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EWWD-MBYNN

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWWD120 MBY	EWWD180 MBY	EWWD240 MBY	EWWD280 MBY	EWWD360 MBY	EWWD440 MBY	EWWD500 MBY	EWWD520 MBY	EWWD540 MBY
Capacity (Eurovent)	Cooling	Nominal	kW	123.00	183.00	249.00	273.00	366.00	432.00	498.00	522.00	546.00
	Heating	Nominal	kW	147.00	216.00	290.00	327.00	431.00	505.00	580.00	617.00	655.00
Capacity Steps			%	30-100 stepless				15-100 stepless				
Nominal input (Eurovent)	Cooling		kW	28.70	45.20	61.60	69.20	90.50	107.00	123.00	131.00	138.00
	Heating		kW	34.50	54.00	72.80	83.40	108.00	127.00	146.00	156.00	167.00
EER				4.29	4.05	4.04	3.95	4.04	4.04	4.05	3.98	3.96
COP (Eurovent)				4.26	4.00	3.98	3.92	3.99	3.98	3.97	3.96	3.92
Casing	Colour			Ivory white/Munsell code 5Y7.5/1								
	Material			Polyester coated galvanised steel								
Dimensions	Unit	Height	mm	1018	1018	1018	1018	2000	2000	2000	2000	2000
		Width	mm	2681 (3051)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)
		Depth	mm	930	930	930	930	930	930	930	930	930
Weight	Unit		kg	1000	1273	1527	1623	2546	2800	3034	3150	3346
	Operating Weight		kg	1032	1318	1588	1693	2636	2906	3156	3281	3485
Water Heat Exchanger Evaporator	Type			Brased plate, one per circuit								
	Filter	Type		WYE type strainer				2 x WYE type strainer				
		Diameter perforations	mm	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Minimum water volume in the system		l	600	890	1220	1330	895	1055	1215	1275	1335
	Water flow rate	Min	l/min	175	265	350	400	525	625	700	750	800
		Nominal	l/min	353	525	714	783	1049	1238	1428	1496	1565
		Max	l/min	700	1070	1400	1600	2100	2500	2800	3000	3200
Nominal water pressure drop	Cooling	Heat exchanger	kPa	21.0	25.0	26.0	22.0	25.0	25.0	26.0	26.0	22.0
		Filter	kPa	2.0	3.0	7.0	9.0	3.0	3.0	7.0	7.0	9.0
		Total	kPa	23.0	28.0	33.0	31.0	28.0	28.0	33.0	33.0	31.0
		Heat exchanger	kPa	-				25.0	26.0	26.0	22.0	22.0
		Filter	kPa					3.0	7.0	7.0	9.0	9.0
		Total	kPa					28.0	33.0	33.0	31.0	31.0
Water Heat Exchanger Evaporator	Insulation material			Polyethylene foam								
	Model	Quantity		1	1	1	1	2	1	2	1	2
		Model		AC120EQ-NP156	AC250Q-NP96	AC250Q-NP128	AC250Q-NP162	AC250Q-NP96	AC250Q-NP96	AC250Q-NP128	AC250EQ-NP128	AC250EQ-NP162
		Quantity		-					1	-	1	-
		Model							AC250Q-NP128		AC250EQ-NP162	
Water Heat Exchanger Condenser	Type			Shell and tube								
	Water flow rate	Min	l/min	217	336	450	520	670	790	900	970	1040
		Nominal	l/min	435	654	890	981	1309	1545	1781	1871	1962
		Max	l/min	800	1050	1230	1370	2100	2290	2470	2600	2730
	Nominal water pressure drop	Heating	kPa	25	30	30	38	30	30	30	30	38
		Heating	kPa	-				30	30	30	38	38
	Model	Quantity		1	1	1	1	2	1	2	1	2
		Model		CDEW215	CDEW260	CDEW400	CDEW450	CDEW260	CDEW400	CDEW400	CDEW400	CDEW450
		Quantity		-					1	-	1	-
		Model							CDEW260		CDEW450	

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWWD120 MBY	EWWD180 MBY	EWWD240 MBY	EWWD280 MBY	EWWD360 MBY	EWWD440 MBY	EWWD500 MBY	EWWD520 MBY	EWWD540 MBY
Compressor	Type			Semi-hermetic single screw compressor								
	Refrigerant oil type			Daphne FVC68D								
	Refrigerant oil charge		l	7.5	10.0	10.0	14.0	10.0	10.0	10.0	10.0	14.0
			l	-				10.0	10.0	10.0	14.0	14.0
	Model	Quantity		1	1	1	1	2	1	2	1	2
		Model		ZHA5LMG UYE	ZHA7MSG UYE	ZHA7WS GUYE	ZHA9LSG UYE	ZHA7MSG UYE	ZHA7MSG UYE	ZHA7WS GUYE	ZHA7WS GUYE	ZHA9LSG UYE
		Speed	rpm	2880	2880	2880	2880	2880	2880	2880	2880	2880
		Crankcase Heater	W	150	150	150	150	150	150	150	150	150
		Quantity		-					1	-	1	-
		Model							ZHA7WS GUYE		ZHA9LSG UYE	
		Speed	rpm						2880		2880	
		Crankcase Heater	W						150		150	
Sound level	Sound Power	Cooling	dBA	87	93	94	93	96	96	96	96	96
Refrigerant circuit	Refrigerant type			R-134a								
	Refrigerant charge		kg	18.0	35.0	37.0	38.0	70.0	72.0	74.0	75.0	76.0
	No of circuits			1	1	1	1	2	2	2	2	2
	Refrigerant control			Thermostatic expansion valve		Electronic expansion valve		Thermostatic expansion valve		Electronic expansion valve		
				-				-	Electronic expansion valve	-		
Piping connections	Evaporator water inlet/outlet			3" OD victaulic coupling	3" victaulic coupling							
	Evaporator water drain			field installation								
	Condensor water inlet/outlet			2" 1/2 victaulic	3" victaulic							
				M6								
	Relief device outlet			1x1"	1x1"	2x1"	2x1"	2x1"	3x1"	4x1"	4x1"	4x1"
Safety Devices				Double PED approved high pressure switches								
				Low pressure protection								
				Pressure relief valve								
				Compressor motor thermal protector								
				Compressor motor overcurrent relay								
				Discharge temperature protector								
				Freeze up protection								
				Recycling and guard timer								
				Reverse phase protector								
				Flowswitch								
Notes				Nominal cooling capacity at Eurovent conditions: Evaporator 12°C/7°C; Condenser 30°C/35°C								
				Heating capacity for conditions: Evaporator 12°C/7°C; Condenser 40°C/45°C								
				Nominal cooling power input at Eurovent conditions: Evaporator 12°C/7°C; Condenser 30°C/35°C and includes beside the power to the unit also an addition for the required pump power input.								
				Heating power input for conditions: Evaporator 12°C/7°C; Condenser 40°C/45°C								
				Min. water volume for standard thermostat difference setting of 3K. For reduced setting multiply this water volume by (3/new setting). Min. allowable setting = 0.1K.								
				Piping connections are delivered with vitaulic joints and counterpipe for welding								
				Weight values between brackets including installation space of delivered filter								

1 Specifications

1-2 ELECTRICAL SPECIFICATIONS				EWWD120 MBY	EWWD180 MBY	EWWD240 MBY	EWWD280 MBY	EWWD360 MBY	EWWD440 MBY	EWWD500 MBY	EWWD520 MBY	EWWD540 MBY
Power Supply	Name			Y1								
	Phase			3~								
	Frequency		Hz	50								
	Voltage		V	400								
	Voltage Tolerance	Minimum	%	-10%								
		Maximum	%	+10%								
Unit	Starting Current		A	172	250	304	390	250	304	304	390	390
	Nominal Running Current Cooling		A	48.00	78.00	108.00	118.00	156.00	186.00	216.00	226.00	236.00
	Maximum Running Current		A	76.00	120.00	191.00	199.00	240.00	311.00	382.00	390.00	398.00
	Recommended fuses according to IEC standard 269-2			3x100gL	3x160gL	3x224gL	3x224gL	2x3x200gL	3x200gL + 3x250gL	2x3x250gL	2x3x250gL	2x3x250gL
Compressor	Phase			3~								
	Voltage		V	400								
	Voltage Tolerance	Minimum	%	-10%								
		Maximum	%	+10%								
	Starting current		A	172.0	250.0	304.0	390.0	250.0	250.0	304.0	304.0	390.0
	Nominal running current (RLA)		A	48.00	78.00	108.00	118.00	78.00	78.00	108.00	108.00	118.00
	Maximum Running Current		A	76.00	120.00	191.00	199.00	120.00	120.00	191.00	191.00	199.00
	Starting Method			Star-delta								
	Recommended fuses			covered by the unit fuses				Factory installed				
	Phase			-				3~				
	Voltage		V					400				
	Voltage Tolerance	Minimum	%					-10%				
		Maximum	%					+10%				
	Starting current		A					250.0	304.0	304.0	390.0	390.0
	Nominal running current (RLA)		A					78.00	108.00	108.00	118.00	118.00
	Maximum Running Current		A					120.00	191.00	191.00	199.00	199.00
	Starting Method							Star-delta				
	Recommended fuses							Factory installed				
Control Circuit	Phase			1~								
	Voltage		V	230V/24V AC (supplied by factory installed performers)								
	Recommended fuses			Factory installed								
	Crankcase heater (E1/2HC)		W	1 x (150W - 0.65A)						2 x (150W - 0.65A)		
	Liquid line solenoid valves (Y15..16S/Y25..26S)			2 x (16.1VA - 70mA) - inrush current = 130mA				4 x (16.1VA - 70mA) - inrush current = 130mA				
	Capacity solenoid valves (Y11..14S/Y21..Y24S)			1 x (16.1VA - 70mA) - inrush current = 130mA				2 x 1x(16.1VA - 70mA) - inrush current = 130mA				

Option number	Option description	Unit size									Availability
		120	180	240	280	360	440	500	520	540	
	Standard unit	○	○	○	○	○	○	○	○	○	
	Completely combinable options										
OP03	Dual pressure relief valve	○	○	○	○	○	○	○	○	○	Factory mounted
OP12	Suction stop valve	°(S)	°(s)	°(s)	°(s)	°(s)	°(s)	°(s)	°(s)	°(s)	Factory mounted
OP52	Main isolator switch	○	○	○	○	○	○	○	○	○	Factory mounted
OP57	A-meter, V-meter	○	○	○	○	○	○	○	○	○	Factory mounted
OPLN	Low noise operation	○	○	○	○	○	○	○	○	○	Factory mounted
	Available kits										
EKCLWS	Leaving water control sensor for DICN	○	○	○	○	○	○	○	○	○	Kit
EKAC200A	BMS card	○	○	○	○	○	○	○	○	○	Kit
EKBMSMBA	BMS gateway modbus / j-bus protocol	○	○	○	○	○	○	○	○	○	Kit
EKBMSBNA	BMS gateway bacnet protocol	○	○	○	○	○	○	○	○	○	Kit
EKRUPC	Remote user interface	○	○	○	○	○	○	○	○	○	Kit

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NOTES

1 ○ Available
— Not available
(s) option required for swedish national law SNFS 1992:16

To install EKBMSBNA, EKBMSMBA → EKAC200A needs to be installed on the unit.

3 Capacity tables

3 - 1 Cooling capacity tables

LWC		25			30			35			40			45			50			55			60		
LWE	MODEL	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI
4	120	117	141	23,6	113	138	25,4	109	137	27,7	104	134	30,3	100	133	33,5	95,6	133	37,0						
	180	179	217	37,8	172	212	40,6	164	208	43,7	154	202	48,2	144	197	52,6	134	191	57,0						
	240	240	292	52,3	231	287	55,6	222	281	59,0	209	273	64,6	195	265	69,7	182	258	75,8	169	252	83,6			
	280	267	326	58,6	255	318	62,8	243	310	67,0	229	304	74,1	216	297	81,1	202	290	88,1	189	289	99,9			
	360	359	434	75,5	343	424	81,2	328	415	87,4	308	404	96,3	288	393	105	268	382	114						
	440	419	509	90,0	403	499	96,2	386	489	103	363	475	113	339	462	122	316	449	133						
	500	480	585	105	462	573	111	444	562	118	417	547	129	391	530	139	364	516	152	337	505	167			
	520	507	618	111	486	604	118	465	591	126	438	577	139	411	562	151	384	548	164	358	541	183			
	540	534	651	117	510	636	126	486	620	134	459	607	148	432	594	162	405	581	176	378	577	200			
7	120	133	158	24,6	128	154	26,5	123	152	28,7	118	149	31,4	113	147	34,5	107	145	38,0						
	180	196	235	39,0	190	232	42,1	183	228	45,2	172	222	49,6	162	216	54,0	151	209	58,3						
	240	266	320	54,8	258	316	58,2	249	311	61,6	235	302	66,9	217	290	72,8	201	279	78,3	185	270	85,5	139	228	89,3
	280	299	360	60,8	286	350	64,4	273	342	69,2	259	335	76,3	244	327	83,4	230	320	90,4	215	317	102	144	242	97,2
	360	392	470	78,1	380	464	84,3	366	456	90,5	345	444	99,2	323	431	108	302	419	117						
	440	462	556	93,9	448	548	100	432	539	107	407	524	117	379	505	127	352	489	137						
	500	531	641	110	516	632	116	498	621	123	470	604	134	434	580	146	402	559	157	370	541	171	277	456	179
	520	565	680	116	544	667	123	522	653	131	494	637	143	461	617	156	431	599	169	400	588	188	283	470	187
	540	598	720	122	572	701	129	546	684	138	517	670	153	488	655	167	459	640	181	430	635	205	289	483	194
10	120	149	175	25,6	143	170	27,4	137	167	29,7	131	163	32,4	125	161	35,5	119	158	39,0						
	180	205	245	40,0	201	245	43,3	198	245	46,7	189	240	51,1	179	235	55,6	170	230	60,0						
	240	291	349	58,4	280	342	61,9	270	335	65,5	255	325	70,4	239	315	75,7	224	304	80,8	208	296	87,6	158	249	90,9
	280	331	394	63,5	317	385	67,9	303	375	72,4	287	367	79,3	272	358	86,1	256	349	93,0	241	345	105	162	261	99,1
	360	409	489	79,9	403	489	86,6	396	489	93,4	377	479	102	358	469	111	340	459	120						
	440	495	594	98,3	482	587	105	468	580	112	443	565	121	418	549	131	393	534	141						
	500	581	698	117	561	685	124	540	671	131	509	650	141	478	629	151	447	609	162	416	591	175	316	498	182
	520	621	743	122	597	727	130	573	711	138	542	692	150	511	673	162	480	654	174	449	641	192	320	510	190
	540	661	788	127	634	769	136	606	751	145	575	733	159	544	716	172	513	698	186	481	691	210	324	522	198
16	120	181	209	27,6	173	202	29,4	166	198	31,7	158	192	34,4	151	189	37,5	143	184	41,0						
	180	229	271	41,4	229	274	45,2	228	277	49,0	222	276	53,9	216	275	58,7	210	274	63,5						
	240	347	413	65,9	334	403	69,5	321	394	73,0	302	380	77,5	284	366	82,0	265	351	86,4	246	339	92,6	187	282	95,2
	280	394	462	68,2	378	451	72,9	363	441	77,5	346	430	84,4	328	420	91,2	311	409	98,0	294	404	110	199	303	104
	360	459	541	82,8	457	548	90,4	456	554	98,1	444	552	108	432	549	117	420	547	127						
	440	576	684	107	563	677	115	549	671	122	524	656	131	500	640	141	475	625	150						
	500	694	826	132	668	807	139	642	788	146	605	760	155	567	731	164	530	703	173	493	678	185	373	564	190
	520	741	875	134	712	855	142	684	835	151	648	810	162	612	785	173	576	761	184	540	743	203	386	585	199
	540	787	924	136	757	902	146	726	881	155	691	860	169	657	839	182	622	818	196	588	808	220	398	606	208

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SYMBOLS

CC : Cooling capacity (kW)
HC : Heating capacity (kW)
PI : Power input (kW)
LWE : Leaving Water Evaporator (°C)
LWC : Leaving water condenser (°C)

NOTES

1 **Cooling capacity (CAP)**
Capacity is according to Eurovent rating standard 6/C/003-2003 and valid for chilled water range Dt = 3 - 8°C.

2 **Power input (kW)**
Power input is total input according to Eurovent rating standard 6/C/003-2003: Compressor + control circuit.

3 Capacity tables

3 - 2 Capacity tables with glycol for process cooling applications

LWC		25			30			35			40			45			50		
LWE	MODEL	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI	CC	HC	PI
-10	120	63,7	84,2	20,5	61,0	84,0	23,0	58,0	83,8	25,9	54,6	83,6	29,0	Out of operating range					
	180	90,0	120	30,4	86,8	121	33,7	82,5	120	37,5	77,1	119	41,7						
	240	131	175	44,4	126	175	48,2	121	174	52,7	116	174	57,8						
	280	149	199	50,6	140	196	55,6	132	193	61,3	123	191	67,6						
	360	180	241	60,8	174	241	67,4	165	240	75,0	154	238	83,4						
	440	221	296	74,8	213	295	82,0	204	294	90,2	193	293	99,5						
	500	262	351	88,9	253	349	96,5	243	348	105	232	348	116						
	520	280	375	95,1	267	371	104	253	367	114	239	364	125						
	540	298	399	101	281	392	111	263	386	123	246	381	135						
-5	120	76,5	98,1	21,6	73,2	97,2	24,0	69,5	96,3	26,8	65,5	95,4	29,8	61,2	94,3	33,1			
	180	108	140	32,4	104	140	35,7	99,1	139	39,5	93,1	137	43,7	86,0	134	48,3			
	240	155	202	47,2	149	200	51,0	144	199	55,5	137	198	60,6	131	197	66,4			
	280	176	229	52,5	167	224	57,5	157	220	63,1	147	217	69,3	138	214	76,2			
	360	216	281	64,8	208	280	71,4	198	277	79,0	186	274	87,4	172	269	96,7			
	440	263	343	79,6	254	340	86,7	243	338	94,9	230	335	104	217	331	115			
	500	310	405	94,3	299	401	102	287	398	111	275	396	121	261	394	133			
	520	331	431	99,7	316	425	108	301	419	119	285	415	130	268	411	143			
	540	352	457	105	333	448	115	314	440	126	295	434	139	275	428	152			
-2	120	84,9	107	22,3	81,2	106	24,7	77,3	105	27,4	72,9	103	30,4	68,2	102	33,6	63,1	100	37,2
	180	120	154	33,7	116	153	37,0	110	151	40,8	104	149	45,0	96,5	146	49,7	88,1	143	54,8
	240	171	220	49,0	165	218	52,8	159	216	57,3	152	214	62,5	145	213	68,3	137	212	74,8
	280	194	248	53,8	184	243	58,7	174	238	64,3	164	234	70,5	153	231	77,3	143	228	84,7
	360	240	307	67,4	231	305	74,1	221	302	81,6	208	298	90,1	193	292	99,4	176	286	110
	440	291	374	82,7	281	371	89,9	269	367	98,1	256	363	107	241	359	118	225	355	130
	500	343	441	98,0	330	436	106	317	432	115	304	429	125	290	426	137	275	424	150
	520	365	468	103	349	461	112	333	454	122	316	449	133	298	444	146	280	440	159
	540	388	495	108	368	485	117	348	477	129	328	469	141	307	462	155	286	456	169
1	120	101	124	23,0	97,1	122	25,4	93,1	121	28,0	88	119	30,9	84,1	118	34,1	79,3	117	37,6
	180	150	185	35,1	144	182	38,4	137	179	42,2	129	175	46,5	120	171	51,1	111	167	56,2
	240	206	257	51,0	198	253	54,8	190	250	59,3	180	245	64,5	170	240	70,3	160	236	76,8
	280	230	286	55,2	219	280	60,1	208	274	65,6	197	268	71,7	185	263	78,5	173	259	85,9
	360	299	370	70,2	287	364	76,9	274	359	84,5	258	351	92,9	241	343	102	222	335	112
	440	355	441	86,1	342	435	93,3	327	429	102	309	420	111	290	412	121	271	404	133
	500	411	513	102	396	506	110	381	499	119	361	490	129	340	481	141	319	473	154
	520	436	542	106	418	532	115	399	524	125	377	513	136	355	504	149	332	495	163
	540	461	571	110	439	559	120	417	548	131	393	537	143	369	526	157	345	517	172

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SYMBOLS

CC : Cooling capacity (kW)
HC : Heating capacity (kW)
PI : Power input (kW)
LWE : Leaving Water Evaporator (°C)
LWC : Leaving water condenser (°C)

NOTES

1 **Cooling capacity (CAP)**
Capacity is according to Eurovent rating standard 6/C/003-2003 and valid for chilled water range Dt = 3 - 8°C.

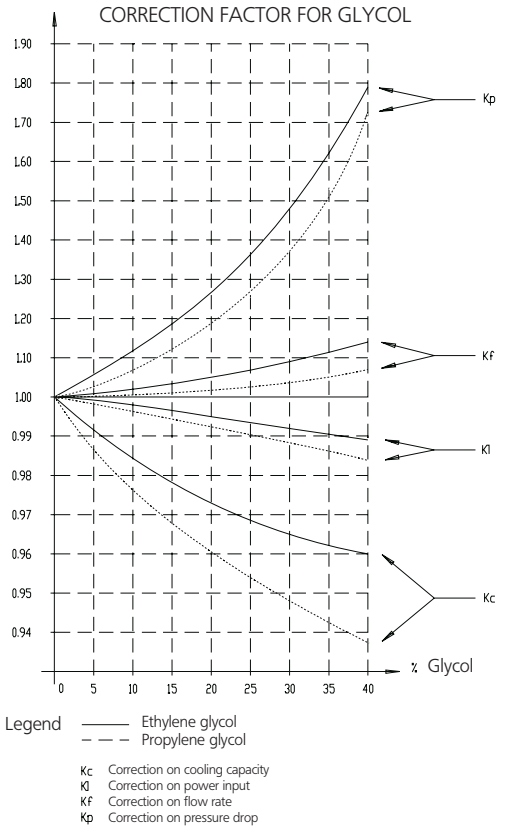
2 **Power input (kW)**
Power input is total input according to Eurovent rating standard 6/C/003-2003: Compressor + control circuit.

3 Capacity tables

3 - 3 Capacity correction factor

Required glycol concentration

Type	Concentration (wt%)	0	10	20	30	40
Ethylene glycol	Freezing point °C	0	-4	-9	-16	-23
	Minimum LWE °C	4	2	0	-5	-11
Propylene glycol	Freezing point °C	0	-3	-7	-13	-22
	Minimum LWE °C	4	3	-2	-4	-10

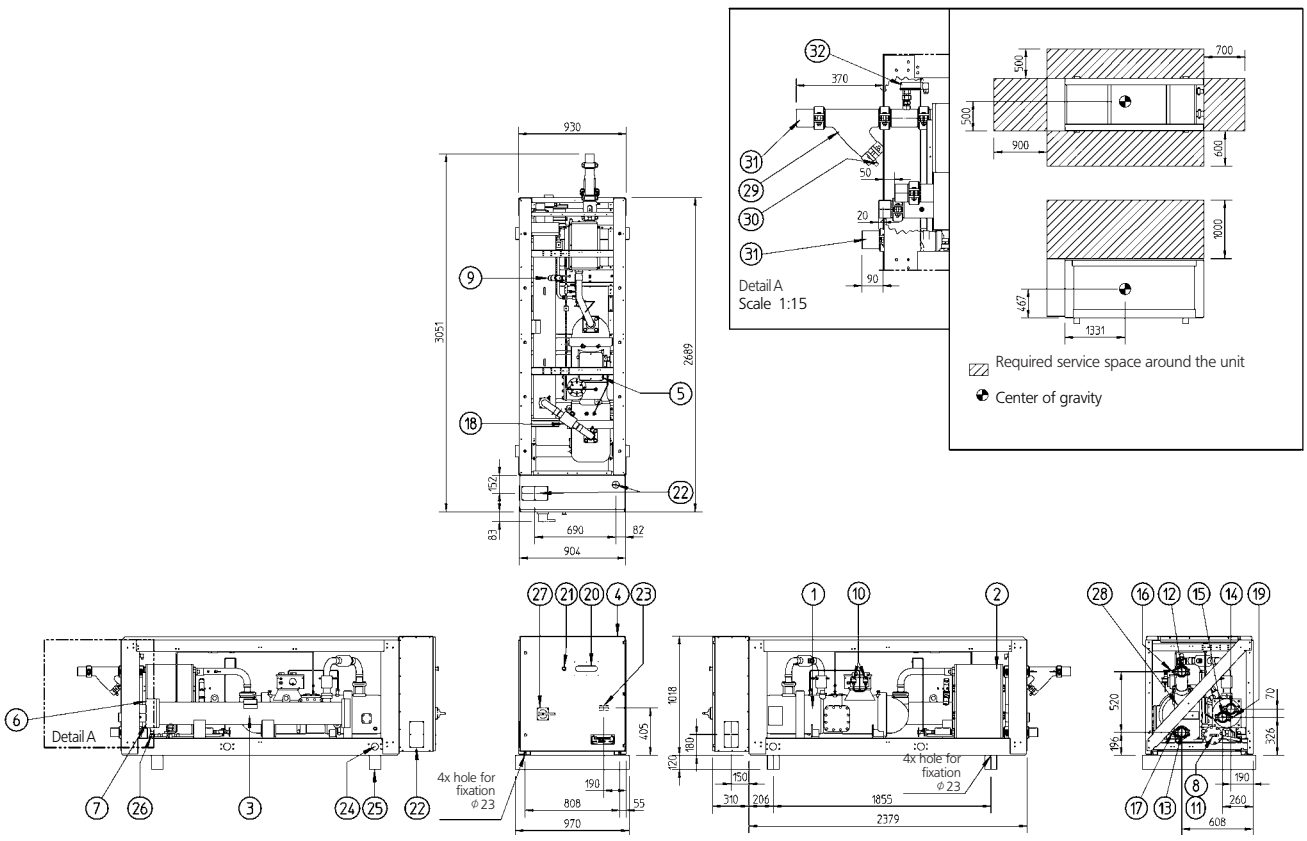


4TW50689-8

4 Dimensional drawing

4 - 1 Dimensional drawing

EWWD120MBYNN



	Evaporator		Condenser	
Model	In (O.D.)	Out (O.D.)	In (O.D.)	Out (O.D.)
EWWD120MBYNN*	ϕ 76.1	ϕ 76.1	ϕ 76.1	ϕ 76.1

1 Compressor
2 Evaporator
3 Condenser
4 Switchbox
5 Compressor switchbox
6 Air purge condenser
7 Water drain condenser
8 Charge valve
9 Safety valve
10 High pressure switch
11 Drier
12 Chilled water in
13 Chilled water out
14 Condenser water out
15 Condenser water in
16 Entering water temperature sensor
17 Evaporator leaving water temperature sensor
18 Discharge stop valve
19 Condenser entering water temperature sensor
20 Digital display control (DDC)
21 Emergency stop
22 Power supply intake
23 Field wiring intake
24 Holes for lifting
25 Transport beam
26 Ballvalve liquid pipe
27 Main isolator switch (optional)
28 Frame support
29 Filter (supplied as kit)
30 Flush plug (ϕ13mm NPT)
31 Counterpipes for welding (supplied as kit)
32 Flowswitch

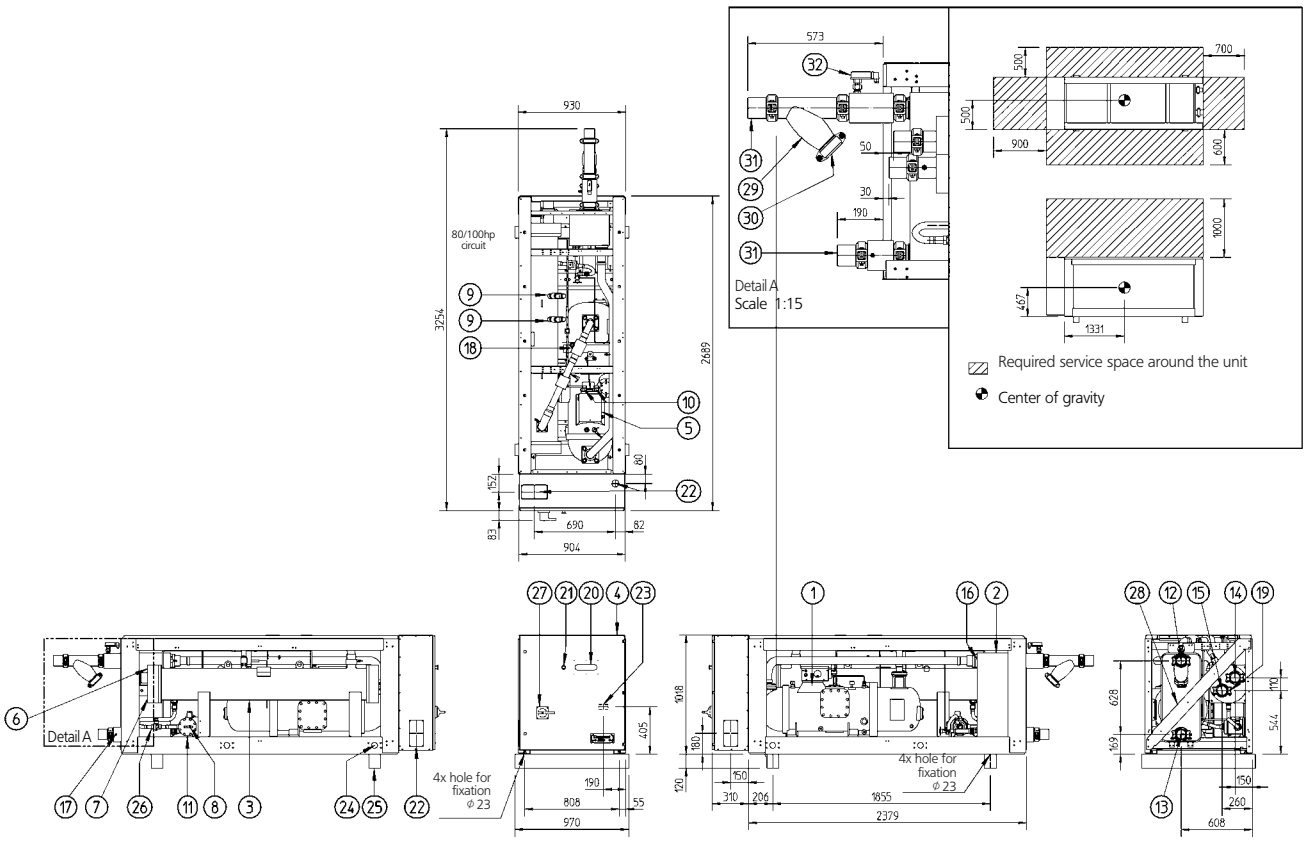
Note for evaporator::
- Inlet counterpipe with flowswitch and temperature sensor is premounted.
- Outlet counterpipe with temperature sensor is premounted.

3TW56294-1

4 Dimensional drawing

4 - 1 Dimensional drawing

EWWD180-280MBYNN



	Evaporator		Condenser	
Model	In (O.D.)	Out (O.D.)	In (O.D.)	Out (O.D.)
EWWD180~280MBYNN*	ϕ 88.9	ϕ 88.9	ϕ 88.9	ϕ 88.9

1	Compressor	17	Evaporator leaving water temperature sensor
2	Evaporator	18	Discharge stop valve
3	Condenser	19	Condenser entering water temperature sensor
4	Switchbox	20	Digital display control (DDC)
5	Compressor switchbox	21	Emergency stop
6	Air purge condenser	22	Power supply intake
7	Water drain condenser	23	Field wiring intake
8	Charge valve	24	Holes for lifting
9	Safety valve	25	Transport beam
10	High pressure switch	26	Ballvalve liquid pipe
11	Drier	27	Main isolator switch (optional)
12	Chilled water in	28	Frame support
13	Chilled water out	29	Filter (supplied as kit)
14	Condenser water out	30	Flush plug (ϕ19mm NPT)
15	Condenser water in	31	Counterpipes for welding (supplied as kit)
16	Entering water temperature sensor	32	Flowswitch

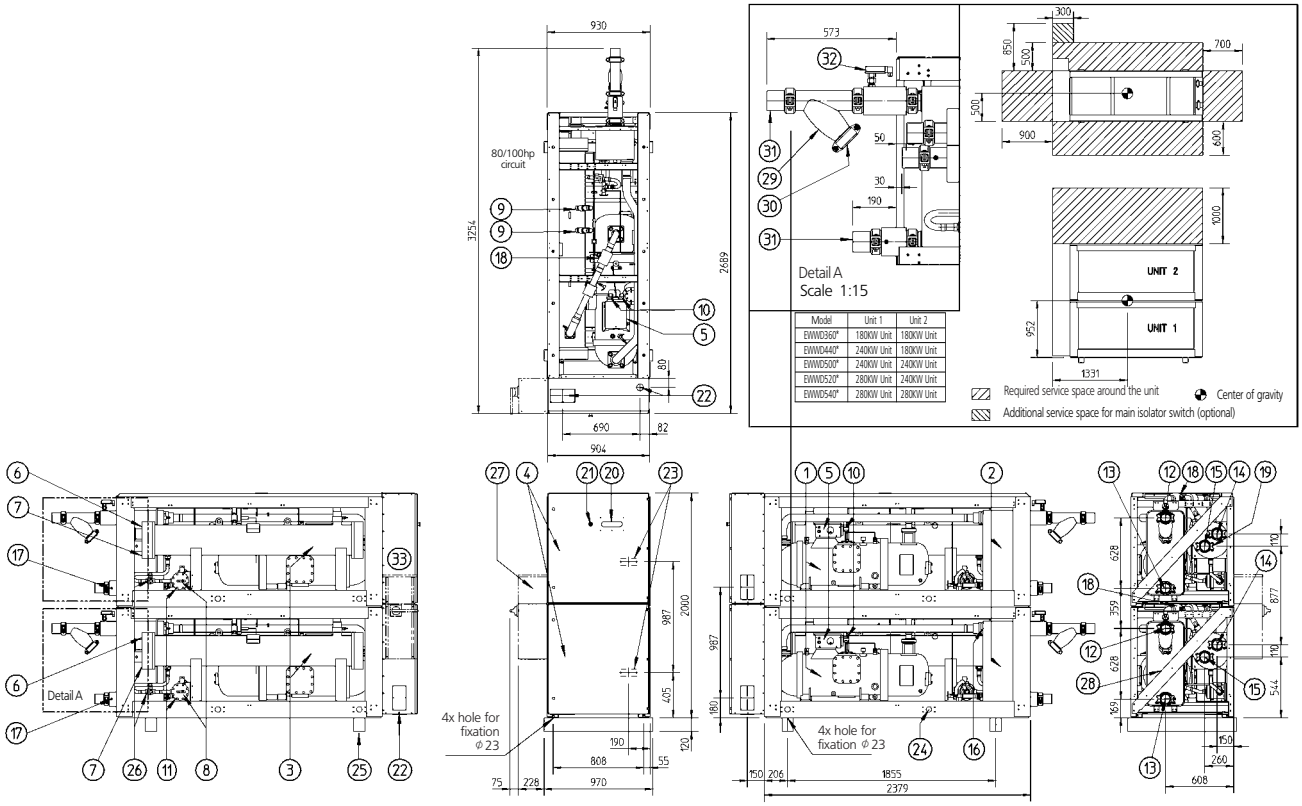
Note for evaporator::
- Inlet counterpipe with flowswitch and temperature sensor is temporarily mounted on side of evaporator for transport.
- Outlet counterpipe with temperature sensor is temporary mounted on side of evaporator for transport.

3TW56304-1

4 Dimensional drawing

4 - 1 Dimensional drawing

EWWD360-540MBYNN



	Evaporator		Condenser	
Model	In (O.D.)	Out (O.D.)	In (O.D.)	Out (O.D.)
EWWD360~540MBYNN*	Φ 88.9	Φ 88.9	Φ 88.9	Φ 88.9

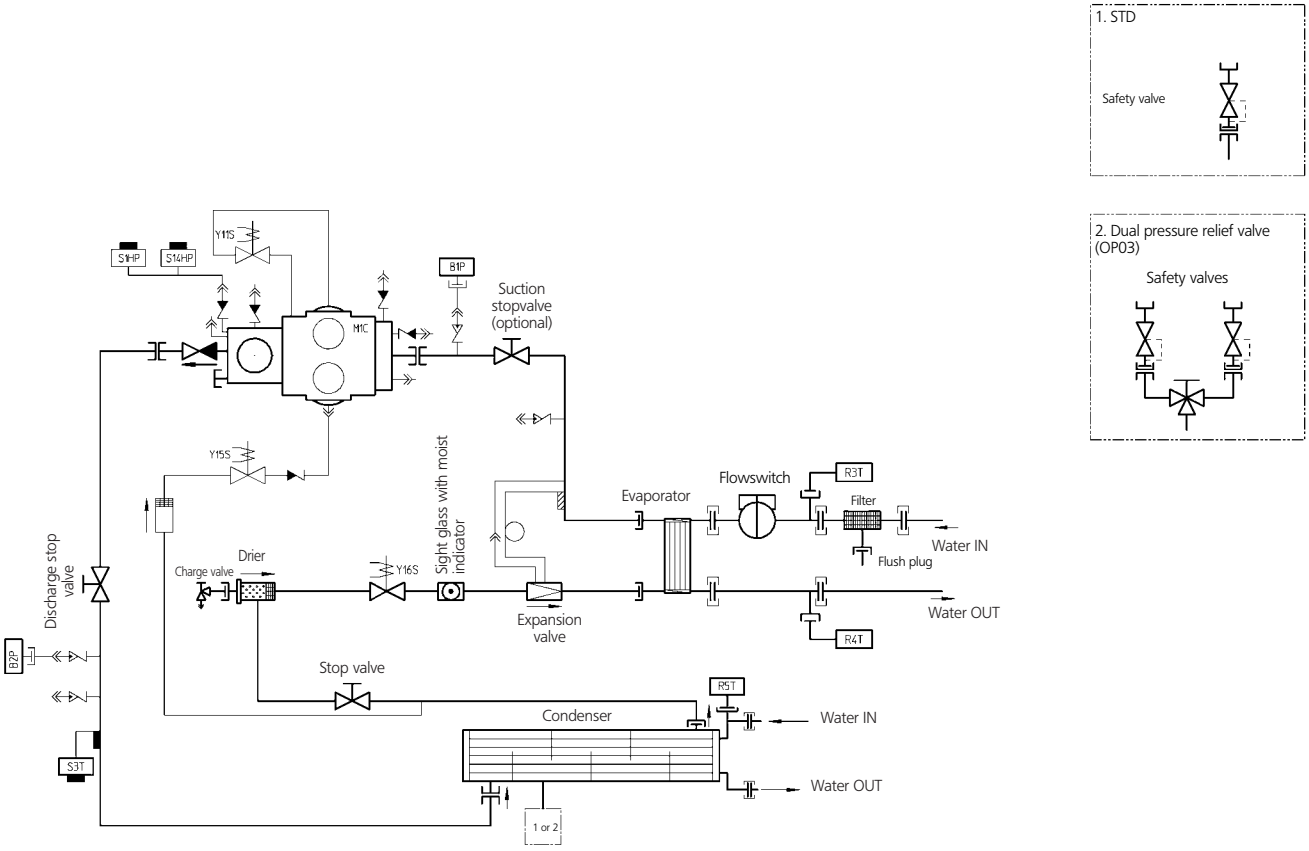
1 Compressor
2 Evaporator
3 Condenser
4 Switchbox
5 Compressor switchbox
6 Air purge condenser
7 Water drain condenser
8 Charge valve
9 Safety valve
10 High pressure switch
11 Drier
12 Chilled water in
13 Chilled water out
14 Condenser water out
15 Condenser water in
16 Entering water temperature sensor
17 Evaporator leaving water temperature sensor
18 Discharge stop valve
19 Condenser entering water temperature sensor
20 Digital display control (DDC)
21 Emergency stop
22 Power supply intake
23 Field wiring intake
24 Holes for lifting
25 Transport beam
26 Ballvalve liquid pipe
27 Main isolator switch (optional)
28 Frame support
29 Filter (supplied as kit)
30 Flush plug (Φ19mm NPT)
31 Counterpipes for welding (supplied as kit)
32 Flowswitch
33 Mixed outlet water temperature sensor (rolled up in switchbox)

Note for evaporator::
- Inlet counterpipe with flowswitch and temperature sensor is temporarily mounted on side of evaporator for transport.
- Outlet counterpipe with temperature sensor is temporary mounted on side of evaporator for transport.

3TW56334-1

5 Piping diagram

EWWD120-180MBYNN



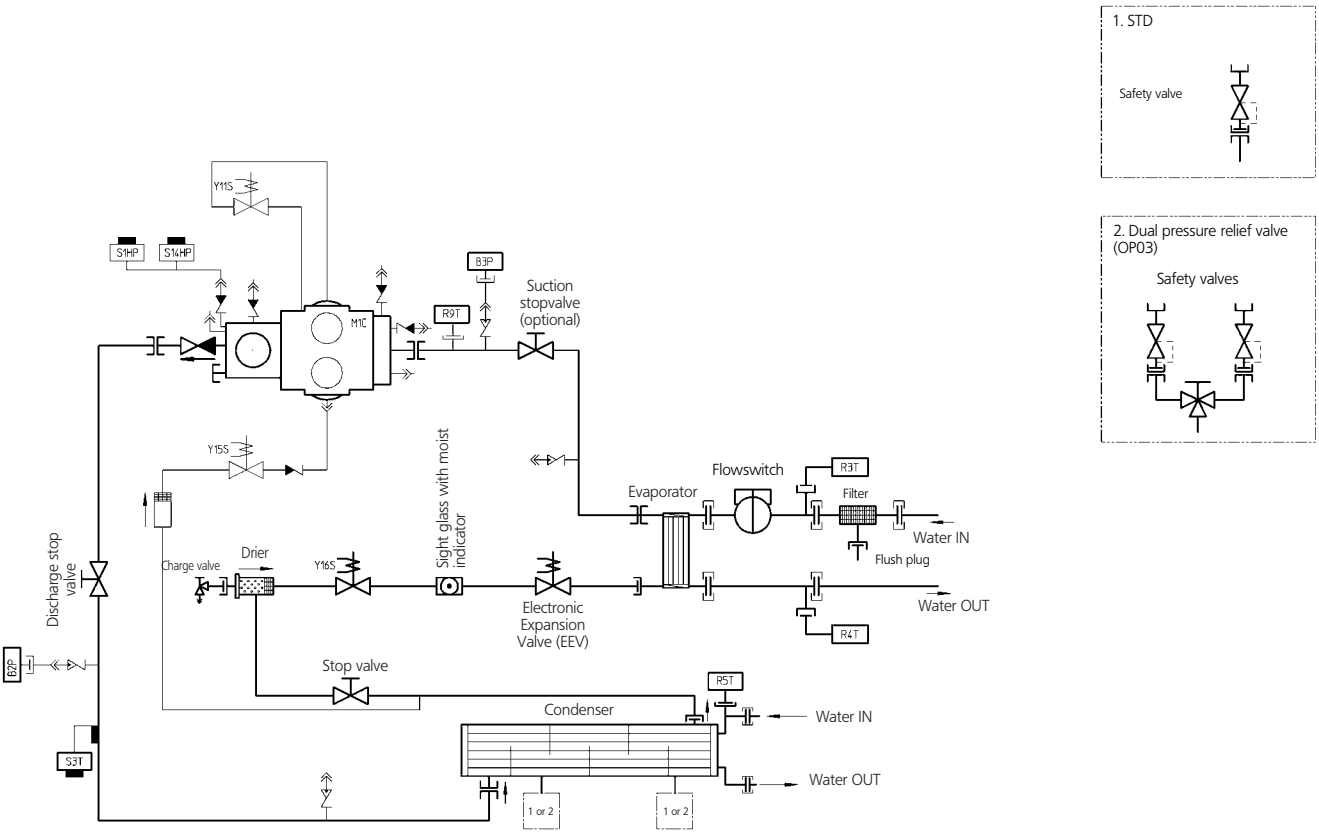
M1C	Compressor motor 1
S1HP	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R5T	Inlet water cond. temp. sensor
B1P	Low pressure transmitter
B2P	High pressure transmitter
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56295-1

5 Piping diagram

EWWD240-280MBYNN



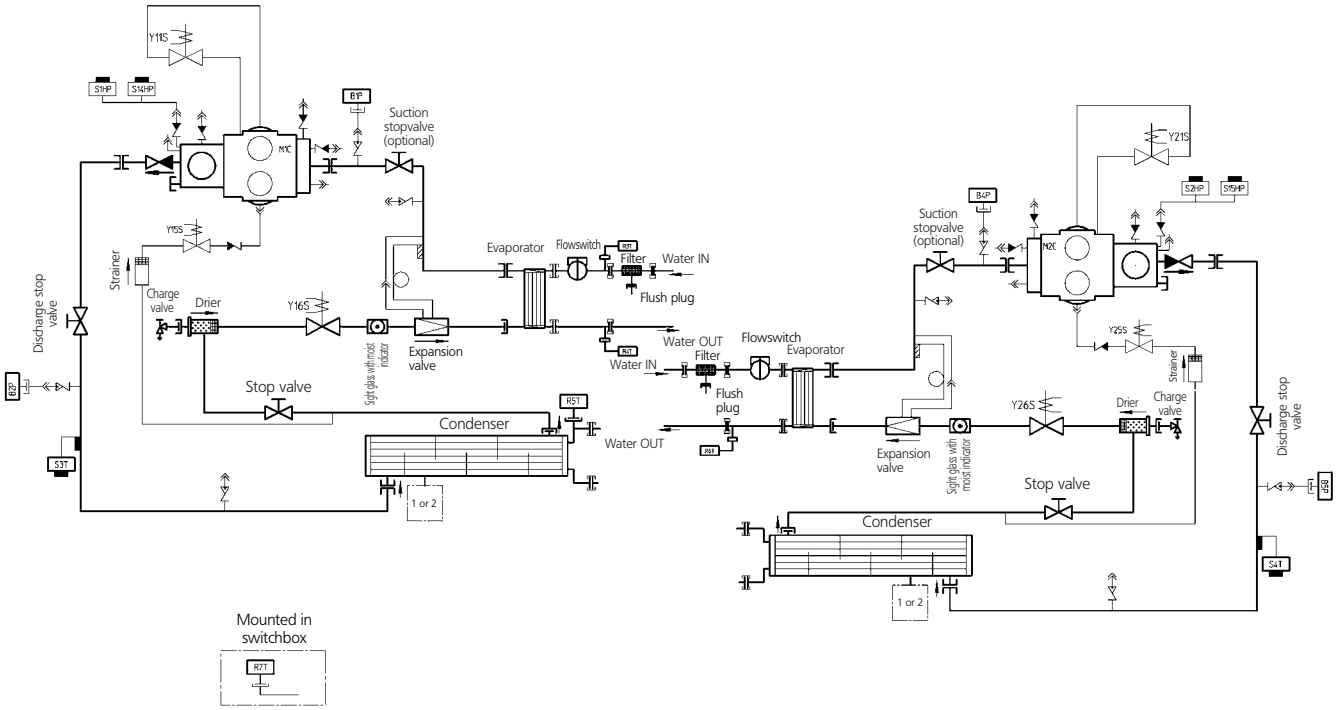
M1C	Compressor motor 1
S1HP	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R5T	Inlet water cond. temp. sensor
R9T	EEV temperature sensor
B2P	High pressure transmitter
B3P	EEV low pressure sensor
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

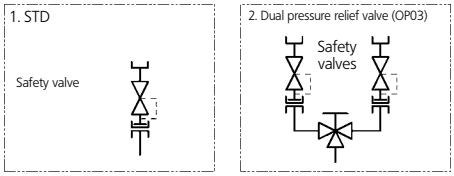
- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56315-1

5 Piping diagram

EWWD360MBYNN





M1C	Compressor motor 1
S1PH	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R5T	Inlet water cond. temp. sensor
B1P	Low pressure transmitter
B2P	High pressure transmitter
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

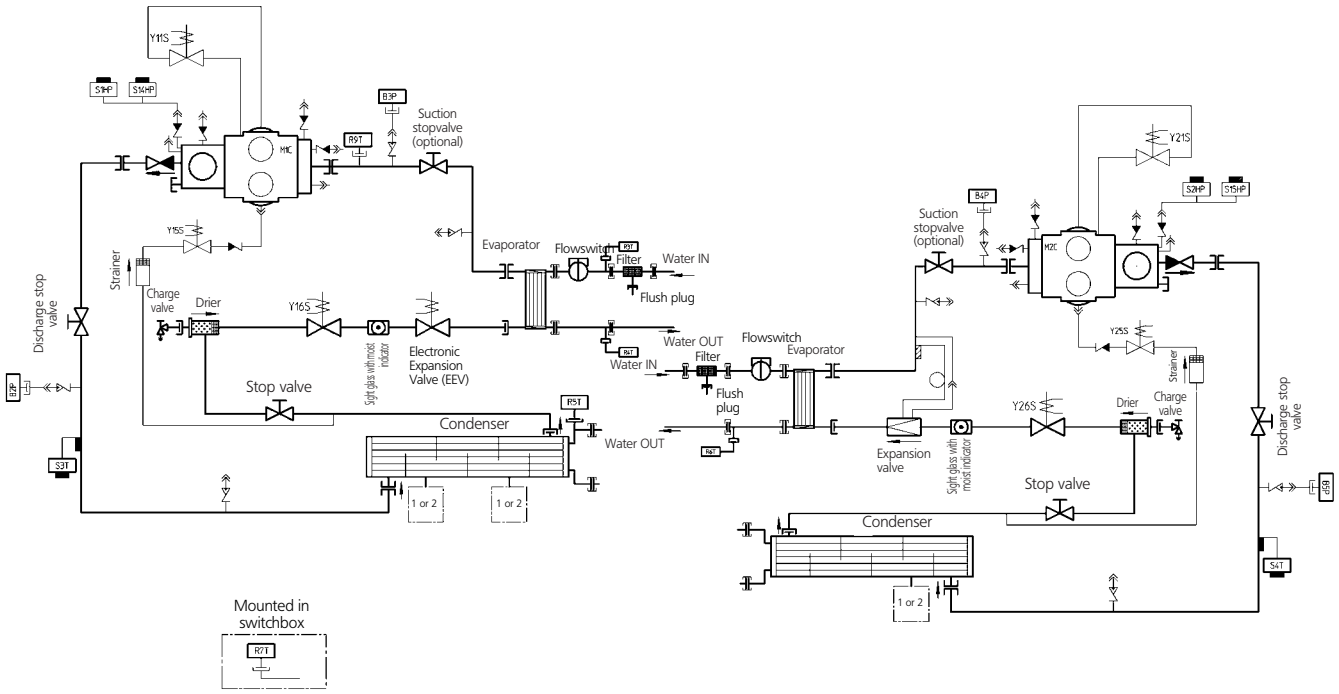
M2C	Compressor motor 2
S2PH	High pressure switch
S15HP	High pressure switch
S4T	Discharge temperature controller
R6T	Outlet water evap. temp. sensor
R7T	Mixed outlet water temp. sensor
B4P	Low pressure transmitter
B5P	High pressure transmitter
Y21S	Unloader solenoid valve
Y25S	Liquid injection solenoid valve
Y26S	Liquid line solenoid valve

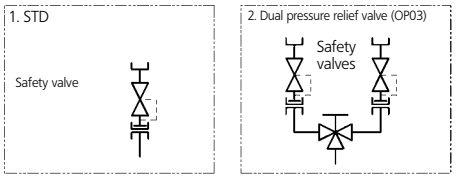
- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56335-1

5 Piping diagram

EWWD440MBYNN





M1C	Compressor motor 1
S1PH	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R5T	Inlet water cond. temp. sensor
R9T	EEV temperature sensor
B2P	High pressure transmitter
B3P	EEV low pressure sensor
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

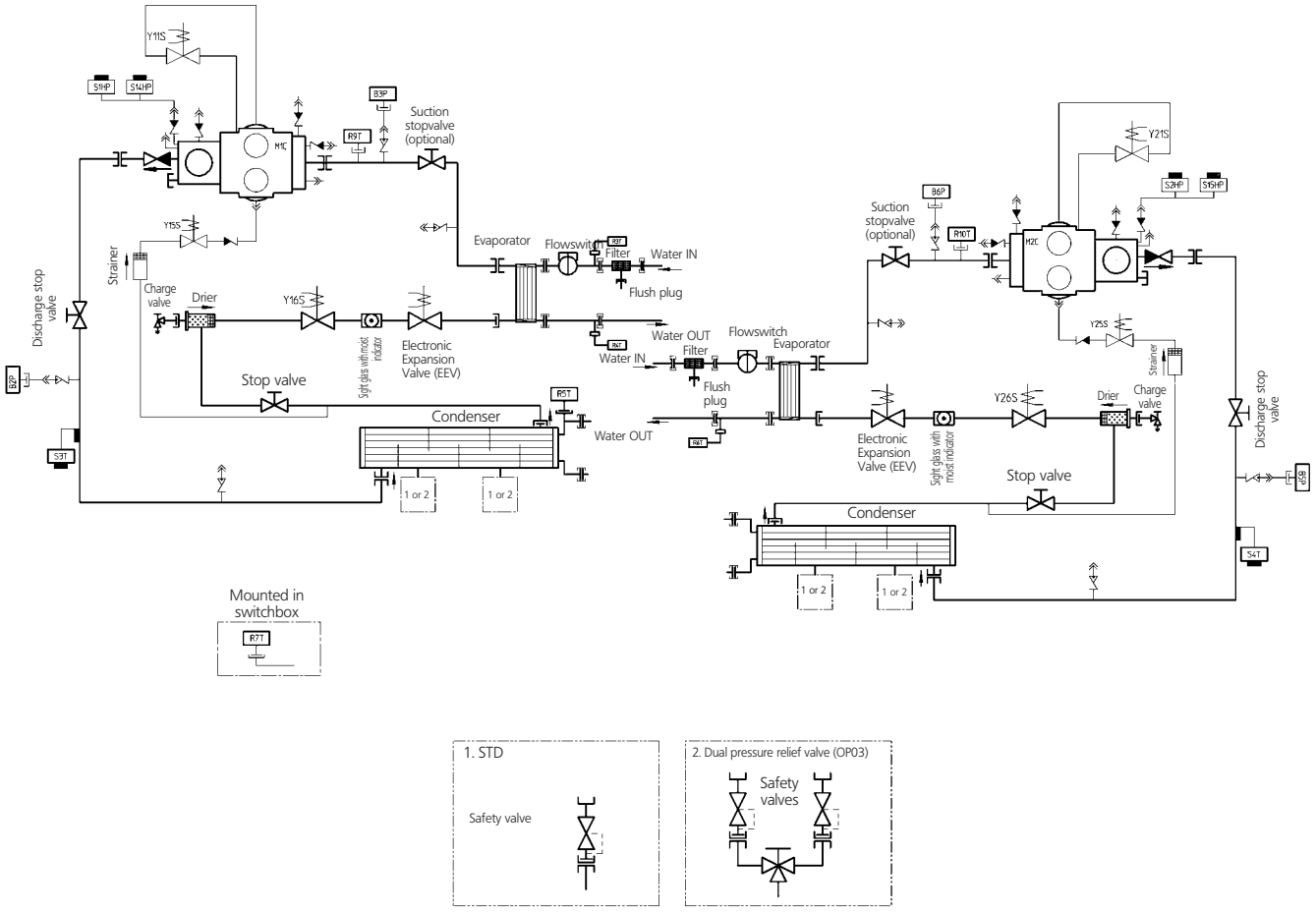
M2C	Compressor motor 2
S2PH	High pressure switch
S15HP	High pressure switch
S4T	Discharge temperature controller
R6T	Outlet water evap. temp. sensor
R7T	Mixed outlet water temp. sensor
B4P	Low pressure transmitter
B5P	High pressure transmitter
Y21S	Unloader solenoid valve
Y25S	Liquid injection solenoid valve
Y26S	Liquid line solenoid valve

- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56345-1

5 Piping diagram

EWWD500-540MBYNN



M1C	Compressor motor 1
S1PH	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R5T	Inlet water cond. temp. sensor
R9T	EEV temperature sensor
B2P	High pressure transmitter
B3P	EEV low pressure sensor
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

M2C	Compressor motor 2
S2PH	High pressure switch
S15HP	High pressure switch
S4T	Discharge temperature controller
R6T	Outlet water evap. temp. sensor
R7T	Mixed outlet water temp. sensor
R10T	EEV temperature sensor
B5P	High pressure transmitter
B6P	EEV low pressure sensor
Y21S	Unloader solenoid valve
Y25S	Liquid injection solenoid valve
Y26S	Liquid line solenoid valve

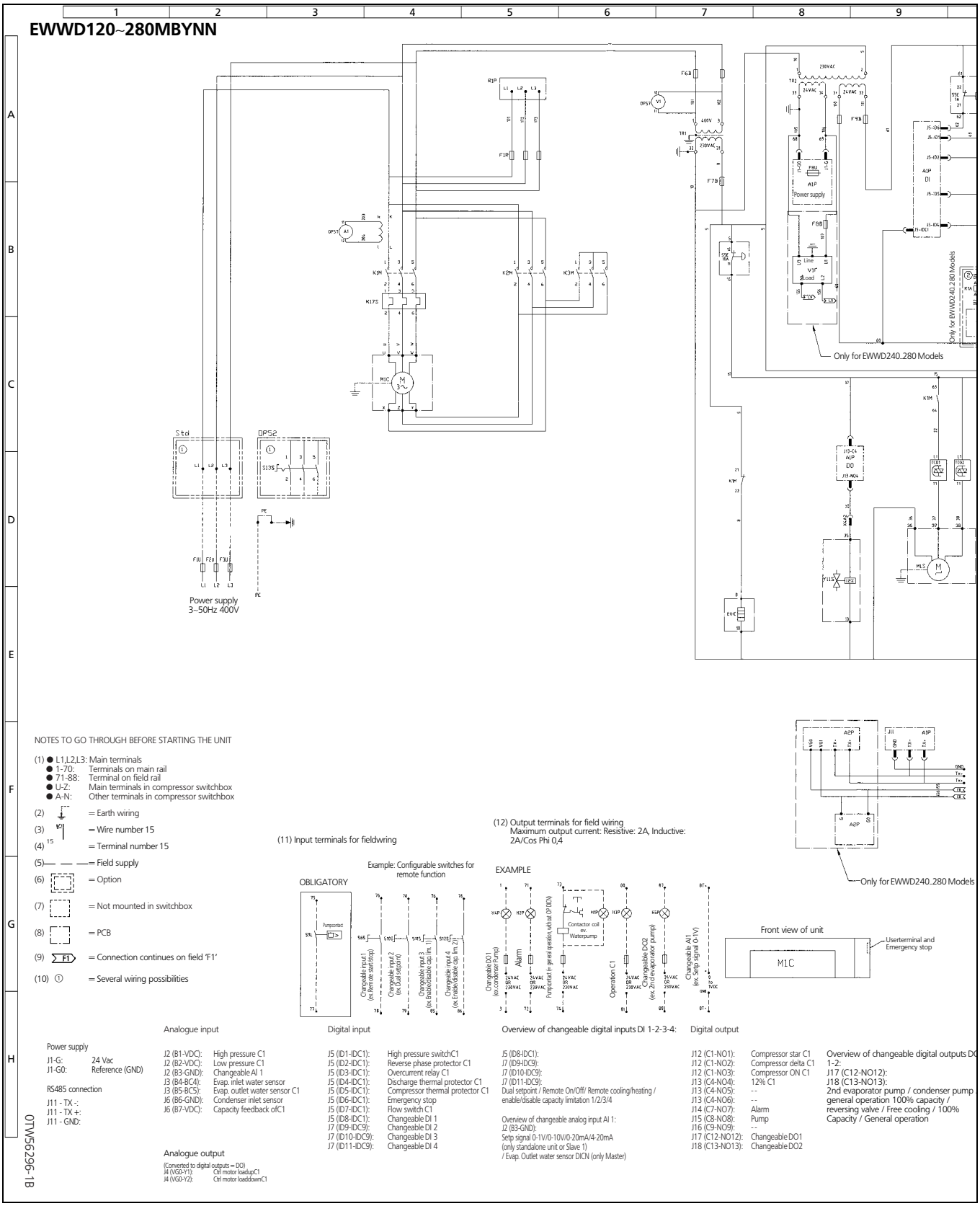
- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56355-1

6 Wiring diagram

6 - 1 Wiring diagram

EWWD120~280MBYNN



NOTES TO GO THROUGH BEFORE STARTING THE UNIT

(1) ● L1,L2,L3: Main terminals
● 1-70: Terminals on main rail
● 71-88: Terminal on field rail
● U-Z: Main terminals in compressor switchbox
● A-N: Other terminals in compressor switchbox

(2) = Earth wiring

(3) = Wire number 15

(4) = Terminal number 15

(5) = Field supply

(6) = Option

(7) = Not mounted in switchbox

(8) = PCB

(9) = Connection continues on field 'F1'

(10) = Several wiring possibilities

Power supply
J1-G: 24 Vac
J1-G0: Reference (GND)

RS485 connection
J11 - TX -:
J11 - TX +:
J11 - GND:

Analogue input
J2 (B1-VDC): High pressure C1
J2 (B2-VDC): Low pressure C1
J2 (B3-GND): Changeable AI 1
J3 (B4-BC4): Evap. inlet water sensor
J3 (B5-BC5): Evap. outlet water sensor C1
J6 (B6-GND): Condenser inlet sensor
J6 (B7-VDC): Capacity feedback ofC1

Analogue output
(Converted to digital outputs = DO)
J4 (VG0-Y1): Ctrl motor loadupC1
J4 (VG0-Y2): Ctrl motor loaddownC1

Digital input
J5 (ID1-IDC1): High pressure switchC1
J5 (ID2-IDC1): Reverse phase protector C1
J5 (ID3-IDC1): Overcurrent relay C1
J5 (ID4-IDC1): Discharge thermal protector C1
J5 (ID5-IDC1): Compressor thermal protector C1
J5 (ID6-IDC1): Emergency stop
J5 (ID7-IDC1): Flow switch C1
J5 (ID8-IDC1): Changeable DI 1
J7 (ID9-IDC9): Changeable DI 2
J7 (ID10-IDC9): Changeable DI 3
J7 (ID11-IDC9): Changeable DI 4

Overview of changeable digital inputs DI 1-2-3-4:
J5 (ID8-IDC1):
J7 (ID9-IDC9):
J7 (ID10-IDC9):
J7 (ID11-IDC9):
Dual setpoint / Remote On/Off/ Remote cooling/heating / enable/disable capacity limitation 1/2/3/4

Overview of changeable analog input AI 1:
J2 (B3-GND):
Setp signal 0-1V/0-10V/0-20mA/4-20mA
(only standalone unit or Slave 1)
/ Evap. Outlet water sensor DICN (only Master)

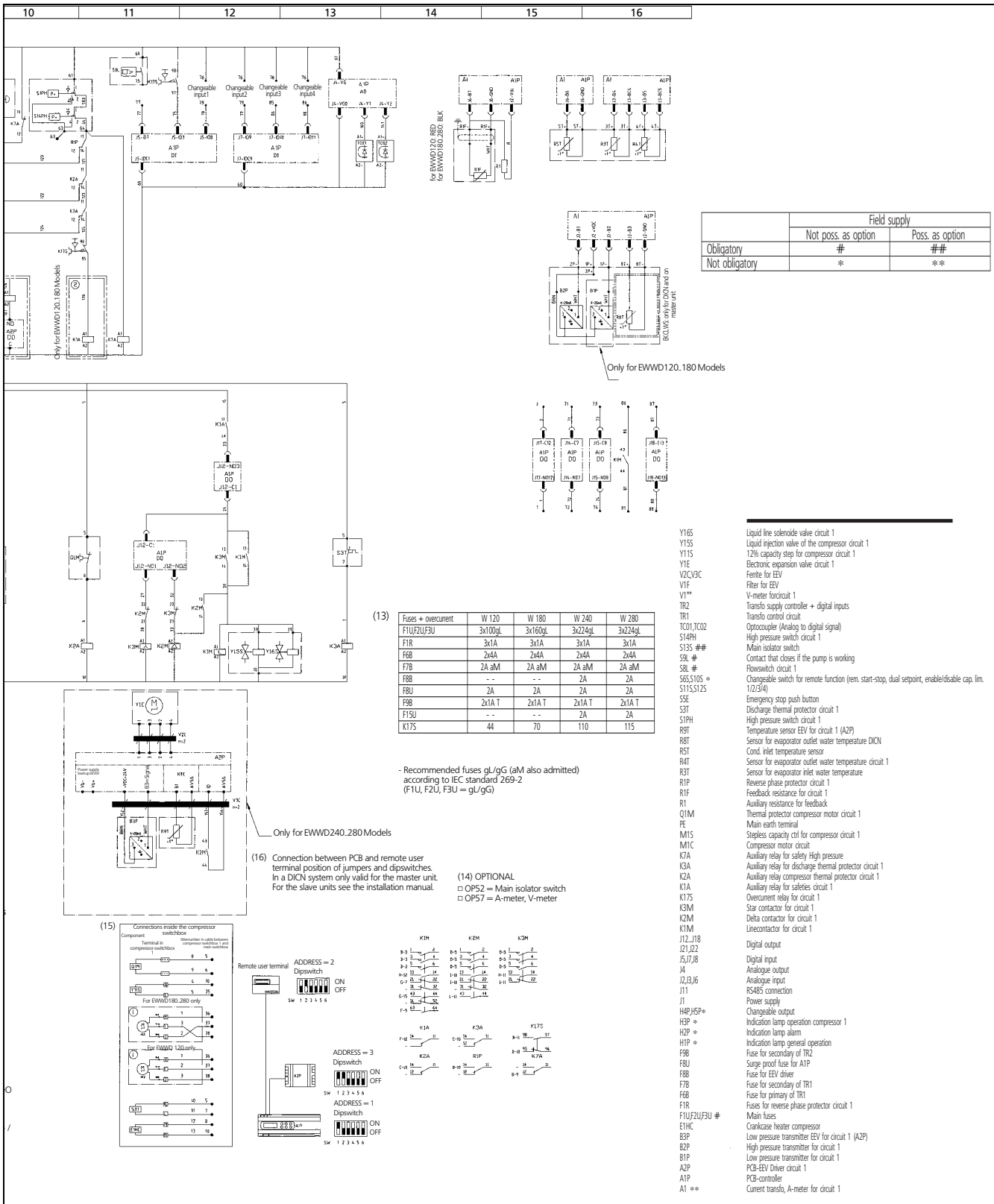
Digital output
J12 (C1-NO1): Compressor star C1
J12 (C1-NO2): Compressor delta C1
J12 (C1-NO3): Compressor ON C1
J13 (C4-NO4): 12% C1
J13 (C4-NO5): --
J13 (C4-NO6): --
J14 (C7-NO7): Alarm
J15 (C8-NO8): Pump
J16 (C9-NO9): --
J17 (C12-NO12): Changeable DO1
J18 (C13-NO13): Changeable DO2

Overview of changeable digital outputs DO
1-2:
J17 (C12-NO12):
J18 (C13-NO13):
2nd evaporator pump / condenser pump
general operation 100% capacity /
reversing valve / Free cooling / 100%
Capacity / General operation

0TW56296-1B

6 Wiring diagram

6 - 1 Wiring diagram



	Field supply	
	Not poss. as option	Poss. as option
Obligatory	#	##
Not obligatory	*	**

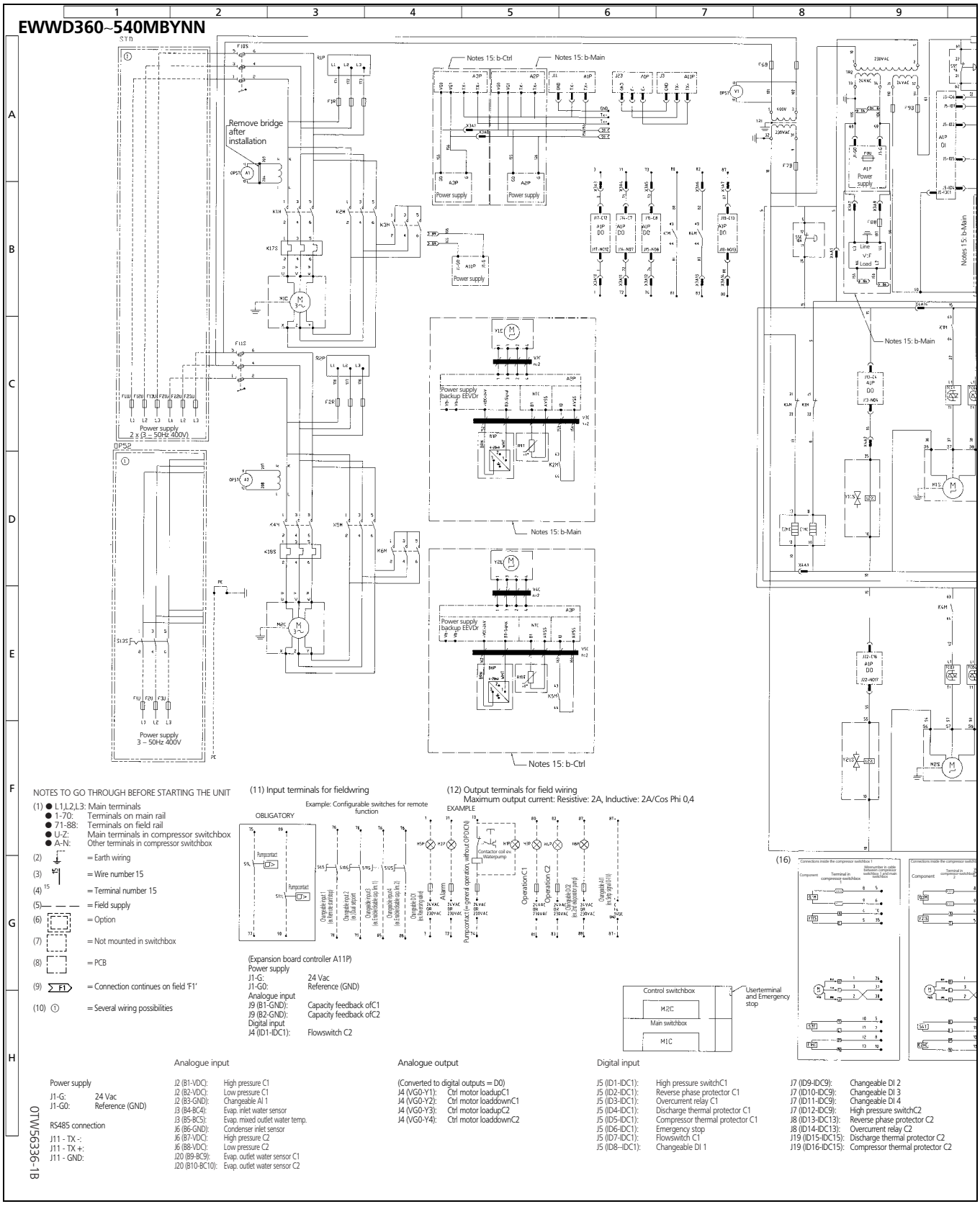
Fuses + overcurrent	W 120	W 180	W 240	W 280
F1U,F2U,F3U	3x100gL	3x160gL	3x224gL	3x224gL
F1R	3x1A	3x1A	3x1A	3x1A
F6B	2x4A	2x4A	2x4A	2x4A
F7B	2A aM	2A aM	2A aM	2A aM
F8B	- -	- -	2A	2A
F8U	2A	2A	2A	2A
F9B	2x1A T	2x1A T	2x1A T	2x1A T
F15U	- -	- -	2A	2A
K17S	44	70	110	115

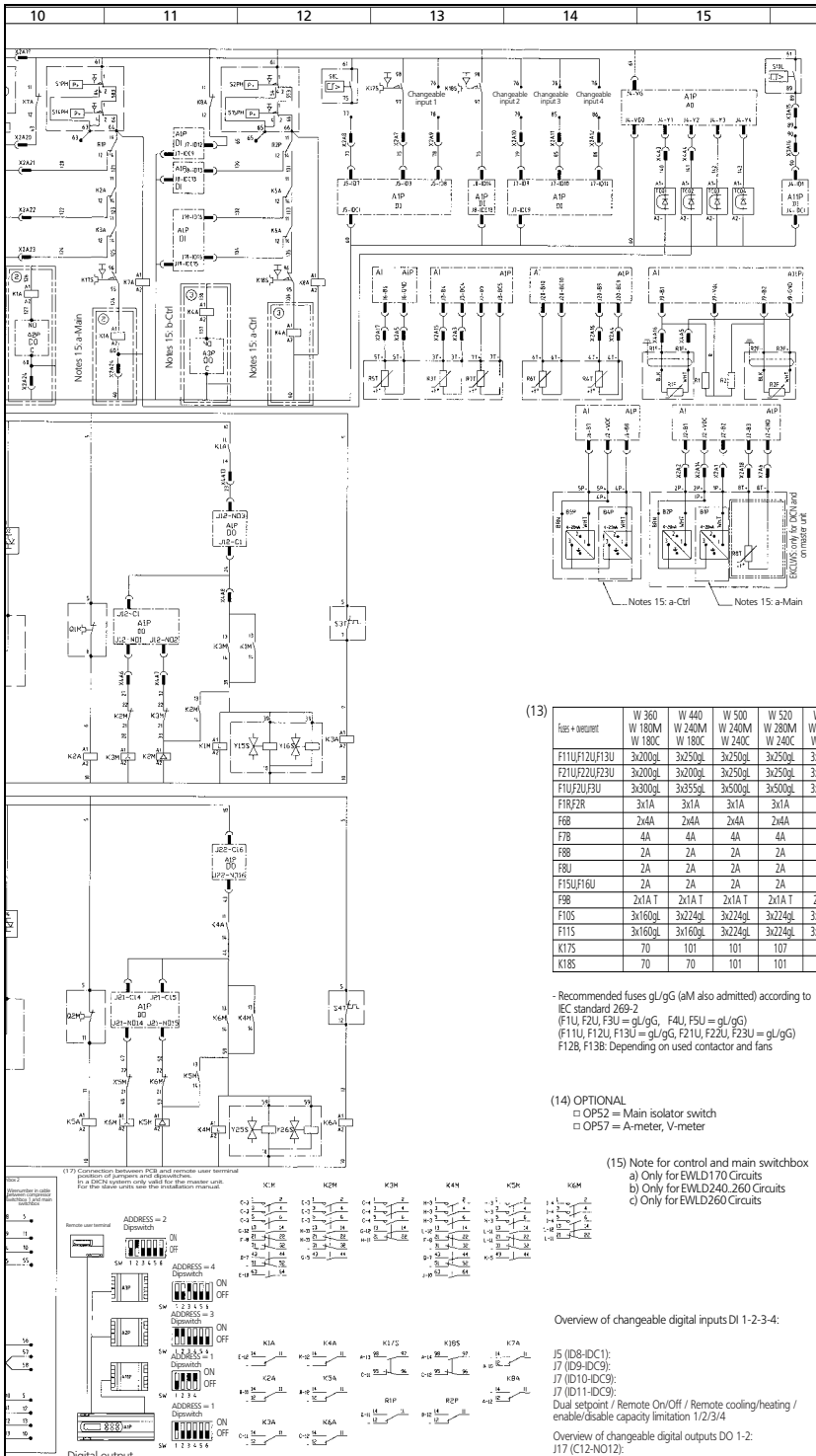
- Recommended fuses gL/gG (aM also admitted) according to IEC standard 269-2 (F1U, F2U, F3U = gL/gG)

Y16S	Liquid line solenoide valve circuit 1
Y15S	Liquid injection valve of the compressor circuit 1
Y11S	12% capacity step for compressor circuit 1
Y1E	Electronic expansion valve circuit 1
V2C,Y3C	Ferrite for EEV
V1F	Filter for EEV
V1**	V-meter forcircuit 1
TR2	Transfo supply controller + digital inputs
TR1	Transfo control circuit
TC01,TC02	Optocoupler (Analog to digital signal)
S14PH	High pressure switch circuit 1
S12S ##	Main isolator switch
S9L #	Contact that closes if the pump is working
S8L #	Flowswitch circuit 1
S6S,S10S *	Changeable switch for remote function (rem. start-stop, dual setpoint, enable/disable cap. lim.
S11S,S12S	1/2/3/4)
SSE	Emergency stop push button
S3T	Discharge thermal protector circuit 1
S1PH	High pressure switch circuit 1
R9T	Temperature sensor EEV for circuit 1 (A2P)
R8T	Sensor for evaporator outlet water temperature DICN
R5T	Cond. inlet temperature sensor
R4T	Sensor for evaporator outlet water temperature circuit 1
R3T	Sensor for evaporator inlet water temperature
R1P	Reverse phase protector circuit 1
R1F	Feedback resistance for circuit 1
R1	Auxiliary resistance for feedback
Q1M	Thermal protector compressor motor circuit 1
PE	Main earth terminal
M1S	Stepless capacity ctrl for compressor circuit 1
M1C	Compressor motor circuit
K7A	Auxiliary relay for safety High pressure
K3A	Auxiliary relay for discharge thermal protector circuit 1
K2A	Auxiliary relay compressor thermal protector circuit 1
K1A	Auxiliary relay for safeties circuit 1
K17S	Overcurrent relay for circuit 1
K3M	Star contactor for circuit 1
K2M	Delta contactor for circuit 1
K1M	Linecontactor for circuit 1
J12...J18	Digital output
J21,J22	
J5,J7,J8	Digital input
J4	Analogue output
J2,J3,J6	Analogue input
J11	RS485 connection
J1	Power supply
H4P,H5P*	Changeable output
H3P *	Indication lamp operation compressor 1
H2P *	Indication lamp alarm
H1P *	Indication lamp general operation
F9B	Fuse for secondary of TR2
F8U	Surge proof fuse for A1P
F8B	Fuse for EEV driver
F7B	Fuse for secondary of TR1
F6B	Fuse for primary of TR1
F1R	Fuses for reverse phase protector circuit 1
F1U,F2U,F3U #	Main fuses
E1HC	Crankcase heater compressor
B3P	Low pressure transmitter EEV for circuit 1 (A2P)
B2P	High pressure transmitter for circuit 1
B1P	Low pressure transmitter for circuit 1
A2P	PCB-EEV Driver circuit 1
A1P	PCB-controller
A1 **	Current transfo, A-meter for circuit 1

6 Wiring diagram

6 - 1 Wiring diagram





	Field supply	
	Not poss. as option	Poss. as option
Obligatory	#	##
Not obligatory	*	**

(13)

Fuses + overcurrent	W 360 W 180M W 180C	W 440 W 240M W 180C	W 500 W 240M W 240C	W 520 W 280M W 240C	W 540 W 280M W 280C
F11U,F12U,F13U	3x200gL	3x250gL	3x250gL	3x250gL	3x250gL
F21U,F22U,F23U	3x200gL	3x200gL	3x250gL	3x250gL	3x250gL
F1U,F2U,F3U	3x300gL	3x355gL	3x500gL	3x500gL	3x500gL
F1R,F2R	3x1A	3x1A	3x1A	3x1A	3x1A
F6B	2x4A	2x4A	2x4A	2x4A	2x4A
F7B	4A	4A	4A	4A	4A
F8B	2A	2A	2A	2A	2A
F8U	2A	2A	2A	2A	2A
F15U,F16U	2A	2A	2A	2A	2A
F9B	2x1A T	2x1A T	2x1A T	2x1A T	2x1A T
F10S	3x160gL	3x224gL	3x224gL	3x224gL	3x224gL
F11S	3x160gL	3x160gL	3x224gL	3x224gL	3x224gL
K17S	70	101	101	107	107
K18S	70	70	101	101	107

- Recommended fuses gL/gG (aM also admitted) according to IEC standard 269-2
(F1U, F2U, F3U = gL/gG, F4U, F5U = gL/gG)
(F11U, F12U, F13U = gL/gG, F21U, F22U, F23U = gL/gG)
F12B, F13B: Depending on used contactor and fans

(14) OPTIONAL
□ OP52 = Main isolator switch
□ OP57 = A-meter, V-meter

(15) Note for control and main switchbox
a) Only for EWLD170 Circuits
b) Only for EWLD240..260 Circuits
c) Only for EWLD260 Circuits

Overview of changeable digital inputs DI 1-2-3-4:

J5 (ID8-IDC1):
J7 (ID9-IDC9):
J7 (ID10-IDC9):
J7 (ID11-IDC9):
Dual setpoint / Remote On/Off / Remote cooling/heating / enable/disable capacity limitation 1/2/3/4

Overview of changeable digital outputs DO 1-2:
J17 (C12-NO12):
J18 (C13-NO13):
2nd evaporator pump / condenser pump / general operation 100% capacity / reversing valve / General operation / 100% Capacity / Free cooling

Overview of changeable analog input AI 1
J2 (B3-GND):
Setp signal 0-1V/0-10V/0-20mA/4-20mA
(only standalone unit or Slave 1)
/ Evap. Outlet water sensor DICN (only Master)

J12 (C1-NO1): Compressor star C1
J12 (C1-NO2): Compressor delta C1
J12 (C1-NO3): Compressor ON C1
J13 (C4-NO4): 12% C1
J13 (C4-NO5): --
J13 (C4-NO6): --
J14 (C7-NO7): Alarm
J15 (C8-NO8): Pump
J16 (C9-NO9): --
J16 (C9-NO10): --
J16 (C9-NO11): --

J17 (C12-NO12):Changeable DO 1
J18 (C13-NO13):Changeable DO 2
J21 (C14-NO14):Compressor star C2
J21 (C15-NO15):Compressor delta C2
J22 (C16-NO16):Compressor ON C2
J22 (C16-NO17):12% C2
J22 (C16-NO18):- -

Y16S,Y26S	Liquid line solenoide valve circuit 1, circuit 2
Y15S,Y25S	Liquid injection valve of the compressor circuit 1, circuit 2
Y11S,Y21S	12% capacity step for compressor circuit 1, circuit 2
Y1E,Y2E	Electronic expansion valve circuit 1, circuit 2
X2A,X3A,X4A	Connector 24, 20, 16 pole to Main Switchbox
V2C-V5C	Ferrite for EEV
V1F	Filter for EEV
V1**	V-meter forcircuit 1-2
TR2	Transfo supply controller + digital inputs
TR1	Transfo control circuit
TC01..TC04	Optocoupler (Analog to digital signal)
S14PH,S15PH	High pressure switch circuit 1, circuit 2
S13S ##	Main isolator switch
S9L,S11L #	Contact that closes if the pump is working
S8L,S10L #	Flow switch circuit 1, circuit 2
S6S,S10S *	Configurable switch for remote function (rem. start-stop, dual setpoint, enable/disable cap. lim.
S11S,S12S	1/2/3/4)
S5E	Emergency stop push button
S3T,S4T	Discharge thermal protector circuit 1, circuit 2
S1PH,S2PH	High pressure switch circuit 1, circuit 2
R9T,R10T	Temperature sensor EEV for circuit 1 (A2P), circuit 2 (A3P)
R8T	Sensor for evaporator outlet water temperature DICN
R7T	Sensor for mixed outlet water temperature
R6T	Sensor for evaporator outlet water temperature circuit 2
R5T	Cond. inlet temperature sensor
R4T	Sensor for evaporator outlet water temperature circuit 1
R3T	Sensor for evaporator inlet water temperature
R1P,R2P	Reverse phase protector circuit 1, circuit 2
R1F,R2F	Feedback resistance for circuit 1, circuit 2
R1,R2	Auxiliary resistance for feedback
Q1M,Q2M	Thermal protector compressor motor circuit 1, circuit 2
Q21F-Q24F	Thermal protectors fan motors circuit 2
Q11F-Q14F	Thermal protectors fan motors circuit 1
PE	Main earth terminal
M1S,M2S	Stepless capacity ctrl for compressor circuit 1, circuit 2
M1C,M2C	Compressor motor circuit 1, circuit 2
K7A,K8A	Auxiliary relay for safety High pressure circuit 1, circuit 2
K3A,K6A	Auxiliary relay for discharge thermal protector circuit 1, circuit 2
K2A,K5A	Auxiliary relay compressor thermal protector circuit 1, circuit 2
K1A,K4A	Auxiliary relay for safeties circuit 1, circuit 2
K17S,K18S	Overcurrent relay for circuit 1, circuit 2
K3M,K6M	Star contactor for circuit 1, circuit 2
K2M,K5M	Delta contactor for circuit 1, circuit 2
K1M,K4M	Linecontactor for circuit 1, circuit 2
J12..J18	Digital output
J21,J22	
J5,J7,J8,J19	Digital input
J4	Analogue output
J2,J3,J6,J20	Analogue input
J11	RS485 connection
J1	Power supply
H5P,H6P *	Changeable output
H4P *	Indication lamp operation compressor 2
H3P *	Indication lamp operation compressor 1
H2P *	Indication lamp alarm
H1P *	Indication lamp general operation
F10S,F11S	Circuit breakers with fuses for circuit 1, circuit 2
F9B	Fuse for secondary of TR2
F8U	Surge proof fuse for A1P
F8B	Fuse for EEV driver
F7B	Fuse for secondary of TR1
F6B	Fuse for primary of TR1
F1R,F2R	Fuses for reverse phase protector circuit 1, circuit 2
F21U..F23U #	Main fuses
F11U..F13U #	Main fuses
F1U,F2U,F3U #	Main fuses
E1HC,E2HC	Crankcase heater compressor circuit 1, circuit 2
C11,C21	Capacitor for capacity control
B3P,B6P	Low pressure transmitter for circuit 1 (A2P), circuit 2 (A3P)
B2P,B5P	High pressure transmitter for circuit 1, circuit 2
B1P,B4P	Low pressure transmitter for circuit 1, circuit 2
A11P	Expansion board controller
A2P,A3P	PCB-EEV Driver circuit 1, circuit 2
A1P	PCB-controller
A1,A2 **	Current transfo / A-meter for circuit 1, circuit 2

7 Sound data

7 - 1 Sound power spectrum

	Sound power Lw per Octave band (dB)								Total (dBA)
	63	125	250	500	1000	2000	4000	8000	LwA
EWWD120/EWLD120	68	71	90	80	83	78	69	61	87
EWWD180/EWLD170	101	91	90	87	90	86	68	65	93
EWWD240/EWLD240	101	91	90	88	92	82	69	66	94
EWWD280/EWLD260	97	89	85	87	91	81	68	65	93
EWWD360/EWLD340	104	94	93	90	93	89	71	68	96
EWWD440/EWLD400	103	93	92	90	93	87	71	68	96
EWWD500/EWLD480	103	93	92	90	94	84	71	68	96
EWWD520/EWLD500	102	92	90	90	94	84	71	68	96
EWWD540/EWLD540	100	92	88	90	94	84	71	68	96

Notes:
- Data valid at nominal operation condition
- According Eurovent 8-1 (Based on ISO3744)

4TW56297-1A

7 Sound data

7 - 2 Sound power spectrum quiet mode

	Total (dBA)
	LwA
EWWD120	81
EWWD180	87
EWWD240	88
EWWD280	87
EWWD360	90
EWWD440	90
EWWD500	90
EWWD520	90
EWWD540	90

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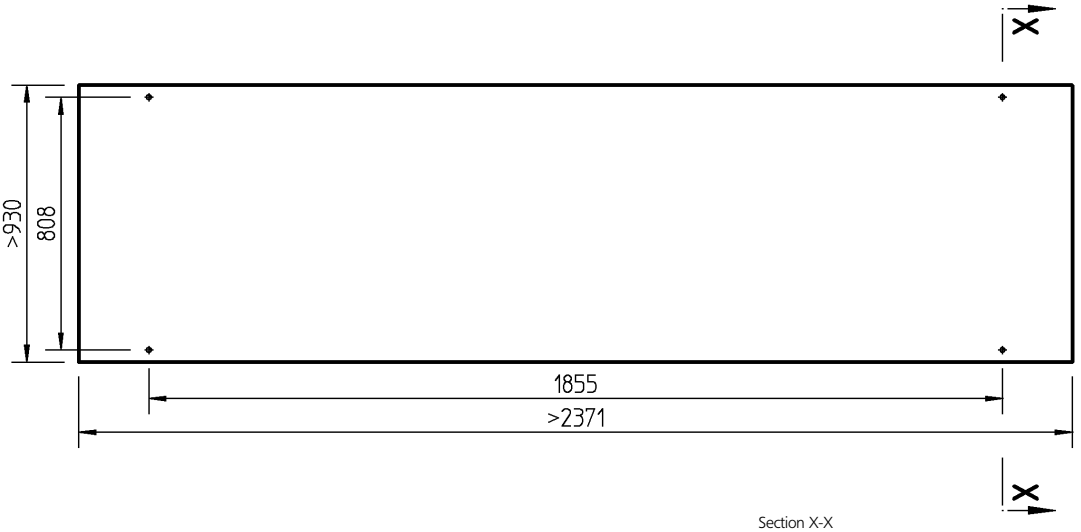
NOTES

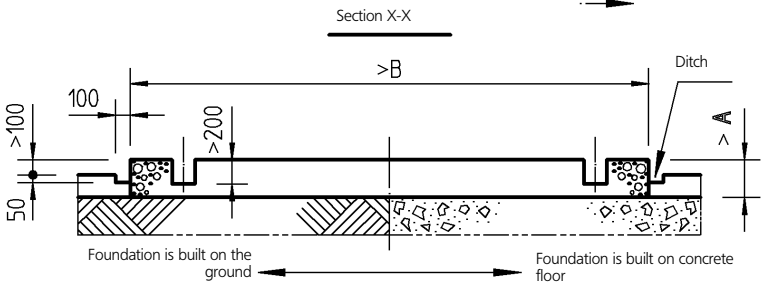
1 Data is valid at nominal conditions.

2 According Eurovent 8-1 (Based on ISO3744)

8 Installation

8 - 1 Fixation and foundation of units





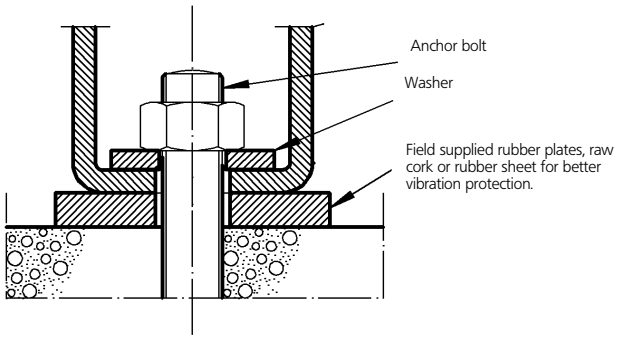
Fix anchor bolts into the concrete foundation. The concrete foundation should be higher than the floor level by approximately 100 mm for ease of plumbing work and better drain.
Further, strength of the floor should be sufficient to support the weight of concrete foundation and unit.
Be certain that the foundation surface is even and flat.

MODEL	A	Anchor bolt	
		Size	Qty.
EWWD120~180MBY	300	M20 x 200	4
EWWD240~280MBY	350	M20 x 200	4
EWWD360-540MBY	350	M20 x 270	4

Unit = mm

NOTES:

1. The measurement tabulated is based on the fact the base is made in the ground or on a concrete floor. In case the base is made on a rigid concrete floor, it is possible to include thickness of concrete floor in that of the base.
2. In case a base is made on concrete floor, be sure to provide a ditch as shown. It is important to extract drainage regardless of wether a base is made in the ground or on the concrete floor (Ditch → Sewerage).
3. Ingredient ratio of the concrete is cement: 1, sand: 2, gravel: 3, which is standard and insert iron bars of ϕ 10 at every interval of 300 mm. The edge of the concrete base should be planed.



4TW56299-2

8 Installation

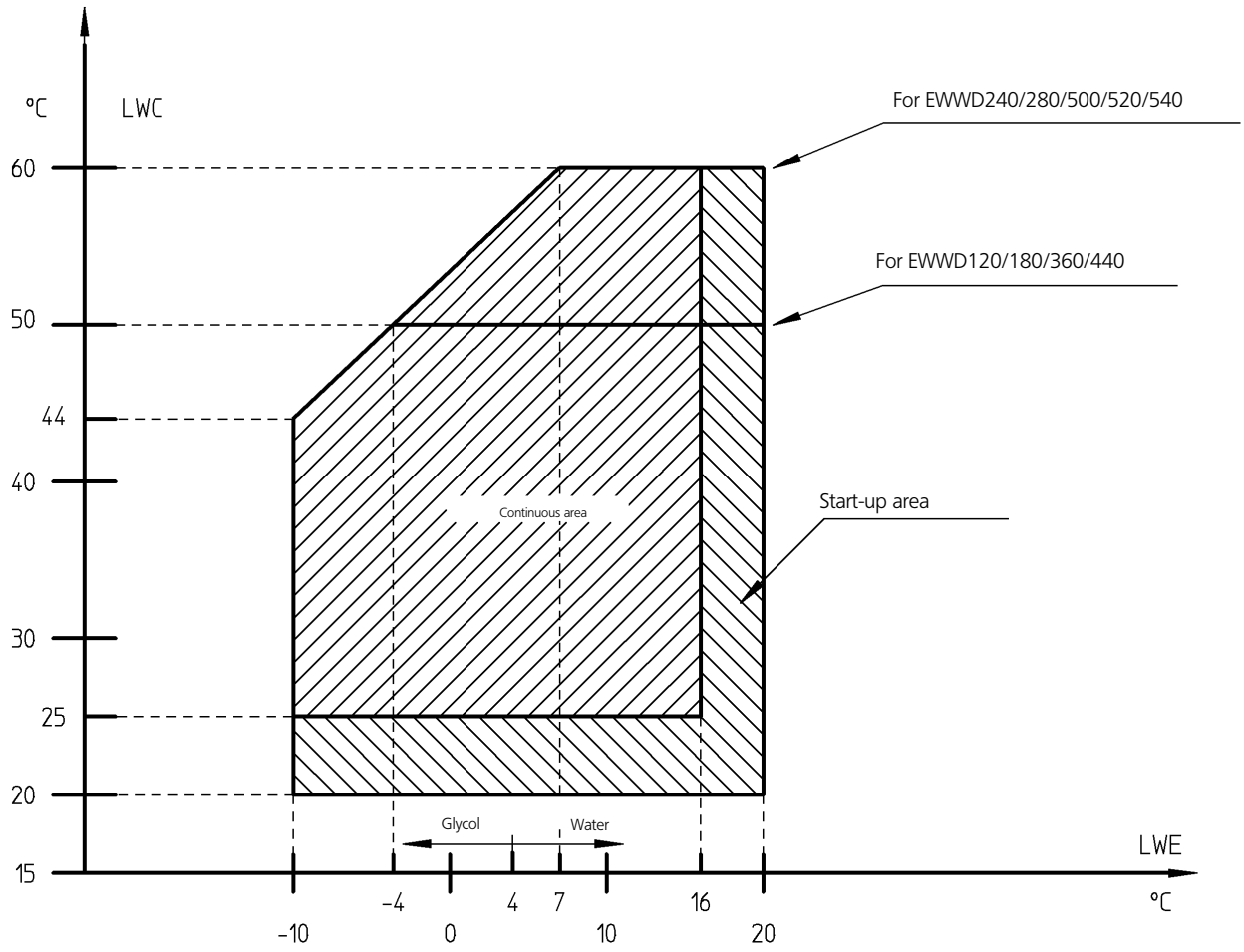
8 - 2 Water charge, flow and quality

ITEMS (1) (5)			Cooling water (3)			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	6.8~8.0	6.8~8.0	6.8~8.0	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 40	Below 30	Below 30	Below 30	Below 30	Below 30	Corrosion + scale
		(μS/cm) at 25°C (1)	(Below 800)	(Below 300)	(Below 400)	(Below 400)	(Below 300)	(Below 300)	(Below 300)	(Below 300)	(Below 300)	Corrosion + scale
	Chloride ion	[mgCl⁻/l]	Below 200	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	Sulfate ion	[mgSO^{2-}_4/l]	Below 200	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	M-alkalinity (pH4.8)	[mg$CaCO_3$/l]	Below 100	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Total hardness	[mg$CaCO_3$/l]	Below 200	Below 70	Below 70	Below 70	Below 70	Below 70	Below 70	Below 70	Below 70	Scale
	Calcium hardness	[mg$CaCO_3$/l]	Below 150	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Silica ion	[mgSiO_2/l]	Below 50	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Scale
Items to be referred to:	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	[mgS^{2-}/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	[mgCO_2/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

3TW50179-1

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 material is in direct contact with water without any protection shields, it is desireable to give the valid measures for corrosion. e.g. chemical measure.
3 In the cooling water using hermetic cooling tower, closed 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.

9 Operation range



* LWE : Leaving Water Evaporator (°C)

* LWC : Leaving water condenser (°C)

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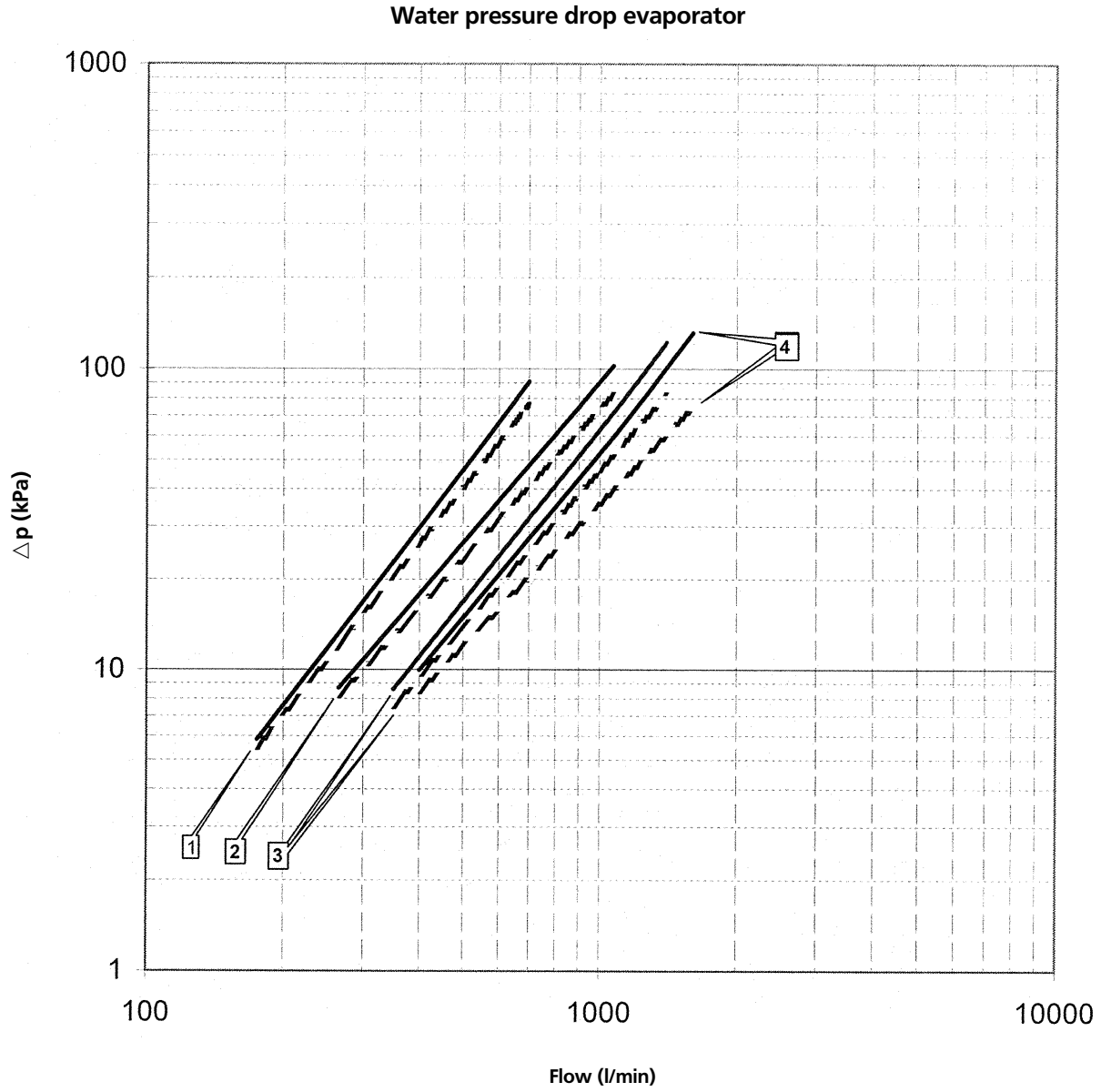
10 Hydraulic performance

10 - 1 Water pressure drop curve evaporator

EWWD120-540MBYNN



= Strainer + Evaporator

= Evaporator

EWWD120 : 1
EWWD180 : 2
EWWD240 : 3
EWWD280 : 4
EWWD360 : 2 + 2
EWWD440 : 2 + 3
EWWD500 : 3 + 3
EWWD520 : 3 + 4
EWWD540 : 4 + 4

Warning: Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrate in the technical specifications.

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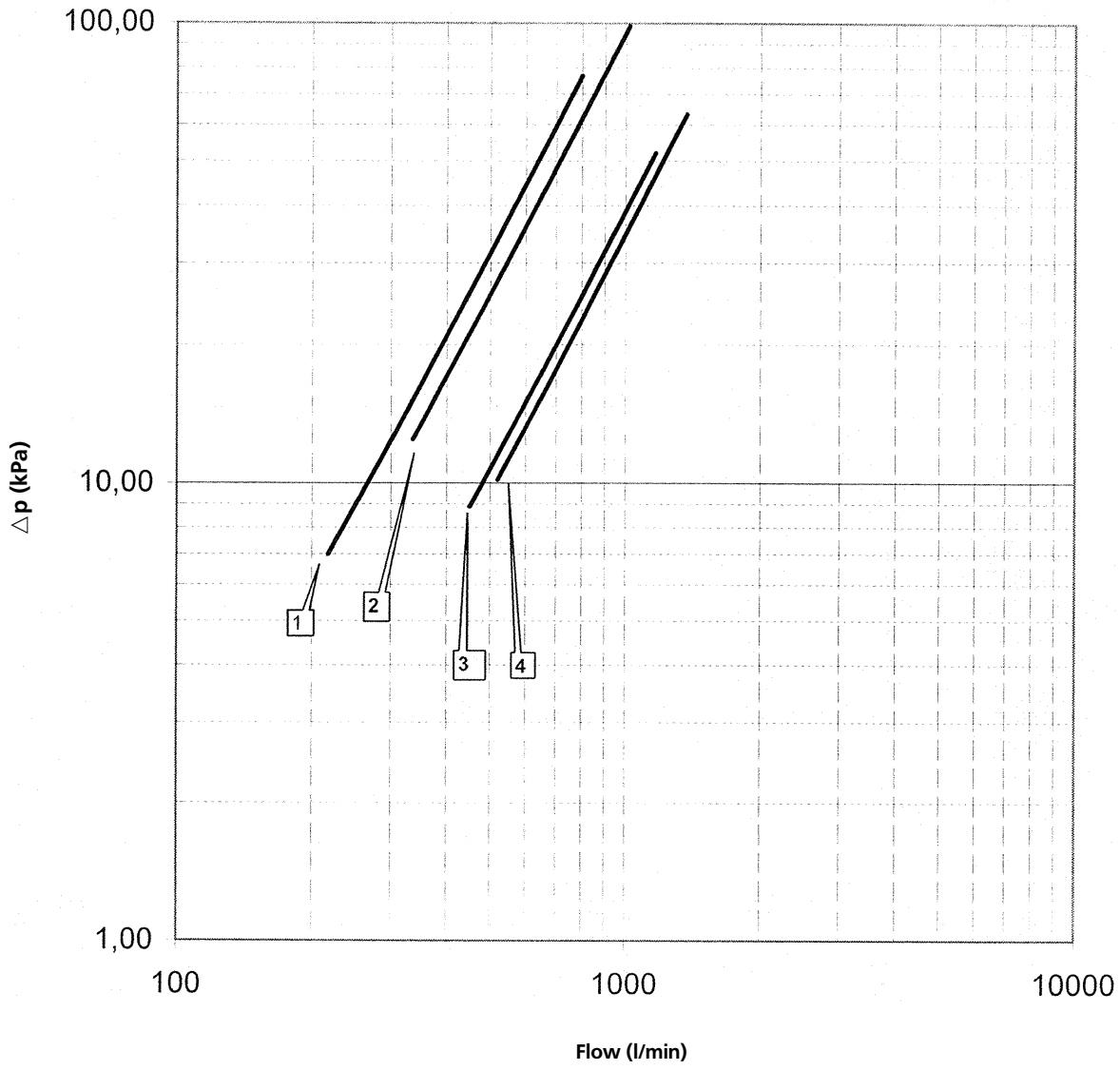
10 Hydraulic performance

10 - 2 Water pressure drop curve condenser

EWWD120-540MBYNN

Water pressure drop condenser



EWWD120 : 1
EWWD180 : 2
EWWD240 : 3
EWWD280 : 4
EWWD360 : 2 + 2
EWWD440 : 2 + 3
EWWD500 : 3 + 3
EWWD520 : 3 + 4
EWWD540 : 4 + 4

Warning: Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrate in the technical specifications.

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TABLE OF CONTENTS

EWLD-MBYNN

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EWLD120MBY	EWLD170MBY	EWLD240MBY	EWLD260MBY	EWLD340MBY	EWLD400MBY	EWLD480MBY	EWLD500MBY	EWLD540MBY
Capacity (Eurovent)	Cooling	Nominal	kW	116.00	170.00	235.00	265.00	340.00	405.00	470.00	500.00	530.00
Capacity Steps			%	30-100 stepless				15-100 stepless				
Nominal input (Eurovent)	Cooling		kW	32.00	49.80	66.50	77.90	99.60	116.00	133.00	144.00	156.00
EER				3.63	3.41	3.53	3.40	3.41	3.49	3.53	3.47	3.40
Casing	Colour			Ivory white/Munsell code 5Y7.5/1								
	Material			Polyester painted steel plate								
Dimensions	Unit	Height	mm	1018	1018	1018	1018	2000	2000	2000	2000	2000
		Width	mm	2681 (3051)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)	2681 (3254)
		Depth	mm	930	930	930	930	930	930	930	930	930
Weight	Unit		kg	891	1110	1342	1428	2220	2452	2684	2770	2856
	Operating Weight		kg	907	1130	1369	1462	2260	2497	2738	2831	2924
Water Heat Exchanger Evaporator	Type			Brased plate, one per circuit								
	Filter	Type		WYE type strainer								
		Diameter perforations	mm	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	Minimum water volume in the system		l	570	830	1150	1300	830	990	1150	1220	1295
	Water flow rate	Min	l/min	175	265	350	400	525	625	700	750	800
		Nominal	l/min	333	487	674	760	975	1161	1347	1434	1520
		Max	l/min	700	1070	1400	1600	2100	2500	2800	3000	3200
Nominal water pressure drop	Cooling	Heat exchanger	kPa	21.0	25.0	26.0	22.0	25.0	25.0	26.0	26.0	22.0
		Filter	kPa	2.0	3.0	6.0	8.0	3.0	3.0	7.0	7.0	9.0
		Total	kPa	23.0	28.0	32.0	30.0	28.0	28.0	33.0	33.0	31.0
		Heat exchanger	kPa	-				25.0	26.0	26.0	22.0	22.0
		Filter	kPa					3.0	7.0	7.0	9.0	9.0
		Total	kPa					28.0	33.0	33.0	31.0	31.0
Water Heat Exchanger Evaporator	Insulation material			Polyethylene foam								
	Model	Quantity		1	1	1	1	2	1	2	1	2
		Model		AC120EQ-NP156	AC250EQ-NP96	AC250EQ-NP128	AC250EQ-NP162	AC250EQ-NP96	AC250EQ-NP96	AC250EQ-NP128	AC250EQ-NP128	AC250EQ-NP162
		Quantity		-					1	-	1	-
		Model							AC250EQ-NP128		AC250EQ-NP162	
Compressor	Type			Semi-hermetic single screw compressor								
	Refrigerant oil type			Daphne FVC68D								
	Refrigerant oil charge		l	7.5	10.0	10.0	14.0	10.0	10.0	10.0	10.0	14.0
			l	-				10.0	10.0	10.0	14.0	14.0
	Model	Quantity		1	1	1	1	2	1	2	1	2
		Model		ZHA5LMGUYE	ZHA7MSGUYE	ZHA7WSGUYE	ZHA9LSGUYE	ZHA7MSGUYE	ZHA7MSGUYE	ZHA7WSGUYE	ZHA7WSGUYE	ZHA9LSGUYE
		Speed	rpm	2880	2880	2880	2880	2880	2880	2880	2880	2880
		Crankcase Heater	W	150	150	150	150	150	150	150	150	150
		Quantity		-					1	-	1	-
		Model							ZHA7WSGUYE		ZHA9LSGUYE	
		Speed	rpm						2880		2880	
		Crankcase Heater	W						150		150	
Sound level	Sound Power	Cooling	dBA	87	93	94	93	96	96	96	96	96

1 Specifications

1-1 TECHNICAL SPECIFICATIONS		EWLD120MBY	EWLD170MBY	EWLD240MBY	EWLD260MBY	EWLD340MBY	EWLD400MBY	EWLD480MBY	EWLD500MBY	EWLD540MBY
Refrigerant circuit	Refrigerant type	R-134a								
	No of circuits	1	1	1	1	2	2	2	2	2
	Refrigerant control	Thermostatic expansion valve		Electronic expansion valve		Thermostatic expansion valve		Electronic expansion valve		
		-				-	Electronic expansion valve	-		
Piping connections	Evaporator water inlet/outlet	3'' OD victaulic coupling	3'' victaulic coupling							
	Evaporator water drain	field installation								
	Liquid line connection	7/8''	1'' 1/8	1'' 3/8	1'' 3/8	2x1/8''	1''1/8 + 1''3/8	2x1'' 3/8	2x1'' 3/8	2x1'' 3/8
	Discharge line connection	2'' 1/8	2'' 1/8	2'' 1/8	2'' 5/8	2x(2''1/8)	2x(2''1/8)	2x(2''1/8)	2'' 1/8 + 2'' 5/8	2x(2''5/8)
Safety Devices		Double PED approved high pressure switches								
		Low pressure protection								
		Pressure relief valve								
		Compressor motor thermal protector								
		Compressor motor overcurrent relay								
		Discharge temperature protector								
		Freeze up protection								
		Recycling and guard timer								
		Reverse phase protector								
		Flowswitch								
Notes		Nominal cooling capacity at Eurovent conditions: Entering/Leaving water evaporator = 12°C/7°C; Condensing temperature = 45°C; Liquid temperature = 40°C								
		Nominal power input at Eurovent conditions: See Eurovent 6/C/003 Entering/leaving water temperature = 12°C/7°C - condensing temperature = 45°C(*) - liquid temperature = 40°C								
		Minimum water volume for standard thermostat difference setting of 3K (5/8/10/12hp); 1.5K (15/20/25/35hp). For reduced setting multiply this water volume by 3 (5/8/10/12hp); 1.5 (15/20/25/35hp) / new setting) Min. allowable setting = 0.1K (5/8/10/12hp); 0.4K (15/20/25/35hp)								
		Piping connections are delivered with vitaulic joints and counterpipe for welding								
		Weight values between brackets including installation space of delivered filter								

1-2 ELECTRICAL SPECIFICATIONS				EWLD120MBY	EWLD170MBY	EWLD240MBY	EWLD260MBY	EWLD340MBY	EWLD400MBY	EWLD480MBY	EWLD500MBY	EWLD540MBY
Power Supply	Name			Y1								
	Phase			3~								
	Frequency		Hz	50								
	Voltage		V	400								
	Voltage Tolerance	Minimum	%	-10%								
		Maximum	%	+10%								
Unit	Starting Current		A	172	250	304	390	250	304	304	390	390
	Nominal Running Current Cooling		A	48.00	78.00	108.00	118.00	156.00	186.00	216.00	226.00	236.00
	Maximum Running Current		A	76.00	120.00	191.00	199.00	240.00	311.00	382.00	390.00	398.00
	Recommended fuses according to IEC standard 269-2			3x100gL	3x160gL	3x224gL	3x224gL	2x3x200gL	3x200gL + 3x250gL	2x3x250gL	2x3x250gL	2x3x250gL

1 Specifications

1-2 ELECTRICAL SPECIFICATIONS				EWLD120MBY	EWLD170MBY	EWLD240MBY	EWLD260MBY	EWLD340MBY	EWLD400MBY	EWLD480MBY	EWLD500MBY	EWLD540MBY
Compressor	Phase			3~								
	Voltage		V	400								
	Voltage Tolerance	Minimum	%	-10%								
		Maximum	%	+10%								
	Starting current		A	172.0	250.0	304.0	390.0	250.0	250.0	304.0	304.0	390.0
	Nominal running current (RLA)		A	48.00	78.00	108.00	118.00	156.00	78.00	108.00	108.00	118.00
	Maximum Running Current		A	76.00	120.00	191.00	199.00	240.00	120.00	191.00	191.00	199.00
	Starting Method			Star-delta								
	Recommended fuses			covered by the unit fuses				Factory installed				
	Phase			-				3~				
	Voltage		V					400				
	Voltage Tolerance	Minimum	%					-10%				
		Maximum	%					+10%				
	Starting current		A					250.0	304.0	304.0	390.0	390.0
	Nominal running current (RLA)		A					78.00	108.00	108.00	118.00	118.00
	Maximum Running Current		A					120.00	191.00	191.00	199.00	199.00
	Starting Method							Star-delta				
	Recommended fuses							Factory installed				
Control Circuit	Phase			1~								
	Voltage		V	230V/24V AC (supplied by factory installed performers)								
	Recommended fuses			Factory installed								
	Crankcase heater (E1/2HC)		W	1x(150W - 65A)						2x(150W - 65A)		
	Liquid line solenoid valves (Y15..16S/Y25..26S)			2x(16.1VA - 70mA) - inrush current = 130mA				4x(16.1VA - 70mA) - inrush current = 130mA				
	Capacity solenoid valves (Y11..14S/Y21..Y24S)			3x(16.1VA - 70mA) - inrush current = 130mA				2x(3x(16.1VA - 70mA) - inrush current = 130mA				

Option number	Option description	Unit size									Availability
		120	170	240	260	340	400	480	500	540	
	Standard unit	○	○	○	○	○	○	○	○	○	
	Completely combinable options										
OP03	Dual pressure relief valve	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	Factory mounted
OP12	Suction stop valve	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	○ (S)	Factory mounted
OP52	Main isolator switch	○	○	○	○	○	○	○	○	○	Factory mounted
OP57	A-meter, V-meter	○	○	○	○	○	○	○	○	○	Factory mounted
OPLN	Low noise operation	○	○	○	○	○	○	○	○	○	Factory mounted
	Available kits										
EKCLWS	Leaving water control sensor for DICN	○	○	○	○	○	○	○	○	○	Kit
EKAC200A	BMS card	○	○	○	○	○	○	○	○	○	Kit
EKBMSMBA	BMS gateway modbus / j-bus protocol	○	○	○	○	○	○	○	○	○	Kit
EKBMSBNA	BMS gateway bacnet protocol	○	○	○	○	○	○	○	○	○	Kit
EKRUPC	Remote user interface	○	○	○	○	○	○	○	○	○	Kit

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Notes

○ available

(S) option required for swedish national law SNFS 1992:16

1 To install EKBMSBNA, EKBMSMBA → EKAC200A needs to be installed on the unit.

3 Capacity tables

3 - 1 Cooling capacity tables

TC (°C)		30		35		40		45		50		55		60		62	
LWE	MODEL	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
4	120	116	23,9	111	25,9	107	28,3	103	31,1	99	34,3	94,4	37,9				
	170	185	39,5	176	42,1	166	45,3	154	49,1	141	53,5	127	58,5				
	240	247	52,6	234	55,8	221	59,7	208	64,1	195	68,9	182	74,2	169	81,1		
	260	273	59,3	260	64,1	248	69,6	235	75,9	222	82,9	210	90,6	197	103		
	340	370	79,0	352	84,2	332	90,7	309	98,3	283	107	254	117				
	400	432	92,0	410	97,9	387	105	362	113	336	122	309	133				
	480	494	105	468	112	442	119	416	128	390	138	364	148	338	162		
	500	520	112	494	120	469	129	443	140	417	152	392	165	366	184		
	540	546	119	520	128	495	139	470	152	445	166	420	181	394	207		
7	120	131	24,8	126	26,8	121	29,2	116	32,0	111	35,2	106	38,8				
	170	203	40,7	194	43,2	183	46,3	170	49,8	155	53,8	138	58,3				
	240	276	54,9	262	58,2	249	62,2	235	66,5	221	71,4	207	76,6	193	83,5	147	87,1
	260	305	61,2	292	66,0	279	71,6	265	77,9	252	84,9	238	92,7	225	105	152	101
	340	405	81,4	387	86,5	366	92,5	340	99,6	310	108	277	117				
	400	479	95,6	456	101	432	108	405	116	376	125	345	135				
	480	552	110	524	116	498	124	470	133	442	143	414	153	386	167	294	174
	500	581	116	554	124	528	134	500	144	473	156	445	169	418	189	299	188
	540	611	122	584	132	557	143	530	156	503	170	477	185	450	211	304	201
10	120	147	25,7	141	27,7	135	30,1	129	32,9	124	36,2	118	39,8				
	170	220	42,0	213	44,7	204	47,8	191	51,3	176	55,1	158	59,3				
	240	305	57,3	291	60,8	276	64,5	262	69,0	247	73,8	232	79,1	217	86,0	166	89,6
	260	338	63,0	324	67,9	310	73,5	295	79,8	281	86,9	267	94,7	252	108	172	102
	340	440	84,0	427	89,4	407	95,6	383	103	352	110	315	119				
	400	525	99,3	504	105	480	112	453	120	423	129	390	138				
	480	610	115	582	122	552	129	524	138	494	148	464	158	434	172	331	179
	500	643	120	615	129	586	138	557	149	528	161	499	174	469	194	337	192
	540	676	126	648	136	619	147	591	160	562	174	533	189	505	215	343	205
16	120	178	27,3	170	29,3	163	31,8	156	34,7	148	38,0	141	41,6				
	170	259	43,9	255	47,3	248	50,8	237	54,5	223	58,4	206	62,3				
	240	364	62,5	348	65,8	331	69,5	315	73,9	299	78,8	283	84,3	267	91,6	206	95,2
	260	403	66,3	387	71,3	371	77,0	355	83,4	340	90,6	324	98,5	308	112	210	106
	340	518	87,9	510	94,6	495	102	474	109	447	117	412	125				
	400	623	106	603	113	579	120	552	128	522	137	489	147				
	480	728	125	696	132	662	139	630	148	598	158	566	169	534	183	412	190
	500	767	129	735	137	702	146	670	157	639	169	607	183	575	203	416	201
	540	806	133	775	143	743	154	711	167	679	181	647	197	615	223	420	212

3TW56382-1A

SYMBOLS

CC : Cooling capacity (kW)
PI : Power input (kW)
LWE : Leaving Water Evaporator temperature (°C)
TC : Saturated condensing temperature at compressor (°C)

NOTES

1 Cooling capacity (CAP)
Capacity is according to Eurovent rating standard 6/C/003-2003 and valid for chilled water range Dt = 3 - 8°C.

2 Power input (kW)
Power input is total input according to Eurovent rating standard 6/C/003-2003: Compressor + control circuit.

3 Capacity tables

3 - 2 Capacity tables with glycol for process cooling applications

TC (°C)		30		35		40		45		50		55	
LWE	MODEL	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI	CC	PI
-10	120	63,1	20,9	60,3	23,5	57,2	26,4	53,6	29,6	Out of operating range			
	170	88,7	31,5	85,0	35,0	80,1	38,9	74,2	43,3				
	240	129	42,4	125	46,2	119	50,6	114	55,6				
	260	144	53,6	136	59,1	127	65,1	118	71,9				
	340	177	62,9	170	70,0	160	77,9	148	86,7				
	400	218	73,9	210	81,2	200	89,5	188	98,9				
	480	259	84,8	249	92,4	239	101	228	111				
	500	274	96,0	260	105	246	116	232	127				
	540	289	107	271	118	254	130	236	144				
-5	120	76,3	21,6	73,0	24,1	69,2	26,9	65,1	29,9	60,6	33,3		
	170	107	33,1	103	36,6	97,3	40,5	90,8	44,9	83,2	49,7		
	240	154	44,5	148	48,2	142	52,6	136	57,5	129	63,1		
	260	172	55,1	163	60,5	153	66,4	143	73,1	133	80,3		
	340	214	66,2	205	73,1	195	81,0	182	89,7	166	99		
	400	261	77,6	251	84,8	240	93,1	227	102	212	113		
	480	308	89,0	297	96	285	105	272	115	258	126		
	500	326	99,6	311	109	295	119	279	131	262	143		
	540	344	110	325	121	306	133	286	146	266	161		
-2	120	85,1	22,1	81,4	24,5	77,4	27,2	72,9	30,2	68,1	33,5	62,8	37,1
	170	119	34,2	115	37,6	109	41,5	102	45,9	94,3	50,7	85,3	56,0
	240	171	46,0	165	49,7	158	54,0	151	58,9	144	64,5	136	70,6
	260	191	56,1	181	61,4	170	67,3	160	73,9	149	81,1	139	88,9
	340	238	68,3	229	75,3	218	83,1	204	91,8	189	101	171	112
	400	290	80,1	279	87,3	267	95,5	253	105	238	115	222	127
	480	342	92,0	329	99	316	108	302	118	288	129	273	141
	500	362	102	345	111	328	121	311	133	293	146	275	160
	540	381	112	361	123	341	135	320	148	299	162	277	178
1	120	100	22,6	96,4	25,0	92,3	27,6	88	30,5	83,4	33,8	78,6	37,3
	170	152	35,4	145	38,8	137	42,7	128	47,1	118	51,9	106	57,1
	240	209	47,6	199	51,3	190	55,6	180	60,5	169	66,0	159	72,1
	260	232	57,2	220	62,5	209	68,3	197	74,8	186	82,0	174	89,7
	340	304	70,7	291	77,6	275	85,4	257	94,1	236	104	212	114
	400	361	82,9	345	90,1	327	98	308	108	287	118	265	129
	480	418	95	399	103	379	111	359	121	339	132	318	144
	500	441	105	420	114	398	124	377	135	355	148	333	162
	540	463	114	441	125	418	137	395	150	372	164	348	179

3TW56382-2B

SYMBOLS

CC : Cooling capacity (kW)

PI : Power input (kW)

LWE : Leaving Water Evaporator temperature (°C)

TC : Saturated condensing temperature at compressor (°C)

NOTES

1 Cooling capacity (CAP)
Capacity is according to Eurovent rating standard 6/C/003-2003 and valid for chilled water range Dt = 3 - 8°C.

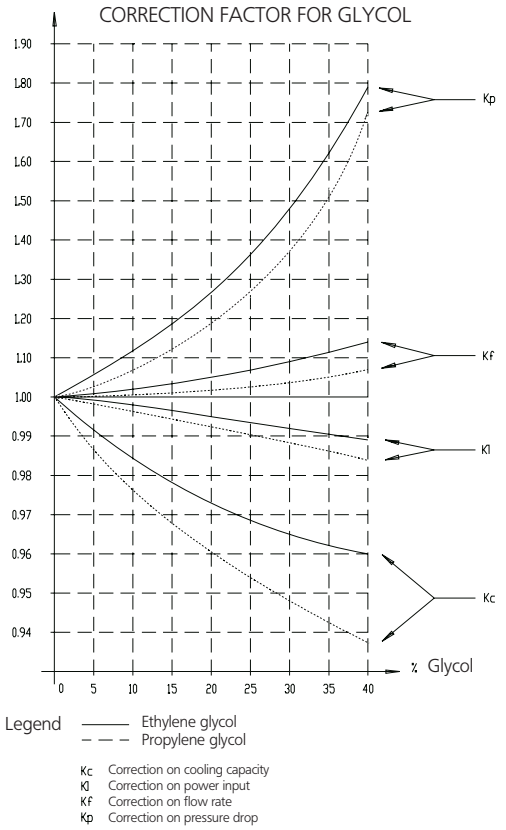
2 Power input (kW)
Power input is total input according to Eurovent rating standard 6/C/003-2003: Compressor + control circuit.

3 Capacity tables

3 - 3 Capacity correction factor

Required glycol concentration

Type	Concentration (wt%)	0	10	20	30	40
Ethylene glycol	Freezing point °C	0	-4	-9	-16	-23
	Minimum LWE °C	4	2	0	-5	-11
Propylene glycol	Freezing point °C	0	-3	-7	-13	-22
	Minimum LWE °C	4	3	-2	-4	-10

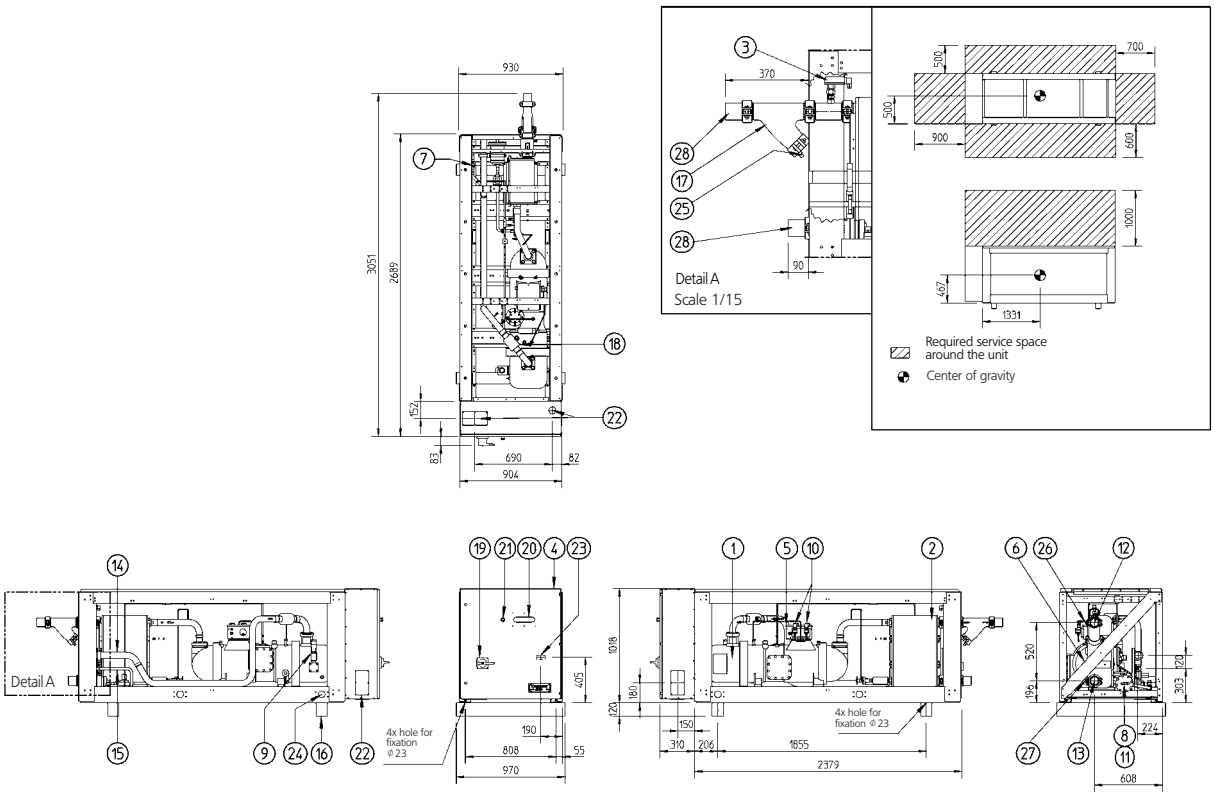


4TW50689-8

4 Dimensional drawing

4 - 1 Dimensional drawing

EWLD120MBYNN



	Evaporator	
Model	In (O.D.)	Out (O.D.)
EWLD120MBYNN	ϕ 76.1	ϕ 76.1

1 Compressor
2 Evaporator
3 Flowswitch
4 Switchbox
5 Compressor switchbox
6 Frame support
7 Ballvalve liquid pipe
8 Charge valve
9 Safety valve
10 High pressure switch
11 Drier
12 Chilled water in
13 Chilled water out
14 Discharge pipe ϕ53.98 x 2.00 (spinning end)
15 Liquid pipe ϕ22.20 x 1.10 (spinning end)
16 Transportbeam
17 Filter (supplied as kit)
18 Discharge stop valve
19 Main isolator switch (Optional)
20 Digital display controller
21 Emergency stop
22 Power supply intake
23 Field wiring intake
24 Holes for lifting
25 Flush plug (ϕ13mm NPT)
26 Evaporator entering water temperature sensor
27 Evaporator leaving water temperature sensor
28 Counterpipes for welding (supplied as kit)

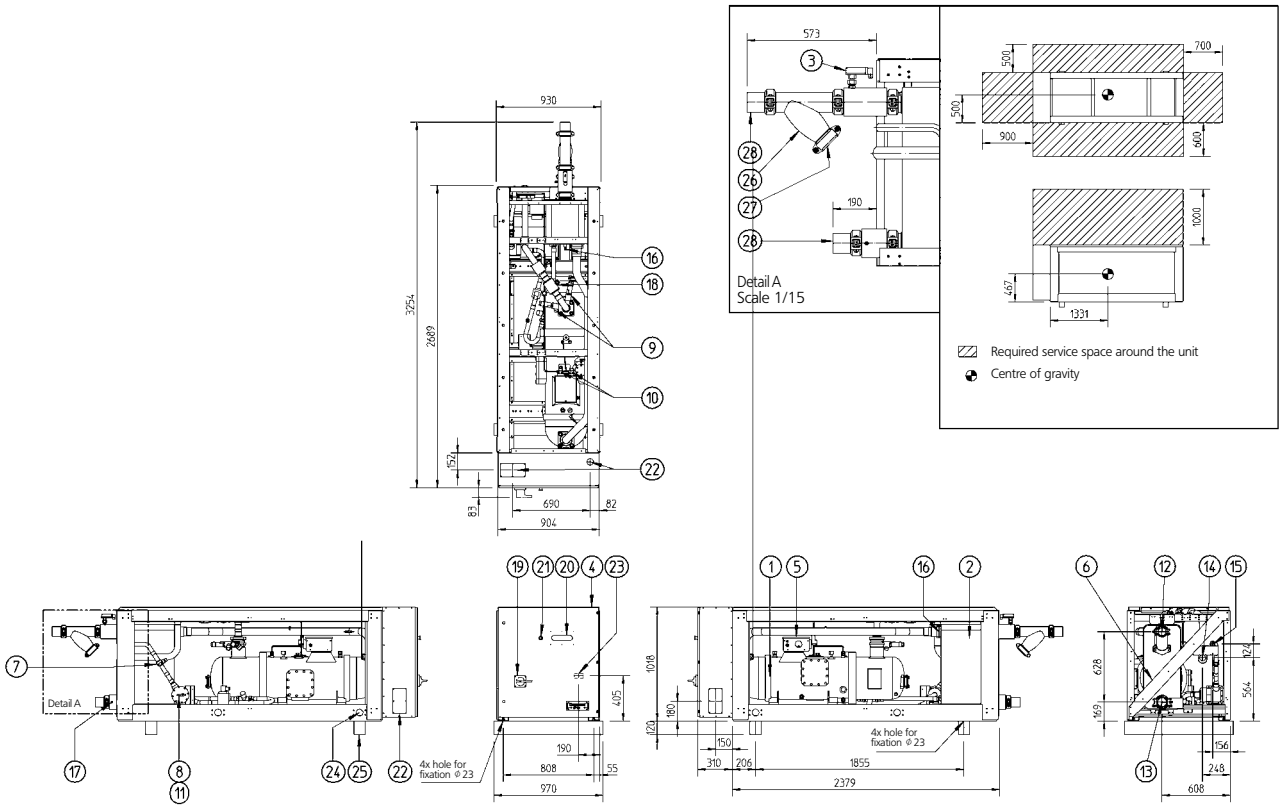
Note for evaporator:
- Inlet counterpipe with flowswitch and temperature sensor is premounted.
- Outlet counterpipe with temperature sensor is premounted.

3TW56384-1

4 Dimensional drawing

4 - 1 Dimensional drawing

EWLD170-260MBYNN



	Evaporator		Piping connection (O.D.)	
Model	In (O.D.)	Out (O.D.)	Discharge	Liquid
EWLD170MBYNN	Φ 88.9	Φ 88.9	Φ 53.98	Φ 28.60
EWLD240MBYNN	Φ 88.9	Φ 88.9	Φ 53.98	Φ 34.90
EWLD260MBYNN	Φ 88.9	Φ 88.9	Φ 66.675	Φ 34.90

1 Compressor
2 Evaporator
3 Flowswitch
4 Switchbox
5 Compressor switchbox
6 Frame support
7 Ballvalve liquid pipe
8 Charge valve
9 Safety valve
10 High pressure switches
11 Drier
12 Chilled water in
13 Chilled water out
14 Discharge pipe (spinning end)
15 Liquid pipe (spinning end)
16 Evaporator entering water temperature sensor
17 Evaporator leaving water temperature sensor
18 Discharge stop valve
19 Main isolator switch (Optional)
20 Digital display controller
21 Emergency stop
22 Power supply intake
23 Field wiring intake
24 Holes for lifting
25 Transportbeam
26 Filter (supplied as kit)
27 Flush plug (Φ 19mm NPT)
28 Counterpipes for welding (supplied as kit)

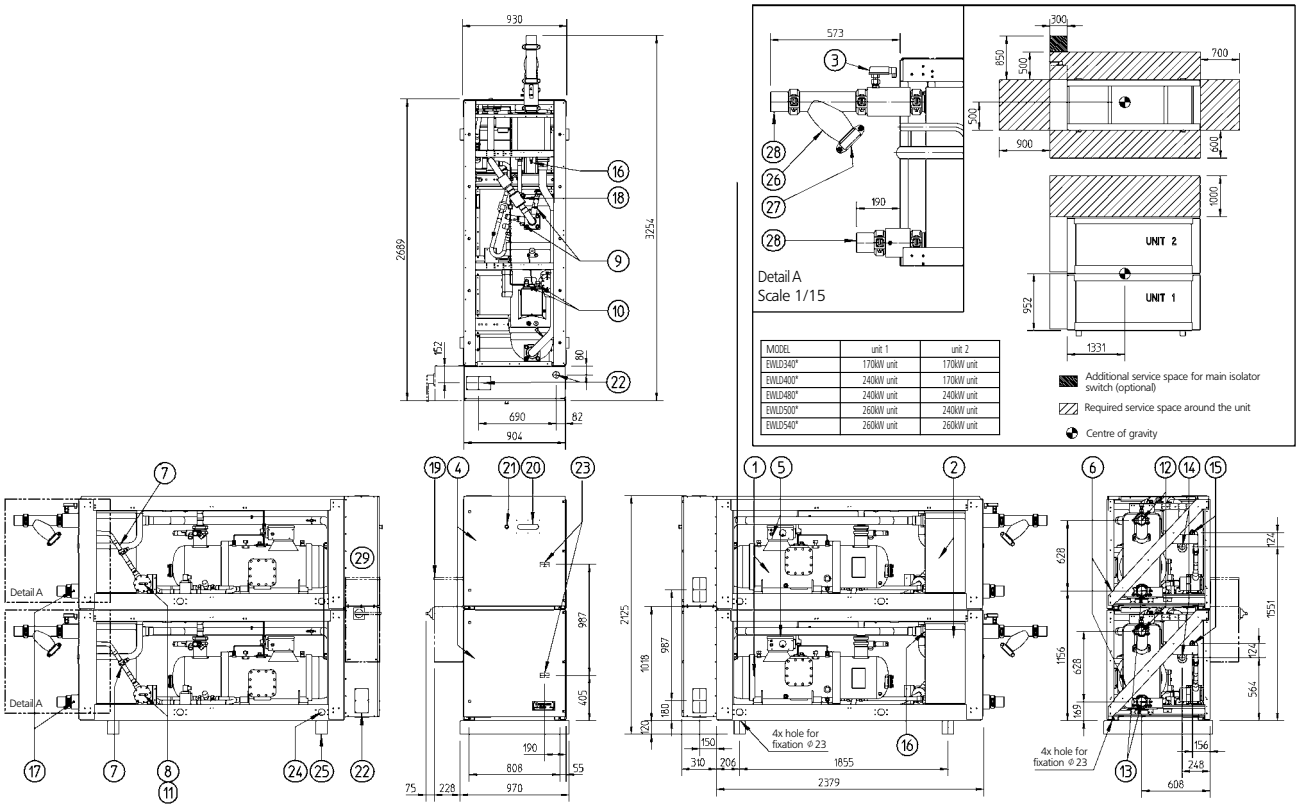
Note:
- Inlet counterpipe with flowswitch is temporary mounted on side of evaporator for transport.
- Outlet counterpipe with temperature sensor is temporary mounted on side of evaporator for transport.

3TW56394-1A

4 Dimensional drawing

4 - 1 Dimensional drawing

EWLD340-540MBYNN



MODEL	unit 1	unit 2
EWLD340*	170kW unit	170kW unit
EWLD400*	240kW unit	170kW unit
EWLD480*	240kW unit	240kW unit
EWLD500*	260kW unit	240kW unit
EWLD540*	260kW unit	260kW unit

	Evaporator		Piping connection (O.D.)	
Model	In (O.D.)	Out (O.D.)	Discharge	Liquid
EWLD340MBYNN	Φ 88.9	Φ 88.9	2xΦ 53.98	2xΦ 28.60
EWLD400MBYNN	Φ 88.9	Φ 88.9	2xΦ 53.98	Φ 28.60/ Φ 34.90
EWLD480MBYNN	Φ 88.9	Φ 88.9	2xΦ 53.98	2xΦ 34.90
EWLD500MBYNN	Φ 88.9	Φ 88.9	Φ 53.98/ Φ 66.675	2xΦ 34.90
EWLD540MBYNN	Φ 88.9	Φ 88.9	2xΦ 66.675	2xΦ 34.90

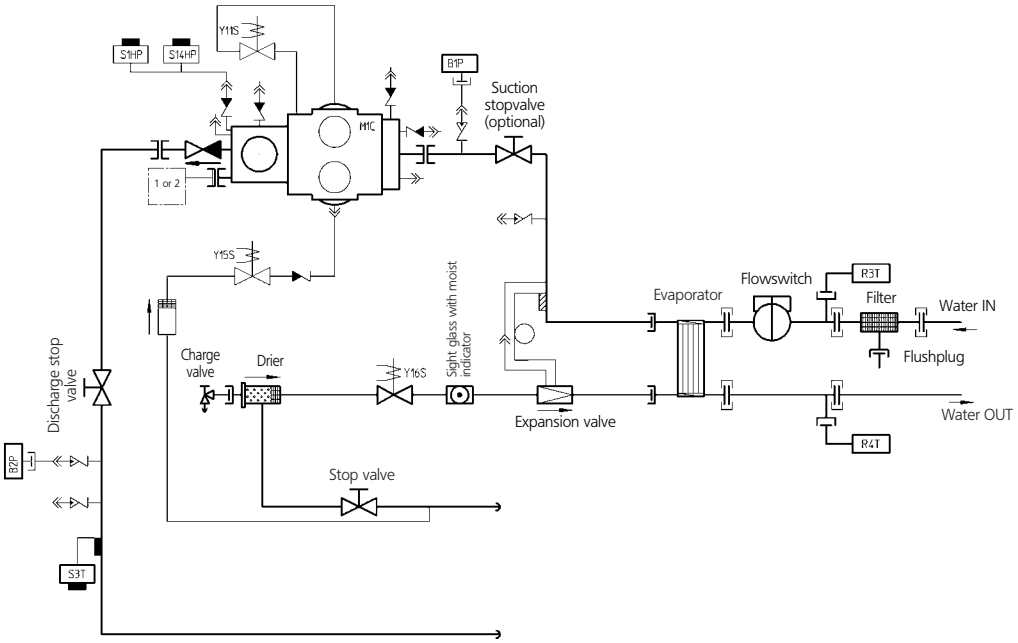
1 Compressor
2 Evaporator
3 Flowswitch
4 Switchbox
5 Compressor switchbox
6 Frame support
7 Ballvalve liquid pipe
8 Charge valve
9 Safety valve
10 High pressure switches
11 Drier
12 Chilled water in
13 Chilled water out
14 Discharge pipe (spinning end)
15 Liquid pipe (spinning end)
16 Evaporator entering water temperature sensor
17 Evaporator leaving water temperature sensor
18 Discharge stop valve
19 Main isolator switch (Optional)
20 Digital display controller
21 Emergency stop
22 Power supply intake
23 Field wiring intake
24 Holes for lifting
25 Transportbeam
26 Filter (supplied as kit)
27 Flush plug (Φ 19mm NPT)
28 Counterpipes for welding (supplied as kit)
29 Mixed outlet water temperature sensor (rolled up in switchbox)

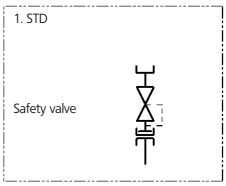
Note:
- Inlet counterpipe with flowswitch is temporary mounted on side of evaporator for transport.
- Outlet counterpipe with temperature sensor is temporary mounted on side of evaporator for transport.

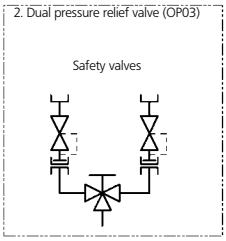
3TW56424-1A

5 Piping diagram

EWLD120-170MBYNN







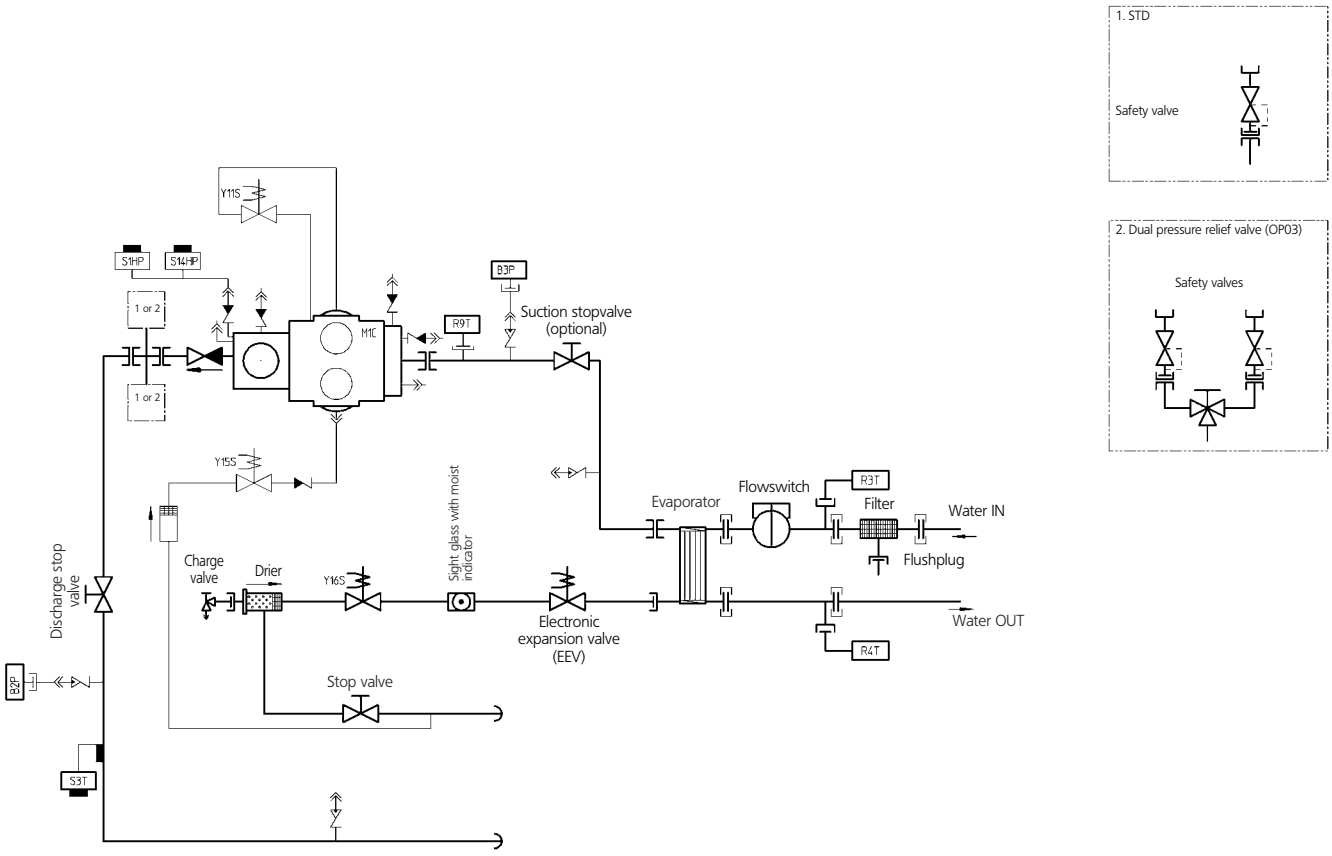
M1C	Compressor motor 1
S1HP	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
B1P	Low pressure transmitter
B2P	High pressure transmitter
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56385-1

5 Piping diagram

EWLD240-260MBYNN



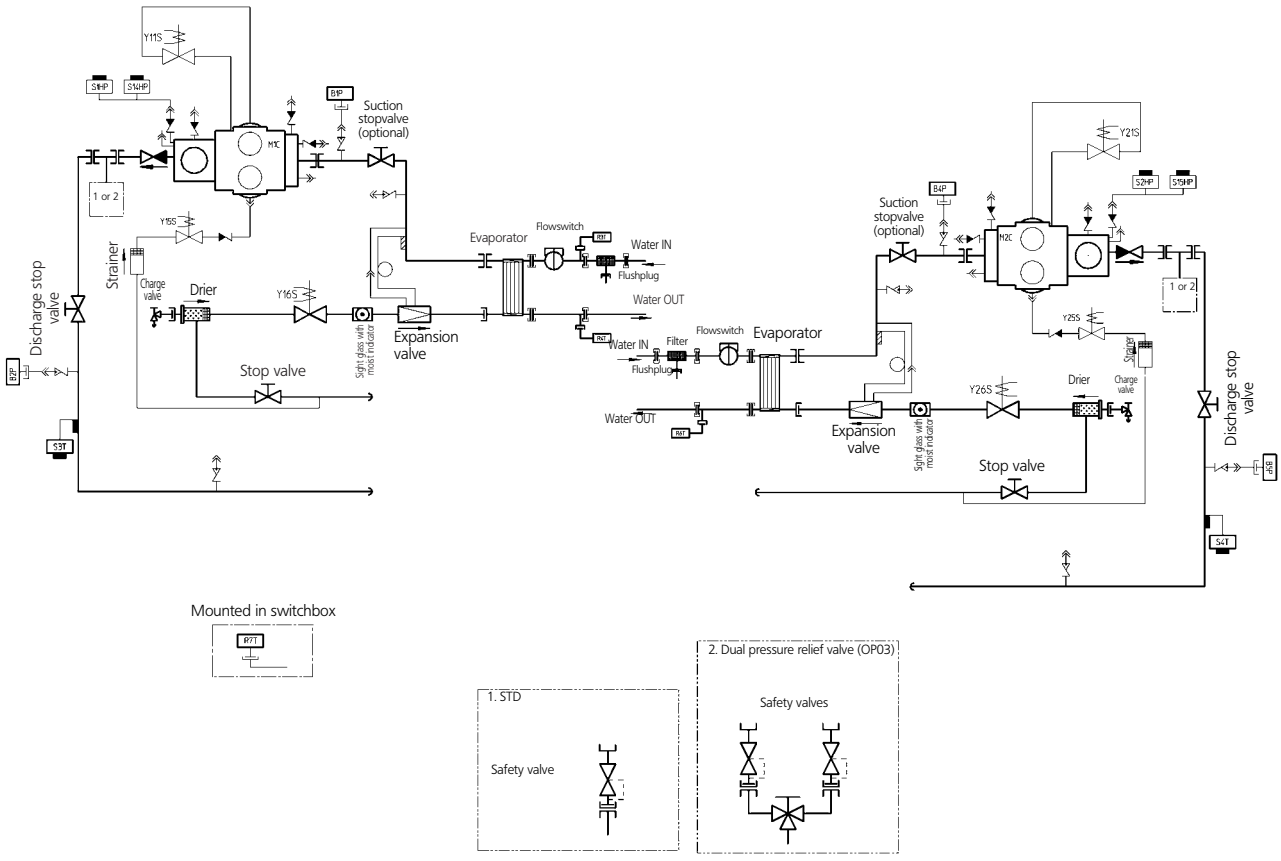
M1C	Compressor motor 1
S1HP	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R9T	EEV temperature sensor
B2P	High pressure transmitter
B3P	EEV low pressure sensor
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56405-1

5 Piping diagram

EWLD340MBYNN



M1C	Compressor motor 1
S1HP	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
B1P	Low pressure transmitter
B2P	High pressure transmitter
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

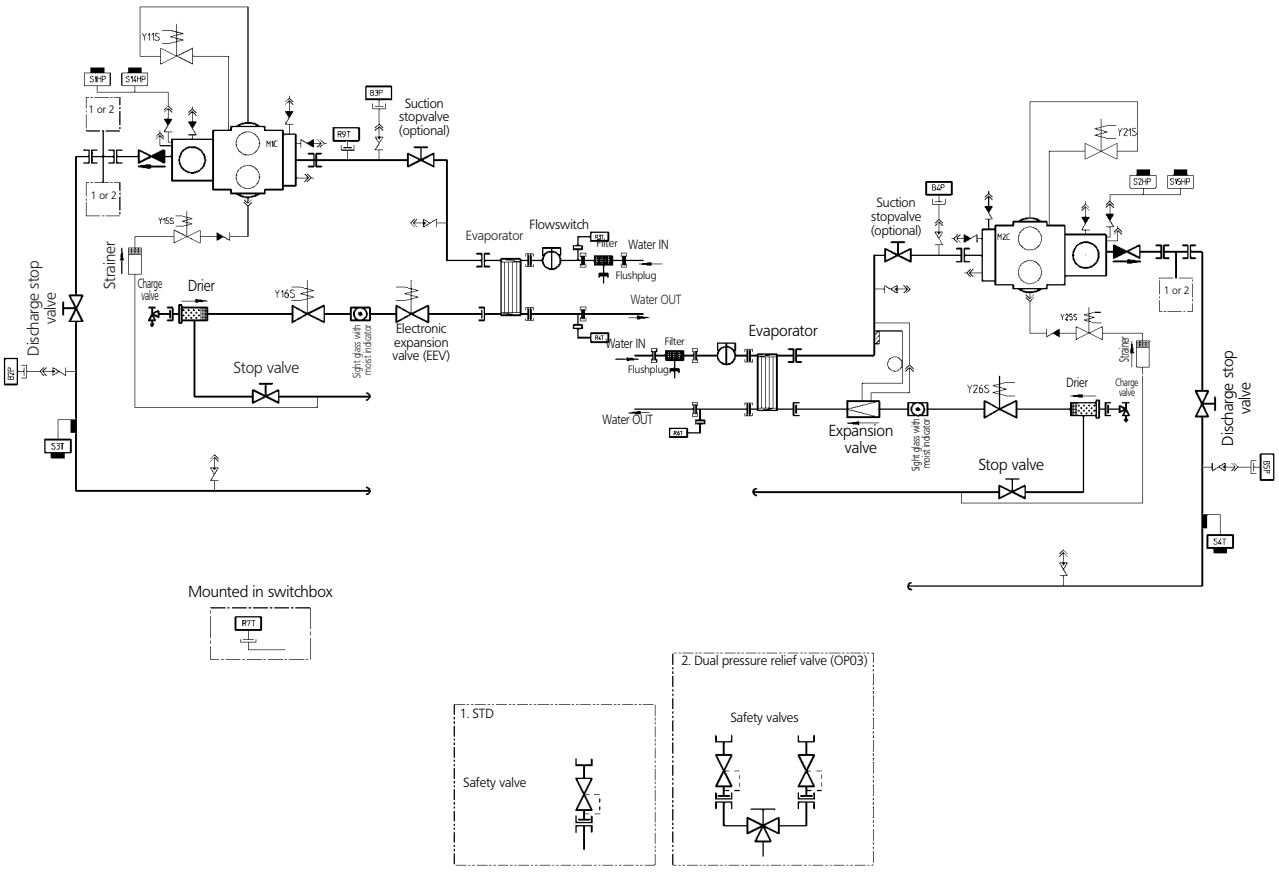
M2C	Compressor motor 2
S2PH	High pressure switch
S15HP	High pressure switch
S4T	Discharge temperature controller
R6T	Outlet water evap. temp. sensor
R7T	Mixed outlet water temp. sensor
B4P	Low pressure transmitter
B5P	High pressure transmitter
Y21S	Unloader solenoid valve
Y25S	Liquid injection solenoid valve
Y26S	Liquid line solenoid valve

- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56425-1

5 Piping diagram

EWLD400MBYNN



M1C	Compressor motor 1
S1HP	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R9T	EEV temperature sensor
B2P	High pressure transmitter
B3P	EEV low pressure sensor
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

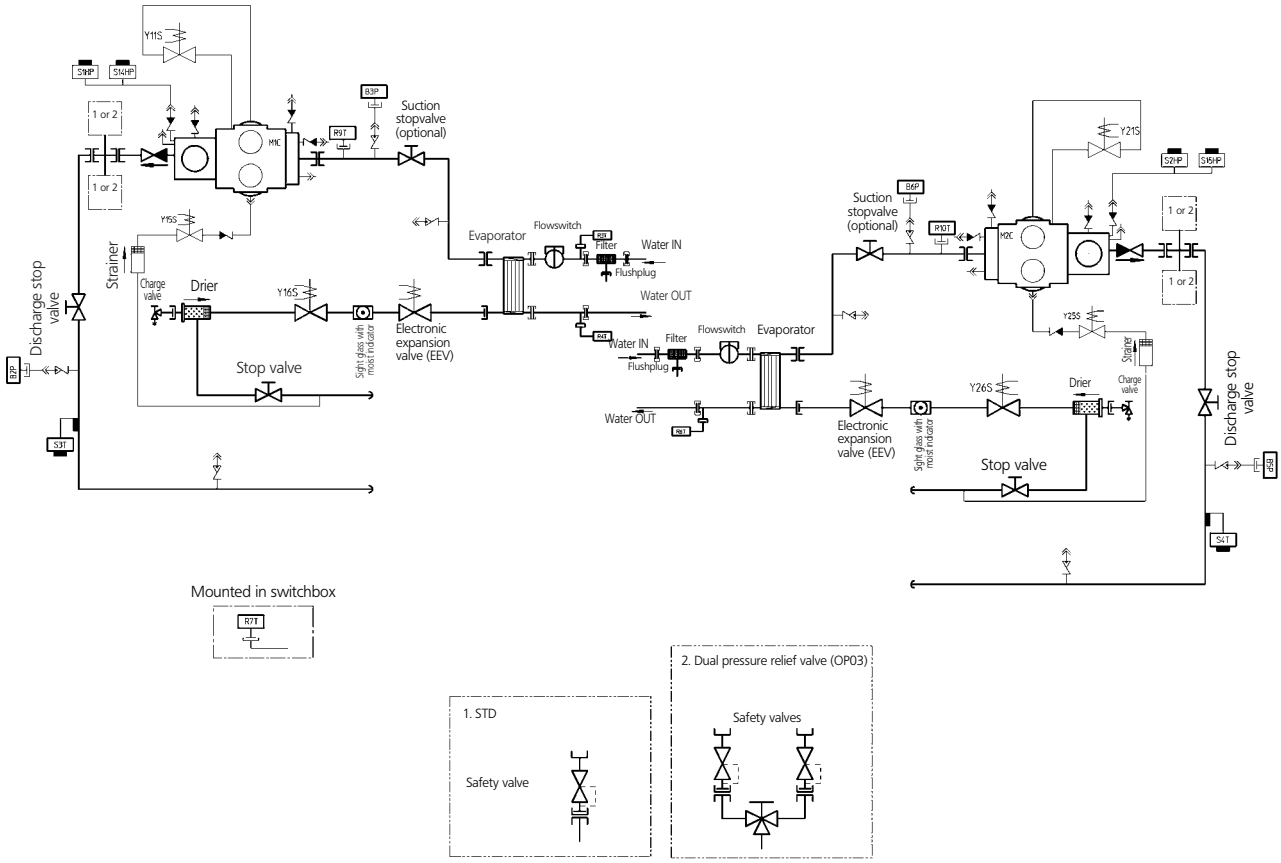
M2C	Compressor motor 2
S2PH	High pressure switch
S15HP	High pressure switch
S4T	Discharge temperature controller
R6T	Outlet water evap. temp. sensor
R7T	Mixed outlet water temp. sensor
B4P	Low pressure transmitter
B5P	High pressure transmitter
Y21S	Unloader solenoid valve
Y25S	Liquid injection solenoid valve
Y26S	Liquid line solenoid valve

	Check valve
	Flare connection
	Screw connection
	Flange connection
	Pinched pipe
	Spinned pipe

3TW56435-1

5 Piping diagram

EWLD480-540MBYNN



M1C	Compressor motor 1
S1HP	High pressure switch
S14HP	High pressure switch
S3T	Discharge temperature controller
R3T	Inlet water evap. temp. sensor
R4T	Outlet water evap. temp. sensor
R9T	EEV temperature sensor
B2P	High pressure transmitter
B3P	EEV low pressure sensor
Y11S	Unloader solenoid valve
Y15S	Liquid injection solenoid valve
Y16S	Liquid line solenoid valve

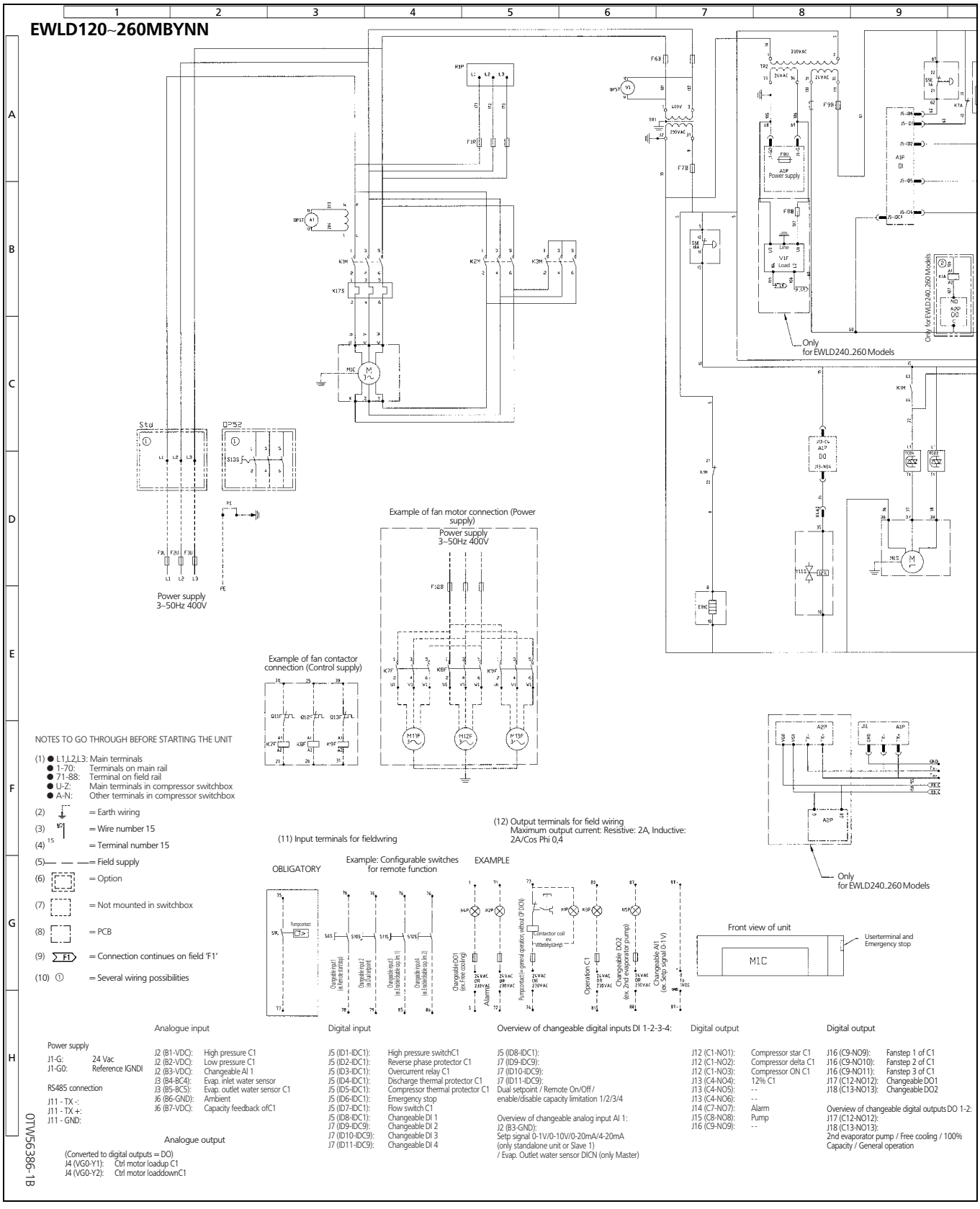
M2C	Compressor motor 2
S2PH	High pressure switch
S15HP	High pressure switch
S4T	Discharge temperature controller
R6T	Outlet water evap. temp. sensor
R7T	Mixed outlet water temp. sensor
R10T	EEV temperature sensor
B5P	High pressure transmitter
B6P	EEV low pressure sensor
Y21S	Unloader solenoid valve
Y25S	Liquid injection solenoid valve
Y26S	Liquid line solenoid valve

- Check valve
- Flare connection
- Screw connection
- Flange connection
- Pinched pipe
- Spinned pipe

3TW56445-1

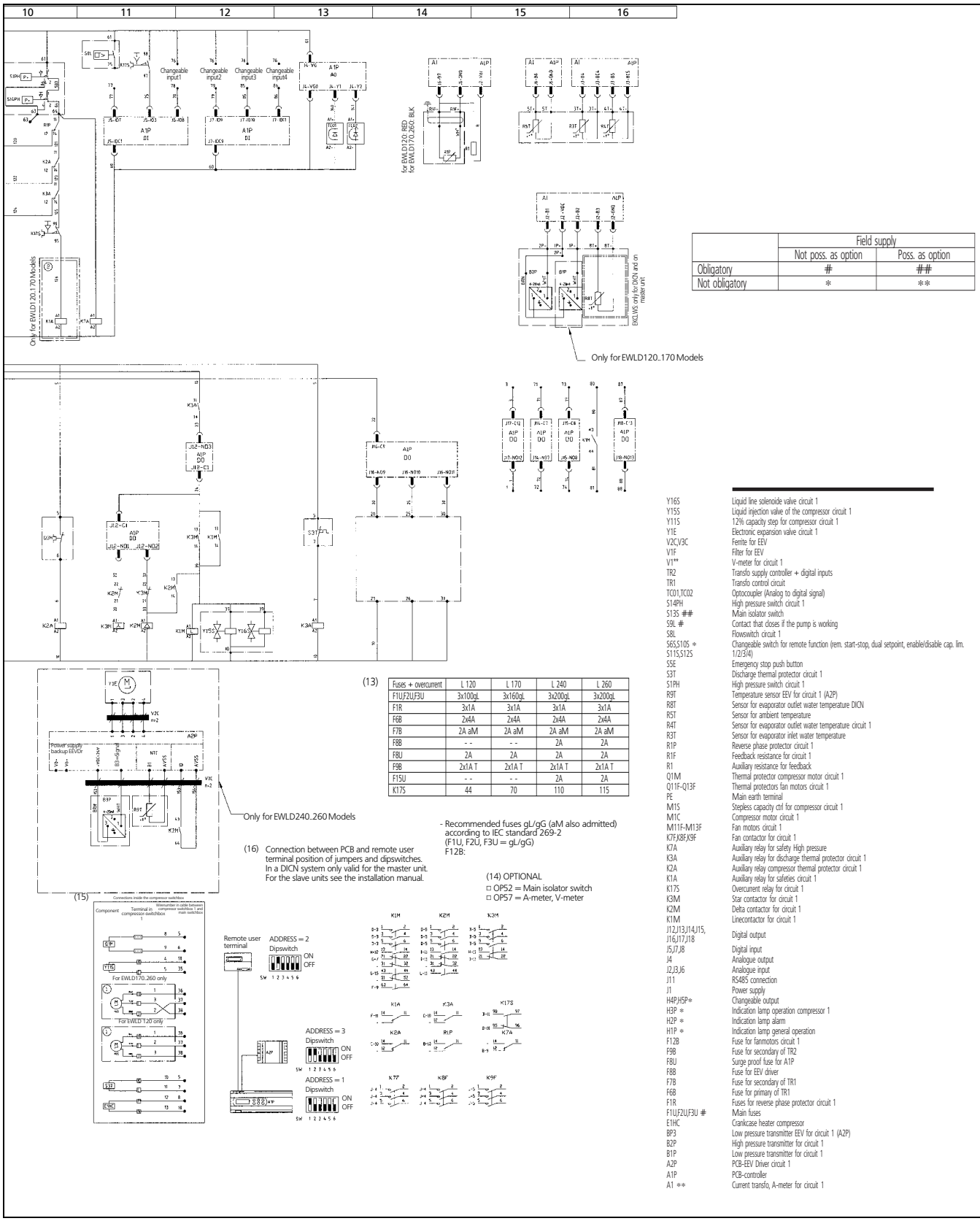
6 Wiring diagram

6 - 1 Wiring diagram



6 Wiring diagram

6 - 1 Wiring diagram



	Field supply	
	Not poss. as option	Poss. as option
Obligatory	#	##
Not obligatory	*	**

Fuses + overcurrent	L 120	L 170	L 240	L 260
F1U,F2U,F3U	3x100gL	3x160gL	3x200gL	3x200gL
F1R	3x1A	3x1A	3x1A	3x1A
F6B	2x4A	2x4A	2x4A	2x4A
F7B	2A aM	2A aM	2A aM	2A aM
F8B	- -	- -	2A	2A
F8U	2A	2A	2A	2A
F9B	2x1A T	2x1A T	2x1A T	2x1A T
F15U	- -	- -	2A	2A
K17S	44	70	110	115

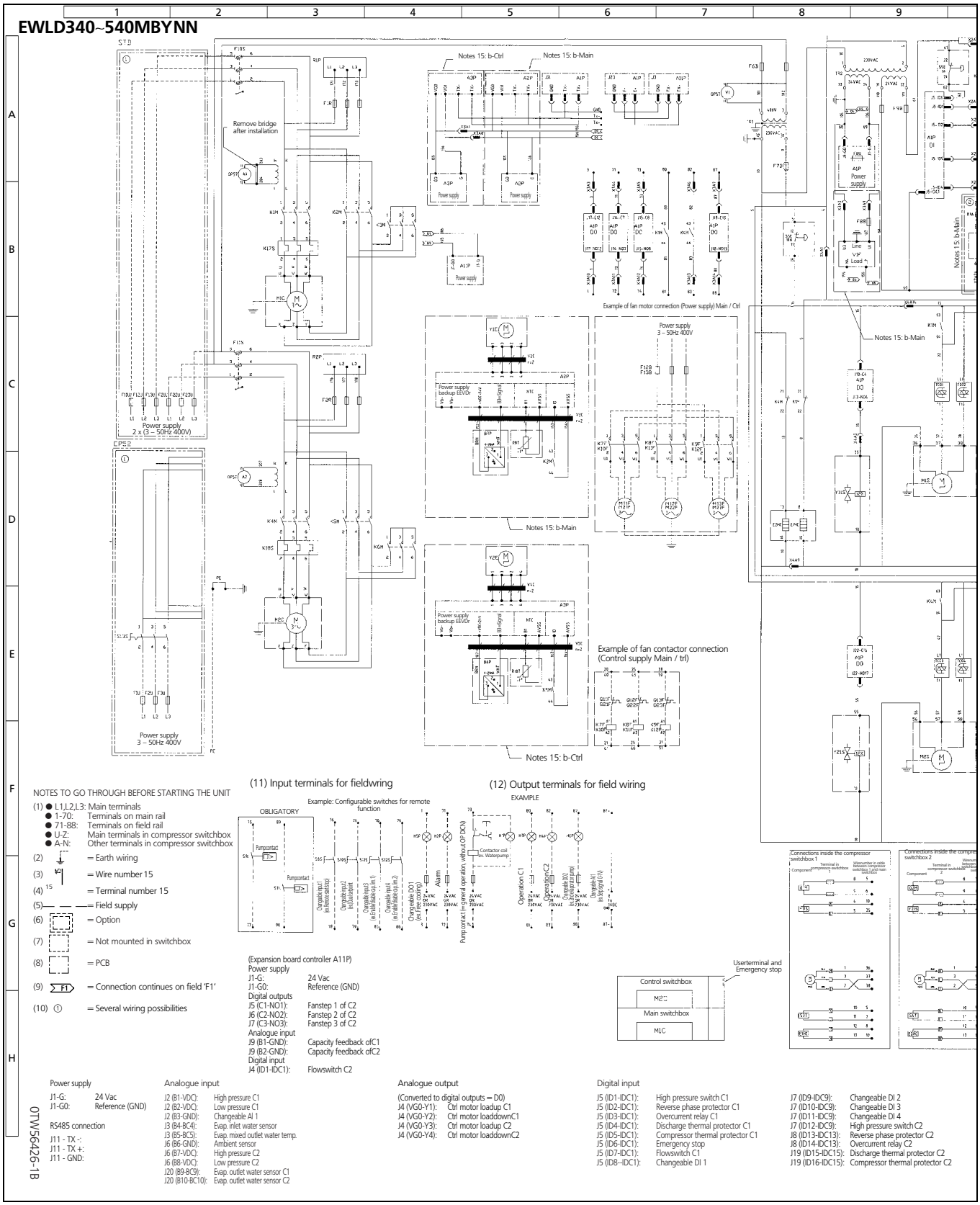
- Recommended fuses gL/gG (aM also admitted) according to IEC standard 269-2 (F1U, F2U, F3U = gL/gG)
F12B:

Y16S	Liquid line solenoide valve circuit 1
Y15S	Liquid injection valve of the compressor circuit 1
Y11S	12% capacity step for compressor circuit 1
Y1E	Electronic expansion valve circuit 1
V2C,V3C	Ferrite for EEV
V1F	Filter for EEV
V1**	V-meter for circuit 1
TR2	Transfo supply controller + digital inputs
TR1	Transfo control circuit
TC01,TC02	Optocoupler (Analog to digital signal)
S14PH	High pressure switch circuit 1
S13S ##	Main isolator switch
S9L #	Contact that closes if the pump is working
S8L	Flowswitch circuit 1
S6S,S10S * S11S,S12S	Changeable switch for remote function (rem. start-stop, dual setpoint, enable/disable cap. lim. 1/2/3/4)
S5E	Emergency stop push button
S3T	Discharge thermal protector circuit 1
S1PH	High pressure switch circuit 1
R9T	Temperature sensor EEV for circuit 1 (A2P)
R8T	Sensor for evaporator outlet water temperature DICN
R5T	Sensor for ambient temperature
R4T	Sensor for evaporator outlet water temperature circuit 1
R3T	Sensor for evaporator inlet water temperature
R1P	Reverse phase protector circuit 1
R1F	Feedback resistance for circuit 1
R1	Auxiliary resistance for feedback
Q1M	Thermal protector compressor motor circuit 1
Q11F-Q13F	Thermal protectors fan motors circuit 1
PE	Main earth terminal
M1S	Stepless capacity ctrl for compressor circuit 1
M1C	Compressor motor circuit 1
M11F-M13F	Fan motors circuit 1
K7F,K8F,K9F	Fan contactor for circuit 1
K7A	Auxiliary relay for safety High pressure
K3A	Auxiliary relay for discharge thermal protector circuit 1
K2A	Auxiliary relay compressor thermal protector circuit 1
K1A	Auxiliary relay for safeties circuit 1
K17S	Overcurrent relay for circuit 1
K3M	Star contactor for circuit 1
K2M	Delta contactor for circuit 1
K1M	Linecontactor for circuit 1
J12,J13,J14,J15, J16,J17,J18	Digital output
J5,J7,J8	Digital input
J4	Analogue output
J2,J3,J6	Analogue input
J11	RS485 connection
J1	Power supply
H4P,H5P*	Changeable output
H3P *	Indication lamp operation compressor 1
H2P *	Indication lamp alarm
H1P *	Indication lamp general operation
F12B	Fuse for fanmotors circuit 1
F9B	Fuse for secondary of TR2
F8U	Surge proof fuse for A1P
F8B	Fuse for EEV driver
F7B	Fuse for secondary of TR1
F6B	Fuse for primary of TR1
F1R	Fuses for reverse phase protector circuit 1
F1U,F2U,F3U #	Main fuses
E1HC	Crankcase heater compressor
BP3	Low pressure transmitter EEV for circuit 1 (A2P)
B2P	High pressure transmitter for circuit 1
B1P	Low pressure transmitter for circuit 1
A2P	PCB-EEV Driver circuit 1
A1P	PCB-controller
A1 **	Current transfo, A-meter for circuit 1

6 Wiring diagram

6 - 1 Wiring diagram

EWLD340~540MBYNN



NOTES TO GO THROUGH BEFORE STARTING THE UNIT

(1) ● L1,L2,L3: Main terminals
● 1-70: Terminals on main rail
● 71-88: Terminals on field rail
● U-Z: Main terminals in compressor switchbox
● A-N: Other terminals in compressor switchbox
(2) = Earth wiring
(3) = Wire number 15
(4) = Terminal number 15
(5) = Field supply
(6) = Option
(7) = Not mounted in switchbox
(8) = PCB
(9) = Connection continues on field 'F1'
(10) = Several wiring possibilities

(11) Input terminals for fieldwring

(12) Output terminals for field wiring

(Expansion board controller A11P)

Power supply
J1-G: 24 Vac
J1-G0: Reference (GND)
Digital outputs
J5 (C1-NO1): Fanstep 1 of C2
J6 (C2-NO2): Fanstep 2 of C2
J7 (C3-NO3): Fanstep 3 of C2
Analogue input
J9 (B1-GND): Capacity feedback ofC1
J9 (B2-GND): Capacity feedback ofC2
Digital input
J4 (ID1-IDC1): Flowswitch C2

Power supply
J1-G: 24 Vac
J1-G0: Reference (GND)

RS485 connection
J11 - TX -:
J11 - TX +:
J11 - GND:

Analogue input
J2 (B1-VDC): High pressure C1
J2 (B2-VDC): Low pressure C1
J2 (B3-GND): Changeable AI 1
J3 (B4-BC4): Evap. inlet water sensor
J3 (B5-BC5): Evap. mixed outlet water temp.
J6 (B6-GND): Ambient sensor
J6 (B7-VDC): High pressure C2
J6 (B8-VDC): Low pressure C2
J20 (B9-BC9): Evap. outlet water sensor C1
J20 (B10-BC10): Evap. outlet water sensor C2

Analogue output
(Converted to digital outputs = D0)
J4 (VG0-Y1): Ctrl motor loadup C1
J4 (VG0-Y2): Ctrl motor loaddownC1
J4 (VG0-Y3): Ctrl motor loadup C2
J4 (VG0-Y4): Ctrl motor loaddownC2

Digital input
J5 (ID1-IDC1): High pressure switch C1
J5 (ID2-IDC1): Reverse phase protector C1
J5 (ID3-IDC1): Overcurrent relay C1
J5 (ID4-IDC1): Discharge thermal protector C1
J5 (ID5-IDC1): Compressor thermal protector C1
J5 (ID6-IDC1): Emergency stop
J5 (ID7-IDC1): Flowswitch C1
J5 (ID8--IDC1): Changeable DI 1
J7 (ID9-IDC9): Changeable DI 2
J7 (ID10-IDC9): Changeable DI 3
J7 (ID11-IDC9): Changeable DI 4
J7 (ID12-IDC9): High pressure switch C2
J8 (ID13-IDC13): Reverse phase protector C2
J8 (ID14-IDC13): Overcurrent relay C2
J19 (ID15-IDC15): Discharge thermal protector C2
J19 (ID16-IDC15): Compressor thermal protector C2

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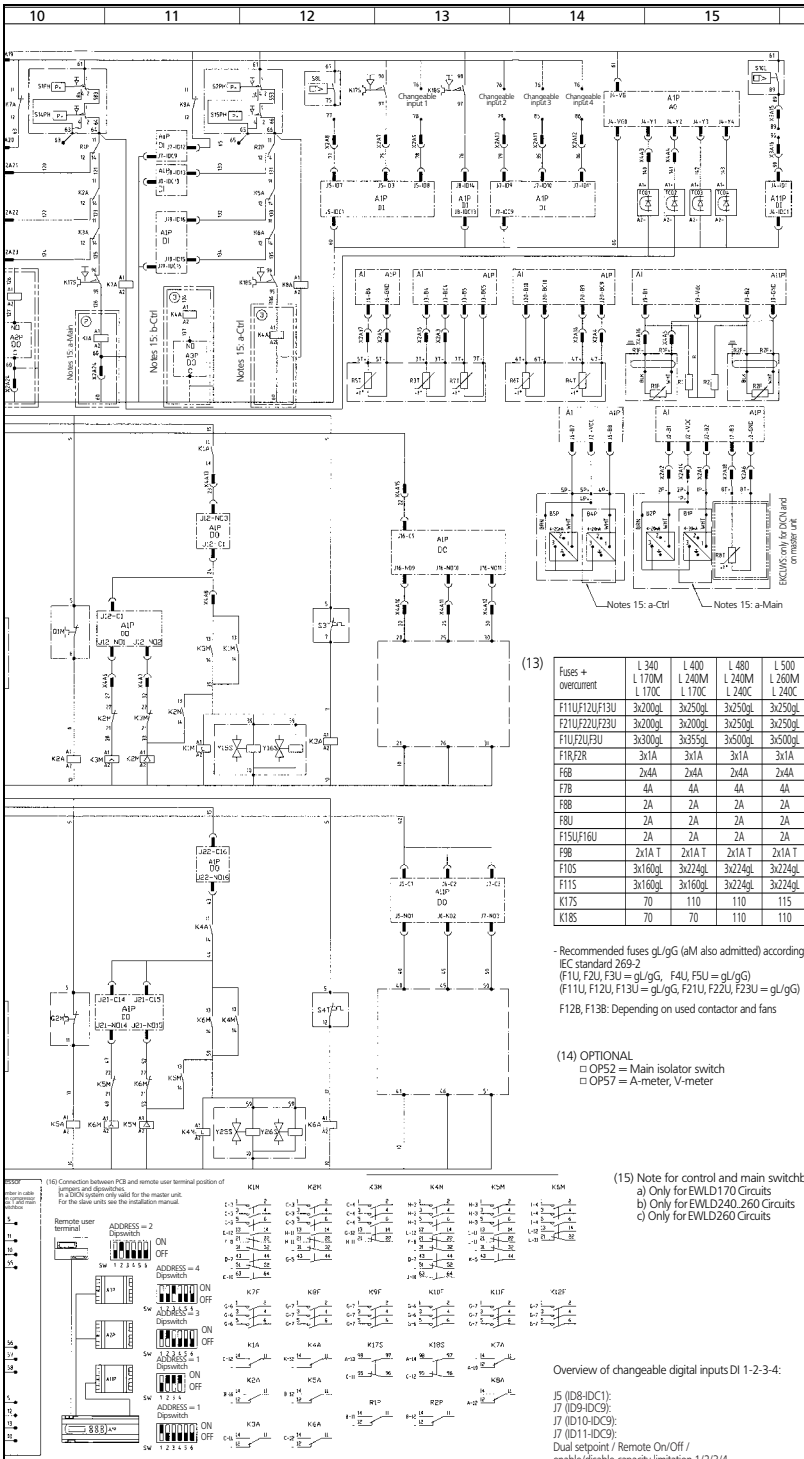


	Field supply	
	Not poss. as option	Poss. as option
Obligatory	#	##
Not obligatory	*	**

(13)

Fuses + overcurrent	L 340 L 170M L 170C	L 400 L 240M L 170C	L 480 L 240M L 240C	L 500 L 260M L 240C	L 540 L 260M L 260C
F11U,F12U,F13U	3x200gL	3x250gL	3x250gL	3x250gL	3x250gL
F21U,F22U,F23U	3x200gL	3x200gL	3x250gL	3x250gL	3x250gL
F1U,F2U,F3U	3x300gL	3x355gL	3x500gL	3x500gL	3x500gL
F1R,F2R	3x1A	3x1A	3x1A	3x1A	3x1A
F6B	2x4A	2x4A	2x4A	2x4A	2x4A
F7B	4A	4A	4A	4A	4A
F8B	2A	2A	2A	2A	2A
F8U	2A	2A	2A	2A	2A
F15U,F16U	2A	2A	2A	2A	2A
F9B	2x1A T	2x1A T	2x1A T	2x1A T	2x1A T
F10S	3x160gL	3x224gL	3x224gL	3x224gL	3x224gL
F11S	3x160gL	3x160gL	3x224gL	3x224gL	3x224gL
K17S	70	110	110	115	115
K18S	70	70	110	110	115

- Recommended fuses gL/gG (aM also admitted) according to IEC standard 269-2
(F1U, F2U, F3U = gL/gG, F4U, F5U = gL/gG)
(F11U, F12U, F13U = gL/gG, F21U, F22U, F23U = gL/gG)

F12B, F13B: Depending on used contactor and fans

(14) OPTIONAL
□ OPS2 = Main isolator switch
□ OPS7 = A-meter, V-meter

(15) Note for control and main switchbox
a) Only for EWLD170 Circuits
b) Only for EWLD240..260 Circuits
c) Only for EWLD260 Circuits

Digital output

J12 (C1-NO1):	Compressor star C1	J16 (C9-NO10):	Fanstep 2 of C1
J12 (C1-NO2):	Compressor delta C1	J16 (C9-NO11):	Fanstep 3 of C1
J12 (C1-NO3):	Compressor ON C1	J17 (C12-NO12):	Changeable DO 1
J13 (C4-NO4):	12% C1	J18 (C13-NO13):	Changeable DO 2
J13 (C4-NO5):	--	J21 (C14-NO14):	Compressor star C2
J13 (C4-NO6):	--	J21 (C15-NO15):	Compressor delta C2
J14 (C7-NO7):	Alarm	J22 (C16-NO16):	Compressor ON C2
J15 (C8-NO8):	Pump	J22 (C16-NO17):	12% C2
J16 (C9-NO9):	Fanstep 1 of C1	J22 (C16-NO18):	--

Overview of changeable digital inputs DI 1-2-3-4:

J5 (ID8-IDC1):
J7 (ID9-IDC9):
J7 (ID10-IDC9):
J7 (ID11-IDC9):
Dual setpoint / Remote On/Off /
enable/disable capacity limitation 1/2/3/4

Overview of changeable digital outputs DO 1-2:
J17 (C12-NO12):
J18 (C13-NO13):
2nd evaporator pump / General operation / 100% Capacity / Free cooling

Overview of changeable analog input AI 1
J2 (B3-GND):
Setp signal 0-1V/0-10V/0-20mA/4-20mA
(only standalone unit or Slave 1)
/ Evap. Outlet water sensor DICN (only Master)

Y16S,Y26S	Liquid line solenoide valve circuit 1, circuit 2
Y15S,Y25S	Liquid injection valve of the compressor circuit 1, circuit 2
Y11S,Y21S	12% capacity step for compressor circuit 1, circuit 2
Y1E,Y2E	Electronic expansion valve circuit 1, circuit 2
X2A,X3A,X4A	Connector 24, 20, 16 pole to Main Switchbox
V2C-V5C	Ferrite for EEV
V1F	Filter for EEV
V1**	V-meter forcircuit 1-2
TR2	Transfo supply controller + digital inputs
TR1	Transfo control circuit
TC01..TC04	Optocoupler (Analog to digital signal)
S14PH,S15PH	High pressure switch circuit 1, circuit 2
S13S ##	Main isolator switch
S9L,S11L #	Contact that closes if the pump is working
S8L,S10L	Flow switch circuit 1, circuit 2
S6S,S10S *	Configurable switch for remote function (rem. start-stop, dual setpoint, enable/disable cap. lim. 1/2/3/4)
S11S,S12S	
S5E	Emergency stop push button
S3T,S4T	Discharge thermal protector circuit 1, circuit 2
S1PH,S2PH	High pressure switch circuit 1, circuit 2
R9T,R10T	Temperature sensor EEV for circuit 1 (A2P), circuit 2 (A3P)
R8T	Sensor for evaporator outlet water temperature DICN
R7T	Sensor for mixed outlet water temperature
R6T	Sensor for evaporator outlet water temperature circuit 2
R5T	Sensor for ambient temperature
R4T	Sensor for evaporator outlet water temperature circuit 1
R3T	Sensor for evaporator inlet water temperature
R1P,R2P	Reverse phase protector circuit 1, circuit 2
R1F,R2F	Feedback resistance for circuit 1, circuit 2
R1,R2	Auxiliary resistance for feedback
Q1M,Q2M	Thermal protector compressor motor circuit 1, circuit 2
Q21F-Q26F	Thermal protectors fan motors circuit 2
Q11F-Q16F	Thermal protectors fan motors circuit 1
PE	Main earth terminal
M1S,M2S	Stepless capacity ctrl for compressor circuit 1, circuit
M1C,M2C	Compressor motor circuit 1, circuit 2
M21F-M26F	Fan motors circuit 2
M11F-M16F	Fan motors circuit 1
K7A,K8A	Auxiliary relay for safety High pressure circuit 1, circuit 2
K3A,K6A	Auxiliary relay for discharge thermal protector circuit 1, circuit 2
K2A,K5A	Auxiliary relay compressor thermal protector circuit 1, circuit 2
K1A,K4A	Auxiliary relay for safeties circuit 1, circuit 2
K17S,K18S	Overcurrent relay for circuit 1, circuit 2
K9F,K12F	Fan contactor for circuit 1, circuit 2
K8F, K11F	Fan contactor for circuit 1, circuit 2
K7F,K10F	Fan contactor for circuit 1, circuit 2
K3M,K6M	Star contactor for circuit 1, circuit 2
K2M,K5M	Delta contactor for circuit 1, circuit 2
K1M,K4M	Linecontactor for circuit 1, circuit 2
J12..J18	Digital output
J21,J22	
J5,J7,J8,J19	Digital input
J4	Analogue output
J2,J3,J6,J20	Analogue input
J11,J23	RS485 connection
J1	Power supply
H5P,H6P *	Changeable output
H4P *	Indication lamp operation compressor 2
H3P *	Indication lamp operation compressor 1
H2P *	Indication lamp alarm
H1P *	Indication lamp general operation
F12B,F13B	Fuse for fanmotors circuit 1, circuit 2
F10S,F11S	Circuit breakers with fuses for circuit 1, circuit 2
F9B	Fuse for secondary of TR2
F8U	Surge proof fuse for A1P
F8B	Fuse for EEV driver
F7B	Fuse for secondary of TR1
F6B	Fuse for primary of TR1
F1R,F2R	Fuses for reverse phase protector circuit 1, circuit 2
F21U..F23U #	Main fuses
F11U..F13U #	Main fuses
F1U,F2U,F3U #	Main fuses
E1HC,E2HC	Crankcase heater compressor circuit 1, circuit 2
C11,C21	Capacitor for capacity control
B3P,B6P	Low pressure transmitter for circuit 1 (A2P), circuit 2 (A3P)
B2P,B5P	High pressure transmitter for circuit 1, circuit 2
B1P,B4P	Low pressure transmitter for circuit 1, circuit 2
A11P	Expansion board controller
A2P,A3P	PCB-EEV Driver circuit 1, circuit 2
A1P	PCB-controller
A1,A2 **	Current transfo / A-meter for circuit 1, circuit 2

7 Sound data

7 - 1 Sound power spectrum

	63	125	250	500	1000	2000	4000	8000	LWA
EWWD120/EWLD120	68	71	90	80	83	78	69	61	87
EWWD180/EWLD170	101	91	90	87	90	86	68	65	93
EWWD240/EWLD240	101	91	90	88	92	82	69	66	94
EWWD280/EWLD260	97	89	85	87	91	81	68	65	93
EWWD360/EWLD340	104	94	93	90	93	89	71	68	96
EWWD440/EWLD400	103	93	92	90	93	87	71	68	96
EWWD500/EWLD480	103	93	92	90	94	84	71	68	96
EWWD520/EWLD500	102	92	90	90	94	84	71	68	96
EWWD540/EWLD540	100	92	88	90	94	84	71	68	96

Notes:
- Data valid at nominal operation condition
- According Eurovent 8-1 (Based on ISO3744)

4TW56297-1A

7 Sound data

7 - 2 Sound power spectrum quiet mode

	Total (dBA)
	LwA
EWLD120	81
EWLD170	87
EWLD240	88
EWLD260	87
EWLD340	90
EWLD400	90
EWLD480	90
EWLD500	90
EWLD540	90

4TW56297-10A

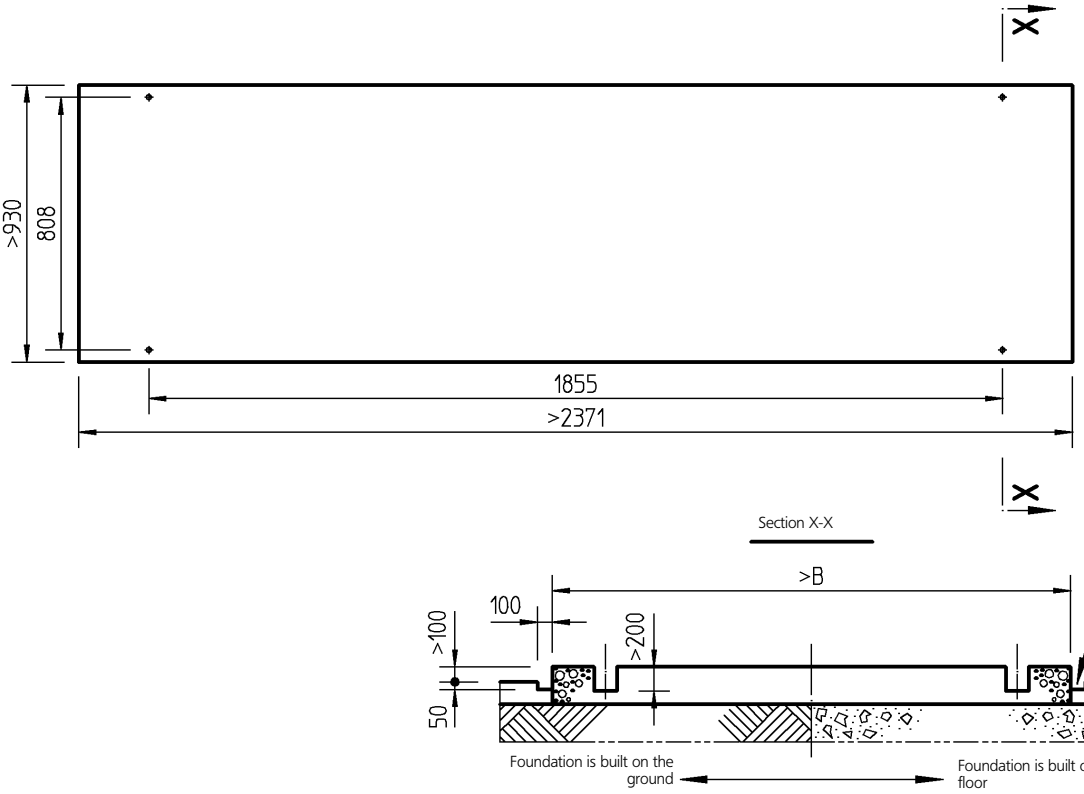
NOTES

1 Data is valid at nominal conditions.

2 According Eurovent 8-1 (Based on ISO3744)

8 Installation

8 - 1 Fixation and foundation of units



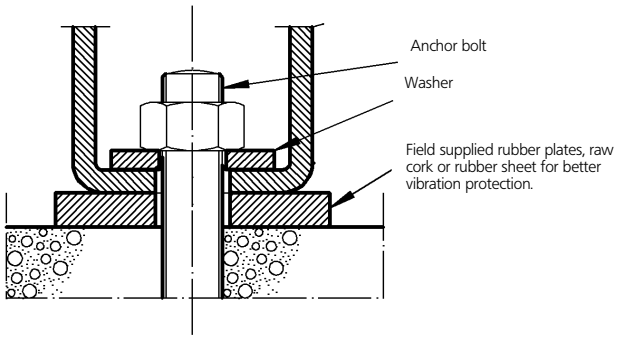
Fix anchor bolts into the concrete foundation. The concrete foundation should be higher than the floor level by approximately 100 mm for ease of plumbing work and better drain.
Further, strength of the floor should be sufficient to support the weight of concrete foundation and unit.
Be certain that the foundation surface is even and flat.

MODEL	A	Anchor bolt	
		Size	Qty.
EWLD120~170MBY	300	M20 x 200	4
EWLD240~260MBY	350	M20 x 200	4
EWLD240-260MBY	350	M20 x 270	4

Unit = mm

NOTES:

1. The measurement tabulated is based on the fact the base is made in the ground or on a concrete floor. In case the base is made on a rigid concrete floor, it is possible to include thickness of concrete floor in that of the base.
2. In case a base is made on concrete floor, be sure to provide a ditch as shown. It is important to extract drainage regardless of wether a base is made in the ground or on the concrete floor (Ditch → Sewerage).
3. Ingredient ratio of the concrete is cement: 1, sand: 2, gravel: 3, which is standard and insert iron bars of ϕ 10 at every interval of 300 mm. The edge of the concrete base should be planed.



4TW56299-2

8 Installation

8 - 2 Water charge, flow and quality

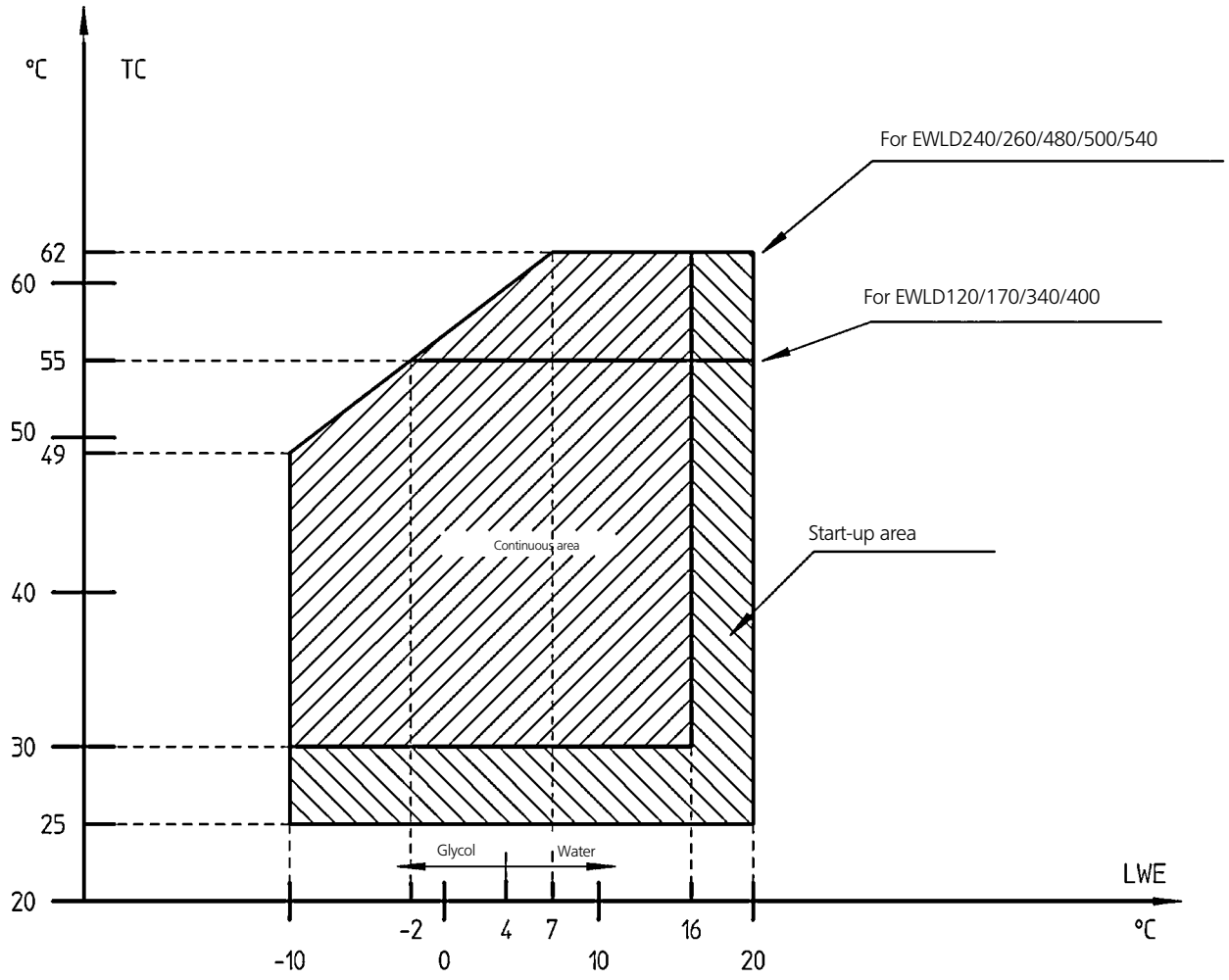
ITEMS (1) (5)		Cooling water (3)			Cooled water		Heated water (2)				Tendency if out of criteria
		Circulating system		Once flow			Low temperature		High temperature		
		Circulating water	Supply water (4)	Flowing water	Circulating water [Below 20°C]	Supply water (4)	Circulating water [20°C ~ 60°C]	Supply 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	6.8~8.0	6.8~8.0	6.8~8.0	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 40	Below 30	Below 30	Below 30	Below 30	Below 30	Corrosion + scale
	(μS/cm) at 25°C (1)	(Below 800)	(Below 300)	(Below 400)	(Below 400)	(Below 300)	(Below 300)	(Below 300)	(Below 300)	(Below 300)	Corrosion + scale
	Chloride ion [mgCl⁻/l]	Below 200	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	Sulfate ion [mgSO^{2-}_4/l]	Below 200	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 30	Below 30	Corrosion
	M-alkalinity (pH4.8) [mg$CaCO_3$/l]	Below 100	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Total hardness [mg$CaCO_3$/l]	Below 200	Below 70	Below 70	Below 70	Below 70	Below 70	Below 70	Below 70	Below 70	Scale
	Calcium hardness [mg$CaCO_3$/l]	Below 150	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Below 50	Scale
	Silica ion [mgSiO_2/l]	Below 50	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Below 30	Scale
Items to be referred to:	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 [mgS^{2-}/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 [mgCO_2/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

3TW50179-1

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 material is in direct contact with water without any protection shields, it is desireable to give the valid measures for corrosion. e.g. chemical measure.
3 In the cooling water using hermetic cooling tower, closed 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.

9 Operation range

EWLD120-540MBYN



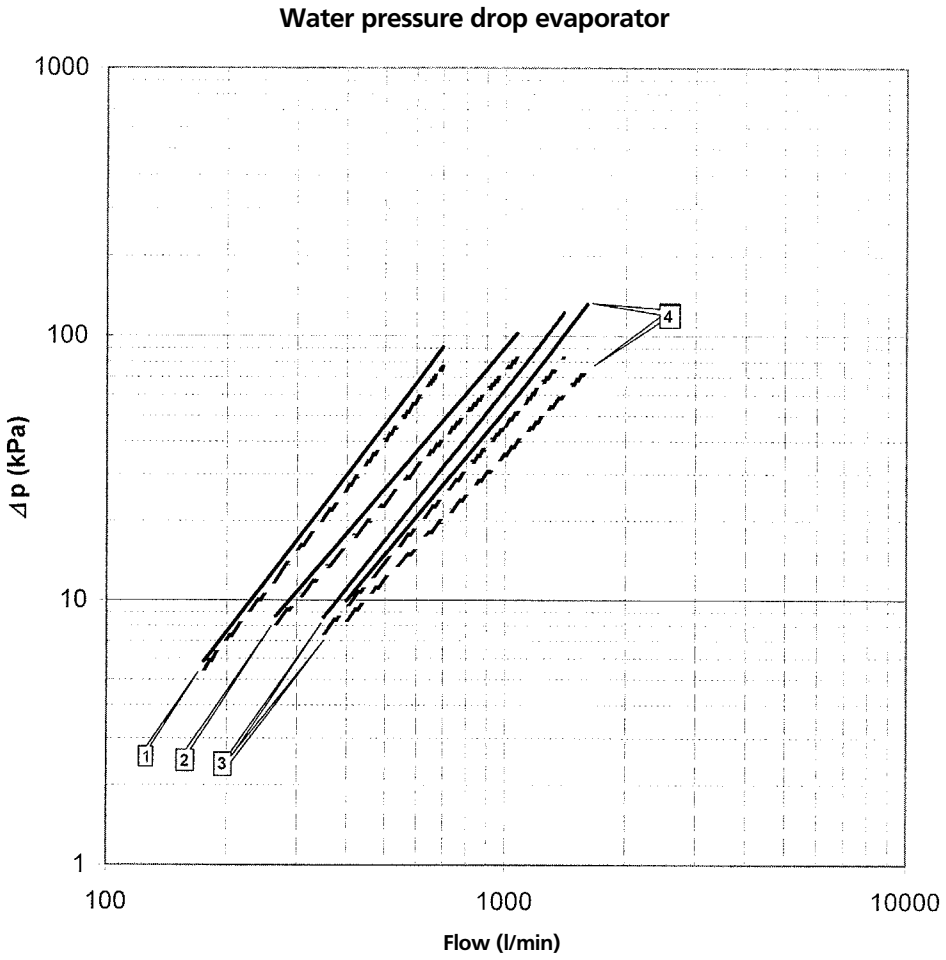
* LWE : Leaving Water Evaporator (°C)

* TC : Condensing Temperature (°C)

4TW56383-1B

10 Hydraulic performance

10 - 1 Water pressure drop curve evaporator



——— = Filter + Evaporator

— — — = Evaporator

EWLD120: 1
EWLD170: 2
EWLD240: 3
EWLD260: 4
EWLD340: 2 + 2
EWLD400: 2 + 3
EWLD480: 3 + 3
EWLD500: 3 + 4
EWLD540: 4 + 4

Warning: Selecting a flow outside the curves can cause damage to or malfunction of the unit. See also minimum and maximum allowed water flowrate in the technical specifications.

4TW56299-1