



PRODUCER REQUIREMENTS

IMPLEMENTING REQUIREMENTS

The manufacturer declares that the geothermal heat exchangers he manufactures for heat pumps covered by this Certificate have been subjected to leak proofness and flow tests by the Manufacturer. At the same time, they were recognized as meeting the conditions for placing on the market. This Certificate is a 50-year guarantee for Geothermal Source Heat Exchangers, under pain of compliance with the following performance requirements and considering the following claims.

§1

The purchaser of the product covered by this Certificate declares that the purchased product, after delivery to the place of installation, and immediately prior to its installation, has been subjected to leak tests and flow tests required by the Manufacturer. In addition, the installation's predicted by the Contractor, its technology, complies with the Manufacturer's Production Requirements, as well as the Guidelines for Designing and Receiving Installation with Heat Pumps, the German Heat Pump Technology Development Organization. Producer's Executive Requirements are an attachment to the Quality Certificate.

§2

In the event of unauthorized changes in the product design, failure to comply with the manufacturer's recommendations and installation requirements, non-compliance of the installation with the Manufacturer's Production Requirements and Installation Design and Installation Guidelines with Heat Pumps, German Heat Pump Technology Development Organization, not required by the Manufacturer, the following records or non-payment for goods being the subject of any claims, the manufacturer reserves the right to refuse to consider warranty claims.

§3

The certificate becomes valid only if there are no doubts regarding the following provisions. To consider any warranty claims during the warranty period, i.e. 5 years from the date of purchase of the ground heat exchanger, the original Quality Certificate, confirmed by all the signatures required below, is required. After the warranty period expires, but no later than 50 years from the date of purchase of the ground exchanger, in the event of its failure due to the manufacturer's reasons, the manufacturer will guarantee the delivery of a new exchanger.

<i>Investor / in behalf of Investor/Inspector*</i>
<i>Investor / in behalf of Investor/Inspector**</i>
<i>Plumber / Driller ***</i>

<i>Product subject of Quality Certificate</i>	<i>Protocol number</i>
	<i>Protocol number</i>
	<i>Protocol number</i>

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<p><i>Confirmation of compliance of the installation with the MuoviTech Executive Requirements and the German Heat Pump Technology Development Organization. The result of tightness and flow tests POSITIVE (*, **, ***).</i></p> <p><i>Date / place where the required tests were carried out:</i></p>	<p><i>Stamp, date and signature of the person authorized to issue a Quality Certificate.</i></p>
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Producer's production requirements

MuoviTech products, intended for the configuration and construction of the GSHP system together with the installation supplying the building:

1. multi-section manifold chambers, manifold, manifold cabinets, UTES monitoring system,
2. probes (vertical exchangers),
3. baskets (basket exchangers),
4. collectors (horizontal heat exchangers).

The above-mentioned elements of the installation, before being released for sale, will be subjected to leak tests and flow tests. Products delivered to the construction site, and immediately prior to their installation, should be subjected to leak testing and flow testing in accordance with the PN-EN 805: 2002 standard with special attention to vertical heat exchangers and other elements that are not accessible after installation! Tightness and flow tests should be carried out using water! Only their positive result allows you to proceed with the assembly of the installation components. If the result of the tests on particular elements of the configured system is negative, it is strictly forbidden to mount these elements in the system. In this case, the Manufacturer should be notified immediately. After installing the vertical ground heat exchangers in the wells, it is required to fill the annular space with thermal cement, renowned producers and absolute final testing of the tightness and flow of the installed ground heat exchangers. Each time, the tightness test and the flow should be confirmed with the signatures in the protocol annexed to the Quality Certificate. Lack of confirmed leak and flow tests, each of the system components, disqualifies the installation for use and for applying for any subsequent warranty claims. The following recommendations for manifold chamber foundation should be followed each time absolutely to avoid:

1. unsealing of pipeline passages through well walls, causing groundwater to enter the manifold chamber interior,
2. unsealing connections of individual elements of the hydraulic system,
3. deformation of the well, and in the extreme case of complete destruction of the structure.

In order to minimize the probability of occurrence of the described failures, the Manufacturer always requires and absolutely requires the deposition of wells on gravel ballast at least 30 cm thick, as well as the use of a gravel band around a well within a radius of 50 cm from the well housing with possible excess of water from the

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filtration layer . Gravel filtering layers do not guarantee avoiding damage to the well structure in the event of excessive levels of groundwater in the manifold chamber foundation, and only reduce the risk of failure.

In the case of a clear occurrence of a high level of groundwater in the planned well foundation, the Manufacturer requires the installation of manifold chambers in concrete foundation and the construction of the anchoring foundations of the manifold chambers or recommends the installation of manifolds inside the building. If you observe the phenomena listed in point 1, 2, 3, the contractor and the installation's supplier should be informed immediately about the incident in order to take measures to prevent further damage to the system. In the event of possible over-dumping of wells by inflowing ground water, it is recommended to persons authorized to do so, to temporarily make a sufficient number of holes in the bottom of the chamber housing, in order to balancing the hydrostatic forces acting on both sides of the walls of its housing. Undertaking this type of remedies does not negatively affect the temporal correctness and safety of the system. The manufacturer prohibits moving the well in a different way than using the technological holes designated for this purpose or in the absence thereof, by strapping the transport belts around the bottom of the well housing. The producer is not responsible for the consequences of non-observance of the above-mentioned recommendations, as well as for damage to the installation caused by external factors, rock mass movements or errors in the art when installing the system. All installation work should be carried out referring to "Guidelines for Designing and Receiving Installation with Heat Pumps". The procedure for considering possible claims for MuoviTech manifold chambers requires a visit of the company's representative along with its Insurer in the place of the failure. If the Manufacturer is not informed about the failure and attempts to remove it himself, the Manufacturer refuses to consider the warranty claim. Persons performing heat pump installations equipped with MuoviTech GSHP system should have knowledge acquired during training meetings organized cyclically by the Producer. MuoviTech Customer Service Office is at the disposal of matters that guarantee the correctness of the installation and their proper, subsequent functioning.

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PROTOCOL FROM PERFORMANCE OF A TIGHTNESS AND A TEST OF FLOW

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Place, day

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Protocol number

Ordering the installation :

Address :

VAT International no. :

Place and address of installation :

the number of the sales document MuoviTech	product catalog number	product installation date	initial test pressure [bar]	pressure drop after 1h [bar]	flow [l / min]

Tests done by :(signature, stamp)

Approval of the investor :(signature, stamp)

Approval of the inspector :(signature, stamp)

Approval of the contractor :(signature, stamp)