



Cryotherapy chamber -60 / -110°C

Purpose of application

A cryogenic chamber enables a cold treatment of the whole of the patient's body in temperatures as low as 110°C.

Patients submitting to this therapy should expose the as much of their body as possible (recommended dress is a swimming costume) except for hands, feet, ears, mouth and nose. A single session takes 1.5 to 3 min. can be repeated 2 times a day. The therapy should be administered in series of 20 to 40 sessions.

Low temperature brings a number of effects, such as:

- painkilling ,
- anti-inflammatory protection
- reduction of tension in muscles
- improvement in the functioning of ill joint and muscles,
- reduction or elimination of severe itching of the skin and the abatement of changes to the skin in specific dermatoses,
- psychophysical stimulation. Recommendations (according to Prof. Reinhard Fricke MD)
- rheumatic disease of soft tissue
- chronic inflammation of the joints and spine
- degenerative disease of the joints with recurring inflammation
- spinal column diseases
- connective tissue diseases,
- post-operation rehabilitation after operations on the joints and spine

Results can also be observed in the case of:

- psoriasis, neurodermitis and bronchial asthma
- biological regeneration for athletes

Contraindications (according to Prof Dr med. Reinhard Fricke)

- acute/severe heart and circulatory diseases
- arterial disturbance of the blood flow, stage III and IV

Other illnesses in which it is necessary to refrain from therapy that cools the whole body in a cryotherapy chamber:

- untreated arterial hypertension, value above 160/100 mmHg
- heart attack (in the last 6 months),
- cardiovascular disorder
- severe cardiovascular problems
- peripheral circulation disturbances, obliterative atheromatosis,
- hypersensitivity to cold,
- polyneuropathies
- kidney diseases and diseases of the bladder



[The therapy should only be administered on doctor's prescription](#)



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CRYO-THERAPY RECOMMENDATIONS

- osteoporosis prevention
- rheumatic disease of soft tissue
- degenerative disease of the joints and spinal column
- spastic palsy
- immuno-defects and self inflicted diseases
- post injury, overload and inflammation treatment
- Parkinson disease
- inflammatory joints deformation
- multiplex sclerosis
- depression, insomnia, migraine
- bone repair
- connective tissue diseases

CONTRAINDICATIONS

- skin ulcers
- high body temperature
- claustrophobia
- inflammatory state of veins and clots (Thromboembolism)
- circulation diseases

-110°C - cryo therapy cycle

After medical examination, the patient enters the entry chamber cooled to -60°C . For 45s the body adapts to low temperature. Next the patient enters the main chamber colled to -120°C to stay there for 3 minutes.

Special protective cloth must be used for entry in to the cryo-chamber. The stay inside is monitored by the doctor who qualifies for the treatment and intervenes if adverse reaction of organism is visible.

Whole body cryotherapy

Body experience of the extremely low temperature brings therapeutic benefits because it triggers a number of natural protective body reactions. Instant cooling is a sufficient stimulus for triggering of local and general reactions and thermo-control systems. Most often, cryotherapy is a preliminary stage of exercise therapy. It affects the motoric organ directly and through the neuro - and endocrine systems. The endocrine system stimuli provides for recognition of the whole body cryotherapy as not only a symptom reliving but a curing therapy.



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Application of cryotherapy

Professor Reinhard Fricke, the European champion of the whole body cryotherapy, described the method at a symposium devoted to this subject at Westerland-Klinik Bad Seebruch in 2002: as “[...] a natural therapy, practically without side effects. It facilitates recovery since it evokes mental comfort, analgesia, relaxation of the muscles, increase blood supply in tissue, causing the abatement of swelling and effusions, as well as hypothalamic-pituitary-adrenal axis. It curbs inflammatory processes and the course of autoimmunization processes, has a significant painkilling effect, improves the functional state in inflammatory diseases of the joints, reduces tension in muscles, increases strength and efficiency of muscles, and relaxes the bronchus. A significant improvement is observed in such diseases as psoriasis and neurodermitis. In particular it should be used as supplementary treatment in rheumatology, post-trauma and after operations, in spastic lung disease, in spastic palsy and in selected skin diseases”. It is difficult to find more convincing recommendation for this method of treatment and rehabilitation. For some time there has also been growing interest in the opportunities cryotherapy offers the effectiveness of training in sports.. Prof. Zdzisław Zagrobelny and his Wrocław team, have been gathering relevant experience since 1989. In Bad Seebruch he stated that in multiple sclerosis as well as in healthy sportsmen, cryotherapy reduces spasticity of muscles, whose strength grows. Zimmer, a co-worker of Prof. Zagrobelny, noted in 1987 a significant increase in the effectiveness of athletes. An increase in the strength of muscles and fitness, as well as a beneficial effect on regulatory mechanisms is observed. A number of Polish sports centres utilises cryotherapy as a training enhancement tool. Professor Fricke reported beneficial results of cryotherapy in temperature -110°C now used a standard therapy temperature by most of researchers. During the 2004 International Forum of Physical Medicine arranged at the International Medical Salon (SALMED), professor Fricke reported that his observations indicate -110°C as a temperature providing optimal results. He explained that his temperature triggers sudden contraction of skin vessels, which effectively prevents a significant drop in the body’s core temperature and there is no necessity to go for further for even lower temperature. Until the end of the nineties Prof. Fricke used a cryotherapy chamber cooled by liquid nitrogen, where temperatures lower than -110°C were available.



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Application of cryotherapy

A whole body cryotherapy is conducted in chambers cooled with liquid nitrogen, liquid air or with the electrical refrigeration units. Each of these methods leads to the effect desired from medical point of view. Apart from effects reported by professor Fricke, observable are: rise of mood, relaxation of the muscles, an improvement mobility of the joints, an abatement of pain and tiredness, and a feeling warmth in the body combined with glowing skin. Anti-inflammatory and immunomodulatory effects have also been noted. As in the case of cryotherapy applied locally, these effects last for limited time. As a result, in some centres patients receive such treatment twice a day. In order to extend the effects of the therapy one can supplement the overall treatment with a daily series of local treatments.

Cryotherapy of the whole body is recommended to patients with chronic diseases of the joints and joint cartilages, above all, rheumatic inflammation of the joints, Bechterew's disease, psoriatic inflammation of the joints, rheumatism of soft tissue, connective tissue diseases. Currently those recommendations are being extended to include preparation of athletes during training. Research results up to now seem to be very encouraging. Current research on whole body cryotherapy, brings more scientific data which will extend the range of those recommendations. The contraindications to cryotherapy of the whole body are those that concern cryotherapy in general. In particular absolute contraindications are severe heart disease and disease of the circulatory system, e.g. circulatory insufficiency, cardiovascular disorder, post cardiac infarction recovery, hypertension, lung disease, underactive thyroid, considerable anaemia, untreated hypertension above 160/100 mmHg, polineuropatie, kidney disease and diseases of the bladder. However, relative contraindications are age over 65, blood clots in the veins and coronary thrombosis, increased emotional liability.

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MAIN CHAMBER



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CHAMBER INTERIOR



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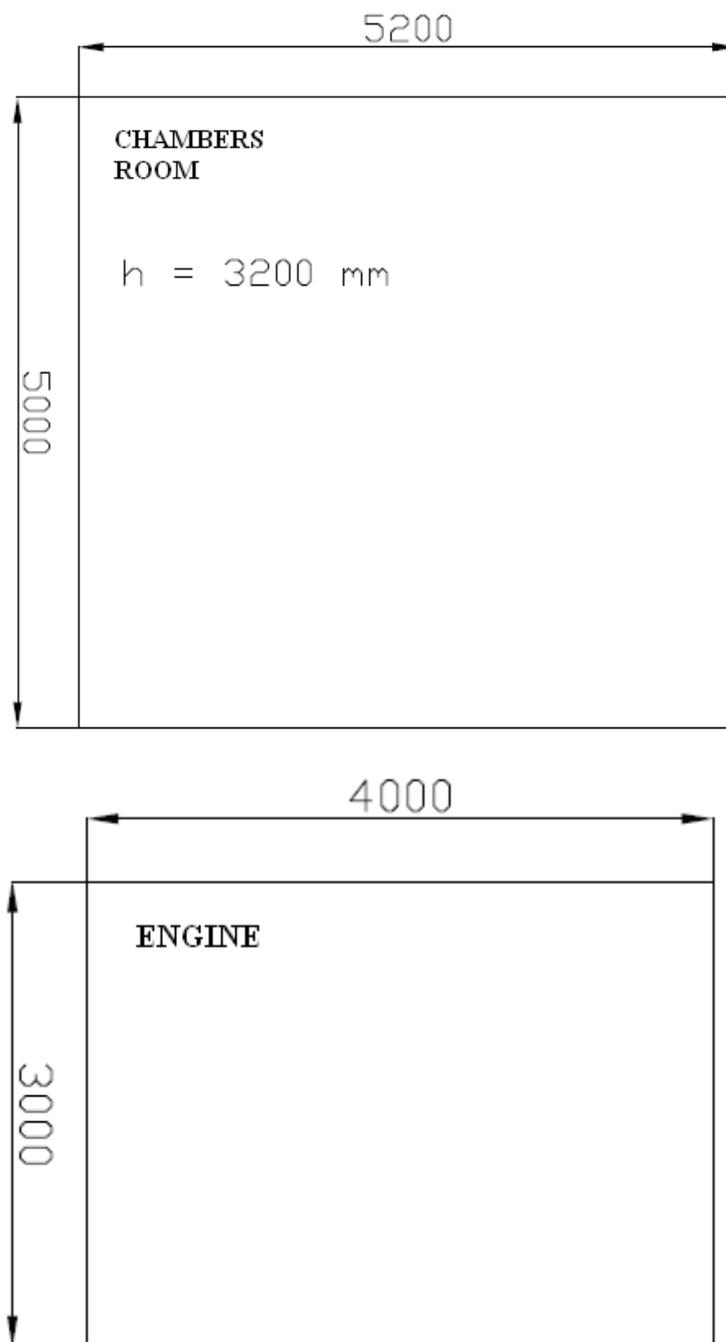
INTERGRATED CASCADE COOLING SYSTEM





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Minimum room size for setup chamber ana machinery





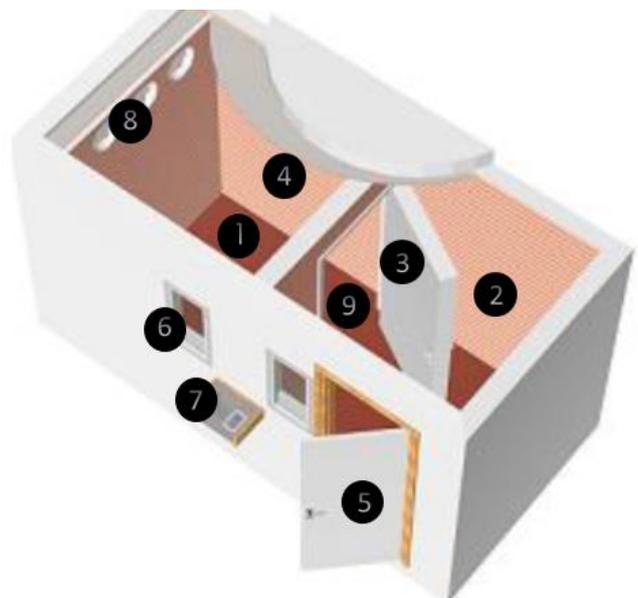
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CONTROL PANEL – INTERCOM



TOP VIEW

1. Main room -110
2. Pre chamber -60
3. No snapping doors
4. Wall covering
5. Main doors entrance/exit
6. Cheated windows
7. Control panel with voice system
8. Ventilation
9. Anti-slip floor





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GUIDELINES FOR THE MONITORING INSTALLATION

In order to install the monitoring of the chamber you need to bring the cable to the control board with the release of the server through the connection of constant viewing of data:

SPECIFICATIONS:

Inching network cable (LAN) to the place where is the chamber driver. The driver understood as the central unit G-500, located in the control board in the technical room.

Provide a place on the server

The converter communicates with the computer via the Internet on TCP 4326 port, so you can see the device from the outside.

Should provide a public IP address or TCP 4326 port forwarded.

Pass the incoming call on this port.

Installation of the chamber monitoring allows for full observation over the internet, temperature, humidity, pressure in the chambers and a treatment room, as well as the frequencies of opening and closing the door.



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GUDIELINES FOR CRYOTHERAPY CHAMBER

CONSTRUCTION

I. TREATMENT ROOM

- minimum room length : 5,00 metres
- minimum room width: 4,20 meters
- minimum room height : 3,50 mb

(For the possibility of releasing the chamber floor to a depth of 170 mm from its zero-level - a minimum room height: 3.30 meters)

- closed room, separated from the rest, with ventilation and air-drying function.
- maximum humidity in treatment room: 45%
- maximum ambient temperature: 25°C
- need additional ventilation with a capacity of approximately 10-fold exchanges per hour, starts during chamber thawing for rapid removal of water vapor.

COMMENTS:

- When chamber is set at zero level floor entrance limit is 21 cm
- By placing cryochamber in the hollow of max 17 cm from the zero level floor entrance is 4cm

II. MACHINERY ROOM (aggregate + control panel)

- maximum distance from chamber: 10 meters
- minimum length: 4,00 meters
- minimum width: 2,00 meters
- minimum height: 2,50 meters
- minimum width of entrance door: 90 cm
- minimum air conditionig capacity: 5 kW

COMMENTS:

- Aggregate and control panel can be placed into a container outside the buliding (dimensions of the container as defined above).
- To the engine room and the outer container must be able to supply the chiller with dimen- sions 2,15 x 0,85 x 1,95 and weigth about 1250 kg.

III. POWER SUPPLY

- supplied to the engine room or the container in the location steering cabinet
- cross section of the wire depends on the distance from the main switchboard (min. 5 x 16²)
- maximum input power 25 kW
- security 63 A