



Čilistov Medical Institution

System of heat pumps for medical institution building complex

For now, the biggest installation of MACH heat pumps with 2MW heating power was realized in Čilistov Medical Institution in Slovakia. In 2006, TC MACH was asked by a foreign investor to prepare project documentation and then realize the whole work of maximally effective use of geothermal heat for heating spa buildings. „For the project, we solved a range of facts like exact energy balance of designed solution, proper technology design as a whole or design of measurement and regulation system, including algorithms for the most economic operation of the whole energetic complex,“ says Stanislav Mach, the author of the solution.

The source of heat is a deep geothermal well into depth of 2,800m. With a special pipeline placed under ground, of more than 2km total length, geothermal water is transferred by three circulation pumps with controlled power to system with panel exchanger in boiler house. To ensure maximum service life of pumps, exchangers and pipelines, special chemical geothermal water treatment plant was installed. Geothermal water treatment runs fully automatically and does not affect quality of water.



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System installed in spring 2007 has been working to the full investor's satisfaction for half a year. With the unique TC MACH remote management, the system's parameters are being monitored constantly through Internet from our dispatching centre, guaranteeing worry-free operation.

Basic specifications of the installation:

Total energy demand of the spa buildings	2.2 MW
Hot service water tanks	4×10,000 l
Radiators	2,350 Pcs
Heating ladders	730 Pcs
Existing boiler house	1.6+0.75+0.75 MW
Max. geothermal water flow rate	10 l/s ⁻¹
Max. geothermal water temperature	+53 °C
Stratificational heating water tank	28 m ³
Height of stratificational tank	11 m
MACH heat pumps	4×520 kW
Regulation	automatic with remote transmission

TC MACH was general supplier of the whole work consisting of many subparts, like:

- Project of the whole work
- Design and realization of the heating system for temperature gradient of 55/40°C
- Solution of heating regulation
- Solution of mixing temperature of geothermal water for therapeutic purposes
- Boiler house's engine room
- MACH heat pumps manufacture and delivery
- Boiler house adaptation without interrupting heat supply (December 2006 to February 2007)
- Providing the effective heating of hot service water
- Providing the optimal operation of heat pumps (stratificational tank)
- Delivery of power parts of electric supply network
- Delivery of measurement and regulation system
- Service providing

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