DAIKIN

ECDEN10-402

technical data

Chillers

Air Cooled for Indoor Installation
EUWAC5-10FZW

R-407C

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ECDEN10-402

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Air Cooled for Indoor Installation
EUWAC5-10FZW

R-407C

TABLE OF CONTENTS

EUWAC-FZW

1 Specifications

1-1 TECHNICAL SPECIFICATIONS				EUWAC5FZW1	EUWAC8FZW1	EUWAC10FZW1
Capacity (Eurovent)	Cooling	Nominal	kW	11.60	18.40	23.80
Capacity Steps			%	100-0		
Nominal input (Eurovent)	Cooling		kW	5.25	7.78	9.85
Casing	Colour			Ivory white/Munsell code 5Y7.5/1		
	Material			Polyester coated galvanised steel		
Dimensions	Unit	Height	mm	1345	1290	1395
		Width	mm	856	1180	1330
		Depth	mm	630	630	630
Weight	Unit		kg	164	224	261
	Operating Weight		kg	166	228	266
Air heat exchanger	Type			Cross fin coil/Hi-X tubes and PE coated waffle louvre fins		
	Rows			3	3	3
	Stages			6+2	11+2	13+2
	Fin Pitch		mm	2.00	2.00	2.00
	Face Area		m²	0.472	0.772	0.950
Water Heat Exchanger Evaporator	Type			Brased plate, one per circuit		
	Minimum water volume in the system		l	101	153	212
	Water flow rate	Min	l/min	16	23	28
		Nominal	l/min	33	53	68
		Max	l/min	64	92	112
	Insulation material			PVC nitril foam		
	Model	Quantity		1	1	1
		Model		AC50-24	AC50-34	AC50-40
Fan	Type			Centrifugal		
	Drive			Direct drive	Belt drive	Belt drive
	Nominal air flow		m³/min	1.17	1.83	2.10
	External static pressure	Max	Pa	100	150	150
	Model	Quantity		1	1	1
		Discharge direction		Horizontal		
Compressor	Type			Hermetically sealed scroll compressor		
	Refrigerant oil type			Daphne FVC68D		
	Refrigerant oil charge		l	1.5	2.7	2.7
	Model	Quantity		1	1	1
		Model		JT140BF-YE	JT212DA-YE	JT265DA-YE
		Speed	rpm	2900	2900	2900
Sound level	Sound Power	Cooling	dBA	63	66	69
Refrigerant circuit	Refrigerant type			R-407C		
	Refrigerant charge		kg	2.1	3.9	4.7
	N2 holding charge			No		
	No of circuits			1	1	1
	Refrigerant control			Thermostatic expansion valve		
Piping connections	Evaporator water inlet/outlet			FBSP 1"		
				field installation		
Safety Devices				High pressure switch		
				Evaporating temperature protection		
				Discharge temperature protector		
				Outlet water temperature protection		
				Compressor motor overcurrent relay		
				Fan thermal protector		
				Anti-recycling and guard timer		
				Reverse phase protector		
				DDC with electronic temperature control		
				Internal fuses		
				Low pressure switch		

1 Specifications

1-1 TECHNICAL SPECIFICATIONS	EUWAC5FZW1	EUWAC8FZW1	EUWAC10FZW1
Notes	Nominal capacities are based on the following conditions: Entering/leaving chilled water temperature: 12°C/7°C Ambient temperature: 35°C		
	The sound pressure level is measured via a microphone at a certain distance from the unit. It is a relative value, depending on the distance and acoustic environment.		
	The sound power level is an absolute value indicating the ''power'' which a sound source generates.		

1-2 ELECTRICAL SPECIFICATIONS				EUWAC5FZW1	EUWAC8FZW1	EUWAC10FZW1
Power Supply	Name			W1		
	Phase			3N~		
	Frequency		Hz	50	50	50
	Voltage		V	400	400	400
	Voltage Tolerance	Minimum	%	-10%		
		Maximum	%	+10%		
Unit	Starting Current		A	81	110	145
	Nominal Running Current Cooling		A	11.30	14.00	16.80
	Maximum Running Current		A	16.80	21.40	25.50
	Recommended fuses according to IEC standard 269-2			3x25gG	3x32gG	3x32gG
Fan	Quantity			1	1	1
	Nominal Running Current Cooling		A	4.60	3.30	3.30
	Maximum Running Current		A	6.80	3.40	3.50
	Starting current (MSC)		A	20.7	14.9	14.9
Compressor	Phase			3~		
	Voltage		V	400	400	400
	Voltage Tolerance	Minimum	%	-10%		
		Maximum	%	+10%		
	Starting current		A	60.0	95.0	130.0
	Nominal running current (RLA)		A	6.70	10.70	13.50
	Maximum Running Current		A	10.00	18.00	22.00
	Starting Method			Direct on line		
Control Circuit	Phase			1~		
	Voltage		V	230V/24V AC (supplied by factory installed performers)		
	Recommended fuses			Factory installed		
	Crankcase heater (E1/2HC)		W	33	50	50

2 Options

Number	Description	Unit size				Availability
		5	8	10		
	Standard unit	○	○	○		
	Available options					
ZH	Glycol application chilled water temperature down to -5°C	○	○	○		Factory mounted
ZL	Glycol application chilled water temperature down to -10°C	○	○	○		Factory mounted
	Available kits					
EKAC10B	Address card for connection BMS	○	○	○		Kit
EKBMSMBA	Gateway for MODBUS	○	○	○		Kit
EKBMSBNA	Gateway for BACNET	○	○	○		Kit

3TW55059-3A

NOTES

1 Impossible option combinations: ZH+ZL

2 To install EKBMSMBA and EKBMSBNA => EKAC10B needs to be installed on the unit.

SYMBOLS

std standard on unit

○ Available

- Not available

3 Capacity tables

3 - 1 Cooling capacity tables

CC - 10 HP

Ta/LWE	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	7.00	10.00	16.00	21.00
20.00	14.3	15.9	17.5	19.2	20.8	22.4	24.0	25.6	28.1	30.5	35.4	39.4
25.00	13.4	15.0	16.5	18.1	19.6	21.2	22.8	24.3	26.6	29.0	33.6	37.5
30.00	12.6	14.0	15.5	17.0	18.5	20.0	21.5	23.0	25.2	27.4	31.9	35.6
35.00	11.7	13.1	14.5	15.9	17.4	18.8	20.2	21.6	**23.8**	25.9	30.2	33.7
40.00					16.2	17.6	18.9	20.3	22.3	24.4	28.4	31.8
43.00								19.5	21.5	23.4	27.4	30.7

CC - 8 HP

Ta/LWE	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	7.00	10.00	16.00	21.00
20.00	9.44	10.8	12.2	13.6	15.0	16.4	17.7	19.1	21.2	23.3	27.4	30.9
25.00	8.67	10.0	11.4	12.8	14.1	15.5	16.9	18.2	20.3	22.3	26.4	29.8
30.00	7.89	9.24	10.6	11.9	13.3	14.6	16.0	17.3	19.3	21.3	25.4	28.7
35.00	7.12	8.45	9.77	11.1	12.4	13.7	15.1	16.4	**18.4**	20.4	24.3	27.7
40.00					11.6	12.9	14.2	15.5	17.4	19.4	23.3	26.6
43.00								14.9	16.9	18.8	22.7	25.9

CC - 5 HP

Ta/LWE	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	7.00	10.00	16.00	21.00
20.00	6.36	7.26	8.15	9.04	9.93	10.8	11.7	12.6	13.9	15.3	18.0	20.2
25.00	5.78	6.65	7.52	8.39	9.25	10.1	11.0	11.9	13.2	14.5	17.1	19.3
30.00	5.19	6.04	6.88	7.73	8.58	9.43	10.3	11.1	12.4	13.7	16.2	18.3
35.00	4.60	5.42	6.25	7.08	7.90	8.73	9.55	10.4	**11.6**	12.9	15.3	17.4
40.00					7.23	8.03	8.83	9.64	10.8	12.1	14.5	16.5
43.00								9.19	10.4	11.6	13.9	15.9

3TW55052-1B

SYMBOLS

CC : Cooling capacity (kW)
PI : Power input (kW)
LWE : Leaving Water Evaporator temperature (°C)
Ta : Air suction temperature (°C)

NOTES

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

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

3 **External static pressure**
Values for CC and PI are for a nominal ESP, at a factory fan motor pulley setting of 0 turns open:
5 HP → ESP 50 Pa
8 HP → ESP 60 Pa
10 HP → ESP 72 Pa

3 Capacity tables

3 - 1 Cooling capacity tables

PI - 10 HP

Ta/LWE	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	7.00	10.00	16.00	21.00
20.00	6.21	6.36	6.52	6.67	6.82	6.97	7.12	7.27	7.50	7.72	8.15	8.50
25.00	6.81	6.96	7.11	7.27	7.42	7.57	7.72	7.87	8.10	8.32	8.76	9.11
30.00	7.53	7.68	7.83	7.99	8.14	8.29	8.44	8.60	8.82	9.05	9.49	9.8
35.00	8.37	8.53	8.68	8.83	8.99	9.14	9.29	9.44	**9.67**	9.9	10.3	10.7
40.00					10.0	10.1	10.3	10.4	10.6	10.9	11.3	11.7
43.00								11.1	11.3	11.5	12.0	12.3

PI - 8 HP

Ta/LWE	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	7.00	10.00	16.00	21.00
20.00	4.79	4.90	5.02	5.14	5.25	5.37	5.49	5.60	5.77	5.94	6.28	6.55
25.00	5.36	5.48	5.60	5.71	5.83	5.95	6.06	6.18	6.35	6.52	6.86	7.13
30.00	5.99	6.11	6.23	6.34	6.46	6.58	6.69	6.81	6.98	7.15	7.49	7.77
35.00	6.68	6.79	6.91	7.03	7.14	7.26	7.38	7.49	**7.66**	7.84	8.18	8.46
40.00					7.88	8.00	8.12	8.23	8.41	8.58	8.92	9.20
43.00								8.70	8.88	9.05	9.39	9.68

PI - 5 HP

Ta/LWE	-10.00	-8.00	-6.00	-4.00	-2.00	0.00	2.00	4.00	7.00	10.00	16.00	21.00
20.00	3.51	3.58	3.65	3.73	3.80	3.87	3.94	4.02	4.12	4.23	4.45	4.62
25.00	3.85	3.92	3.99	4.07	4.14	4.21	4.28	4.35	4.46	4.57	4.79	4.96
30.00	4.21	4.28	4.35	4.43	4.50	4.57	4.64	4.71	4.82	4.93	5.15	5.32
35.00	4.59	4.66	4.73	4.81	4.88	4.95	5.02	5.09	**5.20**	5.31	5.53	5.71
40.00						5.35	5.42	5.50	5.60	5.71	5.93	6.11
43.00								5.75	5.86	5.96	6.18	6.36

3TW55052-1B

SYMBOLS

CC : Cooling capacity (kW)
PI : Power input (kW)
LWE : Leaving Water Evaporator temperature (°C)
Ta : Air suction temperature (°C)

NOTES

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

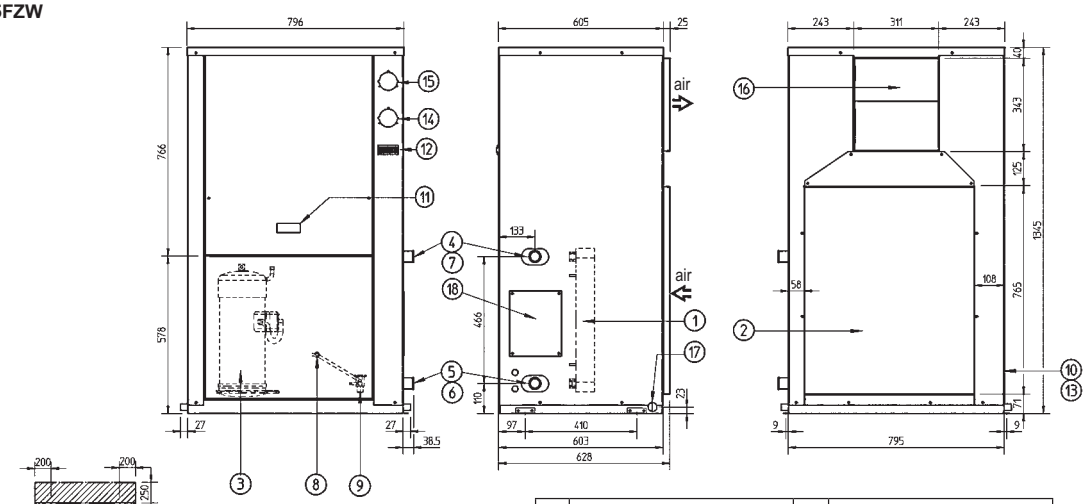
2 **Power input (kW)**
Power input is total input according to Eurovent rating standard 6/C/003-2003: Compressor + fans + control circuit.

3 **External static pressure**
Values for CC and PI are for a nominal ESP, at a factory fan motor pulley setting of 0 turns open:
5 HP → ESP 50 Pa
8 HP → ESP 60 Pa
10 HP → ESP 72 Pa

4 Dimensional drawing

4 - 1 Dimensional drawing

EUWAC5FZW

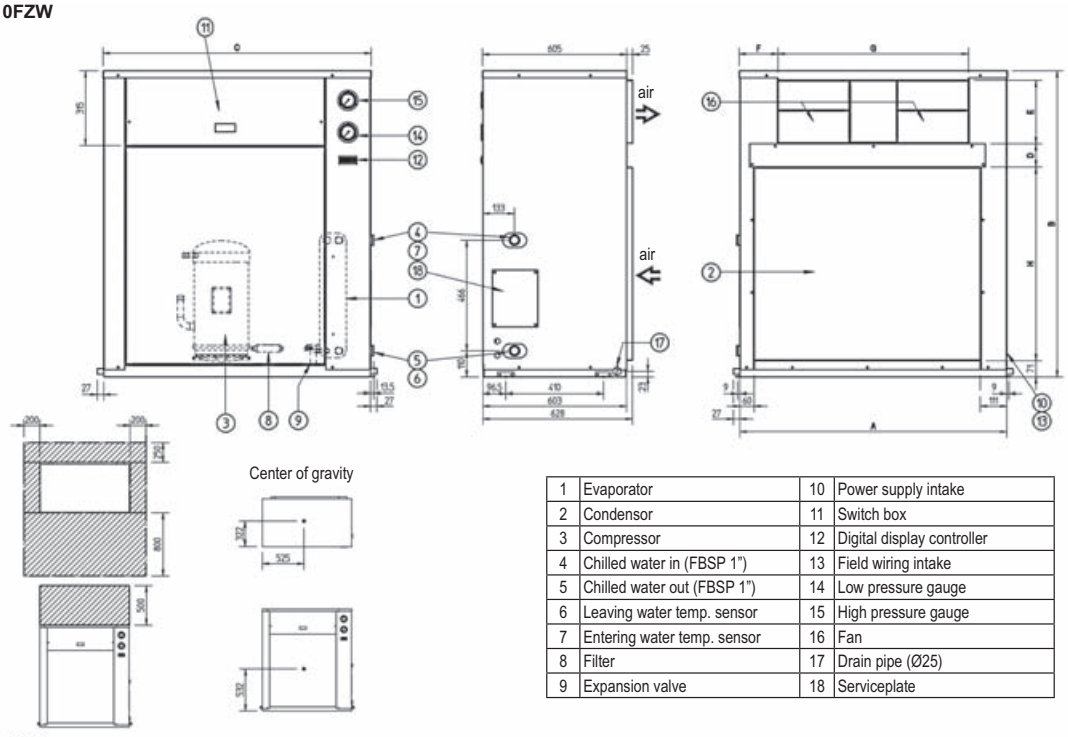


1	Evaporator	10	Power supply intake
2	Condensor	11	Switch box
3	Compressor	12	Digital display controller
4	Chilled water in (FBSP 1")	13	Field wiring intake
5	Chilled water out (FBSP 1")	14	Low pressure gauge
6	Leaving water temp. sensor	15	High pressure gauge
7	Entering water temp. sensor	16	Fan
8	Filter	17	Drain pipe (Ø25)
9	Expansion valve	18	Serviceplate

3TW55054-1C

Required space around the unit for service and air intake

EUWAC8-10FZW



1	Evaporator	10	Power supply intake
2	Condensor	11	Switch box
3	Compressor	12	Digital display controller
4	Chilled water in (FBSP 1")	13	Field wiring intake
5	Chilled water out (FBSP 1")	14	Low pressure gauge
6	Leaving water temp. sensor	15	High pressure gauge
7	Entering water temp. sensor	16	Fan
8	Filter	17	Drain pipe (Ø25)
9	Expansion valve	18	Serviceplate

3TW55064-1C

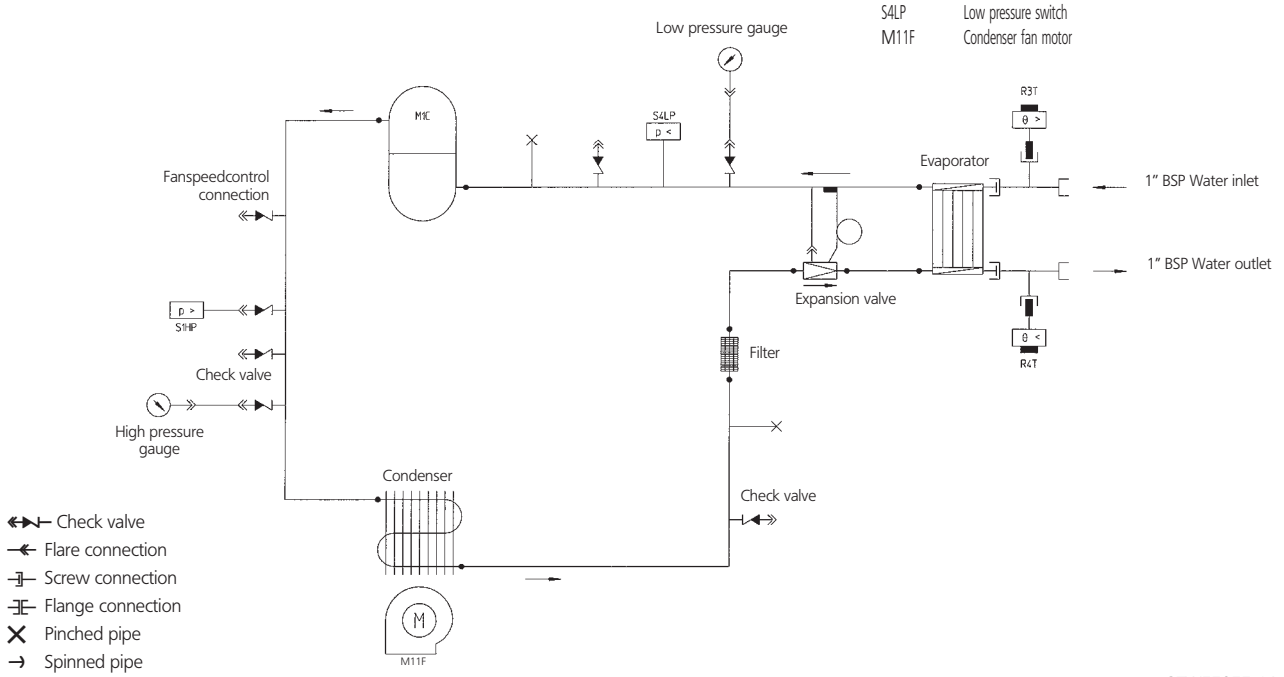
Required space around the unit for service and air intake

Item	A	B	C	D	E	F	G	H
8HP	1122	1290	1125	98	267	163	800	815
10HP	1272	1395	1275	127	292	170	936	857

5 Piping diagram

EUWAC5FZW

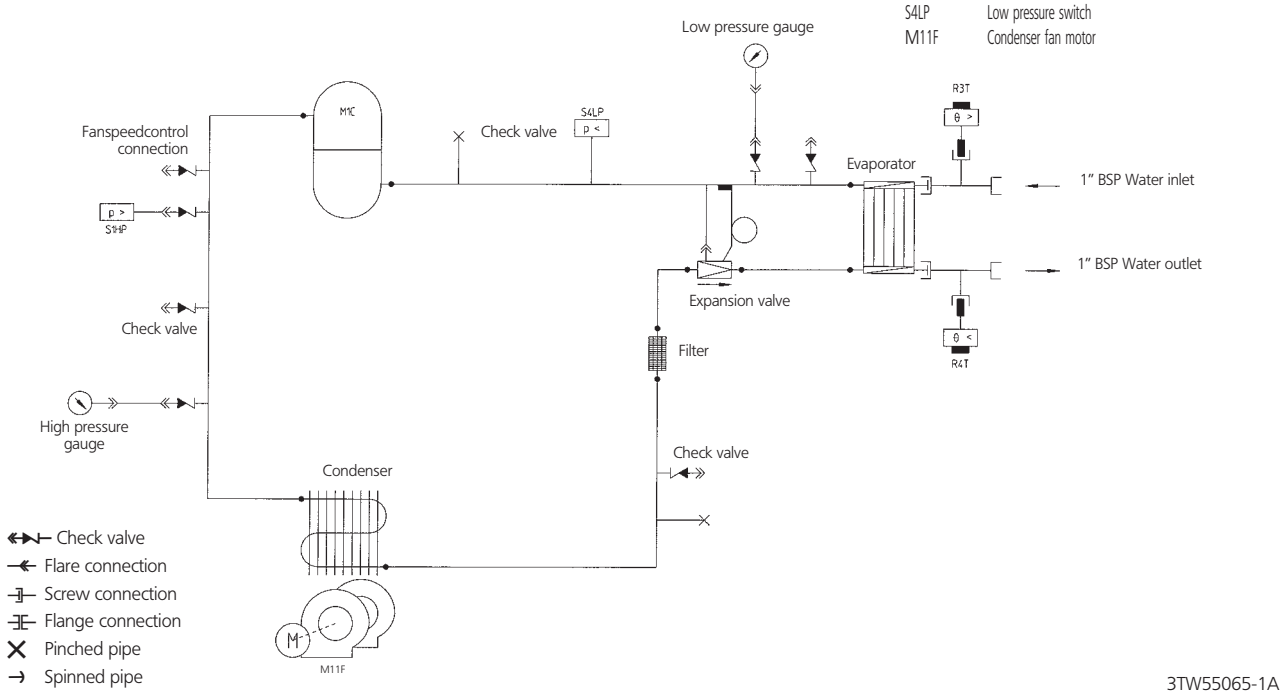
M1C	Compressor
S1HP	High pressure switch
R3T	Water inlet temp. sensor
R4T	Water outlet temp. sensor
S4LP	Low pressure switch
M11F	Condenser fan motor



3TW55055-1A

EUWAC8-10FZW

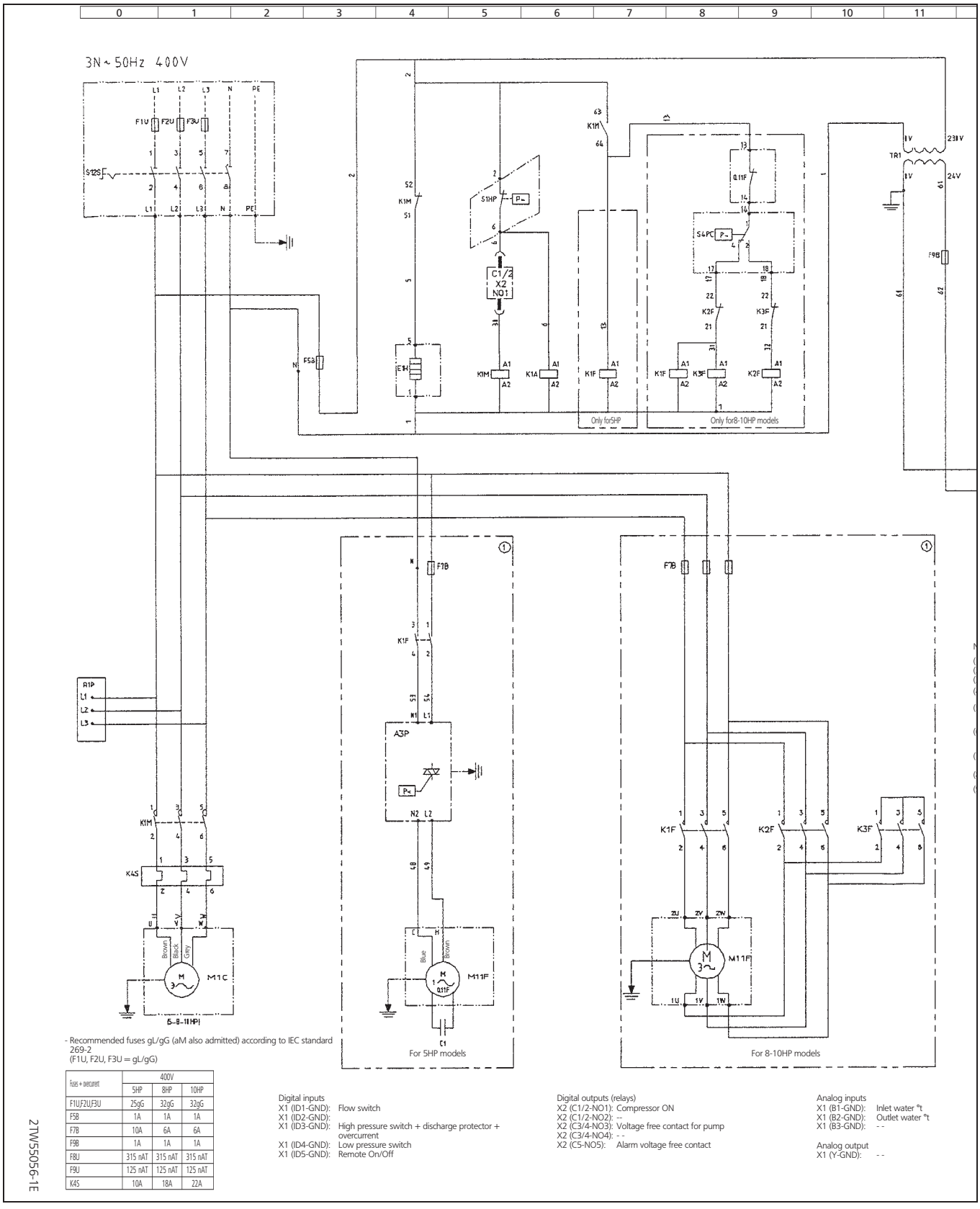
M1C	Compressor
S1HP	High pressure switch
R3T	Water inlet temp. sensor
R4T	Water outlet temp. sensor
S4LP	Low pressure switch
M11F	Condenser fan motor



3TW55065-1A

6 Wiring diagram

6 - 1 Wiring diagram



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

fuses + overcurrent	400V		
	5HP	8HP	10HP
F1U,F2U,F3U	25gG	32gG	32gG
F5B	1A	1A	1A
F7B	10A	6A	6A
F9B	1A	1A	1A
F8U	315 nAT	315 nAT	315 nAT
F9U	125 nAT	125 nAT	125 nAT
K4S	10A	18A	22A

Digital inputs
X1 (ID1-GND): Flow switch
X1 (ID2-GND):
X1 (ID3-GND): High pressure switch + discharge protector + overcurrent
X1 (ID4-GND): Low pressure switch
X1 (ID5-GND): Remote On/Off

Digital outputs (relays)
X2 (C1/2-NO1): Compressor ON
X2 (C1/2-NO2): --
X2 (C3/4-NO3): Voltage free contact for pump
X2 (C3/4-NO4): - -
X2 (C5-NO5): Alarm voltage free contact

Analog inputs
X1 (B1-GND): Inlet water °t
X1 (B2-GND): Outlet water °t
X1 (B3-GND): - -

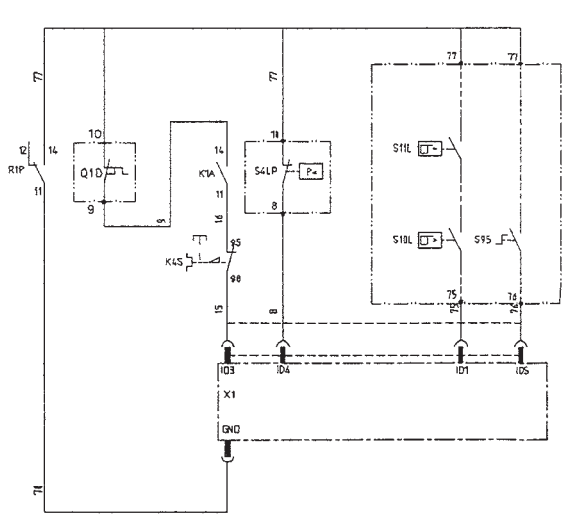
Analog output
X1 (Y-GND): - -

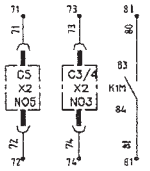
2TW55056-1E

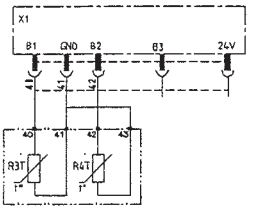
6 Wiring diagram

6 - 1 Wiring diagram

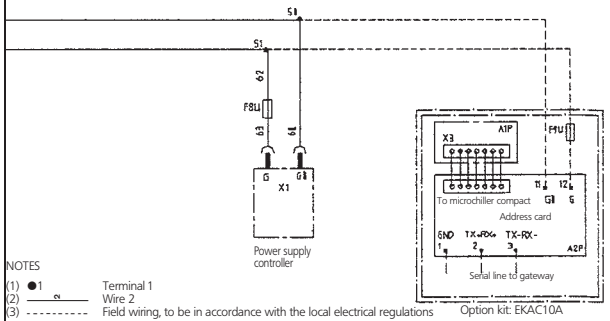
12	13	14	15	16	17	18	19	20





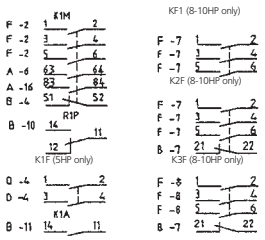


	Not standard included	
	Not poss. as option	Poss. as option
Obligatory	#	##
Not obligatory	*	**



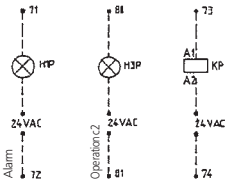
NOTES

(1) ●1 Terminal 1
(2) Wire 2
(3) Field wiring, to be in accordance with the local electrical regulations
(4) Earth wiring
(5) Option Wiring dependent on model
(6) PCB-display
(7) Outside switchbox
(8) If compressor rotates reversely, it may be damaged.
(9) OPTIONAL
☐ ZH = Glycol application chilled water temperature down to -5°C
☐ ZL = Glycol application chilled water temperature down to -10°C
☐ EKAC10B = Address card kit for BMS-connections



Output terminals for field wiring (max 2A/output)

EXAMPLE



X1	Connector in terminal unit for digital inputs, analog inputs, analog outputs and for power supply controller
X2	Connector for digital outputs in terminal unit
TR1	Transfo 230V -> 24V for supply of controllers
S1S #	Main isolator switch
S11L #	Contact that closes if the pump is working
S10L #	Flow switch
S9S *	Switch for remote start/stop
S4PC	Head pressure control pressure switch for fanspeed control
S4LP	Low pressure switch
S1HP	High pressure switch
R4T	Outlet water temperature sensor
R3T	Inlet water temperature sensor
R1P	Reverse phase protector
Q11F	Thermal protector fan
Q1D	Discharge thermal protector
PE	Main earth terminal
M1C	Compressor motors
M11F	Fan motor
KP *	Pump contactor
K2F	Contactors for speedselection fanmotor (low/high)
K1F,K3F	Contactor for fanmotor
K1A	Auxiliary contactor for high pressure
K4S	Overcurrent relay
K1M	Compressor contactor
H3P *	Indication lamp operation compressor
H1P *	Indication lamp alarm
F9U ##	Surge proof fuse
F8U	Surge proof fuse
F7B	Fuse for fanmotor
F5B,F9B	Fuse for the control circuit/ secondary of TR1
F1U,F2U,F3U #	Main fuses for the unit
E1H	Crankcase heater
C1	Capacitor for fanmotor
A3P	PCB: Fanspeedcontroller
A2P **	PCB: Address card
A1P	PCB: Terminal unit

7 Sound data

7 - 1 Sound level data

		Sound power Lw per Octave band (dB)							Total (dBA)
		63	125	250	500	1000	2000	4000	
EUWAC5FZW	Lw	65	66	65	59	51	44	36	63
	Lwd	85	70	67	70	67	66	64	75
EUWAC8FZW	Lw	75	70	66	61	56	48	40	66
	Lwd	70	70	68	65	66	62	60	72
EUWAC10FZW	Lw	73	70	69	64	58	52	48	69
	Lwd	77	69	68	69	66	66	62	74

4TW55057-1A

Compact unit with ducts Sound power level for the housing		Lw
Compact unit with ducts Sound power level for the proportion of sound radiated by the openings of the ducts		Lw

NOTES

1 Data valid at nominal operation conditions with external static pressure of
5 HP → ESP 50 Pa
8 HP → ESP 60 Pa
10 HP → ESP 72 Pa
And a factory pulley setting of 0 turns open

2 Testing according to ENV12102

8 Installation

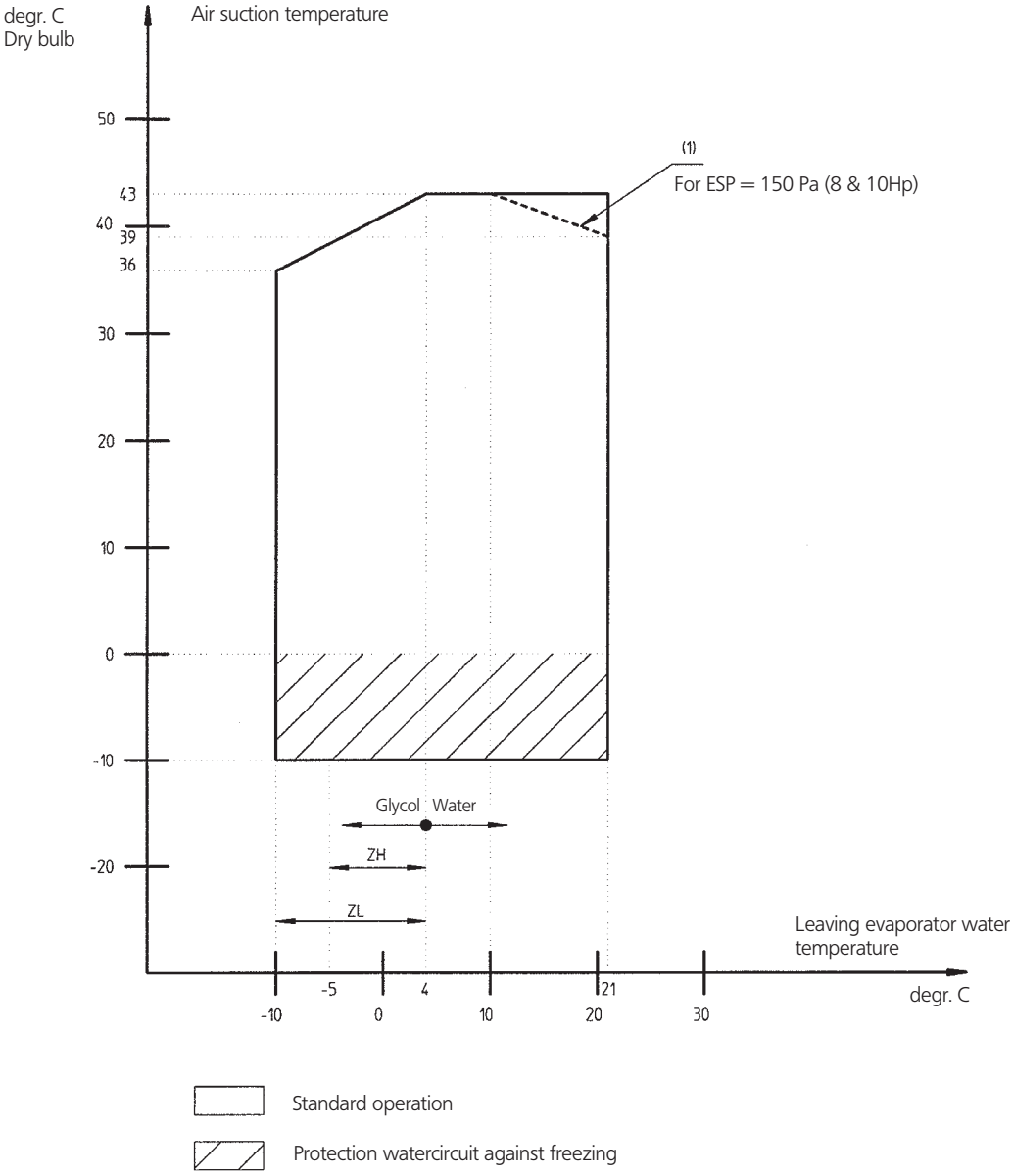
8 - 1 Water charge, flow and quality

Be sure the water quality is in accordance with the specifications below:

ITEMS	Cooled water		Tendency if out of criteria
	Circulating water (below 20°C)	Water supply	
Items to be controlled:			
- pH at 25°C	6.8 - 8.0	6.8 - 8.0	Corrosion + scale
- Electrical conduct			
(mS/m) at 25°C	Below 40	Below 30	Corrosion + scale
(μS/cm) at 25°C	—	—	Corrosion + scale
- Chloride ion (mg Cl^-/l)	Below 50	Below 50	Corrosion
- Sulfate ion (mg SO_4^{2-}/l)	Below 50	Below 50	Corrosion
- M-alkalinity (pH 4.8) (mg SO_3/l)	Below 50	Below 50	Scale
- Total hardness (mg $CaCO_3$/l)	Below 70	Below 70	Scale
- Calcium hardness (mg $CaCO_3$/l)	Below 50	Below 50	Scale
- Silica ion (mg SiO_2/l)	Below 30	Below 30	Scale
Items to be referred to:			
- Iron (mg Fe/l)	Below 1.0	Below 0.3	Corrosion + scale
- Copper (mg Cu/l)	Below 1.0	Below 0.1	Corrosion
- Sulfite ion (mg S^{2-}/l)	Not detectable	Not detectable	Corrosion
- ammonium ion (mg NH_4^+/l)	Below 1.0	Below 0.1	Corrosion
- Remaining chloride (mg Cl/l)	Below 0.3	Below 0.3	Corrosion
- Free carbide (mg SO_2/l)	Below 4.0	Below 4.0	Corrosion
- Stability index	—	—	Corrosion + scale

Names, definitions and units are according to JIS K 0101. Units and figures between brackets are old units published as reference only.

9 Operation range

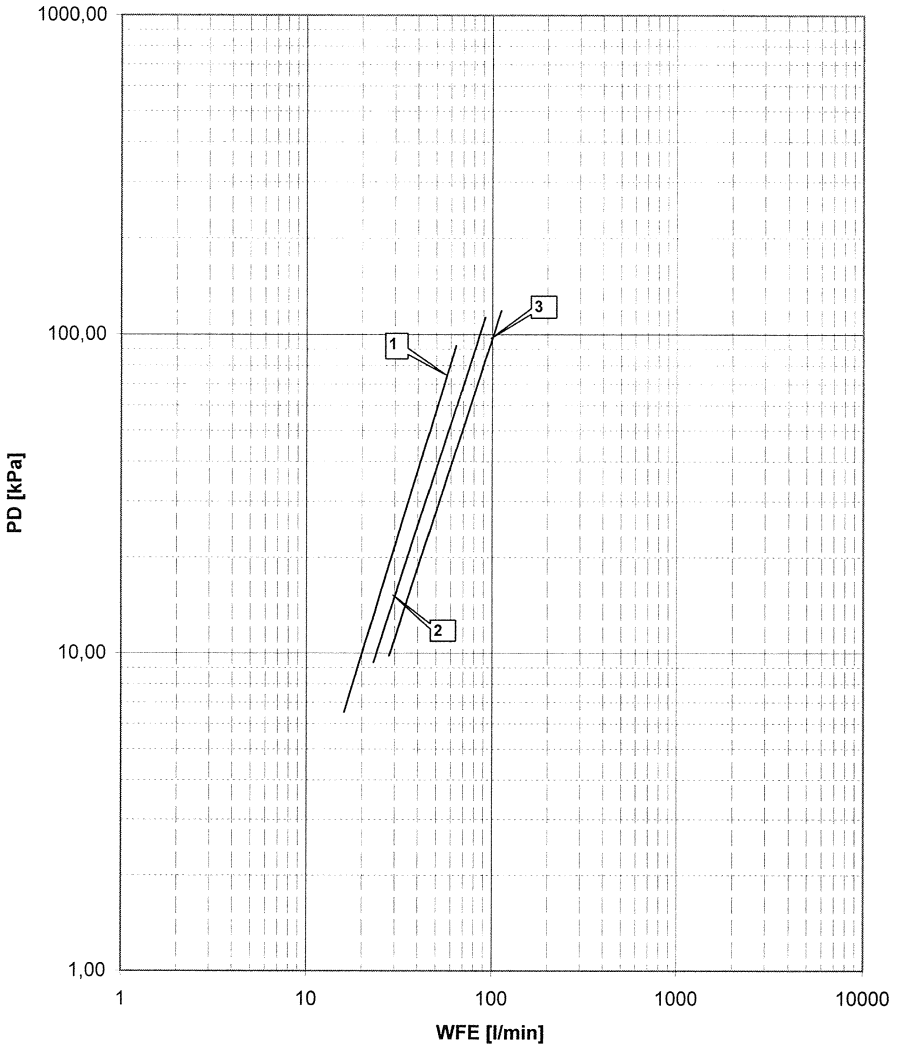


Note for 8-10HP: operation range is valid for a pulley setting of 0 turns open (factory setting)

4TW55053-1A

10 Hydraulic performance

10 - 1 Water pressure drop curve evaporator



PD : Water pressure drop through the unit
WF : Evaporator waterflow rate

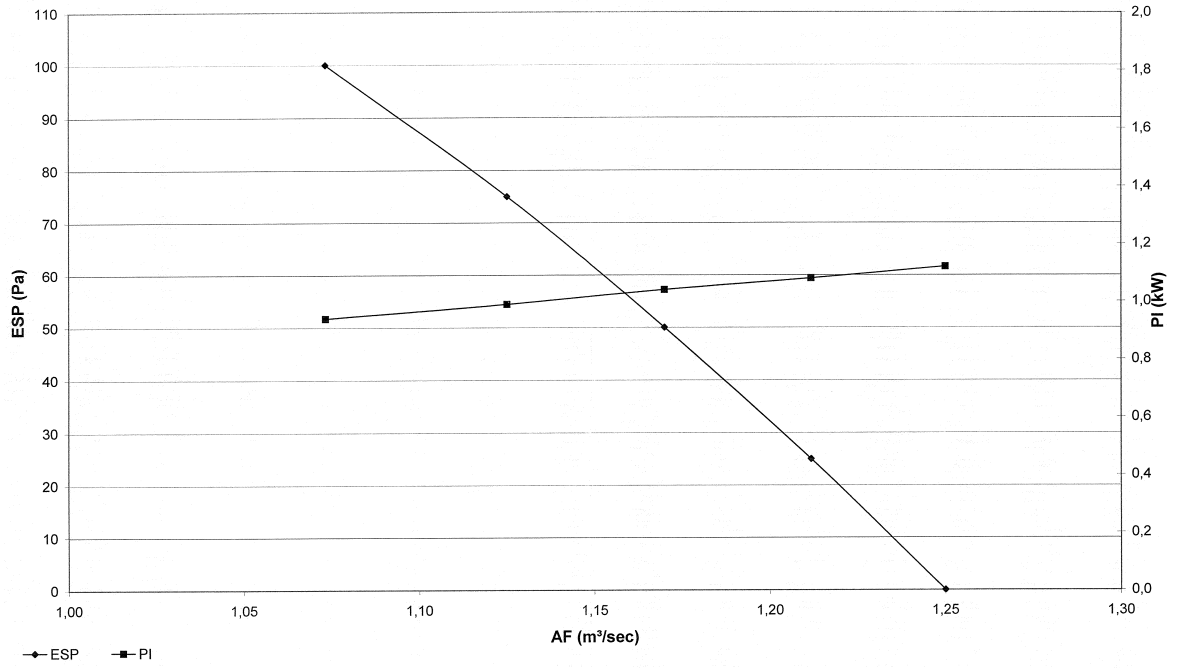
1 EUWAC5FZW
2 EUWAC8FZW
3 EUWAC10FZW

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

4TW55059-2A

10 Hydraulic performance

10 - 2 Water pressure drop curve condenser



3TW55058-1

NOTES

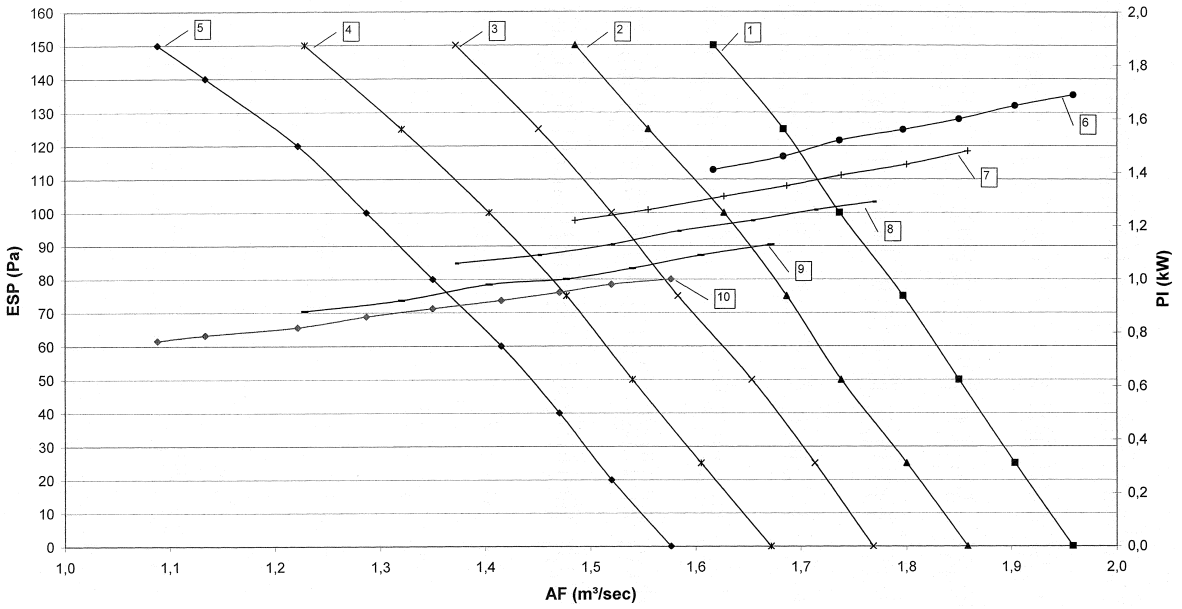
1 ESP = External static pressure
PI = power input of the fans
AF = airflow of the fans

2 Values applicable for no headpressure control working only.

10 Hydraulic performance

10 - 2 Water pressure drop curve condenser

ESP/PI - AF of EUWAC8FZW



3TW55068-1

1. ESP with pulley closed
2. EPS with pulley 1 turn open
3. ESP with pulley 2 turns open
4. ESP with pulley 3 turns open
5. ESP with pulley 4 turns open
6. PI with pulley closed
7. PI with pulley 1 turn open
8. PI with pulley 2 turns open
9. PI with pulley 3 turns open
10. PI with pulley 4 turns open

NOTES

1 ESP = External static pressure
PI = power input of the fans
AF = airflow of the fans

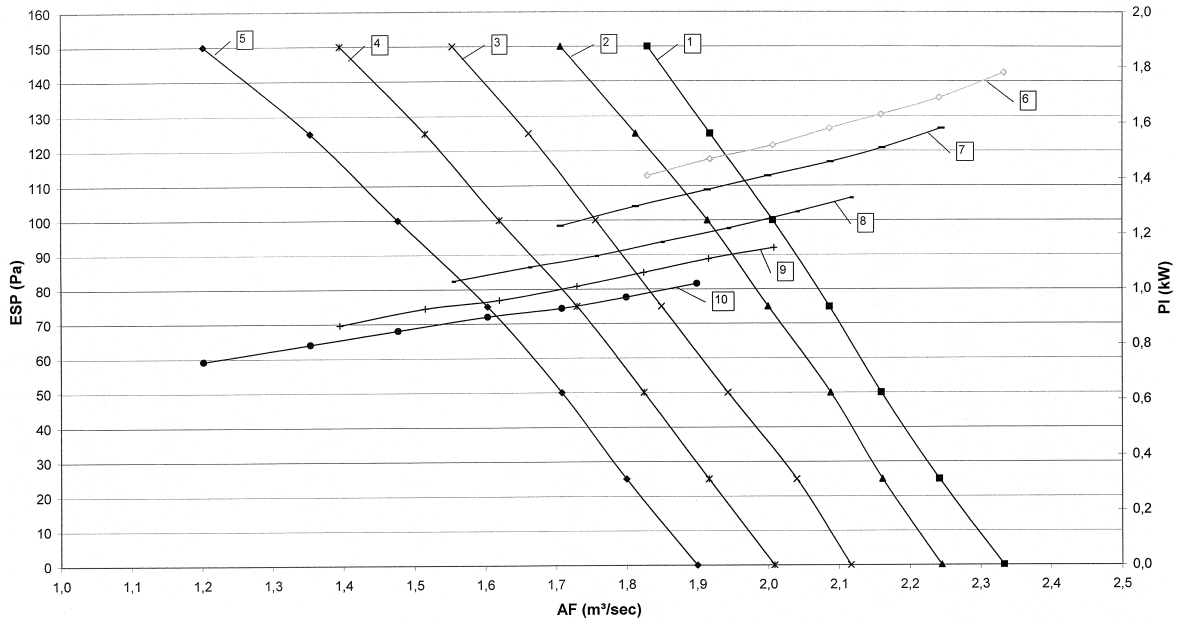
2 Values applicable for no headpressure control working only.

3 Factory setting is "pulley closed".

10 Hydraulic performance

10 - 2 Water pressure drop curve condenser

ESP/PI - AF of EUWAC10FZW



3TW55078-1

1. ESP with pulley closed
2. EPS with pulley 1 turn open
3. ESP with pulley 2 turns open
4. ESP with pulley 3 turns open
5. ESP with pulley 4 turns open
6. PI with pulley closed
7. PI with pulley 1 turn open
8. PI with pulley 2 turns open
9. PI with pulley 3 turns open
10. PI with pulley 4 turns open

NOTES

1 ESP = External static pressure
PI = power input of the fans
AF = airflow of the fans

2 Values applicable for no headpressure control working only.

3 Factory setting is "pulley closed".

Air Cooled for Indoor Installation
EUWAC5-10FZW

In all of us, a green heart

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

Daikin Europe N.V. is approved by LRQA for its Quality Management System in accordance with the ISO9001 standard. ISO9001 pertains to quality assurance regarding design, development, manufacturing as well as to services related to the product.

ISO14001 assures an effective environmental management system in order to help protect human health and the environment from the potential impact of our activities, products and services and to assist in maintaining and improving the quality of the environment.

Daikin units comply with the European regulations that guarantee the safety of the product.

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