2 COMPANY

Thermex Energy is a Russian manufacturer of highly functional and reliable geothermal heat pumps – an energy efficient heating systems for real estate

- **70 years** of the Thermex corporation experience in the development and production of advanced heating equipment
- The equipment is manufactured in the **Leningrad region** (St. Petersburg) at the main Thermex production site in Russia
- Thermex Energy heat pumps are developed to operate reliably and efficiently when facing the **Russian climate,** components of the leading European brands are being used in manufacturing
- Thermex Energy Compact series became the **Best Energy Efficient Heat Pump (Made in Russia)** according to the «World of Climate and Cold – 2020» competition

Thermex Energy team leaders develop the **Refrigeration and Air Conditioning** competence of the WorldSkills movement in Russia.

Thanks to our colleagues' mentorship, Russian participants won the WorldSkills World and European Championships. Our production team includes members of the WorldSkills Russia national team.

3 ABOUT HEAT PUMPS

A heat pump is an equipment for transferring energy from a low-grade heat source to the heating system. The heat pump receives up to 80% of its energy from the environment (air, water, ground). It is a reliable, energy efficient and environmentally friendly alternative to gas, diesel, solid fuel and electric heating systems.

Comprehensive solution for creating a building microclimate

- Heating
- Hot water heating
- Cooling
- Pool heating

Geothermal (ground source) heat pumps (GHP) take energy for heating, hot water heating and air conditioning from the ground (its temperature below the freezing depth remains at the level of +5-10°C during almost the whole year).

4 GHP APPLICATION

Geothermal (ground source) heat pump is an optimal solution for providing heating, hot water heating and cooling in buildings with limited access to central utilities.

Individual residential houses, apartments buildings

Business centers, warehouses, hotels, sports facilities, etc.

Roadside cafes, gas stations, motels, etc.)

Infrastructure facilities (schools, kindergartens, train stations, etc.)

Wastewater treatment plants and other industrial facilities

5 GHP ADVANTAGES

Independence

- No supplies and storage of raw materials
- No high electrical power required
- Fast system installation
- High level of automatization

Safety and Comfort

- No manual operations required
- Small space for installation
- Remote control and monitoring
- No combustion, soot, odor

Efficiency and Saving

- Generation of up to 5 kW of heating energy per 1 kW of consumed electrical energy
- High efficiency the whole year
- No regular maintenance required
- Durable system (up to 25 years of work)

Environmentally friendliness

- Use of up to 80% renewable energy
- No local carbon dioxide emissions
- Compatibility with other eco-friendly and energy efficient equipment

Thermex Energy

geothermal heat pumps model range

THERMEX ENERGY GHP SERIES

Thermex Energy
Compact

Compact geothermal heat pumps with built-in circulation pumps and backup heating element.
Nominal heating output (0/35):
from 6 to 18 kW

Thermex Energy
Pro

Powerful twin compressor geothermal heat pumps for commercial and large residential applications.
Nominal heating output (0/35):
from 16 to 56 kW

Thermex Energy
Compact L

The Compact-series modification without built-in circulation pumps and backup heating element.
Nominal heating output (0/35):
from 6 to 18 kW

Thermex Energy
Monoblock

A series of geothermal heat pumps with basic Compact-series options and built-in boiler, membrane tanks.
Nominal heating output (0/35):
from 6 to 10 kW

THERMEX ENERGY GHP ADVANTAGES

High efficiency and economy

A complex of technical and software solutions along with a careful selection of components ensure excellent performance of our equipment

Modern scroll compressors (Danfoss)

improving efficiency and reducing energy costs

Enlarged plate heat exchangers (Danfoss)

increasing efficiency and reducing the cost of equipment

Weather compensation

regulation of the coolant temperature depending on the outdoor temperature allows reducing energy costs by up to 25%

Unique software and European controller

own control algorithm has been tested and improved for 3 years, which made it possible to achieve maximum equipment efficiency

Built-in backup heating element (Compact, Monoblock series)

turns on only during the coldest period; this solution avoids the use of oversized equipment and reduces costs

THERMEX ENERGY GHP ADVANTAGES

High reliability and readiness for severe weather conditions

Components from leading European brands

reliability of components for the heat pumps key units from the international brands Danfoss and Wilo

5 built-in thermal circuit protections

increased reliability due to a set of protections: high condensing pressure, low evaporating pressure, compressor overload protection, protection against gas overheating at the compressor outlet, direct evaporating glide

Pack of built-in electrical protections

phase imbalance relay, voltage monitoring relay, RCD, circuit breakers for all key elements of heat pumps

2-stage overload blocking system

stage-by-stage disconnection of the built-in heating element and compressor allows installing the heat pumps in buildings with limited electrical power

Automatic “cold start” function

High-quality factory assembly and control

assembly is carried out by experienced professionals; each product undergoes pressure testing, evacuation, test of all sensors, 3-hour test on a test bench

THERMEX ENERGY GHP ADVANTAGES

Compact and easy to install

We made sure that Thermex Energy heat pumps are well prepared for installation and save time and money for our customers and partners

Detailed and easy to understand installation instructions

reduction of installation time, elimination of installer errors

Built-in circulating pumps for main and geothermal circuits

reduction of costs and time for installation (Compact, Monoblock series)

Complete electrical preparation (Compact, Pro, Monoblock series)

reduction of costs and time due to refusal to install an electrical panel

Easy access heat exchanger air vents

easier air removal during initial installation or service maintenance

Size compatible to standard household appliances

room saving, possibility of placement in confined spaces

Wear-resistant coating (dark gray)

two-component paint is not afraid of possible damage during installation

THERMEX ENERGY GHP ADVANTAGES

Comfortable quiet operation

Owners’ comfort is one of Thermex Energy's priorities and therefore we strive to ensure that our heat pumps operate as quietly as possible

Noise and vibration insulated steel case

- vibration damping material (3 mm thick)
- highly efficient noise-absorbing material (20 mm thick)

The compressor is installed on an independent platform

the platform is mounted on vibration dampers that prevent vibration transmission from the compressor to the heat pump case

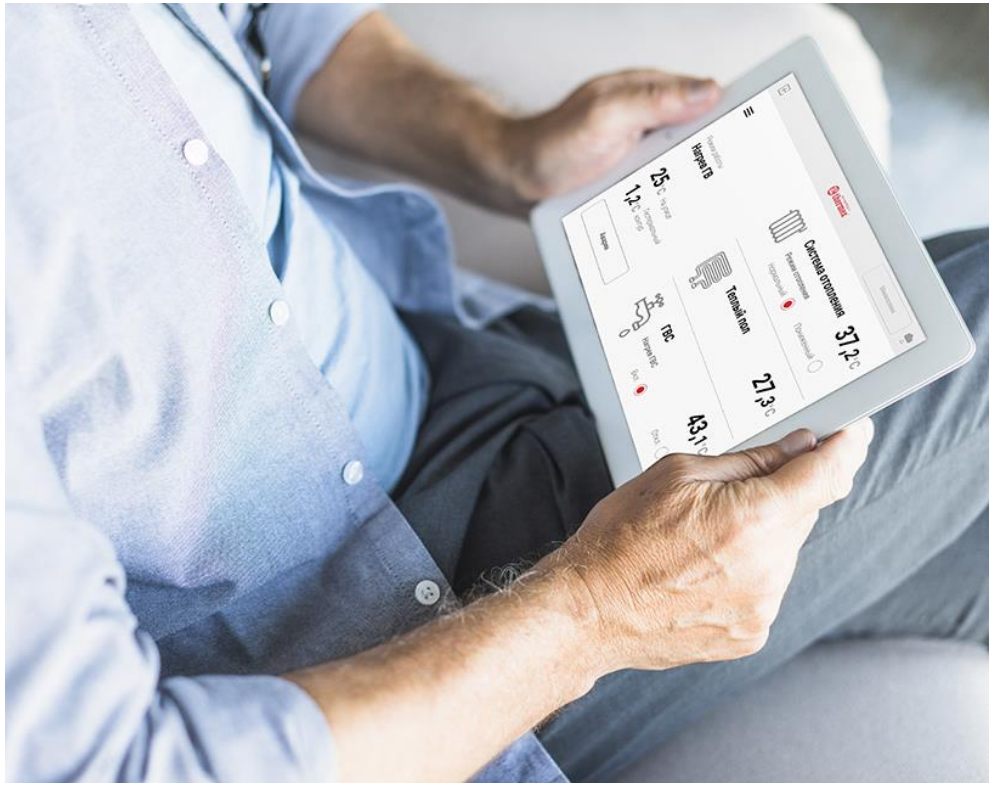
Extra measures

- compressor casing made of natural felt at least 10 mm thick
- flexible connections to reduce the transmission of vibration loads from the refrigeration circuit to external connections

THERMEX ENERGY GHP ADVANTAGES

User friendly

Thermex Energy geothermal heat pumps are easy to operate and intuitive to set up for both the specialist and the user



Remote control

the ability to control and change key settings of the heat pump via a mobile application from anywhere in the world

European controller with graphic screen

simple, convenient and understandable for the installer and the user interface

Easy-to-understand instructions

concise and understandable for the installer and the user documentation on setting up and operating the heat pump

Support and cloud service

Our distant support allows to remotely solve most of the user's issues due to the storage and processing of data from installed heat pumps in the cloud service and the ability to remotely correct errors and adjust settings

THERMEX ENERGY COMPACT

Geothermal heat pumps of Compact series with built-in circulation pumps and backup heating element is an efficient and convenient solution for the residential and commercial buildings up to 400 sq.m.

Best Energy Efficient Heat Pump (Made in Russia) according to the «World of Climate and Cold – 2020» competition

Heating (2 circuits)

Hot water heating

Passive cooling (active – option)

Swimming pool heating

- Increased efficiency and saving
  complex of technical and software solutions, backup heating element
- Highly prepared for installation
  built-in circulation pumps, complete electrical preparation

THERMEX ENERGY COMPACT

The Compact series functionality

- 2 heating circuits control
- 2 modes of hot water heating (constantly / only at night)
- Passive cooling (active cooling is an available option)
- Swimming pool water heating
- Weather compensation
- Second heating source control
- Hot water thermal disinfection
- Remote control (mobile app)

The Compact Series offers maximum functionality in a compact case

THERMEX ENERGY COMPACT

Key components items

- Scroll compressor (Danfoss)
- Plate heat exchangers (Danfoss)
- Circulating pumps for main and geothermal circuits (Wilo)
- Built-in backup heating element
- Complete electrical preparation
- 2-stage overload blocking system
- Controller with graphic screen (Danfoss)
- Pack of built-in electrical protections
- 5 built-in thermal circuit protections

Reliable components from leading European and Russian manufacturers

THERMEX ENERGY COMPACT

Compact series model range and key specifications

6 models for houses up to 400 sq.m.

	Compact 6	Compact 8	Compact 10	Compact 12	Compact 14	Compact 18
Nominal heating output (B0/W35), kW	5,8	7,8	9,7	11,8	13,8	17,6
COP (B0/W35)	4,46	4,51	4,44	4,56	4,60	4,43
Built-in heating element output, kW	1,5	2,5	3,0	3,0	3,0	3,0
Full heating output (B0/W35), kW	7,3	10,3	12,7	14,8	16,8	20,6
Nominal heating output (B0/W55), kW	5,4	7,4	9,0	11,1	12,5	15,2
COP (B0/W55)	2,85	2,55	2,52	2,68	2,72	2,65
Seasonal COP (B0/W35)	5,00	5,22	5,13	5,29	5,26	5,16
Seasonal COP (B0/W55)	3,63	3,48	3,43	3,62	3,67	3,69

- **Number of compressors:** 1
- **Refrigerant type:** R407c
- **Max. coolant temperature:** 62°C
- **Heat source temperature range:** from -5°C to +15°C
- **Rated voltage:** 400V 3N ~ 50 Hz
- **Dimensions (Width / Depth / Height):** 600/600/850 mm

THERMEX ENERGY COMPACT L

Geothermal heat pumps of Compact L series is a profitable solution for heating and hot water heating in houses up to 350 sq.m.

Solving basic tasks

Heating (1 circuit)	Hot water heating	Passive cooling	Swimming pool heating

- The most economical series
  while keeping key benefits and operational efficiency
- Does not include circulation pumps, backup heating element, full electrical preparation, RCD

THERMEX ENERGY COMPACT L

The Compact L series functionality

- 2 heating circuits control
- 2 modes of hot water heating (constantly / only at night)
- Passive cooling (active cooling is an available option)
- Swimming pool water heating
- Weather compensation
- Second heating source control
- Hot water thermal disinfection
- Remote control - option (mobile app)

Key functions of heating and hot water heating, everything necessary for efficient operation

THERMEX ENERGY COMPACT L

Key components items

- Scroll compressor (Danfoss)
- Plate heat exchangers (Danfoss)
- Circulating pumps for main and geothermal circuits
- Built-in backup heating element
- Complete electrical preparation
- 2-stage overload blocking system
- Controller with graphic screen (Danfoss)
- Pack of built-in electrical protections
- 5 built-in thermal circuit protections

Reliable components from leading European and Russian manufacturers

THERMEX ENERGY COMPACT L

Compact L series model range and key specifications

6 models for houses up to 350 sq.m.

	Compact 6 L	Compact 8 L	Compact 10 L	Compact 12 L	Compact 14 L	Compact 18 L
Nominal heating output (B0/W35), kW	5,8	7,8	9,7	11,8	13,8	17,6
COP (B0/W35)	4,46	4,51	4,44	4,56	4,60	4,43
Nominal heating output (B0/W55), kW	5,4	7,4	9,0	11,1	12,5	15,2
COP (B0/W55)	2,85	2,55	2,52	2,68	2,72	2,65
Seasonal COP (B0/W35)	5,00	5,22	5,13	5,29	5,26	5,16
Seasonal COP (B0/W55)	3,63	3,48	3,43	3,62	3,67	3,69

- **Number of compressors:** 1
- **Refrigerant type:** R407c
- **Max. coolant temperature:** 62°C
- **Heat source temperature range:** from -5°C to +15°C
- **Rated voltage:** 400V 3N ~ 50 Hz
- **Dimensions (Width / Depth / Height):** 600/600/850 mm

THERMEX ENERGY PRO

Geothermal heat pumps of Pro series is an excellent energy efficient solution for large residential and commercial buildings

A series of powerful heat pumps to reduce operating costs for large residential and commercial buildings

Heating (2 circuits)

Hot water heating

Passive cooling (active – option)

Swimming pool heating

- 2 scroll compressors
  high efficiency of operating at high power
- Cascading up to 16 units
  Maximum heating output - 0.9 MW

THERMEX ENERGY PRO

Pro series functionality

- 2 heating circuits control
- 2 modes of hot water heating (constantly / only at night)
- Passive cooling (active cooling is an available option)
- Swimming pool water heating
- Weather compensation
- Second heating source control
- Hot water thermal disinfection
- Remote control (mobile app)

Heating, hot water heating and cooling for large commercial and residential buildings, maximum efficiency

THERMEX ENERGY PRO

Key components items

- 2 scroll compressors (Danfoss)
- Plate heat exchangers (Danfoss)
- Complete electrical preparation
- 2-stage overload blocking system
- Controller with graphic screen (Danfoss)
- Pack of built-in electrical protections
- 5 built-in thermal circuit protections

Reliable components from leading European and Russian manufacturers

THERMEX ENERGY PRO

Pro series model range and key specifications

8 models for houses up to 1400 sq.m.

	Pro 16	Pro 20	Pro 24	Pro 28	Pro 35	Pro 42	Pro 50	Pro 56
Nominal heating output (B0/W35), kW	15,6	19,4	23,6	27,6	35,2	42,4	50,6	56,0
COP (B0/W35)	4,51	4,44	4,56	4,60	4,43	4,50	4,70	4,60
Nominal heating output (B0/W55), kW	14,8	18,0	22,2	25,0	30,4	38,8	46,4	50,6
COP (B0/W55)	2,55	2,52	2,68	2,72	2,65	2,73	2,76	2,70
Seasonal COP (B0/W35)	5,22	5,13	5,29	5,26	5,16	5,13	5,35	5,21
Seasonal COP (B0/W55)	3,58	3,53	3,70	3,73	3,72	3,69	3,81	3,72

- **Number of compressors:** 2
- **Refrigerant type:** R407c
- **Max. coolant temperature:** 62°C
- **Heat source temperature range:** from -5°C to +15°C
- **Rated voltage:** 400V 3N ~ 50 Hz
- **Dimensions Pro 16-35 (Width / Depth / Height):** 900/750/1000 мм
- **Dimensions Pro 42-56 (Width / Depth / Height): :** 1200/750/1000 мм

THERMEX ENERGY MONOBLOCK

Geothermal heat pumps of Monoblock series is the most convenient turnkey solution for residential buildings up to 300 sq.m.

Monoblock series is in development

Heating (2 circuits)

Hot water heating

Passive cooling (active – option)

Swimming pool heating

- All the advantages of Compact series
  increased efficiency and economy, readiness for installation
- Built-in boiler and membrane tanks
  saving money, time and space in the boiler room

THERMEX ENERGY MONOBLOCK

Monoblock series functionality

- 2 heating circuits control
- 2 modes of hot water heating (constantly / only at night)
- Passive cooling (active cooling is an available option)
- Swimming pool water heating
- Weather compensation
- Second heating source control
- Hot water thermal disinfection
- Remote control (mobile app)

Compact series full functionality and a built-in water heater tank

THERMEX ENERGY MONOBLOCK

Комплектация (ключевые элементы)

- Scroll compressor (Danfoss)
- Plate heat exchangers (Danfoss)
- Built-in water heater tank, membrane tanks
- Circulating pumps for main and geothermal circuits (Wilo)
- Built-in backup heating element
- Complete electrical preparation
- 2-stage overload blocking system
- Controller with graphic screen (Danfoss)
- Pack of built-in electrical protections
- 5 built-in thermal circuit protections

Reliable components from leading European and Russian manufacturers

THERMEX ENERGY MONOBLOCK

Monoblock series model range and key specifications

Monoblock series is in development

	Monoblock 6	Monoblock 8	Monoblock 10
Nominal heating output (B0/W35), kW	5,8	7,8	9,7
COP (B0/W35)	4,46	4,51	4,44
Built-in heating element output, kW	1,5	2,5	3,0
Full heating output (B0/W35), kW	7,3	10,3	12,7
Nominal heating output (B0/W55), kW	5,4	7,4	9,0
COP (B0/W55)	2,85	2,55	2,52
Seasonal COP (B0/W35)	5,00	5,22	5,13
Seasonal COP (B0/W55)	3,63	3,48	3,43

- **Number of compressors:** 1
- **Refrigerant type:** R407c
- **Max. coolant temperature:** 62°C
- **Heat source temperature range:** from -5°C to +15°C
- **Rated voltage:** 400V 3N ~ 50 Hz
- **Dimensions (Width / Depth / Height):** 700/700/2100 mm

THANK YOU

Thermex Energy geothermal heat pumps is a reliable solution and a profitable investment for residential and commercial projects!

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