

INSTRUCTION MANUAL

R-061R E.04 08.10
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Dehumidifier **RECUSORB R-061R**



Seibu Giken DST AB
Avestagatan 33
S-163 53 SPÅNGA
Sweden



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General Description

Applications

DST desiccant type dehumidifiers are normally used where dry air is essential to the various manufacturing processes used in chemical, pharmaceutical, food or confectionery industries, or where a dry environment is required for storing and handling of moisture sensitive products and raw materials.

The well proven air drying technology using the adsorption principle provides great flexibility in solving humidity problems. It offers the user independent humidity control,

down to dewpoints far lower than the effective operating range of refrigeration dehumidifiers.

Construction

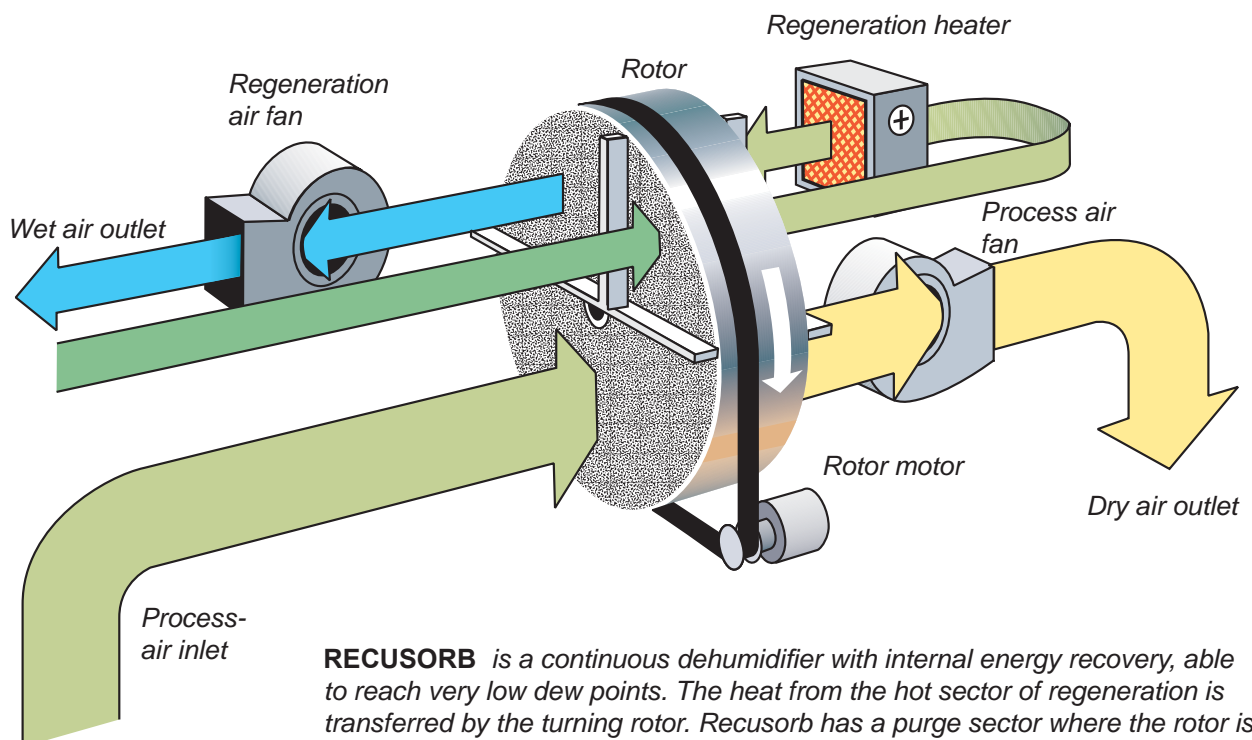
The dehumidifiers are made as complete units including rotor, fans, rotor motor and rotor drive transmission, heater for the regeneration, controls and electrical equipment.

The water vapour is effectively adsorbed from the treated air in the SSCR silica gel rotor.

Principle of Operation

It works on a continuous process with two air streams of different flow rates, normally having a flow ratio of approximately 3 to 1. The greater flow, *process air*, is dried as it passes through the dehumidifier, while the smaller flow, *regeneration air*, is used to heat the rotor material to drive the adsorbed moisture vapour from the desiccant. The moisture which is removed from the process air, is transferred over to the other as the SSCR rotor turns slowly.

Principle of Operation



RECUSORB is a continuous dehumidifier with internal energy recovery, able to reach very low dew points. The heat from the hot sector of regeneration is transferred by the turning rotor. Recusorb has a purge sector where the rotor is cooled down as the heat is picked up by the regeneration air at its first passage through the rotor. This way the regeneration air will get preheated, and its water content is reduced, which means that less regeneration heat is needed to reach the final regeneration temperature and that the rotor is regenerated at a lower relative humidity. As a result, the dry air will leave at lower temperature and with lower dew point.

Design

The dehumidifier has a housing of stainless steel. The galvanized spigots are in standard sizes and have rubber flanges. The unit is divided into two parts; one lower where the air treatment take place and one upper where the electric compartment and the fan motors are situated.

Dismantling

When dismantling, the unit must be electrically disconnected. The main switch must be turned to (0). If it is necessary, it is possible to lock the switch in this position.

If the unit has been in operation it should be left to cool off, for at least 30 minutes, before dismantling.

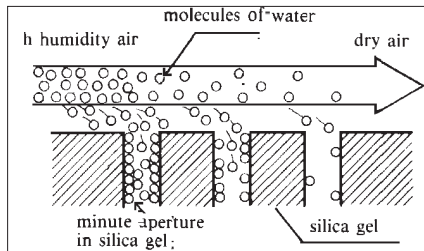
The upper part is easily reached by taking off the unit's lid which is fastened with four screws. The lower part is reached through doors on the front and rear of the unit. The



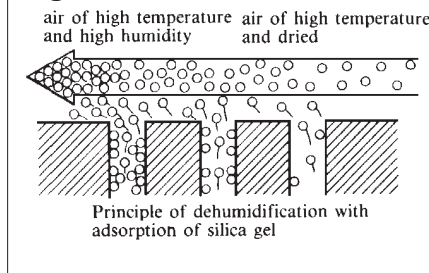
Removal of door

R-061RE.04

Dehumidification



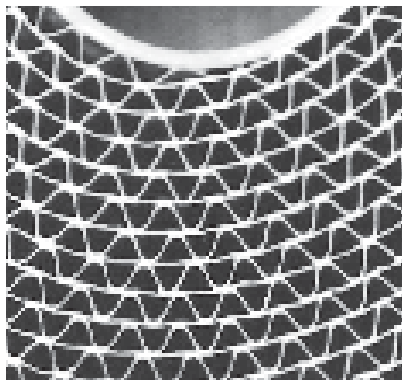
Regeneration



doors are attached to the unit with four screws, see illustration to the left.

Removal of Rotor

1. Take away the unit's front door.
2. Unscrew the two screws marked with white circles in design illustration page 5.
3. Pull out the box in front of the rotor.
4. Take away the belt.
5. Pull out the rotor.



Rotormatrix

Rotor

The heart of a DST dehumidifier is the very efficient patented SSCR silica gel rotor. This rotor matrix is manufactured from alternate layers of flat and corrugated sheets of silica gel and metal silicates, chemically bonded into a tissue of inorganic fibres. It is made to form a vast number of axial air channels running parallel through the structure. The large internal surface area combined with the special micro structure of the SSCR silica gel material, ensures maximum contact area to give the rotor an extremely high capacity for adsorbing water vapour. It has a galvanized sheet metal lining, spokes, and a hub of steel and two bronze bearings on which it rotates around a fixed steel shaft. The rotor is driven by a single phase rotor motor with a timing belt transmission.

The rotor have radial seals of teflon which is fastened by steel rulers.

Filters

The filters are of dust panel type. They are reached when the front inspection door is removed.

Fans

The two fans are of medium pressure radial type, directly driven by three-phase AC motors.

Regeneration Heater

The electrical heater is divided in two steps (2/3+1/3). On the control panel there is a switch where heater effect can be chosen (9kW, or 13.5kW).

The electrical heater has one overheat protection thermostats TH1 and a regulating thermostat TH2.

The reset button for TH1 is placed at the side of the electric equipment.

Electric Equipment and Control Panel

The electric equipment is placed on a separate sheet in the units upper part, easily reached beneath the lid. The control panel is placed on the front of the unit. On the control panel ammeter, elapsed time meter, ON button, OFF button, MAN/AUTO switch and electric main switch are placed.

A remote control, for example a humidistat, can be connected to the terminal block according to wiring diagram in appendix.

With the MAN/AUTO switch, the operation mode can be set for manual "MAN" or "AUTO". The automatic mode is used when a remote control is installed.

When the Off-button is pushed the whole unit is switched off except for the reg. fan, which will continue to be in operation for 10 more minutes, to cool the heater off.

The switch on the control panel, marked with 9+13.5, makes it possible to choose heater power level.

The reg. air fan has a thermostat (TH3) which gives a alarm if a set temperature is exceeded.

Alarm Function

If the unit stops and the alarm lamp is lit, check the following:

1. One of the fan motor protectors has switched off.

The set values should be according to the component list.

2. Over heat protection on the regeneration heater.

TH1 in the electric box.

For thermostats settings, see technical data.

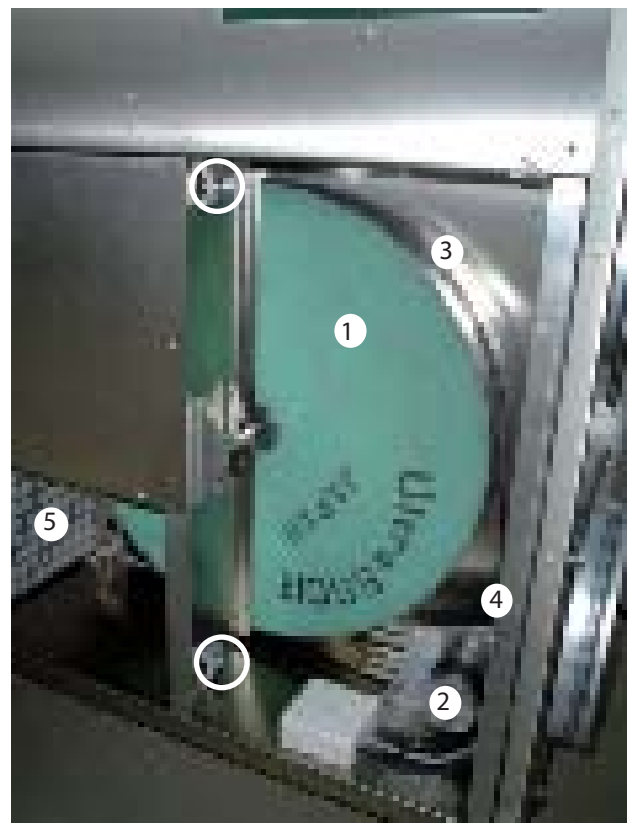
3. Wet air thermostat TH3 has switched off the unit.

Possible causes:

- Rotor has stopped.
- Process fan has stopped.
- Process air in has a very low water content. If the problem is a too low water content, the heater power output should be reduced.

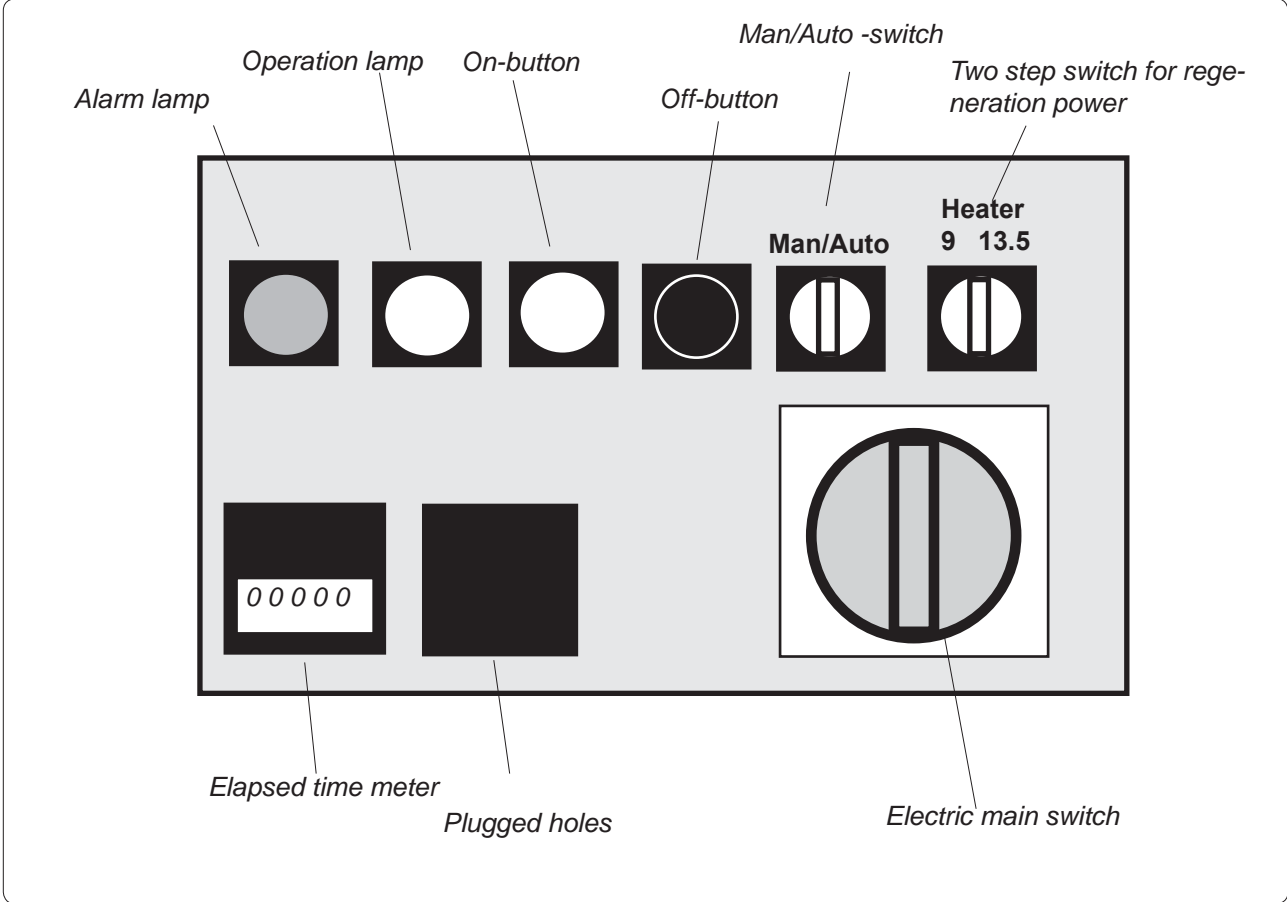
See wiring diagram in appendix for designations.

Behind the Front Door



Behind the front door: rotor (1), rotor motor (2), belt (3), air filters for both process (4) and reg. air (5).

Control Panel



Installing

DST dehumidifiers are prepared for easy connection to ductwork and electric supplies.

To enable inspection and service of the unit, adequate working space must be left clear in front of the unit to allow the access panel to be opened and the rotor to be removed. The free floor area along the front of the access panel should be as wide as the unit itself.

Lifts or moves of the unit shall be done by fork-truck or other lifting device.

The dehumidifier unit must not be used in an area where there is a danger of explosion, nor to treat air

with dangerous amounts of explosive substances.

Ductwork

For all installations, to avoid recirculation, it is important to ensure that the wet air outlet is directed away from the regeneration air inlet of the unit. The same concern should be taken for the process air inlet and the dry air outlet.

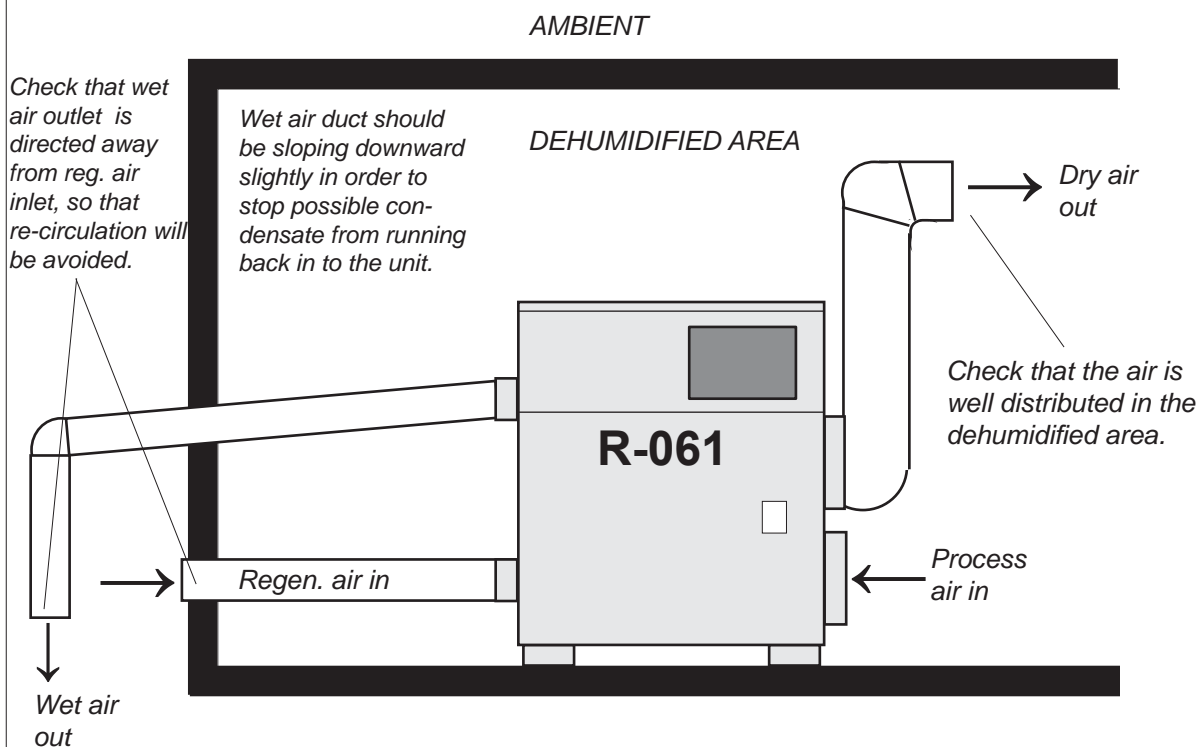
Try to minimize the ductwork to the unit as the dehumidifying capacity declines with increasing ductwork losses.

The dimensions of the ductwork connections can be found in data sheet in appendix.

Dampers on the outlets of the unit can be installed to control the performance of the dehumidifier. Damper on the dry air outlet should be installed if a lower moisture content in the dry air is needed. There should be a damper on the wet air outlet when the maximum capacity is not needed.

Due to the high moisture content at the wet air outlet, condensation may occur within the ductwork. It is therefore recommended that the wet air outlet ductwork is well insulated and installed at an angle so that condensate cannot flow back into the dehumidifier. A small drain hole at the lowest point in the ductwork is to be made for discharge of condensate.

Dehumidifier Placed in Dehumidified Room



Dehumidifier Placed in Dehumidified Room

Regeneration air inlet and wet air outlet ductwork is connected to ambient. The dry air shall be well spread in the dehumidified room. The process air inlet does not need to be connected.

Dehumidifier Placed in Plant Room

Dry air outlet and process air inlet are connected to the dehumidified area. Regeneration air inlet and wet air outlet shall be connected to ambient if the plant room is not adequately ventilated.

Dehumidifier Placed Outside

Dry air supply and process air return ductwork is connected to the dehumidified area. Regeneration air inlet and wet air outlet do not need to be ductwork connected.

Electrical Connection

The electrical supply to the unit should be three phase (voltage and frequency according to electric diagram) and earth (no neutral). The supply cable should be connected directly to the main switch, according to electrical wiring diagram in appendix.

The fuses should be rated as specified in the electric diagram and in accordance with local electric regulations.

A remote ON / OFF switching arrangement can be wired to the terminal block, for example a humidistat.

When the humidistat contact is open, only the regeneration heater and fan will be stopped. The process fan and the rotor will continue to run. As an option, the unit can easily be changed to be completely OFF by the humidistat (see wiring diagram in appendix).

If there is a power failure the unit must be manually restarted, this is because of the holding circuit.

Starting Up

Pre-Operation Checks

1. Ensure that the main switch on control panel is turned to "0".
2. Inspect and clean the inside of the unit from foreign objects such as rags, tools, particles of metal, and the like.
3. Ensure that both air balance dampers, if any, are wide open and check that the air paths of the ductwork are not obstructed in any way.
4. Check that both process and regeneration air inlet filters are securely in place.
5. Check that the electrical overloads are correctly adjusted according to component list.
6. Inspect the wiring of incoming cable.
7. Turn the "MAN/AUTO"-switch to "MAN" position.

8. Check that the rating of the electrical supply fuses is correct, see electric diagram in appendix.

9. Switch the main switch to "1" and confirm correct voltage across all three incoming phases.

10. Briefly switch the unit ON by pushing the ON button, and then switch it OFF by pushing the OFF button, watching, as the process fan slows down, the direction of fan rotation. If incorrect, switch the main switch to "0" and change over two of the three incoming phase supply wires, repeat 9 to 10.

Starting Up

11. Close and secure all access doors and then switch the unit on by pushing the ON-button. The white operation lamp will now be lit.

12. Check, by looking in through inspection window, that the rotor rotates.

13. Adjust the airflows if dampers are installed in the duct systems at the dry air and wet air outlets. In most cases fully open dampers gives the best dehumidifying capacity.

If the maximum dehumidifying capacity is not needed the heater output should be reduced.

The damper on the dry air outlet is used when a lower moisture content in the dry air is required. The smaller the process air flow, the lower the moisture content in the dry air.

The dry air moisture content (g/kg) can be calculated by following formula:

$$x_{out} = x_{in} - 1000 \times C / (V \times 1,2)$$

Where C is the moisture load (kg/h) and V is the dry air flow

(m³/h). If a lower moisture content is needed the dry air flow should be reduced. The smaller the dry air flow, the lower the dry air moisture content.

14. Check the operation of fault alarms by temporarily reducing the set points of alarm giving thermostats and motor protectors. Do not forget to reset to the original settings according to component list.

15. Check that performance is in accordance with the capacity diagram in data sheet in appendix.

16. If the dehumidifier is to be controlled by a remote system (for example a humidistat) switch the "MAN/AUTO"-switch to AUTO position.

17. If remote control is installed, then check remote control operation.

Maintenance

Before dismantling the unit, for inspection or service, the following items shall be noticed:

When dismantling the main switch shall be turned to "0".

If the unit has been in operation it should be left to cool off, for at least 30 minutes, before dismantling. The wet air duct can be very hot if it is not insulated.

DST dehumidifiers are designed to run for long periods with little maintenance requirements. The following items should however be noted;

A. Exchanging Filters

The filters should be inspected at regular intervals, the frequency of which can best be judged by experience. In storage applications where clean air conditions normally exist, the filter will typically require changing only every six months. In process work and dusty environments, the filter may need to be changed more often. A dirty filter will in time affect the drying performance of the dehumidifier.

On no account should the unit be operated without the correct air filters installed!

B. General Maintenance

Every two years an inspection of all internal components of the dehumidifier should be carried out, the following items being blown with compressed air and cleaned with a vacuum cleaner.

1. Gear motor and belt transmission.
2. Fans.
3. Electric equipment.
4. Regeneration heater battery.
5. Access panels and seals.

Depending on how dirty the dehumidifier was at the first general maintenance, the interval of inspection may be increased or decreased.

C. Washing the Rotor

The SSCR rotor contained in DST dehumidifiers has a distinct advantage over other types of desiccant rotors in that dust and grease can be washed out of the material without any need for reimpregnation after the treatment.

Ordinary dust and dirt can be washed out with water and a mild acid based detergent while rotors affected by oil and grease should be washed in industrial alcohol. In all normal applications however it must be emphasised that this washing of the rotor should be considered as a last resort, having alleviated all other possible defects first.

The washing procedure described below is not a normal maintenance requirement and it is recommended that a trained DST engineer is consulted before proceeding.

1. Let the dehumidifier be shut off for at least an hour.
2. Carefully remove the rotor from the unit, taking great care not to damage the delicate matrix.
3. Wet the rotor with water and a mild acid based detergent or with industrial alcohol and allow to soak for 30 minutes.
4. Rinse carefully with fresh water, pumped at low pressure through an ordinary hose.
5. Allow the liquid to drain from the rotor structure and blow the channels free with air. Do not hold the air nozzle too close to the rotor surface.
6. Carefully refit the rotor and its transmission belt into the unit.
7. Ensure that the radial seals are placed correctly.
8. Start the dehumidifier again and let it operate for one hour without heat before the capacity is checked. If the performance has not recovered sufficiently, repeat the washing with a stronger detergent.

Never use a strong alka-line based detergent, as this may destroy the rotor!

Troubleshooting

The dehumidifier performance can be checked very simply by feeling the temperature of the uninsulated ductwork near the unit.

Normally with the unit working at nominal conditions (with process air at room temperature) the dry air duct should be warm (25-40°C), and the wet air duct should be warm or hot (30-60°C).

If the unit does not maintain the required humidity look for the following causes.

A. If Both Dry and Wet Air Ducts are Warm

- A1. Check the real moisture load and compare to design data. The unit may be too small.
- A2. Check the airflow volumes, filter and adjustment of dampers.
- A3. Check rotors mounting to panel.

B. If Both Air Ducts are Cold

- B1. Is the unit switched on?
- B2. Is any of the motor protections alerted?
- B3. Check that the wet air damper is not closed.
- B4. Check the regeneration filter.
- B5. Check operation of the regeneration fan.

C. If Dry Air Duct Feels Cold and Wet Air Duct is Very Hot

- C1. Check rotation of the rotor.
- C2. Check the process air fan.
- C3. Check that the dry air damper is not closed.
- C4. Check the process air filter.

Capacity Test

If no fault can be found after checking as suggested above, a performance test should be carried out on the dehumidifier, proceeding as follows.

1. The different moisture contents x (g/kg), in the three airflows, can be determined by using wet and dry thermometers. To receive the moisture contents the measured temperatures shall be plotted in a psychometric chart.

Process air in: x_{PI} (g/kg)
Process air out: x_{PO}
Reg. air in: x_{RI}
Wet air out: x_{RO}

2. Calculate from the actual temperatures the density of the two outlet airflows D_{PO} (kg/m³) and D_{RO} .

3. Measure the dynamic pressure Δp (Pa) in the air ducts, by using a Prandtl tube. The dynamic pressure is measured by the difference between the static pressure in the dry air duct and the wet air duct.

Measurements should be done in a straight part of the ductwork. To avoid faulty measurements caused by turbulent flows, measurements should not be done close after a bend or a fan.

The flow rate in each duct can be calculated as:

$$w = (2 * Dp / D)^{1/2} \quad (\text{m/s})$$

Where D is the densities according to step 2.

Calculate the volume air flows, V_{PO} (m³/h) for the dry air and V_{RO} for the wet air:

$$V = w * A \quad (\text{m}^3/\text{h})$$

Where A is the cross section area of each duct.

4. Now determine the dehumidification capacity, Q (kg/h), by the following equation.

$$Q = (Q_P + Q_R) / 2$$

where

$$Q_P = V_{PO} * D_{PO} * (x_{PI} - x_{PO}) / 1000$$

and

$$Q_R = V_{RO} * D_{RO} * (x_{RO} - x_{RI}) / 1000$$

Compare this measured capacity to the capacity which can be calculated from the datasheet.

Technical Data

Unit Data

Dehumidifier Model	R-061R
Capacity [kg/h] ¹⁾	10
Nominal dry air flow [m ³ /h] ²⁾	1450
External static pressure [Pa] ³⁾	100
Nominal wet air flow [m ³ /h] ⁴⁾	580
External static pressure [Pa] ⁴⁾	200
Motor power [kW]	1.3
Heater power [kW]	13.5
Supply fuse 3x230V/400/50Hz [A]	50/25
Weight [kg]	110
Speed of rotor rotation [rph]	42
Thermostat setting TH1 [°C]	190
Thermostat setting TH2 [°C]	180
Thermostat setting TH3 [°C]	80

¹⁾ Valid for inlet conditions 20°C/60%RH. For other inlet conditions the capacity can be calculated by the correction factor from below diagram.

²⁾ Volume flow for density 1,20 kg/m³.

³⁾ If no data is stated here the volume flow above is given at free blowing airflow.

⁴⁾ Free blowing airflow.

Unit Data

Air filter class: G4

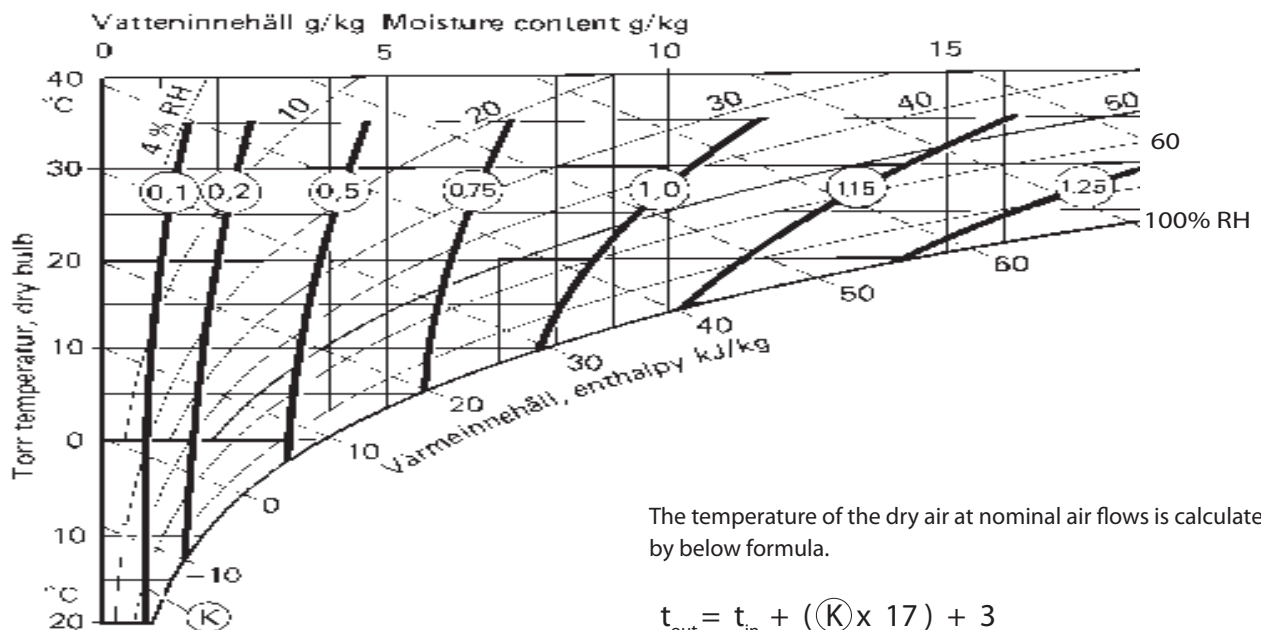
Electric compartment protection class: IP54

Humidistat connection: 230V, 1A

Noise level when connected to non noise protected ducts at nominal flows: 83 dB(A)

Correction Diagram

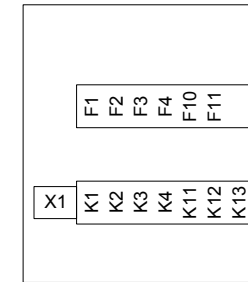
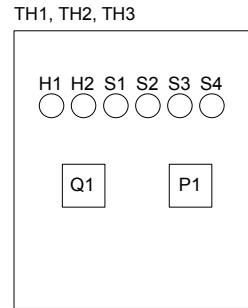
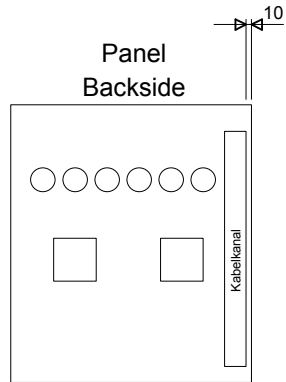
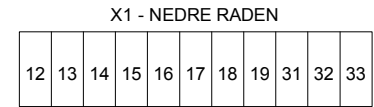
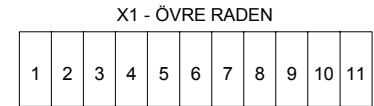
The dehumidifying capacity is estimated as the nominal capacity from above, multiplied by factor (K) from the correction diagram.



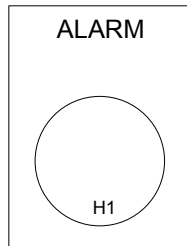
The temperature of the dry air at nominal air flows is calculated by below formula.

$$t_{out} = t_{in} + ((K) \times 17) + 3$$

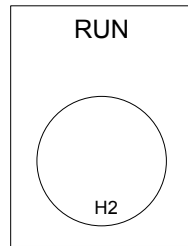
Cable	From	Area	Mount	Tot.lenght	Motor connection	
Supply	Q1		DST			
M1	K1	4G1,5	Reflex	310	L=80 Ring M4	Black-Brown-Blue
M2	K2	4G1,5	Reflex	710	L=80 Ring M4	Black-Brown-Blue
R1	K3	4G1,5	DST			
R2	K4	4G2,5	DST			
Y1	X1	3G1,5	DST			
M3	X1	3G1,5	Reflex	1500	L=50 Pin	Brown-Blue
T1	X1	5G1,5	DST			
Signal	X1	4G1,5	DST			



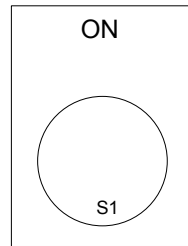
Faser till kontaktornas översida läggs med 30mm extra slinga. (Tångamperemeter)



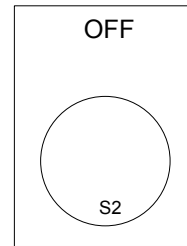
IA9-521



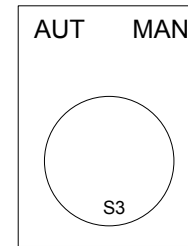
IA9-327



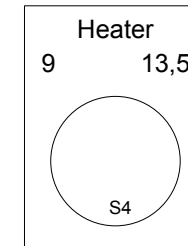
IA9-303



IA9-304

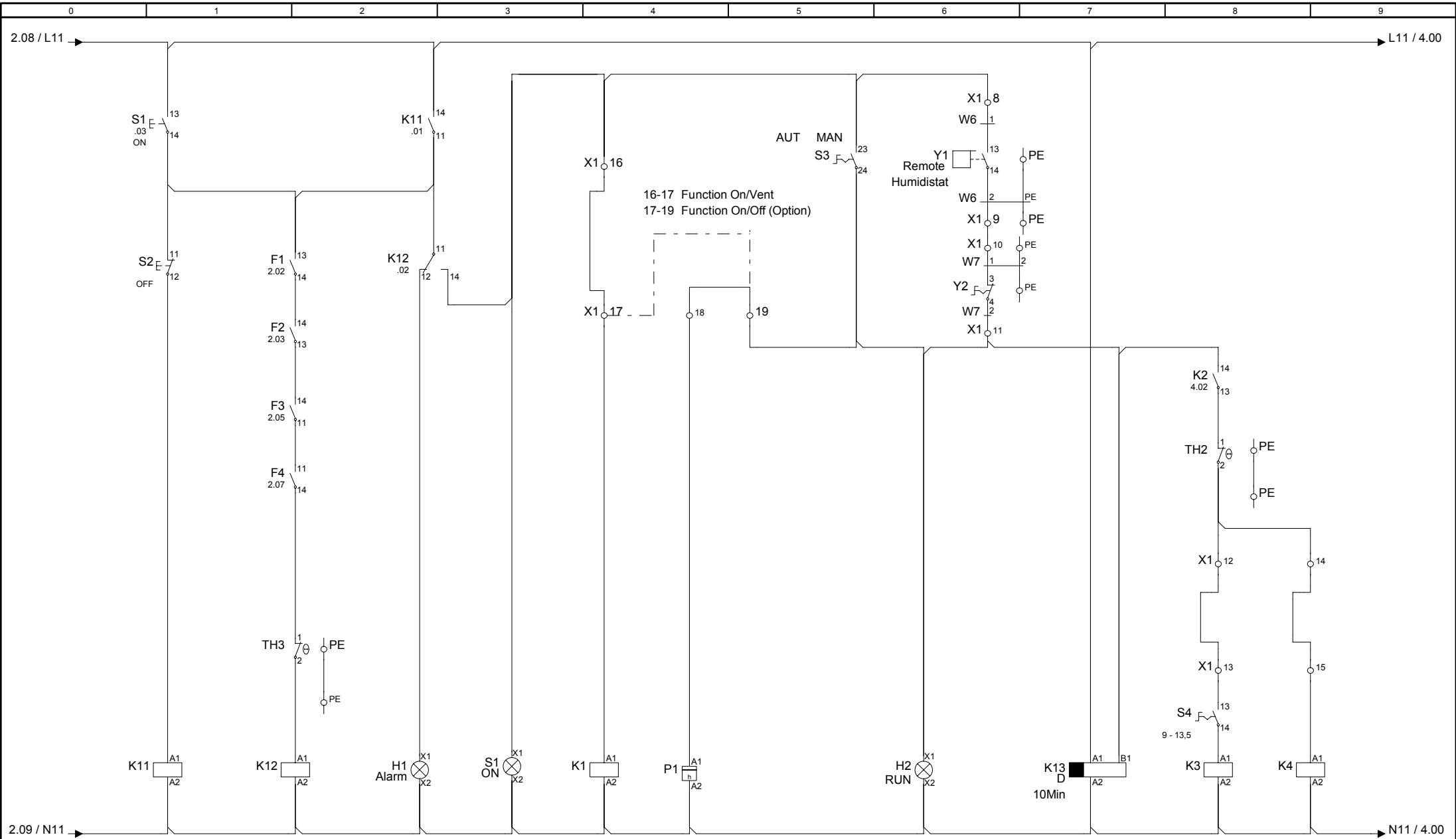


IA9-4328
1110169.001



1110169.002

Rated voltage: 3x400V 50Hz
 Full load current: 23A
 Short circuit interrupting capacity of the machine: 10kA Acc: to EN60947.2
 Max fuse: 25A
 IP54
 X1: 16-17=On/Vent
 X1: 17-19=On/Off
 Connection labelling
 Bridge X1: 10 -11



ON-OFF

- 14 -> 11 .02
- 24 -> 214.06

Alarm

- 11 -> .02
- 12 -> 4.06
- 24 -> 22

Process

- 1 -> 2 2.02
- 3 -> 4 2.02
- 5 -> 6 2.02
- 13 -> 144.03

Run time meter

- 15 -> 18 4.02
- 25 -> 28 4.04

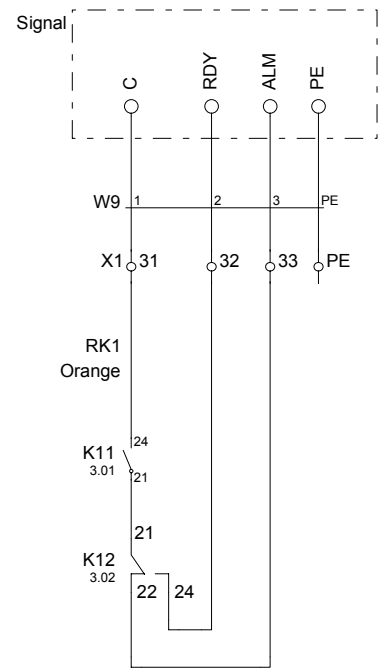
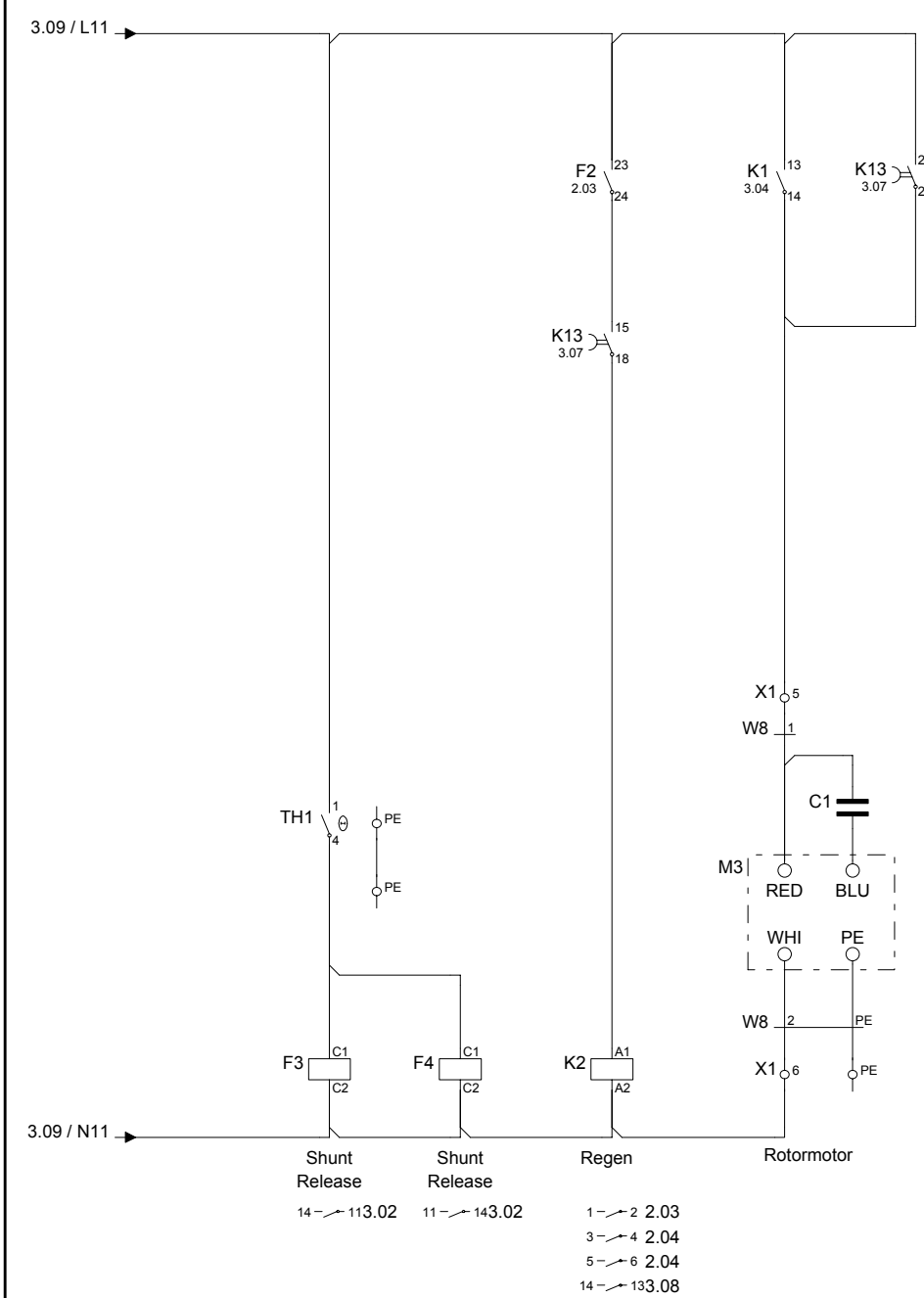
Heater 1

- 1 -> 22.05
- 3 -> 42.05
- 5 -> 62.05

Heater 2

- 1 -> 22.07
- 3 -> 42.07
- 5 -> 62.07

2		Date	Seibu Giken DST AB	Elektromontage i Järfälla	Circuit diagram		
		Proj.					
		Check.	R-061R 3x400V 50Hz				
		Norm					
Cooke Industries - Phone: +64 9 579 2185			Email: sales@cookeindustries.co.nz		Web: www.cookeindustries.co.nz		3061-02
						Page 3	
						9 Pg	




Device list

DT	Quantity	Description	Part number	Model Number	Manufacturer	Supplier	Page
C1	1	Capacitor	0,33uF 230V		DST	DST	4.03
F1	1	Circuit breaker 1,6-2,5A	GV2ME07	E31 165 12	Telemecanique	Schneider	2.02
	1	Auqilliary contact	GVAE20	E31 166 38	Telemecanique	Schneider	
F2	1	Circuit breaker 1-1,6A	GV2ME06	E31 165 10	Telemecanique	Schneider	2.03
	1	Auqilliary contact	GVAE20	E31 166 38	Telemecanique	Schneider	
F3	1	Circuit breaker C10A 3P	24349	E21 122 96	Merlin Gerlin	Schneider	2.05
	1	Auxilliary contact OF	26924	E21 146 01	Merlin Gerlin	Schneider	
	1	Shunt release MX+OF	26946	E21 114 34	Merlin Gerlin	Schneider	
F4	1	Circuit breaker C16A 3P	24350	E21 123 00	Merlin Gerlin	Schneider	2.07
	1	Auxilliary contact OF	26924	E21 146 01	Merlin Gerlin	Schneider	
	1	Shunt release MX+OF	26946	E21 114 34	Merlin Gerlin	Schneider	
F10	1	Circuit breaker C1A 2P	24331	E21 122 42	Merlin Gerlin	Schneider	2.08
F11	1	Circuit breaker C1A 1P	24305	E21 122 02	Merlin Gerlin	Schneider	2.08
H1	1	Lens red	C20SA10		Baco	OEM	3.02
	1	Socket	230E		Baco	OEM	
	1	Label holder	WP3		Baco	OEM	
	1	Label Alarm	IA9-521		Baco	OEM	
	1	LED-Lamp 230VAC/DC Red	LED230R		Baco	OEM	
	1	Lampsocket 400V	23EA		Baco	OEM	
H2	1	Pilot lamp	C20SA30		Baco	OEM	3.02
	1	Socket	230E		Baco	OEM	
	1	Label holder	WP3		Baco	OEM	
	1	Label Run	IA9-327		Baco	OEM	
	1	LED-Lamp 230VAC/DC White	LED230W		Baco	OEM	
	1	Lampsocket 400V	23EA		Baco	OEM	
J1	1	Enclosure	R061-3061		Danverk	Danverk	2.00
K1	1	Contactora	LC1K0910M7	E32 306 24	Telemecanique	Schneider	3.04
K2	1	Contactora	LC1K0910M7	E32 306 24	Telemecanique	Schneider	4.02
K3	1	Contactora	LC1K0910M7	E32 306 24	Telemecanique	Schneider	3.08
K4	1	Contactora	LC1K1210M7		Telemecanique	Schneider	3.09
K11	1	Relay	C9A41230A	E40 164 17	Releco	OEM	3.02
	1	Socket	S9M	E40 165 65	Releco	OEM	

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Date	Seibu Giken DST AB	Elektromontage i Järfälla	Device list: (C1 - K11)				
Proj.							
Check.	R-061R 3x400V 50Hz						
Norm	Origin	Crea. f.	Crea. by				
Cooke Industries - Phone: +64 9 579 2185 Email: sales@cookeindustries.co.nz Web: www.cookeindustries.co.nz						3061-02	Page 5 9 Pg

Device list

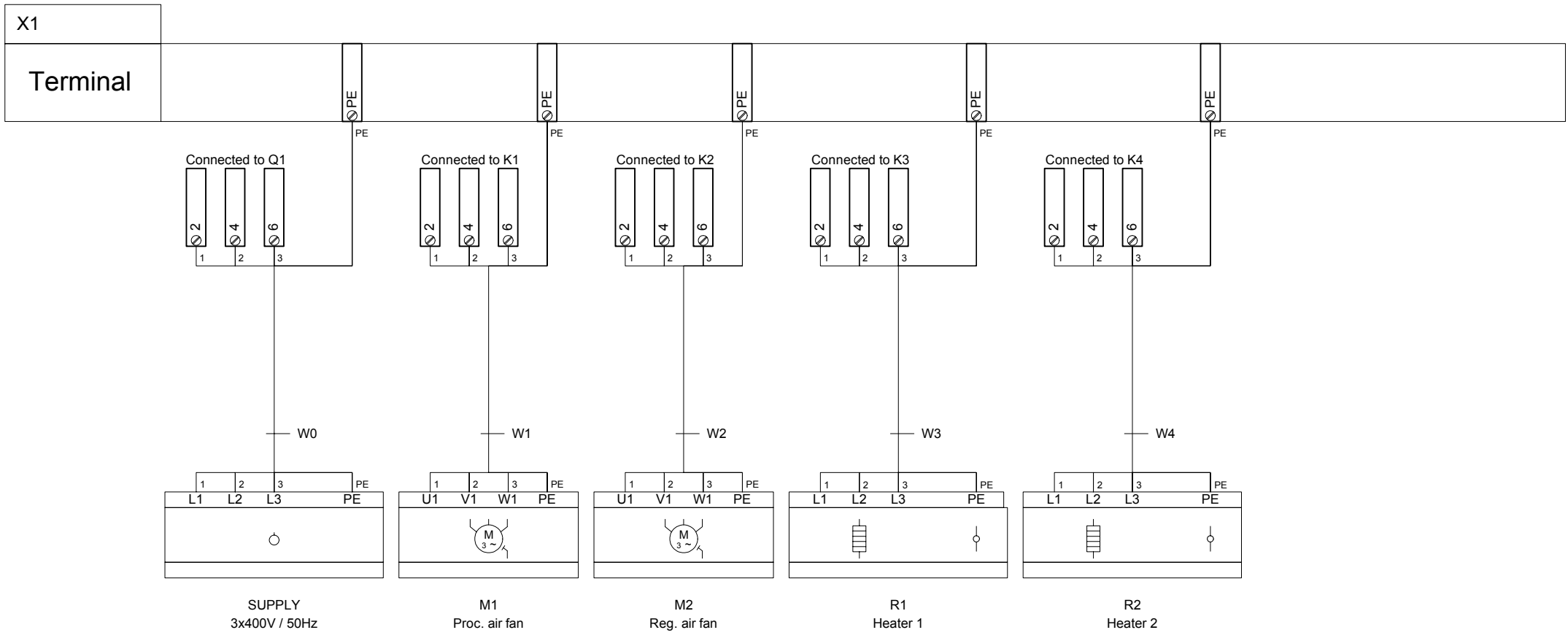
DT	Quantity	Description	Part number	Model Number	Manufacturer	Supplier	Page
K12	1	Relay	C9A41230A	E40 164 17	Releco	OEM	3.02
	1	Socket	S9M	E40 165 65	Releco	OEM	
K13	1	Time relay	H3DE-M2		Omron	Omron	3.07
P1	1	Run time meter 230V 50Hz	XBKH70000002M		Telemecanique	Schneider	3.04
Q1	1	Handle	OHY2PJ		ABB	ABB	2.00
	1	Switch AC22/AC23 25/20A	OT25ET3		ABB	ABB	
S1	1	Label holder	WP3		Baco	OEM	3.01
	1	Lampsocket 400V	23EA		Baco	OEM	
	1	LED-Lamp 230VAC/DC White	LED230W		Baco	OEM	
	1	Push-button illuminated head transparent	C21AH30		Baco	OEM	
	1	Socket	233E		Baco	OEM	
	1	Auxilliary contact	23E10		Baco	OEM	
	1	Label On	IA9-303		Baco	OEM	
S2	1	Push-button head black	C21AA03		Baco	OEM	3.01
	1	Socket	233E		Baco	OEM	
	1	Auxilliary contact	23E01		Baco	OEM	
	1	Label holder	WP3		Baco	OEM	
	1	Label Off	IA9-304		Baco	OEM	
S3	1	Socket	233E		Baco	OEM	3.05
	1	Auxilliary contact	23E10		Baco	OEM	
	1	Handle 2 pos	C21KA03		Baco	OEM	
	1	Label Aut Man	IA9-4328		Baco	OEM	
	1	Label holder	WP3		Baco	OEM	
S4	1	Handle 2 pos	C21KA03		Baco	OEM	3.08
	1	Socket	233E		Baco	OEM	
	1	Auxilliary contact	23E10		Baco	OEM	
	1	Label holder	WP3		Baco	OEM	
	1	Label Heater	1110169.002		Baco	OEM	
T1	1	Transformer 400/230V 200VA	5405		Webelco	Webelco	2.08
TH1	1	Super heating protection	100628		Jumo	DST	4.01
TH2	1	Thermostat	101328		Jumo	DST	3.08
TH3	1	Super heating protection	100628		Jumo	DST	3.02
X1	11	Terminal	WDK2,5	1029100000	Weidmuller	Weidmuller	
	2	Endstop screw	WEW35/2	1061200000	Weidmuller	Weidmuller	
	1	Endcover	WAP WDK2,5	1059100000	Weidmuller	Weidmuller	
PE	1	Earth bar	JS15/5	E96 721 90	Ahlsell	Ahlsell	2.01

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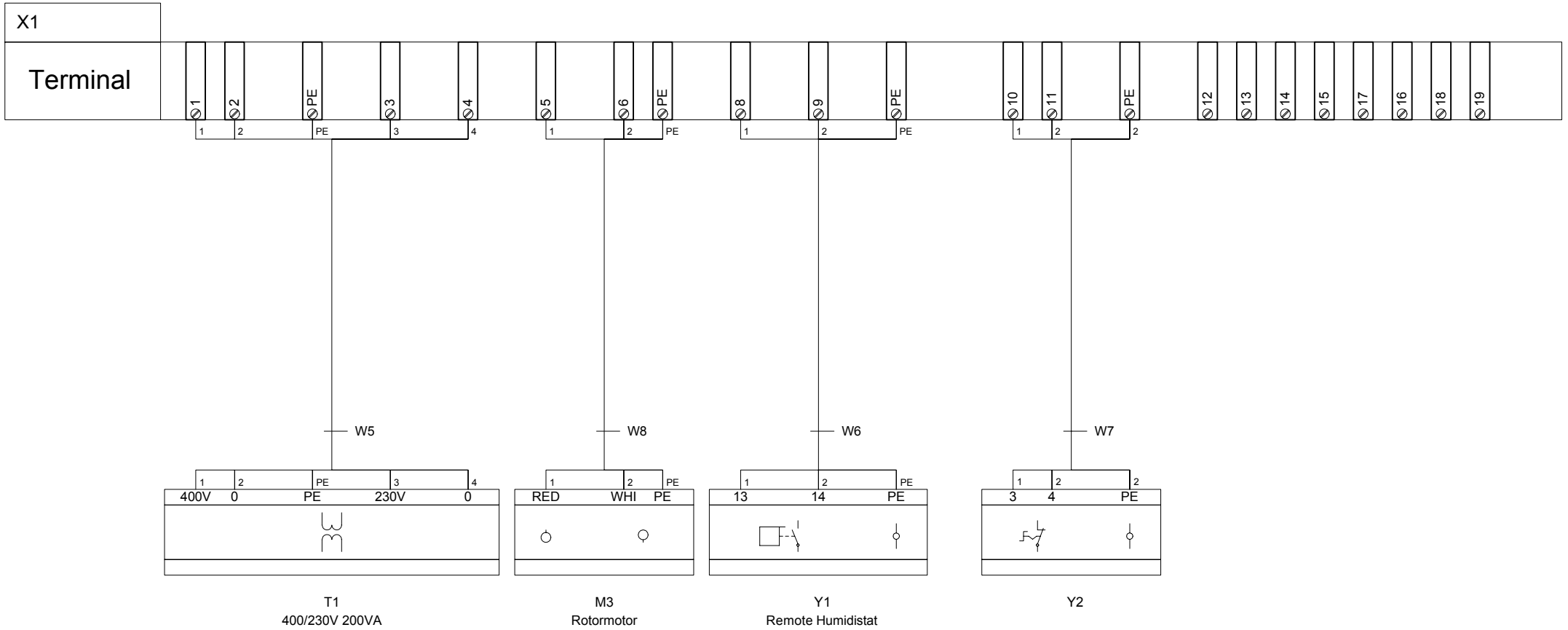
7

Date	Seibu Giken DST AB	Elektromontage i Järfälla	Device list: (K12 - PE)				
Proj.							
Check.	R-061R 3x400V 50Hz						
Norm							
Cooke Industries - Phone: +64 9 579 2185 Email: sales@cookeindustries.co.nz Web: www.cookeindustries.co.nz						3061-02	Page 6 9 Pg

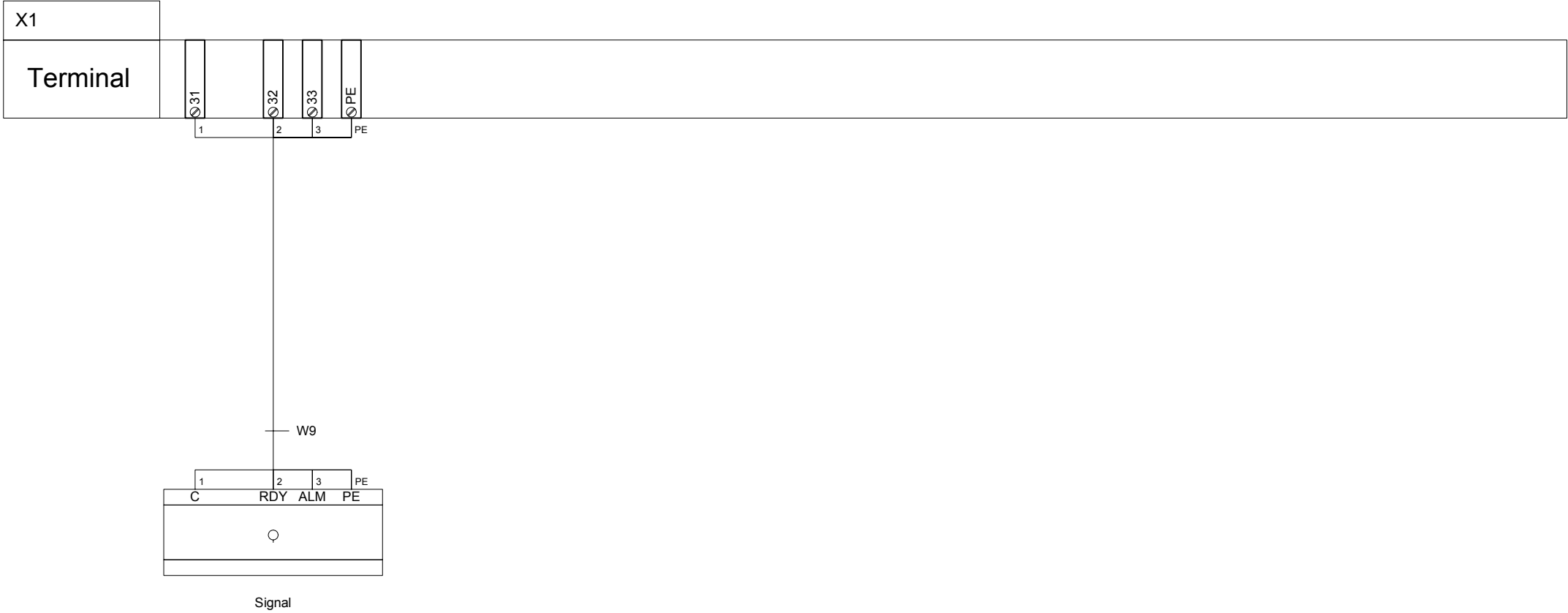
Terminal-connection diagram



Terminal-connection diagram



Terminal-connection diagram



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EC declaration of conformity

Manufacturer:

Seibu Giken DST AB
Avestagatan 33
S-163 53 SPÅNGA
Sweden
Tel: ...46 8 445 77 20 Fax: ...46 8 445 77 39

Hereby confirms that:

Machinery type R-061R with serial number from R-061R.0400304


a) is manufactured in compliance with COUNCIL DIRECTIVE of 22 June 1998 on the approximation of laws of the Members States relating to machinery, 98/37/EG, with special concern to Annex I in the directive concerning essential health and safety requirements relating to the design and construction of machinery, supplemented with:

1. COUNCIL DIRECTIVE, 91/368/EEG, of 1 January 1997 amending Directive 98/37/EG on the approximation of the laws of the Members States relating to machinery.
2. COUNCIL DIRECTIVE, 93/44/EEG, of 1 January 1997 amending Directive 98/37/EG on the approximation of the laws of the Members States relating to machinery.
3. COUNCIL DIRECTIVE, 93/68/EEG, of 1 January 1997 amending Directive 98/37/EG on the approximation of the laws of the Members States relating to machinery.

b) is manufactured in compliance with COUNCIL DIRECTIVE of 3 May 1989 on the approximation of laws of the Members States relating to electromagnetic compatibility, 89/336/EEC, supplemented with:

COUNCIL DIRECTIVE, 93/68/EEG, of 1 January 1997

c) is manufactured in compliance with European Standards EN 60204-1, EN 292-2, EN 294, EN 50 081-1 and EN 50 082-1.



Anders Kristoferson, Managing Director

Spånga 12 JAN 2004

DST
Seibu Giken 