

Operating Instruction

Ice machine

ZBE 750

Serial No. 213315

en

Specification with technical data

Set-up Ice-machine

Operating Instruction

Accessories

Mounting Instruction freezing unit

Spare part lists - freezing unit
 - Ice-machine

Refrigeration circuit

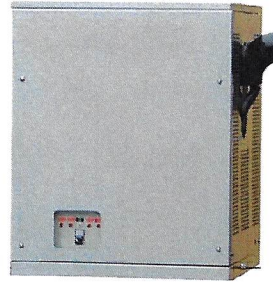
Wiring diagram

Declaration of Conformity





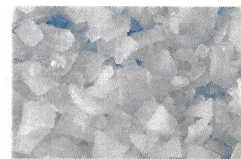
High quality components ...



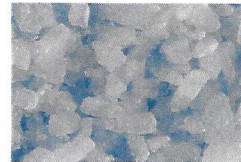
...in a sturdy stainless steel cabinet

Main characteristics

- Capacity: 750 kg/24 h flake ice chipped type
- Ideal ice temperature of $-0,5\text{ }^{\circ}\text{C}$
MacroIce, StandardIce or MicroIce
- Designed for continuous operation -
24 hours - 7 days a week
- Hygienic Design: Closed watersystem -
protected against contamination by external influences
- Environmental friendly technology -
No moving parts in the refrigeration circuit of the
evaporator-
no refrigerant leakage



MacroIce

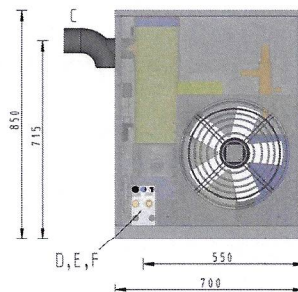
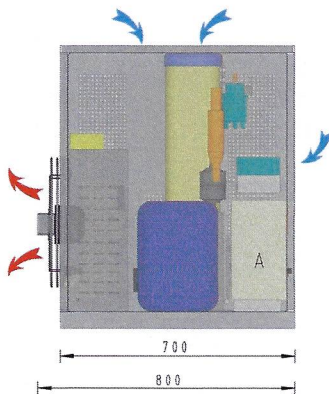


StandardIce



MicroIce

Dimensions and connections



- A control panel
- C ice discharge
- D electr. connection
- E water supply
- F water drain

provided by customer:
water filter
stop cock
electr. protection
waste water connection
(contactless)

Technical Data

	ZBE 750 20°C	ZBE 750 35°C
dimensions (L x W x H)	80 cm x 70 cm x 85 cm	80 cm x 80 cm x 85 cm
weight	140 kg	185 kg
cabinet	stainless steel 1.4301	stainless steel 1.4301
ice discharge	see specification "ice discharges"	see specification "ice discharges"
electricity		
power consumption	2,7 kW	3,1 kW
current consumption	6,2 A	7,2 A
provided by customer		
electric supply	3/N/PE ~ 400V 50Hz	3/N/PE ~ 400V 50Hz
fuse, slow-blow	25 A	25 A
cable cross section, Cu	2,5 mm ²	2,5 mm ²
water		
supply / drain	3/4 " / 14 mm	3/4 " / 14 mm
provided by customer		
pressure	1 - 5 bar	1 - 5 bar
quality	drinking water	drinking water
pH-value	7,2 - 9,5 pH	7,2 - 9,5 pH
hardness	6 - 14 °dH	6 - 14 °dH
temperature	100 - 250 mg CaCO ₃ /l 5 °C - 30 °C	100 - 250 mg CaCO ₃ /l 5 °C - 30 °C
ambient temperature	5 °C - 42 °C	5 °C - 45 °C
condenser	air cooled	air cooled
air flow	2500 m ³ /h	2900 m ³ /h
heat emission	5,5 kW	6,4 kW
refrigerant R452A / R404A	1,8 kg	2,2 kg
compressor	fully hermetic	fully hermetic
refrigerating capacity	3,8 kW	4,3 kW
evaporation temperature	-20 °C	-20 °C
condensation temperature	33 °C	45 °C
noise level	60 dBA (3 m)	60 dBA (3 m)

Subject to technical modifications. In case of deviations please contact us.

Scope of supply

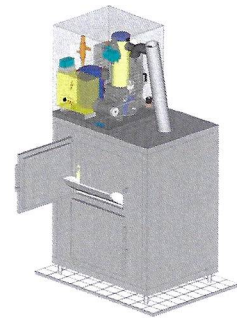
The ZIEGRA ice machine will be delivered according to CE standards and ready for connection to water and electricity.

ZIEGRA quality and reliability

- Condensation control in order to keep an equally high ice quality
- Phase sequence relay
- Overload cut-out / thermal switch for all motors and the compressor
- high pressure pressostat
- Water level monitoring
- Ice discharge hose or discharge tube, according to requirements.
- Switch-off by light scanner or light barrier when ice bin or recipient is full.
- Flexible hose water supply 2 m
- Water drain hose 2 m
- PE ice shovel
- For a wide range of accessories such as storage bins, or water treatment see separate list "options and accessories"

Options

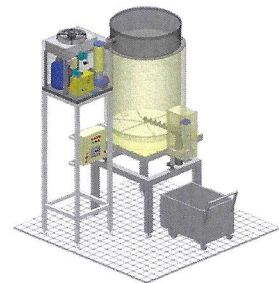
- Ice discharges in various designs, e.g. to produce
 - into a storage bin, or
 - into an ice trolley or similar
- Condenser either blowing upwards or sideways
- Split installation, e.g. condenser, refrigeration unit or both in remote version
- For connection to cooling water
- Low-noise condenser (only for remote installation)
- Ice maker only
 - for separate refrigeration unit
 - for central refrigeration system
- Special voltage



Ice machine with ice storage B400

Accessories

- Ice storage bins in various sizes and designs, suitable for integration into automated processes e.g. AS, S for automatic or manual dosing
- HygienePlus: water drainage, flushing system, or flushing incl. disinfection
- Cartridge Water Filter reduces lime scale and germs
- UV sterilization
- ZIEGRA water softening: available for very hard water and large flow rates
- Support, wall brackets, or similar
- Melt water pump, leak water sensor and leak water tray
- Freeze protection
- additional separate operating switch
- timer for 7 days
- Restart delay
- protection against overvoltage and undervoltage
- Spare parts available for minimum for 15 years
- Global sales and service.



Silo AS 500 with ice machine



Cartridge water filter 90

Technical details: please see respective machine specification. With pleasure we submit to you any further information, also regarding your special requirements

Setup

Ice machine

ZBE 550 - ZBE 1.200

air cooled

To be observed for secured operation and full warranty!

If in doubt:

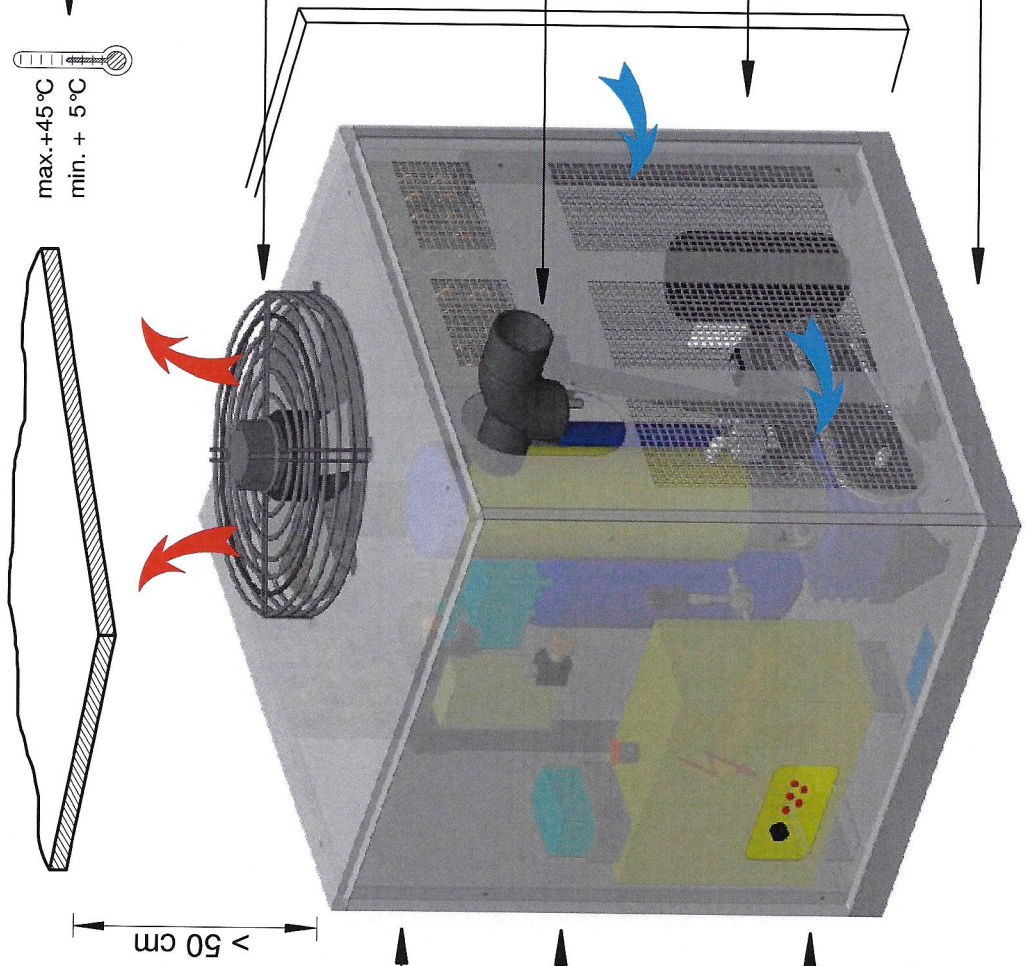
contact ZIEGRA for advice

Tel.: +49-511-90244-0

ice@ziegra.com



- ⑤ Ambient temperature**
 - no sudden fluctuations
 - nominal capacity at 20 °C (extra: at 35 °C)
 - lower capacity at higher temperatures
- ⑥ Air stream condenser**
 - free airflow
 - no ducts
 - no wind against condenser
- ⑦ Ice discharge**
 - see page "ice outlet - storage"
- ⑧ Distance**
 - min. 20 cm
- ⑨ Foundation**
 - solid, no vibrations
 - steel construction to be dimensioned accordingly



- ① Atmosphere**
 - protect against rain, sun
 - wind and dust
- ② Power supply**
 - no fluctuations
 - no shortages
- ③ Room ventilation**
 - free airflow
 - no heat accumulation
 - ventilate room
 - no corrosive atmosphere
- ④ Water supply**
 - water inlet >5 °C
 - water pressure 1 - 6 bar
 - hardness 108 - 250 mg CaCO₃ / litre
 - ph-value 7,2 - 9,5
 - potable water
 - public water, no well water

Details: see specification



www.ziegra.com

Operating Instructions

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Wiring diagram	attached
Cooling circuit	"
General installation advice	"
Assembly Instruction Freezing Unit	"
Spare parts list	"

Subject to technical modifications 9.09

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ZBE 550

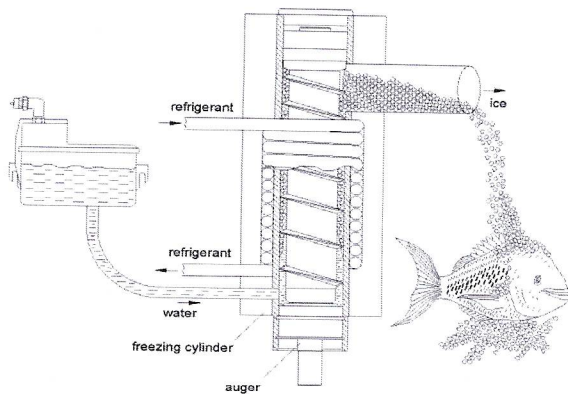
ZBE 750

ZBE 1.000

ZBE 1.200

Working method

The ZIEGRA chip-ice machine is delivered ready for operation and has only to be connected to power and water supply.



No operating personnel is required.
The machine works fully automatically.

Water flows by gravity from the water chamber in the ice-machine into the freezing cylinder. An evaporating coil (e.g. R404) surrounds the cylinder, freezing the water inside at an evaporation temperature of -15°C up to -25°C .

An auger continuously scrapes thin layers of ice from the inner cylinder wall and conveys it upwards. There the ice is compacted, frozen further and subsequently broken off.

By this procedure the refrigeration energy can freeze the following water without loss.

If the ice layer would become 1 or 2 mm thick, an unnecessary amount of energy would have to be used for freezing due to the high insulating capacity of ice.

The **ideal ice thickness of 6 - 9 mm** at low energy consumption can be achieved thanks to the idea of subsequently compacting the ice.

The ice being frozen on the inner wall of the cylinder, the refrigeration system of ZIEGRA Chip Ice Machines is completely sealed. The rotating auger does not form part of the refrigeration circuit.

Therefore leakages in the refrigeration system caused by rotating parts cannot occur.

The ideal ice temperature is $-0,5^{\circ}\text{C}$

ZIEGRA Chip-ice has the ideal temperature of $-0,5^{\circ}\text{C}$.

It is irregular and crystalline in structure and always stays loose.

In contrast with other types of ice it can be stored without being sub-cooled and never freezes up.

ZIEGRA-Chip-Ice is frozen within the patented freezing cylinder at an evaporation temperature of -15°C up to -25°C . Due to the special procedure maximum refrigeration capacity is obtained at a very low energy consumption.

Cooling energy:

The uninterrupted line shows the accumulated energy per kg of ice (refrigeration energy).

Only when ice having a temperature of 0°C melts to water of 0°C , the considerable

Refrigeration Capacity of
is released (vertical line)

80 Kcal / kg

The cooling capacity of water per $^{\circ}\text{C}$ is
(left line)

ice temperatures below 0°C give only

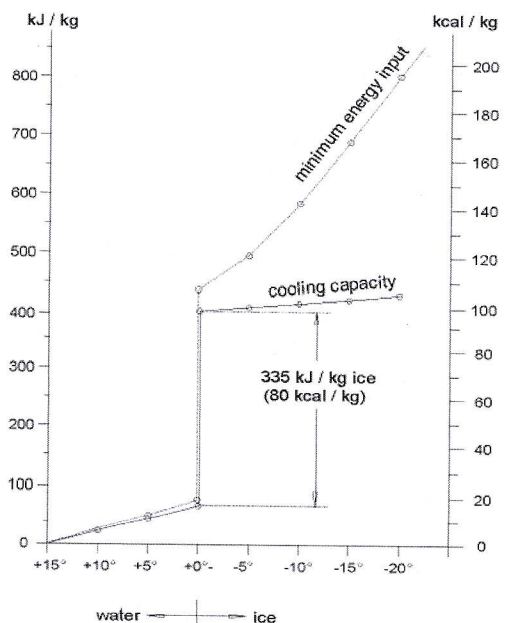
**1 Kcal / kg,
0,5 Kcal / kg.**

Energy consumption:

The broken line shows the minimum electric energy consumption necessary for every ice production.

For an ice temperature of 0°C energy input and the refrigeration capacity produced are closely correlated.

Only when ice is unnecessarily cooled to temperatures below 0°C , the energy required rises disproportionately.



1. Ambient temperature:	Design	max.	min.
Standard version.	20 °C	42 °C	+ 5 °C
Tropical version:	35 °C	45 °C	+ 5 °C

Water temperature

Standard version.	15 °C	> 5 °C
Tropical version:	25 °C	> 5 °C

2. Installation place:

The distance between condenser (air outlet) and wall or ceiling respectively shall at least be 75 cm, see data sheet.

Provide sufficient room ventilation.

Prevent any heat build-up.

Especially the air outlet of the condenser must be free and at least 1,5 to 2,5 times larger in diameter than the condenser itself.

At higher air temperatures (above 20°C resp. 35°C), or insufficient ventilation of the machine, and at water temperatures above 15°C resp. 25°C the production capacity may decrease.

3. Water connection

The machine works with normal potable water.

pH-value: 7,2 - 9,5

water hardness

> 14° dH (>250 mg CaCO₃/ltr) use water softener

< 6° dH (>100 mg CaCO₃/ltr) consult Ziegler

Provide at site: Rigid piping or high-pressure hose.

If long supply lines necessary, insulate, if possible.

Water pressure 1 - 5 bar

(ZBE 1.000 and 1.200: 2 - 5 bar)

Provide water overflow hose

4. Electrical connection 400V - 3 - 50 Hz
Or according to order, type plate, wiring - diagram

Check voltage:

Max. deviation is +5% / -10%

Check phase sequence:

When the phases are not in the correct order, the direction of the auger is reversed.

The ice then is pressed down onto the bearing instead upwards, damaging the seal.

(Phase sequence relay: see page 3, point 10)



Observe the arrow indicating the direction of rotation

Provide at site:

Provide main switch and fuses according to wiring diagram. Make firm installation to mains power supply, do not use a plug-and-socket connection in order to avoid later erroneous interchange of phases.

Tighten all electrical connections in the control panel, as they may have loosened during transport

Crankcase heater:

Some machines are equipped with a crankcase heater. After connecting the machine to electricity, the start-up is possible only after abt 1 hr. (Preheating - see page 3 point 9)

5. Cut-Out of machine when storage bin or ice car is full:

See page 3 point 2 .

and contact our service department

6. Start:

Ice production starts after approx. 2 min.

7. V-Belt:

Check after 2-8 days and tighten, if necessary.

8. Ice discharge

Fasten tube to the ice discharge slightly with the clamp. Put on the insulation.



The ice must leave the outlet freely and without clogging.

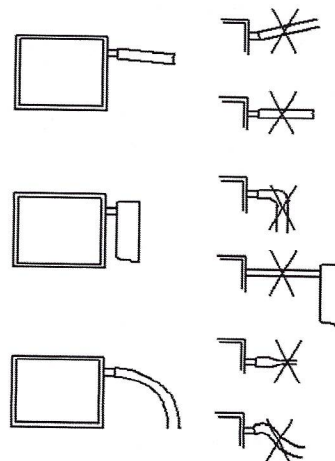
Otherwise the freezing unit and gearbox will be overloaded.

Extension of ice discharge tube.

Enlargen diameter, no sharp curbs. Only use tubes with smooth inner surface, without edges or ridges.

Ice must slide downwards only,
not horizontally or upwards.

Further advice in the extra folder "Installation Ice discharge"



Operation
of ice machine



Only by
operating switch

1. When switching off the machine by the operating switch, the drive motor of the freezing unit continues to run for further 3 minutes. Thus the new ice produced by the re-evaporation will still be removed, preventing a possible freeze-up of the machine.



When the machine is switched off by the emergency cut-out or the main switch provided at site, the after running is out of operation. Therefore a period of approx. 30 minutes should elapse for safety reasons, before the machine is switched on again.

2. Cut-out of machine when storage is full:

a) Light barrier in the ice hose:

The light barrier switches the machine off, when the storage is full and the ice mounts into the ice hose. Automatic restart after removal of ice.

b) Heated light barrier:

For larger cold rooms we recommend a heated light-barrier to switch the machine off when the bin is full. This light barrier has been chosen by us for these particular conditions. Please contact us.

c) Other cut-off devices:

Also when the ice is produced directly in an ice car, a cut-off device should be installed. Please contact our service department.

3. Control lamps:

white: Machine operates and produces ice
yellow: The ice bin is full or the Compressor is switched off and the freezing units run for further 3 minutes. See above.
red: The lamps indicate, where a failure has occurred.

4. Water-Level Control

The water-level control switches the machine off in case of water shortage. After-running as described under 1 (Control lamp lights up). Automatic reset, when the water supply has been restored.

5. High/Low pressure switch

The machine is switched off, if there is e.g. excess pressure in the refrigeration system caused by too high ambient temperature or soiled condenser, or if the pressure is insufficient due to refrigerant loss. (Control lamp lights on)

6. Safety Device for the Compressor:

A built-in or external motor protection guards the compressor motor against overheating and excessive drawing of current.

7. Overload cut-out

All other motors are also protected against overload by overload cut-out devices or motor protection switches.

8. Capacity control

The capacity control protects the evaporator and the compressor against over burdening by too low ambient- or water temperature.

9. Crankcase Heating

If a crankcase heater is installed, the machine must be switched on by the main switch at least 1 hour in advance to allow pre heating.

10. Phase sequence Relay

The phase sequence relay switches off the machine, if the phases are not connected in the correct order. (see electrical connection)

11. Low voltage relay

(not provided in all machines)
The relay cuts the machine off, if the voltage drops under the tolerated 10% low voltage.

12. Automatic water drain

(not provided in all machines)
In order to reduce nucleation in stagnant water, a solenoid valve closes the water inlet as soon as the machine is out of operation. Another opens the water drain thus emptying the water chamber and the freezing unit.

13. Ice jam switch on the ice outlet

This security switch switches off the machine, should the ice jam in the ice hose. (e.g. if the light barrier fails)
After the failure has been found and the ice outlet has been reinstalled, the machine switches on again automatically.



**For your safety and environmental protection:
Have repairs of electrical parts and refrigeration circuit
only carried out by a qualified technician!**



2 - 8 days after installation

V - belts check tension tighten

Every 3 - 6 months

When machine is subject to heavy strain, in case of poor water quality or for hygienic reasons: at less frequent intervals

Water supply	Strainer / Filter water chamber incl valve	clean clean
Condenser	use soft brush or compressed air to	clean
water-cooled machine	open condenser and use pipe brush check seals	clean pipes replace, if necessary
Compressor	oil level in sight glass refrigerant oil (consult ZIEGRA)	check refill, if necessary
V - belts	check A loose V-belt does not transfers the load correctly on the auger. This will overload the freezing unit.	replace, if necessary
Ice hose	and water retainer calcified?	clean - or replace
Gearbox	ATM NRV 75 or Flender OT 63 Lifetime lubrication with synthetic oil 0,55 l Lifetime lubrication with synthetic oil 1 Litre BP Energol SGXP 220 Mobil Glygoyle 30 Shell Tivela WB (SC 320) Klüber Syntheso D 220 EP or equivalent	check oil level detach drive-shaft cover drain oil into fuel measure and refill up to the correct level.
Freezing unit	see cleaning of freezing unit	page 8
	Bearing The following are symptoms of a defective bearing: * Water leaks from bottom of freezing unit * Noise during operation * Overload cut out has switched off	check, replace if necessary
	Placement and insulation of sensor expansion valve	check, renew insulation



Repairs of electrical parts and refrigeration circuit
only by qualified technician (T)

Trouble shooting

Malfunction	Cause	Remedial Action
Highpressure switch has switched off o Control lamp shows red	Air in refrigeration circuit (insufficiently evacuated after repair)	evacuate circuit, refill refrigerant (T)
	Refrigeration circuit overfilled	adjust (T)
	air-cooled machine: * ambient temperature too high * condenser soiled * ventilator motor or speed control defective	machine must not be placed in the sun or too warm ambience. Improve ventilation. clean with brush or compressed air, never with wire brush check / replace (T)
	water-cooled machine: * insufficient water pressure * condenser soiled * water or condensing pressure governor misadjusted, soiled or defective	increase water pressure to min 2 bar clean condenser with bottle brush, hot water and antilime agent clean water filter check / clean / replace (T)
Cut - out by compressor	* compressor overheated	depending on ambient temperature let machine cool for 3 hours, compressor starts again automatically
	* wrong electrical connection or defective protection switch	check (T)
	* compressor defective	check / replace (T)
Light barrier does not work	* transmitter and receiver not in line * defective * dirty or lime scale	adjust check manually at short distance clean
Ice jam switch has cut off	switch defective Ice jams back into cylinder	check eliminate cause, readjust ice hose and security switch. (page 3 point 13)



Repairs of electrical parts and refrigeration circuit
only by qualified technician (T)

Trouble shooting

Malfunction	Cause	Remedial Action
Machine operates - but no ice production		
Freezing unit and refrigeration unit work	loss of refrigerant	check refrigeration circuit (bubbles in sight glass), eliminate leakage, evacuate circuit, refill refrigerant (T)
Freezing unit works, refrigeration unit does not	<ul style="list-style-type: none"> * no water in water chamber * motor cut-out defective * compressor defective 	see water level control (page 5) check / replace (T) check / replace (T)
Ice jam in ice outlet or ice hose	Defective light barrier	check (see page 6) consult ZIEGRA
Decrease of ice production poor ice quality	<ul style="list-style-type: none"> * Condenser soiled or insufficient cooling water flow 	clean with brush or compressed air, never with a wire brush. Watercooled machines: bottle brush, antilime agent, clean water filter. Open further the water control valve.
	<ul style="list-style-type: none"> * ambient temperature too high 	machine must not be placed in the sun or too warm ambience. Improve ventilation.
	<ul style="list-style-type: none"> * expansion valve misadjusted 	adjust evaporation temperature as indicated. Check thermal feeler pipe and contact at evaporator outlet. (T)
	<ul style="list-style-type: none"> * insufficient amount of refrigerant, bubbles in sight glass 	remove leak, evacuate circuit, refill with indicated quantity of refrigerant (T)
	<ul style="list-style-type: none"> * lime deposit on auger or cylinder 	clean freezing unit (see page 8)
	<ul style="list-style-type: none"> * machine has switched off in between times 	also consider possible water shortage or malfunction with a central refrigeration plant.
	<ul style="list-style-type: none"> * capacity control misplaced 	Shut the capacity control. Adjust overheating of the machine according to the data sheet. Adjust capacity control at 1 K below evaporation temperature. (T)
Cracking noise in freezing unit	cylinder bearing defective	replace (T)
Ice comes out of machine in pressed form ("sausages")	After leaving the cylinder, the ice is pressed due to wrong installation of the ice discharge tube, the tube extension of the outlet or due to sharp bends.	check that there are no small edges or bends. Amend. see page 2
rumbling or loud squeaking noise	<ul style="list-style-type: none"> * V-belt loose or defective * lime deposit on auger or cylinder 	tighten / replace (see page 4 - V-belt) Clean freezing unit (see page 8)
strong vibrations freezing unit freezes up	<ul style="list-style-type: none"> * air bubble in hose between water chamber and freezing unit 	remove air bubble

Depending on the water quality a layer of solids may form after a while in the freezing cylinder or on the auger.

Vibrations or noises in the freezing cylinder, e.g. "rumbling" and production of powdery ice may be a symptom of such deposits.

As the freezing unit has to be completely clean inside in order to ensure proper freezing and an even upward conveying of the ice on the auger, this layer has to be removed.

Remove tenacious deposits on the auger with steel wool.

However, these deposits often are of calcareous nature, which can be removed with an antilime agent, e.g. ZIEGRA cleaning agent:

- o Switch the ice machine off, close the water tap and wait 1-2 hours until the ice in the freezing unit has totally melted.
- o Detach the water-inlet pipe at the bottom of the freezing unit, drain the water from the water chamber and the freezing unit into a container.
- o Connect a hose of appr. 80 cm with funnel at the water inlet of the freezing unit.

o **Mix cleaning agent with hot water:
1/3 bottle agent in 3/4 litre water of appr. 50 °C**

- o Fill the freezing unit with cleaning agent up to the ice discharge level.
- o Allow the cleaner to react for 10 - 15 minutes.
This is mostly sufficient.
A maximum of 30 minutes must not be exceeded.
The cleaner first removes the lime deposit
and then may slightly effect the metal of the cylinder/auger, if having too long contact.
Do not apply the cleaning agent unnecessarily.
- o Drain cleaning agent and flush freezing unit thoroughly with water.
- o Connect water inlet pipe and switch the machine on.



As the ice may still contain residues of the cleaning agent, we recommend not to use the ice production of the first minutes of operation, though the cleaning agent is admissable for food machinery.

When deposits occur frequently, we recommend the installation of a filter system for the water. We can offer a three stage filter system, please contact us.

Assembly Instructions

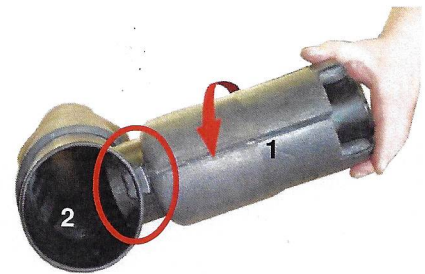
Ice discharge

Delivery includes

1. Water retainer
2. Discharge tube (for ice discharge)
3. Extension discharge tube
4. Elbow for discharge tube
5. Clip
6. Reflection light scanner with lid



Installation

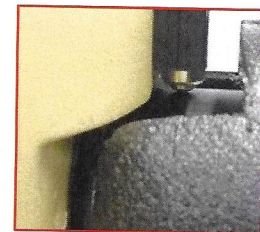
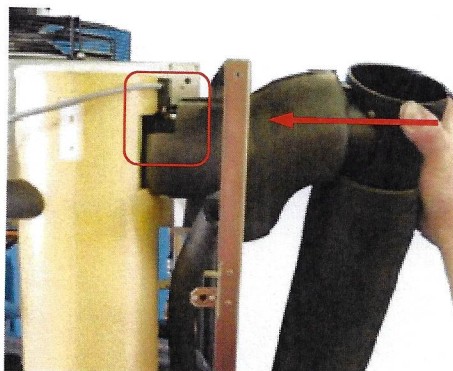


Connect water retainer 1 and discharge tube 2 and secure with a turn.

Ice discharge

Freezing unit

Safety switch

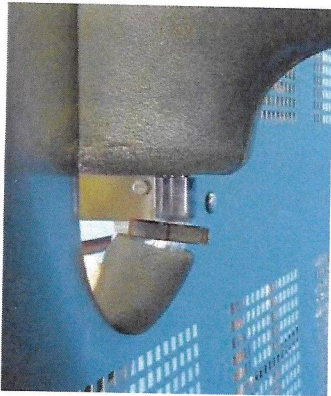


Then push the assembled parts onto the ice discharge towards the freezing unit. Safety switch in upward position.

Made in Germany

Assembly Instructions

Installation



Push end of tube onto the socket (inside machine).



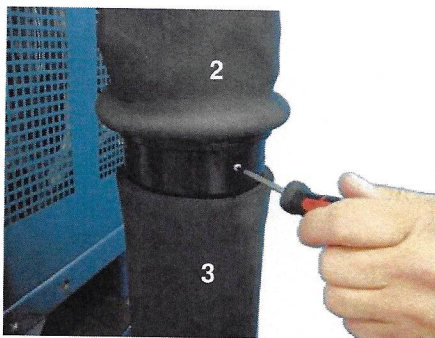
Slide the clip upwards .



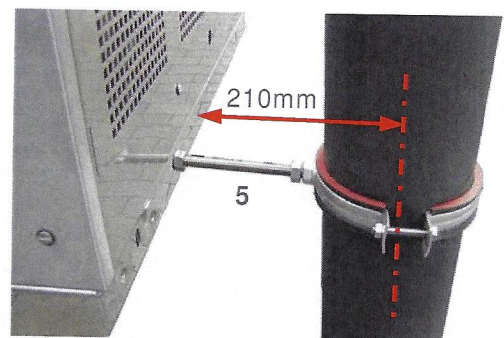
Compress with pincers .



Push up insulation.



Connect downpipe 3 and part 2 and fix with screws.. Slide up insulation.

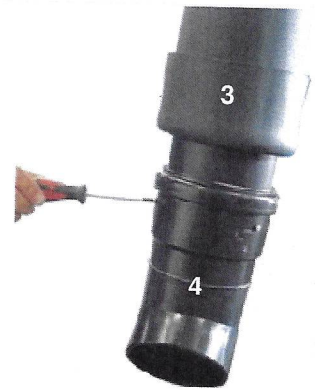


Screw clip 5 to the ice machine. Open clip, install downpipe 3 and close again with screw..

Made in Germany

Assembly Instructions

Connect elbow 4 to downpipe 3 and fix with screw.
Push insulation down.



Installation



Connect reflection light scanner and discharge pipe and fix with screw. Keep the preset position, using the existing boreholes.



Cable connection for reflection light scanner inside switchboard, and factory-set.

Made in Germany

Installation

ZBE 550 - ZBE 1.200



Freezing Unit from 9.05 (950908055-6)

The freezing unit must be assembled by a refrigeration engineer
Refrigeration connections (Expansion valve and suction pipe) have to be sealed hermetically

Special tools

- 1 drift for shaft seal, lower bearing and cover
- 2 drift upper roller bearing
- 3 Handle for lifting the auger
- 4 Assembling drift

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<ul style="list-style-type: none"> 556 532 533 550 553/2 	<ul style="list-style-type: none"> 520 	<ul style="list-style-type: none"> 521 526 555 527

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<ul style="list-style-type: none"> 556 532 533 550 553/2 	<ul style="list-style-type: none"> 521 526 555 527 	<ul style="list-style-type: none"> 521 526 555 527

Disassembly

The freezing unit must be free of ice (Temperature > 10°C)

- remove feather key and coupling

remove cover

remove circlip and spacer

release auger by pushing firmly onto hardwood base
- lay cylinder down

push out auger with drift (4)

put cylinder upside down

remove circlip

remove spacer

push out complete set

lower bearing, spacer, water seal with drift (1)
- remove run-on-ring

remove circlip

remove roller bearing and shaft seal

Assembly

Working place, ground, tools, auger and cylinder have to be absolutely clean

Do not damage the parts

Especially the water seal and the bearings have to be installed very carefully

water seal	(553/1)	} always should be replaced
upper roller bearing 6210	(532)	
lower roller bearing 3308B	(554)	
upper shaft seal	(533)	

Check all other parts and the bearing journals on the auger shaft for absolut intactness

1 turn cylinder upside down

553/1

grease water seal slightly and insert it vertically by hand then turn it slightly, seal surface showing into cylinder
Do not press over the water inlet, this could damage the seal!

2 position cylinder upright again

position the water seal with the drift (1) and extension nearly horizontally for final position see step 7

3 turn cylinder upside down

insert spacer

551

4

554

insert lower bearing 554 and press flush with drift (1)

5

552

insert spacer

6

555

insert the circlip

7 position cylinder upright

press all parts of step 2 - 5 with the drift (1) inside the cylinder against the circlip

check that all parts are mounted flush to circlip

8

532
533

grease the seat of the roller bearing press the bearing (532) with the drift (2) onto the auger

grease shaft seal (533) slightly and place it with the closed side towards the auger

9

556

install circlip

push run on ring onto auger bevel towards face see drawing!

553/2

10

drop auger with attached handle (3) into the cylinder

put the cylinder onto two pieces of hardwood, allow a gap for the auger shaft

min 5cm
min 2 inch

8-8cm
2-3 inch

11

place the auger with bush (1) so, that the circlip can be inserted

12

555
527

insert circlip and spacer

13

521

install O-ring at cover

and place both with the drift (1) into the cylinder

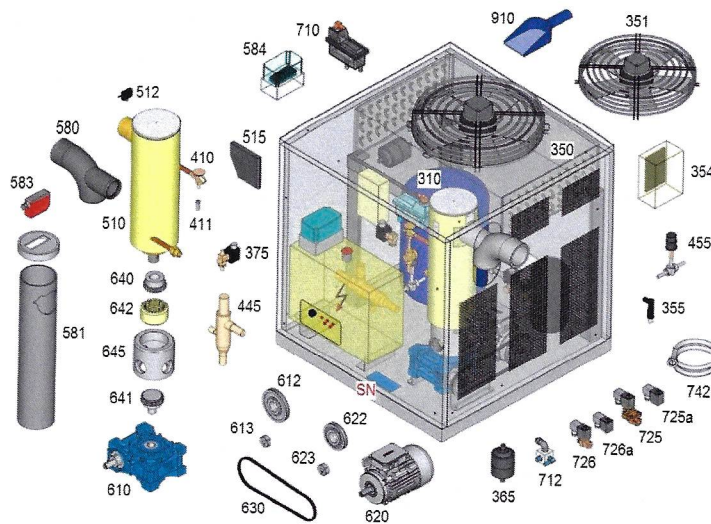
14

put Anti-Seize inside the coupling-bush (640)

insert key

push coupling onto shaft tighten bolt

639

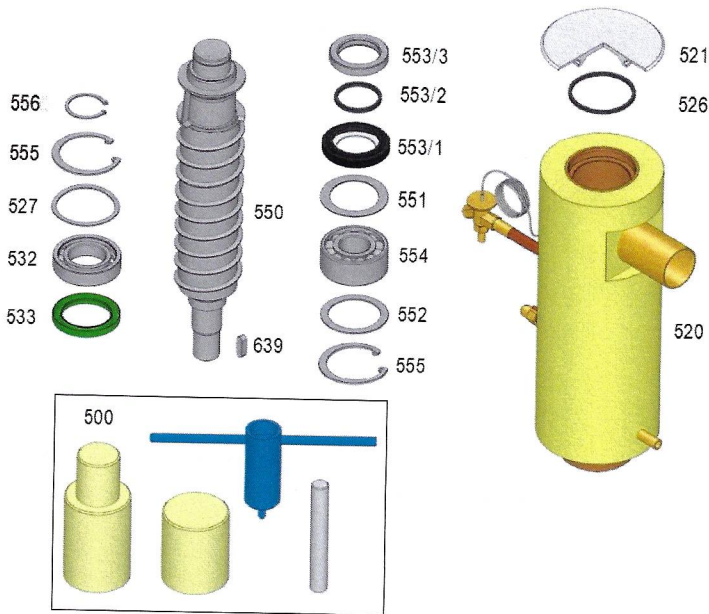


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 30901 Isernhagen
www.ziegra.com

Service:
 Tel. +49-511-90244-17
service@ziegra.com

Always indicate the Serial No.

Pos.	Article No.	Description
310	930024340	compress.herm. R404A Maneurop NTZ 68-
350	930403000	condenser airTeko 5 D 31552
351	930411135	fan unit Ziehl A FN035-4EK.OF.V7P2
365	930652083	filter drier GMC SC 083 MM 3/8"
375	940102120	solenoid valve Castel 1068/M10 10 L
380	940152105	sight glass GMC MIM 10 S löt 10
410	940201760	expansion valve R452ATS2 Bördel-Löt -40/
411	940201060	ex-valve nozzle Danfoss 03 68-2093.99
445	940253400	suction pressure governor Danfoss KV
455	940452312	pressure switch HRanco G63-P3046-650
510 a	950908660	set installation freezing unit GEH ZBE 1000
510 ME	950551034	freezing unit compl. ZBE 550 ME R452A
512	980225039	limit switch ASA SM 5T 17S
515	940710520	insulation ex-valve AF F99 270x125 small
580	950907575	ice outlet water retainer Wasserabw. m.Nopp
581	976010237	ice outlet 550-2500 tube Fallrohr 600mm
582	976010206	ice outlet lid tube Ø 125 Lichttaster HRT 96
583	980227041	light sensor HRT 96 Leuze HRT 96M/R-1690
610	960131013	gearbox NRV-P075-SO i=50
612	960251900	pulley SPZ 140-1 1610 Taper
613	960251020	taperlock bush 1108-19
620	960201320	motor 0,55 kW 920 230/400-3-50/60 7A
622	960251000	pulley SPZ 63-1 1108 Taper
623	960251020	taperlock bush 1108-19
630	960261620	v-belt XPZ 850 Gates
640	960271605	coupl. toothed hub KTR Bowex M42-35 F7
641	960271610	coupl. toothed hub KTR Bowex M42-28f7
642	960271615	coupling bush KTR Bowex M42
645	960275055	geardrive flange NRV-P075 AI
710	970100902	water reservoir cpl. MFG USA RM416 1/4"
710 a	970283063	set of pipes cpl. JGZBE 550/750 ME mit R
712	970241044	water manifold block compl. ZBE 550/750 M
725	970244980	solenoid valve water inlet GSR D4021/1001/
725 a	970244992	solenoid valve coil GSR 182 230V-50/60 f.
726	970244985	solen. valve water outlet GSR A5245/1002/3
726 a	970244996	solenoid valve coil GSR 1012 250 V-50/60 f.
742	970231205	hose water inlet
910	970301112	ice scoop HCHB42 BLUE 1300 ml groß



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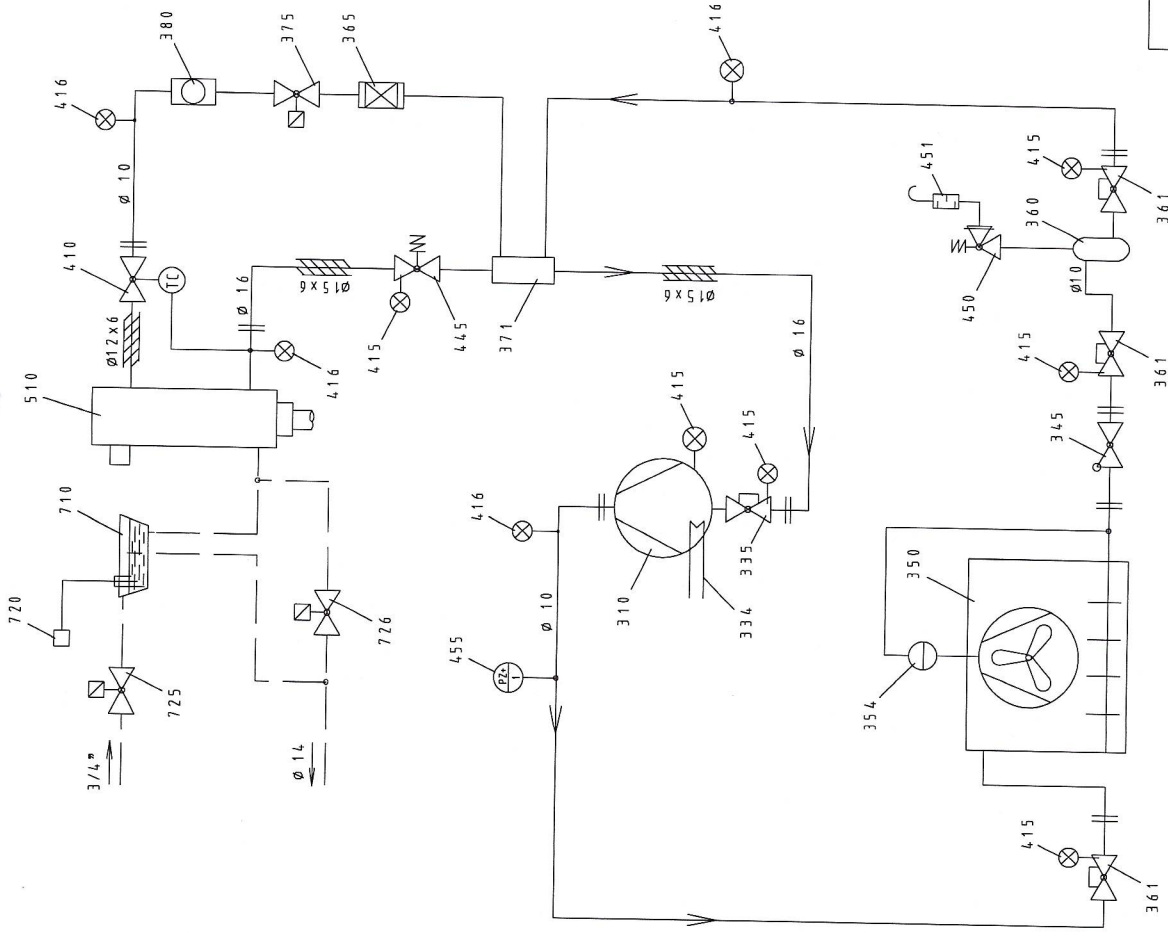
Service:
Tel. +49-511-90244-17
service@ziegra.com

**Please always indicate the
Type and the Serial No. of**

Pos.	Article No.	Maintenance Set (spare part kit cylinder)
	950904132	water seal set AX05Z-55 (inkl. 9509041
	950906950	cover ZBE 550/1000
	950904223	o - ring 85 x 3 DIN 3771
	950902910	spacer EPL 62 für Lager 6210
	950903075	roller bearing Rillenkugellager 6210 2R
	950904012	shaft seal Kaco Radia DGS 65x90x10,
	950862336	auger ZBE 550 ME bis 9/05
	950825124	freezing cylinder compl. ZBE 550
	950904602	shim ring 65 x 89,8 x 2 DIN 988
	960273810	gauge Rotex Kunststoff 100x15x3
	950903066	roller bearing 3308B-2RS; vollbefettet
	950905123	circlip DIN 472 FST VZ 90
	950905131	circlip DIN 471 FST VZ 50
	950908102	Klübersynth UH1 14-151 45g tube
	960258060	feather key 10 x 8 x 32 DIN 6885
	960272534	coupling disc Rotex KTR Rotex 38 grü
	950904520	shim ring 65 x 90 x 1 DIN 988 St



Ref.	spare part		
930652083	filter drierGMC SC 083 MM 3/8"	1	
940102105	solenoid valve coilCastel HM 404220	1	
940201060	ex-valve nozzleDanfoss 03 68-209	1	
940201760	expansion valve R452ATS2 Bördel-Lö	1	
950908056	spare part kit cyl. (09.2005-) BoGEH	1	
960251900	pulleySPZ 140-1 1610 Taper	2	
970100902	water reservoir cpl.MFG USA RM416	1	
980322010	fuseNeozed 2 A, E 14	10	
980322012	fuseNeozed 6 A, E 14	20	
980322015	fuseNeozed 20 A, E 18	20	
980451410	contactorLC1 D12P7 5,5 kW / 400V	1	
	tools		
950908125	tools freez.unit/setZBE 550 - 1200 4	1	



- | | | |
|-----|-----------------------|---------------------------|
| 310 | Verdichter | compressor |
| 334 | Ölwannenheizer | crankcase heater |
| 335 | Absperrventil | stop valve |
| 345 | Rückschlagventil | non-return valve |
| 350 | Drehzahlregler | fan speed control |
| 360 | Verflüssiger | condenser |
| 361 | Sammler | receiver |
| 361 | Absperrventil | stop valve |
| 365 | Filtertrockner | filter drier |
| 371 | Wärmetauscher | heat exchanger |
| 375 | Magnetventil | solenoid valve |
| 380 | Schauglas | sight glass |
| 410 | Expansionsventil | expansion valve |
| 415 | Meßstelle Druck | check point pressure |
| 416 | Meßstelle Temperatur | check point temperature |
| 445 | Druckregler Säug. | suction pressure governor |
| 450 | Sicherheitsventil | safety relief valve |
| 451 | Schalldämpfer | silencer |
| 455 | Druckwächter h | pressure switch h |
| 510 | Gefrierereinheit | freezing unit |
| 710 | Wasserkasten | water reservoir |
| 720 | Wasserniveaurewächter | water level control |
| 725 | Magnetventil Wasser | solenoid valve water |
| 726 | Magnetventil Wasser | solenoid valve water |

Wasserkreislauf
water circuit

Kältekreislauf R404A/R452A
refrigeration circuit R404A/R452A

Isolierung
insulation

Meßstab:		ZBE 550 R / 750 R 20°C Version	
Bezeichnung:		Kältekreislauf refrigeration circuit	
Blatt:		ZIEGRA EISMASCHINEN	
Zust.: Änderung		200.262.23	
Datum		Name	
4.16		B 0	
4.15		Blanz. 23.02.11	
4.15		Gepr.	
4.15		Norm	
4.15		Zeichnungs-Nr.:	
4.15		200.262.23	



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P.O. BOX 100127
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 +49 (0)511 90244-92

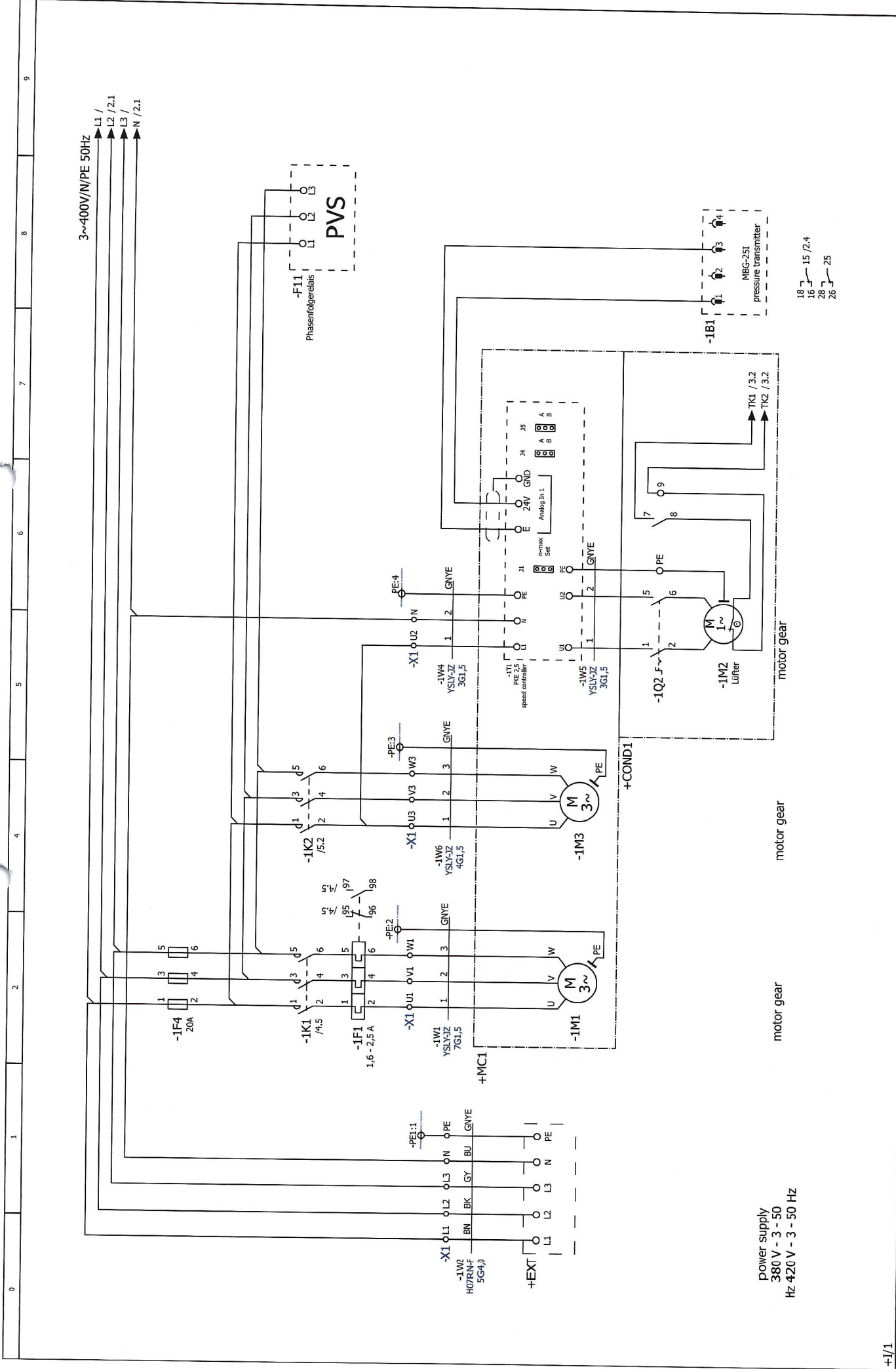
Project description	ZBE 750 20°C	
Job number	80.00750.24.46	
operating voltage	(+/- 5%)	3 N 50 HZ 380 V - 420 V
control voltage	(+/- 5%)	1 N 50 HZ 220 V - 240 V
regulation		special
protective system		general
current nominal load	IP54	unless otherwise stated
Full load current	15 A	load circuits: mm ²
fuses installed external	25 A	neutral: mm ²
cable cross-section	5G 2,5 mm ²	control circuit AC: mm ²
		control circuit DC: mm ²
		dry contacts:
Created on	01.06.2021	
Edit date	02.06.2021	
		Number of pages 16

terminal-strip overview

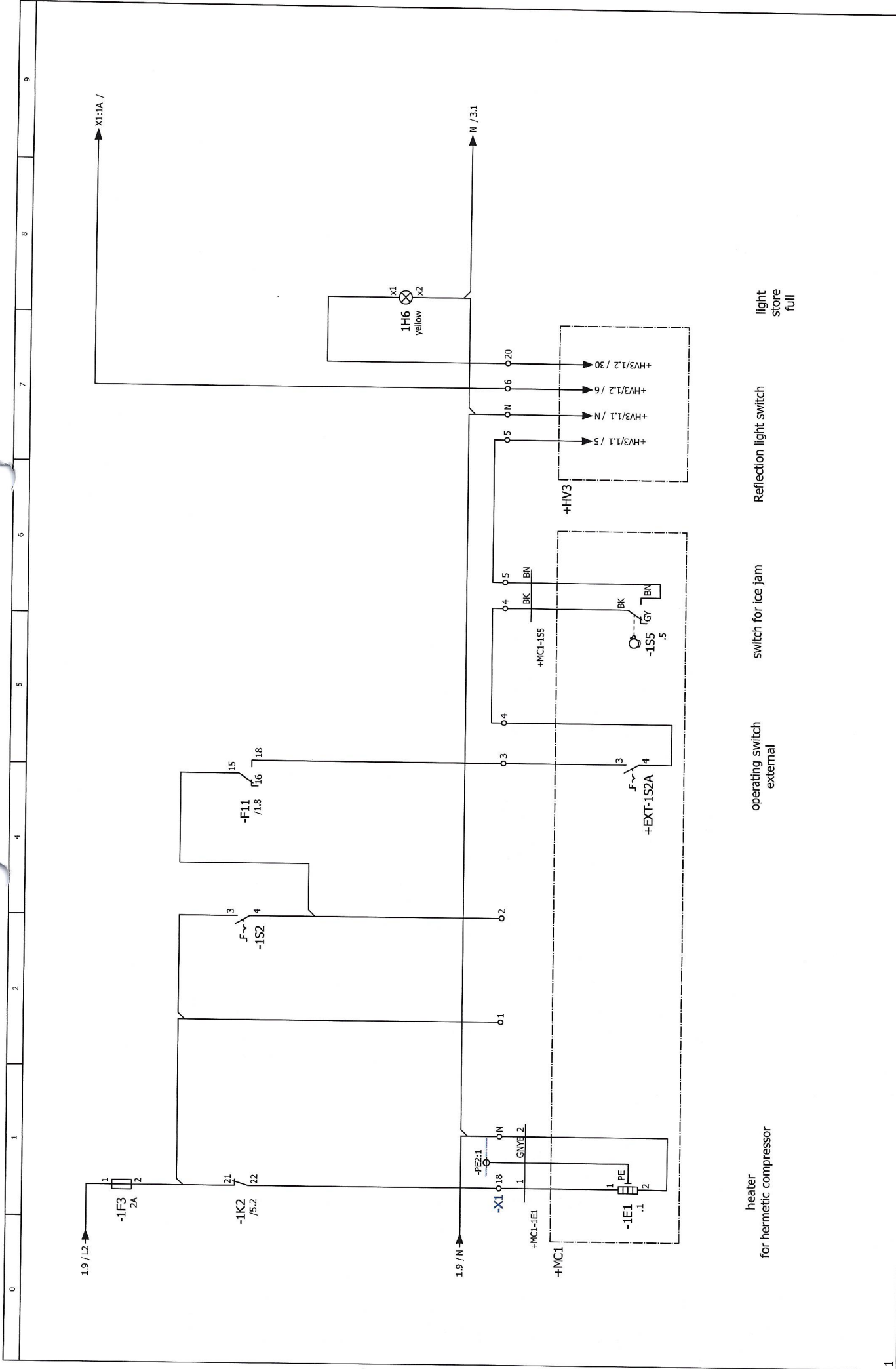
ZIE_002_420_297

terminal-strip	function text	terminals				terminal diagram page
		first	last	total	total all	
+HV1-X1	Standard terminal block	L1	N	57	58	+KLEM_PL/1





0	1	2	4	5	6	7	8	9
+I/1								
Lfd. Nr.:	4	Datum	03.04.2014			P.O.BOX 100127		
Änderung		Bearb.				D-30901 ISERNHAGEN		
		PLOT.	02.06.2021			GERMANY		
		Name				TEL.: +49 (0)511-90244-0		
		Datum				FAX: +49 (0)511-90244-92		
						E-Mail: ice@ziegra.com		
						80.00750.24.46		
						ZIEGRA		
						EISMASCHINEN		
						+HV1		
						1		
						5 Bl.		



1	Lfd. Nr.: 6	Datum: 03.04.2014	ZBE 750 20°C mains lead		80.00750.24.46	ZIEGRA EIS MASCHINEN	P.O. BOX 100127 D-30901 ISERNHAGEN GERMANY	TEL.: +49 (0)511-90244-0 FAX: +49 (0)511-90244-92 E-Mail: ice@ziegra.com	3
		Bearb.:							+HV1
		PLC:							2
		Datum:							Bl.
		Name:							5 Bl.
		Norm:							

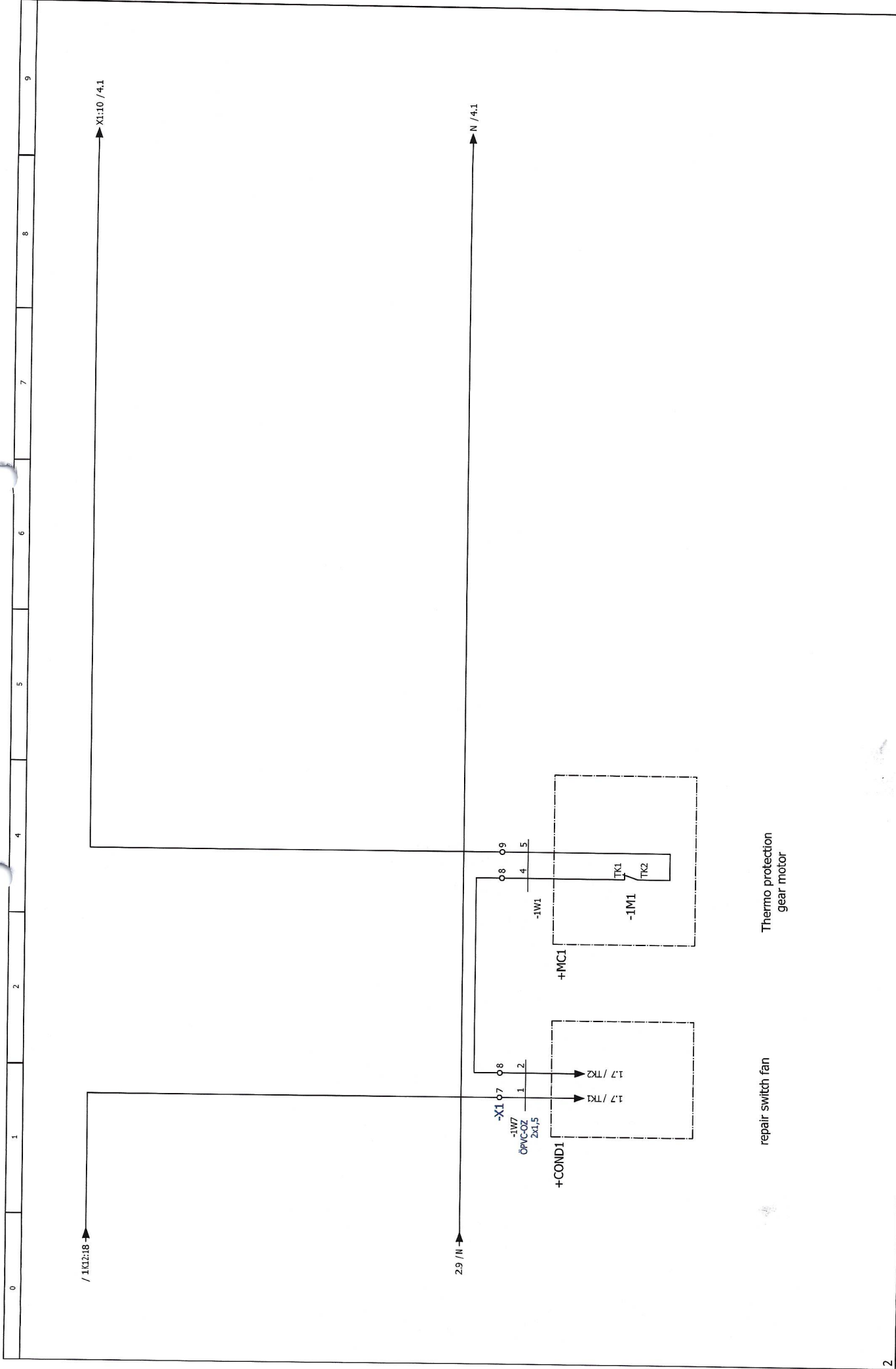
heater for hermetic compressor

operating switch external

switch for ice jam

Reflection light switch

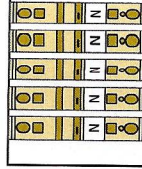
light store full



0	1	2	4	5	6	7	8	9																																								
/ 1K12:18 →																																																
→ X1:10 /4,1																																																
2,9 / N →																																																
→ N /4,1																																																
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>repair switch fan</p> <p>+CONDI</p> <p>1.7 /TK2</p> <p>1.7 /TK2</p> </div> <div style="text-align: center;"> <p>Thermo protection gear motor</p> <p>-1W1</p> <p>TK1</p> <p>TK2</p> </div> </div>																																																
<table border="1" style="width: 100%;"> <tr> <td colspan="2">ZBE 750 20°C</td> <td colspan="2">80.00750.24.46</td> <td colspan="2">P.O.BOX 100127</td> <td colspan="2">TEL.: +49 (0)511-90244-0</td> <td colspan="2">4</td> </tr> <tr> <td colspan="2">mains lead</td> <td colspan="2"></td> <td colspan="2">D-30901 ISERNHAGEN</td> <td colspan="2">FAX : +49 (0)511-90244-92</td> <td colspan="2">+HV1</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">GERMANY</td> <td colspan="2">E-Mail: ice@ziegra.com</td> <td colspan="2">3</td> </tr> <tr> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">5 Bl.</td> </tr> </table>									ZBE 750 20°C		80.00750.24.46		P.O.BOX 100127		TEL.: +49 (0)511-90244-0		4		mains lead				D-30901 ISERNHAGEN		FAX : +49 (0)511-90244-92		+HV1						GERMANY		E-Mail: ice@ziegra.com		3										5 Bl.	
ZBE 750 20°C		80.00750.24.46		P.O.BOX 100127		TEL.: +49 (0)511-90244-0		4																																								
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Lfd. Nr.: 7		Datum: 03.04.2014		Date:		Date:		Date:																																								
Änderung:		Name:		Name:		Name:		Name:																																								
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Bearb.:		PLOT:		PLOT:		PLOT:		PLOT:																																								
02.06.2021																																																

terminal-connection diagram

Mounting location : HV1
 terminal strip : -X1





Ice Technology. Made in Germany

ZIEGRA EISMASCHINEN GMBH · PF 100 127 · D-30901 Isernhagen

Intercontinentale
ZIEGRA EISMASCHINEN GMBH

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D-30916 Isernhagen (Germany)
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Translation of German Original

EC Declaration of Conformity

=====

according to

EC-Directive 2006/42/EC on machinery (Annex II A) dated 17 May 2006

We herewith declare that the

ZIEGRA Ice Machine

Model ZBE 30 – ZBE 1.200

Serial-No. 202001 – 203000, 213001 - 214000 / Year of manufacture: 2021

for manufacture of chip ice from potable water and in the version delivered by us, complies to the following relevant regulations:

EC-Directive

2014/68/EC

2006/42/EC

2014/30/EU

Pressure directive

EC Machinery Directive

Electro-magnetic Compatibility Directive

Applied harmonized EC-Specifications, in particular:

EN 378-2

EN 60204-1

Safety specifications refrigeration plants

Electrical equipment of machines (VDE 0113)

Applied EC standards:

EN 378-1, 378-3, 378-4

EN 1672-1

EN 61000-6-3

EN 61000-6-2:2005

EN 55014-1

EN 61439-1:2012-06

Refrigeration plants Tightness, Safety, Environment

Safety Food Processing Machinery

EMC Emitted Interference

EMC EM-susceptibility

EM Compatibility

Low-voltage switchgear and controlgear assemblies

Applied national technical standards or specifications, in particular:

DIN 57100

DIN 45635

BGR 500

BGV A3

High Voltage Systems (VDE 0100)

Measurement of noise emitted by machines

Regulations of Employer's Insurance Association for accident prevention on refrigeration plants

Regulations of Employer's Insurance Association for accident prevention on electrical equipment.

This declaration relates to the machinery in the state in which it was delivered, and excludes any additional components and/or alterations. This declaration is no longer valid if the product is modified without agreement.

Authorized person to compile the relevant technical documentation:

ZIEGRA Eismaschinen GmbH: manager production engineering: Nina Sewing

Isernhagen, 01.01.2021

se/12.17

Intercontinentale
ZIEGRA EISMASCHINEN GMBH
Postfach 100 127 - 30901 Isernhagen
Sattlerstrasse 5 - 30916 Isernhagen
(Nina Sewing)

ZIEGRA Eismaschinen GmbH

Geschäftsführer: Johannes von Rohr

Amtsgericht Hannover · HRB 120340 · Ust ID: DE 1150 51 826 · Steuer-Nr.: 2316/202/12703
Bankverbindung: Sparkasse Hannover: DE80 2505 0180 0000 5580 60 · Hannoversche Volksbank: DE60 2519 0001 0603 4780 00



IceTechnology. Made in Germany.

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Tel. +49 511 - 90 244 - 0

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Translation of German Original

Declaration of Conformity

=====

as defined by

Directive (EU) No. 1935/2004 dated 27 October 2004 concerning materials and objects intended to come into contact with foodstuff

We hereby confirm that the construction of

ZIEGRA Ice Machine

Model ZBE 30 – ZBE 1.200

Serial-No. 202001 – 203000, 213001 - 214000 / year of manufacture: 2021

as supplied by us, complies with the following relevant regulations:

EN 1672-2

Safety and hygiene food machinery

EN 1717

Safety Potable Water

Regulation EU 2023/2006

Good Manufacturing Practise (GMP)

for contact with

foodstuff :

drinking water - cold

duration of contact:

100 % (24 h/day)

temperature:

0 °C – 30 °C

This declaration relates to the machinery in the state in which it was delivered, and excludes any additional components and/or alterations. This declaration is no longer valid if the product is modified without agreement.

Authorized person to compile the relevant technical documentation:

ZIEGRA Eismaschinen GmbH: manager production engineering: Nina Sewing

Isernhagen, 01.01.2021

se/12.17

Intercontinentale
ZIEGRA EISMASCHINEN GMBH

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Sattlerstrasse 5 30916 Isernhagen

(Nina Sewing)

ZIEGRA Eismaschinen GmbH



ZIEGRA EISMASCHINEN GMBH · PF 100 127 · D-30901 Isernhagen

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Translation of German Original

Declaration of Conformity

as defined by

Commission Regulation (EU) No. 10/2011 of 14 January 2011 and Commission Regulation (EU) 2017/752 of 28 April 2017 amending and correcting Regulation (EU) No 10/2011 on plastic materials and articles intended to come into contact with food and/or Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption, put into force TrinkwV 2001.

We hereby confirm that the construction of

ZIEGRA Ice Machine
Model ZBE 30 – ZBE 1.200
Serial No. 202001 – 203000, 213001 - 214000 / Year of manufacture: 2021

complies with the a.m. regulation for materials intended to come into contact with food, for materials and objects made from plastic materials which might come into contact during proper use.

Notice legal status:

The foodstuff referred to come into contact is: drinking water.

The Directives (EU) 10/2011 as an individual project in the sense of directive (EG) 1935/2004, as well as directive 98/83/EG regarding the quality of water meant for human consumption (put into practise by TrinkwV 2001) both belong to the framework of regulations EG 178/2002 dated 28 January 2002 which stipulates the general guidelines and requirements of food laws, to establish a European Food Safety Agency and to determine procedures for food safety.

Materials and objects as per below table come into contact with:

foodstuff: drinking water - cold
 duration of contact: 100 % (24 h/d)
 temperature: 0 °C – 30 °C

Art. No.	description	certificate according to:
976000010	Ice outlet, bend PE-HD	Bfr; 10/2011; 2023/2006
976000020	Ice hose, special food grade	2007/19/EG; 1935/2004; 10/2011
970000010	Water reservoir MFG	NSF
970000020	Set hose, connector JG	DVGW; 10/2011; KTW
970000030	Water manifold block	Bfr; 10/2011; 2023/2006
970000035	Water manifold block glue	KTW; DVGW
970000050	Water inlet	WRAS

Authorized person to compile the relevant technical documentation:

ZIEGRA Eismaschinen GmbH: manager production engineering: Nina Sewing

Isernhagen, 01.01.2021

se/12.17

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 (Nina Sewing)
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