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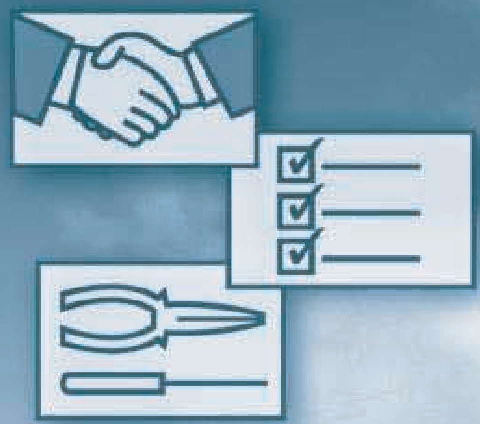

Service Manual

EWAD190-600AJYNN
EWAD210-500AJYNN/Q
EWAD260-650AJYNN/A
EWAD200-600AJYNN/H
EWAD330-520AJYNN/S
EWAD330-520AJYNN/X
EWYD260-380AJYNN

Air-cooled units with R134a refrigerant

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1 Introduction

1.1 About This Manual

Target group

This service manual is intended for and should only be used by qualified engineers.

Purpose of this manual

This service manual contains all the information you need to carry out the necessary repair and maintenance tasks.

10 different lines

EWAD-AJYNN line is available in two different efficiency versions. The acoustic flexibility down to 65 dB(A) thanks to different noise level versions:

- **Standard efficiency** with COP up to ??? (nominal conditions and only compressor power input).
  - EWAD190-600AJYNN (reduced noise): 75.0 - 79.0 dB(A)
  - EWAD440-600AJYNN + OPRN (reduced noise): 74.5 - 76.5 dB(A)
  - EWAD190-600AJYNN + OPLN (low noise): 70.0 - 73.0 dB(A)
  - EWAD190-600AJYNN/Q (super silent): 65.0 - 66.0 dB(A)
  - EWAD190-600AJYNN/H (high ambient): 77.0 - 79.5 dB(A)
- **High efficiency** with COP up to ??? (nominal conditions and only compressor power input).
  - EWAD260-650AJYNN/A (high efficiency): 77.5 - 79 dB(A)
  - EWAD260-650AJYNN/A + OPLN (high efficiency and low noise): 72.5 - 73.5 dB(A)
  - EWAD330-520AJYNN/S: ?? - ?? dB(A)
  - EWAD330-520AJYNN/X: ?? - ?? dB(A)

EWYD-AJYNN line is available in only one version, in particular EWYD260-380AJYNN.

OPRN-option

Standard version with additional base frame for compressors installed on rubber isolators to eliminate the vibrations. Discharge flexible pipes and condenser fans rotating at fixed low speed.

OPLN-option

The main components are the same of the OPRN version (same cooling capacity) but to reduce the sound level the compressors and delivery and suction pipes are located inside a cabinet which is sound insulated with highly absorbent acoustic material. Discharge flexible pipes and condenser fans rotating at fixed low speed are supplied as standard.

/Q and /Z

The main components are the same of the OPRN version (same cooling capacity) but to reduce the sound level the compressors and delivery and suction pipes are located inside a cabinet which is sound insulated with highly absorbent acoustic material. Discharge flexible pipes and condenser fans rotating at extremely low speed and fan speed control device are supplied as standard.

1.2 Nomenclature

EWA	D	200	AJ	YN	N	***	/H

Machine type

- ERA : Air cooled condensing unit
- EWW : Water cooled packaged water chiller
- EWL : Remote condenser water chiller
- EWA : Air cooled chiller, cooling only
- EWY : Air cooled chiller, heatpump
- EWC : Air cooled chiller, cooling only with centrifugal fan
- EWT : Air cooled chiller, cooling only with heat recovery

Refrigerant

- D : R-134a
- P : R-407C
- Q : R-410A

Always 3-digit code
Capacity class in kW (cooling)

Cap < 50 kW: not round: example: 37 kW => **037**
50 < Cap < 999 kW: round 0/5: 536 kW => **535**
Cap > 999 kW use C-symbol (C=100): example: 2578 kW => **C26**

Model series

first character	: letter A, B,...	:	major modification
second character	: letter A,B,...	:	minor modification DENV
	letter J-W,...	:	minor modification New Series

Voltage

V1 :	~ /	220 - 240 V	/	50 Hz
V3 :	1~ /	230 V	/	50 Hz
T1 :	3~ /	230 V	/	50 Hz
W1 :	3N~ /	400 V	/	50 Hz
Y1 :	3~ /	380 - 415 V	/	50 Hz
YN :	3~ /	400 V	/	50 Hz

Hydraulic module/Heat recovery version/Pump & Electrical options (Consult Selection software)

- N : No Hydraulic components
- M : Modular
- A-V : Combination of specific options

Option code (Consult Selection software)

**** : 4 digits

Option regarding efficiency version, sound version

- /H : High ambient version
- /A : High efficiency version
- /Q : Standard efficiency Extra low noise version
- /Z : High efficiency and Extra low noise version

Part 1
System Outline

Introduction

This part contains an outline of all the relevant elements in the EWAD-AJYNN and EWDYD-AJYNN Air-cooled units.

What is in this part?

This part contains the following chapters:

1 General Outline

1.1 What Is in This Chapter?

Introduction

This chapter contains the following information:

- Technical specifications
- Electrical specifications
- Outlook drawings
- Capacity tables
- Capacity correction factors
- Heat recovery ratings
- Sound level data.

Overview

This chapter contains the following topics:

1.2 Technical Specifications: EWAD-AJYNN

Technical specifications

The table below contains the technical specifications for EWAD190-300AJYNN.

Model				**EWAD-AJYNN**					
Unit size				**190**	**200**	**230**	**260**	**280**	**300**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	184.0	197.8	225.0	245.0	261.0	275.0
Capacity Steps			%	12.5 - 100					
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	81.3	79.6	84.6	93.5	101.3	108.3
EER				2.26	2.48	2.66	2.62	2.58	2.54
ESEER				3.17	3.46	3.59	2.52	3.58	3.58
Casing	Colour			RAL7032					
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235	2235
		Depth	mm	2240	2240	3140	3140	3140	3140
Weight	Unit		kg	2380	2466	2766	2766	2806	2846
	Operating Weight		kg	2405	2497	2859	2859	2896	2936
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.					
	Model	Quantity		1	1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins					
	Rows			2 + 2	3 + 3	2 + 2	2 + 2	2 + 3	3 + 3
	Stages			36 + 8					
	Fin Pitch		mm	16 + 16	14 + 14	16 + 16	16 + 16	16 + 14	14 + 14
	Face Area		m^2	5.24	5.24	7.35	7.35	7.35	7.35
			m^2	5.24	5.24	7.35	7.35	7.35	7.35
Water Heat Exchanger	Type			Plate to plate heat exchanger		Shell and tube			
	Water volume		l	25	31	93	93	90	90
	Water flow rate	Min	l/min	311	374	327	333	361	368
		Nominal	l/min	527	567	645	702	748	788
		Max	l/min	985	1182	1033	1053	1141	1162
Nominal water pressure drop	Cooling	Heat exchanger	kPa	28.7	23	39	44.5	43	46

Model				EWAD-AJYNN					
Unit size				**190**	**200**	**230**	**260**	**280**	**300**
Fan	Type			Helical					
	Drive			Direct drive					
	Diameter		mm	710	710	710	710	710	710
	Nominal air flow		m^3/min	918	894	1374	1374	1356	1338
	Model	Quantity		4	4	6	6	6	6
		Speed	rpm	900	900	900	900	900	900
		Motor Output	W	1160	1160	1160	1160	1160	1160
Compressor	Type			Semi-hermetic single screw compressor					
	Refrigerant oil type			Mobil Artic 68					
	Refrigerant oil charge		l	26	26	26	26	26	26
	Model	Quantity		2	2	1	2	1	2
		Model		HS3118	HS3118	HS3118	HS3120	HS3120	HS3121
		Crankcase Heater	W	250 (400V)					
		Quantity				1		1	
		Model				HS3120		HS3121	
		Crankcase Heater	W			250 (400V)		250 (400V)	
Sound Level	Sound Power	Cooling	dBA	93.7	93.7	94.3	94.3	94.3	94.3
	Sound Pressure	Cooling	dBA	75	75	75	75	75	75
	Sound Pressure + OPLN		dBA	70.0	70.0	70.0	70.0	70.0	70.0
Refrigerant circuit	Refrigerant type			R-134a					
	Refrigerant charge		kg	36	40	50	50	53	56
	No of circuits			2	2	2	2	2	2
Piping connections	Evaporator water inlet/outlet			3"	3"	4"	4"	4"	4"
				1/2" gas					
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5					
				Low pressure (pressure switch) 1/2 NPT - 15.5					
				Compressor thermal					
				Condensation fan magneto-thermal					
				High discharge temperature on the compressor					
				Phase monitor					
				Star/delta transition failed					
				Low pressure ratio					
				High oil pressure drop					
				Low oil pressure					
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.					

Technical specifications

The table below contains the technical specifications for EWAD320-480AJYNN.

Model				**EWAD-AJYNN**					
Unit size				**320**	**340**	**360**	**400**	**440**	**480**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	298.4	321.0	370.0	401.3	451.0	478.7
Capacity Steps			%	12.5 - 100					
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	119.4	123.4	133.4	155.7	167.0	177.6
EER				2.50	2.60	2.77	2.58	2.70	2.69
ESEER				3.66	3.53	3.80	2.58	3.24	3.23
Casing	Colour			RAL7032					
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235	2235
		Depth	mm	3140	4040	4040	3140	4040	4040
Weight	Unit		kg	2846	3166	3186	3552	3932	3997
	Operating Weight		kg	2936	3279	3299	3680	4102	4161
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C N. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.					
	Model	Quantity		1	1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins					
	Rows			3 + 3	2 + 2	2 + 2	3	2	2 / 3
	Stages			36 + 8					
	Fin Pitch		mm	14 + 14	16 + 16	16 + 16	1.81	1.59	1.59 / 1.81
	Face Area		m^2	7.35	9.45	9.45	3.02	4.02	4.02
			m^2	7.35	9.45	9.45			
Water Heat Exchanger	Type			Shell and tube					
	Water volume		l	90	113	113	128	170	164
	Water flow rate	Min	l/min	368	503	512	920.32	1240.87	1317.08
		Nominal	l/min	855	920	1061	1150.41	1292.57	1371.96
		Max	l/min	1164	1590	1618	1380.49	1551.09	1646.35
Nominal water pressure drop	Cooling	Heat exchanger	kPa	54	33.5	43	49.7	59.1	52.2

Model				EWAD-AJYNN					
Unit size				**320**	**340**	**360**	**400**	**440**	**480**
Fan	Type			Helical					
	Drive			Direct drive					
	Diameter		mm	710	710	710	800	800	800
	Nominal air flow		m^3/min	1338	1836	1836	1938	2694	2640
	Model	Quantity		6	6	6	6	8	8
		Speed	rpm	900	900	900	890	890	890
		Motor Output	W	1160	1160	1160	1730	1730	1730
Compressor	Type			Semi-hermetic single screw compressor					
	Refrigerant oil type			Mobil Artic 68					
	Refrigerant oil charge		l	26	26	26	32	32	32
	Model	Quantity		1	2	2	1	2	1
		Model		HS3121	HS3122	HS3122 ECO	HS3218	HS3220	HS3220
		Crankcase Heater	W	250 (400V)	250 (400V)	250 (400V)	250	250	250
		Quantity		1			1		1
		Model		HS3122			HS3220		HS3221
		Crankcase Heater	W	250 (400V)			250		250
Sound Level	Sound Power	Cooling	dBA	94.3	94.7	97.2	95.8	96.7	96.7
	Sound Pressure	Cooling	dBA	75	75	77.5	76.5	77.0	77.0
	Sound Pressure + OPLN		dBA	70.0	70.0	72.5		71.0	71.0
Refrigerant circuit	Refrigerant type			R-134a					
	Refrigerant charge		kg	56	64	66	70	80	78
	No of circuits			2	2	2	2	2	2
Piping connections	Evaporator water inlet/outlet			4”	4”	4”			
				1/2” gas					
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5					
				Low pressure (pressure switch) 1/2 NPT - 15.5					
				Compressor thermal					
				Condensation fan magneto-thermal					
				High discharge temperature on the compressor					
				Phase monitor					
				Star/delta transition failed					
				Low pressure ratio					
				High oil pressure drop					
				Low oil pressure					
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.					

Technical specifications

The table below contains the technical specifications for EWAD500-600AJYNN.

Model				**EWAD-AJYNN**		
Unit size				**500**	**550**	**600**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	510.1	551.0	588.0
Capacity Steps			%	12.5 - 100		
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	186.9	195.6	202.9
EER				2.73	2.82	2.90
ESEER				3.09	3.17	3.23
Casing	Colour			RAL7032		
Dimensions	Unit	Height	mm	2340	2340	2340
		Width	mm	2235	2235	2235
		Depth	mm	4040	4040	4040
Weight	Unit		kg	4052	4092	4122
	Operating Weight		kg	4216	4252	4282
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.		
	Model	Quantity		1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins		
	Rows			3	3	3
	Stages			36 + 8		
	Fin Pitch		mm	1.81	1.81	1.81
	Face Area		m^2	4.02	4.02	4.02
			m^2		4.02	
Water Heat Exchanger	Type			Shell and tube		
	Water volume		l	164	160	160
	Water flow rate	Min	l/min	1403.20	1516.00	1617.81
		Nominal	l/min	1461.67	1579.17	1685.22
		Max	l/min	1754.00	1895.01	2022.26
Nominal water pressure drop	Cooling	Heat exchanger	kPa	57.4	54.1	60

1

Model				EWAD-AJYNN		
Unit size				**500**	**550**	**600**
Fan	Type			Helical		
	Drive			Direct drive		
	Diameter		mm	800	800	800
	Nominal air flow		m^3/min	2580	2580	2580
	Model	Quantity		8	8	8
		Speed	rpm	890	890	890
		Motor Output	W	1730	1730	1730
Compressor	Type			Semi-hermetic single screw compressor		
	Refrigerant oil type			Mobil Artic 68		
	Refrigerant oil charge		l	32	32	32
	Model	Quantity		2	1	2
		Model		HS3221	HS3221	HS3221eco
		Crankcase Heater	W	250	250	250
		Quantity			1	
		Model			HS3221eco	
		Crankcase Heater	W		250	
Sound Level	Sound Power	Cooling	dBA	96.7	98.2	98.7
	Sound Pressure	Cooling	dBA	77.0	78.5	79
	Sound Pressure + OPLN		dBA	71.0	72.5	73.0
Refrigerant circuit	Refrigerant type			R-134a		
	Refrigerant charge		kg	76	76	76
	No of circuits			2	2	2
Piping connections	Evaporator water inlet/outlet					
				1/2” gas		
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5		
				Low pressure (pressure switch) 1/2 NPT - 15.5		
				Compressor thermal		
				Condensation fan magneto-thermal		
				High discharge temperature on the compressor		
				Phase monitor		
				Star/delta transition failed		
				Low pressure ratio		
				High oil pressure drop		
				Low oil pressure		
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.		

1.3 Technical Specifications: EWAD-AJYNN/Q

Technical specifications

The table below contains the technical specifications for EWAD210-320AJYNN/Q.

Model				**EWAD-AJYNN/Q**					
Unit size				**210**	**240**	**260**	**280**	**300**	**320**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	203.0	231.1	252.7	270.8	286.1	299.4
Capacity Steps			%	12.5 - 100					
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	79.8	85.2	93.7	104.5	114.5	126.1
EER				2.54	2.71	2.70	2.59	2.5	2.37
ESEER				3.86	4.05	4.02	3.96	3.83	3.73
Casing	Colour			RAL7032					
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235	2235
		Depth	mm	3140	4040	4040	4040	4040	4040
Weight	Unit		kg	3046	3366	3466	3546	3556	3556
	Operating Weight		kg	3136	3479	3579	3710	3715	3715
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.					
	Model	Quantity		1	1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins					
	Rows			3 + 3	2 + 2	3 + 3	3 + 3	3 + 3	3 + 3
	Stages			36 + 8					
	Fin Pitch		mm	14 + 14	16 + 16	14 + 14	14 + 14	14 + 14	14 + 14
	Face Area		m^2	7.35	9.45	9.45	9.45	9.45	9.45
			m^2	7.35	9.45	9.45	9.45	9.45	9.45
Water Heat Exchanger	Type			Shell and tube					
	Water volume		l	90	113	113	164	159	159
	Water flow rate	Min	l/min	364	474	483	518	566	572
		Nominal	l/min	582	662	724	776	820	858
		Max	l/min	1152	1500	1527	1637	1790	1809
Nominal water pressure drop	Cooling	Heat exchanger	kPa	25.5	19.5	22.5	22.5	21.0	22.5

Model				EWAD-AJYNN/Q					
Unit size				**210**	**240**	**260**	**280**	**300**	**320**
Fan	Type			Helical					
	Drive			Direct drive					
	Diameter		mm	710	710	710	710	710	710
	Nominal air flow		m^3/min	774	1074	1032	1032	1032	1032
	Model	Quantity		6	8	8	8	8	8
		Speed	rpm	500	500	500	500	500	500
		Motor Output	W	450	450	450	450	450	450
Compressor	Type			Semi-hermetic single screw compressor					
	Refrigerant oil type			Mobil Artic 68					
	Refrigerant oil charge		l	26	26	26	26	26	26
	Model	Quantity		2	1	2	1	2	1
		Model		HS3118	HS3118	HS3120	HS3120	HS3121	HS3121
		Crankcase Heater	W	250 (400V)					
		Quantity			1		1		1
		Model			HS3120		HS3121		HS3122
		Crankcase Heater	W		250 (400V)		250 (400V)		250 (400V)
Sound Level	Sound Power	Cooling	dBA	84.3	84.7				
	Sound Pressure	Cooling	dBA	65	65	65	65	65	65
Refrigerant circuit	Refrigerant type			R-134a					
	Refrigerant charge		kg	56	64	76	80	80	80
	No of circuits			2	2	2	2	2	2
Piping connections	Evaporator water inlet/outlet			4”					
				1/2” gas					
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5					
				Low pressure (pressure switch) 1/2 NPT - 15.5					
				Compressor thermal					
				Condensation fan magneto-thermal					
				High discharge temperature on the compressor					
				Phase monitor					
				Star/delta transition failed					
				Low pressure ratio					
				High oil pressure drop					
				Low oil pressure					
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.					

Technical specifications

The table below contains the technical specifications for EWAD340-500AJYNN/Q.

Model				EWAD-AJYNN/Q				
Unit size				**340**	**400**	**440**	**460**	**500**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	308.8	400.5	428.5	458.4	500.8
Capacity Steps			%	12.5 - 100				
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	136.3	156.0	173.8	182.4	189.9
EER				2.27	2.57	2.47	2.51	2.64
ESEER				3.57	3.40	3.33	3.30	3.29
Casing	Colour			RAL7032				
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235
		Depth	mm	4040	4040	4040	4940	4940
Weight	Unit		kg	3556	3567	3722	3912	3972
	Operating Weight		kg	3715	3737	3892	4076	4136
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.				
	Model	Quantity		1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins				
	Rows			3 + 3	2	3	3	2
	Stages			36 + 8				
	Fin Pitch		mm	14 + 14	1.59	1.81	1.81	1.59
	Face Area		m^2	9.45	4.02	4.02	5.03	5.03
			m^2	9.45			5.03	
Water Heat Exchanger	Type			Shell and tube				
	Water volume		l	159	170	170	164	164
	Water flow rate	Min	l/min	571	918.27	982.47	1051.02	1148.24
		Nominal	l/min	885	1147.84	1228.09	1313.78	1435.30
		Max	l/min	1807	1377.41	1473.70	1576.54	1722.36
Nominal water pressure drop	Cooling	Heat exchanger	kPa	24.0	47.2	53.9	48.3	54.1

Model				**EWAD-AJYNN/Q**				
Unit size				**340**	**400**	**440**	**460**	**500**
Fan	Type			Helical				
	Drive			Direct drive				
	Diameter		mm	710	800	800	800	800
	Nominal air flow		m^3/min	1032	1704	1644	1926	2208
	Model	Quantity		8	8	8	9	8
		Speed	rpm	500	500	500	500	500
		Motor Output	W	450	770	770	770	770
Compressor	Type			Semi-hermetic single screw compressor				
	Refrigerant oil type			Mobil Artic 68				
	Refrigerant oil charge		l	26	32	32	32	32
	Model	Quantity		2	1	2	1	2
		Model		HS3122	HS3218	HS3220	HS3220	HS3221
		Crankcase Heater	W	250 (400V)	250 (115V)			
		Quantity			1		1	
		Model			HS3220		HS3221	
		Crankcase Heater	W		250 (115V)		250 (115V)	
Sound Level	Sound Power	Cooling	dBA		84.7	84.7	85.7	86.2
	Sound Pressure	Cooling	dBA	65	65.0	65.0	65.5	66.0
Refrigerant circuit	Refrigerant type			R-134a				
	Refrigerant charge		kg	80	72	80	83	86
	No of circuits			2	2	2	2	2
Piping connections	Evaporator water inlet/outlet							
				1/2” gas				
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5				
				Low pressure (pressure switch) 1/2 NPT - 15.5				
				Compressor thermal				
				Condensation fan magneto-thermal				
				High discharge temperature on the compressor				
				Phase monitor				
				Star/delta transition failed				
				Low pressure ratio				
				High oil pressure drop				
				Low oil pressure				
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.				

1.4 Technical Specifications: EWAD-AJYNN/A

Technical specifications

The table below contains the technical specifications for EWAD260-380AJYNN/A.

Model				EWAD-AJYNN/A					
Unit size				**260**	**280**	**320**	**340**	**360**	**380**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	247.0	275.0	301.5	327.0	351.0	376.0
Capacity Steps			%	12.5 - 100					
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	79.2	87.3	94.2	103.8	112.8	120.2
EER				3.12	3.15	3.20	3.15	3.11	3.13
ESEER				3.99	3.89	4.01	4.04	4.04	3.91
Casing	Colour			RAL7032					
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235	2235
		Depth	mm	3140	4040	4040	4040	4040	4040
Weight	Unit		kg	2866	3186	3286	3366	3376	3321
	Operating Weight		kg	2959	3299	3399	3530	3535	3480
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.					
	Model	Quantity		1	1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins					
	Rows			3 + 3	2 + 2	3 + 3	3 + 3	3 + 3	3 + 3
	Stages			36 + 8					
	Fin Pitch		mm	14 + 14	16 + 16	14 + 14	14 + 14	14 + 14	14 + 14
	Face Area		m^2	7.35	9.45	9.45	9.45	9.45	9.45
			m^2	7.35	9.45	9.45	9.45	9.45	9.45
Water Heat Exchanger	Type			Shell and tube					
	Water volume		l	93	113	113	164	159	159
	Water flow rate	Min	l/min	373	489	495	537	586	593
		Nominal	l/min	708	788	864	937	1006	1078
		Max	l/min	1180	1546	1565	1697	1853	1876
Nominal water pressure drop	Cooling	Heat exchanger	kPa	36.0	26.0	30.5	30.5	29.5	33

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Model				EWAD-AJYNN/A					
Unit size				**260**	**280**	**320**	**340**	**360**	**380**
Fan	Type			Helical					
	Drive			Direct drive					
	Diameter		mm	710	710	710	710	710	710
	Nominal air flow		m^3/min	1338	1836	1782	1782	1782	2640
	Model	Quantity		6	8	8	8	8	8
		Speed	rpm	900	900	900	900	900	900
		Motor Output	W	1160	1160	1160	1160	1160	1160
Compressor	Type			Semi-hermetic single screw compressor					
	Refrigerant oil type			Mobil Artic 68					
	Refrigerant oil charge		l	26	26	26	26	26	26
	Model	Quantity		2	1	2	1	2	1
		Model		HS3118 eco	HS3118 eco	HS3120 eco	HS3120 eco	HS3121 eco	HS3121 eco
		Crankcase Heater	W	250 (400V)	250 (400V)	250 (400V)	250 (400V)	250 (400V)	250 (400V)
		Quantity			1		1		1
		Model			HS3120 eco		HS3121 eco		HS3122 eco
		Crankcase Heater	W		250 (400V)		250 (400V)		250 (400V)
Sound Level	Sound Power	Cooling	dBA	96.8	97.2	97.2	97.2	97.2	99.7
	Sound Pressure	Cooling	dBA	77.5	77.5	77.5	77.5	77.5	80
	Sound Pressure + OPLN		dBA	72.5	72.5	72.5	72.5	72.5	74.0
Refrigerant circuit	Refrigerant type			R-134a					
	Refrigerant charge		kg	60	68	80	80	80	80
	No of circuits			2	2	2	2	2	2
Piping connections	Evaporator water inlet/outlet			4”	4”	4”	4”	4”	4”
				1/2” gas					
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5					
				Low pressure (pressure switch) 1/2 NPT - 15.5					
				Compressor thermal					
				Condensation fan magneto-thermal					
				High discharge temperature on the compressor					
				Phase monitor					
				Star/delta transition failed					
				Low pressure ratio					
				High oil pressure drop					
				Low oil pressure					
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.					

Technical specifications

The table below contains the technical specifications for EWAD420-650AJYNN/A.

Model				**EWAD-AJYNN/A**				
Unit size				**420**	**500**	**550**	**600**	**650**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	401.0	501.4	531.5	582.2	626.6
Capacity Steps			%	12.5 - 100				
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	127.5	160.6	170.9	183.5	195.4
EER				3.15	3.12	3.11	3.17	3.21
ESEER				3.63	3.60	3.61	3.56	3.37
Casing	Colour			RAL7032				
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235
		Depth	mm	4040	4040	4040	4940	4940
Weight	Unit		kg	3386	4252	4642	4652	4652
	Operating Weight		kg	3545	4515	4905	4908	4908
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.				
	Model	Quantity		1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins				
	Rows			3 + 3	3	3	3	3
	Stages			36 + 8				
	Fin Pitch		mm	14 + 14	1.81	1.81	1.81	1.81
	Face Area		m^2	9.45	4.02	5.03	5.03	5.03
			m^2	9.45		5.03		
Water Heat Exchanger	Type			Shell and tube				
	Water volume		l	159	263	263	256	256
	Water flow rate	Min	l/min	598	1152.09	1221.25	1337.75	1439.77
		Nominal	l/min	1150	1440.11	1526.57	1672.19	1799.71
		Max	l/min	1890	1728.14	1831.88	2006.63	2159.66
Nominal water pressure drop	Cooling	Heat exchanger	kPa	37.0	56.6	66.2	55.9	62.7

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Model				EWAD-AJYNN/A				
Unit size				**420**	**500**	**550**	**600**	**650**
Fan	Type			Helical				
	Drive			Direct drive				
	Diameter		mm	710	800	800	800	800
	Nominal air flow		m^3/min	2580	2580	2580	3228	3228
	Model	Quantity		8	8	10	10	10
		Speed	rpm	900	890	890	890	890
		Motor Output	W	1160	1730	1730	1730	1730
Compressor	Type			Semi-hermetic single screw compressor				
	Refrigerant oil type			Mobil Artic 68				
	Refrigerant oil charge		l	26	32	32	32	32
	Model	Quantity		2	1	2	1	2
		Model		HS3122 eco	HS3218 eco	HS3220 eco	HS3220 eco	HS3221 eco
		Crankcase Heater	W	250 (400V)	250	250	250	250
		Quantity			1		1	
		Model			HS3220 eco		HS3221 eco	
		Crankcase Heater	W		250		250	
Sound Level	Sound Power	Cooling	dBA	99.7	98.7	99.2	99.2	99.2
	Sound Pressure	Cooling	dBA	80	79.0	79.0	79.0	79.0
	Sound Pressure + OPLN		dBA	74.0	73.5	73.5	73.5	73.5
Refrigerant circuit	Refrigerant type			R-134a				
	Refrigerant charge		kg	80	80	104	104	104
	No of circuits			2	2	2	2	2
Piping connections	Evaporator water inlet/outlet			4”				
				1/2” gas				
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5				
				Low pressure (pressure switch) 1/2 NPT - 15.5				
				Compressor thermal				
				Condensation fan magneto-thermal				
				High discharge temperature on the compressor				
				Phase monitor				
				Star/delta transition failed				
				Low pressure ratio				
				High oil pressure drop				
				Low oil pressure				
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.				

1.5 Technical Specifications: EWAD-AJYNN/H

Technical specifications

The table below contains the technical specifications for EWAD200-300AJYNN/H.

Model				**EWAD-AJYNN/H**					
Unit size				**200**	**210**	**240**	**260**	**280**	**300**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	194.6	208.3	233.5	256.1	273.7	289.3
Capacity Steps			%	12.5 - 100					
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	77.2	75.6	83.0	91.0	97.8	103.9
EER				2.52	2.76	2.81	2.81	2.80	2.78
ESEER				3.23	3.49	3.40	3.44	3.49	3.49
Casing	Colour			RAL7032					
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235	2235
		Depth	mm	2240	2240	3140	3140	3140	3140
Weight	Unit		kg	2380	2466	2766	2766	2806	2846
	Operating Weight		kg	2405	2497	2859	2859	2896	2936
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.					
	Model	Quantity		1	1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins					
	Rows			2 + 2	3 + 3	2 + 2	2 + 2	2 + 3	3 + 3
	Stages			36 + 8					
	Fin Pitch		mm	16 + 16	14 + 14	16 + 16	16 + 16	16 + 14	14 + 14
	Face Area		m^2	5.24	5.24	7.35	7.35	7.35	7.35
			m^2	5.24	5.24	7.35	7.35	7.35	7.35
Water Heat Exchanger	Type			Plate to plate heat exchanger		Shell and tube			
	Water volume		l	25	31	93	93	90	90
	Water flow rate	Min	l/min	314	378	331	337	366	369
		Nominal	l/min	558	597	669	734	785	829
		Max	l/min	994	1194	1045	1065	1157	1167
Nominal water pressure drop	Cooling	Heat exchanger	kPa	31.5	25.0	41.0	47.5	46.0	50.5

Model				**EWAD-AJYNN/H**					
Unit size				**200**	**210**	**240**	**260**	**280**	**300**
Fan	Type			Helical					
	Drive			Direct drive					
	Diameter		mm	800	800	800	800	800	800
	Nominal air flow		m^3/min	1434	1368	2154	2154	2100	2046
	Model	Quantity		4	4	6	6	6	6
		Speed	rpm	900	900	900	900	900	900
		Motor Output	W	1800	1800	1800	1800	1800	1800
Compressor	Type			Semi-hermetic single screw compressor					
	Refrigerant oil type			Mobil Artic 68					
	Refrigerant oil charge		l	26	26	26	26	26	26
	Model	Quantity		2	2	1	2	1	2
		Model		HS3118	HS3118	HS3118	HS3120	HS3120	HS3121
		Crankcase Heater	W	250 (400V)	250 (400V)	250 (400V)	250 (400V)	250 (400V)	250 (400V)
		Quantity				1		1	
		Model				HS3120		HS3121	
		Crankcase Heater	W			250 (400V)		250 (400V)	
Sound Level	Sound Power	Cooling	dBA	98.2	98.2	98.8	98.8	98.8	98.8
	Sound Pressure	Cooling	dBA	79.5	79.5	79.5	79.5	79.5	79.5
Refrigerant circuit	Refrigerant type			R-134a					
	Refrigerant charge		kg	36	40	50	50	53	56
	No of circuits			2	2	2	2	2	2
Piping connections	Evaporator water inlet/outlet			3”	3”	4”	4”	4”	4”
				1/2” gas					
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5					
				Low pressure (pressure switch) 1/2 NPT - 15.5					
				Compressor thermal					
				Condensation fan magneto-thermal					
				High discharge temperature on the compressor					
				Phase monitor					
				Star/delta transition failed					
				Low pressure ratio					
				High oil pressure drop					
				Low oil pressure					
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.					

Technical specifications

The table below contains the technical specifications for EWAD320-480AJYNN/H.

Model				EWAD-AJYNN/H					
Unit size				**320**	**340**	**400**	**420**	**460**	**480**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	306.4	335.6	381.2	426.0	468.1	502.1
Capacity Steps			%	12.5 - 100					
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	112.1	120.3	127.4	146.5	160.3	170.8
EER				2.73	2.79	2.99	2.91	2.92	2.94
ESEER				3.52	3.41	3.67	3.39	3.30	3.29
Casing	Colour			RAL7032					
Dimensions	Unit	Height	mm	2340	2340	2340	2340	2340	2340
		Width	mm	2235	2235	2235	2235	2235	2235
		Depth	mm	3140	4040	4040	4040	4940	4940
Weight	Unit		kg	2846	3166	3186	3942	4202	4277
	Operating Weight		kg	2936	3279	3299	4112	4372	4441
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.					
	Model	Quantity		1	1	1	1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins					
	Rows			3 + 3	2 + 2	2 + 2	3	2	2
	Stages			36 + 8					
	Fin Pitch		mm	14 + 14	16 + 16	16 + 16	1.81	1.59	1.59
	Face Area		m^2	7.35	9.45	9.45	4.02	5.03	5.03
			m^2	7.35	9.45	9.45	4.02	4.02	
Water Heat Exchanger	Type			Shell and tube					
	Water volume		l	90	113	113	170	170	164
	Water flow rate	Min	l/min	373	507	518	976.74	1073.26	1151.22
		Nominal	l/min	878	962	1093	1220.92	1341.58	1439.03
		Max	l/min	1179	1603	1638	1465.11	1609.9	1726.83
Nominal water pressure drop	Cooling	Heat exchanger	kPa	55.5	36.0	44.5	53.1	63.1	55.9

Model				**EWAD-AJYNN/H**					
Unit size				**320**	**340**	**400**	**420**	**460**	**480**
Fan	Type			Helical					
	Drive			Direct drive					
	Diameter		mm	800	800	800	800	800	800
	Nominal air flow		m^3/min	2046	2874	2874	2580	3372	3300
	Model	Quantity		6	8	8	8	10	10
		Speed	rpm	900	900	900	890	890	890
		Motor Output	W	1800	1800	1800	1730	1730	1730
Compressor	Type			Semi-hermetic single screw compressor					
	Refrigerant oil type			Mobil Artic 68					
	Refrigerant oil charge		l	26	26	26	32	32	32
	Model	Quantity		1	2	2	1	2	1
		Model		HS3121	HS3122	HS3122 eco	HS3218	HS3220	HS3220
		Crankcase Heater	W	250 (400V)	250 (400V)	250 (400V)	250 (115V)	250 (115V)	250 (115V)
		Quantity		1			1		1
		Model		HS3122			HS3220		HS3221
		Crankcase Heater	W	250 (400V)			250 (115V)		250 (115V)
Sound Level	Sound Power	Cooling	dBA	98.8	99.2	101	96.7	97.7	97.7
	Sound Pressure	Cooling	dBA	79.5	79.5	80	77.0	77.5	77.5
Refrigerant circuit	Refrigerant type			R-134a					
	Refrigerant charge		kg	56	64	66	76	86	95
	No of circuits			2	2	2	2	2	2
Piping connections	Evaporator water inlet/outlet			4”	4”	4”			
				1/2” gas					
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5					
				Low pressure (pressure switch) 1/2 NPT - 15.5					
				Compressor thermal					
				Condensation fan magneto-thermal					
				High discharge temperature on the compressor					
				Phase monitor					
				Star/delta transition failed					
				Low pressure ratio					
				High oil pressure drop					
				Low oil pressure					
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.					

Technical specifications

The table below contains the technical specifications for EWAD500-600AJYNN/H.

Model				EWAD-AJYNN/H		
Unit size				**500**	**550**	**600**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	529.5	561.0	600.4
Capacity Steps			%	12.5 - 100		
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	180.1	192.2	198.4
EER				2.94	2.92	3.03
ESEER				3.15	3.17	3.23
Casing	Colour			RAL7032		
Dimensions	Unit	Height	mm	2340	2340	2340
		Width	mm	2235	2235	2235
		Depth	mm	4940	4940	4940
Weight	Unit		kg	4332	4392	4402
	Operating Weight		kg	4496	4552	4562
Water Heat Exchanger	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.		
	Model	Quantity		1	1	1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins		
	Rows			3	3	3
	Stages			36 + 8		
	Fin Pitch		mm	1.81	1.81	1.81
	Face Area		m^2	5.03	5.03	5.03
			m^2		5.03	
Water Heat Exchanger	Type			Shell and tube		
	Water volume		l	164	160	160
	Water flow rate	Min	l/min	1214.04	1286.27	1376.60
		Nominal	l/min	1517.55	1607.83	1720.75
		Max	l/min	1821.07	1929.40	2064.90
Nominal water pressure drop	Cooling	Heat exchanger	kPa	61.4	55.9	61.6

Model				EWAD-AJYNN/H		
Unit size				**500**	**550**	**600**
Fan	Type			Helical		
	Drive			Direct drive		
	Diameter		mm	800	800	800
	Nominal air flow		m^3/min	3228	3228	3228
	Model	Quantity		10	10	10
		Speed	rpm	890	890	890
		Motor Output	W	1730	1730	1730
Compressor	Type			Semi-hermetic single screw compressor		
	Refrigerant oil type			Mobil Artic 68		
	Refrigerant oil charge		l	32	32	32
	Model	Quantity		2	1	2
		Model		HS3221	HS3221	HS3221 eco
		Crankcase Heater	W	250 (115V)	250 (115V)	250 (115V)
		Quantity			1	
		Model			HS3221 eco	
		Crankcase Heater	W		250 (115V)	
Sound Level	Sound Power	Cooling	dBA	97.7	99.2	99.7
	Sound Pressure	Cooling	dBA	77.5	79.0	79.5
Refrigerant circuit	Refrigerant type			R-134a		
	Refrigerant charge		kg	104	104	104
	No of circuits			2	2	2
Piping connections	Evaporator water inlet/outlet					
				1/2” gas		
Safety Devices				High pressure (pressure switch) 1/2 NPT - 24.5		
				Low pressure (pressure switch) 1/2 NPT - 15.5		
				Compressor thermal		
				Condensation fan magneto-thermal		
				High discharge temperature on the compressor		
				Phase monitor		
				Star/delta transition failed		
				Low pressure ratio		
				High oil pressure drop		
				Low oil pressure		
Notes				Nominal cooling capacity and power input are based on 12/7 °C entering/leaving water temp. and 35°C air ambient temp. Power input is for compressor only.		

1.6 Technical Specifications: EWAD-AJYNN/S

Technical specifications

The table below contains the technical specifications for EWAD330-520AJYNN/S

Model				EWAD-AJYNN/H						
Unit size				**330**	**360**	**400**	**420**	**460**	**488**	**520**
Capacity (Eurovent)	Cooling	Nominal	kW	329	358	395	423	459	488	515
Capacity control	Type			stepless						
	Minimum capacity		%	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Capacity Steps			%	13.5 - 100						
Nominal Input	Cooling		kW	120	136	147	159	168	181	193
EER				2.74	2.63	2.68	2.66	2.74	2.71	2.67
ESEER				4.59	4.60	4.55	4.59	4.57	4.70	4.60
Casing	Colour			RAL7032						
	Material			Galvanized and painted steel sheet						
Dimensions	Unit	Height	mm	2355						
		Width	mm	2234						
		Depth	mm	4381	4381	5281	8281	6181	6181	6181
Weight	Unit		kg	4190	4190	4590	4590	4990	4990	4990
	Operating Weight		kg	4440	4440	4840	4840	5240	5240	5240
Air Heat Exchanger	Type			Louvered fins						
	Rows			3	3	2	2 - 3	2	2 - 3	3
	Stages			44	44	44	44 - 44	44	44 - 44	44
	Fin Pitch		mm	1.81	1.81	1.59	1.59 - 1.81	1.59	1.59 - 1.81	1.81
	Face Area		m^2	0.402	0.402	0.503	0.503	0.604	0.604	0.604
	No. of coils			4	4	4	2 - 2	4	2 - 2	4
Water Heat Exchanger Evaporator	Type			Shell and tube						
	Minimum water volume in the system		l	1277	1389	1533	1641	1781	1893	1998
	Water volume		l	271	264	264	256	256	248	248
	Water flow rate	Min	l/min	515	565	622	673	727	768	814
		Nominal	l/min	943	1026	1132	1213	1316	1399	1476
		Max	l/min	1360	1491	1637	1759	1935	2025	2139
Nominal water pressure drop	Cooling	Heat exchanger	kPa	60	61	72	67	78	69	76
Water Heat Exchanger Evaporator	Insulation material			Closed cell foam elastomer						
	Model	Quantity		1	1	1	1	1	1	1
		Model		EV402700 88-NS	EV402700 99-NS	EV402700 99-NS	EV402710 10-NS	EV402710 10-NS	EV402711 11-NS	EV402711 11-NS
Fan	Type			Axial						
	Drive			VFD driven						
	Diameter		mm	800	800	800	800	800	800	800
	Nominal air flow		m^3/min	1960	1960	2450	2450	2940	2940	2940
	Model	Quantity		8	8	10	10	12	12	12
		Speed	rpm	700	700	700	700	700	700	700
Model	Motor input	Cooling	W	1133						
Fan	Model	Discharge direction		Top						

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Model				EWAD-AJYNN/H						
Unit size				**330**	**360**	**400**	**420**	**460**	**488**	**520**
Compressor	Type			Single screw compressor						
	Refrigerant oil type			Artic Mobil 68H						
	Refrigerant oil charge		l	26	26	26	26	26	26	26
	Model	Quantity		2	2	2	2	2	2	2
		Model		HSS3118 VR2.0+HS S3118 VR2.0	HSS3118 VR2.0+HS S3120 VR2.0	HSS3120 VR2.0+HS S3120 VR2.0	HSS3120 VR2.0+HS S3121 VR2.0	HSS3121 VR2.0+HS S3121 VR2.0	HSS3121 VR2.0+HS S3122 VR2.0	HSS3122 VR2.0+HS S3122 VR2.0
		Crankcase Heater	W	250	250	250	250	250	250	250
Sound level	Sound Power	Cooling	dBA	102.8	102.8	103.2	103.2	103.6	103.6	103.6
	Sound Pressure	Cooling	dBA	83.0	83.0	83.0	83.0	83.5	83.5	83.5
	Sound Pressure + OPRN		dBA	77.0	77.0	77.0	77.0	77.5	77.5	77.5
Operation range	Water side	Min	°CDB	-9.5 (OPZL)						
		Max	°CDB	15	15	15	15	15	15	15
	Air side	Min	°CDB	-10	-10	-10	-10	-10	-10	-10
		Max	°CDB	32	32	32	32	32	32	32
Refrigerant circuit	Refrigerant type			R-134a						
	Refrigerant charge		kg	73	73	99	105	114	118	121
	No of circuits			2	2	2	2	2	2	2
	Refrigerant control			Electronic expansion valve						
Piping connections	Evaporator water inlet/outlet			168.30	168.30	168.30	168.30	168.30	168.30	168.30

1.7 Technical Specifications: EWAD-AJYNN/X

Technical specifications

The table below contains the technical specifications for EWAD330-520AJYNN/X

Model				**EWAD-AJYNN/H**						
Unit size				**330**	**360**	**400**	**420**	**460**	**488**	**520**
Capacity (Eurovent)	Cooling	Nominal	kW	329	358	395	423	459	488	515
Capacity control	Type			stepless						
	Minimum capacity		%	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Capacity Steps			%	13.5 - 100						
Nominal Input	Cooling		kW	118	135	145	157	165	178	190
EER				2.78	2.66	2.73	2.70	2.79	2.75	2.71
ESEER				4.79	4.82	4.78	4.84	4.81	5.01	4.84
Casing	Colour			RAL7032						
	Material			Galvanized and painted steel sheet						
Dimensions	Unit	Height	mm	2355						
		Width	mm	2234						
		Depth	mm	4381	4381	5281	8281	6181	6181	6181
Weight	Unit		kg	4190	4190	4590	4590	4990	4990	4990
	Operating Weight		kg	4440	4440	4840	4840	5240	5240	5240
Air Heat Exchanger	Type			Louvered fins						
	Rows			3	3	2	2 - 3	2	2 - 3	3
	Stages			44	44	44	44 - 44	44	44 - 44	44
	Fin Pitch		mm	1.81	1.81	1.59	1.59 - 1.81	1.59	1.59 - 1.81	1.81
	Face Area		m^2	0.402	0.402	0.503	0.503	0.604	0.604	0.604
	No. of coils			4	4	4	2 - 2	4	2 - 2	4
Water Heat Exchanger Evaporator	Type			Shell and tube						
	Minimum water volume in the system		l	1277	1389	1533	1641	1781	1893	1998
	Water volume		l	271	264	264	256	256	248	248
	Water flow rate	Min	l/min	515	565	622	673	727	768	814
		Nominal	l/min	943	1026	1132	1213	1316	1399	1476
		Max	l/min	1360	1491	1637	1759	1935	2025	2139
Nominal water pressure drop	Cooling	Heat exchanger	kPa	60	61	72	67	78	69	76
Water Heat Exchanger Evaporator	Insulation material			Closed cell foam elastomer						
	Model	Quantity		1	1	1	1	1	1	1
		Model		EV402700 88-NS	EV402700 99-NS	EV402700 99-NS	EV402710 10-NS	EV402710 10-NS	EV402711 11-NS	EV402711 11-NS
Fan	Type			Axial						
	Drive			VFD driven						
	Diameter		mm	800	800	800	800	800	800	800
	Nominal air flow		m^3/min	1960	1960	2450	2450	2940	2940	2940
	Model	Quantity		8	8	10	10	12	12	12
		Speed	rpm	700	700	700	700	700	700	700
Model	Motor input	Cooling	W	900						
Fan	Model	Discharge direction		Top						

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Model				EWAD-AJYNN/H						
Unit size				**330**	**360**	**400**	**420**	**460**	**488**	**520**
Compressor	Type			Single screw compressor						
	Refrigerant oil type			Artic Mobil 68H						
	Refrigerant oil charge		l	26	26	26	26	26	26	26
	Model	Quantity		2	2	2	2	2	2	2
		Model		HSS3118 VR2.0+HS S3118 VR2.0	HSS3118 VR2.0+HS S3120 VR2.0	HSS3120 VR2.0+HS S3120 VR2.0	HSS3120 VR2.0+HS S3121 VR2.0	HSS3121 VR2.0+HS S3121 VR2.0	HSS3121 VR2.0+HS S3122 VR2.0	HSS3122 VR2.0+HS S3122 VR2.0
		Crankcase Heater	W	250	250	250	250	250	250	250
Sound Level	Sound Power	Cooling	dBA	102.8	102.8	103.2	103.2	103.6	103.6	103.6
	Sound Pressure	Cooling	dBA	83.0	83.0	83.0	83.0	83.5	83.5	83.5
	Sound Pressure + OPRN		dBA	77.0	77.0	77.0	77.0	77.5	77.5	77.5
	Sound Pressure + OPLN		dBA	73.0	73.0	73.0	73.0	73.0	73.0	73.0
Operation Range	Water side	Min	°CDB	-9.5 (OPZL)						
		Max	°CDB	15	15	15	15	15	15	15
	Air side	Min	°CDB	-10	-10	-10	-10	-10	-10	-10
		Max	°CDB	32	32	32	32	32	32	32
Refrigerant circuit	Refrigerant type			R-134a						
	Refrigerant charge		kg	73	73	99	105	114	118	121
	No of circuits			2	2	2	2	2	2	2
	Refrigerant control			Electronic expansion valve						
Piping connections	Evaporator water inlet/outlet			168.30	168.30	168.30	168.30	168.30	168.30	168.30

1.8 Technical Specifications: EWYD-AJYNN

Technical specifications

The table below contains the technical specifications for EWYD260-320AJYNN.

Model				EWYD-AJYNN			
Unit size				**260**	**280**	**300**	**320**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	255	275	298	321
	Heating	Nominal	kW	274	306	330	341
Capacity Control	Type			test			
	Minimum capacity		%	15.5	15.5	15.5	15.5
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	89.8	99.3	108	116
	Heating		kW	89.5	99.1	108	117
EER				2.84	2.77	2.76	2.77
COP (Eurovent conditions specified in notes)				3.06	3.09	3.06	2.91
ESEER				4.12	4.08	3.99	3.98
Casing	Colour			RAL7032			
	Material			Galvanized and painted steel sheet			
Dimensions	Unit	Height	mm	2335	2335	2335	2335
		Width	mm	2254	2254	2254	2254
		Depth	mm	3547	3547	3547	4783
Weight	Unit		kg	3370	3370	3370	4020
	Operating Weight		kg	3500	3500	3500	4150
Water Heat Exchanger	Type			Shell and tube			
	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.			
	Nominal Water Flow	Cooling	l/min	731	788	854	920
		Heating	l/min	785	877	946	978
Nominal Water Flow	Cooling	Heat exchanger	kPa	60	65	74	50
	Heating	Heat exchanger	kPa	69	79	90	56
Water Heat Exchanger	Insulation material			Closed cell foam elastomer			
	Model	Quantity		1	1		1
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins			
	Rows			3	3-4	4	3
	Fin Pitch		mm	0.55	0.55 - 0.47	0.47	0.55
	Face Area		m^2	12.07	12.07	12.07	16.10

Model				**EWYD-AJYNN**			
Unit size				**260**	**280**	**300**	**320**
Fan	Type			Axial			
	Drive			Direct drive			
	Diameter		mm	800	800	800	800
	Nominal air flow		m^3/min	1932	1914	1908	2580
	Model	Quantity		6	6	6	8
		Speed	rpm	890	890	890	890
		Motor Output	W	1730	1730	1730	1730
Compressor	Type			Semi-hermetic single screw compressor			
	Refrigerant oil charge		l	26	26	26	26
	Model	Quantity		2	2	2	2
Sound Level	Sound Power	Cooling	dBA	99.5	99.5	99.5	100.4
		Heating	dBA	99.5	99.5	99.5	100.4
	Sound Pressure	Cooling	dBA	80.0	80.0	80.0	80.3
		Heating	dBA	80.0	80.0	80.0	80.3
	Sound Pressure + OPLN	Cooling	dBA	73.7	73.7	73.7	74.1
		Heating	dBA	76.1	76.1	76.1	76.3
Refrigerant circuit	Refrigerant type			R-134a			
	Refrigerant charge		kg	76	76	84	96
	No of circuits			2	2	2	2
Piping connections	Evaporator water inlet/outlet			5”			
Safety Devices				High pressure (pressure switch)			
				Low pressure (pressure switch)			
				Condensation fan magneto-thermal			
				High discharge temperature on the compressor			
				Phase monitor			
				Low pressure ratio			
				High oil pressure drop			
				Low oil pressure			
Notes				Nominal cooling capacity and power input at Eurovent conditions: evaporator 12°C/7°C; ambient 35°C.			
				Nominal heating capacity and power input at Eurovent conditions: evaporator 40°C/45°C; ambient 7°CDB/6°CWB.			

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Technical specifications

The table below contains the technical specifications for EWYD340-380AJYNN.

Model				**EWYD-AJYNN**		
Unit size				**340**	**360**	**380**
Capacity (Eurovent conditions specified in notes)	Cooling	Nominal	kW	343	368	385
	Heating	Nominal	kW	361	397	412
Capacity Control	Type			test		
	Minimum capacity		%	15.5	15.5	15.5
Nominal input (Eurovent conditions specified in notes)	Cooling		kW	123	132	142
	Heating		kW	123	131	139
EER				2.79	2.79	2.71
COP (Eurovent conditions specified in notes)				2.93	3.03	2.96
ESEER				4.00	4.08	3.81
Casing	Colour			RAL7032		
	Material			Galvanized and painted steel sheet		
Dimensions	Unit	Height	mm	2335	2335	2335
		Width	mm	2254	2254	2254
		Depth	mm	4783	4783	4783
Weight	Unit		kg	4020	4020	4020
	Operating Weight		kg	4150	4150	4150
Water Heat Exchanger	Type			Shell and tube		
	Minimum water volume in the system (Formula)			The minimum water content per unit should be calculated with a certain approximation using this simplified formula: Q= 35.83 X (P(kW) / Delta T(°C)) where: Q = minimum water content per unit expressed in litres P = minimum cooling capacity of the unit expressed in kW Delta T = evaporator entering / leaving water temperature difference expressed in °C. For more accurate determination of quantity of water, it is advisable to contact the designer of the plant.		
	Nominal Water Flow	Cooling	l/min	983	1055	1104
		Heating	l/min	1035	1138	1181
Nominal Water Flow	Cooling	Heat exchanger	kPa	53	60	65
	Heating	Heat exchanger	kPa	58	69	74
Water Heat Exchanger	Insulation material			Closed cell foam elastomer		
	Model	Quantity		1	1	
Air Heat Exchanger	Type			Grooved tubes and ALU coated louvred fins		
	Rows			3	3-4	4
	Fin Pitch		mm	0.55	0.55 - 0.47	0.47
	Face Area		m^2	16.10	16.10	16.10

Model				EWYD-AJYNN		
Unit size				**340**	**360**	**380**
Fan	Type			Axial		
	Drive			Direct drive		
	Diameter		mm	800	800	800
	Nominal air flow		m^3/min	2580	2568	2544
	Model	Quantity		8	8	8
		Speed	rpm	890	890	890
		Motor Output	W	1730	1730	1730
Compressor	Type			Semi-hermetic single screw compressor		
	Refrigerant oil charge		l	26	26	26
	Model	Quantity		2	2	2
Sound level	Sound Power	Cooling	dBA	100.4	100.4	100.4
		Heating	dBA	100.4	100.4	100.4
	Sound Pressure	Cooling	dBA	80.3	80.3	80.3
		Heating	dBA	80.3	80.3	80.3
	Sound Pressure + OPLN	Cooling	dBA	74.1	74.1	74.1
		Heating	dBA	76.3	76.3	76.3
Refrigerant circuit	Refrigerant type			R-134a		
	Refrigerant charge		kg	104	104	104
	No of circuits			2	2	2
Piping connections	Evaporator water inlet/outlet			5”		
Safety Devices				High pressure (pressure switch)		
				Low pressure (pressure switch)		
				Condensation fan magneto-thermal		
				High discharge temperature on the compressor		
				Phase monitor		
				Low pressure ratio		
				High oil pressure drop		
				Low oil pressure		
Notes				Nominal cooling capacity and power input at Eurovent conditions: evaporator 12°C/7°C; ambient 35°C.		
				Nominal heating capacity and power input at Eurovent conditions: evaporator 40°C/45°C; ambient 7°CDB/6°CWB.		

1.9 Electrical Specifications: EWAD-AJYNN

Electrical specifications

The table below contains the electrical specifications for EWAD190-300AJYNN.

Model				**EWAD-AJYNN**					
Unit size				**190**	**200**	**230**	**260**	**280**	**300**
Power Supply	Name			YN					
	Phase			3~					
	Frequency		Hz	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
Unit	Starting Current		A	209.3	208.4	219.7	219.7	263.8	272.5
	Nominal Running Current Cooling		A	138.9	136.4	145.2	158.9	171.8	183.5
	Maximum Running Current		A	162	163.3	178.2	196.7	205.5	217.7
	Max unit current for wires sizing		A	178.2	179.7	196.1	216.4	226.1	239.5
Fan	Quantity			4	4	6	6	6	6
	Nominal Running Current Cooling		A	9.3	9.3	14	14	14	14
Pump	Type			Standard pump (OPSP)					
	Phase			3~					
	Power input		kW	1.5	1.5	2.2	2.2	2.2	2.2
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	3.45	3.45	5.03	5.03	5.03	5.03
	Type			High ESP pump (OPHP)					
	Phase			3~					
	Power input		kW	3.0	3.0	4.0	4.0	4.0	4.0
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	6.01	6.01	8.09	8.09	8.09	8.09
Compressor	Phase			3~					
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
	Maximum Running Current		A	152.7	154	164.3	182.7	191.5	203.8
	Power factor			0.87	0.87	0.88	0.88	0.89	0.89
	Starting Method			Star-delta					

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<table>
<tr><th>Model</th><th colspan="6">EWAD-AJYNN</th></tr>
<tr><th>Unit size</th><th>190</th><th>200</th><th>230</th><th>260</th><th>280</th><th>300</th></tr>
<tr><td rowspan="3">Notes</td><td colspan="6">Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.</td></tr>
<tr><td colspan="3">Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor + fans current.</td><td colspan="2">Max unit starting current: Absorbed current of compressor n×1 at 75% + starting current of the other compressor.</td><td>Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor + fans current.</td></tr>
<tr><td colspan="6">Max unit current for wires sizing: compressors FLA (Full Load Ampere) + fans current.</td></tr>
</table>

Electrical specifications

The table below contains the electrical specifications for EWAD320-480AJYNN.

Model				**EWAD-AJYNN**					
Unit size				**320**	**340**	**360**	**400**	**440**	**480**
Power Supply	Name			YN					
	Phase			3~					
	Frequency		Hz	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
Unit	Starting Current		A	282.7	284	289.4	390.3	411.1	411.8
	Nominal Running Current Cooling		A	197	206.2	220.7	265.3	283.2	296.1
	Maximum Running Current		A	231	252	265.2	311.7	349.7	363.1
	Max unit current for wires sizing		A	254.1	277.2	291.7	322.2	355.3	367.1
Fan	Quantity			6	6	6	6	8	8
	Nominal Running Current Cooling		A	14	18.6	18.6	19.8	26.4	26.4
Pump	Type			Standard pump (OPSP)					
	Phase			3~					
	Power input		kW	2.2	2.2	2.2	7.5	7.5	7.5
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	5.03	5.03	5.03	13.7	13.7	13.7
	Type			High ESP pump (OPHP)					
	Phase			3~					
	Power input		kW	4.0	4.0	4.0	7.5	7.5	7.5
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	8.09	8.09	8.09	13.7	13.7	13.7

Model				EWAD-AJYNN					
Unit size				**320**	**340**	**360**	**400**	**440**	**480**
Compressor	Phase			3~					
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
	Maximum Running Current		A	217	233.3	246.6	291.9	323.3	336.7
	Power factor			0.89	0.9	0.9	0.87	0.87	0.89
	Starting Method			Star-delta					
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.					
				Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor + fans current.					Max unit starting current: Absorbed current of compressor n×1 at 75% + starting current of the other compressor
				Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.					

Electrical specifications

The table below contains the electrical specifications for EWAD500-600AJYNN.

Model				EWAD-AJYNN		
Unit size				**500**	**550**	**600**
Power Supply	Name			YN		
	Phase			3~		
	Frequency		Hz	50	50	50
	Voltage		V	400	400	400
	Voltage Tolerance	Minimum	%	-10%		
		Maximum	%	+10%		
Unit	Starting Current		A	420.0	420.8	427.9
	Nominal Running Current Cooling		A	307.0	318.5	328.0
	Maximum Running Current		A	373.9	375.5	388.4
	Max unit current for wires sizing		A	378.8	387.3	395.7
Fan	Quantity			8	8	8
	Nominal Running Current Cooling		A	26.4	26.4	26.4

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Model				**EWAD-AJYNN**		
Unit size				**500**	**550**	**600**
Pump	Type			Standard pump (OPSP)		
	Phase			3~		
	Power input		kW	11.0	11.0	11.0
	Voltage		V	400	400	400
	Maximum Running Current		A	20.0	20.0	20.0
	Type			High ESP pump (OPHP)		
	Phase			3~		
	Power input		kW	11.0	11.0	11.0
	Voltage		V	400	400	400
	Maximum Running Current		A	20.0	20.0	20.0
Compressor	Phase			3~		
	Voltage		V	400	400	400
	Voltage Tolerance	Minimum	%	-10%		
		Maximum	%	+10%		
	Maximum Running Current		A	347.5	349.1	362.0
	Power factor			0.91	0.91	0.92
	Starting Method			Star-delta		
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.		
				Max unit starting current: Absorbed current of compressor n×1 at 75% + starting current of the other compressor.	Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor+ fans current.	
				Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.		

1.10 Electrical Specifications: EWAD-AJYNN/Q

Electrical specifications

The table below contains the electrical specifications for EWAD210-320AJYNN/Q.

Model				**EWAD-AJYNN/Q**					
Unit size				**210**	**240**	**260**	**280**	**300**	**320**
Power Supply	Name			YN					
	Phase			3~					
	Frequency		Hz	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
Unit	Starting Current		A	207.9	218.7	218.1	262.7	273.8	285.7
	Nominal Running Current Cooling		A	137.8	147.6	160.8	177.7	193.1	210.1
	Maximum Running Current		A	161.5	177.3	194.5	199.1	216.0	228.1
	Max unit current for wires sizing		A	177.7	195.0	213.9	219.0	237.6	251.0
Fan	Quantity			6	8	8	8	8	8
	Nominal Running Current Cooling		A	7.6	10.2	10.2	10.2	10.2	10.2
Pump	Type			Standard pump (OPSP)					
	Phase			3~					
	Power input		kW	1.5	2.2	2.2	2.2	2.2	2.2
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	3.45	5.03	5.03	5.03	5.03	5.03
	Type			High ESP pump (OPHP)					
	Phase			3~					
	Power input		kW	3.0	4.0	4.0	4.0	4.0	4.0
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	6.01	8.09	8.09	8.09	8.09	8.09
Compressor	Phase			3~					
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
	Maximum Running Current		A	153.9	167.1	184.3	188.9	205.8	218.0
	Power factor			0.87	0.87	0.87	0.89	0.89	0.89
	Starting Method			Star-delta					
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.					
				Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor + fans current.					
				Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.					

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Electrical specifications

The table below contains the electrical specifications for EWAD340-500AJYNN/Q.

Model				**EWAD-AJYNN/Q**				
Unit size				**340**	**400**	**440**	**460**	**500**
Power Supply	Name			YN				
	Phase			3~				
	Frequency		Hz	50	50	50	50	50
	Voltage		V	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%				
		Maximum	%	+10%				
Unit	Starting Current		A	285.7	385.0	405.0	407.2	413.7
	Nominal Running Current Cooling		A	224.8	264.2	290.9	300.9	309.0
	Maximum Running Current		A	246.4	301.2	333.5	347.8	364.9
	Max unit current for wires sizing		A	271.0	314.4	340.9	354.2	367.4
Fan	Quantity			8	8	8	9	9
	Nominal Running Current Cooling		A	10.2	12.0	12.0	13.5	15.0
Pump	Type			Standard pump (OPSP)				
	Phase			3~				
	Power input		kW	2.2	7.5	7.5	7.5	7.5
	Voltage		V	400	400	400	400	400
	Maximum Running Current		A	5.03	13.7	13.7	13.7	13.7
	Type			High ESP pump (OPHP)				
	Phase			3~				
	Power input		kW	4.0	7.5	7.5	7.5	7.5
	Voltage		V	400	400	400	400	400
	Maximum Running Current		A	8.09	13.7	13.7	13.7	13.7
Compressor	Phase			3~				
	Voltage		V	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%				
		Maximum	%	+10%				
	Maximum Running Current		A	236.3	289.2	321.5	334.3	349.9
	Power factor			0.9	0.87	0.87	0.88	0.91
	Starting Method			Star-delta				
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.				
				Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor+ fans current.				
				Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.				

1.11 Electrical Specifications: EWAD-AJYNN/A

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Electrical specifications

The table below contains the electrical specifications for EWAD260-380AJYNN/A.

<table>
<tr><th colspan="4">Model</th><th colspan="6">EWAD-AJYNN/A</th></tr>
<tr><th colspan="4">Unit size</th><th>260</th><th>280</th><th>320</th><th>340</th><th>360</th><th>380</th></tr>
<tr><td rowspan="6">Power Supply</td><td colspan="3">Name</td><td colspan="6">YN</td></tr>
<tr><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Frequency</td><td>Hz</td><td>50</td><td>50</td><td>50</td><td>50</td><td>50</td><td>50</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td rowspan="2">Voltage Tolerance</td><td>Minimum</td><td>%</td><td colspan="6">-10%</td></tr>
<tr><td>Maximum</td><td>%</td><td colspan="6">+10%</td></tr>
<tr><td rowspan="4">Unit</td><td colspan="2">Starting Current</td><td>A</td><td>211.4</td><td>224.8</td><td>223.4</td><td>267.8</td><td>278.3</td><td>291.1</td></tr>
<tr><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>136.8</td><td>150.6</td><td>161.0</td><td>176.6</td><td>191.1</td><td>202.2</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>174.4</td><td>195.4</td><td>211.0</td><td>219.7</td><td>233.6</td><td>258.2</td></tr>
<tr><td colspan="2">Max unit current for wires sizing</td><td>A</td><td>191.9</td><td>215.0</td><td>232.1</td><td>241.6</td><td>257.0</td><td>284.0</td></tr>
<tr><td rowspan="2">Fan</td><td colspan="3">Quantity</td><td>6</td><td>8</td><td>8</td><td>8</td><td>8</td><td>8</td></tr>
<tr><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>14</td><td>18.6</td><td>18.6</td><td>18.6</td><td>18.6</td><td>26.4</td></tr>
<tr><td rowspan="10">Pump</td><td colspan="3">Type</td><td colspan="6">Standard pump (OPSP)</td></tr>
<tr><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Power input</td><td>kW</td><td>2.2</td><td>2.2</td><td>2.2</td><td>3.0</td><td>3.0</td><td>3.0</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>5.03</td><td>5.03</td><td>5.03</td><td>6.01</td><td>6.01</td><td>6.01</td></tr>
<tr><td colspan="3">Type</td><td colspan="6">High ESP pump (OPHP)</td></tr>
<tr><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Power input</td><td>kW</td><td>4.0</td><td>4.0</td><td>4.0</td><td>5.5</td><td>5.5</td><td>5.5</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>8.09</td><td>8.09</td><td>8.09</td><td>10.1</td><td>10.1</td><td>10.1</td></tr>
<tr><td rowspan="7">Compressor</td><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td rowspan="2">Voltage Tolerance</td><td>Minimum</td><td>%</td><td colspan="6">-10%</td></tr>
<tr><td>Maximum</td><td>%</td><td colspan="6">+10%</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>160.4</td><td>176.8</td><td>192.4</td><td>201.0</td><td>215.0</td><td>231.8</td></tr>
<tr><td colspan="3">Power factor</td><td>0.88</td><td>0.88</td><td>0.88</td><td>0.89</td><td>0.89</td><td>0.9</td></tr>
<tr><td colspan="3">Starting Method</td><td colspan="6">Star-delta</td></tr>
<tr><td colspan="4" rowspan="3">Notes</td><td colspan="6">Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.</td></tr>
<tr><td colspan="6">Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor + fans current.</td></tr>
<tr><td colspan="6">Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.</td></tr>
</table>

Electrical specifications

The table below contains the electrical specifications for EWAD420-650AJYNN/A.

<table>
<tr><td colspan="4">Model</td><td colspan="5">EWAD-AJYNN/A</td></tr>
<tr><td colspan="4">Unit size</td><td>420</td><td>500</td><td>550</td><td>600</td><td>650</td></tr>
<tr><td rowspan="6">Power Supply</td><td colspan="3">Name</td><td colspan="5">YN</td></tr>
<tr><td colspan="3">Phase</td><td colspan="5">3~</td></tr>
<tr><td colspan="2">Frequency</td><td>Hz</td><td>50</td><td>50</td><td>50</td><td>50</td><td>50</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td rowspan="2">Voltage Tolerance</td><td>Minimum</td><td>%</td><td colspan="5">-10%</td></tr>
<tr><td>Maximum</td><td>%</td><td colspan="5">+10%</td></tr>
<tr><td rowspan="4">Unit</td><td colspan="2">Starting Current</td><td>A</td><td>291.1</td><td>395.7</td><td>417.9</td><td>418.3</td><td>428.1</td></tr>
<tr><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>212.4</td><td>273.7</td><td>290.2</td><td>304.5</td><td>317.6</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>273.4</td><td>340.3</td><td>392.2</td><td>390.6</td><td>402.2</td></tr>
<tr><td colspan="2">Max unit current for wires sizing</td><td>A</td><td>300.7</td><td>328.8</td><td>361.9</td><td>373.7</td><td>385.4</td></tr>
<tr><td rowspan="2">Fan</td><td colspan="3">Quantity</td><td>8</td><td>8</td><td>8</td><td>10</td><td>10</td></tr>
<tr><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>26.4</td><td>26.4</td><td>33.0</td><td>33.0</td><td>33.0</td></tr>
<tr><td rowspan="10">Pump</td><td colspan="3">Type</td><td colspan="5">Standard pump (OPSP)</td></tr>
<tr><td colspan="3">Phase</td><td colspan="5">3~</td></tr>
<tr><td colspan="2">Power input</td><td>kW</td><td>3.0</td><td>11.0</td><td>11.0</td><td>11.0</td><td>11.0</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>6.01</td><td>20.0</td><td>20.0</td><td>20.0</td><td>20.0</td></tr>
<tr><td colspan="3">Type</td><td colspan="5">High ESP pump (OPHP)</td></tr>
<tr><td colspan="3">Phase</td><td colspan="5">3~</td></tr>
<tr><td colspan="2">Power input</td><td>kW</td><td>5.5</td><td>11.0</td><td>11.0</td><td>11.0</td><td>11.0</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td></td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>10.1</td><td>20.0</td><td>20.0</td><td>20.0</td><td>20.0</td></tr>
<tr><td rowspan="7">Compressor</td><td colspan="3">Phase</td><td colspan="5">3~</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td rowspan="2">Voltage Tolerance</td><td>Minimum</td><td>%</td><td colspan="5">-10%</td></tr>
<tr><td>Maximum</td><td>%</td><td colspan="5">+10%</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>247.0</td><td>313.9</td><td>359.2</td><td>357.6</td><td>369.2</td></tr>
<tr><td colspan="3">Power factor</td><td>0.9</td><td>0.86</td><td>0.88</td><td>0.9</td><td>0.92</td></tr>
<tr><td colspan="3">Starting Method</td><td colspan="5">Star-delta</td></tr>
<tr><td colspan="4" rowspan="3">Notes</td><td colspan="5">Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.</td></tr>
<tr><td colspan="5">Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor+ fans current.</td></tr>
<tr><td colspan="5">Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.</td></tr>
</table>

1.12 Electrical Specifications: EWAD-AJYNN/H

Electrical specifications

The table below contains the electrical specifications for EWAD200-300AJYNN/H.

<table>
<tr><th colspan="4">Model</th><th colspan="6">EWAD-AJYNN/H</th></tr>
<tr><th colspan="4">Unit size</th><th>200</th><th>210</th><th>240</th><th>260</th><th>280</th><th>300</th></tr>
<tr><td rowspan="6">Power Supply</td><td colspan="3">Name</td><td colspan="6">YN</td></tr>
<tr><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Frequency</td><td>Hz</td><td>50</td><td>50</td><td>50</td><td>50</td><td>50</td><td>50</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td rowspan="2">Voltage Tolerance</td><td>Minimum</td><td>%</td><td colspan="6">-10%</td></tr>
<tr><td>Maximum</td><td>%</td><td colspan="6">+10%</td></tr>
<tr><td rowspan="4">Unit</td><td colspan="2">Starting Current</td><td>A</td><td>212.2</td><td>211.3</td><td>226.1</td><td>226.1</td><td>270.1</td><td>278.3</td></tr>
<tr><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>135.5</td><td>133.1</td><td>147.0</td><td>159.1</td><td>171.2</td><td>182.2</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>167.7</td><td>170.0</td><td>190.8</td><td>209.0</td><td>219.8</td><td>231.4</td></tr>
<tr><td colspan="2">Max unit current for wires sizing</td><td>A</td><td>184.4</td><td>187.0</td><td>209.9</td><td>229.9</td><td>241.8</td><td>254.5</td></tr>
<tr><td rowspan="2">Fan</td><td colspan="3">Quantity</td><td>4</td><td>4</td><td>6</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>16</td><td>16</td><td>24</td><td>24</td><td>24</td><td>24</td></tr>
<tr><td rowspan="10">Pump</td><td colspan="3">Type</td><td colspan="6">Standard pump (OPSP)</td></tr>
<tr><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Power input</td><td>kW</td><td>1.5</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td><td>2.2</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>3.45</td><td>5.03</td><td>5.03</td><td>5.03</td><td>5.03</td><td>5.03</td></tr>
<tr><td colspan="3">Type</td><td colspan="6">High ESP pump (OPHP)</td></tr>
<tr><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Power input</td><td>kW</td><td>3.0</td><td>3.0</td><td>4.0</td><td>4.0</td><td>4.0</td><td>4.0</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>6.01</td><td>6.01</td><td>8.09</td><td>8.09</td><td>8.09</td><td>8.09</td></tr>
<tr><td rowspan="7">Compressor</td><td colspan="3">Phase</td><td colspan="6">3~</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td rowspan="2">Voltage Tolerance</td><td>Minimum</td><td>%</td><td colspan="6">-10%</td></tr>
<tr><td>Maximum</td><td>%</td><td colspan="6">+10%</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>151.7</td><td>154</td><td>166.8</td><td>185</td><td>195.8</td><td>207.4</td></tr>
<tr><td colspan="3">Power factor</td><td>0.87</td><td>0.87</td><td>0.88</td><td>0.88</td><td>0.89</td><td>0.89</td></tr>
<tr><td colspan="3">Starting Method</td><td colspan="6">Star-delta</td></tr>
<tr><td colspan="4" rowspan="3">Notes</td><td colspan="6">Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.</td></tr>
<tr><td colspan="6">Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor+ fans current.</td></tr>
<tr><td colspan="6">Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.</td></tr>
</table>

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Electrical specifications

The table below contains the electrical specifications for EWAD320-480AJYNN/H.

Model				EWAD-AJYNN/H					
Unit size				**320**	**340**	**400**	**420**	**460**	**480**
Power Supply	Name			YN					
	Phase			3~					
	Frequency		Hz	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
Unit	Starting Current		A	286.9	293.0	296.7	391.6	412.0	412.7
	Nominal Running Current Cooling		A	193.6	207.9	217.9	253.4	274.6	287.4
	Maximum Running Current		A	241.6	268.4	279.2	320.6	359.8	369.4
	Max unit current for wires sizing		A	265.8	295.2	307.1	328.8	361.9	373.7
Fan	Quantity			6	8	8	8	10	10
	Nominal Running Current Cooling		A	24	32	32	26.4	33.0	33.0
Pump	Type			Standard pump (OPSP)					
	Phase			3~					
	Power input		kW	2.2	2.2	2.2	7.5	7.5	11.0
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	5.03	5.03	5.03	13.7	13.7	20.0
	Type			High ESP pump (OPHP)					
	Phase			3~					
	Power input		kW	4.0	4.0	4.0	7.5	7.5	11.0
	Voltage		V	400	400	400	400	400	400
	Maximum Running Current		A	8.09	8.09	8.09	13.7	13.7	20.0
Compressor	Phase			3~					
	Voltage		V	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%					
		Maximum	%	+10%					
	Maximum Running Current		A	217.6	236.4	247.2	294.2	326.8	336.4
	Power factor			0.89	0.9	0.9	0.87	0.88	0.89
	Starting Method			Star-delta					
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.					
				Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor+ fans current.					
				Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.					

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Electrical specifications

The table below contains the electrical specifications for EWAD500-600AJYNN/H.

Model				EWAD-AJYNN/H		
Unit size				**500**	**550**	**600**
Power Supply	Name			YN		
	Phase			3~		
	Frequency		Hz	50	50	50
	Voltage		V	400	400	400
	Voltage Tolerance	Minimum	%	-10%		
		Maximum	%	+10%		
Unit	Starting Current		A	420.9	424.3	430.0
	Nominal Running Current Cooling		A	298.4	315.0	322.6
	Maximum Running Current		A	380.2	380.1	395.2
	Max unit current for wires sizing		A	385.4	393.9	402.3
Fan	Quantity			10	10	10
	Nominal Running Current Cooling		A	33.0	33.0	33.0
Pump	Type			Standard pump (OPSP)		
	Phase			3~		
	Power input		kW	11.0	11.0	11.0
	Voltage		V	400	400	400
	Maximum Running Current		A	20.0	20.0	20.0
	Type			High ESP pump (OPHP)		
	Phase			3~		
	Power input		kW	11.0	11.0	11.0
	Voltage		V	400	400	400
	Maximum Running Current		A	20.0	20.0	20.0
Compressor	Phase			3~		
	Voltage		V	400	400	400
	Voltage Tolerance	Minimum	%	-10%		
		Maximum	%	+10%		
	Maximum Running Current		A	347.2	347.1	362.2
	Power factor			0.91	0.91	0.91
	Starting Method			Star-Delta		
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.		
				Max unit starting current: Starting current of biggest compressor + 75% of nominal absorbed current of the other compressor+ fans current.		
				Max unit current for wires sizing: compressor FLA (Full Load Ampere) + fans current.		

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1.13 Electrical Specifications: EWAD-AJYNN/S

Electrical specifications

The table below contains the electrical specifications for EWAD330-520AJYNN/S.

Model				EWAD-AJYNN/Q						
Unit size				**330**	**360**	**400**	**420**	**460**	**490**	**520**
Power Supply	Name			YN						
	Phase			3~						
	Frequency		Hz	50	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
Unit	Starting Current		A	232	250	251	278	297	311	316
	Maximum starting current		A	232	250	251	278	297	311	316
	Starting current soft start		A	232	250	251	278	297	311	316
	Nominal Running Current Cooling		A	194	220	239	258	273	292	312
	Power factor at nominal conditions		A	0.98	0.98	0.98	0.98	0.98	0.98	0.98
	Maximum Running Current		A	322	322	328	358	394	394	394
	Max unit current for wires sizing		A	355	355	361	394	433	433	433
	Recommended fuses according to IEC standard 269-2			3x500 A gG	3x500 A gG	3x500 A gG	3x630 A gG	3x800 A gG	3x800 A gG	3x800 A gG
Fan	Type			Axial						
	Starting Method			VFD driven						
	Quantity			8	8	10	10	12	12	12
	Phase			3~						
	Voltage		V	400	400	400	400	400	400	400
	Nominal Running Current Cooling		A	22.4	22.4	28	28	33.6	33.6	33.6
	Maximum Running Current		A	22.4	22.4	28	28	33.6	33.6	33.6
Compressor	Phase			3~						
	Voltage		V	400	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
	Starting current		A	150+150						
	Nominal running current (RLA)		A	150+150						
	Maximum Running Current		A	150+150	150+150	150+150	150+150	180+180	180+180	180+180
	Power factor			0.98	0.98	0.98	0.98	0.98	0.98	0.98
	Starting Method			VDF driven						
	Recommended fuses			200 A gG						
Control Circuit	Phase			3~						
	Frequency		Hz	50	50	50	50	50	50	50
	Voltage		V	230	230	230	230	230	230	230
	Recommended fuses			Factory installed						
	Crankcase heater (E1/2HC)		W	250+250						

Model				EWAD-AJYNN/Q						
Unit size				**330**	**360**	**400**	**420**	**460**	**490**	**520**
Evaporator Heater Tape	Supply voltage		V	230	230	230	230	230	230	230
	Capacity		W	150	150	150	150	150	150	150
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
	Recommended fuses			2 A gG						
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.						
				Nominal current in cooling mode is referred to installation with 25kA short circuit current and is based on the following conditions: evaporator 12°C/7°C; condenser 35°C.						
				Maximum starting current: starting current of biggest compressor + current of the other compressor at 75% of maximum load						
				Maximum current for wires sizing: (compressors full load ampere + fans current) x 1.1						
				Power factor is intended as minimum displacement power factor (cosfi).						

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1.14 Electrical Specifications: EWAD-AJYNN/X

Electrical specifications

The table below contains the electrical specifications for EWAD330-520AJYNN/X.

Model				EWAD-AJYNN/Q						
Unit size				**330**	**360**	**400**	**420**	**460**	**490**	**520**
Power Supply	Name			YN						
	Phase			3~						
	Frequency		Hz	50	50	50	50	50	50	50
	Voltage		V	400	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
Unit	Starting Current		A	232	250	251	278	297	311	316
	Maximum starting current		A	232	250	251	278	297	311	316
	Starting current soft start		A	232	250	251	278	297	311	316
	Nominal Running Current Cooling		A	183	209	225	244	256	275	295
	Power factor at nominal conditions		A	0.98	0.98	0.98	0.98	0.98	0.98	0.98
	Maximum Running Current		A	311	311	314	344	377	377	377
	Max unit current for wires sizing		A	342	342	345	378	414	414	414
	Recommended fuses according to IEC standard 269-2			3x500 A gG	3x500 A gG	3x500 A gG	3x630 A gG	3x800 A gG	3x800 A gG	3x800 A gG
Fan	Type			Axial						
	Starting Method			VFD driven						
	Quantity			8	8	10	10	12	12	12
	Phase			3~						
	Voltage		V	400	400	400	400	400	400	400
	Nominal Running Current Cooling		A	11.2	11.2	14.0	14.0	16.8	16.8	16.8
	Maximum Running Current		A	11.2	11.2	14.0	14.0	16.8	16.8	16.8
Compressor	Phase			3~						
	Voltage		V	400	400	400	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
	Starting current		A	150+150						
	Nominal running current (RLA)		A	150+150						
	Maximum Running Current		A	150+150	150+150	150+150	150+150	180+180	180+180	180+180
	Power factor			0.98	0.98	0.98	0.98	0.98	0.98	0.98
	Starting Method			VDF driven						
	Recommended fuses			200 A gG						
Control Circuit	Phase			3~						
	Frequency		Hz	50	50	50	50	50	50	50
	Voltage		V	230	230	230	230	230	230	230
	Recommended fuses			Factory installed						
	Crankcase heater (E1/2HC)		W	250+250						

Model				**EWAD-AJYNN/Q**						
Unit size				**330**	**360**	**400**	**420**	**460**	**490**	**520**
Evaporator Heater Tape	Supply voltage		V	230	230	230	230	230	230	230
	Capacity		W	150	150	150	150	150	150	150
	Voltage Tolerance	Minimum	%	-10%						
		Maximum	%	+10%						
	Recommended fuses			2 A gG						
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.						
				Nominal current in cooling mode is referred to installation with 25kA short circuit current and is based on the following conditions: evaporator 12°C/7°C; condenser 35°C.						
				Maximum starting current: starting current of biggest compressor + current of the other compressor at 75% of maximum load						
				Maximum current for wires sizing: (compressors full load ampere + fans current) x 1.1						
				Power factor is intended as minimum displacement power factor (cosfi).						

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1.15 Electrical Specifications: EWYD-AJYNN

Electrical Specifications

The table below contains the electrical specifications for EWYD260-320AJYNN.

Model				**EWYD-AJYNN**			
Unit size				**260**	**280**	**300**	**320**
Power Supply	Name			YN			
	Phase			3~			
	Frequency		Hz	50	50	50	50
	Voltage		V	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%			
		Maximum	%	+10%			
Unit	Starting Current		A	173	174	174	207
	Nominal Running Current Cooling		A	142	156	169	183
	Nominal Running Current Heating		A	142	155	168	186
	Maximum Running Current		A	208	208	208	246
	Max unit current for wires sizing		A	229	229	229	270
Fan	Nominal Running Current Cooling		A	19.8	19.8	19.8	26.4
Pump	Type			Single pump - Low ESP (OPSP)			
	Phase			3~			
	Power input		kW	2.2	2.2	3.0	3.0
	Voltage		V	400	400	400	400
	Nominal Running Current		A	5	5	6	6
	Type			Single pump - High ESP (OPHP)			
	Phase			3~			
	Power input		kW	4.0	4.0	5.5	5.5
	Voltage		V	400	400	400	400
	Nominal Running Current		A	8.1	8.1	10.1	10.1
	Type			Double pump - Low ESP (OPTP)			
	Phase			3~			
	Power input		kW	2.2	3.0	3.0	3.0
	Voltage		V	400	400	400	400
	Nominal Running Current		A	5.0	6.0	6.0	6.0
	Type			Double pump - High ESP (OPHT)			
	Phase			3~			
	Power input		kW	4.0	4.0	5.5	5.5
	Voltage		V	400	400	400	400
	Nominal Running Current		A	8.1	8.1	10.1	10.1
Compressor	Phase			3~			
	Voltage		V	400	400	400	400
	Voltage Tolerance	Minimum	%	-10%			
		Maximum	%	+10%			
	Maximum Running Current		A	188	188	188	219
	Starting Method			Inverter			

<table>
<tr><td>Model</td><td colspan="4">EWYD-AJYNN</td></tr>
<tr><td>Unit size</td><td>260</td><td>280</td><td>300</td><td>320</td></tr>
<tr><td rowspan="5">Notes</td><td colspan="4">Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.</td></tr>
<tr><td colspan="4">Nominal current in cooling mode is referred to installation with 25kA short circuit current and is based on the following conditions: evaporator 12°C/7°C, ambient 35°C. Compressor + fans current.</td></tr>
<tr><td colspan="4">Nominal current in heating mode is referred to installation with 25kA short circuit current and is based on the following conditions: condenser 40°C/45°C, ambient 7°CDB/6°CWB</td></tr>
<tr><td colspan="4">Maximum starting current: starting current of biggest compressor + 75% of maximum current of the other compressor + fans current for the circuit at 75%</td></tr>
<tr><td colspan="4">Maximum current for wires sizing:
(compressors full load ampere + fans current) x 1.1</td></tr>
</table>

Electrical specifications

The table below contains the electrical specifications for EWYD340-380AJYNN.

<table>
<tr><td colspan="4">Model</td><td colspan="3">EWYD-AJYNN</td></tr>
<tr><td colspan="4">Unit size</td><td>340</td><td>360</td><td>380</td></tr>
<tr><td rowspan="6">Power Supply</td><td colspan="3">Name</td><td colspan="3">YN</td></tr>
<tr><td colspan="3">Phase</td><td colspan="3">3~</td></tr>
<tr><td colspan="2">Frequency</td><td>Hz</td><td>50</td><td>50</td><td>50</td></tr>
<tr><td colspan="2">Voltage</td><td>V</td><td>400</td><td>400</td><td>400</td></tr>
<tr><td rowspan="2">Voltage Tolerance</td><td>Minimum</td><td>%</td><td colspan="3">-10%</td></tr>
<tr><td>Maximum</td><td>%</td><td colspan="3">+10%</td></tr>
<tr><td rowspan="5">Unit</td><td colspan="2">Starting Current</td><td>A</td><td>230</td><td>231</td><td>231</td></tr>
<tr><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>193</td><td>209</td><td>220</td></tr>
<tr><td colspan="2">Nominal Running Current Heating</td><td>A</td><td>192</td><td>205</td><td>219</td></tr>
<tr><td colspan="2">Maximum Running Current</td><td>A</td><td>276</td><td>276</td><td>276</td></tr>
<tr><td colspan="2">Max unit current for wires sizing</td><td>A</td><td>304</td><td>304</td><td>304</td></tr>
<tr><td>Fan</td><td colspan="2">Nominal Running Current Cooling</td><td>A</td><td>26.4</td><td>26.4</td><td>26.4</td></tr>
</table>

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Model				EWYD-AJYNN		
Unit size				**340**	**360**	**380**
Pump	Type			Single pump - Low ESP (OPSP)		
	Phase			3~		
	Power input		kW	3.0	3.0	3.0
	Voltage		V	400	400	400
	Nominal Running Current		A	6	6	6
	Type			Single pump - High ESP (OPHP)		
	Phase			3~		
	Power input		kW	5.5	5.5	5.5
	Voltage		V	400	400	400
	Nominal Running Current		A	10.1	10.1	10.1
	Type			Double pump - Low ESP (OPTP)		
	Phase			3~		
	Power input		kW	3.0	3.0	3.0
	Voltage		V	400	400	400
	Nominal Running Current		A	6.0	6.0	6.0
	Type			Double pump - High ESP (OPHT)		
	Phase			3~		
	Power input		kW	5.5	5.5	5.5
	Voltage		V	400	400	400
	Nominal Running Current		A	10.1	10.1	10.1
Compressor	Phase			3~		
	Voltage		V	400	400	400
	Voltage Tolerance	Minimum	%	-10%		
		Maximum	%	+10%		
	Maximum Running Current		A	250	250	250
	Starting Method			Inverter		
Notes				Allowed voltage tolerance ± 10%. Voltage unbalance between phases must be within ± 3%.		
				Nominal current in cooling mode is referred to installation with 25kA short circuit current and is based on the following conditions: evaporator 12°C/7°C, ambient 35°C. Compressor + fans current.		
				Nominal current in heating mode is referred to installation with 25kA short circuit current and is based on the following conditions: condenser 40°C/45°C, ambient 7°CDB/6°CWB		
				Maximum starting current: starting current of biggest compressor + 75% of maximum current of the other compressor + fans current for the circuit at 75%		
				Maximum current for wires sizing: (compressors full load ampere + fans current) x 1.1		

1.16 Outlook Drawings

Note

Due to the fact that not one unit is the same, it is not possible to provide the dimensional drawings for all units in this Service Manual.

However, for every serial number, there is a dimensional drawing available on http://passdoor.mcquay.it

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1.17 Capacity Tables: EWAD-AJYNN

EWAD190-280AJYNN

The table below contains the capacity tables for EWAD190-280AJYNN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)									
		25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)
190	4	187,3	60,9	178,2	66,9	168,5	73,3	158,3	80,3	149,6	86,2
	5	192,9	61,9	183,5	67,9	173,6	74,4	163,1	81,4	154,3	87,4
	6	198,5	63,0	188,8	69,0	178,7	75,5	168,1	82,6	158,1	88,0
	7	204,2	64,1	194,3	70,1	184,0	76,7	173,1	83,7	160,1	86,5
	8	209,8	65,2	200,0	71,3	189,3	77,8	178,2	84,9	161,9	85,0
	9	215,5	66,3	205,5	72,5	194,7	79,1	183,3	86,2	163,5	83,4
	10	221,3	67,4	211,1	73,6	200,3	80,3	188,5	87,4	164,9	81,9
	11	227,1	68,6	216,8	74,8	205,8	81,6	193,9	88,8	166,1	80,3
	12	233,0	69,7	222,5	76,1	211,3	82,8	199,4	90,1	168,3	79,5
	13	239,0	71,0	228,2	77,3	216,9	84,1	204,9	91,4	169,2	77,9
	14	245,1	72,2	234,1	78,6	222,5	85,4	206,6	90,2	171,0	77,1
	15	251,4	73,5	240,0	79,9	228,2	86,8	208,3	88,6	171,6	75,4
200	4	200,6	59,6	191,3	65,5	181,2	71,8	170,6	78,6	161,6	84,5
	5	206,3	60,6	196,9	66,5	186,7	72,9	175,8	79,7	166,6	85,6
	6	212,1	61,5	202,5	67,5	192,2	73,9	181,2	80,8	171,9	86,7
	7	218,1	62,6	208,2	68,5	197,8	75,0	186,6	82,0	177,2	87,9
	8	224,7	63,7	213,9	69,6	203,5	76,1	192,1	83,1	182,5	89,1
	9	232,2	65,0	220,0	70,7	209,1	77,2	197,7	84,3	185,7	88,8
	10	239,4	66,3	227,0	72,0	214,9	78,4	203,3	85,5	188,4	88,1
	11	246,0	67,4	234,3	73,4	220,9	79,6	208,9	86,7	189,2	85,7
	12	252,4	68,6	241,3	74,7	227,8	81,0	214,5	87,9	190,6	84,1
	13	259,0	69,7	247,7	75,9	235,0	82,5	220,4	89,2	193,3	83,4
	14	265,6	70,9	254,1	77,2	241,8	83,9	227,3	90,7	194,4	81,7
	15	272,4	72,1	260,5	78,4	248,2	85,2	234,3	92,2	195,2	80,0
230	4	226,3	61,7	215,8	67,8	204,6	74,3	192,6	81,4	183,0	87,5
	5	233,3	62,7	222,6	68,8	211,3	75,4	199,3	82,5	189,0	88,6
	6	240,6	63,7	229,6	69,8	218,1	76,5	205,8	83,6	195,1	89,7
	7	247,9	64,8	236,7	70,9	225,0	77,6	212,5	84,8	202,0	91,0
	8	255,4	65,8	243,9	72,0	231,9	78,7	219,2	86,0	208,6	92,2
	9	262,9	66,9	251,3	73,1	239,0	79,9	226,0	87,1	215,2	93,4
	10	270,5	68,0	258,7	74,3	246,2	81,1	233,0	88,4	221,9	94,6
	11	278,3	69,2	266,3	75,5	253,5	82,3	240,1	89,6	228,7	95,9
	12	286,2	70,3	273,9	76,7	260,9	83,5	247,3	90,9	235,6	97,2
	13	294,1	71,5	281,7	77,9	268,4	84,8	254,4	92,2	242,7	98,5
	14	302,2	72,7	289,5	79,1	276,0	86,1	261,8	93,5	249,0	99,5
	15	310,4	73,9	297,4	80,4	283,7	87,4	269,2	94,9	253,6	99,2
260	4	247,1	68,8	235,4	75,5	222,9	82,8	210,0	90,7	199,0	97,5
	5	254,9	70,0	242,8	76,7	230,1	84,0	216,8	91,9	205,7	98,8
	6	262,7	71,1	250,4	77,9	237,4	85,2	223,7	93,2	212,4	100,0
	7	270,5	72,3	258,2	79,1	245,0	86,5	230,9	94,5	219,2	101,3
	8	278,5	73,5	266,0	80,4	252,5	87,8	238,3	95,8	226,2	102,7
	9	286,6	74,7	273,8	81,6	260,2	89,1	245,7	97,2	233,4	104,1
	10	294,8	75,9	281,7	82,9	268,0	90,4	253,2	98,6	240,7	105,5
	11	303,1	77,2	289,7	84,2	275,7	91,8	260,7	100,0	248,1	107,0
	12	311,5	78,5	297,9	85,6	283,5	93,2	268,5	101,4	255,6	108,5
	13	320,0	79,8	306,1	86,9	291,6	94,6	276,1	102,9	263,1	110,0
	14	328,7	81,2	314,5	88,3	299,6	96,1	283,9	104,4	269,0	110,8
	15	337,3	82,6	323,0	89,8	307,8	97,5	291,9	105,9	271,3	108,9
280	4	263,6	75,1	251,0	82,3	237,7	90,2	223,4	98,7	211,4	106,0
	5	271,8	76,3	259,0	83,6	245,3	91,5	230,9	100,1	218,6	107,4
	6	280,1	77,6	266,9	84,9	253,2	92,9	238,4	101,5	226,0	108,9
	7	288,6	78,9	275,1	86,3	261,0	94,3	246,0	102,9	233,4	110,3
	8	297,1	80,2	283,5	87,7	268,9	95,7	253,8	104,4	240,8	111,9
	9	305,8	81,6	291,8	89,1	277,1	97,2	261,5	105,9	248,5	113,4
	10	314,6	83,0	300,4	90,5	285,3	98,7	269,4	107,4	256,1	115,0
	11	323,5	84,4	309,0	92,0	293,8	100,2	277,5	109,0	263,8	116,6
	12	332,5	85,9	317,8	93,5	302,2	101,8	285,7	110,6	269,9	117,1
	13	341,6	87,3	326,6	95,0	310,7	103,3	294,0	112,3	275,0	116,9
	14	350,8	88,9	335,5	96,6	319,4	105,0	302,3	114,0	276,5	114,5
	15	360,2	90,4	344,5	98,2	328,1	106,6	310,7	115,7	278,5	112,4

EWAD300-400AJYNN

The table below contains the capacity tables for EWAD300-400AJYNN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)									
		25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)
300	4	278,0	80,6	264,5	88,4	250,4	96,9	235,7	106,1	222,9	113,9
	5	286,6	82,0	272,9	89,8	258,4	98,3	243,3	107,5	230,5	115,5
	6	295,4	83,3	281,5	91,2	266,6	99,8	251,0	109,0	238,1	117,0
	7	304,2	84,7	290,0	92,7	275,0	101,3	258,9	110,6	245,7	118,6
	8	313,1	86,2	298,7	94,2	283,4	102,8	267,0	112,2	253,4	120,2
	9	322,2	87,6	307,5	95,7	291,9	104,4	275,4	113,8	261,4	121,8
	10	331,3	89,1	316,5	97,2	300,6	106,0	283,7	115,5	269,5	123,5
	11	340,6	90,6	325,4	98,8	309,4	107,6	292,2	117,2	277,7	125,3
	12	350,0	92,2	334,5	100,4	318,1	109,3	300,7	118,9	282,3	124,9
	13	359,5	93,8	343,7	102,0	327,0	111,0	309,4	120,7	284,9	122,7
	14	369,2	95,4	353,0	103,7	336,0	112,7	318,1	122,5	287,2	120,6
	15	378,9	97,0	362,5	105,4	345,1	114,5	326,8	124,3	289,2	118,4
320	4	302,8	89,6	287,7	98,1	271,7	107,3	255,0	117,2	241,2	125,9
	5	312,0	91,1	296,9	99,7	280,5	109,0	263,3	118,9	248,9	127,5
	6	321,4	92,7	306,0	101,3	289,4	110,7	271,6	120,7	257,0	129,3
	7	331,1	94,3	315,2	103,0	298,4	112,4	280,4	122,5	262,5	129,7
	8	340,8	96,0	324,5	104,7	307,4	114,2	289,3	124,4	266,9	129,7
	9	350,7	97,7	334,0	106,5	316,6	116,0	298,1	126,3	272,4	130,1
	10	360,9	99,5	343,8	108,3	325,8	117,9	307,0	128,2	276,8	129,8
	11	371,1	101,3	353,6	110,2	335,3	119,8	316,1	130,2	280,1	129,0
	12	381,4	103,1	363,6	112,1	344,9	121,7	325,2	132,2	282,0	127,8
	13	391,9	105,0	373,8	114,0	354,6	123,8	334,4	134,2	283,8	126,5
	14	402,4	106,9	384,0	116,0	364,4	125,8	339,4	134,2	285,1	124,9
	15	413,1	108,9	394,2	118,0	374,5	127,9	345,2	134,7	285,9	123,1
340	4	323,7	90,9	308,6	99,7	292,6	109,3	275,2	119,6	260,2	128,4
	5	333,9	92,4	318,2	101,2	301,9	110,9	284,6	121,3	269,3	130,1
	6	344,3	93,9	328,2	102,8	311,4	112,5	293,9	123,0	278,6	131,9
	7	354,8	95,5	338,3	104,4	321,0	114,1	303,2	124,7	287,9	133,7
	8	365,5	97,1	348,7	106,1	331,0	115,8	312,4	126,4	297,1	135,5
	9	376,3	98,8	359,2	107,8	341,1	117,6	322,0	128,2	306,4	137,3
	10	387,3	100,4	369,8	109,6	351,5	119,4	331,9	130,0	315,8	139,2
	11	398,3	102,2	380,7	111,3	361,9	121,2	342,1	131,9	325,4	141,1
	12	409,5	103,9	391,6	113,2	372,5	123,1	352,3	133,9	335,3	143,1
	13	420,8	105,7	402,5	115,0	383,2	125,1	362,6	135,9	345,3	145,1
	14	432,2	107,5	413,6	116,9	393,9	127,0	373,0	137,9	350,6	144,6
	15	443,8	109,4	424,8	118,8	404,7	129,0	383,6	140,0	353,6	142,2
360	4	360,8	96,6	351,3	107,5	339,7	119,2	325,7	131,6	312,6	142,1
	5	371,0	98,0	361,4	109,0	349,6	120,8	335,7	133,4	322,5	143,9
	6	381,4	99,5	371,6	110,6	359,7	122,5	345,7	135,1	332,6	145,8
	7	392,1	101,0	382,0	112,2	370,0	124,1	355,8	136,9	342,7	147,7
	8	402,9	102,6	392,7	113,8	380,3	125,8	366,1	138,7	350,4	148,5
	9	413,9	104,2	403,6	115,5	391,0	127,6	376,4	140,6	355,6	147,3
	10	425,0	105,8	414,6	117,2	402,0	129,5	386,9	142,5	358,0	144,5
	11	436,3	107,5	425,8	119,0	413,0	131,3	397,8	144,5	359,7	141,6
	12	447,7	109,2	437,0	120,8	424,1	133,3	408,9	146,5	363,9	140,2
	13	459,2	110,9	448,4	122,7	435,4	135,2	419,9	148,6	364,9	137,2
	14	471,0	112,7	460,0	124,5	446,8	137,2	431,1	150,7	368,4	135,8
	15	482,8	114,6	471,7	126,5	458,3	139,3	446,6	153,7	371,6	134,2
400	4	405,8	114,4	386,1	126,3	365,8	139,4	344,9	154,0	327,4	166,8
	5	418,3	116,3	398,4	128,2	377,4	141,3	355,7	155,8	337,9	168,7
	6	431,0	118,2	410,6	130,1	389,3	143,2	367,0	157,8	348,7	170,6
	7	443,9	120,1	423,0	132,1	401,3	145,3	378,5	159,8	359,4	172,6
	8	457,0	122,1	435,7	134,1	413,5	147,4	390,1	161,9	365,5	171,9
	9	470,4	124,1	448,4	136,2	425,7	149,5	402,0	164,1	372,7	171,9
	10	484,0	126,2	461,5	138,4	438,2	151,7	414,0	166,3	379,7	171,9
	11	497,7	128,4	474,7	140,6	450,8	154,0	426,0	168,6	386,7	171,7
	12	511,7	130,6	488,1	142,9	463,7	156,3	438,2	170,9	393,3	171,4
	13	525,7	132,8	501,7	145,2	476,7	158,7	450,7	173,4	399,7	171,0
	14	539,9	135,1	515,4	147,6	489,9	161,1	463,4	175,8	406,1	170,5
	15	554,3	137,5	529,4	150,0	503,3	163,6	471,4	176,1	409,8	169,1

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EWAD420-600AJYNN

The table below contains the capacity tables for EWAD420-600AJYNN.

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Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)									
		25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)

Note:

- The power input is for compressor only; CC (Cooling Capacity) and PI (Power Input) referred to evaporator fouling factor=0,0176m^2 °C/kW.
- Shaded values are referred to part load operation.

1.18 Capacity Tables: EWAD-AJYNN + OPRN

EWAD440-600AJYNN + OPRN

The table below contains the capacity tables for EWAD440-600AJYNN + OPRN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C) 25 Cool. cap. (kW)	25 Pow. input (kW)	30 Cool. cap. (kW)	30 Pow. input (kW)	35 Cool. cap. (kW)	35 Pow. input (kW)	40 Cool. cap. (kW)	40 Pow. input (kW)	44 Cool. cap. (kW)	44 Pow. input (kW)
440	4	439,4	128,4	418,3	141,7	395,7	156,3	371,6	172,6	352,2	187,1
	5	452,6	130,5	431,0	143,8	408,2	158,6	383,8	174,8	363,2	189,1
	6	466,3	132,7	443,9	146,0	420,8	160,8	396,0	177,1	375,0	191,4
	7	480,3	134,9	457,1	148,3	433,3	163,1	408,3	179,5	387,1	193,7
	8	494,4	137,2	470,6	150,6	446,0	165,4	420,7	181,8	391,0	191,9
	9	508,8	139,6	484,3	153,1	459,1	167,9	433,1	184,3	394,6	190,2
	10	523,3	142,1	498,4	155,6	472,5	170,4	445,5	186,8	394,8	186,6
	11	538,0	144,6	512,5	158,2	486,0	173,0	458,4	189,4	397,4	184,3
	12	552,8	147,1	526,9	160,8	499,7	175,7	471,5	192,1	399,7	181,7
	13	567,7	149,7	541,3	163,5	513,7	178,5	484,7	194,9	404,8	180,7
	14	582,8	152,4	555,9	166,3	527,7	181,3	498,3	197,8	406,1	177,7
	15	598,1	155,1	570,5	169,1	541,9	184,3	501,9	196,2	407,1	174,5
480	4	467,1	138,9	443,8	152,0	420,0	166,7	395,2	183,1	375,3	197,7
	5	481,4	141,4	457,7	154,6	433,0	169,2	407,6	185,6	386,9	200,1
	6	495,8	143,9	471,6	157,2	446,2	171,8	420,1	188,2	397,2	201,8
	7	510,5	146,6	485,7	159,9	459,9	174,6	432,9	190,9	402,1	200,9
	8	525,3	149,3	500,0	162,6	473,6	177,4	445,9	193,7	404,3	198,6
	9	540,2	152,1	514,5	165,4	487,5	180,2	459,3	196,6	407,5	196,7
	10	555,6	155,0	529,1	168,3	501,6	183,2	472,9	199,5	410,2	194,6
	11	571,1	157,9	543,8	171,3	515,8	186,2	486,5	202,6	412,6	192,2
	12	586,9	161,0	559,0	174,4	530,2	189,3	500,3	205,7	414,5	189,6
	13	602,9	164,1	574,3	177,6	544,8	192,5	510,8	207,3	415,9	186,7
	14	619,0	167,3	589,9	180,8	559,6	195,8	514,4	205,9	418,5	184,5
	15	635,3	170,6	605,6	184,2	574,7	199,1	517,7	204,3	421,0	182,3
500	4	496,8	148,1	472,5	161,3	446,4	176,0	419,4	192,3	398,4	207,0
	5	511,5	150,9	486,9	164,2	460,5	178,9	432,6	195,1	410,5	209,6
	6	526,5	153,8	501,3	167,0	474,8	181,8	446,4	198,1	420,0	210,8
	7	542,0	156,7	515,9	170,0	489,0	184,8	460,3	201,2	421,1	208,2
	8	557,8	159,8	530,8	173,0	503,2	187,9	474,3	204,3	424,6	206,7
	9	573,7	163,0	546,1	176,2	517,6	191,0	488,3	207,5	428,0	204,9
	10	589,9	166,3	561,6	179,5	532,4	194,2	502,4	210,8	430,8	202,8
	11	606,4	169,6	577,4	182,8	547,5	197,6	516,5	214,1	433,2	200,5
	12	622,9	173,0	593,4	186,3	562,7	201,1	531,0	217,5	435,0	197,9
	13	639,8	176,6	609,5	189,8	578,2	204,6	538,7	217,9	436,3	195,1
	14	656,6	180,1	626,0	193,5	593,9	208,3	538,8	215,1	437,0	192,0
	15	673,6	183,8	642,4	197,2	609,7	212,1	542,0	213,6	441,4	190,8
550	4	530,2	155,2	509,2	170,2	487,0	187,1	463,1	205,7	424,5	213,1
	5	545,8	158,1	524,0	173,1	501,2	189,9	476,5	208,6	433,6	213,9
	6	561,6	161,1	539,4	176,1	515,6	192,9	490,4	211,6	440,7	213,9
	7	577,5	164,1	555,0	179,3	530,4	196,0	504,4	214,7	447,5	213,6
	8	593,5	167,2	570,7	182,5	545,7	199,3	516,8	216,9	451,8	212,1
	9	609,6	170,4	586,4	185,7	561,1	202,6	527,4	218,5	452,0	208,7
	10	625,9	173,7	602,4	189,1	579,2	206,6	536,0	219,3	455,4	206,9
	11	642,6	177,1	618,4	192,5	595,1	210,2	544,5	219,9	458,4	204,8
	12	659,7	180,6	638,0	196,7	611,1	213,9	552,8	220,4	460,9	202,5
	13	677,1	184,3	654,8	200,4	627,3	217,6	560,6	220,8	462,9	200,1
	14	694,6	188,0	671,7	204,2	643,5	221,4	567,0	220,5	464,4	197,4
	15	715,6	192,5	688,9	208,1	660,0	225,4	568,5	218,2	467,4	195,6
600	4	560,4	160,9	543,4	177,8	523,7	196,6	501,7	217,4	446,0	217,5
	5	576,0	163,8	558,8	180,8	538,8	199,6	515,9	220,3	451,7	216,5
	6	591,9	166,7	574,4	183,8	554,0	202,7	530,7	223,5	453,3	213,4
	7	607,8	169,7	590,2	186,9	569,4	205,9	545,7	226,8	454,3	210,0
	8	624,0	172,8	606,0	190,1	585,1	209,2	557,0	228,2	458,7	208,4
	9	640,4	176,0	622,0	193,3	600,8	212,6	564,2	228,2	458,5	204,5
	10	656,9	179,2	638,2	196,7	621,8	217,2	566,8	226,2	462,1	202,6
	11	673,8	182,6	654,6	200,1	638,3	220,8	568,8	223,9	465,3	200,5
	12	691,2	186,1	678,0	205,2	654,9	224,6	570,0	221,3	468,0	198,3
	13	708,9	189,8	695,2	208,9	671,8	228,5	570,7	218,4	470,3	195,9
	14	726,7	193,5	712,4	212,7	688,7	232,4	575,5	217,3	472,1	193,4
	15	751,3	198,7	730,0	216,7	705,7	236,5	574,8	213,9	473,3	190,8

Note:

- CC (Cooling Capacity) and PI (Power Input) referred to evaporator fouling factor=0,0176m^2 °C/kW.
- Shaded values are referred to part load operation.

1.19 Capacity Tables: EWAD-AJYNN + OPLN

EWAD190-280AJYNN + OPLN

The table below contains the capacity tables for EWAD190-280AJYNN + OPLN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C) 25 Cool. cap. (kW)	25 Pow. input (kW)	30 Cool. cap. (kW)	30 Pow. input (kW)	35 Cool. cap. (kW)	35 Pow. input (kW)	40 Cool. cap. (kW)	40 Pow. input (kW)	44 Cool. cap. (kW)	44 Pow. input (kW)
190	4	181,9	64,4	172,5	70,6	162,6	77,3	152,0	84,5	133,6	80,4
	5	187,1	65,5	177,5	71,8	167,4	78,5	156,6	85,8	135,0	78,8
	6	192,5	66,7	182,6	73,0	172,2	79,7	161,3	87,0	136,2	77,3
	7	197,9	67,9	187,7	74,2	177,2	81,0	166,0	88,3	138,3	76,6
	8	203,4	69,2	193,0	75,5	182,2	82,3	168,9	88,1	139,2	75,0
	9	208,8	70,4	198,4	76,8	187,2	83,7	170,7	86,6	139,9	73,3
	10	214,3	71,7	203,8	78,2	192,4	85,1	172,4	85,1	141,6	72,5
	11	219,8	73,0	209,1	79,5	197,7	86,5	173,9	83,5	143,2	71,7
	12	225,4	74,3	214,5	80,9	203,0	87,9	175,2	81,9	143,3	69,9
	13	231,1	75,6	220,0	82,3	208,3	89,4	176,3	80,2	144,6	69,1
	14	236,8	77,0	225,5	83,7	213,6	90,8	178,5	79,5	145,7	68,1
	15	242,6	78,4	231,0	85,1	218,9	92,3	179,2	77,8	146,7	67,2
200	4	194,5	63,5	184,7	69,6	174,4	76,2	163,2	83,2	149,2	83,8
	5	200,0	64,5	190,1	70,7	179,6	77,4	168,3	84,5	151,0	82,3
	6	205,4	65,7	195,5	71,9	184,9	78,6	173,4	85,8	152,6	80,8
	7	211,0	66,8	201,0	73,1	190,1	79,8	178,5	87,0	153,9	79,2
	8	216,7	67,9	206,5	74,3	195,4	81,1	183,7	88,3	155,0	77,6
	9	222,8	69,2	212,0	75,5	200,9	82,4	188,9	89,7	157,1	76,9
	10	229,9	70,7	217,6	76,7	206,3	83,7	192,0	89,4	157,8	75,2
	11	236,9	72,2	223,8	78,2	211,7	85,0	192,6	86,9	159,5	74,3
	12	243,3	73,5	230,7	79,7	217,1	86,3	194,2	85,3	160,9	73,5
	13	249,5	74,9	237,6	81,3	223,1	87,8	195,6	83,7	161,1	71,7
	14	255,7	76,2	243,8	82,8	230,0	89,5	198,1	83,0	162,4	70,8
	15	262,1	77,6	249,8	84,2	236,8	91,2	199,1	81,3	163,5	69,9
230	4	221,5	64,5	210,9	70,7	199,5	77,4	187,4	84,7	177,4	91,0
	5	228,3	65,5	217,5	71,8	205,9	78,6	193,6	85,9	183,4	92,2
	6	235,3	66,6	224,2	73,0	212,4	79,8	200,0	87,2	189,4	93,5
	7	242,4	67,8	231,0	74,1	219,0	81,0	206,3	88,4	195,6	94,8
	8	249,6	69,0	237,9	75,3	225,7	82,2	212,8	89,7	201,9	96,1
	9	256,9	70,2	245,0	76,6	232,5	83,5	219,3	91,0	206,9	96,5
	10	264,3	71,4	252,1	77,8	239,4	84,8	225,9	92,4	210,3	95,6
	11	271,8	72,6	259,4	79,1	246,3	86,2	232,6	93,7	214,3	95,3
	12	279,3	73,9	266,7	80,4	253,4	87,5	239,5	95,1	218,4	94,9
	13	286,9	75,2	274,2	81,8	260,6	88,9	246,4	96,6	223,2	95,1
	14	294,7	76,5	281,7	83,1	267,9	90,3	253,4	98,0	227,0	94,8
	15	302,5	77,8	289,3	84,5	275,3	91,7	260,5	99,5	230,0	94,1
260	4	241,4	72,1	229,4	79,0	216,8	86,5	203,6	94,7	192,2	101,6
	5	248,9	73,3	236,5	80,3	223,6	87,8	210,1	96,0	198,8	103,0
	6	256,4	74,6	243,8	81,6	230,6	89,2	216,7	97,4	205,3	104,5
	7	264,0	75,9	251,3	82,9	237,7	90,6	223,5	98,8	211,8	105,9
	8	271,7	77,2	258,8	84,3	245,0	92,0	230,4	100,3	218,4	107,4
	9	279,4	78,5	266,3	85,7	252,3	93,4	237,4	101,8	222,2	107,0
	10	287,3	79,9	273,9	87,1	259,7	94,9	244,7	103,3	223,1	104,1
	11	295,3	81,3	281,7	88,6	267,2	96,4	251,9	104,9	225,2	102,2
	12	303,3	82,7	289,4	90,1	274,8	98,0	259,2	106,5	227,0	100,4
	13	311,5	84,2	297,2	91,6	282,4	99,5	266,6	108,1	230,2	99,5
	14	319,7	85,7	305,2	93,1	290,0	101,2	274,0	109,8	231,6	97,6
	15	328,1	87,2	313,3	94,7	297,8	102,8	281,5	111,5	232,6	95,6
280	4	256,6	79,1	243,8	86,7	230,1	94,8	215,4	103,6	203,2	111,1
	5	264,4	80,5	251,3	88,1	237,4	96,3	222,5	105,1	210,0	112,7
	6	272,3	81,9	259,0	89,5	244,8	97,8	229,6	106,7	215,4	113,2
	7	280,4	83,4	266,7	91,0	252,2	99,3	236,9	108,3	220,3	113,0
	8	288,7	84,8	274,6	92,6	259,8	100,9	244,2	109,9	223,4	111,7
	9	296,9	86,4	282,6	94,1	267,4	102,5	251,6	111,6	225,9	109,7
	10	305,3	87,9	290,7	95,8	275,2	104,2	259,1	113,3	227,9	107,8
	11	313,8	89,5	298,9	97,4	283,2	105,9	266,6	115,1	230,7	106,4
	12	322,3	91,1	307,2	99,1	291,2	107,7	274,3	116,9	232,2	104,3
	13	331,0	92,8	315,5	100,8	299,2	109,4	279,3	116,9	233,4	102,2
	14	339,7	94,5	324,1	102,6	307,4	111,3	284,4	116,7	235,2	100,6
	15	348,6	96,2	332,5	104,3	315,6	113,1	287,4	115,4	235,9	98,4

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EWAD300-440AJYNN + OPLN

The table below contains the capacity tables for EWAD300-440AJYNN + OPLN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)									
		25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)
300	4	269,8	85,4	256,0	93,5	241,7	102,3	226,3	111,8	212,9	119,9
	5	278,0	86,9	264,0	95,1	249,2	103,9	233,7	113,5	220,3	121,6
	6	286,3	88,4	272,0	96,6	256,8	105,5	241,1	115,2	224,7	121,3
	7	294,8	90,0	280,1	98,3	264,7	107,2	248,5	116,9	227,6	119,2
	8	303,4	91,6	288,5	100,0	272,6	109,0	256,0	118,7	228,6	115,9
	9	311,9	93,3	296,8	101,7	280,7	110,7	263,7	120,5	230,7	113,8
	10	320,6	94,9	305,3	103,4	288,9	112,6	271,5	122,4	232,6	111,7
	11	329,4	96,6	313,7	105,2	297,1	114,4	279,4	124,3	236,1	110,7
	12	338,3	98,4	322,3	107,0	305,4	116,3	287,4	126,3	237,4	108,4
	13	347,2	100,2	331,0	108,9	313,8	118,2	290,2	124,5	238,3	106,1
	14	356,3	102,0	339,7	110,7	322,3	120,2	292,6	122,4	241,1	105,1
	15	365,5	103,9	348,6	112,7	330,7	122,2	294,8	120,2	241,4	102,7
320	4	284,8	93,7	269,8	102,6	254,2	112,2	237,6	122,6	216,3	124,5
	5	293,4	95,4	278,1	104,3	262,0	114,0	245,1	124,4	221,3	124,2
	6	302,0	97,1	286,5	106,1	270,1	115,8	252,8	126,3	224,8	122,8
	7	310,8	98,8	295,0	107,9	278,2	117,7	260,6	128,3	227,2	120,6
	8	319,6	100,6	303,5	109,8	286,5	119,6	267,7	129,7	228,7	117,7
	9	328,5	102,4	312,2	111,7	294,9	121,6	273,1	129,5	231,4	116,0
	10	337,5	104,3	320,9	113,6	303,3	123,6	277,7	128,4	232,9	113,6
	11	346,6	106,2	329,7	115,6	311,8	125,7	282,9	128,2	235,9	112,5
	12	355,8	108,2	338,5	117,6	320,4	127,8	288,1	127,9	236,9	110,1
	13	365,1	110,1	347,5	119,7	329,0	129,9	291,4	126,5	238,4	108,2
	14	374,5	112,2	356,6	121,8	337,7	132,1	293,4	124,2	240,8	107,0
	15	384,0	114,3	365,7	123,9	346,4	134,4	295,1	121,7	241,9	105,1
340	4	316,4	95,2	301,0	104,3	284,6	114,2	266,5	124,7	251,6	133,8
	5	326,1	96,8	310,2	106,0	293,7	115,9	275,5	126,5	259,9	135,6
	6	336,0	98,5	319,6	107,7	302,6	117,7	284,6	128,4	268,7	137,6
	7	346,1	100,2	329,3	109,5	311,8	119,5	293,6	130,4	277,7	139,6
	8	356,4	102,0	339,2	111,3	321,2	121,3	302,5	132,3	286,7	141,6
	9	366,8	103,8	349,3	113,2	330,9	123,3	311,6	134,2	291,8	141,1
	10	377,3	105,7	359,5	115,1	340,6	125,3	320,9	136,2	292,9	137,3
	11	387,9	107,6	369,8	117,1	350,6	127,3	330,4	138,3	295,6	134,9
	12	398,6	109,5	380,3	119,1	360,6	129,4	340,0	140,5	297,9	132,4
	13	409,5	111,4	390,8	121,1	370,9	131,5	349,8	142,7	302,1	131,3
	14	420,4	113,4	401,3	123,2	381,2	133,7	359,7	144,9	303,8	128,7
	15	431,4	115,5	412,0	125,3	391,5	135,9	369,7	147,2	305,0	126,1
360	4	355,9	102,5	345,2	113,8	334,7	126,3	319,4	139,1	295,5	142,7
	5	365,9	104,1	355,1	115,5	344,9	128,2	329,2	141,1	298,3	140,1
	6	375,9	105,7	365,1	117,3	355,1	130,2	339,2	143,2	300,4	138,3
	7	386,4	107,4	375,2	119,1	365,5	132,2	349,4	145,3	302,4	135,6
	8	397,0	109,2	385,5	120,9	375,9	134,2	359,7	147,5	304,1	132,7
	9	407,7	111,0	396,1	122,9	386,5	136,3	370,1	149,7	307,8	131,3
	10	418,7	112,9	406,9	124,8	397,0	138,4	375,4	149,1	308,4	128,4
	11	429,7	114,8	417,7	126,9	407,7	140,6	377,6	146,2	311,4	126,9
	12	440,9	116,8	428,7	128,9	418,4	142,8	382,4	145,0	314,1	125,3
	13	452,2	118,8	439,9	131,1	429,3	145,0	382,5	142,8	313,2	122,1
	14	463,6	120,8	455,0	134,0	440,3	147,3	386,6	141,5	315,2	120,5
	15	475,2	122,9	466,3	136,2	451,3	149,7	387,2	138,4	316,7	118,8
440	4	439,4	128,4	418,3	141,7	395,7	156,3	371,6	172,6	352,2	187,1
	5	452,6	130,5	431,0	143,8	408,2	158,6	383,8	174,8	363,2	189,1
	6	466,3	132,7	443,9	146,0	420,8	160,8	396,0	177,1	375,0	191,4
	7	480,3	134,9	457,1	148,3	433,3	163,1	408,3	179,5	387,1	193,7
	8	494,4	137,2	470,6	150,6	446,0	165,4	420,7	181,8	391,0	191,9
	9	508,8	139,6	484,3	153,1	459,1	167,9	433,1	184,3	394,6	190,2
	10	523,3	142,1	498,4	155,6	472,5	170,4	445,5	186,8	394,8	186,6
	11	538,0	144,6	512,5	158,2	486,0	173,0	458,4	189,4	397,4	184,3
	12	552,8	147,1	526,9	160,8	499,7	175,7	471,5	192,1	399,7	181,7
	13	567,7	149,7	541,3	163,5	513,7	178,5	484,7	194,9	404,8	180,7
	14	582,8	152,4	555,9	166,3	527,7	181,3	498,3	197,8	406,1	177,7
	15	598,1	155,1	570,5	169,1	541,9	184,3	501,9	196,2	407,1	174,5

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EWAD480-600AJYNN + OPLN

The table below contains the capacity tables for EWAD480-600AJYNN + OPLN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)									
		25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)
480	4	467,1	138,9	443,8	152,0	420,0	166,7	395,2	183,1	375,3	197,7
	5	481,4	141,4	457,7	154,6	433,0	169,2	407,6	185,6	386,9	200,1
	6	495,8	143,9	471,6	157,2	446,2	171,8	420,1	188,2	397,2	201,8
	7	510,5	146,6	485,7	159,9	459,9	174,6	432,9	190,9	402,1	200,9
	8	525,3	149,3	500,0	162,6	473,6	177,4	445,9	193,7	404,3	198,6
	9	540,2	152,1	514,5	165,4	487,5	180,2	459,3	196,6	407,5	196,7
	10	555,6	155,0	529,1	168,3	501,6	183,2	472,9	199,5	410,2	194,6
	11	571,1	157,9	543,8	171,3	515,8	186,2	486,5	202,6	412,6	192,2
	12	586,9	161,0	559,0	174,4	530,2	189,3	500,3	205,7	414,5	189,6
	13	602,9	164,1	574,3	177,6	544,8	192,5	510,8	207,3	415,9	186,7
	14	619,0	167,3	589,9	180,8	559,6	195,8	514,4	205,9	418,5	184,5
	15	635,3	170,6	605,6	184,2	574,7	199,1	517,7	204,3	421,0	182,3
500	4	496,8	148,1	472,5	161,3	446,4	176,0	419,4	192,3	398,4	207,0
	5	511,5	150,9	486,9	164,2	460,5	178,9	432,6	195,1	410,5	209,6
	6	526,5	153,8	501,3	167,0	474,8	181,8	446,4	198,1	420,0	210,8
	7	542,0	156,7	515,9	170,0	489,0	184,8	460,3	201,2	421,1	208,2
	8	557,8	159,8	530,8	173,0	503,2	187,9	474,3	204,3	424,6	206,7
	9	573,7	163,0	546,1	176,2	517,6	191,0	488,3	207,5	428,0	204,9
	10	589,9	166,3	561,6	179,5	532,4	194,2	502,4	210,8	430,8	202,8
	11	606,4	169,6	577,4	182,8	547,5	197,6	516,5	214,1	433,2	200,5
	12	622,9	173,0	593,4	186,3	562,7	201,1	531,0	217,5	435,0	197,9
	13	639,8	176,6	609,5	189,8	578,2	204,6	538,7	217,9	436,3	195,1
	14	656,6	180,1	626,0	193,5	593,9	208,3	538,8	215,1	437,0	192,0
	15	673,6	183,8	642,4	197,2	609,7	212,1	542,0	213,6	441,4	190,8
550	4	530,2	155,2	509,2	170,2	487,0	187,1	463,1	205,7	424,5	213,1
	5	545,8	158,1	524,0	173,1	501,2	189,9	476,5	208,6	433,6	213,9
	6	561,6	161,1	539,4	176,1	515,6	192,9	490,4	211,6	440,7	213,9
	7	577,5	164,1	555,0	179,3	530,4	196,0	504,4	214,7	447,5	213,6
	8	593,5	167,2	570,7	182,5	545,7	199,3	516,8	216,9	451,8	212,1
	9	609,6	170,4	586,4	185,7	561,1	202,6	527,4	218,5	452,0	208,7
	10	625,9	173,7	602,4	189,1	579,2	206,6	536,0	219,3	455,4	206,9
	11	642,6	177,1	618,4	192,5	595,1	210,2	544,5	219,9	458,4	204,8
	12	659,7	180,6	638,0	196,7	611,1	213,9	552,8	220,4	460,9	202,5
	13	677,1	184,3	654,8	200,4	627,3	217,6	560,6	220,8	462,9	200,1
	14	694,6	188,0	671,7	204,2	643,5	221,4	567,0	220,5	464,4	197,4
	15	715,6	192,5	688,9	208,1	660,0	225,4	568,5	218,2	467,4	195,6
600	4	560,4	160,9	543,4	177,8	523,7	196,6	501,7	217,4	446,0	217,5
	5	576,0	163,8	558,8	180,8	538,8	199,6	515,9	220,3	451,7	216,5
	6	591,9	166,7	574,4	183,8	554,0	202,7	530,7	223,5	453,3	213,4
	7	607,8	169,7	590,2	186,9	569,4	205,9	545,7	226,8	454,3	210,0
	8	624,0	172,8	606,0	190,1	585,1	209,2	557,0	228,2	458,7	208,4
	9	640,4	176,0	622,0	193,3	600,8	212,6	564,2	228,2	458,5	204,5
	10	656,9	179,2	638,2	196,7	621,8	217,2	566,8	226,2	462,1	202,6
	11	673,8	182,6	654,6	200,1	638,3	220,8	568,8	223,9	465,3	200,5
	12	691,2	186,1	678,0	205,2	654,9	224,6	570,0	221,3	468,0	198,3
	13	708,9	189,8	695,2	208,9	671,8	228,5	570,7	218,4	470,3	195,9
	14	726,7	193,5	712,4	212,7	688,7	232,4	575,5	217,3	472,1	193,4
	15	751,3	198,7	730,0	216,7	705,7	236,5	574,8	213,9	473,3	190,8

Note:

- CC (Cooling Capacity) and PI (Power Input) referred to evaporator fouling factor=0,0176m^2 °C/kW.
- Shaded values are referred to part load operation.

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1.20 Capacity Tables: EWAD-AJYNN/A

EWAD260-360AJYNN/A

The table below contains the capacity tables for EWAD260-360AJYNN/A.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)											
		25		30		35		40		46		48	
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
	4	238,2	56,3	232,9	62,7	226,3	69,6	218,6	77,2	207,7	86,9	203,7	90,3
	5	244,9	57,1	239,7	63,5	233,2	70,5	225,2	78,1	214,1	87,8	210,1	91,2
	6	251,9	57,9	246,6	64,3	240,0	71,3	232,1	79,0	220,7	88,8	216,5	92,2
	7	258,8	58,7	253,6	65,1	247,0	72,2	239,0	79,9	227,4	89,8	223,1	93,2
	8	265,8	59,5	260,7	66,0	254,0	73,1	246,1	80,8	234,3	90,8	229,9	94,2
260	9	273,0	60,4	267,7	66,9	261,2	74,0	253,1	81,8	241,3	91,8	236,8	95,3
	10	280,2	61,2	275,0	67,8	268,3	75,0	260,3	82,8	248,4	92,9	236,6	92,9
	11	287,5	62,1	282,2	68,7	275,6	75,9	267,5	83,8	255,7	94,0	239,8	92,0
	12	294,9	63,1	289,7	69,6	282,9	76,9	274,9	84,9	262,9	95,1	240,8	90,2
	13	302,6	64,0	297,1	70,6	290,4	77,9	282,2	85,9	270,3	96,3	241,4	88,3
	14	310,5	65,0	304,9	71,6	298,0	79,0	289,7	87,0	275,6	96,7	243,9	87,4
	15	318,4	66,1	312,8	72,7	305,6	80,1	297,2	88,1	276,5	94,8	246,1	86,4
	4	264,3	61,0	258,9	67,8	252,3	75,3	244,5	83,5	233,0	94,1	228,6	97,8
	5	271,8	61,8	266,5	68,7	259,7	76,2	251,7	84,4	240,2	95,1	235,8	98,8
	6	279,4	62,7	274,1	69,5	267,4	77,1	259,1	85,4	247,5	96,1	243,2	99,9
	7	287,0	63,5	281,7	70,4	275,0	78,0	266,9	86,4	254,9	97,1	250,5	100,9
	8	294,8	64,4	289,4	71,3	282,7	79,0	274,5	87,3	262,5	98,2	257,9	102,0
280	9	302,9	65,3	297,4	72,3	290,6	79,9	282,3	88,3	270,2	99,2	265,5	103,0
	10	311,0	66,3	305,5	73,2	298,6	80,9	290,2	89,4	277,9	100,3	270,1	102,6
	11	319,3	67,3	313,7	74,2	306,7	82,0	298,2	90,4	285,9	101,5	274,4	102,0
	12	327,7	68,3	322,1	75,2	315,1	83,0	306,5	91,5	293,9	102,6	278,7	101,4
	13	336,1	69,3	330,5	76,3	323,4	84,1	314,9	92,7	302,2	103,8	283,8	101,3
	14	344,8	70,4	339,0	77,4	331,8	85,2	323,2	93,8	310,5	105,0	288,0	100,7
	15	353,5	71,5	347,6	78,5	340,4	86,3	331,6	95,0	315,0	104,6	293,2	100,6
	4	288,3	66,3	282,3	73,7	274,8	81,9	266,2	90,9	253,8	102,4	249,1	106,4
	5	296,7	67,2	290,6	74,7	283,1	82,9	274,0	91,8	261,6	103,5	256,8	107,5
	6	305,1	68,1	299,0	75,6	291,6	83,9	282,5	92,9	269,5	104,5	264,7	108,6
	7	313,6	69,0	307,5	76,6	301,5	84,9	290,9	93,9	277,5	105,6	272,7	109,7
	8	322,1	70,0	316,1	77,6	308,6	85,9	299,4	95,0	286,0	106,8	280,9	110,9
320	9	330,8	71,0	324,7	78,6	317,3	87,0	308,1	96,1	294,6	107,9	289,4	112,1
	10	339,5	72,0	333,5	79,6	326,1	88,1	316,8	97,2	303,2	109,1	298,1	113,3
	11	348,4	73,0	342,4	80,7	334,9	89,1	325,7	98,4	312,0	110,4	306,8	114,5
	12	357,5	74,1	351,4	81,7	343,7	90,2	334,5	99,5	320,9	111,6	315,7	115,8
	13	366,7	75,1	360,5	82,8	352,8	91,4	343,5	100,7	329,8	112,9	322,2	116,3
	14	376,1	76,3	369,7	84,0	362,0	92,5	352,6	101,9	338,9	114,1	323,5	114,0
	15	385,8	77,4	379,3	85,1	371,3	93,7	361,8	103,1	348,0	115,4	324,4	111,7
	4	315,1	73,8	308,5	82,0	300,5	91,1	290,8	100,9	276,6	113,5	271,2	117,8
	5	323,9	74,8	317,4	83,1	309,3	92,2	299,5	102,1	285,2	114,7	279,7	119,1
	6	332,8	75,8	326,2	84,1	318,1	93,3	308,3	103,3	293,9	116,0	288,4	120,4
	7	341,9	76,9	335,3	85,2	327,0	94,5	317,2	104,5	302,8	117,3	293,8	120,0
	8	351,3	78,0	344,4	86,4	336,2	95,6	326,2	105,7	311,7	118,6	299,1	119,4
340	9	360,8	79,1	353,8	87,5	345,3	96,8	335,3	107,0	320,6	120,0	304,2	118,8
	10	370,5	80,3	363,5	88,8	354,8	98,1	344,5	108,2	329,8	121,4	310,4	118,8
	11	380,2	81,5	373,1	90,0	364,5	99,4	353,9	109,6	339,0	122,8	315,1	118,1
	12	390,3	82,7	383,0	91,3	374,1	100,7	363,6	110,9	344,3	122,3	318,6	117,1
	13	400,5	84,0	393,1	92,6	384,0	102,0	373,3	112,3	349,5	121,7	319,1	114,6
	14	410,9	85,4	403,4	93,9	394,1	103,4	383,2	113,8	355,9	121,7	320,7	112,8
	15	421,3	86,7	413,7	95,3	404,5	104,9	393,2	115,2	360,6	121,0	323,4	111,5
	4	338,8	80,7	331,5	89,7	322,5	99,6	311,7	110,3	295,9	123,9	289,8	128,6
	5	348,3	81,8	341,0	90,9	331,9	100,9	321,0	111,6	305,1	125,3	299,0	130,0
	6	358,0	83,0	350,5	92,1	341,5	102,2	330,5	113,0	314,5	126,8	306,2	130,6
	7	367,7	84,2	360,3	93,4	351,0	103,5	340,0	114,3	324,0	128,3	308,4	128,2
	8	377,7	85,4	370,1	94,6	360,8	104,8	349,6	115,7	333,4	129,8	310,3	125,8
360	9	387,7	86,6	380,0	95,9	370,7	106,2	359,5	117,2	343,1	131,3	311,8	123,2
	10	397,8	87,9	390,1	97,3	380,6	107,5	369,4	118,6	352,9	132,9	315,4	122,0
	11	408,1	89,3	400,3	98,6	390,8	109,0	379,3	120,1	357,3	132,1	315,9	119,4
	12	419,1	90,7	410,7	100,0	401,0	110,4	389,4	121,7	358,9	129,6	319,0	118,0
	13	430,2	92,1	421,7	101,5	411,4	111,9	399,7	123,2	362,7	128,3	318,7	115,4
	14	441,4	93,6	432,8	103,1	422,3	113,5	410,0	124,8	363,5	125,7	320,9	114,0
	15	452,7	95,2	443,9	104,7	433,4	115,2	420,6	126,5	366,7	124,4	323,0	112,5

EWAD380-600AJYNN/A

The table below contains the capacity tables for EWAD380-600AJYNN/A.

Unit size	Leaving Water Evaporator °(C)	25 CC (kW)	25 PI (kW)	30 CC (kW)	30 PI (kW)	35 CC (kW)	35 PI (kW)	40 CC (kW)	40 PI (kW)	46 CC (kW)	46 PI (kW)	48 CC (kW)	48 PI (kW)
380	4	361,5	82,6	354,3	91,9	345,6	102,2	334,8	113,2	319,1	127,5	313,1	132,4
	5	371,5	83,7	364,3	93,1	355,5	103,3	344,9	114,5	329,0	128,8	323,1	133,8
	6	381,8	84,8	374,6	94,2	365,7	104,5	354,9	115,7	339,1	130,2	333,1	135,2
	7	392,4	85,9	384,9	95,4	376,0	105,8	365,1	117,0	349,3	131,6	343,2	136,7
	8	403,3	87,1	395,7	96,6	386,4	107,0	375,5	118,4	359,6	133,0	353,5	138,1
	9	414,2	88,4	406,6	97,9	397,3	108,4	386,0	119,7	369,9	134,5	363,8	139,6
	10	425,3	89,6	417,6	99,2	408,3	109,7	396,8	121,1	380,5	136,0	374,3	141,1
	11	436,7	90,9	428,7	100,5	419,3	111,1	407,9	122,6	391,1	137,5	384,9	142,7
	12	448,3	92,3	440,2	101,9	430,5	112,5	418,9	124,1	402,1	139,0	392,5	143,0
	13	460,0	93,6	452,0	103,3	442,0	114,0	430,2	125,6	413,1	140,7	394,1	140,4
	14	472,0	95,0	463,7	104,8	453,8	115,5	441,6	127,2	424,4	142,3	396,7	138,3
	15	483,9	96,5	475,7	106,2	465,6	117,0	453,4	128,8	435,6	144,0	399,2	136,3
420	4	385,9	88,2	378,1	98,3	368,7	109,2	357,0	121,0	340,1	136,2	333,8	141,5
	5	396,5	89,3	388,8	99,5	379,3	110,5	367,6	122,3	350,7	137,6	344,3	143,0
	6	407,5	90,5	399,6	100,7	390,1	111,8	378,4	123,7	361,4	139,1	354,9	144,5
	7	419,0	91,7	410,6	101,9	401,0	113,1	389,3	125,1	372,2	140,6	365,7	146,0
	8	430,8	93,0	422,4	103,3	412,1	114,4	400,3	126,5	383,1	142,1	376,6	147,6
	9	442,7	94,3	434,3	104,7	423,8	115,9	411,4	127,9	394,1	143,7	387,6	149,2
	10	454,7	95,7	446,2	106,1	435,8	117,3	423,1	129,5	405,3	145,3	398,8	150,8
	11	466,8	97,0	458,2	107,5	447,8	118,8	435,1	131,1	416,7	146,9	410,0	152,5
	12	479,1	98,4	470,5	108,9	460,0	120,4	447,2	132,7	428,5	148,6	415,1	151,6
	13	491,6	99,8	482,9	110,4	472,2	121,9	459,3	134,3	440,5	150,4	416,8	148,6
	14	504,2	101,3	495,4	111,9	484,6	123,5	471,6	136,0	452,7	152,2	417,9	145,7
	15	516,9	102,8	508,0	113,5	497,2	125,1	484,1	137,7	465,0	154,0	422,3	144,2
500	4	489,7	112,3	474,9	126,4	460,3	141,5	444,4	157,9	421,9	179,4	403,6	182,7
	5	503,3	114,3	488,6	128,2	473,8	143,2	457,7	159,6	434,7	181,4	411,1	182,4
	6	517,1	116,3	502,3	130,0	487,5	145,0	471,2	161,4	447,7	183,5	418,3	181,8
	7	530,8	118,4	516,2	131,9	501,4	146,8	484,7	163,3	460,9	185,6	427,2	182,0
	8	544,9	120,4	530,4	133,7	515,4	148,6	498,6	165,2	468,8	185,3	434,3	181,2
	9	559,3	122,5	544,7	135,7	529,7	150,5	512,7	167,2	476,8	185,1	441,2	180,3
	10	573,8	124,6	559,5	137,7	544,3	152,5	527,0	169,4	484,6	184,7	448,2	179,8
	11	588,7	126,8	574,4	139,8	559,2	154,6	541,7	171,6	492,5	184,3	447,3	176,6
	12	603,9	129,1	589,8	141,9	574,4	156,8	556,6	174,0	500,2	183,8	452,1	175,4
	13	619,5	131,4	605,4	144,2	590,0	159,1	572,0	176,5	507,8	183,2	454,6	173,5
	14	635,4	133,9	621,4	146,6	606,0	161,6	587,7	179,2	517,8	183,7	454,4	170,5
	15	651,9	136,4	637,9	149,1	622,3	164,2	603,8	182,1	521,3	181,9	458,5	169,1
550	4	529,1	112,1	506,5	130,4	487,5	149,0	469,8	168,4	446,7	193,6	437,8	202,6
	5	543,1	114,6	520,9	132,3	502,0	150,5	484,2	169,9	460,6	195,3	451,6	204,4
	6	557,2	117,1	535,4	134,2	516,6	152,1	498,7	171,3	474,7	196,9	465,5	206,2
	7	571,4	119,6	549,9	136,1	531,5	153,6	513,5	172,8	489,0	198,7	479,6	208,1
	8	585,8	122,0	564,7	138,0	546,4	155,3	528,4	174,4	503,6	200,5	493,9	210,1
	9	600,5	124,6	579,9	140,0	561,8	156,9	543,6	176,0	518,5	202,4	508,6	212,2
	10	615,4	127,1	595,3	142,0	577,4	158,7	559,3	177,8	533,7	204,5	523,7	214,5
	11	630,7	129,8	611,1	144,2	593,5	160,6	575,4	179,7	549,4	206,8	539,1	216,9
	12	646,4	132,5	627,4	146,4	610,0	162,6	591,8	181,7	565,7	209,2	551,2	217,8
	13	662,7	135,3	644,2	148,8	627,1	164,8	608,9	184,0	582,4	211,9	550,9	214,2
	14	679,9	138,2	661,9	151,3	644,9	167,1	626,7	186,4	599,8	214,8	554,6	212,0
	15	698,3	141,4	680,9	154,1	664,1	169,8	645,4	189,1	617,8	217,9	558,1	209,7
600	4	570,2	127,1	552,2	143,2	534,9	160,3	516,9	178,9	492,4	203,4	483,3	212,2
	5	585,7	129,6	567,8	145,3	550,5	162,2	532,3	180,8	507,5	205,4	498,2	214,3
	6	601,4	132,0	583,6	147,4	566,3	164,2	547,9	182,7	522,7	207,5	511,2	215,6
	7	617,3	134,5	599,7	149,6	582,2	166,2	563,7	184,7	538,2	209,6	519,9	215,7
	8	633,8	137,0	615,9	151,8	598,4	168,3	579,8	186,8	553,8	211,8	528,5	215,7
	9	650,6	139,6	632,7	154,2	615,0	170,5	596,1	188,9	569,8	214,2	537,0	215,6
	10	667,8	142,3	650,0	156,6	632,0	172,8	612,8	191,2	586,1	216,6	545,3	215,5
	11	685,2	145,1	667,6	159,2	649,6	175,2	629,9	193,6	600,4	218,3	556,0	216,3
	12	703,0	147,9	685,6	161,8	667,6	177,7	647,6	196,1	610,0	218,7	557,9	213,7
	13	721,2	150,9	703,9	164,5	685,9	180,4	665,8	198,8	619,4	219,1	562,0	212,0
	14	740,0	153,9	722,8	167,3	704,7	183,2	684,4	201,7	628,8	219,5	565,8	210,1
	15	759,1	157,0	742,1	170,3	724,0	186,1	703,6	204,7	641,1	220,9	564,0	206,2

Air Ambient Temperature (°C): 25, 30, 35, 40, 46, 48.

Note:

- CC (Cooling Capacity) and PI (Power Input) referred to evaporator fouling factor=0,0176m^2 °C/kW.
- Shaded values are referred to part load operation.

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1.21 Capacity Tables: EWAD-AJYNN/A + OPLN

EWAD260-360AJYNN/A + OPLN

The table below contains the capacity tables for EWAD260-360AJYNN/A + OPLN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)											
		25		30		35		40		46		48	
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
260	4	235,6	59,5	229,7	66,1	222,4	73,4	214,2	81,2	202,5	91,2	189,9	89,5
	5	242,3	60,3	236,4	67,0	229,2	74,4	220,6	82,2	208,9	92,3	191,5	87,8
	6	249,2	61,2	243,1	68,0	235,9	75,3	227,1	83,2	215,2	93,4	194,4	86,9
	7	256,1	62,1	250,1	68,9	242,7	76,3	233,9	84,3	221,5	94,5	195,4	85,2
	8	263,0	63,0	257,0	69,9	249,7	77,4	240,8	85,4	223,3	93,0	196,1	83,3
	9	270,1	64,0	264,1	70,9	256,7	78,4	247,7	86,5	224,7	91,2	198,3	82,4
	10	277,2	65,0	271,2	71,9	263,8	79,5	254,8	87,7	225,7	89,4	200,4	81,4
	11	284,5	66,0	278,4	73,0	270,9	80,6	261,8	88,8	228,5	88,5	200,2	79,5
	12	291,8	67,0	285,6	74,0	278,1	81,7	268,9	90,0	229,2	86,6	201,7	78,5
	13	299,3	68,1	293,0	75,1	285,3	82,9	276,2	91,2	231,4	85,7	203,1	77,5
	14	307,0	69,2	300,4	76,3	292,8	84,1	283,4	92,5	231,3	83,8	204,1	76,4
	15	314,7	70,3	308,2	77,5	300,1	85,3	290,8	93,8	233,2	82,8	205,0	75,3
280	4	262,3	63,6	256,4	70,7	249,4	78,5	240,9	87,0	228,6	97,8	222,3	100,6
	5	269,8	64,5	263,8	71,6	256,6	79,5	248,0	88,0	235,7	98,9	226,8	100,1
	6	277,2	65,4	271,3	72,6	264,1	80,5	255,3	89,0	243,0	100,0	231,1	99,5
	7	284,9	66,3	279,0	73,6	271,6	81,5	262,8	90,1	250,2	101,1	235,2	98,9
	8	292,6	67,3	286,6	74,6	279,3	82,6	270,3	91,2	257,5	102,3	239,2	98,4
	9	300,5	68,3	294,4	75,6	287,0	83,6	277,9	92,3	262,0	101,9	244,1	98,3
	10	308,7	69,4	302,5	76,7	294,8	84,7	285,8	93,5	266,3	101,3	247,7	97,7
	11	316,8	70,4	310,6	77,8	302,9	85,9	293,6	94,6	271,5	101,3	250,6	96,8
	12	325,1	71,5	318,8	78,9	311,1	87,0	301,6	95,8	275,6	100,7	252,1	95,3
	13	333,5	72,6	327,2	80,0	319,3	88,2	309,9	97,1	279,5	100,1	253,4	93,7
	14	341,9	73,8	335,5	81,2	327,7	89,4	318,1	98,4	284,6	100,1	255,6	92,6
	15	350,6	74,9	344,1	82,4	336,1	90,7	326,5	99,7	289,6	100,1	256,3	91,0
320	4	285,6	69,6	278,9	77,4	270,9	86,0	261,7	95,2	248,3	107,1	243,1	111,2
	5	293,9	70,6	287,2	78,5	278,9	87,1	269,4	96,3	255,9	108,3	250,8	112,4
	6	302,3	71,6	295,5	79,6	287,3	88,2	277,3	97,5	263,7	109,5	256,7	112,9
	7	310,6	72,7	303,9	80,6	295,6	89,3	285,6	98,7	271,4	110,8	258,8	110,8
	8	319,2	73,8	312,4	81,8	304,0	90,5	293,9	99,9	279,4	112,0	260,5	108,7
	9	327,8	74,8	321,0	82,9	312,6	91,7	302,4	101,2	287,7	113,3	264,0	107,6
	10	336,5	76,0	329,6	84,0	321,3	92,9	311,0	102,5	296,1	114,7	265,0	105,4
	11	345,3	77,1	338,4	85,2	329,9	94,1	319,6	103,8	302,4	115,3	265,6	103,2
	12	354,2	78,3	347,2	86,4	338,7	95,4	328,4	105,1	304,0	113,1	268,3	102,0
	13	363,2	79,5	356,2	87,7	347,6	96,7	337,3	106,4	305,2	110,8	270,6	100,8
	14	372,4	80,7	365,3	88,9	356,6	98,0	346,2	107,8	308,6	109,7	270,2	98,4
	15	381,9	82,0	374,6	90,2	365,7	99,3	355,2	109,2	309,1	107,4	272,0	97,1
340	4	311,9	77,9	304,7	86,6	295,8	96,1	285,1	106,2	269,6	119,1	250,8	115,4
	5	320,6	79,0	313,3	87,8	304,4	97,3	293,5	107,5	276,0	119,4	254,5	114,4
	6	329,4	80,2	322,1	89,0	313,0	98,6	302,2	108,9	281,2	118,9	257,3	112,8
	7	338,3	81,4	330,9	90,3	321,9	99,9	310,9	110,3	286,3	118,3	258,5	110,4
	8	347,5	82,6	339,9	91,5	330,7	101,3	319,7	111,7	291,2	117,7	260,5	108,7
	9	356,9	83,9	349,1	92,8	339,7	102,6	328,6	113,2	296,0	117,1	262,3	106,9
	10	366,4	85,2	358,5	94,2	348,8	104,0	337,6	114,6	299,5	116,2	263,4	105,0
	11	376,1	86,5	367,9	95,6	358,2	105,5	346,6	116,1	300,4	113,7	264,4	103,1
	12	385,8	87,9	377,6	97,0	367,7	107,0	355,9	117,7	302,2	111,9	266,2	101,8
	13	395,9	89,4	387,3	98,5	377,3	108,5	365,3	119,3	304,9	110,7	267,8	100,4
	14	406,1	90,8	397,5	100,0	387,0	110,1	375,0	120,9	306,0	108,8	270,8	99,6
	15	416,4	92,4	407,7	101,6	397,1	111,7	384,6	122,6	308,1	107,4	271,8	98,2
360	4	335,1	85,5	326,8	95,1	316,8	105,4	304,8	116,4	285,4	129,4	252,2	117,3
	5	344,3	86,8	336,1	96,4	326,0	106,9	313,9	118,0	288,1	127,0	253,6	114,9
	6	353,9	88,1	345,4	97,8	335,4	108,3	323,2	119,5	290,2	124,6	256,8	113,6
	7	363,6	89,5	355,0	99,2	344,7	109,8	332,5	121,1	291,9	122,2	257,3	111,1
	8	373,2	90,9	364,7	100,7	354,3	111,4	341,9	122,7	295,7	121,0	259,9	109,8
	9	383,1	92,3	374,4	102,2	364,0	112,9	351,3	124,4	296,6	118,4	262,2	108,4
	10	393,1	93,7	384,3	103,7	373,7	114,5	361,0	126,1	299,8	117,1	261,4	105,7
	11	403,2	95,2	394,3	105,3	383,5	116,2	370,7	127,8	299,9	114,5	263,0	104,2
	12	413,6	96,8	404,5	106,9	393,5	117,9	380,5	129,6	302,3	113,1	264,2	102,7
	13	424,5	98,4	414,7	108,5	403,5	119,6	390,4	131,4	304,4	111,7	268,4	102,5
	14	435,5	100,1	425,6	110,3	413,7	121,3	400,5	133,2	306,3	110,3	269,1	100,9
	15	446,5	101,8	436,4	112,1	424,4	123,2	410,6	135,1	307,9	108,8	269,5	99,4

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EWAD380-600AJYN N/A + OPLN

The table below contains the capacity tables for EWAD380-600AJYNN/A + OPLN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C) 25 CC (kW)	25 PI (kW)	30 CC (kW)	30 PI (kW)	35 CC (kW)	35 PI (kW)	40 CC (kW)	40 PI (kW)	46 CC (kW)	46 PI (kW)	48 CC (kW)	48 PI (kW)
380	4	358,0	87,2	350,0	97,0	340,3	107,7	328,5	119,1	311,5	133,8	303,9	138,3
	5	368,0	88,4	360,0	98,3	350,2	109,0	338,4	120,6	321,2	135,3	310,0	137,7
	6	378,1	89,7	370,0	99,6	360,2	110,4	348,3	122,0	331,1	136,9	313,6	136,0
	7	388,5	91,0	380,3	101,0	370,3	111,8	358,4	123,5	340,9	138,5	315,8	133,4
	8	399,1	92,3	390,7	102,3	380,6	113,3	368,5	125,1	350,9	140,2	317,4	130,7
	9	410,0	93,7	401,4	103,8	390,9	114,8	378,7	126,6	358,4	140,6	320,0	128,8
	10	420,9	95,1	412,2	105,3	401,7	116,3	389,1	128,2	364,2	139,9	322,0	126,7
	11	432,0	96,6	423,2	106,8	412,5	117,9	399,7	129,9	367,5	138,2	323,9	124,6
	12	443,5	98,1	434,3	108,3	423,5	119,5	410,6	131,6	370,2	136,1	326,7	123,1
	13	455,0	99,6	445,8	109,9	434,6	121,2	421,5	133,4	371,0	133,3	327,5	120,9
	14	466,8	101,2	457,4	111,6	446,1	122,9	432,6	135,1	374,6	131,9	328,1	118,7
	15	478,5	102,8	469,1	113,3	457,7	124,7	444,0	137,0	376,2	129,8	330,0	117,2
420	4	381,9	93,6	373,2	104,1	362,5	115,5	349,7	127,7	331,3	143,4	322,0	147,9
	5	392,4	94,9	383,7	105,5	373,1	117,0	360,2	129,3	341,6	145,1	325,1	145,2
	6	403,2	96,2	394,4	106,9	383,6	118,5	370,7	130,9	352,0	146,8	327,6	142,5
	7	414,2	97,6	405,2	108,4	394,4	120,0	381,4	132,5	362,5	148,6	329,7	139,7
	8	425,9	99,1	416,4	109,9	405,2	121,6	392,1	134,2	373,2	150,4	331,2	136,8
	9	437,6	100,6	428,0	111,5	416,3	123,2	403,1	135,9	378,4	149,6	335,1	135,4
	10	449,4	102,1	439,8	113,1	428,0	124,9	414,0	137,6	380,5	146,7	335,7	132,4
	11	461,4	103,7	451,6	114,7	439,7	126,6	425,5	139,4	385,2	145,3	338,9	130,9
	12	473,6	105,2	463,6	116,4	451,6	128,4	437,1	141,3	386,5	142,4	341,7	129,3
	13	485,9	106,9	475,7	118,1	463,5	130,2	449,0	143,2	387,1	139,4	340,8	126,2
	14	498,1	108,5	488,1	119,9	475,7	132,1	461,0	145,2	390,7	137,9	342,9	124,6
	15	510,7	110,2	500,5	121,6	488,0	134,0	473,2	147,2	393,8	136,3	344,5	122,9
500	4	479,3	122,0	464,8	136,7	449,4	152,7	432,0	170,1	382,1	179,5	342,2	171,4
	5	492,7	124,1	478,2	138,7	462,6	154,7	444,7	172,2	390,4	179,7	344,6	169,3
	6	506,3	126,2	491,6	140,8	475,8	156,8	457,6	174,5	396,9	178,8	346,6	166,9
	7	519,9	128,3	505,3	142,8	489,3	158,9	470,5	176,8	400,2	177,1	348,3	164,4
	8	533,8	130,5	519,1	144,9	502,9	161,1	483,8	179,3	401,2	174,2	351,4	162,4
	9	547,9	132,7	533,2	147,1	516,6	163,5	497,1	181,9	403,8	172,3	352,3	159,7
	10	562,3	134,9	547,5	149,4	530,7	165,9	510,8	184,6	405,9	170,2	354,8	157,5
	11	577,0	137,3	562,1	151,8	545,1	168,4	522,8	186,4	409,7	168,6	357,0	155,2
	12	592,0	139,7	577,1	154,3	559,7	171,2	531,2	186,6	411,3	166,3	361,4	154,2
	13	607,4	142,3	592,3	156,9	574,7	174,0	537,6	185,6	414,7	164,6	363,1	151,9
	14	623,2	144,9	607,9	159,7	590,0	177,1	545,9	185,6	413,2	160,8	364,5	149,5
	15	639,3	147,7	624,0	162,7	607,2	180,7	554,3	185,5	415,8	159,0	365,7	147,1
550	4	515,3	122,8	495,0	141,2	477,1	160,3	458,9	180,5	433,2	207,0	416,9	213,4
	5	529,2	125,2	509,3	143,1	491,3	162,0	472,9	182,3	446,5	209,2	420,1	211,4
	6	543,2	127,6	523,7	145,0	505,7	163,8	487,0	184,2	460,0	211,5	422,8	209,0
	7	557,4	129,9	538,1	147,0	520,2	165,5	501,2	186,0	473,5	213,8	425,1	206,2
	8	571,8	132,3	552,7	149,0	534,9	167,4	515,6	188,0	487,4	216,3	426,9	203,1
	9	586,4	134,7	567,6	151,0	549,8	169,3	530,5	190,1	494,3	215,6	428,5	199,7
	10	601,3	137,1	583,0	153,1	565,3	171,4	545,5	192,4	493,8	211,7	433,5	198,0
	11	616,7	139,6	598,7	155,3	581,0	173,6	561,0	194,8	496,6	209,1	434,6	194,3
	12	632,5	142,2	615,0	157,7	597,3	175,9	577,1	197,4	499,1	206,3	439,4	192,5
	13	648,9	144,9	631,7	160,2	614,1	178,5	593,7	200,3	501,5	203,4	439,8	188,4
	14	665,9	147,7	649,0	162,8	631,5	181,2	610,8	203,4	508,1	202,4	444,5	186,6
	15	683,6	150,7	667,1	165,7	649,4	184,2	628,5	206,8	510,1	199,2	444,3	182,4
600	4	558,8	137,1	541,2	153,9	523,5	171,9	504,4	191,6	468,0	213,8	425,8	209,2
	5	574,1	139,6	556,6	156,1	538,8	174,1	519,3	193,8	476,1	213,8	427,6	206,3
	6	589,6	142,1	572,1	158,4	554,1	176,3	534,4	196,1	484,1	213,8	431,0	204,1
	7	605,3	144,6	587,8	160,8	569,7	178,6	549,6	198,5	491,8	213,7	434,0	201,7
	8	621,2	147,2	603,7	163,2	585,5	181,0	565,2	201,0	497,4	212,6	436,6	199,1
	9	637,7	149,9	619,9	165,7	601,6	183,5	581,0	203,6	501,5	210,8	436,2	195,2
	10	654,7	152,7	636,8	168,3	618,0	186,1	597,1	206,3	502,7	207,8	439,9	193,1
	11	671,8	155,5	654,0	171,0	634,8	188,8	613,5	209,1	506,1	205,7	444,0	191,1
	12	689,4	158,5	671,5	173,9	652,2	191,6	630,2	212,1	509,0	203,4	447,2	188,9
	13	707,4	161,5	689,5	176,8	670,0	194,7	647,4	215,3	511,6	200,9	447,7	185,6
	14	725,9	164,7	708,0	180,0	688,3	197,9	665,3	218,7	513,9	198,4	450,3	183,3
	15	744,8	167,9	727,0	183,2	707,0	201,3	678,3	220,5	515,6	195,7	455,7	182,1

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EWAD650AJYNN/A + OPLN

The table below contains the capacity tables for EWAD650AJYNN/A + OPLN.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)											
		25		30		35		40		46		48	
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
650	4	596,6	150,4	581,9	165,7	564,7	182,8	545,0	201,9	498,2	219,8	433,4	205,5
	5	613,1	152,9	598,1	168,2	580,8	185,5	560,6	204,5	501,0	217,6	433,9	202,0
	6	629,8	155,5	614,6	170,9	596,9	188,1	576,5	207,3	503,1	215,2	438,1	200,2
	7	646,7	158,2	631,3	173,6	613,3	190,9	592,5	210,1	504,4	212,5	441,9	198,2
	8	663,8	160,9	648,2	176,4	629,9	193,7	608,8	213,0	505,2	209,4	445,3	196,1
	9	682,0	163,9	665,3	179,3	646,7	196,7	625,3	215,9	510,0	208,1	443,2	191,8
	10	700,6	166,9	683,1	182,3	663,7	199,7	641,9	219,0	509,4	204,6	445,5	189,4
	11	719,1	170,0	701,4	185,5	681,0	202,8	658,8	222,1	513,2	202,9	452,8	189,1
	12	737,9	173,2	719,9	188,7	699,1	206,1	675,8	225,4	516,5	201,1	454,2	186,6
	13	757,1	176,5	738,7	192,1	717,4	209,5	693,1	228,7	519,4	199,2	455,2	184,0
	14	776,5	179,9	757,6	195,5	735,9	212,9	711,2	232,2	521,7	197,2	455,5	181,2
	15	796,1	183,3	776,9	199,0	754,7	216,5	718,7	232,2	523,6	195,0	461,6	180,8

Note:

- CC (Cooling Capacity) and PI (Power Input) referred to evaporator fouling factor=0,0176m^2 °C/kW.
- Shaded values are referred to part load operation.

1.22 Capacity Tables: EWAD-AJYNN/H

EWAD200-280AJYNN/H

The table below contains the capacity tables for EWAD200-280AJYNN/H.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)											
		25		30		35		40		46		48	
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
200	4	195,8	55,6	187,0	61,2	177,7	67,2	167,9	73,8	155,3	82,4	150,9	85,4
	5	201,8	56,5	192,7	62,1	183,2	68,1	173,2	74,7	160,3	83,4	155,9	86,4
	6	207,7	57,3	198,6	63,0	188,8	69,1	178,5	75,7	165,5	84,3	160,9	87,4
	7	213,6	58,2	204,5	63,9	194,6	70,0	184,0	76,7	170,7	85,4	166,1	88,4
	8	219,7	59,1	210,4	64,8	200,4	71,0	189,6	77,7	176,0	86,4	170,2	88,9
	9	225,8	60,0	216,3	65,8	206,3	72,0	195,4	78,7	181,4	87,4	172,1	87,4
	10	232,0	61,0	222,3	66,7	212,1	73,0	201,2	79,8	186,9	88,5	173,9	85,8
	11	238,3	61,9	228,5	67,7	218,1	74,0	207,0	80,9	192,6	89,6	175,4	84,3
	12	244,9	62,9	234,7	68,7	224,1	75,1	212,8	81,9	198,3	90,8	176,7	82,7
	13	251,5	63,9	241,0	69,8	230,2	76,1	218,7	83,0	201,5	90,4	177,9	81,1
	14	258,2	65,0	247,5	70,9	236,4	77,2	224,7	84,1	203,3	88,8	178,7	79,4
	15	265,0	66,0	254,1	71,9	242,7	78,3	230,8	85,3	204,8	87,2	180,9	78,6
210	4	209,0	54,4	200,2	59,9	190,6	65,8	180,5	72,3	167,4	80,7	162,9	83,7
	5	215,1	55,2	206,1	60,7	196,5	66,7	186,3	73,2	172,9	81,7	168,2	84,6
	6	221,8	56,1	212,1	61,5	202,4	67,6	192,0	74,1	178,5	82,6	173,8	85,6
	7	229,4	57,0	218,5	62,4	208,3	68,4	197,9	75,0	184,2	83,6	179,4	86,6
	8	237,2	58,1	225,4	63,4	214,3	69,3	203,8	76,0	189,9	84,5	185,1	87,6
	9	244,3	59,0	233,3	64,5	221,0	70,3	209,7	76,9	195,7	85,5	190,8	88,6
	10	251,2	59,9	240,7	65,6	228,3	71,4	215,7	77,9	201,5	86,5	196,5	89,6
	11	258,0	60,8	247,7	66,5	236,1	72,6	222,3	78,9	207,4	87,6	202,4	90,6
	12	265,0	61,8	254,4	67,5	243,1	73,7	229,8	80,1	213,3	88,6	205,7	90,2
	13	272,2	62,8	261,3	68,5	250,0	74,7	237,5	81,4	219,6	89,7	207,4	88,6
	14	279,3	63,7	268,3	69,5	256,7	75,8	244,4	82,5	226,8	90,9	209,0	87,0
	15	286,7	64,7	275,4	70,5	263,5	76,8	251,1	83,6	234,3	92,2	210,3	85,4
240	4	233,1	57,5	222,9	63,2	212,1	69,5	200,7	76,3	185,7	85,1	180,7	88,3
	5	240,4	58,3	230,1	64,1	219,1	70,4	207,5	77,2	192,9	86,2	187,0	89,2
	6	247,9	59,2	237,4	65,0	226,3	71,3	214,3	78,1	199,4	87,1	194,2	90,3
	7	255,5	60,0	244,8	65,9	233,5	72,2	221,4	79,1	205,9	88,1	200,7	91,3
	8	263,1	60,9	252,3	66,8	240,9	73,2	228,5	80,1	212,8	89,1	207,3	92,3
	9	270,9	61,8	259,9	67,7	248,3	74,2	235,8	81,1	219,8	90,1	214,1	93,3
	10	280,5	62,9	267,7	68,7	255,8	75,1	243,2	82,1	226,9	91,2	221,2	94,4
	11	288,7	63,9	277,0	69,9	264,7	76,3	250,6	83,2	234,1	92,3	228,3	95,5
	12	297,0	64,9	285,1	70,9	272,6	77,4	258,1	84,2	241,5	93,4	235,6	96,6
	13	305,5	65,9	293,3	71,9	280,6	78,4	267,1	85,5	248,8	94,5	242,9	97,8
	14	314,1	66,9	301,7	73,0	288,7	79,5	275,0	86,6	256,3	95,7	250,3	98,9
	15	322,8	68,0	310,1	74,0	296,9	80,6	283,0	87,7	263,9	96,8	257,7	100,1
260	4	256,1	63,9	244,7	70,2	232,5	77,1	219,8	84,6	202,1	94,2	196,4	97,7
	5	264,1	64,8	252,6	71,2	240,3	78,1	227,1	85,6	210,8	95,5	203,3	98,8
	6	272,4	65,8	260,7	72,2	248,2	79,2	234,8	86,7	218,0	96,6	212,2	100,2
	7	280,6	66,8	268,8	73,2	256,1	80,2	242,5	87,8	225,2	97,7	219,2	101,3
	8	289,1	67,8	277,0	74,3	264,1	81,3	250,4	88,9	232,7	98,9	226,5	102,4
	9	297,6	68,8	285,4	75,3	272,3	82,4	258,4	90,1	240,4	100,1	234,0	103,7
	10	306,4	69,9	293,8	76,4	280,5	83,6	266,4	91,3	248,2	101,3	241,8	104,9
	11	315,3	70,9	302,4	77,5	288,9	84,7	274,6	92,5	256,1	102,6	249,6	106,2
	12	324,2	72,0	311,2	78,7	297,3	85,9	282,7	93,7	264,0	103,8	257,4	107,4
	13	333,3	73,2	320,0	79,8	305,9	87,1	291,1	94,9	272,1	105,1	265,5	108,8
	14	342,6	74,3	329,0	81,0	314,7	88,3	299,5	96,2	280,2	106,4	273,4	110,1
	15	352,0	75,5	338,1	82,2	323,4	89,5	308,1	97,4	288,4	107,8	281,6	111,4
280	4	273,8	69,3	261,7	76,1	247,9	83,5	234,3	91,6	217,4	102,2	210,5	105,9
	5	282,6	70,3	270,0	77,2	257,0	84,7	242,1	92,7	224,8	103,4	218,8	107,2
	6	291,4	71,4	278,7	78,3	265,3	85,8	251,1	94,0	232,3	104,6	226,2	108,4
	7	300,4	72,5	287,4	79,5	273,7	87,0	259,4	95,2	239,8	105,8	233,6	109,6
	8	309,5	73,6	296,3	80,6	282,4	88,2	267,6	96,4	247,7	107,0	241,1	110,8
	9	318,8	74,8	305,4	81,8	291,2	89,4	276,0	97,7	256,9	108,5	249,1	112,1
	10	328,1	75,9	314,5	83,0	300,1	90,7	284,7	99,0	265,2	109,8	258,3	113,7
	11	337,7	77,1	323,8	84,2	309,1	91,9	293,4	100,3	273,5	111,2	266,6	115,0
	12	347,4	78,3	333,2	85,5	318,3	93,3	302,3	101,6	282,1	112,6	274,9	116,5
	13	357,1	79,6	342,7	86,8	327,4	94,6	311,4	103,0	290,7	114,0	283,5	117,9
	14	367,1	80,9	352,4	88,1	336,8	95,9	320,4	104,4	299,5	115,5	292,1	119,4
	15	377,2	82,1	362,1	89,4	346,4	97,3	329,7	105,8	308,3	116,9	296,6	118,8

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EWAD300-420AJYN N/H

The table below contains the capacity tables for EWAD300-420AJYNN/H.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)											
		25		30		35		40		46		48	
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
300	4	289,4	74,1	276,5	81,5	262,7	89,4	248,4	98,1	230,1	109,5	221,6	113,2
	5	298,6	75,2	285,4	82,6	271,4	90,6	256,6	99,3	238,0	110,8	231,4	114,8
	6	307,8	76,4	294,6	83,8	280,2	91,9	265,1	100,6	246,0	112,1	239,4	116,1
	7	317,2	77,5	303,7	85,0	289,3	93,1	273,8	101,9	254,2	113,4	247,5	117,5
	8	326,7	78,7	313,0	86,2	298,4	94,4	282,7	103,2	262,6	114,7	255,6	118,8
	9	336,5	79,9	322,4	87,5	307,5	95,7	291,6	104,6	271,2	116,1	264,1	120,2
	10	346,3	81,2	331,9	88,8	316,8	97,0	300,7	105,9	279,9	117,6	272,6	121,7
	11	356,3	82,4	341,6	90,1	326,2	98,4	309,9	107,3	288,9	119,0	281,5	123,2
	12	366,4	83,7	351,5	91,4	335,8	99,7	319,1	108,7	297,8	120,5	290,3	124,7
	13	376,7	85,0	361,4	92,8	345,4	101,1	328,6	110,2	306,8	122,0	299,3	126,2
	14	387,1	86,4	371,6	94,1	355,3	102,6	338,0	111,7	316,0	123,6	308,4	127,8
	15	397,7	87,7	381,8	95,6	365,2	104,0	347,6	113,2	325,3	125,1	311,0	126,0
320	4	307,2	80,6	293,4	88,6	278,6	97,3	263,0	106,7	243,1	119,0	235,1	123,3
	5	316,8	81,8	302,7	89,9	287,7	98,6	271,8	108,0	251,5	120,4	244,3	124,8
	6	326,5	83,1	312,2	91,2	297,0	99,9	280,8	109,4	260,0	121,9	252,7	126,3
	7	336,4	84,3	321,8	92,5	306,4	101,3	289,9	110,9	268,7	123,3	261,3	127,8
	8	346,3	85,7	331,6	93,8	315,9	102,7	299,1	112,3	277,5	124,9	270,0	129,3
	9	356,5	87,0	341,4	95,2	325,4	104,1	308,4	113,8	286,5	126,4	278,8	130,9
	10	366,8	88,3	351,4	96,6	335,2	105,6	318,0	115,3	295,7	128,0	286,9	132,0
	11	377,2	89,7	361,6	98,1	345,0	107,1	327,5	116,8	304,9	129,6	291,8	130,8
	12	387,9	91,1	371,9	99,5	355,0	108,6	337,1	118,4	314,3	131,2	297,7	130,4
	13	398,6	92,6	382,4	101,0	365,2	110,1	346,9	120,0	323,7	132,9	303,4	129,9
	14	409,5	94,1	392,9	102,5	375,4	111,7	356,9	121,6	333,2	134,6	309,0	129,4
	15	420,6	95,6	403,7	104,1	385,7	113,3	366,9	123,3	339,5	134,4	312,4	127,9
340	4	335,4	84,3	320,4	92,7	302,6	101,5	286,2	111,3	265,8	124,4	258,8	129,0
	5	346,2	85,6	330,8	94,0	315,0	103,1	295,7	112,7	274,6	125,7	267,5	130,4
	6	357,2	86,9	341,5	95,3	325,1	104,5	308,0	114,4	283,4	127,1	276,2	131,8
	7	368,4	88,3	352,5	96,7	335,6	105,9	317,9	115,9	292,9	128,5	285,2	133,2
	8	379,7	89,7	363,5	98,2	346,3	107,4	328,1	117,4	305,5	130,5	294,7	134,7
	9	391,1	91,0	374,7	99,6	357,2	108,9	338,7	118,9	315,3	132,0	307,2	136,7
	10	402,7	92,5	386,0	101,1	368,3	110,4	349,4	120,5	325,4	133,6	317,1	138,3
	11	414,4	93,9	397,4	102,6	379,5	112,0	360,2	122,1	335,7	135,3	327,2	140,0
	12	426,4	95,4	409,1	104,1	390,8	113,5	371,4	123,7	346,3	137,0	337,6	141,7
	13	438,5	96,9	420,8	105,7	402,2	115,1	382,5	125,4	357,1	138,7	348,2	143,5
	14	450,8	98,4	432,7	107,2	413,7	116,8	393,7	127,1	368,0	140,5	359,0	145,3
	15	463,3	100,0	444,8	108,9	425,4	118,4	405,1	128,8	379,0	142,3	369,8	147,1
400	4	367,7	88,0	359,7	98,1	349,9	109,1	338,0	120,9	320,5	136,1	313,8	141,4
	5	378,2	89,1	370,0	99,3	360,1	110,4	348,3	122,3	330,9	137,6	324,1	142,9
	6	388,9	90,3	380,6	100,6	370,5	111,7	358,6	123,6	341,2	139,0	334,6	144,4
	7	399,8	91,5	391,4	101,8	381,2	113,0	369,1	125,0	351,6	140,6	345,0	146,0
	8	410,9	92,8	402,5	103,2	392,2	114,4	379,7	126,5	362,1	142,1	355,5	147,6
	9	422,2	94,0	413,7	104,5	403,3	115,8	390,8	128,0	372,8	143,7	366,1	149,2
	10	433,6	95,4	425,0	105,9	414,6	117,3	402,1	129,5	383,6	145,3	376,8	150,8
	11	445,1	96,7	436,6	107,3	426,1	118,7	413,4	131,1	394,8	147,0	379,3	148,5
	12	456,9	98,1	448,2	108,7	437,6	120,2	424,8	132,7	406,3	148,7	381,2	145,6
	13	468,7	99,5	460,0	110,2	449,4	121,8	436,5	134,3	417,7	150,5	385,9	144,2
	14	480,8	100,9	471,9	111,7	461,2	123,4	448,2	136,0	429,4	152,3	387,0	141,3
	15	492,9	102,3	484,1	113,2	473,2	125,0	460,1	137,7	441,1	154,1	390,9	139,8
420	4	426,7	104,7	407,9	115,7	388,5	127,9	368,0	141,3	341,6	159,3	333,1	165,9
	5	440,3	106,2	420,7	117,3	400,8	129,4	380,1	142,9	352,6	160,8	343,8	167,4
	6	454,2	107,8	433,8	118,9	413,3	131,0	392,1	144,5	363,7	162,3	354,8	168,9
	7	468,3	109,4	447,4	120,5	426,0	132,7	404,2	146,2	376,9	164,2	365,9	170,5
	8	484,3	111,3	461,3	122,2	439,1	134,4	416,7	147,9	388,9	165,9	379,1	172,4
	9	498,9	112,9	477,1	124,2	452,7	136,2	429,4	149,6	400,9	167,6	391,1	174,1
	10	514,0	114,7	491,5	126,0	468,3	138,3	442,5	151,5	413,0	169,4	400,0	174,6
	11	529,2	116,5	506,2	127,8	482,5	140,2	456,0	153,4	425,5	171,3	405,8	173,9
	12	544,6	118,3	521,1	129,7	496,7	142,1	471,6	155,6	438,2	173,2	413,0	173,6
	13	560,2	120,1	536,3	131,7	511,4	144,1	485,5	157,6	451,4	175,2	420,1	173,4
	14	576,2	122,0	551,7	133,7	526,2	146,2	499,7	159,7	464,8	177,3	427,2	173,0
	15	592,3	124,0	567,3	135,7	541,2	148,3	514,2	161,9	473,2	177,0	434,3	172,6

EWAD460-600AJYNN/H

The table below contains the capacity tables for EWAD460-600AJYNN/H.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C) 25 CC (kW)	25 PI (kW)	30 CC (kW)	30 PI (kW)	35 CC (kW)	35 PI (kW)	40 CC (kW)	40 PI (kW)	46 CC (kW)	46 PI (kW)	48 CC (kW)	48 PI (kW)
460	4	468,3	112,9	447,5	124,7	422,6	137,4	400,0	152,0	373,3	171,8	364,0	179,0
	5	483,4	114,5	461,7	126,4	439,7	139,5	413,2	153,6	385,2	173,3	375,7	180,5
	6	498,8	116,2	476,5	128,1	453,6	141,2	430,2	155,8	397,3	174,9	387,6	182,0
	7	514,3	117,9	491,7	129,9	468,1	143,0	443,9	157,5	409,8	176,5	399,7	183,6
	8	530,2	119,7	507,0	131,7	482,9	144,9	457,8	159,4	423,0	178,3	412,4	185,4
	9	546,2	121,5	522,6	133,6	497,9	146,8	472,2	161,3	440,5	180,7	425,5	187,2
	10	562,4	123,3	538,5	135,5	513,2	148,8	487,0	163,3	454,1	182,6	443,1	189,7
	11	578,9	125,2	554,4	137,4	528,8	150,8	501,9	165,3	468,3	184,7	456,7	191,6
	12	595,5	127,1	570,6	139,4	544,4	152,8	517,2	167,4	482,7	186,8	470,9	193,7
	13	612,6	129,0	586,9	141,5	560,3	154,9	532,5	169,6	497,4	188,9	485,3	195,9
	14	629,7	131,0	603,6	143,6	576,4	157,1	548,1	171,8	512,4	191,2	499,9	198,1
	15	647,2	133,1	620,4	145,7	592,7	159,3	563,9	174,0	527,5	193,5	503,9	196,4
480	4	500,8	122,5	478,7	134,1	456,0	147,2	430,7	161,5	401,6	181,3	391,7	188,4
	5	518,5	124,7	493,7	136,1	470,4	149,1	444,2	163,4	414,5	183,1	404,4	190,3
	6	534,9	126,8	511,2	138,4	485,1	151,1	460,4	165,7	427,6	185,0	417,1	192,1
	7	551,4	128,9	527,2	140,5	502,1	153,5	474,8	167,7	441,0	187,0	430,2	194,1
	8	568,3	131,1	543,5	142,8	517,7	155,7	489,2	169,8	454,6	189,0	443,6	196,1
	9	585,6	133,4	560,0	145,0	533,7	158,0	506,4	172,4	471,0	191,6	457,2	198,2
	10	603,2	135,7	577,0	147,4	550,0	160,3	522,0	174,7	485,4	193,8	473,7	200,8
	11	621,1	138,1	594,4	149,8	566,5	162,7	537,9	177,1	499,9	196,1	488,1	203,1
	12	639,2	140,6	611,8	152,3	583,4	165,2	554,0	179,6	517,5	198,9	502,6	205,5
	13	657,5	143,1	629,6	154,8	600,7	167,8	570,5	182,1	533,0	201,4	520,2	208,3
	14	676,1	145,6	647,7	157,4	618,1	170,4	587,4	184,8	548,9	204,0	526,1	207,5
	15	694,9	148,2	665,9	160,1	635,8	173,1	604,4	187,5	565,0	206,7	529,9	206,0
500	4	530,0	131,5	506,7	142,9	482,4	155,8	453,6	169,7	423,3	189,6	412,8	196,8
	5	546,8	133,8	522,7	145,2	497,8	158,0	467,6	171,8	436,7	191,7	426,0	198,8
	6	564,1	136,3	539,0	147,5	513,5	160,4	487,1	174,8	450,3	193,8	439,5	201,0
	7	581,8	138,9	556,0	150,1	529,5	162,8	502,4	177,2	464,3	196,0	453,1	203,2
	8	599,6	141,5	573,3	152,6	546,0	165,3	518,0	179,6	478,7	198,3	467,1	205,4
	9	617,8	144,1	590,9	155,3	563,0	167,9	533,9	182,2	498,5	201,6	481,5	207,8
	10	636,2	146,9	608,8	158,0	580,1	170,6	550,5	184,8	513,8	204,1	501,4	211,2
	11	654,7	149,7	626,9	160,8	597,7	173,4	567,3	187,6	529,5	206,8	516,8	213,8
	12	673,5	152,6	645,1	163,7	615,4	176,3	584,5	190,4	545,7	209,6	532,5	216,5
	13	692,6	155,5	663,6	166,6	633,6	179,2	601,9	193,3	562,2	212,5	548,7	219,4
	14	711,9	158,5	682,4	169,6	651,6	182,2	619,5	196,4	579,1	215,4	553,1	218,1
	15	731,6	161,6	701,3	172,7	670,0	185,3	637,4	199,4	596,2	218,5	556,9	216,8
550	4	553,2	139,5	533,7	152,6	512,8	167,4	490,8	184,1	461,8	206,5	451,7	214,6
	5	569,7	141,9	550,1	155,0	528,4	169,8	505,7	186,4	476,2	208,8	465,7	216,9
	6	586,3	144,4	566,5	157,6	544,7	172,3	520,8	188,9	490,8	211,3	476,2	217,8
	7	603,2	146,9	583,1	160,1	561,0	174,9	536,7	191,5	505,6	213,8	482,7	217,3
	8	620,3	149,5	599,9	162,7	577,6	177,6	552,9	194,1	520,6	216,4	490,9	217,4
	9	637,8	152,2	616,9	165,4	594,1	180,3	569,2	196,9	536,2	219,1	498,8	217,4
	10	655,9	155,1	634,1	168,2	610,9	183,1	585,7	199,7	550,1	221,1	508,9	218,2
	11	674,4	158,0	652,0	171,1	627,9	186,0	602,4	202,6	559,6	221,7	517,5	218,2
	12	693,0	161,0	670,1	174,1	645,4	189,0	619,2	205,6	568,7	222,1	522,1	216,9
	13	712,1	164,1	688,7	177,2	663,3	192,1	636,1	208,6	577,5	222,5	521,7	213,7
	14	731,3	167,2	707,4	180,4	681,6	195,2	653,8	211,8	588,5	223,7	525,3	212,0
	15	750,8	170,5	726,4	183,7	700,0	198,5	671,7	215,1	596,8	223,9	526,8	209,8
600	4	581,9	142,6	568,0	157,3	551,6	173,7	532,6	192,1	505,9	216,6	496,6	225,5
	5	598,3	144,9	584,3	159,6	567,7	176,1	548,4	194,5	521,3	219,0	511,4	227,8
	6	614,9	147,3	600,7	162,0	584,0	178,6	564,4	197,0	537,1	221,5	519,1	227,2
	7	631,8	149,7	617,3	164,5	600,4	181,1	580,7	199,5	552,9	224,1	518,2	223,8
	8	648,9	152,2	634,2	167,0	617,1	183,6	597,2	202,1	569,1	226,8	520,7	221,6
	9	666,3	154,8	651,3	169,6	633,9	186,3	613,7	204,8	585,4	229,5	522,6	219,0
	10	684,4	157,6	668,7	172,3	650,9	189,0	630,5	207,6	597,5	230,6	528,4	217,9
	11	702,7	160,4	686,7	175,2	668,2	191,8	647,4	210,4	600,3	228,8	528,9	214,8
	12	721,3	163,3	705,1	178,1	686,2	194,7	664,6	213,3	602,4	226,7	533,8	213,4
	13	740,2	166,2	723,6	181,1	704,4	197,8	682,2	216,3	603,8	224,3	532,9	209,9
	14	759,3	169,3	742,4	184,2	722,9	200,9	700,4	219,5	609,6	223,5	536,7	208,2
	15	778,7	172,4	761,6	187,3	741,6	204,1	718,7	222,8	609,7	220,6	540,1	206,4

Note:

- CC (Cooling Capacity) and PI (Power Input) referred to evaporator fouling factor=0,0176m^2 °C/kW.
- Shaded values are referred to part load operation.

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1.23 Capacity Tables: EWAD-AJYNN/Q

EWAD210-300AJYNN/Q

The table below contains the capacity tables for EWAD210-300AJYNN/Q.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C) 25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)
210	4	206,3	61,4	196,3	67,3	185,8	73,6	174,6	80,5	165,1	86,3
	5	212,8	62,5	202,2	68,4	191,5	74,8	180,1	81,7	170,5	87,5
	6	219,4	63,7	208,2	69,5	197,2	75,9	185,6	82,8	175,8	88,8
	7	226,1	64,9	214,8	70,7	203,0	77,1	191,2	84,1	179,0	88,4
	8	232,9	66,1	221,3	72,0	209,0	78,3	196,9	85,3	180,9	86,9
	9	239,6	67,3	228,0	73,3	215,5	79,6	202,7	86,6	182,7	85,4
	10	246,4	68,5	234,6	74,6	222,0	81,0	208,6	87,9	184,2	83,8
	11	253,3	69,8	241,4	75,9	228,5	82,4	214,9	89,3	185,6	82,2
	12	260,2	71,1	248,0	77,2	235,0	83,7	221,3	90,7	186,6	80,6
	13	267,3	72,4	254,7	78,5	241,7	85,1	227,7	92,2	187,5	78,9
	14	274,6	73,7	261,6	79,9	248,3	86,6	229,8	90,9	189,7	78,1
	15	281,9	75,1	268,8	81,3	254,9	88,0	231,5	89,3	190,1	76,4
240	4	233,3	65,1	222,4	71,3	211,0	78,1	198,9	85,4	188,5	91,7
	5	240,4	66,2	229,3	72,5	217,6	79,3	205,1	86,6	194,7	92,9
	6	247,8	67,3	236,2	73,6	224,3	80,4	211,6	87,8	201,0	94,1
	7	255,3	68,5	243,3	74,8	231,1	81,6	218,2	89,1	207,4	95,4
	8	262,8	69,7	250,6	76,0	237,8	82,9	224,8	90,3	213,7	96,7
	9	270,5	70,9	258,1	77,3	244,9	84,2	231,5	91,6	218,8	97,1
	10	278,3	72,2	265,7	78,6	252,3	85,5	238,2	93,0	223,1	96,8
	11	286,4	73,5	273,3	79,9	259,7	86,9	245,3	94,3	227,3	96,4
	12	294,6	74,8	281,2	81,3	267,2	88,3	252,5	95,8	231,4	96,1
	13	303,0	76,2	289,2	82,7	274,8	89,7	259,9	97,3	235,4	95,7
	14	311,4	77,6	297,4	84,1	282,6	91,2	267,3	98,7	239,3	95,4
	15	320,0	79,0	305,7	85,6	290,6	92,7	274,7	100,2	244,1	95,5
260	4	255,7	71,8	243,7	78,7	231,0	86,2	217,5	94,3	206,1	101,2
	5	263,4	73,1	251,0	80,0	238,2	87,5	224,4	95,6	212,8	102,5
	6	271,8	74,4	258,6	81,2	245,4	88,8	231,5	96,9	219,6	103,9
	7	280,2	75,7	266,4	82,6	252,7	90,1	238,6	98,3	226,5	105,3
	8	288,8	77,1	274,8	84,0	260,1	91,5	245,7	99,7	233,5	106,8
	9	297,3	78,5	283,2	85,4	268,1	92,9	252,9	101,1	240,5	108,3
	10	305,8	79,8	291,7	86,9	276,3	94,5	260,2	102,6	246,1	109,0
	11	314,5	81,3	300,1	88,4	284,7	96,0	268,2	104,2	248,4	107,1
	12	323,2	82,7	308,6	89,9	293,0	97,6	276,2	105,9	250,5	105,3
	13	332,2	84,2	317,1	91,4	301,4	99,2	284,5	107,6	252,3	103,3
	14	341,4	85,8	325,8	93,0	309,7	100,9	292,7	109,3	253,8	101,4
	15	350,6	87,4	334,8	94,7	318,2	102,5	300,9	111,0	255,1	99,4
280	4	275,1	80,6	261,7	88,1	247,5	96,3	232,3	105,0	219,6	112,5
	5	283,3	82,0	269,6	89,6	255,1	97,8	239,7	106,6	224,5	112,4
	6	291,6	83,5	277,7	91,1	262,9	99,3	247,3	108,2	229,4	112,2
	7	300,1	84,9	285,8	92,6	270,8	100,9	254,9	109,9	233,4	111,2
	8	308,6	86,4	294,1	94,2	278,8	102,5	262,5	111,5	238,0	110,9
	9	317,3	88,0	302,4	95,8	286,8	104,2	270,2	113,3	242,7	110,9
	10	326,0	89,6	310,9	97,4	295,0	105,9	278,2	115,0	244,6	108,8
	11	335,2	91,2	319,5	99,1	303,2	107,6	285,1	116,3	245,4	106,2
	12	344,5	93,0	328,1	100,8	311,6	109,4	290,4	116,1	248,7	105,3
	13	353,9	94,7	337,2	102,6	320,0	111,2	295,5	115,8	249,8	103,1
	14	363,6	96,5	346,5	104,5	328,6	113,0	300,5	115,5	251,6	101,6
	15	373,4	98,4	355,7	106,4	337,5	115,0	305,4	115,3	252,0	99,4
300	4	291,7	88,6	277,1	96,8	261,6	105,6	245,1	115,1	229,7	122,3
	5	300,3	90,2	285,5	98,4	269,7	107,3	252,9	116,9	232,6	120,3
	6	309,2	91,8	293,9	100,1	277,9	109,1	260,9	118,7	233,8	117,0
	7	318,0	93,5	302,5	101,9	286,1	110,9	268,8	120,6	236,0	114,9
	8	326,9	95,2	311,2	103,6	294,5	112,7	276,8	122,5	238,0	112,8
	9	336,1	96,9	319,9	105,4	303,0	114,6	284,9	124,4	239,7	110,6
	10	345,2	98,7	328,9	107,3	311,5	116,5	293,1	126,4	243,1	109,6
	11	354,5	100,6	337,8	109,2	320,1	118,4	297,7	126,0	244,1	107,3
	12	364,1	102,4	346,8	111,1	328,9	120,4	300,3	123,9	247,1	106,3
	13	373,6	104,4	356,1	113,1	337,7	122,5	302,6	121,7	247,5	103,9
	14	383,3	106,3	365,4	115,1	346,5	124,6	304,5	119,5	249,9	102,8
	15	393,6	108,4	374,7	117,2	355,6	126,7	306,0	117,2	249,5	100,3

EWAD320-460AJYNN/Q

The table below contains the capacity tables for EWAD320-460AJYNN/Q.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)									
		25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)
320	4	306,8	97,9	290,9	106,9	274,1	116,6	256,3	127,0	225,7	122,2
	5	315,7	99,7	299,6	108,8	282,5	118,5	264,3	129,0	228,1	119,9
	6	324,8	101,6	308,3	110,7	290,9	120,5	272,5	131,1	229,4	117,0
	7	333,9	103,4	317,1	112,6	299,4	122,5	277,1	130,3	232,1	115,4
	8	343,2	105,4	326,1	114,6	308,0	124,6	282,6	130,1	234,4	113,6
	9	352,7	107,3	335,2	116,7	316,7	126,7	287,9	129,9	236,6	111,9
	10	362,1	109,4	344,3	118,8	325,5	128,9	290,5	127,8	237,4	109,4
	11	371,7	111,4	353,5	120,9	334,3	131,1	291,7	124,8	240,0	108,2
	12	381,8	113,6	362,8	123,1	343,2	133,4	293,6	122,4	241,3	106,3
	13	392,0	115,9	372,3	125,3	352,4	135,7	297,3	121,4	243,4	105,0
	14	402,2	118,2	382,2	127,7	358,2	135,8	298,5	118,9	245,2	103,7
	15	412,7	120,6	392,1	130,1	364,0	135,6	300,6	117,1	245,7	101,7
340	4	317,3	106,0	300,6	115,7	283,0	126,2	264,3	137,5	225,1	125,5
	5	326,4	108,0	309,5	117,8	291,5	128,3	272,5	139,7	227,3	123,1
	6	335,7	110,0	318,4	119,8	300,1	130,5	280,8	141,9	229,0	120,6
	7	345,0	112,0	327,5	122,0	308,8	132,7	282,2	138,5	232,4	119,5
	8	354,6	114,1	336,6	124,1	317,6	135,0	285,2	136,1	233,5	116,9
	9	364,2	116,3	345,8	126,4	326,5	137,3	287,7	133,7	236,5	115,6
	10	373,9	118,5	355,1	128,7	335,4	139,6	290,0	131,2	236,9	112,9
	11	383,8	120,8	364,6	131,0	344,4	142,0	291,8	128,6	239,2	111,6
	12	394,4	123,2	374,1	133,4	353,6	144,5	293,3	126,0	241,3	110,2
	13	405,0	125,8	383,8	135,9	362,8	147,0	296,9	124,9	243,2	108,8
	14	415,8	128,3	394,1	138,5	365,7	145,1	297,7	122,2	244,8	107,4
	15	426,6	131,0	404,6	141,2	368,4	142,5	300,6	120,9	246,2	105,9
400	4	406,3	118,0	386,6	130,2	366,0	143,6	344,3	158,5	326,9	171,8
	5	418,8	120,0	398,3	132,1	377,4	145,6	355,2	160,5	335,8	172,9
	6	431,6	122,1	410,5	134,2	388,8	147,7	366,3	162,6	341,3	172,3
	7	444,7	124,2	422,9	136,4	400,5	149,8	377,5	164,8	347,7	172,2
	8	457,7	126,3	435,6	138,6	412,6	152,1	388,8	167,0	354,1	172,0
	9	471,0	128,5	448,5	140,8	424,8	154,4	400,3	169,3	360,5	171,7
	10	484,4	130,7	461,4	143,2	437,3	156,7	412,2	171,6	366,8	171,3
	11	498,0	133,0	474,4	145,5	449,9	159,2	424,2	174,1	369,2	169,2
	12	511,8	135,4	487,6	148,0	462,5	161,7	435,0	175,8	371,3	166,9
	13	525,8	137,8	501,1	150,5	475,4	164,2	441,0	175,4	374,8	165,3
	14	540,0	140,3	514,8	153,0	488,4	166,8	448,5	175,6	376,0	162,6
	15	554,4	142,9	528,4	155,7	501,5	169,5	455,7	175,7	378,8	160,7
440	4	436,0	131,8	414,4	145,4	391,4	160,5	366,9	177,1	347,7	192,1
	5	448,8	134,0	427,0	147,7	403,7	162,8	378,8	179,5	356,0	192,7
	6	462,2	136,3	439,6	150,0	416,0	165,2	390,8	181,9	357,2	189,6
	7	475,9	138,7	452,4	152,4	428,5	167,6	403,0	184,3	360,4	187,6
	8	489,7	141,1	465,7	154,9	440,9	170,0	415,1	186,8	363,2	185,4
	9	503,8	143,6	479,1	157,4	453,5	172,6	427,3	189,4	365,9	182,9
	10	518,0	146,2	492,7	160,0	466,6	175,3	439,5	192,1	368,2	180,2
	11	532,4	148,8	506,6	162,8	479,8	178,0	451,9	194,8	369,9	177,3
	12	547,0	151,6	520,6	165,5	493,1	180,8	461,7	196,0	371,3	174,1
	13	561,6	154,3	534,7	168,4	506,7	183,7	462,2	193,0	375,6	172,6
	14	576,3	157,1	549,0	171,3	520,4	186,7	465,3	191,1	376,0	169,0
	15	591,3	160,0	563,4	174,3	534,2	189,8	468,1	189,0	379,6	167,3
80	4	466,0	139,6	442,8	152,8	419,1	167,7	394,1	184,2	374,1	198,8
	5	480,2	142,1	456,4	155,4	432,0	170,2	406,4	186,7	380,9	198,5
	6	494,6	144,7	470,3	158,0	445,0	172,8	419,0	189,3	388,8	199,0
	7	509,2	147,4	484,3	160,7	458,5	175,5	431,8	192,0	397,1	199,4
	8	524,0	150,2	498,6	163,5	472,0	178,3	444,5	194,8	400,6	197,5
	9	539,0	153,0	513,0	166,4	486,0	181,2	457,7	197,6	401,9	194,8
	10	554,1	155,9	527,7	169,3	500,0	184,2	471,1	200,6	404,5	192,5
	11	569,6	158,9	542,4	172,4	514,2	187,3	484,7	203,7	406,6	190,0
	12	585,3	162,0	557,4	175,5	528,6	190,4	492,3	203,8	409,9	188,1
	13	601,2	165,1	572,7	178,7	543,1	193,6	501,5	204,7	411,2	185,1
	14	617,2	168,4	588,1	182,0	557,8	196,9	510,5	205,5	413,5	182,9
	15	633,3	171,7	603,7	185,3	572,8	200,4	511,8	203,0	417,7	181,5

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EWAD500AJYNN/Q

The table below contains the capacity tables for EWAD500AJYNN/Q.

Unit size	Leaving Water Evaporator °(C)	Air Ambient Temperature (°C)									
		25		30		35		40		44	
		Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)	Cool. cap. (kW)	Pow. input (kW)
500	4	507,7	146,2	483,2	159,2	457,0	173,6	429,4	189,7	408,1	204,1
	5	522,9	148,9	498,0	161,9	471,5	176,4	443,4	192,5	420,6	206,7
	6	538,3	151,7	512,8	164,7	486,1	179,3	457,6	195,4	433,6	209,5
	7	554,3	154,6	527,8	167,6	500,8	182,2	471,9	198,4	447,4	212,5
	8	570,5	157,6	543,2	170,6	515,3	185,2	486,2	201,4	451,9	211,2
	9	587,0	160,8	559,0	173,7	530,1	188,3	500,6	204,5	452,5	208,3
	10	603,7	164,0	575,0	176,9	545,4	191,5	515,0	207,7	456,0	206,6
	11	620,6	167,2	591,4	180,2	561,1	194,8	529,6	210,9	458,9	204,7
	12	637,7	170,6	607,8	183,6	576,8	198,1	544,7	214,3	461,4	202,5
	13	654,9	174,1	624,5	187,1	592,7	201,6	559,9	217,8	463,4	200,0
	14	672,4	177,6	641,4	190,7	609,0	205,2	575,4	221,4	464,6	197,4
	15	689,9	181,2	658,3	194,3	625,4	208,9	575,7	218,7	469,8	196,4

Note:

- CC (Cooling Capacity) and PI (Power Input) referred to evaporator fouling factor=0,0176m^2 °C/kW.
- Shaded values are referred to part load operation.

1.24 Capacity Tables: EWAD-AJYNN/S

EWAD330AJNN/S (+OPRN)

The table below contains the capacity tables for EWAD330AJYNN/S (+OPRN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD330AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	344	355	366	377	388	400	412	424	436	448	461	474
				PI (kW)	86.3	87.2	88.1	89	89.9	90.9	91.8	92.7	93.7	94.6	95.6	96.6
			Boost	CC (kW)	401	413	425	438	451	464	477	491	505	519	534	549
				PI (kW)	110	112	113	114	116	117	118	120	121	123	124	126
		25	Rated	CC (kW)	330	341	351	362	373	385	396	408	419	431	443	455
				PI (kW)	95.7	96.8	97.8	98.8	99.9	101	102	103	104	105	107	108
			Boost	CC (kW)	384	396	408	420	433	445	458	471	484	497	511	526
				PI (kW)	123	124	125	127	128	130	131	133	135	136	138	140
		30	Rated	CC (kW)	316	326	336	346	357	368	379	390	401	412	424	435
				PI (kW)	105	107	108	109	110	111	113	114	115	116	118	119
			Boost	CC (kW)	367	378	389	401	413	424	436	449	461	473	486	499
				PI (kW)	136	138	139	141	142	144	146	148	149	151	153	155
		35	Rated	CC (kW)	299	309	319	329	339	349	359	370	380	391	402	413
				PI (kW)	116	117	119	120	121	123	124	126	127	128	130	131
			Boost	CC (kW)	346	357	367	378	389	401	412	423	435	446	454	462
				PI (kW)	152	153	155	157	159	160	162	164	166	168	167	166
		40	Rated	CC (kW)	280	289	299	308	317	327	337	347	357	367	377	387
				PI (kW)	129	130	131	133	134	136	137	139	141	142	144	146
			Boost	CC (kW)	319	329	336	343	353	360	370	377	385	395	402	406
				PI (kW)	167	169	168	166	168	167	169	167	166	168	167	163
		45	Rated	CC (kW)	258	267	275	279	283	286	290	293	296	299	305	307
				PI (kW)	144	145	147	142	138	134	131	127	123	119	118	115
			Boost	CC (kW)	267	271	275	279	283	286	290	293	296	299	305	307
				PI (kW)	156	151	147	142	138	134	131	127	123	119	118	115

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EWAD360AJNN/S (+OPRN)

The table below contains the capacity tables for EWAD360AJYNN/S (+OPRN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD360AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	378	390	402	414	426	439	452	465	478	491	505	519
				PI (kW)	97.9	99	100	101	103	104	105	106	107	109	110	111
			Boost	CC (kW)	439	452	466	480	493	507	522	537	552	567	582	597
				PI (kW)	126	128	130	131	133	135	136	138	140	142	144	146
		25	Rated	CC (kW)	362	374	385	397	409	421	434	446	459	472	485	498
				PI (kW)	108	110	111	112	114	115	116	118	119	121	122	123
			Boost	CC (kW)	420	433	446	459	472	486	497	508	519	533	545	557
				PI (kW)	140	142	144	146	148	150	150	150	151	153	153	154
		30	Rated	CC (kW)	346	356	368	379	390	402	414	426	437	450	462	474
				PI (kW)	119	121	122	124	125	127	128	130	131	133	135	136
			Boost	CC (kW)	396	406	416	428	438	449	459	472	483	493	504	517
				PI (kW)	153	153	153	155	156	156	157	159	159	160	160	162
		35	Rated	CC (kW)	326	337	347	358	369	380	391	402	413	425	436	446
				PI (kW)	132	133	135	136	138	140	142	143	145	147	149	149
			Boost	CC (kW)	362	371	382	392	402	413	423	433	445	453	463	471
				PI (kW)	160	160	162	163	163	165	166	166	168	167	168	167
		40	Rated	CC (kW)	304	314	324	333	343	351	362	370	379	388	395	403
				PI (kW)	146	148	150	150	152	152	154	154	154	154	153	151
			Boost	CC (kW)	325	334	343	350	361	368	377	386	394	401	407	411
				PI (kW)	167	168	168	167	169	167	168	168	167	166	163	158
		45	Rated	CC (kW)	267	273	278	283	286	290	293	297	301	303	307	309
				PI (kW)	146	144	141	138	134	130	126	123	121	117	114	110
			Boost	CC (kW)	270	274	278	283	286	290	293	297	301	303	307	309
				PI (kW)	150	146	141	138	134	130	126	123	121	117	114	110

EWAD400AJNN/S (+OPRN)

The table below contains the capacity tables for EWAD400AJYNN/S (+OPRN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	414	427	440	454	467	481	495	510	524	539	554	570
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	PI (kW)	106	107	109	110	111	112	113	115	116	117	118	120
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Boost	CC (kW)	482	496	511	526	541	557	574	590	607	624	642	659
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Boost	PI (kW)	136	138	139	141	143	144	146	148	150	152	154	156
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	25	Rated	CC (kW)	398	410	423	436	449	463	476	490	504	518	532	547
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	25	Rated	PI (kW)	118	119	120	122	123	124	126	127	128	130	131	133
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	25	Boost	CC (kW)	462	476	490	505	519	534	549	565	581	597	614	625
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	25	Boost	PI (kW)	151	153	155	156	158	160	162	164	166	168	171	170
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	30	Rated	CC (kW)	380	392	404	417	429	442	455	468	481	495	509	522
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	30	Rated	PI (kW)	129	131	132	134	135	137	138	140	142	143	145	147
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	30	Boost	CC (kW)	440	453	467	476	485	499	508	518	527	541	551	561
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	30	Boost	PI (kW)	168	169	171	170	169	171	171	170	169	171	170	169
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	35	Rated	CC (kW)	360	371	383	395	407	419	431	444	456	469	482	495
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	35	Rated	PI (kW)	143	144	146	147	149	151	153	154	156	158	160	162
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	35	Boost	CC (kW)	396	404	416	425	434	446	455	464	477	485	494	507
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	35	Boost	PI (kW)	171	169	171	170	169	171	170	169	171	170	169	171
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	40	Rated	CC (kW)	337	348	359	370	381	392	404	415	423	432	443	452
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	40	Rated	PI (kW)	158	160	161	163	165	167	169	171	170	168	170	169
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	40	Boost	CC (kW)	349	357	368	376	388	396	404	415	423	432	443	452
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	40	Boost	PI (kW)	170	169	171	170	171	170	169	171	170	168	170	169
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	45	Rated	CC (kW)	296	306	313	323	330	334	338	342	345	348	355	357
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	45	Rated	PI (kW)	159	161	160	161	160	155	151	146	142	137	136	132
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	45	Boost	CC (kW)	296	306	313	323	330	334	338	342	345	348	355	357
EWAD400AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	45	Boost	PI (kW)	159	161	160	161	160	155	151	146	142	137	136	132

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EWAD420AJNN/S (+OPRN)

The table below contains the capacity tables for EWAD420AJYNN/S (+OPRN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD420AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	445	459	474	488	503	517	533	548	563	579	595	612
				PI (kW)	115	116	117	119	120	121	123	124	125	127	128	130
			Boost	CC (kW)	518	533	549	566	582	599	616	633	651	669	688	707
				PI (kW)	147	149	151	153	155	157	159	161	163	165	167	170
		25	Rated	CC (kW)	427	441	455	468	483	497	512	526	541	556	572	587
				PI (kW)	127	128	130	131	133	134	136	137	139	141	142	144
			Boost	CC (kW)	496	511	526	542	558	573	590	606	623	640	654	668
				PI (kW)	164	166	168	170	172	174	176	178	181	183	184	185
		30	Rated	CC (kW)	408	421	434	447	461	475	488	502	517	531	546	560
				PI (kW)	140	141	143	145	146	148	150	152	153	155	157	159
			Boost	CC (kW)	472	486	499	511	523	533	543	558	568	578	591	604
				PI (kW)	182	184	185	185	186	185	184	186	185	184	185	186
		35	Rated	CC (kW)	386	398	411	423	436	449	462	475	489	502	516	530
				PI (kW)	154	156	158	159	161	163	165	167	169	171	173	175
			Boost	CC (kW)	424	435	444	455	467	476	487	499	508	520	532	541
				PI (kW)	185	185	184	185	185	184	184	185	184	184	185	184
		40	Rated	CC (kW)	360	372	384	395	408	420	432	442	455	464	474	485
				PI (kW)	171	173	175	177	179	181	183	183	186	184	185	185
			Boost	CC (kW)	374	384	394	404	413	425	434	442	455	464	474	485
				PI (kW)	184	185	185	185	184	186	185	183	186	184	185	185
		45	Rated	CC (kW)	318	324	331	337	345	349	353	356	361	366	369	371
				PI (kW)	174	170	169	165	164	159	154	149	146	143	138	134
			Boost	CC (kW)	318	324	331	337	345	349	353	356	361	366	369	371
				PI (kW)	174	170	169	165	164	159	154	149	146	143	138	134

EWAD460AJNN/S (+OPRN)

The table below contains the capacity tables for EWAD460AJYNN/S (+OPRN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD460AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	481	496	511	527	542	559	575	592	609	626	644	661
				PI (kW)	121	122	124	125	126	127	129	130	131	133	134	135
			Boost	CC (kW)	560	577	594	611	629	648	666	686	705	726	746	767
				PI (kW)	154	156	158	160	162	164	165	168	170	172	174	176
		25	Rated	CC (kW)	461	476	491	506	522	537	553	569	586	602	619	636
				PI (kW)	134	136	137	139	140	141	143	145	146	148	149	151
			Boost	CC (kW)	537	553	570	587	604	622	639	657	676	695	714	734
				PI (kW)	172	174	175	177	180	182	184	186	188	191	193	196
		30	Rated	CC (kW)	441	455	469	484	499	514	529	544	560	576	592	608
				PI (kW)	148	149	151	153	154	156	158	159	161	163	165	167
			Boost	CC (kW)	512	528	544	560	576	593	609	620	631	642	660	671
				PI (kW)	190	192	195	197	199	201	204	203	202	200	203	202
		35	Rated	CC (kW)	418	432	445	459	473	487	502	516	531	546	561	576
				PI (kW)	162	164	166	168	170	172	174	176	178	180	182	184
			Boost	CC (kW)	469	484	494	504	519	529	544	555	565	581	591	602
				PI (kW)	201	203	202	200	203	201	204	202	201	203	202	201
		40	Rated	CC (kW)	392	404	417	430	443	457	470	484	498	512	526	540
				PI (kW)	180	182	184	186	188	190	192	194	196	199	201	203
			Boost	CC (kW)	414	427	437	450	460	469	483	492	506	516	526	540
				PI (kW)	201	203	201	204	202	201	203	201	204	202	201	203
		45	Rated	CC (kW)	354	362	374	383	395	400	405	409	414	418	421	429
				PI (kW)	193	191	193	191	193	188	182	177	172	167	162	160
			Boost	CC (kW)	354	362	374	383	395	400	405	409	414	418	421	429
				PI (kW)	193	191	193	191	193	188	182	177	172	167	162	160

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EWAD490AJNN/S (+OPRN)

The table below contains the capacity tables for EWAD490AJYNN/S (+OPRN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD490AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	512	528	544	561	578	595	612	630	648	667	686	705
				PI (kW)	130	131	133	134	136	137	139	140	142	143	145	146
			Boost	CC (kW)	596	614	632	651	670	690	710	730	751	772	793	811
				PI (kW)	166	168	170	172	174	177	179	181	183	186	188	189
		25	Rated	CC (kW)	491	507	523	539	555	572	589	606	623	641	658	677
				PI (kW)	144	146	147	149	150	152	154	156	157	159	161	163
			Boost	CC (kW)	571	589	606	621	636	654	669	685	704	720	737	754
				PI (kW)	185	187	189	190	190	193	193	194	196	197	198	198
		30	Rated	CC (kW)	470	485	500	515	531	547	563	579	595	612	629	646
				PI (kW)	159	160	162	164	166	168	170	171	173	175	177	179
			Boost	CC (kW)	531	547	561	575	591	606	617	634	646	657	672	687
				PI (kW)	196	198	199	199	202	202	201	203	202	201	202	203
		35	Rated	CC (kW)	445	459	474	488	503	518	533	549	562	577	590	604
				PI (kW)	175	177	179	181	183	185	187	189	189	192	192	192
			Boost	CC (kW)	480	495	505	516	531	542	555	568	579	592	606	617
				PI (kW)	201	203	202	200	203	201	202	202	201	202	202	201
		40	Rated	CC (kW)	414	426	439	451	462	476	488	502	514	526	541	553
				PI (kW)	191	192	194	194	194	196	197	199	199	200	202	202
			Boost	CC (kW)	426	437	449	459	470	482	494	507	516	529	541	553
				PI (kW)	202	202	203	201	201	202	202	203	201	201	202	202
		45	Rated	CC (kW)	364	372	385	393	404	411	422	426	433	437	440	444
				PI (kW)	192	191	193	191	191	187	188	182	179	173	168	162
			Boost	CC (kW)	364	372	385	393	404	411	422	426	433	437	440	444
				PI (kW)	192	191	193	191	191	187	188	182	179	173	168	162

EWAD520AJNN/S (+OPRN)

The table below contains the capacity tables for EWAD520AJYNN/S (+OPRN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD520AJYNN/S (+OPRN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	541	558	575	592	610	628	646	665	684	703	724	745
				PI (kW)	139	140	142	143	145	147	148	150	151	153	155	157
			Boost	CC (kW)	628	647	667	686	707	728	749	771	793	815	838	852
				PI (kW)	178	180	182	185	187	189	192	194	197	199	202	201
		25	Rated	CC (kW)	519	536	552	569	586	604	621	639	657	676	694	714
				PI (kW)	154	155	157	159	161	163	164	166	168	170	172	174
			Boost	CC (kW)	603	621	639	652	664	683	696	709	729	743	756	770
				PI (kW)	198	200	203	202	201	203	202	201	204	203	202	201
		30	Rated	CC (kW)	496	512	528	544	560	577	594	611	628	645	663	681
				PI (kW)	169	171	173	175	177	179	181	183	185	188	190	192
			Boost	CC (kW)	547	563	575	587	604	616	627	645	657	669	681	700
				PI (kW)	201	204	203	201	204	203	201	204	203	201	200	203
		35	Rated	CC (kW)	470	485	500	515	531	547	562	578	590	606	617	628
				PI (kW)	187	189	191	193	195	198	200	202	201	203	202	200
			Boost	CC (kW)	488	503	514	525	541	552	567	578	590	606	617	628
				PI (kW)	201	203	202	200	203	201	204	202	201	203	202	200
		40	Rated	CC (kW)	435	445	459	469	479	494	504	518	529	539	554	564
				PI (kW)	203	201	204	202	200	203	201	203	202	200	202	201
			Boost	CC (kW)	435	445	459	469	479	494	504	518	529	539	554	564
				PI (kW)	203	201	204	202	200	203	201	203	202	200	202	201
		45	Rated	CC (kW)	372	381	393	402	415	424	437	441	450	454	458	461
				PI (kW)	192	190	192	190	193	191	193	187	185	179	174	168
			Boost	CC (kW)	372	381	393	402	415	424	437	441	450	454	458	461
				PI (kW)	192	190	192	190	193	191	193	187	185	179	174	168

Note:

- PI (Power Input): Power input compressors + power input fans.
- Data referred to: 0,0176m^2 °C/kW evaporator fouling factor.
- Rated conditions: are for compressor running at nominal frequency.
- Boost conditions: are for compressor running at maximum frequency.
- Boost conditions are automatically enables when air ambient temperature is above 35°C.
- Boost conditions with air ambient temperature below 35°C can be enabled by digital input (standard unit is not programmed to get boost conditions below 35°C).

1.25 Capacity Tables: EWAD-AJYNN/X

EWAD330AJNN/X (+OPRN) (+OPLN)

The table below contains the capacity tables for EWAD330AJYNN/X (+OPRN) (+OPLN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD330AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	344	355	366	377	388	400	412	424	436	448	461	474
				PI (kW)	84.4	85.3	86.2	87.1	88	89	89.9	90.8	91.8	92.7	93.7	94.7
			Boost	CC (kW)	401	413	425	438	451	464	477	491	505	519	534	549
				PI (kW)	108	110	111	112	114	115	116	118	119	121	122	124
		25	Rated	CC (kW)	330	341	351	362	373	385	396	408	419	431	443	455
				PI (kW)	93.8	94.9	95.9	96.9	98	99.1	100	101	102	104	105	106
			Boost	CC (kW)	384	396	408	420	433	445	458	471	484	497	511	526
				PI (kW)	121	122	124	125	126	128	130	131	133	134	136	138
		30	Rated	CC (kW)	316	326	336	346	357	368	379	390	401	412	424	435
				PI (kW)	104	105	106	107	108	109	111	112	113	115	116	117
			Boost	CC (kW)	367	378	389	401	413	424	436	449	461	473	486	499
				PI (kW)	134	136	137	139	140	142	144	146	147	149	151	153
		35	Rated	CC (kW)	299	309	319	329	339	349	359	370	380	391	402	413
				PI (kW)	114	116	117	118	119	121	122	124	125	127	128	130
			Boost	CC (kW)	346	357	367	378	389	397	404	416	423	431	442	450
				PI (kW)	150	151	153	155	157	156	155	157	156	155	156	156
		40	Rated	CC (kW)	280	289	299	308	317	327	337	347	357	367	377	387
				PI (kW)	127	128	130	131	132	134	136	137	139	140	142	144
			Boost	CC (kW)	319	329	336	343	353	360	370	377	385	395	402	406
				PI (kW)	165	167	166	164	166	165	167	166	164	166	165	161
		45	Rated	CC (kW)	258	267	275	279	283	286	290	293	296	299	305	307
				PI (kW)	142	143	145	141	137	133	129	125	121	118	116	113
			Boost	CC (kW)	267	271	275	279	283	286	290	293	296	299	305	307
				PI (kW)	154	149	145	141	137	133	129	125	121	118	116	113

EWAD360AJNN/X (+OPRN) (+OPLN)

The table below contains the capacity tables for EWAD360AJYNN/X (+OPRN) (+OPLN).

Model	Air Ambient Temperature (°C)			Leaving Water Temp. (°C)	4	5	6	7	8	9	10	11	12	13	14	15
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	378	390	402	414	426	439	452	465	478	491	505	519
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	PI (kW)	96	97.1	98.3	99.4	101	102	103	104	106	107	108	109
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Boost	CC (kW)	439	452	466	480	493	507	522	537	552	567	582	597
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Boost	PI (kW)	124	126	128	129	131	133	135	136	138	140	142	144
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	25	Rated	CC (kW)	362	374	385	397	409	421	434	446	459	472	485	498
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	25	Rated	PI (kW)	106	108	109	110	112	113	114	116	117	119	120	122
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	25	Boost	CC (kW)	420	433	446	459	472	486	497	508	519	533	545	557
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	25	Boost	PI (kW)	138	140	142	144	146	148	148	148	149	151	151	152
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	30	Rated	CC (kW)	346	356	368	379	390	402	414	426	437	450	462	474
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	30	Rated	PI (kW)	117	119	120	122	123	125	126	128	130	131	133	135
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	30	Boost	CC (kW)	396	406	416	428	438	449	459	472	483	493	504	517
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	30	Boost	PI (kW)	151	151	152	153	154	154	155	157	157	158	158	160
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	35	Rated	CC (kW)	326	337	347	358	369	380	391	402	413	425	436	446
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	35	Rated	PI (kW)	130	131	133	135	136	138	140	141	143	145	147	147
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	35	Boost	CC (kW)	362	371	382	392	402	413	423	433	445	453	463	471
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	35	Boost	PI (kW)	158	159	161	161	161	163	164	164	166	165	166	165
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	40	Rated	CC (kW)	304	314	324	333	343	351	362	370	379	388	395	403
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	40	Rated	PI (kW)	144	146	148	148	150	150	152	152	152	152	151	149
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	40	Boost	CC (kW)	325	334	343	350	361	368	377	386	394	401	407	411
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	40	Boost	PI (kW)	165	166	166	165	167	165	166	166	165	164	161	157
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	45	Rated	CC (kW)	267	273	278	283	286	290	293	297	301	303	307	309
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	45	Rated	PI (kW)	144	142	139	137	132	128	124	122	119	115	112	108
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	45	Boost	CC (kW)	270	274	278	283	286	290	293	297	301	303	307	309
EWAD360AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	45	Boost	PI (kW)	148	144	139	137	132	128	124	122	119	115	112	108

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EWAD400AJNN/X (+OPRN) (+OPLN)

The table below contains the capacity tables for EWAD400AJYNN/X (+OPRN) (+OPLN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD400AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	414	427	440	454	467	481	495	510	524	539	554	570
				PI (kW)	104	105	106	107	108	110	111	112	113	115	116	117
			Boost	CC (kW)	482	496	511	526	541	557	574	590	607	624	642	659
				PI (kW)	134	135	137	138	140	142	144	146	148	149	151	153
		25	Rated	CC (kW)	398	410	423	436	449	463	476	490	504	518	532	547
				PI (kW)	115	116	118	119	120	122	123	125	126	127	129	130
			Boost	CC (kW)	462	476	490	505	519	534	549	565	581	597	614	625
				PI (kW)	149	150	152	154	156	158	160	162	164	166	168	168
		30	Rated	CC (kW)	380	392	404	417	429	442	455	468	481	495	509	522
				PI (kW)	127	128	130	131	133	134	136	138	139	141	142	144
			Boost	CC (kW)	440	453	467	476	485	499	508	518	527	541	551	561
				PI (kW)	165	167	169	168	167	169	168	167	166	168	167	167
		35	Rated	CC (kW)	360	371	383	395	407	419	431	444	456	469	482	495
				PI (kW)	140	142	143	145	147	148	150	152	154	156	157	159
			Boost	CC (kW)	396	404	416	425	434	446	455	464	477	485	494	507
				PI (kW)	168	167	169	168	167	169	168	167	169	168	166	169
		40	Rated	CC (kW)	337	348	359	370	381	392	404	415	423	432	443	452
				PI (kW)	156	157	159	161	163	165	167	168	167	166	168	167
			Boost	CC (kW)	349	357	368	376	388	396	404	415	423	432	443	452
				PI (kW)	168	167	168	167	169	168	167	168	167	166	168	167
		45	Rated	CC (kW)	296	306	313	323	330	334	338	342	345	348	355	357
				PI (kW)	157	159	157	159	158	153	148	144	139	135	134	129
			Boost	CC (kW)	296	306	313	323	330	334	338	342	345	348	355	357
				PI (kW)	157	159	157	159	158	153	148	144	139	135	134	129

EWAD420AJNN/X (+OPRN) (+OPLN)

The table below contains the capacity tables for EWAD420AJYNN/X (+OPRN) (+OPLN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD420AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	445	459	474	488	503	517	533	548	563	579	595	612
				PI (kW)	112	114	115	116	117	119	120	122	123	124	126	127
			Boost	CC (kW)	518	533	549	566	582	599	616	633	651	669	688	707
				PI (kW)	145	147	149	150	152	154	156	158	161	163	165	167
		25	Rated	CC (kW)	427	441	455	468	483	497	512	526	541	556	572	587
				PI (kW)	124	126	127	129	130	132	133	135	137	138	140	142
			Boost	CC (kW)	496	511	526	542	558	573	590	606	623	640	654	668
				PI (kW)	161	163	165	167	169	172	174	176	178	181	182	182
		30	Rated	CC (kW)	408	421	434	447	461	475	488	502	517	531	546	560
				PI (kW)	137	139	140	142	144	146	147	149	151	153	155	157
			Boost	CC (kW)	472	486	499	511	523	533	543	558	568	578	591	604
				PI (kW)	179	181	182	183	183	182	181	184	183	182	182	183
		35	Rated	CC (kW)	386	398	411	423	436	449	462	475	489	502	516	530
				PI (kW)	152	153	155	157	159	161	163	165	167	169	171	173
			Boost	CC (kW)	424	435	444	455	467	476	487	499	508	520	532	541
				PI (kW)	183	183	182	182	183	182	182	183	182	182	183	182
		40	Rated	CC (kW)	360	372	384	395	408	420	432	442	455	464	474	485
				PI (kW)	168	170	172	174	176	178	181	181	183	182	182	183
			Boost	CC (kW)	374	384	394	404	413	425	434	442	455	464	474	485
				PI (kW)	182	182	183	183	182	184	182	181	183	182	182	183
		45	Rated	CC (kW)	318	324	331	337	345	349	353	356	361	366	369	371
				PI (kW)	172	168	166	163	161	156	152	147	144	141	136	131
			Boost	CC (kW)	318	324	331	337	345	349	353	356	361	366	369	371
				PI (kW)	172	168	166	163	161	156	152	147	144	141	136	131

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EWAD460AJNN/X (+OPRN) (+OPLN)

The table below contains the capacity tables for EWAD460AJYNN/X (+OPRN) (+OPLN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD460AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	481	496	511	527	542	559	575	592	609	626	644	661
				PI (kW)	118	119	121	122	123	125	126	127	129	130	131	133
			Boost	CC (kW)	560	577	594	611	629	648	666	686	705	726	746	767
				PI (kW)	152	153	155	157	159	161	163	165	167	169	171	173
		25	Rated	CC (kW)	461	476	491	506	522	537	553	569	586	602	619	636
				PI (kW)	131	133	134	136	137	139	140	142	143	145	146	148
			Boost	CC (kW)	537	553	570	587	604	622	639	657	676	695	714	734
				PI (kW)	169	171	173	175	177	179	181	183	185	188	190	193
		30	Rated	CC (kW)	441	455	469	484	499	514	529	544	560	576	592	608
				PI (kW)	145	146	148	150	151	153	155	156	158	160	162	164
			Boost	CC (kW)	512	528	544	560	576	593	609	620	631	642	660	671
				PI (kW)	187	189	192	194	196	198	201	200	199	198	200	199
		35	Rated	CC (kW)	418	432	445	459	473	487	502	516	531	546	561	576
				PI (kW)	160	161	163	165	167	169	171	173	175	177	179	181
			Boost	CC (kW)	469	484	494	504	519	529	544	555	565	581	591	602
				PI (kW)	198	200	199	197	200	198	201	199	198	201	199	198
		40	Rated	CC (kW)	392	404	417	430	443	457	470	484	498	512	526	540
				PI (kW)	177	179	181	183	185	187	189	191	193	196	198	200
			Boost	CC (kW)	414	427	437	450	460	469	483	492	506	516	526	540
				PI (kW)	198	200	199	201	199	198	200	199	201	199	198	200
		45	Rated	CC (kW)	354	362	374	383	395	400	405	409	414	418	421	429
				PI (kW)	190	188	190	188	190	185	179	174	169	164	159	157
			Boost	CC (kW)	354	362	374	383	395	400	405	409	414	418	421	429
				PI (kW)	190	188	190	188	190	185	179	174	169	164	159	157

EWAD490AJNN/X (+OPRN) (+OPLN)

The table below contains the capacity tables for EWAD490AJYNN/X (+OPRN) (+OPLN).

				Leaving Water Temp. (°C)	4	5	6	7	8	9	10	11	12	13	14	15
EWAD490AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	512	528	544	561	578	595	612	630	648	667	686	705
				PI (kW)	127	128	130	131	133	134	136	137	139	140	142	143
			Boost	CC (kW)	596	614	632	651	670	690	710	730	751	772	793	811
				PI (kW)	164	165	167	169	172	174	176	178	180	183	185	186
		25	Rated	CC (kW)	491	507	523	539	555	572	589	606	623	641	658	677
				PI (kW)	141	143	144	146	148	149	151	153	154	156	158	160
			Boost	CC (kW)	571	589	606	621	636	654	669	685	704	720	737	754
				PI (kW)	182	184	186	187	187	190	190	191	193	194	195	195
		30	Rated	CC (kW)	470	485	500	515	531	547	563	579	595	612	629	646
				PI (kW)	156	157	159	161	163	165	167	169	171	173	175	177
			Boost	CC (kW)	531	547	561	575	591	606	617	634	646	657	672	687
				PI (kW)	193	195	196	196	199	199	198	201	199	198	199	200
		35	Rated	CC (kW)	445	459	474	488	503	518	533	549	562	577	590	604
				PI (kW)	172	174	176	178	180	182	184	186	186	189	189	189
			Boost	CC (kW)	480	495	505	516	531	542	555	568	579	592	606	617
				PI (kW)	198	200	199	198	200	199	199	200	198	199	199	198
		40	Rated	CC (kW)	414	426	439	451	462	476	488	502	514	526	541	553
				PI (kW)	189	189	191	191	191	193	194	196	196	197	199	199
			Boost	CC (kW)	426	437	449	459	470	482	494	507	516	529	541	553
				PI (kW)	199	199	200	198	198	199	199	200	198	199	199	199
		45	Rated	CC (kW)	364	372	385	393	404	411	422	426	433	437	440	444
				PI (kW)	190	188	190	188	188	185	185	179	176	170	165	160
			Boost	CC (kW)	364	372	385	393	404	411	422	426	433	437	440	444
				PI (kW)	190	188	190	188	188	185	185	179	176	170	165	160

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EWAD520AJNN/X (+OPRN) (+OPLN)

The table below contains the capacity tables for EWAD520AJYNN/X (+OPRN) (+OPLN).

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWAD520AJYNN/X (+OPRN) (+OPLN)	Air Ambient Temperature (°C)	20	Rated	CC (kW)	541	558	575	592	610	628	646	665	684	703	724	745
				PI (kW)	136	137	139	140	142	144	145	147	149	150	152	154
			Boost	CC (kW)	628	647	667	686	707	728	749	771	793	815	838	852
				PI (kW)	175	177	179	182	184	186	189	191	194	196	199	198
		25	Rated	CC (kW)	519	536	552	569	586	604	621	639	657	676	694	714
				PI (kW)	151	153	154	156	158	160	161	163	165	167	169	171
			Boost	CC (kW)	603	621	639	652	664	683	696	709	729	743	756	770
				PI (kW)	195	197	200	199	198	200	199	198	201	200	199	198
		30	Rated	CC (kW)	496	512	528	544	560	577	594	611	628	645	663	681
				PI (kW)	166	168	170	172	174	176	178	180	183	185	187	189
			Boost	CC (kW)	547	563	575	587	604	616	627	645	657	669	681	700
				PI (kW)	199	201	200	198	201	200	199	201	200	199	197	200
		35	Rated	CC (kW)	470	485	500	515	531	547	562	578	590	606	617	628
				PI (kW)	184	186	188	190	192	195	197	199	198	200	199	198
			Boost	CC (kW)	488	503	514	525	541	552	567	578	590	606	617	628
				PI (kW)	198	200	199	197	200	198	201	199	198	200	199	198
		40	Rated	CC (kW)	435	445	459	469	479	494	504	518	529	539	554	564
				PI (kW)	200	198	201	199	197	200	198	200	199	197	200	198
			Boost	CC (kW)	435	445	459	469	479	494	504	518	529	539	554	564
				PI (kW)	200	198	201	199	197	200	198	200	199	197	200	198
		45	Rated	CC (kW)	372	381	393	402	415	424	437	441	450	454	458	461
				PI (kW)	189	187	189	188	190	188	190	184	182	177	171	165
			Boost	CC (kW)	372	381	393	402	415	424	437	441	450	454	458	461
				PI (kW)	189	187	189	188	190	188	190	184	182	177	171	165

Note:

- PI (Power Input): Power input compressors + power input fans.
- Data referred to: 0,0176m^2 °C/kW evaporator fouling factor.
- Rated conditions: are for compressor running at nominal frequency.
- Boost conditions: are for compressor running at maximum frequency.
- Boost conditions are automatically enables when air ambient temperature is above 35°C.
- Boost conditions with air ambient temperature below 35°C can be enabled by digital input (standard unit is not programmed to get boost conditions below 35°C).

1.26 Cooling Capacity Tables: EWYD-AJYNN

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EWYD260AJYNN The table below contains the cooling capacity table for EWYD260AJYNN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD260AJYNN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	264	272	280	288	296	305	313	322	331	340	349	358
				PI (kW)	68	68.8	69.7	70.6	71.5	72.4	73.3	74.3	75.2	76.2	77.2	78.1
			Max	CC (kW)	360	372	384	394	404	413	421	429	436	443	450	456
				PI (kW)	114	117	120	122	123	124	124	124	124	123	122	121
		25	Nom	CC (kW)	255	262	270	278	286	294	302	311	319	328	337	346
				PI (kW)	73.6	74.5	75.5	76.4	77.3	78.3	79.3	80.3	81.3	82.3	83.4	84.4
			Max	CC (kW)	341	352	361	370	379	386	394	401	407	413	419	425
				PI (kW)	121	124	125	126	127	127	127	126	125	124	123	122
		30	Nom	CC (kW)	244	252	259	267	275	283	291	299	308	316	325	333
				PI (kW)	79.9	80.9	81.8	82.8	83.8	84.8	85.9	86.9	88	89	90.1	91.2
			Max	CC (kW)	319	328	337	344	352	359	365	371	377	383	388	394
				PI (kW)	126	128	128	129	129	128	128	127	126	125	124	123
		35	Nom	CC (kW)	233	240	248	255	263	271	279	287	295	303	311	320
				PI (kW)	86.8	87.8	88.8	89.8	90.8	91.9	93	94.1	95.2	96.3	97.4	98.5
			Max	CC (kW)	294	302	309	316	323	329	335	341	346	352	357	363
				PI (kW)	128	129	129	129	129	128	127	127	126	124	124	123
		40	Nom	CC (kW)	221	228	236	243	251	258	266	274	282	290	298	306
				PI (kW)	94.3	95.3	96.3	97.4	98.4	99.5	101	102	103	104	105	106
			Max	CC (kW)	265	272	278	285	291	297	302	308	313	319	325	330
				PI (kW)	126	127	127	127	126	126	125	124	123	123	122	122
		45	Nom	CC (kW)	209	216	223	230	237	245	252	260	267	275	283	291
				PI (kW)	102	103	104	106	107	108	109	110	111	112	114	115
			Max	CC (kW)	231	237	244	249	255	261	267	273	278	284	290	297
				PI (kW)	120	121	121	121	120	120	119	119	119	118	118	119

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EWYD280AJYNN The table below contains the cooling capacity table for EWYD280AJYNN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD280AJYNN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	287	294	302	310	319	328	337	346	355	365	374	383
				PI (kW)	75.5	75.9	76.6	77.4	78.4	79.5	80.6	81.7	82.8	83.7	84.6	85.2
			Max	CC (kW)	377	385	394	403	412	422	431	440	448	456	462	467
				PI (kW)	121	121	122	123	123	124	125	126	126	126	125	123
		25	Nom	CC (kW)	273	281	289	297	306	315	325	334	343	353	362	371
				PI (kW)	79.9	80.6	81.6	82.7	84	85.3	86.7	88.1	89.5	90.8	91.9	92.8
			Max	CC (kW)	351	357	365	373	382	391	399	407	415	422	428	432
				PI (kW)	124	123	123	124	124	125	125	126	126	125	124	122
		30	Nom	CC (kW)	262	270	278	287	295	304	314	323	332	341	350	359
				PI (kW)	87.5	88.3	89.4	90.6	92	93.4	94.9	96.4	97.8	99.2	100	101
			Max	CC (kW)	325	331	338	345	353	361	369	377	384	390	396	400
				PI (kW)	126	126	125	125	126	126	126	127	126	126	124	123
		35	Nom	CC (kW)	252	260	267	275	284	292	301	310	318	327	335	344
				PI (kW)	96.5	97.2	98.1	99.3	101	102	103	105	106	107	108	109
			Max	CC (kW)	299	304	310	317	324	331	339	346	353	359	364	368
				PI (kW)	128	127	126	126	126	126	126	127	126	126	125	123
		40	Nom	CC (kW)	240	247	254	261	269	276	284	292	300	308	315	323
				PI (kW)	105	105	106	107	108	109	110	111	112	113	114	114
			Max	CC (kW)	270	274	279	285	292	299	306	313	319	325	330	334
				PI (kW)	127	125	125	124	124	124	124	125	124	124	123	121
		45	Nom	CC (kW)	222	228	234	241	247	254	261	268	274	281	287	294
				PI (kW)	111	111	111	112	112	113	113	114	114	115	115	115
			Max	CC (kW)	235	239	244	249	256	262	269	275	282	287	292	296
				PI (kW)	121	120	119	119	118	119	119	119	119	119	118	116

EWYD300AJYNN The table below contains the cooling capacity table for EWYD300AJYNN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD300AJYNN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	310	319	328	337	347	356	366	376	385	395	404	413
				PI (kW)	81.1	82.1	83.2	84.5	85.8	87.1	88.3	89.5	90.5	91.3	91.9	92.1
			Max	CC (kW)	396	401	408	417	427	437	447	457	466	473	479	482
				PI (kW)	126	124	123	123	124	126	127	128	129	128	127	124
		25	Nom	CC (kW)	295	304	313	322	332	341	351	361	371	381	390	400
				PI (kW)	86.3	87.2	88.4	89.7	91.1	92.6	94.2	95.7	97.1	98.4	99.5	100
			Max	CC (kW)	365	369	375	382	391	400	410	419	427	435	440	443
				PI (kW)	126	123	122	122	122	123	124	125	126	125	124	121
		30	Nom	CC (kW)	285	293	301	310	319	329	339	348	358	368	378	388
				PI (kW)	95.5	96.2	97.1	98.4	99.8	101	103	105	106	108	109	111
			Max	CC (kW)	336	339	344	351	359	367	376	385	393	400	406	409
				PI (kW)	127	124	122	122	122	123	124	125	125	125	124	121
		35	Nom	CC (kW)	275	282	290	298	306	315	324	334	343	353	363	372
				PI (kW)	106	106	107	108	109	110	112	113	115	117	118	120
			Max	CC (kW)	308	310	314	320	327	336	344	353	361	368	374	378
				PI (kW)	128	124	122	122	122	123	124	125	125	125	125	123
		40	Nom	CC (kW)	261	267	274	281	288	296	305	313	322	332	341	347
				PI (kW)	115	115	115	115	116	117	118	119	121	122	124	124
			Max	CC (kW)	277	278	282	288	295	303	312	320	329	336	343	347
				PI (kW)	127	123	121	120	121	122	123	124	125	126	125	124
		45	Nom	CC (kW)	239	243	247	252	259	268	275	283	291	300	308	315
				PI (kW)	120	119	117	116	117	118	119	120	121	122	124	124
			Max	CC (kW)	242	243	247	252	259	268	277	286	295	303	310	315
				PI (kW)	122	119	117	116	117	118	120	121	123	124	124	124

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EWYD320AJYNN The table below contains the cooling capacity table for EWYD320AJYNN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD320AJYNN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	331	341	351	361	371	381	391	402	412	423	434	446
				PI (kW)	87.6	88.9	90.1	91.1	92	92.9	93.8	94.8	95.8	96.9	98.1	99.6
			Max	CC (kW)	441	452	463	474	484	495	505	516	526	536	547	557
				PI (kW)	142	143	143	144	145	146	147	148	148	149	149	149
		25	Nom	CC (kW)	317	327	337	347	357	367	378	388	398	409	420	432
				PI (kW)	94	95.5	96.8	98	99.1	100	101	102	104	105	106	108
			Max	CC (kW)	410	420	430	440	449	459	468	478	487	497	506	516
				PI (kW)	145	146	146	147	147	147	148	148	148	149	148	148
		30	Nom	CC (kW)	305	315	325	334	344	354	364	374	384	395	406	417
				PI (kW)	103	104	105	107	108	109	110	111	113	114	116	117
			Max	CC (kW)	379	388	397	406	415	424	432	441	449	458	467	476
				PI (kW)	148	148	148	148	148	149	149	149	149	149	148	148
		35	Nom	CC (kW)	292	302	311	321	330	339	349	359	369	379	389	400
				PI (kW)	112	114	115	116	117	118	119	121	122	123	125	126
			Max	CC (kW)	347	355	363	371	380	388	395	403	412	420	428	436
				PI (kW)	149	149	148	148	148	148	148	148	148	148	147	147
		40	Nom	CC (kW)	278	287	296	305	313	322	331	340	350	359	369	379
				PI (kW)	122	124	125	126	127	128	128	129	131	132	133	135
			Max	CC (kW)	311	319	327	334	342	349	357	364	372	379	387	395
				PI (kW)	147	146	146	146	146	146	146	146	145	145	145	145
		45	Nom	CC (kW)	261	269	277	285	293	301	309	317	326	334	343	351
				PI (kW)	132	133	134	134	135	136	136	137	138	139	140	140
			Max	CC (kW)	271	278	285	293	300	307	314	321	328	336	343	351
				PI (kW)	140	140	140	140	140	140	140	140	140	140	140	140

EWYD340AJYNN The table below contains the cooling capacity table for EWYD340AJYNN.

Model		Air Ambient Temperature (°C)		Leaving Water Temp. (°C)	4	5	6	7	8	9	10	11	12	13	14	15
EWYD340AJYNN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	354	365	375	386	396	407	418	429	441	452	464	475
				PI (kW)	92.4	93.5	94.6	95.8	96.9	98.1	99.3	101	102	103	104	106
			Max	CC (kW)	480	487	497	509	523	537	552	565	578	589	597	603
				PI (kW)	158	156	155	157	159	162	166	168	170	171	170	166
		25	Nom	CC (kW)	342	352	362	372	383	393	404	415	426	437	448	460
				PI (kW)	100	102	103	104	105	106	108	109	110	112	113	115
			Max	CC (kW)	453	459	467	478	490	503	516	528	539	548	555	559
				PI (kW)	166	163	162	163	164	166	169	171	172	171	169	164
		30	Nom	CC (kW)	328	338	348	358	368	378	389	400	410	421	432	444
				PI (kW)	109	110	112	113	114	116	117	118	120	121	122	124
			Max	CC (kW)	422	427	434	444	455	466	478	489	499	508	513	516
				PI (kW)	170	167	165	165	166	168	170	171	172	171	168	163
		35	Nom	CC (kW)	313	323	333	343	353	363	373	383	394	405	415	426
				PI (kW)	119	120	121	123	124	125	127	128	129	131	132	134
			Max	CC (kW)	386	391	398	407	417	428	439	450	459	467	472	473
				PI (kW)	170	167	165	165	166	168	169	171	171	170	167	161
		40	Nom	CC (kW)	298	307	317	326	336	346	356	366	377	387	397	408
				PI (kW)	129	130	132	133	134	136	137	139	140	142	143	145
			Max	CC (kW)	347	351	358	367	377	388	399	409	418	425	430	432
				PI (kW)	166	163	162	162	163	165	167	168	169	168	165	160
		45	Nom	CC (kW)	281	290	300	309	319	328	338	348	358	368	378	389
				PI (kW)	140	142	143	144	146	147	149	150	152	153	155	157
			Max	CC (kW)	303	307	315	324	334	345	357	367	376	384	389	391
				PI (kW)	158	155	155	156	158	160	163	165	166	165	163	158

EWYD360AJYNN The table below contains the cooling capacity table for EWYD360AJYNN.

	Air Ambient Temperature (°C)		Leaving Water Temp. (°C)	4	5	6	7	8	9	10	11	12	13	14	15
EWYD360AJYNN	20	Nom	CC (kW)	382	393	404	416	428	439	451	463	476	488	499	511
			PI (kW)	99.7	101	102	104	105	107	108	109	111	112	113	114
		Max	CC (kW)	504	517	530	542	554	566	577	587	597	606	614	622
			PI (kW)	162	164	166	167	168	169	169	169	168	168	166	164
	25	Nom	CC (kW)	366	377	388	399	411	423	435	447	459	471	483	495
			PI (kW)	107	108	110	111	113	114	116	118	119	121	122	124
		Max	CC (kW)	469	481	493	504	515	525	535	545	555	564	572	580
			PI (kW)	166	167	168	169	169	170	170	169	169	168	167	166
	30	Nom	CC (kW)	353	363	373	384	396	407	419	431	443	455	467	479
			PI (kW)	118	119	120	121	123	124	126	128	130	132	133	135
		Max	CC (kW)	435	445	455	465	475	485	494	504	513	522	531	540
			PI (kW)	169	169	170	170	170	170	170	170	169	169	168	167
	35	Nom	CC (kW)	339	348	358	368	379	390	401	413	425	436	448	460
			PI (kW)	129	130	131	132	134	135	137	139	141	142	144	146
		Max	CC (kW)	398	407	415	424	433	442	451	461	470	479	489	498
			PI (kW)	170	169	169	168	168	168	168	168	168	168	168	168
	40	Nom	CC (kW)	322	330	339	349	359	369	380	391	402	413	425	436
			PI (kW)	140	141	141	142	143	145	146	148	150	152	153	155
		Max	CC (kW)	357	364	372	380	388	396	405	414	424	433	443	453
			PI (kW)	167	165	165	164	164	163	163	164	164	164	165	166
	45	Nom	CC (kW)	299	306	314	323	332	342	352	362	372	382	392	403
			PI (kW)	149	149	149	150	150	152	153	154	156	157	158	160
		Max	CC (kW)	311	317	323	330	337	345	353	362	372	382	392	403
			PI (kW)	159	157	156	155	154	154	154	155	156	157	158	160

EWYD380AJYNN The table below contains the cooling capacity table for EWYD380AJYNN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD380AJYNN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	399	411	423	435	446	458	469	481	493	505	518	532
				PI (kW)	106	108	109	111	112	112	113	114	115	116	118	120
			Max	CC (kW)	512	530	544	555	564	572	578	584	591	599	608	620
				PI (kW)	165	170	172	173	172	169	166	163	161	159	158	160
		25	Nom	CC (kW)	379	392	404	416	428	440	452	464	476	489	502	517
				PI (kW)	112	115	117	118	120	121	122	124	125	127	129	132
			Max	CC (kW)	470	488	502	513	522	529	536	543	550	559	570	583
				PI (kW)	165	170	172	173	172	170	167	165	163	162	162	165
		30	Nom	CC (kW)	365	377	389	401	413	424	436	448	460	472	486	500
				PI (kW)	123	126	128	129	131	132	134	135	137	139	141	144
			Max	CC (kW)	431	447	460	471	479	487	494	501	509	518	530	544
				PI (kW)	165	169	171	172	171	169	167	165	164	163	165	168
		35	Nom	CC (kW)	351	363	374	385	396	407	418	429	440	453	465	479
				PI (kW)	137	139	141	142	143	144	146	147	148	150	152	155
			Max	CC (kW)	392	407	419	429	437	443	450	457	465	475	487	502
				PI (kW)	164	168	170	170	169	168	166	164	163	163	165	169
		40	Nom	CC (kW)	335	345	355	365	375	385	394	404	415	425	437	449
				PI (kW)	150	151	153	153	154	155	155	156	157	158	160	162
			Max	CC (kW)	353	367	377	386	392	398	404	411	419	429	441	457
				PI (kW)	163	167	168	168	166	164	162	161	160	160	162	167
		45	Nom	CC (kW)	312	321	329	338	345	351	356	362	369	379	391	407
				PI (kW)	161	161	162	161	161	160	157	155	154	155	157	162
			Max	CC (kW)	314	325	334	341	346	351	356	362	369	379	391	407
				PI (kW)	162	164	165	164	162	160	157	155	154	155	157	162

Note:

- CC (Cooling Capacity) and PI (unit Power Input) are referred to 0,0176m^2 °C/kW evaporator fouling factor.
- Rated conditions are for compressors running at nominal frequency; boost is referred to compressors running at maximum frequency.
- 10% glycol is recommended for units running in the shaded areas.

1.27 Cooling Capacity Tables: EWYD-AJYNN + OPLN

EWYD260AJYNN + OPLN

The table below contains the cooling capacity table for EWYD260AJYNN + OPLN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD260AJYNN+OPLN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	260	267	275	283	291	299	307	316	324	333	341	350
				PI (kW)	65.8	66.7	67.7	68.6	69.6	70.7	71.7	72.8	73.8	75	76.1	77.2
			Max	CC (kW)	351	361	369	377	384	390	396	402	408	415	423	431
				PI (kW)	117	119	121	121	121	120	119	118	117	117	117	118
		25	Nom	CC (kW)	250	257	265	272	280	288	296	304	313	321	329	338
				PI (kW)	71.8	72.7	73.7	74.8	75.8	76.9	78	79.1	80.3	81.4	82.6	83.8
			Max	CC (kW)	323	332	341	349	355	362	368	374	380	387	395	405
				PI (kW)	116	119	120	120	120	120	119	118	118	118	119	121
		30	Nom	CC (kW)	239	246	254	261	269	277	284	292	300	308	317	325
				PI (kW)	78.3	79.3	80.3	81.4	82.5	83.6	84.8	86	87.1	88.4	89.6	90.8
			Max	CC (kW)	297	306	314	322	328	334	340	346	353	360	368	378
				PI (kW)	117	119	121	121	121	120	120	119	119	119	121	123
		35	Nom	CC (kW)	228	235	242	249	257	264	272	280	287	295	303	311
				PI (kW)	85.3	86.4	87.5	88.6	89.7	90.9	92.1	93.3	94.6	95.8	97.1	98.4
			Max	CC (kW)	272	281	288	295	301	306	312	318	324	331	339	349
				PI (kW)	118	120	121	121	121	121	120	119	119	120	121	123
		40	Nom	CC (kW)	216	222	229	237	244	251	258	266	274	281	289	297
				PI (kW)	93	94.1	95.2	96.4	97.6	98.8	100	101	103	104	105	106
			Max	CC (kW)	246	254	261	267	272	277	282	287	293	300	308	317
				PI (kW)	118	120	120	120	120	119	118	117	117	117	119	121
		45	Nom	CC (kW)	203	209	216	223	230	237	244	252	258	264	272	280
				PI (kW)	101	102	104	105	106	107	109	110	111	111	112	114
			Max	CC (kW)	219	226	231	236	241	245	249	253	258	264	272	280
				PI (kW)	115	116	117	116	115	114	112	111	111	111	112	114

EWYD280AJYNN + OPLN

The table below contains the cooling capacity table for EWYD280AJYNN + OPLN.

Model	Air Ambient Temperature (°C)			Leaving Water Temp. (°C)	4	5	6	7	8	9	10	11	12	13	14	15
EWYD280AJYNN+OPLN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	280	288	296	304	313	321	330	338	347	356	365	374
				PI (kW)	73.3	74.5	75.5	76.6	77.6	78.7	79.7	80.8	81.9	83.2	84.5	85.9
			Max	CC (kW)	357	367	375	383	390	396	402	408	414	421	428	436
				PI (kW)	118	120	121	121	120	120	119	118	117	116	116	117
		25	Nom	CC (kW)	267	275	284	292	300	309	317	326	334	343	352	361
				PI (kW)	78.7	80.1	81.4	82.7	83.9	85.1	86.3	87.5	88.8	90.1	91.5	93
			Max	CC (kW)	329	338	347	354	361	367	373	380	386	393	400	409
				PI (kW)	117	119	121	121	121	120	119	119	118	118	119	120
		30	Nom	CC (kW)	257	265	273	281	289	297	305	314	322	330	339	348
				PI (kW)	86.9	88.4	89.8	91.1	92.4	93.7	94.9	96.1	97.3	98.6	100	101
			Max	CC (kW)	302	311	319	327	333	339	345	351	358	365	372	381
				PI (kW)	118	120	121	121	121	121	120	120	119	119	120	122
		35	Nom	CC (kW)	245	253	261	269	276	284	292	300	307	315	323	331
				PI (kW)	95.8	97.3	98.6	99.9	101	102	103	104	105	107	108	109
			Max	CC (kW)	275	284	292	298	305	310	316	322	328	335	342	351
				PI (kW)	118	120	121	121	121	121	120	120	119	119	120	122
		40	Nom	CC (kW)	231	238	245	253	260	267	274	281	288	295	302	309
				PI (kW)	103	104	106	107	108	108	109	110	111	112	112	113
			Max	CC (kW)	247	256	263	269	274	280	285	290	296	302	309	318
				PI (kW)	117	118	119	119	119	119	118	117	117	117	118	119
		45	Nom	CC (kW)	210	217	223	230	236	242	248	254	260	266	272	279
				PI (kW)	107	108	109	109	110	110	111	111	111	111	111	112
			Max	CC (kW)	218	225	231	236	241	246	250	255	260	266	272	280
				PI (kW)	113	115	115	115	114	113	112	111	111	111	111	113

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EWYD300AJYNN + OPLN

The table below contains the cooling capacity table for EWYD300AJYNN + OPLN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD300AJYNN+OPLN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	300	309	318	326	335	344	352	361	370	379	389	399
				PI (kW)	80.6	82	83.2	84.3	85.4	86.4	87.4	88.5	89.7	91	92.5	94.2
			Max	CC (kW)	368	380	389	397	404	409	414	418	423	428	434	441
				PI (kW)	121	124	126	126	125	124	122	120	118	117	116	116
		25	Nom	CC (kW)	285	294	303	312	321	330	339	347	356	366	375	385
				PI (kW)	85.4	87.2	88.8	90.3	91.7	93	94.3	95.6	97	98.5	100	102
			Max	CC (kW)	335	347	356	364	370	376	381	386	392	397	404	412
				PI (kW)	118	121	123	123	123	122	121	119	118	117	117	118
		30	Nom	CC (kW)	275	284	293	301	310	319	327	336	344	353	362	371
				PI (kW)	95.3	97.2	99	101	102	103	105	106	107	109	110	112
			Max	CC (kW)	306	317	326	334	340	346	351	356	362	368	375	384
				PI (kW)	117	120	122	122	122	121	120	119	118	118	118	120
		35	Nom	CC (kW)	264	272	281	289	297	305	312	320	328	336	344	352
				PI (kW)	106	108	109	111	112	113	114	115	116	117	118	119
			Max	CC (kW)	278	288	297	304	310	316	321	326	331	338	345	354
				PI (kW)	116	119	121	122	122	121	120	119	118	118	118	120
		40	Nom	CC (kW)	247	254	262	269	276	283	288	293	298	304	312	320
				PI (kW)	113	114	116	116	117	118	117	116	115	115	116	118
			Max	CC (kW)	249	259	266	273	278	283	288	293	298	304	312	320
				PI (kW)	115	118	119	119	119	118	117	116	115	115	116	118
		45	Nom	CC (kW)	217	225	231	237	242	247	251	255	260	265	272	278
				PI (kW)	111	113	113	113	113	112	111	110	109	109	109	109
			Max	CC (kW)	217	225	232	238	242	247	251	255	260	265	272	281
				PI (kW)	111	113	114	114	113	112	111	110	109	109	109	111

EWYD320AJYNN + OPLN

The table below contains the cooling capacity table for EWYD320AJYNN + OPLN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD320AJYNN+OPLN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	324	332	341	351	361	371	381	391	402	412	422	432
				PI (kW)	85.2	85.9	86.7	87.8	89	90.3	91.6	93	94.3	95.5	96.6	97.6
			Max	CC (kW)	423	432	442	452	461	470	479	488	496	503	510	515
				PI (kW)	142	143	144	144	145	145	145	144	144	142	141	138
		25	Nom	CC (kW)	308	317	326	336	346	356	366	377	387	398	408	418
				PI (kW)	90.9	91.9	93.1	94.4	95.9	97.5	99.1	101	102	104	105	106
			Max	CC (kW)	388	397	405	414	423	432	440	449	457	464	471	476
				PI (kW)	141	141	142	142	142	142	142	142	141	140	139	137
		30	Nom	CC (kW)	296	304	314	323	333	343	353	364	374	384	394	404
				PI (kW)	100	101	102	104	105	107	109	110	112	114	115	117
			Max	CC (kW)	357	365	372	380	389	397	405	414	421	429	436	442
				PI (kW)	142	142	142	142	142	142	142	142	141	141	140	139
		35	Nom	CC (kW)	284	292	301	310	319	329	339	348	358	368	377	387
				PI (kW)	111	111	113	114	115	117	119	120	122	123	125	126
			Max	CC (kW)	327	334	340	348	355	363	371	379	387	395	402	408
				PI (kW)	143	142	142	142	142	142	142	142	142	141	141	141
		40	Nom	CC (kW)	269	277	285	293	302	311	319	328	337	346	355	363
				PI (kW)	121	121	122	123	125	126	127	128	130	131	132	133
			Max	CC (kW)	295	300	306	313	320	327	335	343	350	358	365	372
				PI (kW)	142	141	140	139	139	139	139	139	139	140	140	140
		45	Nom	CC (kW)	249	256	263	270	278	285	293	301	308	316	323	330
				PI (kW)	129	129	129	130	131	131	132	132	133	134	135	135
			Max	CC (kW)	257	261	266	272	278	286	293	301	308	316	323	330
				PI (kW)	136	134	133	132	132	132	132	132	133	134	135	135

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EWYD340AJYNN + OPLN

The table below contains the cooling capacity table for EWYD340AJYNN + OPLN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD340AJYNN+OPLN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	345	355	365	375	385	396	406	417	427	438	449	460
				PI (kW)	89.7	90.9	92.2	93.5	94.8	96.2	97.6	99	100	102	103	105
			Max	CC (kW)	457	472	485	496	506	514	521	528	535	541	548	555
				PI (kW)	158	163	166	167	167	166	164	162	160	157	155	154
		25	Nom	CC (kW)	332	342	351	361	371	382	392	402	413	424	434	445
				PI (kW)	98	99.3	101	102	103	105	106	108	109	111	112	114
			Max	CC (kW)	422	435	447	457	466	473	480	487	494	501	508	517
				PI (kW)	158	162	164	164	164	163	161	159	158	156	155	154
		30	Nom	CC (kW)	318	327	337	347	357	367	377	387	397	408	418	429
				PI (kW)	107	108	110	111	113	114	116	117	119	120	122	124
			Max	CC (kW)	390	402	412	421	429	436	443	450	457	465	473	482
				PI (kW)	159	162	164	164	163	162	161	159	158	157	157	158
		35	Nom	CC (kW)	303	312	322	331	341	351	360	370	380	391	401	411
				PI (kW)	117	118	120	121	123	124	126	127	129	131	132	134
			Max	CC (kW)	358	368	377	385	393	400	406	413	421	429	439	449
				PI (kW)	160	162	163	163	162	161	159	158	158	158	159	161
		40	Nom	CC (kW)	287	296	305	315	324	333	343	353	362	372	382	392
				PI (kW)	128	129	131	132	134	135	137	139	140	142	144	145
			Max	CC (kW)	323	332	340	347	354	361	367	375	383	392	402	414
				PI (kW)	158	159	159	159	158	157	156	155	155	156	158	162
		45	Nom	CC (kW)	270	279	288	297	306	315	323	330	339	349	361	372
				PI (kW)	139	141	142	144	145	147	147	147	148	150	154	158
			Max	CC (kW)	282	290	297	303	309	316	323	330	339	349	361	374
				PI (kW)	150	151	151	150	149	148	147	147	148	150	154	159

EWYD360AJYNN + OPLN

The table below contains the cooling capacity table for EWYD360AJYNN + OPLN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD360AJYNN+OPLN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	372	381	391	402	413	424	436	448	460	472	484	495
				PI (kW)	98.4	99	99.9	101	103	104	106	108	110	112	113	115
			Max	CC (kW)	473	482	492	502	512	523	533	543	552	561	570	577
				PI (kW)	158	158	158	159	159	160	160	160	160	160	159	158
		25	Nom	CC (kW)	355	365	376	387	398	409	420	432	444	455	467	478
				PI (kW)	106	107	108	110	112	114	116	117	119	121	123	124
			Max	CC (kW)	435	444	453	463	473	483	493	502	511	520	528	535
				PI (kW)	157	157	157	157	158	158	159	159	159	159	158	156
		30	Nom	CC (kW)	341	351	361	372	383	394	405	417	428	438	449	459
				PI (kW)	116	118	120	121	123	125	127	129	131	132	134	135
			Max	CC (kW)	400	409	418	427	436	446	455	465	473	482	489	496
				PI (kW)	158	158	158	158	159	159	160	160	160	160	159	157
		35	Nom	CC (kW)	325	335	346	356	367	378	388	399	409	419	428	438
				PI (kW)	128	129	131	133	135	137	139	140	142	143	144	144
			Max	CC (kW)	366	374	383	391	401	410	419	428	436	444	451	458
				PI (kW)	159	159	159	159	160	160	160	161	161	161	160	158
		40	Nom	CC (kW)	306	316	326	336	346	356	366	375	385	394	402	410
				PI (kW)	137	139	141	143	145	146	148	149	150	151	151	151
			Max	CC (kW)	330	337	345	354	362	371	380	388	397	404	411	418
				PI (kW)	157	157	157	157	158	158	159	159	159	159	159	157
		45	Nom	CC (kW)	280	289	299	308	318	327	336	344	352	360	367	373
				PI (kW)	143	145	147	149	150	152	153	153	154	154	153	152
			Max	CC (kW)	288	295	303	311	319	328	336	344	352	360	367	373
				PI (kW)	151	150	151	151	152	152	153	153	154	154	153	152

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EWYD380AJYNN + OPLN

The table below contains the cooling capacity table for EWYD380AJYNN + OPLN.

Leaving Water Temp. (°C)					4	5	6	7	8	9	10	11	12	13	14	15
EWYD380AJYNN+OPLN	Air Ambient Temperature (°C)	20	Nom	CC (kW)	390	399	408	419	431	443	455	468	480	493	505	518
				PI (kW)	106	106	106	107	109	110	112	115	117	119	121	123
			Max	CC (kW)	477	486	496	506	516	527	538	549	561	574	587	600
				PI (kW)	157	157	156	157	157	158	159	160	162	164	166	168
		25	Nom	CC (kW)	371	380	391	402	414	427	439	451	464	476	487	498
				PI (kW)	112	113	115	116	118	121	123	125	127	129	131	132
			Max	CC (kW)	438	447	456	465	475	485	494	505	515	526	537	548
				PI (kW)	156	156	156	156	156	156	156	157	158	158	159	160
		30	Nom	CC (kW)	356	366	377	389	401	413	425	436	448	459	469	479
				PI (kW)	124	126	128	130	132	135	137	139	141	142	143	143
			Max	CC (kW)	404	413	422	431	440	449	457	466	475	484	494	503
				PI (kW)	159	159	159	158	158	158	158	158	158	158	158	158
		35	Nom	CC (kW)	339	350	361	373	384	396	407	417	428	437	446	454
				PI (kW)	137	139	141	143	146	148	150	151	153	153	153	153
			Max	CC (kW)	370	379	388	397	405	414	422	430	438	445	453	461
				PI (kW)	161	161	161	161	161	161	161	160	160	159	158	157
		40	Nom	CC (kW)	317	327	338	349	359	370	380	389	397	404	410	416
				PI (kW)	146	148	150	152	154	156	157	158	159	158	156	155
			Max	CC (kW)	332	341	350	359	367	375	383	390	397	404	410	416
				PI (kW)	158	159	160	160	160	160	160	159	159	158	156	155
		45	Nom	CC (kW)	282	292	302	312	321	329	336	343	349	355	360	365
				PI (kW)	146	148	150	152	152	152	152	152	151	150	148	146
			Max	CC (kW)	283	294	303	312	321	329	336	343	349	355	360	365
				PI (kW)	148	149	151	152	152	152	152	152	151	150	148	146

Note:

- CC (Cooling Capacity) and PI (unit Power Input) are referred to 0,0176m^2 °C/kW evaporator fouling factor.
- Rated conditions are for compressors running at nominal frequency; boost is referred to compressors running at maximum frequency.
- 10% glycol is recommended for units running in the shaded areas.

1.28 Heating Capacity Tables: EWYD-AJYNN (+OPLN)

EWYD260-280AJYNN (+OPLN)

The table below contains the heating capacity tables for EWYD260-280AJYNN (+OPLN).

Leaving Water Temp. (°C)					35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
EWYD260AJYNN/AJYNN+OPLN	Air Ambient Temperature (°C)	12	Nom	HC (kW)	323	322	321	321	320	320	319	319	318	318	317	316	316	315	315	314
				PI (kW)	79.2	80.5	81.8	83.2	84.6	86	87.5	89	90.6	92.1	93.7	95.3	97	98.6	100	102
			Max	HC (kW)	451	446	441	435	429	423	417	410	403	397	390	383	377	371	365	360
				PI (kW)	128	128	128	128	127	126	126	125	124	124	123	122	122	122	121	121
		7	Nom	HC (kW)	278	278	278	277	277	276	276	276	275	275	274	274	274	273	273	272
				PI (kW)	75.2	76.5	77.8	79.2	80.5	82	83.4	84.9	86.4	88	89.5	91.1	92.7	94.4	96	97.7
			Max	HC (kW)	391	389	387	384	380	376	372	368	363	359	354	349	344	340	336	332
				PI (kW)	120	121	122	123	124	124	124	124	125	125	125	125	125	125	125	125
		0	Nom	HC (kW)	226	226	225	225	225	225	224	224	224	224	224	223	223	223	222	222
				PI (kW)	71	72.3	73.5	74.9	76.2	77.6	79.1	80.5	82	83.5	85	86.6	88.2	89.8	91.4	93
			Max	HC (kW)	317	318	319	319	318	316	314	312	309	307	304	300	297	294	291	288
				PI (kW)	111	113	116	118	119	121	122	123	124	124	125	125	126	126	126	127
		-5	Nom	HC (kW)	194	193	193	193	193	193	192	192	192	192	192	192	191	191	191	191
				PI (kW)	68.9	70.2	71.5	72.8	74.1	75.5	76.9	78.3	79.8	81.3	82.8	84.4	85.9	87.5	89.1	90.7
			Max	HC (kW)	273	275	277	278	278	277	276	275	273	271	268	265	262	259	256	253
				PI (kW)	106	110	112	115	117	119	120	122	123	123	124	125	125	125	125	125
		-10	Nom	HC (kW)	164	164	164	164	163	163	163	163	163	163	163	162	162	162	162	162
				PI (kW)	67.6	68.9	70.1	71.4	72.8	74.1	75.5	77	78.4	79.9	81.4	82.9	84.5	86	87.6	89.2
			Max	HC (kW)	234	238	240	241	242	242	241	240	238	236	233	230	226	223	219	215
				PI (kW)	104	108	111	114	116	118	120	121	122	123	123	123	123	123	123	123
EWYD280AJYNN/AJYNN+OPLN	Air Ambient Temperature (°C)	12	Nom	HC (kW)	360	359	359	358	357	357	356	355	355	354	353	352	352	351	350	349
				PI (kW)	87.7	89.2	90.7	92.3	93.8	95.5	97.1	98.8	100	102	104	106	108	109	111	113
			Max	HC (kW)	459	455	450	444	439	433	427	421	415	409	403	397	391	386	380	375
				PI (kW)	123	123	124	124	124	124	124	123	123	123	123	123	123	123	123	124
		7	Nom	HC (kW)	311	311	310	310	309	309	308	308	307	307	306	306	305	304	304	303
				PI (kW)	83.2	84.7	86.2	87.7	89.2	90.8	92.4	94.1	95.7	97.4	99.1	101	103	104	106	108
			Max	HC (kW)	418	415	411	407	402	397	392	387	382	376	371	366	361	355	351	346
				PI (kW)	124	125	125	126	126	126	127	127	127	127	127	127	127	127	127	127
		0	Nom	HC (kW)	253	253	252	252	252	251	251	251	250	250	250	249	249	248	248	248
				PI (kW)	78.1	79.5	81	82.5	84	85.5	87.1	88.7	90.4	92	93.7	95.4	97.2	99	101	103
			Max	HC (kW)	353	351	349	346	343	339	335	331	327	322	318	313	309	304	300	296
				PI (kW)	121	122	123	124	124	125	125	125	126	126	126	126	126	126	126	126
		-5	Nom	HC (kW)	217	217	216	216	216	216	215	215	215	214	214	214	214	213	213	213
				PI (kW)	75.3	76.7	78.1	79.6	81.1	82.7	84.2	85.8	87.4	89.1	90.8	92.5	94.2	96	97.8	99.6
			Max	HC (kW)	306	305	304	302	300	297	294	290	287	283	279	275	271	267	263	259
				PI (kW)	117	119	120	121	122	123	123	123	124	124	124	124	124	124	125	125
		-10	Nom	HC (kW)	184	183	183	183	183	182	182	182	182	182	181	181	181	181	180	180
				PI (kW)	73.2	74.6	76	77.5	79	80.5	82.1	83.7	85.3	87	88.6	90.3	92.1	93.8	95.6	97.4
			Max	HC (kW)	263	263	263	262	260	258	256	253	250	247	243	240	236	233	229	225
				PI (kW)	115	117	119	120	121	122	123	123	124	124	124	124	124	124	124	124

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EWYD300-320AJYNN (+OPLN)

The table below contains the heating capacity tables for EWYD300-320AJYNN (+OPLN).

Leaving Water Temp. (°C)					35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
EWYD300AJYNN/AJYNN+OPLN	Air Ambient Temperature (°C)	12	Nom	HC (kW)	387	386	386	385	384	384	383	382	382	381	380	380	379	378	377	376
				PI (kW)	95	96.7	98.4	100	102	104	105	107	109	111	113	115	117	119	121	123
			Max	HC (kW)	465	460	455	450	445	439	434	428	422	416	410	404	397	391	384	377
				PI (kW)	123	123	124	124	124	124	125	125	125	125	125	124	124	124	124	123
		7	Nom	HC (kW)	335	334	334	333	333	332	332	331	331	330	330	329	329	328	328	327
				PI (kW)	90.2	91.8	93.4	95.1	96.8	98.5	100	102	104	106	108	110	112	114	116	118
			Max	HC (kW)	428	423	419	414	409	404	399	394	388	383	377	372	366	360	354	347
				PI (kW)	127	127	127	127	128	128	128	128	128	128	128	128	128	127	127	127
		0	Nom	HC (kW)	272	272	272	272	271	271	271	270	270	270	269	269	269	268	268	268
				PI (kW)	84.3	85.9	87.5	89.2	90.8	92.5	94.3	96	97.8	99.6	101	103	105	107	109	111
			Max	HC (kW)	369	365	360	356	352	347	343	338	333	329	324	319	314	309	303	298
				PI (kW)	127	127	127	127	127	127	128	128	128	127	127	127	127	127	127	126
		-5	Nom	HC (kW)	233	233	233	233	233	232	232	232	232	232	231	231	231	231	230	230
				PI (kW)	81	82.6	84.2	85.8	87.4	89.1	90.8	92.6	94.3	96.1	98	99.8	102	104	106	108
			Max	HC (kW)	326	322	318	314	310	305	301	297	293	288	284	280	275	270	266	261
				PI (kW)	126	126	126	126	126	126	126	126	126	126	126	125	125	125	125	125
		-10	Nom	HC (kW)	197	197	197	197	197	197	197	196	196	196	196	196	195	195	195	195
				PI (kW)	78.4	80	81.6	83.2	84.8	86.5	88.2	89.9	91.7	93.5	95.3	97.2	99.1	101	103	105
			Max	HC (kW)	285	281	277	274	270	266	262	258	254	250	246	242	238	234	230	226
				PI (kW)	125	125	125	125	125	124	124	124	124	124	124	124	124	124	124	123
EWYD320AJYNN/AJYNN+OPLN	Air Ambient Temperature (°C)	12	Nom	HC (kW)	394	394	394	394	394	394	394	393	393	393	393	393	393	392	392	392
				PI (kW)	103	104	106	108	110	112	114	116	118	120	122	124	127	129	131	133
			Max	HC (kW)	484	481	479	475	472	467	463	458	453	448	443	437	432	426	420	415
				PI (kW)	149	150	150	151	151	150	150	149	149	148	147	147	146	146	146	147
		7	Nom	HC (kW)	340	340	340	340	340	341	341	341	341	341	341	341	341	341	341	340
				PI (kW)	97.6	99.4	101	103	105	107	109	111	113	115	117	119	121	123	126	128
			Max	HC (kW)	428	427	425	424	421	418	415	412	408	404	399	395	390	385	381	376
				PI (kW)	146	147	148	149	149	150	150	149	149	149	148	148	148	148	148	148
		0	Nom	HC (kW)	276	276	277	277	277	277	278	278	278	278	278	278	279	279	279	279
				PI (kW)	92.2	93.9	95.7	97.5	99.4	101	103	105	107	109	111	113	115	118	120	122
			Max	HC (kW)	355	356	356	356	355	353	351	349	347	344	340	337	333	329	326	322
				PI (kW)	141	143	145	146	147	148	148	149	149	149	148	148	148	148	148	148
		-5	Nom	HC (kW)	237	237	237	238	238	238	238	239	239	239	239	240	240	240	240	240
				PI (kW)	89.2	90.9	92.7	94.5	96.3	98.2	100	102	104	106	108	110	112	114	116	119
			Max	HC (kW)	307	309	310	311	310	310	309	307	305	303	300	297	294	290	287	283
				PI (kW)	137	140	142	144	146	147	147	148	148	148	148	148	148	148	148	148
		-10	Nom	HC (kW)	200	201	201	201	202	202	202	203	203	203	203	204	204	204	204	205
				PI (kW)	86.9	88.7	90.4	92.2	94.1	95.9	97.8	99.8	102	104	106	108	110	112	114	116
			Max	HC (kW)	264	266	268	269	269	269	268	267	266	264	261	258	255	252	249	245
				PI (kW)	134	137	140	142	144	145	146	147	147	147	147	147	147	147	147	147

EWYD340-360AJYNN (+OPLN)

The table below contains the heating capacity tables for EWYD340-360AJYNN (+OPLN).

Leaving Water Temp. (°C)					35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
WYD340AJYNN/AJYNN+OPLN	Air Ambient Temperature (°C)	12	Nom	HC (kW)	415	415	416	416	416	416	416	416	416	417	417	417	417	417	417	417
				PI (kW)	108	110	112	114	116	118	120	122	124	126	129	131	133	136	138	141
			Max	HC (kW)	514	516	516	515	513	510	506	501	496	490	485	479	473	467	462	458
				PI (kW)	164	167	170	171	171	171	171	170	169	168	167	165	164	164	164	164
		7	Nom	HC (kW)	359	359	359	359	360	360	360	361	361	361	361	361	362	362	362	362
				PI (kW)	102	104	106	108	110	112	114	116	119	121	123	125	128	130	132	135
			Max	HC (kW)	450	454	456	456	456	454	452	449	445	441	436	432	428	424	420	417
				PI (kW)	158	162	165	167	169	170	170	170	169	169	168	168	167	167	168	169
		0	Nom	HC (kW)	291	292	292	293	293	294	294	295	295	295	296	296	296	297	297	297
				PI (kW)	96.4	98.3	100	102	104	106	108	110	112	114	117	119	121	123	126	128
			Max	HC (kW)	369	374	378	380	381	381	380	378	376	374	371	368	365	363	360	359
				PI (kW)	149	154	157	161	163	164	166	166	167	167	167	167	167	168	169	170
		-5	Nom	HC (kW)	250	251	251	252	252	253	253	253	254	254	255	255	256	256	256	257
				PI (kW)	93.1	95	96.9	98.8	101	103	105	107	109	111	113	115	118	120	122	125
			Max	HC (kW)	317	323	328	331	332	333	333	332	330	328	326	324	322	320	318	317
				PI (kW)	143	148	153	156	159	161	162	163	164	164	165	165	166	166	167	169
		-10	Nom	HC (kW)	212	213	213	214	214	215	215	216	216	217	217	217	218	218	219	219
				PI (kW)	90.7	92.6	94.5	96.4	98.3	100	102	104	106	108	111	113	115	117	120	122
			Max	HC (kW)	272	278	283	286	288	289	289	289	287	286	284	282	280	278	276	275
				PI (kW)	139	145	149	153	156	159	160	162	162	163	164	164	165	165	166	168
EWYD360AJYNN/AJYNN+OPLN	Air Ambient Temperature (°C)	12	Nom	HC (kW)	465	465	464	463	461	460	459	457	456	455	454	454	454	454	455	456
				PI (kW)	116	118	120	122	124	126	128	130	132	135	137	140	142	145	147	150
			Max	HC (kW)	585	580	574	567	561	555	548	541	535	528	521	515	509	502	497	491
				PI (kW)	170	170	169	168	168	168	167	167	167	167	167	166	166	166	166	165
		7	Nom	HC (kW)	403	403	403	402	402	401	400	399	398	397	397	397	397	397	398	399
				PI (kW)	110	112	114	116	118	120	122	125	127	129	131	134	136	139	141	144
			Max	HC (kW)	517	513	510	506	502	497	493	488	483	478	473	469	464	459	455	451
				PI (kW)	165	165	166	166	166	167	167	167	168	168	168	168	168	168	168	168
		0	Nom	HC (kW)	327	327	328	328	328	327	327	326	326	325	325	325	325	326	326	328
				PI (kW)	103	105	107	109	111	114	116	118	120	122	124	127	129	132	134	137
			Max	HC (kW)	428	427	426	424	422	420	417	414	411	408	405	401	398	395	392	389
				PI (kW)	159	160	161	163	164	165	166	167	168	168	169	169	170	170	169	169
		-5	Nom	HC (kW)	279	280	281	281	281	281	281	281	280	280	280	279	279	280	280	281
				PI (kW)	99.3	101	103	105	108	110	112	114	116	118	120	123	125	127	130	133
			Max	HC (kW)	370	370	370	370	369	367	365	363	361	358	355	352	349	346	344	341
				PI (kW)	155	157	159	161	162	164	165	166	167	168	169	169	169	169	169	168
		-10	Nom	HC (kW)	236	238	239	239	240	240	239	239	239	238	238	238	237	238	238	239
				PI (kW)	96.4	98.5	101	103	105	107	109	111	113	115	117	120	122	124	127	130
			Max	HC (kW)	318	319	319	319	318	317	315	313	311	309	306	303	300	297	293	290
				PI (kW)	152	154	156	158	160	162	164	165	166	167	168	168	168	167	167	166

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EWYD380AJYNN (+OPLN)

The table below contains the cooling capacity table for EWYD380AJYNN (+OPLN).

Leaving Water Temp. (°C)					35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
WYD380AJYNN/AJYNN+OPLN	Air Ambient Temperature (°C)	12	Nom	HC (kW)	488	488	487	485	484	482	480	478	476	475	474	474	474	475	477	480
				PI (kW)	123	125	127	129	132	134	136	138	141	143	146	148	151	154	157	160
			Max	HC (kW)	591	585	579	572	565	559	552	545	538	531	524	517	511	504	497	490
				PI (kW)	172	171	170	169	169	168	168	168	168	168	168	167	167	166	166	164
		7	Nom	HC (kW)	421	421	421	420	419	418	416	415	414	412	412	411	412	413	415	417
				PI (kW)	117	119	121	123	125	128	130	132	134	137	139	142	144	147	150	153
			Max	HC (kW)	523	518	513	508	503	498	492	487	482	476	471	465	460	454	449	443
				PI (kW)	168	167	167	167	167	167	167	167	167	168	168	168	167	167	166	165
		0	Nom	HC (kW)	342	343	344	344	344	343	342	341	340	339	339	338	339	340	341	344
				PI (kW)	110	112	114	116	118	121	123	125	127	130	132	135	137	140	143	146
			Max	HC (kW)	443	439	436	432	428	424	420	416	412	408	405	401	397	393	389	385
				PI (kW)	166	166	166	167	167	168	168	169	169	170	170	170	170	169	169	167
		-5	Nom	HC (kW)	293	295	296	297	297	297	296	295	294	293	293	292	293	293	295	297
				PI (kW)	106	108	110	112	114	117	119	121	123	126	128	131	133	136	139	141
			Max	HC (kW)	390	387	384	381	378	375	371	368	365	362	358	355	352	349	345	342
				PI (kW)	165	166	166	167	167	168	169	169	170	170	171	171	170	170	169	168
		-10	Nom	HC (kW)	247	249	251	252	252	252	252	251	250	250	249	248	248	249	250	251
				PI (kW)	102	104	107	109	111	113	116	118	120	123	125	127	130	132	135	138
			Max	HC (kW)	336	333	331	328	325	322	319	317	314	311	308	305	302	299	297	294
				PI (kW)	163	164	164	165	166	166	167	168	168	169	169	169	168	168	167	165

Note:

- HC (Heating Capacity) and PI (unit Power Input) are referred to 0,0176m^2 °C/kW evaporator fouling factor.
- Rated conditions are for compressors running at nominal frequency; boost is referred to compressors running at maximum frequency.

1.29 Capacity Correction Factors: EWAD-AJYNN

Evaporator fouling factors

The table below gives the evaporator fouling factors.

Fouling factors m²°C / kW	Cooling capacity correction factor	Power input correction factor	COP 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

Altitude correction factors

The table below gives the altitude correction factors.

Elevation above sea level (m)	0	300	600	900	1200	1500	1800
Barometric pressure (mbar)	1013	977	942	908	875	843	812
Cooling capacity correction factor	1.000	0.993	0.986	0.979	0.973	0.967	0.960
Power input correction factor	1.000	1.005	1.009	1.015	1.021	1.026	1.031

Ethylene glycol and low ambient temperature correction factors

The table below gives the ethylene glycol and low ambient temperature correction factors.

Air ambient temperature °C	-3	-8	-15	-23	-35
% of ethylene glycol by weight	10	20	30	40	50
Cooling capacity correction factor	0.991	0.982	0.972	0.961	0.946
Power input correction factor	0.996	0.992	0.986	0.976	0.966
Flow rate correction factor	1.013	1.040	1.074	1.121	1.178
Water pressure drops correction factor	1.070	1.129	1.181	1.263	1.308

Low temperature operation performance factors

The table below gives the low temperature operation performance factors.

Ethylene glycol/water leaving temperature °C	2	0	-2	-4	-6	-8
Cooling capacity correction factor	0.842	0.785	0.725	0.670	0.613	0.562
Power input compressors correction factor	0.95	0.94	0.92	0.89	0.87	0.84
Min. % of ethylene glycol	10	20	20	30	30	30

Note: (1) Low temperature operation performance factors must be applied to nominal performance data to have the adjusted value (12/7°C, design ambient temperature).

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1.30 Capacity Correction Factors: EWYD-AJYNN

Evaporator fouling factors

The table below gives the evaporator fouling factors.

Fouling factors m²°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

Altitude correction factors

The table below gives the altitude correction factors.

Elevation above sea level (m)	0	300	600	900	1200	1500	1800
Barometric pressure (mbar)	1013	977	942	908	875	843	812
Cooling capacity correction factor	1.000	0.993	0.986	0.979	0.973	0.967	0.960
Power input correction factor	1.000	1.005	1.009	1.015	1.021	1.026	1.031

Ethylene glycol and low ambient temperature correction factors

The table below gives the ethylene glycol and low ambient temperature correction factors.

Air ambient temperature °C	-3	-8	-15	-23	-35
% of ethylene glycol by weight	10	20	30	40	50
Cooling capacity correction factor	0.991	0.982	0.972	0.961	0.946
Power input correction factor	0.996	0.992	0.986	0.976	0.966
Flow rate correction factor	1.013	1.040	1.074	1.121	1.178
Water pressure drops correction factor	1.070	1.129	1.181	1.263	1.308

Low temperature operation performance factors

The table below gives the low temperature operation performance factors.

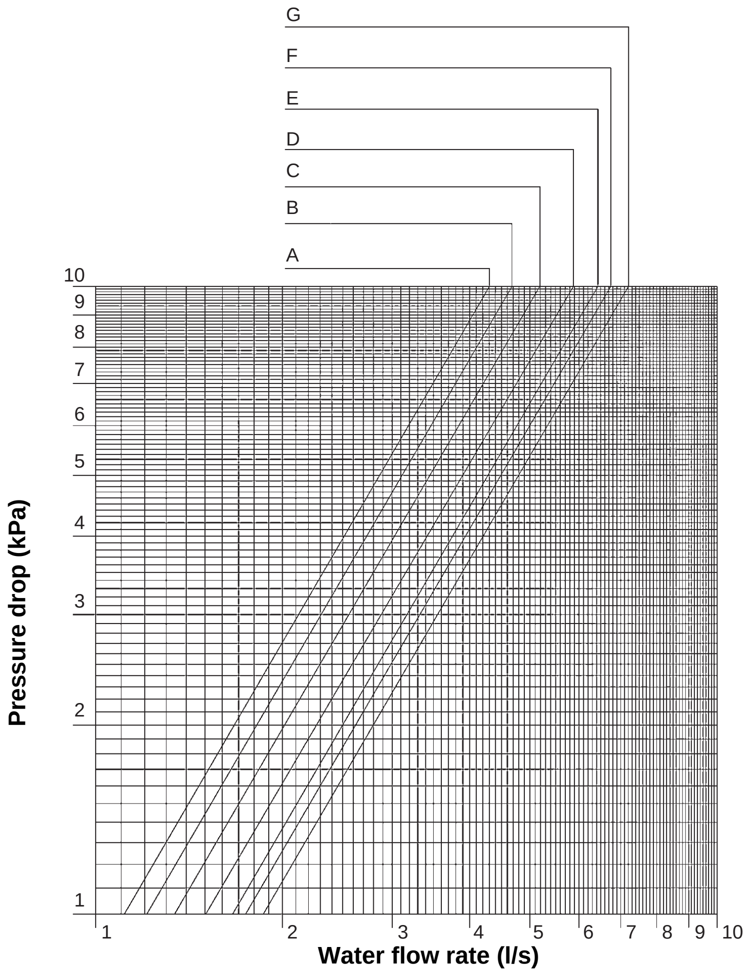
Ethylene glycol/water leaving temperature °C	2	0	-2	-4	-6	-8
Cooling capacity correction factor	0.842	0.785	0.725	0.670	0.613	0.562
Power input compressors correction factor	0.95	0.94	0.92	0.89	0.87	0.84
Min. % of ethylene glycol	10	20	20	30	30	30

Note: (1) Low temperature operation performance factors must be applied to nominal performance data to have the adjusted value (12/7°C, design ambient temperature).

1.31 Heat Recovery Ratings: EWAD-AJYNN

EWAD-AJYNN & EWAD-AJYNN/Q & EWAD-AJYNN/H diagram

A:	EWAD190AJYNN	-	EWAD200AJYNN/H	-	EWAD200AJYNN
	EWAD210AJYNN/Q	-	EWAD210AJYNN/H		
B:	EWAD230AJYNN	-	EWAD240AJYNN/Q	-	EWAD240AJYNN/H
C:	EWAD260AJYNN	-	EWAD260AJYNN/Q	-	EWAD260AJYNN/H
	EWAD280AJYNN	-	EWAD280AJYNN/H	-	EWAD280AJYNN/H
	EWAD300AJYNN	-	EWAD300AJYNN/Q	-	EWAD300AJYNN/H
D:	EWAD320AJYNN	-	EWAD320AJYNN/Q	-	EWAD320AJYNN/H
E:	EWAD340AJYNN	-	EWAD340AJYNN/Q	-	EWAD340AJYNN/H
	EWAD360AJYNN	-	EWAD400AJYNN/H		
F:	EWAD400AJYNN/H	-	EWAD400AJYNN/Q	-	EWAD420AJYNN/H
G:	EWAD400AJYNN	-	EWAD440AJYNN/Q	-	EWAD460AJYNN/H
	EWAD480AJYNN	-	EWAD460AJYNN/Q	-	EWAD480AJYNN/H
	EWAD500AJYNN	-	EWAD500AJYNN/Q	-	EWAD550AJYNN
	EWAD550AJYNN/H	-	EWAD600AJYNN	-	EWAD600AJYNN/H



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EWAD200-300AJYN N & EWAD200-300AJYN N/H table

Unit size	LWE °(C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
190, 200/H	4	186.1	59.7	245.8	175.4	65.7	241.1	163.8	72.2	236.0	151.2	79.1	230.3
	5	192.8	60.3	253.1	182.2	66.3	248.5	170.6	72.8	243.4	157.9	79.8	237.7
	6	199.5	60.8	260.3	189.2	66.9	256.1	177.4	73.5	250.9	164.7	80.5	245.2
	7	206.2	61.4	267.6	195.9	67.5	263.4	184.4	74.1	258.5	171.5	81.2	252.7
	8	213.1	62.0	275.1	202.6	68.1	270.7	191.4	74.8	266.2	178.5	81.9	260.4
	9	220.0	62.7	282.7	209.4	68.8	278.2	198.1	75.4	273.5	185.6	82.6	268.2
	10	226.9	63.4	290.3	216.2	69.5	285.7	204.8	76.1	280.9	192.6	83.3	275.9
200, 210/H	4	195.5	59.9	255.4	183.6	65.8	249.4	170.7	72.2	242.9	156.2	79.1	235.3
	5	203.3	60.6	263.9	191.3	66.5	257.8	178.2	73.0	251.2	163.9	79.9	243.8
	6	210.8	61.2	272.0	199.0	67.2	266.2	185.9	73.6	259.5	171.7	80.6	252.3
	7	218.5	61.8	280.3	206.9	67.9	274.8	193.8	74.3	268.1	179.4	81.3	260.7
	8	226.1	62.5	288.6	214.3	68.5	282.8	201.6	75.1	276.7	187.2	82.1	269.3
	9	232.8	63.2	296.0	221.9	69.3	291.2	209.2	75.8	285.0	195.0	82.8	277.8
	10	239.4	63.9	303.3	229.3	70.1	299.4	216.6	76.7	293.3	202.8	83.7	286.5
230, 240/H	4	226.8	61.1	287.9	216.3	67.4	283.7	204.8	74.2	279.0	192.7	81.6	274.3
	5	234.4	61.6	296.0	223.8	67.9	291.7	212.3	74.7	287.0	200.0	82.2	282.2
	6	242.2	62.2	304.4	231.4	68.4	299.8	219.8	75.3	295.1	207.4	82.7	290.1
	7	250.2	62.7	312.9	239.2	69.0	308.2	227.4	75.9	303.3	215.0	83.3	298.3
	8	258.5	63.3	321.8	247.1	69.6	316.7	235.1	76.4	311.5	222.5	83.9	306.4
	9	267.1	63.9	331.0	255.3	70.2	325.5	243.0	77.0	320.0	230.2	84.5	314.7
	10	275.8	64.5	340.3	263.8	70.8	334.6	251.1	77.6	328.7	238.0	85.1	323.1
260, 260/H	4	238.9	71.8	310.7	226.8	79.1	305.9	213.6	87.0	300.6	199.5	95.6	295.1
	5	246.9	72.4	319.3	234.7	79.7	314.4	221.5	87.6	309.1	207.1	96.2	303.3
	6	255.2	73.0	328.2	242.7	80.3	323.0	229.3	88.3	317.6	214.9	96.9	311.8
	7	263.6	73.7	337.3	250.8	81.0	331.8	237.2	89.0	326.2	222.7	97.6	320.3
	8	272.5	74.4	346.9	259.1	81.7	340.8	245.4	89.7	335.1	230.7	98.3	329.0
	9	281.5	75.1	356.6	267.8	82.4	350.2	253.6	90.4	344.0	238.8	99.1	337.9
	10	290.6	75.8	366.4	276.7	83.2	359.9	262.0	91.1	353.1	246.9	99.8	346.7
280, 280/H	4	260.2	75.6	335.8	247.3	83.2	330.5	233.2	91.5	324.7	218.6	100.5	319.1
	5	268.9	76.3	345.2	255.8	84.0	339.8	241.7	92.3	334.0	226.5	101.3	327.8
	6	277.8	77.1	354.9	264.6	84.7	349.3	250.3	93.0	343.3	234.9	102.1	337.0
	7	286.8	77.8	364.6	273.3	85.5	358.8	259.0	93.9	352.9	243.4	102.9	346.3
	8	296.2	78.6	374.8	282.3	86.3	368.6	267.7	94.7	362.4	252.0	103.7	355.7
	9	305.8	79.4	385.2	291.5	87.1	378.6	276.7	95.5	372.2	260.8	104.6	365.4
	10	315.6	80.3	395.9	301.0	87.9	388.9	285.7	96.3	382.0	269.6	105.5	375.1
300, 300/H	4	270.1	83.2	353.3	256.2	91.6	347.8	241.2	100.7	341.9	225.1	110.6	335.7
	5	279.1	84.0	363.1	265.1	92.4	357.5	249.9	101.6	351.5	233.6	111.5	345.1
	6	288.5	84.8	373.3	274.2	93.2	367.4	258.8	102.4	361.2	242.3	112.3	354.6
	7	298.0	85.6	383.6	283.4	94.0	377.4	267.9	103.2	371.1	251.1	113.2	364.3
	8	308.1	86.3	394.4	292.8	94.8	387.6	277.0	104.1	381.1	260.2	114.0	374.2
	9	318.2	87.1	405.3	302.7	95.6	398.3	286.5	104.8	391.3	269.4	114.9	384.3
	10	328.7	87.9	416.6	312.8	96.4	409.2	296.2	105.6	401.8	278.7	115.7	394.4

EWAD320-440AJYNN & EWAD320-420AJYNN/H table

Unit size	LWE °(C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
320, 320/H	4	302.9	82.2	385.1	288.7	90.6	379.3	273.7	99.8	373.5	257.7	109.9	367.6
	5	313.2	82.9	396.1	298.7	91.3	390.0	283.5	100.6	384.1	267.3	110.6	377.9
	6	323.9	83.6	407.5	309.1	92.1	401.2	293.5	101.3	394.8	277.0	111.3	388.3
	7	334.7	84.3	419.0	319.7	92.8	412.5	303.7	102.0	405.7	286.9	112.1	399.0
	8	345.8	85.1	430.9	330.5	93.6	424.1	314.3	102.8	417.1	297.1	112.8	409.9
	9	357.1	85.9	443.0	341.5	94.3	435.8	325.0	103.6	428.6	307.4	113.6	421.0
	10	368.5	86.6	455.1	352.8	95.1	447.9	336.0	104.4	440.4	318.1	114.4	432.5
340, 340/H	4	311.5	95.8	407.3	295.2	105.4	400.6	278.1	115.9	394.0	260.6	127.4	388.0
	5	322.2	96.6	418.8	305.7	106.3	412.0	287.9	116.7	404.6	270.0	128.2	398.2
	6	333.2	97.5	430.7	316.3	107.2	423.5	298.3	117.7	416.0	279.5	129.1	408.6
	7	344.2	98.4	442.6	327.2	108.1	435.3	308.8	118.6	427.4	289.3	130.0	419.3
	8	355.4	99.4	454.8	338.2	109.1	447.3	319.6	119.6	439.2	299.7	131.0	430.7
	9	366.8	100.3	467.1	349.3	110.0	459.3	330.6	120.6	451.2	310.4	132.0	442.4
	10	378.4	101.3	479.7	360.6	111.0	471.6	341.8	121.6	463.4	321.3	133.1	454.4
360, 400/H	4	357.1	100.5	457.6	346.8	111.6	458.4	334.4	123.5	457.9	319.1	136.3	455.4
	5	367.9	101.2	469.1	357.5	112.4	469.9	345.2	124.4	469.6	330.1	137.2	467.3
	6	378.7	102.0	480.7	368.5	113.1	481.6	356.1	125.2	481.3	341.3	138.1	479.4
	7	389.9	102.8	492.7	379.4	113.9	493.3	367.1	126.0	493.1	352.4	139.0	491.4
	8	401.3	103.6	504.9	390.9	114.8	505.7	378.4	126.9	505.3	363.6	139.9	503.5
	9	413.0	104.4	517.4	402.6	115.6	518.2	389.8	127.7	517.5	375.0	140.8	515.8
	10	424.7	105.2	529.9	414.3	116.5	530.8	401.6	128.6	530.2	386.5	141.7	528.2
400	4	387.9	123.0	510.9	368.0	136.3	504.3	347.2	151.0	498.2	325.4	167.3	492.7
	5	400.9	124.1	525.0	380.5	137.3	517.8	359.1	152.0	511.1	336.8	168.2	505.0
	6	414.3	125.2	539.5	393.0	138.4	531.4	371.4	153.0	524.4	348.5	169.2	517.7
	7	427.9	126.4	554.3	406.2	139.5	545.7	383.8	154.1	537.9	360.6	170.2	530.8
	8	441.8	127.6	569.4	419.6	140.7	560.3	396.5	155.2	551.7	372.8	171.2	544.0
	9	456.2	128.8	585.0	433.2	141.9	575.1	409.6	156.4	566.0	385.3	172.3	557.6
	10	470.8	130.1	600.9	447.3	143.2	590.5	423.0	157.6	580.6	397.9	173.5	571.4
420/H	4	395.1	123.5	518.6	374.6	136.7	511.3	353.5	151.4	504.9	331.8	167.7	499.5
	5	408.3	124.6	532.9	387.4	137.8	525.2	365.5	152.4	517.9	343.3	168.6	511.9
	6	421.8	125.7	547.5	400.3	138.9	539.2	378.0	153.4	531.4	355.0	169.6	524.6
	7	435.4	126.9	562.3	413.6	140.0	553.6	390.8	154.5	545.3	366.9	170.6	537.5
	8	449.6	128.1	577.7	427.1	141.2	568.3	403.8	155.7	559.5	379.4	171.7	551.1
	9	464.1	129.3	593.4	440.9	142.4	583.3	417.1	156.9	574.0	392.2	172.8	565.0
	10	478.9	130.6	609.5	455.2	143.7	598.9	430.6	158.1	588.7	405.2	174.0	579.2
440	4	428.8	133.9	562.7	406.2	148.2	554.4	383.1	164.3	547.4	359.8	182.2	542.0
	5	443.3	135.0	578.3	420.2	149.4	569.6	396.2	165.3	561.5	372.2	183.2	555.4
	6	458.2	136.2	594.4	434.6	150.6	585.2	410.0	166.4	576.4	384.8	184.1	568.9
	7	473.2	137.5	610.7	449.2	151.8	601.0	424.1	167.6	591.7	397.7	185.2	582.9
	8	488.5	138.8	627.3	464.2	153.1	617.3	438.4	168.8	607.2	411.5	186.3	597.8
	9	504.1	140.1	644.2	479.2	154.4	633.6	453.1	170.1	623.2	425.6	187.5	613.1
	10	520.0	141.4	661.4	494.6	155.7	650.3	468.1	171.4	639.5	439.9	188.8	628.7

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EWAD480-550AJYNN & EWAD480-550JYNN/H table

Unit size	LWE °(C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
460/H	4	428.8	133.9	562.7	406.2	148.2	554.4	383.1	164.3	547.4	359.8	182.2	542.0
	5	443.3	135.0	578.3	420.2	149.4	569.6	396.2	165.3	561.5	372.2	183.2	555.4
	6	458.2	136.2	594.4	434.6	150.6	585.2	410.0	166.4	576.4	384.8	184.1	568.9
	7	473.2	137.5	610.7	449.2	151.8	601.0	424.1	167.6	591.7	397.7	185.2	582.9
	8	488.5	138.8	627.3	464.2	153.1	617.3	438.4	168.8	607.2	411.5	186.3	597.8
	9	504.1	140.1	644.2	479.2	154.4	633.6	453.1	170.1	623.2	425.6	187.5	613.1
	10	520.0	141.4	661.4	494.6	155.7	650.3	468.1	171.4	639.5	439.9	188.8	628.7
480	4	454.6	144.0	598.6	431.0	158.5	589.5	407.1	174.7	581.8	382.0	192.7	574.7
	5	469.7	145.5	615.2	445.6	159.9	605.5	420.8	176.0	596.8	395.2	194.0	589.2
	6	485.4	147.0	632.4	460.4	161.4	621.8	434.7	177.4	612.1	408.6	195.3	603.9
	7	501.5	148.7	650.2	475.6	162.9	638.5	449.3	178.9	628.2	422.3	196.6	618.9
	8	517.9	150.3	668.2	491.4	164.6	656.0	464.1	180.4	644.5	436.2	198.1	634.3
	9	534.5	152.1	686.6	507.6	166.3	673.9	479.4	182.0	661.4	450.6	199.6	650.2
	10	551.5	153.9	705.4	524.0	168.0	692.0	495.2	183.8	679.0	465.6	201.2	666.8
480/H	4	454.6	144.0	598.6	431.0	158.5	589.5	407.1	174.7	581.8	382.0	192.7	574.7
	5	469.7	145.5	615.2	445.6	159.9	605.5	420.8	176.0	596.8	395.2	194.0	589.2
	6	485.4	147.0	632.4	460.4	161.4	621.8	434.7	177.4	612.1	408.6	195.3	603.9
	7	501.5	148.7	650.2	475.6	162.9	638.5	449.3	178.9	628.2	422.3	196.6	618.9
	8	517.9	150.3	668.2	491.4	164.6	656.0	464.1	180.4	644.5	436.2	198.1	634.3
	9	534.5	152.1	686.6	507.6	166.3	673.9	479.4	182.0	661.4	450.6	199.6	650.2
	10	551.5	153.9	705.4	524.0	168.0	692.0	495.2	183.8	679.0	465.6	201.2	666.8
500	4	482.2	153.3	635.5	456.5	167.9	624.4	431.1	184.3	615.4	404.5	202.5	607.0
	5	498.4	155.1	653.5	472.1	169.6	641.7	445.4	185.9	631.3	418.4	204.0	622.4
	6	515.1	157.0	672.1	488.0	171.4	659.4	460.0	187.5	647.5	432.5	205.6	638.1
	7	532.0	159.0	691.0	504.4	173.3	677.7	475.7	189.3	665.0	446.9	207.3	654.2
	8	549.2	161.0	710.2	521.1	175.3	696.4	491.8	191.2	683.0	461.5	209.0	670.5
	9	566.6	163.1	729.7	538.1	177.3	715.4	508.1	193.2	701.3	476.9	210.8	687.7
	10	584.3	165.2	749.5	555.3	179.4	734.7	524.8	195.2	720.0	492.9	212.8	705.7
550/H	4	482.2	153.3	635.5	456.5	167.9	624.4	431.1	184.3	615.4	404.5	202.5	607.0
	5	498.4	155.1	653.5	472.1	169.6	641.7	445.4	185.9	631.3	418.4	204.0	622.4
	6	515.1	157.0	672.1	488.0	171.4	659.4	460.0	187.5	647.5	432.5	205.6	638.1
	7	532.0	159.0	691.0	504.4	173.3	677.7	475.7	189.3	665.0	446.9	207.3	654.2
	8	549.2	161.0	710.2	521.1	175.3	696.4	491.8	191.2	683.0	461.5	209.0	670.5
	9	566.6	163.1	729.7	538.1	177.3	715.4	508.1	193.2	701.3	476.9	210.8	687.7
	10	584.3	165.2	749.5	555.3	179.4	734.7	524.8	195.2	720.0	492.9	212.8	705.7
550	4	523.8	158.8	682.6	502.8	174.7	677.5	479.7	192.4	672.1	454.7	211.9	666.6
	5	540.2	160.6	700.8	518.7	176.4	695.1	495.4	194.0	689.4	469.9	213.5	683.4
	6	556.6	162.4	719.0	535.0	178.2	713.2	511.2	195.7	706.9	485.4	215.2	700.6
	7	573.7	164.3	738.0	551.4	180.0	731.4	527.4	197.5	724.9	501.1	216.9	718.0
	8	591.2	166.3	757.5	568.1	181.8	749.9	543.7	199.3	743.0	510.4	216.8	727.2
	9	609.0	168.3	777.3	585.4	183.8	769.2	560.3	201.2	761.5	519.4	216.7	736.1
	10	627.2	170.4	797.6	603.1	185.9	789.0	577.2	203.1	780.3	528.3	216.6	744.9

EWAD600AJYNN & EWAD550-600JYNN /H table

Unit size	LWE °(C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
550/H	4	523.8	158.8	682.6	502.8	174.7	677.5	479.7	192.4	672.1	454.7	211.9	666.6
	5	540.2	160.6	700.8	518.7	176.4	695.1	495.4	194.0	689.4	469.9	213.5	683.4
	6	556.6	162.4	719.0	535.0	178.2	713.2	511.2	195.7	706.9	485.4	215.2	700.6
	7	573.7	164.3	738.0	551.4	180.0	731.4	527.4	197.5	724.9	501.1	216.9	718.0
	8	591.2	166.3	757.5	568.1	181.8	749.9	543.7	199.3	743.0	510.4	216.8	727.2
	9	609.0	168.3	777.3	585.4	183.8	769.2	560.3	201.2	761.5	519.4	216.7	736.1
	10	627.2	170.4	797.6	603.1	185.9	789.0	577.2	203.1	780.3	528.3	216.6	744.9
600	4	558.8	163.2	722.0	541.7	180.3	722.0	521.9	199.4	721.3	499.1	220.4	719.5
	5	575.5	164.9	740.4	558.3	182.0	740.3	538.3	201.0	739.3	515.3	221.9	737.2
	6	592.4	166.6	759.0	575.2	183.7	758.9	555.0	202.6	757.6	531.8	223.5	755.3
	7	609.5	168.4	777.9	592.2	185.4	777.6	571.9	204.4	776.3	548.5	225.2	773.7
	8	626.9	170.2	797.1	609.3	187.2	796.5	589.1	206.1	795.2	552.0	223.2	775.2
	9	644.5	172.2	816.7	626.9	189.1	816.0	606.4	208.0	814.4	554.6	221.2	775.8
	10	662.6	174.2	836.8	644.6	191.1	835.7	623.9	209.9	833.8	556.6	219.0	775.6
600/H	4	558.8	163.2	722.0	541.7	180.3	722.0	521.9	199.4	721.3	499.1	220.4	719.5
	5	575.5	164.9	740.4	558.3	182.0	740.3	538.3	201.0	739.3	515.3	221.9	737.2
	6	592.4	166.6	759.0	575.2	183.7	758.9	555.0	202.6	757.6	531.8	223.5	755.3
	7	609.5	168.4	777.9	592.2	185.4	777.6	571.9	204.4	776.3	548.5	225.2	773.7
	8	626.9	170.2	797.1	609.3	187.2	796.5	589.1	206.1	795.2	552.0	223.2	775.2
	9	644.5	172.2	816.7	626.9	189.1	816.0	606.4	208.0	814.4	554.6	221.2	775.8
	10	662.6	174.2	836.8	644.6	191.1	835.7	623.9	209.9	833.8	556.6	219.0	775.6

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EWAD260-380AJYN N/A table

Unit size	LWE (°C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
260	4	231.8	63.9	295.7	224.9	70.9	295.8	217.1	78.6	295.7	208.0	86.7	294.7
	5	238.8	64.5	303.3	232.1	71.6	303.7	223.8	79.2	303.0	214.7	87.4	302.1
	6	245.8	65.1	310.9	239.2	72.2	311.4	231.0	79.9	310.9	221.5	88.1	309.6
	7	253.0	65.8	318.8	246.4	72.9	319.3	238.2	80.6	318.8	228.4	88.9	317.3
	8	260.2	66.4	326.6	253.6	73.6	327.2	245.4	81.3	326.7	235.7	89.6	325.3
	9	267.5	67.1	334.6	261.0	74.3	335.3	252.8	82.1	334.9	243.0	90.4	333.4
	10	275.0	67.8	342.8	268.3	75.0	343.3	260.2	82.8	343.0	250.5	91.2	341.7
280	4	252.2	66.5	318.7	245.7	73.9	319.6	237.7	81.9	319.6	227.9	90.6	318.5
	5	259.8	67.0	326.8	253.4	74.3	327.7	245.5	82.4	327.9	235.8	91.1	326.9
	6	267.7	67.4	335.1	261.3	74.8	336.1	253.3	82.9	336.2	243.9	91.6	335.5
	7	275.7	67.9	343.6	269.3	75.3	344.6	261.4	83.3	344.7	251.9	92.1	344.0
	8	283.8	68.4	352.2	277.4	75.8	353.2	269.6	83.8	353.4	260.0	92.6	352.6
	9	292.1	69.0	361.1	285.7	76.3	362.0	277.8	84.3	362.1	268.4	93.1	361.5
	10	300.4	69.5	369.9	294.1	76.8	370.9	286.3	84.9	371.2	276.8	93.6	370.4
320	4	271.5	75.6	347.1	264.0	84.0	348.0	254.7	93.1	347.8	243.4	102.7	346.1
	5	279.7	76.1	355.8	272.1	84.6	356.7	263.0	93.7	356.7	251.7	103.4	355.1
	6	288.0	76.7	364.7	280.4	85.1	365.5	271.2	94.3	365.5	260.2	104.1	364.3
	7	296.4	77.3	373.7	288.8	85.7	374.5	279.7	94.9	374.6	268.8	104.7	373.5
	8	305.0	77.9	382.9	297.4	86.4	383.8	288.2	95.5	383.7	277.4	105.4	382.8
	9	313.8	78.6	392.4	306.2	87.0	393.2	296.9	96.2	393.1	286.0	106.1	392.1
	10	322.7	79.2	401.9	315.1	87.7	402.8	305.8	96.8	402.6	294.8	106.8	401.6
340	4	309.7	80.7	390.4	301.8	89.6	391.4	292.4	99.2	391.6	281.0	109.6	390.6
	5	318.7	81.3	400.0	311.0	90.3	401.3	301.5	100.0	401.5	290.2	110.3	400.5
	6	327.8	82.0	409.8	320.1	91.0	411.1	310.8	100.7	411.5	299.4	111.2	410.6
	7	337.1	82.8	419.9	329.5	91.7	421.2	320.1	101.5	421.6	308.8	112.0	420.8
	8	346.5	83.6	430.1	338.8	92.5	431.3	329.5	102.3	431.8	318.2	112.9	431.1
	9	356.3	84.4	440.7	348.3	93.4	441.7	338.9	103.2	442.1	327.6	113.8	441.4
	10	366.2	85.3	451.5	358.2	94.3	452.5	348.6	104.1	452.7	337.2	114.7	451.9
360	4	326.7	88.9	415.6	317.9	98.7	416.6	307.3	109.3	416.6	294.5	120.6	415.1
	5	336.4	89.5	425.9	327.6	99.3	426.9	317.1	110.0	427.1	304.3	121.3	425.6
	6	346.2	90.2	436.4	337.5	100.0	437.5	327.0	110.7	437.7	314.3	122.0	436.3
	7	356.1	90.8	446.9	347.5	100.6	448.1	337.0	111.3	448.3	324.4	122.8	447.2
	8	366.2	91.5	457.7	357.5	101.4	458.9	347.1	112.1	459.2	334.6	123.6	458.2
	9	376.9	92.3	469.2	367.7	102.1	469.8	357.2	112.9	470.1	344.7	124.4	469.1
	10	387.8	93.1	480.9	378.6	103.0	481.6	367.5	113.7	481.2	355.0	125.3	480.3
380	4	348.4	90.7	439.1	344.7	96.3	441.0	335.2	106.8	442.0	323.8	118.1	441.9
	5	359.2	91.3	450.5	354.9	96.9	451.8	345.5	107.4	452.9	334.2	118.8	453.0
	6	370.3	92.0	462.3	365.8	97.6	463.4	356.1	108.0	464.1	344.8	119.4	464.2
	7	381.5	92.7	474.2	376.8	98.3	475.1	367.0	108.7	475.7	355.5	120.1	475.6
	8	392.7	93.4	486.1	387.9	99.0	486.9	378.2	109.4	487.6	366.5	120.8	487.3
	9	404.2	94.1	498.3	399.2	99.7	498.9	389.5	110.2	499.7	377.8	121.6	499.4
	10	415.7	94.8	510.5	410.7	100.5	511.2	401.1	110.9	512.0	389.4	122.3	511.7

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EWAD420-650AJYN N/A table

Unit size	LWE °(C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
420	4	368.3	101.5	469.8	358.2	112.7	470.9	346.0	124.7	470.7	331.4	137.6	469.0
	5	379.7	102.3	482.0	369.1	113.4	482.5	356.9	125.5	482.4	342.4	138.5	480.9
	6	391.3	103.1	494.4	380.5	114.3	494.8	367.9	126.3	494.2	353.4	139.4	492.8
	7	403.0	104.0	507.0	392.3	115.2	507.5	379.3	127.2	506.5	364.7	140.3	505.0
	8	414.6	104.8	519.4	404.1	116.0	520.1	391.3	128.1	519.4	375.9	141.2	517.1
	9	426.5	105.6	532.1	416.0	116.9	532.9	403.2	129.1	532.3	387.9	142.1	530.0
	10	438.6	106.5	545.1	428.1	117.8	545.9	415.3	130.0	545.3	400.0	143.1	543.1
500	4	469.4	131.9	601.3	454.1	147.5	601.6	437.5	164.4	601.9	418.0	182.8	600.8
	5	483.7	133.1	616.8	468.3	148.6	616.9	451.5	165.5	617.0	431.6	184.0	615.6
	6	498.0	134.3	632.3	482.6	149.7	632.3	465.6	166.6	632.2	445.5	185.3	630.8
	7	512.5	135.5	648.0	497.0	150.8	647.8	479.9	167.7	647.6	459.5	186.5	646.0
	8	527.2	136.8	664.0	511.8	152.0	663.8	494.4	168.9	663.3	473.8	187.9	661.7
	9	542.3	138.1	680.4	526.7	153.2	679.9	509.2	170.2	679.4	488.4	189.3	677.7
	10	557.6	139.5	697.1	542.0	154.5	696.5	524.3	171.5	695.8	503.3	190.7	694.0
550	4	490.2	146.1	636.3	472.5	165.4	637.9	454.0	185.8	639.8	432.1	208.1	640.2
	5	505.3	147.2	652.5	487.5	166.2	653.7	468.8	186.8	655.6	446.4	209.3	655.7
	6	520.5	148.2	668.7	502.6	167.1	669.7	483.6	187.7	671.3	460.9	210.6	671.5
	7	535.7	149.3	685.0	517.9	168.0	685.9	498.7	188.7	687.4	475.7	211.8	687.5
	8	551.3	150.5	701.8	533.3	169.0	702.3	514.1	189.7	703.8	490.7	213.2	703.9
	9	567.1	151.7	718.8	549.3	170.1	719.4	529.7	190.8	720.5	506.0	214.6	720.6
	10	583.2	153.0	736.2	565.5	171.2	736.7	545.9	192.0	737.9	521.9	216.1	738.0
600	4	539.0	156.1	695.1	521.5	174.2	695.7	502.2	193.9	696.1	479.6	215.6	695.2
	5	555.3	157.5	712.8	537.6	175.5	713.1	518.0	195.2	713.2	495.1	217.0	712.1
	6	571.6	158.9	730.5	553.8	176.8	730.6	534.0	196.6	730.6	508.8	217.8	726.6
	7	588.1	160.4	748.5	570.3	178.2	748.5	550.4	198.0	748.4	517.8	217.6	735.4
	8	605.0	162.0	767.0	587.0	179.7	766.7	566.9	199.5	766.4	526.9	217.2	744.1
	9	622.2	163.7	785.9	604.0	181.2	785.2	583.9	201.0	784.9	535.7	216.8	752.5
	10	640.2	165.5	805.7	621.5	182.9	804.4	601.0	202.7	803.7	544.3	216.3	760.6
650	4	582.0	165.5	747.5	564.9	182.6	747.5	545.3	201.7	747.0	522.5	222.6	745.1
	5	599.1	167.3	766.4	581.9	184.4	766.3	562.0	203.3	765.3	539.1	224.3	763.4
	6	616.4	169.1	785.5	599.0	186.1	785.1	578.9	205.1	784.0	551.4	224.6	776.0
	7	633.9	171.0	804.9	616.4	188.0	804.4	596.1	206.9	803.0	554.5	222.7	777.2
	8	651.7	173.0	824.7	634.0	189.9	823.9	613.5	208.7	822.2	556.9	220.7	777.6
	9	670.1	175.0	845.1	651.8	191.9	843.7	631.2	210.7	841.9	558.6	218.4	777.0
	10	689.4	177.2	866.6	670.1	193.9	864.0	649.1	212.7	861.8	559.5	215.8	775.3

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EWAD210-320AJYN N/Q table

Unit size	LWE °(C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
210	4	207.0	60.9	267.9	196.7	67.0	263.7	185.6	73.7	259.3	173.8	80.9	254.7
	5	213.9	61.4	275.3	203.5	67.6	271.1	192.2	74.3	266.5	180.2	81.5	261.7
	6	221.0	62.0	283.0	210.3	68.2	278.5	198.9	74.9	273.8	186.8	82.1	268.9
	7	228.0	62.7	290.7	217.1	68.8	285.9	205.8	75.5	281.3	193.4	82.7	276.1
	8	235.4	63.5	298.9	224.1	69.6	293.7	212.5	76.2	288.7	200.2	83.4	283.6
	9	242.9	64.3	307.2	231.1	70.3	301.4	219.2	77.0	296.2	206.8	84.1	290.9
	10	250.7	65.1	315.8	238.6	71.1	309.7	226.1	77.7	303.8	213.4	84.9	298.3
240	4	239.8	62.1	301.9	228.8	68.3	297.1	209.8	78.2	288.0	196.9	85.9	282.8
	5	247.9	62.6	310.5	236.7	68.9	305.6	217.4	78.7	296.1	204.2	86.4	290.6
	6	256.1	63.2	319.3	244.7	69.4	314.1	232.7	76.3	309.0	211.7	87.0	298.7
	7	264.4	63.7	328.1	252.8	70.0	322.8	240.7	76.9	317.6	219.4	87.6	307.0
	8	273.2	64.3	337.5	261.1	70.6	331.7	248.8	77.5	326.3	227.1	88.2	315.3
	9	282.3	65.0	347.3	269.7	71.2	340.9	257.1	78.1	335.2	235.0	88.8	323.8
	10	291.5	65.6	357.1	278.7	71.9	350.6	265.5	78.7	344.2	251.8	86.2	338.0
260	4	253.4	73.0	326.4	240.8	80.3	321.1	227.3	88.2	315.5	213.0	96.8	309.8
	5	261.9	73.6	335.5	249.1	81.0	330.1	235.5	88.9	324.4	220.8	97.5	318.3
	6	270.4	74.3	344.7	257.4	81.6	339.0	243.6	89.6	333.2	228.9	98.3	327.2
	7	279.2	75.0	354.2	266.0	82.3	348.3	252.0	90.3	342.3	237.0	99.0	336.0
	8	288.3	75.7	364.0	274.7	83.1	357.8	260.4	91.1	351.5	245.3	99.8	345.1
	9	297.9	76.5	374.4	283.4	83.8	367.2	269.0	91.8	360.8	253.6	100.5	354.1
	10	307.5	77.3	384.8	292.8	84.6	377.4	277.8	92.6	370.4	262.2	101.3	363.5
280	4	280.9	77.4	358.3	267.2	85.0	352.2	252.5	93.3	345.8	237.0	102.3	339.3
	5	290.3	78.2	368.5	276.4	85.8	362.2	261.5	94.1	355.6	245.6	103.2	348.8
	6	299.8	79.0	378.8	285.6	86.7	372.3	270.6	95.0	365.6	254.5	104.0	358.5
	7	309.5	79.8	389.3	295.1	87.5	382.6	279.8	95.9	375.7	263.4	104.9	368.3
	8	319.4	80.7	400.1	304.7	88.4	393.1	289.2	96.8	386.0	272.6	105.8	378.4
	9	329.5	81.6	411.1	314.5	89.3	403.8	298.7	97.7	396.4	281.9	106.8	388.7
	10	339.7	82.5	422.2	324.5	90.2	414.7	308.4	98.6	407.0	291.4	107.7	399.1
300	4	296.9	85.6	382.5	281.9	94.0	375.9	265.7	103.1	368.8	248.5	113.0	361.5
	5	306.9	86.4	393.3	291.6	94.8	386.4	275.3	104.0	379.3	257.8	113.9	371.7
	6	317.4	87.2	404.6	301.7	95.7	397.4	285.0	104.9	389.9	267.4	114.8	382.2
	7	327.9	88.1	416.0	312.0	96.5	408.5	295.1	105.8	400.9	277.0	115.8	392.8
	8	338.7	88.9	427.6	322.5	97.4	419.9	305.3	106.6	411.9	286.9	116.7	403.6
	9	349.7	89.7	439.4	333.2	98.3	431.5	315.7	107.5	423.2	297.1	117.6	414.7
	10	360.8	90.6	451.4	344.1	99.2	443.3	326.3	108.4	434.7	307.3	118.5	425.8
320	4	332.8	84.3	417.1	317.4	92.8	410.2	301.2	102.0	403.2	283.6	112.0	395.6
	5	344.0	85.1	429.1	328.4	93.5	421.9	311.8	102.7	414.5	294.2	112.8	407.0
	6	355.4	85.9	441.3	339.7	94.3	434.0	322.8	103.6	426.4	304.8	113.6	418.4
	7	367.2	86.7	453.9	351.0	95.1	446.1	333.9	104.4	438.3	315.7	114.4	430.1
	8	379.2	87.5	466.7	362.7	96.0	458.7	345.3	105.2	450.5	326.8	115.3	442.1
	9	391.5	88.3	479.8	374.6	96.8	471.4	356.9	106.1	463.0	338.0	116.1	454.1
	10	404.3	89.2	493.5	386.8	97.7	484.5	368.6	106.9	475.5	349.5	117.0	466.5

EWAD340-500AJYN
N/Q table

Unit size	LWE °(C)	Heat Recovery Exchanger Leaving Water Temperature Totale (°C)											
		40			45			50			55		
		CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)	CC (kW)	PI (kW)
340	4	331.5	97.5	429.0	314.8	107.2	422.0	296.9	117.7	414.6	277.8	129.1	406.9
	5	342.7	98.4	441.1	325.7	108.1	433.8	307.5	118.6	426.1	288.1	130.1	418.2
	6	354.0	99.4	453.4	336.7	109.1	445.8	318.3	119.6	437.9	298.6	131.1	429.7
	7	365.6	100.3	465.9	347.9	110.1	458.0	329.2	120.6	449.8	309.3	132.1	441.4
	8	377.3	101.3	478.6	359.4	111.0	470.4	340.4	121.6	462.0	320.2	133.1	453.3
	9	389.3	102.3	491.6	371.2	112.1	483.3	351.8	122.7	474.5	331.2	134.2	465.4
	10	401.6	103.3	504.9	383.1	113.1	496.2	363.3	123.7	487.0	342.5	135.3	477.8
400	4	395.1	123.5	518.6	374.6	136.7	511.3	353.5	151.4	504.9	331.8	167.7	499.5
	5	408.3	124.6	532.9	387.4	137.8	525.2	365.5	152.4	517.9	343.3	168.6	511.9
	6	421.8	125.7	547.5	400.3	138.9	539.2	378.0	153.4	531.4	355.0	169.6	524.6
	7	435.4	126.9	562.3	413.6	140.0	553.6	390.8	154.5	545.3	366.9	170.6	537.5
	8	449.6	128.1	577.7	427.1	141.2	568.3	403.8	155.7	559.5	379.4	171.7	551.1
	9	464.1	129.3	593.4	440.9	142.4	583.3	417.1	156.9	574.0	392.2	172.8	565.0
	10	478.9	130.6	609.5	455.2	143.7	598.9	430.6	158.1	588.7	405.2	174.0	579.2
440	4	428.8	133.9	562.7	406.2	148.2	554.4	383.1	164.3	547.4	359.8	182.2	542.0
	5	443.3	135.0	578.3	420.2	149.4	569.6	396.2	165.3	561.5	372.2	183.2	555.4
	6	458.2	136.2	594.4	434.6	150.6	585.2	410.0	166.4	576.4	384.8	184.1	568.9
	7	473.2	137.5	610.7	449.2	151.8	601.0	424.1	167.6	591.7	397.7	185.2	582.9
	8	488.5	138.8	627.3	464.2	153.1	617.3	438.4	168.8	607.2	411.5	186.3	597.8
	9	504.1	140.1	644.2	479.2	154.4	633.6	453.1	170.1	623.2	425.6	187.5	613.1
	10	520.0	141.4	661.4	494.6	155.7	650.3	468.1	171.4	639.5	439.9	188.8	628.7
460	4	454.6	144.0	598.6	431.0	158.5	589.5	407.1	174.7	581.8	382.0	192.7	574.7
	5	469.7	145.5	615.2	445.6	159.9	605.5	420.8	176.0	596.8	395.2	194.0	589.2
	6	485.4	147.0	632.4	460.4	161.4	621.8	434.7	177.4	612.1	408.6	195.3	603.9
	7	501.5	148.7	650.2	475.6	162.9	638.5	449.3	178.9	628.2	422.3	196.6	618.9
	8	517.9	150.3	668.2	491.4	164.6	656.0	464.1	180.4	644.5	436.2	198.1	634.3
	9	534.5	152.1	686.6	507.6	166.3	673.9	479.4	182.0	661.4	450.6	199.6	650.2
	10	551.5	153.9	705.4	524.0	168.0	692.0	495.2	183.8	679.0	465.6	201.2	666.8
500	4	482.2	153.3	635.5	456.5	167.9	624.4	431.1	184.3	615.4	404.5	202.5	607.0
	5	498.4	155.1	653.5	472.1	169.6	641.7	445.4	185.9	631.3	418.4	204.0	622.4
	6	515.1	157.0	672.1	488.0	171.4	659.4	460.0	187.5	647.5	432.5	205.6	638.1
	7	532.0	159.0	691.0	504.4	173.3	677.7	475.7	189.3	665.0	446.9	207.3	654.2
	8	549.2	161.0	710.2	521.1	175.3	696.4	491.8	191.2	683.0	461.5	209.0	670.5
	9	566.6	163.1	729.7	538.1	177.3	715.4	508.1	193.2	701.3	476.9	210.8	687.7
	10	584.3	165.2	749.5	555.3	179.4	734.7	524.8	195.2	720.0	492.9	212.8	705.7

Note:

- CC: Cooling Capacity (kW).
  PI: Power input (kW).
  LWE: Leaving Water Evaporator (°C).
- Shaded values are referred to part load operation.

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1.32 Heat Recovery Ratings: EWYD-AJYNN

EWYD-AJYNN table

Unit size		Heat recovery leaving water temperature (ΔT= 5°C)		
		45 (ΔT=5°C)	50 (ΔT=5°C)	55 (ΔT=5°C)
		Heating capacity	Heating capacity	Heating capacity
260	Evaporator leaving water temperature 7°C - ΔT=5°C Ambient temperature 35 °C	74.3	67.8	57.9
280		80.9	76.1	65.4
300		88.5	85.2	73.5
320		93.5	88.2	75.7
340		99.4	91.9	78.6
360		106	99.5	85.7
380		115	109	94.2

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1.33 Partial Heat Recovery Ratings: EWAD-AJYNN/S & EWAD-AJYNN/X

EWAD-AJYNN/S (+OPRN) & EWAD-AJYNN/X (+OPRN) (+OPLN)

The table below contains the partial heat recovery ratings for EWAD-AJYNN/S, EWAD-AJYNN/S+OPRN, EWAD-AJYNN/X, EWAD-AJYNN/X+OPRN and EWAD-AJYNN/X +OPLN

Unit size		Heat recovery leaving water temperature (ΔT= 5°C)		
		45 (ΔT=5°C)	50 (ΔT=5°C)	55 (ΔT=5°C)
		45	50	55
		Heating capacity	Heating capacity	Heating capacity
330	Evaporator leaving water temperature 7°C Ambient temperature 35 °C	86	69	52
360		95	76	57
400		104	83	62
420		112	90	67
460		120	96	72
490		128	102	77
520		136	109	82

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1.34 Total Heat Recovery Ratings: EWAD-AJYNN/S & EWAD-AJYNN/X

EWAD300-400AJYNN/S (+OPRN) & EWAD300-400AJYNN/X (+OPRN) (+OPLN)

The table below contains the total heat recovery ratings for EWAD300-400AJYNN/S (+OPRN) and EWAD300-400AJYNN/X (+OPRN) (+OPLN)

Unit size	LWT °(C)	Water Condensor Temperature (°C)														
		30/35			35/40			40/45			45/50			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)	CC (kW)	PI (kW)	HC (kW)
EWAD330AJYNN/S(+OPRN) EWAD330AJYNN/X(+OPRN)(+OPLN)	4	321	84.5	405	305	93.9	399	287	105	392	266	118	383	178	82.7	261
	5	331	85.3	417	315	94.8	410	297	106	402	275	119	394	179	80.2	260
	6	342	86.1	428	326	95.7	421	307	107	413	284	120	404	180	77.8	258
	7	353	86.9	440	336	96.6	433	317	108	424	294	121	414	184	77	261
	8	365	87.7	452	347	97.5	445	327	109	436	303	122	425	184	74.6	258
	9	376	88.5	464	358	98.4	456	337	110	447	313	123	436	187	73.9	261
	10	388	89.3	477	369	99.3	468	348	111	459	323	124	447	186	71.5	258
	11	399	90.1	489	380	100	481	359	112	470	333	125	459	189	70.7	259
	12	411	90.9	502	392	101	493	370	113	482	344	126	470	191	69.9	261
	13	423	91.7	515	403	102	506	381	114	494	351	125	476	189	67.4	257
	14	436	92.5	528	415	103	518	392	115	507	354	122	476	191	66.6	258
	15	448	93.3	542	427	104	531	403	116	519	358	119	477	193	65.7	259
EWAD360AJYNN/S(+OPRN) EWAD360AJYNN/X(+OPRN)(+OPLN)	4	356	94.2	450	338	105	442	317	117	434	293	131	425	187	85.9	273
	5	367	95.1	462	349	106	455	328	118	446	304	132	436	191	85.1	276
	6	379	96	475	361	107	467	339	119	458	314	134	447	191	82.4	274
	7	392	97	489	372	108	480	350	120	470	324	135	459	193	80.7	274
	8	404	97.9	502	384	109	493	362	121	483	335	136	471	197	79.9	277
	9	417	98.8	515	396	110	506	373	123	496	346	137	483	196	77.3	273
	10	429	99.7	529	409	111	520	385	124	508	355	137	492	199	76.4	275
	11	443	101	543	421	112	533	397	125	521	362	136	498	201	75.5	277
	12	456	102	557	434	113	547	409	126	535	370	135	504	199	72.8	271
	13	469	103	572	447	114	561	421	127	548	374	131	505	201	71.9	273
	14	483	104	586	460	115	575	433	129	562	378	128	505	202	70.9	273
	15	497	104	601	473	116	589	446	130	575	381	125	506	204	70	274
EWAD400AJYNN/S(+OPRN) EWAD400AJYNN/X(+OPRN)(+OPLN)	4	386	104	489	367	115	482	344	129	473	318	145	463	197	90.7	288
	5	399	105	503	379	116	495	356	130	486	329	146	475	201	89.7	291
	6	411	106	517	391	117	509	368	131	499	340	147	487	201	86.9	288
	7	425	107	531	404	119	522	380	132	512	351	148	500	205	85.9	291
	8	438	108	546	416	120	536	392	134	525	363	150	513	208	85	293
	9	451	109	560	429	121	550	404	135	539	374	151	526	207	82.1	289
	10	465	110	575	443	122	565	417	136	553	383	150	532	210	81.2	291
	11	479	111	590	456	123	579	429	138	567	387	146	533	212	80.2	293
	12	493	112	605	470	125	594	442	139	581	391	142	533	209	77.3	286
	13	508	113	621	483	126	609	455	140	595	395	139	534	211	76.2	287
	14	523	114	637	497	127	624	468	142	610	399	135	534	213	75.2	288
	15	538	115	653	511	128	640	482	143	625	403	132	535	214	74.1	288

EWAD420-490AJYNN/S (+OPRN) & EWAD420-490AJYNN/X (+OPRN) (+OPLN)

The table below contains the total heat recovery ratings for EWAD420-490AJYNN/S (+OPRN) and EWAD420-490AJYNN/X (+OPRN) (+OPLN)

Unit size	LWT °(C)	Water Condensor Temperature (°C)														
		30/35			35/40			40/45			45/50			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)	CC (kW)	PI (kW)	HC (kW)
EWAD420AJYNN/S(+OPRN) EWAD420AJYNN/X(+OPRN)(+OPLN)	**4**	415	112	527	394	125	519	370	139	509	341	156	497	207	95.5	303
	5	429	113	542	407	126	533	382	141	523	353	158	510	209	93.4	303
	6	443	115	557	420	127	548	395	142	537	365	159	524	211	91.4	303
	7	457	116	572	434	129	562	408	143	551	377	161	537	212	89.3	302
	8	471	117	588	448	130	577	421	145	565	387	161	548	213	87.3	301
	9	486	118	604	462	131	593	434	146	580	395	159	554	216	86.3	303
	10	501	119	620	476	132	608	447	148	595	402	156	558	219	85.3	304
	11	516	120	636	490	134	624	461	149	610	407	152	559	219	83.3	302
	12	531	122	652	505	135	640	475	151	625	411	148	559	218	81.1	299
	13	546	123	669	519	137	656	489	152	641	413	143	557	219	80	299
	14	562	124	686	534	138	672	503	154	656	417	140	557	221	78.8	300
	15	578	125	703	550	139	689	517	155	672	421	136	557	222	77.6	299
EWAD460AJYNN/S(+OPRN) EWAD460AJYNN/X(+OPRN)(+OPLN)	**4**	443	121	563	420	134	554	394	150	543	363	168	531	217	100	317
	5	457	122	579	434	136	569	407	151	558	375	170	545	217	96.9	314
	6	472	123	595	448	137	585	420	153	573	388	171	559	221	95.9	316
	7	487	124	611	462	138	601	434	154	588	400	173	573	219	92.6	312
	8	502	126	628	477	140	617	448	156	603	410	171	581	222	91.5	314
	9	518	127	645	492	141	633	462	157	619	415	167	581	225	90.4	316
	10	534	128	662	507	143	649	476	159	635	420	162	582	228	89.3	317
	11	550	130	679	522	144	666	490	161	651	425	158	583	224	86	310
	12	566	131	697	537	146	683	505	162	667	429	154	583	226	84.8	311
	13	582	132	714	553	147	700	520	164	684	433	150	584	227	83.6	311
	14	599	134	732	569	149	718	535	166	700	437	147	584	229	82.4	311
	15	616	135	751	585	150	735	550	167	717	441	143	584	229	81.1	310
EWAD490AJYNN/S(+OPRN) EWAD490AJYNN/X(+OPRN)(+OPLN)	**4**	472	130	602	448	145	592	420	161	581	382	178	560	227	105	332
	5	488	131	619	463	146	609	434	163	597	395	179	575	226	102	328
	6	503	133	636	478	148	625	448	165	612	407	179	586	230	101	331
	7	519	134	653	493	149	642	462	166	629	420	181	601	231	98.2	329
	8	536	136	671	508	151	659	477	168	645	430	179	609	235	97.1	332
	9	552	137	689	524	152	676	492	170	661	435	175	610	234	94.6	329
	10	569	138	707	540	154	694	507	171	678	438	169	607	237	93.4	330
	11	586	140	726	556	155	712	522	173	695	443	164	607	236	91.1	327
	12	603	141	744	573	157	730	538	175	713	448	160	608	238	89.9	328
	13	621	143	763	589	159	748	553	177	730	452	156	608	239	88.6	328
	14	638	144	782	606	160	766	567	177	743	456	152	608	240	87.3	327
	15	656	146	802	623	162	785	583	179	761	459	148	608	241	85.9	327

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EWAD520AJYNN/S (+OPRN) & EWAD520AJYNN/X (+OPRN) (+OPLN)

The table below contains the total heat recovery ratings for EWAD520AJYNN/S (+OPRN) and EWAD520AJYNN/X (+OPRN) (+OPLN)

Unit size	LWT °(C)	Water Condensor Temperature (°C)														
		30/35			35/40			40/45			45/50			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)	CC (kW)	PI (kW)	HC (kW)
EWAD520AJYNN/S(+OPRN) EWAD520AJYNN/X(+OPRN)(+OPLN)	4	500	139	639	474	155	629	444	173	617	401	187	588	236	110	346
	5	516	141	657	490	156	646	459	174	633	415	189	603	235	106	342
	6	533	142	675	505	158	663	474	176	650	424	187	611	239	105	344
	7	549	144	693	521	160	681	489	178	667	438	189	627	243	104	347
	8	566	145	711	538	161	699	504	180	684	448	187	635	246	103	349
	9	584	147	730	554	163	717	520	182	702	454	182	636	243	98.8	342
	10	601	148	749	571	165	736	536	183	719	459	177	636	245	97.5	343
	11	619	150	769	588	166	754	552	185	737	464	173	637	247	96.2	344
	12	637	151	788	605	168	773	568	187	755	469	169	637	249	94.9	344
	13	656	153	808	623	170	792	584	189	774	473	164	637	250	93.5	344
	14	674	154	829	640	172	812	596	188	783	477	160	637	251	92.1	343
	15	693	156	849	658	173	832	612	190	802	480	156	637	252	90.6	342

Note:

- CC: Cooling Capacity (kW).
  PI: Power Input compressors (kW).
  HC: Heating Capacity (kW).
  LWT: Leaving Water Temperature (°C).
- Data referred to: 0.0176m^2 °C/kW Evaporator cooling factor.
  Data referred to: 0.0044 m^2 °C/kW Heat Recovery heat exchanger cooling factor.
  Rated conditions: are for compressor running at nominal frequency.

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1.35 Sound Level Data - Sound Pressure Correction Factor: EWAD-AJYNN

Sound level data EWAD-AJYNN

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)
190	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**93.7**
200	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**93.7**
230	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**94.3**
260	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**94.3**
280	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**94.3**
300	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**94.3**
320	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**94.3**
340	77.0	72.3	70.4	76.8	65.8	63.2	54.5	48.8	**75.0**	**94.3**
360	79.5	74.9	72.9	79.2	68.7	65.9	57.3	51.4	**77.5**	**97.2**
400	62.5	71.5	70.0	76.5	68.0	70.5	58.0	49.9	**76.5**	**95.8**
440	62.5	71.5	70.0	76.5	69.5	71.0	58.0	51.0	**77.0**	**96.7**
480	62.5	71.5	70.0	76.5	69.5	71.0	58.0	51.0	**77.0**	**96.7**
500	62.5	71.5	70.0	76.5	69.5	71.0	58.0	51.0	**77.0**	**96.7**
550	64.0	73.0	73.0	78.0	71.0	72.5	59.5	52.5	**78.5**	**98.2**
600	64.5	73.5	73.5	78.8	71.5	73.0	60.0	53.0	**79.0**	**98.7**

Sound level data EWAD_AJYNN + OPRN

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)
440	60.0	69.0	68.5	74.0	670.	68.5	55.5	48.5	**74.5**	**94.2**
480	60.0	69.0	68.5	74.0	670.	68.5	55.5	48.5	**74.5**	**94.2**
500	60.0	69.0	68.5	74.0	670.	68.5	55.5	48.5	**74.5**	**94.2**
550	61.5	70.5	70.5	75.5	68.5	70.0	57.0	50.0	**76.0**	**95.7**
600	62.0	71.0	71.0	76.0	69.0	70.5	57.5	50.5	**76.5**	**96.2**

Sound level data EWAD_AJYNN + OPLN

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)
190	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**88.7**
200	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**88.7**
230	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**89.3**
260	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**89.3**
280	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**89.3**

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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)
300	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**89.3**
320	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**89.3**
340	76.4	69.4	66.3	70.8	62.6	58.2	50.4	57.1	**70.0**	**89.7**
360	78.9	72.4	69.2	73.4	56.6	61.2	54.2	47.4	**72.5**	**92.2**
440	56.5	69.5	69.0	71.0	65.0	61.0	53.5	43.5	**71.0**	**90.7**
480	56.5	69.5	69.0	71.0	65.0	61.0	53.5	43.5	**71.0**	**90.7**
500	56.5	69.5	69.0	71.0	65.0	61.0	53.5	43.5	**71.0**	**90.7**
550	58.0	71.0	70.5	72.5	66.5	52.5	55.0	45.0	**72.5**	**92.2**
600	58.5	71.5	71.0	73.0	67.0	63.0	55.5	45.5	**73.0**	**92.7**

Sound level data EWAD-AJYNN/Q

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)
210	68.5	60.1	65.1	65.1	57.9	55.4	42.3	35.8	**65.0**	**84.3**
240	68.5	60.1	65.1	65.1	57.9	55.4	42.3	35.8	**65.0**	**84.7**
260	68.5	60.1	65.1	65.1	57.9	55.4	42.3	35.8	**65.0**	**84.7**
280	68.5	60.1	65.1	65.1	57.9	55.4	42.3	35.8	**65.0**	**84.7**
300	68.5	60.1	65.1	65.1	57.9	55.4	42.3	35.8	**65.0**	**84.7**
320	68.5	60.1	65.1	65.1	57.9	55.4	42.3	35.8	**65.0**	**84.7**
340	68.5	60.1	65.1	65.1	57.9	55.4	42.3	35.8	**65.0**	**84.7**
400	62.0	60.0	63.5	63.0	60.0	58.0	47.0	36.5	**65.0**	**84.7**
440	62.0	60.0	63.5	63.0	60.0	58.0	47.0	36.5	**65.0**	**84.7**
460	63.5	59.5	63.5	62.5	60.5	59.5	46.5	37.0	**65.5**	**85.7**
500	62.0	59.0	64.0	65.0	59.5	59.0	50.5	39.5	**66.0**	**86.2**

Sound level data EWAD_AJYNN/A

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)
260	79.5	74.9	72.9	79.2	68.7	65.9	57.3	51.4	**77.5**	**96.8**
280	79.5	74.9	72.9	79.2	68.7	65.9	57.3	51.4	**77.5**	**97.2**
320	79.5	74.9	72.9	79.2	68.7	65.9	57.3	51.4	**77.5**	**97.2**
340	79.5	74.9	72.9	79.2	68.7	65.9	57.3	51.4	**77.5**	**97.2**
360	79.5	74.9	72.9	79.2	68.7	65.9	57.3	51.4	**77.5**	**97.2**
380	81.0	76.4	74.4	80.7	70.2	67.4	58.8	52.9	**79.0**	**98.7**
420	81.0	76.4	74.4	80.7	70.2	67.4	58.8	52.9	**79.0**	**98.7**
500	64.5	73.5	73.0	78.5	71.5	73.0	60.0	53.0	**79.0**	**98.7**
550	64.5	73.5	73.0	78.5	71.5	73.0	60.0	53.0	**79.0**	**99.2**
600	64.5	73.5	73.0	78.5	71.6	73.1	60.0	53.0	**79.0**	**99.2**
650	64.5	73.5	73.0	78.5	71.5	73.0	60.0	53.0	**79.0**	**99.2**

Sound level data EWAD-AJYNN/A + OPLN

Unit size	Sound pressure level at 1 m from the unit in semispheric free field (rif. 2×10^{-5} Pa)									Power
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
260	78.9	72.4	69.2	73.4	65.6	61.2	54.2	47.4	**72.5**	**91.8**
280	78.9	72.4	69.2	73.4	65.6	61.2	54.2	47.4	**72.5**	**92.2**
320	78.9	72.4	69.2	73.4	65.6	61.2	54.2	47.4	**72.5**	**92.2**
340	78.9	72.4	69.2	73.4	65.6	61.2	54.2	47.4	**72.5**	**92.2**
360	78.9	72.4	69.2	73.4	65.6	61.2	54.2	47.4	**72.5**	**92.2**
380	79.1	73.4	70.2	74.4	66.6	62.2	55.2	48.4	**73.5**	**93.2**
420	79.1	73.4	70.2	74.4	66.6	62.2	55.2	48.4	**73.5**	**93.2**
500	59.0	68.0	67.5	73.0	66.0	67.5	54.5	47.5	**73.5**	**93.2**
550	59.0	68.0	67.5	73.0	66.0	67.5	54.5	47.5	**73.5**	**93.7**
600	59.0	68.0	67.5	73.0	66.1	67.5	54.5	47.5	**73.5**	**93.7**
650	59.0	68.0	67.5	73.0	66.0	67.5	54.5	47.5	**73.5**	**93.7**

Sound level data EWAD-AJYNN/H

Unit size	Sound pressure level at 1 m from the unit in semispheric free field (rif. 2×10^{-5} Pa)									Power
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
200	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**95.7**
210	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**95.7**
240	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**96.3**
260	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**96.3**
280	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**96.3**
300	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**96.3**
320	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**96.3**
340	79.0	74.3	72.4	78.8	67.8	65.2	56.5	50.8	**77.0**	**96.7**
400	81.0	76.4	74.4	80.7	70.2	67.4	58.8	52.9	**79.0**	**96.7**
420	63.0	72.0	70.5	77.0	68.5	71.0	58.5	50.4	**77.0**	**96.7**
460	63.0	72.0	71.5	77.0	70.0	71.5	58.5	51.5	**77.5**	**96.7**
480	63.0	72.0	71.5	77.0	70.0	71.5	58.5	51.5	**77.5**	**96.7**
500	63.0	72.0	71.5	77.0	70.0	71.5	58.5	51.5	**77.5**	**96.7**
550	64.5	73.5	73.5	78.5	71.5	73.0	60.0	53.0	**79.0**	**96.2**
600	65.0	74.0	74.0	79.0	72.1	73.6	60.5	53.5	**79.5**	**96.7**

Note: The values are according to ISO 3744 and are referred to units without pumps kit.

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Sound pressure correction factor EWAD_AJYNN & EWAD-AJYNN + OPRN/OPLN

Unit size	Distance (m)²					
	1	5	10	15	20	25
190	0	-8.3	-13.3	-16.4	-18.7	-20.5
200	0	-8.3	-13.3	-16.4	-18.7	-20.5
230	0	-8.0	-12.9	-16.0	-18.2	-20.1
260	0	-8.0	-12.9	-16.0	-18.2	-20.1
280	0	-8.0	-12.9	-16.0	-18.2	-20.1
300	0	-8.0	-12.9	-16.0	-18.2	-20.1
320	0	-8.0	-12.9	-16.0	-18.2	-20.1
340	0	-7.7	-12.5	-15.6	-17.8	-19.6
360	0	-7.7	-12.5	-15.6	-17.8	-19.6
400	0	-8.0	-12.9	-16.0	-18.2	-20.1
440	0	-7.7	-12.5	-15.6	-17.8	-19.6
480	0	-7.7	-12.5	-15.6	-17.8	-19.6
500	0	-7.7	-12.5	-15.6	-17.8	-19.6
550	0	-7.7	-12.5	-15.6	-17.8	-19.6
600	0	-7.7	-12.5	-15.6	-17.8	-19.6

Note:
- The values are dB(A) (pressure level).
- OPRN is not available from 190 to 400.
- OPLN is not available on 400.

Sound pressure correction factor EWAD-AJYNN/Q

Unit size	Distance (m)²					
	1	5	10	15	20	25
210	0	-8.0	-12.9	-16.0	-18.2	-20.1
240	0	-7.7	-12.5	-15.6	-17.8	-19.6
260	0	-7.7	-12.5	-15.6	-17.8	-19.6
280	0	-7.7	-12.5	-15.6	-17.8	-19.6
300	0	-7.7	-12.5	-15.6	-17.8	-19.6
320	0	-7.7	-12.5	-15.6	-17.8	-19.6
340	0	-7.7	-12.5	-15.6	-17.8	-19.6
400	0	-7.7	-12.5	-15.6	-17.8	-19.6
440	0	-7.7	-12.5	-15.6	-17.8	-19.6
460	0	-7.5	-12.2	-15.2	-17.5	-19.2
500	0	-7.5	-12.2	-15.2	-17.5	-19.2

Note: The values are dB(A) (pressure level).

Sound pressure correction factor EWAD-AJYNN/A or /A + OPLN

Unit size	Distance (m)²					
	1	5	10	15	20	25
260	0	-8.0	-12.9	-16.0	-18.2	-20.1
280	0	-7.7	-12.5	-15.6	-17.8	-19.6
320	0	-7.7	-12.5	-15.6	-17.8	-19.6
340	0	-7.7	-12.5	-15.6	-17.8	-19.6
360	0	-7.7	-12.5	-15.6	-17.8	-19.6
380	0	-7.7	-12.5	-15.6	-17.8	-19.6
420	0	-7.7	-12.5	-15.6	-17.8	-19.6
500	0	-7.7	-12.5	-15.6	-17.8	-19.6
550	0	-7.5	-12.2	-15.2	-17.5	-19.2
600	0	-7.5	-12.2	-15.2	-17.5	-19.2
650	0	-7.5	-12.2	-15.2	-17.5	-19.2

Note: The values are dB(A) (pressure level).

Sound pressure correction factor EWAD-AJYNN/H

Unit size	Distance (m)²					
	1	5	10	15	20	25
200	0	-8.3	-13.3	-16.4	-18.7	-20.5
210	0	-8.3	-13.3	-16.4	-18.7	-20.5
240	0	-8.0	-12.9	-16.0	-18.2	-20.1
260	0	-8.0	-12.9	-16.0	-18.2	-20.1
280	0	-8.0	-12.9	-16.0	-18.2	-20.1
300	0	-8.0	-12.9	-16.0	-18.2	-20.1
320	0	-8.0	-12.9	-16.0	-18.2	-20.1
340	0	-7.7	-12.5	-15.6	-17.8	-19.6
400	0	-7.7	-12.5	-15.6	-17.8	-19.6
420	0	-7.7	-12.5	-15.6	-17.8	-19.6
460	0	-7.5	-12.2	-15.2	-17.5	-19.2
480	0	-7.5	-12.2	-15.2	-17.5	-19.2
500	0	-7.5	-12.2	-15.2	-17.5	-19.2
550	0	-7.5	-12.2	-15.2	-17.5	-19.2
600	0	-7.5	-12.2	-15.2	-17.5	-19.2

Note: The values are dB(A) (pressure level).

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1.36 Sound Level Data: EWYD-AJYNN

Sound levels EWYD-AJYNN in cooling and heating

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)
260	74.9	73.5	73.7	72.8	79.0	67.2	58.6	49.8	**80.0**	**99.5**
280	74.9	73.5	73.7	72.8	79.0	67.2	58.6	49.8	**80.0**	**99.5**
300	74.9	73.5	73.7	72.8	79.0	67.2	58.6	49.8	**80.0**	**99.5**
320	75.2	73.8	74.0	73.1	79.3	67.5	58.9	50.1	**80.3**	**100.4**
340	75.2	73.8	74.0	73.1	79.3	67.5	58.9	50.1	**80.3**	**100.4**
360	75.2	73.8	74.0	73.1	79.3	67.5	58.9	50.1	**80.3**	**100.4**
380	75.2	73.8	74.0	73.1	79.3	67.5	58.9	50.1	**80.3**	**100.4**

Sound levels EWYD-AJYNN + OPLN in cooling

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)
260	74.2	70.5	69.0	67.7	72.3	62.0	53.6	44.4	**73.7**	**93.2**
280	74.2	70.5	69.0	67.7	72.3	62.0	53.6	44.4	**73.7**	**93.2**
300	74.2	70.5	69.0	67.7	72.3	62.0	53.6	44.4	**73.7**	**93.2**
320	74.6	70.9	69.4	68.1	72.7	62.4	54.0	44.8	**74.1**	**94.2**
340	74.6	70.9	69.4	68.1	72.7	62.4	54.0	44.8	**74.1**	**94.2**
360	74.6	70.9	69.4	68.1	72.7	62.4	54.0	44.8	**74.1**	**94.2**
380	74.6	70.9	69.4	68.1	72.7	62.4	54.0	44.8	**74.1**	**94.2**

Sound levels EWYD-AJYNN + OPLN in heating

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)
260	77.8	73.8	72.0	70.5	74.5	64.8	56.5	47.2	**76.1**	**95.6**
280	77.8	73.8	72.0	70.5	74.5	64.8	56.5	47.2	**76.1**	**95.6**
300	77.8	73.8	72.0	70.5	74.5	64.8	56.5	47.2	**76.1**	**95.6**
320	77.9	73.9	72.1	70.6	74.7	65.0	56.6	47.4	**76.3**	**96.4**
340	77.9	73.9	72.1	70.6	74.7	65.0	56.6	47.4	**76.3**	**96.4**
360	77.9	73.9	72.1	70.6	74.7	65.0	56.6	47.4	**76.3**	**96.4**
380	77.9	73.9	72.1	70.6	74.7	65.0	56.6	47.4	**76.3**	**96.4**

Note: The values are according to ISO 3744 and are referred to units without pumps kit.

Sound pressure correction factor for different distances EWYD-AJYNN & EWYD-AJYNN + OPLN

Unit size	Distance (m)²					
	1	5	10	15	20	25
260	0	-7.9	-12.7	-15.8	-18.1	-19.8
280	0	-7.9	-12.7	-15.8	-18.1	-19.8
300	0	-7.9	-12.7	-15.8	-18.1	-19.8
320	0	-7.5	-12.2	-15.3	-17.5	-19.3
340	0	-7.5	-12.2	-15.3	-17.5	-19.3
360	0	-7.5	-12.2	-15.3	-17.5	-19.3
380	0	-7.5	-12.2	-15.3	-17.5	-19.3

Note: The values are dB(A) (pressure level).

2 Piping Layout

2.1 What Is in This Chapter?

Introduction

This chapter describes the internal refrigeration circuit. The water piping is considered as common practice and is therefore not explained.

Overview

This chapter contains the following topics:

1

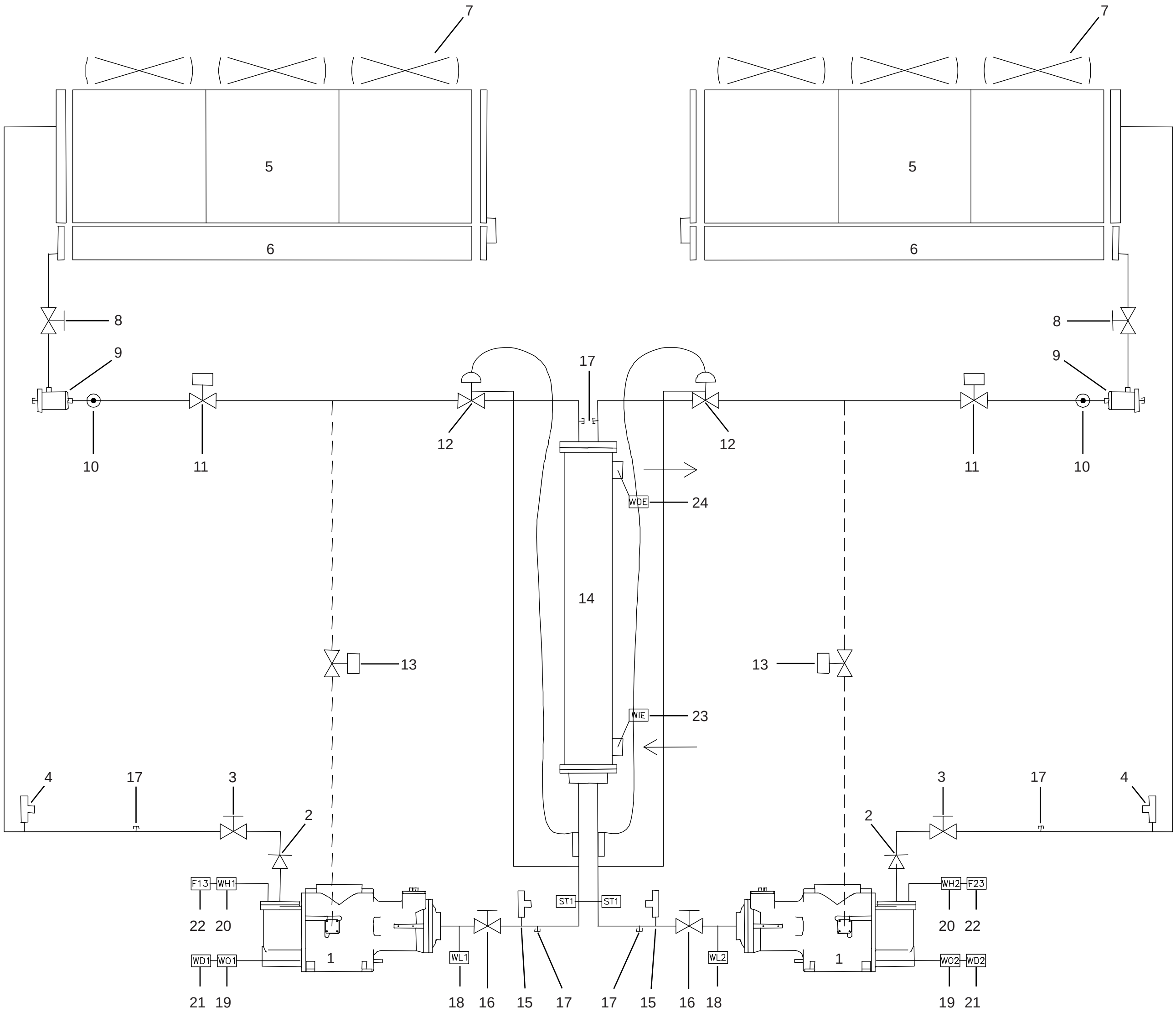
2.2 Piping Diagram: EWAD-AJYNN(/Q) with Thermostatic Expansion Valve

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Pump down solenoid valve	Before stopping the compressor, the unit will activate this valve
12	Thermostatic expansion valve	
13	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
14	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
15	Low pressure relief valve	Setting 15.5bar
16	Suction shut off valve	Closed position when unit is delivered at site
17	Loading joint with valve	
18	Low pressure transducer	-0.5 → +7 bar
19	Oil pressure transducer	0 → +30 bar
20	High pressure transducer	0 → +30 bar
21	Discharge temperature sensor (oil)	
22	Mechanical high pressure switch	21.5 bar
23	Inlet evaporator sensor	
24	Outlet evaporator sensor	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN(/Q) units with Thermostatic Expansion Valve.



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2.3 Piping Diagram: EWAD-AJYNN(/Q) with Electronic Expansion Valve

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Electronic expansion valve	
12	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
13	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
14	Low pressure relief valve	Setting 15.5bar
15	Suction shut off valve	Closed position when unit is delivered at site
16	Loading joint with valve	
17	Suction temperature sensor	
18	Low pressure transducer	-0.5 → +7 bar
19	Oil pressure transducer	0 → +30 bar
20	High pressure transducer	0 → +30 bar
21	Discharge temperature sensor (oil)	
22	Mechanical high pressure switch	21.5 bar
23	Inlet evaporator sensor	
24	Outlet evaporator sensor	

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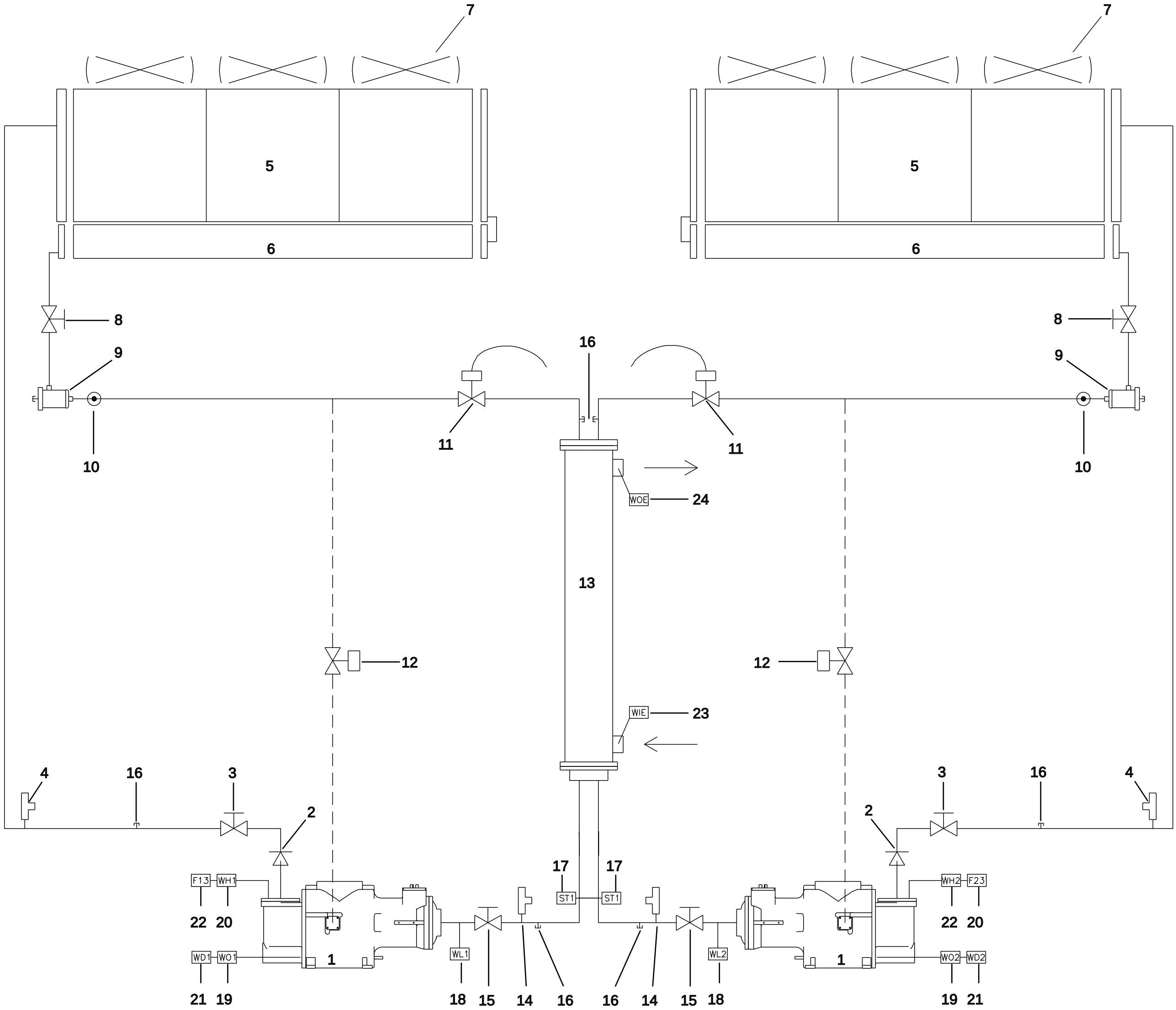
Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN(/Q) units with Electronic Expansion Valve.



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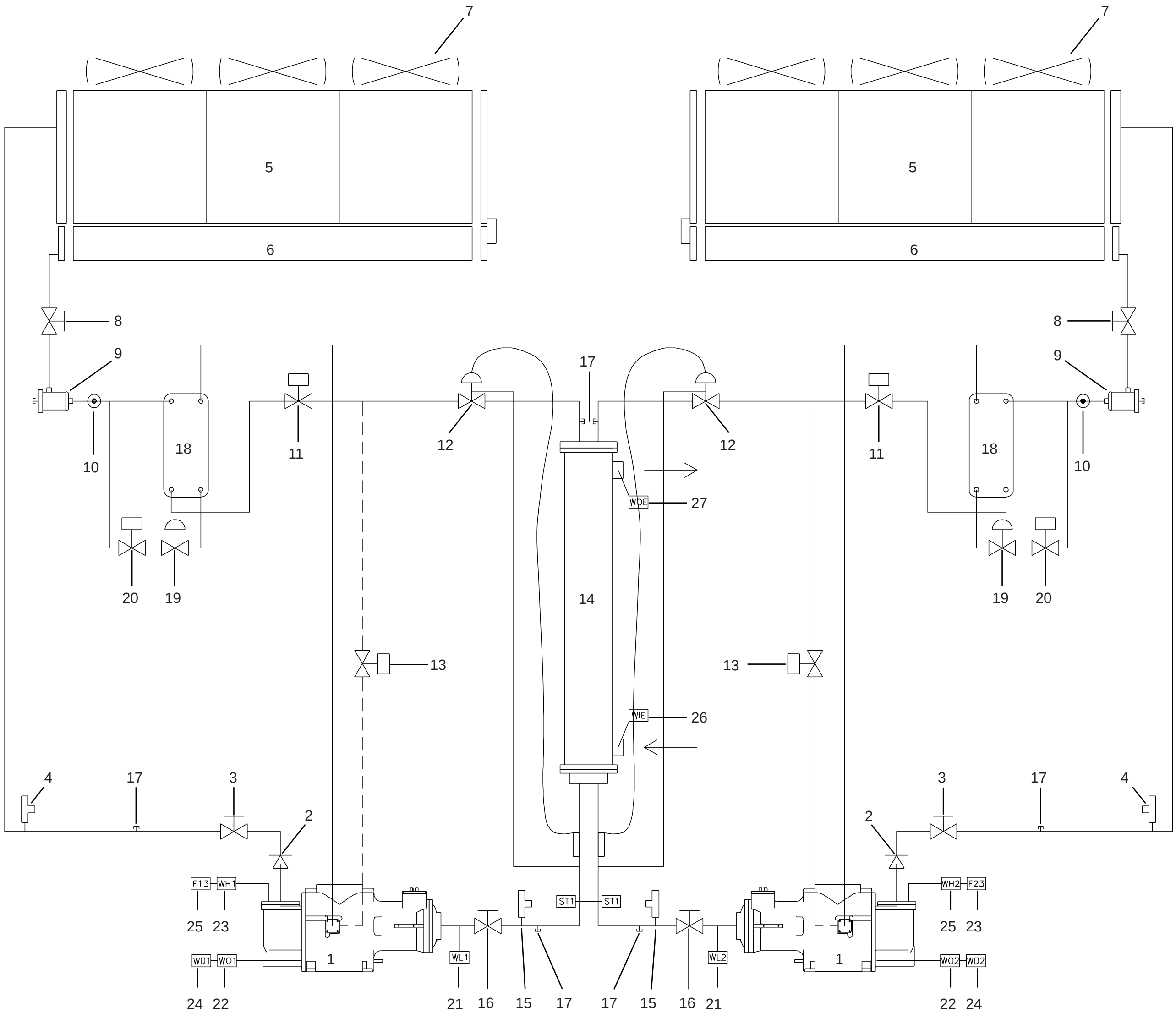
2.4 Piping Diagram: EWAD-AJYNN/A with Thermostatic Expansion Valve

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Liquid line solenoid valve	
12	Thermostatic expansion valve	
13	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
14	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
15	Low pressure relief valve	Setting 15.5bar
16	Suction shut off valve	Closed position when unit is delivered at site
17	Loading joint with valve	
18	Economizer	
19	Economizer expansion valve	
20	Economizer solenoid valve	
21	Low pressure transducer	-0.5 → +7 bar
22	Oil pressure transducer	0 → +30 bar
23	High pressure transducer	0 → +30 bar
24	Discharge temperature sensor (oil)	
25	Mechanical high pressure switch	21.5 bar
26	Inlet evaporator sensor	
27	Outlet evaporator sensor	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN/A units with Thermostatic Expansion Valve.



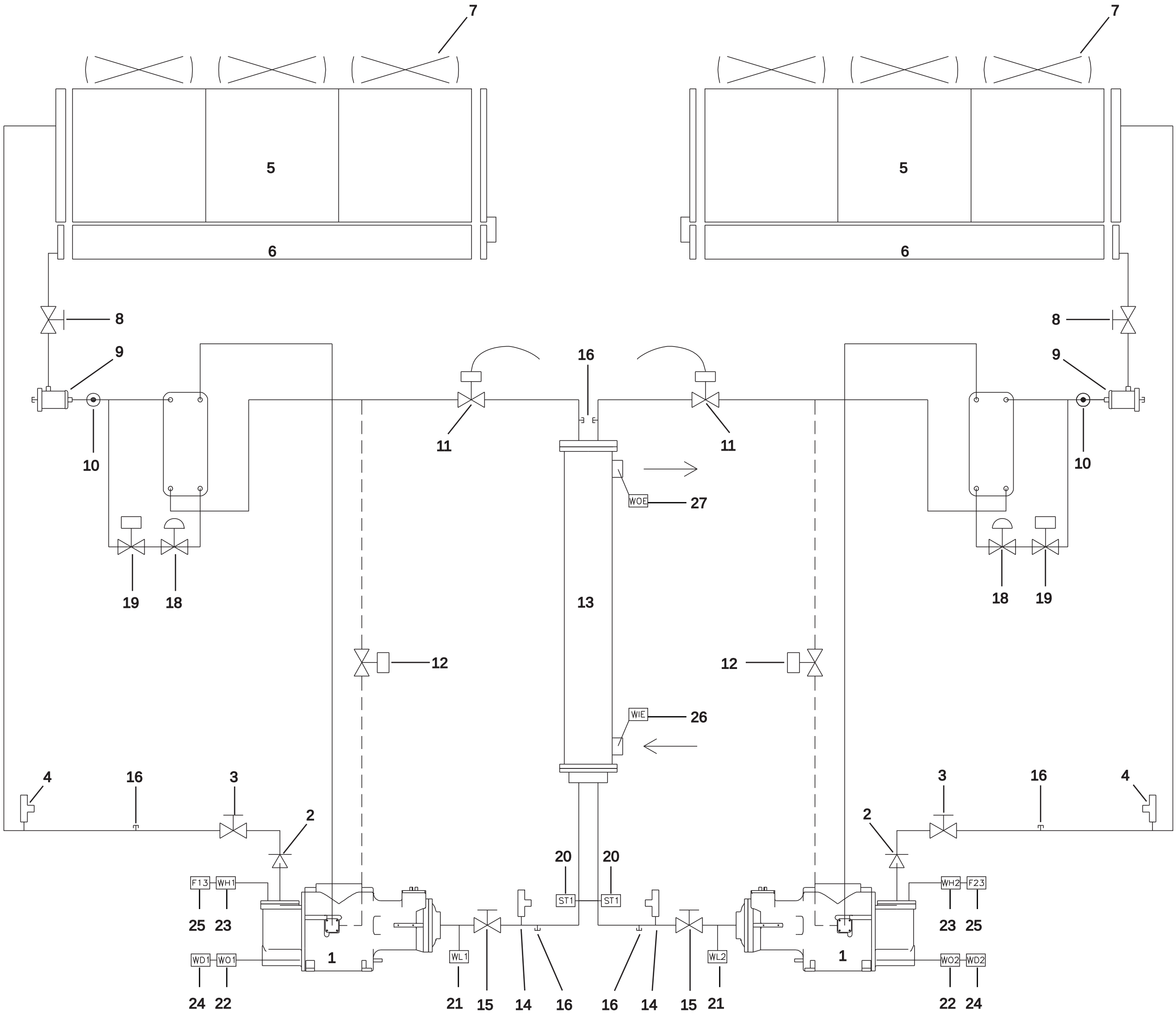
2.5 Piping Diagram: EWAD-AJYNN/A with Electronic Expansion Valve

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Electronic expansion valve	
12	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
13	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
14	Low pressure relief valve	Setting 15.5bar
15	Suction shut off valve	Closed position when unit is delivered at site
16	Loading joint with valve	
17	Economizer	
18	Economizer expansion valve	
19	Economizer solenoid valve	
20	Suction temperature	
21	Low pressure transducer	-0.5 → +7 bar
22	Oil pressure transducer	0 → +30 bar
23	High pressure transducer	0 → +30 bar
24	Discharge temperature sensor (oil)	
25	Mechanical high pressure switch	21.5 bar
26	Inlet evaporator sensor	
27	Outlet evaporator sensor	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN/A units with Electronic Expansion Valve.



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2.6 Piping Diagram: EWAD-AJYNN(/Q) with Thermostatic Expansion Valve and Partial Heat-Recovery

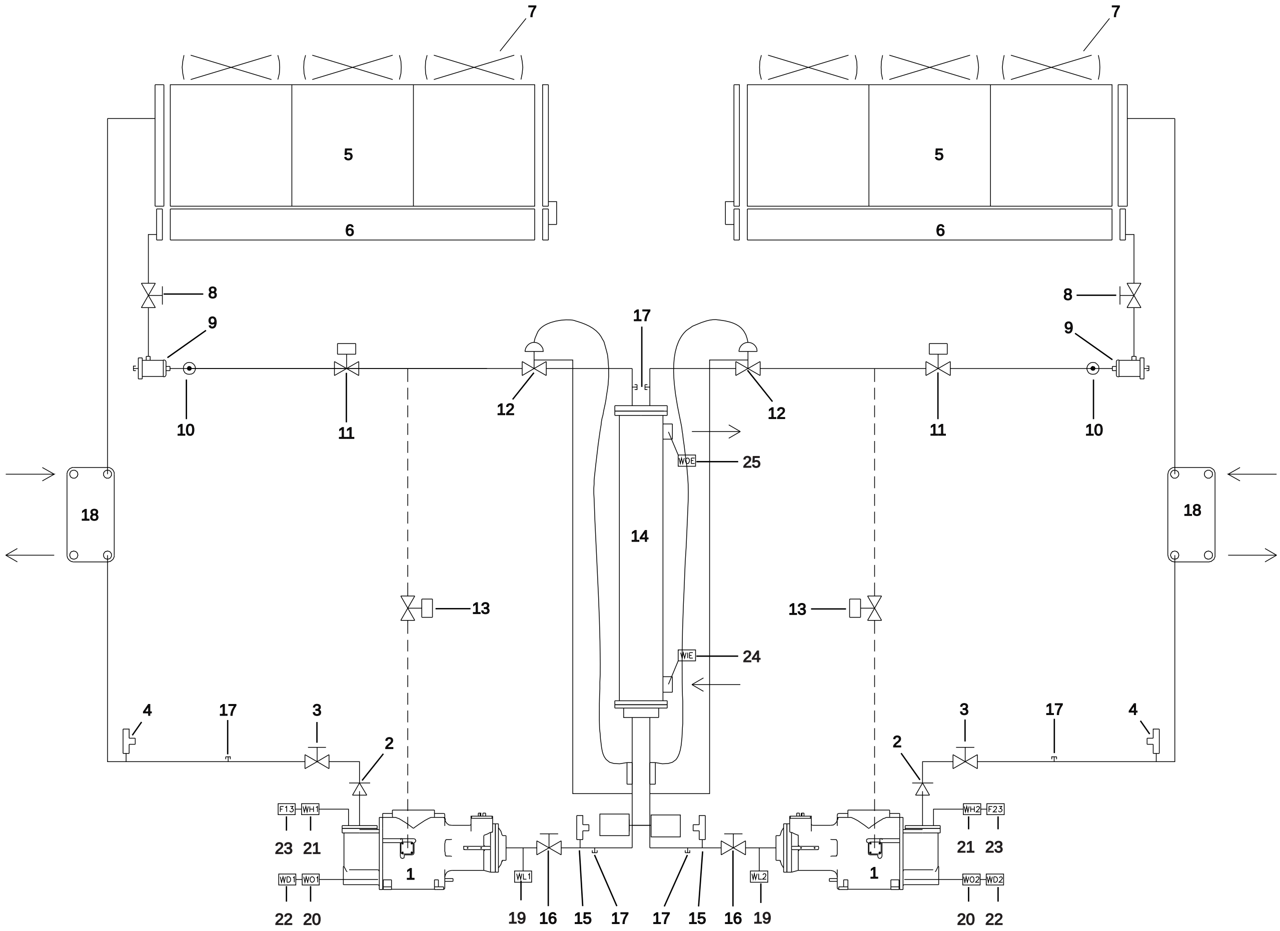
Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Pump down solenoid valve	
12	Thermostatic expansion valve	
13	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
14	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
15	Low pressure relief valve	Setting 15.5bar
16	Suction shut off valve	Closed position when unit is delivered at site
17	Loading joint with valve	
18	Partial recovery heat exchanger	
19	Low pressure transducer	-0.5 → +7 bar
20	Oil pressure transducer	0 → +30 bar
21	High pressure transducer	0 → +30 bar
22	Discharge temperature sensor (oil)	
23	Mechanical high pressure switch	21.5 bar
24	Inlet evaporator sensor	
25	Outlet evaporator sensor	

1

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN/Q units with Partial Heat-Recovery and Thermostatic Expansion Valve.



1

2.7 Piping Diagram: EWAD-AJYNN(/Q) with Electronic Expansion Valve and Partial Heat-Recovery

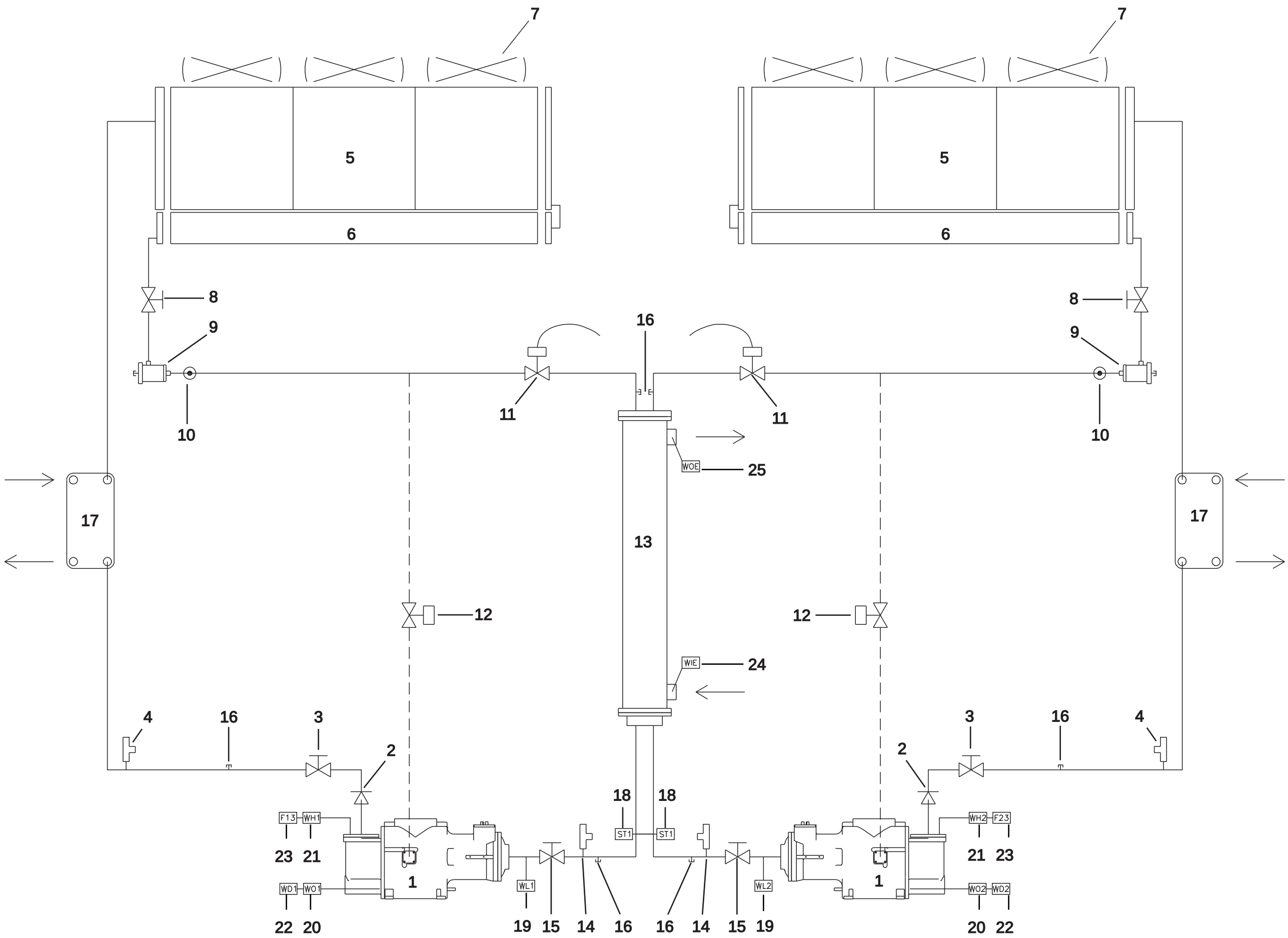
Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Electronic expansion valve	
12	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
13	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
14	Low pressure relief valve	Setting 15.5bar
15	Suction shut off valve	Closed position when unit is delivered at site
16	Loading joint with valve	
17	Partial recovery heat exchanger	
18	Suction sensor	
19	Low pressure transducer	-0.5 → +7 bar
20	Oil pressure transducer	0 → +30 bar
21	High pressure transducer	0 → +30 bar
22	Discharge temperature sensor (oil)	
23	Mechanical high pressure switch	21.5 bar
24	Inlet evaporator sensor	
25	Outlet evaporator sensor	

1

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN(/Q) units with Partial Heat-Recovery and Electronic Expansion Valve.



1

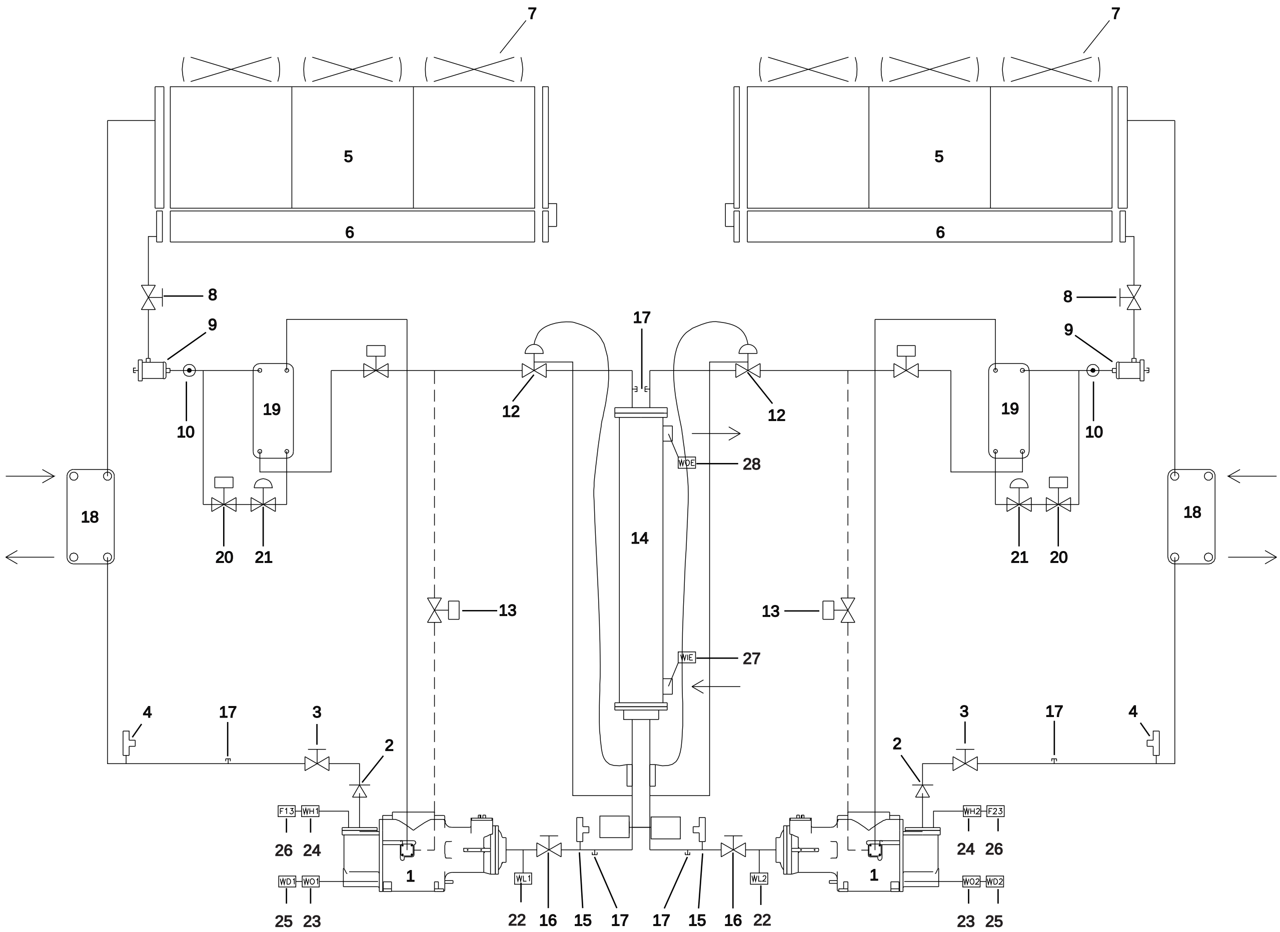
2.8 Piping Diagram: EWAD-AJYNN/A with Thermostatic Expansion Valve and Partial Heat-Recovery

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Pump down solenoid valve	
12	Thermostatic expansion valve	
13	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
14	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
15	Low pressure relief valve	Setting 15.5bar
16	Suction shut off valve	Closed position when unit is delivered at site
17	Loading joint with valve	
18	Partial recovery heat exchanger	
19	Economizer	
20	Solenoid valve economizer	
21	Expansion valve economizer	
22	Low pressure transducer	-0.5 → +7 bar
23	Oil pressure transducer	0 → +30 bar
24	High pressure transducer	0 → +30 bar
25	Discharge temperature sensor (oil)	
26	Mechanical high pressure switch	21.5 bar
27	Inlet evaporator sensor	
28	Outlet evaporator sensor	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN/A units with Partial Heat-Recovery and Thermostatic Expansion Valve.



1

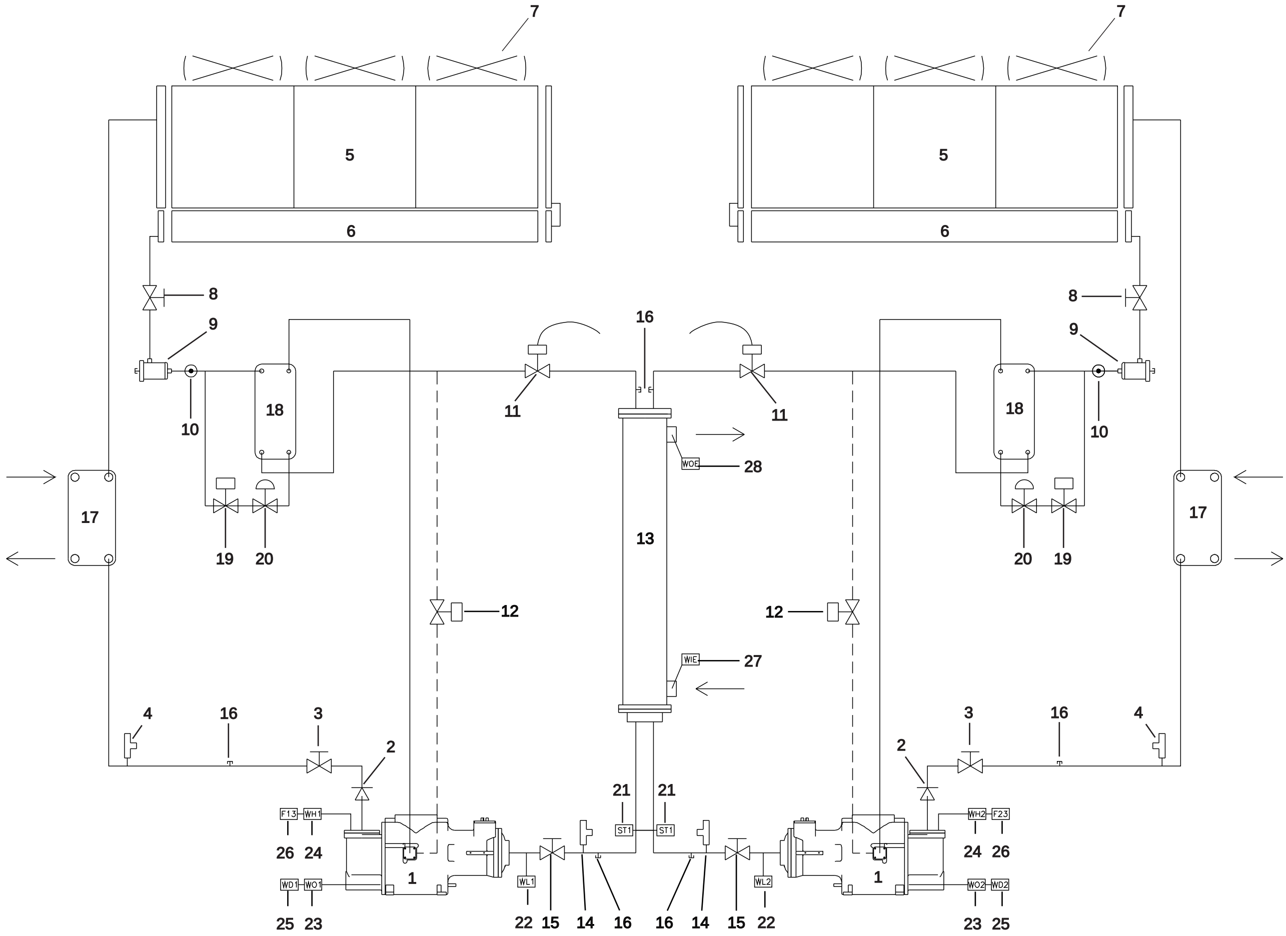
2.9 Piping Diagram: EWAD-AJYNN/A with Electronic Expansion Valve and Partial Heat-Recovery

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Electronic expansion valve	
12	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
13	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
14	Low pressure relief valve	Setting 15.5bar
15	Suction shut off valve	Closed position when unit is delivered at site
16	Loading joint with valve	
17	Partial recovery heat exchanger	
18	Economizer	
19	Solenoid valve economizer	
20	Expansion valve economizer	
21	Suction sensor	
22	Low pressure transducer	-0.5 → +7 bar
23	Oil pressure transducer	0 → +30 bar
24	High pressure transducer	0 → +30 bar
25	Discharge temperature sensor (oil)	
26	Mechanical high pressure switch	21.5 bar
27	Inlet evaporator sensor	
28	Outlet evaporator sensor	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN/A units with Partial Heat-Recovery and Electronic Expansion Valve.



2.10 Description of the Refrigerant Cycle with Partial Heat-Recovery

The low-temperature refrigerant gas from the evaporator is taken in by the compressor and travels through the electric engine cooling it. It is subsequently compressed and after this phase the refrigerant is mixed with the oil from the separator.

The high-pressure oil-refrigerant mixture is introduced within the high-efficiency centrifugal-type oil separator which separates it. The oil depositing on the bottom of the separator through pressure difference is sent back to the compressor while the refrigerant that has been separated from the oil is sent to the partial recovery exchanger, where it dissipates the heat from post-overheating cooling, warming the water which travels through the exchanger. On leaving the exchanger the refrigerant fluid enters the condenser battery where it is condensed by forced ventilation.

The fluid that is condensed at saturation temperature travels through the undercooling section where it yields further heat thus increasing cycle efficiency. The undercooled fluid travels through the high-efficiency dehydration filter and then through the lamination organ which launches the expansion process through a pressure drop, vaporising part of the refrigerant liquid.

The result is a low-pressure and low-temperature liquid and gas mixture requiring considerable heat, which is introduced into the evaporator.

After having been evenly distributed within the direct-expansion evaporator piping, the liquid-vapour refrigerant exchanges heat with the water to be cooled, thus reducing its temperature, and it gradually changes state until it evaporates completely and then overheats.

Once it has reached the overheated vapour state, the refrigerant leaves the evaporator to be once again taken in by the compressor and restart its cycle.

2.11 Controlling the Partial Heat Recovery Circuit and Installation Recommendations

The partial heat recovery system is not managed and/or controlled by the machine. The installer should follow the suggestions below for best system performance and reliability:

1 Install a mechanical filter at exchanger entrances

2 Install sectioning valves to exclude the exchanger from the hydraulic system during periods of inactivity or during system maintenance.

3 Install a discharge tap to empty the heat exchanger, in the event that air temperature can be expected to fall below 0°C during periods of inactivity of the machine.

4 Interpose flexible anti-vibration joints on recuperator water input and output piping, to keep transmission of vibrations, and therefore of noise, to the hydraulic system as low as possible.

5 Do not load exchanger joints with the weight of recuperator piping. Hydraulic joints of exchangers are not designed to support their weight.

6 Should recovery water temperature be lower than ambient temperature, it is advised to switch off the recovery water pump 3 minutes after having switched off the last compressor.

2.12 Piping Diagram: EWAD-AJYNN(/Q) with Thermostatic Expansion Valve and Full Heat-Recovery

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Pump down solenoid valve	
12	Thermostatic expansion valve	
13	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
14	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
15	Low pressure relief valve	Setting 15.5 bar
16	Suction shut-off valve	Closed position when unit is delivered at site
17	Loading joint with valve	
18	Liquid receiver	
19	Recovery cycle three-way valve	
20	Recovery exchanger	
21	Low pressure transducer	-0.5 → +7 bar
22	Oil pressure transducer	0 → +30 bar
23	High pressure transducer	0 → +30 bar
24	Discharge temperature sensor (oil)	
25	Mechanical high pressure switch	21.5 bar
26	Inlet evaporator sensor	
27	Outlet evaporator sensor	
28	Recovery water input temperature sensor (*)	(*) Probes W10 and W11 must be positioned in the recuperators' common connection piping. Positioning to be handled by the client
29	Recovery water output temperature sensor (*)	

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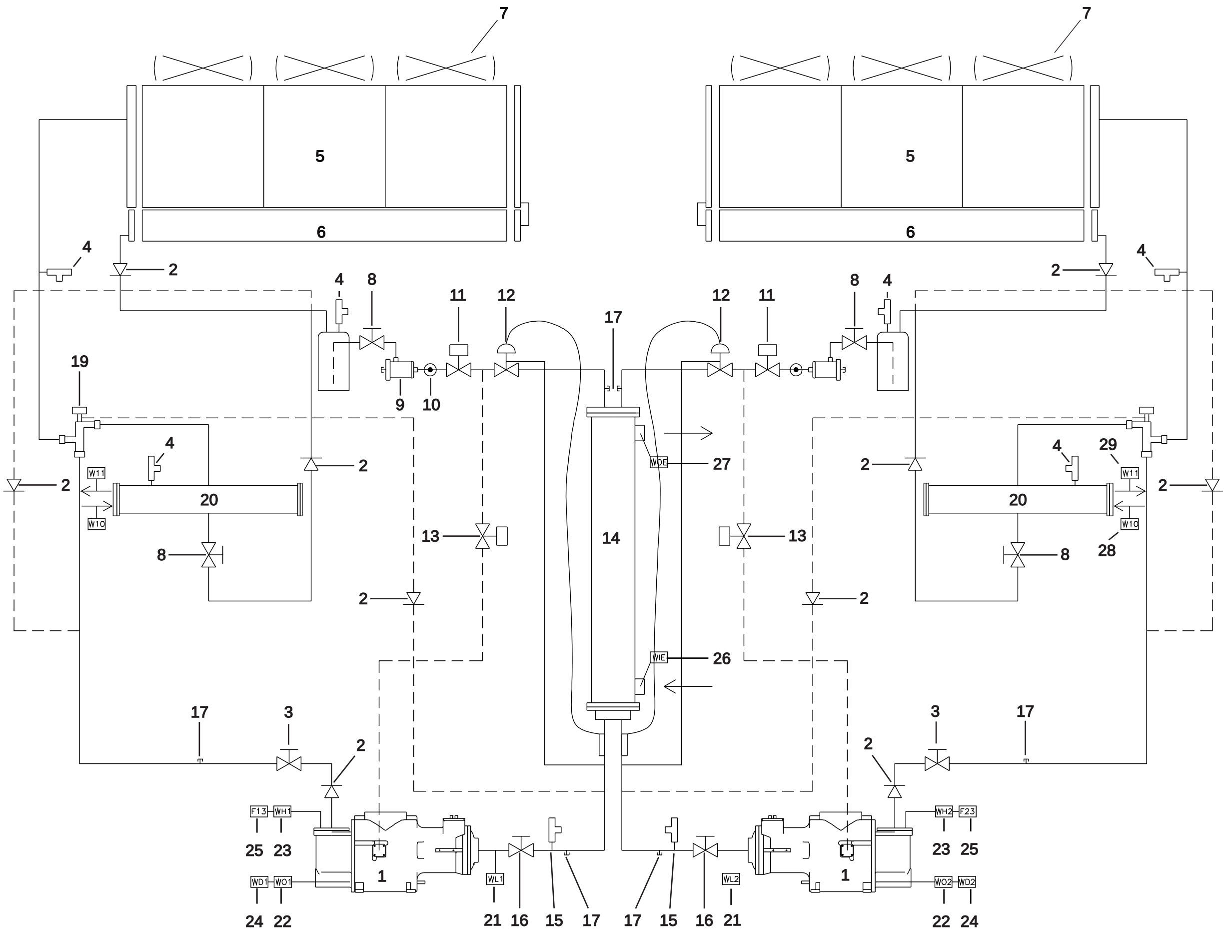
Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN(/Q) units with Full Heat-Recovery and Thermostatic Expansion Valve.



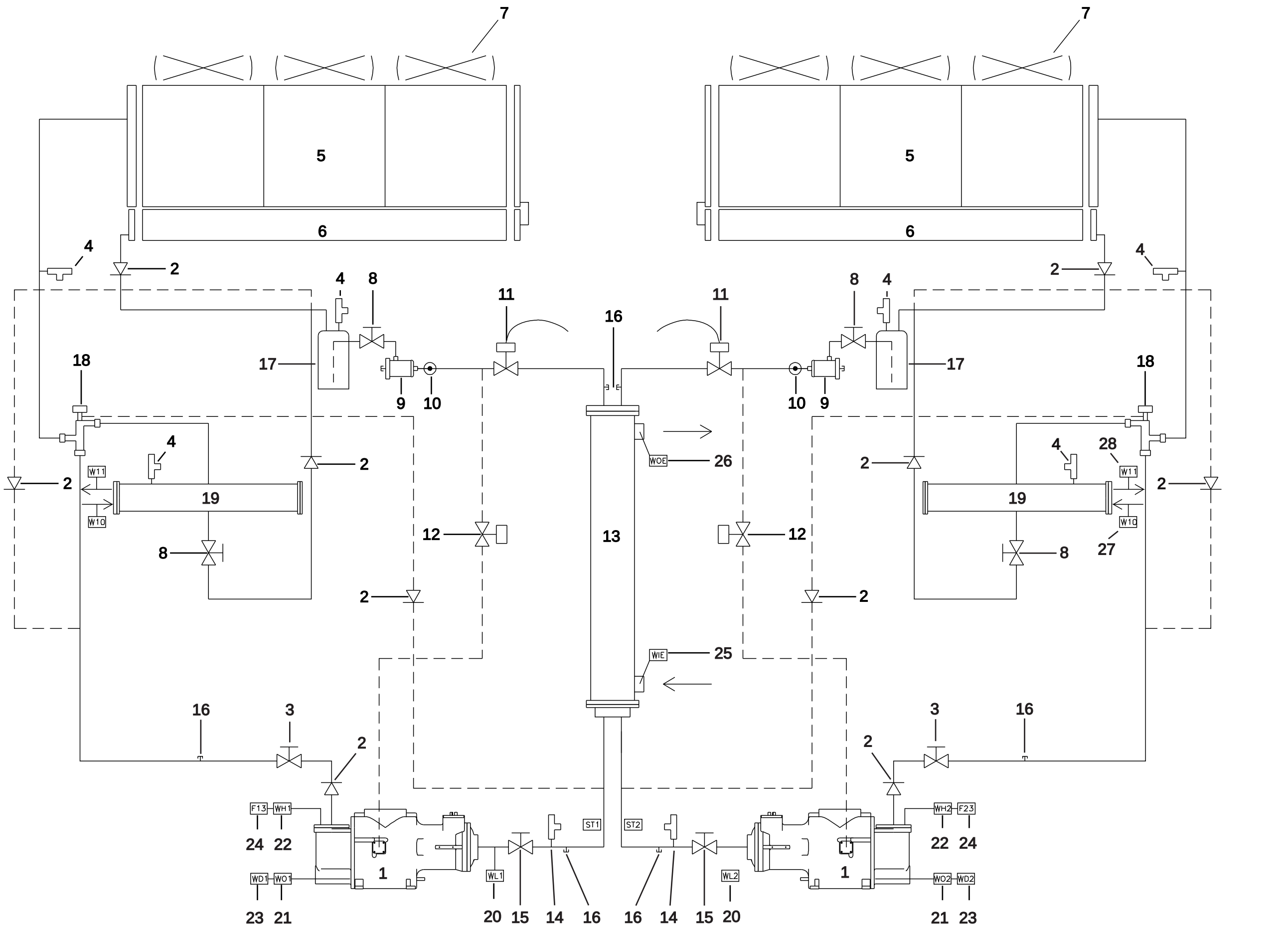
2.13 Piping Diagram: EWAD-AJYNN(/Q) with Electronic Expansion Valve and Full Heat-Recovery

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Electronic expansion valve	
12	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
13	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
14	Low pressure relief valve	Setting 15.5 bar
15	Suction shut-off valve	Closed position when unit is delivered at site
16	Loading joint with valve	
17	Liquid receiver	
18	Recovery cycle three-way valve	
19	Recovery exchanger	
20	Low pressure transducer	-0.5 → +7 bar
21	Oil pressure transducer	0 → +30 bar
22	High pressure transducer	0 → +30 bar
23	Discharge temperature sensor (oil)	
24	Mechanical high pressure switch	21.5 bar
25	Inlet evaporator sensor	
26	Outlet evaporator sensor	
27	Recovery water input temperature sensor (*)	(*) Probes W10 and W11 must be positioned in the recuperators’ common connection piping. Positioning to be handled by the client
28	Recovery water output temperature sensor (*)	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN(/Q) units with Full Heat-Recovery and Electronic Expansion Valve.



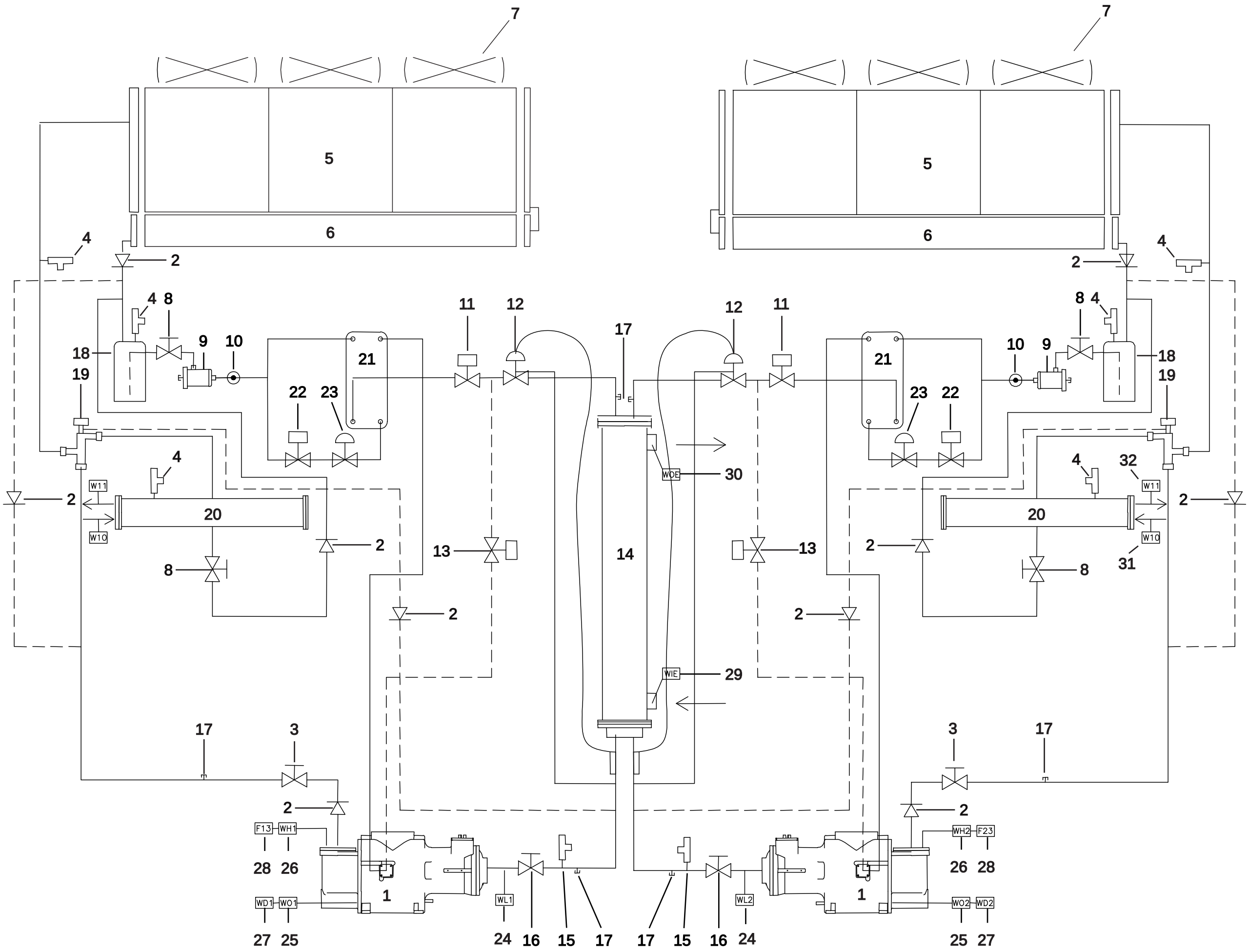
2.14 Piping Diagram: EWAD-AJYNN/A with Thermostatic Expansion Valve and Full Heat-Recovery

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Pump down solenoid valve	
12	Thermostatic expansion valve	
13	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
14	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
15	Low pressure relief valve	Setting 15.5 bar
16	Suction shut-off valve	Closed position when unit is delivered at site
17	Loading joint with valve	
18	Liquid receiver	
19	Recovery cycle three-way valve	
20	Recovery exchanger	
21	Economizer	
22	Solenoid valve economizer	
23	Thermostatic expansion valve economizer	
24	Low pressure transducer	-0.5 → +7 bar
25	Oil pressure transducer	0 → +30 bar
26	High pressure transducer	0 → +30 bar
27	Discharge temperature sensor (oil)	
28	Mechanical high pressure switch	21.5 bar
29	Inlet evaporator sensor	
30	Outlet evaporator sensor	
31	Recovery water input temperature sensor (*)	(*) Probes W10 and W11 must be positioned in the recuperators' common connection piping. Positioning to be handled by the client
32	Recovery water output temperature sensor (*)	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN/A units with Full Heat-Recovery and Thermostatic Expansion Valve.



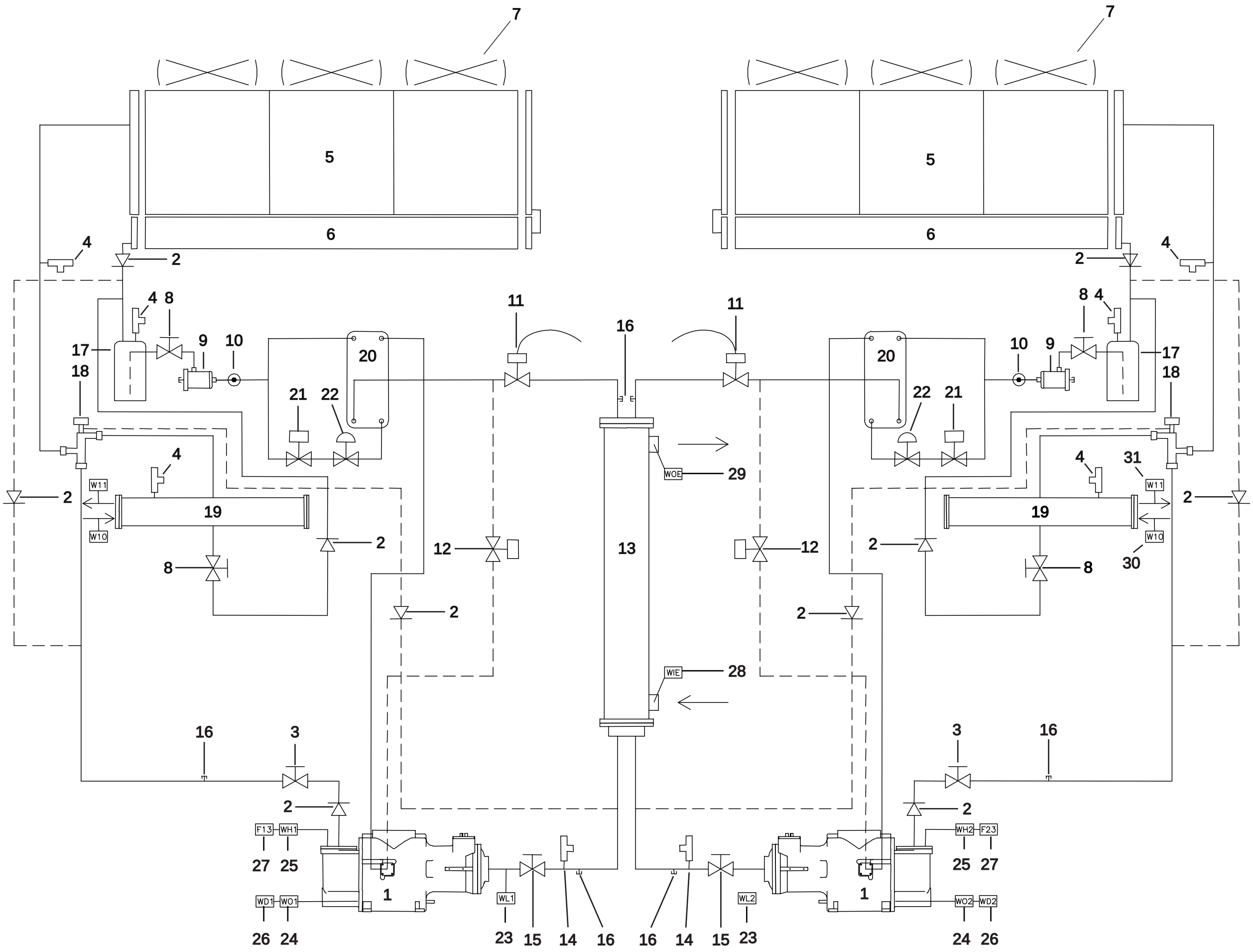
2.15 Piping Diagram: EWAD-AJYNN/A with Electronic Expansion Valve and Full Heat-Recovery

Components

N°	Components	Function/Remark
1	Compressor	Single screw compressor
2	Discharge non-return valve	To avoid that liquid from condenser returns into compressor when unit does not work
3	Discharge stop valve	Closed position when unit is delivered at site
4	High pressure relief valve	Setting 24.5 bar
5	Air-cooled condenser	Depending on the application, this battery can be delivered in different protection coatings
6	Sub-cool section	To guarantee sufficient under cooling
7	Axial ventilator	
8	Liquid stop valve	Closed position when unit is delivered at site
9	Filter drier	To absorb possible humidity and small particles
10	Sight glass	Give an indication of the dryness of the installation
11	Electronic expansion valve	
12	Liquid injection valve	Will be activated if the discharge temperature of the compressor becomes too high
13	Evaporator	Shell and Tube evaporator with 2 independent refrigerant circuits and 1 water circuit
14	Low pressure relief valve	Setting 15.5 bar
15	Suction shut-off valve	Closed position when unit is delivered at site
16	Loading joint with valve	
17	Liquid receiver	
18	Recovery cycle three-way valve	
19	Recovery exchanger	
20	Economizer	
21	Solenoid valve economizer	
22	Thermostatic expansion valve economizer	
23	Low pressure transducer	-0.5 → +7 bar
24	Oil pressure transducer	0 → +30 bar
25	High pressure transducer	0 → +30 bar
26	Discharge temperature sensor (oil)	
27	Mechanical high pressure switch	21.5 bar
28	Inlet evaporator sensor	
29	Outlet evaporator sensor	
30	Recovery water input temperature sensor (*)	(*) Probes W10 and W11 must be positioned in the recuperators' common connection piping. Positioning to be handled by the client
31	Recovery water output temperature sensor (*)	

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWAD-AJYNN/A units with Full Heat-Recovery and Electronic Expansion Valve.



2.16 Description of the Refrigerant Cycle with Full Heat-Recovery

Low-temperature refrigerant gas from the evaporator is taken in by the compressor and travels through the electric engine, cooling it. It is subsequently compressed and during this phase the refrigerant mixes with oil from the separator.

The high-pressure oil-refrigerant mixture is introduced into the high-efficiency centrifuge-type oil separator, che separates these. The oil that has deposited on the bottom of the separator through a pressure difference is once again sent to the compressor while the refrigerant that has been separated from the oil is sent to the three-way valve. If the recovery switch Q7 is positioned on Heating and the temperature of recovery water is below its setpoint value, the three-way valve is oriented towards the recovery exchanger and the gas is therefore forced inside.

The refrigerant fluid is distributed inside the recovery condenser along the shell and tubes and during this process cools after overheating and starts to condensate.

The condensed fluid at saturation temperature travels through the undercooling section, where it yields further heat, thus increasing cycle efficiency. Heat drawn from the fluid during the cooling after overheating, condensation and undercooling phase is supplied to the recovery water, which gains heat.

Undercooled fluid travels through the high-efficiency dehydration filter, the liquid receiver and subsequently the lamination organ which launches the expansion process through a pressure drop, thus vaporising part of the refrigerant liquid.

The result at this point is a low-pressure and low-temperature liquid and gas mixture requiring considerable heat and which is introduced into the evaporator.

After having been uniformly distributed in the direct expansion evaporator piping, it exchanges heat the water to be cooled, thus reducing its temperature, and it gradually changes state until it evaporates completely and then overheats.

On reaching the vapour state, the refrigerant at this point leaves the evaporator and is once again taken into the compressor and restarts the cycle. During the heating cycle, through a capillary pipe connected to the intake piping, the condenser battery empties, thus re-establishing the proper refrigerant charge and filling the liquid receiver.

Once the water from the recuperators has reached setpoint temperature, according to a PID pattern the circuit three-way valve changes state and the refrigerant discharged from the compressor is sent to the condenser battery in order to perform its normal function of cooling evaporator water. At the same time, the ventilators of the corresponding condenser section are turned on.

2.17 Controlling the Full Heat Recovery Circuit and Installation Recommendations

Units with total heat recovery differ from the basic version in the following additional components for each circuit:

- Gas/Water shell and tube heat exchanger complete with safety valve and 10 mm thermal insulation (20 mm on request).
- Three-way valve for Heating/ Cooling cycle switching.
- No-return valves.
- Compensation liquid receiver.
- Additional electronic expansion card.
- Recovery water temperature control sensors.
- Q7 switch for recovery circuit enablement.

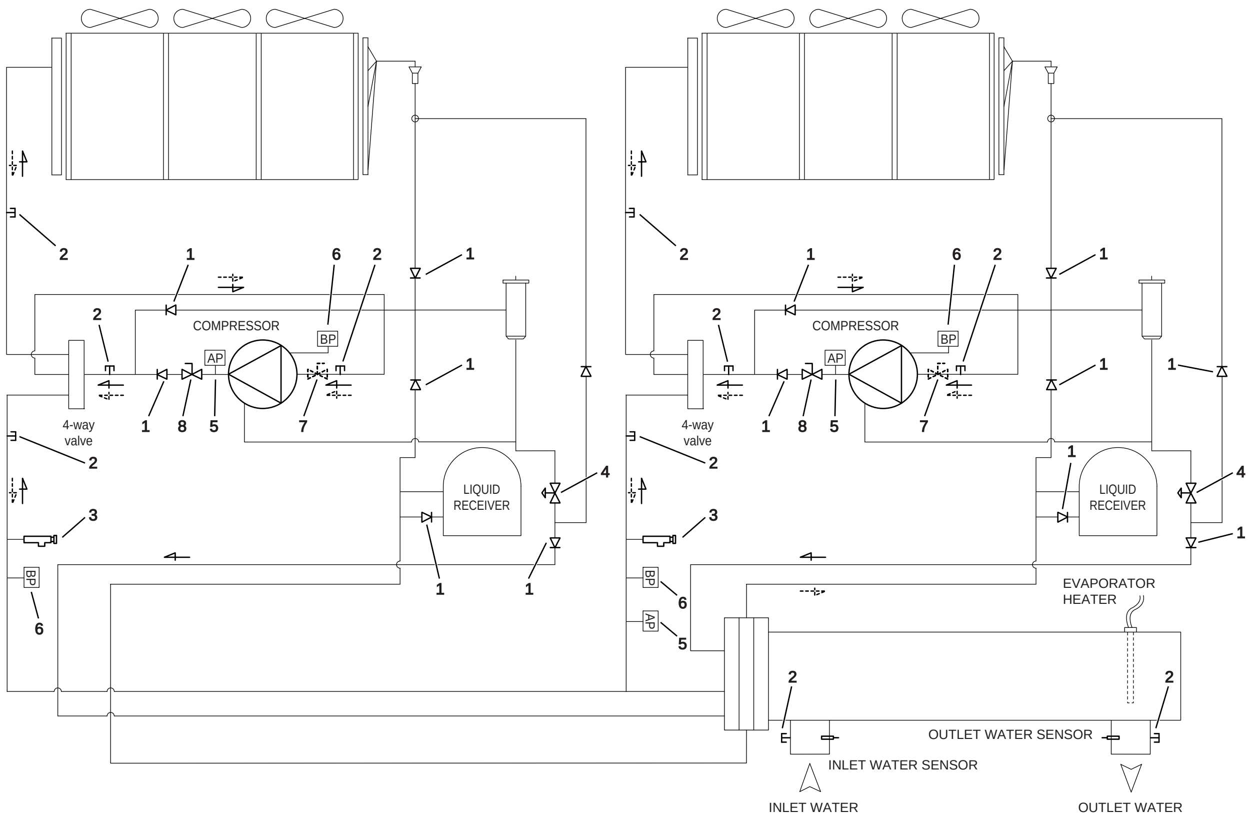
2.18 Piping Diagram: EWYD-AJYNN

Components

N°	Components
1	Check valve
2	1/4“ SAE connection
3	Safety valve
4	Expansion valve
5	High-pressure switch
6	Low-pressure valve
7	Suction valve (optional)
8	Delivery valve
	Direction of fluid for cooling
	Direction of fluid for heating

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWYD-AJYNN.



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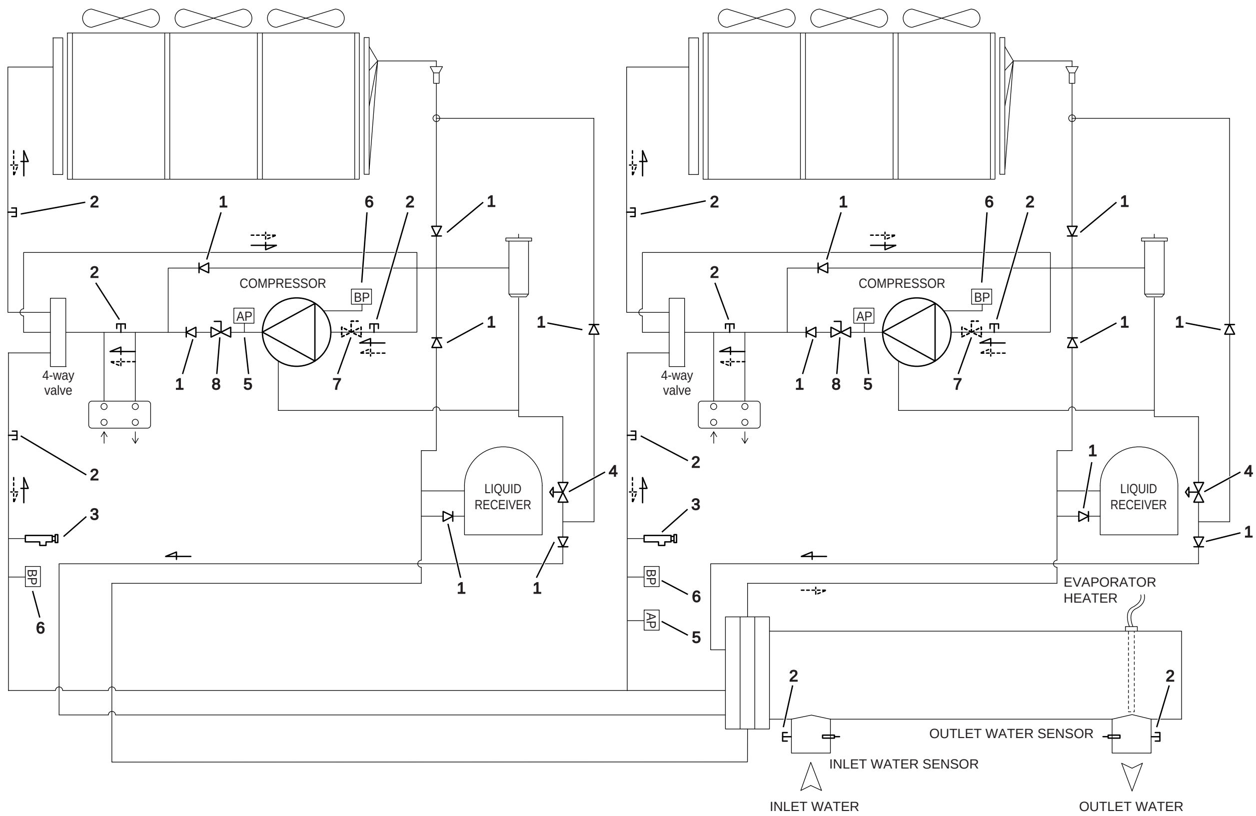
2.19 Piping Diagram: EWYD-AJYNN with Partial Heat-Recovery

Components

N°	Components
1	Check valve
2	1/4“ SAE connection
3	Safety valve
4	Expansion valve
5	High-pressure switch
6	Low-pressure valve
7	Suction valve (optional)
8	Delivery valve
	Direction of fluid for cooling
	Direction of fluid for heating

Functional diagram

The illustration below shows the functional diagram of the refrigerant cycle for EWYD-AJYNN with Partial Heat-Recovery.



3 Wiring Layout

3.1 What Is in This Chapter?

Introduction

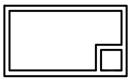
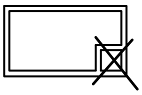
This part gives a general overview of the wiring layout. Detailed wiring diagrams can be found on http://passdoor.mcquay.it. There you can find a wiring diagram for every serial number.

Overview

This chapter contains the following topics:

Symbols

The following symbols are used on the wiring diagrams:

	Optional equipment
	Equipment installed
	Field wiring connections

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3.2 Specific Wiring Diagrams for every Serial Number

Note

Due to the fact that not one unit is the same, it is not possible to provide wiring diagrams for all units in this Service Manual.

However, for every serial number, there is a wiring diagram available on http://passdoor.mcquay.it

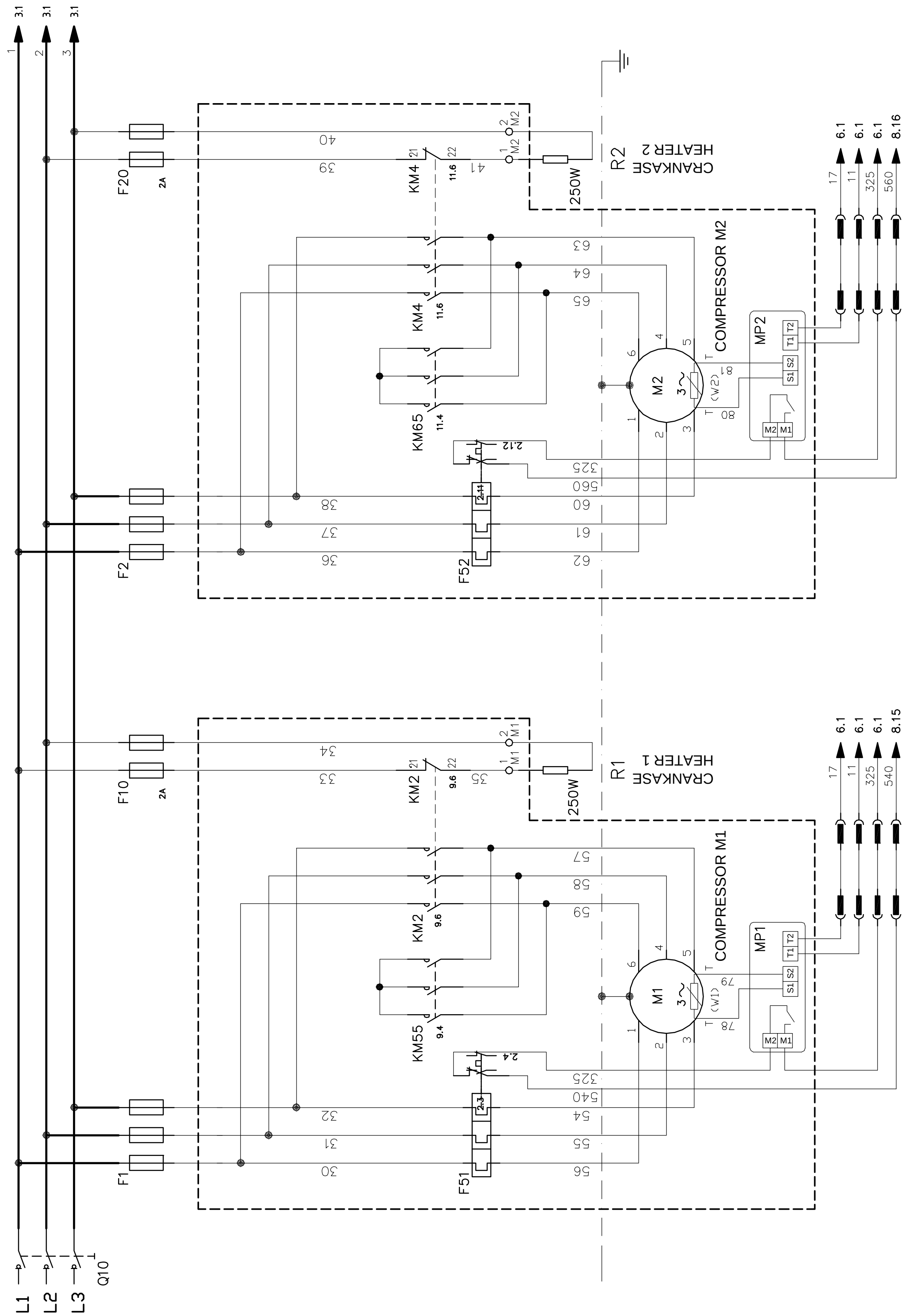
3.3 Wiring Diagram - EWAD-AJYNN with Electronic Expansion Valve

Overview

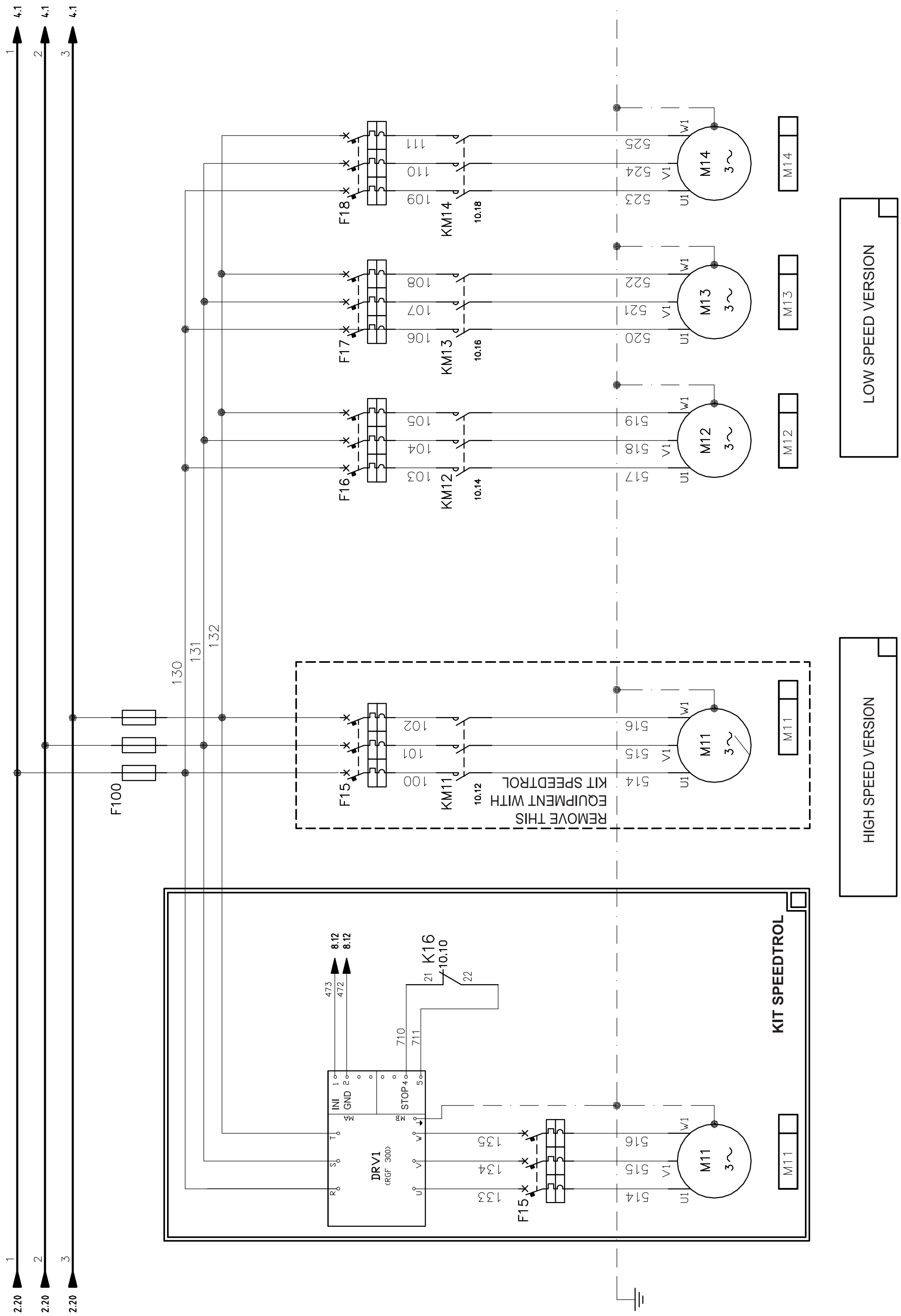
This chapter contains the following topics:

1

3.3.1 Compressor 1-2 Power Supply



3.3.2 Circuits 1 Fan Power Supply



For more details on kit speedtrol, see page 1–173.

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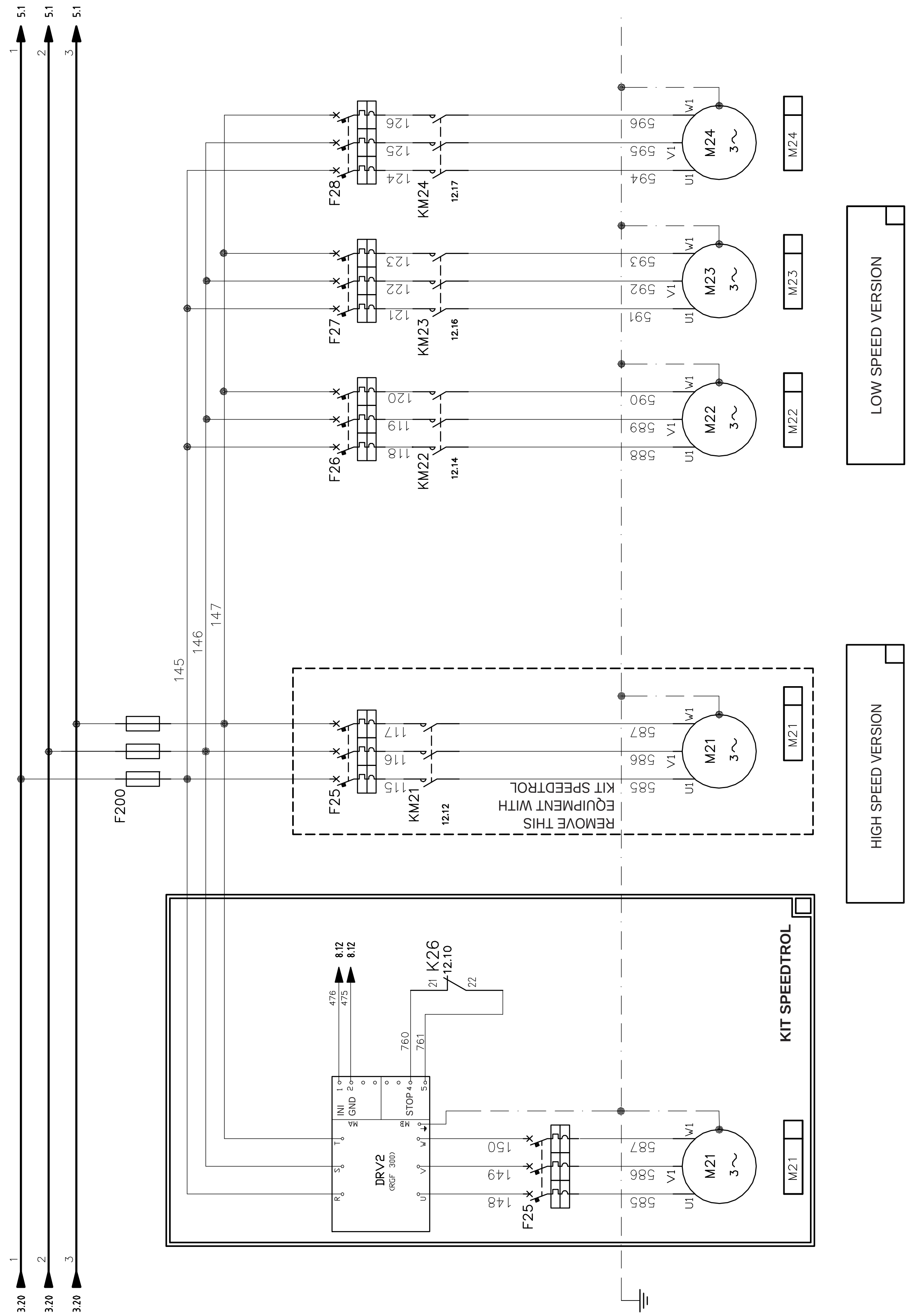
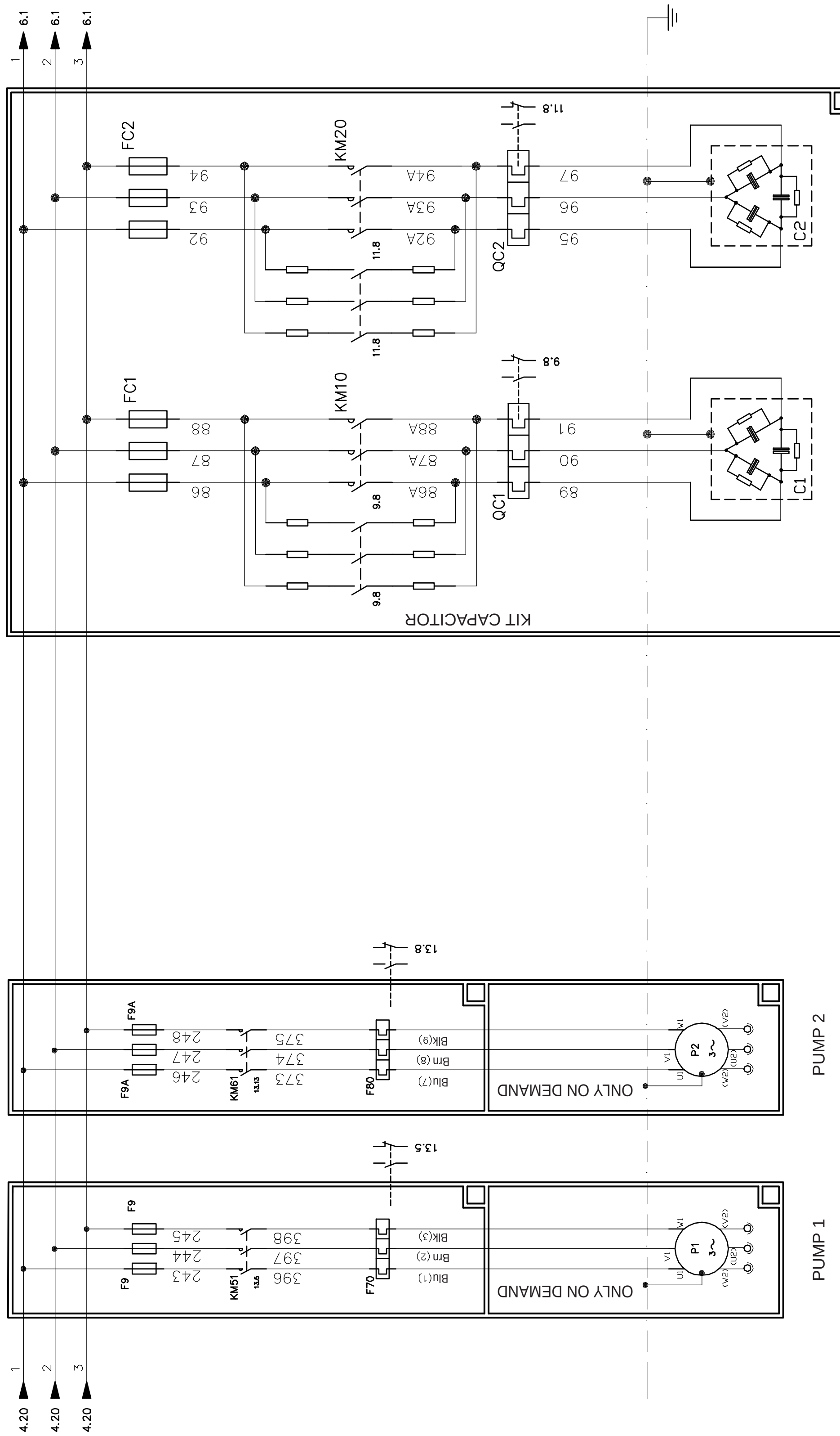
3.3.3 Circuits 2 Fan Power Supply



For more details on kit speedtrol, see page 1–173.

3.3.4 Kit Pumps



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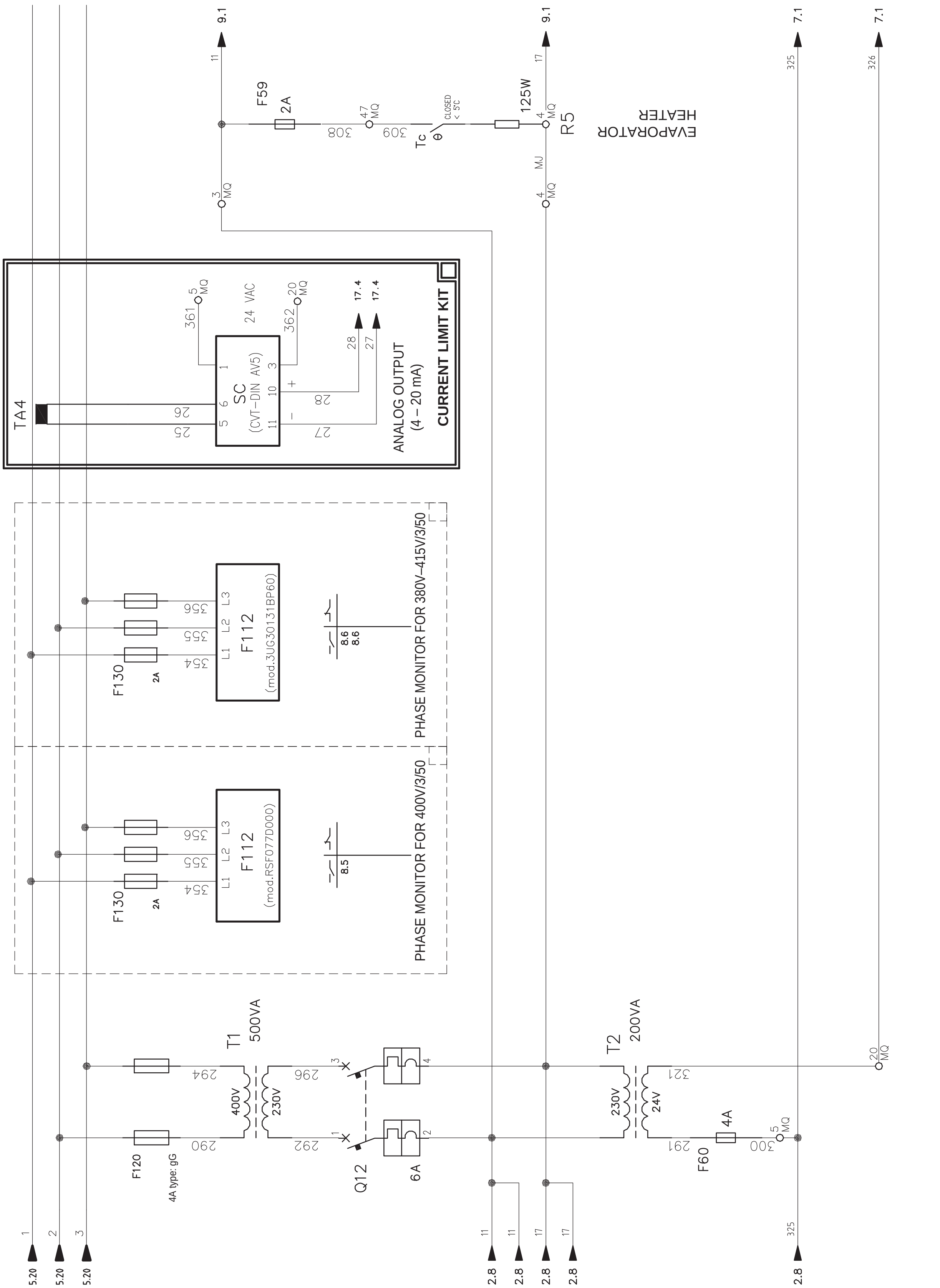
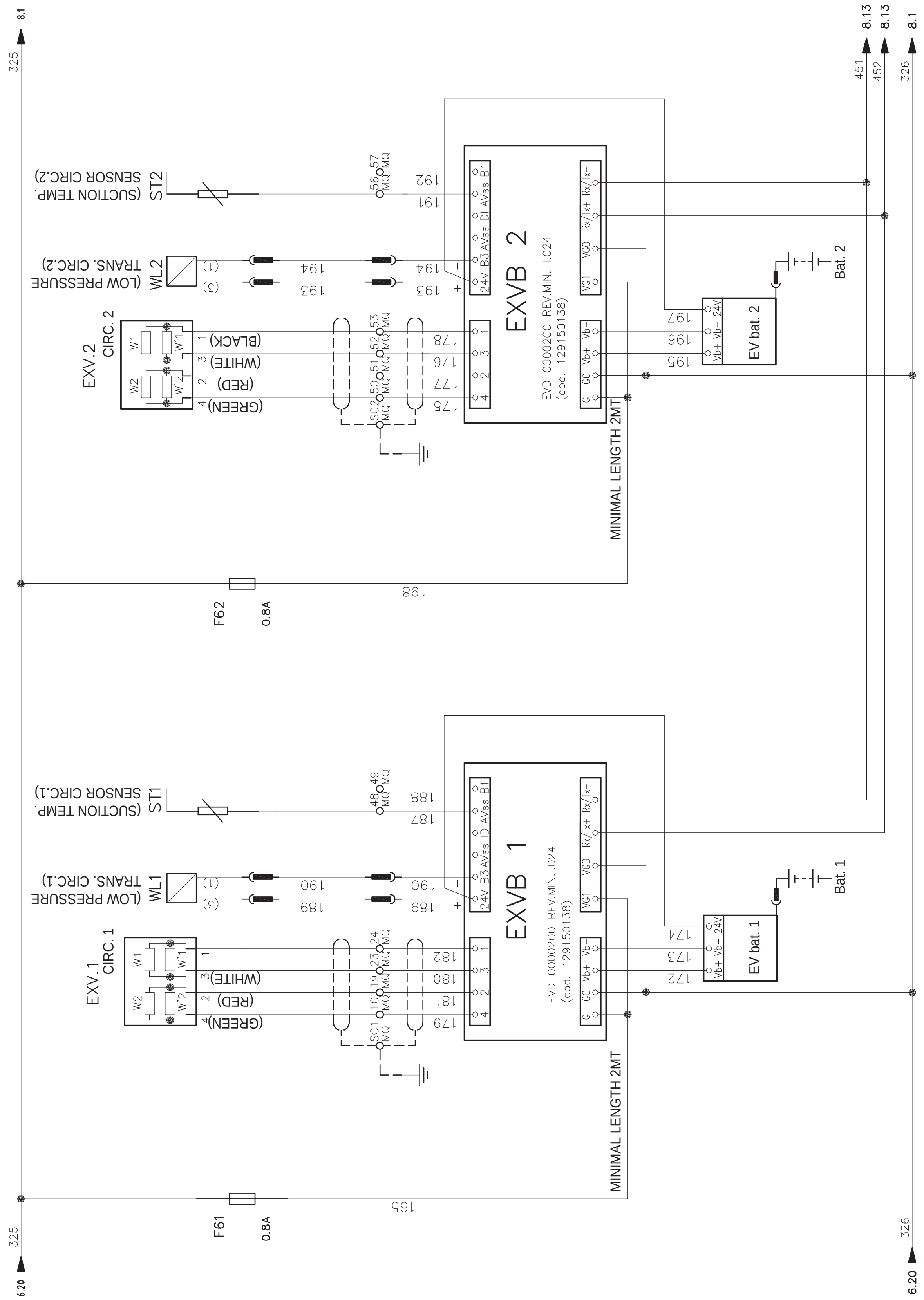
3.3.5 Unit Control Circuit Power Supply



3.3.6 Electronic Expansion Valve Board 1/2



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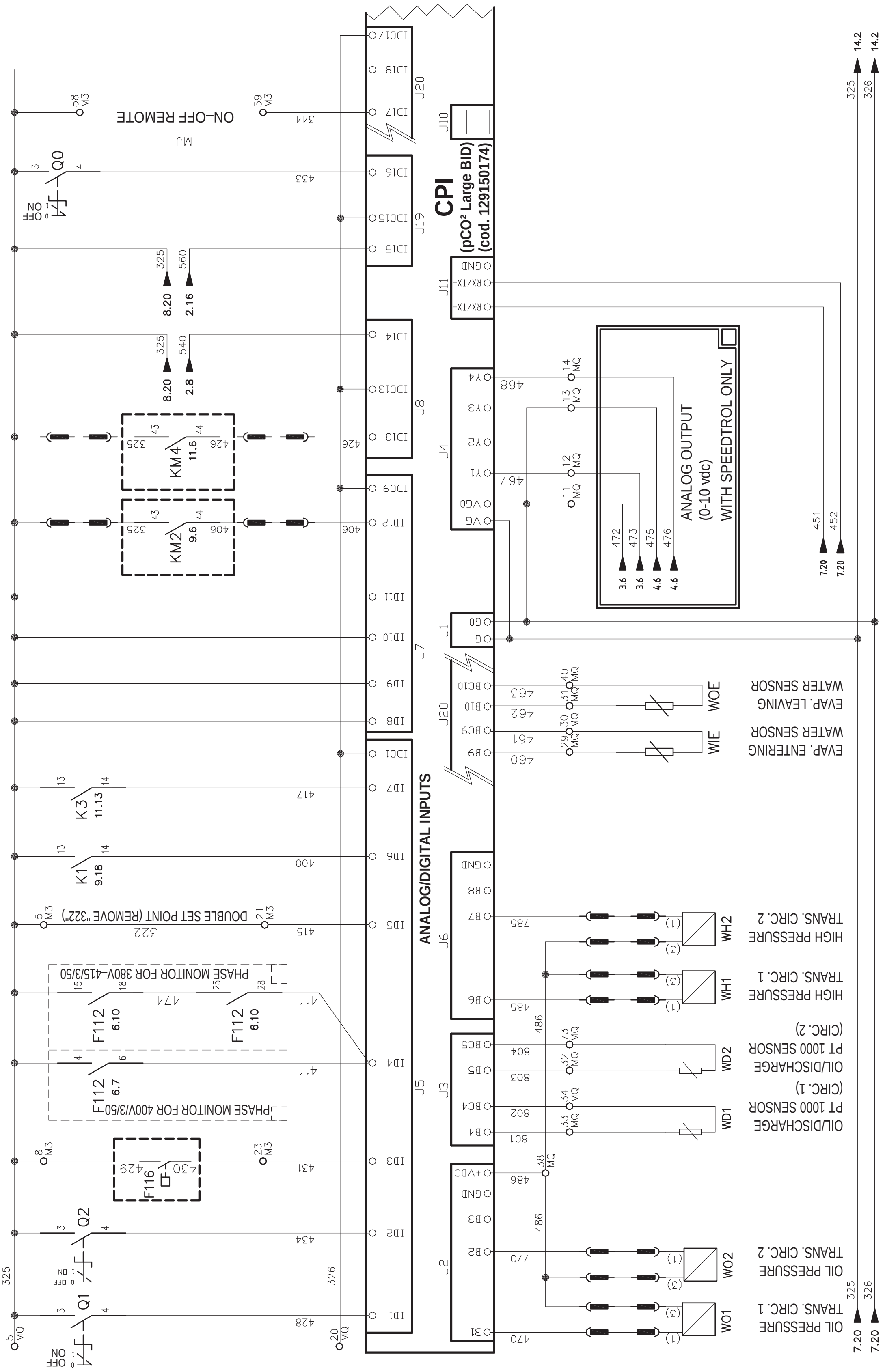
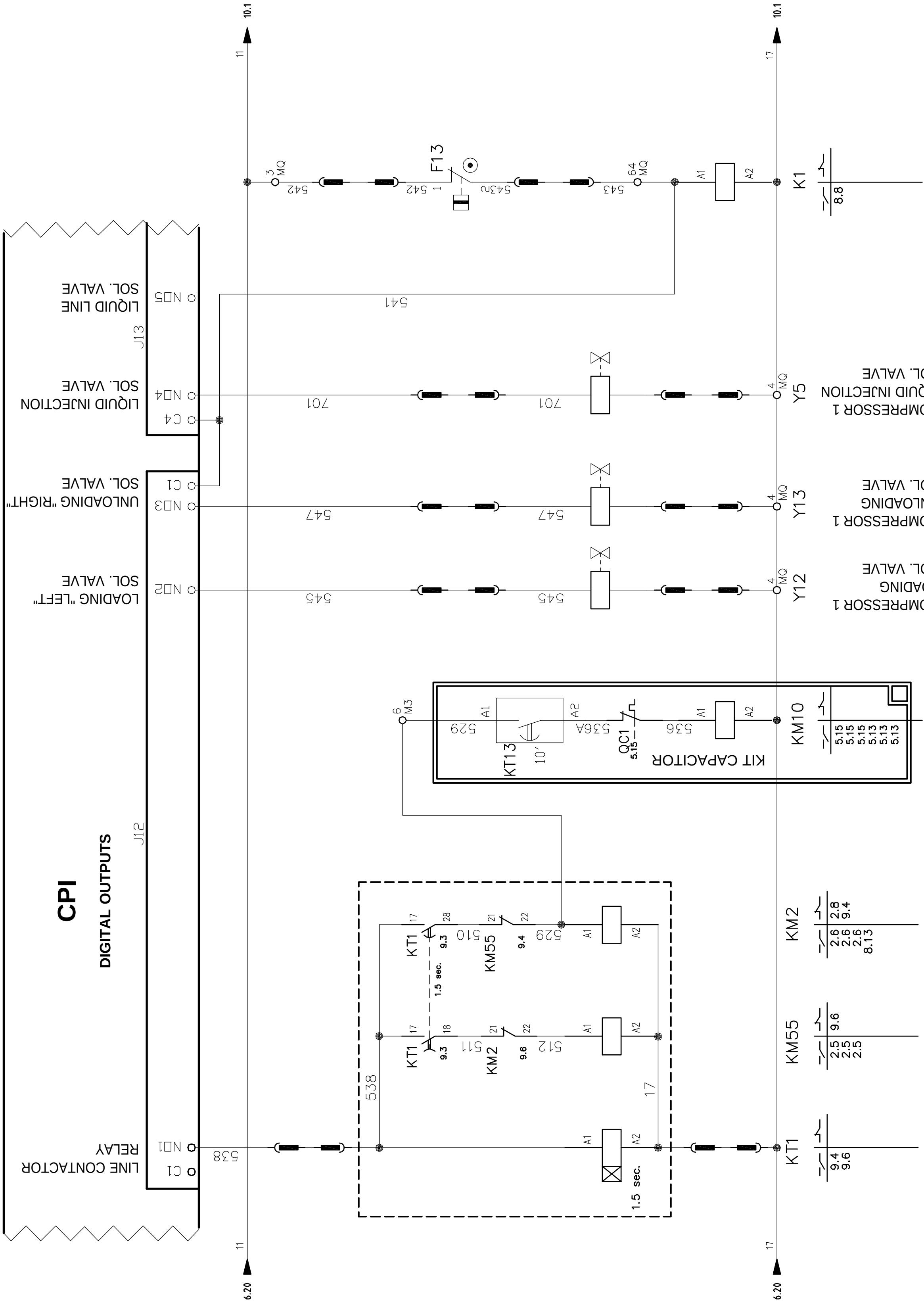
3.3.7 Analog-Digital Inputs Board 1/2

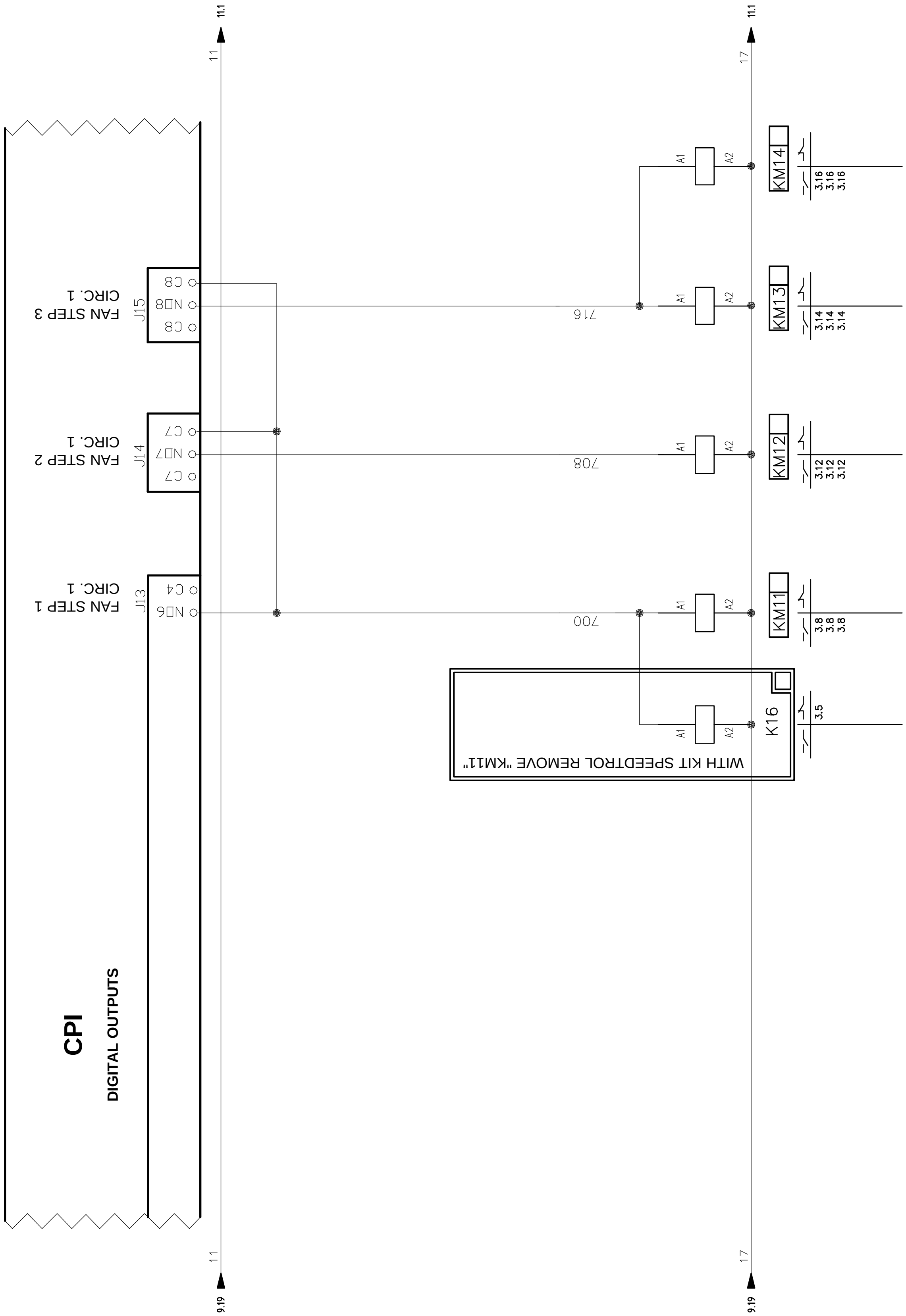


3.3.8 Compressor 1 Control

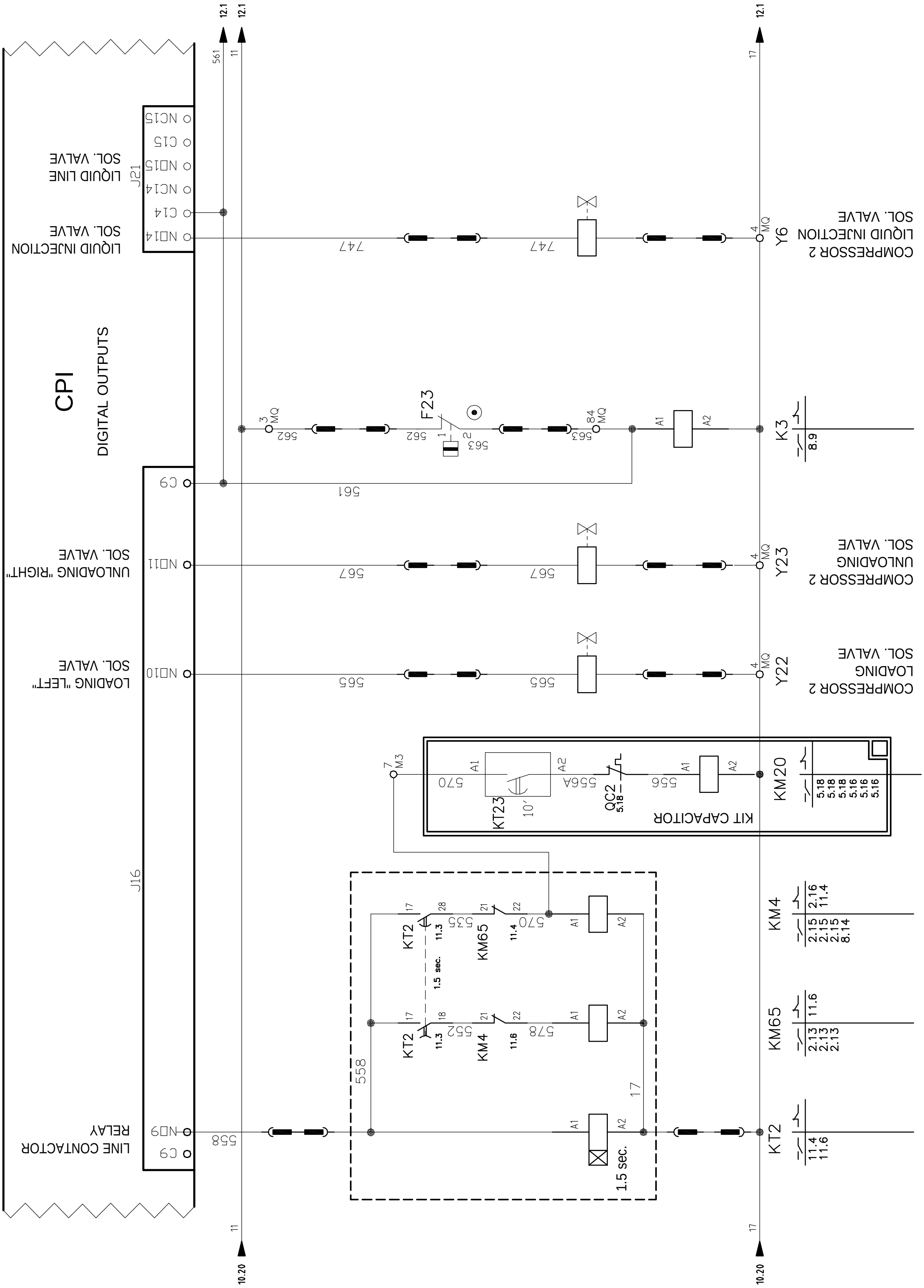


1

3.3.9 Fan Control Circuits 1



3.3.10 Compressor 2 Control Circuit



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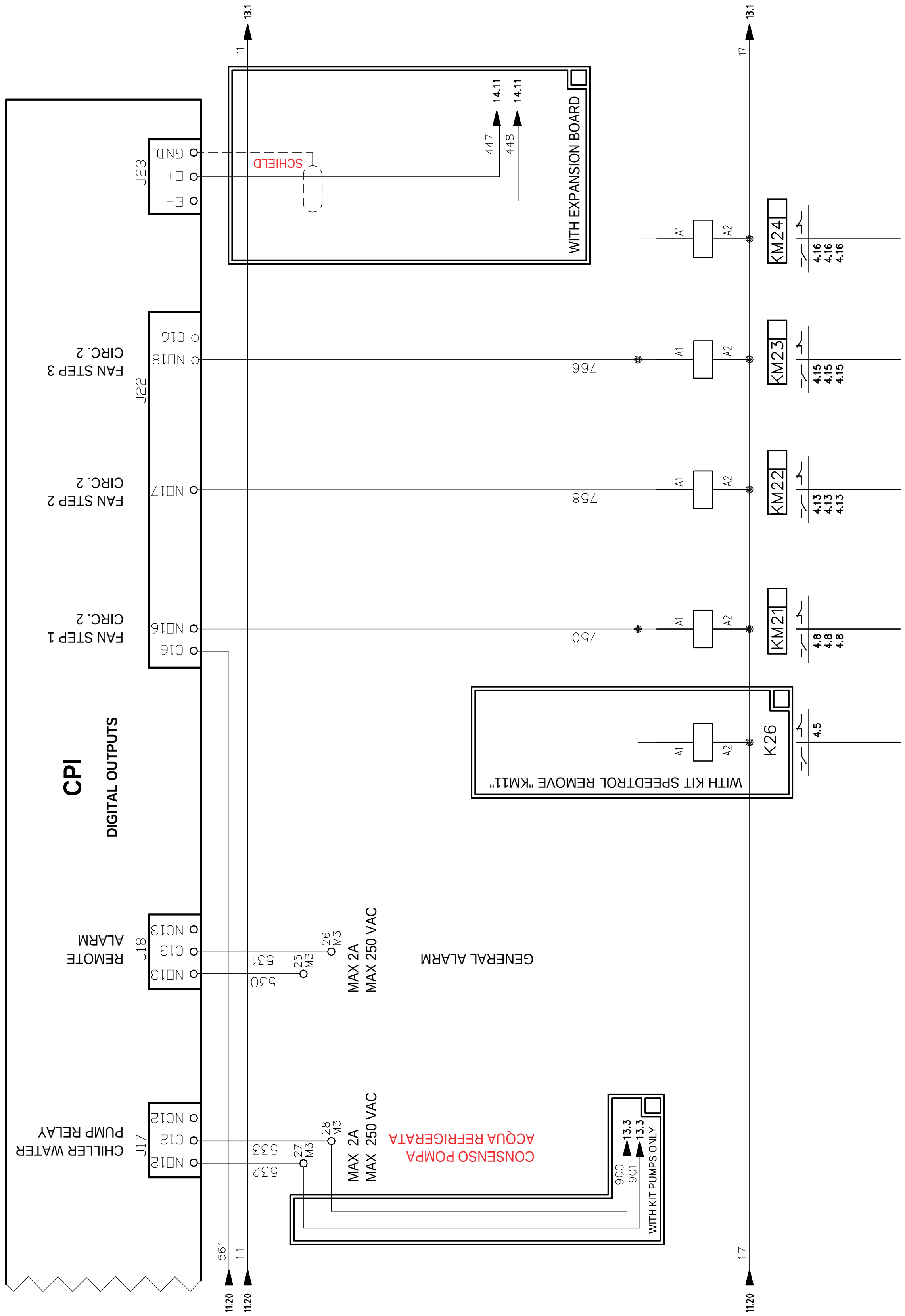
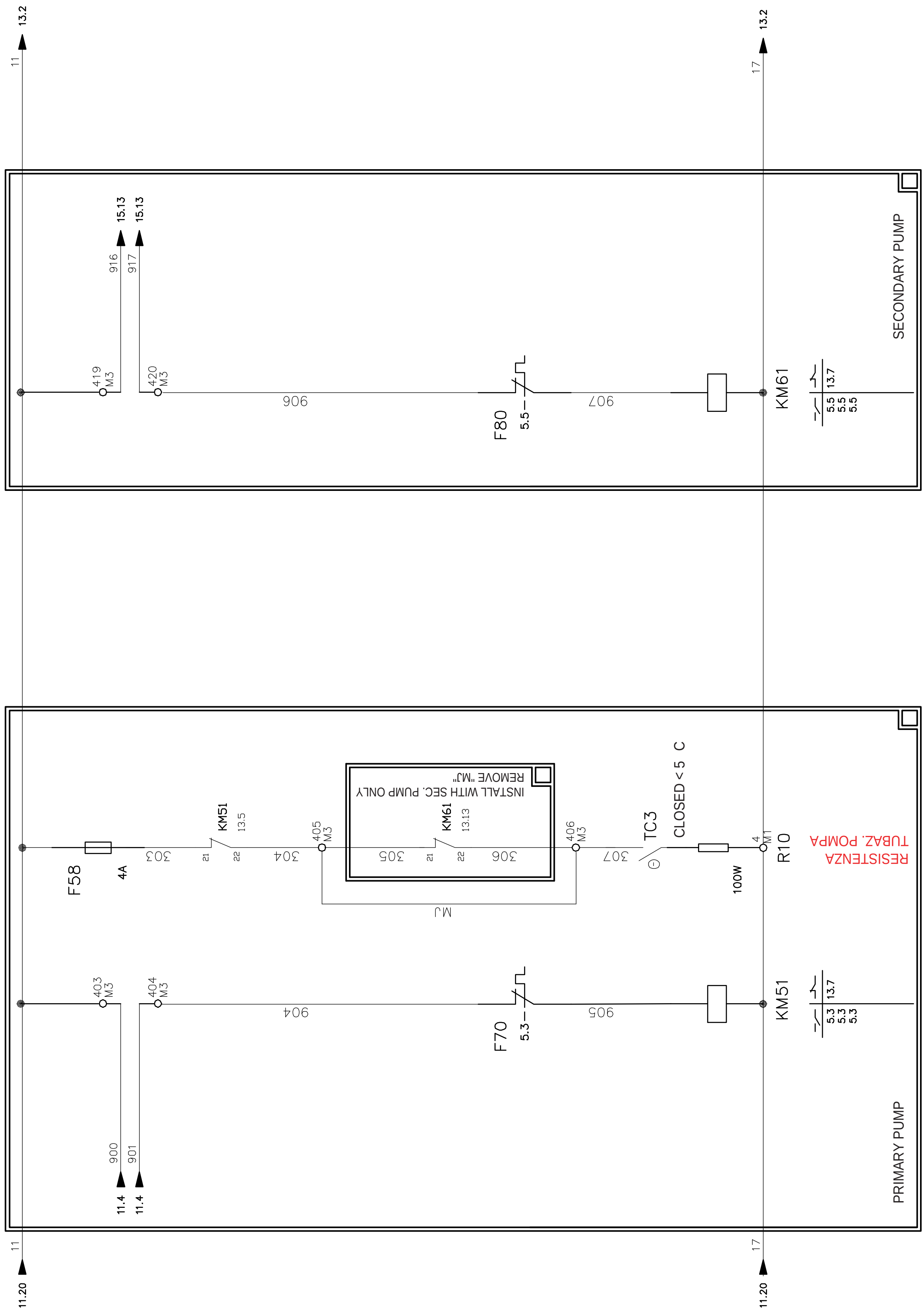
3.3.11 Fan Control Circuits 2



3.3.12 Pump Control



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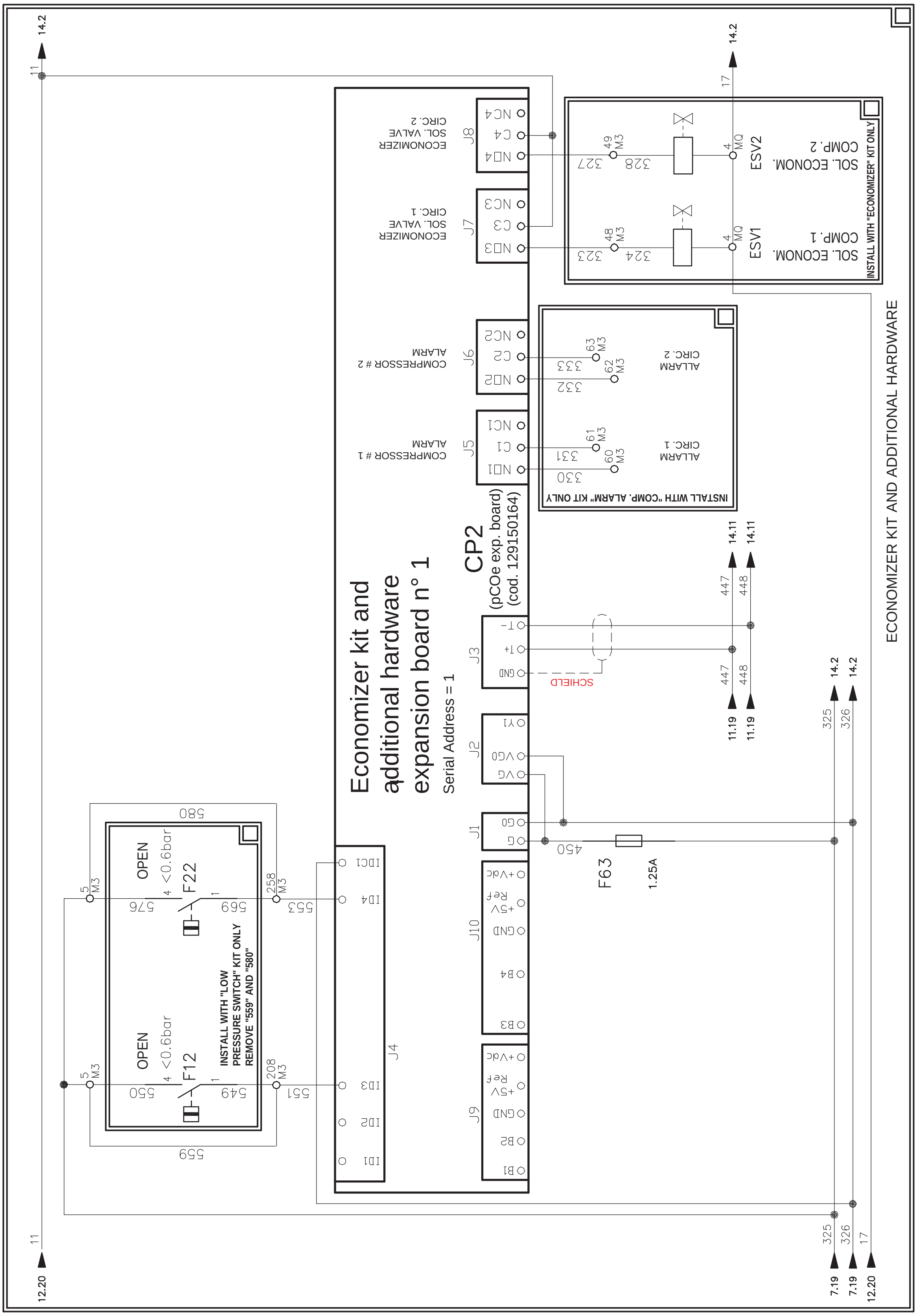
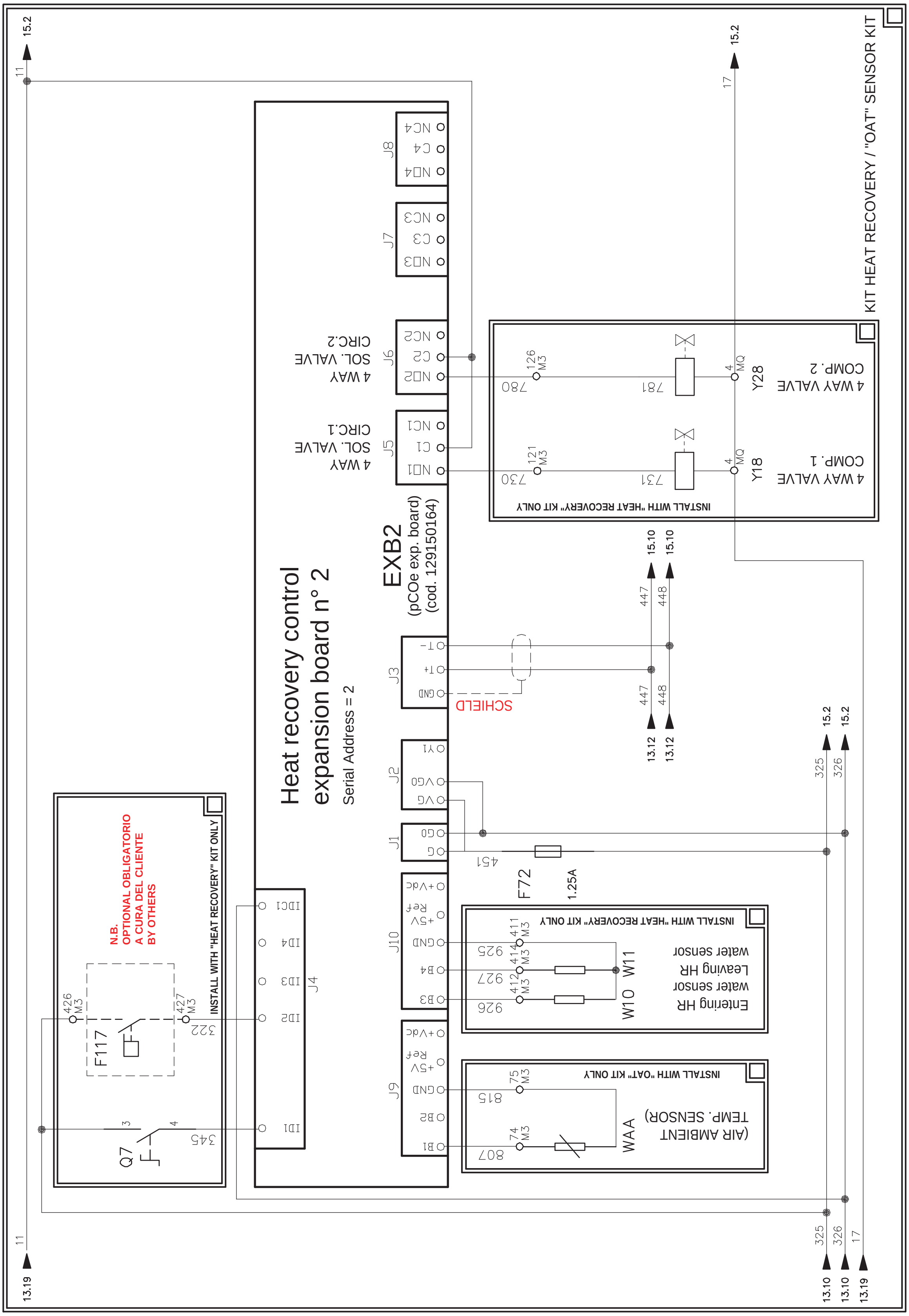
3.3.13 Economizer Expansion Board Kit



3.3.14 Heat Recovery Expansion Board Kit



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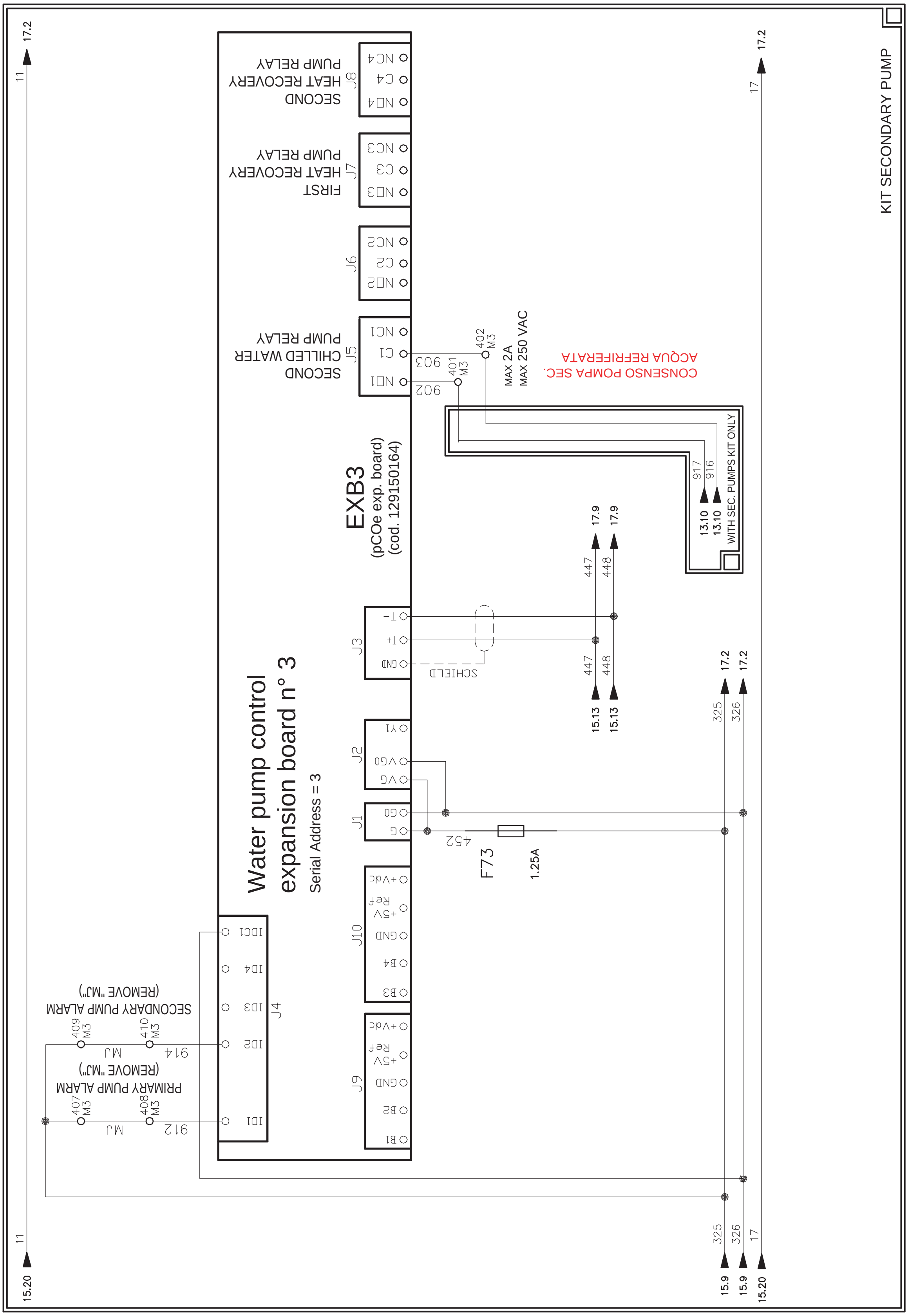
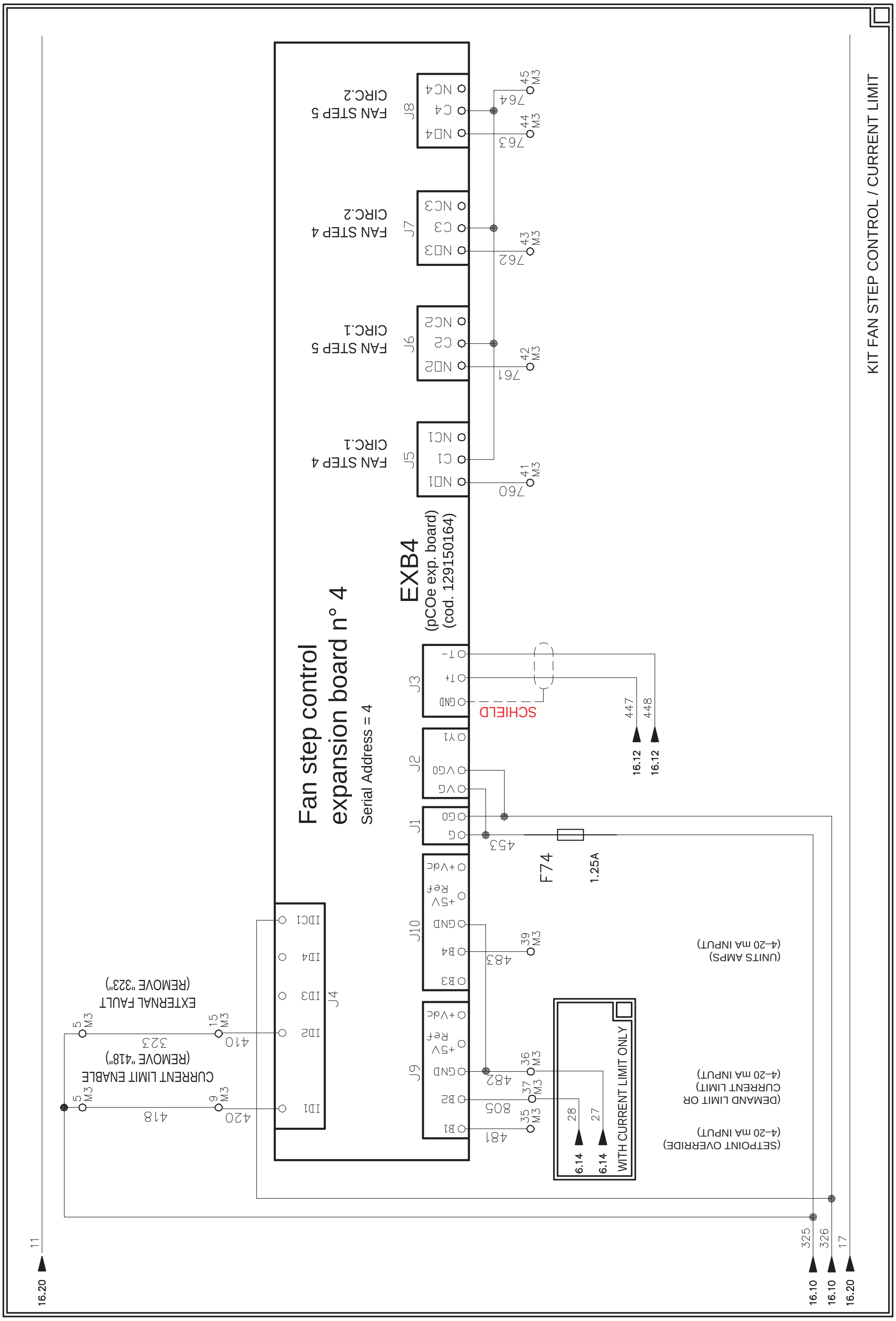
3.3.15 Pump Control Expansion Board



3.3.16 Fan Step Control Board



1

3.3.17 Terminals M1-M2-M3

TERMINAL
Compressor 1

M1

QG	–	M1	6	35	1			2.8
QG	–	M1	70	30	L1	30		2.3
QG	–	M1	6	34	2			2.8
QG	–	M1	70	31	L2	31		2.3
QG	–	M1	70	32	L3	32		2.4

TERMINAL
Compressor 2

M2

QG	–	M2	6	41	1			2.16
QG	–	M2	70	30	L1	30		2.11
QG	–	M2	6	40	2			2.16
QG	–	M2	70	31	L2	31		2.12
QG	–	M2	70	32	L3	32		2.12

MORSETTIERA QUADRO GENERALE
Customer Services

M3

QG	–	M3	–	325	5	322		8.7
QG	–	M3	–	325	5	418		17.4
QG	–	M3	–	325	5	323		17.5
QG	–	M3	–	325	5	550		14.5
QG	–	M3	–	580	5	576		14.7
QG	–	M3	–	529	6	529		9.8
QG	–	M3	–	570	7	570		11.8
QG	–	M3	–	325	8	429		8.4
QG	–	M3	–	418	9	420		17.4
QG	–	M3	–	323	15	410		17.5
QG	–	M3	–	322	21	415		8.7
QG	–	M3	–	430	23	431		8.4
QG	–	M3	–	530	25			12.6
QG	–	M3	–	531	26			12.6
QG	–	M3	–	532	27	901		12.4
QG	–	M3	–	533	28	900		12.4
QG	–	M3	–	481	35			17.4
QG	–	M3	–	482	36	27		17.5
QG	–	M3	–	805	37	28		17.4
QG	–	M3	–	483	39			17.6
QG	–	M3	–	760	41			17.13
QG	–	M3	–	761	42			17.14
QG	–	M3	–	762	43			17.16
QG	–	M3	–	763	44			17.18
QG	–	M3	–	764	45			17.19
QG	–	M3	–	323	48	324		14.17
QG	–	M3	–	327	49	328		14.18
QG	–	M3	–	325	58	MJ		8.19
QG	–	M3	–	MJ	59	344		8.19
QG	–	M3	–	330	60			14.13
QG	–	M3	–	331	61			14.14
QG	–	M3	–	332	62			14.15
QG	–	M3	–	333	63			14.15
QG	–	M3	–		74	322		15.4
QG	–	M3	–		75	322		15.4
QG	–	M3	–	730	121	731		15.13
QG	–	M3	–	780	126	781		15.15
QG	–	M3	–	549	208	551		14.5
QG	–	M3	–	569	258	553		14.7
QG	–	M3	–	902	401	917		16.14
QG	–	M3	–	903	402	916		16.14
QG	–	M3	–	902	403	MJ		13.5
QG	–	M3	–	903	404	MJ		13.5
QG	–	M3	–	MJ	405	304		13.7
QG	–	M3	–	MJ	406	307		13.7
QG	–	M3	–	325	407	325		16.4
QG	–	M3	–	325	408	MJ		16.4
QG	–	M3	–	325	409	325		16.5
QG	–	M3	–	325	410	MJ		16.5
QG	–	M3	–		411	322		15.6
QG	–	M3	–		412	322		15.6
QG	–	M3	–		414	322		15.6
QG	–	M3	–	11	419	916		13.13
QG	–	M3	–	906	420	917		13.13
QG	–	M3	–	11	426			15.5
QG	–	M3	–		427	322		15.5

3.3.18 Terminals MQ

MORSETTIERA QUADRO GENERALE
Compressor 1

MQ

QG	–	MQ	–	SC1	SC1	SC1		7.5
QG	–	MQ	–	SC2	SC2	SC2		7.15
QG	–	MQ	–	11	3	542		9.18
QG	–	MQ	–	325	3	562		11.13
QG	–	MQ	–	11	3	11		6.17
QG	–	MQ	–	17	4	17		9.13
QG	–	MQ	–	17	4	17		9.11
QG	–	MQ	–	17	4	17		9.10
QG	–	MQ	–	17	4	17		11.10
QG	–	MQ	–	17	4	17		11.11
QG	–	MQ	–	17	4	17		11.16
QG	–	MQ	–	17	4	17		6.18
QG	–	MQ	–	17	4	17		6.17
QG	–	MQ	–	17	4	17		14.17
QG	–	MQ	–	17	4	17		14.18
QG	–	MQ	–	17	4	17		15.14
QG	–	MQ	–	17	4	17		15.15
QG	–	MQ	–	325	5	325		8.1
QG	–	MQ	–	300	5	325		6.3
QG	–	MQ	–	359	5			6.14
QG	–	MQ	–	179	10	179		7.5
QG	–	MQ	–	326	11	472		8.13
QG	–	MQ	–	467	12	473		8.14
QG	–	MQ	–	326	13	475		8.14
QG	–	MQ	–	468	14	476		8.15
QG	–	MQ	–	181	19	181		7.6
QG	–	MQ	–	326	20	326		8.1
QG	–	MQ	–	360	20			6.14
QG	–	MQ	–	321	20	326		6.4
QG	–	MQ	–	180	23	180		7.6
QG	–	MQ	–	182	24	182		7.6
QG	–	MQ	–	460	29	460		8.10
QG	–	MQ	–	801	30	801		8.10
QG	–	MQ	–	462	31	462		8.10
QG	–	MQ	–	803	32	803		8.5
QG	–	MQ	–	801	33	801		8.4
QG	–	MQ	–	802	34	802		8.4
QG	–	MQ	–	486	38	486		8.3
QG	–	MQ	–	463	40	463		8.10
QG	–	MQ	–	308	47	309		6.18
QG	–	MQ	–	187	48	187		7.8
QG	–	MQ	–	188	49	188		7.8
QG	–	MQ	–	175	50	175		7.15
QG	–	MQ	–	177	51	177		7.15
QG	–	MQ	–	176	52	176		7.16
QG	–	MQ	–	178	53	178		7.16
QG	–	MQ	–	191	56	191		7.18
QG	–	MQ	–	192	57	192		7.18
QG	–	MQ	–	543	64	541		9.18
QG	–	MQ	–	804	73	804		8.5
QG	–	MQ	–	563	84	563		11.13

1

3.3.19 Legend

Item	Description
CP1	Analog digital inputs board
EXVB.1-2	Electronic expansion valve board
EXV.1-2	Electronic expansion valve
EXVb.1-2	Electronic expansion battery valve
F1-2	Compressor fuses
F13-23	High pressure switch
F51-52	Compressor thermal relays
F59	Evaporator heater fuse
F60/62	Protection auxiliary circuit fuse
F100/200	Fan fuse
F112	Phase volt monitor
F116	Evaporator flow switch (not installed)
F120	Transformer T1 protection
F130	Phase voltage monitor protection
KM2-4-55-65	Compressor contactors
KM11/15 21/25	Fan contactors
K1-3-16-26	Auxiliary relay
K12	ON-OFF remote unit auxiliary relay
KT13-23	Time delay relay
M1/2	Compressor motor
M11/17 21/27	Fan motor
MP1-2	Motor thermal protection
Q0	ON-OFF unit switch
Q1-2	ON-OFF compressor switch
Q10	Main switch
Q11	Emergency stop
Q12	Automatic circuit breaker
R1-2	Compressor crankcase heater
R5	Evaporator heater
T1	230/24V transformer
Y5-6	Liquid injection solenoid valve
Y12/23	Unloader solenoid valve
WH1-2	High pressure transducer (0/30 Bar)
WIE	Entering evaporator water sensor
WD1-2	Discharge sensor
WL1-2	Low pressure transducer (-0.5/7 Bar)
WOE	Leaving evaporator water sensor
WO1-2	Oil pressure transducer (0/30 Bar)
W1-2	Compressor thermistors
LCD	Key pad switch and display

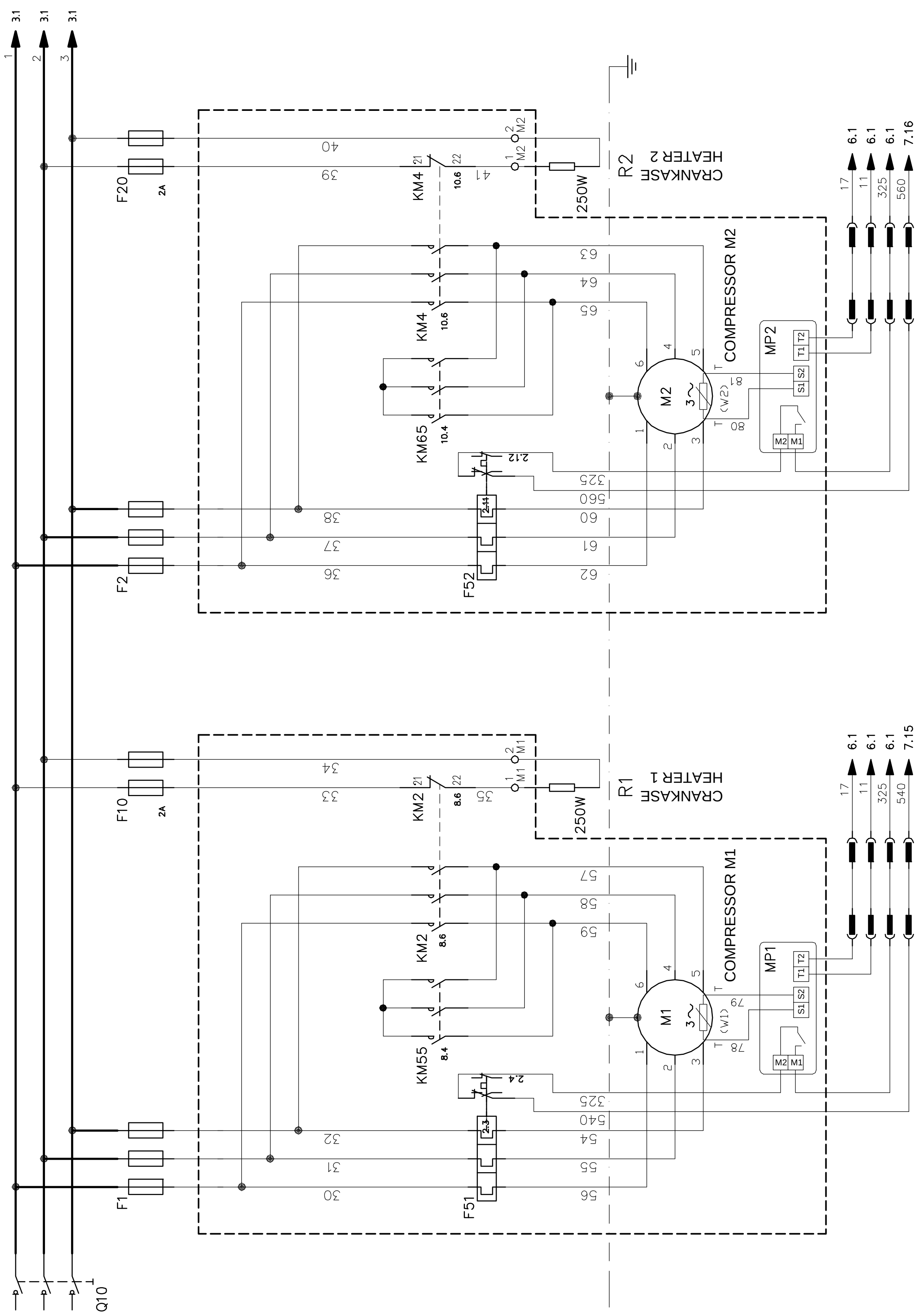
3.4 Wiring Diagram - EWAD-AJYNN with Thermostatic Expansion Valve

Overview

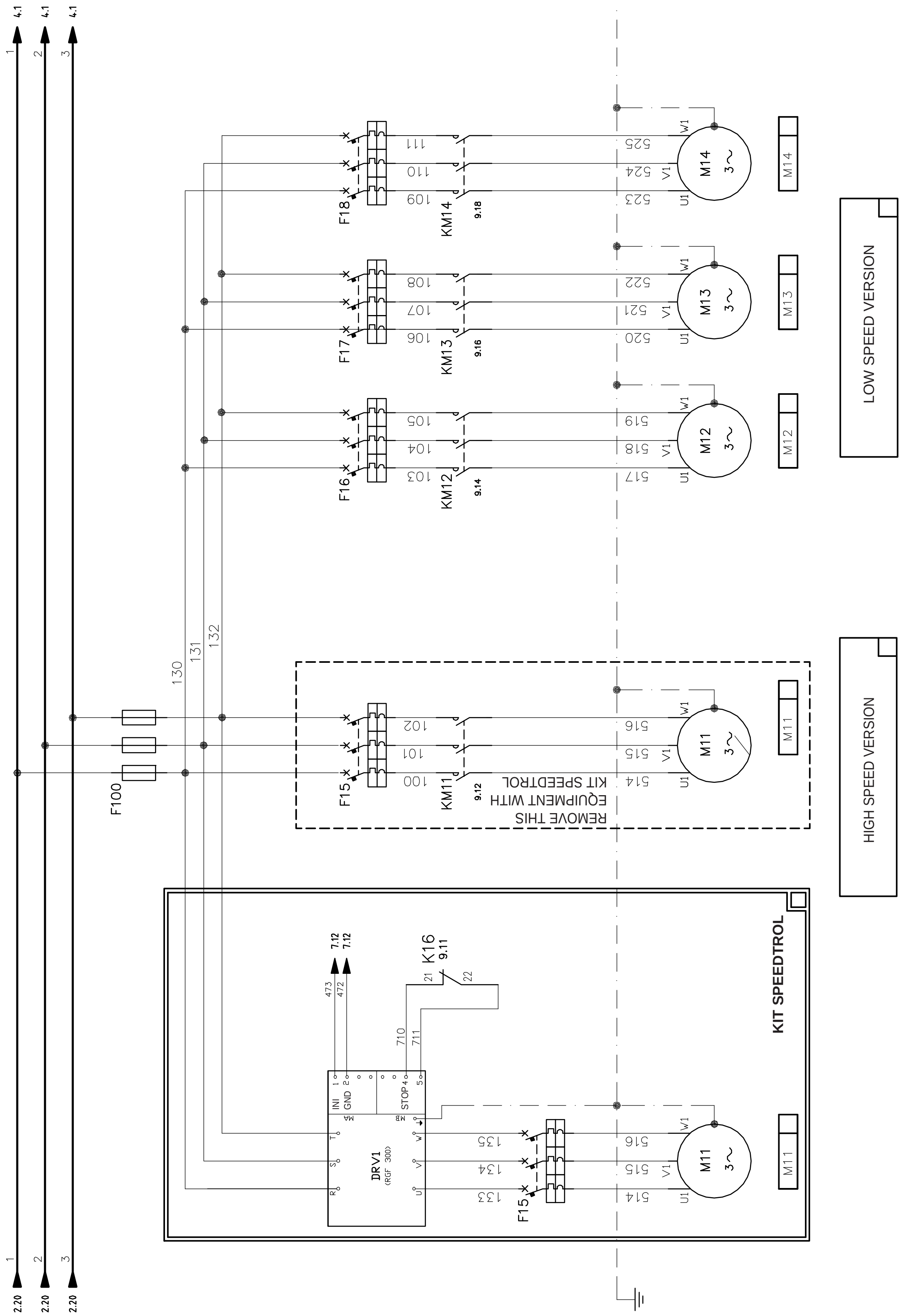
This chapter contains the following topics:

1

3.4.1 Compressor 1-2 Power Supply

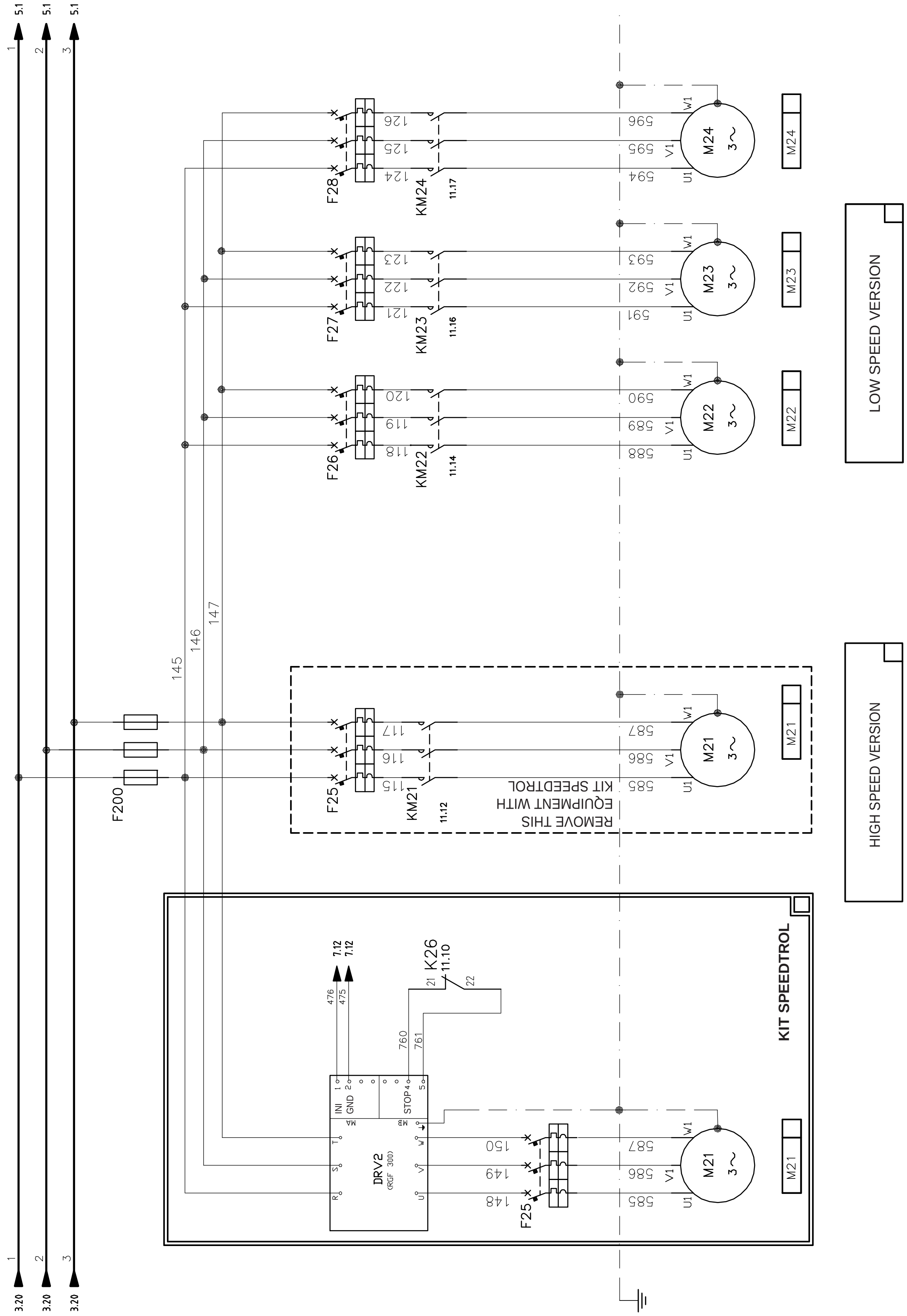


3.4.2 Circuits 1 Fan Power Supply



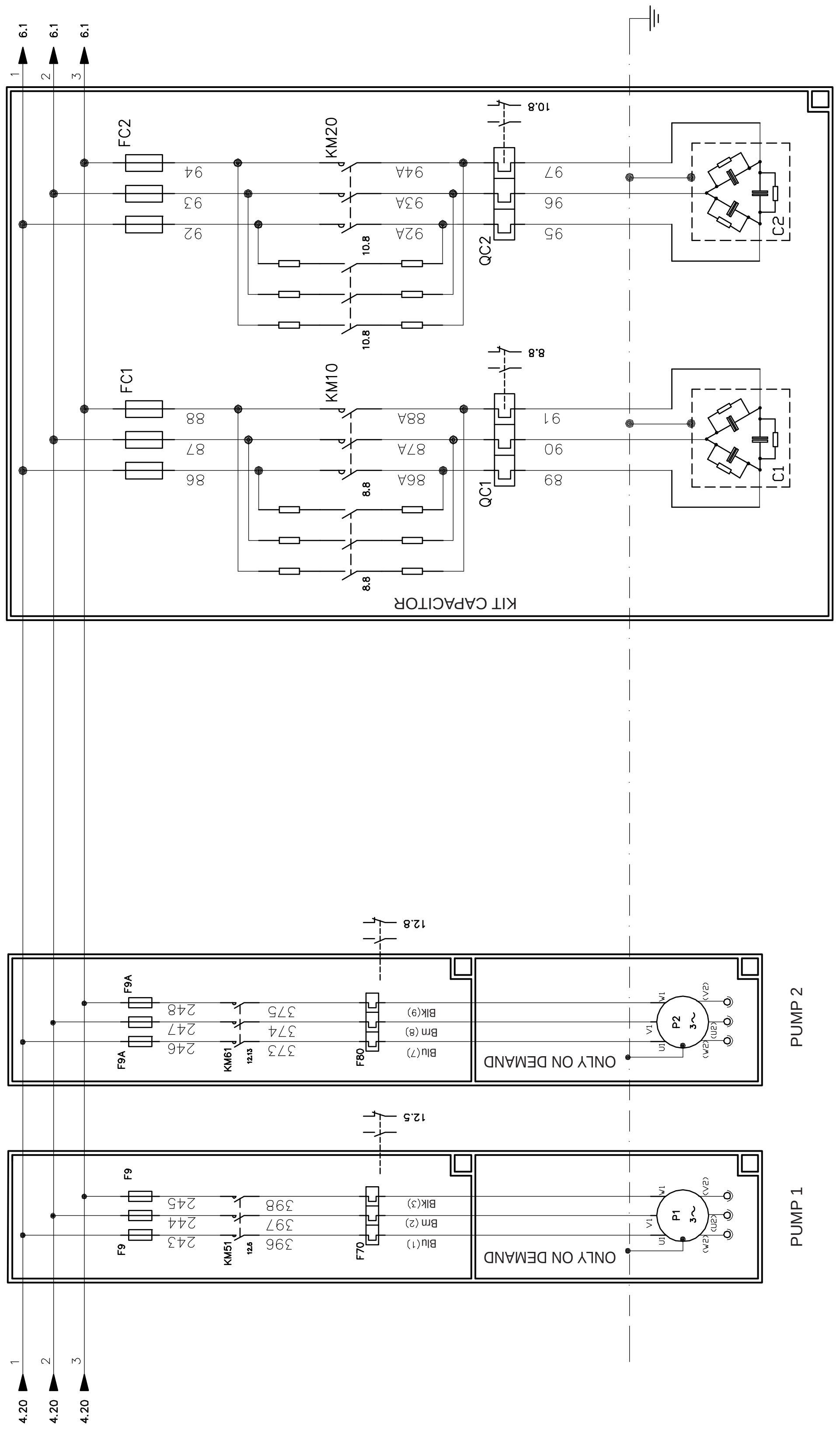
For more details on kit speedtrol, see page 1–193.

3.4.3 Circuits 2 Fan Power Supply



For more details on kit speedtrol, see page 1–193.

3.4.4 Kit Pumps



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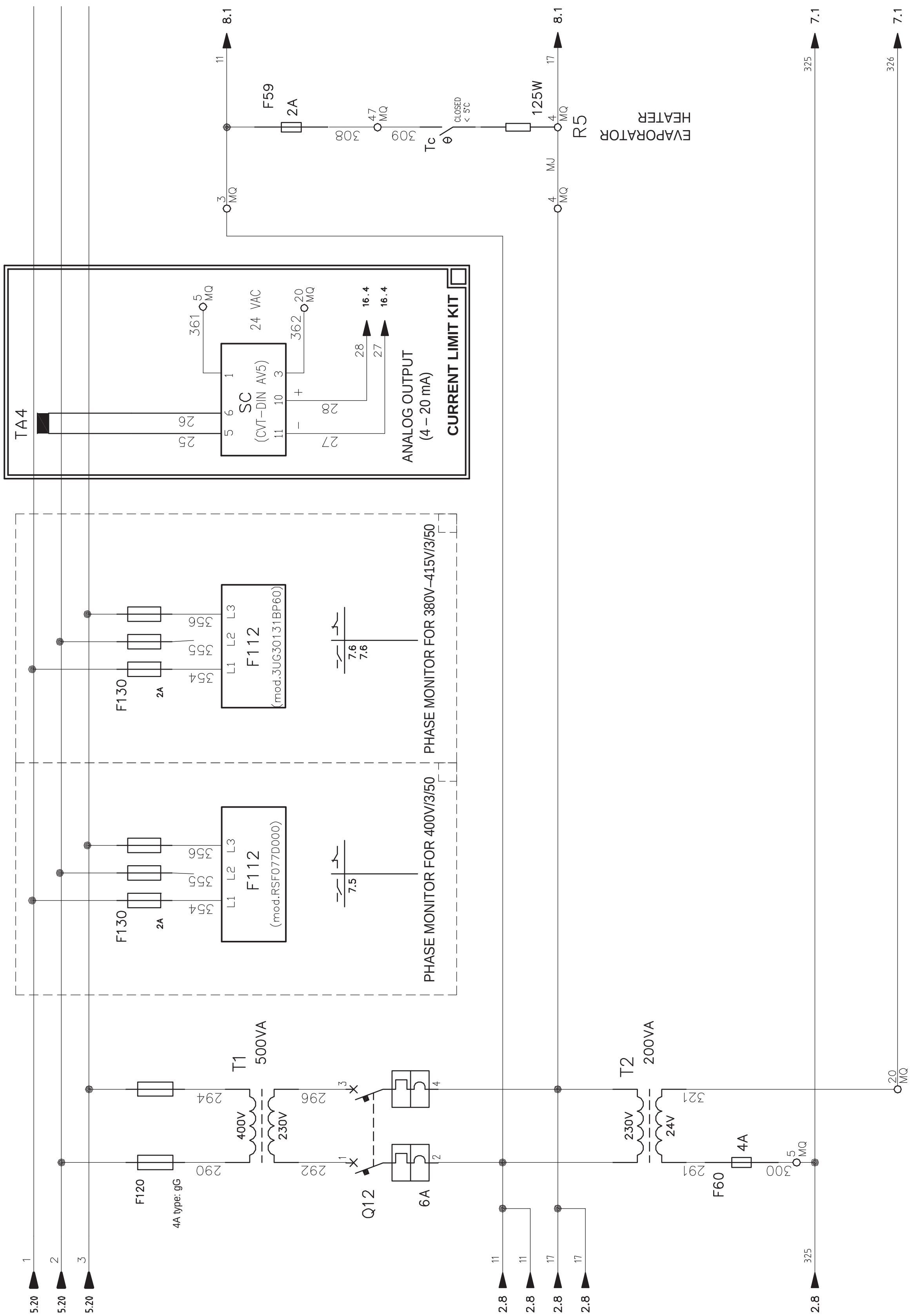
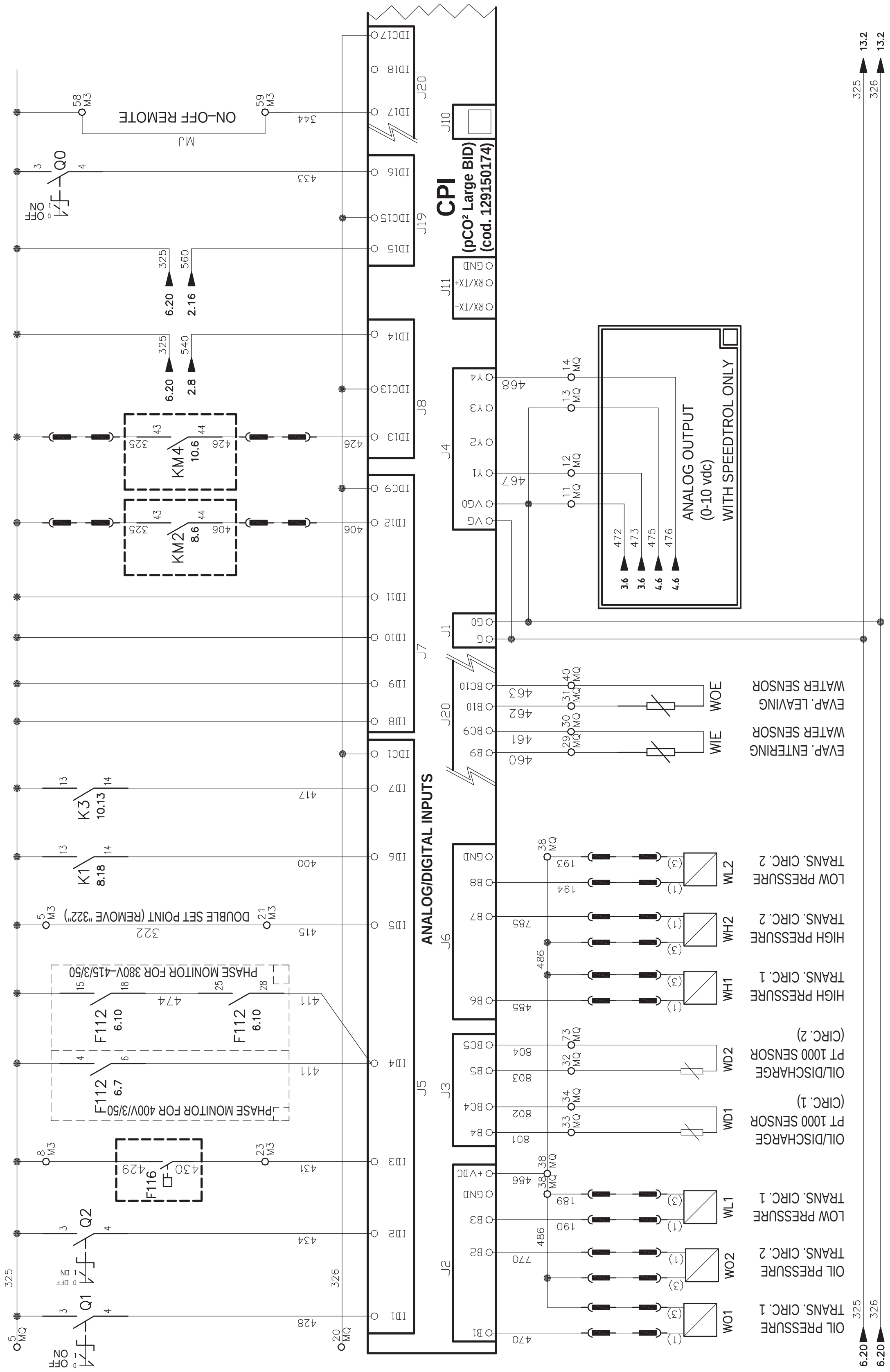
3.4.5 Unit Control Circuit Power Supply



3.4.6 Analog-Digital Inputs Board 1/2



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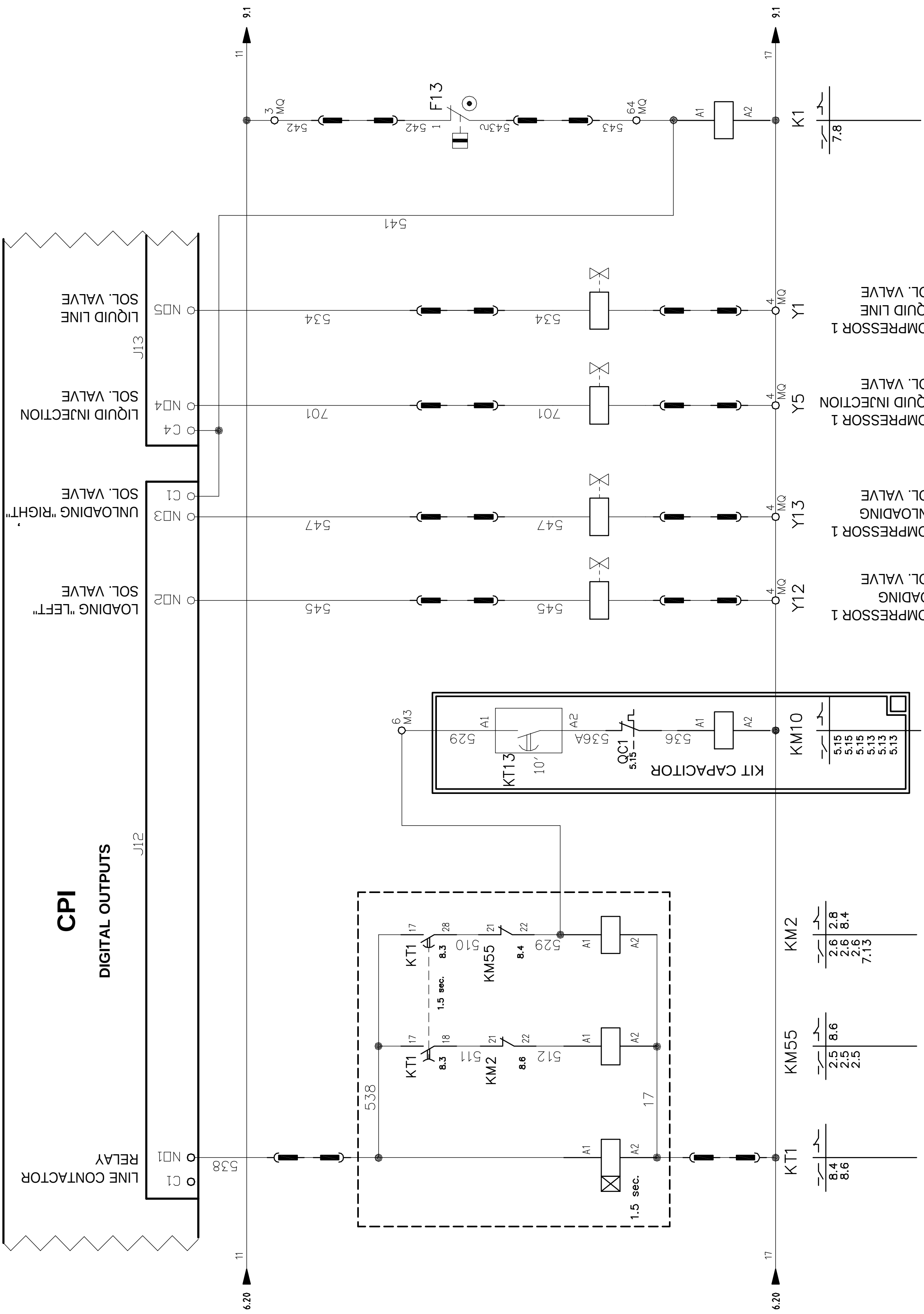
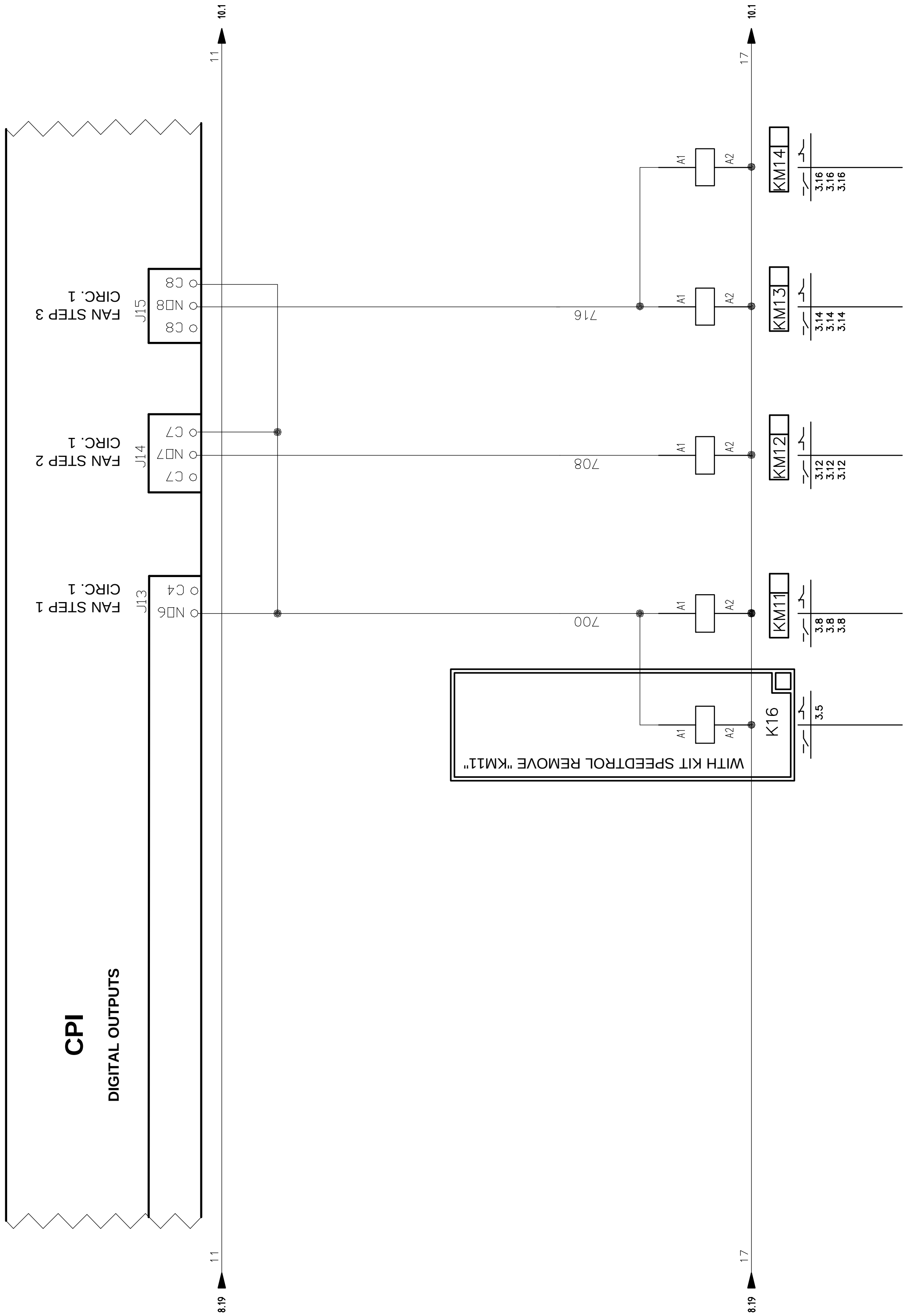
3.4.7 Compressor 1 Control



3.4.8 Fan Control Circuits 1



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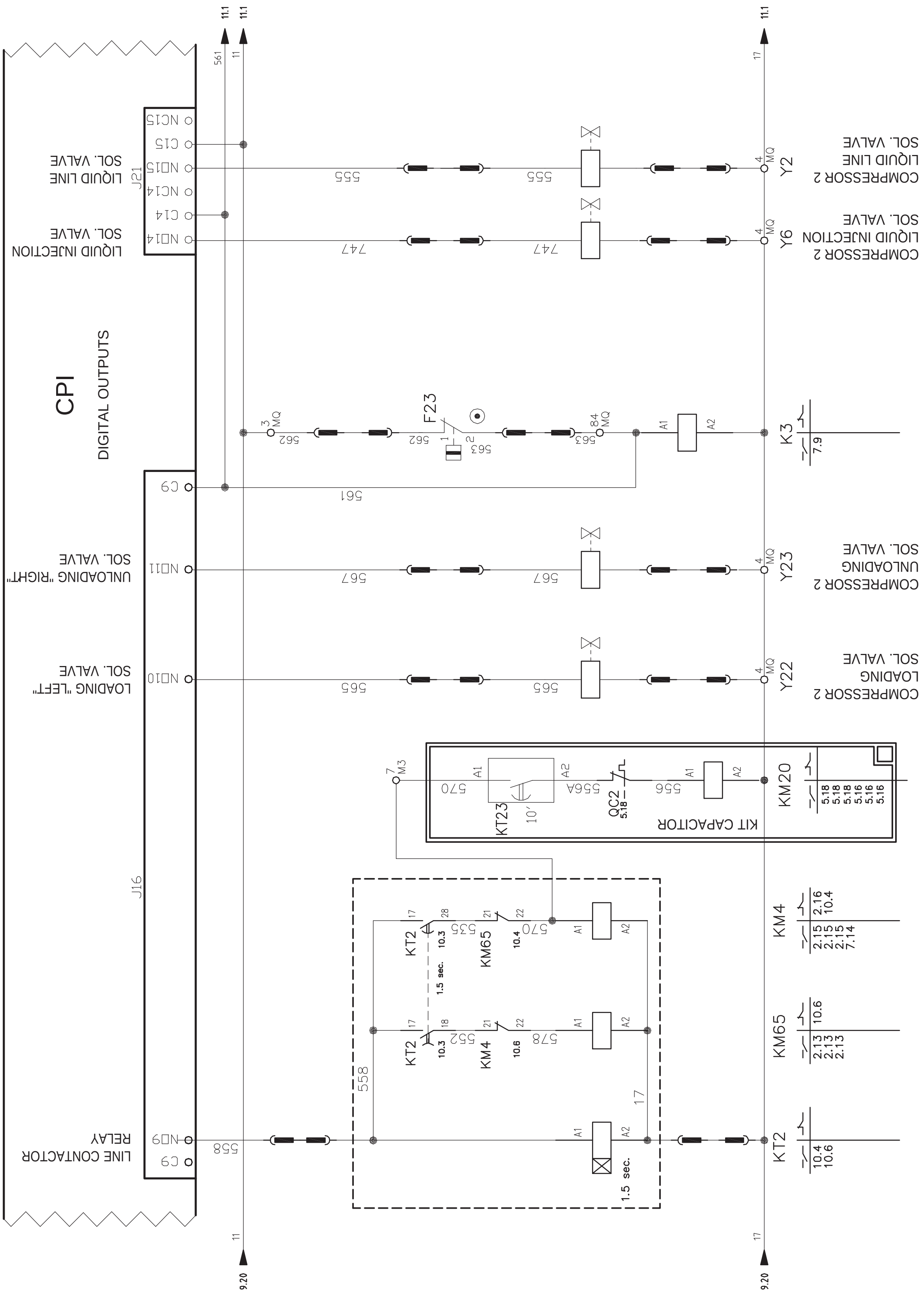
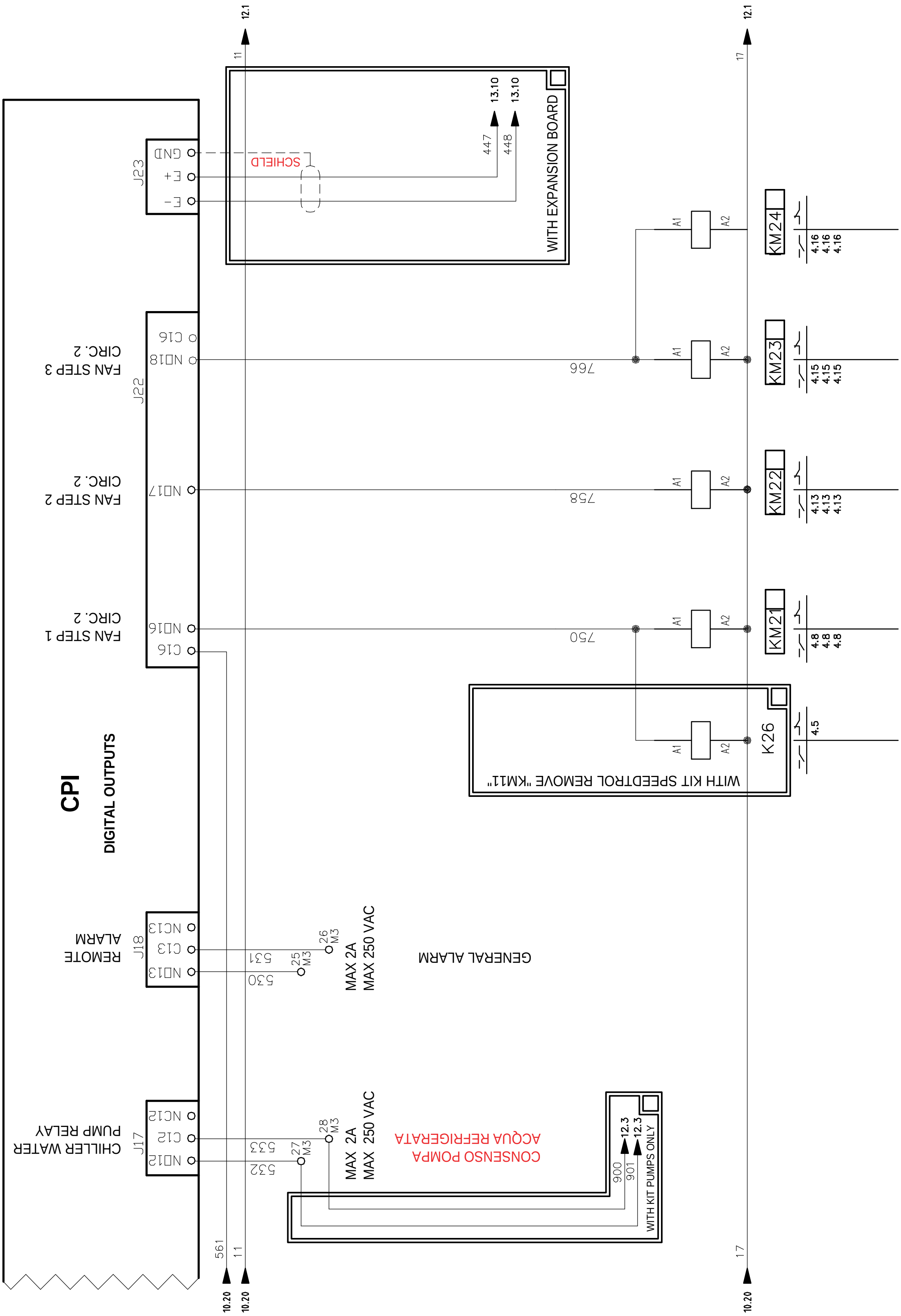
3.4.9 Compressor 2 Control Circuit



3.4.10 Fan Control Circuits 2



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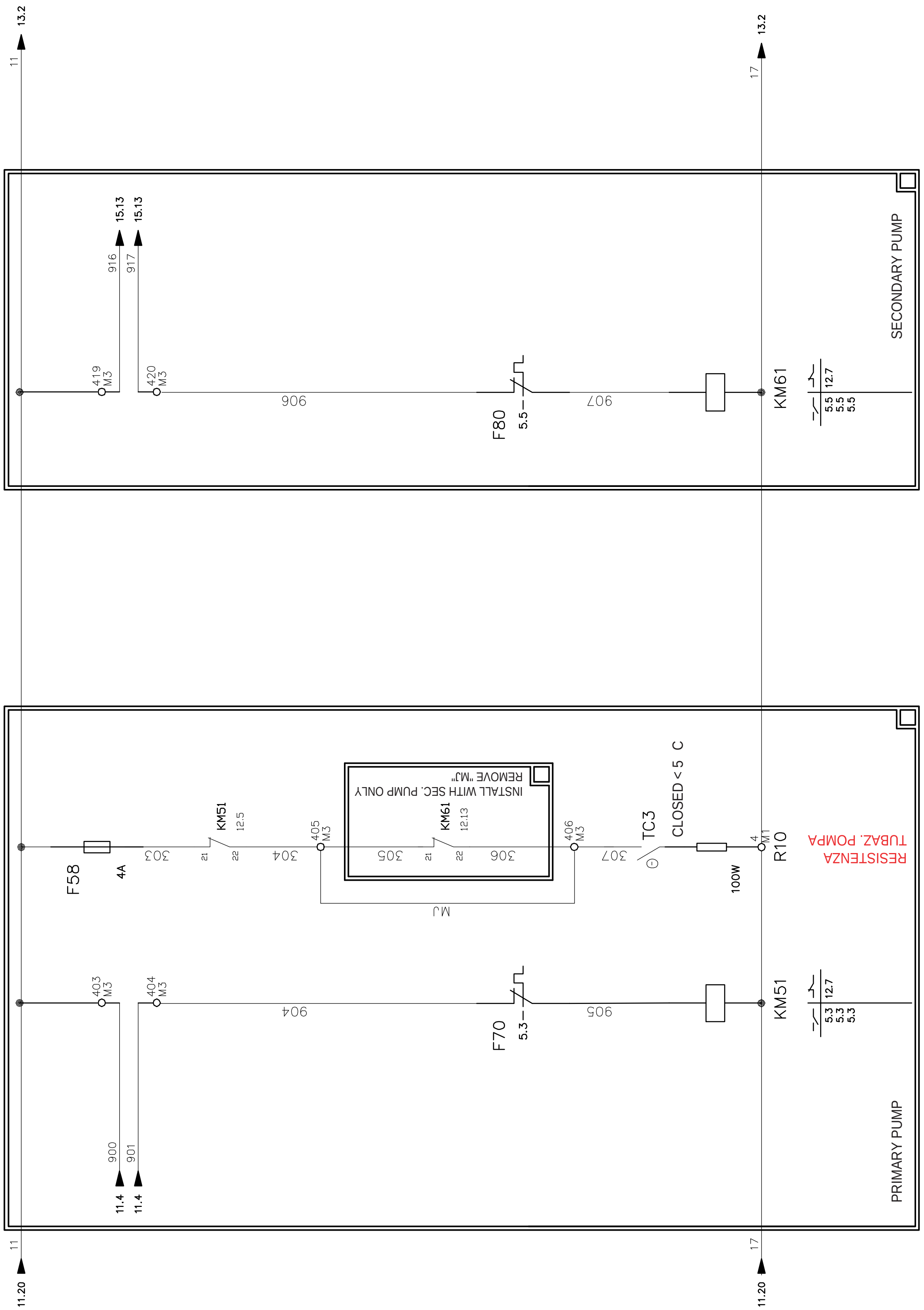
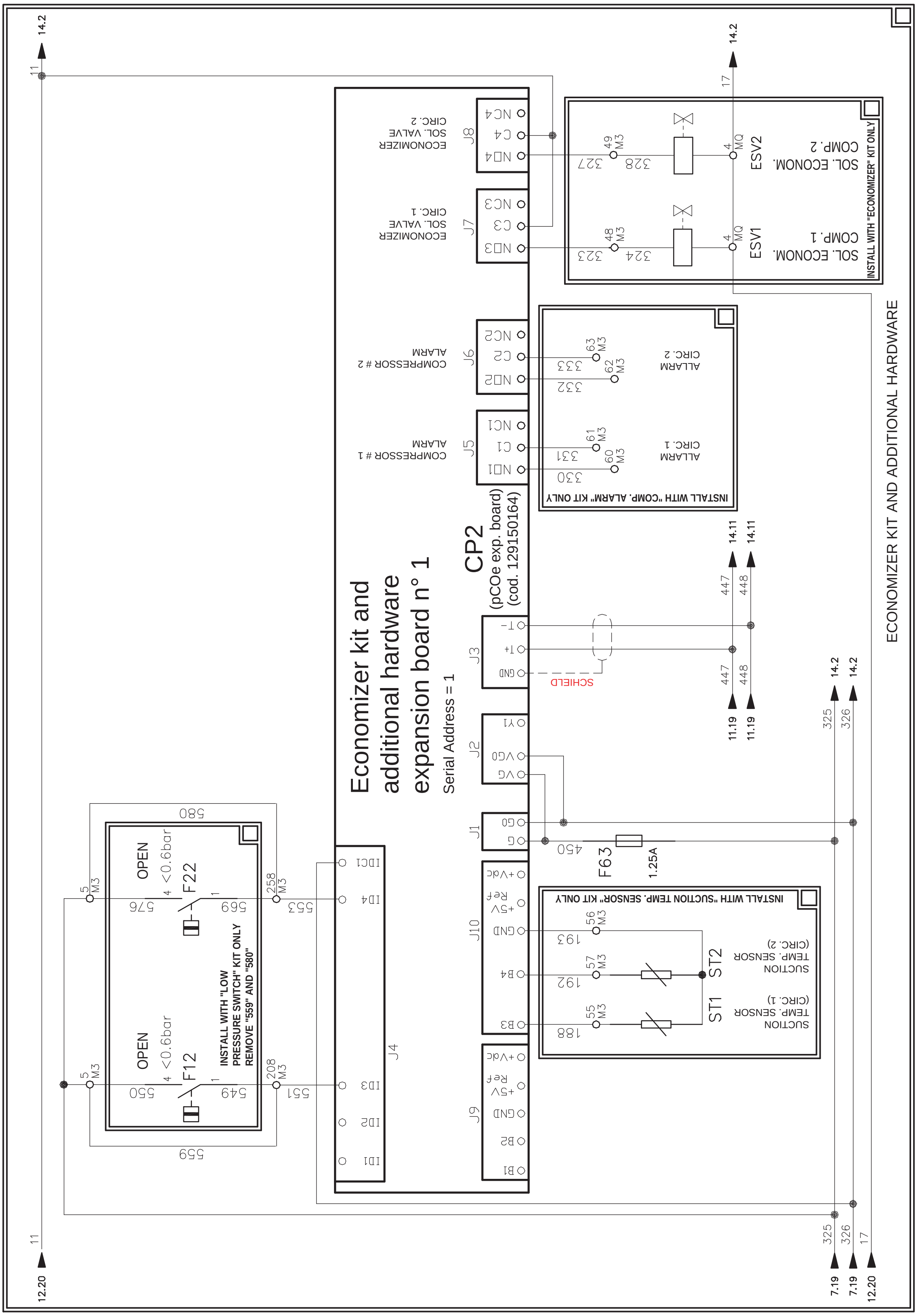
3.4.11 Pump Control



3.4.12 Economizer Expansion Board Kit



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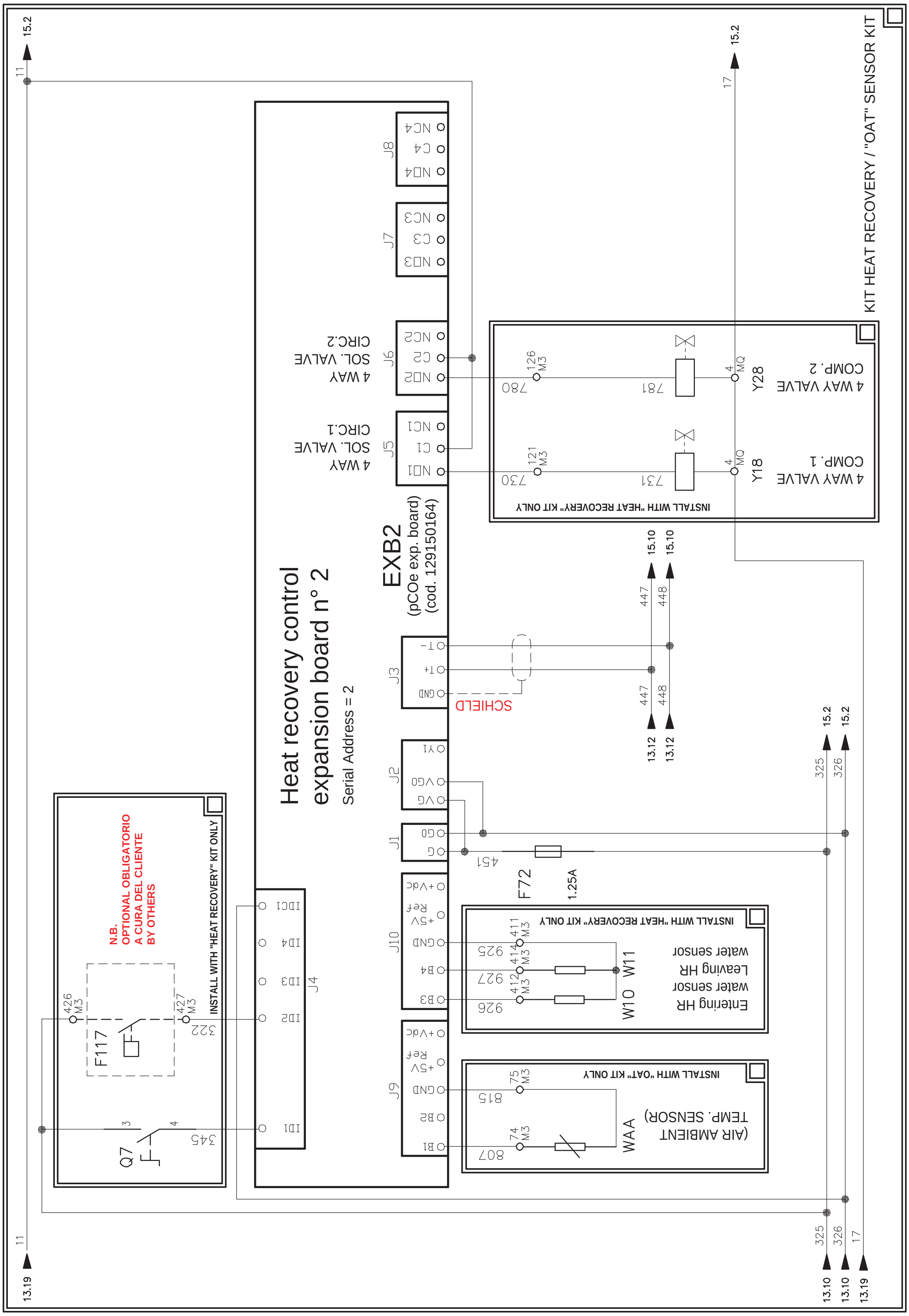
3.4.13 Heat Recovery Expansion Board Kit



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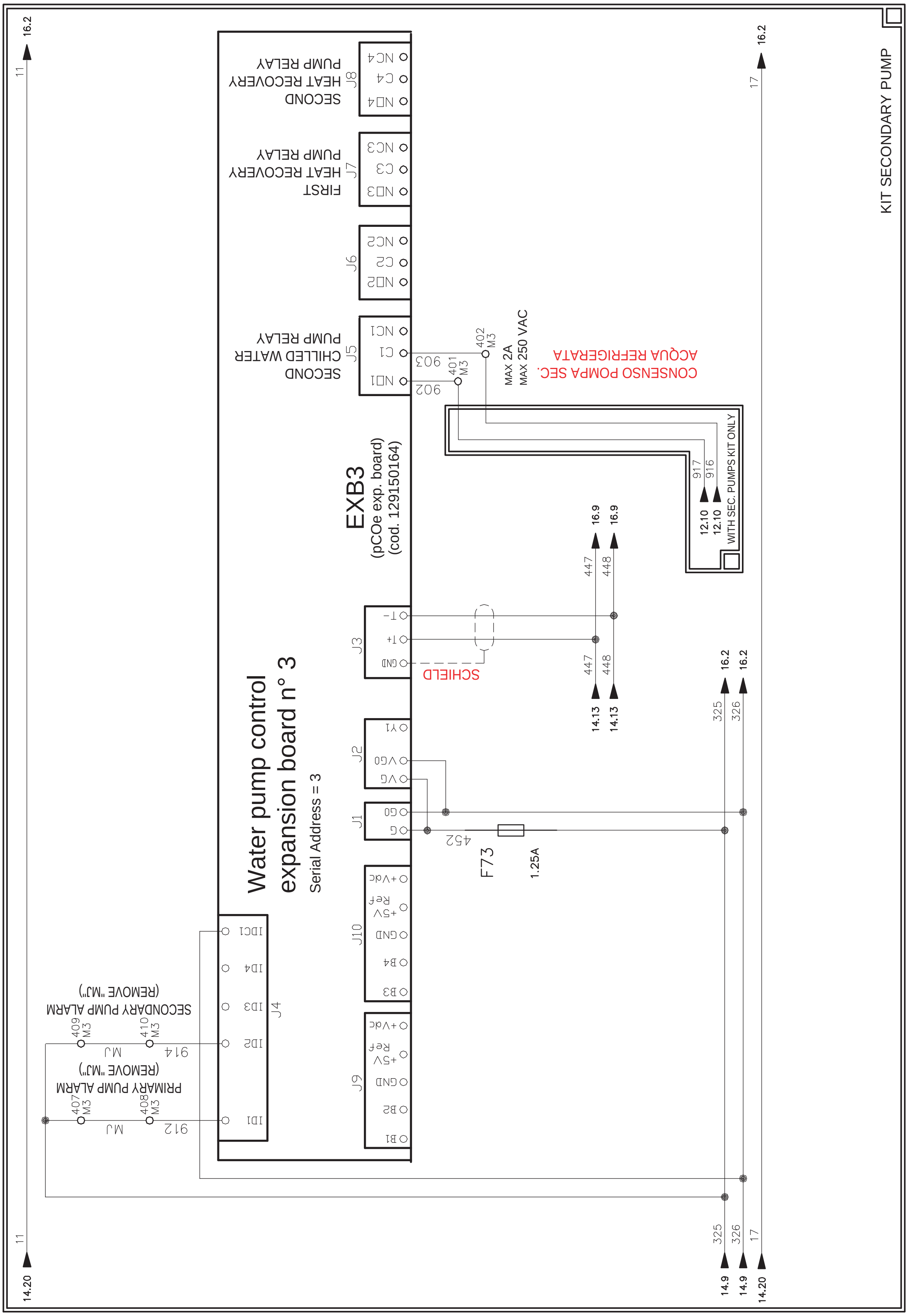
3.4.14 Pump Control Expansion Board



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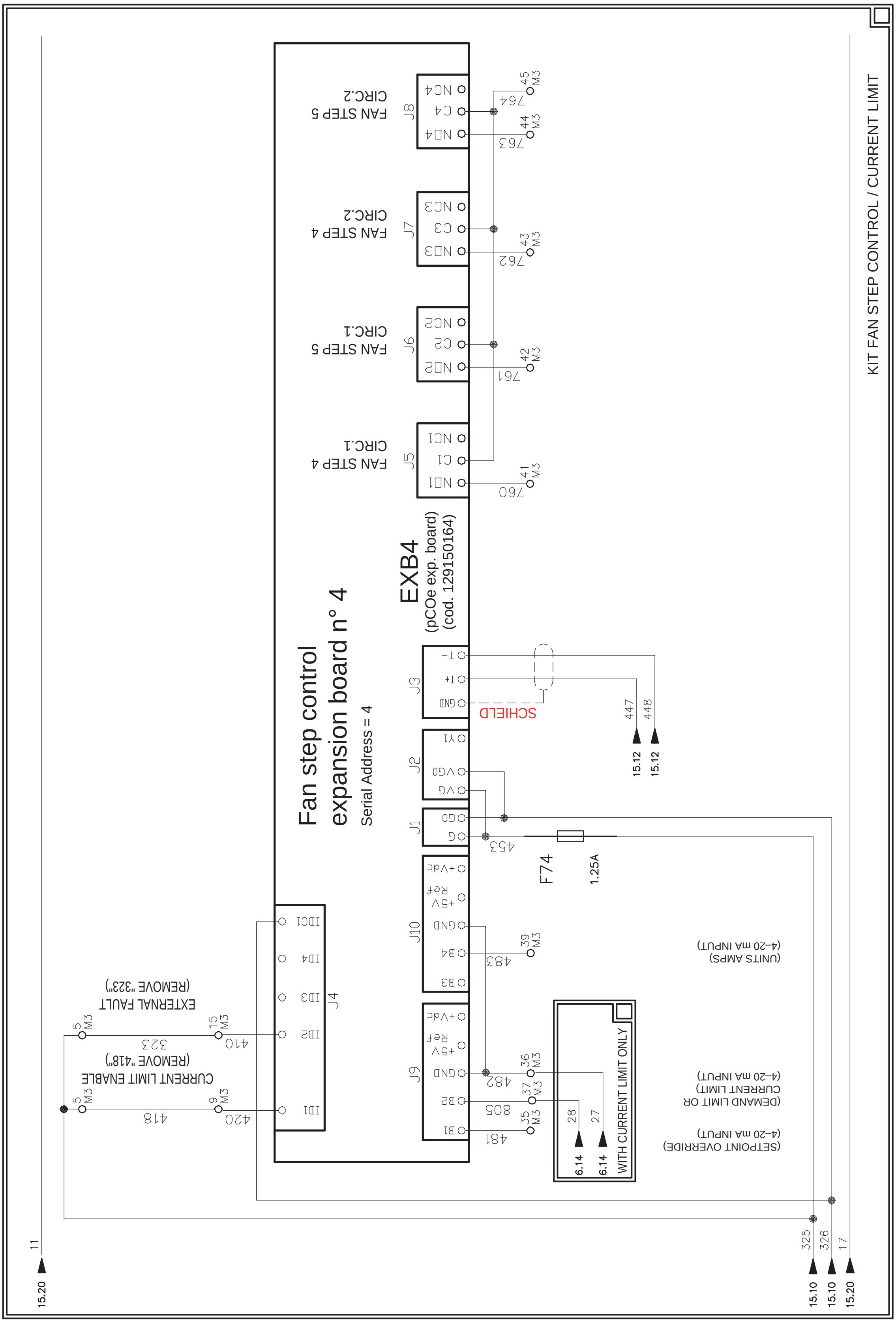
3.4.15 Fan Step Control Board



3.4.16 Terminals M1-M2-M3

TERMINAL
Compressor 1

M1

QG	–	M1	6	35	1			2.8
QG	–	M1	70	30	L1	30		2.3
QG	–	M1	6	34	2			2.8
QG	–	M1	70	31	L2	31		2.3
QG	–	M1	70	32	L3	32		2.4

TERMINAL
Compressor 2

M2

QG	–	M2	6	41	1			2.16
QG	–	M2	70	30	L1	30		2.11
QG	–	M2	6	40	2			2.16
QG	–	M2	70	31	L2	31		2.12
QG	–	M2	70	32	L3	32		2.12

MORSETTIERA QUADRO GENERALE
Customer Services

M3

QG	–	M3	–	325	8	429		7.4
QG	–	M3	–	430	23	431		7.4
QG	–	M3	–	530	25			11.6
QG	–	M3	–	531	26			11.6
QG	–	M3	–	532	27	901		11.4
QG	–	M3	–	533	28	900		11.4
QG	–	M3	–	325	58	MJ		7.19
QG	–	M3	–	MJ	59	344		7.19
QG	–	M3	–	325	5	322		7.7
QG	–	M3	–	325	5	550		13.5
QG	–	M3	–	580	5	576		13.7
QG	–	M3	–	325	5	418		16.4
QG	–	M3	–	325	5	323		16.5
QG	–	M3	–	529	6	529		8.8
QG	–	M3	–	570	7	570		10.8
QG	–	M3	–	418	9	420		16.4
QG	–	M3	–	323	15	410		16.5
QG	–	M3	–	322	21	415		7.7
QG	–	M3	–	481	35			16.4
QG	–	M3	–	482	36	27		16.5
QG	–	M3	–	805	37	28		16.4
QG	–	M3	–	483	39			16.6
QG	–	M3	–	760	41			16.13
QG	–	M3	–	761	42			16.14
QG	–	M3	–	762	43			16.16
QG	–	M3	–	763	44			16.18
QG	–	M3	–	764	45			16.19
QG	–	M3	–	323	48	324		13.17
QG	–	M3	–	327	49	328		13.18
QG	–	M3	–	331	55			13.5
QG	–	M3	–	331	56			13.7
QG	–	M3	–	331	57			13.6
QG	–	M3	–	330	60			13.13
QG	–	M3	–	331	61			13.14
QG	–	M3	–	332	62			13.15
QG	–	M3	–	333	63			13.15
QG	–	M3	–		74	322		14.4
QG	–	M3	–		75	322		14.4
QG	–	M3	–	730	121	731		14.13
QG	–	M3	–	780	126	781		14.15
QG	–	M3	–	549	208	551		13.5
QG	–	M3	–	569	258	553		13.7
QG	–	M3	–	902	401	917		15.14
QG	–	M3	–	903	402	916		15.14
QG	–	M3	–	902	403	MJ		12.5
QG	–	M3	–	903	404	MJ		12.5
QG	–	M3	–	MJ	405	304		12.7
QG	–	M3	–	MJ	406	307		12.7
QG	–	M3	–	325	407	325		15.4
QG	–	M3	–	325	408	MJ		15.4
QG	–	M3	–	325	409	325		15.5
QG	–	M3	–	325	410	MJ		15.5
QG	–	M3	–		411	322		14.6
QG	–	M3	–		412	322		14.6
QG	–	M3	–		414	322		14.6
QG	–	M3	–	11	419	916		12.13
QG	–	M3	–	906	420	917		12.13
QG	–	M3	–	11	426			14.5
QG	–	M3	–		427	322		14.5

1

3.4.17 Terminals MQ

MORSETTIERA QUADRO GENERALE
Compressor 1

MQ

QG – MQ	–	325	3	562		10.13
QG – MQ	–	11	3	11		6.17
QG – MQ	–	11	3	542		8.18
QG – MQ	–	17	4	17		6.18
QG – MQ	–	17	4	17		14.15
QG – MQ	–	17	4	17		6.17
QG – MQ	–	17	4	17		13.17
QG – MQ	–	17	4	17		13.18
QG – MQ	–	17	4	17		14.14
QG – MQ	–	17	4	17		8.11
QG – MQ	–	17	4	17		8.10
QG – MQ	–	17	4	17		10.16
QG – MQ	–	17	4	17		8.14
QG – MQ	–	17	4	17		10.11
QG – MQ	–	17	4	17		10.10
QG – MQ	–	17	4	17		8.13
QG – MQ	–	17	4	17		10.17
QG – MQ	–	359	5			6.14
QG – MQ	–	325	5	325		7.1
QG – MQ	–	300	5	325		6.3
QG – MQ	–	326	11	472		7.13
QG – MQ	–	467	12	473		7.14
QG – MQ	–	326	13	475		7.14
QG – MQ	–	468	14	476		7.15
QG – MQ	–	360	20			6.14
QG – MQ	–	326	20	326		7.1
QG – MQ	–	321	20	326		6.4
QG – MQ	–	189	38	486		7.3
QG – MQ	–	193	38	486		7.8
QG – MQ	–	486	38	486		7.3
QG – MQ	–	543	64	541		8.18
QG – MQ	–	563	84	563		10.13
QG – MQ	–	460	29	460		7.10
QG – MQ	–	801	30	801		7.10
QG – MQ	–	462	31	462		7.10
QG – MQ	–	803	32	803		7.5
QG – MQ	–	801	33	801		7.4
QG – MQ	–	802	34	802		7.4
QG – MQ	–	463	40	463		7.10
QG – MQ	–	308	47	309		6.18
QG – MQ	–	804	73	804		7.5

3.4.18 Legend

Item	Description
CP1	Analog digital inputs board
F1-2	Compressor fuses
F13-23	High pressure switch
F51-52	Compressor thermal relays
F59	Evaporator heater fuse
F60/62	Protection auxiliary circuit fuse
F100/200	Fan fuse
F112	Phase volt monitor
F116	Evaporator flow switch (not installed)
F120	Transformer T1 protection
F130	Phase voltage monitor protection
KM2-4-55-65	Compressor contactors
KM11/15 21/25	Fan contactors
K1-3-16-26	Auxiliary relay
K12	ON-OFF remote unit auxiliary relay
KT13-23	Time delay relay
M1/2	Compressor motor
M11/17 21/27	Fan motor
MP1-2	Motor thermal protection
Q0	ON-OFF unit switch
Q1-2	ON-OFF compressor switch
Q10	Main switch
Q11	Emergency stop
Q12	Automatic circuit breaker
R1-2	Compressor crankcase heater
R5	Evaporator heater
ST1-2	Suction temperature sensor
Y1-2	Liquid line solenoid valve
T1	230/24V transformer
Y5-6	Liquid injection solenoid valve
Y12/23	Unloader solenoid valve
WH1-2	High pressure transducer (0/30 Bar)
WIE	Entering evaporator water sensor
WD1-2	Discharge sensor
WL1-2	Low pressure transducer (-0.5/7 Bar)
WOE	Leaving evaporator water sensor
WO1-2	Oil pressure transducer (0/30 Bar)
W1-2	Compressor thermistors

1

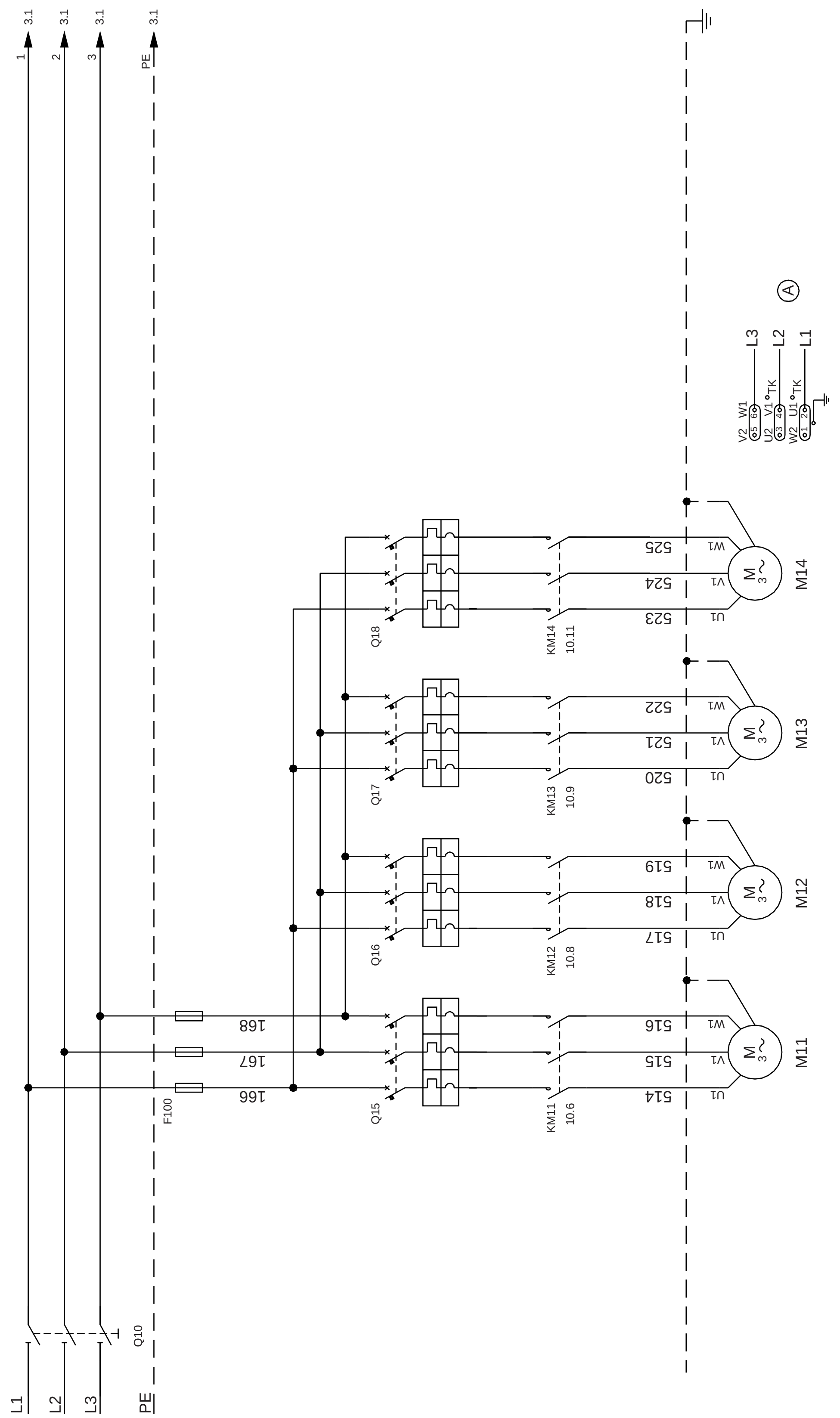
3.5 Wiring Diagram - EWYD-AJYNN

Overview

This chapter contains the following topics:

1

3.5.1 Circuits Fan Power Supply 1



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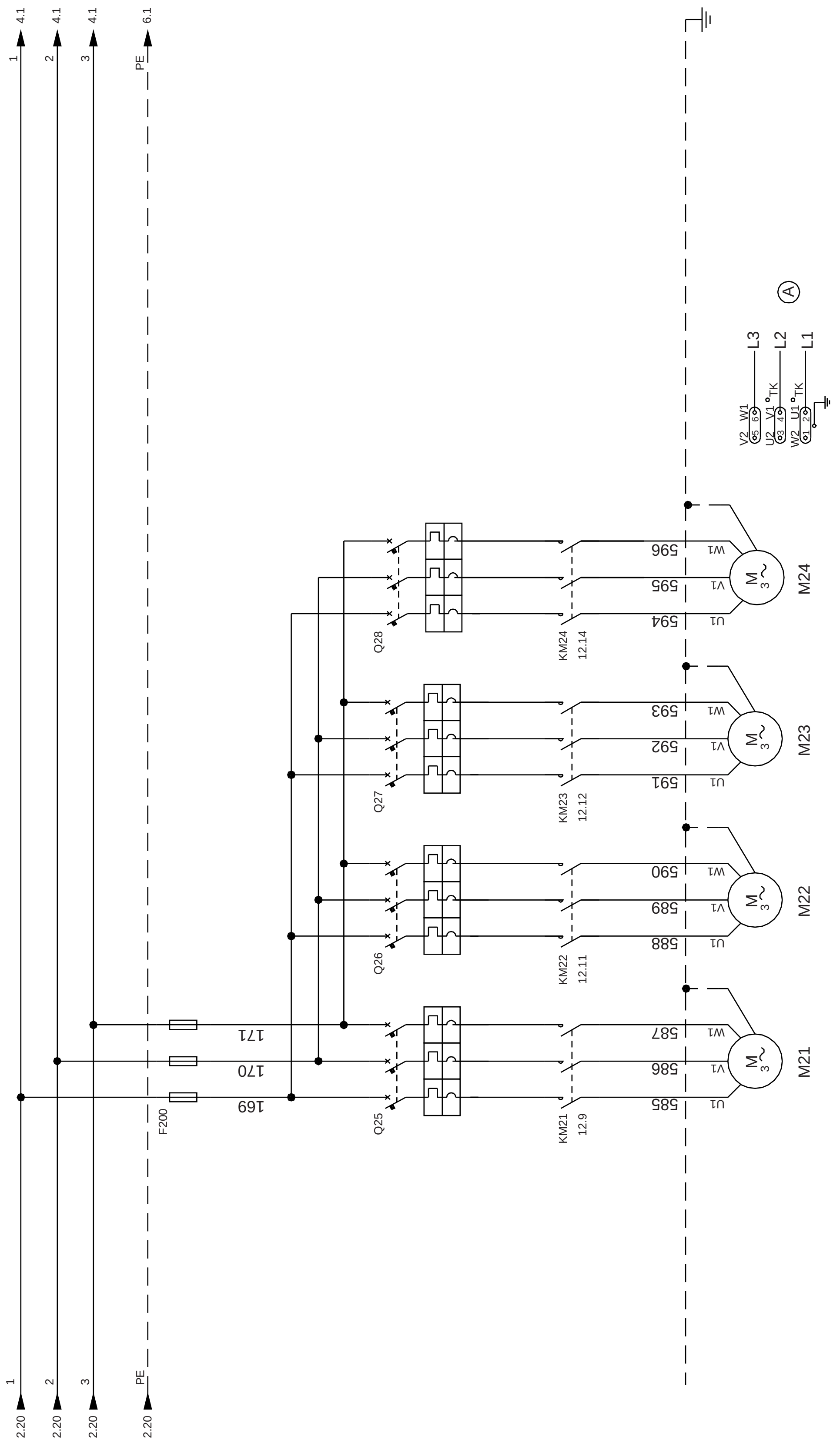
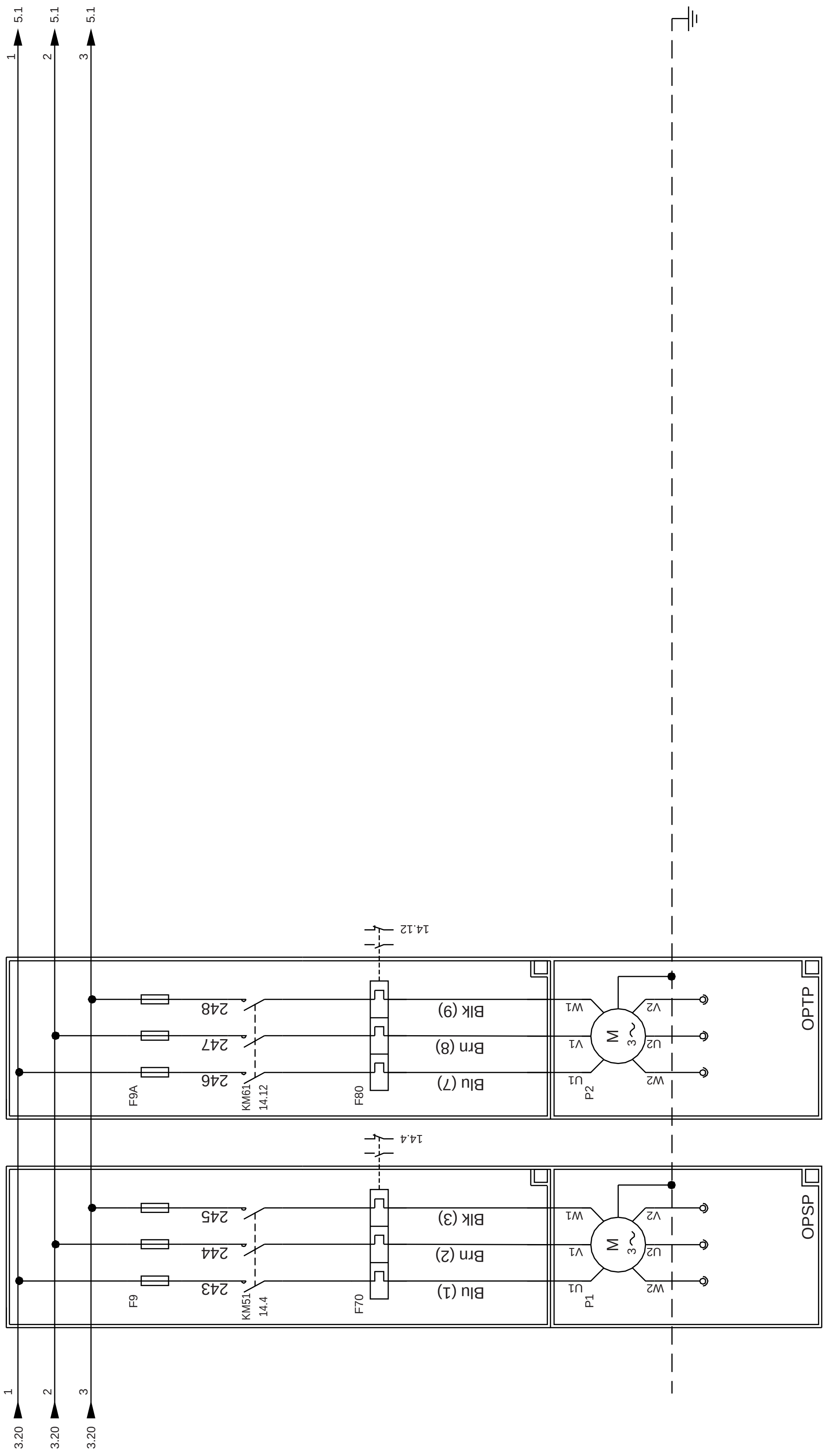
3.5.2 Circuits Fan Power Supply 2



3.5.3 Kit Pumps



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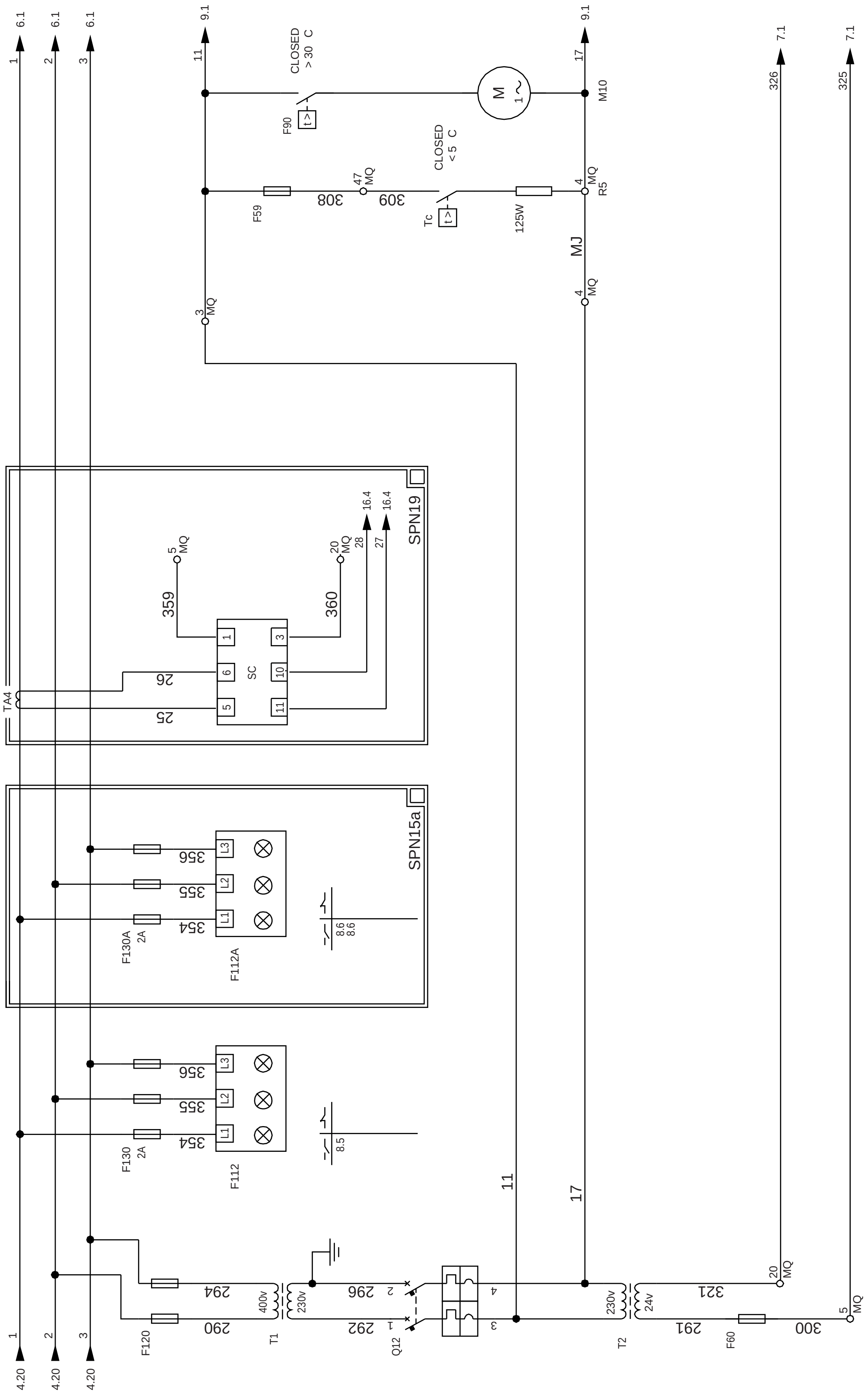
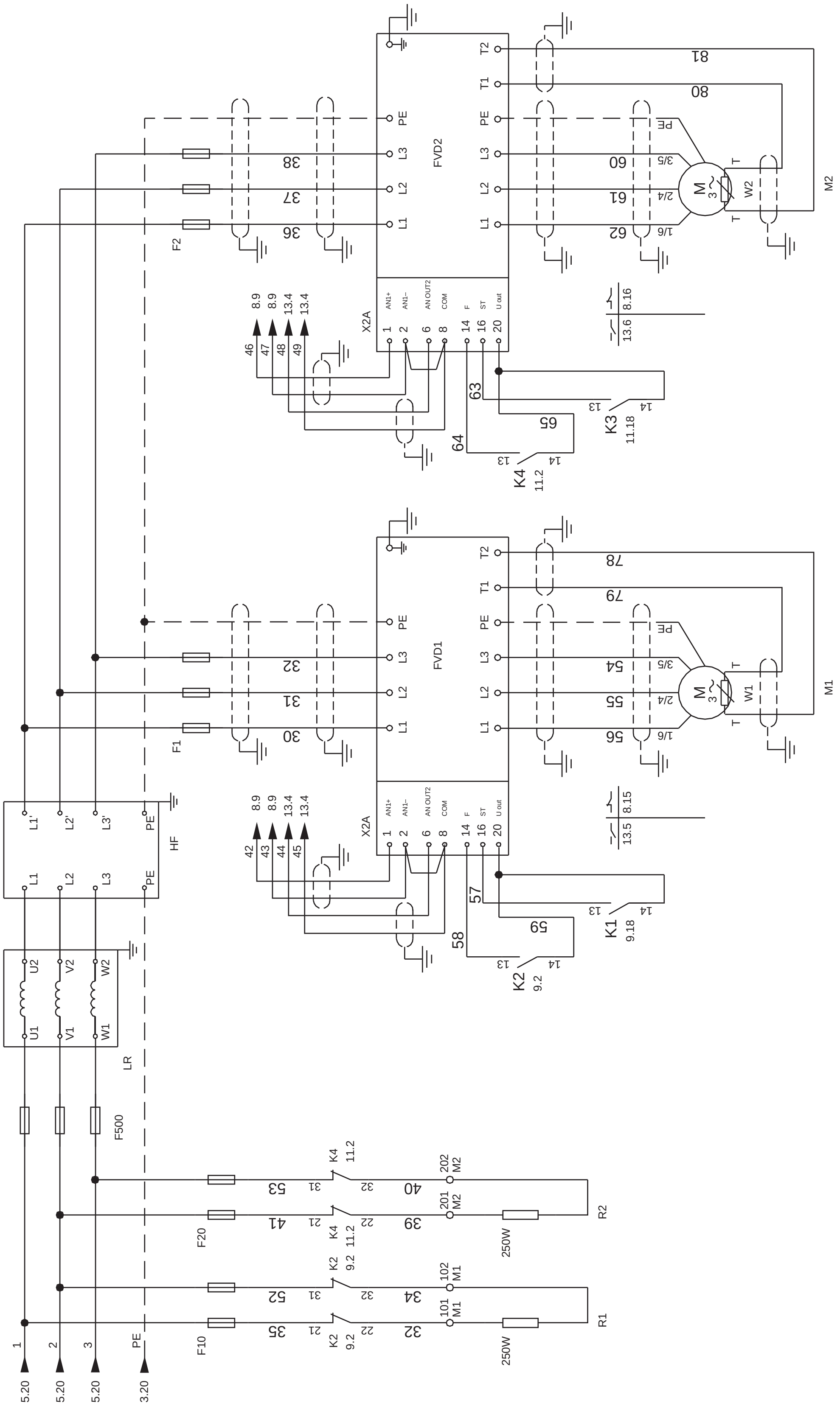
3.5.4 Unit Control Circuit Power Supply



3.5.5 Power Compressor 1-2



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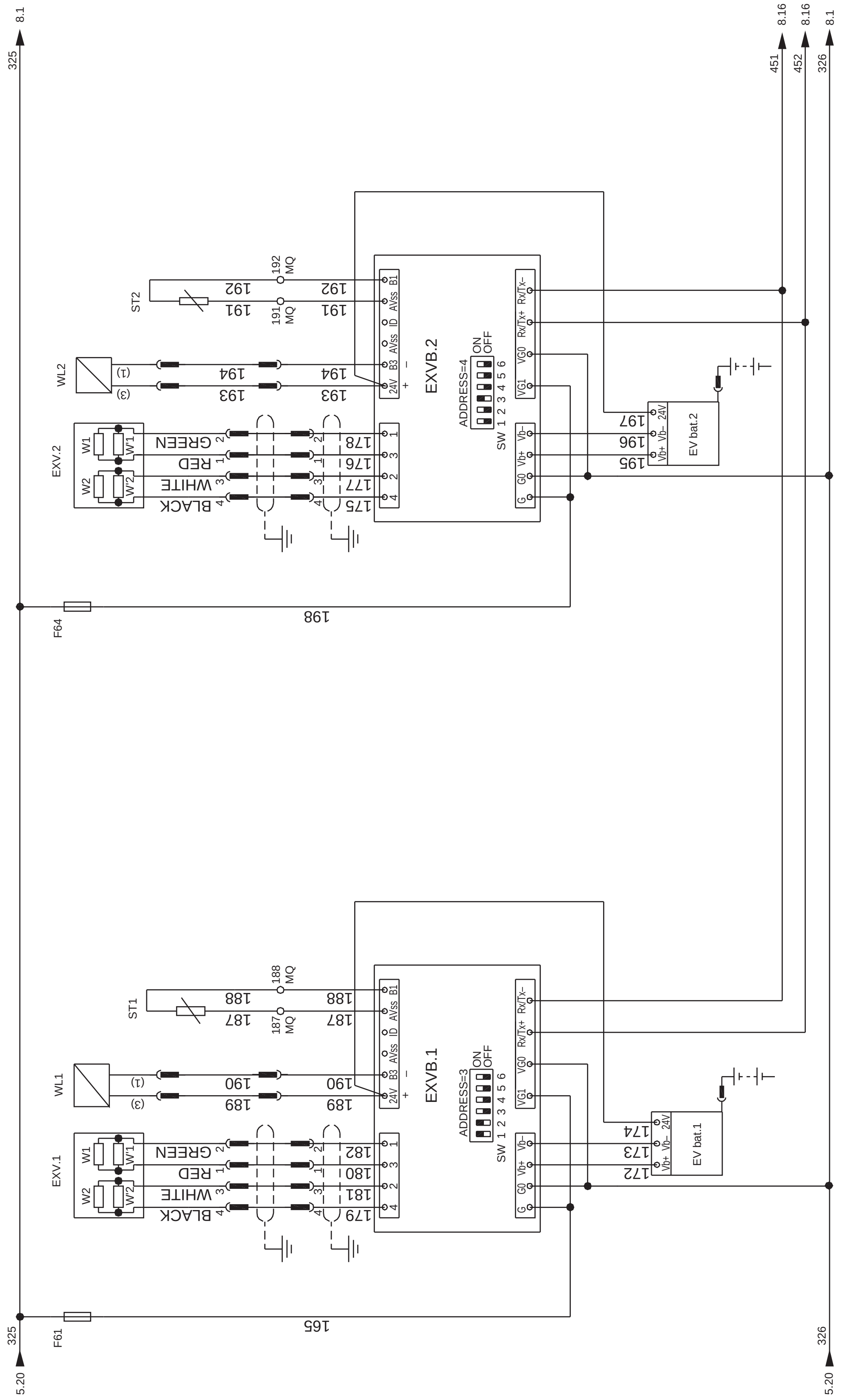
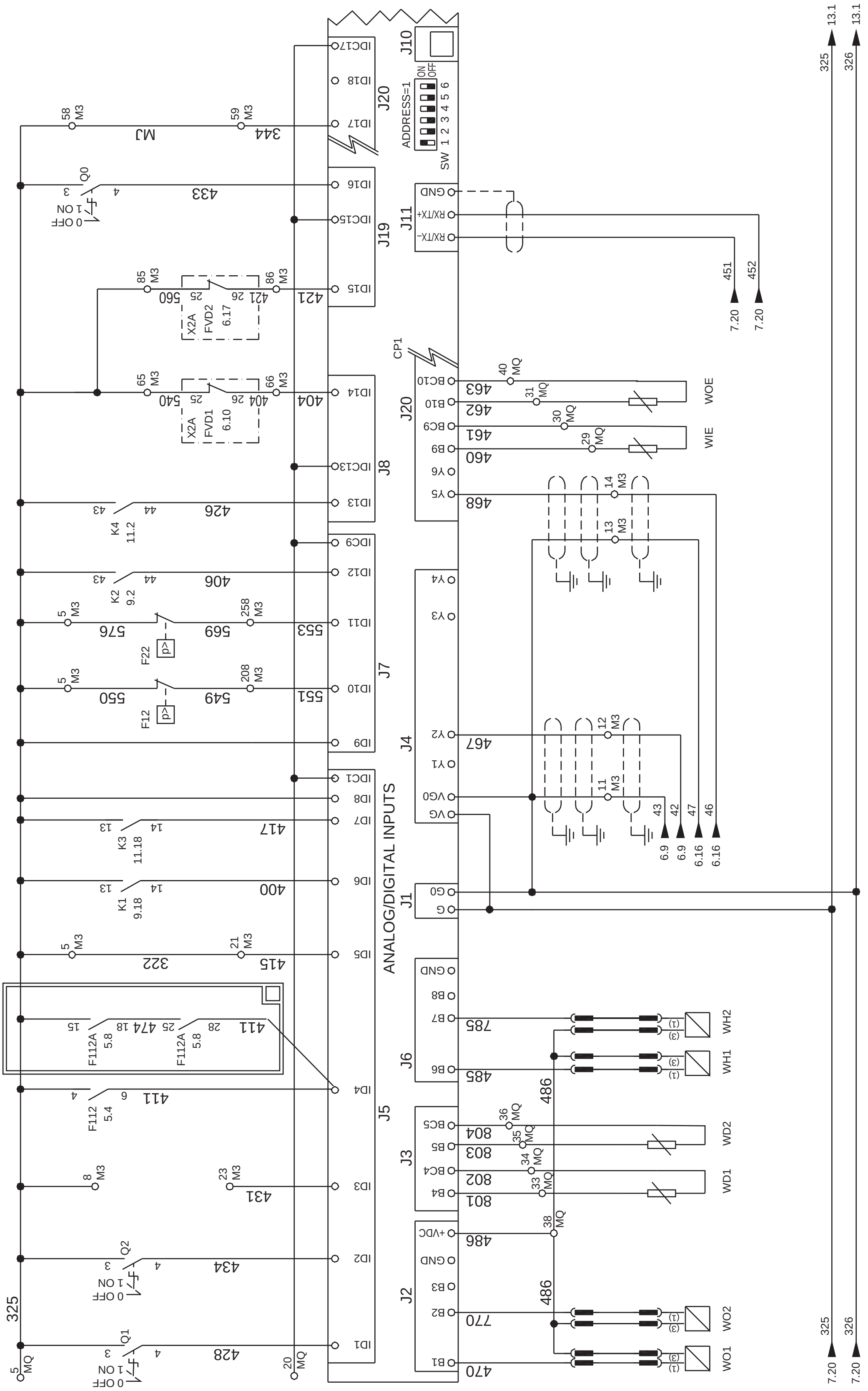
3.5.6 Electronic Expansion Valve Board Circuit 1



3.5.7 Analog - Digital Inputs Board 1



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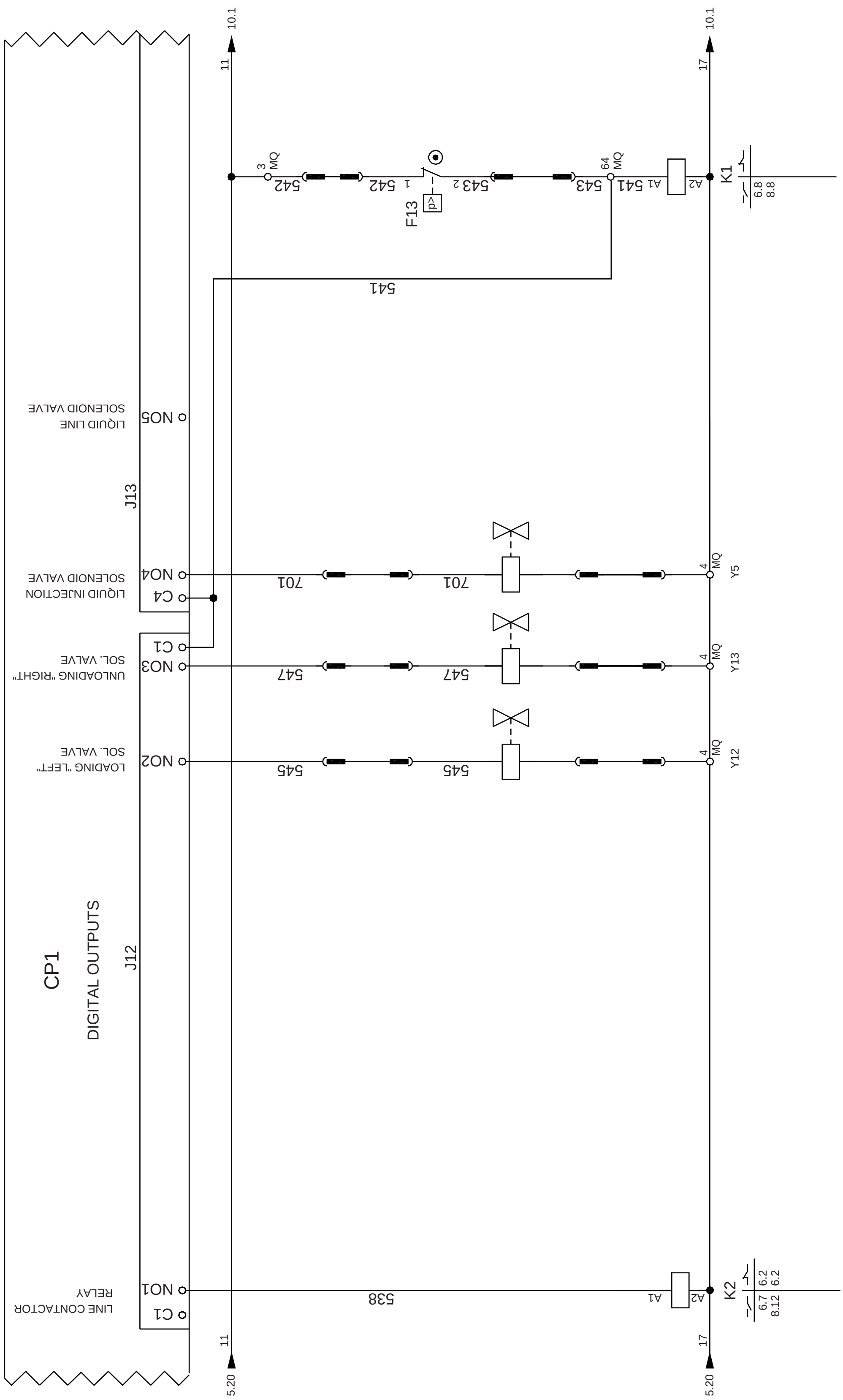
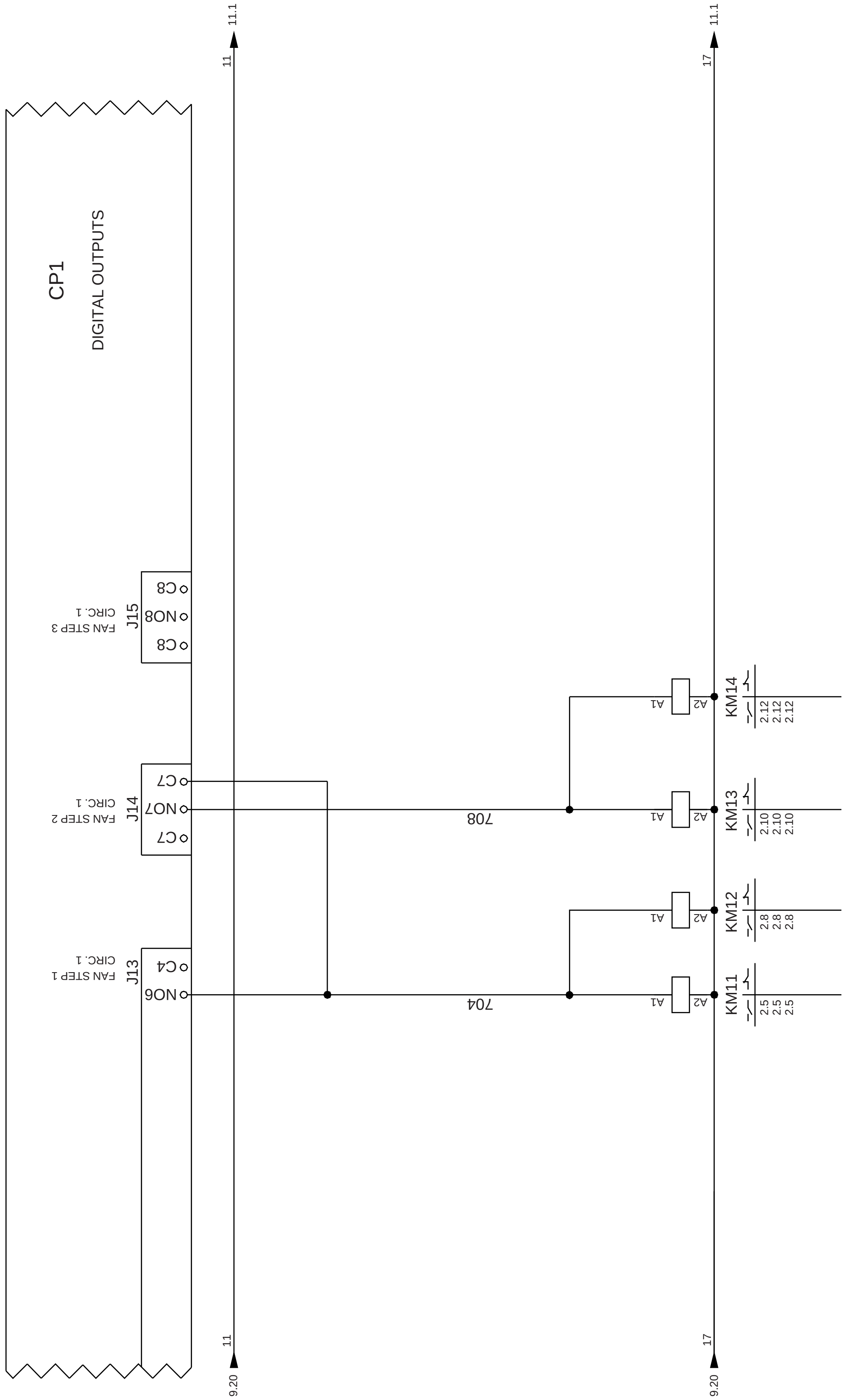
3.5.8 Control Circuit Compressor 1



3.5.9 Control Circuits Fan 1



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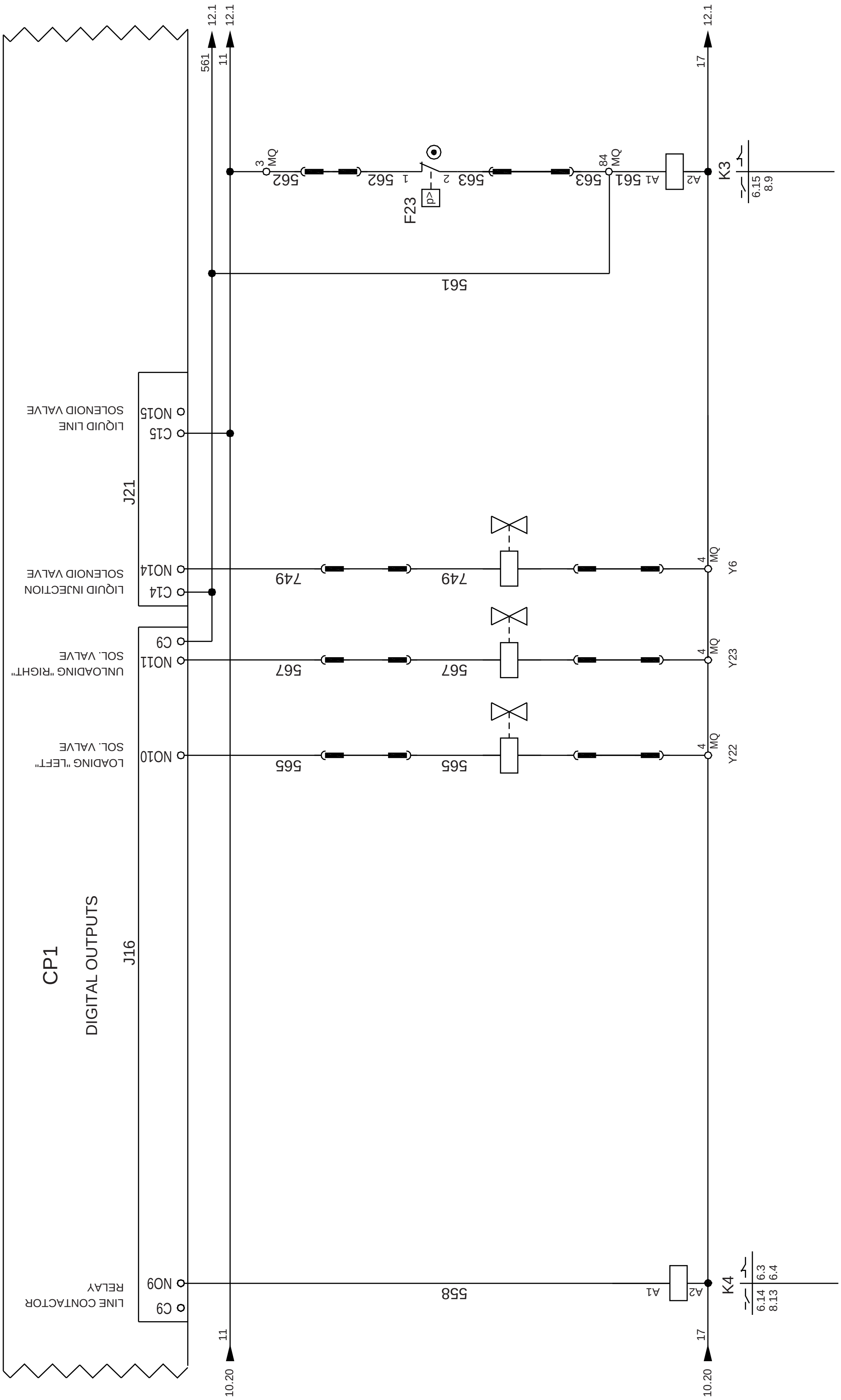
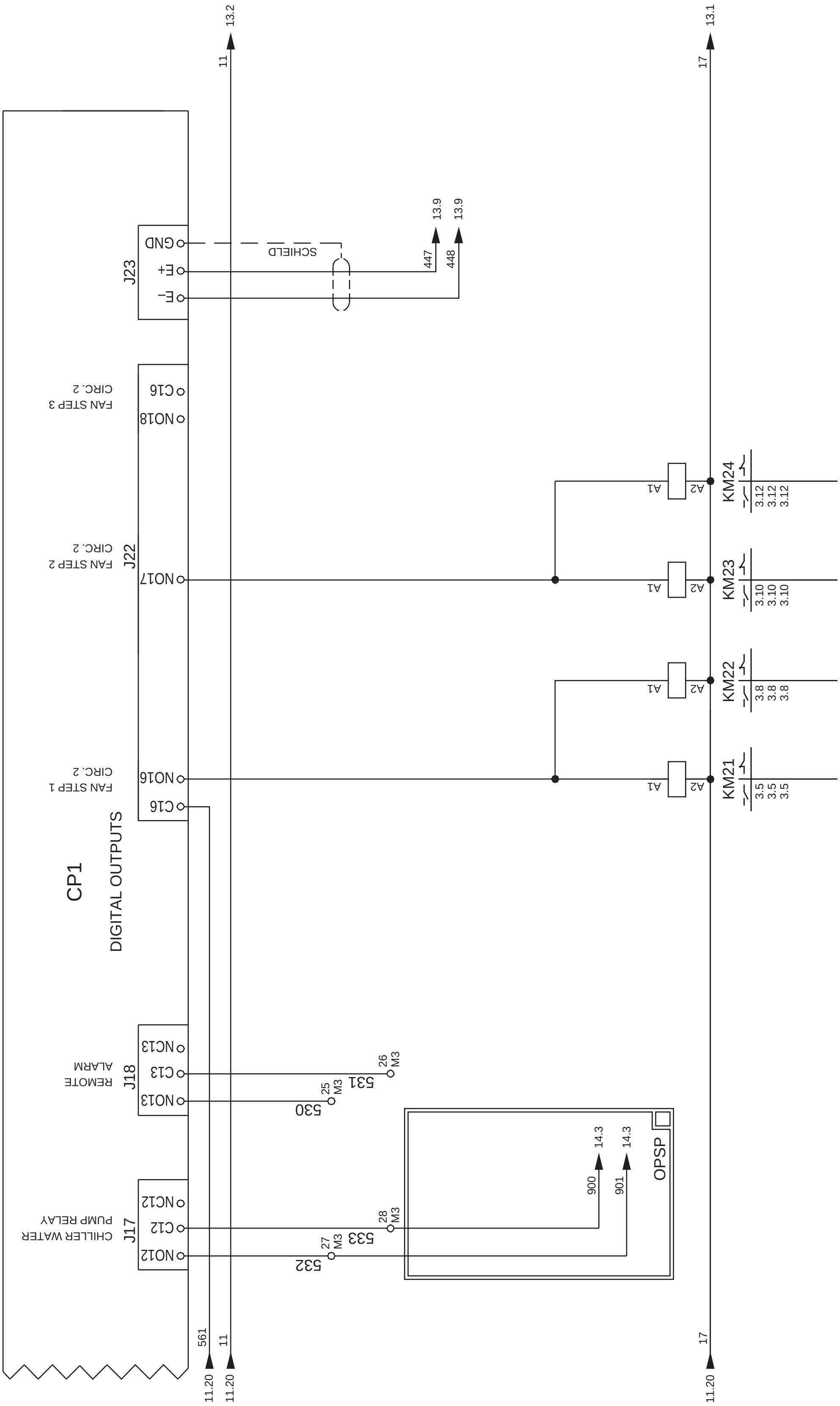
3.5.10 Control Circuit Compressor 2



3.5.11 Control Circuits Fan 2



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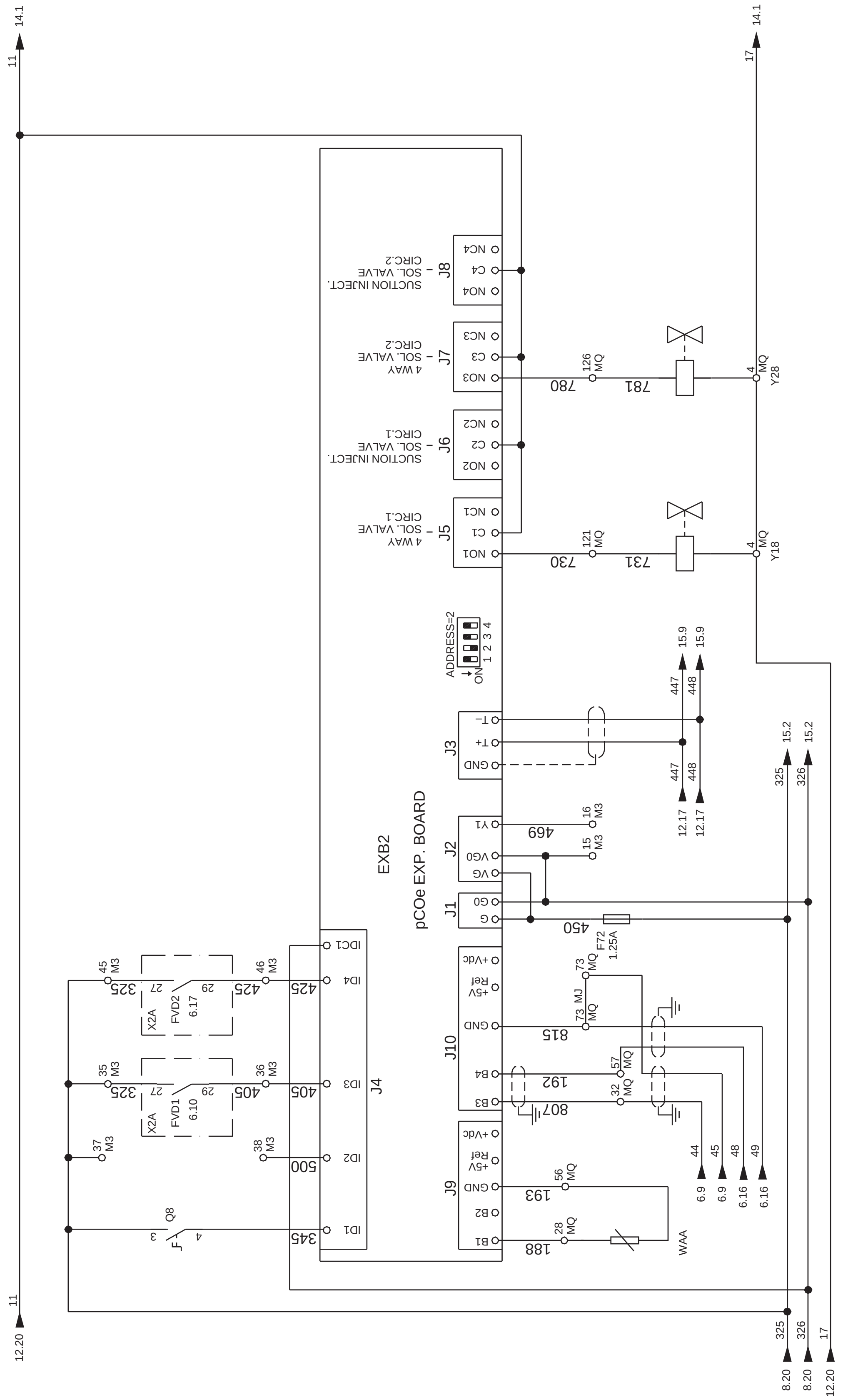
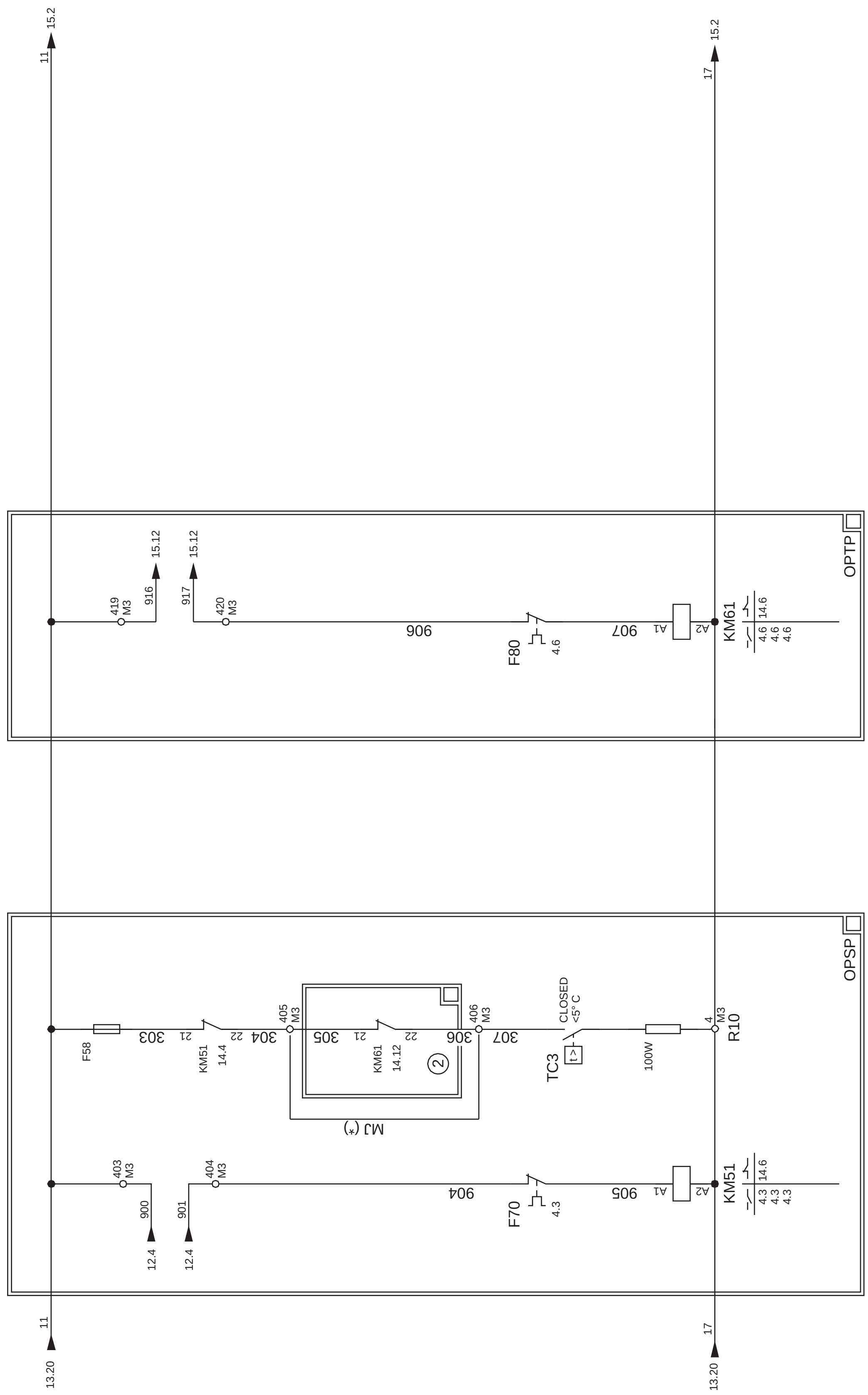
3.5.12 Heat Pump Control Expansion Board 2



3.5.13 Pumps Control



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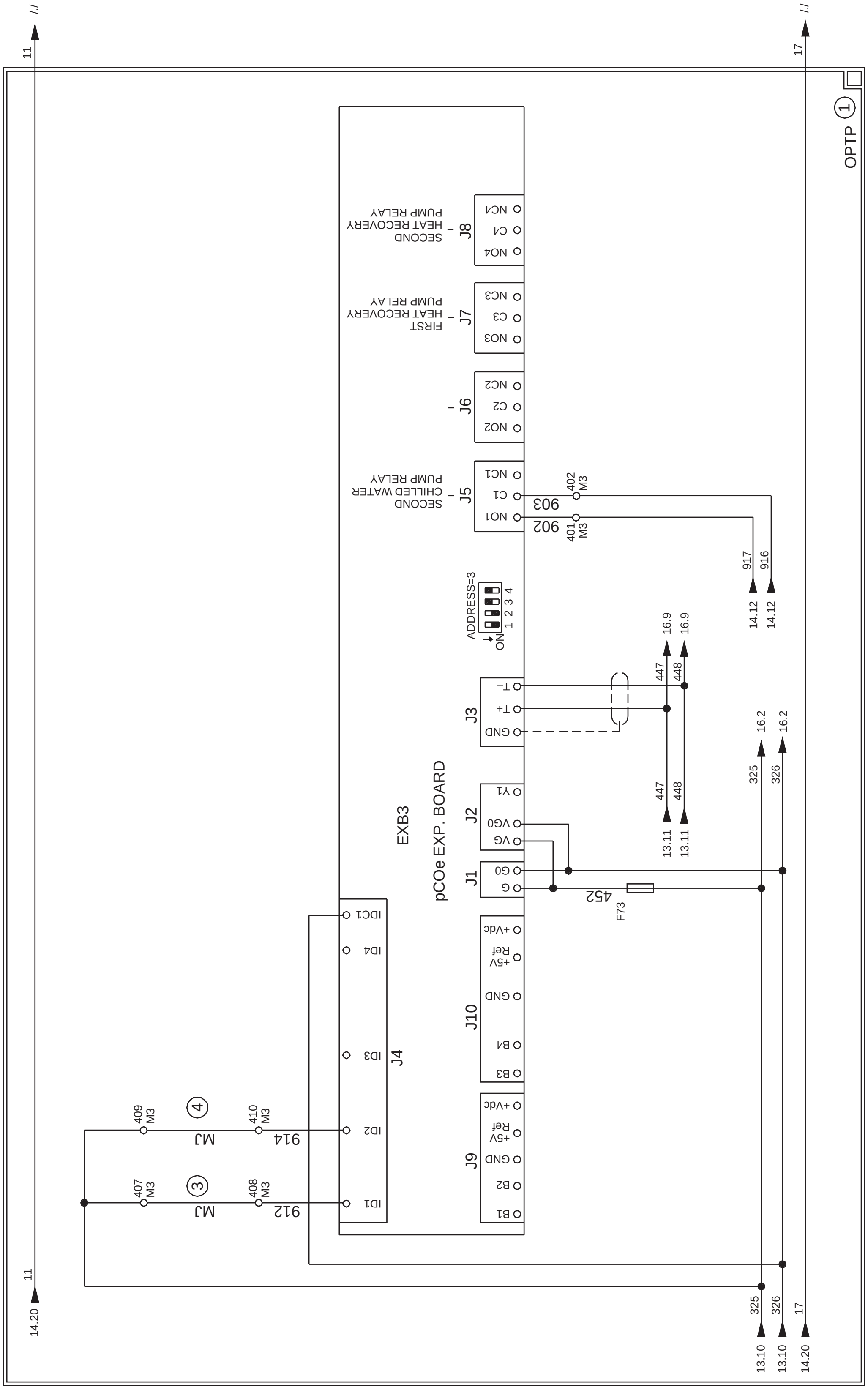
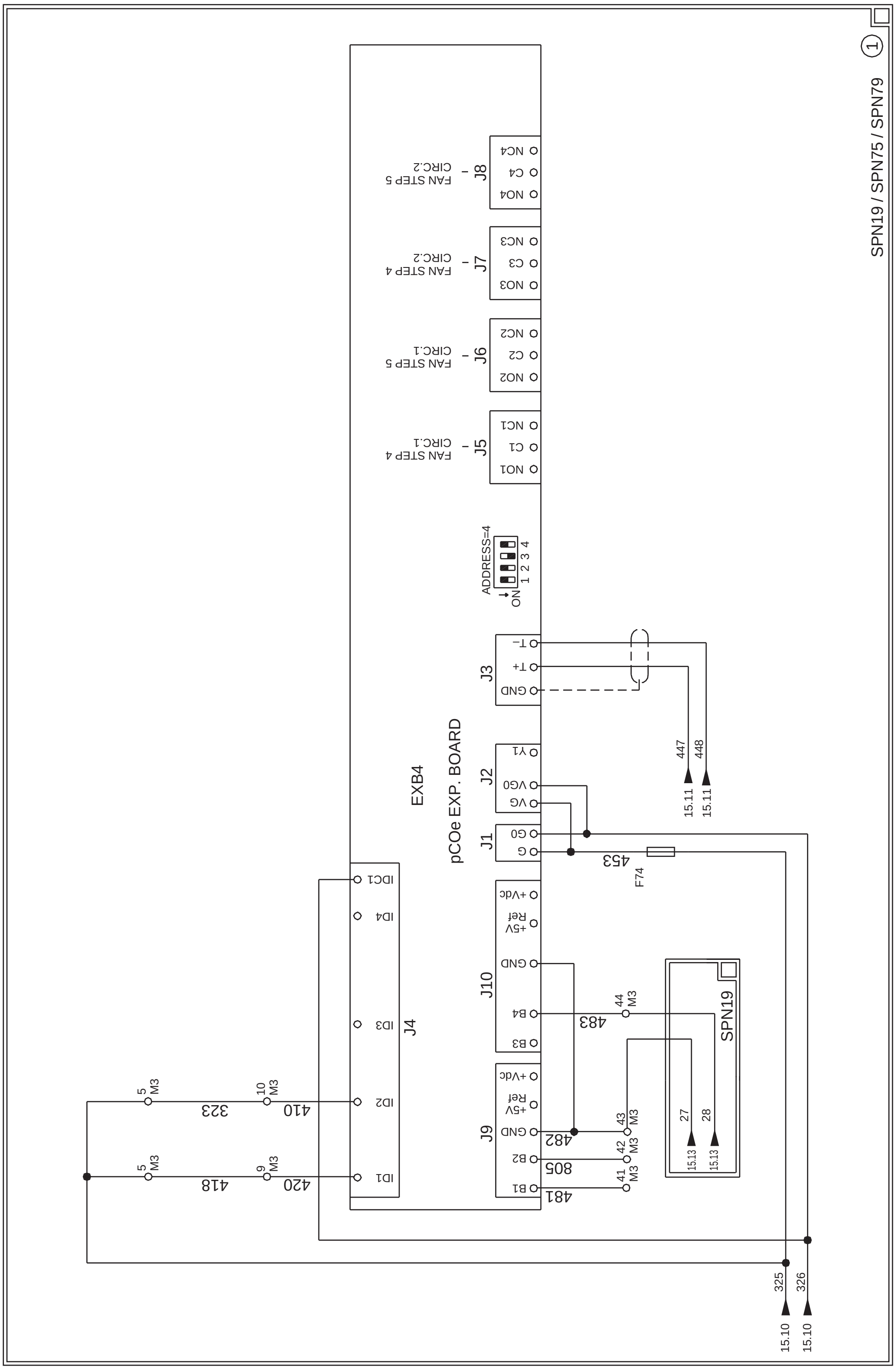
3.5.14 Water Pump Control Expansion Board 3



3.5.15 Fan Step Control Expansion Board 4



1

3.5.16 Terminals M1-M2-M3

TERMINAL

M1

QG – M1	–	33	101	33		62
QG – M1	–	34	102	34		62

TERMINAL

M2

QG – M2	–	40	202	40		64
QG – M2	–	39	201	39		63

TERMINAL

M3

QG – M3	–	325	5	322		8.7
QG – M3	–	325	5	550		8.11
QG – M3	–	325	5	576		8.12
QG – M3	–	325	5	323		16.4
QG – M3	–	325	5	418		16.3
QG – M3	–	325B	8			8.4
QG – M3	–	467	12	42		8.10
QG – M3	–	326	13	472		8.13
QG – M3	–	468	14	46		8.13
QG – M3	–	326	15	326		13.8
QG – M3	–	469	16			13.9
QG – M3	–	322	21	415		8.7
QG – M3	–	431	23			8.4
QG – M3	–	530	25			12.5
QG – M3	–	531	26			12.5
QG – M3	–	532	27			12.3
QG – M3	–	533	28			12.3
QG – M3	–	325	35	325		13.5
QG – M3	–	325	45			13.6
QG – M3	–	322	46			13.6
QG – M3	–	325B	58	MJ		8.19
QG – M3	–	MJ	59	344		8.19
QG – M3	–	579	65	540		8.15
QG – M3	–	404	66	404		8.15
QG – M3	–	540	85	560		8.16
QG – M3	–	421	86	421		8.16
QG – M3	–	549	208	551		8.11
QG – M3	–	569	258	553		8.12
QG – M3	–	325	37	325		13.4
QG – M3	–	500	38	500		13.4
QG – M3	–	418	9	420		16.3
QG – M3	–	482	36	27		13.5
QG – M3	–	902	401	917		15.13
QG – M3	–	903	402	916		15.13
QG – M3	–	11	403	900		14.4
QG – M3	–	901	404	904		14.4
QG – M3	–	304	405	305		14.6
QG – M3	–	306	406	307		14.6
QG – M3	–	325	407	MJ		15.3
QG – M3	–	MJ	408	912		15.3
QG – M3	–	325	409	MJ		15.4
QG – M3	–	MJ	410	914		15.4
QG – M3	–	11	419	916		14.12
QG – M3	–	917	420	906		14.12
QG – M3	–	17	4	17		14.6
QG – M3	–	481	41	481		16.3
QG – M3	–	805	42	805		16.4
QG – M3	–	482	43	27		16.4
QG – M3	–	483	44	28		16.6
QG – M3	–	323	10	410		16.4

3.5.17 Terminals MQ

TERMINAL

MQ

QG – MQ	–	11	3	11		5.16
QG – MQ	–	11	3	542		9.18
QG – MQ	–	11	3	562		11.18
QG – MQ	–	17	4	MJ		5.16
QG – MQ	–	MJ	4	17		5.18
QG – MQ	–	17	4	17		9.10
QG – MQ	–	17	4	17		9.11
QG – MQ	–	17	4	17		9.12
QG – MQ	–	17	4	17		11.10
QG – MQ	–	17	4	17		11.12
QG – MQ	–	17	4	17		11.11
QG – MQ	–	17	4	17		13.12
QG – MQ	–	17	4	17		13.15
QG – MQ	–	300	5	325		5.2
QG – MQ	–	325	5	325		8.1
QG – MQ	–	359	5			5.13
QG – MQ	–	321	20	326		5.2
QG – MQ	–	326	20	326		8.1
QG – MQ	–	360	20			5.13
QG – MQ	–	188	28	188		13.3
QG – MQ	–	460	29	460		8.14
QG – MQ	–	461	30	461		8.14
QG – MQ	–	462	31	462		8.15
QG – MQ	–	807	32	44		13.5
QG – MQ	–	801	33	801		8.4
QG – MQ	–	802	34	802		8.4
QG – MQ	–	486	38	486		8.3
QG – MQ	–	463	40	463		8.15
QG – MQ	–	308	47	309		5.18
QG – MQ	–	193	56	193		13.3
QG – MQ	–	192	57	48		13.5
QG – MQ	–	543	64	541		9.18
QG – MQ	–	815	73	49		13.6
QG – MQ	–	MJ	73	45		13.6
QG – MQ	–	563	84	561		11.18
QG – MQ	–	730	121	731		13.12
QG – MQ	–	780	126	781		13.15
QG – MQ	–	191	191	191		7.16
QG – MQ	–	192	192	192		7.16
QG – MQ	–	803	35	803		8.4
QG – MQ	–	804	36	804		8.4
QG – MQ	–	187	187	187		7.6
QG – MQ	–	188	188	188		7.6

1

3.5.18 Legend

Item	Description
CP1	Analog digital inputs board
EV bat.1 - EV bat.2	Electronic expansion battery valve
EXB2	Heat recovery control expansion board 2
EXB3	Water pump control expansion board 3
EXB4	Fan step control expansion board 4
EXV.1 - EXV.2	Electronic expansion valve
EXVB.1 - EXVB.2	Electronic expansion valve board
F1-2	Compressor fuses 1-Compressor fuses 2
F9-9A	Pump fuses
F10-20	Crankcase heater fuses 1 - Crankcase heater fuses 2
F12-22	Pressostat
F13-23	High pressure switch
F58	Pump heater fuse
F59	Evaporator heater fuse
F60-61-64	Protection auxiliary circuit fuse
F70-80	Pump magnetothermal
F72-73-74	Protection auxiliary circuit
F90	Thermostat
F100-200	Fan speed modulation fuses 1 - Fan speed modulation fuses 2
F112-112A	Phase volt monitor
F120	Transformer 1 protection
F130-130A	Phase volt Monitor fuse
F500	Compressor fuses
FVD1-2	Compressor frequency variable driver
HF	High frequency filter
K1-2-3-4	Auxiliary relay
KM11	Fan contactor 1/1
KM12	Fan contactor 1/2
KM13	Fan contactor 1/3
KM14	Fan contactor 1/4
KM21	Fan contactor 2/1
KM22	Fan contactor 2/2
KM23	Fan contactor 2/3
KM24	Fan contactor 2/4
KM51	Primary pump contactor
KM61	Secondary pump contactor
LR	Line reactor
M1-2	Compressor 1 - Compressor 2
M11	Fan 1/1
M12	Fan 1/2
M13	Fan 1/3
M14	Fan 1/4
M21	Fan 2/1
M22	Fan 2/2
M23	Fan 2/3

Item	Description
M24	Fan 2/4
P1-2	Pump
Q0	ON-OFF unit switch
Q1-2	ON-OFF compressor switch
Q8	ON-OFF switch
Q10	Main switch
Q12	Automatic circuit breaker
Q15	Magnetothermal fuse 1/1
Q16	Magnetothermal fuse 1/2
Q17	Magnetothermal fuse 1/3
Q18	Magnetothermal fuse 1/4
Q25	Magnetothermal fuse 2/1
Q26	Magnetothermal fuse 2/2
Q27	Magnetothermal fuse 2/3
Q28	Magnetothermal fuse 2/4
R1-2	Crankcase heater circuit
R5	Evaporator heater
R10	Pump heater
SC	Current limit
ST1-2	Suction temperature sensor circuit
T1	400/230V transformer
T2	230/24V transformer
TA4	Ammeter transformer
Tc	Termostat
TC3	Termostat
W1-2	Compressor thermistor circuit1-circuit2
WAA	Air ambient
WD1-2	Discharge sensor circuit1 - circuit2
WH1-2	High pressure transducer circuit1 - circuit2
WIE	Entering evaporator water sensor
WL1-2	Low pressure transducer circuit1 - circuit2
WO1-2	Oil pressure transducer circuit1 - circuit2
WOE	Leaving evaporator water sensor
Y5	Liquid injection solenoid valve compressor 1
Y6	Liquid injection solenoid valve compressor 2
Y12	Loading solenoid valve compressor 1
Y13	Unloading solenoid valve compressor 1
Y18	4 way valve compressor 1
Y22	Loading solenoid valve compressor 2
Y23	Unloading solenoid valve compressor 2
Y28	4 way valve compressor 2

1

3.5.19 Note

	Standard compressor			
FUSES + OVERCURRENT	**3118**	**3120**	**3121**	**3122**
F1	160 A	160 A	200 A	200 A
F2	160 A	160 A	200 A	200 A

	Standard pumps			
FUSES + OVERCURRENT	**2,2 kW**	**3 kW**	**4 kW**	**5,5 kW**
F9	20 A	20 A	20 A	20 A
F9A	20 A	20 A	20 A	20 A
F70	5 A	6,5 A	8,5 A	11 A
F80	5 A	6,5 A	8,5 A	11 A

Standard fan						
					n° FANS	
FAN TYPE	CONNECTION	OVERLOAD		FUSES	3	4
YE YDK 1500 6 Bb	HIGH	Q15+Q28	4,0 A	F100+F200	20 A	20 A

Control Fuses	
Item	**Size**
F500	315/355 A
F120	4 A
Q12	6 A
F130	2 A
F130A	2 A
F10-20	2 A
F59-60	2 A
F61-F64	0,8 A
F63	1,25 A
F72-73-74	1,25 A

Transformer	
Item	**Size**
T1	500 VA
T2	200 VA

List of options	
Option	**Description**
OPSP	single pump
OPTP	Twin pump or dual pump
OPTR	Total recovery
SPN15a	Variable Phase monitor
SPN19	Current limit
SPN75	Reset set point - Demand limit
SPN76	OAT Sensor
SPN79	External Fault Alarm

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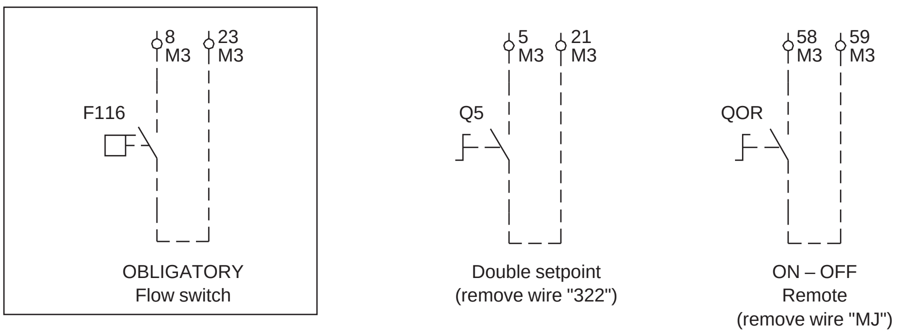
3.5.20 Field Wiring Connection

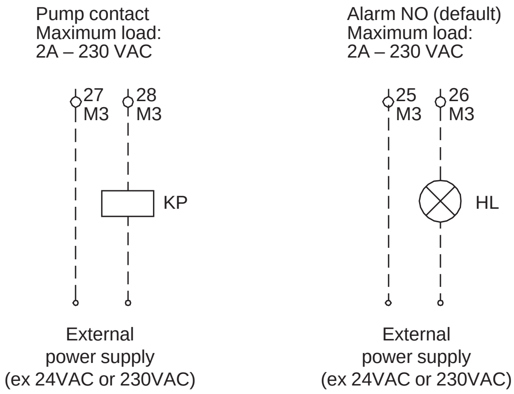
Digital input terminals

Digital input terminals



Digital output terminals

Digital output terminals



4 System Architecture

4.1 What Is in This Chapter?

Introduction

This part gives a general overview of the system architecture.

Overview

This chapter contains the following topics:

1

4.2 General Description

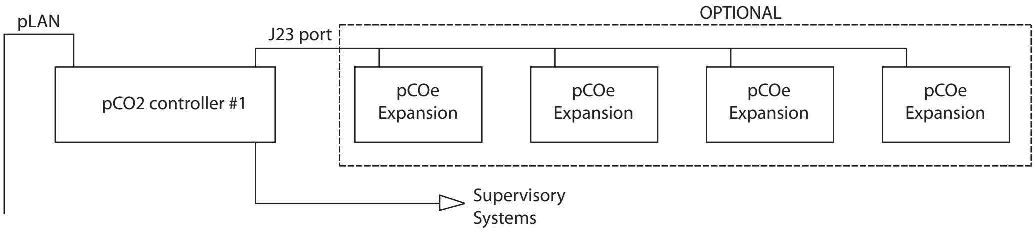
The configuration modular architecture is based on the use of the pCO2 control.

In particular, a base MicroTech II C+ controller (large version, built-in display, or, optionally, semi graphical additional display) is used to control the basic unit functions and to manage the two compressors.

Up to four expansion boards are used to add optional features to the control.

Drivers for electronic expansion valve are foreseen as an optional feature.

The overall architecture is shown in the figure below:



pCO² controllers, electronic expansion valves drivers and the additional display are connected using pLAN network of MicroTech II controls while pCOe expansion boards are connected to MicroTech II C+ controllers using the RS485 network dedicated to expansion.

4.3 Hardware Configuration

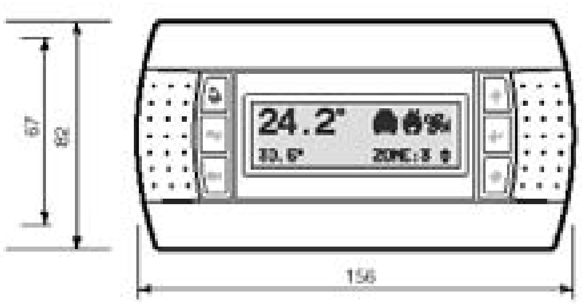
Board	Type	Function	Mandatory
pCO2	Large built in	Unit control Compressor 1 and 2	Y
Expansion board 1		Additional hardware for Compressor 1 and 2	N
Expansion board 2		Heat recovery or heat pump (inverter control)	N
Expansion board 3		Water pump control	N
Expansion board 4		Additional fan steps	N
EEV driver 1	EVD200	EEV valve for circuit 1	N
EEV driver 2	EVD200	EEV valve for circuit 2	N
Additional display	PGD	Additional display	N

4.4 Control Panel

The Control Panel is constituted by a backlight display 4 lines by 20 characters with a 6 key keypad whose functions will be illustrated in the following.

This display can be built-in as a part of the master MicroTech II C+ controller (standard option), or it can be optionally a separate device based on the MicroTech II PGD serigraphic technology.

No setting is required for the built in display, while PGD device require addressing based on a procedure through keypad (see plan appendix for details).



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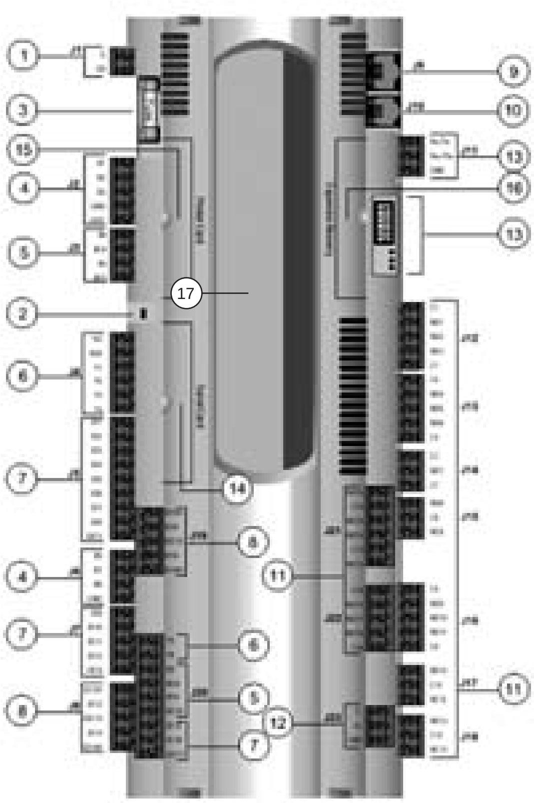
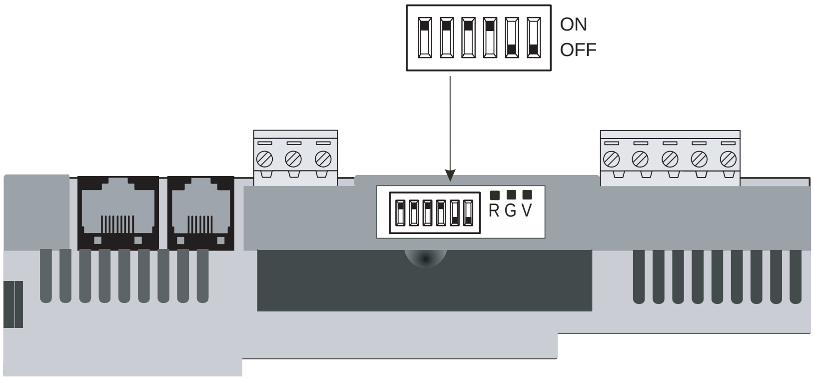
4.5 Layout pCO² Controller

pCO² controller



1	Power supply G (+), G0 (-)
2	Status LED
3	Fuse 250Vac
4	Universal analog inputs (NTC, 0/1V, 0/10V,0/20mA, 4/20mA)
5	Passive analog inputs (NTC, PT1000, On- off)
6	Analog outputs 0/10V
7	24Vac/Vdc Digital inputs
8	230Vac or 24Vac/Vdc Digital inputs
9	Synoptic terminal connection
10	Standard terminal (and program download) connector
11	Digital outputs (relays)
12	Expansion board connection
13	pLAN connection and microswitches
14	Serial card connection
15	Printer card connection
16	Memory expansion connection
17	Built-in display

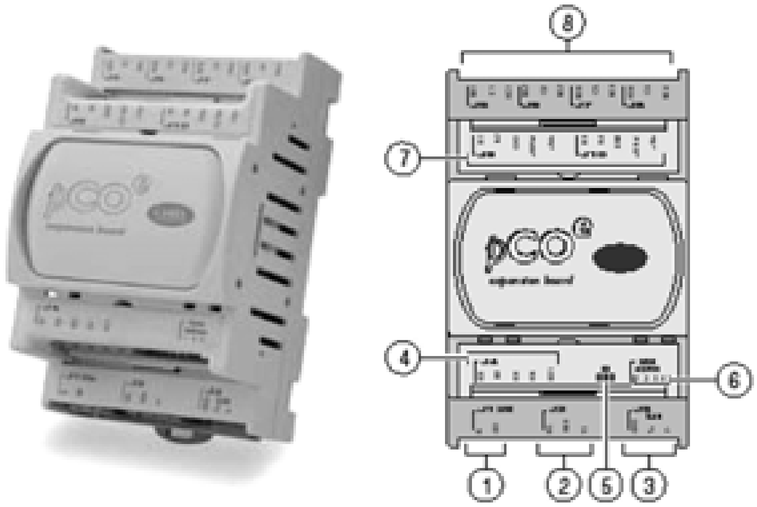
Address microswitches



4.6 Layout pCO² Expansion Driver

pCO² driver

The introduction of additional (optional) functionality in MTM architecture requires the use of expansion boards.



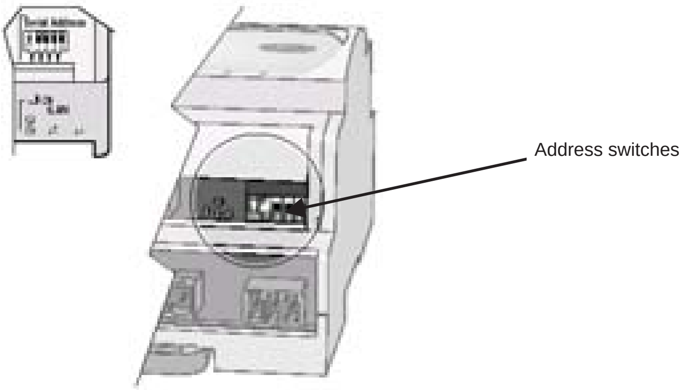
1	Power supply connector (G(+), G0 (-))
2	Analogue output 0 to 10 V
3	Network connector for expansions in RS485 (GND, T+, T-) or tLAN (GND, T+)
4	24 Vac/Vdc digital inputs
5	Yellow LED showing power supply voltage and 3 signalling LEDs
6	Serial address
7	Analogue inputs and probe supply
8	Relay digital outputs

This device needs to be addressed to ensure correct communication with controller via RS485 protocol. Addressing micro-switches are placed nearby status leds (refer to key 6).

Once the address is correctly set the expansion could be linked to pCO² controller.

The correct connection is achieved connecting J23 pin on the pCO² controller with J3 pin on the expansion board (note that expansion board connector is different from the controller one, but wires must be placed in the same positions of connectors). Expansion boards are only I/O extensions for the controller and don't need any software.

Detail switches



Meaning LED on driver

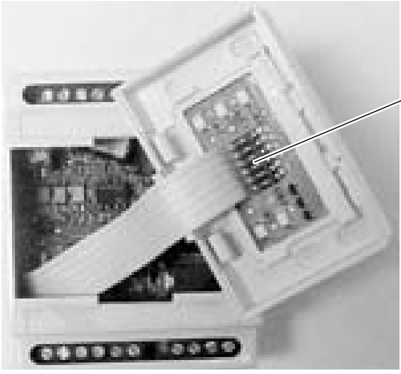
RED	YELLOW	GREEN	Meaning
-	-	ON	Active CAREL/tLAN supervisor protocol
-	ON	-	Probe error
ON	-	-	"I/O mismatch" error caused by the inhibition matrix
flashing	-	-	Lack of communication
-	-	-	Waiting for the system startup by the master (max. 30 s)

1

4.7 Layout EEV Driver

General description

The valve drivers contain the software for the control of the electronic expansion valve and are connected to the battery group that provides to close valve in case of power failure.



Normal conditions

Under normal conditions five(5) LED indicates:

- POWER: (yellow) if power ON. Remains OFF in case of battery operation
- OPEN: (green) Flashing when valve is opening. ON when valve is completely open.
- CLOSE: (green) Flashing when valve is closing. ON when valve is completely closed.
- Alarm: (red) ON or flashing in case of hardware alarm.
- pLAN: (green) ON during the normal working of pLAN.

Alarm situations

In presence of critical alarm situations, the combination of LED On identifies the alarm as shown below.

Highest priority is level 7. In the case more alarms occur is visualized that with higher priority.

Alarms that stop the system	**PRIORITY**	**LED OPEN**	**LED CLOSE**	**LED POWER**	**LED ALARM**
Eprom reading error	7	Off	Off	On	Flashing
Valve open in case of lack of supply	6	Flashing	Flashing	On	Flashing
At start up, wait for battery loading (parameter……….)	5	Off	On	Flashing	Flashing
Other alarms	**PRIORITY**	**LED OPEN**	**LED CLOSE**	**LED POWER**	**LED ERROR**
Motor connection error	4	Flashing	Flashing	On	On
Probe error	3	Off	Flashing	On	On
Eeprom writing error	2	-	-	On	On
Battery error	1	-	-	Flashing	On

pLAN	**LED pLAN**
Connection OK	On
Driver connection or address error = 0	Off
The Pco master does not answer	Flashing

4.8 Addressing of the Different Parts

Setting addresses

pLAN component	Microswitch					
	1	**2**	**3**	**4**	**5**	**6**
pCO1	**ON**	OFF	OFF	OFF	OFF	OFF
Driver 1	**ON**	**ON**	OFF	OFF	OFF	OFF
Driver 2	OFF	OFF	**ON**	OFF	OFF	OFF
Driver 3	**ON**	OFF	**ON**	OFF	OFF	OFF
Driver 4	OFF	**ON**	**ON**	OFF	OFF	OFF
Additional display	**ON**	**ON**	**ON**	OFF	OFF	OFF
RS485 component	**Microswitch**					
	1	**2**	**3**	**4**		
Expansion board 1	**ON**	OFF	OFF	OFF		
Expansion board 2	OFF	**ON**	OFF	OFF		
Expansion board 3	**ON**	**ON**	OFF	OFF		
Expansion board 4	OFF	OFF	**ON**	OFF		

4.9 Identification of Software

Introduction

Unique control software is installed on Pco² controller, the unit controller is directly recognized on the basis of the pLAN address.

No software is installed on the expansion boards and on EEXV drivers (factory-installed software is used).

A pre-configuration procedure is available in each pCO² controller to recognize the whole network hardware configuration; the configuration is stored in the controller in a permanent memory and an alarm is generated if the hardware configuration would change during the operation (network or boards faults or added boards).

The pre-configuration procedure will automatically start at the first bootstrap of the unit. (after the software is installed); it is possible to activate it manually (network refresh) if network configuration changes, either if an expansion is permanently removed or if a new expansion is linked after the first software bootstrap.

Changes in the network configuration without network refresh will generate alarms, either if an expansion is removed (or faulted) or if a new expansion is added.

The configuration of functions requiring expansion boards are allowed only if expansion boards have been recognized in the network configuration.

Network refresh is required in case of a substitution of a pCO² controller.

Network refresh is not required in case of a substitution of a fault expansion board already used in the system.

1

Version identification

To identify unambiguously the software class and version (also with respect to other control software) a string made of four fields is used:

C_1	C_2	C_3	F	M	M	m

An identification three-digit literal field ($C_1C_2C_3$) to identify the class of units for which the software is usable

C_1	Type of chiller	A	Air-cooled chiller
		W	Water-cooled chiller
C_2	Compressor type	S	Screw compressor
		R	Reciprocating compressor
		Z	Scroll compressor
		C	Centrifugal compressor
		T	Turbocor compressor
C_3	Evaporator	D	Direct expansion evaporator
		R	Remote evaporator
		F	Flooded evaporator
F	Unit family	A	Frame 3100 family
		B	Frame 3200 family
		C	Frame 4 family
		U	Software applicable for all families
M	Major change		
M	Major change		
M	Minor change		

Within the scope of this document the first version is: **ASDU01J**

Any version is also identified by a release date.

The first three digits of the version string are never changed (otherwise a new unit class and consequently new software is released).

The fourth digit is changed if a family-specific feature is added and it is not applicable to other families; in this case the U value may not be used anymore and software for any family is released. When this happens the versions (**MMm**) digit is reset to the lower value.

The major version number (**MM**) is increased any time a completely new function is introduced in the software, or the minor version digit as reached the maximum allowed value (Z).

The minor version digit (m) is increased any time minor modification is introduced in the software without modifying its main working mode (this includes bugs fixing and minor interface modifications). A label is added in the case of engineering versions; it is made by a literal digit E followed by a two digit number for progressive identification.

1

4.10 Description Connectors

Overview

This chapter contains the following topics:

4.10.1 Standard Version with Electronic Expansion Valve

Connector Pco² controller

The table below describes the connectors for the CP1 control board.

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	B	WO1	Oil pressure transmitter circuit 1
	B1	WO2	Oil pressure transmitter circuit 2
	B2		
	B3		
	GND		
	+VDC		
J3	B4 BC4	WD1	Oil discharge PT 1000 sensor circuit 1
	B5 BC5	WD2	Oil discharge PT 1000 sensor circuit 2
J4	VG		24 V power supply
	VGO		
	Y1		Only used with speedtrol control for circuit 1
	Y2		
	Y3		
	Y4		Only used with speedtrol control for circuit 2
J5	ID1	Q1	Internal protector compressor circuit 1
	ID2	Q2	Internal protector compressor circuit 2
	ID3	F116	Flow switch evaporator (field supply)
	ID4	F112	Phase reverse protector
	ID5		Double set point activation
	ID6	K1	Auxiliary contact
	ID7	K3	Auxiliary contact
	IDC1		24 V power supply
J6	B6	WH1	High pressure transmitter circuit 1
	B7	WH2	High pressure transmitter circuit 2
	B8	Not used	
	GND		

Block	Connection	Wiring diagram symbol	Description
J7	ID8		
	ID9		
	ID10		
	ID11		
	ID12	KM2	Compressor contactor circuit circuit 1
	IDC9		24 V power supply
J8	ID13	KM4	Compressor contactor circuit circuit 2
	IDC13		
	ID14	F51	Compressor terminal/thermal?? relay circuit 1
J9		Not used Not used	
J10			Terminal connector for display and download of software
J11	RX/TX- RX/TX+ GND		pLAN communication
J12	NO1	K1T	Line contactor relay circuit 1
	NO2	Y12	Loading left solenoid valve circuit 1
	NO3	Y13	Unloading right solenoid valve circuit 1
	C1		Power supply 220 V
J13	C4		Power supply 220 V
	NO4	Y5	Liquid injection solenoid valve circuit 1
	NO5	Not used	
	NO6	KM11	Fan step 1 circuit 1
J14	C7		Power supply 220 V
	NO7	KM12	Fan step 2 circuit 1
J15	C8		Power supply 220 V
	NO8	KM13, KM14	Fan step 3 circuit 1
J16	C9	Not used	
	CO9	KT2	Line contactor relay circuit 2
	NO10	Y22	Loading left solenoid valve circuit 2
	NO11	Y23	Unloading right solenoid valve circuit 2
J17	NO12		Chiller water pump relay (Max 2A 250 V)
	C12		
	NC12	Not used	
J18	NO13		General alarm (Max 2A 250 V)
	C13		
	NC13		Not used
J19	ID15	F52	Compressor terminal/thermal?? relay circuit 2
	IDC15	QO	ON/OFF switch
	ID16		

1

Block	Connection	Wiring diagram symbol	Description
J20	B9	WIE	Evaporator inlet water sensor
	BC9		
	B10	WOE	Evaporator outlet water sensor
	BC10		
	ID17	Not used	Remote start/stop
	ID18		
	IDC17		
J21	NO14	Y6	Liquid injection solenoid valve circuit 2
	C14		
	NC14	Not used	
	NO15	Not used	
	C15	Not used	
	NC15	Not used	
J22	C16		
	NO16	KM21	Fanstep 1 circuit 2
	NO17	KM22	Fanstep 2 circuit 2
	NO18	KM23/24	Fanstep 3 circuit 3
J23	E-		Connection to expansion boards
	E+		
	GND		

Connector expansion board 1

The table below describes the connectors for the Economizer kit and additional hardware expansion board n°1 (serial address 1).

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	VGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	F22	Low pressure switch circuit 2 (only when low pressure kit is installed)
	ID3	F12	Low pressure switch circuit 1 (only when low pressure kit is installed)
	ID2		
	ID1		
J5	NO1	Y18	Alarm circuit 1 (only if compressor kit installed)
	C1		
	NC1	Not used	
J6	NO2		Alarm circuit 2 (only if compressor kit installed)
	C2		
	NC2	Not used	
J7	NO3	ESV1	Economizer circuit 1 (only if economizer is installed)
	C3		
	NC3		
J8	NO4	ESV2	Economizer circuit 2 (only if economizer is installed)
	C4		
	NC4		
J9	B1	Not used	
	B2	Not used	
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	Not used	
	B4	Not used	
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	

1

Connector expansion board 2

The table below describes the connectors for the Heat recovery control expansion board n°2.

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	VGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	Not used	
	ID3	Not used	
	ID2	F117	Flow switch condenser side (only if heat recovery installed)
	ID1	Q7	Selector switch normal or heat recovery operation (only if heat recovery installed)
J5	NO1	Y18	4 way valve circuit 1
	C1		
	NC1	Not used	
J6	NO2	Y28	4 way valve circuit 2
	C2		
	NC2	Not used	
J7	NO3	Not used	
	C3	Not used	
	NC3	Not used	
J8	NO4	Not used	
	C4	Not used	
	NC4	Not used	
J9	B1	WAA	Ambient temperature sensor (only if OAT kit is installed)
	B2	Not used	
	GND		
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	W10	Entering heat recovery water sensor (only if heat recovery installed)
	B4	W11	Leaving heat recovery water sensor (only if heat recovery installed)
	GND		
	+5 Vref	Not used	
	+Vdc	Not used	

Connector expansion board 3

The table below describes the connectors for the Waterpump control expansion board n°3 (serial address 3).

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	VGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	Not used	
	ID3	Not used	
	ID2		Second pump alarm
	ID1		First pump alarm
J5	NO1	Y18	Second evaporator water pump relay
	C1		
	NC1	Not used	
J6	NO2	Not used	
	C2	Not used	
	NC2	Not used	
J7	NO3	Not used	
	C3	Not used	
	NC3	Not used	
J8	NO4	Not used	
	C4	Not used	
	NC4	Not used	
J9	B1	Not used	
	B2	Not used	
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	Not used	
	B4	Not used	
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	

1

Connector expansion board 4

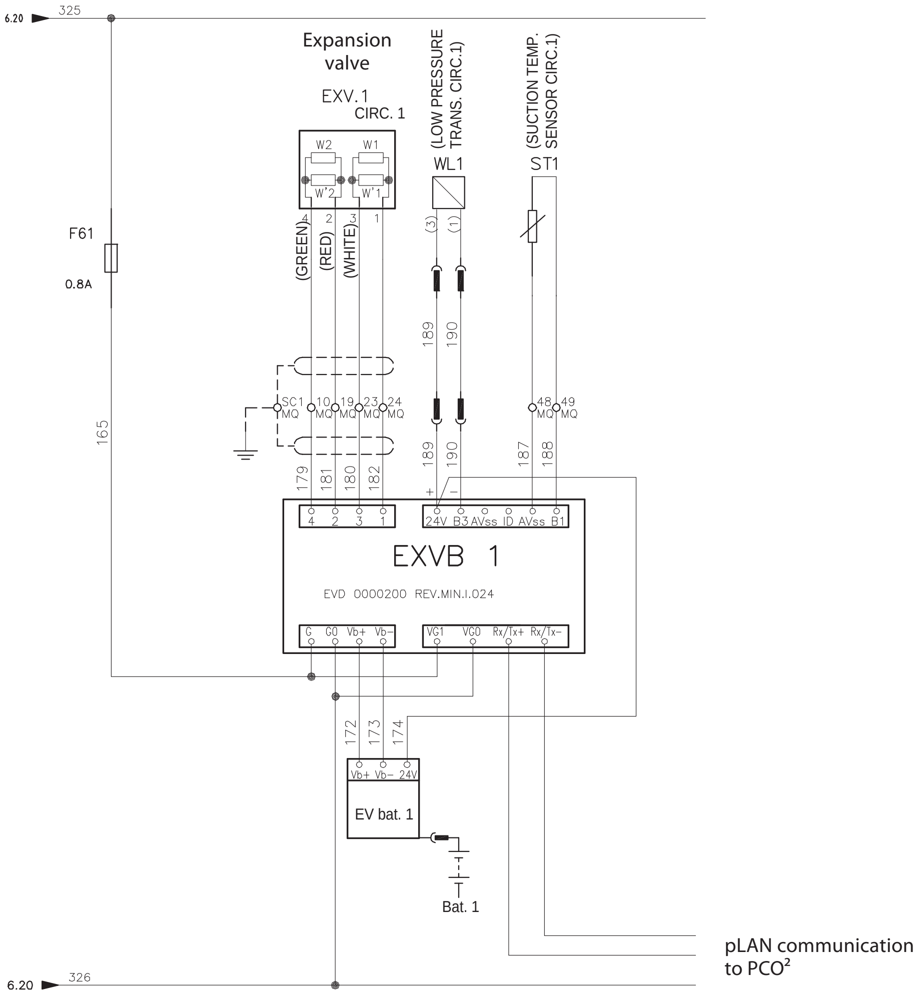
The table below describes the connectors for the Fan step control expansion board n°4 (serial address 4).

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	VGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	Not used	
	ID3	Not used	
	ID2		External fault indication
	ID1		Current limit enable
J5	NO1		Fan step 4 circuit 1
	C1		
	NC1	Not used	
J6	NO2		Fan step 5 circuit 1
	C2		
	NC2	Not used	
J7	NO3		Fan step 4 circuit 2
	C3		
	NC3	Not used	
J8	NO4		Fan step 5 circuit 2
	C4		
	NC4	Not used	
J9	B1		Set point override (4-20mA)
	B2		Demand limit (4-20mA)
	GND		
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	Not used	
	B4		Unit amps (4-20mA)
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	

1

Electronic expansion valve driver

The table below describes the connectors for the EEV driver.



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4.10.2 Standard Version with Thermostatic Expansion Valve

Connector Pco² controller

The table below describes the connectors for the CP1 control board.

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	B1	WO1	Oil pressure transmitter circuit 1
	B2	WO2	Oil pressure transmitter circuit 2
	B3	WL1	Low pressure transmitter circuit 1
	GND		
	+VDC		
J3	B4 BC4	WD1	Oil discharge PT 1000 sensor circuit 1
	B5 BC5	WD2	Oil discharge PT 1000 sensor circuit 2
J4	VG		24 V power supply
	VGO		
	Y1		Only used with speedtrol control for circuit 1
	Y2		
	Y3		
	Y4		Only used with speedtrol control for circuit 2
J5	ID1	Q1	Internal protector compressor circuit 1
	ID2	Q2	Internal protector compressor circuit 2
	ID3	F116	Flow switch evaporator (field supply)
	ID4	F112	Phase reverse protector
	ID5		Double set point activation
	ID6	K1	Auxiliary contact
	ID7	K3	Auxiliary contact
	IDC1		24 V power supply
J6	B6	WH1	High pressure transmitter circuit 1
	B7	WH2	High pressure transmitter circuit 2
	B8	WL2	Low pressure transmitter circuit 2
	GND		
J7	ID8		
	ID9		
	ID10		
	ID11		
	ID12	KM2	Compressor contactor circuit circuit 1
	IDC9		24 V power supply
J8	ID13	KM4	Compressor contactor circuit circuit 2
	IDC13		
	ID14	F51	Compressor terminal/thermal?? relay circuit 1
J9		Not used Not used	
J10			Terminal connector for display and download of software

Block	Connection	Wiring diagram symbol	Description
J11	RX/TX- RX/TX+ GND		pLAN communication
J12	NO1	K1T	Line contactor relay circuit 1
	NO2	Y12	Loading left solenoid valve circuit 1
	NO3	Y13	Unloading right solenoid valve circuit 1
	C1		Power supply 220 V
J13	C4		Power supply 220 V
	NO4	Y5	Liquid injection solenoid valve circuit 1
	NO5	Y1	Liquid line solenoid valve circuit 1
	NO6	KM11	Fan step 1 circuit 1
J14	C7		Power supply 220 V
	NO7	KM12	Fan step 2 circuit 1
J15	C8		Power supply 220 V
	NO8	KM13, KM14	Fan step 3 circuit 1
J16	C9		
	CO9	KT2	Line contactor relay circuit 2
	NO10	Y22	Loading left solenoid valve circuit 2
	NO11	Y23	Unloading right solenoid valve circuit 2
J17	NO12		Chiller water pump relay (Max 2A 250 V)
	C12		
	NC12	Not used	
J18	NO13		General alarm (Max 2A 250 V)
	C13		
	NC13		Not used
J19	ID15	F52	Compressor terminal/thermal?? relay circuit 2
	IDC15	QO	ON/OFF switch
	ID16		
J20	B9	WIE	Evaporator inlet water sensor
	BC9		
	B10	WOE	Evaporator outlet water sensor
	BC10		
	ID17	Not used	Remote start/stop
	ID18		
	IDC17		
J21	NO14	Y6	Liquid injection solenoid valve circuit 2
	C14		
	NC14	Not used	
	NO15	Y2	Liquid solenoid valve circuit 2
	C15	Not used	
	NC15	Not used	
J22	C16		
	NO16	KM21	Fanstep 1 circuit 2
	NO17	KM22	Fanstep 2 circuit 2
	NO18	KM23/24	Fanstep 3 circuit 3

Block	Connection	Wiring diagram symbol	Description
J23	E-		Connection to expansion boards
	E+		
	GND		

Connector expansion board 1

The table below describes the connectors for the Economizer kit and additional hardware expansion board n°1 (serial address 1).

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	CGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	F22	Low pressure switch circuit 2 (only when low pressure kit is installed)
	ID3	F12	Low pressure switch circuit 1 (only when low pressure kit is installed)
	ID2		
	ID1		
J5	NO1	Y18	Alarm circuit 1 (only if compressor kit installed)
	C1		
	NC1	Not used	
J6	NO2		Alarm circuit 2 (only if compressor kit installed)
	C2		
	NC2	Not used	
J7	NO3	ESV1	Economizer circuit 1 (only if economizer is installed)
	C3		
	NC3		
J8	NO4	ESV2	Economizer circuit 2 (only if economizer is installed)
	C4		
	NC4		
J9	B1	Not used	
	B2	Not used	
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	ST1	Suction sensor circuit 1(only with suction sensor kit)
	B4	ST2	Suction sensor circuit 2 (only with suction sensor kit)
	GND		
	+5 Vref	Not used	
	+Vdc	Not used	

1

Connector expansion board 2

The table below describes the connectors for the Heat recovery control expansion board n°2.

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	VGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	Not used	
	ID3	Not used	
	ID2	F117	Flow switch condenser side (only if heat recovery installed)
	ID1	Q7	Selector switch normal or heat recovery operation (only if heat recovery installed)
J5	NO1	Y18	4 way valve circuit 1
	C1		
	NC1	Not used	
J6	NO2	Y28	4 way valve circuit 2
	C2		
	NC2	Not used	
J7	NO3	Not used	
	C3	Not used	
	NC3	Not used	
J8	NO4	Not used	
	C4	Not used	
	NC4	Not used	
J9	B1	WAA	Ambient temperature sensor (only if OAT kit is installed)
	B2	Not used	
	GND		
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	W10	Entering heat recovery water sensor (only if heat recovery installed)
	B4	W11	Leaving heat recovery water sensor (only if heat recovery installed)
	GND		
	+5 Vref	Not used	
	+Vdc	Not used	

Connector expansion board 3

The table below describes the connectors for the Waterpump control expansion board n°3 (serial address 3).

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	VGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	Not used	
	ID3	Not used	
	ID2		Second pump alarm
	ID1		First pump alarm
J5	NO1	Y18	Second evaporator water pump relay
	C1		
	NC1	Not used	
J6	NO2	Not used	
	C2	Not used	
	NC2	Not used	
J7	NO3	Not used	
	C3	Not used	
	NC3	Not used	
J8	NO4	Not used	
	C4	Not used	
	NC4	Not used	
J9	B1	Not used	
	B2	Not used	
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	Not used	
	B4	Not used	
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	

1

Connector expansion board 4

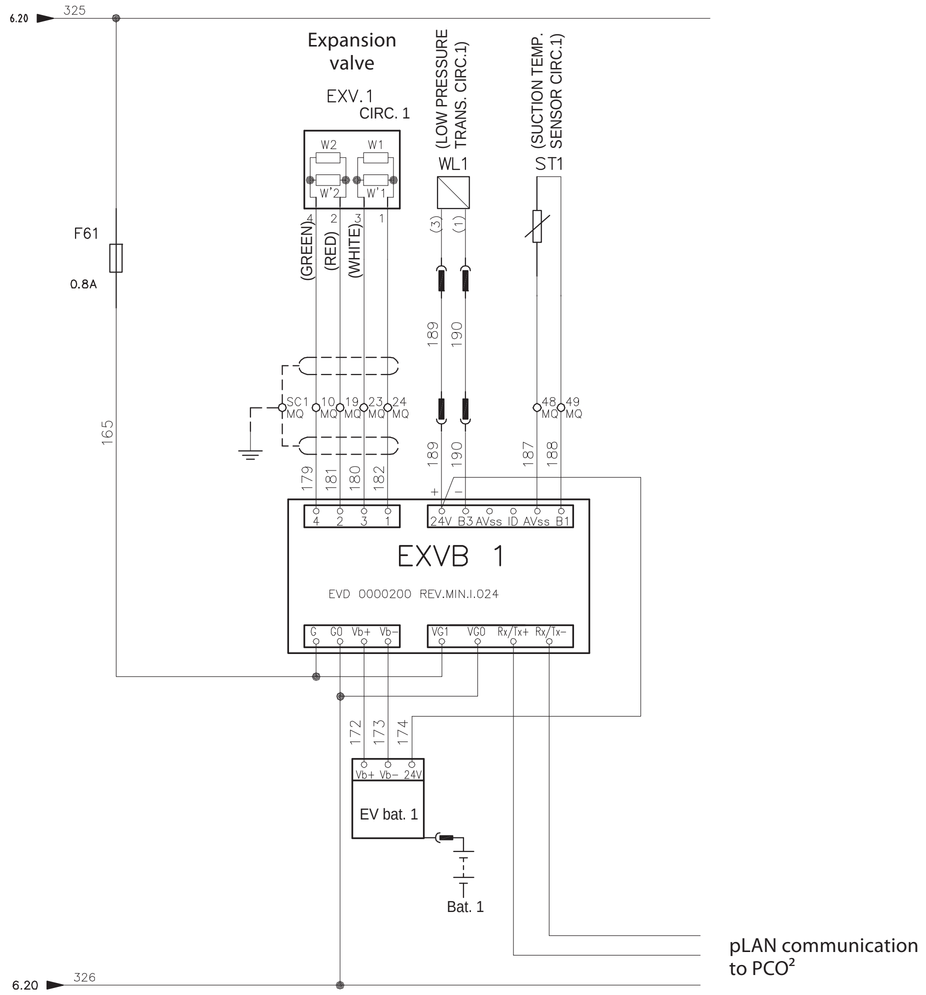
The table below describes the connectors for the Fan step control expansion board n°4 (serial address 4).

Block	Connection	Wiring diagram symbol	Description
J1	G GO		24 V power supply microprocessor board
J2	VG		
	VGO		
	Y1	Not used	
J3	GND		
	T+		Connection to CP1 control board (J23)
	T-		
J4	IDC1		
	ID4	Not used	
	ID3	Not used	
	ID2		External fault indication
	ID1		Current limit enable
J5	NO1		Fan step 4 circuit 1
	C1		
	NC1	Not used	
J6	NO2		Fan step 5 circuit 1
	C2		
	NC2	Not used	
J7	NO3		Fan step 4 circuit 2
	C3		
	NC3	Not used	
J8	NO4		Fan step 5 circuit 2
	C4		
	NC4	Not used	
J9	B1		Set point override (4-20mA)
	B2		Demand limit (4-20mA)
	GND		
	+5 Vref	Not used	
	+Vdc	Not used	
J10	B3	Not used	
	B4		Unit amps (4-20mA)
	GND	Not used	
	+5 Vref	Not used	
	+Vdc	Not used	

1

Electronic expansion valve driver

The table below describes the connectors for the EEV driver.



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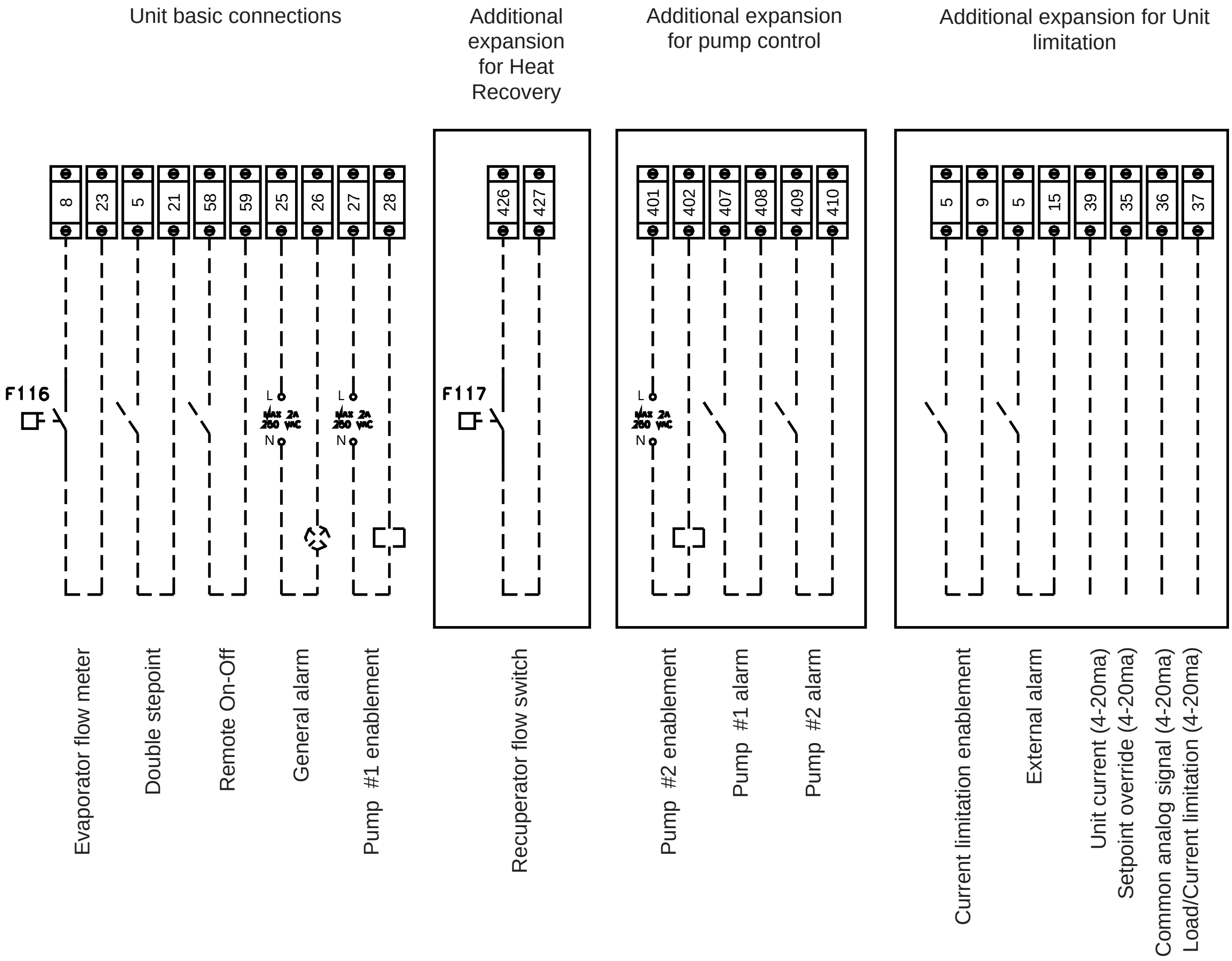
4.11 Field Wiring for the Interface M3 Terminal Boards



Part 2
Functional Description

2

Introduction

This part gives more detailed information on the functions and controls of the unit. This information is used as background information for troubleshooting. An extensive overview of the functioning of the controller is also given in this part. Knowledge of the controller is essential to gather information prior to servicing and troubleshooting.

What is in this part?

This part contains the following chapters:

2

1 Operation Range

1.1 What Is in This Chapter?

Introduction

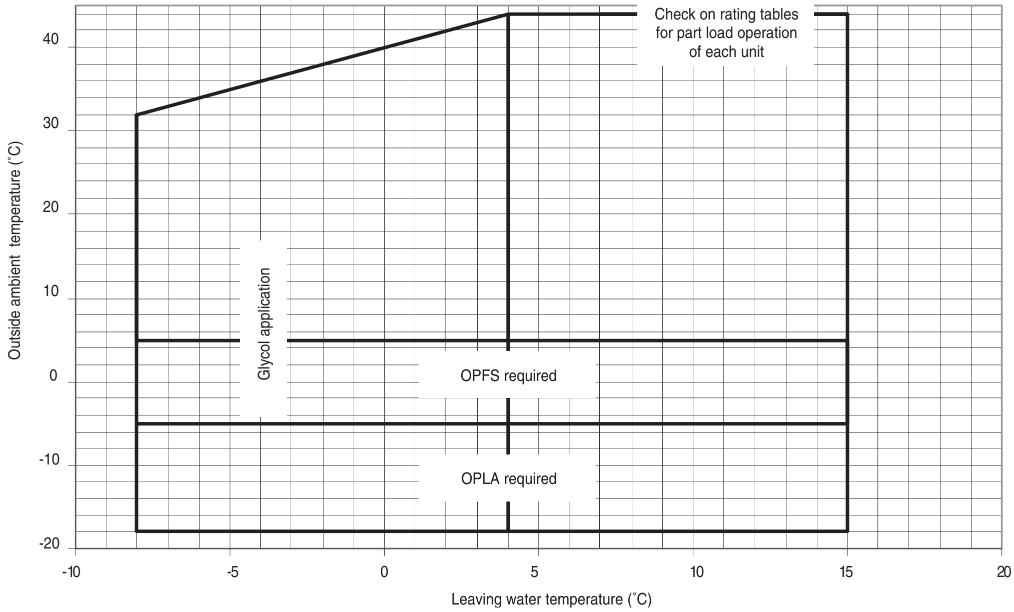
This chapter contains information on the functions used to control the system. Understanding these functions is vital when diagnosing a malfunction that is related to the functional control.

Overview

This chapter contains the following topics:

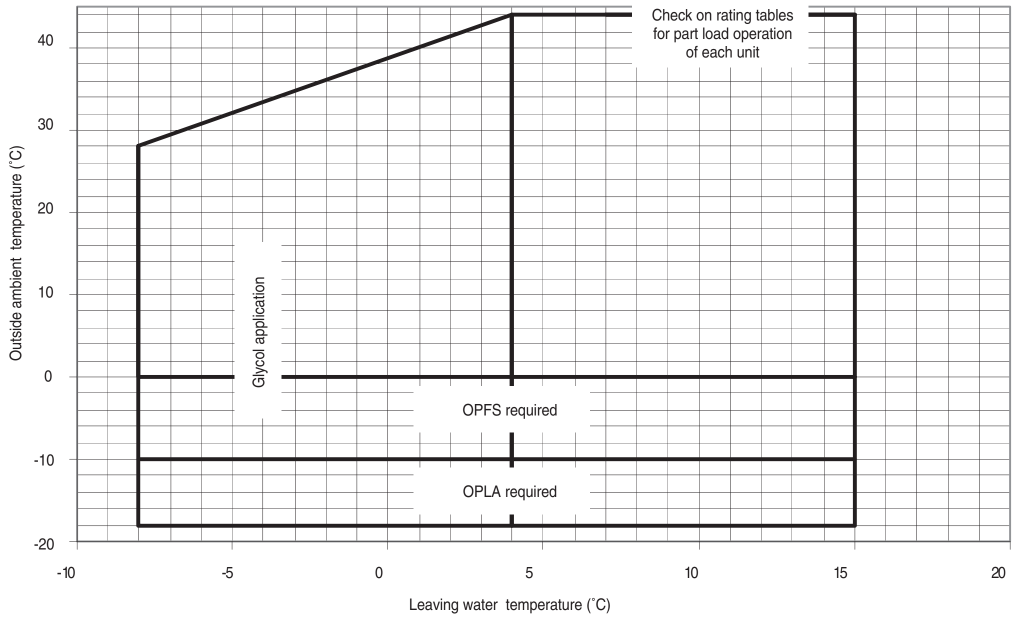
1.2 Operational Range: EWAD-AJYNN

Operational range The illustration below shows the operational range of EWAD-AJYNN.



1.3 Operational Range: EWAD-AJYNN+OPLN

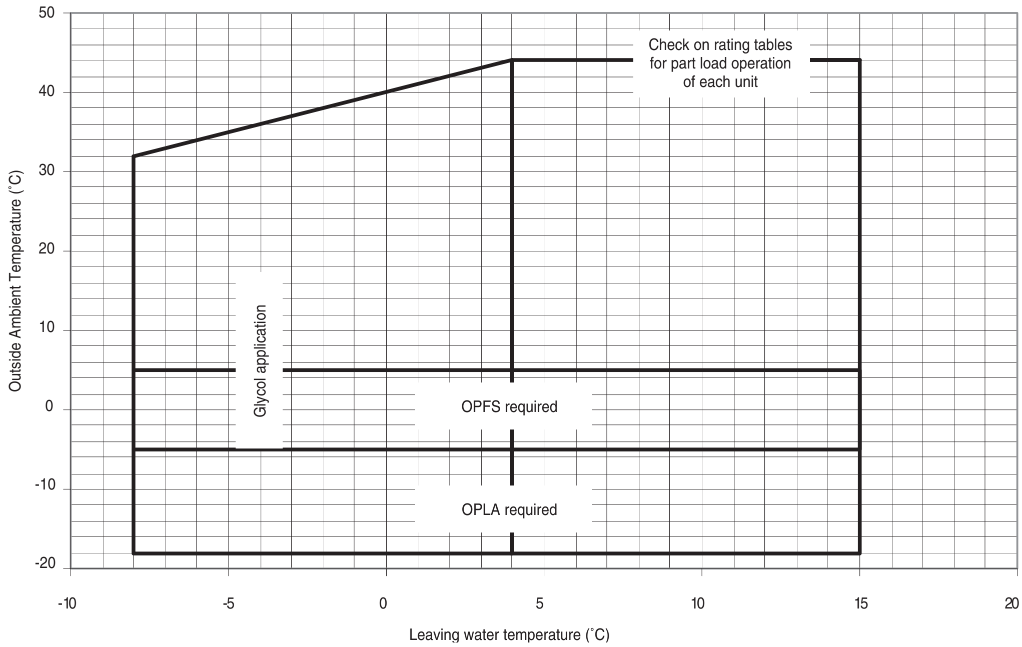
Operational range The illustration below shows the operational range of EWAD-AJYNN+OPLN.



1.4 Operational Range: EWAD-AJYNN/Q

Operational range

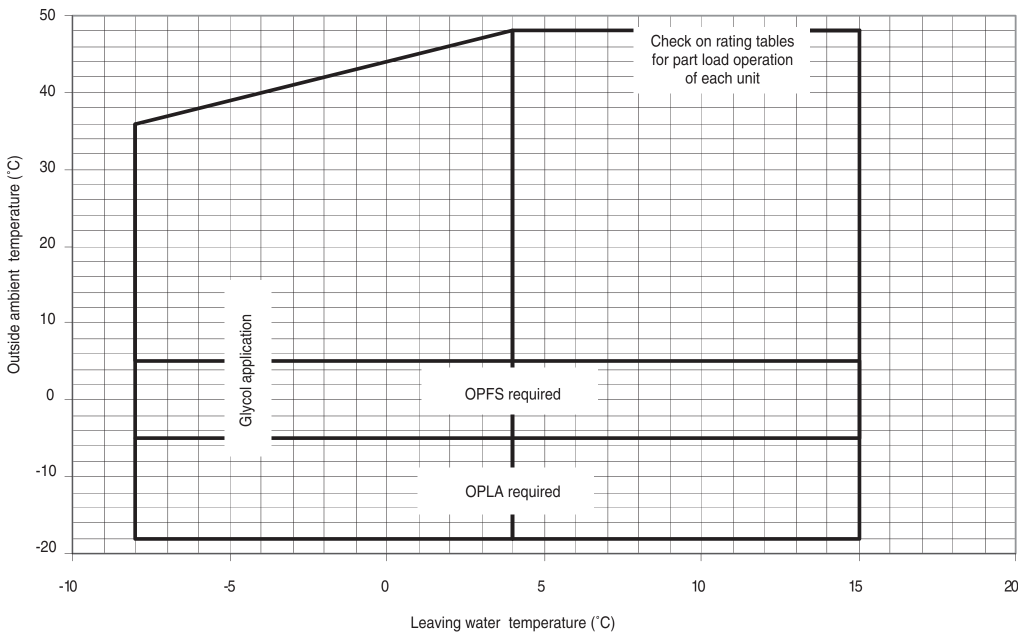
The illustration below shows the operational range of EWAD-AJYNN/Q.



1.5 Operational Range: EWAD-AJYNN/A

Operational range

The illustration below shows the operational range of EWAD-AJYNN/A.



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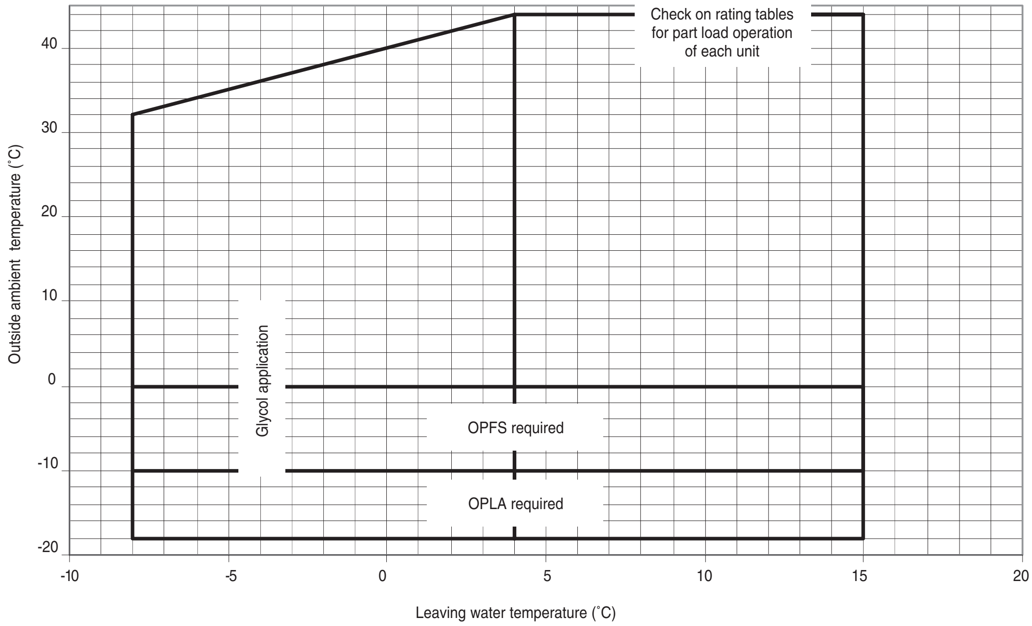
1.6 Operational Range: EWAD-AJYNN/A+OPLN

Operational range

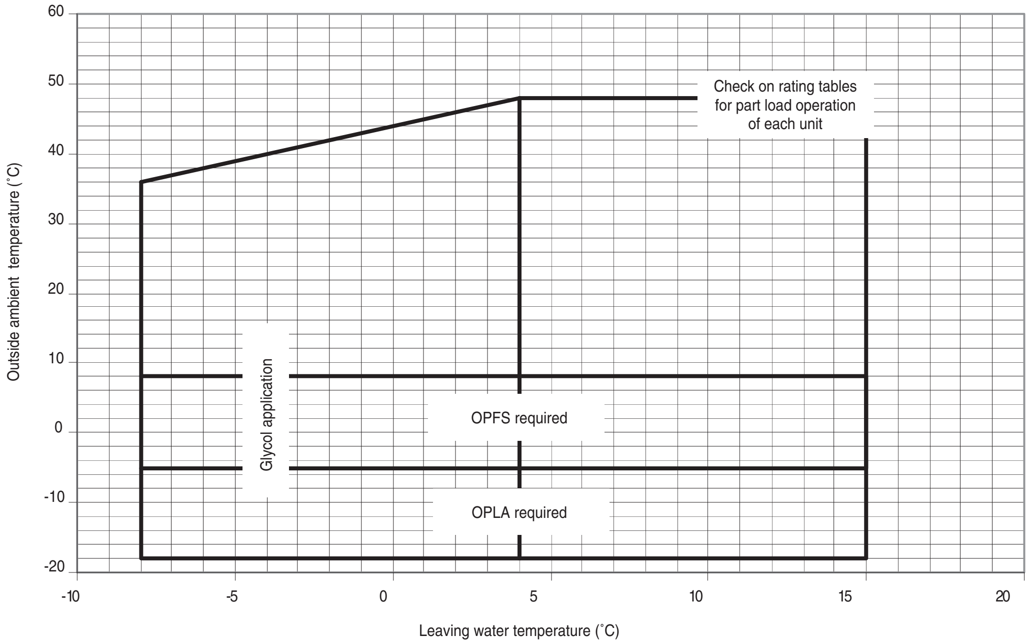
The illustration below shows the operational range of EWAD-AJYNN/A+OPLN.



1.7 Operational Range: EWAD-AJYNN/H

Operational range

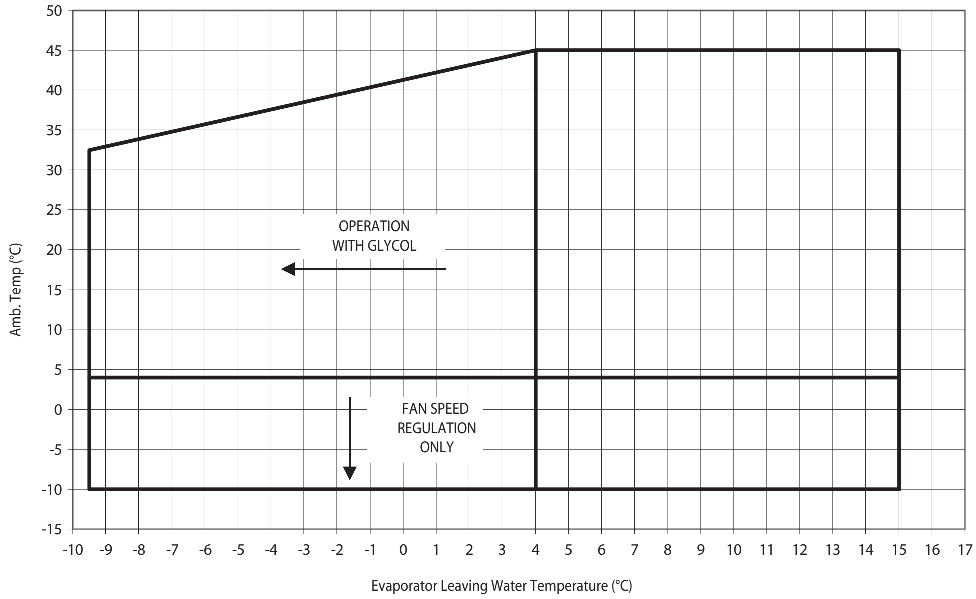
The illustration below shows the operational range of EEWAD-AJYNN/H.



1.8 Operational Range EWAD-AJYNN/S and EWAD-AJYNN/X

Operational range

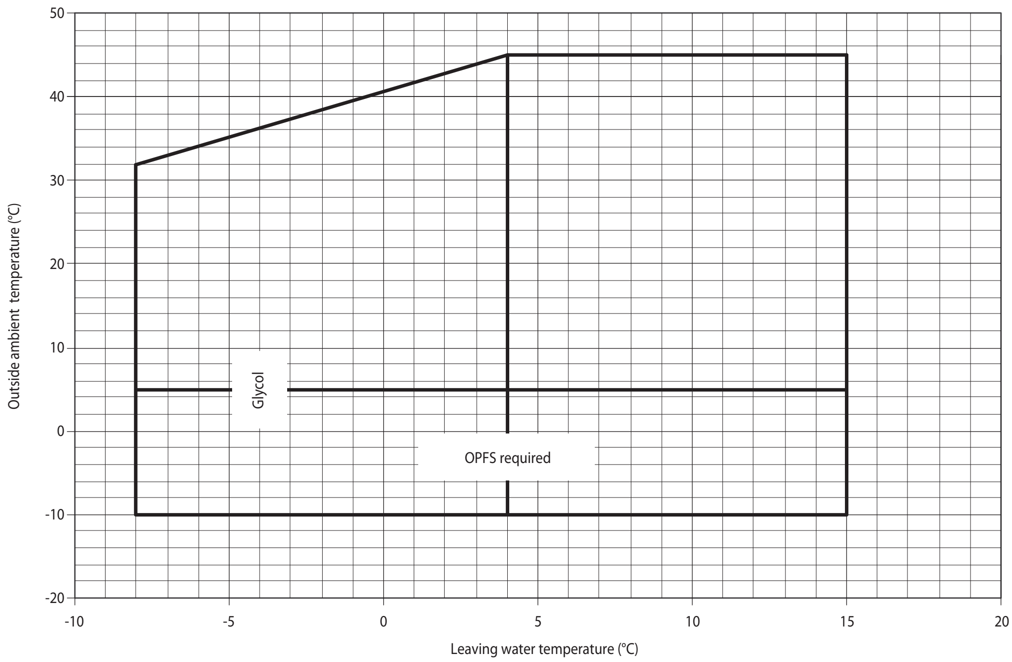
The illustration below shows the operational range of EWAD-AJYNN/S and EWAD-AJYNN/X.



1.9 Operational Range EWYD-AJYNN

Operational cooling range

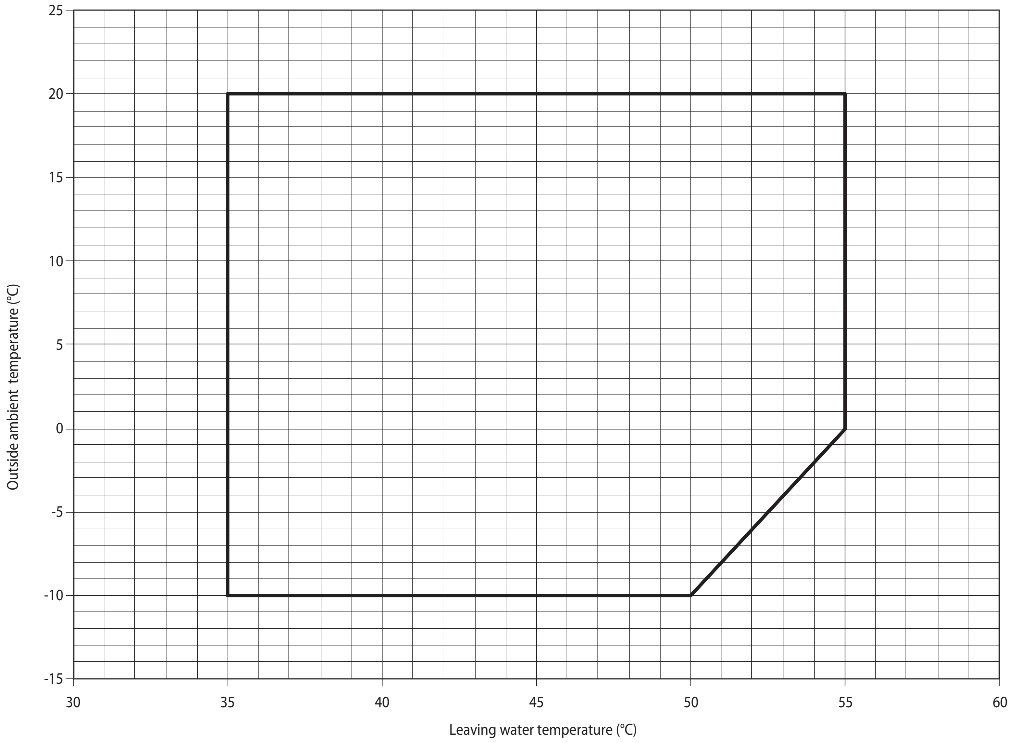
The illustration below shows the operational cooling range of EWYD-AJYNN.



2

Operational heating range

The illustration below shows the operational heating range of EWYD-AJYNN.



2 The Digital Controller Menus

2.1 What Is in This Chapter?

Introduction

This chapter gives more detailed information about the controller and the software. Understanding these functions is vital when diagnosing a malfunction, which is related to system architecture or software.

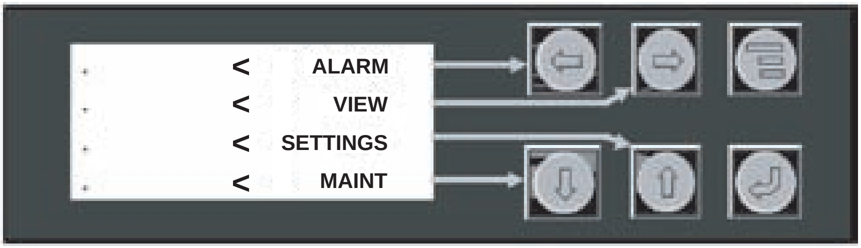
Overview

This chapter contains the following topics:

2.2 Main Menu

Introduction

The digital controller consist of a display panel with 4 lines and a keypad at the right-hand side of the display (see example below).



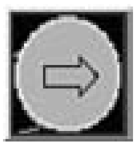
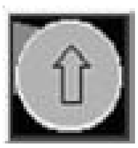
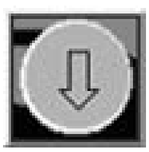
Display panel

The following screen shows the main menu of the controller.

<	ALARM
<	VIEW
<	SETTINGS
<	MAINT

Keypad

Use the Up/Down and the Left/Right arrow keys to access the submenu's of the current screen:

Press ...		To access the ...
	Left arrow key	First menu (e.g. Alarm)
	Right arrow key	Second menu (e.g. View)
	Up arrow key	Third menu (e.g. Settings)
	Down arrow key	Fourth menu (e.g. Maint)

Use the Enter and Exit arrow key to:

Press ...		To ...
	Enter arrow key	Edit the current screen.
	Exit arrow key	Exit the current menu and to go back to the previous.

2.3 Alarm Menu

Main screen of the Alarm menu

In the Main menu of the controller, press the **Left** arrow key to access the Alarm menu.

As a result the following screen appears.

```
<  ACTIVE
<     LOG
```

The Alarm menu contains two submenu's:

Topic	See page
2.3.1–Active menu	2–13
2.3.2–LOG menu	2–14

2.3.1 Active menu

Accessing Alarm menu > Active

In the Alarm menu, press the **Left** arrow key to access the Active menu. The Active menu indicates the current fault.

When there is no alarm active, the following screen appears.

```
        No alarm
        detected
```

If there is an alarm active, the Left arrow key lights up red (function as an alarm button) and the current alarm message appears on the display (see example below)

```
AL:203              U:1
    High pressure
  Switch alarm #2
```

Resetting an alarm

To reset an alarm, press the alarm button (Left arrow key lighting up red) during approximately 3 seconds.

Note: It is only possible to reset an alarm if the cause of the alarm is restored/repaired. For example, it is only possible to reset an flow alarm when the flow is back.

2

2.3.2 LOG menu

Accessing Alarm menu > LOG

In the Alarm menu, press the **Right** arrow key to access the LOG menu. The LOG menu allows you to see the last 10 alarms that occurred.

To browse through the last 10 alarms use the Up/Down arrow keys.

For each alarm the following information is displayed:

- Time and date.
- Brief condition of the unit at the moment of the failure.

Examples:

```
30/01/08        16:30
Prepurge #1 Timeout
```

```
30/01/08        16:40
High Press. Switch #2
```

Consulting details

To consult the detailed running conditions when the alarm occurred, proceed as follows:

1 Press the Right arrow key.
As a result the detailed running conditions are displayed.

```
In.Wat.T.   013.0°C
Out Wat.T.  008.3°C
```

2 Scroll through the running conditions using the Up/Down arrow keys.
Below an example of successive screens when using the Down arrow key.

```
Compressor #1
Suct.Pres   002.0bar
Disc.Pres   010.1bar
Oil Pres    009.7bar
```

```
Compressor #1
Evap.Temp   012.2°C
Suct.Temp   002.3°C
```

```
Compressor #1
Cond.Temp 042.2°C
Disc.Temp 062.3°C
```

```
Compressor #1
EXV Steps 0000
Comp. Load 025%
```

```
Compressor #2
Suct.Pres 001.9bar
Disc.Pres 010.5bar
Oil Pres 010.0bar
```

```
Compressor #2
Evap.Temp 011.2°C
Suct.Temp 002.1°C
```

```
Compressor #2
Cond.Temp 043.2°C
Disc.Temp 061.3°C
```

```
Compressor #2
EXV Steps 0863
Comp. Load 045%
```

3 Press the Enter arrow key, to exit the LOG menu.

2

2.4 View Menu

Main screen of the View menu

In the Main menu of the controller, press the **Right** arrow key to access the View menu.

As a result the following screen appears.

```
        <         U N I T
        <   C O M P R E S S O R
        <             I / O
```

The View menu contains three submenu's:

Topic	See page
2.4.1–Unit menu	2–17
2.4.2–Compressor menu	2–23
2.4.3–I/O menu	2–27

2.4.1 Unit menu

Accessing View menu > Unit

In the View menu, press the **Left** arrow key to access the Unit menu.

```
                 < STATUS
                 <  WATER
                 <   EVAP
```

Status menu

In the Unit menu, press the **Left** arrow key to access the Status menu.

Note: Alternatively, press the Enter arrow key in any menu, in which the < symbol appears in the screen (e.g. the Main menu).

As a result one of the following screens can appear.

```
06/02/08  Wed   12:57
Unit Status: □ ■
Cooling Staging 012%
Stp Source:Local
```

```
06/02/08  Wed   12:57
Unit Status: X X
  No Comp Available
Stp Source:Local
```

```
06/02/08  Wed   12:57
Unit Status: * -
  Waiting Load
Stp Source:Local
```

The following information is displayed:

- Date and Time,
- Unit Status,
- Information,
- Setpoint Source.

Date and Time

For example: 06/02/08 Wed 12:57

Unit Status

□	The compressor can start, but is still off. This can be because there is no load, the compressor is still in oil heating, the recycle timers are still running.
■	The compressor is running.
X	The compressor is not available, because it's switched off by the Q1 or Q2 switch or by the software.
*	The circuit is in defrost.
-	The compressor has low discharge superheat.

Information

■ Cooling staging 80%	The unit is in cooling mode. The total capacity of the unit is 80%. This capacity is the average of the compressor capacities (for example 60% and 100%).
■ Heating staging 120%	The unit is in heating mode. The total capacity of the unit is 120%. This capacity is the average of the compressor capacities (for example 100% and 140%). EWYD-AJ units have a maximum capacity of 150% (90Hz) thanks to the overboost functionality.
■ Off Alarm	The unit is switched off due to an active alarm.
■ Off Rem Com	The unit is switched off by BMS.
■ Off Time Schedule	The unit is switched off due to the time schedule (see "Time Schedule menu" on page 2–66).
■ Off Remote Sw	The unit is switched off by remote switch (digital input 17 of the controller, field wiring inputs 58 and 59).
■ PwrLoss Enter Start	Only when "Restart after power failure" = N and at first start.
■ Off Amb. Lockout	The unit is switched off by the ambient lockout function (see step 5 of the procedure "Scrolling through the setpoints menu" on page 2–60).
■ Waiting Flow	Before starting a compressor, the unit is waiting for flow in the evaporator. There should be 20 sec of flow during the first 30 sec after switching on the unit.
■ Waiting Load	The unit is off and waiting for load. This is when the water temperature is more then the setpoint + start-up ΔT.
■ No comp Available	The unit is off, because none of the compressors are available. The compressors are switched off by switch (Q1 and Q2) or in the software (see step 6 of the procedure "Scrolling through the status menu" on page 2–19) or both in oil heating.
■ FSM Operation	The unit is working in Fan Silent Mode (see "FSM (Fan silent Mode) Schedule menu" on page 2–66). The speed of the fans is reduced for more silent operation.
■ Off Local Sw	The unit is switched off by local switch (Q0 on the switchbox).
■ Off Cool/Heat Switch	The unit is switched off after a switch between cooling mode and heating mode (only for EWYD-AJ units).

Setpoint Source

- Softload
- Stp source: Local
- Stp source: Double
- Stp source: 4-20mA (setpoint override)
- Stp source: OAT reset ambient temperature
- Stp source: ret reset (evaporator delta T)
- Stp source: Ice (ice mode)
- Glycol (glycol mode cooling)
- Stp source: CSC Comm

Scrolling through the status menu

To scroll through the Status menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.
The actual setpoint is shown.
Note: EWYD-AJ units in heating mode show the heating setpoint here.

```
Actual Setpoint
Cooling     007.0°C
```

```
Actual Setpoint

Heating     045.0°C
```

2 Press the Down arrow key.
The following screen appears.

```
   Unit Limiting
demand limit  000%
run current   000Amp
limit         000Amp
```

- Unit demand limiting — The capacity of the unit is limited with a 4-20 mA signal (expansion board 4 required).
- Running current
- Current limit — Value from analog input 4 of expansion board 4.

3 Press the Down arrow key.
Multiple units can be controlled with the option EKCSCIII (max 6 EWAD-AJ or EWYD-AJ units).

```
Csc communication
       Online
Heartbeat      OnL
CSC On/Off
```

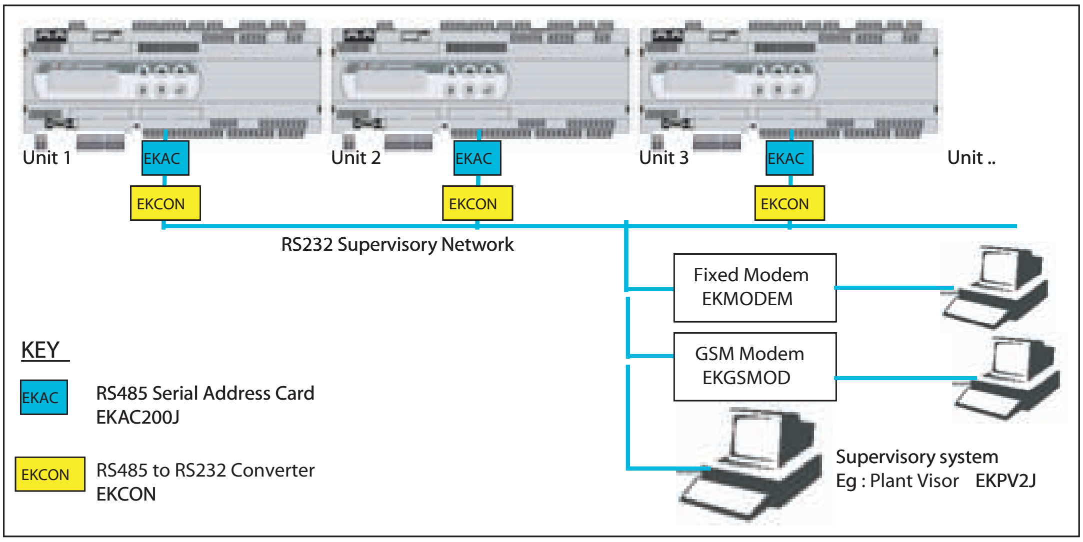
2

4 Press the Down arrow key.
The modem status is shown.

M	o	d	e	m		S	t	a	t	u	s
D	I	S	C	O	N	N	E	C	T	E	D

A fixed or GSM modem can be used to monitor up to 32 chillers from a distance.
For both the fixed modem (EKMODEM) and GSM modem (EKGSMOD), an RS485 serial address card (EKAC200J) and an RS485 to RS232 converter (EKCON) should be used.
With this configuration, it's also possible to connect to Plant Visor (EKPV2J).

Note: this screen is only visible with the option EKMODEM, EKGSMOD or EKPV2J.



5 Press the Down arrow key.
The following screen is visible when the softload function is enabled.

S	o	f	t	l	o	a	d					O	n		
M	a	x		S	t	a	g	e				0	6	0	%
R	e	m	.		T	i	m	e				0	0	7	min
M	a	x		T	i	m	e					0	2	0	min

- Softload — On / Off
- Maximum stage — During the softload, the total unit capacity is limited to 60%.
- Remaining time — The softload is still active for another 7 minutes.
- Maximum time — The softload limits the unit in the first 20 min of operation.

6 Press the Down arrow key.
The compressor state can be set to AUTO, MANUAL or OFF.
In MANUAL mode, the capacity of the compressor can be changed.
Note: Manager password is required (02001).

```
Compressor  #   1

State         AUTO
comp.#1 load    000%
```

```
Compressor  #2
NManual Load  +  -
State         MANUAL
comp.#2 load    000%
```

7 Press the Down arrow key.
The version and creation date of the bios and boot on the controller are displayed.

```
Bios Version  003.87
Bios Date   04/03/08
Boot Version  003.01
Boot Date   15/04/02
```

2

Water menu

In the Unit menu, press the **Right** arrow key to access the Water menu.

As a result the following screen appears.

```
 Water Temperatures
Ent Evap    016.4°C
LVG Evap    011.7°C
```

- Entering evaporator water sensor = analog input 9 (NTC).
- Leaving evaporator water sensor = analog input 10 (NTC).

Note: If the full heat recovery option is selected, the following screen will be visible.

```
Heat Rec. water
Ent Cond       042.2°C
Leav Cond      046.7°C
```

- Entering heat recovery water sensor = analog input 3 on expansion board 2 (NTC).
- Leaving heat recovery water sensor = analog input 4 on expansion board 2 (NTC).

EVAP menu

In the Unit menu, press the **Up** arrow key to access the EVAP menu.

As a result the following screen appears.

```
View Evaporator (01)
Circuit #1
Suct SH  = 006.5°C
Approach = 003.2°C
```

Use the Up/Down arrow key to see the suction superheat and evaporator approach for each circuit.

```
View Evaporator (02)
Circuit #2
Suct SH  = 006.9°C
Approach = 003.9°C
```

Note:

- Approach = evaporator refrigerant temperature - outlet water temperature.
- Suct SH (Suction superheat) is only displayed on units with electronic expansion valve.

2.4.2 Compressor menu

Accessing View menu > Compressor

In the View menu, press the **Right** arrow key to access the Compressor menu.

```
Comp. # 01                H
Status:Off Ready
```

```
Comp. # 02              C
Status:Ready
```

Compressor status

■ Ready	The compressor is ready to start
■ Off Ready	
■ Off Alarm	The compressor is off due to an alarm
■ Off Switch	The compressor is off by switch Q1 or Q2
■ Auto xx%	The compressor is running in automatic mode at xx%
■ Manual xx%	The compressor is running in manual mode at xx%
■ Oil Heating	The compressor is off and in oil heating state (see step 7 of the procedure "Changing the factory unit configuration settings" on page 2–39)
■ Recycle Time	The compressor is off and in recycle timer (see the procedure "Scrolling through the compressor menu" on page 2–56)
■ Manual Off	The compressor is switched off manually in he software
■ Prepurge	
■ Pumping Down	
■ Downloading	
■ Starting	The compressor is starting.
■ Low Disch SH	The compressor is running with too low discharge superheat.
■ Defrost	The compressor is in defrost (reverse cycle in heating mode)
■ Max VFD Load	The compressor is limited because the inverter absorbed current is too high. The signal comes in digital input 3 (circuit 1) or 4 (circuit 2) on EWYD-AJ units.
■ Off Rem SV	The compressor is off by supervisor.

Scrolling through the Compressor menu

To scroll through the Compressor menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.
The following screen appears.

```
Inverter #1

Frequency        60Hz
Current         122A
```

- Frequency — This is the actual frequency of the inverter driven compressor. This value is not measured, but is an analog output on the controller to the inverter.

  Nominal frequency is 60 Hz (100%). Maximum frequency is 90 Hz (150%) in overboost.
- Current — The absorbed current by the inverters.

2 Press the Down arrow key.
The following screen appears.

```
Evap Press 001.6barg
Evap Temp -002.5°C
Cond Press 009.4barg
Cond Temp  040.8°C
```

- Evaporator pressure — The pressure of the refrigerant in the evaporator, measured by a transducer (B3 for circuit 1 and B8 for circuit 2. On units with an electronic expansion valve, the transducers are connecter to the driver of the electronic expansion valve).
- Evaporator temperature — The saturated temperature of the refrigerant in the evaporator.
- Condenser pressure — The pressure of the refrigerant in the condenser, measured by a transducer (B6 for circuit 1 and B7 for circuit 2).
- Condenser temperature — The saturated temperature of the refrigerant in the condenser.

3 Press the Down arrow key.
The following screen appears.

```
Suction Temp 004.4°C
Suct SupHeat 006.9°C
Disc SupHeat 021.2°C
Valve Position 1234
```

- Suction temperature — The temperature of the refrigerant at the suction side of the compressor. This value is measured via the driver of the electronic expansion valve.
- Suction superheat — The superheat at the suction side of the compressor. This is the suction temperature - evaporator saturated temperature.
- Discharge superheat — The superheat at the discharge side of the compressor. This is the discharge temperature - condenser saturated temperature.

- Valve position: The position of the electronic expansion valve (only visible on units with an electronic expansion valve).

4 Press the Down arrow key.
The following screen appears.

```
Oil Press     010.0bar
Disch. T.    0056.7°C
```

- Oil pressure: The pressure of the oil, measured behind the oil filter (B1 for circuit 1 and B2 for circuit 2).
- Discharge temperature: The refrigerant temperature at the discharge side of the compressor.

5 Press the Down arrow key.
The following screen appears.

```
Staging UP
Staging Down
Staging Fixed
Compressor Off
```

- Staging up: The compressor is increasing capacity.
- Staging down: The compressor is decreasing capacity.
- Staging fixed: The compressor is maintaining the same capacity.
- Compressor off: The compressor is off.

6 Press the Down arrow key.
The following screen appears.

```
Compressor
Hour counter000010
Number of
starts         00006
```

- Compressor hour counter: The amount of running hours of the compressor.
- Number of starts: The amount of starts of the compressor.

7 Press the Down arrow key.
The following screen appears.

```
Last comp. start
06/02/08       15:41
Last comp. stop
06/02/08       15:58
```

- Last compressor start: The time and date of the last start of the compressor.
- Last compressor stop: The time and date of the last stop of the compressor.

2

8 Press the Down arrow key.
The following screen appears.

```
EXV Driver State
Batt. resist.    000.0
Batt. Voltage    00.0
```

- Battery resistance
- Battery voltage

2.4.3 I/O menu

Accessing View menu > I/O

In the View menu, press the **Up** arrow key to access the I/O menu.

In the I/O menu, all the analog and digital inputs and outputs of the main controller (pCO2) and of the expansion boards are visible.

The first screen shows the digital inputs and outputs of the main controller (pCO2).

2

D	i	g	i	t	a	l		i	n	p	u	t	s				
C	C	C	C	C	C	C	C	C	O	O	O	O	O	O	O	O	O
D	i	g	i	t	a	l		o	u	t	p	u	t	s			
O	O	O	O	O	O	O	O	O	C	C	C	C	C	C	C	C	C

Digital inputs

The 18 digital inputs of the pCO2 controller (C = closed, O= open)

- DI 1 Compressor 1 on/off.
- DI 2 Compressor 2 on/off.
- DI 3 Evaporator flow switch.
- DI 4 PVM (Phase Voltage Monitor) or GPF (Ground Protection Failure) unit.
- DI 5 Double setpoint.
- DI 6 High pressure switch circuit 1.
- DI 7 High pressure switch circuit 2.
- DI 8
- DI 9
- DI 10 Fan speed control fault circuit 1.
- DI 11 Fan speed control fault circuit 2.
- DI 12 Start-up fault compressor 1.
- DI 13 Start-up fault compressor 2.
- DI 14 Compressor overload on motor protection compressor 1.
- DI 15 Compressor overload on motor protection compressor 2.
- DI 16 Unit on/off.
- DI 17 Remote on/off.
- DI 18

2

Digital outputs

The 18 digital outputs of the pCO2 controller (C = closed, O= open)

■ DO 1	Start compressor 1.
■ DO 2	Load compressor 1.
■ DO 3	Unload compressor 1.
■ DO 4	Liquid injection compressor 1.
■ DO 5	Liquid line solenoid valve circuit 1 (only on units with thermostatic expansion valve).
■ DO 6	1st fan step circuit 1.
■ DO 7	2nd fan step circuit 1.
■ DO 8	3rd fan step circuit 1.
■ DO 9	Start compressor 2.
■ DO 10	Load compressor 2.
■ DO 11	Unload compressor 2.
■ DO 12	Evaporator water pump.
■ DO 13	Unit alarm.
■ DO 14	Liquid injection compressor 2.
■ DO 15	Liquid line solenoid valve circuit 2 (only on units with thermostatic expansion valve).
■ DO 16	1st fan step circuit 2.
■ DO 17	2nd fan step circuit 2.
■ DO 18	3rd fan step circuit 2.

Scrolling through the I/O menu

To scroll through the I/O menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.
The following screen appears.

```
Analog Inputs:

B1:Oil Pr1    010.3bar
B2:Oil Pr2    010.7bar
```

- B1: Oil pressure 1 — Oil pressure of circuit 1. This is the condensing pressure - the pressure drop over the oil filter.

  The sensor is 4-20mA.

- B2: Oil pressure 2 — Oil pressure of circuit 2. This is the condensing pressure - the pressure drop over the oil filter.

  The sensor is 4-20mA.

2 Press the Down arrow key.
The following screen appears.

```
Analog Inputs:
B3:Low Pr.1  001.4bar
B4:Disch.T1  068.2°C
B5:Disch.T2  072.1°C
```

- B3: Low pressure 1 — The low (evaporator) pressure of circuit 1.

  The sensor is 4-20mA.

  On units with an electronic expansion valve, the low pressure is measured via the driver of the electronic expansion valve.

- B4: Discharge temperature 1 — The compressor discharge temperature of circuit 1.

  The sensor is PT1000.

- B5: Discharge temperature 2 — The compressor discharge temperature of circuit 2.

  The sensor is PT1000.

3 Press the Down arrow key.
The following screen appears.

```
Analog Inputs:
B6:Cond Pr1  010.8bar
B7:Cond Pr2  011.3bar
B8:Low pr.2  001.2bar
```

- B6: Condenser pressure 1 — The discharge pressure of circuit 1.

  The sensor is 4-20mA.

- B7: Condenser pressure 2 — The discharge pressure of circuit 2.

  The sensor is 4-20mA.

2

- Low pressure 2 — The low (evaporator) pressure of circuit 2.

  The sensor is 4-20mA.

  On units with an electronic expansion valve, the low pressure is measured via the driver of the electronic expansion valve.

4 Press the Down arrow key.
The following screen appears.

```
Analog  Inputs:
B9:In  Wtr   014.2°C
B10:Out Wtr  009.3°C
```

- B9: Inlet water — The evaporator inlet water temperature.

  The sensor is NTC.
- B10: Outlet water — The evaporator outlet water temperature.

  The sensor is NTC.

5 Press the Down arrow key.
The following screen appears.

```
Analog  Outputs

Y1:              00.0V
Y2:              00.0V
```

- Y1 — Fan speed controller circuit 1 (only on units with fan phase cut controller).

  Signal from 0-10 V DC.
- Y2 — Inverter speed of circuit 1.

  Signal from 0-10 V DC.
- Y3 — Not used.

6 Press the Down arrow key.
The following screen appears.

```
Analog  Outputs

Y4:              00.0V
Y5:              00.0V
```

- Y4 — Fan speed controller circuit 1 (only on units with fan phase cut controller).

  Signal from 0-10 V DC.
- Y5 — Inverter speed of circuit 1.

  Signal from 0-10 V DC.
- Y6 — Not used.

Accessing the I/O menu of the expansion boards

As mentioned before, the first screen of the I/O menu shows the digital inputs and outputs of the main controller (pCO2) (see "Accessing View menu > I/O" on page 2–27).

```
Digital inputs
CCCCCCCCCOOOOOOOOO
Digital outputs
OOOOOOOOOCCCCCCCCC
```

Press the Left or Right arrow key to access the I/O menu of the expansion boards.

Below the successive screens (inputs and outputs of the 4 expansion boards) that appears when using the Right arrow key.

```
    I/O Exp A
DO1:Comp al #1    N
DO2:Comp al #2    N
DO3:Economizer 1  N
```

```
    I/O exp B
B1:OAT     007.8°C
B2:
B3:Curr.#1   015A
```

```
     I/O exp C
DI1:1 Pump Alarm  N
DI2:2 Pump Alarm  N
DI3:1 HR Pump AL  N
```

```
      I/O Exp D
B1:STP Overr. 03.7mA
B2:DMD.Limit  00.4mA
B4:CURR.Limit 07.2mA
```

Expansion Board A: Economizer

```
    I/O Exp A
DO1:Comp al #1    N
DO2:Comp al #2    N
DO3:Economizer 1  N
```

- DO1 — A digital output to indicate a circuit 1 alarm.
- DO2 — A digital output to indicate a circuit 2 alarm.
- DO3 — This digital output controls the economizer on circuit 1.

```
       I / O   E x p   A
D O 4 :  E c o n o m i z e r  2  N
```

- DO4: Economizer2 — This digital output controls the economizer on circuit 2.

2

Expansion Board B: Heat Recovery or Inverter

Expansion Board B can be configured to control Full Heat Recovery or compressor Inverters (EWAD-AJYNN/S, EWAD-AJYNN/X or EWYD-AJYNN).

Note: Full Heat Recovery and Inverter driven compressors can't be combined.

- Heat Recovery:

```
       I / O   e x p   B
B 1 : O A T          0 0 7 . 8 ° C
B 2 :
B 3 : E n t  H R W   0 3 8 . 7 ° C
```

- B1: Outside Ambient Temperature — NTC sensor.
- B3: Entering heat recovery water sensor — NTC sensor.

```
       I / O   e x p   B
B 4 : L e a  H R W   0 4 3 . 4 ° C
D I 3 : H R  S w i t c h    O
D I 4 : H R  f l . s w      C
```

- B4: Leaving heat recovery water sensor — NTW sensor.
- DI3: Heat recovery switch — Controlls full heat recovery operation.
- DI4: Heat recovery flow switch — The flow switch inside the heat recovery system.

```
         I / O   E x p   B
D O 1 : 4 W  v a l v e  H R # 1  N
D O 2 : 4 W  v a l v e  H R # 2  N
D O 3 : 4 W  v a l v e  H R # 3  N
```

- DO1: 4-way valve heat recovery circuit 1 — Controls the heat recovery 4-way valve of circuit 1.
- DO2: 4-way valve heat recovery circuit 2 — Controls the heat recovery 4-way valve of circuit 2.
- DO3: 4-way valve heat recovery circuit 3 — Controls the heat recovery 4-way valve of circuit 3.

```
          I / O   E x p   B
D O 4 : 4 W   v a l v e   H R # 4   N
A O 1 : H R   V a l v e       0 0 . 0 V
```

- DO4: 4-way valve heat recovery circuit 4 — Controls the heat recovery 4-way valve of circuit 4.
- AO1: Heat recovery 3-way valve — 0-10V DC signal to control a 3-way valve in the heat

  recovery circuit. This to ensure a minimum water temperature in the heat recovery condenser.

- Inverter:

```
        I / O   e x p   B
B 1 : O A T           0 0 7 . 8 ° C
B 2 :
B 3 : C u r r . # 1       0 1 5 A
```

- B1: Outside Ambient Temperature — NTC Sensor.
- B3: Current inverter 1 — The absorbed current, measured by the inverter of compressor 1.

  0-5V signal from inverter 1 to expansion board.

```
        I / O   e x p   B
B 4 : C u r r . # 2       0 1 7 A
D I 1 : H / C   S w i t c h   H
D I 2 : O v b o o s t         N
```

- B4: Current inverter 2 — The absorbed current, measured by the inverter of compressor 2.

  0-5V signal from inverter 2 to expansion board.

- DI1: Heating / Cooling switch — Connected to Q8 on the switch box. This allows users to change between heating and cooling mode.
- DI2: Overboost — Allows the inverters to boost the compressors up to 90Hz in any condition.

  Note: It is not allowed to enable this digital input. Contact Daikin Europe FQS for more information.

```
        I / O   e x p   B

D I 3 : M a x   V F D 1       C
D I 4 : M a x   V F D 2       C
```

- DI3: Max VFD 1 — Limitation signal from the VFD (Variable Frequency Driver = Inverter) of circuit 1. This indicates that the inverter is absorbing too much current. The controller will then decrease the compressor capacity to lower the absorbed current.

DI4: Max VFD 2	Limitation signal from the VFD (Variable Frequency Driver = Inverter) of circuit 2. This indicates that the inverter is absorbing too much current. The controller will then decrease the compressor capacity to lower the absorbed current.

```
      I/O Exp B
DO1:4W valve    #1  Y
DO2:S.Liq inj   #1  N
DO3:4W valve    #2  Y
```

DO1: 4-way valve circuit 1	Digital output to control the 4-way valve of circuit 1 to change between heating or cooling mode.
DO2: Suction Liquid Injection	Digital output to enable/disable the liquid injection in compressor 1, depending on the suction temperature (only in heating mode).
DO3: 4-way valve circuit 2	Digital output to control the 4-way valve of circuit 2 to change between heating or cooling mode.

```
      I/O Exp B
DO4:S.Liq inj#2     N
AO1:HP Valve    00.0V
```

DO4: Suction Liquid Injection	Digital output to enable/disable the liquid injection in compressor 2, depending on the suction temperature (only in heating mode).
AO1: Heat pump 3-way valve	0-10V DC signal to control a 3-way valve in the heating circuit. This to ensure a minimum water temperature in the condenser.

Expansion Board C: Water pump control

```
     I/O exp C
DI1:1 Pump Alarm    N
DI2:2 Pump Alarm    N
DI3:1 HR Pump AL    N
```

DI1: Pump 1 alarm	Pump 1 thermal protection.
DI2: Pump 2 alarm	Pump 2 thermal protection (only on units with 2 pumps).
DI3: Heat recovery pump 1 alarm	Heat recovery pump 1 thermal protection.

```
      I/O exp C
DI4:2 HR Pump AL    N
DO1:2 Water Pump    N
DO3:1 HR Pump       N
```

DI4: Heat recovery pump 2 alarm	Heat recovery pump 2 thermal protection.

- DO1: Water pump 2 — Digital output that controls the 2nd pump (1st pump is controlled by digital output 12 of the main pCO2 controller).
- DO3: Heat recovery pump 1 — Controls the primary heat recovery pump.

```
           I/O exp C
DO4:2 HR Pump          N
```

- DO4: Heat recovery pump 2 — Controls the secondary heat recovery pump.

Expansion Board D: current & demand limiting and additional fan steps

```
           I/O Exp D
B1:STP Overr.    03.7mA
B2:DMD.Limit     00.4mA
B4:CURR.Limit    07.2mA
```

- B1: Setpoint override — 4-20mA signal to overwrite the setpoint.

  Function: see procedure "Scrolling through the setpoints menu" on page 2–60.
- B2: Demand limiting — 4-20mA signal to limit the capacity of the unit.

  Function: see procedure "Scrolling through the setpoints menu" on page 2–60.
- B4: Current limit — 4-20mA signal that indicates the unit absorbed current (measured by a current transformer inside the unit on 1 phase of the main power line).

  Function: see procedure "Scrolling through the setpoints menu" on page 2–60.

```
           I/O Exp D
DI1:Unit lim.EN        N
DI2:EXT Alarm          N
```

- DI1: Enable unit limiting — To enable the demand or current limitation.

  Function: see procedure "Scrolling through the setpoints menu" on page 2–60.
- DI2: External alarm — When this function is enabled, the unit will switch of if this contact is closed.

2

```
      I/O Exp  D
DO1:4 Fan step #1 N
DO2:5 Fan step #1 N
DO3:4 Fan step #2 N
```

- DO1: Fan step 4 of circuit 1 — 4th fan step of circuit 1 (fan step 1, 2 and 3 are controlled by the main pCO2 controller).

  Function: see "Condensation" on page 2–47.

- DO2: Fan step 5 of circuit 1 — 5th fan step of circuit 1 (fan step 1, 2 and 3 are controlled by the main pCO2 controller).

  Function: see "Condensation" on page 2–47.

- DO3: Fan step 4 of circuit 2 — 4th fan step of circuit 2 (fan step 1, 2 and 3 are controlled by the main pCO2 controller).

  Function: see "Condensation" on page 2–47.

```
      I/O Exp  D
DO4:5 Fan step #2 N
```

- DO4: Fan step 5 of circuit 2 — 5th fan step of circuit 2 (fan step 1, 2 and 3 are controlled by the main pCO2 controller).

  Function: see "Condensation" on page 2–47.

2.5 Settings Menu

Main screen of the Settings menu

In the Main menu of the controller, press the **Up** arrow key to access the Settings menu.

As a result the following screen appears.

```
<             UNIT
<   COMPRESSOR
<             USER
<           ALARMS
```

The View menu contains four submenu's:

Topic	See page
2.5.1–Unit menu	2–38
2.5.2–Compressor menu	2–56
2.5.3–User menu	2–60
2.5.4–Alarms menu	2–68

2.5.1 Unit menu

Accessing Settings menu > Unit

In the Settings menu, press the **Left** arrow key to access the Unit menu.

```
<  CONFIGURATION
<        SETPOINT
<   CONDENSATION
<   VALVE DRIVER
```

Configuration menu

In the Unit menu, press the **Left** arrow key to access the Configuration menu. The Configuration menu allows you to change some factory unit configuration settings.

As a result the following screen appears.

```
  Expansion Valve
Electronic
Gas Type
R134a
```

■ Expansion valve	Thermostatic or electronic
■ Gas type	R134A

Changing the factory unit configuration settings

To change the factory unit configuration settings, scroll through the Configuration menu using the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.
The following screen appears.

```
Unit Config
N. of comp.s        2
N. of evaporator    1
N. of Pumps         1
```

Fill out the following fields:

■ Number of compressors	Select the number of compressors.
■ Number of evaporators	Select the number of evaporators (not refrigerant circuits, actual number of evaporators).
■ Number of pumps	Select the number of unit pumps (not heat recovery pumps).

2 Press the Down arrow key.
The following screen appears.

```
Pump management
Type        On/Off
```

Fill out the following field:

■ Type of pump control	On/Off pumps.

3 Press the Down arrow key.
The following screen appears.

```
Condensation
Fans number:
Circuit #1 : 2
Circuit #2 : 2
```

Fill out the following field for each circuit:

■ Number of fans	Select actual number of fans

4 Press the Down arrow key.
The range of the low pressure transducer is shown (analog input 3 for circuit 1 and analog input 8 for circuit 2).
Note: this screen is only shown on units equipped with thermostatic expansion valves.

```
Low Press Transd
limits
Min.        -00.5bar
Max.        007.0bar
```

5 Press the Down arrow key.

The range of the inverter absorbed current is shown. The current is measured by the inverter. The pCO2 controller receives a 0-5 V DC from the inverter.

- 0 V = minimum absorbed current
- 5 V = maximum absorbed current

These values depend on the type of compressor.

```
Absorbed current
probe limits Inv.#1
Min.  000.0A
Max.  230.0A
```

```
Absorbed current
probe limits Inv.#2
Min.  000.0A
Max.  300.0A
```

6 Press the Down arrow key.

The following screen appears.

```
Condensation
Control var.  PRES.
Type          SPEEDTR
```

Fill out the following fields:

- Control variable
  - Pressure: the fan control depends on the condensing pressure.
  - PR (pressure ratio): the fan control depends on the ratio between the evaporating pressure and the condensing pressure (not used).
  - None: external fan control (not used).
- Type
  - Fantroll: all fans are on/off.
  - Speedtroll: one (or two) phase cut controlled fan(s) and the rest on/off.
  - VSD: all fans are phase cut controlled.
  - Fan modulation: step control with phase cut controlled fans.

7 Press the Down arrow key.

The following screen appears and allows you to to enable or disable the oil heating control.

```
Enable Oil Heating
control              Y
```

When oil heating is enabled, the start-up of compressors will not be allowed if the following formula is not met: Disch Temp - Temp (oil press) > 5 °C

- Disch Temp — Discharge temperature (= actual oil temperature).
- Temp (oil press) — The refrigerant saturated temperature at the oil pressure.

8 Press the Down arrow key.

The unit will restart automatically after a switch between cooling and heating (only for EWYD-AJ) units. You are able to fill out the number of seconds. In the example below, this will take 300 sec.

```
 Autorestart After
  Cool/Heat Switch
        300 s
```

9 Press the Down arrow key.

On the first start-up and when selecting default values, the RS485 network (J23 connection to the expansion boards) is scanned for 30 seconds.

The network can be refreshed by changing N to Y (technical password required).

```
     RS485 net

 time check 030
     Refresh  N
```

10 Press the Down arrow key.

The configuration screen of the expansion board appears.

```
Exp.Board #2 conf.
Heat Pump
Compressor load
control:Inverter
```

Fill out the following fields:

■ Expansion board #2 configuration	■ Chiller only. ■ Heat pump (only for EWYD-AJ units). ■ Heat recovery (only full heat recovery, not partial heat recovery).
■ Compressor load control	■ Solenoid (standard with oil pressure). ■ Inverter (for EWYD-AJ, EWAD-AJ/S and EWAD-AJ/X).

11 Press the Down arrow key

The following screen appears and allows you to enable or disable the economizer (standard for EWAD-AJ/A units).

```
Economizer

Enabled     Y
```

The economizer is enabled when the compressor capacity reaches 90 % and disabled again on 75 %. When the condensing pressure reaches 80 °C, the economizer is disabled. It will only start again, when the condensing pressure is 80 °C - 5 °C = 75 °C (and when the compressor capacity is 90 % or more).

```
Econ.Thres.080.0°C
Econ.Diff.  05.0°C
Econ. ON      90 %
Econ. OFF     75 %
```

2

12 Press the Down arrow key.
The following screen appears.

```
2nd HR Pump enabling
Not present
```

Select Present if the unit is equipped with two full heat recovery pumps.

13 Press the Down arrow key.
The following screen appears.

```
HR circuit select.
C #1 Y     C #2  N
C #3 N     C #4  N
Recovery type:Total
```

Select the circuits that are equipped with full heat recovery.

14 Press the Down arrow key
The following screen appears and allows you to enable or disable the autorestart after power failure.

```
Autorestart after
power failure    Y
```

When enabled, the unit will automatically restart after a power failure.

15 Press the Down arrow key
The following screen appears and allows you to enable or disable the autorestart after power failure.

```
Switch Off unit
on External Alarm
                N
```

When enabled, the unit will be switched off on external alarm (digital input 2 on expansion board 4).

16 Press the Down arrow key
The following screen allows you to put all parameters back to the default values.

```

Reset all parameters
to default values
               N
```

17 Press the Down arrow key

The following screen allows you to change the technical password.

Note: It is recommended to leave the technical password a s standard.

```
Password Technician
```

2

Setpoint menu

In the Unit menu, press the **Right** arrow key to access the Setpoint menu. The Setpoint menu allows you to change setpoint regulation configuration.

Scrolling through the setpoint menu

To scroll throug the Setpoint menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.

The derivation parameter of the PID setpoint controller is shown.

Note: check the parameter list for the correct value.

```
Temp. Regulation
Der. Time       060s
```

2 Press the Down arrow key.

```
Liquid Line Close
Time (Prepurge)
Cooling          010s
Heating          010s
```

On units with thermostatic expansion valves, the liquid line solenoid valve closes for a certain amount of time to empty the evaporator on start-up (= prepurge).

On units with electronic expansion valves, the valve closes.

3 Press the Down arrow key.

```
Downloading time
                 010s
```

The time to download (= go to minimum capacity) the compressor when switched off. During this time, the unload valve will be enabled.

4 Press the Down arrow key.

```
Pump down config.
Enable          Y
Max time     120s
Min Press 01.0barg
```

When pumpdown (= to put all refrigerant in the condenser when powered off) is enabled, it can take up to 120 sec, except if the evaporator pressure gets below 1,0 bar.

5 Press the Down arrow key.

```
Pumpdown regime
VSD speed 45.0 %
```

On units with inverter driven compressors, the pumpdown is executed at 45 % of 90 Hz = 40,5 Hz.

6 Press the Down arrow key.

```
Main pump OFF
Delay              180s
```

When the unit is switched off, the pump runs for another 180 sec to prevent freeze up in the evaporator.

7 Press the Down arrow key.

```
LI.Disc stp085.0°C
LI.Disc Dif010.0°C
LI.Suct stp035.0°C
LI.Suct dif005.0°C
```

Liquid injection (to cool down the compressor) is enabled when the discharge temperature reaches 85 °C, and disabled again when the discharge is 85 °C - 10 °C = 75 °C.

On EWYD-AJ units, liquid injection is also enabled when the suction temperature reaches 35 °C and disabled again when the suction is 35 °C - 5 °C = 30 °C.

8 Press the Down arrow key.

```
Low Ambient Param.
Cond.T thr 005.0°C
L.Amb.Timer 120sec
```

If the condensing saturated temperature is lower then 5,0 °C, the compressor starts and stays at minimum capacity for the first 120 sec.

When the evaporator pressure is equal or bigger then the evaporator pressure stage down setpoint, the start is successful.

When the evaporator pressure is still lower then the evaporator stage down setpoint after 120 sec, the compressor is stopped.

Three low ambient start-ups are done before an alarm appears.

9 Press the Down arrow key.

```
Defrost parameters
Startup T      00180s
Defr. Int.     01800s
Defr. Param.      10°C
```

The defrost formula (Suction temperature < 0,7 x Ambient - 10 °C) has to be respected for 180 sec before a defrost starts. Before the logic looks at this formula and timer, the values of the suction superheat, ambient temperature and suction temperature need to be respected (see next screen).

The minimum time between 2 defrost of the same circuit is 1800 sec (= 30 min).

Defrost parameter: Suction temperature < 0,7 x Ambient - 10 °C. 10 °C is the design approach value of the coil.

10 Press the Down arrow key.

```
Defrost parameters
Ssh THR        010.0°C
AMB T THR      020.0°C
Suct T THR     000.0°C
```

Before the defrost formula (Suction temperature < 0,7 x Ambient - 10 °C) is checked, the suction superheat needs to be less then 10,0 °C, the ambient temperature needs to be less then 20,0 °C and the suction temperature needs to be less then 0,0 °C.

11 Press the Down arrow key.

```
Defrost parameters
LWT fail T      012.0°C
Cool Mode time600s
HP limit      0014.0bar
```

A defrost is stopped:

- when the evaporator leaving water drops below 12,0 °C.
- after 600 sec.
- when the condensing pressure is 14,0 bar (not during the first 60 sec, see next screen).

12 Press the Down arrow key.

```
Defrost parameters
Cooling mode
Regime speed   60.0%
Min Endurance     60s
```

The speed of a compressor in defrost (cooling) mode is 60,0 % of 90 Hz = 54 Hz.

When the condensing pressure reaches 14,0 bar (see previous screen), half of the fans will start. They will stop again at 10,5 bar condensing pressure. During 60 sec, the fans can start and stop. After this, the defrost will terminate because of high pressure (no alarm).

13 Press the Down arrow key.

```
Defrost parameters
Compressor pause
Starting           060s
Ending             180s
```

Before a defrost starts, the compressor waits 60 sec. After a defrost, it waits 180 sec.

2

14 Press the Down arrow key.

```
Heat  Rec.  Param
Deadband      02.0°C
Stage time     045s
Cond.T thr  030.0°C
```

The heat recovery will operate in a 2,0 °C deadband around the setpoint.

The 45 sec stage timer is between heat recovery steps (circuits).

Heat recovery will only be enabled when the condensing saturated temperature is 30,0 °C or more.

15 Press the Down arrow key.

```
HR  interstage
pause
Time          02 min
```

Before a heat recovery step is removed or added, the controller waits 2 min.

16 Press the Down arrow key.

```
HR bypass valve

Min Temp   040.0°C
Max Temp   030.0°C
```

Analog output 1 (0 - 10 V DC) of expansion board 2 is to regulate a 3-way valve in the heat recovery circuit to ensure a minimum temperature in the heat recovery circuit.

- 0 V = 40 °C. The 3-way valve will not bypass when the temperature is 40 °C or more.
- 10 V = 30 °C. The 3-way valve will completely bypass all heat recovery water to build up temperature.

Between 30 °C and 40 °C, the bypass is linear 0 - 10 V DC.

Condensation menu

In the Unit menu, press the **Up** arrow key to access the Condensation menu. The Condensation menu allows you to change the fan settings.

As a result the following screen appears.

```
     < CONDENSATION
     <  EVAPORATION
```

The condensation menu is divided into two submenu's, Condensation and Evaporation. Both submenu's are discussed in detail below.

Condensation

In the Condensation menu, press the **Left** arrow key to access the Condensation submenu.

As a result the following screeen appears.

```
Condensation
Setpoint   040.0°C
```

The setpoint for the condensing saturated temperature is 40,0°C.

To scroll further throug the Condensation submenu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

```
Fantroll SetPs

StageUP Err.   10.0°C
stageDW Err.   10.0°C
```

A fan stage-up will be done when the stage-up setpoint (see next screens) and the stage-up error of 10 °C x sec is reached (see graphs).

```
Fantroll SetPs
Dead band n. 1
Stage Up     003.0°C
Stage Down   010.0°C
```

Fan step 1 of circuit 1 = digital output 6.
Fan step 1 of circuit 2 = digital output 16.

```
Fantroll SetPs
Dead band n. 2
Stage Up     006.0°C
Stage Down   006.0°C
```

Fan step 2 of circuit 1 = digital output 7.
Fan step 2 of circuit 2 = digital output 17.

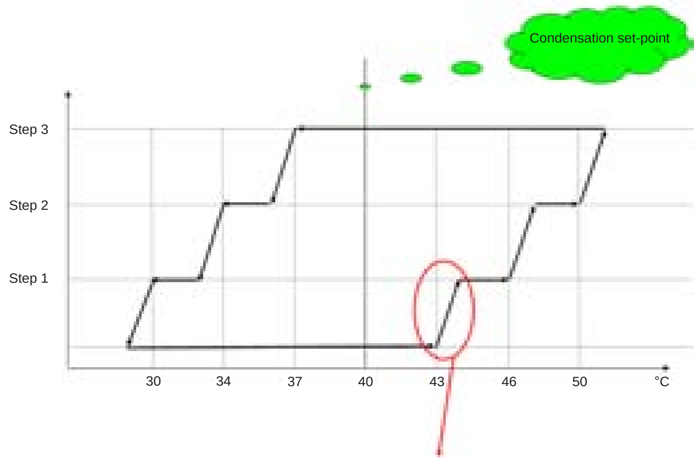
```
Fantroll SetPs
Dead band n. 3
Stage Up     010.0°C
Stage Down   003.0°C
```

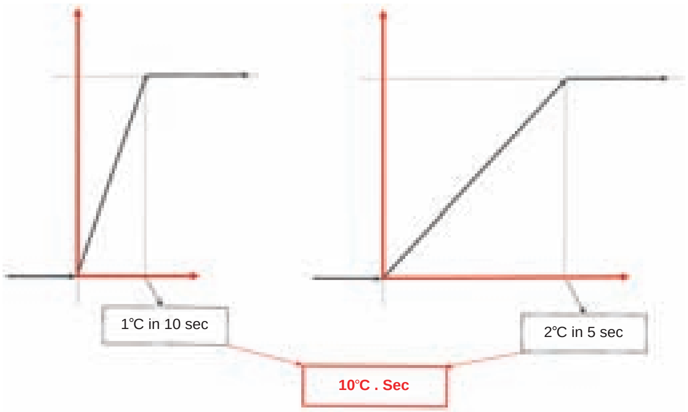
Fan step 2 of circuit 1 = digital output 7.
Fan step 2 of circuit 2 = digital output 17.

Fan step 4 of circuit 1 = digital output 1 of expansion board 4.
Fan step 4 of circuit 2 = digital output 3 of expansion board 4.

Fan step 5 of circuit 1 = digital output 2 of expansion board 4.
Fan step 5 of circuit 2 = digital output 4 of expansion board 4.

Depending on the amount of fan steps (contactors), different stage up and stage down parameters have to be set. These values are listed in the parameter lists.





Example:
The condensing pressure builds up from 20 °C to 42 °C.
At 43 °C, the stage-up error is checked.
When the temperature rises another 2 °C in 5 seconds (= 10 °C x sec), so to 45 °C, the first fan step is activated.

```
VSD config.
Max.speed          10.0V
Min.speed          00.0V
Speed up time        01s
```

When the unit is equipped with phase cut controlled fans, the pCO2 controller sends a 0 - 10 V DC signal to the phase cut devices.

- Circuit 1 = analog output 1.
- Circuit 2 = analog output 4.

0 V = no signal to the fan (= fan off).
10 V = fan at maximum speed.
Note: low noise (OPLN) and /Q (super silent) versions have a maximum fan speed of 6 V.

Speed up time = 1 sec. This function puts the phase cut controlled fan(s) at maximum speed for 1 sec to ensure the fan is starting. This to protect the fan against burn out of the fan motor (when the fan is off and the controller gives a signal to run at very low speed, the fan may not be able to start and can burn out).

```
Cond. Regulation VSD

Reg.Band     020.0°C
Neut.Band    001.0°C
```

Phase cut controlled fans regulate in a 20,0 °C regulation band around the condensation setpoint with a neutral band of 1,0 °C.

```
Cond. Regulation VSD
Int. Time       150s
Der. Time       001s
```

These are the PID parameters of the phase cut controlled fan regulation.

Evaporation

In the Condensation menu, press the **Right** arrow key to access the Evaporation submenu.

As a result the following screeen appears.

```
Evaporation
Setpoint  010.0°C
```

Note: EWYD-AJ units in heating mode have an evaporation setpoint to regulate the evaporating pressure.

```
Fantroll SetPs

StageUP Err.   10.0°C
stageDW Err.   10.0°C
```

```
Fantroll SetPs
Dead band n. 1
Stage Up      006.0°C
Stage Down    004.0°C
```

2

```
F a n t r o l l   S e t P s
D e a d   b a n d   n .   2
S t a g e   U p         0 0 8 . 0 ° C
S t a g e   D o w n     0 0 3 . 0 ° C
```

```
F a n t r o l l   S e t P s
D e a d   b a n d   n .   3
S t a g e   U p         0 1 0 . 0 ° C
S t a g e   D o w n     0 0 2 . 0 ° C
```

```
V S D   c o n f i g .
M a x . s p e e d         1 0 . 0 V
M i n . s p e e d         0 0 . 0 V
S p e e d   u p   t i m e     0 1 s
```

```
E v a p .   R e g u l a t i o n   V S D

R e g . B a n d     0 1 0 . 0 ° C
N e u t . B a n d   0 0 1 . 0 ° C
```

```
E v a p .   R e g u l a t i o n   V S D
I n t .   T i m e       1 5 0 s
D e r .   T i m e       0 0 1 s
```

The fan step regulation for the evaporation setpoint is similar to the condensation regulation.

Valve Driver menu

In the Unit menu, press the **Left** arrow key to access the Val Driver menu. The Valve Driver menu allows you to change the settings of the electronic expansion valve.

Consulting the Valve Driver menu

To scroll further throug the Valve Driver menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

```
EXV  Settings
PreOpening        035%
```

```
EXV  Setting         #1

NO  WARNINGS
```

```
EXV  Setting         #2

NO  WARNINGS
```

Possible warnings for the electronic expansion valves are displayed here.

```
EXV  Setting          #1
Act.  Position      0000
Man.  Position      0500
En.EXV  Man         AUTO
```

```
EXV  Setting          #2
Act.  Position      0000
Man.  Position      0500
En.EXV  Man         AUTO
```

- Actual position — The actual position of the electronic expansion valve.
- Manual position — A manual chosen position of the electronic expansion valve.
- Enale EXV manual — When changing AUTO into MAN, the electronic expansion valve goes to the position asked in "Manual position".

```
E X V   S e t t i n g
V a l v e   t y p e
C U S T O M
```

2

- Electronic expansion valav type
  - Alco EX8
  - Alco EX7
  - Alco EX6
  - Alco EX5
  - Custom
  - Carel E2V**A
  - Carel E2V**P
  - Danfoss ETS100
  - Danfoss ETS50
  - Sporland 50-SHE 25
  - Sporland SEI 25
  - Sporland SEI 0,5 - 11

```
E X V   S e t t i n g
O p e n i n g   E X T R A s     Y
C l o s i n g   E X T R A s     Y
T i m e   E X T R A s     0 0 0 0 s
```

```
E X V   S e t t i n g
C o o l i n g
S S H   s e t p       0 0 6 . 0 ° C
D e a d   z o n e     0 0 . 0 ° C
```

The suction superheat setpoint in cooling mode.

```
E X V   S e t t i n g
H e a t i n g
S S H   s e t p   # 1   0 0 9 . 5 ° C
S S H   s e t p   # 2   0 0 9 . 5 ° C
```

The suction superheat setpoint in heating mode for circuit 1 and circuit 2.

```
E X V   S e t t i n g   C o o l
P r o p .   f a c t o r   8 0 . 0
I n t .     f a c t o r     0 3 0 s
D i f f .   f a c t o r   0 0 . 5 s
```

The PID parameters for the electronic expansion valve in cooling mode.

```
EXV Setting Heat
Prop. factor 50.0
Int. factor 010s
Diff. factor 02.5s
```

The PID parameters for the electronic expansion valve in heating mode.

```
EXV Setting
Low SHeat Protect.
Low limit -002.0°C
Int. time 00.0s
```

Protection for the suction superheat. It can't drop below the low limit for the integral time.

```
EXV Setting
LOP Protection
LOP limit -030.0°C
Int. time 00.0s
```

When the evaporator saturated temperature gets below the LOP limit for a certain amount of time, the electronic expansion valve will open to increase the evaporator pressure.

Note: the protection will only work if the suction superheat is away from the low suction superheat limit.

```
EXV Setting
MOP Protection
MOP limit 012.0°C
Int. time 04.0s
```

When the evaporator saturated temperature gets above the MOP limit for a certain amount of time, the electronic expansion valve will close to decrease the evaporator pressure.

Note: the protection will only work if the temperature is below the maximum limit.

```
EXV Setting
MOP Protection
Start-up delay
               180s
```

On start-up, the controller doesn't check for MOP protection during the start-up delay.

```
EXV Setting
HiTcond PROTECTION
HiTcond li 090.0°C
Int. time 04.0s
```

--

```
EXV Setting
Suction Temperature
high limit
                060.0°C
```

When the suction temperature goes above a certain value, the circuit goes into alarm.

```
EXV Setting

Minimum steps 0000
Maximum steps 3530
```

The electronic expansion valves minimum and maximum opening.

```
EXV Setting

Closing steps 3600
Back steps    0000
```

--

```
EXV Setting

Phase curr. 0140mA
Still curr. 0075mA
```

- Phase current — The current needed to move the step motor of the electronic expansion valve.
- Still current — The current needed to keep the step motor of the electronic expansion valve in place.

```
EXV Setting

Step rate     120Hz
Duty-cycle    070%
```

- Step rate — The amount of steps that the electronic expansion valve can make per second.
- Duty-cycle — The electronic expansion valve will go to a value in “1/ (duty-cycle)” times.

  For example with a duty-cycle of 70 %, the electronic expansion valve will go to a value in 1,43 times.

```
EXV Setting      #1
Press. probe
Min val -000.5barg
Max val  007.0barg
```

```
EXV Setting      #2
Press. probe
Min val -000.5barg
Max val  007.0barg
```

The limit values for the low pressure sensors that are connected to the drivers of the electronic expansion valves.

```
EXV Setting       #1

BATTERY PRESENT    Y
PLAN PRESENT       N
```

```
EXV Setting       #2

BATTERY PRESENT    Y
PLAN PRESENT       N
```

An indication if the battery is present for the electronic expansion valve and if the pLAN network is operating.

2

2.5.2 Compressor menu

Accessing Settings menu > Compressor

In the Settings menu, press the **Right** arrow key to access the Compressor menu.

As a result the following screen appears.

```
Min T same comp.
starts     0600s
Min T diff. comps
starts     0120s
```

- The minimum time between starts of the same compressor.
- The minimum time between starts of different compressors.

The user able to change the values.

Scrolling through the compressor menu

To scroll through the Compressor menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.
The minimum time that the compressor has to be ON and OFF is shown.
Note: when an alarm occurs, the compressor is switched off, even if the "min time comp. on" timer is not expired.

```
Min Time comp.
ON         0030s
Min Time comp.
OFF        0180s
```

2 Press the Down arrow key.
The interstage time is displayed.

```
Interstage time
           0120s
```

3 Press the Down arrow key.
The following screen appears.

```
Low pressure
Hold T.    -004.0°C
Down T.    -008.0°C
Down delay    020s
```

- Hold temperature — When the evaporator saturated temperature reaches this value, the compressor will hold its capacity (no longer load up).
- Down temperature — When the evaporator saturated temperature reaches this value, the compressor will decrease its capacity (unload).

- Down delay — Before actually decreasing capacity (unloading) when the "down temperature" is reached, the controller will wait for the down delay.

4 Press the Down arrow key.
The following screen appears.

```
High pressure
Hold T.       060.0°C
Down T.       065.0°C
```

- Hold temperature — When the condenser saturated temperature reaches this value, the compressor will hold its capacity (no longer load up).
- Down temperature — When the condenser saturated temperature reaches this value, the compressor will decrease its capacity (unload).

5 Press the Down arrow key.
The minimum speed of an inverter driven compressor is displayed (e.g. 33% of 90 Hz = 30 Hz).

```
Compressor min.
speed          33.0%
```

6 Press the Down arrow key.
The nominal speed of an inverter driven compressor is displayed. (e.g. 67 % of 90 Hz = 60 Hz).
Note: 100 % compressor capacity means that the speed is 60 Hz..

```
Inverter nominal
speed
Summer 67.0%
Winter 67.0%
```

7 Press the Down arrow key.
The following screen appears.

```
Compressor FLA max
(OAT < 40°C)
Comp. #1     105.0A
Comp. #2     140.0A
```

When the ambient temperature is lower then 40 °C, the compressor inverter current is limited. This value depends on the size of compressor and inverter. See the parameter list for the correct values.

8 Press the Down arrow key.
The following screen appears.

```
FLA amb.temp comp.
factor 95.0%
```

When the ambient temperature is more then 35 °C, the compressor inverter current is limited to 95 % of the FLA max value (see screen step 7).

2

9 Press the Down arrow key.

The following screen appears.

```
Stage hold diff. %
to start reloading
Diff.        10.0%
```

When the current gets to the FLA max value, the compressor will hold its capacity (no longer load up). The current has to drop 10 % before the compressor can reload.

10 Press the Down arrow key.

The following screen appears.

```
Stage down % offset
FLA min.
Compressor #1   5.0%
Compressor #2   5.0%
```

When the current gets to the FLA max value + the offset (5 %), the compressor will decrease its capacity (unload).

11 Press the Down arrow key.

The following screen appears.

```
Dis.SH THR 001.0°C
disch SH T   030sec
```

When the compressor starts with too low discharge superheat, the compressor will operate at minimum capacity. As soon as the discharge superheat gets above 1,0 °C for 30 sec, the compressor can start uploading..

12 Press the Down arrow key.

The following screen appears.

```
N Load Pulse     06
N Unload Pulse   09
```

- Number of load pulses — The number of compressor steps from minimum capacity to maximum capacity.
- Number of unload pulses — The number of compressor steps from maximum capacity to minimum capacity.

13 Press the Down arrow key.

The following screen appears.

```
Load/Unload speed
variation perc.
Load       2.0%
Unload     2.0%
```

Inverter controlled compressors change capacity with steps of 2,0 %, which is 1,8 Hz.

Minimum capacity is 33 %, nominal is 100 % and maximum is 150 %.

So there are about 34 steps from minimum to nominal capacity and 25 from nominal to maximum..

14 Press the Down arrow key.

The following screen appears.

```
Loading
Pulse time      00.1s
Min pulse per.030s
Max pulse per.150s
```

To load a compressor, the loading solenoid valve is energized for 0,1 sec (pulse time). When the compressor is loading up, the time between 2 pulses is between 30 sec and 150 sec.

15 Press the Down arrow key.

The following screen appears.

```
Unloading
Pulse time      01.0s
Min pulse per.001s
Max pulse per.150s
```

To unload a compressor, the unloading solenoid valve is energized for 1,0 sec (pulse time). When the compressor is loading down, the time between 2 pulses is between 1 sec and 150 sec.

16 Press the Down arrow key.

The following screen appears.

```
1st Pulse duration

Loading          01.0s
Unloading        00.8s
```

To ensure the capacity sliding valve is moving, the first pulse during loading or unloading is energized longer.

17 Press the Down arrow key.

The following screen appears.

```
                 C:1
Ignore Oil HeatinN
Reset SoftLoad   N

```

When compressor 1 is in oil heating, this can be ignored for 1 start-up.

When the unit is in softload, this can be ignored for 1 start-up.

18 Press the Down arrow key.

The following screen appears.

```
                 C:2
Ignore Oil HeatinN


```

When compressor 2 is in oil heating, this can be ignored for 1 start-up.

2.5.3 User menu

Accessing Settings menu > User

In the Settings menu, press the **Up** arrow key to access the User menu.

```
          <   Setpoints
          < Time Sched.
          <  FSM Sched.
          <       Clock
```

Setpoints menu

In the Settings menu, press the **Left** arrow key to access the Setpoints menu.

A a result the following screen appears.

```
Cooling setpoint
          007.0°C
Heating setpoint
         0045.0°C
```

Choose the cooling and heating setpoint.

Note: The heating setpoint is only applicable for EWYD-AJ units.

The user able to change the values.

Scrolling through the setpoints menu

To scroll through the Setpoints menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.
The following screen appears.

```
Enable Double
setpoint    Y
```

Eanble or Disable the double setpoint. For more information, see the wiringdiagrams for the digital input connection.
When double setpoint is enabled, other setpoints are used. The following screen appears when pressing the Down arrow key

```
Cooling double
setpoint   012.0°C
Heating double
setpoint   050.0°C
```

2 Press the Down arrow key.
The following screen appears.

```
Lvg Water Temp.
setpoint reset

NONE
```

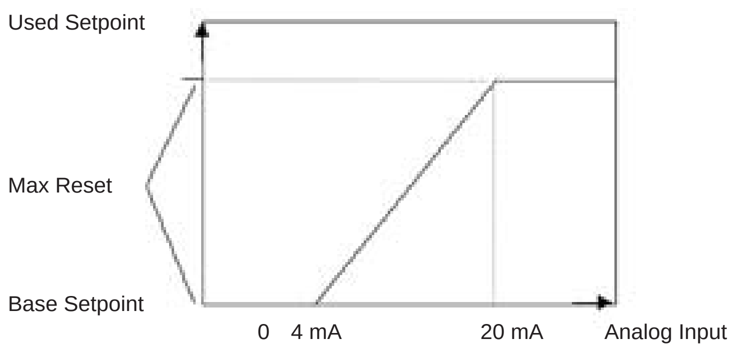
Choose one of the following Leaving water temperature settings

- None (default setting) — outlet water control.
- Return — inlet water control.
- 4-20 mA — setpoint depending on 4-20mA input (expansion board 4).
- OAT — setpoint depending on ambient temperatures.

- If **4-20 mA** is selected, the following screen appears when pressing the Down arrow key:

```
ChLWT Setpoint
Override Limits
Setp. Diff.
003.0°C
```

Setpoint difference = max reset vaue on below graph.

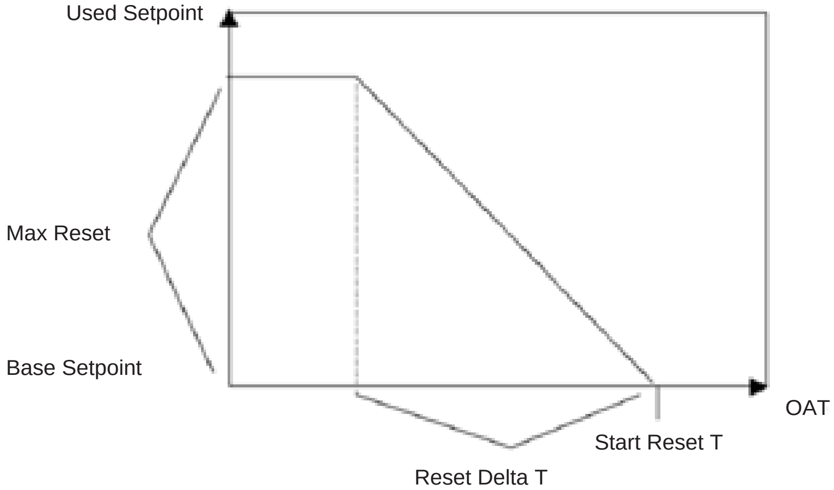



```
HotLWT Setpoint
Override Limits
Minimum     040.0°C
Maximum     050.0°C
```

Note: Only for EWYD-AJ units.
Minimum (40,0 °C) = 4 mA
Maximum (50,0 °C) = 20 mA

- If **OAT** is selected, the following screen appears when pressing the Down arrow key.

```
OAT ChLWT Reset
Max reset   003.0°C
Reset DT    008.0°C
Start Reset 035.0°C
```



- If **Return** is selected, the following screen appears when pressing the Down arrow key:

```
ChLWT Return Reset
StarT Dt     003.0°C
Max reset    003.0°C
```

3 Press the Down arrow key.
The outlet setpoint for total heat recovery is displayed.

```
Heat Recovery

Setpoint    0050.0°C
```

4 Press the Down arrow key.
The type of working mode is displayed.

```
Working mode
   Cooling
```

There are three possible workings modes:

- Cooling (normal mode)
- Glycol (low leaving water operation)
- Ice (ice mode: the compressor is not allowed to unload, but is stopped using a step procedure)

The table below lists some temperature values/ranges for the 4 modes:

	Cooling	**Glycol**	**Ice**	**Heating**
Setpoint range	4,4°C - 15,5°C	-6,7°C - 15,5°C	-6,7°C - 15,5°C	40°C - 50°C
Freeze alarm	2°C	-10°C	-10°C	
Freeze prevent	3°C	-9°C	-9°C	

5 Press the Down arrow key.

When softload is enabled, the unit will not load more capacity then the maximum stage (50 %) during the maximum time (20 min).

```
Enable Softload      Y
Maxstage        050 %
MaxTime         020   min
```

When softload is running, the minutes count down in the main screen.

```
06/02/08   Wed   12:57
Unit Status:   □  ■
Cooling Staging   012%
Soft Load      019  min
```

When ambient lockout is enabled, it stops the unit when the setpoint is reached. When the ambient is more then the setpoint + difference, the unit can start again.

```
En. Amb. Lockout
                     Y
Setpoint        005.0°C
Diff            001.0°C
```

6 Press the Down arrow key.

The following screen appears.

```
Enable Demand Lim
              Y
```

Expansion board 4 can control a demand limit to the unit. This has to be enabled here + with digital input 1 on the expansion board.

7 Press the Down arrow key.

The following screen appears.

```
Enabling Supervisor
Demand Limiting    Y
Type:Unit
```

Supervisory demand limiting can be enabled on unit or circuit.

8 Press the Down arrow key.

The following screen appears.

```
Current Limit set
4mA                000A
20mA               400A
Max Curr.          300A
```

When current measuring system is installed (+ expansion board 4), the current of the unit can be limited to a maximum value.

2

9 Press the Down arrow key.
The following screen appears.

```
Compressor
sequencing
AUTO
```

Normally the compressor with the least amount of running hours starts first. The start-up procedure can be set to manual. Then you can choose which compressor has to start first, second, third and fourth.

```
Set comp. stage
C #1 1st  C #2 2nd
C #3 3rd  C #4 4th
```

10 Press the Down arrow key.
The following screen appears.

```
Heat Recovery pump
sequencing
AUTO
```

When 2 heat recovery pumps are installed, the one with the least amount of running hours will start first. This procedure can be set to manual. Then you can choose which pump has to start first and which has to start as last.

```
Set HR Pumps stage
(manual sequencing)
P #1 1st    P #2 2nd
```

11 Press the Down arrow key.
The following screen appears.

```
Protocol: BACNET
Superv. Com. Speed
9600 (RS485 ONLY)
Identif. No.: 001
```

- Protocol
  - BACNET
  - MODSHZ
  - LONWORKS
  - MODBUS
  - REMOTE
  - LOCAL

■ Speed	1200 (RS485 / RS422) 2400 (RS485 / RS422) 4800 (RS485 / RS422) 9600 (RS485 only) 19200 (RS485 only)
■ Identification number	1-200

12 Press the Down arrow key.
The following screen appears.

```
Supervisory remote
on/off
Supervisory Remote
Cool/Heat
```

This allows the BMS system to switch on/off the unit and select cooling or heating (the Q8 cool/heat switch on the switch box is then bypassed).

13 Press the Down arrow key.
The following screen appears.

```
Modem connection

Password        0152
```

When a modem is connected, enter password 0152 to enable the connection.

14 Press the Down arrow key.
The following screen allows you to choose between SI-units (°C, bar, ...) or PI-units (°F, psi, ...).

```
Interface Units
      SI
Supervisory Units
      SI
```

15 Press the Down arrow key.
The following screen allows you to choose a language.

```
 Choose Language:

   ENGLISH
```

16 Press the Down arrow key.
The following screen allows you to change the operator password, which is standard set to 00100.

```
  Password Operator
Old: 00000
New: 00000
Save changes?   N
```

Time Schedule menu

In the Settings menu, press the **Right** arrow key to access the Time Schedule menu.

A a result the Enable time scheduling screen appears.

```
Enable time
Scheduling
                 Y
```

If you select **Yes**, you have the posibility to:

- Program the start/stop function of the unit.

```
        Start   Stop
Mo-Fr   00:00   23:59
Sat     00:00   23:59
Sun     00:00   23:59
```

- Program holidays.

```
      Holidays    (1)
00/00   00/00   00/00
00/00   00/00   00/00
00/00   00/00   00/00
```

```
      Holidays    (2)
00/00   00/00   00/00
00/00   00/00   00/00
00/00   00/00   00/00
```

FSM (Fan silent Mode) Schedule menu

In the Settings menu, press the **Up** arrow key to access the FSM menu.

A a result the Fan Silent Mode screen appears.

```
Fan Silent Mode   Y

Max Inv. Out. 06.0 V
```

If you select **Yes**, you have the possibility to program the weekly Fan Silent Mode (see examples below).

```
 FSM Monday-Friday
       Start   Stop
1st    00:00   06:00
2nd    18:00   23:59
```

```
    FSM Saturday
      Start  Stop
1st   00:00  06:00
2nd   14:00  23:59
```

```
       FSM  Sunday
        Start   Stop
1st     00:00   23:59
2nd     00:00   00:00
```

```
FSM Force On Days(1)
00/00   00/00   00/00
00/00   00/00   00/00
00/00   00/00   00/00
```

```
FSM Force On Days(2)
00/00   00/00   00/00
00/00   00/00   00/00
00/00   00/00   00/00
```

Clock menu

In the Settings menu, press the **Down** arrow key to access the Clock menu.

A a result the Clock configuration screen appears.

```
Clock  config.
Time             18:51
Date          24/03/08
WeekDay       2
```

2

2.5.4 Alarms menu

Accessing Settings menu > Alarms

In the Settings menu, press the **Down** arrow key to access the Alarms menu.

As a result the following screen appears.

```
Antifreeze alarm

Setpoint      02.0°C
Diff.         01.4°C
```

When the evaporator leaving water temperature reaches 2,0 °C, the antifreeze alarm is activated. It is only possible to reset this alarm when the temperature is 1,4 °C above this setpoint (3,4 °C).

Note: Units with 2 evaporators have a different antifreeze setpoint for evaporator 1 and evaporator 2.

```
Antifreeze alarm
EV1
Setpoint      02.0°C
Diff.         01.4°C
```

```
Antifreeze alarm
EV2
Setpoint      02.0°C
Diff.         01.4°C
```

1 Press the Down arrow key.
The following screen appears.

```
Freeze prevent

Setpoint      03.0°C
Diff.         01.0°C
```

To prevent an antifreeze alarm, the compressor will download capacity when the evaporator leaving water temperature reaches 3,0 °C. The compressor can only start uploading again when the temperature is 1,0 °C above this setpoint (4,0 °C).

2 Press the Down arrow key.
The following screen appears.

```
Oil level Switch

En. Alarm          N
Run delay          010s
```

Note: This screen is not active.

3 Press the Down arrow key.

The following screen appears.

```
Oil low pressure
alarm delays
Startup delay  300s
Run delay      090s
```

This function compares the evaporator pressure with the oil pressure. The minimum difference depends on the compressor load.

Compressor load	**Activation**
Minimum load	(LP X 1.1) + 1 bar
Maximum load	(LP X 1.5) + 1 bar
Intermediate load	Interpolated value

On startup, there is a delay of 300 sec before the pressures are checked.

When running, there is a delay of 90 sec.

4 Press the Down arrow key.

The following screen appears.

```
Saturated disch.
Temperature alarm
Setpoint  068.5°C
Diff.     012.0°C
```

When the saturated discharge temperature (condensing temperature) reaches 68,5 °C, the circuit will trip in alarm. It's only possible to reset the alarm when the temperature drops to 68,5 °C - 12,0 °C = 56,5 °C.

5 Press the Down arrow key.

The following screen appears.

```
Saturated suction
Temp alarm cool mode
Setpoint -008.0°C
Diff.     002.0°C
```

When the saturated suction temperature (evaporating temperature) reaches -8,0 °C in cooling mode, the circuit will trip in low pressure alarm. It's only possible to reset the alarm when the temperature goes up to -8,0 °C + 2,0 °C = -6,0 °C.

6 Press the Down arrow key.

The following screen appears.

```
Saturated suction
Temp alarm heat mode
Setpoint -032.0°C
Diff.     000.0°C
```

Note: The heating mode is only applicable for EWYD-AJ units.

When the saturated suction temperature (evaporating temperature) reaches -32,0 °C in heating mode, the circuit will trip in low pressure alarm. It's only possible to reset the alarm when the temperature goes up to -32,0 °C + 0,0 °C = -32,0 °C.

7 Press the Down arrow key.

The following screen appears.

```
Saturated suction
Temp alarm delays
Starting       120s
Running        040s
```

When the compressor is starting, the saturated suction temperature (low pressure) alarm is bypassed for 120 sec.

When the compressor is running, the saturated suction temperature (low pressure) alarm is only activated when the saturated temperature drops below the setpoint for 40 sec.

8 Press the Down arrow key.

The following screen appears.

```
High Discharge
Temperature Alarm
Setpoint   110.0°C
```

When the compressor discharge temperature reaches 110,0 °C, the circuit trips in high discharge temperature alarm.

9 Press the Down arrow key.

The following screen appears.

```
Press Ratio al
Thresholds
@ 25%             1.4
@ 100%            1.8
```

Pressure ratio = ratio between the low pressure and high pressure (absolute pressure).

Example: at 25 % capacity, the low pressure is 2,0 bar on the controller (relative pressure). The absolute low pressure is then 3,0 bar. The absolute high pressure needs to be 3,0 x 1,4 = 4,2 bar (relative 3,2 bar).

10 Press the Down arrow key.

The following screen appears.

```
  Oil Press Diff

Alarm Setp  002.5bar
```

The oil pressure is measured behind the oil filter inside the compressor. If the condensing pressure - oil pressure = 2,5 bar or more, the unit trips in high oil pressure difference alarm.

11 Press the Down arrow key.

The following screen appears.

```
Select PVM or GPF
alarm type: Unit
```

PVM (phase voltage monitor) or GPF (ground protection failure) is always set on Unit. The voltage monitor looks at the voltage (360 V - 440 V) and the phase sequence.

12 Press the Down arrow key.

The following screen appears.

```
Evap. Flow Switch
alarm delays
Startup delay  020s
Run delay      005s
```

When the unit starts, there has to be 20 sec of flow during the first 30 sec of pump operation. When the unit is running, the flow switch has to be open for 5 sec before the unit trips in flow alarm.

13 Press the Down Arrow key

The following screen appears.

```
HR high water
temp. alarm
Threshold   050.0°C
```

When the leaving water of the total heat recovery reaches 50,0 °C, the unit will trip in alarm and the following screen appears.

14 Press the Down arrow key.

The following screen appears.

```
HR Flow switch
alarm delays
Startup delay  020s
Running delay  005s
```

When the total heat recovery starts, there has to be 20 sec of flow during the first 30 sec of pump operation. When the heat recovery is running, the flow switch has to be open for 5 sec before the circuit trips in alarm and the following screen appears.

2.6 Maintenance Menu

Main screen of the Maintenance menu

In the Main menu of the controller, press the **Down** arrow key to access the Maintenance menu.

As a result the following screen appears.

```
<         V I E W
<   S E T T I N G S
<       D E B U G
```

The View menu contains three submenu's:

2.6.1 View menu

Accessing Maintenance menu > View

In the Maintenance menu, press the **Left** arrow key to access the View menu.

```
Hour counter
Pump Evap.        000007
Second Pump       000007
```

The view menu allows you to see the running hours of the primary and secondary pump, if present.

Scrolling through the View menu

To scroll throug the View menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key 7 times to consult the paramaters of the PID thermostat control.

The following 7 successive screens when using the Down arrow key.

```
Cooling PID Errors
Prop.  014.7  °C
Der.   000.0  °C/min
```

```
Cool. PID Act.  1000
Proportional    1000
Derivative      0000
```

```
Cooling Reg.
Disable stop      N
Increase stop     N
```

```
Heating PID Errors
Prop.  007.7  °C
Der.   000.0  °C/min
```

```
Heat. PID Act.  1000
Proportional    1000
Derivative      0000
```

```
Heating Regulation
Disable stop       N
Increase stop      N
```

```
Global PID request
Load               N
Unload             N
Standby            N
```

2 Press the Down arrow key.

The following screen appears.

```
  Available Board

  X   █   █   X
      X       X
```

The connected expansion boards.

In this example, expansion board 2 and 3 are present on the main pCO2 controller.

3 Press the Down arrow key 4 times to consult the following 4 successive compressor screens.

```
Compressor 1 Hold
LPN   HPN   AmpN
HRN   VFDN  DSHN
HWN   NTWN
```

```
Compressor 1 Unload
LPN   HPN   AmpN
FRN
HWN   NTWN
```

```
Compressor 2 Hold
LPN   HPN   AmpN
HRN   VFDN  DSHN
HWN   NTWN
```

```
Compressor 2 Unload
LPN   HPN   AmpN
FRN
HWN   NTWN
```

When xxN becomes xxY, the compressor is holding or decreasing capacity, because of a limitation with the:

- LP: Low pressure
- HP: High pressure
- Amp: Current
- HR: Heat recovery
- VFD: Variable frequency driver (compressor inverter)
- DSH: Discharge superheat
- HW: Hot water
- NTW: Network
- FR: Freeze prevention

4 Press the Down arrow key.
The following screen appears.

```
Num. Defrost cycle
Circ. 1: 004
Circ. 2: 007
```

Fill out the number of defrost of circuit 1 and circuit 2.

5 Press the Down arrow key.
The following screen appears.

```
Defrost Cond. C#1
A1        A2        A3
A4        A5        A6
Ts <  00.0 °C  (  )
```

Fill out the defrost conditions of circuit 1

■ A1	suct < 0,7 x OAT - 10 °C is true for 180 sec
■ A2	OAT < 15 °C, suct < 0 °C and SSH < 10 °C
■ A3	timer since compressor start
■ A4	defrost interstage timer (1800 sec)
■ A5	defrost not finished
■ A6	defrost enabled
■ Ts < xx °C	suct < 0,7 x OAT - 10 °C is true

When all these conditions are true, defrost will start.
Note: It is also possible to call a manual defrost.

6 Press the Down arrow key.
The following screen appears.

```
End defrost cond.
circ1
cool          fan
hpress        temp
```

A defrost can end because of:

- ???
- ???
- high pressure
- too low water temperature

7 Press the Down arrow key.
The defrost conditions of circuit 2 appears.

```
Defrost   Cond.   C#2
A1        A2        A3
A4        A5        A6
Ts <   00.0 °C  (  )
```

Fill out the defrost conditions, for more information refer to the defrost conditions of circuit 1 (see step 5).

8 Press the Down arrow key.
The end defrost conditions of circuit 2 appears.

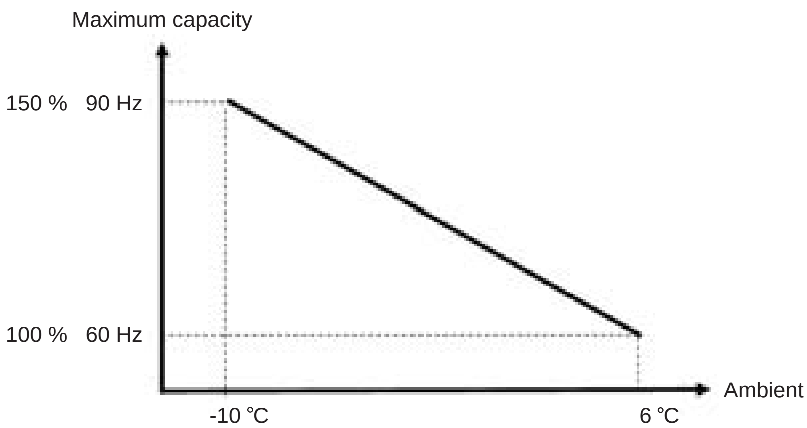
```
End defrost  cond.
circ2
cool          fan
hpress        temp
```

For more information refer to the end defrost conditions of circuit 1 (see step 6).

9 Press the Down arrow key.
The following screen appears.

```
Inverter overboost
Overboost
Overb. by Tamb
Max Capacity   125%
```

- Overboost — When digital input 2 of expansion board 2 is closed.
- Overboost by ambient temperature — Overboost is enabled depending on ambient temperature.



The following screens are only applicable if Heat recovery is selected.

10 Press the Down arrow key.
The following screen appears.

```
Hour counter
HR Pump       000017
HR Pump2      000016
```

This screen allows you to see the running hours of the primary and secondary heat recovery pump.

11 Press the Down arrow key.
The following screen appears.

```
Heat Recovery
working        Y
disp.steps     2
act.steps      1
```

Indicates if the total heat recovery is active or not.

- Display steps — The amount of circuits equipped with total heat recovery.
- Actual steps — The amount of active total heat recovery circuits.

12 Press the Down arrow key.
The following screen appears.

```
HR fan disabling
circ.
#1 N        #2 N
#3 N        #4 N
```

```
HR bypass valve
opening      0000
```

The position of the heat recovery 3-way valve.

13 Press the Down arrow key.
The following screen appears.

```
NTW Cap. Limit
C#1:000%    C#2:000%
C#3:000%    C#4:000%
```

Circuit limitation from a BMS system.

2.6.2 Settings menu

Accessing Maintenance menu > Settings

In the Maintenance menu, press the **Right** arrow key to access the Settings menu.

```
Evap.Pump  h.Count.
Thresh.    010x1000
Reset        N
Adjust       000007
```

Scrolling through the Settings menu

To scroll throug the Settings menu, use the Up/Down arrow keys. Below the successive screens that appears when using the Down arrow key.

1 Press the Down arrow key.
The following screen appears.

```
Second.Pump  h.Count.
Thresh.    010x1000
Reset        N
Adjust       000007
```

Second evaporator pump (if present) hour counter and adjustment.

2 Press the Down arrow key.
The following screen appears.

```
Comp.#1 h.Count
Threshold 010x1000
Reset       N
Adjust      000007
```

Compressor 1 hour counter and adjustment.

3 Press the Down arrow key.
The following screen appears.

```

Comp.#1 starts
Reset         N
Adjust      00014
```

Compressor 1 number of starts and adjustment.

4 Press the Down arrow key.
The following screen appears.

```
Comp.#2 h.Count
Threshold 010x1000
Reset       N
Adjust      000007
```

Compressor 2 hour counter and adjustment.

5 Press the Down arrow key.
The following screen appears.

```
Comp.#2 starts
Reset              N
Adjust         00014
```

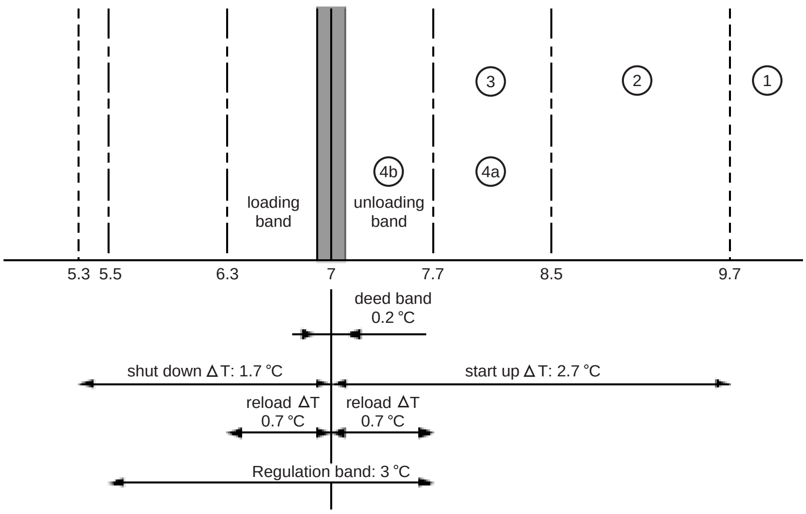
Compressor 2 number of starts and adjustment.

6 Press the Down arrow key.
The following screen appears.

```
Regul. band004.0°C
Neutr. band000.1°C
Max Pull Down Rate
        00.7°C/min
```

7 Press the Down arrow key.
The following screen appears.

```
 Max Pull Up Rate
            01.2°C
Startup DT  002.6°C
Shutdn DT   001.7°C
```



8 Press the Down arrow key.
The following screen appears.

```
High ChLWT start
LWT          025.0°C
MaxComp.Stage 070%
```

The unit will limit the capacity to 70 % when the leaving water temperature is more then 25 °C. (Not in heating mode).

9 Press the Down arrow key.
The following screen appears.

```
Min Evap DT  01.0°C
Max Time     15min
```

The unit will switch off when the evaporator delta T is less then 1,0 °C for 15 min. This is to prevent a compressor running at minimum capacity for a long time.

10 Press the Down arrow key 3 times to consult the limits for setpoints.
The following 3 successive screens when using the Down arrow key.

```
Load for Comps
Min Load        025 %
Full Load       100 %
En Slide Valve    N
```

```
ChLW Temperature
setpoint limits
Low         004.0°C
High        015.0°C
```

```
HotLW Temperature
setpoint limits
Low         040.0°C
High        050.0°C
```

11 Press the Down arrow key 6 times to enable or disable the following 6 successive input screens.

```
Probes enable
B1:YB2:YB3:YB4:Y
B5:YB6:YB7:YB8:Y
B9:YB10:Y
```

```
Exp probes enable 1
B101:N    B102:N
B103:N    B104:N
B201:Y    B202:N
```

```
 Exp probes enable
B203:N    B204:N
B301:N    B302:N
```

```
 Exp probes enable
B401:N    B402:N
B404:N
```

```
Exp.Dig.Input Enable
DI103:N      DI104:N
DI201:N      DI202:N
DI301:N      DI302:N
```

```
Exp.Dig.Input Enable
DI303:N      DI304:N
DI401:N      DI402:N
DI403:N      DI404:N
```

12 Press the Down arrow key 6 times to set the offset for the following 6 successive anaolog input screens.

```
Inputs Probes offset
B1:  0.0    B2:  0.0
B3:  0.0    B4:  0.0
B5:  0.0
```

```
Inputs Probes offset
B6:  0.0    B7:  0.0
B8:  0.0    B9:  0.0
B10:  0.0
```

```
Expansion A
Probe offset

B103:  0.0 B104:  0.0
```

```
Expansion B
Probe offset
B201:  0.0 B202:  0.0
B203:  0.0 B204:  0.0
```

```
Expansion C
Probe offset
B301:  0.0 B302:  0.0
```

```
Expansion D
Probe offset
B401:  0.0 B402:  0.0
           B404:  0.0
```

13 Press the Down arrow key.

The following screen appears.

```
DT to reload and
reunload comp

         000.7°C
```

14 Press the Down arrow key.
The following screen appears.

```

Reset alarm
buffer          N

```

15 Press the Down arrow key.
The following screen allows you to force a defrost.
Note: This is only applicable for EWYD-AJ units.

```
Defrost forcing
Circ.1:No force
Circ.2:No force

```

16 Press the Down arrow key.
The following screen appears.

```
Defrost cycles
counter reset: N


```

17 Press the Down arrow key.
The following screen appears.

```
Supervisor auto.
comp. selection
Enabling   N
Delay    030s
```

18 Press the Down arrow key.
The following screen appears.

```
HR Pump h.Count.
Thresh.   010x1000
Reset       N
Adjust      000007
```

Primary heat recovery pump hour counter and adjustment.

19 Press the Down arrow key.
The following screen appears.

```
HR Pump2 h.Count.
Thresh.    010x1000
Reset          N
Adjust         000007
```

Secondary heat recovery pump hour counter and adjustment.

20 Press the Down arrow key.
The following screen appears.

```
Inverter Forced
Speed #1
Enabling N
Compr. #1      000.0%
```

21 Press the Down arrow key.
The following screen appears.

```
Inverter Forced
Speed #2
Enabling N
Compr. #1      000.0%
```

22 Press the Down arrow key.
The following screen appears.

```
Communication
     Supervisor
On Comm. Loss
     LOCAL
```

23 Press the Down arrow key.
The following screen appears.

```
  Password Manager
Old: 02001
New: 00000
Save changes?   N
```

To change the manager password.

2

2.6.3 Debug menu

Note The Debug menu is beyond the scope of this service manual and will not be discussed.

2

3 Functional Control

3.1 What Is In This Chapter?

Introduction

This chapter gives more detailed information on the functions and controls of the unit.

Overview

This chapter contains the following topics:

3.2 Control Possibilities

Overview

- Local control
- Remote control
- Network control
- Time schedule
- Ambient lock out

Explanation

The control allows different ways to enable/disable the unit:

Local Switch:

- When the digital input “Unit On/Off” is open, the unit is in “Local switch Off”.
- When the digital input “Unit On/Off” is closed, the unit may be in “Unit On” or “Remote switch Off” depending on the “Remote On/Off “ digital input.

Remote Switch:

- When the local switch is On (“Unit On/Off” digital input closed) if the digital input “Remote On/Off “ is closed, the unit is in “Unit On”.
- When digital input “Remote On/Off “ is open, the unit is in “Remote switch Off”.

Network:

- A BAS or a Monitoring system may send an On/Off signal trough the serial line connection to put the unit on or in “Rem. Comm. Off”.

Time schedule:

- A timetable allows to program “Time Schedule Off” on a week base; several holiday days are included.

Ambient LockOut:

- The unit is not enabled to operate unless the ambient temperature is higher than an adjustable value (default 15.0° C / 59.0° F).

Note: To be in “Unit On” all the allowed signals must enable the unit.

3.3 Operating Modes

Overview

- Cooling mode
- Cooling / Glycol mode
- Ice operation
- Heating
- Cooling + Heat recovery
- Cooling / Glycol + Heat recovery
- Ice + Heat recovery

Explanation

MODE	RANGE (° C)	Freeze up prevention (° C)	Freeze up protection (° C)
Cooling	+ 4.4 / + 15.5	+ 3° C	+ 2° C
Cooling / Glycol	– 6.7 / + 15.5	– 9	– 10
Ice	– 6.7 / + 15.5	– 9	– 10 6.5.3
Heating	+ 30 / + 45	46	50
Cooling / Heat recovery	+ 4.4 / + 15.5	+ 3° C	+ 2° C
Cooling / Glycol / Heat recovery	– 6.7 / + 15.5	– 9	– 10
Ice / Heat recovery	– 6.7 / + 15.5	– 9	– 10 6.5.3

The selection between cooling, cooling/glycol and ice mode can be done by the operator using the interface password.

The switching between cooling and ice and heating modes will cause the unit shutdown and then the switching between the two modes.

2

3.4 Set-point Management

Overview

- Local set-point control
- Double set-point control
- Set-point controlled by external input
  - 4 – 20 mA
  - Floating set-point
  - Inlet water control
  - Set-point controlled by BMS system

Explanation

The control is able to manage the evaporator leaving water temperature on the base of several inputs:

- Local set-point : Selected from the controller
- Double set-point : Through an external contact (by customer), it is possible to vary the local set-point of control between two well defined values. This option can be used for ice bank applications. This application normally asks for a positive diurnal set-point (e.g. 7° C) and a negative night-time set-point (e.g. -5° C). When the temperatures of the evaporator outgoing water are inferior to 4° C, the introduction of the correct quantity of antifreeze in the hydraulic system is required.

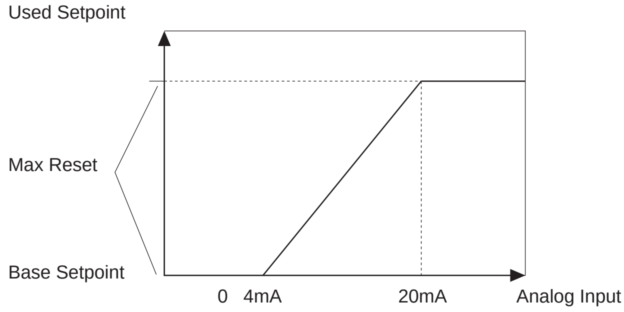
Set-point reset methods

The following set-point reset methods are available to modify the local or double set-point:

- None : local or double set-point is used on the base of the double set-point digital input. This is called “base set-point”
- 4-20mA : base set-point is modified on the base of a user analog input
- OAT : base set-point is modified on the base of outside ambient temperature (if available)
- Inlet : base set-point is modified on the base of evaporator entering temperature
- Network : the set-point sent by serial line is used In the case of a failure in the serial connection or in the 4-20mA input the base set-point is used. In case of a set-point reset, the system display will show the type of reset.

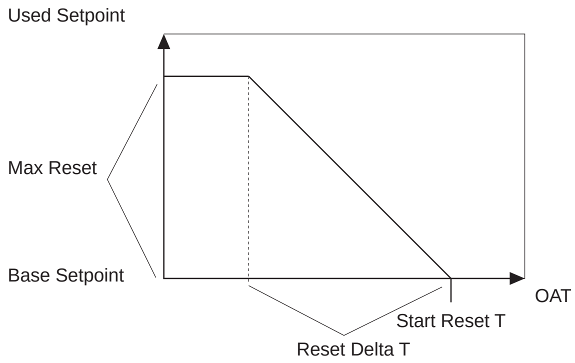
4-20 mA set-point control

Through an external signal 4-20mA, it is possible to change the value of the local set-point within the minimum and maximum set limits.



Floating set-point

This function is enabled under password "Consumer", setting the set-points in accordance with the range of external temperature set. A reduction of the external temperature corresponds to an increase in the set-point control. This system allows energy saving when the external temperature goes down under the projected value.



To enable the OAT set-point override, an expansion board with an ambient sensor installed is required. The base set-point is modified on the basis of an outside ambient temperature, a reset temperature start, a max reset value, a value of OAT to start reset and a value of OAT to apply max reset.

Example:

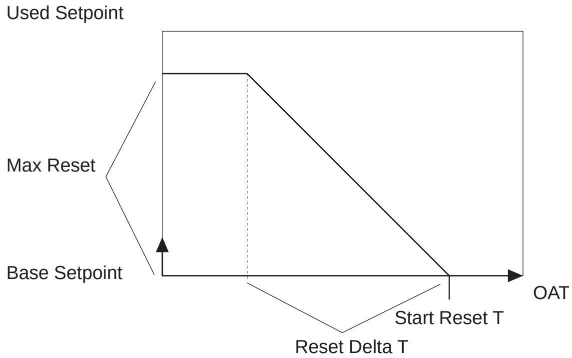
Maximum reset : 10° C

Reset DT : 8° C

Start reset : 35° C

Delta T reset

Allowable under password "Consumer", a reduction of the water evaporator delta T corresponds to an increase of the set-point control of the refrigerated water. This logic of control allows energy saving when the unit works at partial load.



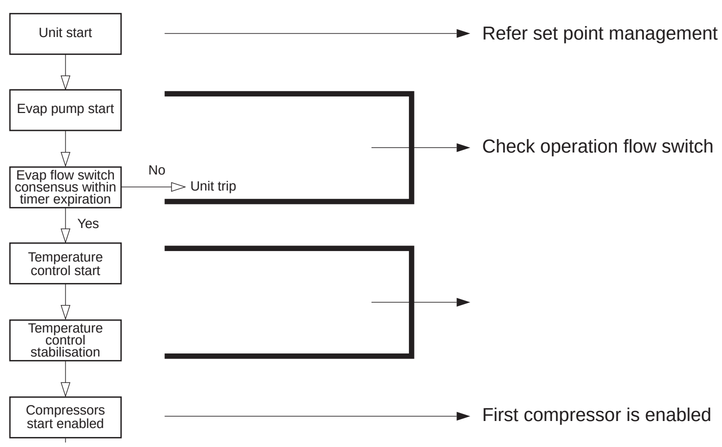
3.5 Unit Start Sequence

Overview

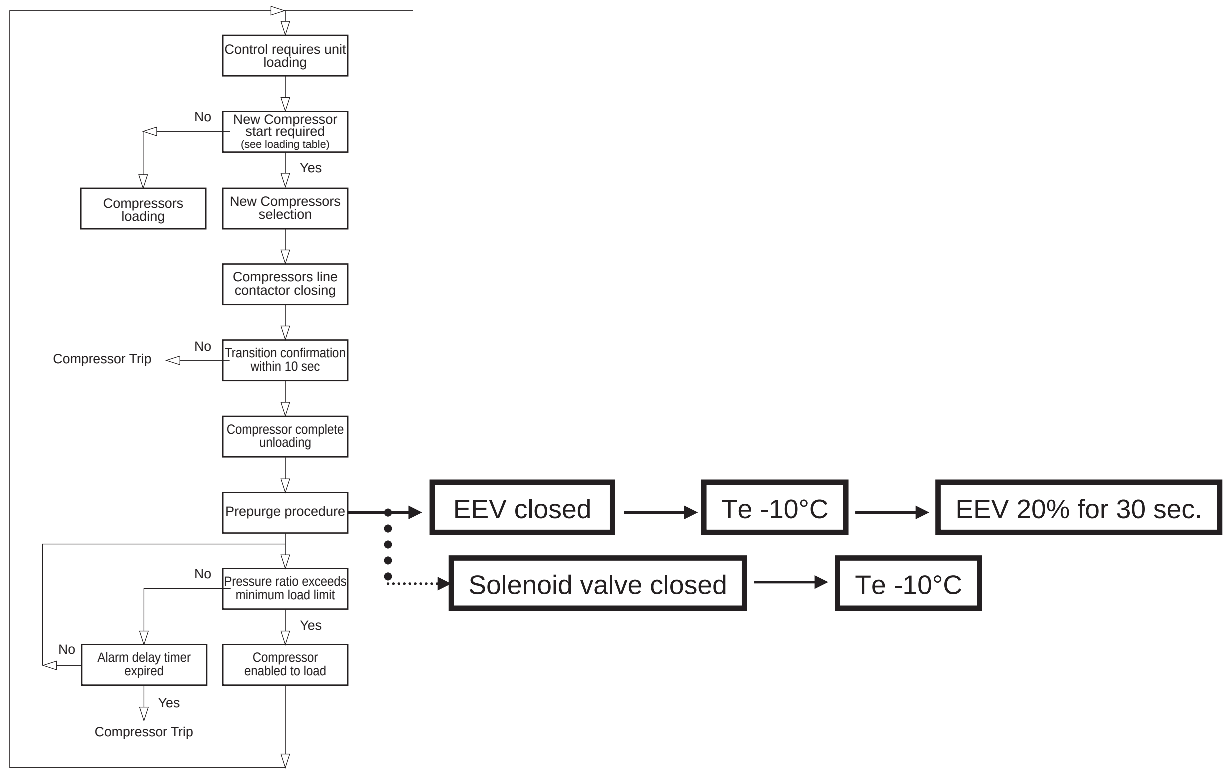
This chapter contains the following topics:

3.5.1 Unit Starting Sequence Flow Charts

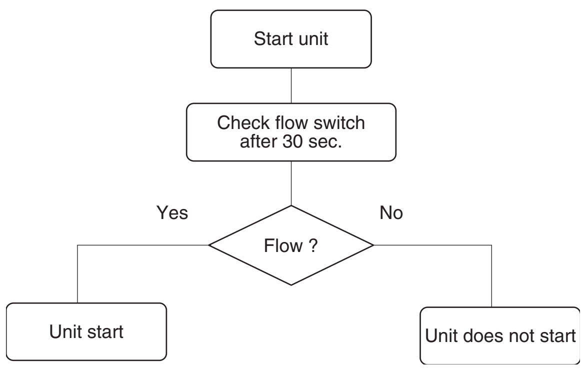
Flow chart 1



Flow chart 2



3.5.2 Water Pump Operation



- The second pump is optional.
- When 2 pumps are installed, the pump with the lowest running hours will start.
- It is possible to program the sequence.

3.5.3 Oil Heating

Explanation

Oil heating is required to avoid accumulation of liquid inside the compressor during start up.

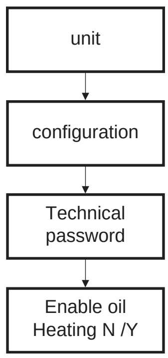
The start-up of compressors will not be allowed if the following formula is not respected:

Discharge Temperature – TOilPress > 5 ° C

Where:

Discharge Temperature	is the compressor discharge temperature (corresponding to oil temperature).
TOilPress	is the refrigerant saturated temperature at the oil pressure.

Programming oil heating



Step	Action
1	Unit
2	Configuration
3	Technical password
4	5 X ↓
5	Enable oil heating (default Y)

3.5.4 Pre-purge Operation

General description

- Principal control is the same for thermostatic and electronic expansion valve.
  - Thermostatic expansion valve
    - Close liquid solenoid valve till LP < –10° C
    - When LP < –10° C, compressor operates at 25%
  - Electronic expansion valve (EEV)
    - Close EEV till LP < –10° C, compressor operates at 25%
- If LP does not drop below –10° C at a certain time, an alarm is generated.

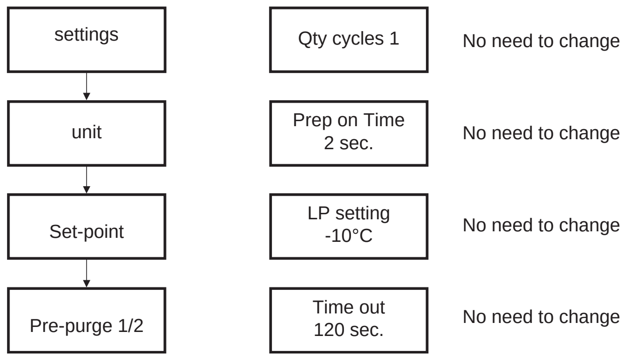
Pre-purge with electronic expansion valve

At the compressor start the EEXV is completely closed up to the saturated temperature as the evaporator pressure reaches the value of –10 ° C (Adjustable at the range –12 ÷ –4 ° C) Then the valve is opened up at a fixed position (adjustable by the manufacturer with a default value equal to 20% of total valve step) when the timer is expired (default 30 sec). This procedure can be repeated for a number of times according to the operator’s adjustments (default is 1 time).

Pre-purge with thermostatic expansion valve

At the compressor start the liquid line solenoid is completely closed up to the saturated temperature as the evaporator pressure reaches the value of –10° C (Adjustable in the range –12 ÷ –4 ° C). Then the valve is opened up when the timer is expired. This procedure is repeated for a number of times according to the operator’s adjustments (default is 1 time).

Programming pre-purge operation



Step	Action
1	Setting
2	Unit
3	Set-point
4	2 X ↓
5	Set technical password
6	Number of pre-purge cycle (default 1)
7	Pre-purge on time (default 2 seconds)
8	1 X ↓
9	Pre-purge time out (default 120 seconds)
10	Downloading time (default 10 seconds)

Compressor starts with liquid line closed and will open only after the saturated suction pressure gets below –10° C. It is only at this value when the pre-purge will be considered successful and will put the compressor at 25% capacity.

Number of cycles at 1 means that the liquid line solenoid can be closed only once – only at the start. If more than 1 cycle is necessary, it must be set at 2 or 3.

The pre-purge time at 002s is the actual time when the liquid line solenoid is energized.

Downloading time is the actual time when the unloading solenoid is energized, making sure that the compressor while starting is at 25% capacity.
The electronic expansion valve works like the thermostat, but when the pre-purge time is expired the EEV will pre-open at 35% capacity.

3.6 Compressor Management Control

Overview

This chapter contains the following topics:

3.6.1 Overview and Explanation

Overview

- Automatic control
- Manual control

Explanation

- Automatic control : The compressor start/stop and its capacity are automatically managed by the software to allow the set-point control.
- Manual control : The compressor is started by the operator and its capacity is managed by the operator's programming the controller. In this case the compressor will not be used by the software to allow the set-point control.

  Manual control is automatically switched to Automatic control if any safety action is required on the compressor (safety stand-by or unloading or safety shutdown). In this case the compressor remains in Automatic and must be re-switched to Manual by the operator if required.

  Compressors in manual mode are automatically switched to automatic mode during shutdown.

3.6.2 Definitions

Number load pulses

Quantity of pulses required to load up from 0 to 100%. The default quantity of pulses is programmed at 6. This should not be changed.

Number unloading pulses

Quantity of pulses required to load down from 100 to 0%. The default quantity of pulses is programmed at 9. This should not be changed.

Programming loading and unloading pulses

Step	Action
1	Setting
2	Compressor
3	7 X ↓
4	N Load pulse 10 N Unloading pulse 10

Loading

The pulse time is always 0.2 sec (except for the first pulse). The value of 0.1 sec is default, programmed from the factory and should not be changed.The pulse period will depend on the PID calculation and can change between the 30 and 150 seconds. Both values are programmed from the factory and should not be changed.

Programming loading pulses and pulse period

Step	Action
1	Setting
2	Compressor
3	8 X ↓
4	Pulse time 0.2 second Minimum pulse period 30 seconds Maximum pulse period 150 seconds

Unloading

The pulse time is always 0.4 sec (except for the first pulse). The value of 0.3 sec is default, programmed from the factory and should not be changed. The pulse period will depend on the PID calculation and can change between the 1 and 150 seconds. Both values are programmed from the factory and should not be changed.

Programming unloading pulses and pulse period

Step	Action
1	Setting
2	Compressor
3	9 X ↓
4	Pulse time 0.4 second Minimum pulse period 30 seconds Maximum pulse period 150 seconds

2

1st pulse duration

The first pulse will be longer to make sure that the slide vane is moving correctly (increase in oil pressure).

- Loading: 1 sec.
- Unloading: 0.8 sec.

During start up there is no pressure difference to move the sliding vanes, therefore the first pulse duration will be 1 second to create a pressure difference for the capacity vanes.

Remark: The same is applicable for the 100% operation. The oil needs to be drained to unload the sliding valve.

Programming 1st pulse duration

Step	Action
1	Setting
2	Compressor
3	10 X ↓
4	Loading 1 second Unloading 0.8 second

3.6.3 Compressor Load Evaluation

Overview

- Calculation of quantity of lading and unloading pulses.
- Fixed pulse duration of the loading and unloading pulses.
- Time interval between 2 pulses evaluated by PD controller (variable).
- Integral control

Calculation of loading and unloading pulses

The compressor loading or unloading is obtained by keeping the loading or unloading solenoid energized for a fixed time (pulse duration), while the time interval between two subsequent pulses are evaluated by a PD controller.

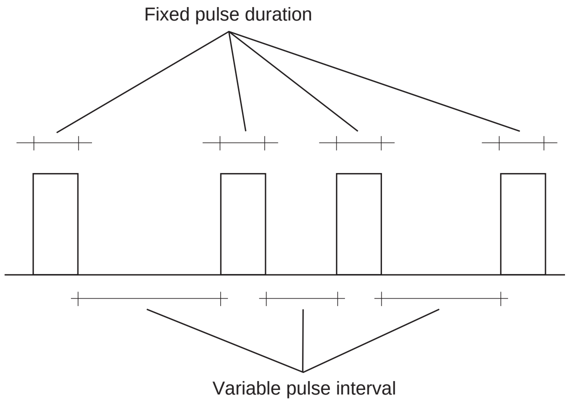
If the output of the PD algorithm doesn’t change, the time interval among pulses is constant; this is the integral effect of the controller. At a constant error, the action is repeated with a constant time (with the additional feature of a variable integral time).

The compressor load evaluation (based on analog slide valve position or calculation1) is used to allow the start of another computer or the stop of a running one.

It is required to define the proportional band and the derivative time of the PD controller, together with the pulse duration and a minimum and maximum value for pulses interval.

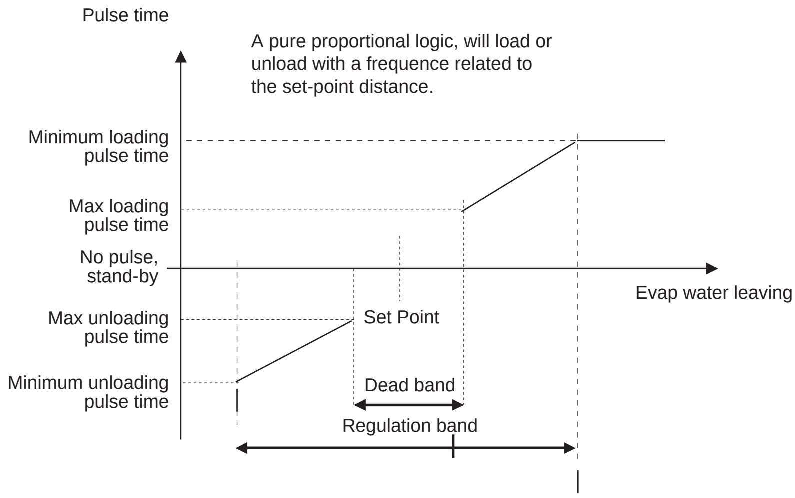
A dead band is introduced to allow having a stable compressor condition.

Pulse durations



The minimum pulse interval is applied when the maximum correction action is required; while the maximum interval is applied when the minimum correction action is required.

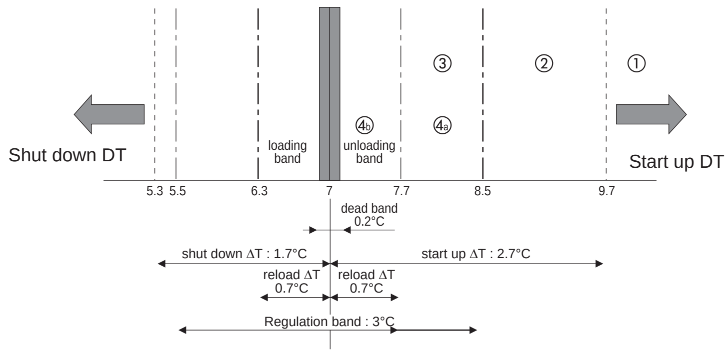
2



The farther the temperature of the leaving water is from the set-point the shorter the pulse period.

The closer the temperature the longer the pulse period.

Water temperature control



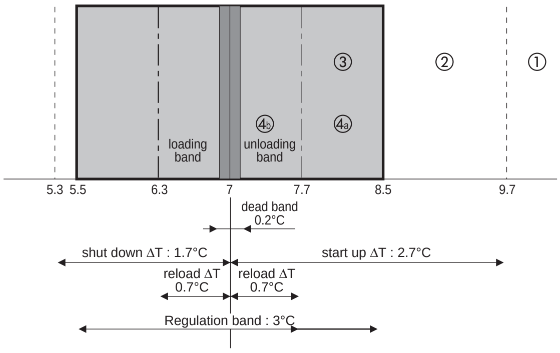
To have a smooth control of the water temperature, several controls are incorporated.

- Start up DT: Temperature where the first compressor will start.
- Shut down DT: Temperature where the unit will stop.

Both values can be programmed as follows:

Step	Action
1	Maintenance
2	Settings
3	7 X ↓
4	Start up DT (Default 2.6 ° C) Shut down DT (Default 1.5 ° C)

Regulation band

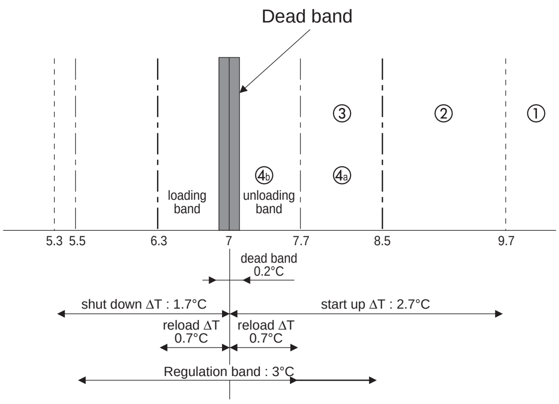


This value can be changed

Values can be programmed as follows:

Step	Action
1	Maintenance
2	Settings
3	6 X ↓
4	Regulation band (Default 4 ° C)

Dead band



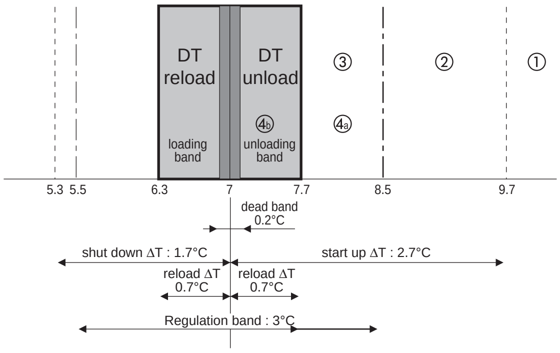
This value can be changed

Values can be programmed as follows:

Step	Action
1	Maintenance
2	Settings
3	6 X ↓
4	Neutral band (Default 0.1 ° C)

2

DT reload-unload



This DT can be changed

In the DT reload or unload area if a second compressor is requested, the first compressor will go to 50% and start up the second compressor at 25%.

Step	Action
1	Maintenance
2	Settings
3	17 X ↓
4	DT to reload and re-unload the compressor. (Default 0.7 ° C)

3.6.4 Maximum Pull Down Rate

Overview

- Water temperature can only drop a certain ° C per minute. (Example: 0.7° C/minute)
- If decrease in water temperature is higher, the compressor will limit capacity.

Explanation

In addition to the specialized PID controller, a max pull-down-rate is introduced in the control; this means that if the controlled temperature is approaching the set-point with a rate greater than a set value, any loading action is inhibited, even if required by the PID algorithm. This makes the control slower but allows to avoid oscillations around set-point.

Step	Action
1	Maintenance
2	Settings
3	6 X ↓
4	Maximum pull-down rate (Default 0.7 ° C)

2

3.6.5 Compressor Timers

Overview

- Anti-recycling timer
- Minimum time between 2 different compressors starts
- Minimum operating time compressor
- Quard timer of compressor

Anti-recycling timer

Minimum time between a same compressor starts.

The compressor is allowed to start up 6 times per hour.

Step	Action
1	Setting menu
2	Compressor menu
3	**Min. T. same compressor 600 seconds (Default value)** Min. T. different compressor 120 seconds
4	Min. T. compressor ON 30 seconds Min. T. compressor OFF 180 seconds

Minimum time between 2 different compressors starts

The minimum time between two different compressor starts.

Step	Action
1	Setting menu
2	Compressor menu
3	Min. T. same compressor 600 seconds **Min. T. different compressor 120 seconds (Default value)**
4	Min. T. compressor ON 30 seconds Min. T. compressor OFF 180 seconds

Minimum operating time compressor

Minimum time compressor on (start to stop timer)

The minimum time the compressor has to run; the compressor cannot be stopped (unless an alarm occurs) if this timer is not expired.

Step	Action
1	Setting menu
2	Compressor menu
3	Min. T. same compressor 600 seconds Min. T. different compressor 120 seconds
4	**Min. T. compressor ON 30 seconds (Default value)** Min. T. compressor OFF 180 seconds

Quard timer of compressor

Minimum time compressor off (stop to start timer)

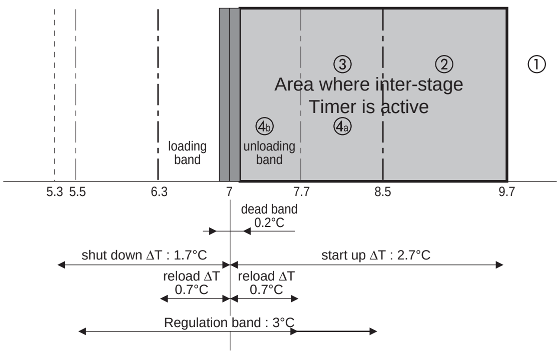
The minimum time the compressor has to be stopped; the compressor cannot be started if this timer is not expired.

Step	Action
1	Setting menu
2	Compressor menu
3	Min. T. same compressor 600 seconds Min. T. different compressor 120 seconds
4	Min. T. compressor ON 30 seconds **Min. T. compressor OFF 180 seconds Default value)**

3.6.6 Inter-stage Timer

Explanation

Time required to decide if second compressor will start.



Note:

In the grey area the inter-stage timer is active.

3.6.7 Compressor Rotation Management

Overview

There are two possibilities:

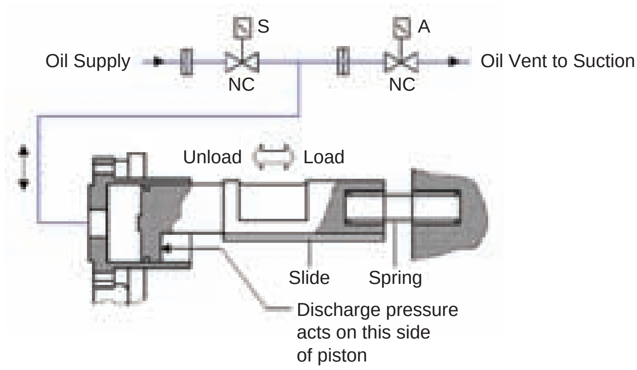
- Automatic rotation: The selection of the compressor sequence will be done by the controller depending on the running hours.
- Manual rotation: The operator can select which compressor will start first.

Programming

Step	Action
1	Setting menu
2	User menu
3	Set-points
4	6 X ↓
5	Operator password
6	Compressor sequence auto/manual (default auto)

3.7 Compressor Capacity Control

Principal capacity control



HSS 3100 series compressors is provided with infinitely variable capacity control as standard.

Since the compressor utilizes fixed intake and discharge ports instead of valves, the overall compression ratio is determined by the configuration of these ports. The degree of compression is governed by the ratio between the flute volume when it is sealed off by the star tooth at the beginning of the compression process, to that immediately before the discharge port is uncovered. This is known as the built-in volume ratio (VR) and is an important characteristic of all fixed-port compressors.

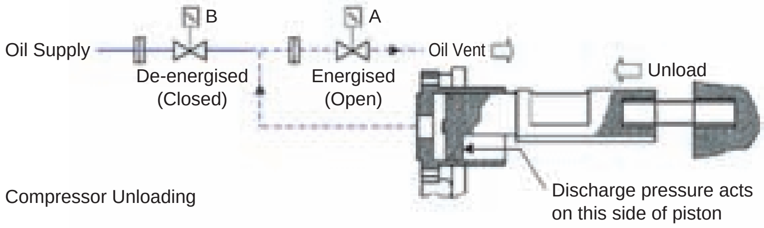
In order to achieve maximum efficiency, the pressure within the flute volume at the end of the compression process should equal the pressure in the discharge line at the instant the flute volume opens to discharge.

Should these conditions not prevail, either over-compression or undercompression will occur, both of which result in internal losses. Although in no way detrimental to the compressor, inefficient compression will increase power consumption.

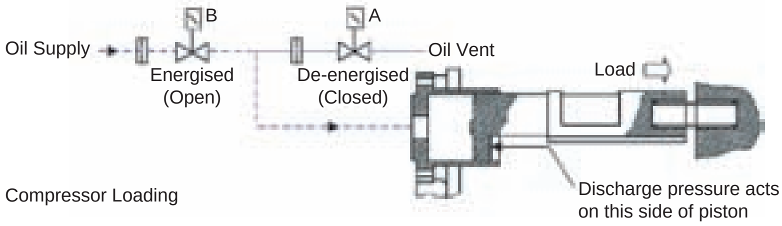
The slide valve is housed in a semicircular slot in the wall of the annular ring which encloses the main rotor. As the slide valve travels axially from the full load position it uncovers a port, which vents part of the gas trapped in the main rotor flute back to suction, before compression can begin.

When the flute has passed beyond the port, compression commences with a reduced volume of gas. However, a simple bypass arrangement without any further refinement would produce an undesirable fall in the effective volume ratio which in turn causes under compression and inefficient part load operation. To overcome this problem, the slide valve is shaped so that it delays the opening of the discharge port at the same time as the bypass slot is created.

Loading / unloading compressor



Spring Force + Discharge Pressure > Cylinder Pressure = Slide Valve Moves Towards Unload



Cylinder Pressure > Discharge Pressure + Spring Force = Slide Valve Moves Towards Load

One end of the slide valve is machined to form a hydraulic piston, housed inside a cylinder and mounted internally at the discharge end of the compressor. The other end of the slide incorporates a spring.

Variation in compressor pumping capacity is achieved by altering the forces acting on the slide valve/piston assembly.

Internal drillings communicate pressurized oil to the capacity control cylinder and vent the oil from the cylinder. The flow of oil is controlled by two separate solenoid valves, A and B; the solenoids are normally closed (NC), energize to open.

While the compressor is running, the position of the slide valve is controlled by the pressure in the capacity control cylinder. Oil pressure which is introduced into the cylinder acts on a larger area of the piston. This will result in a force which is greater than the pressure applied by the discharge pressure and spring, thereby moving the slide to load.

If the cylinder is vented to suction, the force applied by the discharge pressure and spring will be greater and the side will move to unload. If the compressor is stopped at part load, the slide valve will return to minimum load by the spring only if the pressure in the cylinder is vented to the casing pressure, unload solenoid valve energized (opened). When the compressor starts, the unload solenoid should remain open until there is a requirement to load.

Two solenoid valves A and B control the venting from and the oil flow to the capacity control cylinder.

3.8 Compressor Stopping Sequence

Overview

This chapter contains the following topics:

2

3.8.1 Pump Down Control

Explanation

Every time before the compressor stop, the compressor starts downloading and will finally do a pump-down.

From the factory the pump-down is selected to YES.

Procedure

1 What:
- Activation of the pump down function can be selected in the set-point menu.
- Active when temperature reached or stop the unit with ON/OFF bottom.

2 How:
- Electronic expansion valve: close valve.
- Thermostatic expansion valve: close liquid valve.

3 Result:
- Pump down finished
- Pump down failed

Programming the pump-down operation

Step	Action
1	Setting
2	Unit
3	Set-point
4	4 X ↓
5	Enable Y / N (Default Y) Maximum time (Default 120 sec) Minimum pressure (Default 1 bar)

3.8.2 Manual Control

Explanation

- Can be used to operate the compressor in a certain capacity step
- No temperature control available
- All safeties are active
- If safety activated unit returns to automatic mode

Manual mode is mainly used during commissioning and trouble shooting. In the manual mode the installer can select the requested capacity.

Procedure to enter manual mode

Step	Action
1	Start up unit
2	View menu
3	Unit menu
4	Status menu
5	3 X ↓
6	Enter Manager password
7	Change AUTO to MANUAL
8	Change capacity step using ↓ and ↑ bottom for 5 seconds

Notes:

- Manual mode can be programmed per circuit.
- If a fault occurs the unit goes into automatic mode.
- If you switch OFF the unit, the unit returns to automatic mode.
- If there is a power failure, the unit returns to automatic mode when the power is back.

3.9 Fan Control Management

Overview

- Fan Troll
  - Pressure control
  - Pressure ratio control
- Variable speed driver
- Speed Troll

Explanation

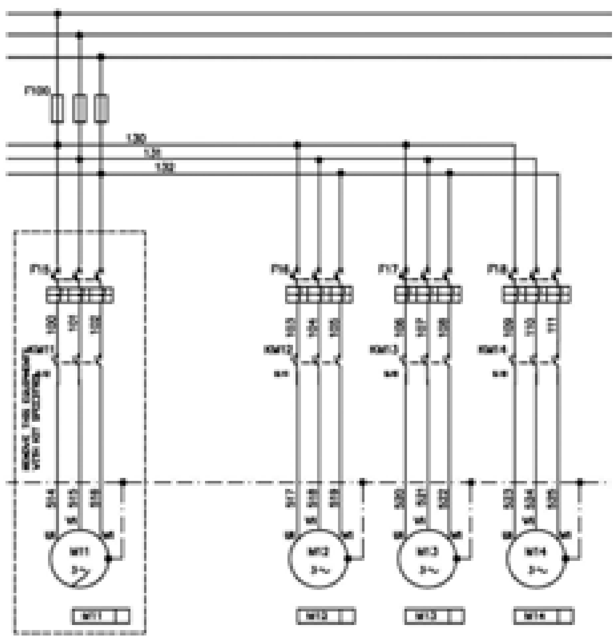
- Fan Troll: : A step control is used; fan steps are activated or deactivated to keep compressor operation conditions within allowed envelop.

  Fan steps are activated or deactivated keeping condensing (or evaporating pressure) change to a minimum; to do this one net fan is started or stopped at a time.

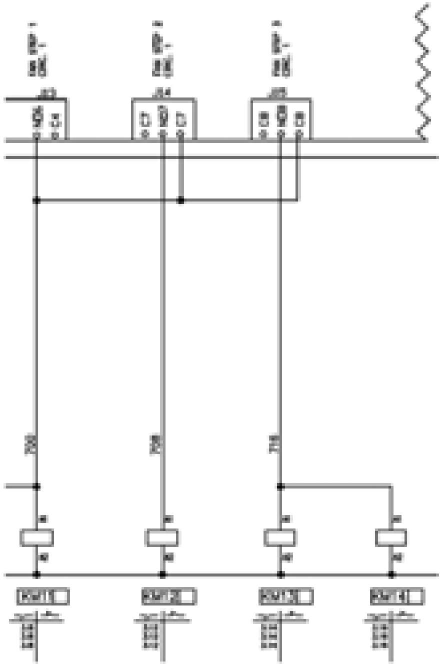
  Customer can select between pressure control and pressure ratio control.
- Variable speed driver : A continuous control is used; fans speed is modulated to keep saturated condensation pressure at a set-point; a PID control is used to allow a stable operation.
- Speed Troll : A mixed step-VSD control is used; the first fans step are managed using a VSD (with related PID control), next steps are activated as in the step control, only if the cumulated stage-up and stage-down error is reached and the VSD output is at maximum or minimum respectively.

Fan troll pressure / Fan troll pressure ratio

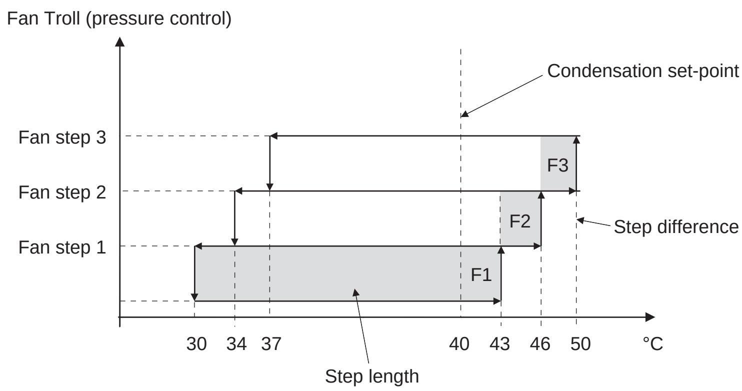
4 ON / OFF fans are used per circuit.



Each of the fan contactors is controlled with a digital output.



Fan Troll (pressure control)



Depending on the installation and weather conditions, installer can program to head pressure control.

A stage up is executed (the next stage is activated) if the condensing saturated temperature (saturated temperature at discharge pressure) exceeds the target set-point (default 40 ° C) by an amount equal to a stage up dead band by a time depending on the difference between the reached values and the target set-point plus stage up dead band (high condensing temperature error).

In particular, the stage up is executed when the integral of the high condensing temperature error reaches the value 10 ° C x sec. In the same manner a stage down is executed (the previous stage is activated) if the condensing saturated temperature falls below the target set-point by an amount equal to a stage down dead band by a time depending on the difference between the reached target set-point minus the stage down dead band values and the reached value (low condensing temperature error). In particular, the stage down is executed when the integral of the low condensing temperature error reaches the value 10 ° C x sec.

The condensing temperature error integral is reset to zero when condensing temperature is within the dead-band or a new stage is activated.

Each fan stage will have its own adjustable stage up and stage down dead band.

Three parameters need to be programmed:

1. Condensation set-point
2. Step difference: Switching point between the different fan motors
3. Step length: Band to decide to start the first fan or stop the last fan.

All above settings are programmed in the controller, but can be changed in function of the operation conditions.

Step	Action
1	Setting
2	Unit
3	Condensation
4	Manager password
5	Condensation set-point (default 40° C)
6	Fan Troll 1 Set-points (step length) Stage up err 10° C Stage down err 10° C
7	Fan Troll 1 Set-points (step difference) Dead band n° 1 Stage up: 3° C Stage down: 10° C
8	Fan Troll 2 Set-points (step difference) Dead band n° 2 Stage up: 6° C Stage down: 6° C
9	Fan Troll 3 Set-points (step difference) Dead band n° 3 Stage up: 10° C Stage down: 3° C

Fan troll (pressure ratio control)

The customer has the possibility to change between pressure and pressure ratio.

The control will operate to keep pressure ratio equal to a target adjustable value (default 2.8)

A stage up is executed (the next stage is activated) if the pressure ratio exceeds the target pressure ratio by an amount equal to an adjustable stage up dead band by a time depending by the difference between the reached values and the target value plus stage up dead band (high pressure ratio error).

In particular, the stage up is executed when the integral of the pressure ratio error reaches the value 25 sec.

In the same manner, a stage down is executed (the previous stage is activated) if the pressure ratio falls below the target set-point by an amount equal to a stage down dead band depending on the difference between the target set-point minus the stage down dead band values and the reached value (low pressure ratio error).

In particular, the stage down is executed when the integral of the low pressure ratio error reaches the value 10 sec.

The pressure ratio error integral is reset to zero when condensing temperature is within the dead-band or a new stage is activated.

Each fan stage will have its own adjustable stage up and stage down dead band.

Selection of method of head pressure control (pressure or pressure ratio):

Step	Action
1	Setting
2	Unit
3	Configuration
4	4 X ↓
5	Technical password
6	Condensation Control possibility: PRESS / NONE / PR (pressure ratio) Type: DBL / SPEED / FANTROL / VSD / FAN modular

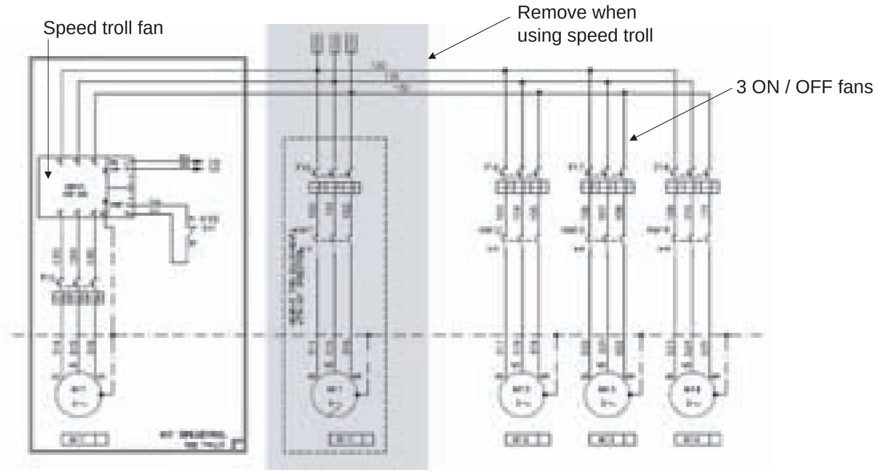
Selection of the settings of the head pressure control:

Step	Action
1	Setting
2	Unit
3	Condensation
4	Manager password
5	Condensation set-point (2.8)
6	Fan Troll 1 Set-points (step length) Stage up err 25 sec. Stage down err 10 sec.
7	Fan Troll 1 Set-points (step difference) Dead band n° 1 Stage up: 0.2 Stage down: 0.2
8	Fan Troll 2 Set-points (step difference) Dead band n° 2 Stage up: 0.2 Stage down: 0.2
9	Fan Troll 3 Set-points (step difference) Dead band n° 3 Stage up: 0.2 Stage down: 0.2

2

Speed Troll pressure / Speed Troll pressure ratio

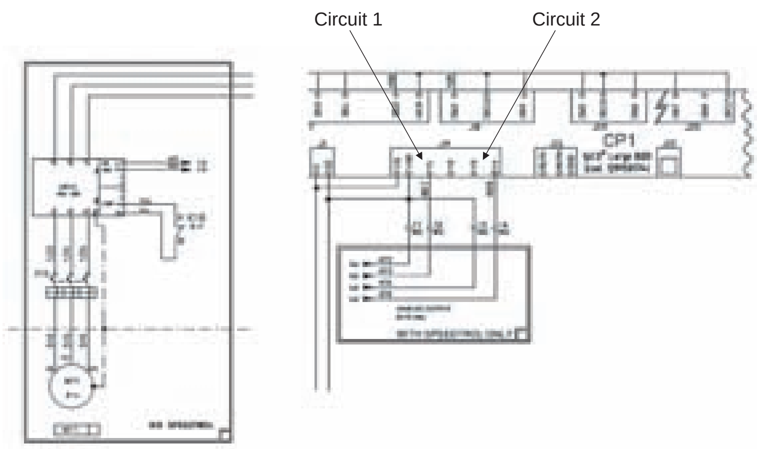
- Fan speed controlled using an analogue output signal 0 – 10Vdc.
- Only one fan per circuit is controlled by speed troll.
- Three other fans are ON / OFF controlled.



Another way to control the head pressure control is the use of the speed troll.

Speed troll is built up of one fan speed controller and 3 ON / OFF fans.

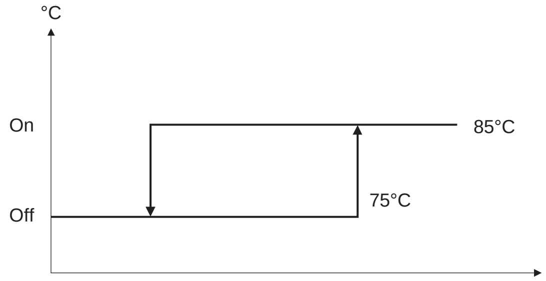
The fan speed is controlled using an analogue output signal from 0 – 10Vdc.



An analogue signal (10 – 10Vdc) coming from the pico² controller gives a signal to the fan driver.

3.10 Liquid Injection

Liquid injection when discharge temperature becomes too high

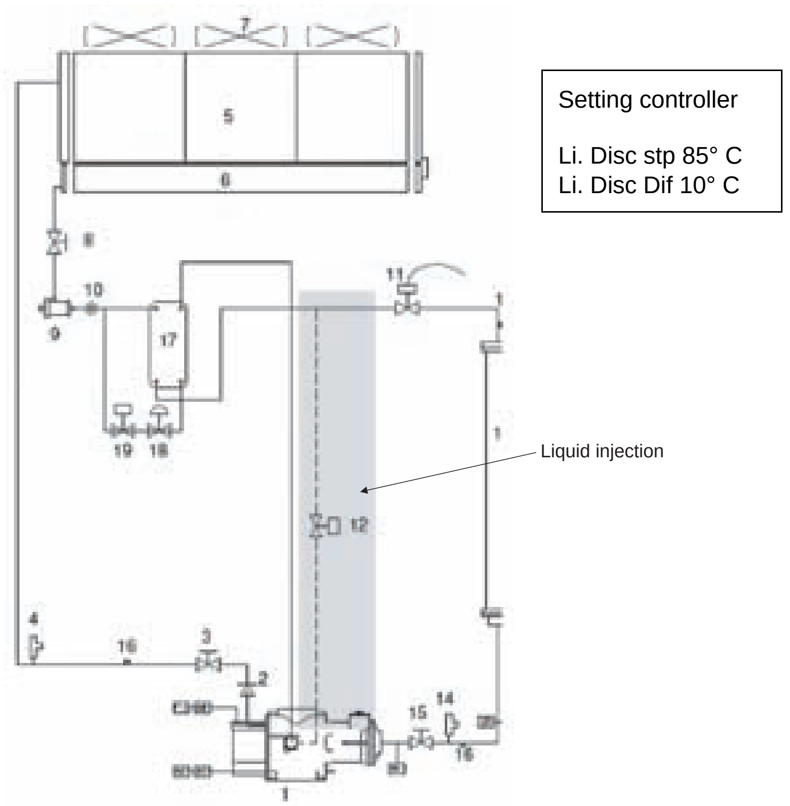


To avoid possible overheating of the compressor, a liquid injection is activated when the discharge temperature becomes higher than 85° C.

This control is reset when the discharge temperature becomes 10° C lower.

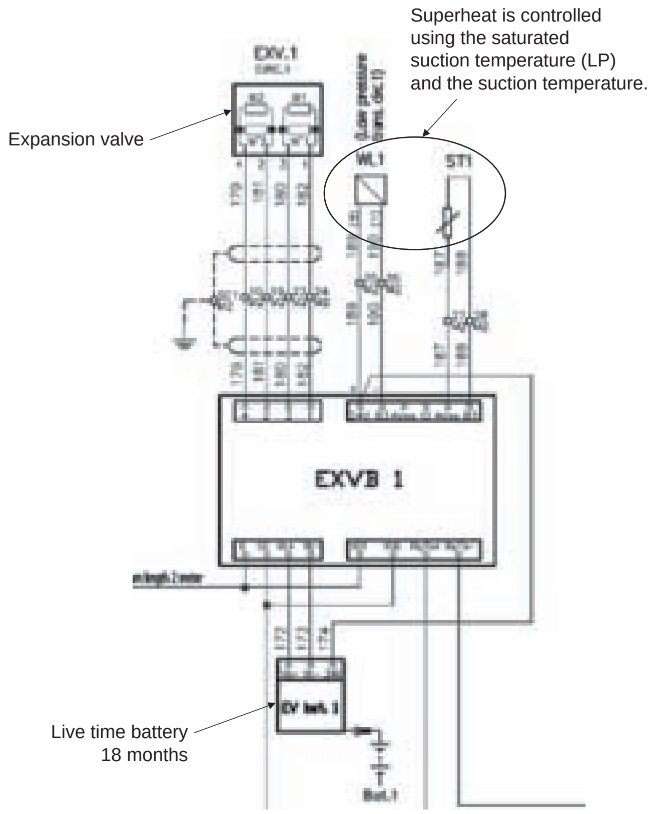
These values can be changed in the controller. It is not recommended to change these settings.

Position of the liquid injection valve



3.11 Electronic Expansion Valve Control

EEV valve control



The Electronic expansion valve (EEV) circuit is build up of the following parts:

1. Expansion valve
2. Suction sensor
3. Low pressure sensor (Saturated suction temperature)
4. EEV driver
5. Battery charger
6. Battery

Driver EVD200 with Electronic EXV

The driver has the following functions:

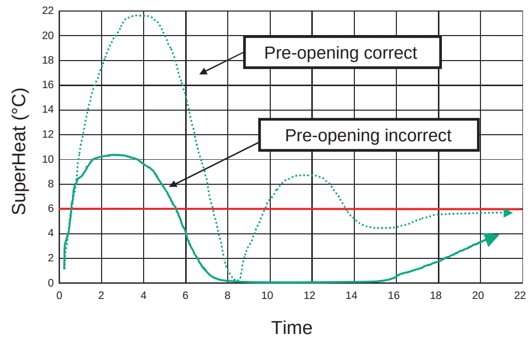
1. Opening or closing the expansion valve.
2. To maintain the pre-programmed superheat.
3. To avoid that the low pressure will drop below a certain value.
4. To avoid that the low pressure will rise above a certain value.

Parameters

- Pre-opening valve
- Type of valve
- Type of refrigerant
- Superheat Set-Point e Dead Band
- Proportional, Integral time and Derivative time
- Low Superheat protection
- LOP Protection
- MOP Protection
- High suction temperature
- Low pressure sensor temperature
- Hardware configuration (battery and plan)

Pre-opening valve

A set percentage value of the valve at the compressor start up.



- An excessive pre-opening can cause liquid return from the suction to the compressor (use default value).
- A small pre-opening can cause the compressor to trip for low pressure (use default value).

Valve and refrigerant type

Those values that are set in the factory must not modified:

An incorrect valve selection can cause:

- Step motor ERROR (the motor can be damaged by high current)
- Valve not opening or closing
- Valve to move in the opposite direction
- The circuit to stop for low or high pressure after start up

An incorrect refrigerant selection can cause:

- Wrong Suction Super Heat
- Incorrect suction pressure value (transducer range difference)

2

Driver EXV status LED

Under normal conditions, the five (5) LEDs indicate:

- POWER (yellow): remains On in presence of supply. Remains Off in case of battery operation
- OPEN (green): Flashing during the valve opening. On when valve is fully open.
- CLOSE (green): Flashing during the valve closing. On when valve is fully closed.
- Alarm (red): On or flashing in case of hardware alarm.
- pLAN (green): On during the normal working of pLAN.

In presence of critical alarm situations, the combination of LED On identifies the alarm as shown in the next page.

Driver EXV LED meaning alarm

Alarms that stops the system	PRIORITY	LED OPEN	LED CLOSE	LED POWER	LED ALARM
Eeprom reading error	7	Off	Off	On	Flashing
Valve open in case of lack of supply	6	Flashing	Flashing	On	Flashing
At start up, wait for battery loading (parameter...)	5	Off	On	Flashing	Flashing
Other alarms	**PRIORITY**	**LED OPEN**	**LED CLOSE**	**LED POWER**	**LED ERROR**
Motor connection error	4	Flashing	Flashing	On	On
Probe error	3	Off	Flashing	On	On
Eeprom writing error	2	-	-	On	On
Battery error	1	-	-	Flashing	On

pLan	LED pLAN
Connection OK	On
Driver connection or address error = 0	Off
The Pco Master doesn't answer	Flashing

LOP protection

Is activated when...		The Valve
The saturated suction temperature is below the LOP limit	→	The valve will open to increase the suction pressure

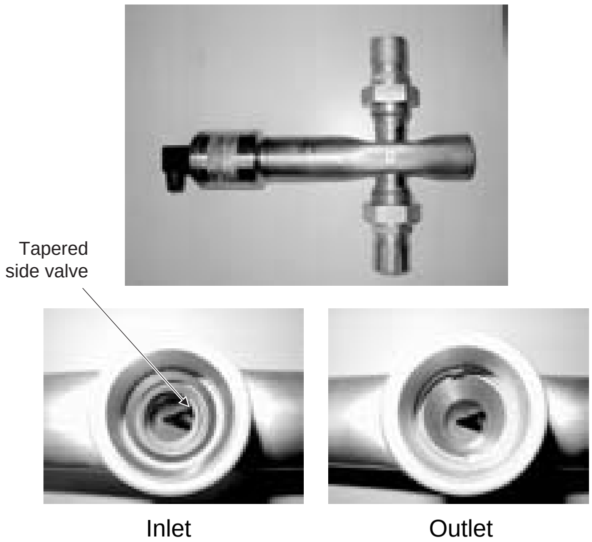
Warning: The protection will only work if the suction SH is away from the limit for low SH. (It could flood the evaporator!)

MOP protection

Is activated when...		The Valve
The saturated suction temperature is above the MOP limit	→	The valve will close to decrease the saturated suction temperature

Warning: This protection will only work if the temperature is below the maximum limit. (The closing of the valve can increase the saturated temperature).

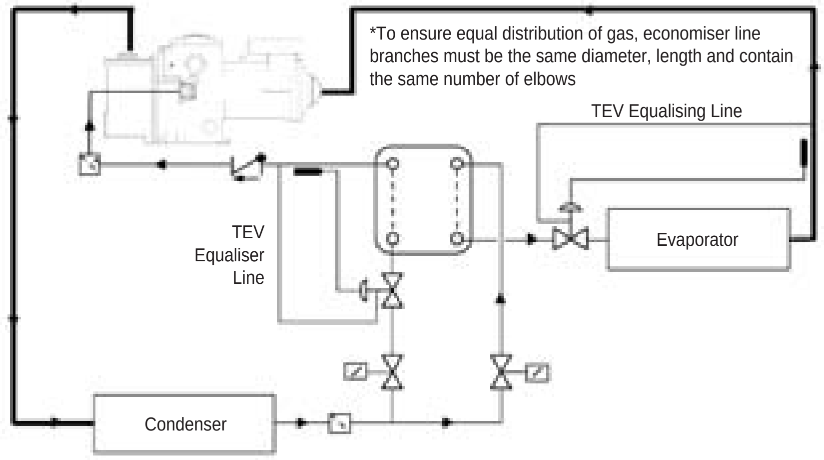
Electronic expansion valve



3.12 Economizer

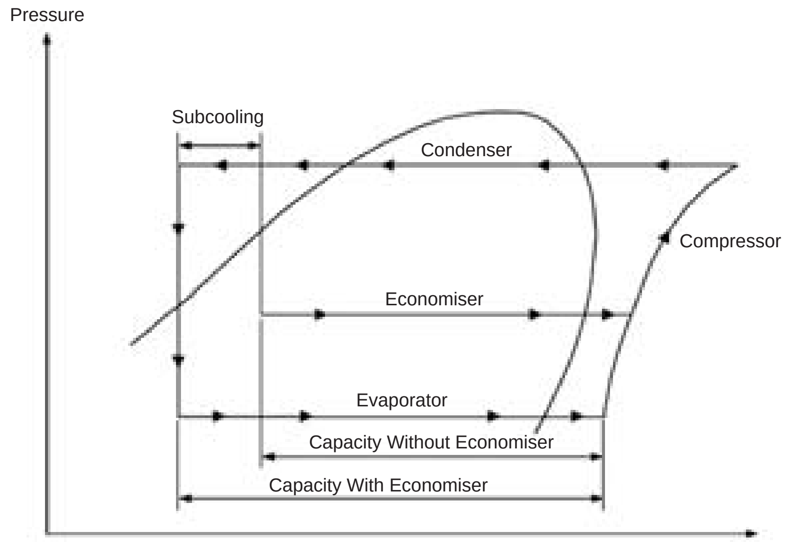
Typical single compressor application

Principal



The compressor is provided with an economizer facility. This enables an additional charge of gas to be handled by the compressor, over and above that which is normally pumped. It is, in effect, a form of supercharging which has the net result of increasing refrigerating capacity by a significantly greater percentage than power consumption, hence improving the coefficient of performance (kW refrigeration / kW power input) or Coefficient of Performance (COP) of the compressor.

Economizer cycle on pressure/ Enthalpy (p-h) diagram



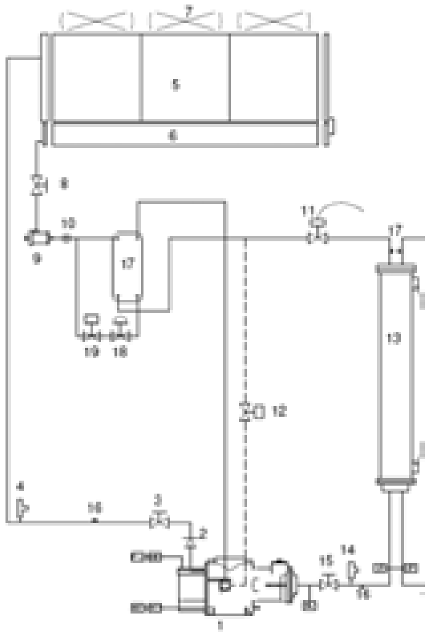
The economizer principle is illustrated on a pressure/enthalpy (p-h) diagram.

Suction gas is drawn into the main rotor flutes, these are sealed off in sequence by the star rotor teeth and compression begins. An extra charge of gas now enters the sealed flute through a port in the casing enclosing the main rotor. This gas supply is taken from an intermediate source at a slightly higher pressure than that prevailing in the flute at the instant the gas is introduced, hence the gas is induced to enter the flute.

The original and additional charges of gas are then compressed and discharged in the normal way. The full load pumping capacity of the compressor at suction conditions is not affected by the additional flow through the economizer connection. Typical for all screw compressors, as the compressor unloads, the pressure at the economizer port falls towards suction pressure and the additional capacity and improved efficiency economizer system is no longer available.

As a guide to this effect, approximately half of the improvement due to using an economizer system will be lost by the time the compressor unloads to 90% capacity, and falls to zero at around 70% capacity.

Piping layout economizer



1. Single-screw compressor
2. No-return valve
3. Compressor delivery tap
4. High-pressure safety valve (24.5 bars)
5. Condenser battery
6. Built-in undercooling section
7. Axial ventilator
8. Liquid line isolating tap
9. Dehydration filter
10. Liquid and humidity indicator
11. Electronic expansion valve
12. Liquid injection solenoid valve
13. Direct expansion evaporator
14. Low-pressure safety valve (15.5 bars)
15. Compressor intake tap
16. Loading joint with valve
17. Economizer
18. Economizer expansion valve
19. Economizer solenoid valve

ST1-2. Intake temperature sensor
WL1-2. Low-pressure transducer (-0.5:7.0 bars)
WO1-2. Oil pressure transducer (0.0:30.0 bars)
WH1-2. High-pressure transducer (0.0:30.0 bars)
WD1-2. Discharge temperature sensor/Oil
F13. High-pressure switch (21.5 bars)
WIE. Water input temperature sensor
WOE. Water output temperature sensor

pCOe expansion # 1 - additional hardware & economizer

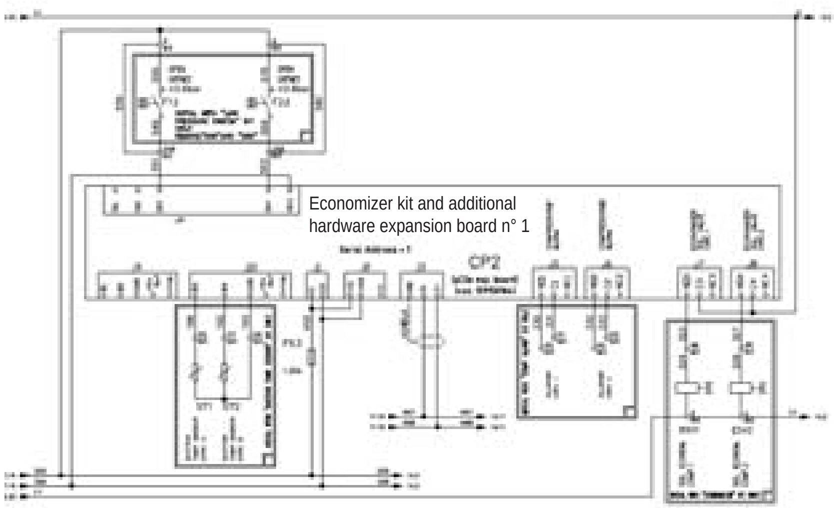
To have this function an additional expansion board is required. This board will control the 2 economizer valves.

Analog Input				Digital Input	
Ch.	**Description**	**Type**		**Ch.**	**Description**
B1	Comp. Capacity Sensor # 1	4-20mA		D11	SPARE
B2	Comp. Capacity Sensor # 2	4-20mA		D12	SPARE
B3	Suction Temp # 1 (**)	NTC		D13	Low Pressure Switch # 1 (*)
B4	Suction Temp # 2 (**)	NTC		D14	Low Pressure Switch # 2 (*)

Analog Output				Digital Output	
Ch.	**Description**	**Type**		**Ch.**	**Description**
AO1	SPARE			DO1	Compressor # 1 alarm (*)
				DO2	Compressor # 2 alarm (*)
				DO3	Economizer # 1 (*)
				DO44	Economizer # 2 (*)

(*) Optional
(**) In case EEXV driver is not installed. If EEXV driver is installed, suction temperature is detected through EEXV driver.

Wiring economizer kit and additional hardware



Economizer conditions

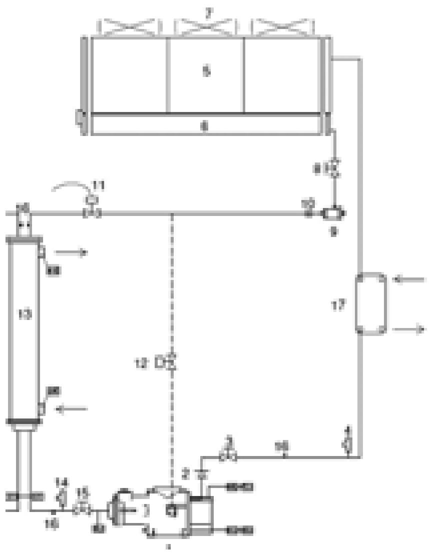
- Installation of expansion board
- Address of expansion board: 1
- Economizer activated if compressor capacity = 90%
- Economizer switch OFF if compressor capacity = 75%
- Precaution
  - Economizer switch OFF if HP saturated > 65° C
  - Economizer switch ON if HP saturated < 65°
- Above setting can be programmed in the controller

3.13 Heat Recovery

pCOe expansion # 2 – heat recovery

Analog Input				Digital Input	
Ch.	Description	Type		Ch.	Description
B1	Ambient temperature sensor			D11	Heat Recovery switch
B2	SPARE			D12	Heat Recovery Flow switch
B3	Entering HR water sensor	NTC		D13	SPARE
B4	Leaving HR water sensor	NTC		D14	SPARE

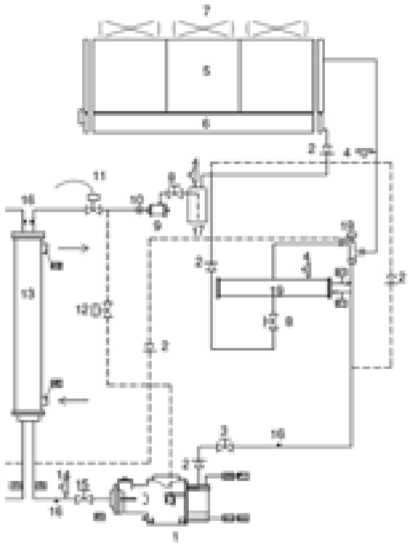
Partial heat recovery



1. Single-screw compressor
2. No-return valve
3. Compressor delivery tap
4. High-pressure safety valve (24.5 bars)
5. Condenser battery
6. Built-in undercooling section
7. Axial ventilator
8. Liquid line isolating tap
9. Dehydration filter
10. Liquid and humidity indicator
11. Thermostatic expansion valve
12. Liquid injection solenoid valve
13. Direct expansion evaporator
14. Low-pressure safety valve (15.5 bars)
15. Compressor intake tap
16. Loading joint with valve
17. Partial recovery exchanger (*)

ST1-2. Intake temperature sensor
WL1-2. Low-pressure transducer (-0.5:7.0 bars)
WO1-2. Oil pressure transducer (0.0:30.0 bars)
WH1-2. High-pressure transducer (0.0:30.0 bars)
WD1-2. Discharge temperature sensor/Oil
F13. High-pressure switch (21.5 bars)
WIE. Water input temperature sensor
WOE. Water output temperature sensor

Full heat recovery



1. Single-screw compressor
2. No-return valve
3. Compressor delivery tap
4. High-pressure safety valve (24.5 bars)
5. Condenser battery
6. Built-in undercooling section
7. Axial ventilator
8. Liquid line isolating tap
9. Dehydration filter
10. Liquid and humidity indicator
11. Thermostatic expansion valve
12. Liquid injection solenoid valve
13. Direct expansion evaporator
14. Low-pressure safety valve (15.5 bars)
15. Compressor intake tap
16. Loading joint with valve
17. Liquid receiver
18. Recovery cycle three-way switch valve
19. Recovery exchanger

- WL1-2. Low-pressure transducer (-0.5:7.0 bars)
- WO1-2. Oil pressure transducer (0.0:30.0 bars)
- WH1-2. High-pressure transducer (0.0:30.0 bars)
- WD1-2. Temperature discharge sensor/Oil
- F13. High-pressure switch (21.5 bars)
- WIE. Water input temperature sensor
- WOE. Water output temperature sensor
- W10. Recovery water input temp. sensor (*)
- W11. Recovery water output temp. sensor (*)

When heat recovery is activated the control activates or deactivates recovery circuits with a step logic.

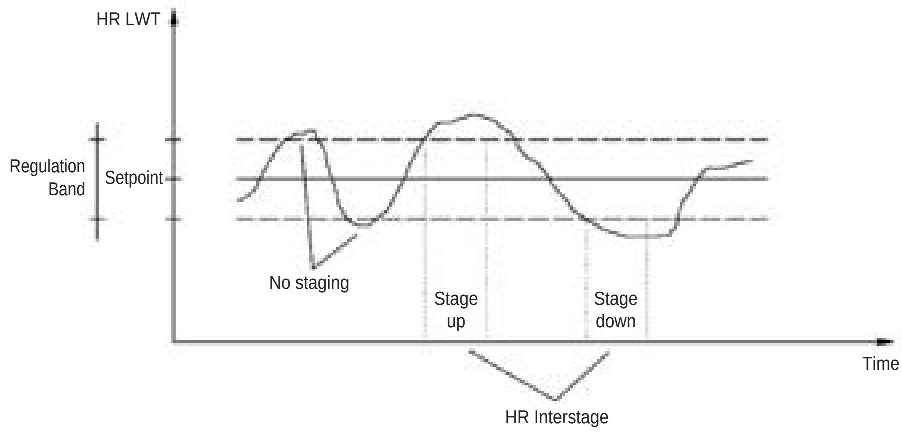
In particular a next heat recovery stage is activated (a new heat recovery circuit is inserted) if the heat recovery leaving water temperature remains below the set-point by an amount greater than an adjustable regulation band for a timer greater than an adjustable value (heat recovery interstage).

In the same manner a heat recovery stage is deactivated (a heat recovery circuit is removed) if the heat recovery leaving water temperature remains above the set-point by an amount greater than an adjustable dead regulation band for a timer greater than the previous defined value. A high temperature alarm set-point is active in the recovery loop; it will disable recovery circuits.

A three-way valve is used to increase recovery water temperature at start-up; a proportional control is used to establish valve position; at low temperature the valve will re-circulate recovery water, while at temperature increasing the valve will bypass a portion of the flow.

2

Heat recovery operation



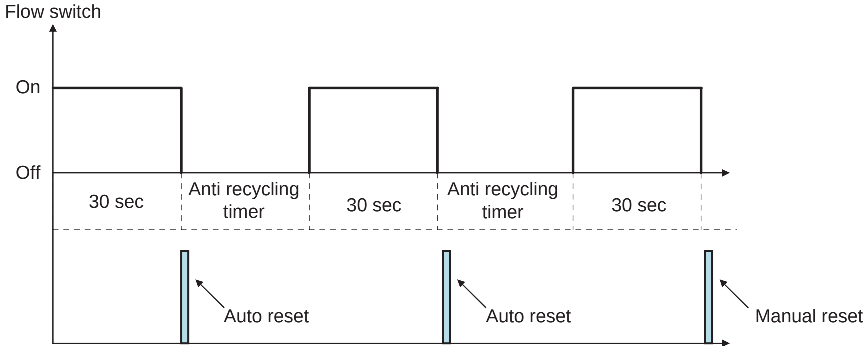
- Heat recovery dead band: area where the capacity of the compressor remains the same.
- Stage timer: Time between 2 capacity step increases or decreases.
- Condensing threshold time: When changing from water to air-cooled condenser and the saturated discharge temperature is below 30° C, the compressor will not load up to avoid liquid pumping.
- HR inter-stage timer:
  - If temperature is higher than the upper limit of the dead band for a time longer than the inter-stage time, the unit returns to the cooling mode.
  - If temperature is lower than the lower limit of the dead band for a time longer than the inter-stage time, the unit switch on the second compressor.
- HR Bypass valve Min. Time:
  - If the water temperature is 40° C the 3-way valve is100% open.
  - If the water temperature is 30° C the 3-way valve is100% closed.
- The valve has proportional control with a signal of 0 to 10V.

Heat recovery operation conditions

- Installation of expansion board
- Address of expansion board: 2
- Possible to select partial recovery
- Possible to select full recovery
- Settings to be programmed in the controller:
  - Dead band
  - Stage timer
  - Set-point leaving water condenser
  - Heat recovery inter-stage timer
  - Heat recovery bypass valve minimum temperature
  - Heat recovery bypass valve maximum temperature

Flow switch problem during operation

- Failure if flow is not within specification
- Same function if unit is switched OFF (no)

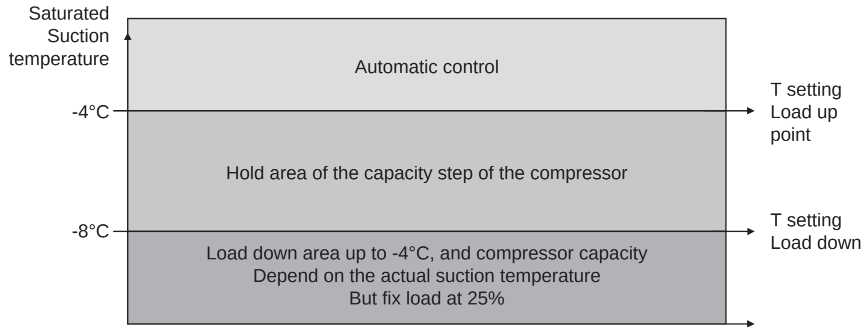


3.14 Limitation

Overview

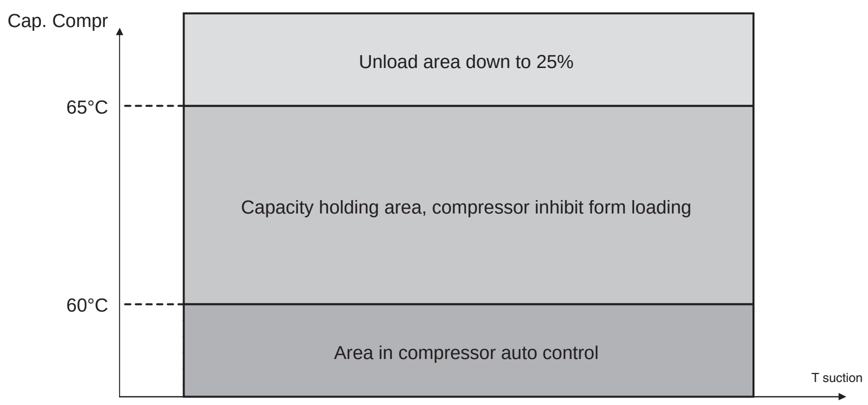
- High pressure limitations (software / hardware)
- Low pressure limitations (software / hardware)
- Oil heating (software)
- Chilled water limitation (software)
- High leaving water start up
- Enable outdoor ambient lock out

Low pressure limitation



Setting controller	
Hold T	-4° C
Down T	-8° C
Alarm T	-10° C
Down delay	20 sec

High pressure limitation



Setting controller	
Hold T	60° C
Down T	65° C

Oil heating

Start up compressor not allowed if:

- Discharge temperature sensor in PT 1000 – T oil pressure < 50° C
- No fault appears
- Check at compressor status for oil heating

Discharge superheat threshold

Condition:

- Only control during start up of compressor
- If discharge superheat is < 1° C for 30 sec.

Setting controller	
Discgarge SH	1° C
Discgarge SH T	30 sec

High leaving water evaporator start up

- Setting upper limit leaving water: 25° C
- Maximum compressor stage: 70%

This function limits the load of each compressor to a default value (default 70%), until the outlet water temperature is over the set value (default 25° C). This logic helps the start up of the unit when the water temperature is very high (35-40° C).

This feature avoids dangerous super-heat of the motor and disagreeable interventions for high pressure. The values of maximum load of the compressors and the limit water temperature are modifiable under password "User".

Set-point limitations

- Lowest allowable set-point: 4° C
- Highest allowable set-point: 15° C

Remark: Both values can be changed.

To avoid that the customer would select set-points out of the operation range, a maximum and minimum set-point can be programmed.

Enable ambient lock-out

- Y / N
- Set-point: 5° C
- Differential: 1° C

If the ambient temperature is below the programmed set-point, the unit will not start.

Remark: This control can be disabled.

Unit current limitation

- The unit load is inhibited if the absorbed current is near a maximum current set-point
- (within -5% from set-point)
- The unit is unloaded if the absorbed current is higher than a maximum current set-point.

Part 3
Troubleshooting

3

Introduction

When a problem occurs, all possible faults have to be checked. This chapter gives an overview of all possible alarm messages, which visualize the faults.

What is in this part?

This part contains the following chapters:

3

1 Alarm Messages

1.1 What Is in This Chapter?

Introduction

This chapter gives an overview of all possible alarm messages.

Overview

This chapter contains the following topics:

1.2 Overview of the Alarm Messages

PVM or GPF alarm

PVM (Phase Voltage Monitor) or GPF (Ground Protection Failure) alarm. This is caused by the voltage monitor. Voltage is either too low (<360 V) or too high (>440 V). Or a phase can be reversed or missing.

```
AL:001
     PVM or GPF
       Alarm
```

Pump alarms

Both the primary and secondary pump are in alarm (pump thermal protection).

```
AL:002
   Pumps Serious
       Alarm
(no pump available)
```

Thermal protection of the primary pump.

```
AL:002
      Main pump
      Overload
```

Thermal protection of the secondary pump.

```
AL:002
     Second pump
      Overload
```

Freeze alarm

The leaving water temperature is below the alarm setpoint.

```
AL:003

    Freeze alarm
```

Fan speed control alarm

Alarm from the fan phase cut controller.

```
AL:004
 Fan Speed Control
      Fault #1
```


3

Evaporator pump alarms

The primary evaporator pump hour counter reached the maintenance threshold.

```
AL:007
    Evaporator pump
      maintenance
```

The secondary evaporator pump hour counter reached the maintenance threshold.

```
AL:007
      Second pump
      maintenance
```

pCO 2 clock board alarm

pCO 2 fault.
Cause: empty battery or fault in the pCO 2 clock board.

```
AL:008
    32k clock board
     fault or not
       connected
```

External alarm

Alarm from external device.

```
AL:009

     External Alarm
```

pCO2 board alarms

pCO 2 board 1 is offline.

```
AL:010
        Unit n.1
       is offline
```

pCO 2 board 2 is off-line (for compressor 3 and 4).

```
AL:010
        Unit n.2
       is offline
```

3

Flow alarms

Evaporator flow alarm.

```
AL:011
     Evaporator flow
          alarm
```

Heat recovery flow alarm

```
AL:016
     HR Flow switch
          alarm
```

3

Probe fault alarms

B1 probe fault.

```
AL:109
    B1 probe fault
    or not connected
    oil pressure #1
```

B3 probe fault.

```
AL:110
     B3 probe fault
    or not connected
     low pressure  #1
```

B4 probe fault.

```
AL:111
     B4 probe fault
    or not connected
   Disch. temp.  #1
```

B6 probe fault.

```
AL:112
     B6 probe fault
    or not connected
   Disch. Press. #1
```

B9 probe fault

```
AL:012
    B9 probe fault
    or not connected
```

B10 probe fault

```
AL:013
    B10 probe fault
    or not connected
```

Probe fault on the driver of the electronic expansion valve.

```
AL:D11
      EXV Driver  #1
      Probe Fault
```

Probe fault on the expansion board.

```
AL:E01
Probe fault:B1
```

Evaporator pressure alarm

During start-up of a compressor, the liquid line solenoid valve or the electronic expansion valve closes for a certain amount of time to empty the evaporator. If the evaporating pressure did not go down enough during this procedure, the circuit will display the following alarm.

```
AL:100
     Prepurge    #1
        timeout
```

Compressor alarms

Compressor thermal protection.

```
AL:101
     Compressor  #1
        overload
```

The compressor 1 hour counter reached the maintenance threshold.

```
AL:108
      Compressor   #1
       maintenance
```

Compressor start-up error. This can be caused by the star-delta, the softstarter or the inverter.

```
AL:113
      Transition  or
       Solid State
       Alarm comp  #1
```

3

Pressure alarms

The ratio between the low and the high pressure is not big enough.

```
AL:102
Low pressure ratio
alarm #1
```

High pressure switch.

```
AL:103
High pressure
switch alarm #1
```

High pressure alarm.

```
AL:104
High pressure
alarm #1
```

Low pressure switch.

```
AL:105
Low pressure
switch alarm #1
```

Low pressure alarm.

```
AL:106
Low pressure
alarm #1
```

Temperature alarm

High discharge temperature.

```
AL:107
High discharge
temperature #1
```

Oil pressure alarms

The difference between the low pressure and the oil pressure is not big enough.

```
AL:114
Low Oil
Pressure #1
```

The difference between the oil pressure and the high pressure is too big.
Cause: oil filter is blocked.

```
AL:115
High Oil #1
Pressure difference
```

Electronic expansion valve alarms

Fault of the step motor of the electronic expansion valve.

```
AL:D12
EXV #1
Step motor error
```

Eeprom error on the driver of the electronic expansion valve.

```
AL:D13
EXV Driver #1
Eeprom error
```

Battery error of the electronic expansion valve.

```
AL:D14
EXV Driver #1
Battery error
```

Fault that the electronic expansion valve did not close during power off.

```
AL:D15
EXV not closed #1
during power OFF
```

Driver of the electronic expansion valve offline.

```
AL:D16
Driver #1
offline
```

3