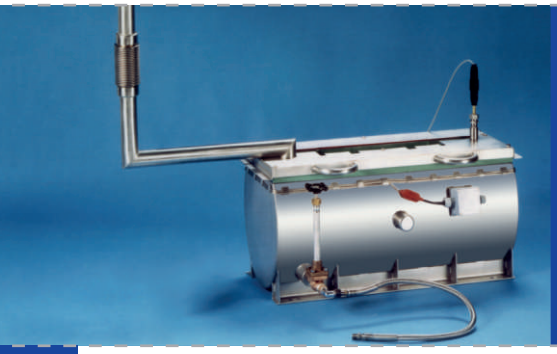
Cryotherm®

Cooling Baths

with liquid nitrogen ... for a perfect fit in metal working

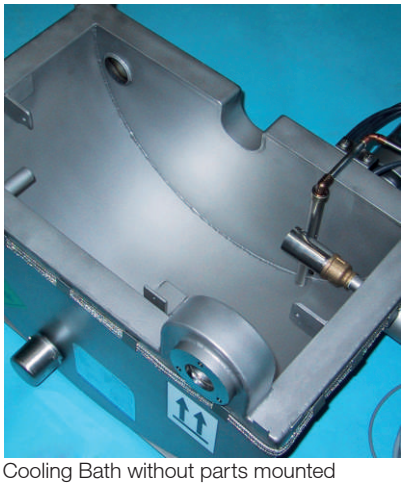
www.cryotherm.de

Shrinking with Cryo-Cooling



... for top quality!

Guideways



Cooling Bath without parts mounted

Advantages that convince:

- horizontal or vertical versions
- above perfect plant concept
- customized perfect solutions
- reproducible quality
- automatic refill control system
- electronic control system
- low on maintenance
- can be automated
- easy operation
- low investment and operation costs
- high shrinkage effect
- everything from a single source

Cooling Baths: Shrinking with Cryo-Cold improves Quality and Reworking becomes superfluous

By cooling with liquid nitrogen in metal working components can be connected to each other quickly and positively. The quality of the components keeps maintained, reworking does not occur.

The cryo-technology specialist Cryotherm offers the appropriate:

- dewars (vacuum super-isolated containers)
- customized cooling baths and special dewars
- storage and transport containers
- phase separator stations
- pipeline systems
- electronic control system

Cryotherm cooperates with companies in machine construction who supply well-known car manufacturers national and international as well as manufacture cooling baths with varying geometry, equipment parts and transport systems.

Cooling of Parts

The parts pass through the cooling bath in the so-called guideways or lie on the cycle wheel plate and loaded and unloaded by a robot or portal system. The robots are supplied and installed into the chain by the machine manufacturer.

The guideways, the bath form, shaft and lid are optimized in conjunction with each customer so that the retention time of the parts in the bath meet the optimal assembly cycle periods.

Applications

- metal working
- retained austenite transformation
- automatic operating systems
  - assembly of valve seat rings
  - assembly of valve guides
  - manufacture of gear systems

Versions

- horizontal cycle wheel systems
- vertical cycle wheel systems
- guide tracks
- register for “picking“

Cooling Bath System

Dewar Model

- low evaporation rate
- variable part diameter
- horizontal cycle wheel, drilling according to customer specifications
- separate feed and outlet
- heatable lid
- condensation bowl
- liquid level probe

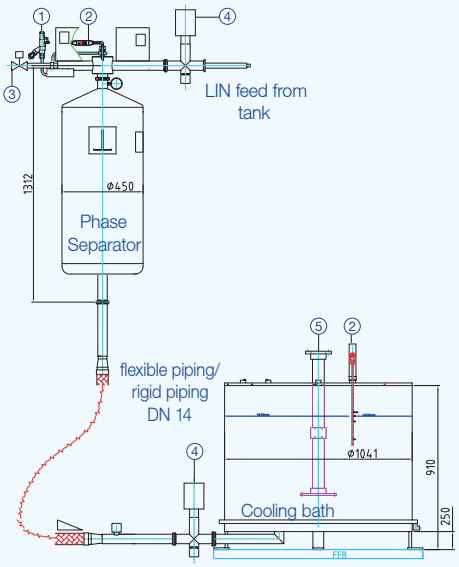
STELLA®

... the simple, flexible and robust standard version of a cooling bath for manual operation.

Setup

In most assembly machines which are set up in modular fashion there are several cooling baths in operation which are supplied with liquid nitrogen from a common storage tank – the phase separator. Electronic controller controlls all the tank levels automatically and thus without need of intervention by the operator.

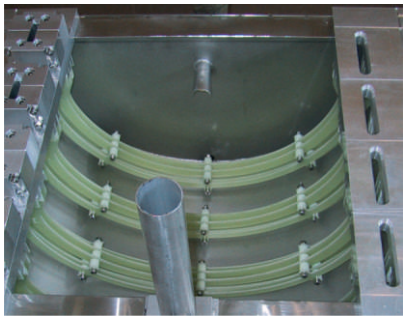
The optimal filling pressure of the phase separator amounts to 0.5 to 0.8 bar and is controlled by the automatic filling level regulator.



Nitrogen Supply

- supplied by a standard tank
- required connection of phase separator to the tank fitted with rigid super-isolated transfer pipe and a fitting socket or flexible piping
- connection of phase separator to cooling bath effected according to machine assembly (flexible or fitting socket)

① Safety-Valve
② Probe CRYO LC®, control unit CRYO LC® for control cabinet assembly 230 V AC
③ Exhaust-Solenoid-Valve 24V DC or 230 V AC
④ Solenoid Valve 24 VDC or 230 VAC
⑤ Flange Drive; controller and mount for drive and cycle wheel


Guide tracks


horizontal cycle wheel system


vertical cycle wheel system

Cryo-Supply Systems

The vacuum super-insulated containers by Cryotherm serve to store and transport the deeply cold fluid gases. We deliver for you the ideal supply containers for all uses in research, development, medicine and industry – completely equipped and immediately operational.

JUNO® LIN-Supply container (25 - 100 l) · APOLLO® LIN-Supply Container (50 - 350 l)
SATURN® LIN-Transport Container (100 - 300 l) · MERKUR® Transport Tank (500 - 2,000 l)
SIRIUS® LIN-Supply Container (1,000 - 2,000 l) · HELIOS® LHe-Storage Container(100 - 10,000 l)
STRATOS® LHe-Transport Container (100 - 1,000 l)

Cryo-Piping Systems

In order to transport deeply cold fluid gases from A to B almost without any loss we have developed special vacuum super-insulated transfer piping. These transfer piping systems are distinguished by high thermal quality. For LIN/LOx/LAr/LHe/LH_2

rigid transfer piping (DN 14 - 100) · flexible transfer piping (DN 20 - 32)
plug-in coupling – weld coupling · gas phase separator (10 l) · phase separator (50 - 200 l)

Cryo-Customizing/Cryo-Engineering

If you have completely individual research tasks to perform. Do you have the right partner for the job? Whether you work in micro-electronics or one of the many other areas of research we have the specialist staff who know your field and speak your language.

Cryo-Storage Systems

Today storage periods of many years are in demand. Make use of our Cryo - Storage Systems for long - term storage of biological, medicinal and chemical materials in laboratories and Cryobanks.

BIOSAFE® MD-sample storage system (medical product) (120 - 1,400 l)
BIOSAFE® SC-sample storage system (120 - 1,400 l) · CHRONOS®-sample container (120 - 1,400 l)
STELLA®-work container (0.5 - 63 l) · Freezing apparatus (3.3 - 16 l) · dryo shipper

Cooling of Transport Systems

Deep frozen foods cover an ever larger part of our daily requirements. For an optimal cooling quality we equip your cold storage vehicles, trailers, semi-trailers, swap bodies and containers with transportable Cryo-Systems.

CRYOGEN®-Trans-System

After-Sales-Service

Installation/Assembly, Start Up, Spare Parts Service, Repair/Maintenance, Instruction/Training, Technical Hotline +49 (0)2741 958575

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