

Atomizer Air Humidifiers

Type DG4 / DG8



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1. Instructions

Dear Customer,

Microatomization and fast freshwater exchange ensure optimum operating properties. Our range of products includes devices with circulation air blower for fast, uniform moisture distribution and also still humidification (without circulation blower) for special applications.

The control box NR operates to an extraordinary high degree of precision and automatic controls 1 to 4 air humidifiers. The integrated automatic freshwater control ensures that the residual water in the unit is essentially used up after reaching the set humidity level and, when restarted, freshwater is immediately fed to the unit and atomized. The unit can be set to a range of 30-90% relative humidity with the room hygrostat RH1 and the duct humidistat KF 1.

The DG4 is not available with the automatic freshwater control.

1.1 Operational Safety notes

Observe all safety and warning notices on the unit.

Observe applicable national accident prevention regulations.

Turn off the power before service work or repairs are done to the unit.

Work on the electrical installation must be carried out by qualified electricians.

1.2 Transport

Carefully transport, load or unload the atomizer to avoid any damage.

Pay attention to the pictograms on the carton.

Upon receipt of the unit, make sure that:

- Type and serial number on the type plate correspond with order and delivery notes.
- That the equipment parts are complete and in perfect condition.

Note: File immediately a written report to your shipping agent in case of transport damage.

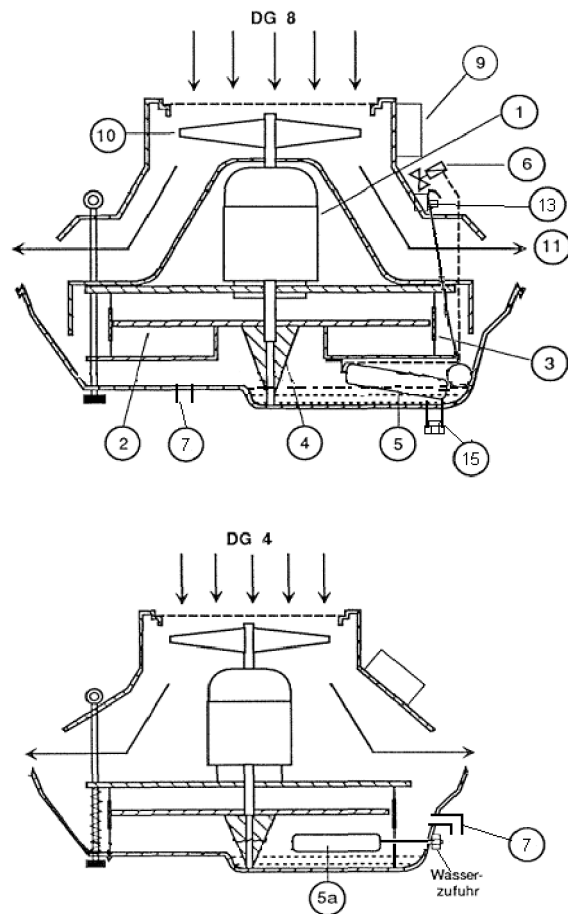
1.3 Technical data

Type HygroMatik		DG4 with air circulation	DG8 with air circulation
humidifying capacity	[kg/h]	4	8
effective volume*	[m ³]	400	1200
circulation air volume	[m ³ /h]	350	600
motor power rating	[kW]	0,14	0,25
power supply**	V/50Hz/3/N	230	-
	nominal current A	0,65	-
	V/50Hz/3/N	-	360 - 420
	nominal current A	-	0,77
	V/50Hz/3/N	-	210 - 240
	nominal current A	-	1,3
height	[mm]	540	620
diameter		280	390
operating water volume	[l]	0,5	0,5
max. water pressure	[bar]	6	10
Water connection:			
feed pipe		R 1/4"	R 1/4"
safety overflow		R 1/2"	R 1/2"
electric		-	Yes
safety water supply			
weight	[kg]	4,5	15,0
operational weight		5,0	15,5

* effective volume depends greatly on required room humidity

** special voltage on request

1.4 Schematic diagram



1. Electric motor
2. Atomizer disc
3. Baffle grid
4. Water feed cone
- 5a. Mechanical float - only DG 4
6. Water solenoid valve for operating level
7. Mechanical overflow
8. Atomized droplet spray
9. Terminal box
10. Fan impeller
11. Carrier air flow

Nur bei DG8:

13. Mechanical level float and microswitch for electrical safety overflow/guard
14. Water solenoid valve for electrical - safety overflow guard
15. drain connection

1.5 Description of Operation

HygroMatik atomizing air humidifiers work on the centrifugal principle.

There is a water pan in which a normal operating water level is maintained by means of a regulating system consisting of an electrical float (5) and a water solenoid valve (6). The water is drawn up on the outside of the atomizer disc (2). This causes the water to travel outwards as a film on the underside of the disc until it becomes detached at the edge, where it is flung at high velocity into the guide vanes of the baffle grid (3) and is atomized into fine droplets, suspended in the air, evaporate and the humidity is immediately taken up by the air. For higher rates of humidification, the evaporative effect is intensified by the fan and the carrier air flow (11). The carrier air flow is blown not through, but over the bonnet of the humidifier, so as not to suck in the dust from the air of the room.

1.6 Faults

1.6.1 Output fall off

If the humidification rate drops off, or the humidifier ceases to function, check the following:

- The motor protection switch. If it repeatedly cuts out, have it checked by an electrician.
- Main fuses.
- Control fuse in the control box NR.
- Set the selector dial on the RH hygrostat to 90% for a short period; the air humidifier should start up immediately.
- Check the function of the solenoid valves.

1.6.2 No water in the pan

- Check the function of the float which controls the operating level and check the quantity of water filled into the pan.
- If necessary, depending on the amount of water found, shift the float to a higher or lower position in the slotted hole in its holder.
- Check the functioning of the mechanical float and micro-switch in the electrical overflow control system.
- Check the function of the water solenoid valves, especially that they close satisfactorily and check the strainer in the inlet union.
- DG8: Wassermagnetventile auf Funktion prüfen, insbesondere einwandfreie Schließfunktion und Filter in der Zulaufverschraubung.

1.6.3 Water fault

Red lamp on control box NR:

- See 1.7.2

1.7 Maintenance

Periodic cleaning and checking of the level control system and particularly the water solenoid valves, should be carried out at intervals depending on the degree of fouling.

- Remove the water pan (4 handnuts) and clean.
- Clean the water feed cone.
- Clean the baffle grid. If there is much scale formation, use an ordinary commercial scale remover to remove it, taking the baffle grid out if necessary. Rinse thoroughly with water.
- Check the level control system - the electrical float and the solenoid valve (check that it closes properly).
- Check the electrical overflow control system - the mechanical float / microswitch and solenoid valve (check that it closes properly).
- Run the motor and check for any bearing noises.
- Check that the overflow line (if present) is not obstructed.
- Carry out a trial run.
- Readjust the humidity sensor in the hygrostat by comparing to an accurate measuring instrument.

1. Installation

1.1 Atomizer

Install approximately centrally over a gangway if possible (to facilitate maintenance). If a number of humidifiers are used, distribute them uniformly over a area.

For ceiling heights up to 3.5 m, mount directly under the ceiling; in case of higher ceilings, suspend such, that the bottom of the humidifier is approx. 2.5 - 3 m above the floor. Minimum ceiling and lateral clearances as shown in installation drawing 2.4.

When suspension chains are used, it is essential to spread and fix them at 4 points, otherwise there is a risk of the unit rotating at start-up with breakage of the water line. The humidifier must be suspended precisely horizontally (length or shorten the suspension chains).

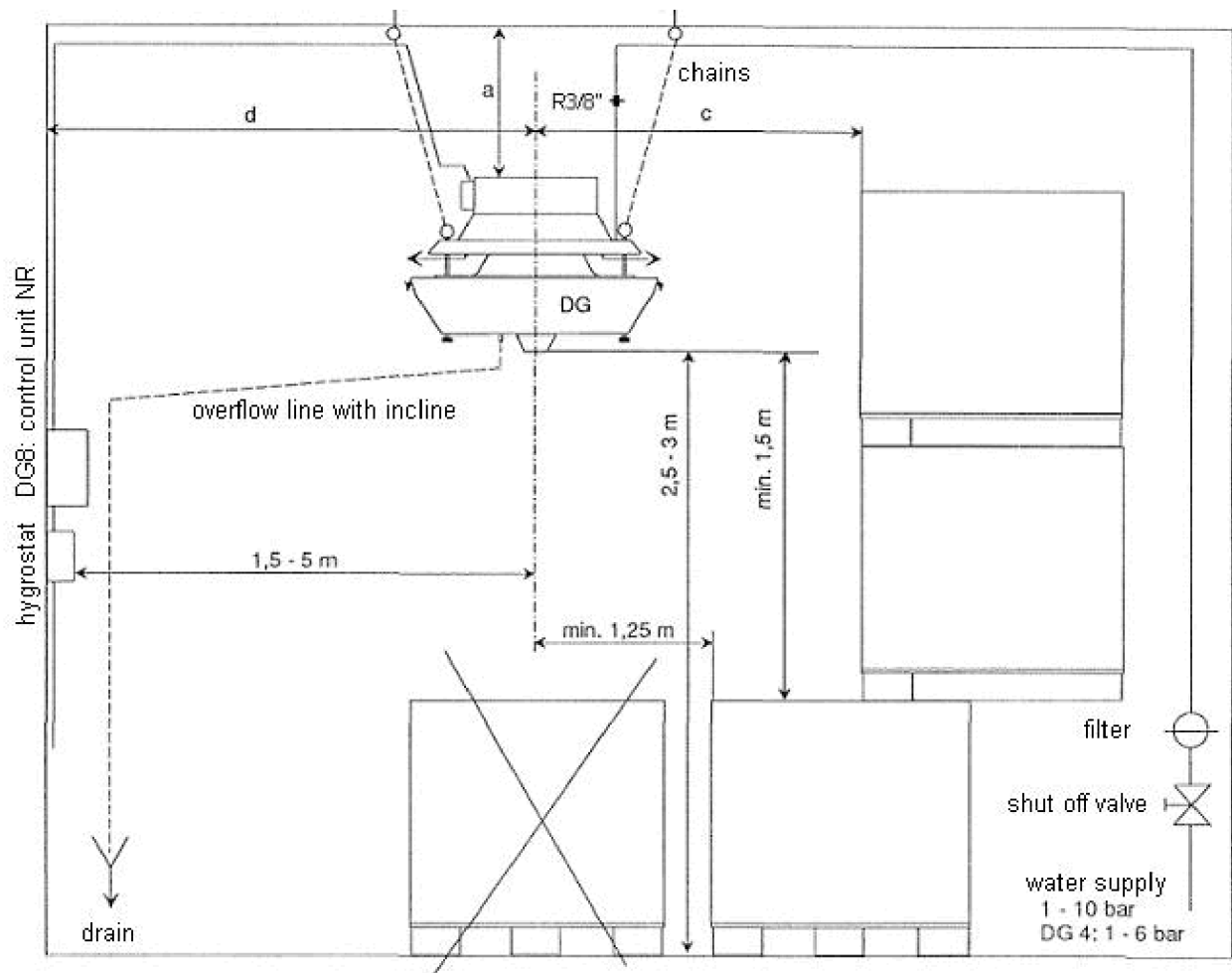
1.2 Hygrostat

Mount at a height of approx. 1.5 - 2 m on a column or inside wall at a point where normal atmospheric conditions prevail, not in direct sunlight and not above a source of heat. Distance from air humidifier, 1.5 m min. 5 m max..

1.3 Control box NR

Install at a place where it is easy to see, so that an indicated fault can be seen and cleared.

1.4 Installation of DG



a: DG4 min. 0,4 m
DG8 min. 0,8 m

b: DG4 min. 0,4 m
DG8 min. 0,7 m

c: DG4 min. 1,0 m
DG8 min. 2,5 m

d: DG4 min. 1,0 m
DG8 min. 2,5 m

1. Water installation

1.1 Water feed

The connection on the humidifier to the water feed line is a 1/4" BSP externally threaded nipple. With water pressures up to 10 bar, (DG4 max. 6 bar) connect directly to the water main; otherwise fit a pressure reducing valve. Min. working pressure, 1 bar.

The water feed line should be brought down from the ceiling (otherwise condensation around the line might occur).

It is advisable to insert a strainer in the common feed line and stop valve for each humidifier.

1.2 Safety overflow

Install an overflow line with a continuous downward slope to drain, from the 1/2" nozzle on the water pan. Hose and pipe size, 15 mm i.d. minimum, depending on the downward gradient. If space does not permit the installation of an overflow pipe, the electrical overflow control system must be provided (DG 4 - not deliverable with electrical safety overflow guard).

1.3 Elektrische Überlaufsicherung, Niveau-steuerung, Wasserfüllung bei DG8

The level in the water pan is controlled by means of a regulating system consisting of an electrical float and a solenoid valve, fitted as standard equipment. In addition, as an optional extra, an overflow control system may be fitted which immediately shuts off the water feed when the max. water level is reached and which signals the malfunction of the primary level control by a red warning light at the NR control box. The air humidifier continues to operate normally, but with a higher water level.

To abolish see faults 1.7.

Operation - water filling: DG4 / DG8 approx. 0.5 l

1. Electrical installation

1.1 Electrical installation

- **All work must be carried out by qualified electricians.**
- Carry out the electrical installation in accordance with the electrical circuit diagrams.

Connect max. 4 atomizers to one control box NR.

Note: All NR units are equipped as standard with automatic freshwater control.

After the set humidity level has been reached, the solenoid-operated water valve „operating level“ switches off first, while the motor or the diffuser system continues to run for several minutes, thereby using up the residual water in the tray. When restarted, freshwater is immediately fed to the unit and atomized.

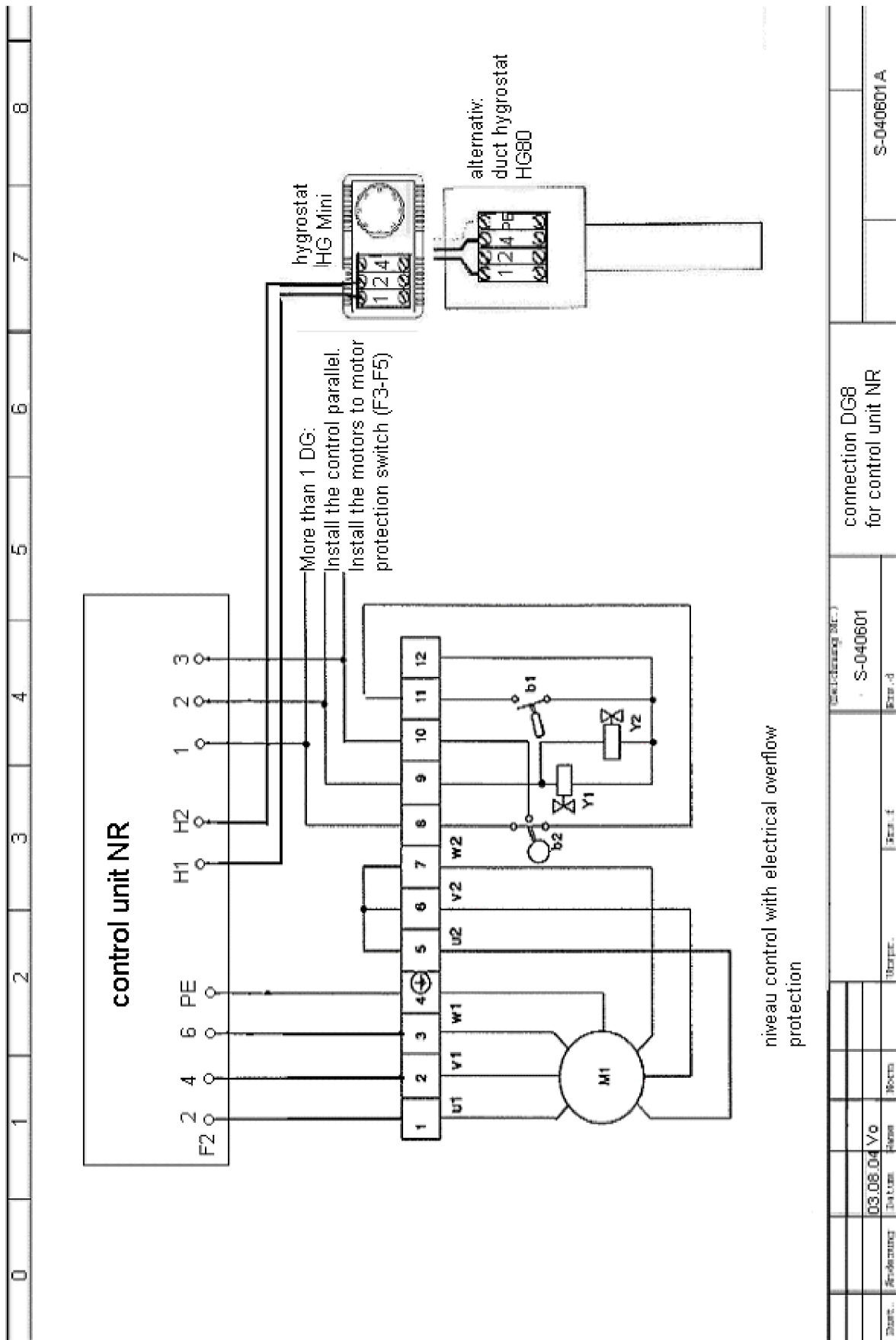
Caution: If the unit is briefly switched on and off again by adjusting the hygrostat, a time delay of approx. 5 minutes must elapse before the motor switches off.

- **Set the motor protection switch at the nominal amperage stated on the name plate.**
- Main fuses must be supplied by the customer.
- A 4 A control fuse is incorporated to the terminal block in the control box NR.

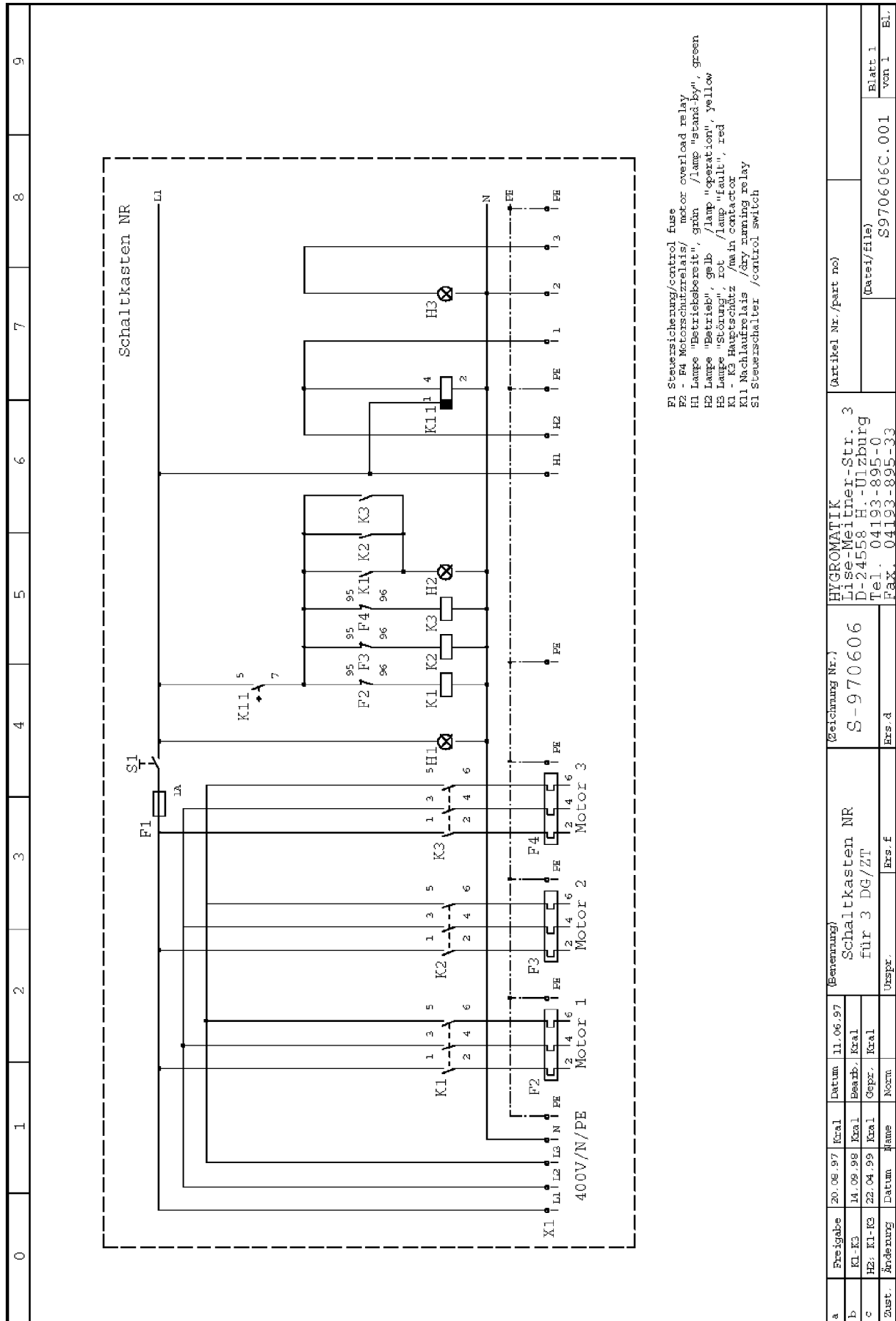
1.2 Legend for Wiring Diagrams DG

b1	Electrical float for operational level
b2	Electrical float for electrical safety overflow
F1	Motor protection switch
F1	Motor protection relais
F1	Safety fuse, 4 A
H1	LED „Stand-by“ (green)
H2	LED „Humidification“ (yellow)
H3	LED „Fault“ (red)
Hy	Hygrostat
K1	Main contactor
K11	Delayed relais
M1	Motor 380 V 3N 50 Hz
M2	Motor 230 V 3N 50 Hz
M3	Motor 230 V 1N 50 Hz
S1	Main switch
Y1	Solenoid valve for automatic water feed
Y2	Solenoid valve for operational level

0	1	2	3	4	5	6	7	8	9		
Verdrahtungsempfehlung - recommendation for external wiring											
external Motorschutzschalter											
external motor protection switch											
<p>PE extra Stützklemme PE additional terminal</p>											
external Hygrostast											
external hygrostat											
<p>N & PE extra Stützklemmen N & PE additional terminals</p>											
Zerstäuber DG4											
humidifier DG4											
<p>C1</p> <p>M1</p> <p>U V W</p> <p>PE</p>											
a	Freigabe	25.11.98	Kral	Datum	25.11.98	Benennung)		(Zeichnung Nr.)	HYGROMATIK Lisse-Meittner-Str. 3 D-24558 H.-Ulzburg Tel. 04193-895-0 Fax. 04193-895-33		
b	Klemme 2	30.07.04	Vo	Bearb.	Kral	DG4 230V/1N/50Hz		S-980605			
				Gepr.	Kral	Umspr. Zg.19.04.94		Ers.f			
Zust.	Änderung	Datum	Name	Norm				Ers.d			
								(Artikel Nr./part no)			
								(Datei/file)	S980605B.001		
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0	1	2	3	4	5	6	7	8	9
<div> <div>Schaltkasten NR</div> </div>									
d	Adresse	14.12.01	Ha	Datum	11.06.97	HYGROMATIK		(Artikel Nr./part no)	
b	z/3.H2.K11	29.07.97	Kral	Beab.	Kral	Lise-Neitner-Str. 3		S-970604	
c	K1-K2	14.09.98	Kral	Gepr.	Kral	D-24558 Henschedt-Ulzburg		(Datei/file)	
Zust.	Änderung	Datum	Name	Norm	Urspr.	Tel. 04193-882-0		S970604D.001	
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a	Freigabe	20.06.97	Kral	Datum	11.06.97	(Genehmigung)	Schaltkasten NR für 3 DG/ZT	HYGROMATIK Lise-Meitner-Str. 3 D-24558 H.-Ullzburg Tel. 04193-895-0 Fax. 04193-895-33	(Artikel Nr./part no)
b	K1-K3	14.09.98	Kral	Bearb.	Kral				
c	H2: K1-K3	22.04.99	Kral	Gepr.	Kral				
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. d	Ers. f	Blatt 1 von 1

S-970606		Ers. d
S-970606C		Ers. f

11. Spare Parts

DG			
4	8	Part Nr.	Description
			Cabinet
		E-8101001	Motor hood with dust cover
	1	E-8101002	Motor hood
1		E-8101023	Air guidance hood
	1	E-8101006	Air guidance hood
1		E-8101024	Fan impeller
1		E-8101025	Guard grille for fan impeller
	1	E-8101011	Guard grille for fan impeller, compl. with fixing screws
1		B-8101026	Water pan with safety overflow 1/2"
	1	B-8101014	Water pan with safety overflow 1/2"
1		B-8101013	Water pan with guide blades and safety overflow 1/2"
		B-8101018	Water pan with guide blades and safety overflow 1/2"
	1	E-8101021	Water pan for electr. safety overflow guard (without mechan. overflow)
			Drive motor and accessories
1		B-8201023	Drive motor 230 V/3/N ~ 50 Hz, with capacitor, A- and B-side shaft
		E-8201001	Drive motor 230/400 V/3/N ~ 50 Hz, A-side shaft
	1	E-8201003	Drive motor 230/400 V/3/N ~ 50 Hz, A- and B-side shaft
1		E-8201024	Capacitor for AC operation 220 V/1/N ~ 50 Hz
4		E-8201027	Fixing screws for motor, with U-washers and lock washers
	4	E-8201005	Fixing screws for motor, with U-washers and lock washers
1		E-8201023	V-Ring for motor shaft A-side
1		E-8201043	V-Ring for motor shaft B-side
	2	E-8201006	V-Ring for motor shaft A-side and B-side
1	1	B-8201018	Terminal box, 12-poles, compl. with fixing screws
	6	E-8201019	Plug sockets for cable bushings
			Level control system and electr. safety overflow guard
	1	E-8301001	Electrical float for operational water level
	1	B-8301002	Holder for electrical float compl. with screws and screws-type cable fitting
	1	B-8301003	Solenoid valve 1 with holder - water inlet with built-in strainer
	1	B-8301004	Mechan. rod float valve with bearing block assembly for electr. safety overflow guard
	1	E-8301005	Microswitch for electrical safety overflow guard
	1	B-8301006	Solenoid valve 2 with holder-water stop for electr. safety overflow guard with strainer
1		B-8301007	Mechanical float valve up to 6 bar, compl. with nut
1		B-8301008	Connecting union R 3/8" - pipe fitting ø6
	1	B-8301009	Solenoid valve - water inlet or electr. safety overflow guard, without inlet fitting
	1	E-8301010	Holder for solenoid valve
	1	E-8301021	Float for E-8301004
	1	E-8902013	Coil for solenoid valve, 230V
	1	E-8301037	Drain fitting

DG			
4	8	Part Nr.	Description
			Water feed and atomizer components
1		E-8401009	Water feed cone
		E-8401002	Water feed cone
	1	E-8401003	Water feed cone
1		E-8401010	Atomizer disc
	1	E-8401004	Atomizer disc
1		E-8401012	Baffle grid
	1	E-8401007	Baffle grid
2		E-8401011	Nuts and washers for fixing atomizer disc
	2	E-8401006	Nuts and washers for fixing atomizer disc
2		E-8401014	U-washer d=8,4 mm
	2	E-8401013	U-washer d=13 mm
			Mechanical parts, hoses, screws, seals
1	1	B-8501001	Flexible water feed pipe assembly (water line - solenoid valve) with connecting union
	1	B-8501002	Connecting line, solenoid valve 1 - solenoid valve 2, only for electr. safety overflow
	1	B-8501003	Water hose, solenoid valve - water pan, for water feed
1		E-8501020	Motor base plate, plastic
	1	E-8501004	Motor base plate, plastic
	1	E-8501006	Lower base plate for clamping baffle grid
3		E-8501021	Studs M 8x145
		E-8501008	Studs M 10x130
	4	E-8501009	Studs M 10x230
4		E-8501052	Eyebolts M 8
	4	E-8501010	Eyebolts M 10
3		B-8501022	Spacers, motor hood - air guidance hood
	4	B-8501011	Spacers, motor hood - air guidance hood
9		E-8501023	Washers, plastic, hard, d=8.5 mm
	16	E-8501012	Washers, plastic, hard, d=10.5 mm
12		E-2206057	Studs, M8
	16	E-2207009	Studs, M10
12		E-8501025	Washers, soft, as water pan seals
	16	E-8501014	Washers, soft, as water pan seals
3		E-8501026	Tommy tommy screws for fixing water pan
	4	E-8501015	Tommy tommy screws for fixing water pan
3		B-8501027	Suspension chains with hooks and dowels
	4	B-8501018	Suspension chains with hooks and dowels
1	1	B-8501017	Overflow connection assembly, 1/2", as hose nozzle
			Control box and hygrostats
	1	B-8601021	Control box NR with dry-run relais 400V/3
		B-8601023	Control box NR with dry-run relais 230/3
	1	B-8601011	Motor overload protector 1 - 1,6 A
1	1	B-8601010	Motor overload protector 0,63 - 1,0 A
		E-0611001	Room hygrostat RH1
		E-0611100	Duct sensor KF1
If you order any spare parts, please specify type and serial number of the unit.			



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