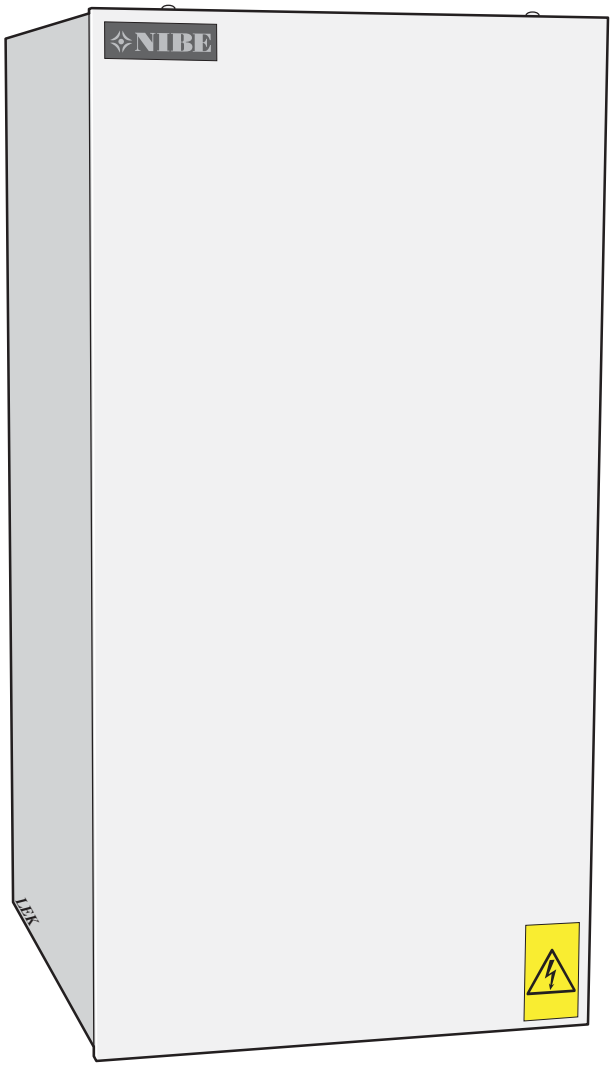
MOS GB 1238-2
ELK 42
231253

INSTALLATION AND MAINTENANCE INSTRUCTIONS

ELK 42



NIBE

For Home Owners

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General

In order to get the greatest benefit from the electric heater ELK 42 you should read the "For Home Owners" section in this Installation and Maintenance Instruction. ELK 42 is an electric heater that is intended for installation together with a heat pump for heating detached houses and small apartment buildings.

ELK 42 is a Swedish-made quality product offering long life and reliable operation.

The serial number* (95) must always be stated in all correspondence with NIBE. 069_ _ _ _ _ _ _ _ _ _
Installation date
Plumber
Electrician
Insert any notes here.
Datum_____ Sign_____

*The serial number can be found at the bottom corner on the inside of the electric heater.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

System description

Principle of operation

NIBE ELK 42 is an electric heater that is primarily intended for installation together with a heat pump for heating buildings.

ELK 42 contains overheat protection and contactors for external control of the three power groups, 6.0, 12.0 and 24.0 kW.

The electric module is principally an immersion heater installed in a water container, or an electric boiler without domestic hot water heater.

The stainless electric coils and electric boiler tube are made from acid proof steel (SIS 2333), which gives a very long service life.

Economical

A small water volume and a well insulated cassette mean small heat losses.

Components

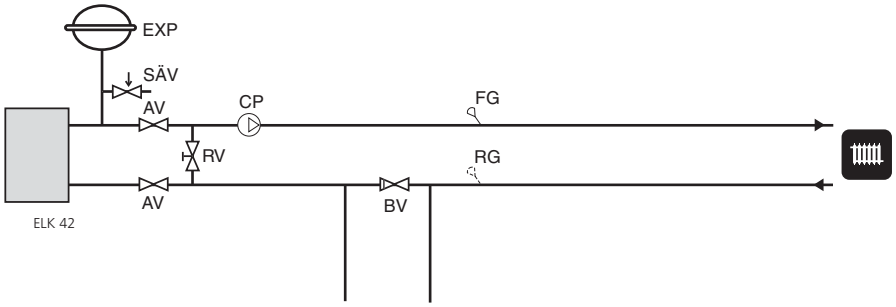
AV	Shut-off valve
BV	Non-return valve
CP	Circulation pump
EXP	Expansion vessel
FG	Flow line sensor
RG	Return line sensor
RV	Control valve
SÄV	Safety valve

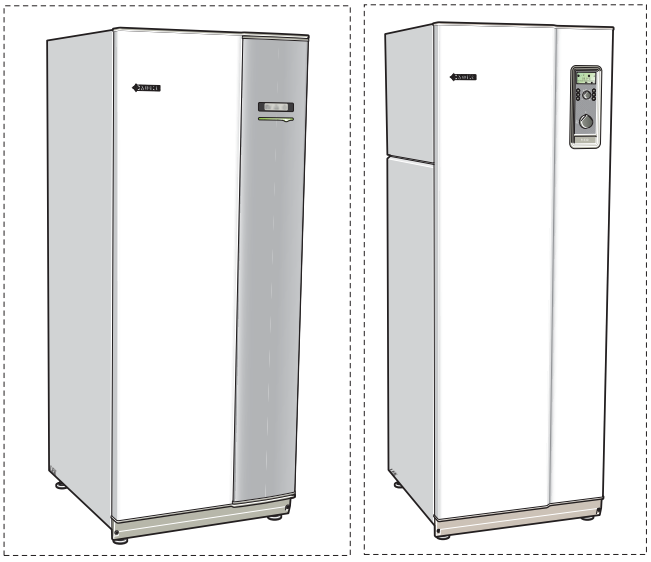
NOTE! This is an outline sketch. Actual installations must be planned according to applicable standards.

See the relevant outline diagram for connection to the different heat pumps.

System diagram

Additional heat from ELK 42 is controlled by the heat pump.





Operation and maintenance

General

After installing, check with the installer that the installation is in good condition. Allow the installer to show controls and functions so that you are fully aware about how to use and maintain the installation.

Check that the water pressure is correct; air may remain in the system after installing. This is why bleeding and pressure checks should be carried out again.

Operation

Electrical output is controlled externally by the heat pump. This means that the electrical output is connected and disconnected by the additional heater.

Safety valve

A safety valve that is installed in the heating system, in connection with the closed expansion system, must be exercised regularly, approximately 4 times per year to maintain the safety function or according to national regulations.

Venting

Regularly check that there is water in the system. Air can remain in the system after installation and the radiators and boiler should be bled again. After bleeding, the pressure must be checked and water topped up if necessary.

Draining

If draining the system of water, the electric module must be switched off to prevent damaging the immersion heater's electric coils.

Actions in the event of freeze risk

In the event of extreme cold, no part of the heating system must be switched off, there is a risk of frost damage.

If a part of the heating system is thought to be frozen, contact the installer.

If the heating system must be switched off for a long period of time, drain the water and ensure that the immersion heater cannot be started.

General information for the installer

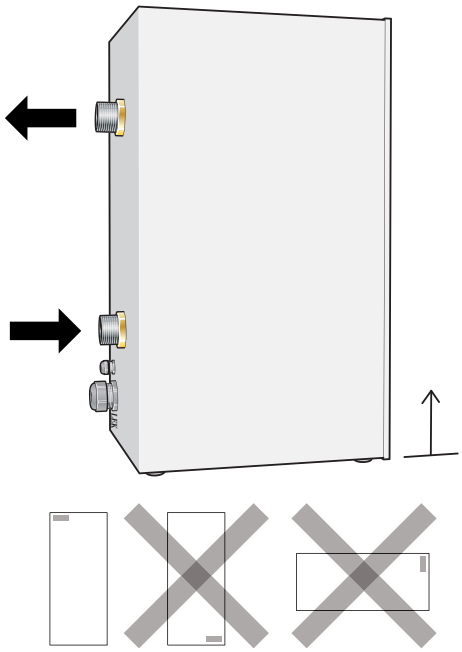
Function

Area of use for NIBE immersion heater is in combination with NIBE ground source heat pumps and air/water heat pumps. When the heating demand is greater then heat pump's capacity, the immersion heater connects automatically as additional heat. The electrical equipment is adapted to the heat pump's function.

ELK 42 contains overheat protection and three contactors to control the three power stages 6, 12 and 24 kW. For best function the power should be binary controlled, that is 6, 12, 18, 24, 30, 36 and 42 kW.

Pipe installation

The pipe installation must be carried out in accordance with applicable standards.



The immersion heater must be installed standing (see image above). An area of 500 mm is required in front of the immersion heater for service work. If this is not possible, detachable connections should be used.

Circulation pump must be used to ensure the flow over the immersion heater. If the heating system's valves can close the circulation completely, a by-pass must be installed to prevent the flow through the immersion heater from being stopped. When the unit is off, an approved safety valve must be installed as well as a pressure expansion vessel. The safety valves must be checked about four times a year. This is done by quickly opening and closing the valves. The pressure is reset by filling with water.

Electrical installation

ELK 42 must be installed via an isolator switch with a minimum breaking gap of 3 mm.

NOTE

Electrical installation and service must be carried out under the supervision of a qualified electrician. Electrical installation and wiring must be carried out in accordance with the stipulations in force.

Power supply

The electric heater must be supplied with 400 V 3VAC 50Hz fused 3 x 63A

The cable for the operational supply must be 5 x 1,5 mm^2.

NOTE

Reset the temperature limiter, it may have tripped during transport.

NOTE

In the event of any servicing all electrical supplies must be checked and disconnected. The immersion heater can be supplied with voltage from connected heat pump.

Draining

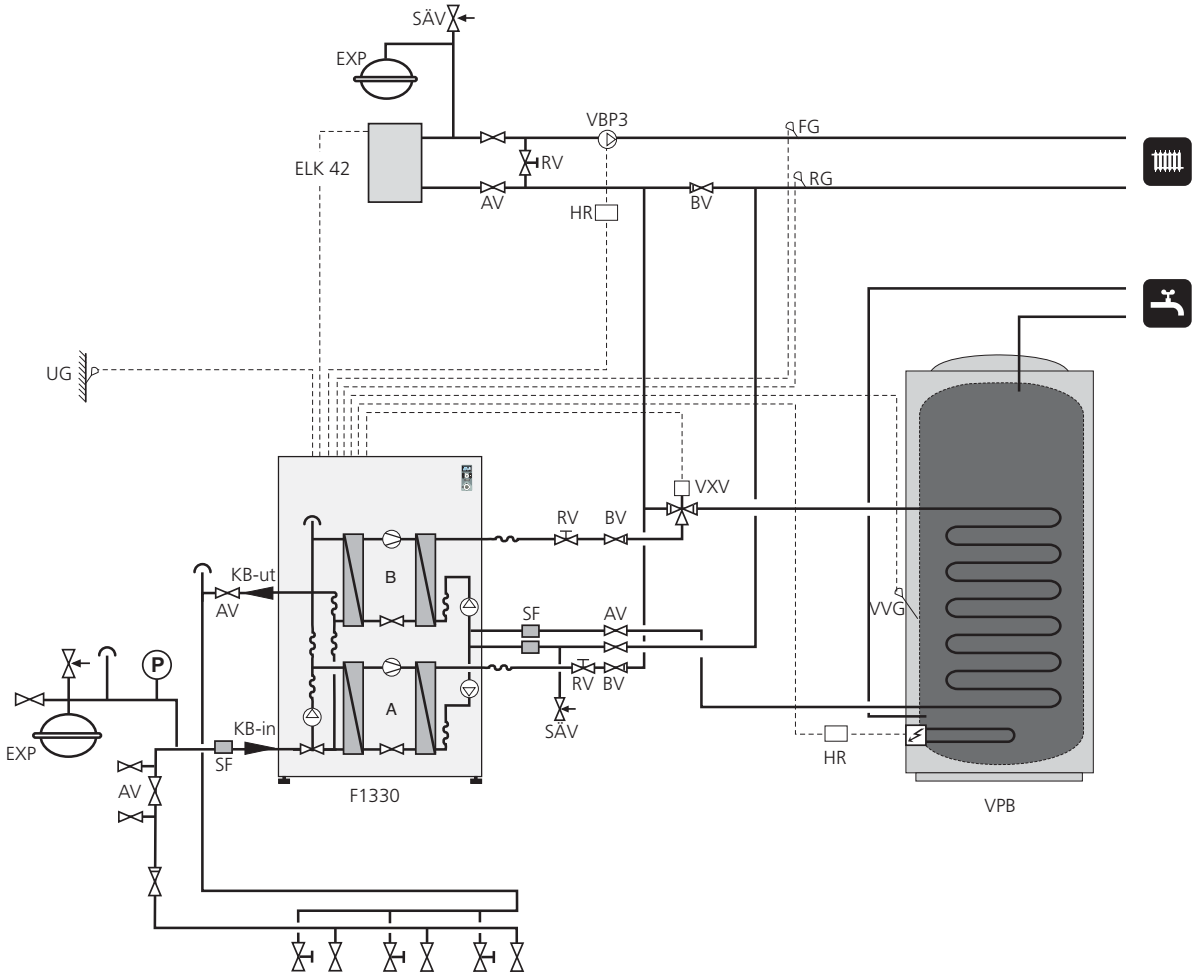
The system is most easily drained by installing a drain valve to the lowest point of the piping. Draining via such a valve leaves a small amount of water in the immersion heater, which is therefore drained via drain connection (71). If the unit is normally drained via the immersion heater's drain connection, install a suitable drain valve.

Installation alternative

Components

AV	Shut-off valve
BV	Non-return valve
ELK	Immersion heater
EXP	Expansion vessel
FG	Flow sensor
HR	Auxiliary relay
KB	Brine
RG	Return temperature sensor
RV	Control valve
SF	Particle filter
SÄV	Safety valve
UG	Outdoor temperature sensor
VBP	Circulation pump
VVG	Hot water temperature sensor
VXV	Three way valve, VST 11/VST 20
AA5	Accessory card
BP6	Pressure gauge
BT1	Outdoor temperature sensor
BT6	Temperature sensor, hot water charging
BT25	Temperature sensor, heating medium flow, external
BT71	Temperature sensor, heating medium return, external
CMX	Expansion vessel
CP10	Accumulator tank
EB1	Immersion heater
EB2	Immersion heater
EB100	Heat pump
EP12	Collector, brine side
EP14	Cooling module A
EP15	Cooling module B
FL2	Safety valve, heating medium
FL3	Safety valve, brine
FL1X	Safety valve
GP10	Circulation pump, heating medium
HQ1X	Particle filter
KA1	Auxiliary relay, immersion heater
QM11	filler valve
QM2X	Venting valve
QM30-QM59	Shut-off valve
QN10	Reversing valve, hot water/heating
RMXX	Non-return valve
RN11	Trim valve
XD1	Connection box
XL27-XL28	Connection, filling brine

FIGHTER 1320/1330 and F1330



FIGHTER 1320/1330 / F1330 prioritises loading of hot water with half the output (heat pump module B) via a reversing valve. When the hot water heater/accumulator tank is fully charged, the reversing valve switches to the heating circuit.

When there is a heat demand, module A starts first. For larger heating demands, module B is also started. FIGHTER 1320/1330 / F1330 connects ELK 42 in steps when the energy requirement exceeds the heat pump capacity.

If HWH/ACC is fitted with an immersion heater and a junction box the "Extra hot water" function can be used. A by-pass contactor is recommended.

Menu settings

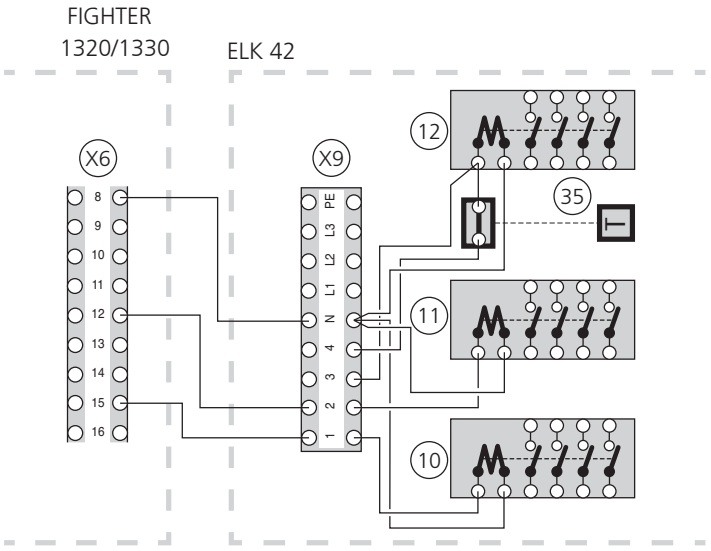
1. Select "Electric" in menu 9.1.8 - "Additive".
2. Select "Binary" in menu 6.2.1 - "Immersionheater type".
3. Select "2" in menu 6.2.2 - "Immersionheatrelays".
4. Select "1" in menu 6.2.3 - "Steps at 2h delay", if a restriction of the electrical power for 5 kW within 2 hours from start-up is required.
5. Select "Auto" operating mode in order for the electrical addition to be permitted to start.

Check the max. output setting on knob (101), in FIGHTER 1320/1330 / F1330.

See the appropriate "Installation and Maintenance Instructions" for FIGHTER 1320/1330 / F1330 for more information.

Electrical connection FIGHTER 1320/1330
Without thermostat, 2 active electrical steps

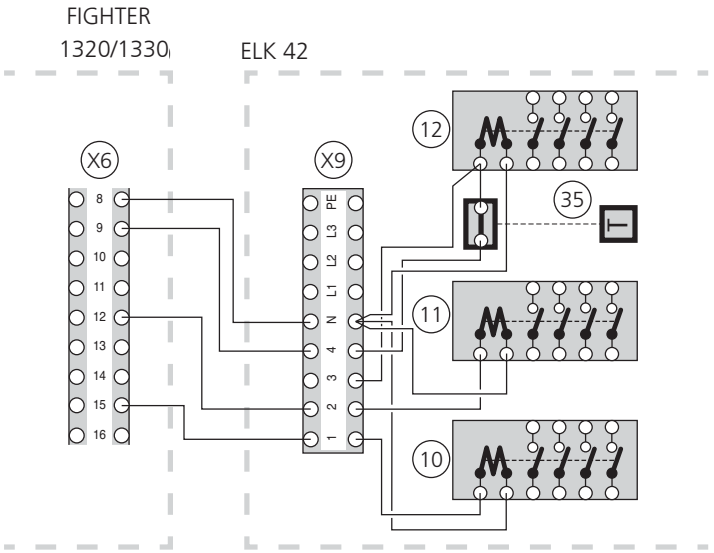
18 kW immersion heater step active.



With thermostat, 3 active electrical steps

42 kW immersion heater step active.

24 kW immersion heater step active in emergency mode.

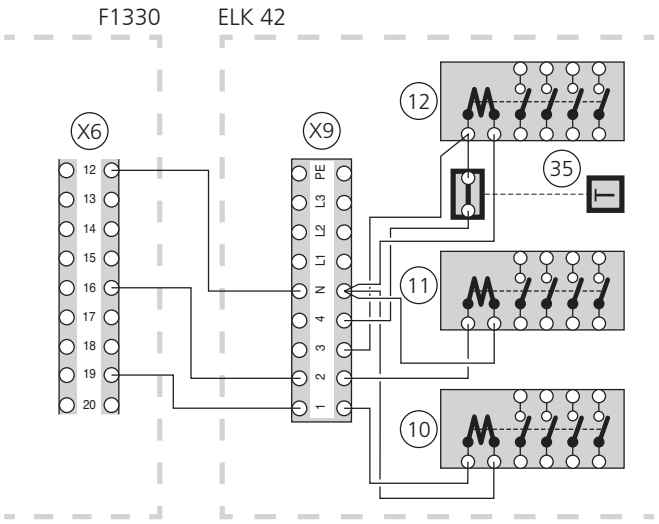


NOTE

The thermostat (35) must be adjusted so that the system's highest permitted temperature is not exceeded. The adjustment must not be so great that it limits the power.

Electrical connection F1330
Without thermostat, 2 active electrical steps

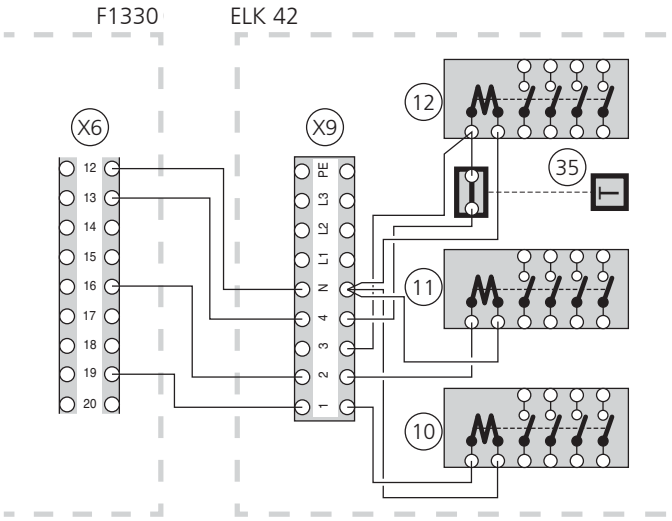
18 kW immersion heater step active.



With thermostat, 3 active electrical steps

42 kW immersion heater step active.

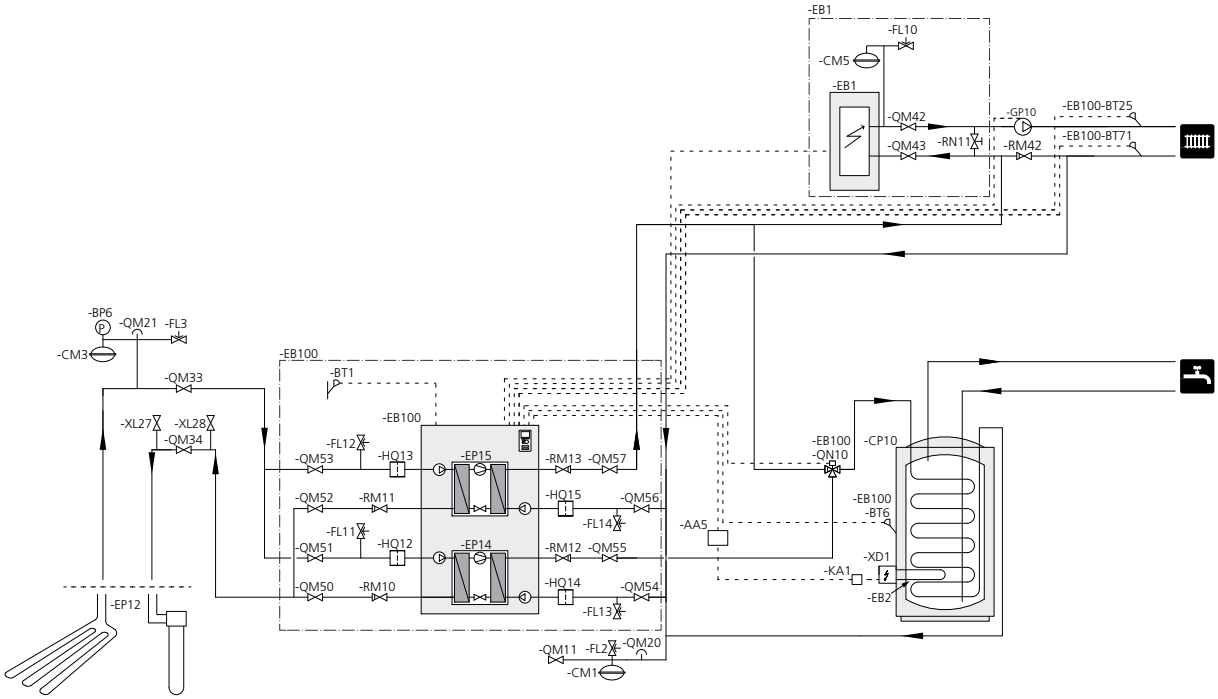
24 kW immersion heater step active in emergency mode.



NOTE

The thermostat (35) must be adjusted so that the temperature above the system's highest permitted temperature is not exceeded.

F1345



Module EP14 prioritises hot water charging via a reversing valve. When the hot water heater/accumulator tank is fully charged, the reversing valve switches to the heating circuit. The heat pump is controlled by an outdoor sensor combined with the flow line sensor which must be placed on the main pipe to the radiators. ELK 42 is connected automatically when the energy requirement exceeds the heat pump capacity.

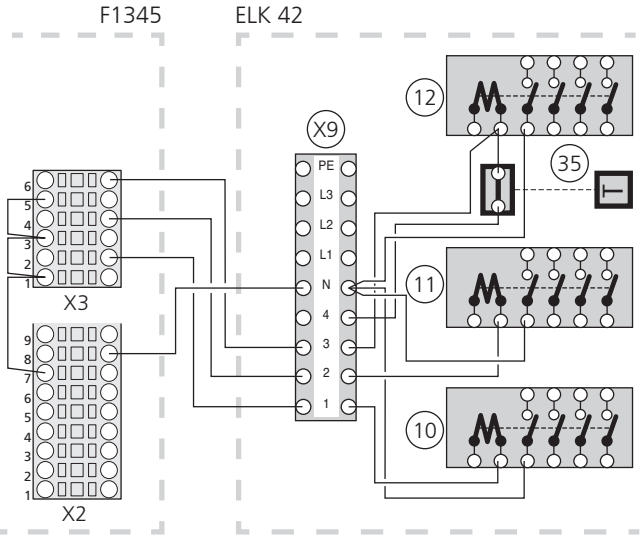
Menu settings

1. Set start diff additional heat and diff. between additional steps in menu 4.9.3 - degree minute setting.
2. Set whether there should be binary control or not, max step and fuse size in menu 5.1.12 - step controlled add. heat.

See the "Installer manual" for F1345 for more information.

Electrical connection F1345
Without thermostat, 3 active electrical steps

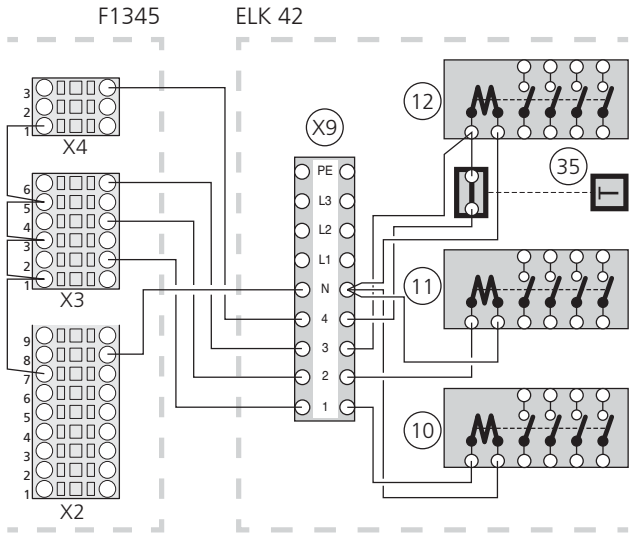
42 kW immersion heater step active.



With thermostat, 3 active electrical steps

42 kW immersion heater step active.

24 kW immersion heater step active in emergency mode.

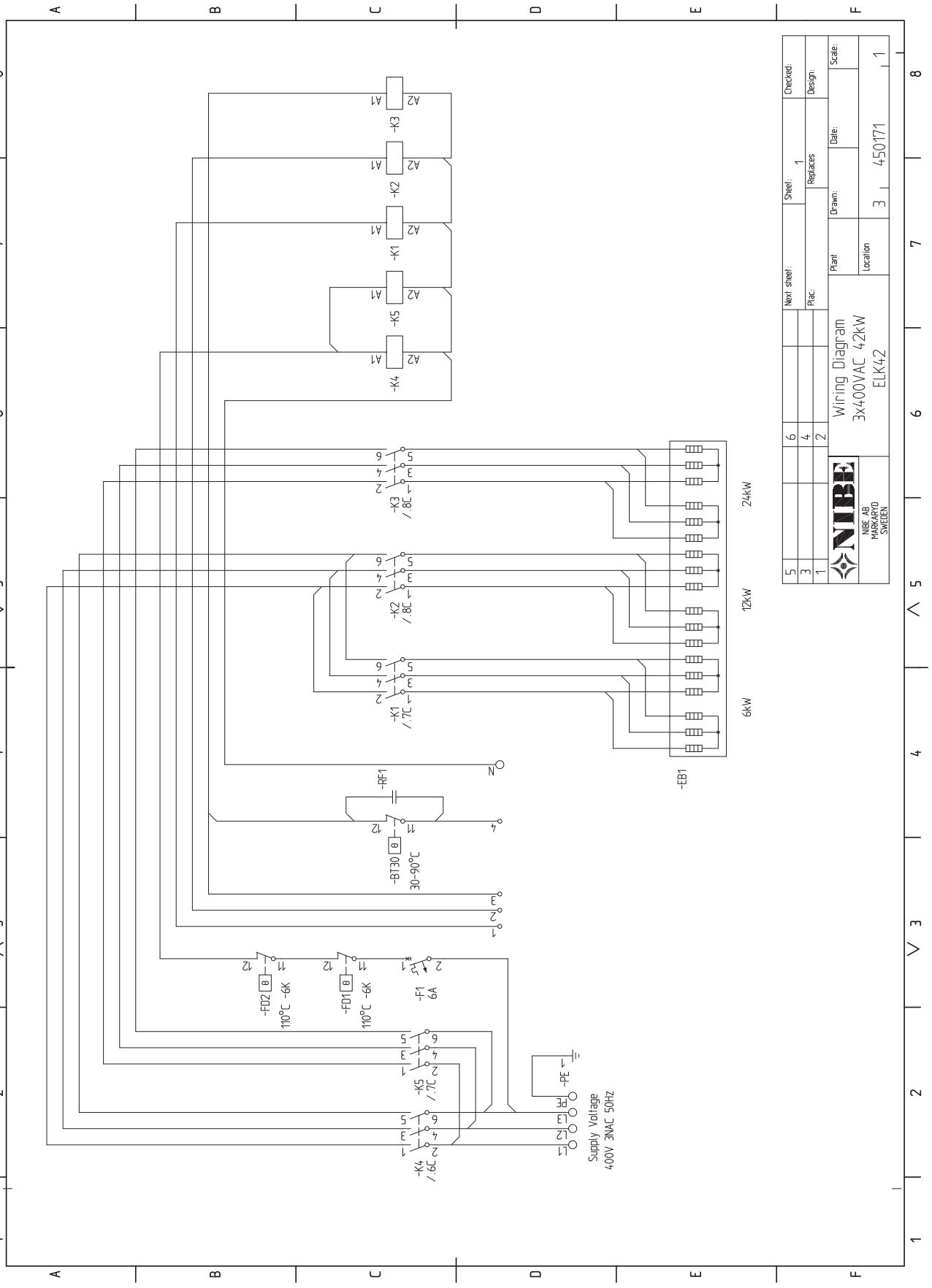


NOTE

The thermostat (35) must be adjusted so that the temperature above the system's highest permitted temperature is not exceeded.

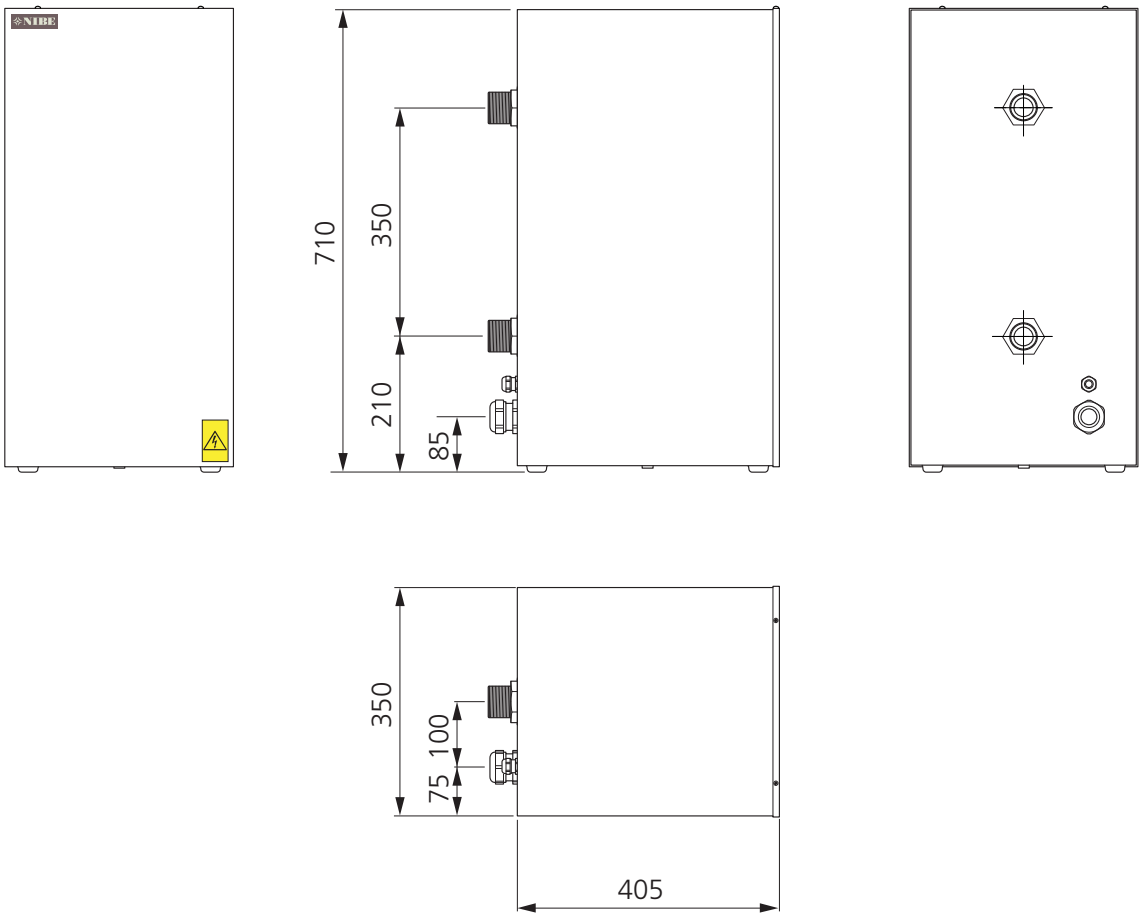
Electrical circuit diagram

ELK 42

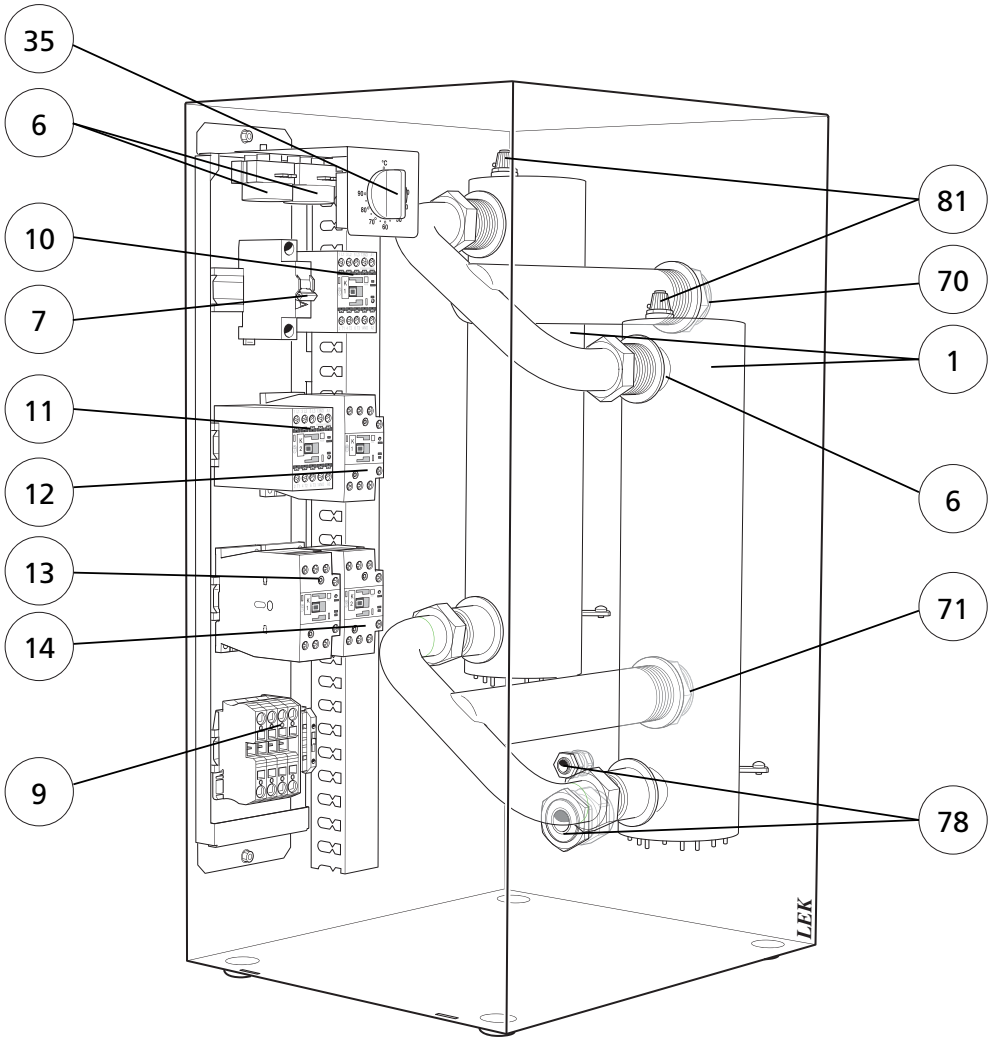


Technical specifications

Dimensions



Component positions



List of components

1 Immersion heater (-R1)
6 Overheat protection (-B1)
7 Miniature circuit-breaker
9 Terminal block (-X9)
10 Contactor (-K1)
11 Contactor (-K2)
12 Contactor (-K3)
13 Contactor (-K4)
14 Contactor (-K5)
35 Emergency mode thermostat (-B2)
70 Connection, flow line, G 40
71 Connection, return line, G 40
78 Cable grommet
81 Venting
95 Sign, serial number

Technical specifications

CE IP 44

Height	560 mm
Width	240 mm
Depth	135 mm
Weight	30 kg
Volume	10.0 litres
Supply voltage	400 V 3NAC 50Hz
Output immersion heater	42 kW
Fuse immersion heater	63 A
Enclosure class	IP 44
Max permitted pressure in the boiler	0.7 MPa (7 bar)
Max flow	
Min flow	1800 l/h
Material immersion heater	SIS 2333 EN 1.4301
Material tube	SIS 2333 EN 1.4301
Part No.	067 075

Dealing with malfunctions

In the event of a malfunction or disruption to normal operation, first check the points below:

Low room temperature

- Circuit or main MCB tripped.
- Possible earth circuit-breaker tripped.
- The overheating protection has tripped. If the overheating protection has tripped, the function of the system's circulation pumps and valves must be checked. Reset by pressing in the button on the overheating protection, when the temperature has dropped below 80 °C.
- Circulation pump stopped.
- Air in boiler or system.
- The pressure is to low in the expansion vessel.
- The load monitor or some external control unit may have blocked the power output.

NOTE

Work behind panels secured by screws may only be carried out by a qualified installation engineer.

231253

(AT) **KNV Energietechnik GmbH,** Gahberggasse 11, 4861 Schörfling
Tel: +43 (0)7662 8963-0 Fax: +43 (0)7662 8963-44 E-mail: mail@knv.at www.knv.at

(CH) **NIBE Wärmetechnik AG,** Winterthurerstrasse 710, CH-8247 Flurlingen
Tel: (52) 647 00 30 Fax: (52) 647 00 31 E-mail: info@nibe.ch www.nibe.ch

(CZ) **Druzstevni zavody Drazice s.r.o,** Drazice 69, CZ - 294 71 Benatky nad Jizerou
Tel: +420 326 373 801 Fax: +420 326 373 803 E-mail: nibe@nibe.cz www.nibe.cz

(DE) **NIBE Systemtechnik GmbH**, Am Reiherpfahl 3, 29223 Celle
Tel: 05141/7546-0 Fax: 05141/7546-99 E-mail: info@nibe.de www.nibe.de

(DK) **Vølund Varmeteknik A/S**, Member of the Nibe Group, Brogårdsvej 7, 6920 Videbæk
Tel: 97 17 20 33 Fax: 97 17 29 33 E-mail: info@volundvt.dk www.volundvt.dk

(FI) **NIBE Energy Systems OY,** Juurakkotie 3, 01510 Vantaa
Puh: 09-274 697 0 Fax: 09-274 697 40 E-mail: info@nibe.fi www.nibe.fi

(FR) **AIT France,** 10 rue des Moines, 67500 Haguenau
Tel : 03 88 06 24 10 Fax : 03 88 06 90 15 E-mail: info@nibe.fr www.nibe.fr

(GB) **NIBE Energy Systems Ltd,** 3C Broom Business Park, Bridge Way, Chesterfield S41 9QG
Tel: 0845 095 1200 Fax: 0845 095 1201 E-mail: info@nibe.co.uk www.nibe.co.uk

(NL) **NIBE Energietechniek B.V.**, Postbus 2, NL-4797 ZG WILLEMSTAD (NB)
Tel: 0168 477722 Fax: 0168 476998 E-mail: info@nibenl.nl www.nibenl.nl

(NO) **ABK AS** , Brobekkveien 80, 0582 Oslo, Postadresse: Postboks 64 Vollebekk, 0516 Oslo
Tel. sentralbord: +47 02320 E-mail: post@abkklima.no www.nibeenergysystems.no

(PL) **NIBE-BIAWAR Sp. z o. o.** Aleja Jana Pawła II 57, 15-703 BIAŁYSTOK
Tel: 085 662 84 90 Fax: 085 662 84 14 E-mail: sekretariat@biawar.com.pl www.biawar.com.pl

(RU) **© "EVAN"** 17, per. Boynovskiy, Nizhny Novgorod
Tel./fax +7 831 419 57 06 E-mail: info@evan.ru www.nibe-evan.ru

NIBE AB Sweden, Box 14, Hannabadsvägen 5, SE-285 21 Markaryd
Tel: +46-(0)433-73 000 Fax: +46-(0)433-73 190 E-mail: info@nibe.se www.nibe.eu

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