



WATER COOLING TANK CWPM 300/600/1200

USE AND MAINTENANCE INSTRUCTIONS FOR WATER COOLING TANK

OUR WATER COOLING TANKS ARE THE RESULT OF LONG YEARS OF RESEARCH COMBINED WITH MORE THAN FIFTY YEARS' EXPERIENCE IN REFRIGERATION.

CATTA 27 s.r.l. WATER COOLING TANKS, THEN, ARE THE BEST MACHINES OF THEIR KIND THE MARKET HAS TO OFFER. TO GET THE BEST RESULTS FROM YOUR TANK, HOWEVER, CAREFULLY READ THE INSTRUCTIONS AND RECOMMENDATIONS GIVEN IN THIS BOOKLET.

MACHINERY WORLD



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WATER COOLING TANKS

FEATURES: Model	300	600	1200	2400
Width	1660	1660	1760	1760
Depth	1350	1350	1590	1590
Height	1020	1020	1800	1800
Total power (Kw)	7.7	11.8	17.6	22,4
Compressor power (Kw)	5.5	8.9	14.7	18,4
Stirrer power (Kw)	0.74	0.74	0.74	0,74
Water consumption (l/hour)(*)	950	1250	2450	2800
Refrigerant	R22	R22	R22	R22
Refrigerant charge (Kg)	9	17	24	20
Cooling plates pump power (Kw)	0.74	1.1	1.1	1,1
Tub pump power (Kw)	0.74	1.1	1.1	2,2
Weight when empty (Kg)	610	630	1150	1250
Weight in running order (Kg)	1060	1080	2150	2250

(*) With water flowing in at +18°C T15



DESCRIPTION OF ITEMS LOCATED ON THE FRONT PANEL

Identification letter	Function
A	Main switch - in position "0": all controls and control board are switched OFF. - in position "1": control board is ON, cooling unit runs and cool water stirrer runs if selector switch H is in START position ("MARCIA") and water temperature is above +3°C; pumps GELIDA 1 and GELIDA 2 run if ageing vat and homogenizer beater controls from the MIXPLANT are on.
B	POWER PILOT LAMP ("PRESENZA RETE"): lights up when the main switch is in position "1" and the control board is on.
C,D,F,G	Red warning lights associated to overload protection of cool water stirrer, cooling compressor, "gelida 1" pump and "gelida 2" pump respectively: each lights up to indicate that the unit associated to it has been switched off due to an overload or wrong power supply voltage value. Reset manually by opening the control board and depressing the button (see I) located on the overload protection.
E	COMPRESSOR pilot lamp ("COMPRESSORE"): when on, indicates that the compressor is on and running.
H	START/STOP selector switch ("MARCIA - ARRESTO"): - in START position ("MARCIA"): the cooling compressor assembly is on and the cool water in the tank is kept at +2° by the associated thermostat; cool water pumps ("gelida 1" and "gelida 2") operating under MIXPLANT controls. The cool water stirrer is on. - STOP position ("ARRESTO"): the cooling compressor assembly is off; cool water pumps ("gelida 1" and "gelida 2") operating under MIXPLANT controls. The cool water stirrer is off.



1) DELIVERY

The machine is delivered in separate packing. For unpacking instructions and precautions, refer to the instruction booklet of the "MIXPLANT", which the water cooler is an integral part of.

If you notice any clear signs of damage, notify the haulage contractor of your complaint immediately.

2) INSTALLATION

Warning! Before installing the machine, make absolutely sure that the structure or floor which the machine is to be placed on is strong enough to bear its full weight in running order.

Check direction of rotation of cool water stirrer (ref. Fig.9-A).

Installation will be carried out by the authorized fitter and under his direct supervision; any structural, foundation or other work necessary prior to installation will be carried out by the customer in accordance with the layout of the system and/or "MIXPLANT" contract specifications, (see "MIXPLANT" instruction booklet, section 2).

Any handling of, or tampering with, the machine or any part or parts thereof without the authorized fitter's permission shall invalidate, with immediate effect, the guarantee covering the machine or the damaged part.

2.1 FOR AIR-COOLED MACHINES

Keep the condenser hot air exhaust grill quite clear and AT LEAST 50 (fifty) cm away from walls, other machines, piping, etc. The hot air must be expelled into the room and be able to circulate freely around the machine.

2.2 MACHINES COOLED BY WELL (OR CITY) WATER

The "CONDENSER IN" tap intercepts also the "RECIRCULATED WATER"; it should be left on when the machine is working.

The "CONDENSER OUT" tap intercepts the cooling water bound for the drain; it should be left on when the machine is working.

2.3 MACHINES COOLED BY WATER FROM THE COOLING TOWER

The "RECIRCULATED WATER" tap intercepts only the water



that is to be recirculated; it should be left on when the machine is working.

The "CONDENSER IN" tap intercepts only the water to be used for cooling the condenser; this circuit must be fitted with a mechanical filter to hold back large impurities. It must be left FULLY ON WHEN THE MACHINE IS WORKING.

The "CONDENSER OUT" tap intercepts the water that is to return to the tower to be cooled. It must be left FULLY ON WHEN THE MACHINE IS WORKING.

2.4 ALL MACHINES

The overflow drain pipe must be conveyed to the factory drainage system.

The tank pipes that lead to and from the use points must be insulated per Lay-out specifications (work to be done at Buyer's expense).

- 2.5 The machine power cable must conform to electrical safety standards and regulations current in the country of installation.

3) OPERATION - ADJUSTMENT

The machine is fully automatic. To start, open the lid (Fig.2-C), make sure the tank is completely full and switch on the power supply by turning the main switch knob (Fig.1-A) to position 1.

The "POWER" pilot lamp (Fig.1-B) will light up.

3.1 MODEL CWPM 1200 ONLY

The cooling compressor has an oil heating cartridge in its casing. After turning on the power supply, wait about two (2) hours before starting up to allow the lube oil to reach working temperature.

The heating element may be left on indefinitely, even when the machine is not running, without causing any damage.

STARTING THE COMPRESSOR SEVERAL TIMES IN SUCCESSION WHILE THE OIL IS STILL COLD (IN SUCH A WAY AS TO TRIGGER OFF THE LUBRICATION PRESSURE SWITCH) MAY SERIOUSLY DAMAGE THE MAIN AND BIG-END BEARINGS.



3.2 STARTING UP

You may now turn the selector switch (Fig.1-H) to "START" ("MARCIA") position so as to start up the compressor and the tank stirrer.

- 3.3 Wait about an hour (or better still, wait for the cooling unit to stop) before using the cool water produced. The user need not make any adjustments since the machine is factory set to keep water at a temperature of approx $+1^{\circ}/+2^{\circ}\text{C}$.

The machine should be left on for as long as cool water is required to cool down the ageing vats or mix tubs through the cooling plates connected to it.

Get into the habit of keeping the lid (Fig.2-C) closed at all times as this saves energy and avoids the risk of foreign matter or other objects falling into the tank.

4) MAINTENANCE

BEFORE CLEANING, LUBRICATING OR CARRYING OUT ANY OTHER MAINTENANCE OPERATION, TURN THE MACHINE OFF AND DISCONNECT THE POWER SUPPLY.

- 4.1 The machine is extremely uncomplicated and strong and does not require any special maintenance.

Periodically change the water in the tank, as follows:

- a) Turn off the "RECIRCULATED WATER" tap and set the selector switch (Fig.1-H) to "STOP" ("ARRESTO").
- b) Turn on the "TANK DRAINOFF" tap ("SVUOTAMENTO VASCA") and allow all the water out of the tank. Turn the tap off again.
- c) Turn the "RECIRCULATED WATER" tap on again and wait for the tank to fill up once more before starting the machine up again by turning the selector switch (Fig.1-H) to "START" ("MARCIA").

- 4.2 Periodically clean the condensers (whether air- or water-condensers) to keep the cooling unit working at optimum efficiency. Though this is not a particularly complicated operation, it is best and most safely done by an experienced maintenance man using the appropriate tools and products which, if incorrectly handled, may cause serious damage to the machine.



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CATTA 27 s.r.l. CANNOT BE RESPONSIBLE FOR DAMAGE TO PERSONS OR THINGS WHICH MAY OCCUR DURING THE INSTALLATION, USE AND MAINTENANCE OF THEIR MACHINES.

THE TECHNICAL DETAILS AND DRAWINGS IN THIS BOOKLET ARE PURELY INFORMATIVE AND INTENDED TO SERVE AS A GUIDELINE ONLY.

CATTA 27 s.r.l. RESERVE THE RIGHT TO MODIFY THEIR PRODUCTS AT ANY TIME AND IN ANY WAY DEEMED NECESSARY WITHOUT THEREBY CAUSING DAMAGE TO ANYONE.



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HOW TO ORDER SPARE PARTS

To avoid mistakes and misunderstandings, always give the following details when ordering spares:

- a) - Machine serial number
- b) - Number of photo in which part is illustrated and reference letter, if any.

EXAMPLE: To order 1 Pressure Switch, the order should be made out as follows:

For Water Cooling Tank 300 Serial No. _____

Ref. H Photo 3

THE ABOVE DETAILS ARE ABSOLUTELY NECESSARY TO IDENTIFY THE PARTS CORRECTLY



Trouble	Cause	Remedy
The compressor won't start	- no power	- make sure that main switch on control board is ON
		- check power supply line to control board
	- operation of overload relay	- check for cause (low voltage, low water level, etc), remove and reset
	- operation of high pressure switch	- check for cause (no water, condenser clogged or dirty, etc.), remove and reset
Compressor starts but stops after a few seconds	- tank thermostat failure	- replace thermostat *
	- operation of lubrication pressure switch	- oil cold: wait two hours after turning on control board before starting up again
		- heating element burnt: replace it (CWPM 1200) *
		- compressor unit lubrication pump faulty - replace it (CWPM 1200) *
	- gas solenoid valve won't open	- check that solenoid is in good shape: if necessary, replace (CWPM 1200) *
	- refrigerant tank taps off	- turn on *
Compressor noisier than usual	- high condensation pressure	- make sure the condenser (air version) is clean or that air flow is not obstructed by nearby furniture, walls, etc: clean and remove obstruction as necessary *



Trouble	Cause	Remedy
		- make sure that condenser tubes (city/tower water version) are clean and free of scaling; make sure cylinder head gaskets are correctly fitted; clean mechanically or with chemicals and replace gaskets * - make sure that water pressure valve (city water version) is correctly set: bleed valve and adjust as necessary * - gas filter clogged: replace *
Compressor runs but tank has no cooling effect	- compressor delivery valves broken	- CWPM 1200 version: remove compressor cylinder heads and replace the valves * - CWPM 300/600: replace the compressor *
	- no gas in the system	- check for leaks and fill up with gas again *
Tank cooling efficiency low	- stirrer off	- check for causes and start the stirrer up again
Cooling power at use-points low or nil	- pump suction tap partially or totally off - cool water to use-point delivery tap partially or totally off	- turn on fully - turn on fully
	- pump suction filter dirty	- remove, clean and put back

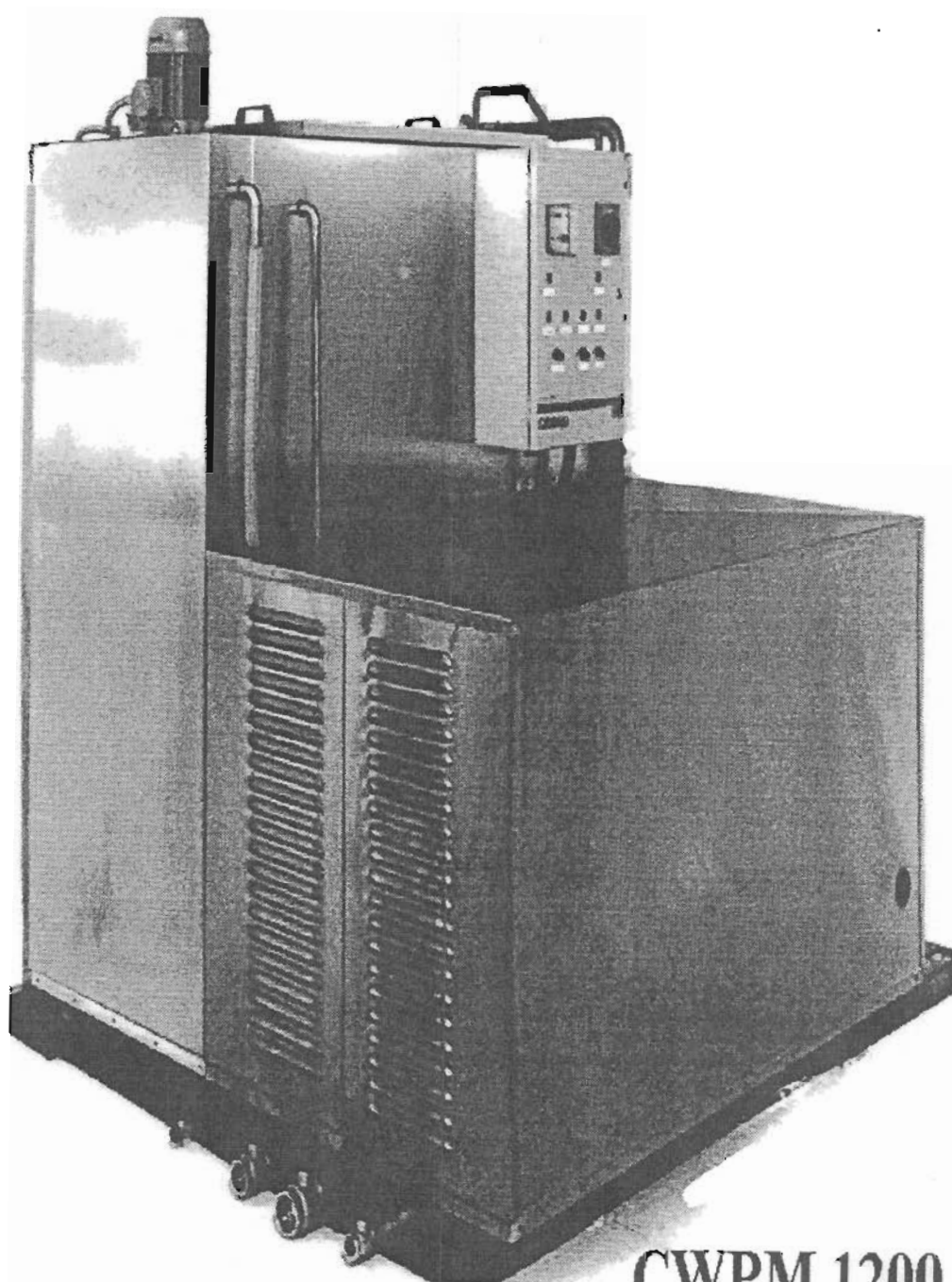


Trouble	Cause	Remedy
	- water in tank too hot	- check thermostat and, if necessary, replace - cooling requirement too high: check and reduce (e.g. mix poured in tank hot) - Cool water leaks from overflow, fittings or broken pipe and continuous recirculation of water at high temperature; locate and repair leaks; replace float, if necessary - pipe fittings without insulation: insulate the pipe fittings * - connecting hose pinched or squashed: set right - cooling system has too too little gas in it and performing poorly: check for leaks and repair
Thermostat stuck or badly adjusted		- check correct operating pressure and re-set or, if necessary, replace thermostat
Cool water recirculation pumps not working	- cooling plate and vat assembly off - operation of overload relays	- start up the system; read over the instruction booklet - locate cause of problem, reset and make sure that ALL the overload relays have not been triggered off

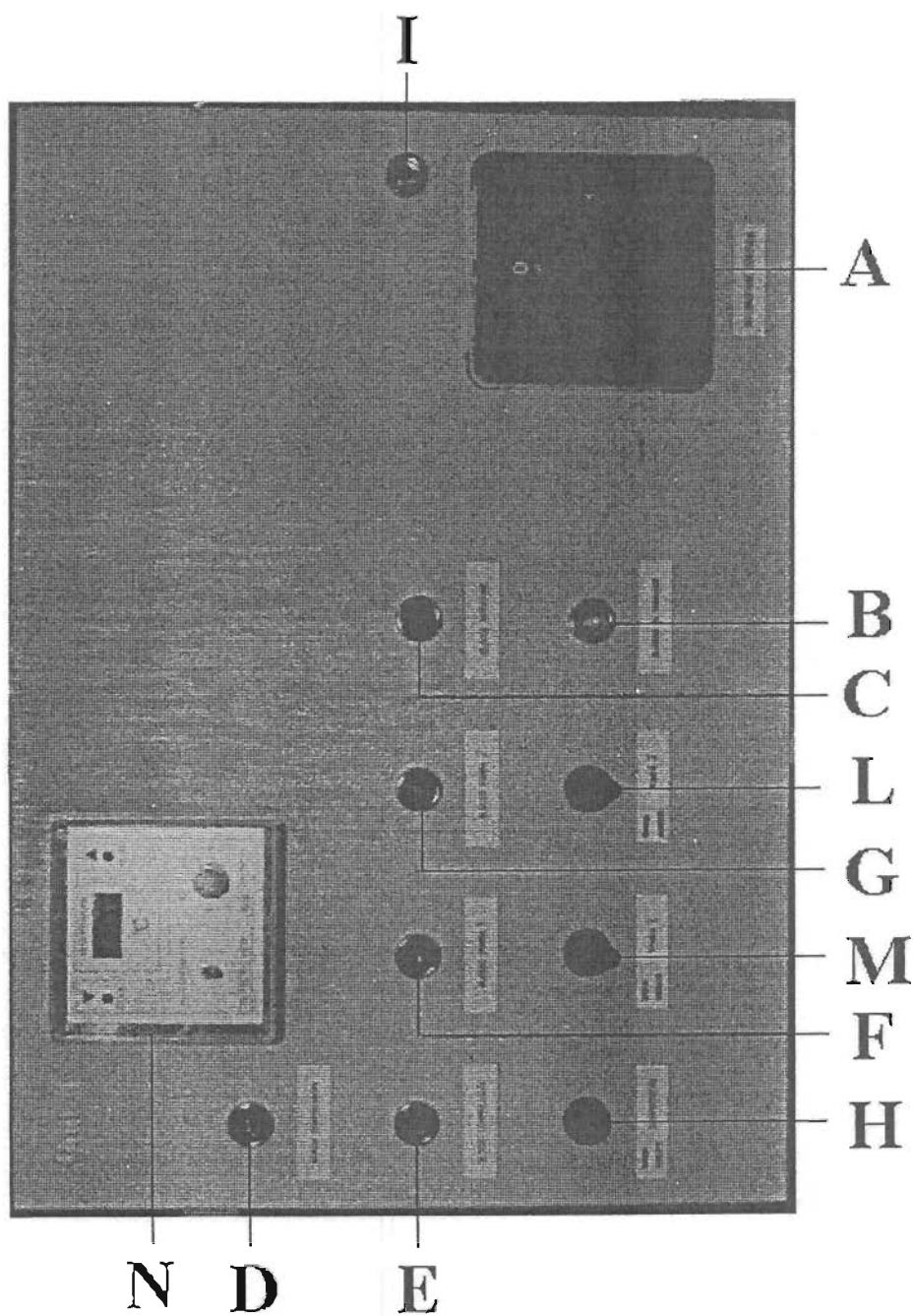


Trouble	Cause	Remedy
Water level in tank gets lower and lower	- float stuck	- lift tank lid, remove the float, put back or, if necessary, replace
	- Pump packing broken	- remove and replace

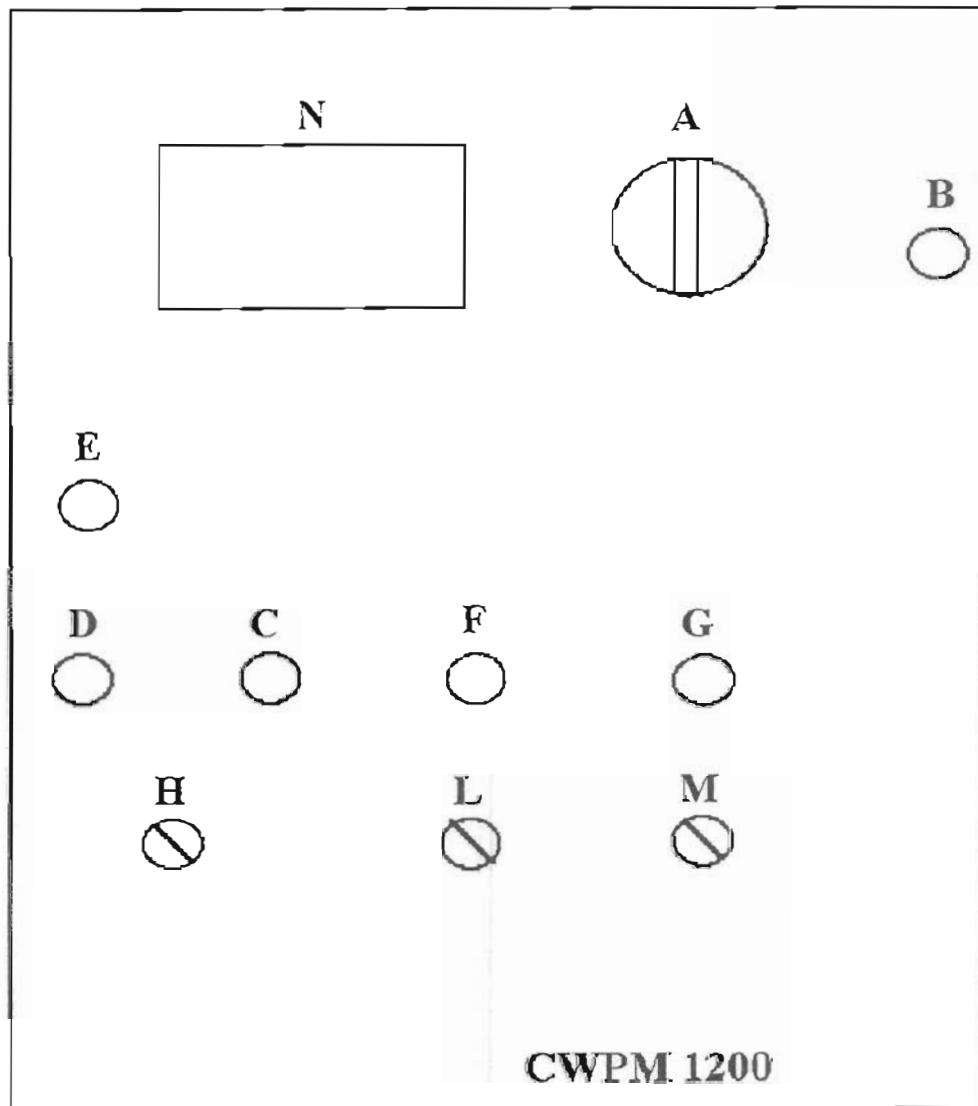
* Call technician

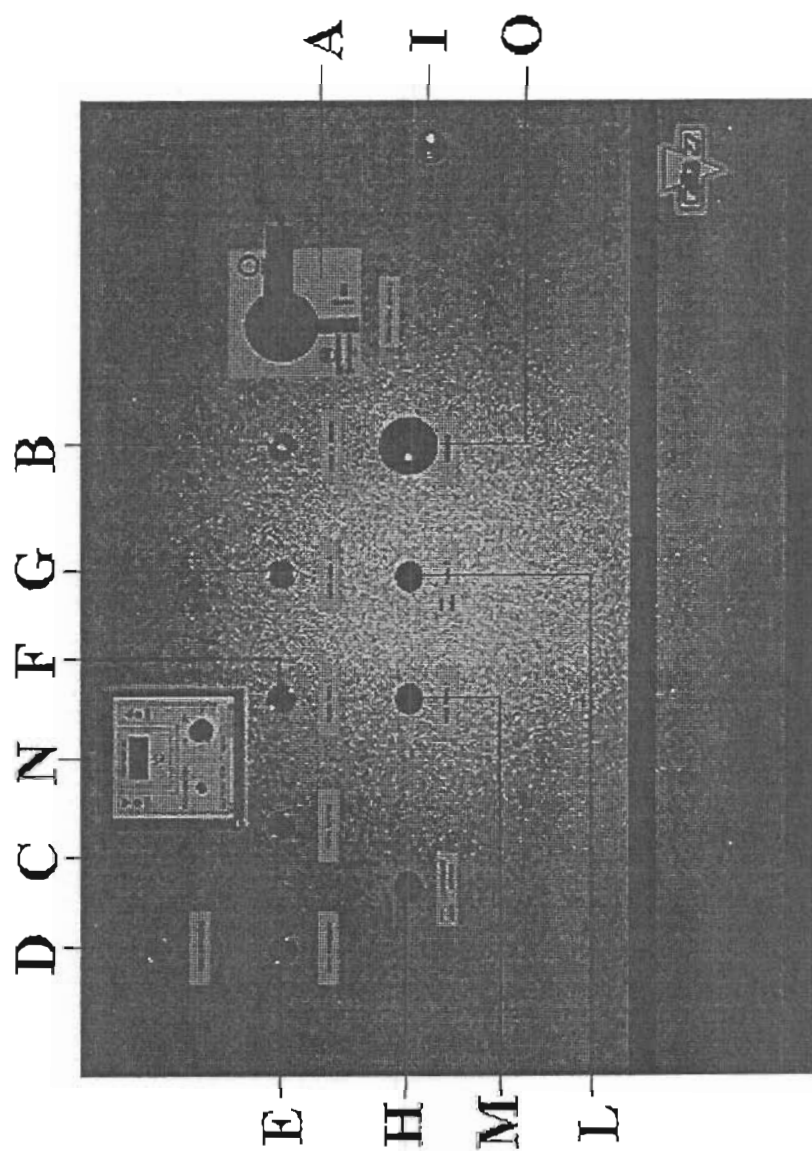


CWPM 1200



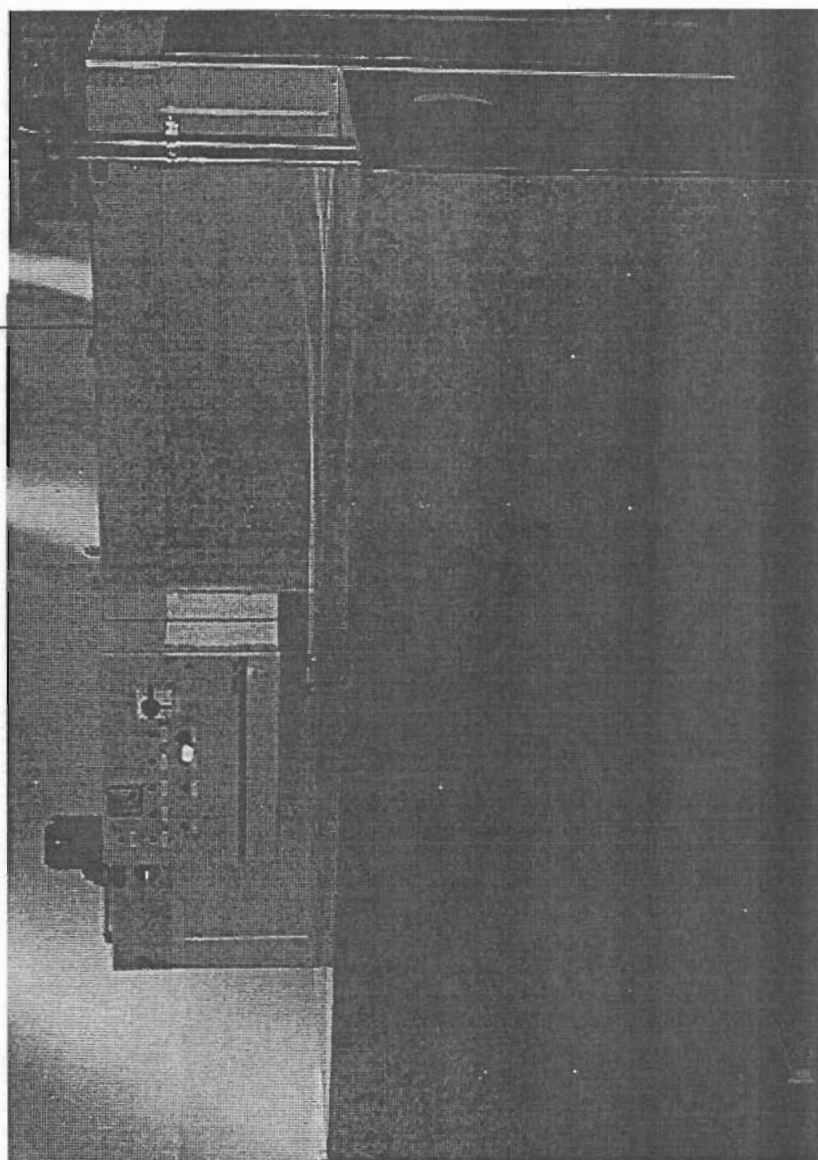
CWPM 300 - 600

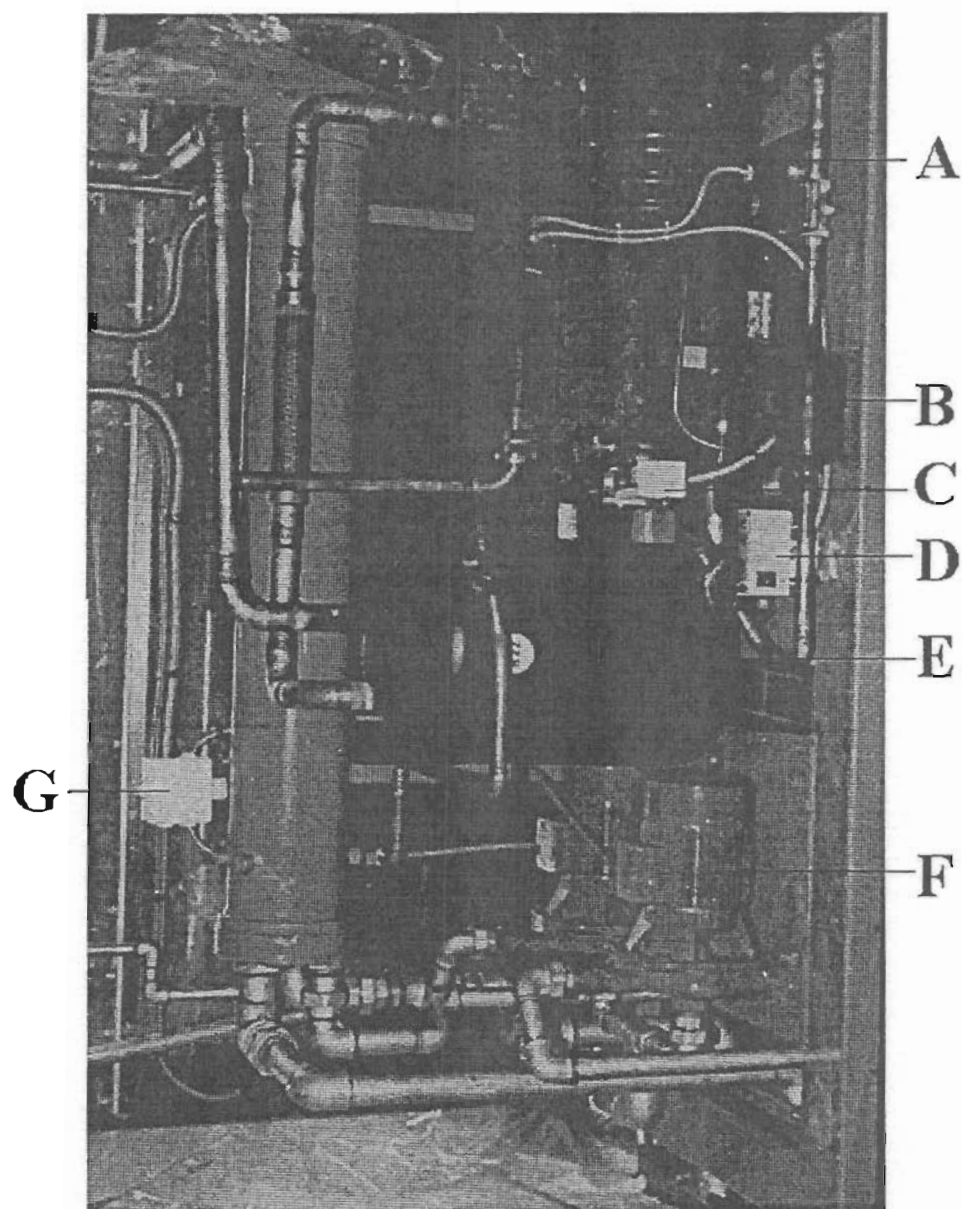




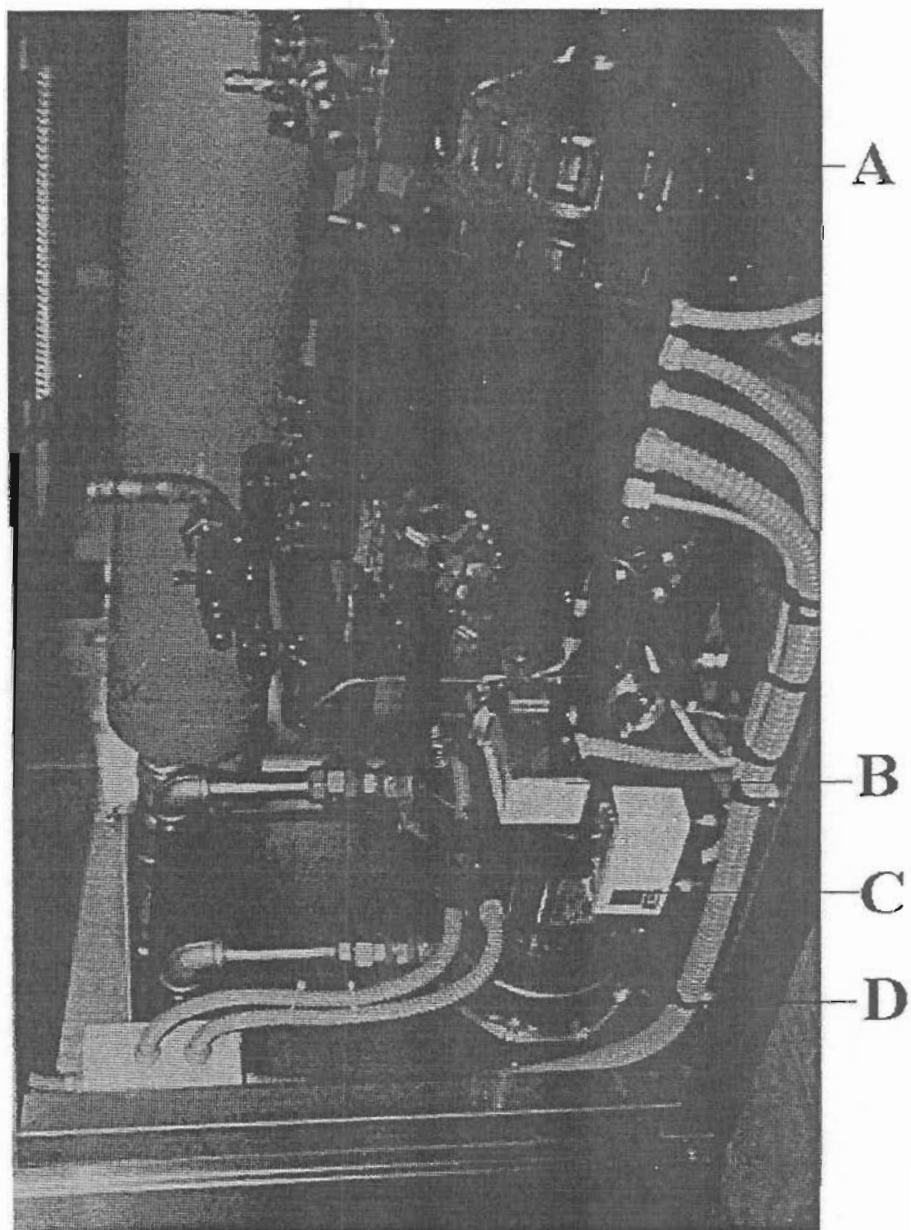
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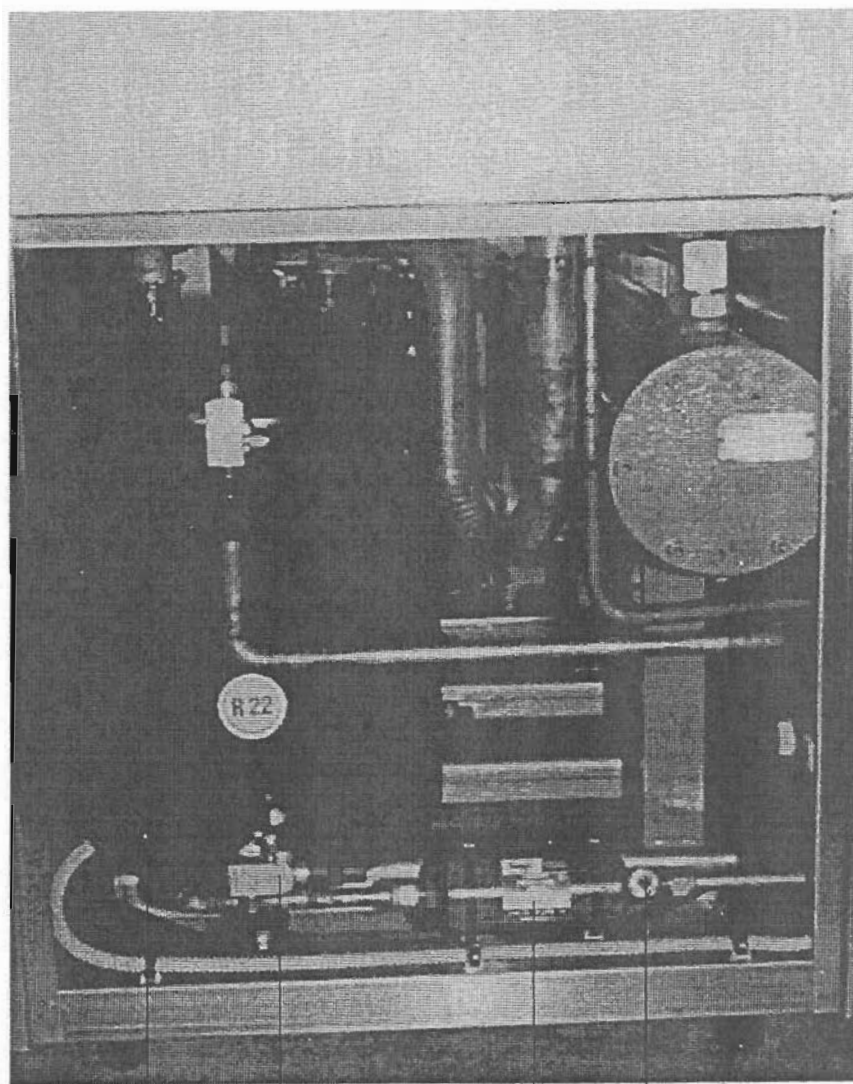
A



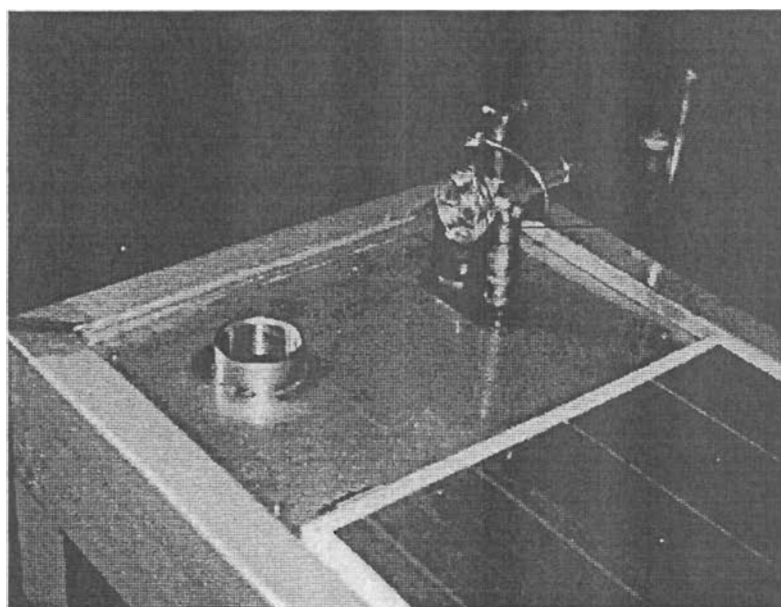


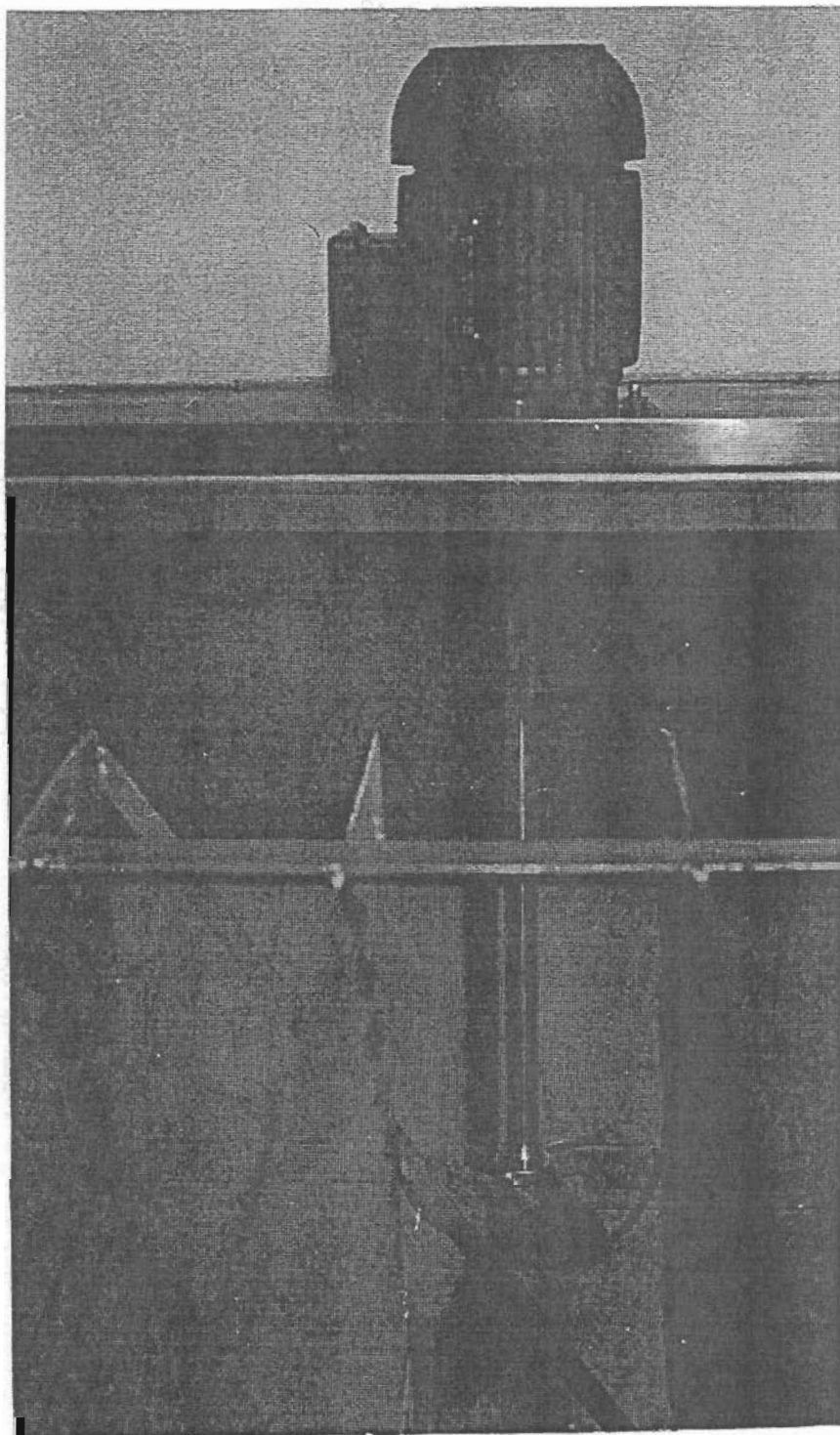
CWPM 300 / 600



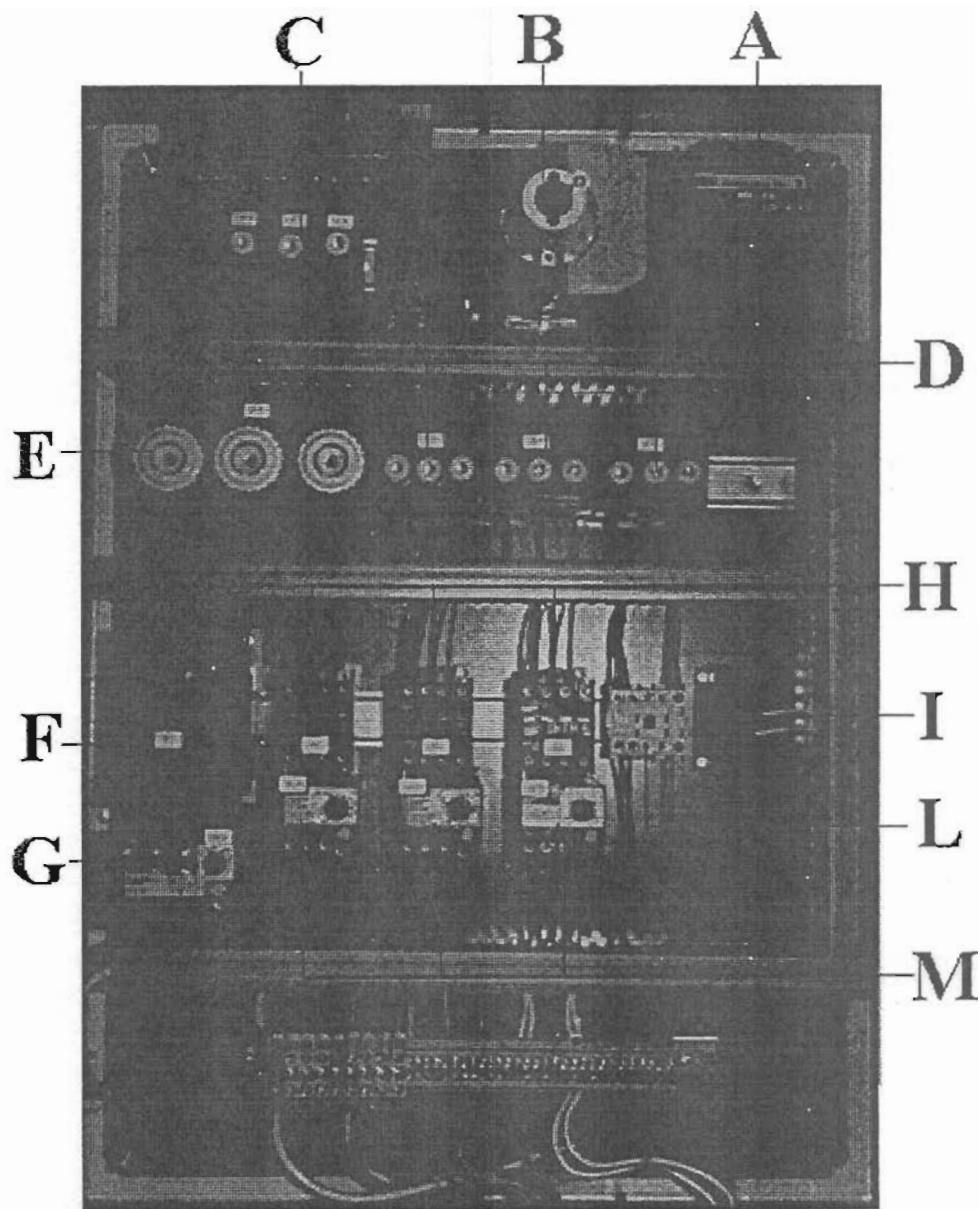


D C B A

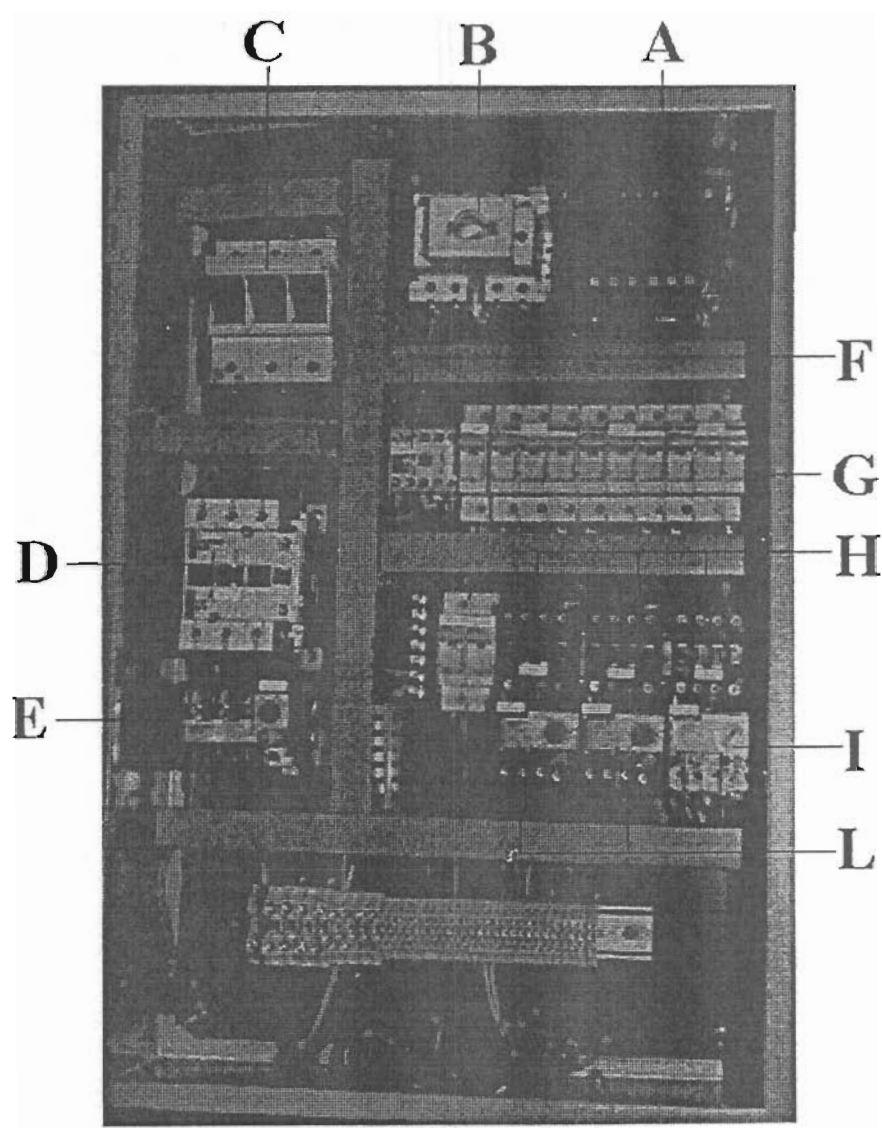




—A

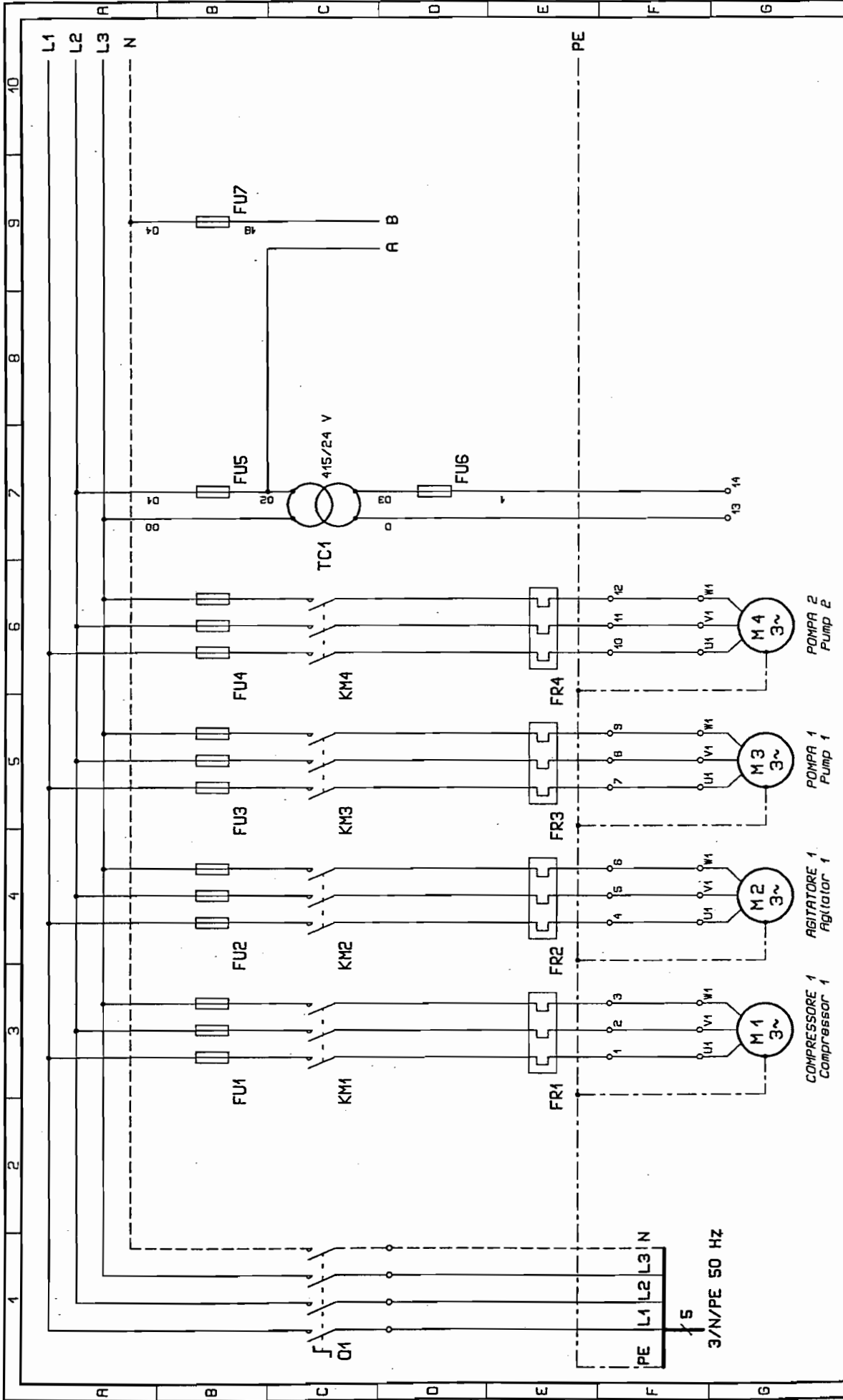


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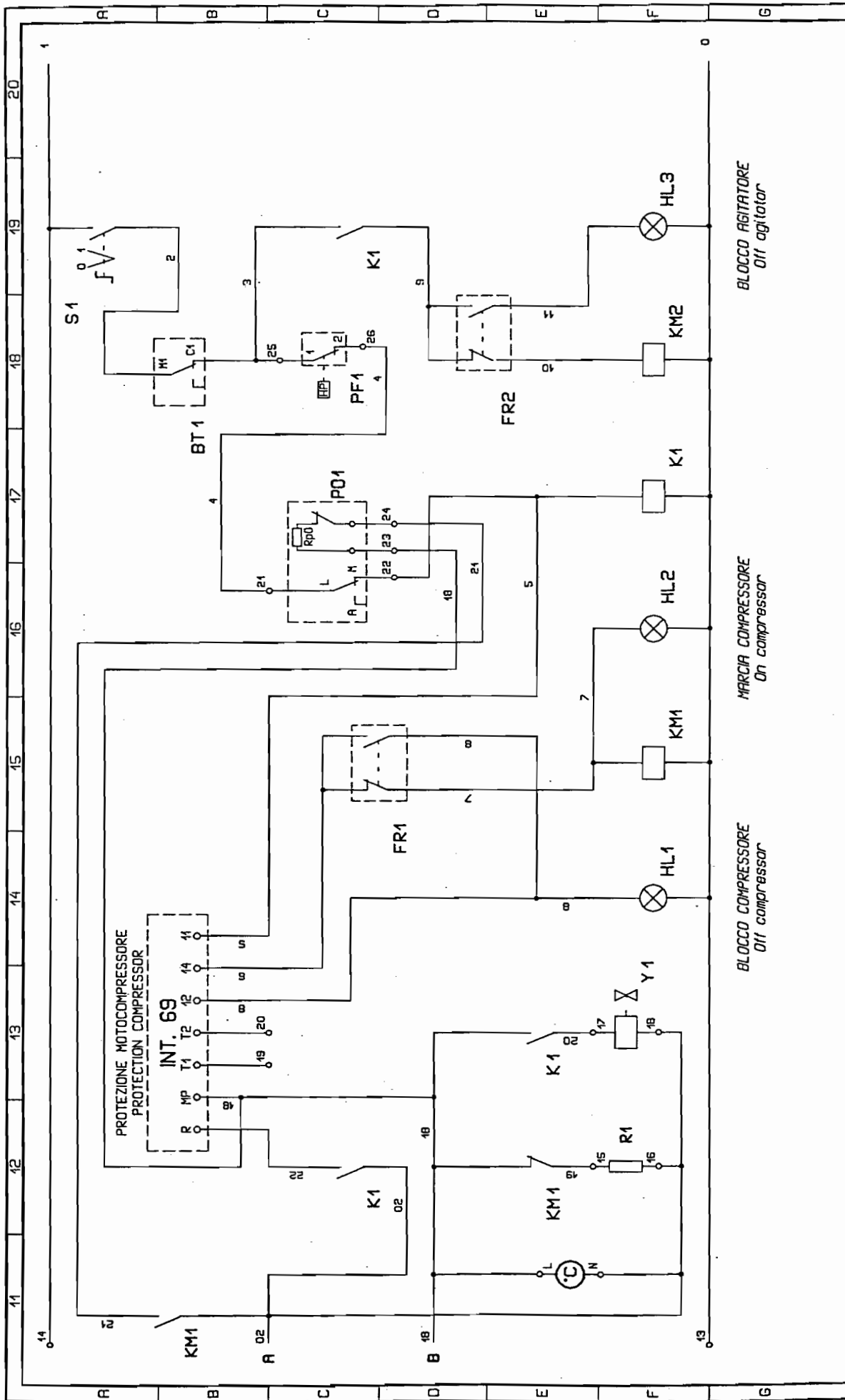


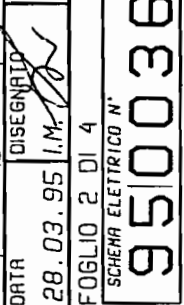
CWPM 1200

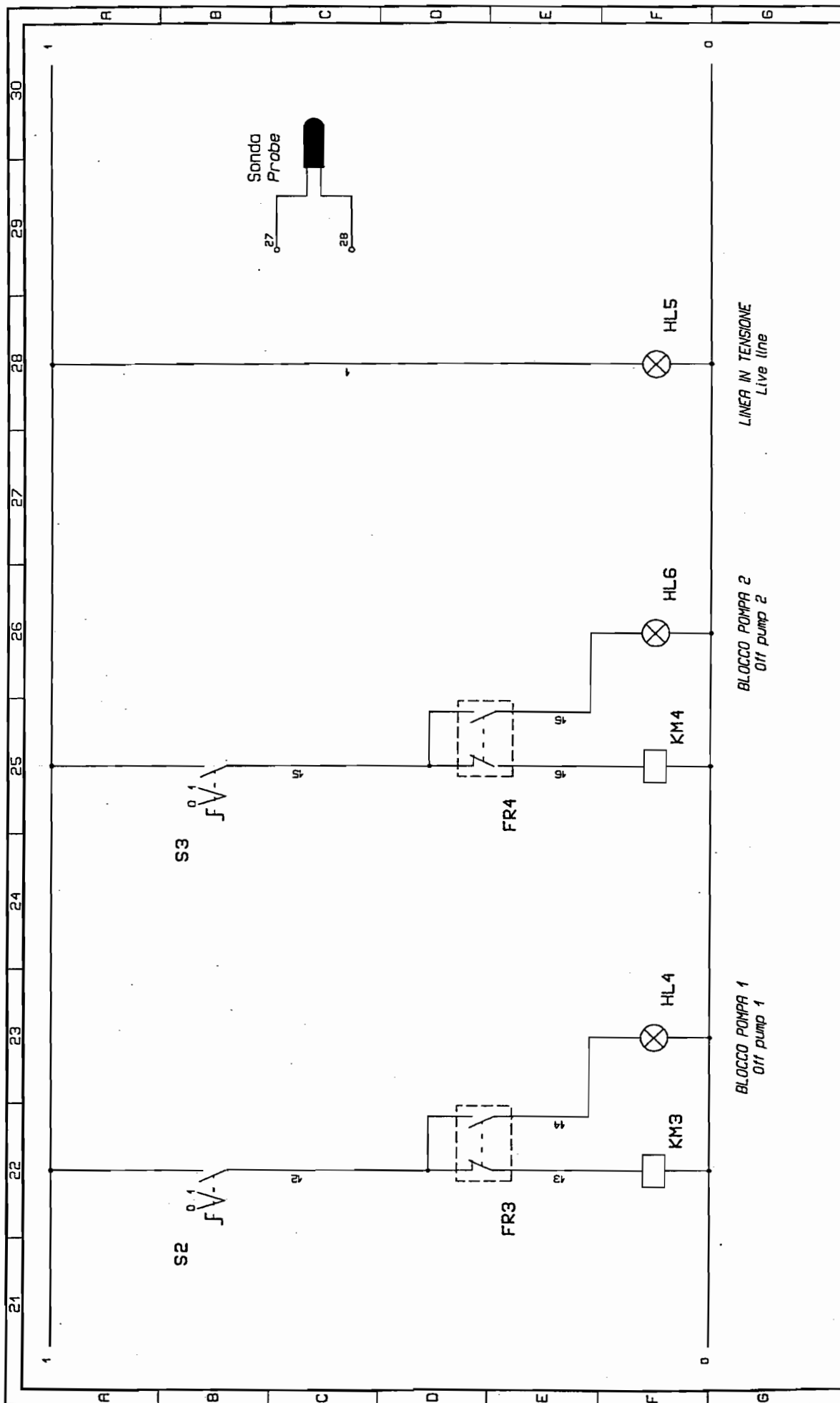




DESCRIZIONE	DATA	28.03.95	DISegnato	I.M.	CONTROLLATO	[Signature]
	Foglio 1 di 4					
	SCHEMA ELETTRICO N°					
REFRIGERATORE C 1200 M CIRCUITO ELETTRICO Chiller C 1200 M Electric circuit						
						
95003601						



DESCRIZIONE		REFRIGERATORE C 1200 W CIRCUITO ELETTRICO Chiller C 1200 W Electric circuit	FOGLIO 2 DI 4 SCHEMA ELETTRICO N°	DATA 28.03.95 I.M.	DISegnato CONTROLLATO	950036102		
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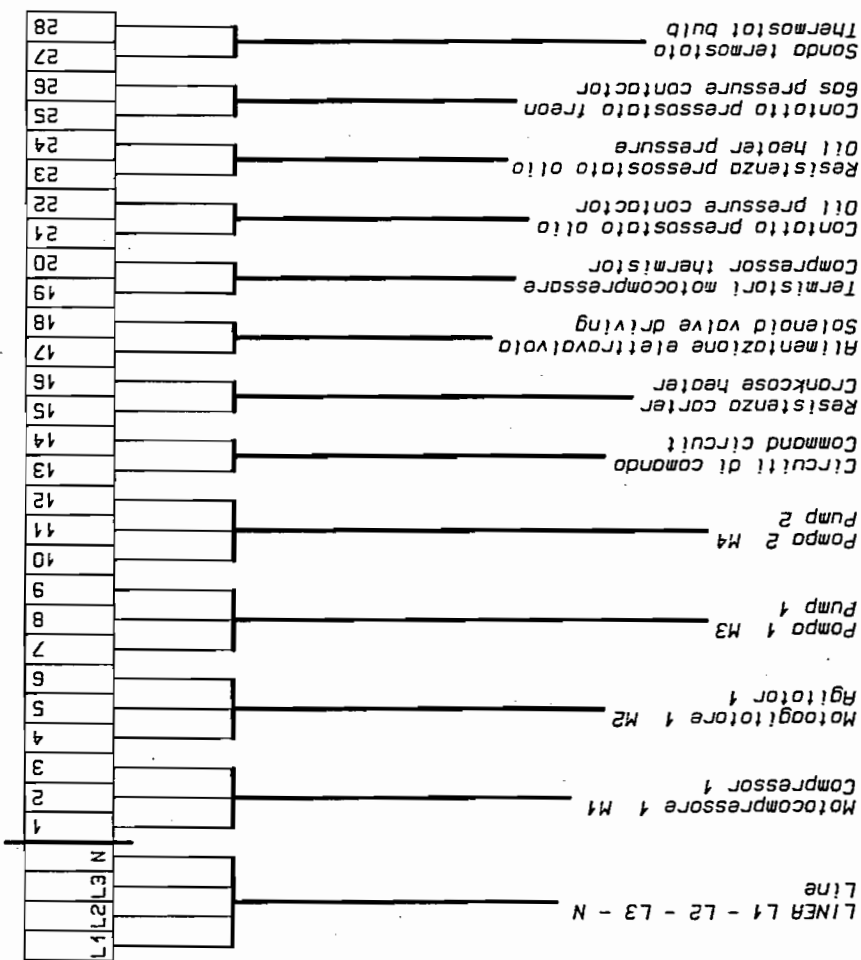
		DESCRIZIONE		REFRIGERATORE C 1200 M CIRCUITO ELETTRICO Chiller C 1200 M Electric circuit	
		DATA	DISegnato	CONtrollato	
		28.03.95	I.M.		
		FOGLIO 3 DI 4		SCHEMA ELETTRICO N°	
		95003603			

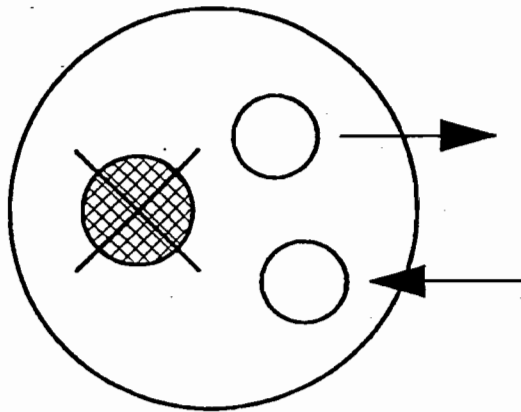


DESCRIZIONE

REFRIGERATORE C 1200 M
CIRCUITO ELETTRICO
Chiller C 1200 M
Electric circuit

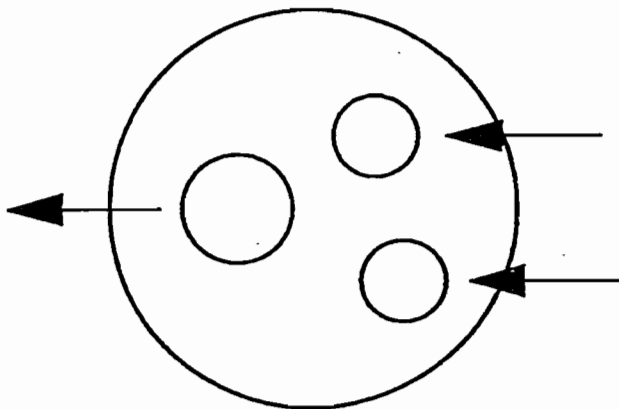
DATA	DISEGNO	CONTROLLATO
28.03.95	I.M.	
FOGLIO 4 DI 4		
SCHEMA ELETTRICO N°		
95003604		





Schema A

Acqua di pozzo
City water



Schema B

Acqua di torre
Cooling tower

Commesso		Cliente		q.to	inizio	fine
REV.	4		8			
	3		7			
	2		6			
	1		5			
Sostituisce Disegno 920419/1		descrizione				
Sostituito da Disegno		COLLEGAMENTO ACQUA CONDENS. CFC-CFL Water connection CFC-CFL condenser				
		 		scalo 1 : 1		CODICE
		data 10.03.95	disegnato I.M.	controllato [signature]	DISEGNO N° 49502770	REV. 0

INSTALLATION

How to connect the sensors

Connect the sensors provided as shown in the diagram. For remote connections use a standard 1.5-square millimetre two-pole wire, taking great care over the connections, by insulating and sealing the joins carefully.

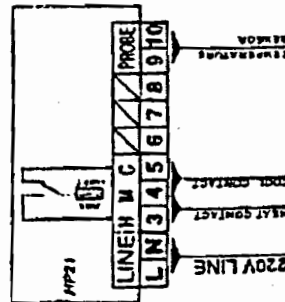
How to connect the line

Connect 220V line on terminals L-N. HP modules are overvoltage self protected (PTC on transformer's primary winding). If protection is intervened is necessary to power down the module for at least 1 minute.

How to connect the contacts

Connect terminals 3-4-5 on the terminal block (contacts up to 4AMP AC1) to the loads as shown in the diagram.

This system has been designed and built to reduce electrical disturbances as far as possible. However, for better protection apply RC-type filters - e.g. our model MCF1 - in parallel to the inductive loads (contactor coils, etc.) controlled by the module relays.



NOTES: no.1, no.2 contacts are N.O. (normally open) max. 4AMP AC1.

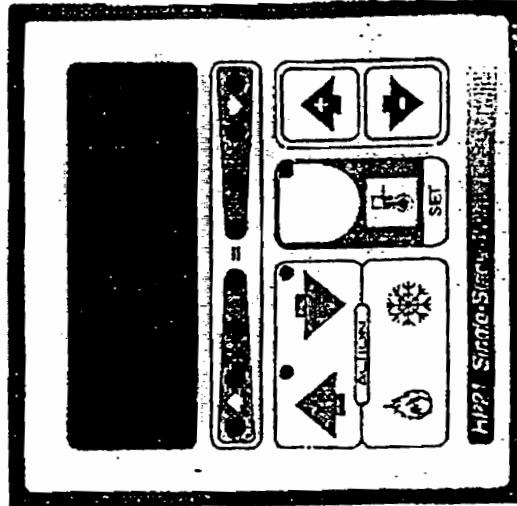
Ref.0.0-930929

As it is company policy to continuously improve the products the manufacturer reserves the right to make any modifications thereto without prior notice. They cannot be held liable for any damage due to malfunctions.

HP21

SL 0:0

Single-Stage



HANDBOOK

MAIN SETTINGS (Run Mode)

These settings are only concerning the user and are made during the run mode as follows.

SET 1 TEMPERATURE SETTING.

Press SET (key lamp flashes):

This message will be displayed instead of the 'Set 1 temperature value'.

Press + or - to modify. Press SET to confirm.

15.5

COSI PROGRAMMING (System constants)

These settings refer to the mode of operation of the system and must be made on initial start-up.

Press + / - together for at least one second.

the message [C.O.S.I.] will be displayed.

Press then repeatedly SET until interested variable's message is displayed (see table below): variable value and related message will be displayed.

Press + or - to set a new value and then SET to confirm.

The next system constant will then appear.

You can press SET for at least two second to escape and return to the Run Mode.

Mess.	Value	Meaning	Note
dIFF	0.2	differential	*1)
RELA	0.0	setting shift referring to I.SET	*1)
LoN	0	On Out minimum time in seconds	*2)
LoF	0	Off Out minimum time in seconds	*2)
IErP	=1	Temperature reiteration	*3)
Ad.TE	0.0	C input temperature sensor correction (+ or -)	*4)

*1) For more details see Operating Diagrams.

*2) These Sets permit to determinate both On and Off minimum actioning time.

*3) IErP = 0: °C Temperature range.

IErP = 1: °F Temperature range.

*4) You can correct the readings on the various sensors (+ or -).

PRESET PROGRAMS



This processor is ready programmed with the following (variable) settings. To return to these settings at any time:

Power off the processor, press SET key and keep it pressed giving power on [5sec] message will be displayed (release now SET key).

LSB=25.0°

The COSI values are shown in COSI paragraphs.

PROBE'S OPERATION DIAGNOSTIC

[O.C.] is displayed when the temperature sensor wiring is open;

[S.G.] is displayed when the temperature sensor wiring is short circuit.

STATE INDICATION LAMPS

The lights situated at the bottom of the display show the state of the various relays as set out below.

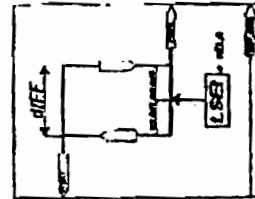


HEAT ON

COOL ON



OPERATING DIAGRAM





INSTRUCTIONS

EVR, Normally Closed (NC)
EVR, Normally Open (NO)



U3264500

R 12, R 22, R 502

EVR 15 (NC) **EVR 15, 20 (NC)**

EVR 2, 3, 6 (NC) **EVR 6, 10, 15 (NO)** **EVR 15, 20 (NC)**

12 W a.c. ~
20 W d.c. ~

9 W a.c. EVR 2 **14 Z** $t_{max} 40^{\circ}C (105^{\circ}F)$

10/12 W a.c. **18 Z** $t_{max} 80^{\circ}C (175^{\circ}F)$

20 W d.c. **18 Z** $t_{max} 50^{\circ}C (120^{\circ}F)$

10 W a.c. **18 Z** $t_{max} 55^{\circ}C (130^{\circ}F)$

EVR (NO) $t_{min} -40^{\circ}C (-40^{\circ}F)$

Min. medium temperature: $-40^{\circ}C (-40^{\circ}F)$
 Max. medium temperature: $120^{\circ}C (250^{\circ}F)$
 Max. working pressure: **PB 35 bar/MWP 500 psig**
 Max. opening diff. pressure (MOPD): $46 \text{ bar eff. (650 psig)}$
 P test max.:

EVR (NC) **EVR (NO)** **EVR (NC)**

Code no.
V-10/15 (a.c.)
W
H₂

Nm | kpm | ft-lbs
1,4 | 0,15 | 1

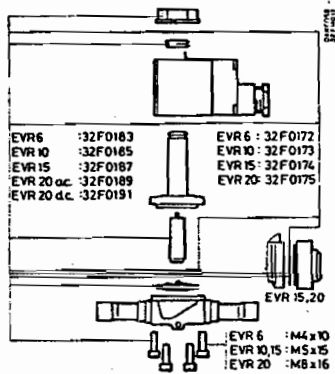
Max 700°C (1300°F) **Max 150°C (300°F)**

32F0180 **32F0170**

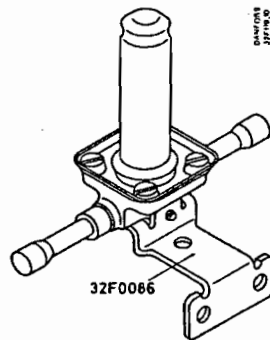
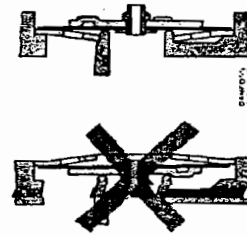
EVR 2 (NC)

32F0181 **32F0171**

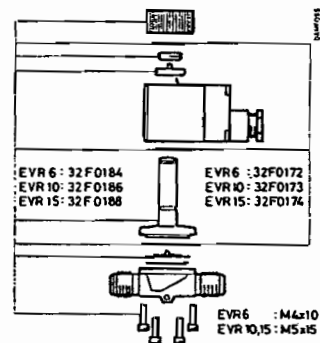
EVR 3 (NC)



EVR 6, 10, 15, 20 (NC)

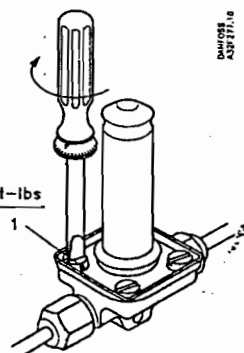


EVR 2, 3, 6, 10



EVR 6, 10, 15 (NO)

EVR	Nm	kpm	ft-lbs
2-3	1,4	0,15	1



Danfoss

INSTRUCTIONS

KP 15, 15A, 17W, 17B



060R9753

KP 15, 17W, 17B: R 12, R 22, R 500, R 502
KP 15A: R 717 (NH₃)

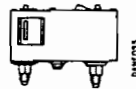
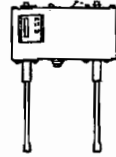
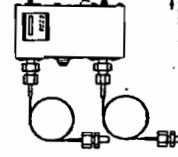


Fig. 1

KP 15, 17



KP 15, 17



KP 15A

060R9753

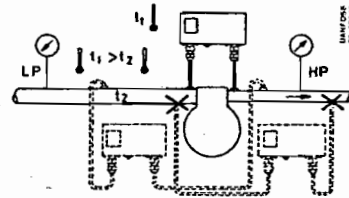


Fig. 2

t_1 min. KP 15: -40°C (-40°F)
 KP 17: -25°C (-13°F)
 t_1 max.: 65°C (150°F)

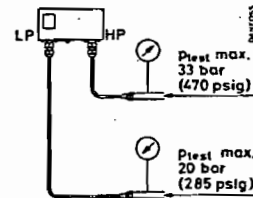


Fig. 3

Piest max.
 33 bar
 (470 psig)
 Piest max.
 20 bar
 (285 psig)

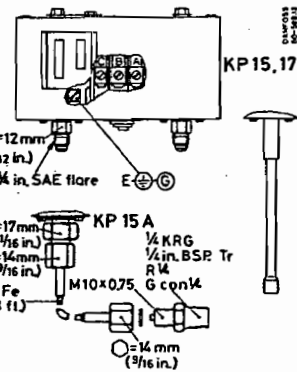


Fig. 4

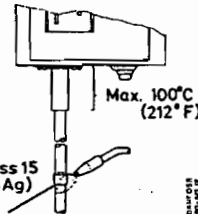


Fig. 5

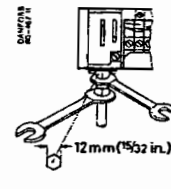


Fig. 6

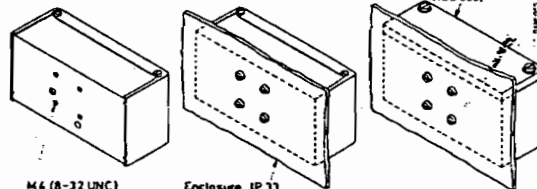


Fig. 7

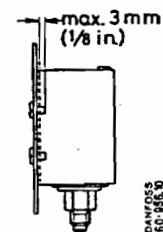


Fig. 8

1-1991

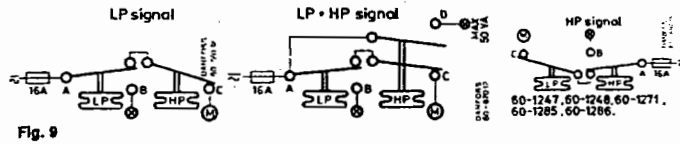


Fig. 9

LR 112A	AC1 16 A	DC 11
	AC3 16 A	12 W
	AC11 10 A	220 V~

Fig. 10

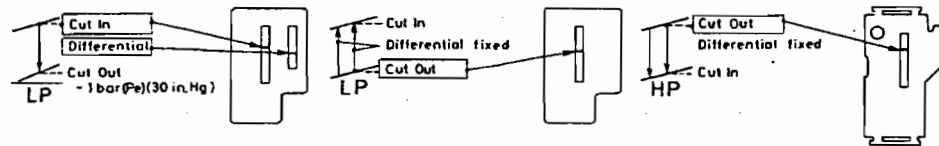


Fig. 11 LP KP 15, 15A, 17W, 17B

LP KP 15, 15A

HP KP 15, 15A, 17W

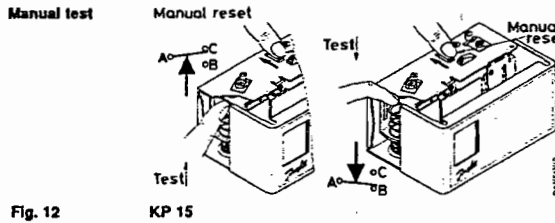


Fig. 12

KP 15

KP 15, 17W

Konvertibel reset / Convertible reset / Austauschbares Reset / Réarmement convertible
KP 15 60-1154, 60-1220, 60-1261, 60-1262, 60-1263, 60-1283

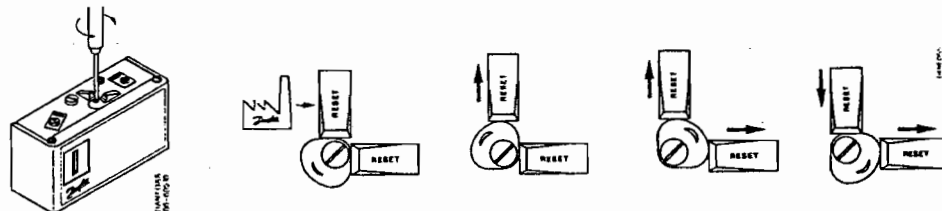


Fig. 13

LP-man.
HP-man.

LP-auto.
HP-man.

LP-auto.
HP-auto.

LP-man.
HP-auto.

Type	Range	PB	MWP
KP 15	LP: -0.2 → 7,5 bar HP: 8 → 28 bar	17 bar 30 bar	250 psi 435 psi
KP 15	LP: -0.9 → 7 bar HP: 8 → 28 bar	17 bar 30 bar	250 psi 435 psi
Reset			
KP 17	LP: -0.2 → 7,5 bar HP: 8 → 28 bar	17 bar 30 bar	250 psi 435 psi

Fig. 14

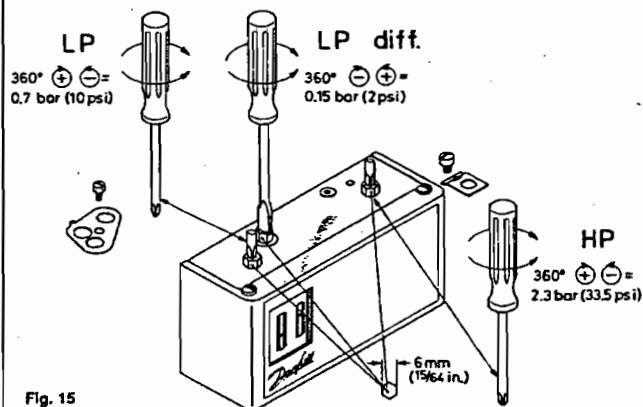
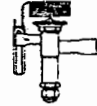


Fig. 15

Danfoss

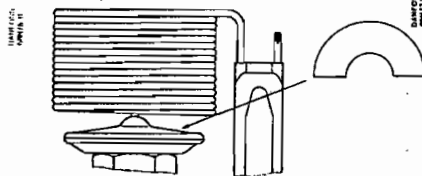
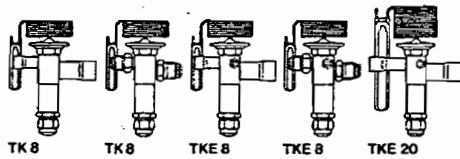
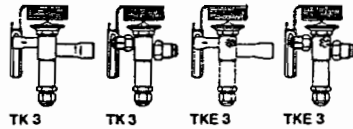
INSTRUCTIONS

TK 3/TKE 3
TK 8/TKE 8, TKE 20



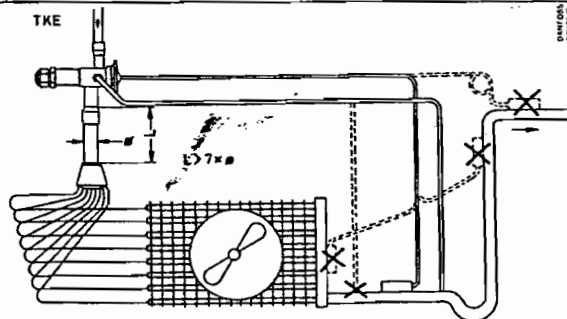
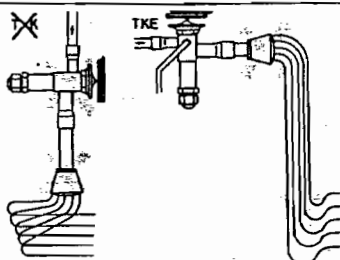
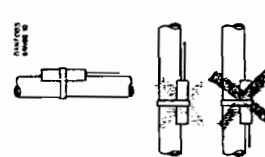
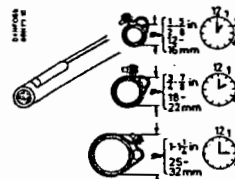
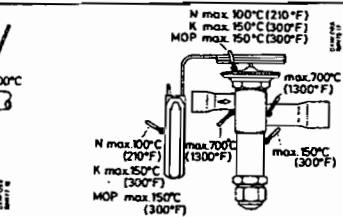
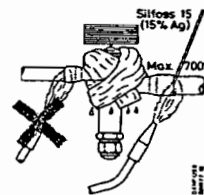
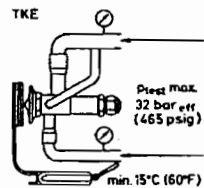
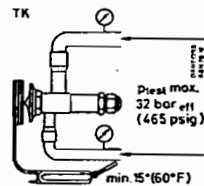
068R9508

88R9508



	R 12	R 22	R 502	MOP
N	-40 → +10°C -40 → +50°F	-50 → +10°C -60 → +50°F	-50 → +10°C -60 → +50°F	
K		-5 → +10°C +25 → +50°F		+15°C +60°F
HP*	-25 → +10°C -15 → +50°F	-25 → +10°C -15 → +50°F	-25 → +5°C -15 → +40°F -25 → +10°C -15 → +50°F	+10°C +50°F +15°C +60°F

			kW** (kJ/s)	kcal/h**	TR** (tons)
N HP*	TKF/TKEF	3-2	7	6 000	2.0
	TKF/TKEF	3-2	10.5	9 000	3.0
	TKF/TKEF	8-8	17.5	15 000	5.0
	TKF/TKEF	8-8	28.0	24 000	8.0
	TKEF	20-20	42.0	36 000	12.0
N K HP*	TKX/TKEK	3-3	10.5	9 000	3.0
	TKX/TKEK	3-3	17.5	15 000	5.0
	TKX/TKEK	8-8	28.0	24 000	8.0
	TKX/TKEK	8-12	42.0	36 000	12.0
	TKEK	20-20	63.0	54 000	18.0
N HP*	TKY/TKEY	3-2	7.0	6 000	2.0
	TKY/TKEY	3-3	10.5	9 000	3.0
	TKY/TKEY	8-8	17.5	15 000	5.0
	TKY/TKEY	8-8	28.0	24 000	8.0
	TKEY	20-20	42.0	36 000	12.0
* HP = heat pump			** t _a = +5°C, t _e = +32°C (t _a = +40°F, t _e = +90°F)		



MOP

SH

360°
R12~3°C (5°F) SH
R22~2°C (3.5°F) SH
R502~2°C (3.5°F) SH

N: SH=6°C (11°F)
K: SH=4°C (7°F)
HP: SH=4°C (7°F)
0°C (32°F)

SH
B

			A	
			mm	in.
R 12	TKF/TKEF	3	10.5	0.41
	TKF/TKEF	8	13.0	0.51
R 22	TKX/TKE	3	9.5	0.37
	TKX/TKE	8	11.5	0.45
R 502	TKY/TKEY	3	9.0	0.35
	TKY/TKEY	8	11.5	0.45

			B	
			mm	in.
R 12	TKEF	20	1.5	0.06
R 22	TKE	20	3.5	0.14
R 502	TKEY	20	4.0	0.16

1

2

3

4

N
K
HP

TK 3/TKE 3: 45 Nm/4.5 kpm/32 ft-lbs
TK 8/TKE 8: 45 Nm/4.5 kpm/32 ft-lbs
TKE 20: 55 Nm/5.5 kpm/39 ft-lbs

TK 3/TKE 3: N=24 mm/15/16 in.
TK 8/TKE 8: N=27 mm/1 1/16 in.
TKE 20: N=32 mm/1 1/4 in.

TK 3/TKE 3: N=22 mm/7/8 in.
TK 8/TKE 8: N=27 mm/1 1/16 in.
TKE 20: N=32 mm/1 1/4 in.

			MOP	Code no.
			psig	
N	R 12	TKF/TKEF 3		068N3205
		TKF/TKEF 8		068N3235
		TKEF 20		068N3275
	R 22	TKX/TKE		068N3206
		TKX/TKE		068N3236
		TKE 20		068N3276
R 502	TKY/TKEY 3		068N3207	
	TKY/TKEY 8		068N3237	
	TKEY 20		068N3277	
K	R 22	TKF/TKEF 3	100	068N3204
		TKF/TKEF 8	100	068N3234
		TKEF 20	100	068N3274
HP	R 12	TKF/TKEF 3	55	068N3210
		TKF/TKEF 8	55	068N3240
		TKEF 20	55	068N3270
	R 22	TKX/TKE	100	068N3211
		TKX/TKE	100	068N3241
		TKE 20	100	068N3271
R 502	TKY/TKEY 3	100	068N3212	
	TKY/TKEY 8	100	068N3242	
	TKEY 20	110	068N3272	

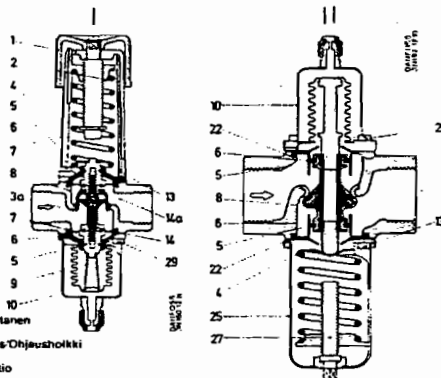


3N0481

RESERVEDELE/PARTS/ERSATZTEILE/PIÈCES DE RECHANGE/
ONDERDELEN/PIEZAS DE REPUESTO/VARAOZSÁK

No.	WVFX 10-15	WVFX 20	WVFX 25	WVFX 32-40
3a	3N0337	3N0337	3N0338	
5	633B1183	633B1183		633B1009
6				3F0507
7	3N0427	3N0428	3N0429	
8	3N0342	3N0343	3N0344	
9	3N0401	3N0401	3N0401	
13	681X2170	681X2170	681X2170	681X1119
14	3N0348	3N0369	3N0370	
14a	3N0345	3N0348	3N0347	
22				3F0508
29	681X1088	681X1089	681X1089	681X1119

1. Håndhjul/Hand wheel/Handrad/Roue à main/Volante manual/Handwiel Asetelmukava
2. Overpart/Top part/Oberteil/Partie supérieure/Parte superior/Bovensteel Yläosa
- 3a. Spindel/Spindle/Spindel/Tige/Västago/Spindel Kara
4. Fjederstift/Spring retainer/Federführung Guide du ressort/Muelle guía/Veerborging Jousileutanten
5. O-ring/O-ring/O-Ring Bagne torique Anillo-O/O-ring O-rings
6. Styrebolssning/Guide bushing/Führungsbochse Douille de guidage Manguito guía/Geleidebus/Ohjousholkki
7. Membran/Diaphragm/Membrane/Membrane/Membrana/Membran/Kalvo
8. Ventilkägle/Valve cone/Ventilkegel/Cône de la valve/Cono de cierre/Kiepschotel/Ventililäkartio
9. Trykflod/Spring holder/Druckfluss/Fied de pression/Impulseur/Veerhouder/Paineputki
10. Bælgelement/Bellows unit/Wellrohelement/Élément de soufflet/Fuelle/Balgelement/Paljoosa
11. Skruer for fjederhus/Screw for spring housing/Schraube für Federgehäuse/Vis pour boîtier à ressort/Tuerca para la caja del muelle/Schroef voor veerhuis/Jousikotelo ruuvi
12. Membranekive/Diaphragm plate/Membranscheibe/Disque de membrane/Segmento de la membrana/Membranplaat/Kalvot levy
- 14a. Spændebøsning/Retaining bushing/Spannhülse/Douille de serrage/Casquillo de retención/Borgbus/Kiristysholkki
22. Pakning for styrebolssning/Guide bushing gland/Dichtung für Führungsbochse/Joint pour douille de guidage/Empaquetadura para el manguito guía/Pakkingous voor
25. Fjederhus/Spring housing/Federgehäuse/Boîtier du ressort/Cajera del muelle/Veerhuis/Jousikotelo
27. Reguleringspindel/Regulating spindle/Verstellspindel/Tige de réglage/Västago de regulación/Ragelspindel/Säätökara
29. Skruer for bælgekapsel/Screw for bellows housing/Schraube für Wellrohrkapsel/Vis pour cuve contenant le soufflet/Tornillo para la cápsula del fuelle/Schroef voor balghuis/Paljekotelo ruuvi



DANSK

Tekniske data

Max. prøvningstryk (bælgelement): 26,5 bar (p_a)
Max. vandtryk: Udf. I = 16 bar (p_a)
Udf. II = 10 bar (p_a)

Ventilen kan indstilles til at begynde at åbne ved følgende kondenseringstryk
Udf. I: Min. 3,5 bar (p_a) Max. 16 bar (p_a)
Udf. II: Min. 4 bar (p_a) Max. 17 bar (p_a)

Montering

Udf. I kan monteres i vilkårlig stilling. Udf. II monteres altid med bælgelementet opad.
Elementet 10 tilsluttes trykrøret efter olieudskilleren. Forbindelsesrøret tilsluttes oven på trykrøret, så tilbageløb af snævs og olie undgås.
Indskyd desuden et smudsfilter for ventilen.
En konsol (best. nr.: 3N0388) kan ved montering af Udf. I anbringes mellem overpart og ventilhus.

Indstilling

Ventilen indstilles, så det ønskede kondenseringstryk overholdes ved normal drift.
Udf. I: Drejning af 1, så indikatoren går mod "+", giver lavere tryk og omvendt.
Udf. II: Drejning af 27 højre om (med uret) giver lavere tryk og omvendt.

Service

Snavspartikler kan fjernes fra ventilens indre ved gennemsyning. En skruestrækker føres gennem åbningen i 2 hhv. 25 ind under fjederstyret 4. Når styret trykkes væk fra ventilhuset, åbner ventilen.
NB.: Bælgelementet 10 må ikke demonteres, medens der er tryk på anlægget. Bælgen kan da blive deformet.

For adskillelse aflastes fjederen ved, at ventilen indstilles til laveste kondenseringstryk. Udskift sligte O-ringe, indsmør cylinder og styrebolssning i syrefrit fedtstof og smør skrue spindel for samling af ventilen.
Udf. I: "-RA-" på ventilhus skal vende mod 2.

ENGLISH

Technical data

Max. test pressure (bellows unit): 26,5 bar (p_a)
Max. water pressure: Design I = 16 bar (p_a)
Design II = 10 bar (p_a)

The valve can be set to start opening at the following condensing pressures
Design I: Min. 3.5 bar (p_a) Max. 16 bar (p_a)
Design II: Min. 4 bar (p_a) Max. 17 bar (p_a)

Fitting

Design I can be fitted in any position. Design II should always be fitted with the bellows unit facing upwards.
The unit 10 is connected to the pressure line after the oil separator. Fit the connecting pipe on the top of the pressure line to avoid the return of dirt and oil. A strainer should be fitted ahead of the valve.
A bracket (code No. 3N0388) for the installation of design I can be located between the top part and the valve housing.

Setting

Set the valve to maintain the condensing pressure required during normal operation.
Design I: Turning 1 so that the indicator moves towards "1" results in a lower pressure, and vice versa.
Design II: Turning 27 clockwise results in a lower pressure, and vice versa.

Service

Impurities can be removed from the inside of the valve by flushing. Introduce screwdriver under the spring retainer 4 through the openings in 2 and 25, respectively. Forcing the retainer away from the valve housing opens the valve.

NOTE: The bellows unit 10 must not be dismantled while the system is under pressure, since the bellows may become distorted.

The spring should be relieved before dismantling the valve by "setting" the valve for minimum condensing pressure.

Replace worn O-rings, smear the cylinder of the guide bushing with acid-free grease, and lubricate the screws and spindle before assembling the valve. Design I: "-RA-" on the valve housing must face towards 2.

DEUTSCH

Technische Daten

Max. Prüfdruck (Wellrohelement): 26,5 bar (p_a)
Max. Wasserdruck: Ausf. I = 16 bar (p_a)
Ausf. II = 10 bar (p_a)

Das Ventil ist auf beginnendes Öffnen bei folgenden Verflüssigungsdrücken einzustellen
Ausf. I: Min. 3,5 bar (p_a) Max. 16 bar (p_a)
Ausf. II: Min. 4 bar (p_a) Max. 17 bar (p_a)

Montage

Ausführung I kann in beliebiger Lage angeordnet werden, Ausführung II stets mit dem Wellrohelement nach oben.
Das Wellrohelement 10 an das Druckrohr hinter dem Ölauscheider, die Verbindungsleitung an der Oberseite des Druckrohrs anschließen, um ein Zurückschöpfen von Schmutz und Öl zu vermeiden. Vor dem Ventil ein Schmutzfilter anordnen.
Für die Montage von Ausführung I kann eine Konsole (Artikel-Nr. 3N0388) zwischen Oberteil und Ventilgehäuse verwendet werden.

Einstellung

Ventil so einstellen, dass der gewünschte Kondensationsdruck bei normalem Betrieb erreicht wird.
Ausf. I: Ein Drehen von 1, so dass der Anzeiger gegen "+" geht, ergibt einen niedrigeren Druck, und umgekehrt.
Ausf. II: Ein Drehen von 27 im Uhrzeigersinn (rechts herum) ergibt einen niedrigeren Druck, und umgekehrt.



Wartung

Schmutzteilechen im Innern des Ventils können herausgespült werden. Zu diesem Zweck durch die Öffnung in 2 bzw. 25 einen Schraubenzieher unter die Federführung 4 einstecken. Sobald die Führung vom Ventilhäuse abgehoben wird, öffnet das Ventil.

Anm.: Das Wellrohralement 10 darf bei Druck an der Anlage nicht abgebaut werden, weil das Wellrohr dann verformt werden könnte.

Vor einer Zerlegung die Feder entlasten, indem das Ventil auf den niedrigsten Kondensationsdruck «eingestellt» wird.

Vor dem Wiederausammenbauen des Ventils: Abgenutzte O-Ringe austauschen. Zylinder der Führungsbuchse mit säurefreiem Fett einreiben und Schrauben Spindel schmieren.

Ausführung I: «RA» am Ventilhäuse soll dem Oberteil 2 zugewandt sein.

FRANCAIS

Caractéristiques techniques

Pression d'essai max. (l'élément de soufflet): 26,5 bar (p_a)

Pression d'eau max.: Modèle I = 16 bar (p_a)
Modèle II = 10 bar (p_a)

La vanne peut être réglée pour commencer à s'ouvrir aux pressions de condensation suivantes
Modèle I: Min. 3,5 bar (p_a). Max. 16 bar (p_a)
Modèle II: Min. 4 bar (p_a). Max. 17 bar (p_a)

Montage

Monter la vanne pour passage de l'eau dans le sens de la flèche. Modèle I: peut être monté dans n'importe quelle position. Modèle II: doit toujours être monté, l'élément de soufflet étant orienté vers le haut.

Raccorder l'élément de soufflet 10 à la conduite de refoulement après le séparateur d'huile. Relier le tuyau de raccordement à la face de dessus de la conduite de refoulement de façon à éviter tout retour de saletés éventuelles et d'huile.

Incorporer, en outre, un filtre avant la vanne. Une console (n° de code: 3N0388) utilisée pour le montage du modèle I doit être placée entre la partie supérieure et le corps de la vanne.

Réglage

Régler la vanne pour maintenir pression de condensation désirée à une marche normale.

Modèle I: La rotation de 1 de sorte que l'indicateur soit dirigé vers «1» diminue la pression, et inversement.

Modèle II: La rotation de 27 vers le droite (sens des aiguilles d'une montre) diminue la pression, et inversement.

Entretien

Les particules de saleté peuvent être enlevées de l'intérieur de la vanne par un rinçage. Introduire un tournevis à travers l'ouverture de, respectivement 2 et 25, sous le guide du ressort 4.

Lorsque cette cuve est repoussée du corps de la vanne, cette dernière s'ouvre.

NB.: L'élément de soufflet 10 ne doit pas être démonté tant que l'installation est sous pression, sous risque de déformer le soufflet.

Avant le démontage, décharger le ressort en «réglant» la vanne sur la pression de condensation la plus basse. Remplacer les bagues toriques usées; graisser le cylindre de la douille de guidage avec de la graisse non acide; graisser les vis-tige avant le remontage de la vanne.

Modèle I: «RA» sur la corps de la vanne doit être orienté vers 2.

ESPAÑOL

Características técnicas

Presión max. de prueba (elemento de fuelle): 26,5 bar (p_a)

Presión max. de agua: Ejec. I = 16 bar (p_a)
Ejec. II = 10 bar (p_a)

La válvula puede ajustarse para iniciar la apertura a Ejec. I: Min. 3,5 bar (p_a). Máx. 16 bar (p_a)
Ejec. II: Min. 4 bar (p_a). Máx. 17 bar (p_a)

Montaje

La válvula se monta con el paso en la dirección que indica la flecha. La ejecución I puede montarse en cualquier posición. La ejecución II deberá montarse siempre con el elemento de fuelle orientado hacia arriba.

El elemento de fuelle 10 se conecta a la tubería de descarga después del separador de aceite. El tubo de conexión se empalmará en la parte superior del tubo de descarga, de forma que se evite el retroceso de eventuales impurezas y del aceite.

Además deberá intercalarse un filtro de impurezas delante de la válvula.

Para el montaje de la ejecución I puede emplearse una consola (Nº de código 3N0388). La consola deberá colocarse entre la parte superior y el cuerpo de la válvula.

Ajuste

Al iniciar la marcha de la instalación, se ajusta al mismo tiempo la válvula para mantener la presión de condensación deseada en funcionamiento normal.

Ejec. I: Girando 1, de forma que el indicador se mueva hacia el «1» de la escala, da como resultado una presión de condensación más baja y viceversa.

Ejec. II: Girando 27 hacia la derecha (en el sentido de las manecillas del reloj), da como resultado una presión más baja de condensación y viceversa.

Servicio

Las partículas de impurezas pueden eliminarse del interior de la válvula efectuando una limpieza por paso de agua.

Introducir un destornillador por la apertura en 2 y 25 respectivamente, por debajo de la arandela del resorte 4. Cuando se impulsa la arandela fuera del cuerpo de la válvula, la válvula se abre.

NOTA: El elemento de fuelle 10 no debe desmontarse mientras la instalación se encuentre sometida a presión. Ya que el fuelle puede deformarse.

Antes de la separación, deberá descargarse el resorte «ajustando» la válvula a la presión más baja posible de condensación; deberán cambiarse las arandelas desgastadas, lubricar el cilindro en el manguito guía con aceite carente de ácidos y deberán también engrasarse antes de ensamblar de nuevo la válvula, los tornillos y el vástago.

En la Ejec. I es necesario que la indicación «RA» en el cuerpo de la válvula, quede vuelta hacia 2.

NEDERLANDS

Technische gegevens

Max. beproevingsdruk (balgelement): 26,5 bar (p_a)

Max. waterdruk: Uitvoering I = 16 bar (p_a)
Uitvoering II = 10 bar (p_a)

Men kan het ventiel zo instellen dat het begint te openen bij condensatiedruk van

Uitvoering I: Min. 3,5 bar (p_a). Max. 16 bar (p_a)
Uitvoering II: Min. 4 bar (p_a). Max. 17 bar (p_a)

Montage

Uitvoering I kan in elke stand gemonteerd worden. Uitvoering II moet altijd met het balgelement omhoog gemonteerd worden.

Het balgelement 10 wordt op de persleiding echter de olie-afscheider, de verbindingsleiding bovenaan de persleiding aangesloten om te voorkomen dat vuil en olie in de persleiding komen.

Voorts moet een filter vóór het ventiel gemonteerd worden.

Een beugel (bestelnr. 3N0388) kan voor de montage van uitvoering I tussen het bovenste en het huls van het ventiel geplaatst worden.

Instelling

Het ventiel moet reeds tijdens het inlopen van de installatie op de gewenste condensatiedruk tijdens het normale bedrijf ingesteld worden.

Uitvoering I: het draaien van 1 zodanig dat de indicator in de richting «1» loopt, geeft een lagere condensatiedruk en omgekeerd.

Uitvoering II: het draaien van 27 met de wijzers van de klok mee, geeft een lagere condensatiedruk en omgekeerd.

Onderhoud

Ongerechtigdheden moeten door doorspoelen uit het inwendige van het ventiel verwijderd worden. Door een schroevendraaier door de openingen 2 en 25, onder de veerborging te steken en deze van het ventielhuis weg te drukken, gaat het ventiel open.

NB.: Het balgelement mag niet uiteengenomen worden gedurende de periode dat de installatie onder druk staat. De balg kan dan verwrongen worden.

De veer moet alvorens het ventiel uiteengenomen wordt, ontspannen worden. Dit gebeurt door het ventiel op de minimum condensatiedruk in te stellen. Vervang gebruikte O-afdichtingsringen, smeet de cilinder van de geleidebus met zuurvrij vet in en smeet de schroeven en spindel voordat U het ventiel weer ineenzet.

«RA» op het ventielhuis van uitvoering I moet omhoog naar het bovenste 2 gericht staan.

SUOMEKSI

Tekniset tiedot

Paljeosan korkein sallittu koestuspaine:

26,5 bar (p_a)

Korkein sallittu vesipaine: Rakenne I = 16 bar (p_a)
Rakenne II = 10 bar (p_a)

Venttiili voidaan asettaa avautumaan seuraaville lauhdutinpainille

Rakenne I: Min. 3,5 bar (p_a). Maks. 16 bar (p_a)
Rakenne II: Min. 4 bar (p_a). Maks. 17 bar (p_a)

Asentaminen

Rakenne I suodaan asentaa mielivaltaiseen asentoon. Rakenne II asennetaan aina paljeosa ylöspäin.

Paljeosa 10 yhdistetään aineputkeen öljynerottimen jälkeen. Yhdyspunti liitetään aineputkeen yläpuolelta, jotta lika ja öljy ei virtaa takaisin.

Asentakaa lisäksi suodatin ennen venttiiliä. Rakenne I asentamiseen voidaan käyttää konsolia (nro 3N0388). Tämä kiinnittää ylösosan ja venttiilipesän väliin.

Säätäminen

Laitosta koeajettaessa säädetään venttiili normaalin käynnin aikana haluttuun lauhdutinpaineeseen.

Rakenne I: Asettamalla venttiiliä kiertäminen niin että osorin siirtyä kohti merkintää «1» alkaansaa matalamman paineen ja painavastoin.

Rakenne II: Säätökaran 27 kiertäminen oikealle (myötäpäivään) alkaansaa matalamman paineen ja painavastoin.

Huolto

Roskat venttiiliin sisäosasta poistetaan huhtomalla. Tällöin venttiili sulkee tiiviisti. Ruuvialta viedään aukolista 2 tai 25 jousilautteen alla. Vipuamalla tämä ylös venttiilipesästä avataan venttiili.

Huom: Paljeosa 10 ei pidä purkaa leikkokone omissa paineen alaisena. Palje saattaa vicihua.

Ennen purkamista kevennetään jousipainetta «asettamalla» se alhaisimmalle lauhdutinpainelle. Uusiaa kuluneet O-renkaat, voidelkaa ohjusholkin sylinteri happovapaailla ravalla ja voidelkaa ruuvit/kara ennen venttiilin kokoonamista.

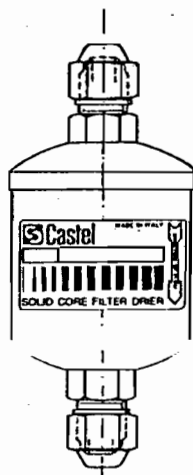
Rakenteessa I on merkinnän «RA» venttiilipesässä käännettävä ylösosaa 2 kohti.



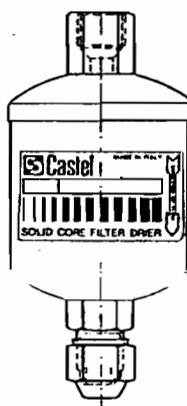
ISTRUZIONI

"Castel Solid Core" filtri disidratatori antiacidi

INSTRUCTIONS : "Castel Solid Core" anti-acid filter driers



Attacchi maschio
Male connections



Attacchi maschio-femmina
(femmina in entrata)
Male-female connections
(female-in)



Attacchi a saldare ODF - OOM
ODF - OOM solder connections

Per evitare che l'umidità atmosferica danneggi il materiale disidratante, i tappi di protezione del filtro devono essere rimossi solo al momento del collegamento alle tubazioni.

Il filtro può essere montato in qualsiasi posizione.

Il senso della freccia deve corrispondere al senso del flusso del refrigerante.

Per stringere i bocchettini, bloccare con la chiave l'esagono dell'attacco del filtro più vicino al bocchettone da stringere.

Durante la saldatura dirigere la fiamma verso il tubo da saldare e non verso il corpo del filtro.

Dehydrating materials are avid for water and therefore it is best to open the drier only at the last moment, before connecting it to the tubes because a prolonged exposure to atmospheric humidity would diminish the adsorption capacity.

The drier may be installed in any position.

The arrow on the body must point in the direction of refrigerant flow.

To tighten the nuts keep with the key the exagon of the drier near to the nut wich is to be tightened.

When soldering do not point the flame toward the drier body.

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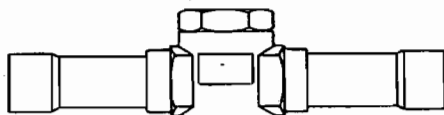


ISTRUZIONI

INDICATORI DI LIQUIDO - INDICATORI DI LIQUIDO E UMIDITA', SERIE 3600-3700

INSTRUCTIONS - LIQUID INDICATOR - LIQUID AND MOISTURE INDICATOR, GROUP 36-37

1. Durante la saldatura dirigere la fiamma verso il tubo da saldare e non verso il corpo dell'indicatore. Coprire l'indicatore con uno straccio bagnato.
- When soldering do not point the flame toward the indicator body and cover the body with a wet rag.



2. IMPORTANTE

Negli indicatori di umidità, l'indicazione del contenuto di umidità avviene quando l'impianto è in moto e il fluido in movimento.

IMPORTANT

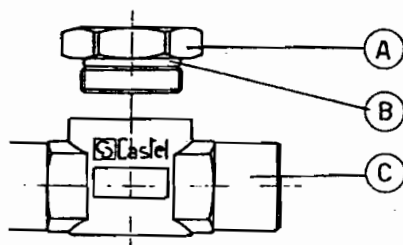
In the moisture indicators, the presence of moisture is signalled when the plant is operating and the fluid running.



ISTRUZIONI

INDICATORI DI LIQUIDO - INDICATORI DI LIQUIDO E UMIDITA', SERIE 3600-3700

INSTRUCTIONS - LIQUID INDICATOR - LIQUID AND MOISTURE INDICATOR, GROUP 36-37



- A) Ghiera
accuro
con "retro fuso"
- B) "Anello R"
- C) Corpo indicatore

Gli indicatori con attacchi filettati vengono forniti con la ghiera stretta sul corpo e sono pronti per essere impiegati sull'impianto. Nel serraggio dei bocchettoni contrastare la coppia di serraggio tenendo fermo l'indicatore sulla faccia più prossima al bocchettone da stringere.

Gli indicatori con attacchi a saldare vengono forniti con la ghiera allentata.

Procedimento per la saldatura:

- 1) Svitare completamente la ghiera e separarla dal corpo.
- 2) Saldare gli attacchi ai tubi di rame evitando di dirigere la fiamma direttamente contro il corpo dell'indicatore.
- 3) A raffreddamento avvenuto, ripulire con cura il corpo dai residui di saldatura specialmente nella zona di tenuta dell'"Anello R", che deve essere montato ben pulito e leggermente lubrificato. Avvitare quindi la ghiera e serrare con una coppia di 4,5 kgm.

- A) Cap nut in Steel with "Fused Glass" View Plate.
- B) "O" Ring
- C) Main Body

The Indicators with flare connections are supplied with the Cap Nut screwed onto the Main Body, tightened to 4.5 kgm. ready to be mounted in the plant.

When tightening the connecting nuts, the indicator should be held in position by holding the part of the Main Body nearest to the nut to be tightened.

Indicators with Solder Connections are supplied with the Cap Nut screwed on loosely.

Soldering Procedure

- 1) Unscrew the Cap Nut completely and remove from the Main Body of the Indicator.
- 2) Solder the connections to the Copper tubes, avoiding touching the Main Body of the Indicator with the flame.
- 3) When the body of the valve has cooled, carefully clean away any residues of the soldering, especially in the area of the "O" Ring, which must be mounted well-cleaned and lightly lubricated.
- 4) Screw the Cap Nut into the Main Body and tighten with a Torque key to 4.5 kgm.

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IMPORTANTE

Negli indicatori di umidità, l'indicazione del contenuto di umidità avviene quando l'impianto è in moto e il fluido in movimento.

IMPORTANT

In the moisture indicators, the presence of moisture is signalled when the plant is operating and the fluid running.