

# EHY-2000 series

Oncothermia systems for loco-regional  
tumor treatment



## Oncotherm – About us

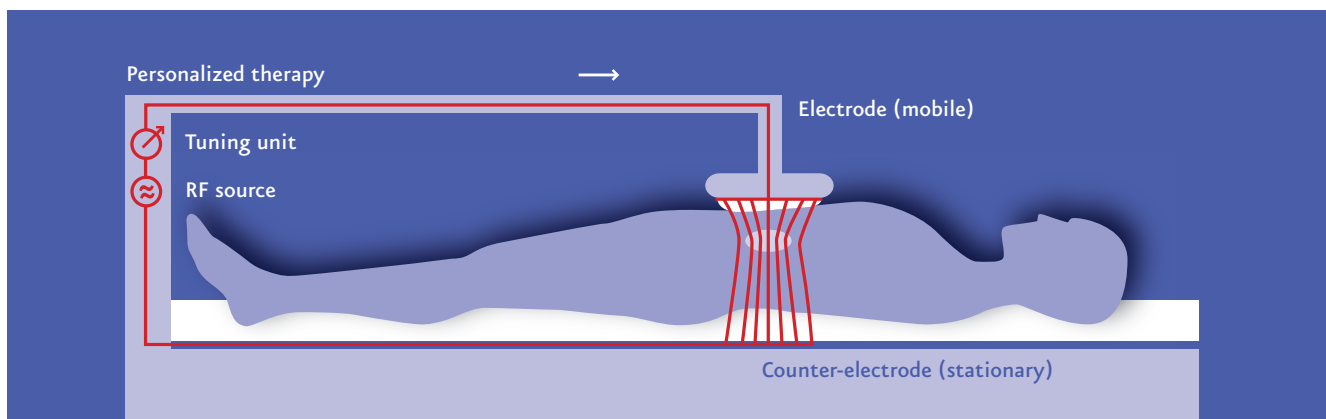
Oncotherm develops, manufactures and markets cancer treatment systems that utilize Oncothermia to treat tumors. Oncothermia is a further development of the classical method of Hyperthermia, one of the oldest cancer treatment methods, and it allows a personalized, non-toxic therapy using an electric field and promoting the body's natural regulatory processes.

In accordance with its corporate philosophy, Oncotherm's mission is to heal cancer, to increase cancer patients' life expectancies and to improve patients' quality of life.

### Oncothermia: how the method works and how it is used

A modulated electric field with a carrier frequency of 13.56 MHz is generated by two active electrodes. Since malignant tissue has higher conductivity than healthy human tissue, the electric field tends to flow predominantly through the malignant tumor tissue. The combination of deep-layer heating and the electric field leads to stimulation of malignant tumor cells. This, in turn, triggers increased apoptotic activity in the tumor region and as a result, promotes cell death.

### Oncothermia: the method



Schematic illustration of Oncothermia treatment The illustration shows how the electric field, produced by the two active electrodes, passes through the patient's body. As shown schematically, the electric field tends to move through the pathways with the lowest impedance, i.e. through the malignant tissue (tumor).

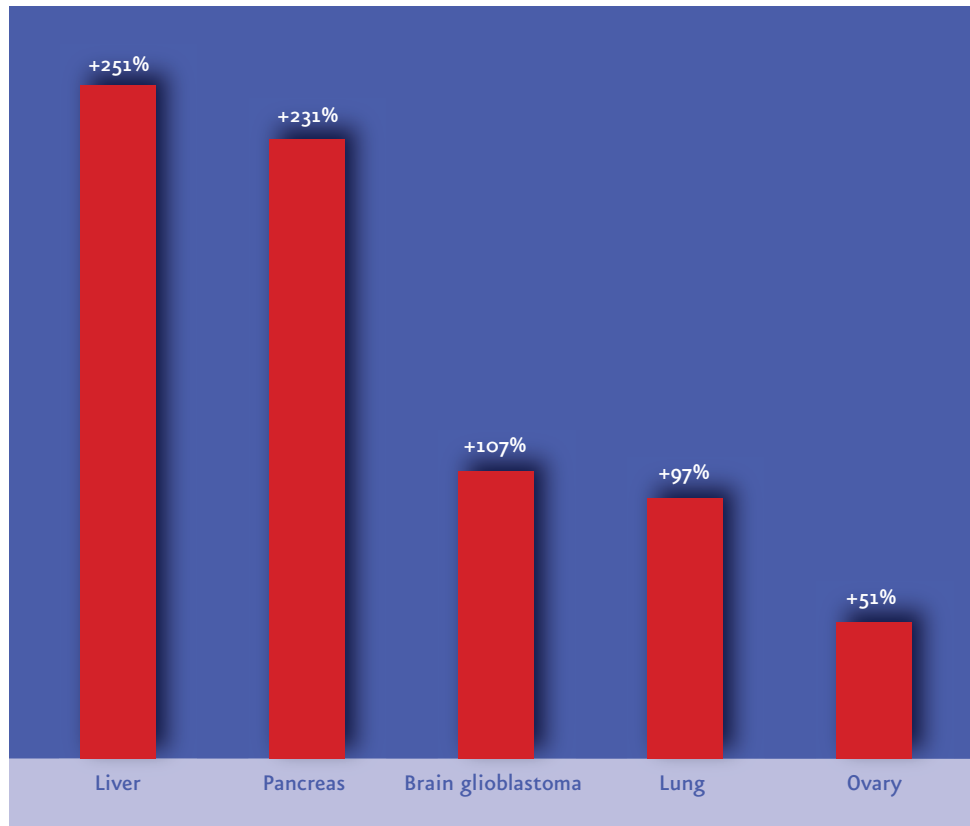
Compared with classic Hyperthermia, which can result in burns, Oncothermia works at a significantly lower temperature. While classic Hyperthermia works at a temperature of 42°C, Oncothermia achieves a greater effect at just 38°C. Thanks to the selection at cellular level, the radiation only has an effect in the region of the tumor; the healthy regions remain as good as untouched. Of course, all electromagnetic radiation devices used for tumor treatment must fulfill stringent safety requirements. We meet such safety requirements via our own high standards and solid scientific findings, and via the low levels of radiation that our devices produce. Oncotherm systems are fitted with special 120 dB attenuation of the carrier frequency (i.e. the surrounding radiation is a million times lower than in the patient him/herself), so at an output of 150 W the radiation is less than 2 mW. All Oncotherm systems are classified according to the guidelines on electromagnetic compatibility.

## Medical and therapeutic benefits

In general, Oncothermia can be used with all stages of cancer, although its current main use is with advanced solid tumors that are hardly operable or inoperable, as well as with recurrent tumors and metastases.

Where conventional therapy approaches (surgery, chemotherapy, radiation therapy) are not very likely to be successful, or have proven to be inadequate, Oncothermia may also be the choice for tumors not listed at the right, especially if the aim of therapy is palliation.

Additional average survival time after Oncothermia treatment, compared to SEER database



Results and numbers of cases from a large-scale retrospective study on the use of Oncothermia on different tumor entities. For all tumor entities studies, patients showed a higher survival rate in the first year after cancer diagnosis.

**Oncothermia has already been successfully used with the following tumors, including their metastases in different organs:**

- Astrocytomas and glioblastomas
- Bronchial carcinomas
- Cervix carcinomas
- Colorectal carcinomas
- Carcinomas of the urethra
- Hepatocellular carcinomas
- Stomach carcinomas
- Malignant melanomas
- Mamma carcinomas
- Renal cell carcinomas
- Esophagus carcinomas
- Ovarian carcinomas
- Pancreatic carcinomas
- Squamous epithelium carcinomas at head and throat

## EHY-2000 plus

Oncothermia selectively heats the tumor tissue in the region to be treated. For this reason, Oncothermia is particularly indicated for the treatment of localized solid tumors. It does not matter whether the tumor is located on the surface or deep down. The principle of self-focusing also allows moving regions of the body to be treated, such as the lungs, or thermo-sensitive regions such as the brain. Oncothermia is effective both in areas with high blood flow, such as the liver, and in regions with high air circulation, such as the lungs. During treatment with the EHY-2000 plus the patient lies on the waterbed. The electric field is set up between two electrodes: the bolus electrode positioned at the site where the patient is to be treated and the counter electrode positioned under the mattress of the waterbed. During the treatment, thanks to the interaction between the electric field and the heat, selection at cellular level takes place, the system self-focuses on the tumor and apoptosis is increased.

The EHY-2000 plus is based on its predecessor model, the EHY-2000. It has been improved by taking into account the experiences of our doctors and experts, and the requirements of patients and the people treating them. The treatment is carried out at a frequency of 13.56 MHz. The EHY-2000 plus is easy to use and is made up of very clear component parts. During treatment the patient lies on the waterbed and becomes part of the electric field via the bolus electrode. The system's electronics are housed in the generator unit. A mobile computer unit allows the doctor to view and save the treatment data. If necessary, this system can also be equipped with accessories such as a printer.

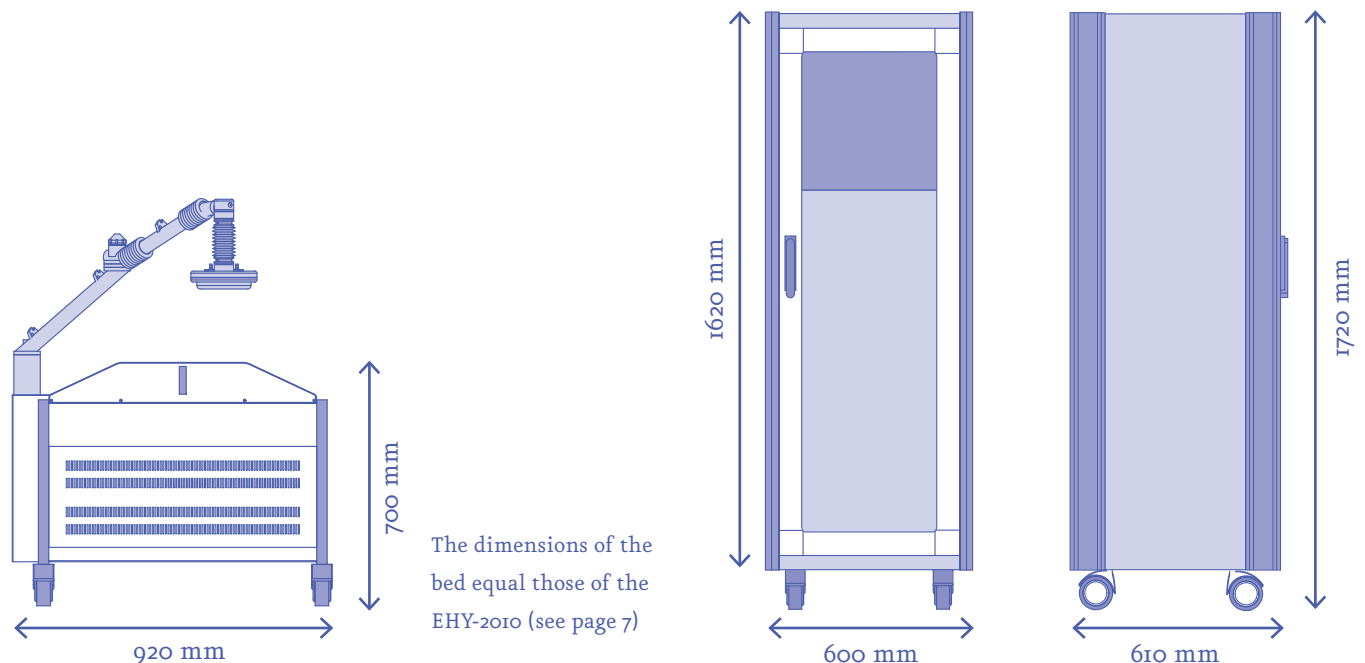
The EHY-2000 plus with large bolus electrode and generator unit housing the electronic equipment.



## The classic system

The EHY-2000 series is the classic Oncothermia system. The system has been produced since 1995 and has been continuously developed to the latest technical standard and to meet our customers' needs. The EHY-2000 plus is also one of the current systems of the EHY-2000 series. It is made up of three components: a therapy bed with built-in waterbed mattress, the generator unit and a web box system.

This tried and tested, further developed, reliable system is popular with customers worldwide. And not just because of the attractive price. The EHY-2000 plus boasts stable electronics and leaves enough storage space both under the bed and in the PC unit compartments for any accessories and consumables, such as disinfection spray, cloths, bolster or similar.



### Technical data

Mains voltage	AC 230V/50Hz
Power input	1600 VA
Maximum power output	max. 150 W
Nominal load	50 Ohm
Output carrier frequency	13.56 MHz
Modulated output frequency	Fractal noise
Weight	Tower: approx. 175 kg Waterbed: 150 kg (without water)
Dimensions (Height x Length x Width)	Tower: 1720 x 600 x 610 mm Waterbed: 585 x 2062 x 920 mm
Temperature	+10°C - +30°C
Relative humidity	20% - 60% (non-condensing)
Air pressure	700 hPa - 1060 hPa

## EHY-2010

The EHY-2010 is a further development of the EHY-2000 plus. The treatment method is the same for both systems and with the EHY-2010 too, all types of tumors can be treated. This system is mainly intended for use in second or third-line treatment, as well as in the preparation or support of other cancer therapies, such as surgical interventions, chemotherapy or radiotherapy. The selectively focusing heat stimulates the tumor tissue until apoptosis is initiated and malignant cells are finally destroyed.

As with the EHY-2000 plus, the patient becomes part of an electric field during the treatment. This occurs by positioning the patient's body between the bolus electrode and the counter-electrode located under the mattress. Coupled with the heat supply, the electric field can heat the tumor tissue selectively and promote cell death.

The EHY-2010 with internal technology and bolus electrode.

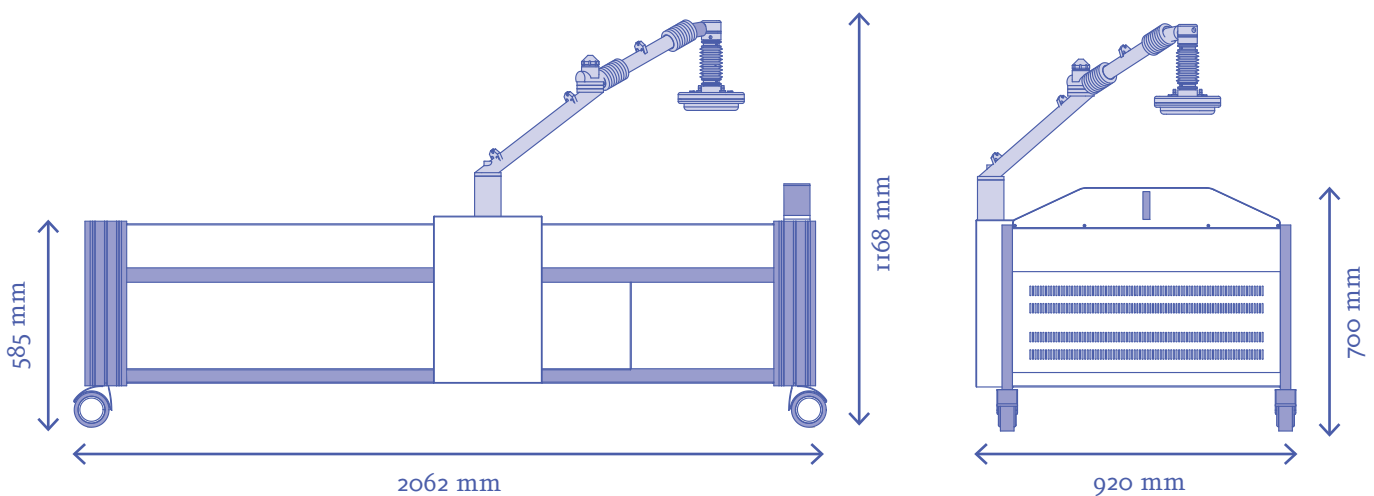




## The EHY-2000 series grows: A new space-saving system type has been developed

The EHY-2000 series has been part of Oncotherm's system range for many years. Over time, the series has been developed into two different system types which can both treat cancer in the same way but the designs of which have been adapted to the different conditions in hospitals and doctors' practices.

Compared to the EHY-2000 plus, which consists of a bed with water mattress, a generator unit and a computer system, the EHY-2010 takes up considerably less space. It is therefore particularly suitable for treatment facilities that only have small rooms available and are unable to store a generator unit in the available space. This design was created according to our customers' suggestions, in order to do them justice. In the EHY-2010, the electronics are incorporated in the actual bed, so the system, with dimensions resembling those of a normal bed, can also be kept in very small treatment rooms.



### Technical data

Mains voltage	AC 230V/50Hz
Power input	1600 VA
Maximum power output	max. 150 W
Nominal load	50 Ohm
Output carrier frequency	13.56 MHz
Modulated output frequency	Fraktalgeräusch
Weight	300 kg
Dimensions	585 x 2062 x 920 mm (Height x Length x Width)
Temperature	+10°C - +30°C
Relative humidity	20% - 60% (non-condensing)
Air pressure	700 hPa - 1060 hPa

## Product range

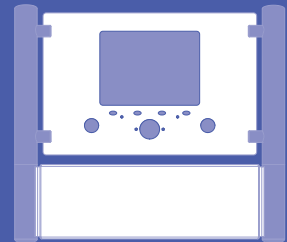
### Booster

The Booster is a product innovation in the field of complementary cancer treatment. Its use enhances the effects of both chemotherapy and other drugs.



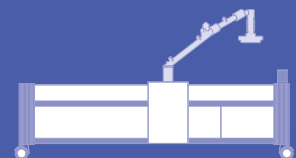
### EHY1000- series

The EHY1000- series is our newest development in the treatment of prostate diseases. Both malignant and benign tumors (BPH) can be treated using a catheter system with built-in electrode and counter electrode.



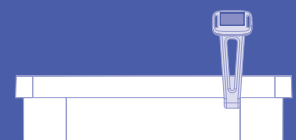
### EHY2000- series

The EHY2000- series, including EHY2000- plus and EHY2010-, is the classic system for loco-regional deep Hyperthermia applications. This series has been used for treatment throughout the world for more than 20 years. The EHY2010- has been specially developed for practices and hospitals that have little available space but do not want to do without the classic treatment system.



### EHY3000- series

The EHY3000- series is designed for the simultaneous multi-local treatment of advanced, metastatic disseminated, malignant and solid tumors. Within the range of Oncothermia systems, it is the pioneering breakthrough in the field of multi-local tumor therapy. Due to its highly flexible application electrodes (textile electrodes), almost all tumor locations can be treated.



www.Drei-K.de

#### Germany

Oncotherm GmbH  
Belgische Allee 9  
53842 Troisdorf  
Germany  
Phone +49 (0) 2241 31992-0  
Fax +49 (0) 2241 31992-11  
info@oncotherm.de  
www.oncotherm.de

#### Hungary

Gyár u. 2  
HU-2040 Budaörs  
2071 Páty  
Hungary  
Phone +36 (06) 23 555-510  
Fax +36 (06) 23 555-515  
info@oncotherm.org  
www.oncotherm.org

#### GCC countries



HYE  
Floor 9, Jameel Square  
Prince Moh. Bin Abdulaziz St.  
Jeddah, Saudi Arabia  
Phone +966 (12) 283-4073  
Fax +966 (12) 283-4074  
info@hye.com.sa  
www.hye.com.sa

