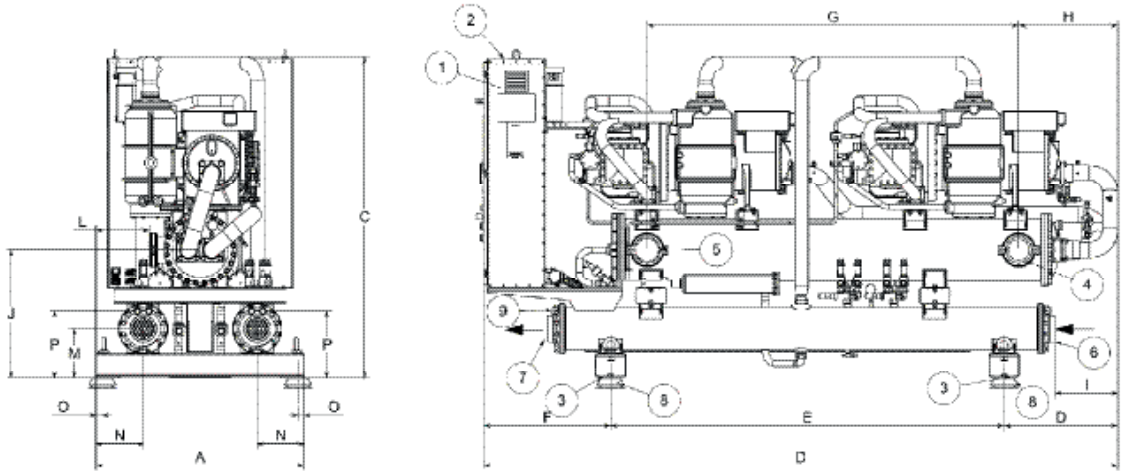
1 - Electrical Panel
2 - Power connections slot 150x200
3 - Four (4) holes Ø21 for isolator mounting
4 - Evaporator water inlet (Victaulic connection) [168.3mm]
5 - Evaporator water outlet (Victaulic connection) [168.3mm]
6 - Condenser water inlet connection [Ø6"]
7 - Condenser water outlet connection [Ø6"]
8 - Isolators (optional)

DMN_1-2-3a-4a-5a-6a-7a-8a_Rev.01_2

5 Dimensional drawings

5 - 1 Dimensional Drawings

EWWD650~C10I-SS [Partial Heat Recovery]



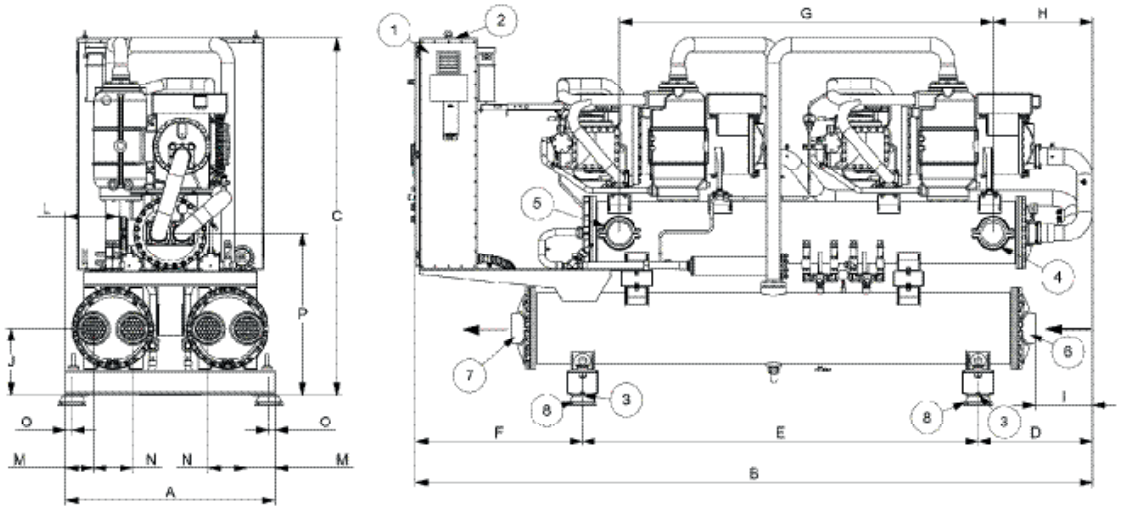
	Dimensions														
EWWD~I-	A	B	C	D	E	F	G	H	I	J	L	M	N	O	P
650~C10I-SS	1350	4116	2103	738	2555	827	2412	643	385	838	331	323	305	40	--
650~C10I-SS (PHR)	1350	4116	2103	738	2555	827	2412	643	385	838	331	323	305	40	437

LEGEND

1 - Electrical Panel
2 - Power connections slot 150x200
3 - Four (4) holes Ø21 for isolator mounting
4 - Evaporator water inlet (Victaulic connection)
5 - Evaporator water outlet (Victaulic connection)
6 - Condenser water inlet connection
7 - Condenser water outlet connection
8 - Isolators (optional)
9 - Partial heat recovery connection (optional)

DMN_1-2-3a-4a-5a-6a-7-8a_Rev.01_3a

EWWD650~C10I-SS Total Heat Recovery



	Dimensions														
EWWD~I-	A	B	C	D	E	F	G	H	I	J	L	M	N	O	P
650~C10I-SS (THR)	1350	4371	2319	738	2555	1078	2412	643	310	431	345	179	252	40	1053

LEGEND

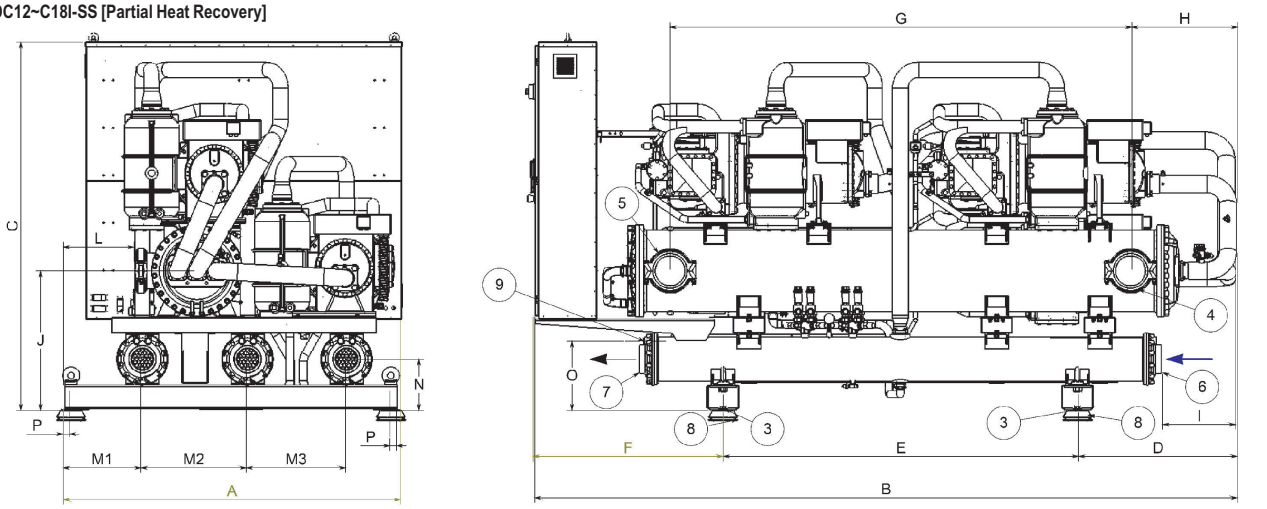
1 - Electrical Panel
2 - Power connections slot 150x200
3 - Four (4) holes Ø21 for isolator mounting
4 - Evaporator water inlet (Victaulic connection)
5 - Evaporator water outlet (Victaulic connection)
6 - Condenser water inlet connection
7 - Condenser water outlet connection
8 - Isolators (optional)

DMN_1-2-3a-4a-5a-6a-7-8a_Rev.01_4a

5 Dimensional drawings

5 - 1 Dimensional Drawings

EWWDC12~C18I-SS [Partial Heat Recovery]



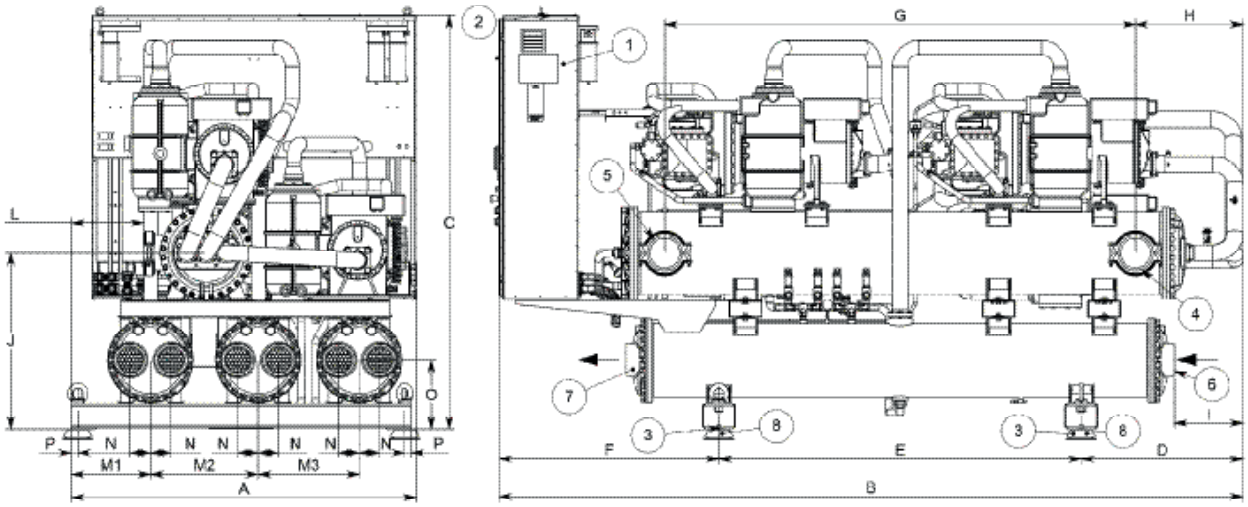
	Dimensions																
EWWD~I-	A	B	C	D	E	F	G	H	I	J	L	M1	M2	M3	N	O	P
C12~C18I-SS	2130	4439	2323	1041	2200	1198	2910	666	452	880	446	490	645	645	323	--	40
C12~C18I-SS (PHR)	2130	4439	2323	1041	2200	1198	2910	666	452	880	446	490	645	645	323	437	40

LEGEND

1 - Electrical Panel
2 - Power connections slot 150x350
3 - Four (4) holes Ø21 for isolator mounting
4 - Evaporator water inlet (Victaulic connection)
5 - Evaporator water outlet (Victaulic connection)
6 - Condenser water inlet connection
7 - Condenser water outlet connection
8 - Isolators (optional)
9 - Partial heat recovery connection (optional)

DMN_1-2-3a-4a-5a-6a-7-8a_Rev.01_5a

EWWDC12~C18I-SS Total Heat Recovery



	Dimensions																
EWWD~I-	A	B	C	D	E	F	G	H	I	J	L	M1	M2	M3	N	O	P
C12~C18I-SS (THR)	2131	4610	2560	1001	2240	1369	2910	666	416	1095	446	490	665	625	126	431	40

LEGEND

1 - Electrical Panel
2 - Power connections slot 150x200
3 - Four (4) holes Ø21 for isolator mounting
4 - Evaporator water inlet (Victaulic connection)
5 - Evaporator water outlet (Victaulic connection)
6 - Condenser water inlet connection
7 - Condenser water outlet connection
8 - Isolators (optional)

DMN_1-2-3a-4a-5a-6a-7-8a_Rev.01_6a

6 Sound data

6 - 1 Sound Level Data

Sound levels

EWWD~I-SS

Unit size	Sound pressure level at 1 m from the unit in semispheric free field (rif. 2 x 10^{-5} Pa)									Power
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
340	53.6	56.2	71.1	74.5	69.7	65.6	63.9	59.5	**75.2**	**93.7**
400	54.6	57.2	72.1	75.5	70.7	66.6	64.9	60.5	**76.2**	**96.6**
460	56.6	59.2	74.1	77.5	72.7	68.6	66.9	62.5	**78.2**	**96.7**
550	56.6	59.2	74.1	77.5	72.7	68.6	66.9	62.5	**78.2**	**96.7**
650	56.2	58.8	73.7	77.1	72.3	68.2	66.5	62.1	**77.8**	**96.9**
700	56.6	59.2	74.1	77.5	72.7	68.6	66.9	62.5	**78.2**	**97.3**
800	57.1	59.7	74.6	78.0	73.2	69.1	67.4	63.0	**78.7**	**97.8**
850	58.2	60.8	75.7	79.1	74.3	70.2	68.5	64.1	**79.8**	**98.9**
900	59.1	61.7	76.6	80.0	75.2	71.1	69.4	65.0	**80.7**	**99.8**
950	59.1	61.7	76.6	80.0	75.2	71.1	69.4	65.0	**80.7**	**99.8**
C10	59.1	61.7	76.6	80.0	75.2	71.1	69.4	65.0	**80.7**	**99.8**
C12	58.8	61.4	76.3	79.7	74.9	70.8	69.1	64.7	**80.4**	**100.4**
C13	59.2	61.8	76.7	80.1	75.3	71.2	69.5	65.1	**80.8**	**100.8**
C14	59.6	62.2	77.1	80.5	75.7	71.6	69.9	65.5	**81.2**	**101.2**
C15	61.4	64.0	78.9	82.3	77.5	73.4	71.7	67.3	**83.0**	**103.0**
C16	61.4	64.0	78.9	82.3	77.5	73.4	71.7	67.3	**83.0**	**103.0**
C17	61.4	64.0	78.9	82.3	77.5	73.4	71.7	67.3	**83.0**	**103.0**
C18	61.4	64.0	78.9	82.3	77.5	73.4	71.7	67.3	**83.0**	**103.0**

NOTES

The values are according to ISO 3744 and are referred to: evaporator 12/7° C, condenser 30/35° C, full load operation

EWWD~I-XS

Unit size	Sound pressure level at 1 m from the unit in semispheric free field (rif. 2 x 10^{-5} Pa)									Power
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
360	53.6	56.2	71.1	74.5	69.7	65.6	63.9	59.5	**75.2**	**93.7**
440	54.6	57.2	72.1	75.5	70.7	66.6	64.9	60.5	**76.2**	**96.6**
500	56.6	59.2	74.1	77.5	72.7	68.6	66.9	62.5	**78.2**	**96.7**
600	56.6	59.2	74.1	77.5	72.7	68.6	66.9	62.5	**78.2**	**96.7**
750	56.2	58.8	73.7	77.1	72.3	68.2	66.5	62.1	**77.8**	**96.9**
800	56.6	59.2	74.1	77.5	72.7	68.6	66.9	62.5	**78.2**	**97.3**
850	57.1	59.7	74.6	78.0	73.2	69.1	67.4	63.0	**78.7**	**97.8**
950	58.2	60.8	75.7	79.1	74.3	70.2	68.5	64.1	**79.8**	**98.9**
C10	59.1	61.7	76.6	80.0	75.2	71.1	69.4	65.0	**80.7**	**99.8**
C11	59.1	61.7	76.6	80.0	75.2	71.1	69.4	65.0	**80.7**	**99.8**
C12	59.1	61.7	76.6	80.0	75.2	71.1	69.4	65.0	**80.7**	**99.8**

NOTES

The values are according to ISO 3744 and are referred to: evaporator 12/7° C, condenser 30/35° C, full load operation

NSL_1-2_Rev.00_1

6 Sound data

6 - 1 Sound Level Data

Sound pressure level correction factors for different distances

EWWD-I-SS

Unit size	Distance					
	1m	5m	10m	15m	20m	25m
340	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
400	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
460	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
550	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
650	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
700	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
800	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
850	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
900	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
950	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
C10	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C12	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C13	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C14	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C15	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C16	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C17	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C18	0.0	-7.5	-12.2	-15.3	-17.5	-19.3

EWWD-I-XS

Unit size	Distance					
	1m	5m	10m	15m	20m	25m
360	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
440	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
500	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
600	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
750	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
800	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
850	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
950	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C10	0.0	-7.5	-12.2	-15.3	-17.5	-19.3
C11	0.0	-7.9	-12.7	-15.8	-18.1	-19.8
C12	0.0	-7.5	-12.2	-15.3	-17.5	-19.3

NSL_1-2_Rev.00_2

7 Installation

7 - 1 Installation Method

Installation notes

Warning

Installation and maintenance are to be performed only by qualified personnel who are familiar with local codes and regulations, and who are experienced with this type of equipment. Must be avoided the unit installation in places that could be considered dangerous for all the maintenance operations.

Handling

The chiller is mounted on heavy wooden skids to protect the unit from accidental damage and to permit easy handling and moving. It is recommended that all moving and handling be performed with the skids under the unit when possible and that the skids not be removed until the unit is in the final location.

If the unit must be hoisted, it is necessary to lift the unit by attaching cables or chains at the lifting holes in the evaporator tube sheets. Spreader bars must be used to protect the control cabinet and the other areas of the chiller.

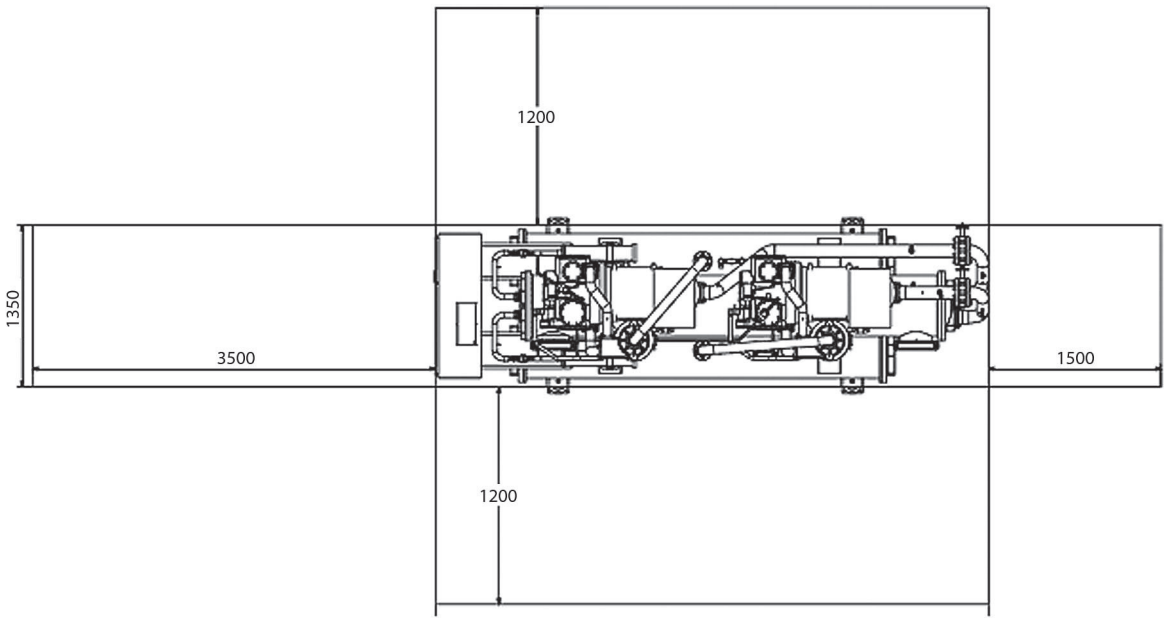
Location

A leveled and sufficiently strong floor is required. If necessary, additional structural members should be provided to transfer the weight of the unit to the nearest beams.

Rubber-in-shear isolators can be furnished and field placed under each corner of the package. A rubber anti–skid pad should be used under isolators if hold-down bolts are not used. Vibration isolator in all water piping connected to the chiller is recommended to avoid straining the piping and transmitting vibration and noise.

Minimum space requirements

Every side of the machine must be accessible for all post-installation maintenance activities. The minimum space required is shown on the following drawing:



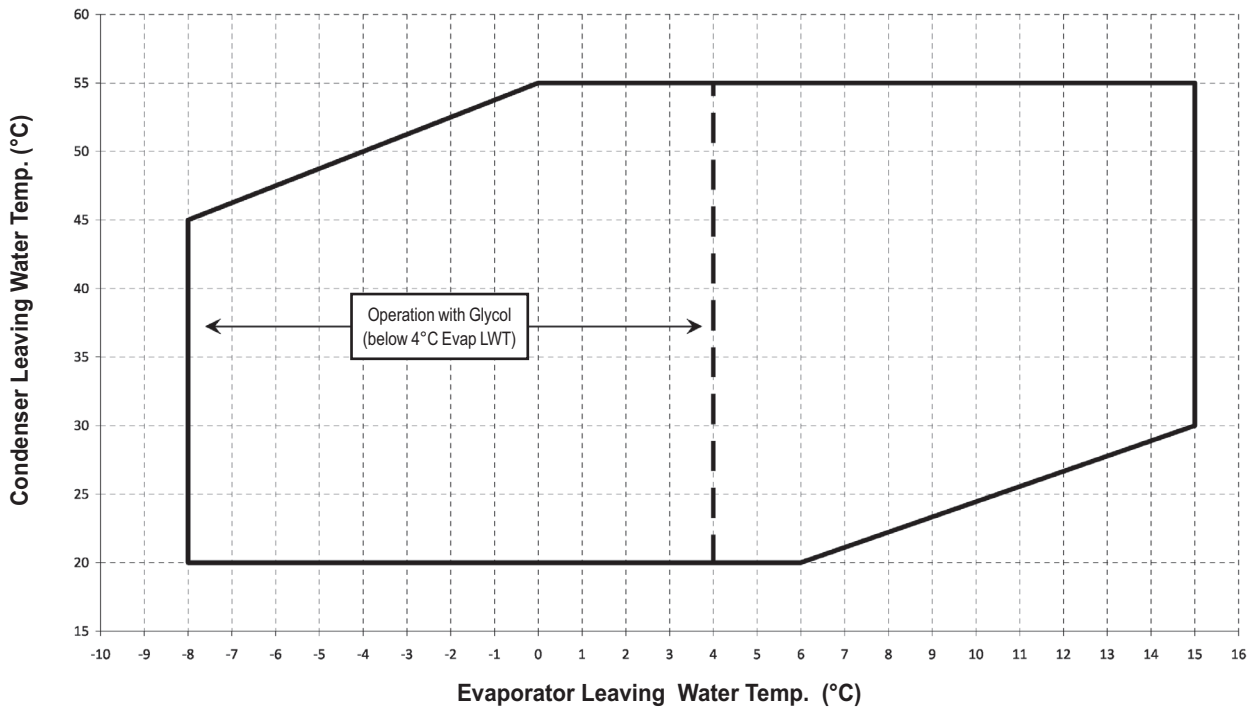
Minimum clearance requirements for machine maintenance

INN_1_Rev.00

8 Operation range

8 - 1 Operation Range

Operating Limits
EWWD~I-SS --- EWWD~I-XS



OPL_1-2-3-4a-5_Rev.01_1

8 Operation range

8 - 1 Operation Range

Table 1 - Evaporator minimum and maximum water Δt

Max evaporator water Δt	°C	8
Min evaporator water Δt	°C	4
Min condenser water Δt (1 pass, 2 passes, Δt 4÷8°C)	°C	4
Max condenser water Δt (1 pass, 2 passes, Δt 4÷8°C)	°C	8
Min condenser water ΔtT (2 passes, Δt 9÷15°C)	°C	9
Max condenser water ΔtT (2 passes, Δt 9÷15°C)	°C	15
Min condenser water ΔtT (4 passes, Δt 9÷15°C)	°C	9
Max condenser water ΔtT (4 passes, Δt 9÷15°C)	°C	15

Table 2 - Evaporator fouling factors

Fouling factors m^2 °C / kW	Cooling capacity correction factor	Power input correction factor	EER correction factor
0.0176	1.000	1.000	1.000
0.0440	0.978	0.986	0.992
0.0880	0.957	0.974	0.983
0.1320	0.938	0.962	0.975

Table 3 - Condenser fouling factors

Fouling factors m^2 °C / kW	Cooling capacity correction factor	Power input correction factor	EER correction factor
0.0176	1.000	1.000	1.000
0.0440	0.978	0.986	0.992
0.0880	0.957	0.974	0.983
0.1320	0.938	0.962	0.975

Table 4.1 - Minimum glycol percentage for low water temperature

Evaporator Leaving Water Temperature (°C)	2	0	-2	-4	-6	-8
Ethylene glycol (%)	10	20	20	20	30	30
Propylene glycol (%)	10	20	20	30	30	30

Note: Minimum glycol percentage to be used with evaporator leaving water temperature below 4°C to prevent freezing of water circuit.

Table 4.2 Minimum glycol percentage for low air ambient temperature

Air Ambient Temperature (°C) (2)	-3	-8	-15	-23	-35
Ethylene glycol (%) (1)	10%	20%	30%	40%	50%
Air Ambient Temperature (°C) (2)	-3	-7	-12	-20	-32
Propylene glycol (%) (1)	10%	20%	30%	40%	50%

Note (1): Minimum glycol percentage to prevent freezing of water circuit at indicated air ambient temperature.

Note (2): Air ambient temperature do exceed the operating limits of the unit, as protection of water circuit may be needed in winter season at non-working conditions.

Table 5 - Correction factors for low evaporator leaving water temperature

Evaporator Leaving Water Temperature (°C)	2	0	-2	-4	-6	-8
Cooling Capacity	0.842	0.785	0.725	0.670	0.613	0.562
Compressor Power Input	0.950	0.940	0.920	0.890	0.870	0.840

Note: Correction factors have to be applied at working conditions: evaporator leaving water temperature 7°C.

Table 6 - Correction factors for water and glycol mixture

	Ethylene Glycol (%)	10%	20%	30%	40%	50%
Ethylene Glycol	Cooling Capacity	0.991	0.982	0.972	0.961	0.946
	Compressor Power Input	0.996	0.992	0.986	0.976	0.966
	Flow Rate (Δt)	1.013	1.04	1.074	1.121	1.178
	Evaporator Pressure Drop	1.070	1.129	1.181	1.263	1.308
Propylene Glycol	Cooling Capacity	0.985	0.964	0.932	0.889	0.846
	Compressor Power Input	0.993	0.983	0.969	0.948	0.929
	Flow Rate (Δt)	1.017	1.032	1.056	1.092	1.139
	Evaporator Pressure Drop	1.120	1.272	1.496	1.792	2.128

OPL_1-2-3-4a-5_Rev.01_2

8 Operation range

8 - 1 Operation Range

How to use the Correction factors proposed in the previous tables

A) Mixture Water and Glycol --- Evaporator leaving water temperature > 4°C

- depending from the type and percentage (%) of glycol filled in the circuit (see table 4.2 and 6)
- multiply the Cooling Capacity, the Compressor Power Input by the Correction factor of Table 6
- starting from this new value of Cooling Capacity, calculate the Flow Rate (l/s) and the Evaporator Pressure Drop (kPa)
- now multiply the new Flow Rate and the new Evaporator Pressure Drop by the Correction Factors of Table 6

Example

Unit Size:	**EWWD340I-SS**
Mixture:	Water
Working condition:	ELWT 12/7°C – CLWT 30/35°C
- Cooling capacity:	333 kW
- Power input:	71.5 kW
- Flow rate (Δt 5°C):	15.90 l/s
- Evaporator pressure drop:	37kPa
Mixture:	Water + Ethylene Glycol 30% (for a winter air temperature up to -15°C)
Working condition:	ELWT 12/7°C – CLWT 30/35°C
- Cooling capacity:	333 x 0.972 = 324 kW
- Power input:	71.5 x 0.986 = 70.5 kW
- Flow rate (Δt 5°C):	15.48 (referred to 324 kW) x 1.074 = 16.63 l/s
- Evaporator pressure drop:	40 (referred to 16.63 l/s) x 1.181 = 47kPa

B) Mixture Water and Glycol --- Evaporator leaving water temperature < 4°C

- depending from the type and percentage (%) of glycol filled in the circuit (see table 4.1 and 4.2 and table 6)
- depending from the evaporator leaving water temperature (see table 5)
- multiply the Cooling Capacity, the Compressor Power Input by the Correction factor of Table 5 and Table 6
- starting from this new value of Cooling Capacity, calculate the Flow Rate (l/s) and the Evaporator Pressure Drop (kPa)
- now multiply the new Flow Rate and the new Evaporator Pressure Drop by the Correction Factors of Table 6

Example

Unit Size:	**EWWD340I-SS**
Mixture:	Water
Standard working condition	ELWT 12/7°C – CLWT 35/40°C
- Cooling capacity:	317 kW
- Power input:	78.9 kW
- Flow rate (Δt 5°C):	15.15 l/s
- Evaporator pressure drop:	34 kPa
Mixture:	Water + Glycol 30% (for a low evaporator leaving temperature of -1/-6°C)
Working condition:	ELWT -1/-6°C – CLWT 35/40°C
- Cooling capacity:	317 x 0.613 x 0.972 = 189 kW
- Power input:	78.9 x 0.870 x 0.986 = 67.7 kW
- Flow rate (Δt 5°C):	9.03 l/s (referred to 189 kW) x 1.074 = 9.70 l/s
- Evaporator pressure drop:	15 kPa (referred to 9.70 l/s) x 1.181 = 18 kPa

OPL_1-2-3-4a-5_Rev.01_3

8 Operation range

8 - 1 Operation Range

Water charge, flow and quality

Items (1) (6)			Cooling Water			Cooled Water		Heated water (2)				Tendency if out of criteria
			Circulating System		Once Flow			Low temperature		High temperature		
			Circulating water	Supply water (4)	Flowing water	Circulating water [Below 20°C]	Supply water (4)	Circulating water [20°C ~ 60°C]	Supply water (4)	Circulating water [60°C ~ 80°C]	Supply water (4)	
Items to be controlled	pH	at 25°C	6.5 ~ 8.2	6.0 ~ 8.0	6.0 ~ 8.0	6.8 - 8.0	6.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	7.0 ~ 8.0	Corrosion + Scale
	Electrical conductivity	[mS/m] at 25°C	Below 80	Below 30	Below 40	Below 80	Below 80	Below 30	Below 30	Below 30	Below 30	Corrosion + Scale
		(µS/cm) at 25°C	(Below 800)	(Below 300)	(Below 400)	(Below 800)	(Below 800)	(Below 300)	(Below 300)	(Below 300)	(Below 300)	Corrosion + Scale
	Chloride ion	[mgCl2-/l]	Below 200	Below 50	Below 50	Below 200	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	Sulfate ion	[mgSO2-4/l]	Below 200	Below 50	Below 50	Below 200	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	M-alkalinity (pH4.8)	[mgCaCO3/l]	Below 100	Below 50	Below 50	Below 100	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Total hardness	[mgCaCO3/l]	Below 200	Below 70	Below 70	Below 200	Below 70	Below 70	Below 70	Below 70	Below 70	Scale
	Calcium harness	[mgCaCO3/l]	Below 150	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Silca ion	[mgSiO2/l]	Below 50	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Scale
	Oxygen	(mg O2 /l)	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Corrosion
	Particole size	(mm)	Below 0.5	Below 0.5	Below 0.5	Below 0.5	Below 0.6	Below 0.5	Below 0.6	Below 0.5	Below 0.6	Erosion
	Total dissolved solids	(mg / l)	Below 1000	Below 1000	Below 1000	Below 1000	Below 1001	Below 1000	Below 1001	Below 1000	Below 1001	Erosion
	Ethykene, Propylene Glycol (weight conc.)		Below 60%	Below 60%	---	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	Below 60%	--
Items to be referred to	Nitrate ion	(mg NO3- /l)	Below 100	Below 100	Below 100	Below 100	Below 101	Below 100	Below 101	Below 100	Below 101	Corrosion
	TOC Total organic carbon	(mg /l)	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Scale
	Iron	[mgFe/l]	Below 1.0	Below 0.3	Below 1.0	Below 1.0	Below 0.3	Below 1.0	Below 0.3	Below 1.0	Below 0.3	Corrosion + Scale
	Copper	[mgCu/l]	Below 0.3	Below 0.1	Below 1.0	Below 1.0	Below 1.0	Below 1.0	Below 0.1	Below 1.0	Below 0.1	Corrosion
	Sulfite ion	[mgS2-/l]	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Not detectable	Corrosion
	Ammonium ion	[mgNH+4/l]	Below 1.0	Below 0.1	Below 1.0	Below 1.0	Below 0.1	Below 0.3	Below 0.1	Below 0.1	Below 0.1	Corrosion
	Remaining chloride	[mgCL/l]	Below 0.3	Below 0.3	Below 0.3	Below 0.3	Below 0.3	Below 0.25	Below 0.3	Below 0.1	Below 0.3	Corrosion
	Free carbide	[mgCO2/l]	Below 4.0	Below 4.0	Below 4.0	Below 4.0	Below 4.0	Below 0.4	Below 4.0	Below 0.4	Below 4.0	Corrosion
	Stability index		6.0 ~ 7.0	---	---	---	---	---	---	---	---	Corrosion + Scale

NOTES

1. Names, definitions and units are according to JIS K 0101. Units and figures between brackets are old units published as reference only.
2. In case of using heated water (more than 40°C), corrosion is generally noticeable.
   Especially when the iron materials is in direct contact with water without any protection shields, it is desireable to give the valid measure for corrosion. E.g. chemical measure.
3. In the cooling water using hermetic cooling tower, close circuit water is according to heated water standard, and scattered water is according to cooling water standard.
4. Supply water is considered drink water, industrial water and ground water except for genuine water, neutral water and soft water.
5. The above mentioned items are representable items in corrosion and scale cases.
6. The limits above have to be considered as a general prescription and con not totally assure the absence of corrosion and erosion.
   Some particular combinations of elements or the presence of components not listed in the table or factors not considered may trigger corrosion phenomena.

OPL_1-2-3-4a-5_Rev.01_4a

8 Operation range

8 - 1 Operation Range

Water content in cooling circuits

The cooled water distribution circuits should have minimum water content to avoid excessive compressors start and stop.
In fact, each time the compressor starts up, an excessive quantity of oil goes from the compressor sump and simultaneously there is a rise in the temperature of the compressor motor's stator due to the inrush current during the start-up.
To prevent damage to the compressors, it has been envisaged the application of a device to limit frequent stops and restarts.

During the span of one hour there will be no more than 6 starts of the compressor. The plant side should therefore ensure that the overall water content allows a more constant functioning of the unit and consequently greater environmental comfort.
The minimum water content per unit should be calculated using this simplified formula:

For 1 compressor unit
M (liters) = (0.94 x ΔT(°C) + 5.87) x P(kW)

For 2 compressors unit
M (liters) = (0.1595 x ΔT(°C) + 3.0825) x P(kW)

For 3 compressors unit
M (liters) = (0.0443 x ΔT(°C) + 1.6202) x P(kW)

where:

M	minimum water content per unit expressed in litres
P	Cooling Capacity of the unit expressed in kW
ΔT	evaporator entering / leaving water temperature difference expressed in °C

This formula is valid for:
- standard microprocessor parameters

For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.

OPL_1-2-3-4a-5_Rev.01_5

9 Hydraulic performance

9 - 1 Water Pressure Drop Curve Evaporator/Condenser

Pressure Drops

EWWD~I-SS

Size	340	400	460	550	650	700	800	850	900	950	C10	C12	C13	C14	C15	C16	C17	C18
Cooling Capacity (kW)	333	394	460	538	640	705	782	844	910	986	1027	1155	1204	1274	1346	1401	1455	1510
Water Flow (l/s) - Evaporator	15.91	18.82	21.98	25.70	30.58	33.68	37.36	40.32	43.48	47.11	49.07	55.18	57.52	60.87	64.31	66.94	69.52	72.14
Evaporator Pressure Drops (kPa)	37	50	54	62	55	44	58	53	53	66	51	52	56	47	58	62	66	71
Water Flow (l/s) - Condenser	19.33	22.92	26.80	31.44	37.31	41.14	45.53	49.21	53.03	57.52	60.39	67.32	70.33	74.34	78.55	82.08	85.52	89.01
Condenser Pressure Drops (kPa)	26	28	30	26	25	25	28	28	26	23	24	24	24	25	24	24	24	23

Water flow and pressure drop referred to nominal condition: evaporator water in/out: 12/7°C – condenser water in/out: 30/35°C

EWWD~I-XS

Size	360	440	500	600	750	800	850	950	C10	C11	C12
Cooling Capacity (kW)	362	433	506	573	720	795	866	933	976	1038	1134
Water Flow (l/s) - Evaporator	17.30	20.69	24.18	27.38	34.40	37.98	41.38	44.58	46.63	49.59	54.18
Evaporator Pressure Drops (kPa)	64	48	54	68	48	48	47	50	72	46	52
Water Flow (l/s) - Condenser	20.69	24.77	28.95	33.16	41.16	45.42	49.50	51.79	56.14	60.22	65.64
Condenser Pressure Drops (kPa)	48	47	51	66	48	48	47	50	50	65	65

Water flow and pressure drop referred to nominal condition: evaporator water in/out: 12/7°C – condenser water in/out: 30/35°C

EPD_1a-2_Rev.01_1

Evaporator and Condenser Pressure Drops

To determinate the evaporator or condenser pressure drop for different versions or at different working condition, please refer to the following formula:

$$PD_2\ (kPa) = PD_1\ (kPa) \times \left(\frac{Q_2\ (l/s)}{Q_1\ (l/s)} \right)^{1.8}$$

where:

PD_2 Pressure drop to be determinated (kPa)
PD_1 Pressure drop at nominal condition (kPa)
Q_2 water flow at new working condition (l/s)
Q_1 water flow at nominal condition (l/s)

How to use the formula: Example (evaporator)

The unit EWWD340I-SS has been selected for working at the following conditions:
- evaporator water in/out: 11/6°C
- condenser water in/out: 30/35°C
The cooling capacity at these working conditions is: 322 kW
The evaporator water flow at these working conditions is: 15.38 l/s

The unit EWWD340I-SS at nominal working conditions has the following data:
- evaporator water in/out: 12/7°C
- condenser water in/out: 30/35°C
The cooling capacity at these working conditions is: 333 kW
The evaporator water flow at these working conditions is: 15.90 l/s
The evaporator pressure drop at these working conditions is: 37 kPa

The evaporator pressure drop at the selected working condition will be:

$$PD_2\ (kPa) = 37\ (kPa) \times \left(\frac{15{,}38\ (l/s)}{15.90\ (l/s)} \right)^{1.8}$$

$$PD_2\ (kPa) = 35\ (kPa)$$

NOTE - Important
If the calculated evaporator water pressure drop is below 10 kPa or above 100 kPa please contact the factory for dedicated evaporator.

EPD_1a-2_Rev.01_2

9 Hydraulic performance

9 - 2 Partial Heat Recovery Pressure Drop

Partial Heat Recovery pressure drops

EWWD~I-SS

Size EWWD~I-SS	340	400	460	550	650	700	800	850	900	950	C10	C12	C13	C14	C15	C16	C17	C18
Heating Capacity (kW)	24.5	27.5	35.5	40	48	51	54	62	70	73	76	92	94.3	97.9	102	105	109	126
Water Flow (l/s)	1.17	1.31	1.70	1.89	2.30	2.43	2.59	2.95	3.33	3.50	3.63	4.38	4.51	4.68	4.87	5.02	5.21	6.02
Heat Recovery Pressure Drops (kPa)	97	103	88	106	90	99	111	91	87	96	98	65	68	73	79	83	89	115

NOTES

Water flow and pressure drop referred to nominal condition: evaporator water in/out: 12/7°C – condenser water in/out: 30/35°C – water heat recovery in/out 40/45°C

EWWD~I-XS

Size EWWD~I-XS	360	440	500	600	750	800	850	950	C10	C11	C12
Heating Capacity (kW)	23.8	29.2	33.7	40.2	47.8	52.9	58.3	61.6	66.4	73.4	79.6
Water Flow (l/s)	1.14	1.40	1.61	1.92	2.28	2.53	2.79	2.94	3.17	3.51	3.80
Heat Recovery Pressure Drops (kPa)	17	25	31	44	17	20	25	27	31	37	43

NOTES

Water flow and pressure drop referred to nominal condition: evaporator water in/out: 12/7°C – condenser water in/out: 30/35°C – water heat recovery in/out 40/45°C

OPT_1-2-3-4-5-6-7-8_Rev.00_7

9 Hydraulic performance

9 - 3 Total Heat Recovery Pressure Drop

Total Heat Recovery pressure drops

	EWWD~I-SS																	
Size EWWD~I-SS	**340**	**400**	**460**	**550**	**650**	**700**	**800**	**850**	**900**	**950**	**C10**	**C12**	**C13**	**C14**	**C15**	**C16**	**C17**	**C18**
Heating Capacity (kW)	388	460	538	630	756	832	919	993	1072	1161	1217	1364	1427	1507	1589	1659	1730	1800
Water Flow (l/s)	18.54	21.98	25.70	30.10	36.12	39.75	43.91	47.44	51.22	55.47	58.15	65.17	68.18	72.00	75.92	79.26	82.66	86
Heat Recovery Pressure Drops (kPa)	26	26	28	25	24	25	26	28	26	23	23	24	24	25	23	23	24	24

NOTES

Water flow and pressure drop referred to nominal condition: evaporator water in/out: 12/7°C – condenser water in/out: 30/35°C – water heat recovery in/out 40/45°C

OPT_1-2-3-4-5-6-7-8_Rev.00_6

Total and Partial Heat Recovery Pressure Drops

To determinate the pressure drop for different versions or at different working condition, please refer to the following formula:

$$PD_2\ (kPa) = PD_1\ (kPa) \times \left(\frac{Q_2\ (l/s)}{Q_1\ (l/s)} \right)^{1.80}$$

where:

- PD_2 Pressure drop to be determinated (kPa)
- PD_1 Pressure drop at nominal condition (kPa)
- Q_2 water flow at new working condition (l/s)
- Q_1 water flow at nominal condition (l/s)

How to use the formula: Example

The unit EWWD360I-XS has been selected for working at the following conditions:
- evaporator water in/out: 12/7°C
- condenser water in/out: 30/35°C
- Partial heat recovery leaving water temperature 45/50°C

The heating capacity at these working conditions is: 13.2 kW
The water flow at these working conditions is: 0.63 l/s

The unit EWWD360I-XS at nominal working conditions has the following data:
- evaporator water in/out: 12/7°C
- condenser water in/out: 30/35°C
- Partial heat recovery leaving water temperature 40/45°C

The heating capacity at these working conditions is: 23.8 kW
The water flow at these working conditions is: 1.14 l/s
The pressure drop at these working conditions is: 17 kPa

The pressure drop at the selected working condition will be:

$$PD_2\ (kPa) = 17\ (kPa) \times \left(\frac{0.63\ (l/s)}{1.14\ (l/s)} \right)^{1.80}$$

$$PD_2\ (kPa) = 6\ (kPa)$$

OPT_1-2-3-4-5-6-7-8_Rev.00_8

10 Specification text

10 - 1 Specification Text

Features and advantages

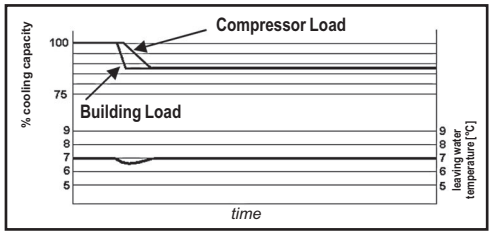
The EWWD~I- water cooled chillers, featuring 1, 2 or 3 single screw compressors, are manufactured to satisfy the requirements of the consultants and the end user. Units are designed to minimise energy costs while maximising the refrigeration capacities. Daikin's chiller design experience, combined with outstanding features makes the EWWD~I- chiller unmatched in the industry.

Seasonal quietness

The compressor design with a single screw and twin rotors allows a constant gas flow. This compression process completely eliminates gas pulsations. The oil injection also results in significant mechanical noise reduction.
The twin gas compressor discharge chambers are designed to act as attenuators, based on the harmonic wave principle with destructive interference, thus always resulting equal to zero. The extremely low noise compressor performance affords the use of EWWD~I- chiller for all applications.
The reduced number of vibrations produced from the EWWD~I- chiller offers a surprisingly quiet operation eliminating the noise transmission through the structure and the chilled water piping system.

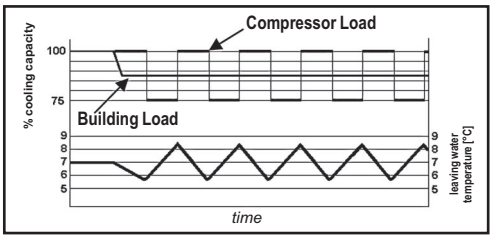
Infinitely capacity control

Cooling capacity control is infinitely variable by means of a screw compressor controlled by microprocessor system. Each unit has infinitely variable capacity control from 100% down to 25% (one compressor unit), down to 12,5% (two compressors units) and down to 8.3% (three compressors units). This modulation allows the compressor capacity to exactly match the building cooling load without any leaving evaporator water temperature fluctuation. This chilled water temperature fluctuation is avoided only with a stepless control.



ELWT fluctuation with stepless capacity control

With a compressor load step control in fact, the compressor capacity, at partial loads, will be too high or too low compared to the building cooling load. The result is an increase in chiller energy costs, particularly at the part-load conditions at which the chiller operates most of the time.



ELWT fluctuation with steps capacity control (4 steps)

Units with stepless regulation offer benefits that the units with step regulation are unable to match. The ability to follow the system energy demand at any time and the possibility to provide steady outlet water temperature without deviations from the set-point, are the two points that allow you to understand how the optimum operating conditions of a system can be met only through the use of a unit with stepless regulation.

Code requirements – Safety and observant of laws/directives

All water cooled units are designed and manufactured in accordance with applicable selections of the following:

Construction of pressure vessel	97/23/EC (PED)
Machinery Directive	2006/42/EC
Low Voltage	2006/95/EC
Electromagnetic Compatibility	2004/108/EC
Electrical & Safety codes	EN 60204–1 / EN 60335-2-40
Manufacturing Quality Stds	UNI – EN ISO 9001:2004

FTA_1-2_Rev.00_1

10 Specification text

10 - 1 Specification Text

Certifications
All units manufactured are CE marked, complying with European directives in force, concerning manufacturing and safety. On request units can be produced complying with laws in force in non European countries (ASME, GOST, etc.), and with other applications, such as naval (RINA, etc.).

Versions
EWWD~I- is available in two different Efficiency Versions:

S: Standard Efficiency
18 sizes, covering a cooling capacity range from 333 up to 1510 kW, EER up to 4.66 and ESEER up to 5.75.

X: High Efficiency
11 sizes, covering a cooling capacity range from 362 up to 1134 kW, EER up to 5.10 and ESEER up to 6.31.

The EER (Energy Efficiency Ratio) is the ratio of the Cooling Capacity to the Power Input of the unit. The Power Input includes: the power input for operation of the compressor, the power input of all control and safety devices.

The ESEER (European Seasonal Energy Efficiency Ratio) is a weighed formula enabling to take into account the variation of EER with the load rate and the variation of water inlet condenser temperature.

$ESEER = A \times EER_{100\%} + B \times EER_{75\%} + C \times EER_{50\%} + D \times EER_{25\%}$

	A	B	C	D
Coefficient	0.03 (3%)	0.33 (33%)	0.41 (41%)	0.23 (23%)
Condenser water inlet temperature (°C)	30	26	22	18

Sound Configuration
EWWD~I- is available in standard sound level configuration:

S: Standard Noise

FTA_1-2_Rev.00_2

10 Specification text

10 - 1 Specification Text

General characteristics

Cabinet and structure

The cabinet is made of galvanized steel sheet and painted to provide a high resistance to corrosion. Colour Ivory White (Munsell code 5Y7.5/1) (±RAL7044).The base frame has eye-hook for lifting the unit with ropes for an easy installation. The weight is uniformly distributed along the profiles of the base and this facilitates the arrangement of the unit.

Screw compressors

The single-screw compressor has a well balanced compression mechanism which cancels the screw rotor load in both the radial and axial directions. Inherent to the basic single-screw compressor design is the virtually load-free operation that gives main bearing design life of 3-4 times greater than twin-screws, and eliminates expensive and complicated thrust balancing schemes. The two exactly opposed gate rotors create two exactly opposed compression cycles. Compression is made at the lower and upper parts of the screw rotor at the same time, thus cancelling the radial loads. Also, both ends of the screw rotor are subjected to suction pressure only, which cancels the axial loads and eliminates the huge thrust loads inherent in twin-screw compressors.

Oil injection is used for these compressors in order to get EER at high condensing pressure. EWWD~I- units are provided with a high efficiency oil separator to maximise oil extraction.

Compressors have an infinitely variable capacity control down to 25% of its total capacity. This control is made by means of capacity slides controlled by microprocessors.

Standard start is star-delta type; soft start type is available as option.

Ecological R-134a refrigerant

The compressors have been designed to operate with R-134a, ecological refrigerant with zero ODP (Ozone Depletion Potential) and very low GWP (Global Warming Potential) that means low TEWI (Total Equivalent Warming Impact).

Evaporator

The units are equipped with a Direct Expansion shell&tube evaporator with copper tubes rolled into steel tubesheets. The evaporators are single-pass on both the refrigerant and water sides for pure counter-flow heat exchange and low refrigerant pressure drops. Both attributes contribute to the heat exchanger effectiveness and total unit's outstanding efficiency.

The external shell is covered with a 10mm closed cell insulation material. Each evaporator has 1 circuit for each compressor and is manufactured in accordance to PED approval. The evaporator water outlet connections are provided with Victaulic Kit (as standard).

Condensers

The units are equipped with Direct Expansion shell&tube condensers, with copper tubes rolled into steel tubesheets. The unit has independent condensers, one per circuit. is manufactured in accordance to PED approval. Condensers are provided with liquid shut-off valve and spring loaded relief valve.

On the standard efficiency units, condensers are provided in 1 pass configuration as standard and 2 pass configuration is available as option; on the high efficiency units 2 pass configuration is provided as standard and 4 pass configuration is available as option.

With 2-4 pass condensers the option heat recovery is not available.

Electronic expansion valve

The unit is equipped with the most advanced electronic expansion valves to achieve precise control of refrigerant mass flow. As today's system requires improved energy efficiency, tighter temperature control, wider range of operating conditions and incorporate features like remote monitoring and diagnostics, the application of electronic expansion valves becomes mandatory. Electronic expansion valve proposes features that make it unique: short opening and closing time, high resolution, positive shut-off function to eliminate use of additional solenoid valve, highly linear flow capacity, continuous modulation of mass flow without stress in the refrigerant circuit and corrosion resistance stainless steel body.

EEXV strength point is the capacity to work with lower ΔP between high and low pressure side, than a thermostatic expansion valve. The electronic expansion valve allows the system to work with low condenser pressure (winter time) without any refrigerant flow problems and with a perfect chilled water leaving temperature control.

GNC_1a-2-3-4b-5a_Rev.03_1a

10 Specification text

10 - 1 Specification Text

Refrigerant Circuit

Each unit has independent refrigerant circuits and each one includes:

- Single screw compressor with external cyclonic oil separator
- (Common) Evaporator
- Condenser
- Oil pressure transducer
- High pressure switches
- High pressure transducer
- Low pressure transducer
- Moisture liquid indicator
- High efficiency oil separator
- Replaceable core filter-drier
- Electronic expansion valve

Electrical control panel

Power and control are located in the main panel that is manufactured to ensure protection against all weather conditions. The electrical panel is IP54 and (when opening the doors) internally protected with Plexiglas panel against possible accidental contact with electrical components (IP20). The main panel is fitted with a main switch interlocked door.

Power Section

The power section includes compressors fuses and control circuit transformer.

MicroTech III controller

MicroTech III controller is installed as standard; it can be used to modify unit set-points and check control parameters. A built-in display shows chiller operating status plus temperatures and pressures of water, refrigerant, programmable values, set-points. A sophisticated software with predictive logic, selects the most energy efficient combination of compressors and EEXV to keep stable operating conditions to maximise chiller energy efficiency and reliability.

MicroTech III is able to protect critical components based on external signs from its system (such as motor temperatures, refrigerant gas and oil pressures, correct phase sequence, pressure switches and evaporator). The input coming from the high pressure switch cuts all digital output from the controller in less than 50ms, this is an additional security for the equipment.

Fast program cycle (200ms) for a precise monitoring of the system. Floating point calculations supported for increased accuracy in P/T conversions.

Control section - main features

- Management of the compressor stepless capacity.
- Chiller enabled to work in partial failure condition.
- Full routine operation at condition of:
  - high ambient temperature value
  - high thermal load
  - high evaporator entering water temperature (start-up)
- Display of evaporator entering/leaving water temperatures.
- Display of condensing-evaporating temperatures and pressures, suction and discharge superheat for each circuit.
- Leaving water evaporator temperature regulation. Temperature tolerance = 0.1°C.
- Compressor and evaporator pumps hour counters.
- Display of Status Safety Devices.
- Number of starts and compressor working hours.
- Optimized management of compressor load.
- Re-start in case of power failure (automatic / manual).
- Soft Load (optimized management of the compressor load during the start-up).
- Start at high evaporator water temperature.

GNC_1a-2-3-4b-5a_Rev.03_2

10 Specification text

10 - 1 Specification Text

- Return Reset (Set Point Reset based on return water temperature).
- Set point Reset (optional).
- Application and system upgrade with commercial SD cards.
- Ethernet port for remote or local servicing using standard web browsers.
- Two different sets of default parameters could be stored for easy restore.

Safety device / logic for each refrigerant circuit

- High pressure (pressure switch).
- High pressure (transducer).
- Low pressure (transducer).
- High compressor discharge temperature.
- High motor winding temperature.
- Phase Monitor.
- Low pressure ratio.
- High oil pressure drop
- Low oil pressure.
- No pressure change at start.

System security

- Phase monitor.
- Low Ambient temperature lock-out.
- Freeze protection.

Regulation type

Proportional + integral + derivative regulation on the evaporator leaving water output probe.

MicroTech III

MicroTech III built-in terminal has the following features.

- 164x44 dots liquid crystal display with white back lighting. Supports Unicode fonts for multi-lingual.
- Key-pad consisting of 3 keys.
- Push'n'Roll control for an increased usability.
- Memory to protect the data.
- General faults alarm relays.
- Password access to modify the setting.
- Application security to prevent application tampering or hardware usability with third party applications.
- Service report displaying all running hours and general conditions.
- Alarm history memory to allow an easy fault analysis.

Supervising systems (on request)

MicroTech III remote control

MicroTech III is able to communicate to BMS (Building Management System) based on the most common protocols as:

- ModbusRTU
- LonWorks, now also based on the international 8040 Standard Chiller Profile and LonMark Technology
- BacNet BTP certified over IP and MS/TP (class 4) (Native)

GNC_1a-2-3-4b-5a_Rev.03_3

10 Specification text

10 - 1 Specification Text

Chiller Sequencing
MicroTech III controller allows an easy plug-in sequencing technology based on digital or serial panel.

Digital Sequencing Panel
This panel is basically a step inserter that switches ON/OFF up to 11 units (chillers or heat pumps operating in the same cooling/heating mode) depending on the selected set point; the units are connected with the panel through standard cables and no serial card is requested.

Serial Sequencing Panel
Basically this panel sequences a chiller plant by switching on/off the units (up to 7 chillers) taking into account their running hours and the requested plant load, in order to optimise the number of working units for each condition; serial cards and shielded cables are requested to connect the panel with the units and, if installed, a BMS.

Standard accessories (supplied on basic unit)
Evaporator Victaulic Kit - Hydraulic joint with gasket for an easy and quick water connection.
Evaporator Water side design pressure 10 bar
Condenser Water side design pressure 16 bar
Condenser 1 pass (DT 4-8°C) on standard efficiency units, 2 passes (DT 4-8°C) on high efficiency units
Y-D starter - Star Delta starter is the standard type.
Double set-point - Dual leaving water temperature set-points.
Phase monitor - The phase monitor controls that phases sequence is correct and controls phase loss.
High Pressure Side Manometers
Hour Run meter - Digital compressors hour run meter.
General fault contactor - Contactor for alarm warning.
Set-point reset, demand limit and alarm from external device – The leaving water temperature set-point can be overwritten with the following options: 4-20mA from external source (by user); outside ambient temperature; evaporator water temperature Δt. Moreover the device allow the user to limit the load of the unit by 4-20mA signal or by network system and the microprocessor is able to receive an alarm signal from an external device (pump etc… - user can decide if this alarm signal will stop or not the unit).
Electronic Expansion Valve

Options (on request)
100% total heat recovery (available on EWWD~I-SS, condenser 1or 2 passes) - Produced with tube bundle placed in a single shell with the water condensers. Heat exchangers heads are provided with 2 connections for entering/leaving heat recovery water and 2 separate connections for condensing water.
Partial heat recovery (available on EWWD~I-SS and -XS, condenser 1 or 2 passes) – The upper portion of the condenser has cooling tubes through which about 10% of heat rejection (mainly discharge gas superheat) of the unit is recovered. These condensers, with partial heat recovery tubes, have crowns with special couplings by which they can be connected to the hot water pipes.
Brine version – Allows the unit to operate down to -8°C leaving liquid temperature (antifreeze required).
Heat pump version
Condenser double flanges kit
20mm Evaporator/Condenser Insulation
Condenser Victaulic Kit
Cu-Ni 90-10 exchangers - to work with sea water the heat exchangers are fitted with Cu-Ni tubes and special protection inside the end covers.
Condenser 2 passes (DT 9-15°C) for EWWD~I-SS units, 4 passes (DT 9-15°C) for EWWD~I-XS units

GNC_1a-2-3-4b-5a_Rev.03_4b

10 Specification text

10 - 1 Specification Text

Suction line shut off valve - Suction shut-off valve installed on the suction of the compressor to facilitate maintenance operation.
Discharge line shut-off valves - Discharge shut-off valve installed on the discharge of the compressor to facilitate maintenance operations.
Sound Proof System - Made of sheet metal and internally insulated, the cabinet is “integral kind” (around the whole chiller, not only around the compressors) to reach the best performance in noise reduction.
Dual Pressure Relief Valve on evaporator
Soft start - Electronic starting device to reduce the mechanical stress during compressor start-up
Compressor thermal overload relays - Safety devices against compressor motor overloading in addition to the normal protection envisaged by the electrical windings.
Under/Over Voltage – This device controls the voltage value of power supply and stops the chiller if the value exceeds the allowed operating limits.
Energy Meter – This device allows to measure the energy absorbed by the chiller during its life. It is installed inside the control box mounted on a DIN rail and shows on a digital display: Line-to-Line Voltage, Phase and Average Current, Active and Reactive Power, Active Energy, Frequency.
Condenser power factor correction - Installed on the electrical control panel to ensure it conforms to the plant rules. (Daikin advices maximum 0,9).
Evaporator / condenser flow switch for the water piping.
Rubber type antivibration mounts – Supplied separately, these are positioned under the base of the unit during installation. Ideal to reduce the vibrations when the unit is floor mounted.
Witness test – Every unit is always tested at the test bench prior to the shipment. On request, a second test can be carried out, at customer’s presence, in accordance with the procedures indicated on the test form. (Not available for units with glycol mixtures).
Container kit
Acoustic test

GNC_1a-2-3-4b-5a_Rev.03_5

10 Specification text

10 - 1 Specification Text

Technical Specification for Water Cooled Screw Chiller

GENERAL

The water cooled screw chiller will be designed and manufactured in accordance with following European directives:

Construction of pressure vessel	97/23/EC (PED)
Machinery Directive	2006/42/EC
Low Voltage	2006/95/EC
Electromagnetic Compatibility	2004/108/EC
Electrical & Safety codes	EN 60204–1 / EN 60335-2-40
Manufacturing Quality Stds	UNI – EN ISO 9001:2004

The unit will be tested at full load in the factory at the nominal working conditions and water temperatures. Before shipment a full test will be held to avoid any losses.

Chiller will be delivered to the job site completely assembled and charged with right refrigerant and oil quantity.
Comply with the manufacturer instructions for rigging and handling equipment.

The unit will be able to start up and operate as standard at full load and condenser entering fluid temperature from …. °C to …. °C with an evaporator leaving fluid temperature between …. °C and …. °C.

All units published performances have to be certified by **Eurovent**.

REFRIGERANT

Only R-134a will be accepted.

PERFORMANCE

- ✓ Number of water cooled screw chiller: .....
- ✓ Cooling capacity for single water cooled screw chiller: ..... kW
- ✓ Power input for single water cooled screw chiller in cooling mode: ..... kW
- ✓ Shell & tube evaporator entering water temperature in cooling mode: ..... °C
- ✓ Shell & tube evaporator leaving water temperature in cooling mode: ..... °C
- ✓ Shell & tube evaporator water flow: ..... l/s
- ✓ Shell & tube condenser entering water temperature in cooling mode: ..... °C
- ✓ Shell & tube condenser leaving water temperature in cooling mode: ..... °C
- ✓ Shell & tube condenser water flow: ..... l/s
- ✓ The unit should work with electricity in range 400V ±10%, 3ph, 50Hz without neutral and shall only have one power connection point.

UNIT DESCRIPTION

Chiller shall include as standard: 1, 2 or 3 independent refrigerant circuits, semi-hermetic rotary single screw compressors, electronic expansion device (EEXV), refrigerant direct expansion shell & tube heat exchangers, R134a refrigerant, lubrication system, motor starting components, control system and all components necessary for safe and stable unit operation.
Chiller will be factory assembled on a robust base-frame made of zinc coated steel, protected by an epoxy paint.

NOISE LEVEL AND VIBRATIONS

Sound pressure level at 1 meter distance in free field, semispheric conditions, shall not exceed ……dB(A). The sound pressure levels must be rated in accordance to ISO 3744.
Other types of rating unacceptable. Vibration level should not exceed 2 mm/s.

DIMENSIONS

Unit dimensions shall not exceed following indications:

- ✓ unit length ..... mm,
- ✓ unit width ..... mm,
- ✓ unit height ..... mm.

SPC_1-2-3_Rev.00_1

10 Specification text

10 - 1 Specification Text

CHILLER COMPONENTS

Compressors

- ✓ Semi-hermetic, single-screw type with one main helical rotor meshing with gaterotor. The gaterotor will be constructed of a carbon impregnated engineered composite material. The gaterotor supports will be constructed of cast iron.
- ✓ The oil injection shall be used in order to get high EER (Energy Efficiency Ratio) also at high condensing pressure and low sound pressure levels in each load condition.
- ✓ Refrigerant system differential pressure shall provide oil flow throught service replaceble, 0.5 micron, full flow, cartridge type oil filter internal to compressor.
- ✓ Refrigerant system differential pressure shall provide oil injection on all moving compressor parts to correctly lubricate them. Electrical oil pump lubricating system is not acceptable.
- ✓ The compressor's oil cooling must be realized, when necessary, by refrigerant liquid injection. External dedicated heat exchanger and additional piping to carry the oil from the compressor to heat exchanger and viceversa will not be accepted.
- ✓ The compressor shall be provided with an external, high efficiency, cyclonic type oil separator and with built-in oil filter, cartridge type.
- ✓ The compressor shall be direct electrical driven, without gear transmission between the screw and the electrical motor.
- ✓ Shall be present two thermal protection realized by a thermistor for high temperature protection: one temperature sensor to protect electrical motor and another sensor to protect unit and lubricating oil from high discharge gas temperature.
- ✓ The compressor shall be equipped with an electric oil-crankcase heater.
- ✓ Compressor shall be fully field serviceable. Compressor that must be removed and returned to the factory for service shall be unacceptable.

Cooling capacity control system

- ✓ Each unit will have a microprocessor for the control of compressor slide valve's position and the instantaneous RPM value of the motor.
- ✓ The unit capacity control shall be infinitely modulating, from 100% down to 25% for each circuit (from 100% down to 12.5% of full load for unit with 2 compressors and 8.3% for units with 3 compressors). The chiller shall be capable of stable operation to a minimum of 12.5% of full load without hot gas bypass.
- ✓ Step unloading unacceptable because of evaporator leaving water temperature fluctuation and low unit efficiency at partial load.
- ✓ The system shall stage the unit based on the leaving evaporator water temperature that shall be controlled by a PID (Proportional Integral Derivative) loop.
- ✓ Unit control logic shall manage frequency level of the compressor electric motor to exactly match plant load request in order to keep constant the set point for delivered chilled water temperature. In this operating condition unit control logic shall modulate electrical frequency level in a range lower and upper the nominal electrical network value fixed at 50 Hz.
- ✓ The microprocessor unit control shall detect conditions that approach protective limits and take self-corrective action prior to an alarm occurring. The system shall automatically reduce chiller capacity when any of the following parameters are outside their normal operating range:
    - o High condenser pressure
    - o Low evaporation refrigerant temperature
    - o High compressor motor amps

Evaporator

- ✓ The units shall be supplied with shell and tubes counter-flow heat exchanger with single refrigerant pass. It will be refrigerant direct expansion type with refrigerant inside the tubes and water outside (shell side). It will include carbon steel tube sheets, with straight copper tubes internally wound for higher efficiencies, expanded on the tube plates.
- ✓ The evaporator will have 2 circuits, one for each compressor and shall be single refrigerant pass.
- ✓ The water connections shall be VICTAULIC type connections as standard to ensure quick mechanical disconnection between the unit and the hydronic network.
- ✓ Evaporator is manufactured in accordance to PED approval.

SPC_1-2-3_Rev.00_2

10 Specification text

10 - 1 Specification Text

Condensers

- ✓ Condensers will be shell and cleanable, through-tube type.
- ✓ The unit will have one condenser per circuit.
- ✓ Each condenser shall have a carbon steel and seamless, integrally finned high efficiency copper tubes, roll expanded into heavy carbon steel tube sheets.
- ✓ Water heads shall be removable and include vent and drain plugs.
- ✓ Condensers will come complete with liquid shut-off valve, spring loaded relief valve.

Refrigerant circuit

Each circuit shall include as standard: electronic expansion device piloted by unit's microprocessor control, compressor discharge shut-off valve, suction line shut-off valve, replaceable core filter-drier, sight glass with moisture indicator and insulated suction line.

Control panel

- ✓ Field power connection, control interlock terminals, and unit control system should be centrally located in an electric panel (IP 54). Power and starting controls should be separate from safety and operating controls in different compartments of the same panel.
- ✓ Starting shall be Wye-Delta type as standard.
- ✓ Operating and safety controls should include energy saving control; emergency stop switch; overload protection for compressor motor; high and low pressure cut-out switch (for each refrigerant circuit); anti-freeze thermostat; cut-out switch for each compressor.
- ✓ All of the information regarding the unit will be reported on a display and with the internal built-in calendar and clock that will switch the unit ON/OFF during day time all year long.
- ✓ The following features and functions shall be included:

  - resetting chilled water temperature by controlling the return water temperature or by a remote 4-20 mA DC signal or by controlling the external ambient temperature;
  - soft load function to prevent the system from operating at full load during the chilled fluid pulldown period;
  - password protection of critical parameters of control;
  - start-to-start and stop-to-start timers to provide minimum compressor off-time with maximum motor protection;
  - communication capability with a PC or remote monitoring;
  - discharge pressure control through intelligent cycling of condenser fans;
  - lead-lag selection by manual or automatically by circuit run hours;
  - double set point for brine unit version;
  - scheduling via internal time clock to allow programming of a yearly start-stop schedule accommodating weekends and holidays.

Optional High Level Communications Interface

The controller as a minimum shall be capable of providing the data shown in the above list, using the following options:
- RS485 Serial card
- RS232 Serial card
- LonWorks interface to FTT10A Transceiver.
- Bacnet Compatible
- Use of Compass Points (manufactured by North Communications) to allow communications with such as Honeywell, Satchwell, Johnson Controls, Trend etc.

SPC_1-2-3_Rev.00_3

Notes

In all of us,
a green heart

Daikin's unique position as a manufacturer of air conditioning equipment, compressors and refrigerants has led to its close involvement in environmental issues. For several years Daikin has had the intention to become a leader in the provision of products that have limited impact on the environment. This challenge demands the eco design and development of a wide range of products and an energy management system, resulting in energy conservation and a reduction of waste.

Daikin products are distributed by:

Daikin Europe N.V. participates in the Eurovent Certification Programme for Air Conditioners (AC), Liquid Chilling Packages (LCP) and Fan Coil Units (FC); the certified data of certified models are listed in the Eurovent Directory. Multi units are Eurovent certified for combinations up to 2 indoor units.

ECDEN12-424

DAIKIN EUROPE N.V. Naamloze Vennootschap - Zandvoordestraat 300, B-8400 Oostende - Belgium - www.daikin.eu - BE 0412 120 336 - RPR Oostende

ECDEN12-424 • CD • 05/12 • Copyright Daikin
The present publication supersedes ECDEN11-424
Prepared in Belgium by Lannoo (www.lannooprint.be), a company whose concern for the environment is set in the EMAS and ISO 14001 systems.
Responsible Editor: Daikin Europe N.V., Zandvoordestraat 300, B-8400 Oostende