



*For the warmth of your home  
Za toplinu vašeg doma*

**MIKOTERM**  
electronic

**KATALOG PROIZVODA  
PRODUCT CATALOG**

# About us

Pogledajte video/  
Watch the video



*Mikoterm doo je osnovan 1994. godine, kao privatno preduzeće za proizvodnju opreme za grejanje. Primarna proizvodnja je bazirana na električne kotlove za domaćinstva, ali i za kotlove velikih snaga, mobilne kotlove, kotlove za podršku i druge.*

*Za proizvodnju ovih uređaja koristimo najsavremenije mašine i alate za obradu i zaštitu lima, što garantuje vrhunsku preciznost, izuzetnu završnu obradu i dugotrajnost svih mašinskih delova. Funkcionalan i savremen dizajn je zaštitni znak naših uređaja.*

*Električne instalacije u našim kotlovima izvedene su uz poštovanje svih važećih propisa EU, a ugrađene komponente su od renomiranih domaćih i svetskih proizvođača, pažljivo birane tokom višedecenijskog poslovanja i stalnog unapređivanja i razvoja proizvoda. Projektni tim Mikoterma čine stučnjaci koji imaju dugogodišnje iskustvo u ovoj oblasti.*

*Od 2000. Mikoterm izvozi svoje proizvode van granica Srbije. Izvozi u zemlje regiona, Evrope, a i šire: Crna Gora, Bosna i Hercegovina, Severna Makedonija, Albanija, Slovenija, Hrvatska, UK, Rumunija, Mađarska, Austrija, Nemačka, Švedska, Norveška, Holandija, Belgija, Švajcarska, Letonija, Uzbekistan, Libija, Litvanija. Za nekoliko poznatih evropskih kompanija Mikoterm radi OEM proizvodnju: Centrometal, Bosch, Hotmobil. Danas je Mikoterm najveći proizvođač električnih kotlova u Srbiji.*

*Mikoterm doo was founded in 1994 as a private company for the production of heating equipment. The primary production is based on electric boilers for households, but also for large power boilers, mobile heating units, boilers for support and others.*

*For the production of these devices, we use the most modern machines and tools for the processing and protection of sheet metal, which guarantees top precision, exceptional finishing and durability of all machine parts. Functional and contemporary design is the trademark of our devices.*

*The electrical installations in our boilers are made in compliance with all valid EU regulations, and the built-in components are from renowned domestic and international manufacturers, carefully selected during decades of business and constant product improvement and development. The Mikoterm project team consists of experts who have many years of experience in this field.*

*Since 2000, Mikoterm has been exporting its products outside Serbia. Exports to the countries of the region, Europe, and beyond: Montenegro, Bosnia and Herzegovina, North Macedonia, Albania, Slovenia, Croatia, UK, Romania, Hungary, Austria, Germany, Sweden, Norway, Netherlands, Belgium, Switzerland, Latvia, Uzbekistan, Libya, Lithuania. Mikoterm work OEM production for several well-known European companies: Centrometal, Bosch, Hotmobil. Today, Mikoterm is the largest producer of electric boilers in Serbia.*

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*Od avgusta 2022.godine Mikoterm se nalazi na novoj lokaciji, Industrijska zona Aleksandrovo, Niška bb, 18252 Merošina. U svom vlasništvu ima poslovnu zgradu od 500 m<sup>2</sup> i proizvodni pogon od 2500 m<sup>2</sup> sa potpuno opremljenim magacinskim prostorom.*

*Objekti su kompletno uređeni u skladu sa najvišim standardima i potrebama za rad zaposlenih.*

*Mikoterm dosta vodi računa o zaštiti životne sredine pa je na svom objektu sagradio solarnu elektranu kapaciteta 58kW, a sistemi grejanja i hlađenja na objektima su bazirani na energetski najefikasnijim rešenjima. Sva dobijena solarna energije se primarno koristi za sopstvene potrebe.*

*Kompleks Mikoterma je u celosti u skladu sa prirodnim ambijentom koji ga okružuje, nalazi se na prometnom putu koji povezuje dve opštine, a u blizini je i veza sa auto-putem.*

*From August 2022, Mikoterm is located in a new location, Industrial zone Aleksandrovo, Niska bb, 18252 Merosina.*

*It owns an office building of 500 m<sup>2</sup> and a production plant of 2500 m<sup>2</sup> with fully equipped warehouse space.*

*The facilities are completely arranged in accordance with the highest standards and needs for the work of the employees.*

*Mikoterm pays a lot of attention to the protection of the environment, so it built a solar power plant with a capacity of 58kW on its premises, and the heating and cooling systems on the premises are based on the most energy-efficient solutions. All obtained solar energy is primarily used for own needs.*

*The Mikoterm complex is completely in harmony with the natural environment that surrounds it, it is located on a busy road that connects two municipalities, and there is also a highway connection nearby.*



**SOLARNA ELEKTRANA/  
SOLAR POWER PLANT  
58kW**

**GREEN  
ENERGY**



# Mikoterm novi proizvodni pogon/ Mikoterm new production plant



**Mikoterm je do danas ostao dosledan viziji i temeljima koji su postavljeni od osnivanja. Korektni prema poslovnim partnerima i krajnjim kupcima, prvenstveno ljudskim odnosom, a onda i kvalitetom.**

**To this day, Mikoterm has remained consistent with the vision and foundations that have been laid since its founding. Correct towards business partners and end customers, primarily in terms of human relations, and then also in terms of quality.**

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**Mikoterm primenjuje međunarodni sistem upravljanja kvalitetom ISO 9001 kao i ISO 14001 i ISO 45001, sertifikovane od strane renomiranog sertifikacionog tela TÜV NORD.**

**Mikoterm applies the international quality management system ISO 9001 as well as ISO 14001 and ISO 45001, certified by the renowned certification body TÜV NORD.**

## Sertifikati koji potvrđuju naš kvalitet / Certificates - confirmation of our quality



### CERTIFICATE

Management system as per  
ISO 9001 : 2015

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

"Mikoterm" DOO  
Industrijska zona Aleksandrovo, Niška bb  
18252 Merošina  
Srbija

**MIKOTERM**

operates a management system in accordance with the requirements of ISO 9001 : 2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

Production and sale of heating equipment

Certificate Registration No. 44 100 22430253  
Audit Report No. 10022735

Valid from: 2022-10-01  
Valid until: 2024-10-14  
Initial certification 2018

A. Vedoršak  
Certification Body  
at TÜV NORD CERT GmbH

Essen, 2022-10-21



### CERTIFICATE

Management system as per  
ISO 14001 : 2015

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

"Mikoterm" DOO  
Industrijska zona Aleksandrovo, Niška bb  
18252 Merošina  
Srbija

**MIKOTERM**

operates a management system in accordance with the requirements of ISO 14001 : 2015 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

Production and sale of heating equipment

Certificate Registration No. 44 104 22430253  
Audit Report No. 10422309

A. Vedoršak  
Certification Body  
at TÜV NORD CERT GmbH

Essen, 2022-10-21



### CERTIFICATE

Management system as per  
ISO 45001 : 2018

The Certification Body TÜV NORD CERT GmbH hereby confirms as a result of the audit, assessment and certification decision according to ISO/IEC 17021-1:2015, that the organization

"Mikoterm" DOO  
Industrijska zona Aleksandrovo, Niška bb  
18252 Merošina  
Srbija

**MIKOTERM**

operates a management system in accordance with the requirements of ISO 45001 : 2018 and will be assessed for conformity within the 3 year term of validity of the certificate.

Scope

Production and sale of heating equipment

Certificate Registration No. 44 126 22430253  
Audit Report No. 12622169

A. Vedoršak  
Certification Body  
at TÜV NORD CERT GmbH

Essen, 2022-10-21

**Električni blok kotlovi model: mTronic 7000 6kW÷24kW**  
**Electric block boilers model: mTronic 7000 6kW÷24kW**

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**Električni blok kotlovi model: eCompact Plus 6kW÷27kW**  
**Electric block boilers model: eCompact Plus 6kW÷27kW**

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**Električni blok kotlovi model: eCompact Uz 6kW÷16kW**  
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**Električni kotlovi eTK 6kW÷40kW**  
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**Podrška toplotne pumpe LG Therma V Monobloc: TK eLG 6kW**  
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**Električni kotlovi velike snage TK-Profesional 50kW÷60kW**  
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**Električni kotlovi velike snage TK-Profesional 70kW÷100kW**  
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**Električni kotlovi velike snage TK-Profesional 120kW÷240kW**  
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# mTronic 7000

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Kotao mTronic7000 je unapređena verzija kotla eTronic 7000 koji je razvijen za potrebe Nemačke kompanije ROBERT BOSCH. Uredaj spada u red najmodernijih na tržištu. Upravljanje kotlom je izvedeno preko procesorske jedinice i velikog LCD displeja. Procesorska jedinica obezbeđuje praćenje svih bitnih karakteristika kotla i samog sistema grejanja. Time obezbeđuje siguran i dugotrajan rad uređaja. LCD displej omogućuje pregledno i precizno podešavanje vitalnih parametara na uređaju. Podešavanje je maksimalno uprošćeno preko 4 soft touch tastera. Preko procesorske jedinice može se pratiti vreme rada svakog grejača posebno, kao i celog uređaja. Režim rada može se podesiti na normalan i režim protiv zamrzavanja. Preciznim projektovanjem obezbeđen je i veoma lak rad serviserima i instalaterima. Maksimalno je uprošćeno utvrđivanje eventualne greške i njenog otklanjanje. Što se sigurnosnog dela kotla tiče izведен je procesorskom kontrolom i mehaničkim zaštitama. Uredaj ima 4 stepena zaštite. Takođe ima i alarne upozorenja ako se neki parametri nalaze u kritičnim vrednostima. Sve u svemu mTronic 7000 je uređaj koji je trenutno najnapredniji po funkcijama i sigurnosti.

The mTronic 7000 boiler is an improved version of the eTronic 7000 boiler developed for the needs of the German company ROBERT BOSCH. Boiler control is performed via a processor unit and a large LCD display. The processor unit provides monitoring of all important characteristics of the boiler and the heating system. This ensures safe and long-lasting operation of the device. The LCD display allows clear and precise adjustment of vital parameters on the device. The setting is maximally simplified via 4 soft touch keys. The operating mode of each heater separately, as well as the entire device, can be monitored via the processor unit. The operating mode can be set to normal and anti-freeze mode. Precise design ensures very easy work for service technicians and installers. Determining a possible error and eliminating it is maximally simplified. Boiler safety is ensured through processor control and mechanical protections. The device has 4 levels of protection. It also has warning alarms if some parameters are in critical values. All in all, mTronic 7000 is a device that is currently the most advanced in terms of functions and security.



kW 6÷24

m<sup>2</sup> ≤240 floor heating  
≤180 radiator heating

za objekte u skladu sa/s for buildings in accordance with  
EN ISO 52016-1:2017

% 99

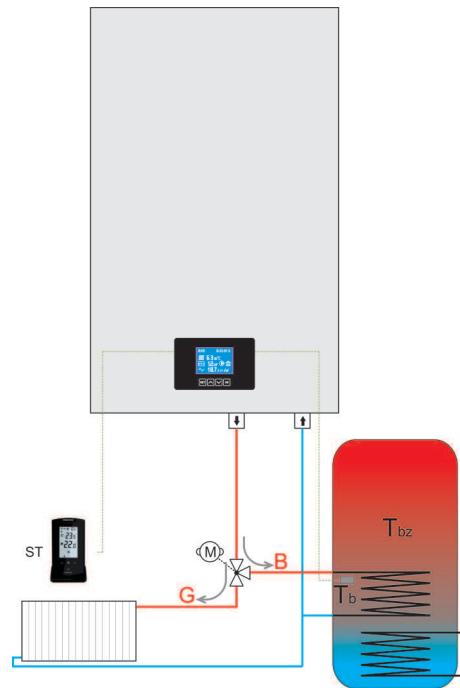
IP 40

KG 23÷25

## Pregled prednosti / overview of advantage:

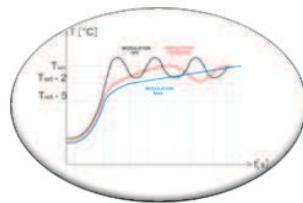
- Električni kotao za grejanje i pripremu sanitарне воде помоћу akumulacionog bojlerа / Electric boiler for heating and domestic hot water preparation by means of an storage boiler.
- Uključivanje/isključivanje grejačа sa praćenjem njihovog vremena rada (ravnomerno angažovanje grejačа) - obezbeđuje duži radni vek uređaja / Heater on / off, with monitoring their operating time (balancing the operating time of the heaters) - provides longer device life.
- Sigurnosni termostat sa daljinskim naponskim okidačem (bez napajanja u redovnom radu, duži radni vek) / Safety temperature limiter with remote voltage trigger (without power supply in regular operation, longer working life).
- Najnoviji model visoko efikasne pumpe sa širokim izborom režima rada / The latest model of a highly efficient pump with a wide choice of operating modes.
- Svi parametri sistema prikazani na korisničkom interfejsu. Jednostavno podešavanje temperature i snage sistema grejanja / All system parameters displayed on the user interface. Easy adjustment of temperature and power of the heating system.
- Digitalno merenje temperature i precizna regulacija. Digitalni senzor pritiska vode u sistemu / Digital temperature measurement and precise control. Digital water pressure sensor in the system.
- Daljinsko upravljanje preko sobnog termostata / Remot control via room thermostat.
- Zaštita od smrzavanja pomoći zasebnog programa / Frost protection using a separate program.

## 1 Električni blok kotlovi / Electric block boilers: mTronic 7000 6kW÷24kW



**Zaštita od smrzavanja / Frost protection**

**Modulacija snage / Power modulation**



**Grejanje ili priprema potrošne tople vode / Heating or preparation of DHW**

Tehničke karakteristike/Technical characteristics

Model	mT-6kW	mT-9kW	mT-12kW	mT-18kW	mT-24,3kW
grejne grupe	heating groups	3 × 2 kW	6 × 1,5 kW	6 × 2 kW	9 × 2 kW
podešavanje snage	power steps	3 × 2 kW	6 × 1,5 kW	6 × 2 kW	9 × 2,7 kW
minimalna snaga	minimum power	2 kW	1,5 kW	2 kW	2 kW
maksimalna snaga	maximum power	6 kW	9 kW	12 kW	18 kW
potrebeni glavni osigurači za trofazno napajanje	main circuit breakers for three phase power supply	3 × 16A	3 × 20A	3 × 25A	3 × 32A
potrebeni glavni osigurači za monofazno napajanje	main circuit breakers for single-phase power supply	1 × 32A	1 × 50A	/	/
potreban mrežni kabl za trofazno napajanje	power cable for three phase power supply	5 × 2,5 mm <sup>2</sup>	5 × 2,5 mm <sup>2</sup>	5 × 4 mm <sup>2</sup>	5 × 4 mm <sup>2</sup>
potreban mrežni kabl za monofazno napajanje	power cable for single-phase power supply	3 × 4 mm <sup>2</sup>	3 × 6 mm <sup>2</sup>	/	/
preporučena grejna * površina-podno/radijat. grejanje	recommended heating * surface-floor/radiator heating	≤60m <sup>2</sup> f.h. ≤40m <sup>2</sup> r.h.	≤90m <sup>2</sup> f.h. ≤60m <sup>2</sup> r.h.	≤120m <sup>2</sup> f.h. ≤80m <sup>2</sup> r.h.	≤180m <sup>2</sup> f.h. ≤120m <sup>2</sup> r.h.
priklučak na elektro mrežu	inlet for power cable	3 strane/ways - gornje/top, donje/bottom, između zida/from wall			
priklučak na hidrauličnu instalaciju	connection for hydraulic instalation	G 3/4 " sa donje strane/from bottom side			
pumpa	pump	visoko efikasna pumpa/highly efficient pump			
ekspanzionia posuda	expansion vessel	Zilio Italy 8L			
sigurnosni ventil	safety valve	integriran unutra/integrated inside			
slavina za pražnjenje kotla	drain valve	da/yes			
dimenziije VxŠxD	dimensions HxWxD	710×430×230			
težina kotla bez vode	weight of boiler without water	25 kg			
stepen zaštite	Ingress Protection rating	IP 40			
opseg regulacije temperature kotla	temperature range	10 ÷ 80 °C			
sigurnosni termostat	safety thermostat	95 °C			
min. max. radni pritisak	min.max. work pressure	0,3 bar ÷ 2,6 bar			
priprema sanitarne vode	domestic hot water	da/yes			
tajmer za pripremu sanitarne vode	timer for domestic hot water mode	da/yes			
monofazna konekcija	single phase connection	da/yes	da/yes	ne/no	ne/no

\*za objekte u skladu sa / for buildings in accordance with EN ISO 52016-1:2017, f.h.-podno grejanje/floor heating, r.h.-radijatorsko grejanje/radiator heating

# eCompact Plus

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Serija eCompact Plus su blok kotlovi koji su istih dimenzija kao i mTronic, identičnim hidrauličnim delom kotla, ali za manje zahtevne korisnike. Namjenjen je isključivo za grejanje, nije predviđen za pripremu potrošne tople vode. Kontrola rada je preko mikroprocesorske jedinice.

Korisnički modul se sastoji od dva 7-segmentna displeja i led dioda koje signaliziraju koji se parametar ispisuje na displeju. Takođe podešavanje je maksimalno uprošćeno sa 3 soft touch tastera ispod displeja.

Ovaj kotao se svojom funkcionalnošću i kvalitetom pozicionirao u kategoriji premijum kotlova. Pouzdanost u radu i servisne karakteristike su kao i kod svih Mikoterm modela na vrhunskom nivou.

The eCompact Plus series are block boilers of the same dimensions as the mTronic, identical to the hydraulic part of the boiler, but for less demanding users. It is intended exclusively for heating, it is not intended for the preparation of domestic hot water. Operation is controlled via a microprocessor unit.

The user module consists of 7 segments of display and led diodes that signal which parameter is displayed. Also the setting is maximally simplified with 3 soft touch buttons below the display.

With its functionality and quality, this boiler has positioned itself in the category of premium boilers. Reliability and service characteristics are, as with all Mikoterm models, at the highest level.



kW 6÷27

m<sup>2</sup>

≤270 floor heating  
≤200 radiator heating

za objekte u skladu sa/for buildings in accordance with  
EN ISO 52016-1:2017

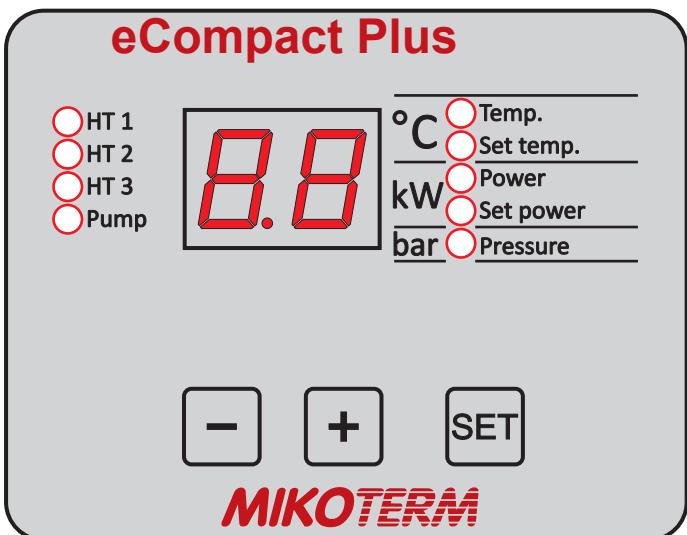
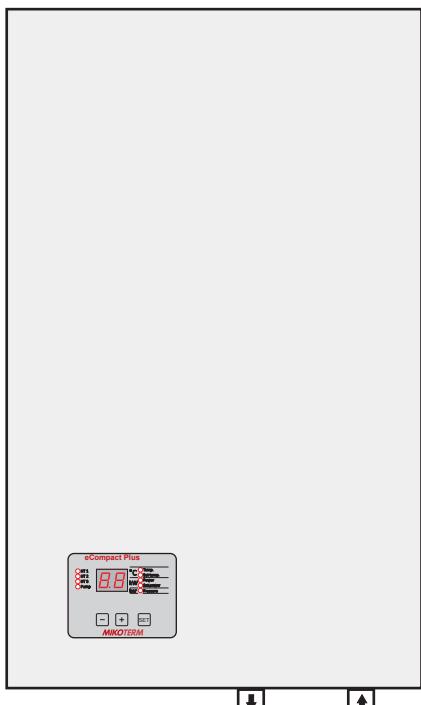
% 99

IP 40

KG 23÷25

## Pregled prednosti / overview of advantage:

- › Električni kotao za grejanje / Electric boiler for heating.
- › Uključivanje/isključivanje grejača sa praćenjem njihovog vremena rada (ravnomerno angažovanje grejača) - obezbeđuje duži radni vek uređaja / Heater on / off, with monitoring their operating time (balancing the operating time of the heaters) - provides longer device life.
- › Sigurnosni termostat sa daljinskim naponskim okidačem (bez napajanja u redovnom radu, duži radni vek) / Safety temperature limiter with remote voltage trigger (without power supply in regular operation, longer working life).
- › Najnoviji model visoko efikasne pumpe sa širokim izborom režima rada / The latest model of a highly efficient pump with a wide choice of operating modes.
- › Jednostavan pregled svih parametara sistema preko korisničkog interfejsa / Easy overview of all system parameters via user interface.
- › Digitalno merenje temperature i precizna regulacija. Digitalni senzor pritiska vode u sistemu / Digital temperature measurement and precise control. Digital water pressure sensor in the system.
- › Daljinsko upravljanje preko sobnog termostata / Remot control via room thermostat.



Izgled komandne table /  
Control panel view

## Tehničke karakteristike/Technical characteristics

Model	CP-6kW	CP-9kW	CP-12kW	CP-18kW	CP-24 kW	CP-27 kW
stejeni snage	power steps	3 × 2 kW	3 × 3 kW	3 × 4 kW	3 × 6 kW	3 × 8 kW
minimalna snaga	minimum power	2 kW	3 kW	4 kW	6 kW	8 kW
maksimalna snaga	maximum power	6 kW	9 kW	12 kW	18 kW	24 kW
potrebnii glavni osiguraci za trofazno napajanje	main circuit breakers for three phase power supply	3 × 16A	3 × 20A	3 × 25A	3 × 32A	3 × 40A
potrebnii glavni osiguraci za monofazno napajanje	main circuit breakers for single-phase power supply	1 × 32A	1 × 50A	/	/	/
potreban mrežni kabl za trofazno napajanje	power cable for three phase power supply	5 × 2,5 mm <sup>2</sup>	5 × 2,5 mm <sup>2</sup>	5 × 4 mm <sup>2</sup>	5 × 4 mm <sup>2</sup>	5 × 6 mm <sup>2</sup>
potreban mrežni kabl za monofazno napajanje	power cable for single-phase power supply	3 × 4 mm <sup>2</sup>	3 × 6 mm <sup>2</sup>	/	/	/
preporučena grejna * površina-podno/radijat.	recommended heating * surface-floor/radiator	≤60m <sup>2</sup> f.h. ≤40m <sup>2</sup> r.h.	≤90m <sup>2</sup> f.h. ≤60m <sup>2</sup> r.h.	≤120m <sup>2</sup> f.h. ≤80m <sup>2</sup> r.h.	≤180m <sup>2</sup> f.h. ≤120m <sup>2</sup> r.h.	≤240m <sup>2</sup> f.h. ≤160m <sup>2</sup> r.h.
priklučak na elektro mrežu	inlet for power cable	3 strane/ways - gornje/top, donje/bottom, između zida/from wall				
priklučak na hidrauličnu instalaciju	connection for hydraulic instalation	G 3/4 " sa donje strane/from bottom side				
pumpa	pump	visoko efikasna pumpa/highly efficient pump				
ekspanziona posuda	expansion vessel	Zilio Italy 8L				
sigurnosni ventil	safety valve	integriran unutra/integrated inside				
slavina za pražnjenje kotla	drain valve	da/yes				
dimenziije VxŠxD	dimensions HxWxD	710x430x230				
težina kotla bez vode	weight of boiler without water	25 kg				
opseg regulacije temperature kotla	temperature range	10 ÷ 80 °C				
sigurnosni termostat	safety thermostat	95 °C				
min. max. radni pritisak	min.max. work pressure	0,4 bar ÷ 2,6 bar				
stopen zaštite	Ingress Protection rating	IP 40				
procesorska jedinica	procesor unit	da/yes				
monofazna konekcija	single phase connection	da/yes	da/yes	ne/no	ne/no	ne/no

\*za objekte u skladu sa / for buildings in accordance with EN ISO 52016-1:2017, f.h.-podno grejanje/floor heating, r.h.-radijatorsko grejanje/radiator heating

# eCompact Uz

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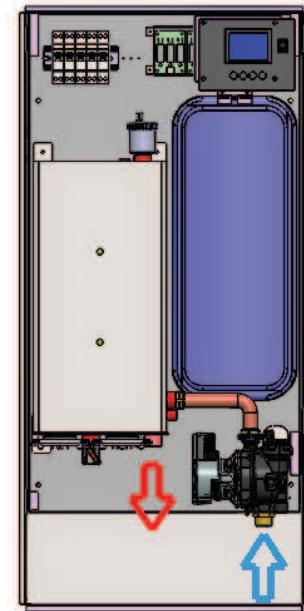


Električni kotao eCompact Uz je unapređena verzija prethodnog uzidnog kotla. Kao i kod pomenutog modela i u ovom se nalazi procesorska jedinica koja kontroliše i upravlja radom kotla. Podešavanje i praćenje svih bitnih parametara je olakšano preko plavog LCD displeja. Na njemu možete pratiti trenutnu temperaturu, snagu i pritisak. Takođe na displeju se ispisuju i zadate vrednosti pomenutih parametara. Unutar kotla se nalazi unapređena pumpa koja u sebi sadrži sigurnosni ventil, dodatno odzračno lonče, transmitter pritiska kao i slavinu za punjenje i pražnjenje. Za razliku od prethodnog modela, ovaj kotao je opremljen većom ekspanzionom posudom od 10 litara. Predviđen je za ugradnju u zid minimalne debljine 140 mm. Elegantan spoljni dizajn i veoma lak i pregledan pristup unutrašnjim komponentama je bitna prednost u odnosu na ostale kotlove na tržištu. Pored mehaničke zaštite predviđena je i elektronska koja isključuje dovod faze na grejače u slučaju prekoračenja zadate ili maksimalne dozvoljene temperature, kao i u slučaju previšokog ili nedovoljnog pritiska. Sve greške u radu se ispisuju u njegovu internu memoriju, tako da je rad servisera veoma olakšan. Veliku primenu našao je u izgradnji stambenih objekata. Izrađuje se u dve varijante, sa i bez razdelnika. Kod većeg modela, moguće je ugraditi sabirnik i razdelnik do 7 krugova, za radijatorsko ili podno grejanje, tako da dodatni ormarić nije potreban. Ukoliko je neophodno proširiti sistem dodatnim ormarićem, to se može učiniti preko bočnih otvora na kućištu, tako da sve cevi mogu biti sakrivene.

The eCompact Uz electric boiler is an improved version of the previous built-in boiler. As with the mentioned model, this one also has a processor unit that controls and manages the operation of the boiler. Adjustment and monitoring of all important parameters is facilitated via the blue LCD display. You can monitor the current temperature, power and pressure on it. The display also shows the set values of the mentioned parameters. Inside the boiler there is an advanced pump, which contains a safety valve, an additional vent pot, a pressure transmitter as well as a tap for filling and emptying. Unlike the previous model, this boiler is equipped with a larger expansion tank of 10 liters. It is intended for installation in a wall with a minimum thickness of 140 mm. Elegant exterior design and very easy and clear access to internal components is a significant advantage over other boilers on the market. In addition to mechanical protection, electronic protection is also provided, which excludes the supply of phase to the heaters in case of exceeding the set or maximum allowable temperature, as well as in case of too high or insufficient pressure. All operating errors are written to its internal memory, so the work of the service technician is very easy. He found great application in the construction of residential buildings. It is made in two variants, with and without manifold. With the larger model, it is possible to install a busbar and manifold up to 7 circuits, for radiator or underfloor heating, so that no additional cabinet is needed. If it is necessary to expand the system with an additional cabinet, this can be done through the side openings on the housing, so that all the pipes can be hidden.



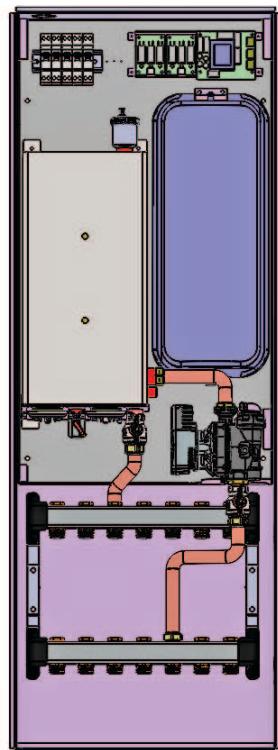
957x452x132



eCompact Uz  
bez razdelnika /  
without manifold



1260x452x132



eCompact Uz  
sa razdelnikom /  
with manifold

**kW** 6÷16

**m<sup>2</sup>** ≤160 floor heating  
≤140 radiator heating

za objekte u skladu sa/for buildings in accordance with  
EN ISO 52016-1:2017

**%** 99

**IP** 20

**KG** 28÷35

Pregled prednosti / overview of advantage:

- > Električni kotao za grejanje sa izborom radnog režima (radijatorsko ili podno grejanje) / Electric heating boiler with operating mode selection (radiator heating or underfloor heating).
- > Uključivanje/isključivanje grejača sa praćenjem njihovog vremena rada (ravnomerno angažovanje grejača) - obezbeđuje duži radni vek uređaja / Heater on / off, with monitoring their operating time (balancing the operating time of the heaters) - provides longer device life.
- > Sigurnosni termostat sa daljinskim naponskim okidačem (bez napajanja u redovnom radu, duži radni vek) / Safety temperature limiter with remote voltage trigger (without power supply in regular operation, longer working life).
- > Najnoviji model visoko efikasne pumpe sa širokim izborom režima rada / The latest model of a highly efficient pump with a wide choice of operating modes.
- > Korisnički interfejs omogućava lako praćenje parametara kompletног sistema grejanja / User interface for easy monitoring of all parameters of the complete heating system.
- > Digitalno merenje temperature i precizna regulacija. Digitalni senzor pritiska vode u sistemu / Digital temperature measurement and precise control. Digital water pressure sensor in the system.
- > Daljinsko upravljanje preko sobnog termostata / Remot control via room thermostat.
- > Ušteda prostora zbog načina ugradnje (u zid) / Space saving due to installation method (in wall).
- > Duži model ima mogućnost ugradnje razdelnika 3-7 krugova / The longer model has the option of installing a manifold with 3-7 circles.

## Tehničke karakteristike/Technical characteristics

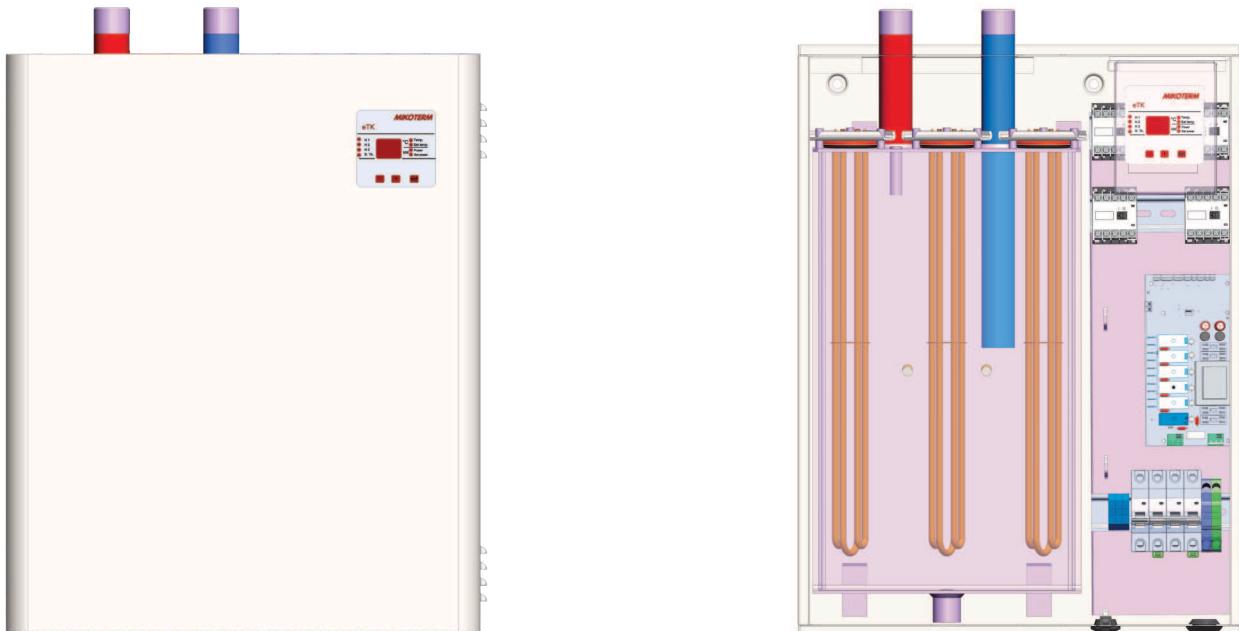
Model	eC UZ-6kW	eC UZ-9kW	eC UZ-12kW	eC UZ-16kW
grejne grupe	heating groups	3 × 2 kW	6 × 1,5 kW	6 × 2 kW
minimalna snaga	minimum power	2 kW	1,5 kW	2 kW
maksimalna snaga	maximum power	6 kW	9 kW	12 kW
potrebni glavni osigurači za trofazno napajanje	main circuit breakers for three phase power supply	3 × 16A	3 × 20A	3 × 25A
potrebni glavni osigurači za monofazno napajanje	main circuit breakers for single-phase power supply	1 × 32A	1 × 50A	/
potreban mrežni kabl za trofazno napajanje	power cable for three phase power supply	5 × 2,5 mm <sup>2</sup>	5 × 2,5 mm <sup>2</sup>	5 × 4 mm <sup>2</sup>
potreban mrežni kabl za monofazno napajanje	power cable for single-phase power supply	3 × 4 mm <sup>2</sup>	3 × 6 mm <sup>2</sup>	/
preporučena grejna * površina-podno/radijat.	recommended heating * surface-floor/radiator	≤60m <sup>2</sup> f.h. ≤40m <sup>2</sup> r.h.	≤90m <sup>2</sup> f.h. ≤60m <sup>2</sup> r.h.	≤120m <sup>2</sup> f.h. ≤80m <sup>2</sup> r.h.
priklučak na elektro mrežu	inlet for power cable	2 strane/ways - gornje/top, leve strane/left side		
priklučak na hidrauličnu instalaciju	connection for hydraulic instalation	G 3/4 " sa donje strane/from bottom side		
pumpa	pump	visoko efikasna pumpa/highly efficient pump		
ekspanzionia posuda	expansion vessel	Zilio Italy 10L		
sigurnosni ventil	safety valve	integrisan unutra/integrated inside		
slavina za punjenje i pražnjenje kotla	filling and drain valve	da/yes		
težina kotla bez vode	weight of boiler without water	28-35 kg		
opseg regulacije temperature kotla u radijatorskom režimu	temperature range in radiator mode	10 ÷ 80 °C		
opseg regulacije temperature kotla u podnom režimu	temperature range in underfloor mode	10 ÷ 50 °C		
sigurnosni termostat	safety thermostat	95 °C		
min. max. radni pritisak	min.max. work pressure	0,3 bar ÷ 2,6 bar		
stepen zaštite	Ingress Protection rating	IP 20		
procesorska jedinica	procesor unit	da/yes		
monofazna konekcija	single phase connection	da/yes	da/yes	ne/no
				ne/no

\*za objekte u skladu sa / for buildings in accordance with EN ISO 52016-1:2017, f.h.-podno grejanje/floor heating, r.h.-radijatorsko grejanje/radiator heating



Model eTK namenjen je zidnoj montaži. Male dimenzije čine ovaj model pogodan za montažu u bilo kom delu objekta. Našli su primenu kao osnovni izvor energije ali vrlo često i kao backup rešenje uz kotlove na pelet, gas, drva... Kotao može kontrolisati rad eksterne pumpe. Kotлом управља микропроцесорски терморегулатор који оптимално користи сваки грејач. Корисник у сваком trenutku на дисплеју има приказ trenutне temperature ili kretanjem kroz meni, brzo i lako, može pregledati sve parametre sistema. Ovaj model kao i ostali ima mogućnost upravljanja preko sobnog termostata. Za razliku od prethodnog modela, pored dodate mikroprocesorske jedinice, osigurana je maksimalna bezbednost dodavanjem sigurnosnog sklopa koji čine 3P automatski osigurač sa naponskim okidačem, koji u slučaju pregrevanja prekida glavno napajanje. Napredni softver, na osnovu dinamičkih promena temperature modulira angažovanu snagu grejača, tako da se uz najmanji utrošak energije precizno održava zadata temperatura kotla.

The eTK model is intended for wall mounting. Small dimensions make this model suitable for installation in any part of the building. They have found use as a basic source of energy, but very often as a backup solution with pellet, gas, wood boilers... The boiler can control the operation of an external pump. The boiler is controlled by a microprocessor thermoregulator that optimally uses each heater. The user can see the current temperature on the display at any time or by moving through the menu, quickly and easily, can view all system parameters. This model, like the others, has the option of control via a room thermostat. In this model, in addition to the added microprocessor unit, maximum safety is ensured by adding a safety assembly that consists of a 3P circuit breaker with voltage trigger, which in case of overheating interrupts the main power supply. Advanced software, according to dynamic temperature changes modulates the engaged power of the heaters, so that the set boiler temperature is precisely maintained with the least energy consumption.



**kW** 6÷40

**m<sup>2</sup>**

≤400 floor heating  
≤270 radiator heating

za objekte u skladu sa/safor buildings in accordance with  
EN ISO 52016-1:2017

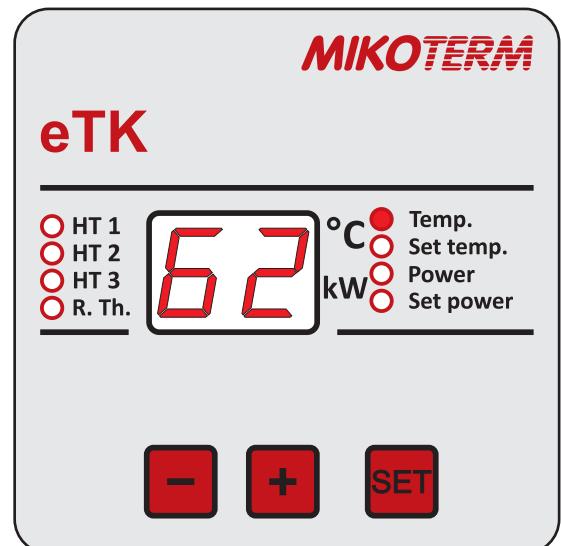
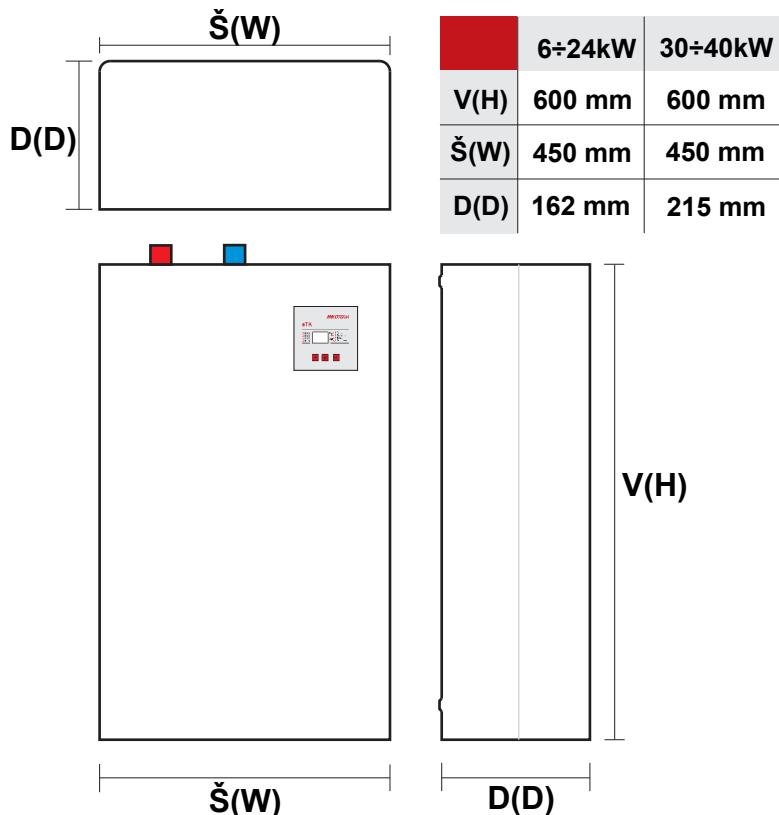
**%** 99

**IP** 20

**KG** 20÷27,5

#### Pregled prednosti / overview of advantages:

- Električni kotao za grejanje (zidna montaža) / Electric boiler for heating (wall mounting).
- Uključivanje/isključivanje grejača sa praćenjem njihovog vremena rada (ravnomerno angažovanje grejača) - obezbeđuje duži radni vek uređaja / Heater on / off, with monitoring their operating time (balancing the operating time of the heaters) - provides longer device life.
- Sigurnosni termostat sa daljinskim naponskim okidačem (bez napajanja u redovnom radu, duži radni vek) / Safety temperature limiter with remote voltage trigger (without power supply in regular operation, longer working life).
- Jednostavan pregled svih parametara sistema preko korisničkog interfejsa / Easy overview of all system parameters via user interface.
- Digitalno merenje temperature i precizna regulacija / Digital temperature measurement and precise control.
- Daljinsko upravljanje preko sobnog termostata / Remot control via room thermostat.
- Mogućnost upravljanja eksternom pumpom / Possibility to control an external pump.



Izgled komandne table /  
Control panel view

### Tehničke karakteristike/Technical characteristics eTK 6kW÷40kW

Model		eTK-6kW	eTK-9kW	eTK-12kW	eTK-18kW	eTK-24 kW	eTK-30 kW	eTK-36kW	eTK-40kW			
stepen korisnosti	utility level	99%	99%	99%	99%	99%	99%	99%	99%			
steponi snage	power steps	3×2kW	3×3kW	3×4kW	3×6kW	3×8kW	3x10kW	3x12kW	3x13,3kW			
broj stepena snage	number of power degrees	3	3	3	3	3	3	3	3			
potrebeni glavni osigurači za trofazno napajanje	main circuit breakers for three phase power supply	3x16A	3x20A	3x25A	3x32A	3x40A	3x50A	3x63A	3x63A			
potrebeni glavni osigurači za monofazno napajanje	main circuit breakers for single-phase power supply	1x32A	1x50A	/	/	/	/	/	/			
potreban mrežni kabl za trofazno napajanje	power cable for three phase power supply	5×2,5mm <sup>2</sup>	5×2,5mm <sup>2</sup>	5×4mm <sup>2</sup>	5×4mm <sup>2</sup>	5×6mm <sup>2</sup>	5×10mm <sup>2</sup>	5×10mm <sup>2</sup>	5×16mm <sup>2</sup>			
potreban mrežni kabl za monofazno napajanje	power cable for single-phase power supply	3x4mm <sup>2</sup>	3x6mm <sup>2</sup>	/	/	/	/	/	/			
zapremina vode u kotlu	volume of water in the boiler	14,2 l	14,2 l	14,2 l	14,2 l	14,2 l	21 l	21 l	21 l			
težina kotla bez vode	weight of boiler without water	20 kg	20,5 kg	21 kg	21,5 kg	22 kg	26,3 kg	27 kg	27,5 kg			
dimenzije VxŠxD	dimensions HxWxD	600×450×162					600×450×215					
pozicija hidr. priključaka	pipe position	odozgo / from above										
hidraulični priključci	hydro connection	1" SN										
maksimalni pritisak	maximum pressure	3 bar										
minimalni pritisak	minimum pressure	0,5 bar										
opseg regulacije temperature kotla	temperature range	10 ÷ 80 °C										
sigurnosni termostat	safety thermostat	95 °C										
stepen zaštite	Ingress Protection rating	IP 20										
preporučena grejna* površina-podno/radijat.	recommended heating* surface-floor/radiator	≤60m <sup>2</sup> f.h. ≤40m <sup>2</sup> r.h.	≤90m <sup>2</sup> f.h. ≤60m <sup>2</sup> r.h.	≤120m <sup>2</sup> f.h. ≤80m <sup>2</sup> r.h.	≤180m <sup>2</sup> f.h. ≤120m <sup>2</sup> r.h.	≤240m <sup>2</sup> f.h. ≤160m <sup>2</sup> r.h.	≤300m <sup>2</sup> f.h. ≤200m <sup>2</sup> r.h.	≤360m <sup>2</sup> f.h. ≤240m <sup>2</sup> r.h.	≤400m <sup>2</sup> f.h. ≤270m <sup>2</sup> r.h.			

\*za objekte u skladu sa / for buildings in accordance with EN ISO 52016-1:2017, f.h.-podno grejanje/floor heating, r.h.-radijatorsko grejanje/radiator heating

# TK eLG 6kW

model IP20 / IP54

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Kotao TK-eLG namenjen je podršci toplotne pumpe i može raditi samo u paru sa toplotnom pumpom vazduh/voda LG Therma V Monobloc. Ovaj uređaj nema radni termostat (ima zaštitni termostat), već informaciju sa senzora temperature prosleđuje termoregulatoru toplotne pumpe. Termoregulator toplotne pumpe donosi odluku da li će se i kada uključiti električni grejač. Električni kotao TK-eLG ima važnu ulogu za pravilan rad toplotne pumpe koja koristi ekološki gas R32 za koji standard ne dozvoljava ugradnju električnih grejača u kućište toplotne pumpe. Kontrolna jedinica toplotne pumpe aktiviraće kotao TK-eLG u sledećim situacijama: 1. Ukoliko je temperatura vode manja od  $\approx 20^{\circ}\text{C}$ , toplotna pumpa neće moći da startuje bez pripreme (zagrevanja) pomoću električnog grejača. 2. Odleđivanje (defrost) kada je temperatura vazduha niska može biti dugotrajno ili neizvodljivo bez pomoći električnog grejača. 3. U ekstremno hladnim danima kada COP toplotne pumpe ima najmanju vrednost, el. kotao se uključuje kao podrška (backup) da bi zagrevanje objekta ostalo na komfornom nivou. 4. U slučaju otkazivanja (servisiranja) toplotne pumpe električni kotao preuzima zagrevanje objekta – dok pumpa ne bude u funkciji. Kotao Mikoterm TK-eLG predviđen je za montažu na zid. Kotao se učvršćuje na zid pomoću isporučenog montažnog seta. Konstrukcija kotla je takva da omogućava montažu na zid tako da hidraulični priključci budu na levoj ili desnoj strani kotla uz jednostavno i brzo prebacivanje INFO panela sa jedne na drugu stranu oplate.

The TK-eLG boiler is intended to support the heat pump and can only work in pair with the heat pump air / water LG Therma V Monobloc. This device does not have a working thermostat (it has a protective thermostat), but forwards the information from the temperature sensor to the thermoregulator of the heat pump. The thermoregulator of the heat pump decides whether and when the electric heater will be switched on. Electric boiler TK-eLG plays an important role in the proper operation of a heat pump that uses environmentally friendly gas R32 for which the standard does not allow the installation of electric heaters in the heat pump housing. The heat pump control unit will activate the TK-eLG boiler in the following situations: 1. If the water temperature is less than  $\approx 20^{\circ}\text{C}$ , the heat pump will not be able to start without preparation (heating) using an electric heater. 2. Defrosting when the air temperature is low can be long-lasting or impossible without the help of an electric heater. 3. On extremely cold days when the COP of the heat pump has the lowest value, electric boiler is switched on as a backup to keep the heating of the building at a comfortable level. 4. In case of failure (servicing) of the heat pump, the electric boiler takes over the heating of the building - until the pump is in operation. The Mikoterm TK-eLG boiler is intended for wall mounting. The boiler is fixed to the wall using the supplied mounting kit. The construction of the boiler is such that it allows mounting on the wall so that the hydraulic connections are on the left or right side of the boiler with easy and fast switching of the INFO panel from one side of the formwork to another.



TK-eLG IP20 za unutrašnju montažu /  
TK-eLG IP20 for indoor installation

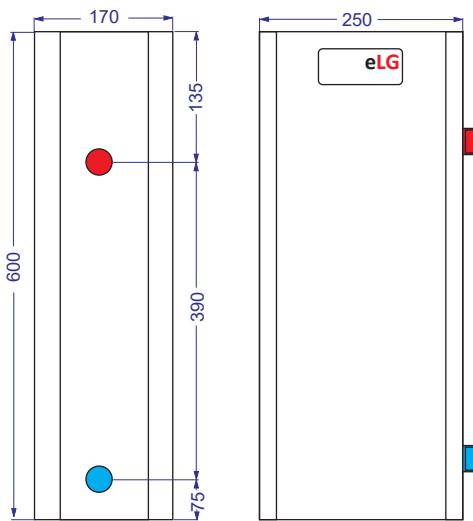


TK-eLG IP54 za spoljašnju montažu /  
TK-eLG IP54 for outdoor installation

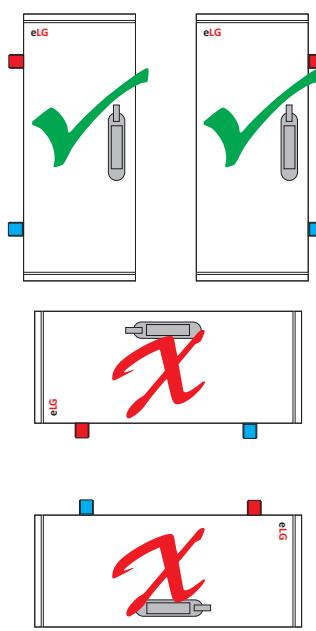
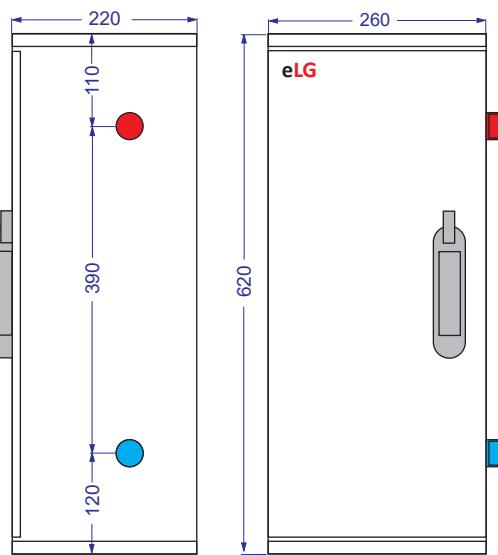
## Pregled prednosti / overview of advantage:

- Podrška toplotne pumpe LG Therma V Monoblock / LG Therma V Monoblock heat pump support
- Male dimenzije kotla omogućuju laku montažu na zid uz pomoć isporučenog montažnog seta / The small dimensions of the boiler allow easy wall mounting with the help of the supplied mounting kit
- Hidraulični priključci mogu da budu na levoj ili na desnoj strani kotla / Hydraulic connections can be on the left or right side of the boiler
- Lako i jednostavno prebacivanje INFO panela sa jedne na drugu stranu opalte / Easy switching of INFO panel from one side of the formwork to another
- Lako i brzo električno povezivanje sa toplotnom pumpom, montiran senzor temperature / Easy and fast electrical connection to the heat pump, mounted temperature sensor
- Mogućnost povezivanja na trofazno i na monofazno napajanje / Possibility of connection to three-phase and single-phase power supply
- Nije potrebno hidraulično premoščavanje kotla (bypass) kada pumpa radi na hlađenju, zbog paro-nepropusne izolacije / Hydraulic bypass of the boiler is not required when the pump is running on cooling, due to vapor-tight insulation
- Sigurnosni sklop - potpuno isključivanje napajanja u slučaju pregrevanja / Safety circuit - completely shuts off the power in case of overheating
- Privremeno može zameniti toplotnu pumpu i preuzeti zagrevanje objekta / It can temporarily replace the heat pump and take over the heating of the building

**Dimenzije TK-eLG IP20 za unutrašnju montažu/Dimensions TK-eLG IP20 for indoor installation**



**Dimenzije TK-eLG IP54 za spoljašnju montažu/Dimensions TK-eLG IP54 for outdoor installation**



**! važno/important !**

- Model eLG IP20 je univerzalan za levu i desnu montažu/  
The eLG IP20 is universal for left and right mounting.
- Model eLG IP54 se proizvodi posebno sa hidrauličnim izvodima levo ili desno/  
The eLG IP54 is produced separately with left or right hydraulic outlets.

**IP 20/54** **KG 10,5**

**kW 6** **% 99**

**Tehničke karakteristike/Technical characteristics**

<b>Model TK eLG 6kW</b>		<b>monofazno napajanje/ single-phase power supply</b>	<b>trofazno napajanje/ three-phase power supply</b>
stепен корисног dejstva	utility level	99%	99%
broj stepeni snage	number of degrees of power	1	2
podela stepeni snage	power division	1 × 2kW	2 × 2kW
potrebnii glavni osigurači	main circuit breakers	1 × 16A	1 × 25A
minimalni presek napojnog kabla	minimum cross-section of the power cable	3 × 2,5 mm <sup>2</sup>	3 × 4 mm <sup>2</sup>
priklučni napon	connection voltage	1N ~ 230V 50Hz	3N ~ 400/230V 50Hz
stepen zaštite	Ingress Protection rating	IP 20 / IP54	
maksimalni pritisak	maximum pressure	3 bar	
minimalni pritisak	minimum pressure	0,5 bar*	
opseg regulacije temperature kotla	temperature range	Regulacija preko toplotne pumpe / Regulation via heat pump	
sigurnosni termostat	safety thermostat	95 °C	
zapremina vode u kotlu	volume of water in the boiler	4,5 l	
priklučak potisnog voda	discharge line connection	DN25 (1") SN	
priklučak povratnog voda	return line connection	DN25 (1") SN	
težina kotla bez vode	weight of boiler without water	10,5 Kg	

\* - Napomena: kotao nema ugrađen granični presostat, navedeni min pritisak je zbog pravilnog rada cirkulacione pumpe sistema.

- Note: the boiler does not have a built-in pressure limiter, the specified min. pressure is because to the correct operation of the system circulation pump.

# TK - Profesional

50÷60kW

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Električni toplovodni kotlovi **TK-Profesional** namenjeni su za zagrevanje većih prostora, kuća, stambenih zgrada, proizvodnih hala, poslovnih prostora itd. Odlikuju se robusnom konstrukcijom, jednostavnom montažom, pouzdanim radom i dugim vekom eksploatacije. Tehnička rešenja su ono što naše proizvode izdvaja ispred konkurenčije. Kotlovi snage 50kW i jači opremljeni su mikroprocesorskim termoregulatorom sa grafičkim LCD displejem. Konstrukcija kotla omogućava lak pristup svim komponentama. Odzračivanje je automatsko, a regulacija temperature i snage veoma precizna pomoći mikroprocesorskog termoregulatora. Ovi kotlovi su predviđeni za podnu montažu. Električna veza omogućava daljinsko upravljanje kotlom dodavanjem sobnog termostata i vremenskog prekidača.

Electric hot water boilers **TK-Profesional** are intended for heating larger spaces, houses, residential buildings, production halls, business premises, etc. They are characterized by robust construction, easy installation, reliable operation and long service life. Technical solutions are what set our products apart from the competition. Boilers with a power of 50 kW and more are equipped with a microprocessor thermoregulator with a graphic LCD display. The construction of the boiler allows easy access to all components. Venting is automatic, and temperature and power regulation is very precise using a microprocessor thermoregulator. These boilers are designed for floor mounting. The electrical connection allows remote control of the boiler by adding a room thermostat and a timer.



kW 50÷60

m<sup>2</sup>

≤600 floor heating  
≤400 radiator heating

za objekte u skladu sa/for buildings in accordance with  
EN ISO 52016-1:2017

% 99

IP 20

KG 72÷75

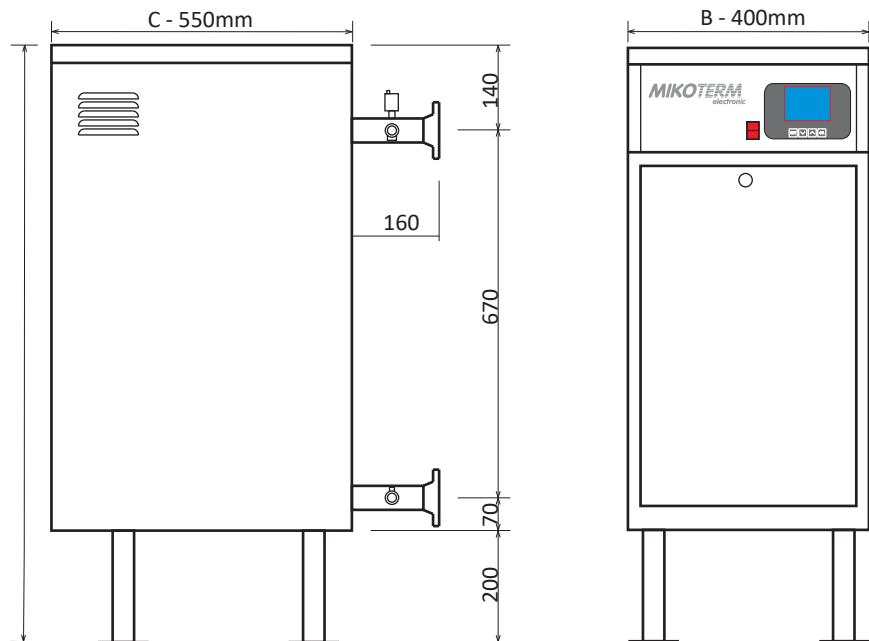
## Pregled prednosti / overview of advantages:

- › Električni kotao za zagrevanje većih prostora, kuća, zgrada, proizvodnih hala / Electric boiler for heating larger spaces, houses, buildings, production halls.
- › Dugi vek eksploracije, jednostavna montaža / Long service life, easy installation.
- › Svi parametri sistema prikazani na korisničkom interfejsu. Jednostavno podešavanje temperature i snage sistema grejanja / All system parameters displayed on the user interface. Easy adjustment of temperature and power of the heating system.
- › Daljinsko upravljanje preko sobnog termostata / Remote control via room thermostat.
- › Vodenje temperature kotla prema spoljnoj temperaturi - O.T.C. režim rada (opciono) / Boiler temperature control according to outdoor temperature - O.T.C. operating mode (optional).
- › Digitalno merenje temperature i precizna regulacija. Digitalni senzor pritiska vode u sistemu / Digital temperature measurement and precise control. Digital water pressure sensor in the system
- › Sigurnosni sklopovi za potpunu bezbednost - isključivanje napajanja na signal sigurnog termostata / Safety circuits for complete safety - switching off the power to the signal of the safe thermostat.
- › Zaštita od smrzavanja pomoći zasebnog programa / Frost protection using a separate program.



SET    ✓    ▲    OK

Izgled komandne table /  
Control panel view



#### Tehničke karakteristike/Technical characteristics

Model	TK-Profesional 50kW	TK-Profesional 60kW	
grejne grupe	heating groups	5 × 10 kW	6 × 10 kW
osigurači grejača	heater fuses	5 × 3P C25A	6 × 3P C25A
maksimalna nazivna struja	maximum required current	3 × 72,5A	3 × 87A
potrebni glavni osigurači	main circuit breakers	3 × 80 A	3 × 100 A
potreban mrežni kabl	power cable	Cu 3 × 25 mm <sup>2</sup>	Cu 3 × 35 mm <sup>2</sup>
potreban zaštitni vod	protective platoon required	Cu 1 × 25 mm <sup>2</sup>	Cu 1 × 35 mm <sup>2</sup>
težina	weight	72kg	75kg
preporučena grejna * površina-podno/radijat.	recommended heating surface-floor/radiator	≤500m <sup>2</sup> f.h.   ≤400m <sup>2</sup> r.h.	≤600m <sup>2</sup> f.h.   ≤480m <sup>2</sup> r.h.
dimenzija A	dimension A	1080mm	
dimenzija B	dimension B	400mm	
dimenzija C	dimension C	550mm	
zapremina vode u kotlu	volume of water in the boiler	56 l	
prikљučni napon	power supply	3N ~ 400/230V 50Hz	
priklučak na hidrauličnu mrežu	hydraulic connection	DN 40 (6/4"); PN 16	
min i max radni pritisak	min and max pressure	0,4 bar ÷ 3 bar	
ventil sigurnosti	safety valve	1 × ½col 3 bar	
stепен заштите	Ingress Protection rating	IP 20	
opseg regulacije temperature kotla	temperature range	10 ÷ 80 (90) °C	
sigurnosni termostat	safety thermostat	95 °C	

\*za objekte u skladu sa / for buildings in accordance with EN ISO 52016-1:2017, f.h.-podno grejanje/floor heating, r.h.-radijatorsko grejanje/radiator heating



Kotlovi TK-Profesional 70-100kW kao i ostali iz ove serije se proizvode po najstrožim standardima sigurnosti EU. Kontrola i regulacija rada kotlova je izvedena preko mikroprocesorske jedinice koja dobija informacije od digitalnih senzora pritiska i temperature. Na displeju su prikazani svi parametri sistema, kao i upozorenja o približavanju graničnim vrednostima temperature i pritiska ili greške u slučaju prekoračenja dozvoljenih vrednosti. Automatika i izvršne komponente su fizički odvojene od suda kotla. Temperatura ambijenta automatičke se kontroliše i po potrebi prinudnom ventilacijom održava na optimalnom nivou za bezbedan rad. Kotlovi TK-Profesional 70-100kW opcionalno se mogu povezati na centralizovani sistem nadzora i upravljanja (BMS, SCADA,...), preko RS485 RTU modula, pomoću ModBus protokola. Mogućnost povezivanja je do 10 kotlova u kaskadnom režimu uz dodatni kaskadni regulator.

**TK-Profesional 70-100kW** boilers as well as others from this series are produced according to the strictest EU safety standards. Control and regulation of boiler operation is performed through a microprocessor unit that receives information from digital pressure and temperature sensors. The display shows all system parameters, as well as warnings about approaching the temperature and pressure limit values, or errors in case of exceeding the permitted values. The automation are physically separated from the boiler vessel. The ambient temperature of the automation is controlled and, if necessary, by forced ventilation maintained at an optimal level for safe operation. TK-Professional 70-100kW boilers can optionally be connected to a centralized monitoring and control system (BMS, SCADA,...), via an RS485 RTU module, using the ModBus protocol. The possibility of connecting up to 10 boilers in cascade mode with an additional cascade regulator.



kW 70÷100

m<sup>2</sup>

≤1000 floor heating  
≤700 radiator heating

za objekte u skladu sa/for buildings in accordance with  
EN ISO 52016-1:2017

% 99

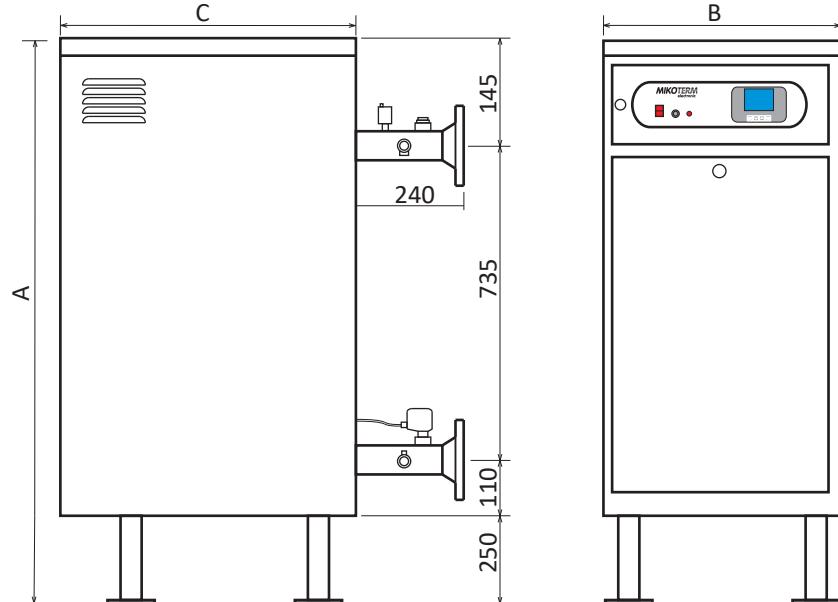
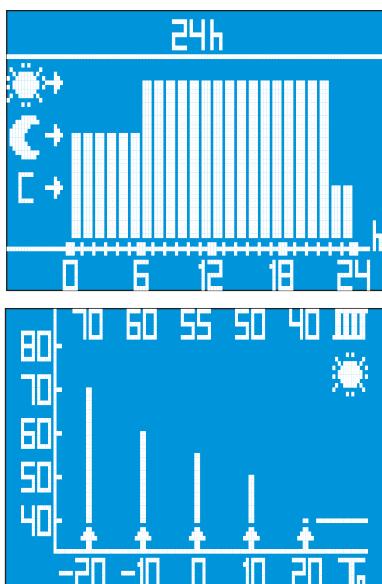
IP 20

KG 92÷120

#### Pregled prednosti / overview of advantages:

- > Električni kotao za zagrevanje većih prostora, kuća, zgrada, proizvodnih hala / Electric boiler for heating larger spaces, houses, buildings, production halls.
- > Dugi vek eksploracije, jednostavna montaža, zaštita od smrzavanja pomoću zasebnog programa / Long service life, easy installation, frost protection using a separate program.
- > Svi parametri sistema prikazani na korisničkom interfejsu. Jednostavno podešavanje temperature i snage sistema grejanja / All system parameters displayed on the user interface. Easy adjustment of temperature and power of the heating system.
- > Daljinski nadzor i upravljanje preko RS485 RTU modula, pomoću ModBus protokola / Remote monitoring and management via RS485 RTU module, using ModBus protocol.
- > Vodenje temperature kotla prema spoljnoj temperaturi - O.T.C. režim rada (opciono) / Boiler temperature control according to outdoor temperature - O.T.C. operating mode (optional).
- > Digitalno merenje temperature i precizna regulacija. Digitalni senzor pritiska vode u sistemu / Digital temperature measurement and precise control. Digital water pressure sensor in the system.
- > Zaštitni elementi: Sigurnosni termostat, Sigurnosni ventil, Indikator protoka-nije dozvoljen rad grejača bez protoka vode / Safety elements: Safety thermostat, Safety valve, Flow indicator-heater operation without water flow is not allowed.
- > Sigurnosni sklopovi za potpunu bezbednost-isključivanje napajanja na signal sigurnog termostata / Safety circuits for complete safety-switching off the power to the signal of the safe thermostat.

Postignite optimalan komfor na ekonomičan način uz O.T.C. režim rada / Achieve optimal comfort in an economical way with O.T.C. operating modes



## Tehničke karakteristike/Technical characteristics

Model		TK-Pro. 70W	TK-Pro. 80kW	TK-Pro. 90kW	TK-Pro. 100kW
grejne grupe	heating groups	7 × 10 kW	8 × 10 kW	9 × 10 kW	10 × 10 kW
osigurači grejača	heater fuses	7 × 3P C25A	8 × 3P C25A	9 × 3P C25A	5 × 3P C40A
maksimalna nazivna struja	maximum required current	3 × 101,5A	3 × 116A	3 × 130A	3 × 145A
potrebni glavni osigurači	main circuit breakers	3 × 125 A	3 × 125 A	3 × 160 A	3 × 160 A
potreban mrežni kabl	power cable	Cu 3 × 50 mm <sup>2</sup>	Cu 3 × 70 mm <sup>2</sup>	Cu 3 × 70 mm <sup>2</sup>	Cu 3 × 70 mm <sup>2</sup>
potreban zaštitni vod	protective platoon required	Cu 1 × 25 mm <sup>2</sup>	Cu 1 × 25 mm <sup>2</sup>	Cu 1 × 35 mm <sup>2</sup>	Cu 1 × 35 mm <sup>2</sup>
težina	weight	92kg	106kg	110kg	120kg
preporučena grejna * površina-podno/radijat.	recommended heating * surface-floor/radiator	≤700m <sup>2</sup> f.h. ≤560m <sup>2</sup> r.h.	≤800m <sup>2</sup> f.h. ≤640m <sup>2</sup> r.h.	≤900m <sup>2</sup> f.h. ≤720m <sup>2</sup> r.h.	≤1000m <sup>2</sup> f.h. ≤800m <sup>2</sup> r.h.
dimenzija A	dimension A	1240mm			
dimenzija B	dimension B	500mm			
dimenzija C	dimension C	650mm			
zapremina vode u kotlu	volume of water in the boiler	95 l			
prikazujući napon	power supply	3N ~ 400V 50Hz			
prikazučak na hidrauličnu mrežu	hydraulic connection	DN 50 (2"); PN 16			
indikator protoka min/max protok za rad grejača	flow switch min/max flow for enabled heating	3m <sup>3</sup> /h ÷ 9m <sup>3</sup> /h			
min i max radni pritisak	min and max pressure	0,4 bar ÷ 4 bar			
ventil sigurnosti	safety valve	3/4" 4 bar			
stepen zaštite	Ingress Protection rating	IP 20			
opseg regulacije temperature kotla	temperature range	10 ÷ 90 °C			
sigurnosni termostat	safety thermostat	95 °C			

\*za objekte u skladu sa / for buildings in accordance with EN ISO 52016-1:2017, f.h.-podno grejanje/floor heating, r.h.-radijatorsko grejanje/radiator heating



Kotlovi TK-Profesional 120-240kW su kompaktни uređaji namenjeni za zagrevanje većih stambenih ili poslovnih objekata. Sud kotla je izrađen od čeličnog lima, ispitana na pritisak od 6 bara, dok je maksimalni radni pritisak 4 bara. Prirubnice pomoću kojih se kotao povezuje na grejnu instalaciju nalaze se sa zadnje strane kotla. Na povratnoj cevi kotla (donjoj) se nalazi slavina za punjenje i pražnjenje, a na potisnoj cevi (gornjoj) sigurnosni ventil i automatsko odzračno lonče. Donja vrata pokrivaju razvodnu tablu sa kompletom automatikom kotla i rednim stezaljkama za priključenje napojnog kabla, kao i pomoćnim klemama za povezivanje komande za cirkulacionu pumpu i sobnog termostata. Kotlovi su opremljeni sa "Multistage protection" sistemom zaštite, koji permanentno prati temperaturu i pritisak u sistemu. U slučaju približavanja pritiska ili temperature nedozvoljenim vrednostima prikazuje na displeju odgovarajuća upozorenja, a u slučaju prekoračenja graničnih vrednosti pritiska ili temperature isključuje sve grejače, odnosno u trećem stepenu zaštite isključuje kompletno napajanje uređaja pomoću naponskih okidača, čime je garantovana bezbednost. Kotlovi TK-Profesional 120-240kW opcionalno se mogu povezati na centralizovani sistem nadzora i upravljanja (BMS, SCADA,...), preko RS485 RTU modula, pomoću ModBus protokola. Mogućnost povezivanja je do 10 kotlova u kaskadnom režimu uz dodatni kaskadni regulator.

Boilers TK-Profesional 120-240kW are compact devices intended for heating larger residential or commercial buildings. The boiler vessel is made of (sheet) steel, tested at a pressure of 6 bar, while the maximum working pressure is 4 bar. The flanges used to connect the boiler to the heating system are located on the back of the boiler. On the return pipe of the boiler (lower) there is a tap for filling and emptying, and on the pressure pipe (upper) there is a safety valve and a valve for automatic deaeration. The lower door covers the switchboard with boiler automation and clamps for connecting the power cable, as well as auxiliary clamps for connecting the circulation pump and the room thermostat. The boilers are equipped with a "Multistage protection" protection system, which permanently monitors the temperature and pressure in the system. If the pressure or temperature approaches the impermissible values, it displays the appropriate warnings on the display, and in the event that the pressure or temperature limit values are exceeded, it switches off all heaters. In the third level of protection, it switches off the complete power supply of the device with the help of voltage triggers, which guarantees safety. TK-Professional 120-240kW boilers can optionally be connected to a centralized monitoring and control system (BMS, SCADA,...), via an RS485 RTU module, using the ModBus protocol. The possibility of connecting up to 10 boilers in cascade mode with an additional cascade regulator.



**kW** 120÷240

**m<sup>2</sup>**

≤2400 floor heating  
≤1600 radiator heating

**%** 99

**IP** 20

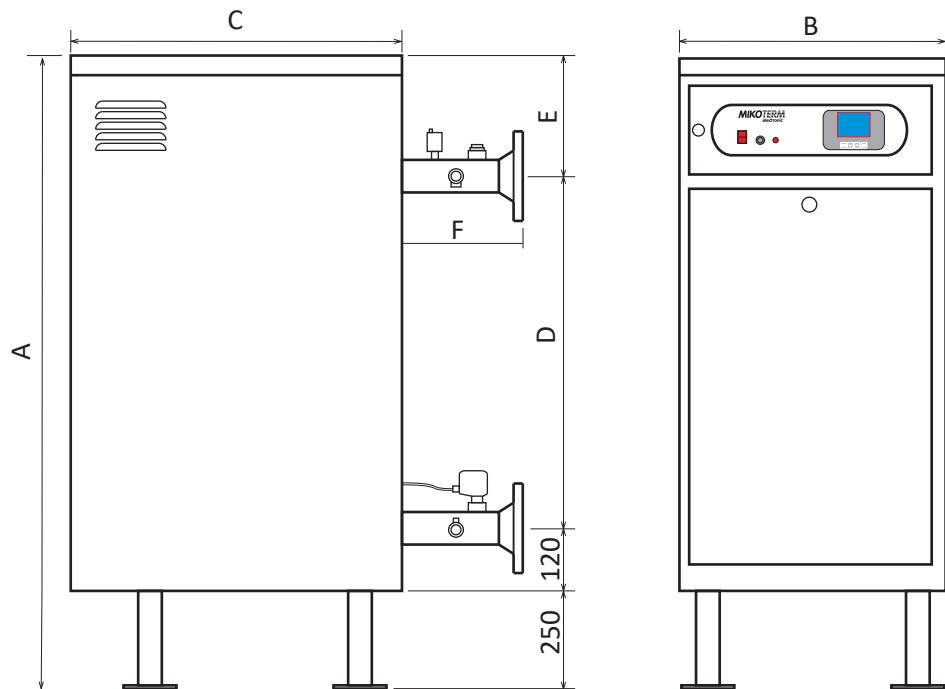
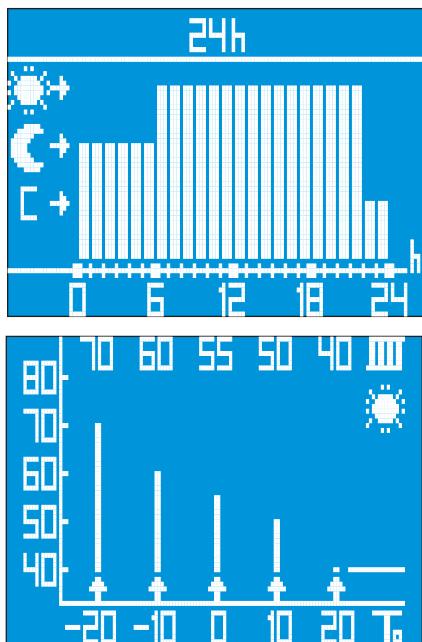
**KG** 150÷270

za objekte u skladu sa/för buildings in accordance with  
EN ISO 52016-1:2017

#### Pregled prednosti / overview of advantage:

- > Dugi vek eksploracije, jednostavna montaža, zaštita od smrzavanja pomoću zasebnog programa / Long service life, easy installation, frost protection using a separate program.
- > Daljinski nadzor i upravljanje preko RS485 RTU modula, pomoću ModBus protokola / Remote monitoring and management via RS485 RTU module, using ModBus protocol.
- > Svi parametri sistema prikazani na korisničkom interfejsu. Jednostavno podešavanje temperature i snage sistema grejanja / All system parameters displayed on the user interface. Easy adjustment of temperature and power of the heating system.
- > Vođenje temperature kotla prema spoljnoj temperaturi - O.T.C. režim rada (opcionalno) / Boiler temperature control according to outdoor temperature - O.T.C. operating mode (optional).
- > Digitalno merenje temperature i precizna regulacija. Digitalni senzor pritiska vode u sistemu, daljinsko upravljanje preko sobnog termostata / Digital temperature measurement and precise control. Digital water pressure sensor in the system, remot control via room thermostat.
- > Zaštitni elementi: Sigurnosni termostat, Sigurnosni ventil, Indikator protoka-nije dozvoljen rad grejača bez protoka vode / Safety elements: Safety thermostat, Safety valve, Flow indicator-heater operation without water flow is not allowed.
- > Sigurnosni sklopovi za potpunu bezbednost - isključivanje napajanja na signal sigurnog termostata "Multistage protection" sistem zaštite sa 3 stepena zaštite / Safety circuits for completesafety - switching off the power supply to the signal of the safe thermostat "Multistage protection" protection system with 3 levels of protection.

Postignite optimalan komfor na ekonomičan način uz O.T.C. režim rada / Achieve optimal comfort in an economical way with O.T.C. operating modes



#### Tehničke karakteristike/Technical characteristics

Model		TK-Pro.120W	TK-Pro.140W	TK-Pro.160kW	TK-Pro.180kW	TK-Pro.200kW	TK-Pro.240kW
grejne grupe	heating groups	6 × 20 kW	7 × 20 kW	8 × 20 kW	9 × 20 kW	10 × 20 kW	6 × 40 kW
osigurači grejača	heater fuses	6 × 3P C40A	7 × 3P C40A	8 × 3P C40A	9 × 3P C40A	10 × 3P C40A	12 × 3P C40A
maksimalna nazivna struja	maximum required current	3 × 174A	3 × 203A	3 × 232A	3 × 261A	3 × 290A	3 × 248A
potrebnii glavni osigurači	main circuit breakers	3 × 200 A	3 × 250 A	3 × 250 A	3 × 300 A	3 × 315 A	3 × 400 A
potreban mrežni kabl	power cable	2 kabla Cu 3 × 50 mm <sup>2</sup>	2 kabla Cu 3 × 70 mm <sup>2</sup>	2 kabla Cu 3 × 70 mm <sup>2</sup>	3 kabla Cu 3 × 50 mm <sup>2</sup>	3 kabla Cu 3 × 70 mm <sup>2</sup>	3 kabla Cu 3 × 70 mm <sup>2</sup>
potreban zaštitni vod	protective platoon required	Cu 1 × 50 mm <sup>2</sup>	Cu 1 × 50 mm <sup>2</sup>	Cu 1 × 50 mm <sup>2</sup>	Cu 1 × 70 mm <sup>2</sup>	Cu 1 × 70 mm <sup>2</sup>	Cu 1 × 70 mm <sup>2</sup>
težina	weight	150kg	170kg	190g	220kg	240kg	270kg
zapremina vode u kotlu	volume of water in the boiler	130 l	130 l	170 l	170 l	170 l	170 l
priklučak na hidrauličnu mrežu	hydraulic connection	DN65(2½");PN16	DN80(3");PN16	DN80(3");PN16	DN80(3");PN16	DN80(3");PN16	DN80(3");PN16
ventil sigurnosti	safety valve	2 × ½" 4 bar	2 × ½" 4 bar	2 × ¾" 4 bar			
dimenzija DxExF	dimension DxExF	810×330×210mm	765×365×270mm	765×365×270mm	765×365×270mm	765×365×270mm	765×365×270mm
preporučena grejna * površina-podno/radijat.	recommended heating* surface-floor/radiator	≤1200m <sup>2</sup> f.h. ≤1000m <sup>2</sup> r.h.	≤1400m <sup>2</sup> f.h. ≤1150m <sup>2</sup> r.h.	≤1600m <sup>2</sup> f.h. ≤1300m <sup>2</sup> r.h.	≤1800m <sup>2</sup> f.h. ≤1450m <sup>2</sup> r.h.	≤2000m <sup>2</sup> f.h. ≤1600m <sup>2</sup> r.h.	≤2400m <sup>2</sup> f.h. ≤2000m <sup>2</sup> r.h.
dimenzija AxBxC	dimension AxBxC	1500×600×750mm					
priklučni napon	power supply	3N ~ 400V 50Hz					
indikator protoka min/max protok za rad grejača	flow switch min/max flow for enabled heating	3m <sup>3</sup> /h ÷ 9m <sup>3</sup> /h					
min i max radni pritisak	min and max pressure	0,4 bar ÷ 4 bar					
stепен заштите	Ingress Protection rating	IP 20					
radna temperatura	working temperature	10 ÷ 90 °C					
sigurnosni termostat	security thermostat	95 °C					

\*za objekte u skladu sa / for buildings in accordance with EN ISO 52016-1:2017, f.h.-podno grejanje/floor heating, r.h.-radijatorsko grejanje/radiator heating

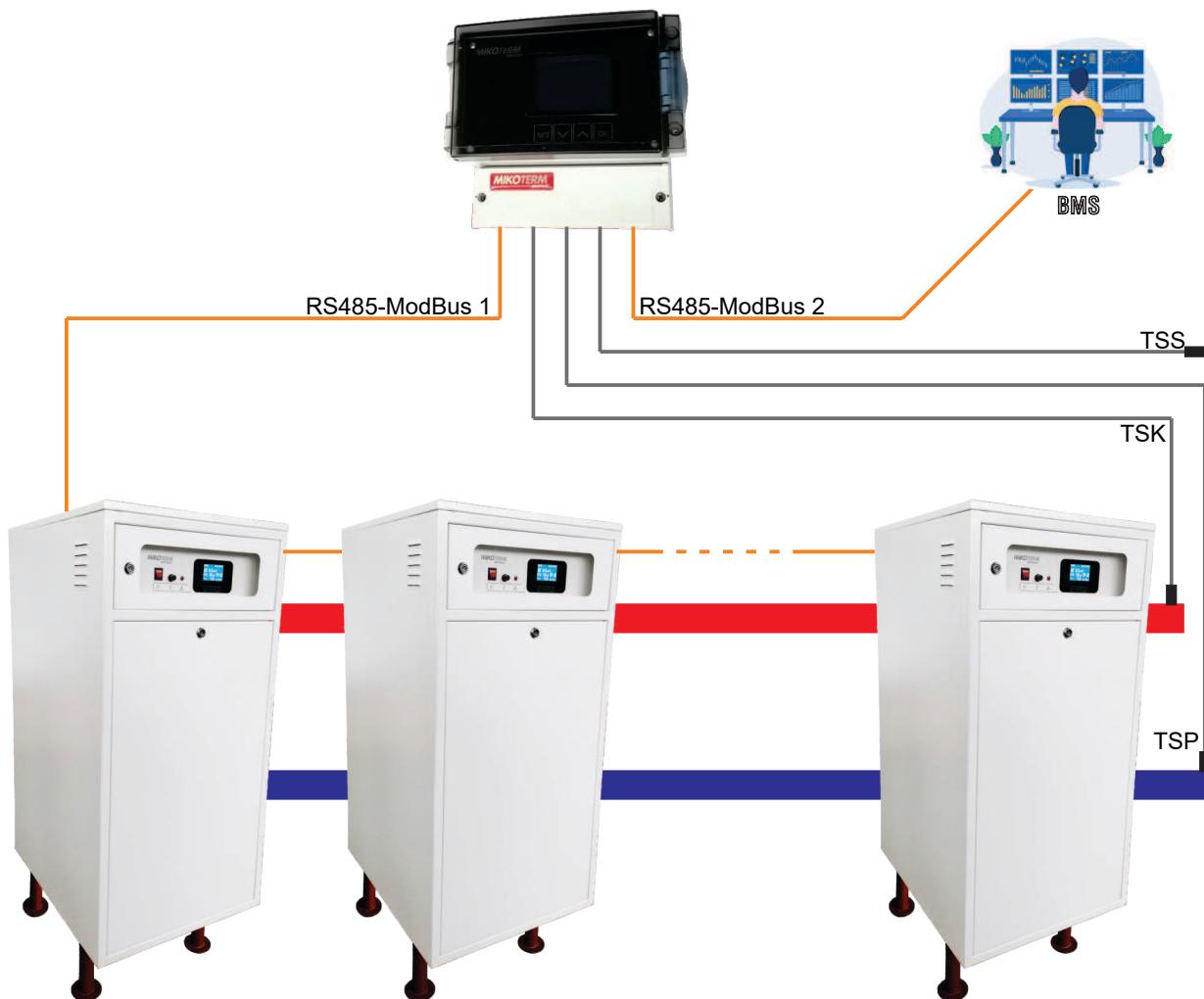
# Kaskadni regulator CPK09-M

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Kaskadni regulator **CPK09-M** je uređaj namenjen kontroli i upravljanju sistema više paralelno povezanih kotlova serije **TK-Profesional** iste nominalne snage, kojima korisnik upravlja kao jednim kotлом. Takođe, CPK09-M se može povezati na BMS, odnosno, centralizovani sistem nadzora i upravljanja, preko ModBus RTU (RS485) protokola, što daje mogućnost sagledavanja kotarnice kao dela celokupnog objekta, a time i preciznije upravljanje i uštedu energije. Kaskadni regulator CPK09-M pruža mogućnost kontrole do 10 kotlova paralelno povezanih i podešenih za rad u kaskadnom režimu. Oni se prikazuju kao jedan veći kotao, čija je snaga jednaka ukupnoj snazi svih povezanih kotlova. Podešavanje zadate snage i zadate temperature potisnog voda sistema kaskadno vezanih kotlova moguće je direktno na kaskadnom regulatoru, kao i daljinski preko ModBus komunikacije. Kaskadni kontroler vrši raspodelu snage po pojedinačnim kotlovima tako da svi raspoloživi kotlovi budu što ravnomernije opterećeni, odnosno, da rade u što optimalnijem režimu po njih - kako bi radni vek svakog kotla bio što duži. Ukoliko u toku rada dođe do prekida komunikacije između kaskadnog regulatora i nekog od kotlova, maksimalna raspoloživa snaga se smanjuje za snagu kotla sa koga kaskadni regulator ne dobija informacije. Kotao koji nema komunikaciju sa kaskadnim regulatorom će isključiti sve grejače a njihovo uključenje će biti moguće tek kada se uspostavi komunikacija kotla i kaskadnog regulatora, ili ako se na upravljačkoj jedinici tog kotla odabere samostalni režim rada umesto rada u kaskadi. Opciono, kaskadni regulator može voditi temperaturu razdelnika prema spoljnim uslovima (Outdoor Temperature Compensation).

Cascade regulator **CPK09-M** is a device intended for the control and management of a system of several parallel-connected boilers of the **TK-Profesional** series with the same nominal power, which the user controls as one boiler. Also, CPK09-M can be connected to BMS, that is, a centralized monitoring and control system, via the ModBus RTU (RS485) protocol, which gives the possibility of viewing the boiler room as part of the entire facility, and thus more precise management and energy saving. Cascade regulator CPK09-M provides the ability to control up to 10 boilers connected in parallel and set to work in cascade mode. They are displayed as one larger boiler, the power of which is equal to the total power of all connected boilers. Setting the set power and set temperature of the pressure line of the system of cascade connected boilers is possible directly on the cascade regulator, as well as remotely via ModBus communication. The cascade controller distributes power to individual boilers so that all available boilers are loaded as evenly as possible, that is, they work in the most optimal mode for them - so that the working life of each boiler is as long as possible. If during operation there is a communication interruption between the cascade regulator and one of the boilers, the maximum available power is reduced by the power of the boiler from which the cascade regulator does not receive information. A boiler that does not communicate with the cascade regulator will turn off all heaters, and their activation will be possible only when communication between the boiler and the cascade regulator is established, or if the independent mode of operation is selected on the control unit of that boiler instead of cascade operation. Optionally, the cascade regulator can control the temperature of the distributor according to the external conditions (Outdoor Temperature Compensation).



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## Sobni termostat EST / Room thermostat EST

**EST** sa elektronskom regulacijom sobne temperature. Regulacija izvedena putem elektronskog sklopa sa senzorom temperature koji ima preciznost 0,2 C. **EST\_113** je namenjen Mikoterm seriji kotlova TK, a može se koristiti i za kotlove drugih proizvođača kod kojih je upravljački signal koji se dovodi na termostat 230VAC. Za povezivanje se koristi 3-žilni provodnik (faza, nula i faza koja se vraća u kotao). **EST\_113\_R5** je namenjen Mikoterm kotlovima sa mikroprocesorskim termoregulatorima kod kojih je upravljački napon koji se dovodi na termostat 5VDC. Za povezivanje se koristi 3-žilni provodnik (+5VDC, GND i signal koji se vraća u kotao). Za kotlove drugih proizvođača se ne može koristiti.

**EST** with electronic room temperature control. Regulation performed via an electronic circuit with a temperature sensor having an accuracy of 0.2C. **EST\_113** is intended for the Mikoterm series of TK boilers, and can also be used for boilers of other manufacturers with a control signal that is fed to a 230VAC thermostat. A 3-wire conductor (phase, zero and phase returning to the boiler) is used for connection. **EST\_113\_R5** is intended for Micoterms boilers with microprocessor thermoregulators where the control voltage supplied to the thermostat is 5VDC. A 3-wire conductor is used for connection (5VDC, GND and signal that returns to the boiler). It cannot be used for boilers of other manufacturers.



## Diferencijalni termostat SOLAR / Differential thermostat SOLAR

Elektronski konfigurisan termostat za upravljanje solarnim sistemima. Automatska regulacija diferencije od 15 °C do 7 °C. Veoma pouzdan i tačan termostat. Elektronika upravlja kompletним radom termostata i veoma preciznim senzorima obezbeđuje najbolje iskorišćenje sunčeve energije. Izrađuje se u dve varijante:

- Diferencijalni termostat SOLAR za upravljanje solarnim sistemom
- Diferencijalni termostat SOLAR za upravljanje solarnim sistemom i grejanjem

Electronically configured thermostat for controlling solar systems. Automatic differential control from 15 °C to 7 °C. Very reliable and accurate thermostat. The electronics control the complete operation of the thermostat and provide the best use of solar energy with very precise sensors. It is made in two variants:

- Differential thermostat SOLAR for solar system control
- Differential thermostat SOLAR for solar system and heating control









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**1994**  
**MIKOTERM**  
electronic



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