coolingsolutions

PRECISE TEMPERATURE CONTROL FOR STABLE PROCESSES

Member of
the technotrans group

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gds
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technotrans

- TECHNOTRANS COOLING SYSTEMS – PROVEN TECHNOLOGY
- SERVICE OF PRINCIPLE – WORLDWIDE
- CUSTOMIZED TECHNOLOGY FOR INDUSTRIAL COOLING SOLUTIONS

PROVEN TECHNOLOGY

The **technotrans** group of companies with headquarters in Sassenberg, Westphalia, reinforces with termotek (Baden-Baden) and klh (Bad Doberan) their competence as a system supplier for refrigeration technology. The enhanced portfolio offers not only standard systems from 0.1 to 500 kW, but also includes customized solutions.

technotrans customers use the 25 service and sales companies of the corporation worldwide, comprising more than 1260 employees, to ensure the satisfaction of their own international clientele.

For more than 40 years the **technotrans** group is a strong and competent partner for cooling, temperature control and filtration and offers high-quality system solutions for a wide range of industries like laser, tooling, graphic and also energy storage applications.

DEVELOPMENT PARTNER

- development and construction with 3D and simulation tools
- prototype production and long-term tests in own climatic chamber
- autarkic operation for pre-series-qualification and functional test
- qualification process of the series devices with field tests
- CE certification and UL/CSA approval (UL 508A)

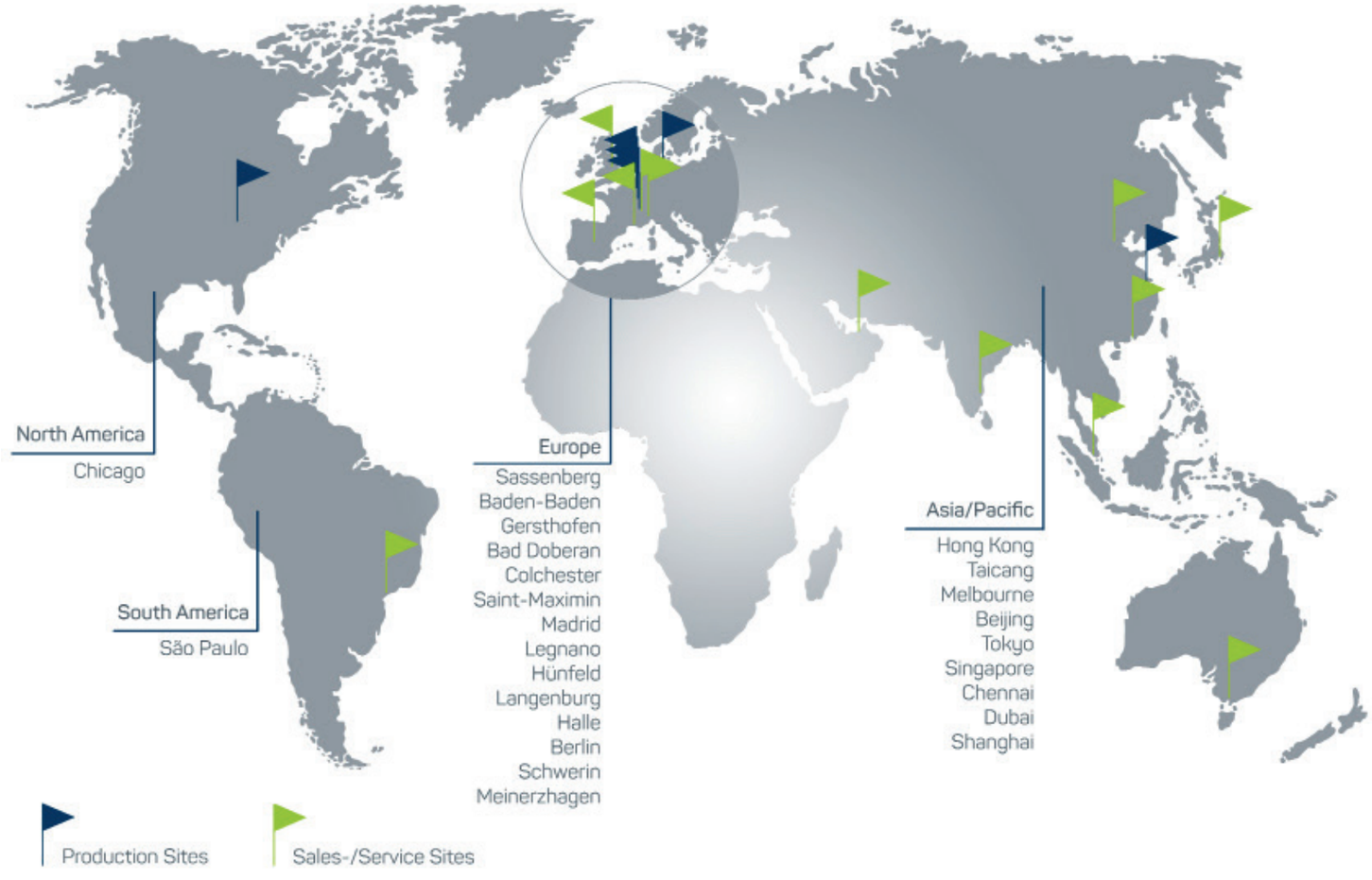
SERVICE OF PRINCIPLE

Users rely on **technotrans** when it comes to controlling sensitive processes. Worldwide, more than 130,000 cooling and filtration systems are in use. Whether it is project planning, installation, commissioning or maintenance, our international team of experts knows all of the challenges that our customers must face on a daily basis.

As a strong focus on our customers is not only a core value of the **technotrans** group's philosophy but also established practice, we offer extensive service at all of our company sites worldwide. The **technotrans** Customer Service Center is decentralized and multilingual.

The colleagues of the Customer Service Centre are at your side round the clock, seven days a week even outside the usual business hours.

Apart from technical support, **technotrans** also offers numerous preventive measures for higher operational safety and reliability. At any time, more than 200,000 spare parts are in stock and they can reach any destination within 24 hours. Our portfolio includes project planning, engineering, installation comprising pipework and cabling with final commissioning anywhere in the world.



1. founding of the company in 1970
2. acquisition of termotek AG in 2011
3. acquisition of majority interests in KLH Kältetechnik GmbH in 2013
4. acquistion of majority interests in gwk, Meinerzhagen in 2016
5. headquarters in Sassenberg, Germany
6. 25 subsidiaries worldwide – 6 with their own production facilities
7. more than 1260 highly motivated employees
8. including 90 research & development engineers

- COOLING SYSTEMS FOR DIODE, FIBRE AND CO_2 LASERS
- ENERGY- AND RESOURCE-EFFICIENT SOLUTIONS
- WIDE RANGE OF CAPACITIES

› ***technotrans*** *group as a full-line supplier in the field of laser cooling*

› *a competent partner in all fields – consulting, development, start-up, maintenance and retrofitting*

SYSTEMS FOR DIODE, FIBRE AND CO_2 LASERS

The laser cooling systems made by **technotrans** are specifically adapted to the typical requirements of different types of laser applications. In addition, they can be customised to fulfil any non-standard requirements.

The **technotrans** laser cooling products range from small cooling capacities starting at 0.3 kW especially for diode lasers in medical applications and medium capacities for fibre lasers up to high cooling capacities with a maximum of 300 kW for CO2 lasers in an industrial setting.

Apart from a wide range of capacities of the cooling units and pumps, the modular design of the systems also provides for a maximum of selection options for the system configuration. Whether the cooling unit requires integrated filtration of the cooling medium, active heating or special cooling media, technotrans has tested all possible configurations and offers them to its customers.

technotrans has been fully aware of the special requirements of cooling circuits with DI water for many years and the company has used this knowledge as the basis for continuous improvement. Apart from the selection of suitable materials, it is also possible to incorporate a conductivity measurement system with display and regeneration cartridges into the system.

The control system has been designed to allow for free parameterisation and, thereby, variable use. The signal exchange with the customer system can include simple status messages up to the principles of Industry 4.0 in the form of a BUS communication system.

The temperature control system maintains the specified temperature in a highly precise and constant manner even when faced with the typical dynamic behaviour of lasers. The long-standing know-how in the field of thermodynamics combined with smart control concepts results in a precise and constant control performance of the **technotrans** laser cooling units.

When it comes to recooling the laser cooling units, the customer can choose a flexible variant with an air-cooled refrigeration unit in order to remain independent from any on-site installations or a water-cooled refrigeration unit in order to discharge the waste heat into the in-house cooling water system. If a cold water network is available on site, it is also possible to select a passive heat exchanger. The devices are delivered ready for connection and characterised by a particularly high level of reliability and ease of maintenance. For numerous applications, the company also develops, designs and produces special cooling systems that can be directly integrated into the laser systems.

COOLING OF DIODE LASERS

Due to their performance characteristics and excellent efficiency, diode lasers only require a small yet highly precise cooling capacity. This requirement has been reflected in the space-saving „rack design" of the compact laser cooling units for easy integration. These compact devices incorporate a special Aspen compressor which enables the set-up of an active refrigeration unit with a high level of control accuracy in the smallest of spaces. In addition, the racks can hold numerous useful options for this type of application, e. g. the use of DI water or an integrated filtration system.

› *rack-mounted units for diode laser cooling*

COOLING OF FIBRE LASERS

Fibre lasers are usually cooled by way of single- or dual-circuit cooling units, depending on whether the laser source is to be cooled separately or whether the peripheral systems, e. g. the laser optics or fibre connector, can also be bundled in a single cooling system.

Dual-circuit cooling units can produce different cooling temperatures, which can be controlled independently from one another, or they can operate with different cooling media. The laser optics, in particular, are often cooled with DI water as the cooling medium.

Fibre lasers are often used as an integral element in automated manufacturing systems. It is essential for the entire process that the cooling system is integrated into the data exchange network of the superordinate control system. All types of solutions can be realised – from the simple exchange of signals up to bidirectional communication set-ups. Thanks to its free parameterisation, the **technotrans** control system offers solutions on different levels. As a result, the configurable control system can be adapted easily and retroactively to numerous applications.

For the temperature control of fibre lasers, it is often essential to reach the necessary operating temperature as quickly as possible. To this end, the systems made by **technotrans** can be equipped with an active heating system in addition to the active cooling system. With this configuration, the systems can quickly reach the required operating temperature after a period of non-utilisation, regardless of whether this requires cooling or heating.

› ***omega****line: cooling system platform with variable configuration options for all types of requirements*

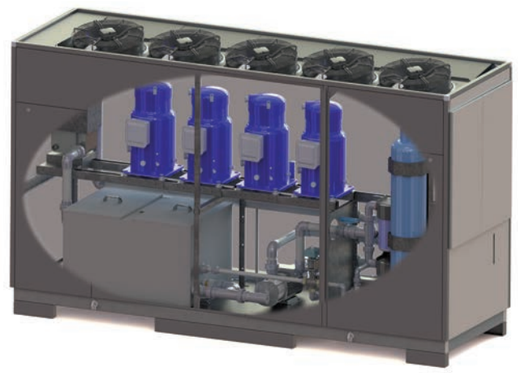
COOLING OF CO_2 LASERS

The cooling of CO_2 lasers is a challenging task. The typical precision and performance level of this type of laser system is reflected in the design of the cooling systems with a cooling capacity of up to 300 kW.

The high heat input in combination with the typical load dynamics of the CO2 lasers is particularly challenging for the control behaviour of the cooling system. Apart from large buffer tanks ensuring a stable temperature level, additional sensors can detect heat input before it actually has any impact. As a result, the well-coordinated elements of the **technotrans** cooling units combine excellent control accuracy with a highly dynamic performance.

In the field of cooling systems with a high cooling capacity, **technotrans** particularly focuses on the energy efficiency of the systems. This is why these systems only use energy-efficient scroll compressors, which are cascaded in a multiple combination set-up. This configuration enables a particularly high level of efficiency even under partial load conditions.

Due to the relatively high cooling capacity of CO_2 cooling units, it often makes sense to position the cooling system outside of a building. We have bundled the necessary measures in a corresponding outdoor package. Other options can also be added to this application. Whether it is the use of DI water, active heating or internal filtration: Based on our extensive experience, we would be glad to advise you on the configuration of your optimal cooling system.



› CO_2 *laser cooling unit: a powerful solution with numerous equipment options*

- CAPACITY OUTPUT RANGE FROM 0.8 KW UP TO 300 KW
- ENERGY- AND RESOURCE-EFFICIENT SOLUTIONS
- SIGNIFICANTLY REDUCED ENERGY DEMAND

- *Area of application: machining centres for lathes, milling machines and grinding machines with high-speed spindles*
- *Cooling of: main and counter spindle motors, torque motors, linear drives, electrical cabinets and machine beds*

CAPACITY OUTPUT RANGE FROM 0.8 KW UP TO 300 KW

Modern machine tools and machining centres are characterised by a high metal removal rate and an equally high level of precision. This calls for reliable heat removal and highly precise and constant temperature control.

It is especially for these areas of application that the **technotrans** group offers perfect system solutions for complete thermal management.

Whether the focus is on the uncomplicated and reliable removal of heat or on reference-controlled precision cooling up to the compensation of the thermal error of the machine, the result always contributes to an improved repeatability and process stability.

The varying requirements can be fulfilled based on different cooling circuits in separate or combined systems. Cooling circuits for the simple removal of heat are particularly economical thanks to their fixed-point control system that controls the temperature as accurately as necessary (+/- 1 K). In these cooling circuits, peripheral units such as control cabinets or cooling lubricant cooling systems can be combined. In many cases, it is even possible to cool torque motors and linear drives with these circuits.

Cooling circuits for more sophisticated temperature control tasks are equipped with precise control elements and an intelligent software program. They can reach a particularly high control accuracy of up to +/- 0,1 K. In addition, the target temperature can be adapted to up-to-date reference values such as the ambient temperature or machine bed temperature. This type of cooling circuit is perfect for cooling the main spindles and drive spindles.

BENEFITS AT A GLANCE:

- high level of reliability
- high level of control accuracy
- small footprint thanks to a particularly compact design
- easy operation
- low maintenance requirements
- configuration options for all types of demand

THE PERFECT SOLUTION FOR YOUR REQUIREMENTS

Regardless of the cooling demand or the climatic conditions in which the machine tools are used – cooling systems improve the workplace atmosphere thanks to an enhanced indoor climate while the flexibility of the systems ensures a higher production quality thanks to their maximum operational reliability. Our energy-efficient cooling units have been specifically developed for these applications and are an investment into the future.

technotrans offers suitable system solutions for the most versatile requirements around the entire thermal management of machine tools and machining centres. Robust cooling systems that are optimally adapted to the specific application are a must for a reliable, stable and economical production process. In order to meet the growing demand for modularity and flexibility, we have developed a platform for the configuration of customised cooling systems based on standardised modules and assemblies:

- from pure power cooling and precision cooling up to the intelligent, reference-controlled temperature control of several circuits
- cooling systems for high-performance spindles with high speeds and extreme precision requirements enabling reliable heat removal within an exactly defined temperature range
- cooling systems for torque motors, linear drives and general peripheral equipment with a strong focus on economic efficiency and the energy-efficient heat removal

- ***omega**.line: cooling system platform with variable configuration options for all types of requirements*
- *proven technology: user-friendly, reliable and safe*

- ***smart**.chiller: highest levels of precision and reliability combined with excellent energy efficiency and cost optimisation*
- *high flexibility for the optimum integration of user-specific requirements*

- ***theta**.k: versatile and efficient multiple-circuit immersion coolers for cooling lubricants*
- *low operating costs, reduced investment costs, efficient system*

- ***tool**smart: combined cooling lubricant conditioning and cooling for additive manufacturing*
- *modular and compact design with multi-zone cooling*

- SPECIALIST FOR PERIPHERALS IN THE PRINTING INDUSTRY
- TECHNOTRANS COOLING SOLUTIONS – PROVEN TECHNOLOGY
- SERVICE OF PRINCIPLE

- *cooling solutions for the printing industry from ink temperature control via process cooling up to big chillers*
- *customized design according to requirement and optimized components*

PRINTING WITH HIGHLY REACTIVE UV INKS

The reliable and efficient cooling of the HUV or UV LED dryers guarantees high process reliability and optimum performance and a long service life of the modules.

Printing with highly reactive UV inks is particularly challenging. The cooling process for the UV and, in particular, for the new HUV and UV LED dryers must be adapted to the specific machine and technology. Based on numerous years of experience, **technotrans** has used well-established systems as the basis for the development of special cooling solutions for printing applications involving highly reactive UV inks.

As a result, **technotrans** as a cooling and fluid technology specialist offers its customers bespoke solutions for conventional UV systems up to new LED dryers: cooling units as open or closed systems, with one or several circuits, up to an integrated water softening system including conductivity control. Numerous OEMs rely on **technotrans** cooling units for UV printing applications.

In the run-up to the drupa 2016 trade fair, the systems have been further optimised, thereby representing special solutions based on the proven **beta**.line, which are bound to set new technological standards. It is available as air-cooled and water-cooled variants and also includes the proven digital scroll technology. The unit operates in an energy-efficient manner based on the infinitely variable adaptation of the refrigeration capacity to the actual demand. The **multi**com control system including the visualisation system offers comfortable operation. Integration in a control station configuration is also possible.

At present, the power of the units ranges from 14 to a maximum of 50 kW. The **beta**.huv/uv series is used for the supply of HUV/LED/UV modules, ColdPlates or of the sheet guide plate for sheet cooling.

INDUSTRIAL DIGITAL PRINTING

Digital printing solutions are increasingly economical and productive. The closer this process comes to offset printing standards, the higher the challenges for a reliable and stable production process will become.

As a strong and reliable partner of worldwide press manufacturers and printers for more than 40 years, **technotrans** has set market standards with the development of highly precise cooling systems and other press peripherals, to fulfill higher expectations.

The **omega**.line units are operated via a state of the art and easy to use control panel. Moreover, the chillers are equipped with an easy to clean and reusable aluminium mesh air filter, so additional filter material is not needed.

The devices are equipped with state of the art energy-saving variable-speed motors. The used pump motor is according to efficiendy class IE and the large water filter grant long maintenance intervals.

UNIVERSAL CENTRAL REFRIGERATION SYSTEMS

Stop worrying about the cooling watersupply of your press:

- sheet-fed or web offset printing, digital or flexographic printing,
- one or several cooling water circuits,
- low or high performance requirements,
- low or high ambient temperatures, dry or humid operating conditions,

the central refrigeration systems of the **universal**.chiller series of **technotrans** provide you with an optimum solution for the reliable and economically efficient cooling water supply for your printing press for all areas of application.

- ***technotrans*** *temperature control* ***beta****.uv/huv for use in offset printing*

- *devices of* **omega***-series as cooling solutions for connection to digital printing presses*

Based on a common fundamental concept, the central refrigeration systems of the **universal**.chiller series are customized to meet the requirements of the specific press and the climatic conditions at the location of use. This leads to optimum solutions for specific applications in terms of the investment and operating costs.

In addition to the cooling water supply of printing presses, we can also offer bespoke solutions for a combination with a free cooling concept using external air.

- *refrigeration system of the units series* ***universal****.chiller from 50-270 kW cooling capacity*

COOLING SYSTEMS WITH A MODULAR DESIGN

The central refrigeration systems of the **universal**.chiller series are an innovative device concept based on a new generation of components of leading manufacturers.

The advantage is clear: the refrigerant circuit and housing are standardised and produced in series. The cooling circuit and the electrical equipment are customized based on precise specifications. This approach ensures adaptability to all types of industry-specific profiles. At the same time, reproducible series quality with universal flexibility can be guaranteed.

The units of the **universal**.chiller series are modular, versatile and highly compact. The side and front panels can be removed easily, thereby ensuring optimum access for maintenance and service. The chillers have been optimised in view of minimal energy consumption.

- WIDE RANGE OF EFFECTIVE COOLING WITH WATER
- OPTIMAL TEMPERATURES AT REDUCED POWER LOSS
- CONCEPTS FOR CUSTOMIZED PROJECTS

- *battery cooling for mobile applications: bus and train, compact cooling for trams, air conditioning module, retrofitting diesel loco on battery, combined cooling systems for battery and converter (E-bus)*
- *cooling systems for charging station and converter*

LITHIUM-IONEN-BATTERIES AND TRACTION SYSTEMS

The function and durability of high performance mobile batteries and traction systems for electrically-powered vehicles is influenced by the operating temperature. A constant and stable temperature profile of the energy storage or charging system ensures longterm performance. The **technotrans zeta**.line has been especially developed for this kind of application.

Whether cooling requirements or in which ever climatic ambient situation the energy storage and charging system is used, the **zeta**.line ensures ideal operating temperature. With the customized design, the state of the art communication and diagnosis systems e.g. CAN-Bus, the **zeta**.line becomes a fully integrated part of the complete energy storage and traction system.

TECHNICAL DATA

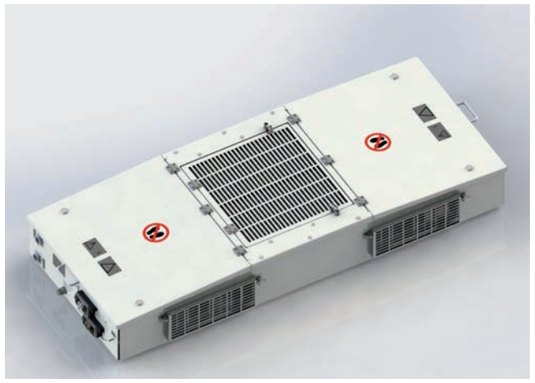
- wide range of serial units
- customized solutions
- standardized design for E-bus, trolleybus and tram applications
- cooling capacity from 300 W up to 10 kW
- wide range of voltage variations: e.g. 24 VDC, 400 VAC, 600 VDC
- for climatic conditions between –25 °C and +55 °C
- optional as multi-circuit system (such as battery and traction system)
- communication interface for BMS control (e.g. CAN bus)

SPECIFIC COOLING CONCEPT

- active cooling by using refrigerant compressor
- passive water cooling to ambient air
- active air cooling by refrigerant compressors
- indirect air cooling via cooling water circuit
- direct cooling with cooling plates
- combination of cooling concepts in multi-circuit systems
- optional: in combination with heating systems
- e.g. on energy-efficient heating using heat pump

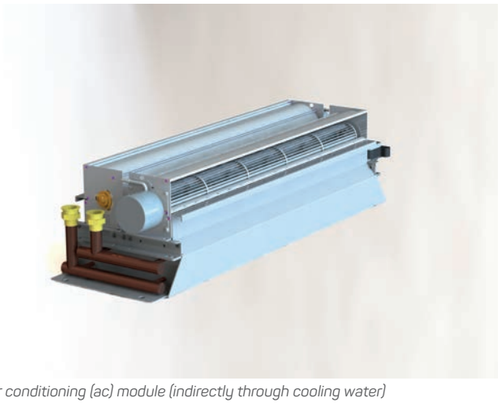
ADDITIONAL SERVICES

- product development and manufacturing refer to relevant standards in mobile applications
- full service of required environmental tests
- wide range of international accreditations & certificates e.g. UL

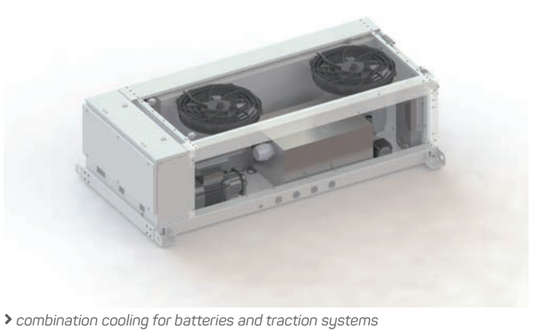


- *flat radiator for roof construction (e.g. E-bus)*

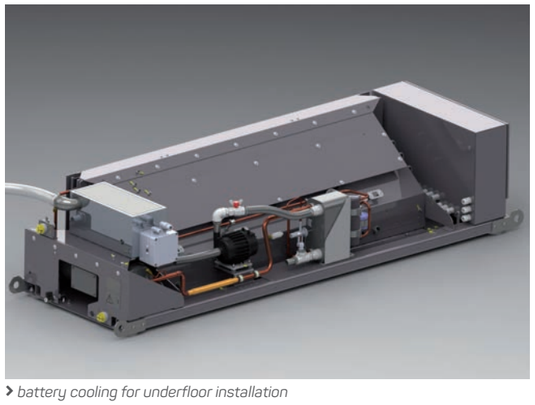
- *battery cooling for E-busses and trams*



- *air conditioning (ac) module (indirectly through cooling water)*



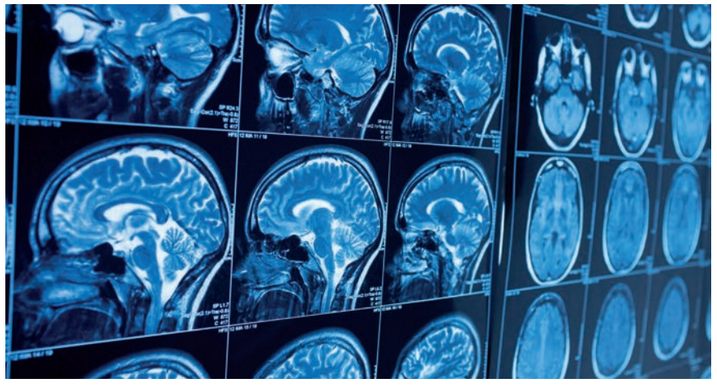
- *combination cooling for batteries and traction systems*



- *battery cooling for underfloor installation*

- *battery cooling for vehicle integration*

- FLEXIBLE AND RELIABLE CONCEPTS
- SPACE-SAVING DESIGN
- EXCELLENT SYSTEM AVAILABILITY



› *bespoke cooling systems - modular, flexible and reliable*

› *device concepts based on innovative components of leading manufacturers*

CUSTOMISED COOLING SOLUTIONS

The performance of modern imaging methods for diagnostics purposes in medical applications such as, for example, computed tomography (CT), magnetic resonance imaging (MRI) and X-rays as well as therapies in the field of cardiology, oncology, urology or invasive/non-invasive laser treatments up to laboratory applications and scanners in security applications is highly dependent on reliable cooling and temperature control systems that are precisely adapted to the specific application.

The bespoke cooling and temperature control solutions made by the **technotrans** group can be used as integrated modules or as an external overall concept.

Customised cooling systems
Developers of systems for medical applications increasingly focus on factors such as the investment costs, energy efficiency, reliability and footprint of the necessary cooling and temperature control systems. In this regard, **technotrans** takes care of the conception, design and manufacture of the devices in line with the customer specifications.

Based on a proven and professional development and qualification process as well as many years of experience, **technotrans** develops customised cooling and temperature control solutions for your specific requirements. Design and certifications in accordance with international standards such as CE, UL, CSA, ISO 9001, etc. are a matter of course.

Integrated and external solutions for medical and laboratory applications
The product portfolio of the **technotrans** group includes numerous air and liquid cooling modules for direct integration into diagnostic, treatment or laboratory devices or as external stand-alone devices for indoor or outdoor use.

A distinction is made between so-called passive systems with air- or water-cooled heat exchangers and active systems with air- or water-cooled compression refrigeration units.

The media to be cooled can be gaseous or liquid. In general, air, water, DI water or water-glycol-mixtures are used. Depending on the specific requirements, control accuracies up to +/-0.1 K are possible.

The capacity usually ranges from approx. 200 W for smaller diode lasers and laboratory applications up to approx. 80 kW for powerful scanner systems. Systems with a higher capacity rating for the central supply of several systems with cold water are also available.

Efficiency can be measured based on numerous key performance indicators. They include factors such as energy efficiency, system availability, total life cycle costs, user-friendliness, ease of service and maintenance as well as the use of resources.

This is why the design of **technotrans** devices follows a holistic concept giving a well-balanced consideration to all points.

In order to further optimise the energy efficiency and total life cycle costs of the systems, state-of-the-art features, e. g. controlled drives for compressors, pumps and fans as well as systems for waste heat utilisation or for using cool outside air for free cooling can be optionally offered.

The extensive, worldwide service from the project planning, installation and start-up phase up to the supply with spare parts, on-site service and factory repairs, maintenance contracts and/or preventive maintenance, supported by remote diagnostics via data interfaces, completes the range of services.

SCANNERS

Security is of utmost priority at airports. In order to ensure security at all times, X-ray baggage scanners are used 24/7. All of the checked baggage and hand luggage are thoroughly scanned and tested.

For the trouble-free operation of these sophisticated systems and the smooth operation of the airport security services, **technotrans** offers customised solutions for cooling the baggage scanners:

› **fully integrated cooling systems**

› **partially integrated modules including a central cold water system**

› **remote, external water chillers or free-cooling systems (depending on the climate zone)**

The product portfolio includes compressor-based active cooling systems and passive heat-exchanger cooling modules for connection to an external cooling water supply system. The single- or multiple-circuit systems are customised and can be fully integrated into the scanner systems where they cool major components such as X-ray generators, CT scanners, motors, sensors or PCs.

The extended product range additionally includes external solutions with a central cooling water supply of the X-ray scanners with full redundancy. Redundancy switching ensures the trouble-free system changeover in the event of a fault. One cooling system (master) stops and the second cooling system (slave) takes over automatically providing 100 % of the cooling performance. As a result, the system is permanently protected against total failure.

The typical capacity of integrated systems is between 300 W and approx. 20 kW. In the case of external cooling solutions, the cooling capacity ranges from 50 to approx. 250 kW. Depending on the specific requirements, control accuracies up to +/-0.5 K are possible. Special projects or specific customer requirements can be realised with the help of an extensive package of options and technical solutions.

The offering is rounded out by extensive services such as global project management, turnkey installations and maintenance services.

› *small, quiet and highly efficient: optimised solution for medical and analytical applications*

› *bespoke cooling and temperature control solution for medical applications*

› *integrated cooling solution for scanner applications with a compact design*

› *customised cooling system for integration into an X-ray scanner system*

- STABLE CLIMATIC CONDITIONS FOR PRODUCTION AREAS
- MODULAR SYSTEM
- UTILISATION OF HEAT

- *central water cooling - cool ideas for a better climate*
- *different systems depending on the local climatic conditions*

CENTRAL WATER COOLING – AN EFFECTIVE ALTERNATIVE

Stable humidity and temperature are a fundamental requirement for the production of high-quality products, especially when it comes to repeat jobs. Heat sources have a negative effect on the fragile balance between relative humidity and temperature. In order to counter this effect, water-cooled peripheral units are widely used these days. Based on 40 years of development and project experience, **technotrans** ensures the reliable supply of these units with cooling water. The productivity in the production area increases continuously.

Water cooling has been the standard method for motors in automotive engineering for a long time. However, water can also absorb the waste heat of the machine and withdraw it from the production area. Compared to air cooling, water cooling requires only small pipe cross-sections for a high level of performance, which is due to the special physical characteristics of water.

The cooling of highly precise machines is indispensable these days owing to their power density. Studies show, for example, that the cooling of drive motors and cooling lubricants accounts for up to 50 % of the total power input. One major cause: every machine has its own cooling system, thereby representing an isolated supply point. Our solution: a central system combines these isolated supply points in a cluster and aligns the capacity reserves by way of a superordinate intelligent control system.

The selection of the cooling method should always be based on the requirements of the components in need of cooling and on the climatic conditions on site. In general, free cooling is the method of choice. This method does not require any refrigeration unit and is characterised by particularly low operating costs and high reliability. Special applications requiring a constant water temperature make use of water chillers.

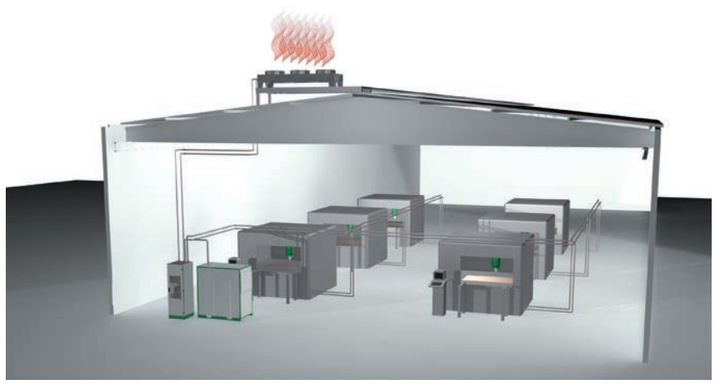
Water chillers with air-cooled condensers and a compact design for outdoor set-up are used for the cooling water supply with a feed flow temperature between 6 and 20 °C and outdoor temperatures up to 45 °C. An integrated buffer tank and circulation pumps eliminate the need for a separate pump cabinet.

Available with cooling capacities from 25 kW up to 150 kW, with hermetically sealed scroll-type or semi-hermetical reciprocating piston compressors, various cooling agents, different sound pressure levels and more options. A combination system with integrated free cooling enables annual energy cost savings between 40 and 60 %, depending on the desired cooling water temperature and the climate on site. **technotrans** recooling systems are being used throughout the world. Benefit from our experience and the reliability of our proven technology.

technotrans will find the optimum solution for your specific application.

FREE COOLING

The free cooling concept is based on a recooler that dissipates the waste heat of the machine to the ambient air with fans by way of a water-glycol-mixture and an air/water heat exchanger. Recoolers are available with different capacities and sound levels and for horizontal or vertical set-up. They are customised with the specific climate and installation altitude in mind. As a result, every recooler is ideally adapted to its location of use.



- *layout of a central cooling system in the laser industry*
- *free cooling with water/glycol, a pump/distribution station and pipes for water or a water/glycol mixture*

BENEFITS AT A GLANCE:

- higher productivity thanks to a stable climate on site
- no overload of existing ventilation and air conditioning systems
- lower airflow velocity in the production area, resulting in lower dust distribution
- reduced maintenance requirements for the peripheral equipment
- reduced heating energy demand
- reduced total costs of ownership
- special operating mode for heat recovery

CENTRAL SYSTEM FOR

- planning a new production site
- converting the existing equipment

A central system is an investment into the future. Thanks to the modular design, the existing equipment can be easily replaced or extended.

- ***technotrans*** *recooling system: installation of several recooling systems for a large-scale railway project*

› *customized solutions for direct integration into the complete system*

ECONOMIC, MODULAR, FLEXIBLE AND RELIABLE

SPACE SAVING DESIGN

OPTIMIZED REFRIGERATION TECHNOLOGY

FURTHER OPTIONS:

- CONTROL ACCURACY ≤ 0,5 K
- ENERGY-EFFICIENT, PERFORMANCE-CONTROLLED DESIGN
- HEATING VIA HEAT PUMP PRINCIPLE
- WATER-COOLED CONDENSER
- ALTERNATIVE POWER AND VOLTAGE VERSIONS, FREQUENCIES
- MAIN COMPONENTS ACCORDING TO UL
- VARIOUS COOLING MEDIA (WATER/GLYCOL, DI WATER ETC.)
- COOLING CIRCUIT FREE OF NON-FERROUS METALS
- INTEGRATED MEDIA FILTRATION

PROCESS COOLING AND TEMPERATURE CONTROL

In nearly all modern industrial production processes, a high level of productivity combined with outstanding precision are imperative for increasing the economic efficiency. This means that a fine-tuned cooling system is vital for a highly efficient production.

The endurance of the materials and systems can be significantly increased in view of a higher production performance by way of the targeted removal of heat. Accurate compliance with the temperature specifications of the individual components enables a considerably higher level of precision with an equally high level of process repeatability.

A robust refrigeration technology, customized for the respective application, is the prerequisite for a reliable, stable and economic production process. In order to fulfill the increasing demands for modularity and flexibility, **technotrans** has developed a platform, the new **omega**.line, with which customized cooling systems can be put together using standardized modules and assemblies.

FUNCTIONS AND FEATURES AT A GLANCE

- space saving design with modular housing
- easy handling, operation and maintenance
- all service areas in the front
- liquid level indicator visible from the outside
- integrated electrical panel IP54, according to EN-/CE-regulations

ASK US - WE WILL KNOW OR FIND A SOLUTION!

technotrans SE
Robert-Linnemann-Str. 17
48336 Sassenberg · Germany

Tel +49 (0)2583 301-1000
info@technotrans.com
www.technotrans.com

technotrans