

GEBWELL

Installation, operation and maintenance manual

G-Energy

G-Energy accumulators are designed and manufactured in accordance with sound engineering practices (Article 4.1 and 4.3 of the Pressure Equipment Directive 2014/68/EU) in order to ensure their safe operation.

KEEP THE OPERATION INSTRUCTIONS IN THE IMMEDIATE VICINITY OF THE DEVICE!

You should familiarise yourself thoroughly with the instructions before the device is installed or serviced. The instructions issued must be adhered to.

1 WARRANTY

Gebwell Ltd.

Patruunapolku 5, 79100 LEPPÄVIRTA, tel. +358 (0)20 1230 800, info@gebwell.fi
issues this product,

G-Energy accumulator

with the following warranty regarding manufacturing and material faults.

Warranty period and entry into force

Gebwell Ltd. grants a two-year (2) warranty for the accumulator, covering any material and manufacturing defects. The warranty will enter into force from the purchase date. Gebwell Ltd. grants a two-year manufacturer's warranty for the accessories of the accumulators that it sells.

The start date of the warranty must be verified with a purchase receipt. If no receipt is presented, the delivery date from the factory is considered the warranty start date.

Warranty content

This warranty includes manufacturing or material defects detected in this product within the warranty period, as well as direct costs resulting from repairing the device.

The buyer is liable for all defects caused to accumulators as a result of storage conditions during the period between the delivery date and the deployment date (see installation, operation and maintenance manual; storage).

Warranty limitations

The warranty does not cover costs resulting from a defective device (travel, energy, etc. costs), damage caused by a defective device, the buyer's production losses, profits not realised, or other indirect costs.

This warranty has been provided on the grounds that the product functions correctly in normal conditions and that the user manual is carefully followed. The liability of the warrantor is limited in accordance with these terms and shall not therefore cover any damage caused by the product to another object or person.

The warranty does not apply to direct personal injuries or damage to property caused by a defective product delivered.

The warranty is granted on condition that all effective regulations, generally accepted installing methods and product mounting instructions provided by the manufacturer have been complied with.

The customer is liable for visually inspecting the product before installation. A product that is clearly defective must not be installed.

The warranty will become void if any data on the data plate of the accumulator has been removed or modified.

Gebwell Ltd. is not liable for the breakdown of an incorrectly installed device.

The device may only be repaired by a professional designated by Gebwell Ltd.. Faulty repairs and adjustments may pose a hazard to the user, damage the device and weaken the efficiency of the device. Please bear in mind that a visit by a retailer or service technician is not free,

even during the warranty period, if the repair is done due to a faulty installation, repair or adjustment.

The warranty does not include damage that has been caused

- by the transportation or storage of the product
- by negligent or faulty use of the product
- by electrical installations, pipe installations, maintenance, repairs or modifications carried out by a third party
- by conditions beyond the control of the warrantor
- by installation or placement of the product against the instructions of the installation, operation and maintenance manual, or otherwise incorrectly.

Moreover, the warranty does not cover the repair of faults that are insignificant in terms of the operation of the equipment, such as superficial scratches. The warranty does not include normal adjustments described in the operation manual, user guidance visits, service and cleaning, or tasks due to negligence of the precautions and installation instruction or investigations of the same.

The warranty terms in accordance with the joint recommendation by the Association of Finnish Metal and Engineering Industries and Kuluttajaneuvosto (Consumer Council) are applied to matters not covered by the above-mentioned sections.

Conditions of the validity of the warranty

- the product is in normal operation for which it is designed
- the installation is carried out by a professional in the field, following the instructions issued by the manufacturer

If the product changes ownership during the valid warranty period, a free-form written notification of the change must be submitted to the manufacturer.

Measures when a fault is detected

If a fault is detected during the warranty period, the customer must immediately (normally within 14 days) report it to the authorised Gebwell retailer which sold the product, or to Gebwell. The information to be provided includes the equipment model and serial number of the product, as well as a detailed description of how the fault was discovered and the conditions under which it developed and/or can be detected. The warranty form properly completed in relation to the purchase must be presented upon request. Reporting any defects after the warranty period is invalid unless done in writing during the warranty period.

Reporting must be done immediately after detecting the fault, but within 14 days at the latest. If reporting is not done immediately when the customer detects the fault, or when the customer should have detected the fault, the buyer will lose his/her right to claim based on this warranty.

Repair under warranty will be carried out free of charge.

Servicing in Finland

Servicing for this product during the warranty period and after the warranty period in Finland will be performed by the servicing organisation authorised by the manufacturer throughout the economic service life of the accumulator.

Making a service request

Repairs under warranty, servicing requests and orders for spare parts must be directed straight to the authorised Gebwell retailer that sold/delivered the product. Before making a service request, please:

- carefully read the installation, operation and maintenance manual, and consider whether you have followed the manual when using the device

- ensure, before making the request, that the warranty period has not run out, you have carefully read the warranty terms and know the product's model and serial numbers
- all parts belonging to the device to be returned must be packed with the device
- the device to be returned must be closed in such a way that handling it does not have adverse effects on health or the environment.

The device replaced under warranty is the manufacturer's property. Gebwell Ltd. reserves the right to decide how, where and who will perform the repair or replacement under the responsibility of the manufacturer.

Gebwell Ltd. is not liable for the breakdown of an incorrectly installed device.

Congratulations for making a good choice!

Gebwell Ltd. is a Finnish company, specialised in environmentally friendly heating and cooling solutions. At our plants in Leppävirta, we manufacture heat pumps, district heating substations and accumulators, as well as Pivaset fire extinguishing products.

Gebwell G-Energy® accumulators

In water-circulating heating systems, the heat generated by the heating device is stored in energy accumulators, to be used to heat the building and domestic water. The Gebwell G-Energy energy accumulator is a Finnish product, manufactured by experts of the heating sector at the Leppävirta factory.

Our generous product range offers models to be used with different heating methods. The G-Energy energy accumulator enables the parallel use of different heating systems. The accumulator can be connected to a floor heating or radiator network. Our accumulators can be connected to underfloor or radiator heating systems. G-Energy accumulators are available for both single-family houses and large properties. Our range of models includes accumulators with 501L, 1000L, 2000L, 3000L, 4000L and 5000L capacities.

Easy to handle

Thanks to its steel framework mounted on the bottom, the Gebwell accumulator is easy to transport, haul around and install, regardless of the model or size. The accumulators have detachable insulation, which makes it easy to carry them into confined spaces without removing doorframes. Depending on the size of the accumulator, the detachable insulation comes in 3- 5 loose segments. For example, the 1000L accumulator has a diameter of 850mm without insulation. The insulation segments are attached to each other with quick latches, which makes it easy to remove or install them. The accumulator's connections do not reside inside the insulation; to facilitate pipe installations, the connections extend to the insulation surface level. Adjustment legs (adjustment tolerance 0-60 mm) allow the accumulator to be easily set to stand vertically even on an uneven surface.

High quality and long life-cycle

The Gebwell factory in Leppävirta employs strict quality controls. Robot welding ensures first-grade welding and even quality. The tanks are made out of steel, primed, and pressure tested using water. The insulation material in the accumulators is pressure cast polyurethane, which has extremely good thermal insulation capacity and minimal thermal loss. The insulation is made of closed-cell urethane, and the surface plate of the insulation segments is a painted steel plate covered with a protective membrane. Shape wise, Gebwell's vertical cylindrical accumulator provides the best thermal option. Ease of use has also been taken into consideration in the design of connections. The drain connection located at the front of the accumulator makes it easy to drain the accumulator.

Sufficient fresh water

Using an energy accumulator, i.e. a hot water accumulator, is an ecological and economic way to produce a comfortable, even room temperature and sufficient hot water. The hot water accumulator stores and distributes the heat produced by heating systems, which is then used to heat the property and domestic hot water. In Gebwell accumulators, domestic water is heated in a copper coil, which offers a quick turnover of water. The coil distributes water energy-efficiently, ensuring its freshness. Coils for accumulators must be ordered separately, with the exception of the G Energy Coil domestic hot water heater, which comes with ready-installed coils.

2 Handling the accumulator

2.1 Content of the delivery

- Accumulator
- Installation, operation and maintenance manual 1 pc
- Accessory bag containing a hoist ring for lifting the accumulator and a handle for detaching insulation segments.

2.2 Optional accessories

- Coil
- Electric heater

2.3 Transportation

It is recommended that you transport the accumulator in a vertical position and well supported. However, if the accumulator is transported in a horizontal position, care must be taken to ensure that the outer covering is not damaged.

Any notes regarding visible damage caused by transportation must be entered in the waybill and communicated to the manufacturer without delay.

Carefully remove the plastics packaging.

2.4 Hauling the accumulator

It is recommended that the accumulator be hauled on a pallet jack or forklift. The steel framework mounted on the base of the accumulator facilitates hauling. The forks of a pallet jack or forklift must be inserted into the holes present in the steel framework, after which the device can be lifted.



The 1,000-litre accumulator is also available in a model with a two-part steel framework. At the installation site, the lower steel framework can be removed, thereby lowering the accumulator by 150mm. By doing so, the accumulator can be fitted into a space that is lower than the space required by the standard 1,000-litre accumulator.

The accumulator can also be lifted from a hoist ring attached to the top of the accumulator. In order to attach the hoist ring, the insulation plate located on top of the accumulator must be removed.

Ensure that the hoist ring is properly screwed in place! When lifting the accumulator extreme caution must be exercised, and lifting the device in an oblique direction is prohibited!

If the accumulator is transported to its site of installation lying on its side, the length of the accumulator in this position must be taken into account. The tables at the end of the manual give the lengths in question.



2.5 Detachable insulation segments

As a standard, accumulators are fitted with detachable insulation segments. Insulation segments are easy to detach and reinstall. Insulation segments can be detached by unlocking the quick latches using the handle included in the delivery.



The number of segments is three to five, depending on the volume of the accumulator. The diameter of the accumulator is reduced by 180mm when the insulation segments are detached. For example, with all the insulation segments detached, the diameter of a 1,000-litre accumulator is as little as 850mm.

In order to detach a detachable insulation segment, remove the plastic plug in the hole of the quick latch, push the latch into the hole and turn it anticlockwise. There are two quick latches, one located at the upper edge of the insulation segment, the other at the lower edge. When installing insulation segments, turn the handle anticlockwise to cause the quick latch to lock.

2.6 Placing the accumulator

When placing an accumulator, account must be taken to ensure that the floor supports the weight of the accumulator when it is filled with water, and that there is sufficient room for the technician to install connectors and perform maintenance tasks.

The steel framework located at the bottom of the accumulator has levelling feet with an adjustment range of 0 – 60mm. By adjusting the feet, the accumulator can be installed in an upright position, even on an uneven surface.

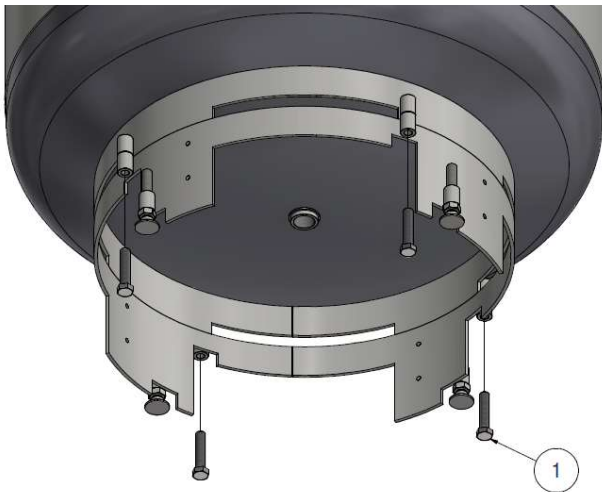


On the low-height model, the levelling feet are mounted on the lower, detachable part of the steel framework. Move the levelling feet to the upper part after removing them.

2.7 Detaching the hauling frame – the height-adjustable accumulator models

With regard to 1,000-litre accumulators, our product range includes models whose height can be reduced. In such models, the steel framework beneath the accumulator has two parts. The lower part of the framework, the one facilitating hauling, can be detached at the installation site, thereby reducing the height of the accumulator by 150mm.

Lift the accumulator up from the hoist ring, or, alternatively, remove the insulation (see the previous page for instructions) and carefully turn the accumulator onto its side.



1. Detach the lower framework by loosening the bolts.



2. Detach the lower framework.



3. Detach the levelling feet from the lower framework.



4. Screw the legs into place on the framework that was left on the bottom of the accumulator.

NOTE: The connection on the bottom of the model with a reduced height is no longer available. The connection is ready-plugged on delivery.

3 Information about the tank

Every accumulator that we deliver comes with a data plate which indicates the serial number of the accumulator, and other important information about it which is needed when ordering accessories or possible maintenance for the accumulator. The data plate also includes information on the accumulator that must be entered in the installation log.

4 Installation

Only an HVAC professional may install and commission an accumulator.

G-Energy accumulators can only be installed in a vertical position.

All connections must be insulated during installation work in order to minimise thermal loss. While installing, it must be ensured that the number of thermometers is sufficient and that there is sufficient space for insulation when performing tube fittings.

4.1 Tube fittings

Tube fittings must be performed in accordance with the valid regulations and instructions. The accumulator must be fitted with the necessary valves, such as a safety valve, a shut-off valve, a non-return valve and a vacuum breaker/vacuum valve. The accumulator must be fitted with at least one pressure safety valve, the operation of which has been tested in accordance with the manufacturer's instructions.

The accumulator must be fitted with a mixing valve, which limits the temperature of the supply water to 60 degrees. If plastic or heat-treated copper tube is used, internal support bushing must be used during installation. The safety valve overflow pipe must be led to the nearest drain. The safety valve overflow pipe must be the same size as the safety valve. The safety valve overflow pipe must be installed so that it slants all the way to the drain and

4.3 Installing the heater

Some G-Energy accumulators can be fitted with electrical heaters. The connection size of heaters is 2". Electrical heaters enable, for instance, a wood-heated house to be electrically heated during a holiday trip. When installing heaters, you should

is protected against freezing. The tip of the overflow pipe must be visible, and not located near electrical components.

The discharge valve can be installed either on a discharge connection located beneath the accumulator, or on a measurement connection located at the bottom part of the accumulator, with the size of the connection being 1".

4.2 Filling

The accumulator should be filled with water that is as warm as possible in order to facilitate bleeding and to diminish heat expansion caused by heating. The overflow piping of the accumulator must be built in such a manner that the water coming from the piping causes no water damage. Also ensure the water's suitability as domestic water.

The pressure in the system must remain below the planned structural pressure indicated on the data plate. The piping must be insulated only after the leak tightness of the joints has been checked. When insulating the piping, due attention must be paid to the maintainability of the devices.

The company performing the installation must provide the owner with training on the use of the accumulator. **The installation log on page 11 must be filled in to complete the installation and orientation training.** A completed installation log is a precondition for the validity of the warranty. It is recommended that all components be marked with clear stickers in order to enable the user to identify them.

A sufficient number of bleeding valves must be installed in the system in order to ensure the functionality of the accumulator and the system. Air may bleed from the system and the accumulator for several days after they have been commissioned.

The expansion tank to be installed must be correctly dimensioned and the initial pressure must be set in accordance with the manufacturer's instructions in order to prevent the breakdown of the accumulator.

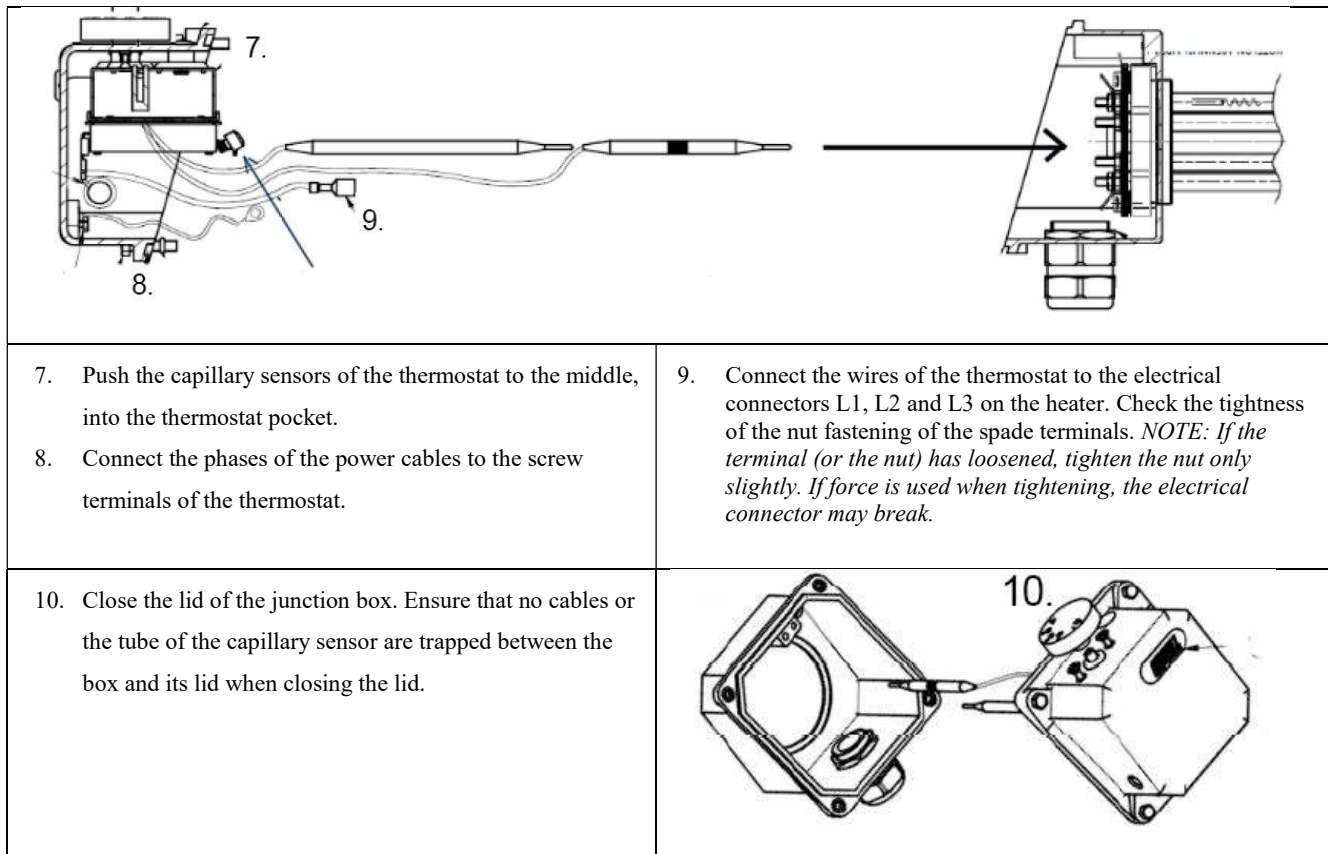
use the flat gaskets delivered with the product or, alternatively, hemp and putty. When installing the accumulator, due attention must be paid to ensuring that

there is sufficient space in front of the accumulator to enable the removal of the heaters (consult the table in question: length).

Installing the heater's thermostat box



<p>Thermostat box 571398530 Thermostat Rathgeber RAC 4090 dual thermostat Adjustment range 30–75°C, safety thermostat 98°C Approvals in accordance with EN60730-1/-2-9, VDE, CE, RoHS 400V AC, 2083.3) A, 50/60 Hz</p>	<p>INSTALLATION MAY BE PERFORMED ONLY BY A PERSON TRAINED FOR THE INSTALLATIONS IN QUESTION!</p>
<ol style="list-style-type: none"> Place a cardboard thermal insulation ring on top of the heater flange, so that it will be positioned between the thermostat box and the flange. Place the bottom part of the thermostat box on top of the heater flange. 	
<ol style="list-style-type: none"> Connect the free earth connector of the box to the fastening screw. Thread the metal installation ring of the box over the heaters' connectors. Fasten the bottom of the box using hexagon socket head screws, ensuring that the installation ring presses the box bottom tightly against the heater flange. 	
<ol style="list-style-type: none"> Thread the power cable through the pipe sleeve of the box and connect the phase conductors to the terminals of the thermostat. Connect the zero conductor directly to the heater. Connect the earth cable leading from the switchboard (see the previous figure). <p><i>Captions:</i> Circuit diagram Attach the power cables to the connectors of the thermostat. Connect the thermal heater to the thermostat using connector cables</p>	<p>CIRCUIT DIAGRAM ATTACH THE POWER CABLES TO THE CONNECTORS OF THE</p> <p>KOPPLA ELPATRONEN TILL TERMOSTATEN MED KOPPLINGSLEDNINGAR</p> <p>L1, L2 ja L3</p>



5 Installing coils

A gasket available from the manufacturer can be considered adequate. Secure the flange by tightening each bolt a little at a time. The gasket must not protrude more than 5mm beyond the flange and the hatch.

6 Maintaining the accumulator

Annual checks for leak tightness count as sufficient maintenance procedures of the accumulator. All connections and coil hatches must be visually checked for leaks.

7 Precautions

The following must be taken into account during installation and use:

The load exerted by a filled accumulator on the floor, including any need to reinforce the floor.

Any risks posed by the fluid in the system in connection with installation, use and maintenance.

The heating up of the components of the system and the hot fluid within it, in order to avoid burns.

An accumulator air extraction system for preventing air pockets from forming inside the accumulator.

If not used properly, the accumulator may pose a considerable risk. It must be ensured that the system is fitted with sufficient safety devices to prevent an excessive rise in temperature.

Electrical equipment may be installed and maintained only by an authorised professional with regard to electrical products.

Making a fire and using tools that generate sparks next to the accumulator is prohibited.

8 Recycling

We recommend that the connections of the system be detached by a professional technician. The system must be pressure-free and the fluid in it must be cooled before dismantling work can begin. If the system contains any chemicals, they must be disposed of as stipulated by legislation.

The metal parts of the accumulator (tank, connections and possible coils), as well as all plastic components can be recycled. Plastic components, such as the insulation of the accumulator, can also be thrown into an energy waste dumpster.

10 Installation log

An installation log must be filled in during installation, as a completed log is a precondition for the validity of the warranty.

Information about the accumulator can be found on the data plate mounted on the side of the accumulator.

GTIN number of the accumulator:		Serial number of the accumulator:	
Address of the installation site:		System's heating methods:	
System pressure:		Heater power:	

The following inspections have been carried out:

V	Hot water	Notes
	- shut-off valves	
	- mixing valve	
	Cold water	
	- shut-off valves	
	- mixing valve	
	- safety valve	
	Electricity	
	- connected power supply	
	- sensors	
	- temperature limiter	
	Other	
	- leak tightness of pipe joints has been checked	
	- the owner of the accumulator has been provided with orientation training in the use of the accumulator	

HVAC installation

Company: _____

Technician (name) _____

Telephone: _____

Email: _____

Date of the HVAC installation: _____ / _____ 20 _____

Signature of the technician: _____

Electrical installation

Company: _____

Technician (name) _____

Telephone: _____

Email: _____

Date of the electrical installation: _____ / _____ 20 _____

Signature of the technician: _____

11 Accumulator technical specifications

G-Energy Custom Accumulator – fully customized accumulator

Volume – 501, 1000, 2000, 3000, 4000 or 5000 litres

Pressure class – 1,5-10 bar

Connections – number, size and disposition as required

Tank material – FE, HST or RST

Insulation material – urethane, cell rubber or without insulation

Bulkhead – equipped with or without bulkhead

Model		Custom 501	Custom 1000	Custom 2000	Custom 3000	Custom 4000	Custom 5000
Tank volume	L	501	1000	2000	3000	4000	5000
Height	mm* **	2010 / 2030	2130 / 2150	2200 / 2250	2350 / 2400	2400 / 2450	2500 / 2550
Height low-height	mm* **		1980 / 2000				
Diameter	mm**	600 / 780	850 / 1030	1200 / 1380	1400 / 1580	1600 / 1780	1800 / 1980
Tilt measurement	mm***	2100	2200	2300	2450	2600	2700
Weight	kg	depending on the model	depending on the model	depending on the model	depending on the model	depending on the model	depending on the model
Connection sizes		as desired	as desired	as desired	as desired	as desired	as desired
Max coil size		LK45	LK55	LK110	LK110	LK110	LK110
Number of heater connections	pc	as desired	as desired	as desired	as desired	as desired	as desired
Max size electric heater	kW	12	12	12	12	12	12
Max temperature	°C	110	110	110	110	110	110
Max operating pressure	bar	1,5-10	1,5-10	1,5-10	1,5-10	1,5-10	1,5-10

Domestic hot water coil

Model	GTIN	Max flow l/s	Copper pipe length m	Heat transfer area m ²	Connection DN/UK	Flange diameter mm	Feasibility tank capacity L
LK35 coil	5362300	0,5	9	2,1	20	200	501–5000
LK45 coil	5361955	0,5	12	2,8	20	200	1000–5000*
LK55 coil	5361956	1,0	2 x 6	2,8	32	200	1000–5000
LK65 coil	5362603	1,0	2 x 9	4,2	32	200	2000–5000
LK90 coil	5361957	1,0	2 x 12	5,7	32	200	2000–5000
LK110 coil	5361958	1,5	3 x 9	6,4	40	300	2000–5000