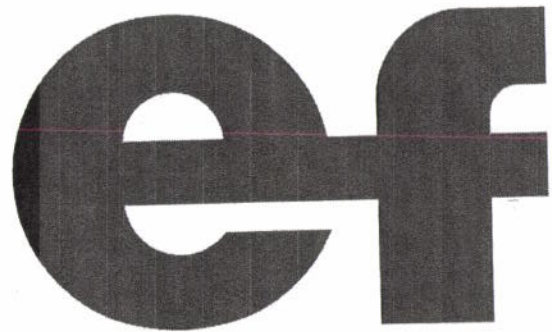


BEDIENUNGSANLEITUNG



Typ Kühlgerät

WKL 1360/2 (FEA ST 0602 Z SI 1 P)

Serie Nr.

1360.001

Maschinen Nr.

12'516

Projekt

Meyer & Burger / Swiss Wafers



Order acknowledgement:

Quotation number: 6534

Date: 11/10/2004

Customer: EF Cooling

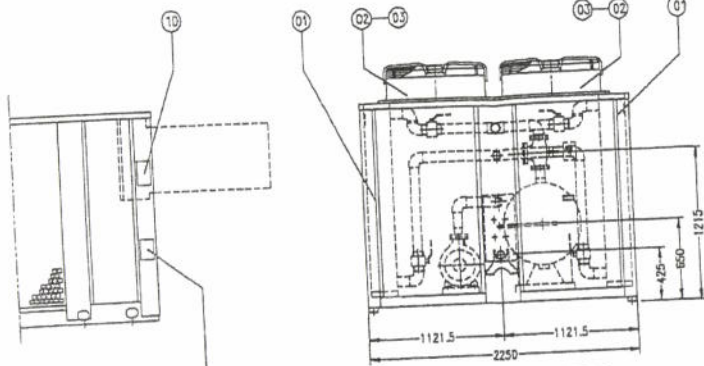
Type of unit : Packaged Air cooled chiller with "FREE-COOLING" device

Model : FEA ST 0602Z SI 1P

Refrigerant: R407c

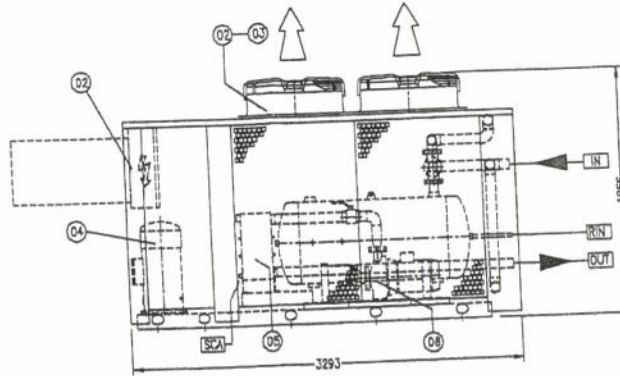
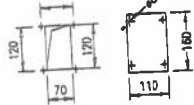
Compressor			Compressors number			No.	2
Type		scroll	Economizers number			No.	-
Cooling capacity	KW	161.4	Type of start			-	DOL
Compressors power input	KW	45.8	Capacity control steps			No.	2
FREE-COOLING device			Free-cooling absorbed power			KW	8
Free-cooling capacity (*)	KW	161.4	Number of evaporator			No.	1
Evaporator			INLET water temperature			°C	22
Type		Plate type	OUTLET water temperature			°C	16
Total water flow	l/s	7.41	Fouling factor			m2xKW	0,000043
Pressure drop	Kpa	60	Connections diameters			DN	
Maximum water flow	l/s		Number of refrigerant circuits			No.	2
Glycol	%	34	Number of the fans			No.	4
Condenser			Ambient air temperature			°C	35(-20)
Type of fans		Axial	Fans speed			RPM	890
Heat Rejection	KW	210	Available external pressure			Pa	0
Total air flow	m3/s	17.22	Absorbed power each pump motor			KW	11
Absorbed power each fan motor	KW	2	Nameplate current each pump motor			A	22
Nameplate current each fan motor	A	4	Pump speed			RPM	2900
Hydraulic section			Built-in				
Water storage tank	lt.	500	Power supply			V.400/3/50Hz.	
Number of circulating pumps	No.	1	Starting current total			A	281
Available external pressure	Kpa	400	Sound pressure level at 5 m. distance in free field			dB(A)	65.5
General data			Shipping weight			kg	
Maximum total power input	KW		Operating weight			kg	
Nominal absorbed current	A	88+22					
Maximum absorbed current	A	116+22					
Noise							
Sound power level LW	dB(A)	88.3					
Overall dimensions & weight							
Length	mm	3300					
Width	mm	2250					
Height	mm	1960					

(*)100% FREE COOLING EFFECT REACHED AT +6°C ambient temperature

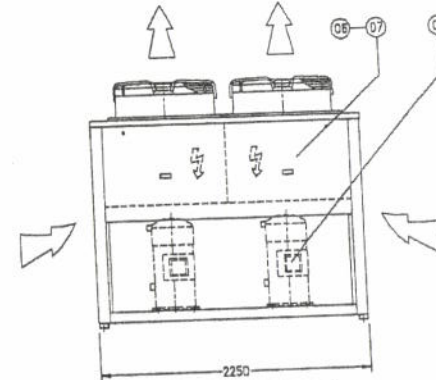


INGRESSO LINEA ELETTRICA
Electrical line inlet

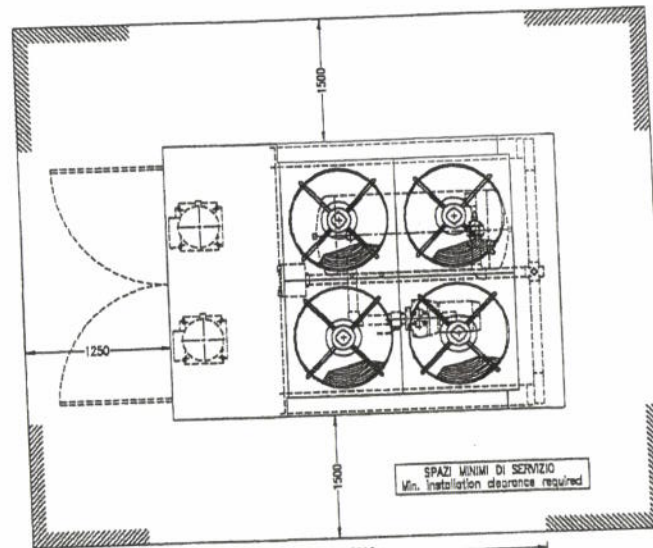
VISTA LATO ATTACCHI IDRAULICI
View from hydraulic connection side



VISTA LATO SCAMBIATORE ARIA/REFRIGERANTE
View from refrigerant/air heat exchanger side



VISTA LATO QUADRO ELETTRICO
View from electric panel side

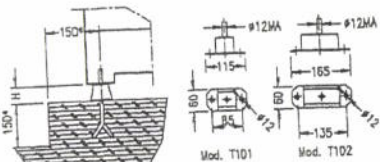


SPAZI MINIMI DI SERVIZIO
Min. installation clearance required

- IN = INGRESSO ACQUA REFRIGERATA = 3" GAS-F
Chilled water inlet
- OUT = USCITA ACQUA REFRIGERATA = 3" GAS-F
Chilled water outlet
- RUN = USCITA ACQUA REFRIGERATA = 3/4" GAS-F
Chilled water outlet
- SCA = USCITA ACQUA REFRIGERATA = 1/2" GAS
Chilled water outlet

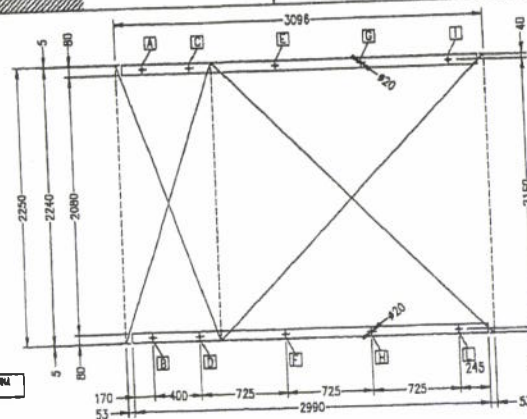
PESO IN FUNIZIONE Operating weight	2680 Kg.
DISTRIBUZIONE DEI PESI Weight distribution	
A = 0420 Kg.	B = 0420 Kg.
C = 0200 Kg.	D = 0200 Kg.
E = 0500 Kg.	F = 0500 Kg.
G = 0200 Kg.	H = 0200 Kg.
I = 0410 Kg.	L = 0410 Kg.

PESO DI SPECIAZIONE Shipping weight	1090 Kg.
ANTIVIBRANTI IN GOMMA Rubber type vibration absorbers	
A = T 102	B = T 102
C = /	D = /
E = T 102	F = T 102
G = /	H = /
I = T 102	L = T 102



• DIMENSIONI MINIMA CONSIGLIATA
• Recommended dimension

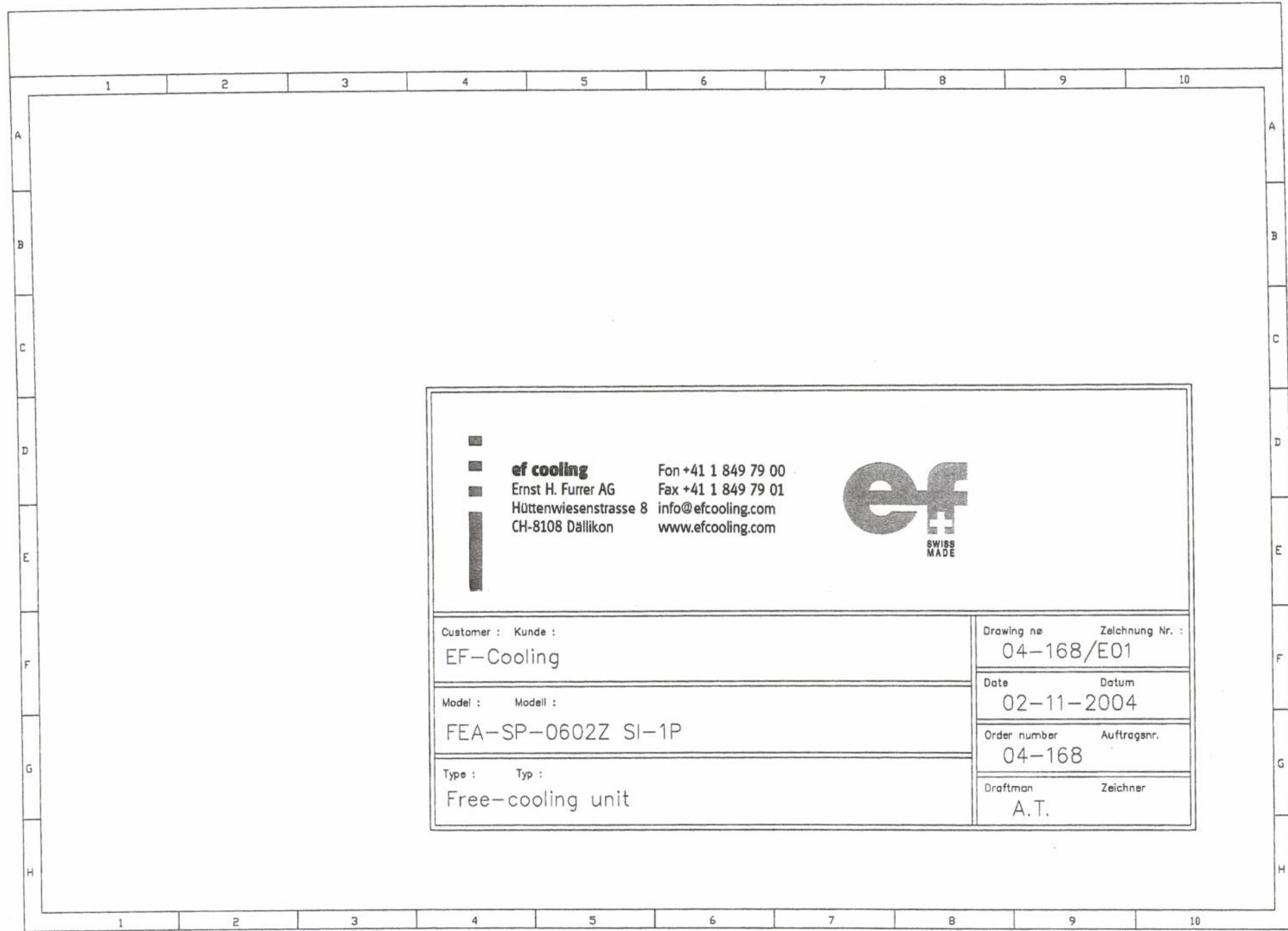
INDICAZIONE A TERRA DELLA BACCHINA
Floor mark of the unit



- 01 BATTERIA CONDENSANTE
Condenser coil
- 02 VENTILATORE ASSIALE
Axial fan
- 03 MOTORE ELETTRICO
Electric motor
- 04 COMPRESSORE
Compressor
- 05 EVAPORATORE
Evaporator
- 06 QUADRO ELETTRICO
Electric panel
- 07 PANNELLO DI COMANDO
Operating panel
- 08 POMPA DI CIRCOLAZIONE
Circulating pump
- 09 SERBATOIO DI ACCUMULO 500 lt
500 lt Water tank
- 10 TARGA IDENTIFICATIVA
Label
- 11 VISORE OPZIONALE
Optional window

Rev. E	-	-
Rev. D	-	-
Rev. C	-	-
Rev. B	23-11-04	Definitive
Rev. A	05-11-04	Standard drawing
GRUPPO REFRIGERATORE D'ACQUA WATER CHILLER UNIT SERIE FE FE-A-SP-0602 Z SI-1P		Disegno N. Drawing No. D/04-168 Scala Scale 1 = 20 Disegnato da Drawn by 04.168 Verificato da Checked by Mandelli Firm em
UINI-41 TOLLERANZE UNI 3827 Single made A meno di legge il diritto di questo disegno non è stato di riproduzione a meno di permesso scritto o verbale. Unless otherwise stated, / Drawing authority reserved from subsequent reproduction unless so intended by law.		

A
 B
 C
 D
 E
 F
 G
 H



ef cooling
 Ernst H. Furrer AG
 Hüttenwiesenstrasse 8
 CH-8108 Dällikon

Fon +41 1 849 79 00
 Fax +41 1 849 79 01
 info@efcooling.com
 www.efcooling.com



Customer : Kunde :	Drawing no	Zeichnung Nr. :
EF-Cooling	04-168	E01
Model : Modell :	Date	Datum
FEA-SP-0602Z SI-1P	02-11-2004	
Type : Typ :	Order number	Auftragsnr.
Free-cooling unit	04-168	
	Draftman	Zeichner
	A.T.	

Elektrische Daten
Electrical data

Betriebsspannung Operating voltage range	400V
Nominalfrequenz Nominal frequency	50Hz
System Electric system	DREIPHASIG + NEUTRUM THREE PHASE + NEUTRAL
Phasenzahl Phases	3+N
Isolierungsspannung Insulation voltage	660V
Neutrumkabel Neutral cable	GEERDET EARTHED

Symmetrischer Kurzschlussstrom Symetric locked rotor amps	<=10KA
--	--------

Installierte Leistung Installed power	82 Kw
Stromaufnahme Power input	69 Kw
Nominale Stromaufnahme Nominal current	186 A
Max. Startstrom Maximum locked rotor amps	386 A

Tolleranz auf die Spannung Voltage tolerance	±10%
Tolleranz auf Phasenschwankungen Unbalanced phase tolerance	±10%
Frequenztoleranz Frequency tolerance	±2%

Erdungsklemme Earth connection screw size	12M ^{THREAD}
Stromklemme je Leitung Main switch connection screw size for each pole	8M ^{THREAD} x 25 ^{THREAD}
Sekund?rleitung Auxiliary circuit voltage	24V / 230V

ACHTUNG: Der Magnetothermische- und Differentialschutz muss vom Installateur vor dem Hauptschalter unseres Stromschranks installiert werden.

ACHTUNG: Die Stromversorgungskabel unter genauer Einhaltung der angegebenen Phasenordnung L1, L2, L3 anschliessen.

ATTENTION: Magnetothermal protection and circuit breaker shall be provided by the costumer upstream of our electric panel main switch.

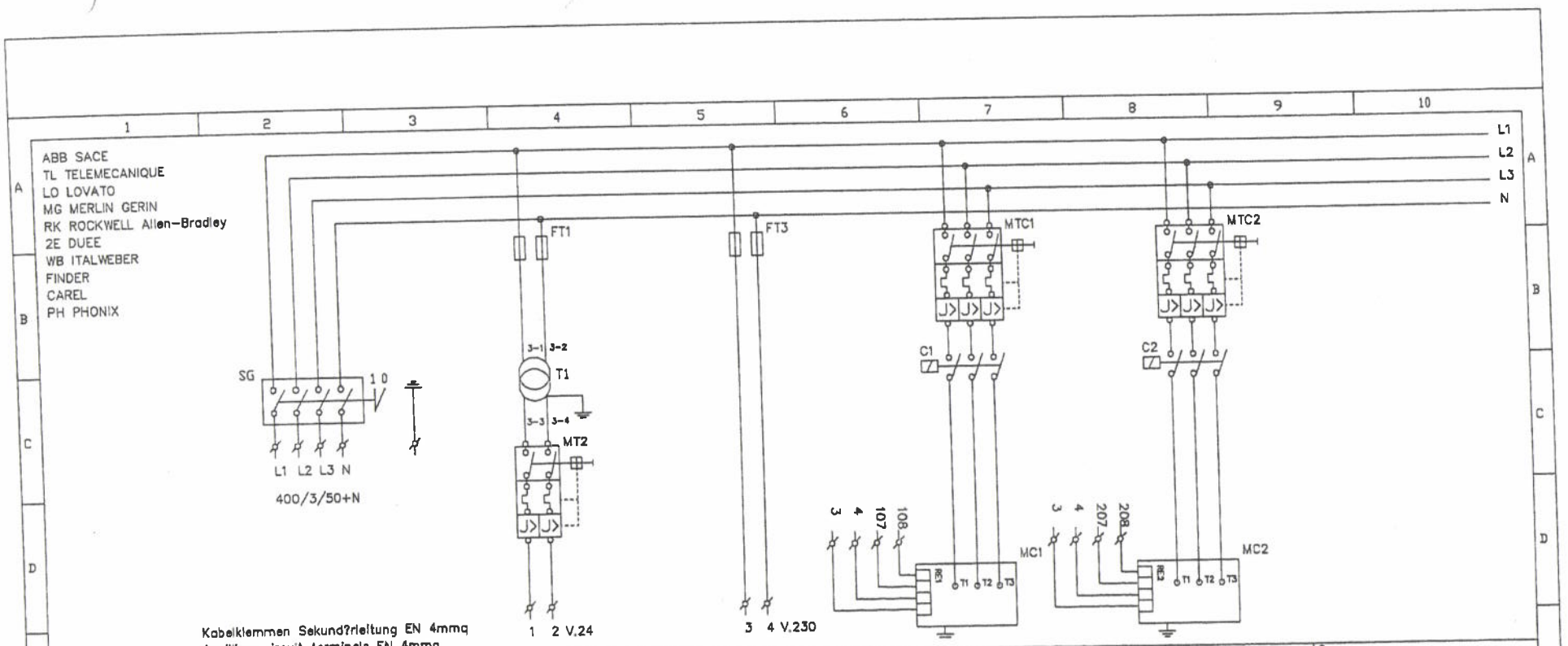
ATTENTION: Connect supply cables strictly respecting indicated L1, L2, L3 phase sequence.

Modell Model :
FEA-SP-0602Z SI-1P
Typ Type :
Free-cooling unit

Kunde Customer :
EF-Cooling

Zeichnung Drawing no 04-168/E01
Datum Date : 02-11-2004
Auftrag Order no : 04-168
Seite Sheet no : 1 BI OF 9
Zeichner Drafter A.T.

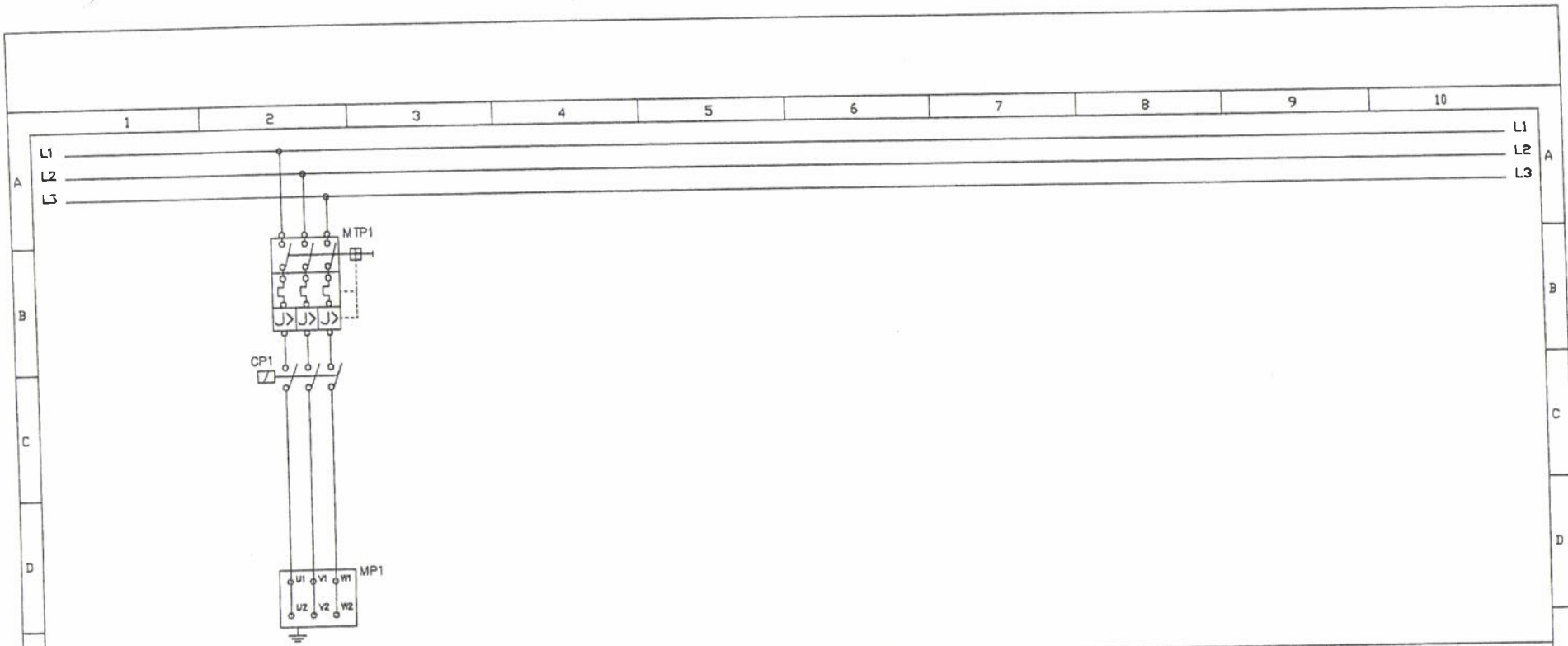
	1	2	3	4	5	6	7	8	9	10	
A B C D E F G H	LEGENDA - LIST										
	<input checked="" type="checkbox"/> SG	Hauptachalter mit T?verriegelung Main switch with door lock		<input checked="" type="checkbox"/> FV1,2,3,4	Ventilatorschutzsicherungen Fans protection fuses		<input checked="" type="checkbox"/> RE1,2	Elektronische Sicherung Electronic protection			
	<input checked="" type="checkbox"/> FT1	Transformator Schutzsicherungen V 400-24 Transformer protection fuses V.400-24		<input checked="" type="checkbox"/> CV1,2,3,4	Ventilatorsch?tz Fans contactors		<input checked="" type="checkbox"/> SU1	Sonde Verbraucher Verlaufftemperatur Supply water temperature probe			
	<input checked="" type="checkbox"/> T1	Transformator Einphasig V 400-24 Singlephase transformer V.400-24		<input checked="" type="checkbox"/> TK1,2,3,4	Thermische Relais Ventilatorintern Fans internal thermal switches		<input checked="" type="checkbox"/> SI	Sonde Verbraucher R?cklaufftemperatur Return water temperature probe			
	<input checked="" type="checkbox"/> MT2	Thermisches Relais Sekund?rleitung V 24 Auxiliary circuit magnetothermal switch V.24		<input checked="" type="checkbox"/> MV1,2,3,4	Ventilatormotor Fans motors		<input checked="" type="checkbox"/> R1,2	?rheizwiderstand Crankcase Heater			
	<input checked="" type="checkbox"/> FT3	Sicherungen Kreie V 230 Circuit protection fuses V.230		<input checked="" type="checkbox"/> AP1,2	Hochdruckw?chter High pressure switch		<input checked="" type="checkbox"/> PDA1	Differenzdruckw?chter Wasser Water differential pressure switch			
	<input checked="" type="checkbox"/> MTC1,2	Thermisches Relais Verdichter Compressor magnetothermal switch		<input checked="" type="checkbox"/> BP1,2	Niederdruckw?chter Low pressure switch		<input checked="" type="checkbox"/> SAP1,2	Hochdruckgeber High pressure transducer			
	<input checked="" type="checkbox"/> C1,2	Verdichtersch?tz Compressor contactors		<input checked="" type="checkbox"/> SL1,2	Fl?ssigkeitsolenoidventil Liquid line solenoid valve		<input checked="" type="checkbox"/> FRV1	Schutzsicherungen Drehzahlregler Speed regulator protection fuses			
	<input checked="" type="checkbox"/> MC1,2	Verdichtermotor Compressor motor					<input checked="" type="checkbox"/> RV1	Drehzahlregler Fan speed control			
	<input checked="" type="checkbox"/> MTP1	Thermisches Relais Pumpenschutz Pump protection magnetothermal switch					<input checked="" type="checkbox"/> SE	Sonde Au?entemperatur External air temperature probe			
	<input checked="" type="checkbox"/> CP1	Pumpensch?tz Pump contactor					<input checked="" type="checkbox"/> SF	Sonde Freie K?hlung Freecooling probe			
	<input checked="" type="checkbox"/> MP1	Pumpenmotor Pump motor					<input checked="" type="checkbox"/> V3V	Ventil Freie K?hlung Freecooling valve			
							<input checked="" type="checkbox"/> RRE1,2 K9,10,RF,RTK	Sekund?rrlais Auxiliary relay			
						Modell Model :		Kunde Customer :		Zeichnung Drawing no : 04-168/E01	
						FEA-SP-0602Z SI-1P		EF-Cooling		Datum Date : 02-11-2004	
						Typ Type :				Auftrag Order no : 04-168	
						Free-cooling unit				Seite Sheet no : 2 von 9	
									Zeichner Drafter : A.T.		



Kabelklemmen Sekundärleitung EN 4mmq
 Auxiliary circuit terminals EN 4mmq

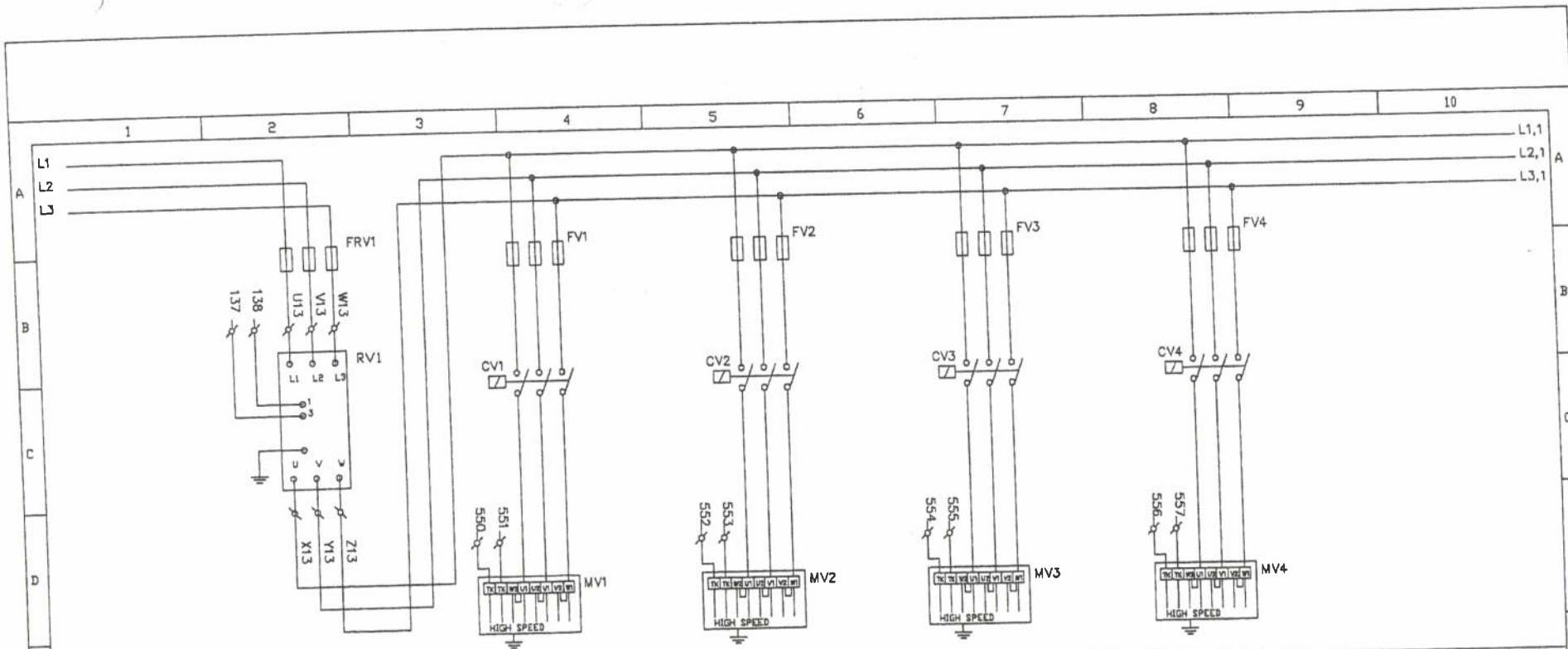
	1	2	3	4	5	6
ANZAHL DER KREISE CIRCUIT NUMBER	1	2	3	4	5	6
BESCHREIBUNG ELECTRICALS	LINE 400/3/50+N LINE 400/3/50+N	SEKUNDZR 24V AUXILIARY 24V	SEKUNDZR 230V AUXILIARY 230V	VERDICHTER 1 COMPRESSOR 1	VERDICHTER 2 COMPRESSOR 2	
NOMINALE LEISTUNG NOMINAL POWER	82 Kw			29,1 Kw	29,1 Kw	
STROMAUFNAHME POWER INPUT	69 Kw			22,9 Kw	22,9 Kw	
NOMINALE STROMAUFNAHME NOMINAL AMPS	185 A			69 A	69 A	
STARTSTROM LOCKED ROTOR AMPS	386 A			270 A	270 A	
SCHALTERART MAIN SWITCH TYPE	ABB 200A 4P	ABB S251Na 2A		ABB S293 C80	ABB S293 C80	
SICHERUNGSART FUSES TYPE		WB 10x38 6AgL	WB 10x38 6AgL	ABB A75-30	ABB A75-30	
SCHALTZART CONTACTOR TYPE						
TRANSFORMATORART TRANSFORMER		2E 230-24V 63VA				
KABELDURCHMESSER CABLE SECTION		2,5	2,5	25mmq	25mmq	
KLEMMENART TERMINALS TYPE		EN 10mmq	EN 10mmq			
KABELEINFÜHRUNG CABLE INLET	VON UNTEN-FROM BOTTOM	VON UNTEN-FROM BOTTOM	VON UNTEN-FROM BOTTOM	VON UNTEN-FROM BOTTOM	VON UNTEN-FROM BOTTOM	

H	Modell Model :			Kunde Customer :			Zeichnung Drawing no :		
	FEA-SP-0602Z SI-1P			EF-Cooling			04-168/E01		
	Typ Type :						Datum Date :		
Free-cooling unit						02-11-2004			
						Auftrag Order no :			
						04-168			
						Seite Sheet no :			
						3			
						Zelchner Drafter no :			
						A.T.			



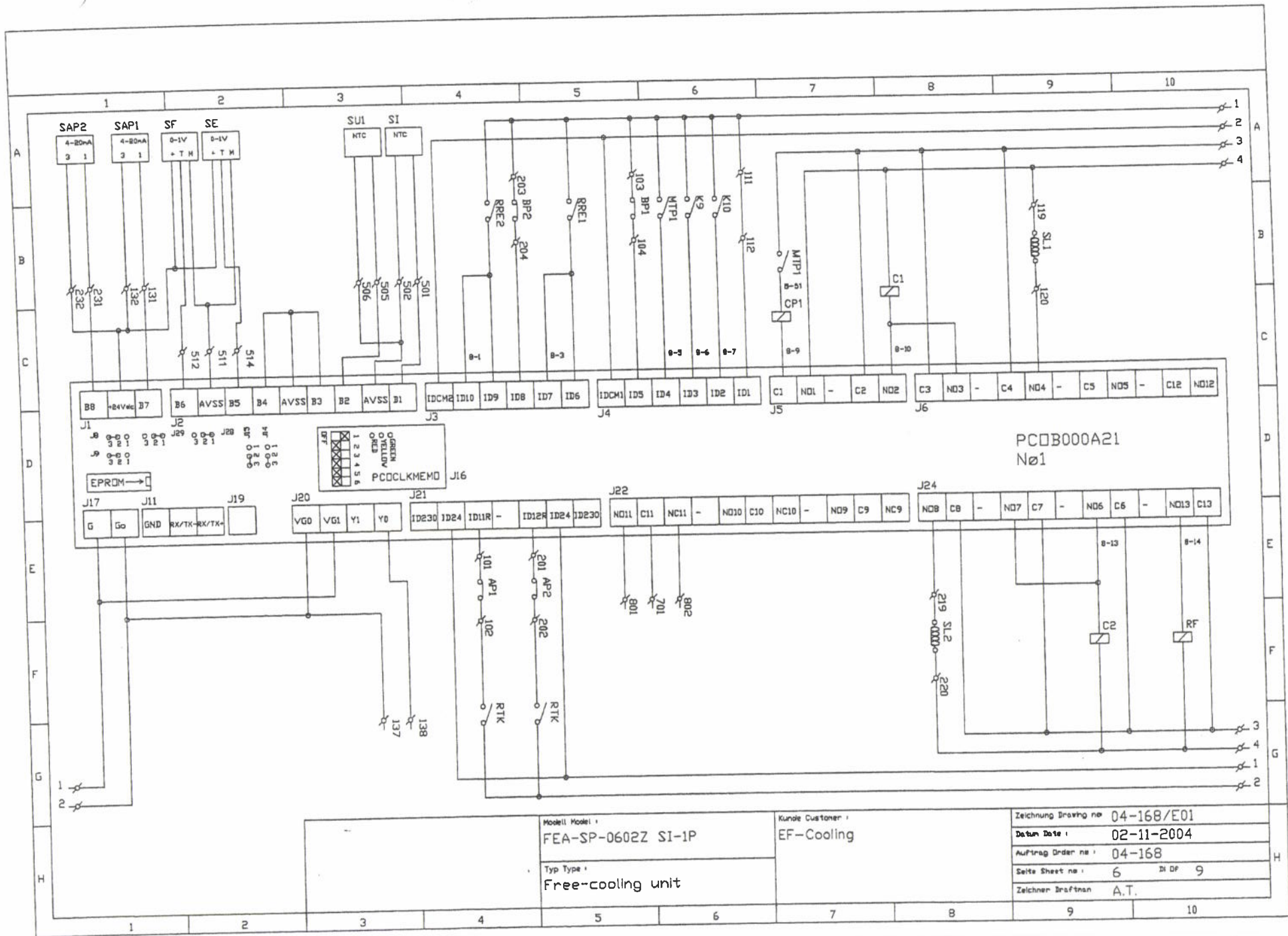
		7	8	9	10	11	12
E	ANZAHL DER KREISE CIRCUIT NUMBER						
	BESCHREIBUNG ELECTRICALS	PUMPE 1 PUMP 1					
	NOMINALE LEISTUNG NOMINAL POWER	15 Kw					
	STROMAUFNAHME POWER INPUT	15 Kw					
	NOMINALE STROMAUFNAHME NOMINAL AMPS	30 A					
F	STARTSTROM LOCKED ROTOR AMPS	252 A					
	SCHALTERART MAIN SWITCH TYPE	ABB MS450-32					
	SICHERUNGSART FUSES TYPE						
	SCHÜTZART CONTACTOR TYPE	ABB A40-30 230					
	TRANSFORMATORART TRANSFORMER						
	KABELDURCHMESSER CABLE SECTION	10mmq					
G	KLEMMENART TERMINALS TYPE						
	KABELINFÜHRUNG CABLE INLET	VON UNTEN-FRÖM BOTTOM					

H			Modell Model :		Kunde Customer :		Zeichnung Drawing no	
			FEA-SP-0602Z SI-1P		EF-Cooling		04-168/E01	
			Typ Type :		Free-cooling unit		Datum Date :	
							02-11-2004	
						Auftrag Order no :		
						04-168		
						Seite Sheet no :		
						4		
						Zeichner Drafterman		
						A.T.		



	13	14	15	16	17	18
E	ANZAHL DER KREISE CIRCUIT NUMBER					
	BESCHREIBUNG ELECTRICALS	GESCHWINDIGKEITSREGLER FAN SPEED REGULATOR	VENTILATOR 1 FAN 1	VENTILATOR 2 FAN 2	VENTILATOR 3 FAN 3	VENTILATOR 4 FAN 4
	NOMINALE LEISTUNG NOMINAL POWER		2 Kw	2 Kw	2 Kw	2 Kw
	STROMAUFNÄHME POWER INPUT		2 Kw	2 Kw	2 Kw	2 Kw
	NOMINALE STROMAUFNÄHME NOMINAL AMPS		4 A	4 A	4 A	4 A
F	STARTSTROM LOCKED ROTOR AMPS		14 A	14 A	14 A	14 A
	SCHÜTZART MAIN SWITCH TYPE					
	SICHERUNGSART FUSES TYPE	MG 14x51 16AaM	MG 10x38 6AaM	MG 10x38 6AaM	MG 10x38 6AaM	MG 10x38 6AaM
	SCHÜTZART CONTACTOR TYPE		ABB B5-30-1D	ABB B6-30-1D	ABB B6-30-1D	ABB B6-30-1D
	TRANSFORMATORART TRANSFORMER					
	KABELDURCHMESSER CABLE SECTION	4mmq	2,5mmq	2,5mmq	2,5mmq	2,5mmq
G	KLEHMENART TERMINALS TYPE	EN 4mmq	EN 4mmq	EN 4mmq	EN 4mmq	EN 4mmq
	KABELFÜHRUNG CABLE INLET	VON UNTEN--FROM BOTTOM	VON UNTEN--FROM BOTTOM	VON UNTEN--FROM BOTTOM	VON UNTEN--FROM BOTTOM	VON UNTEN--FROM BOTTOM

		Modell Model : FEA-SP-0602Z SI-1P		Kunde Customer : EF-Cooling		Zeichnung Drawing no : 04-168/E01	
		Typ Type : Free-cooling unit				Datum Date : 02-11-2004	
						Auftrag Order no : 04-168	
						Seite Sheet no : 5 of 9	
						Zeichner Drafterman A.T.	



Modell Model :
FEA-SP-0602Z SI-1P

Typ Type :
Free-cooling unit

Kunde Customer :
EF-Cooling

Zeichnung Drawing no : **04-168/E01**

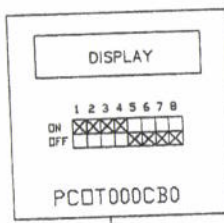
Datum Date : **02-11-2004**

Auftrag Order no : **04-168**

Seite Sheet no : **6** Bl DF **9**

Zeichner Drafter : **A.T.**

1 2 3 4 5 6 7 8 9 10



COLLEGAMENTO AL TERMINALE REMOTO / CONNECTION TO REMOTE TERMINAL
 Tipo / Type Asincrono half duplex a 2 fili dedicato / Asynchronous 2-lead half duplex dedicated
 Connettore / Connector Tipo telefonico a 6 vie / 6-way telephone-type Driver Differenziale bilanciato CMR 7 V (tipo RS485) / CMR 7 V balanced differential (Type RS485)

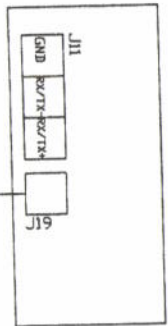
Con cavo telefonico / With telephone-type cable
 Resistenza del cavo / Cable resistance Distanza massima / Maximum distance
 $\leq 0,14W/m$ 600m
 $\leq 0,25W/m$ 400m

Con cavo schermato AWG24 / With AWG24 shielded cable
 Resistenza del cavo / Cable resistance Distanza massima / Maximum distance
 $\leq 0,078W/m$ 600m

Nota : Nel caso in cui si alimenti il terminale localmente con 30Vdc è possibile arrivare ad una distanza massima di 1 Km.
 Note : If powering the terminal locally using 30Vdc, the maximum distance can be extended up to 1Km.

Nota : Tenere questi cavi lontani da qualsiasi altro cavo, la minima distanza da tenere è 1m.
 Note :These cables must be kept away from any other cables; minimum distance 1 m.

PC0B000A21
 Nø1

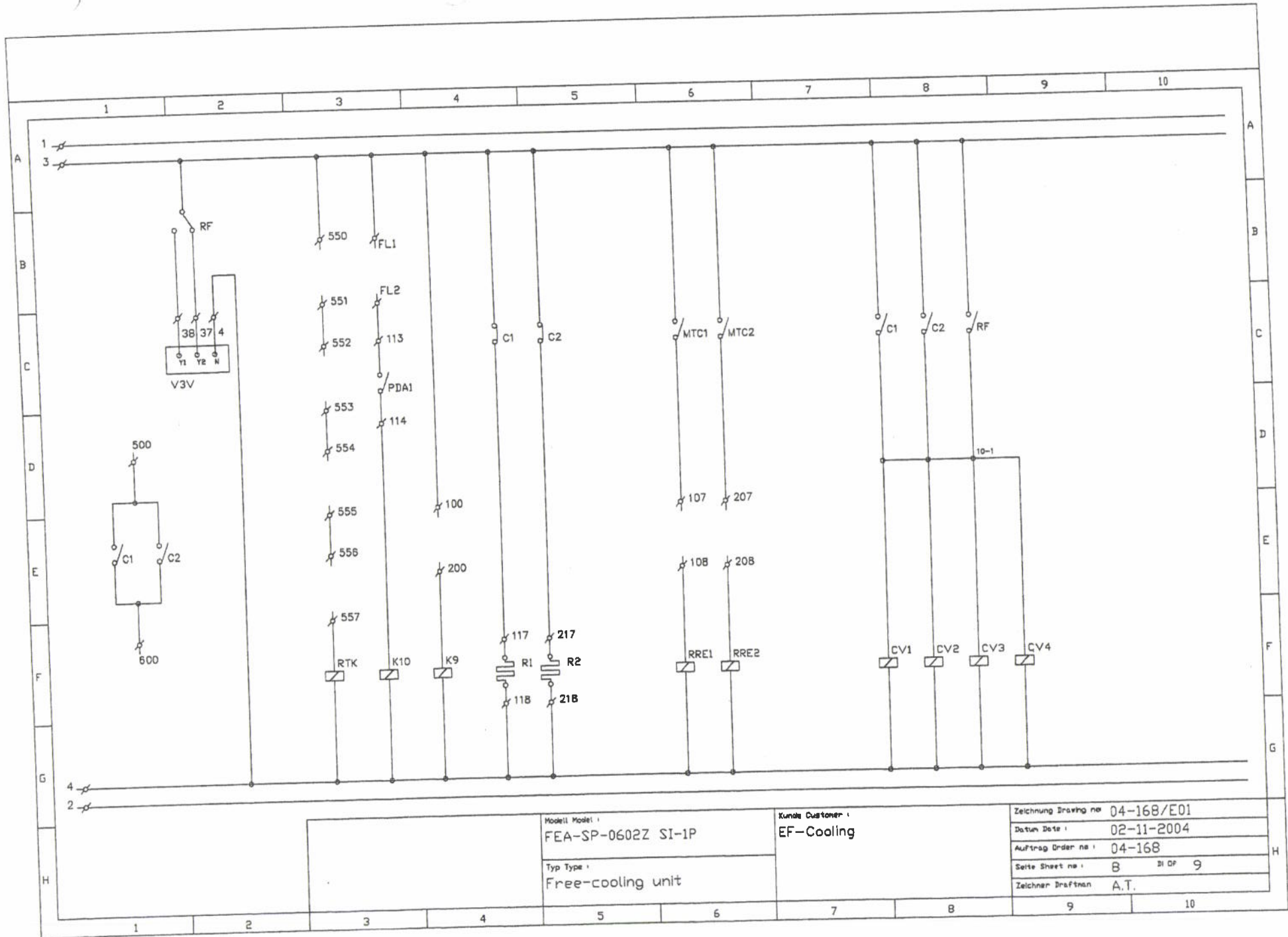


DISTANZA MASSIMA 3mt S90CONN001 MAXIMUM DISTANCE 3m

Modello Model :	FEA-SP-0602Z SI-1P	Kunde Customer :	EF-Cooling	Zeichnung Drawing no :	04-168/E01
Typ Type :	Free-cooling unit			Datum Date :	02-11-2004
				Auftrag Order no :	04-168
				Seite Sheet no :	7 di 09
				Zeichner Drafter :	A.T.

1 2 3 4 5 6 7 8 9 10

A
B
C
D
E
F
G
H



Modell Model :
FEA-SP-0602Z SI-1P

Typ Type :
Free-cooling unit

Kunde Customer :
EF-Cooling

Zeichnung Drawing no : **04-168/E01**

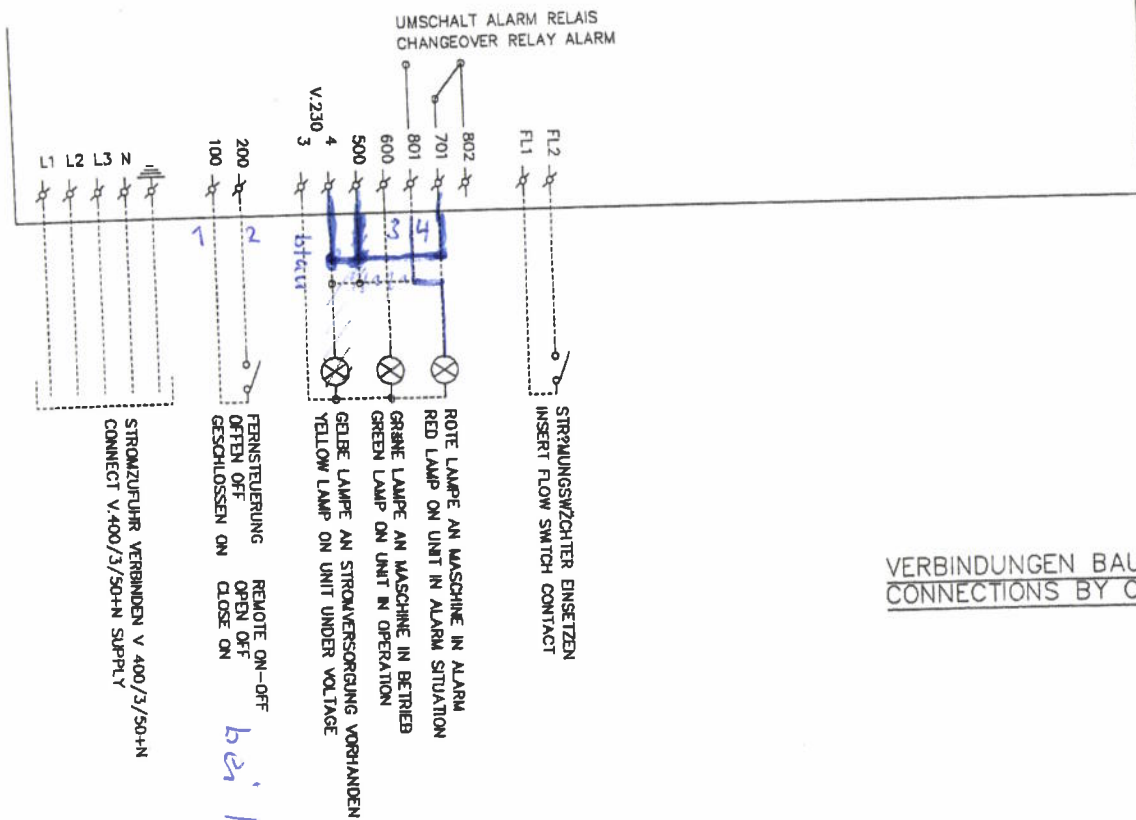
Datum Date : **02-11-2004**

Auftrag Order no : **04-168**

Seite Sheet no : **B** Bl DP **9**

Zeichner Draftern : **A.T.**

KLEMMLEISTE STROMSCHRANK
CONTROL PANEL TERMINAL BOARD



STROMZUFUHR VERBINDEN V 400/3/50+1N
CONNECT V.400/3/50+1N SUPPLY

PERNSTEUERUNG REMOTE ON-OFF
OFFEN OFF OPEN OFF
GESCHLOSSEN ON CLOSE ON

bei Maschine

GELBE LAMPE AN STROMVERSORGUNG VORHANDEN
YELLOW LAMP ON UNIT UNDER VOLTAGE

GRUENE LAMPE AN MASCHINE IN BETRIEB
GREEN LAMP ON UNIT IN OPERATION

ROTE LAMPE AN MASCHINE IN ALARM
RED LAMP ON UNIT IN ALARM SITUATION

STRUMLUNGSWZICHTER EINSETZEN
INSERT FLOW SWITCH CONTACT

VERBINDUNGEN BAUSEITS
CONNECTIONS BY CUSTOMER

Modell Model :
FEA-SP-0602Z SI-1P
Typ Type :
Free-cooling unit

Kunde Customer :
EF-Cooling

Zeichnung Drawing no : 04-168/E01
Datum Date : 02-11-2004
Auftrag Order no : 04-168
Seite Sheet no : 9 of 9
Zeichner Drafter : A.T.

LEGENDE - LIST

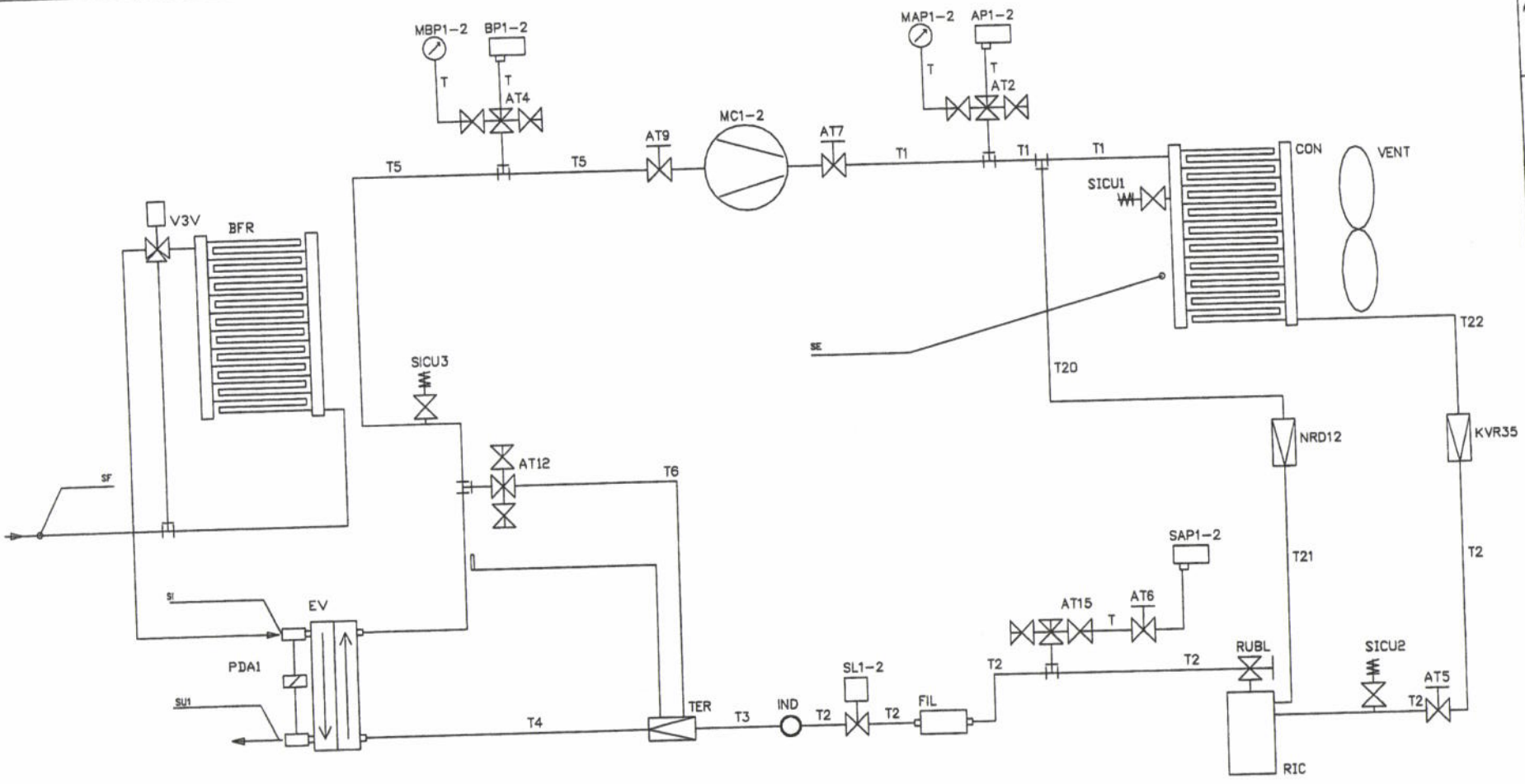
<input checked="" type="checkbox"/> MC1,2	Verdichter Compressor	<input checked="" type="checkbox"/> T	Kapillarrohr Capillary tube	<input checked="" type="checkbox"/> SU1	Sonde Verbraucher Verlaufftemperatur Supply water temperature probe
<input checked="" type="checkbox"/> CON	Verflüssiger Condenser	<input checked="" type="checkbox"/> SF	Sonde Freie Kühlung Freecooling probe	<input checked="" type="checkbox"/> SI	Sonde Verbraucher Rücklaufftemperatur Return water temperature probe
<input checked="" type="checkbox"/> VENT	Ventilator Fan	<input checked="" type="checkbox"/> V3V	Ventil Freie Kühlung Freecooling valve	<input checked="" type="checkbox"/> SE	Sonde Außentemperatur External air temperature probe
<input checked="" type="checkbox"/> RIC	Sammler Liquid receiver	<input checked="" type="checkbox"/> BFR	Regler Freie Kühlung Freecooling coil	<input checked="" type="checkbox"/> SAP1,2	Hochdruckgeber High pressure transducer
<input checked="" type="checkbox"/> FIL	Filter Filter	<input checked="" type="checkbox"/> AT18,19	Verbindung Fitting	<input checked="" type="checkbox"/> AP1,2	Hochdruckwächter High pressure switch
<input checked="" type="checkbox"/> SL1,2	Solenoidventil Flüssigkeit Liquid line solenoid valve			<input checked="" type="checkbox"/> BP1,2	Niederdruckwächter Low pressure switch
<input checked="" type="checkbox"/> IND	Schauglas Sight glass			<input checked="" type="checkbox"/> PDA1	Differentialdruckwächter Water differential pressure switch
<input checked="" type="checkbox"/> TER	Thermostatisches Expansionsventil Thermostatic expansion valve			<input checked="" type="checkbox"/> MAP1,2	Hochdruckmesser High pressure gauge
<input checked="" type="checkbox"/> EV	Verdampfer Evaporator			<input checked="" type="checkbox"/> MBP1,2	Niederdruckmesser Low pressure gauge
<input checked="" type="checkbox"/> AT5,6,7,9,RUBL	Absperrventil Shut-off valve			<input checked="" type="checkbox"/> NRD12-KVR35	Kondensationsdruck Regler Condensing pressure regulator
<input checked="" type="checkbox"/> SICU1,2,3	Sicherheitsventil Safety valve				
<input checked="" type="checkbox"/> AT2,12,4,15	Stutzen Druckmesser Pressure fitting				

Modell Model :
FEA-SP-0602Z SI-1P

Typ Type :
Free-cooling unit

Kunde Customer :
EF-Cooling

Zeichnung Drawing nr : 04-168/F01
Datum Date : 02-11-2004
Auftrag Order no : 04-168
Seite Sheet no : 1 von 2
Zeichner Drafter : A.T.

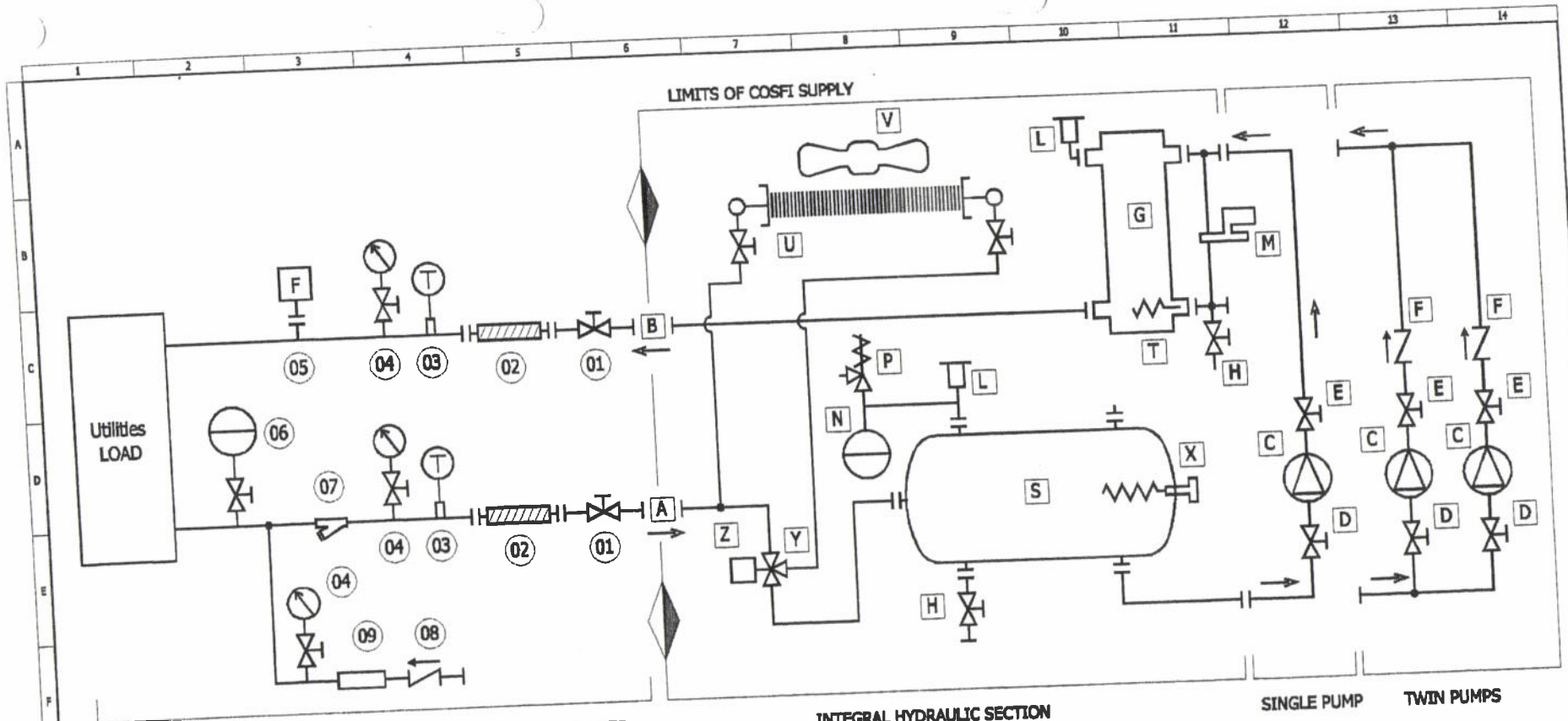


Modell Model :
FEA-SP-0602Z SI-1P

Typ Type :
Free-cooling unit

Kunde Customer :
EF-Cooling

Zeichnung Drawing no : 04-168/F01
 Datum Date : 02-11-2004
 Auftrag Order no : 04-168
 Seite Sheet no : 2 of 2
 Zeichner Drafter : A.T.



SUGGESTED SCHEMATIC DIAGRAM FOR CONNECTION TO UTILITIES

- 01 MANUAL SHUT OFF VALVE
- 02 FLEXIBLE CONNECTIONS
- 03 THERMOMETER
- 04 GAUGE
- 05 FLOW SWITCH (MANDATORY)
- 06 EXPANSION TANK
- 07 STRAINER (MANDATORY)
- 08 CHECK VALVE
- 09 AUTOMATIC CHARGE SYSTEM

- A WATER INLET CONNECTIONS
- B WATER OUTLET CONNECTIONS
- C CIRCULATING PUMP
- D MANUAL SHUT OFF VALVE
- E MANUAL REGULATING VALVE
- F CHECK VALVE
- G HEAT EXCHANGER

- H MANUAL DRAIN VALVE
- L AUTOMATIC AIR VENT
- M WATER DIFFERENTIAL PRESSURE SWITCH
- N EXPANSION TANK
- P SAFETY VALVE
- R REFILLING CONNECTION
- S STORAGE TANK

- T HEAT EXCHANGER ANTIFREEZE HEATER
- X STORAGE TANK HEATER
- U FREE COOLING COIL
- V FAN
- Y THREE WAY VALVE
- Z THREE WAY VALVE ACTUATOR

Pos.	Ref.	Description	Quant.	Note
		Unit type		Free cooling water chiller
		Unit model		FEA / FEC ENERGY SAVING
		Schematic desc:		Hydraulic circuit
				Drawing ID 5340 EN
				Rev. 00
				Date 15-05-2001
				Draft Terenghi

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