

Therminus

The LAUDA info magazine

Issue 1/2010



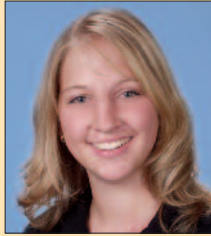
New LAUDA ECO thermostat range

- Dr Gerhard Wobser: 70th birthday congratulations from the staff
- New: TD 3 tensiometer and iVisc viscometer
- New record holder: Proline Kryomats and Integral XT 490 W
- Customer portrait: Cryogenic synthesis

Heads at LAUDA



Patrick Axmann has been providing support in the Control and Electrical Engineering of Heating and Cooling Systems since March 2009.



Regina Diez has been employed in the International Sales since October 2009.



Marina Hönninger gained a position in Order Processing in July 2009.



Gerhard Lang was appointed Operations Manager in April 2009.



Philipp Neumann has been employed as Sales Specialist North America since January 2009.



Songül Pötter was appointed to Project Management Communication in February 2009.

NEWS

■ **Constant temperature equipment:**
LAUDA - the big one 2009/2010: We present our new equipment range to you in the current Overall Brochure.



Other new brochures and flyers:

- **Constant temperature equipment:**
- *LAUDA ECO: Economical and precise thermostating with outstanding energy balance.*
 - *LAUDA Proline Kryomats: Extra powerful thermostats with large baths and high cooling capacities.*
 - *LAUDA Integral XT 490 W and XT 1590 W: Water-cooled process thermostats with high cooling capacities at very low temperatures down to -90 °C.*
 - *LAUDA Accessories: Use this brochure to select the appropriate accessories.*

- **Measuring instruments:**
- *LAUDA iVisc Viscometer: Capillary viscometer for fully automated measurement and evaluation.*
 - *LAUDA TD 3 Tensiometer: Precise surface and interface tension at constant temperature.*
 - *LAUDA Peltier Thermostating Unit PTT: Small laboratory thermostat suitable for use in the LAUDA TD 3 tensiometer and for stand-alone applications as well as in combination with other analysis equipment.*

Order our brochures or flyers free of charge. Simply send an e-mail to info@lauda.de



Dear Customer,

When the financial crisis made itself felt even in the real economy around the middle of 2008, we had no idea with what force this crisis would depress the world economy. An unprecedented decline of five percent has hit the German GDP hard last year. Since the middle of last year, things have gradually climbed upwards from the "basement". We at LAUDA are also feeling the effects of this crisis both in Germany and in the foreign markets. However, we have benefited a great deal from the investments made in previous years both in terms of new products and applications and in terms of a stronger presence abroad through our subsidiaries. Moreover, a positive effect is drawn from the huge range of applications of our products, from research, application technology and quality control to production. As such, at the end of last year, we registered only a slight decline compared to our record turnover in 2008. We want to say a big thank you to you, our valued customers, for your tremendous support.

The pre-eminent trade fair event last year was AACHEMA in Frankfurt/Main, which was held from 11 to 15 May. Contrary to expectations, there

was only a slight decline in visitor numbers; on both LAUDA stands we actually welcomed more visitors than in 2006. The eye-catcher on our stand in hall six was the new ECO thermostat range, the successor to the long successful Ecoline, which is most recently available in the Staredition. When we presented this range at AACHEMA 1997 and consistently improved it in the subsequent years, we could not have predicted its success with sales of over 50,000 heating and cooling thermostats. The new ECO offers the finest thermostat technology and will again set new standards in its class. The market launch takes place over this period and we are confident, with your support, that the new ECO will also enjoy huge success.

For me, the turn of the year 2009/2010 meant a massive break. After around 39 years working at LAUDA and having reached the age of 70, I am leaving the operational business, but I will remain closely associated with the company. My son, Dr Gunther Wobser, and our qualified management team will continue to keep LAUDA successfully on course. My heartfelt plea to you: stay true to LAUDA. I wish you all the best and every success both personally and professionally.

Regards

Dr Gerhard Wobser
Managing Director

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Dr Gerhard Wobser: A bit of Hollywood for a 70th birthday

He has a connection with the writer Goethe not only through the closeness of their birthdays in August. He is also a successful businessman running an internationally established company with prudence, wisdom and courage for innovation; he has a keen interest in all fine arts – whether painting, music or architecture; he is well-read with exquisite taste; he loves fair competition both professionally and in sport; he enjoys travel and travels a great deal; he has a fine sense of humour; he is a family man and a good, reliable friend: Dr Gerhard Wobser, who was seventy years old on 26 August 2009.

Since taking over the management of the company together with his brother Karlheinz Wobser after the death of his father Dr Rudolf Wobser in 1977, Dr Gerhard Wobser has been guided by an expression of Gustav Mahler, which describes tradition as “not the



worship of ashes, but the preservation of fire.” Dr Gerhard Wobser has always seen his work from the perspective of this conviction, which sees tradition as a living commitment that is continuously growing and realigning itself, from the beginning of his work as a physicist in the R&D department in 1971 and after the retirement of his brother at the end of 2002 when he took over the responsibility for finance/accounting, operations, quality management, IT and the heating and cooling systems business unit as well. He has also used it to guide LAUDA even through crises and lows. Since the end of the nineties, the company has been characterised by continuous advancement, which resulted in another turnover record in 2008.

For Dr Gerhard Wobser, the term tradition also includes the preservation of a pleasant atmosphere. For him, the “culture of getting on with each other” also means taking his staff seriously, treating each other with courtesy and respect, establishing mutual trust. “Convincing by thought and action” has become his maxim for management quality in

The LAUDA staff welcomes Dr Gerhard Wobser. On his day of glory, he is brought to the premises in a stretched limousine. “Marylin Monroe” elegantly escorts him across the red carpet.

his almost 39 years with the company. He has successfully implemented this through his manner, which is as consistent as it is gentle. Ultimately, even now, company tradition also includes the famous “LAUDA soup” introduced by the company founder in bleak times and served every day in the morning break.

As the first product manager to combine development and marketing in one role, frequent travels took him to many countries, where Dr Gerhard Wobser laid the foundations for the business relationships of the company that are so important and made numerous friendly contacts as a result of his cosmopolitan nature. By comparison, his private trips for relaxation



are relatively modest. Dr Gerhard and Inge Wobser stay in Germany or its European neighbours, enjoying the beauty, culture and lifestyle. In the Eastern federal states, Weimar and everything that reflects Goethe's presence takes pole position alongside Dresden and the Baltic spa towns. In the same way as schoolboy and student Gerhard Wobser was passionate about research, scientific experiments and design in the areas of physics, electrical engineering and electronics ("I was always certain I would become a physicist"), he began an intensive pursuit of literature and love of Goethe in his early years, being fascinated by the genius and universality, by the unique connection of science, state business and poetry. Above all, Wobser is inspired by his lyrics and concentrated poetry, as well as those of Rilke, Celan and Sarah Kirsch, although this does not preclude him from always being up to date with current literature.

"Art is an essential part of my life," Dr Gerhard Wobser says about



another fascination of his creative entrepreneurial spirit, which led him to set up the "LAUDA FactoryGallery" in the company administration building in 1995. It has become a permanent element in the cultural life of the company and the town of Lauda-Königshofen and so far housed more than 80 exhibitions of various artists. The contrasting alternation between painting, sculpture, graphics, woodcuts and objects forms the attraction of this gallery, which offers space for artists both local and international. In music, "a few highlights in the year are essential", so he carefully selects from concerts, operas or jazz events. In art, for the sophisticated head of the company, "the measured application of fine things, asceticism is more important than fast pleasure."

Dr Gerhard Wobser's sporting characteristics are endurance, technique and ambition to win in fair competition, although this focuses not only on fitness but also on performance-based success. Many years ago, what started with athletics, apparatus gymnastics, middle and long distance running led to an enthusiasm for tennis, which he plays even now as a "lone fighter" and sometimes with doubles partners. His understanding of friend-

ship is also characterised by endurance, being of great importance to him within a small circle of friends, becoming increasingly precious with the mutual aging process – as in partnership – and for which he hopes to have more time in the future. His friends value the pleasure he derives from language, cryptic puns and his subtle humour, which – in his own words – "helps in difficult situations and makes life much easier."

In the first quarter 2010, Dr Gerhard Wobser is going to leave the operational business but he will remain a partner and, with a "gently prepared generation transition", hand over the company history to his older son, Dr Gunther Wobser, who joined the company in 1997 and who has also been a Managing Director since 2003.



*Exuberant celebration in the yard of the Beckstein winegrowers' co-operative (left-hand photograph).
Dr Gerhard Wobser with his wife Inge (right-hand photograph).*

New LAUDA ECO equipment range

With the new ECO, LAUDA is continuing the unique success story of its forerunner LAUDA Ecoline. Innovations and developments have been made particularly in terms of performance scope and user friendliness. The two control heads, called Silver and Gold, have a powerful circulation pump with a pump performance that has been increased by over 30 percent relative to the previous models. The plain-text menu navigation allows very easy operation of the equipment. A USB interface comes as standard with both control heads. Another innovation is the practical distribution of the flow rate at the front of the control head. This enables individual distribution of the flow rate

Application examples:

- Precise temperature regulation in quality assurance and analytics
- Sample preparation in chemistry and pharmacy
- Temperature control in electronics and life sciences
- Cooling for material tests

between internal and external circulation even during operation. The angular front is unique and minimises the footprint. The most powerful units are fitted with the LAUDA SmartCool system. All cooling thermostats are available as air and water-cooled variants.



ECO control head Silver:

- 1.3 kW heater power (230 V), working temperature range up to 150 °C
- LCD display, resolution of indication 0.01 °C
- Operation via cursor and soft keys
- Simultaneous display of set and actual temperature
- Navigation in plain text
- Programmer with one program and 20 segments
- Vario pump with six levels, flow rate switch for internal or external circulation
- With screw clamp for bath vessels with a wall thickness of up to 25 mm
- Mini-USB interface as standard



ECO control head Gold additionally with:

- 2.6 kW heater power (230 V), working temperature range up to 200 °C
- Colored TFT display, resolution of indication 0.01 °C
- Graphical display of temperature profiles
- Ramp function, clock timer
- Programmer with five programs and 150 segments

The range of LAUDA ECO



ECO immersion thermostats Silver and Gold from 20 up to 200 °C

With the screw clamp that comes as standard, the ECO immersion thermostats may optionally be used with bath vessels with a wall thickness of up to 25 mm and an immersion depth of at least 150 mm.



ECO heating thermostats with transparent bath and control head Silver or Gold

The thermostats with polycarbonate baths can be used in the temperature range from 20 up to 100 °C. They have fill volumes from 5 to 20 litres. All units are fitted with a cooling coil as standard.



ECO heating thermostats with stainless steel bath and control head Silver or Gold

The heating thermostats with control head Silver are suitable for a temperature range from room temperature up to 150 °C. All heating thermostats are fitted with a cooling coil as standard.



ECO cooling thermostats with stainless steel bath and control head Silver

The cooling thermostats with control head Silver can be used in the temperature range from -50 up to 150 °C. They are fitted with a bath cover and pump set as standard for external temperature control. The pump connections are high-quality plastic nipples with a diameter of 13 mm. Equipment type RE 415 S is the basic model with a minimised footprint. RE 1050 S with SmartCool digital cooling control works down to -50 °C and provides a cooling capacity of 700 W at 20 °C.



ECO cooling thermostats with stainless steel bath and control head Gold

The cooling thermostats with control head Gold work from -50 up to 200 °C. In addition to the bath cover, the standard equipment also includes a pump connection with a stainless steel M16x1 thread. RE 1050 G has an especially high cooling capacity and achieves minimum temperatures of -50 °C. The integrated SmartCool technology produces considerable energy and cost savings. RE 415 G with a smaller footprint saves valuable laboratory space.



ECO water-cooled cooling thermostats with stainless steel bath and control head Silver or Gold

The cooling thermostats with control heads Silver and Gold as water-cooled variants with an operating temperature range from -50 up to 200 °C. This enables selection of the variants depending on surrounding conditions.

Further information:

→ www.lauda.de

→ Fax coupon

LAUDA Proline Kryomats

The new Proline Kryomats are floor-standing low temperature thermostats. With spacious temperature control baths and large bath openings, Proline Kryomats have been optimised for internal applications but are also suitable for external applications. They stand out above all for their high cooling capacities particularly at low temperatures down to $-90\text{ }^{\circ}\text{C}$ and a previously impossibly compact design. All Proline Kryomats are fitted with the LAUDA Command remote control as standard for easy and user-friendly operation. The equipment has a pressure pump that has been optimised for internal circulation, which can be varied in four stages. In order to avoid the formation of condensation as a result of atmospheric humidity at low temperatures, integrated bath edge and bath bridge heating are provided. Proline Kryomats stand out for their current technologies, high efficiency and an excellent price-performance ratio.



Application examples:

Constant temperatures

- Notch bending test
- Drop test

Changing temperatures

- Determination of pour point
- Brookfield test of lubricants
- Test of slide bearings

LAUDA Integral XT 490 W

For particularly high performance requirements in the low temperature range for external applications, LAUDA has expanded the successful Integral XT equipment range to include a further process thermostat – the Integral XT 490 W. The water-cooled XT 490 W process thermostat stands out particularly for its high cooling capacity even at low temperatures. The working temperature range lies between -90 and $200\text{ }^{\circ}\text{C}$ with a temperature stability of $\pm 0.1\text{ K}$ at $-10\text{ }^{\circ}\text{C}$. With a heating capacity of 5.3 kW , rapid heating is possible. At $20\text{ }^{\circ}\text{C}$, the process thermostat provides a cooling capacity of 4.4 kW . At $-80\text{ }^{\circ}\text{C}$, there are still 0.7 kW available. The high-power pump can be regulated in eight stages and provides a maximum pressure of 2.9 bar and a flow rate of up to 45 L/min . Sealing problems are eliminated by magnetic coupling of the pump and electric motor.



Application examples:

- Temperature control of exothermic and endothermic chemical reactions in process plants or mini-plants, which take place in glass, enamel or stainless steel reactors
- Material tests at low temperatures
- Use on test stands in the automotive industry

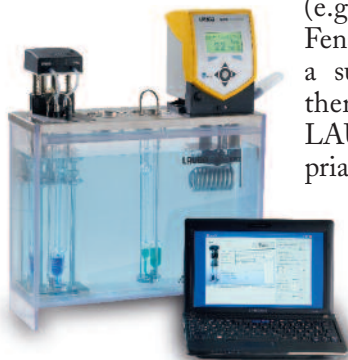
Further information:

- www.lauda.de
- Fax coupon

LAUDA iVisc capillary viscometer

The fully-automated, space-saving iVisc is ideal for getting started with professional viscometry. Plug in the USB cable, start the software and the capillary viscometer is ready to use. The iVisc can be operated independently with a low-cost netbook.

The compact, intelligent viscosity measuring stand is designed for a large range of standard glass capillaries (e.g. Ubbelohde, Cannon-Fenske and Mikro-Ostwald). In a suitable LAUDA clear-view thermostat (e.g. the new LAUDA ET 15 S) and appropriate glass capillaries, kinematic viscosities can be determined in the range from 0.3 to 30,000 mm²/s. The measuring temperature covers the range from -20 up to 150 °C.



Application examples:

Polymer producers and plastic processors

- Quality assurance from granulate producer and compounder to plastic processor (e.g. automotive industry)
- PET, PVC, PA, PC, PMMA, ABS, PE, PP etc.
- Determining polymer parameters (K-value, viscosity number, intrinsic and inherent viscosity, molecular mass)

Pharmaceutical, biochemistry, paper and food industry

- Research and quality assurance
- Base substances, polypeptides, cellulose
- Determining the chain length of proteins, molecular mass

Petrochemistry, lubricants, oils and fuels

- Development, optimisation and quality control in close proximity to the application
- Viscosity adjustment in engine oil, lubricants, fuel, kerosene, additives etc.
- Determining absolute kinematic viscosity in mm²/s

LAUDA TD 3 tensiometer

The new LAUDA TD 3 tensiometer automatically measures surface and interfacial tensions and determines the density of liquids. The system works fully automatically and has a precise electromagnetic weighing cell.

The detached Command remote control as the control unit offers the greatest possible ease of operation. The multifunctional graphic display that it contains offers numerous individual forms of representation for all relevant information. The new, integrable LAUDA PTT Peltier stirrer is recommended as a temperature control unit. The PTT is the smallest standard laboratory thermostat in its class. It contains control and regulating electronics, elements for heat dissipation and a miniature magnetic stirrer.



The advantages of TD 3:

- Vibration damping with solid base plate (as standard in the delivery)
- Chemically resistant surface materials
- Integrable PTT Peltier thermostating unit
- User-friendly stroke limiting
- Illuminated sample area

After the trade fair is before the trade fair



On 15 May 2009, the leading international specialist exhibition for chemical technology, environmental protection and biotechnology – ACHEMA in Frankfurt/Main – came to an end. Despite a slight decline from 180,000 to 173,000 visitors, temperature regulation specialist LAUDA was actually able to increase the number of visitor reports received. Not only was there praise for the open and striking design of the two stands jointly totalling around 200 square metres, the numerous new exhibits were also surrounded by crowds for the entire day during the trade fair. One particular treat was an original photo initiative and the new video film taken during the construction of the new building for heating and cooling systems.

An extensive fringe programme was also organised in addition to the exhibition. For the first time, LAUDA invited its 22 employees from the six foreign LAUDA

subsidiaries to the 1st LAUDA world meeting. Besides a two-day meeting and a varied cultural programme, the highlight on the agenda was the two-day visit to Frankfurt. Expectations were surpassed: not only were the foreign sales professionals motivated by the knowledge passed on and by getting to know their German colleagues, praise was also given for the mutual exchange of experiences through to late in the evening.

This year, our most important objective is and remains to reaffirm the confidence of our customers all over the world – your confidence. High performance under fair conditions – we hope this will enable us to further contribute to your success in the coming year. We have taken on a lot: let us amaze you on 23 through 26 March at the big international trade fair of 2010, Analytica in Munich! You are warmly invited to attend.



LAUDA at P-MEC Europe 2009

P-MEC is an international exhibition of machinery and equipment for the pharmaceutical industry. P-MEC Europe takes place once a year at varying locations. In co-operation with French reactor manufacturer Pignat, LAUDA presented to the interested specialist audience from 13 to 15 October 2009 in Madrid. In typical P-MEC style, discussions with interested customers mostly concerned enquiries for Integral XT and complete systems with a reactor. LAUDA will be present again for the next trade fair date, in 2010 in Paris.



Forthcoming Trade Fairs and Exhibitions

<u>Event</u>	<u>Location</u>	<u>Dates</u>	<u>Further Information</u>
Informex USA	San Francisco, CA, USA	16-19 February 2010	www.informex.com
Plastasia 2010	Bangalore, India	26 Feb - 1 March 2010	www.triunexhibitors.com/plastasia
Pittcon 2010	Orlando, FL, USA	28 Feb - 5 March 2010	www.pittcon.org
Int. plastics technology colloquium	Aachen, Germany	3-4 March 2010	www.ikv-kolloquium.de
Eurolab	Warsaw, Poland	3-5 March 2010	www.mtpolska.com.pl
ACS Spring	San Francisco, CA, USA	21-25 March 2010	www.acs.org
Analytica 2010	Munich, Germany	23-26 March 2010	www.analytica.de
CISILE	Beijing, China	8-10 April 2010	www.cisile.com.cn/en
Chinaplas 2010	Shanghai, China	19-22 April 2010	www.chinaplasonline.com
P-MEC/CPhI/ICSE Japan	Tokyo, Japan	21-23 April 2010	www.cphijapan.com/eng/
Iran Oil Show 2010	Teheran, Iran	22-25 April 2010	www.iranoilshow.com
A-TESTex/Analitika	Moscow, Russia	26-29 April 2010	www.analyticaexpo.ru
WTT Expo Karlsruhe	Karlsruhe, Germany	27-29 April 2010	www.wtt-expo.com
Forum Labo 2010	Paris, France	1-4 June 2010	www.forumlabo.com
P-MEC/CPhI/ICSE China	Pudong Shanghai, China	2-4 June 2010	www.cphi-china.com
Automotive Testing Expo 2010 Europe	Stuttgart, Germany	22-24 June 2010	www.testing-expo.com
Iran Plast	Teheran, Iran	23-26 June 2010	www.iranfair.com
Semicon West	San Francisco, CA, USA	13-15 July 2010	www.semiconwest.org
ACS National Meeting	Boston, MA, USA	22-26 August 2010	www.acs.org
P-MEC South America	Rio de Janeiro	26-28 August 2010	www.pmec-sa.com
Analytica China 2010	Shanghai, China	15-17 September 2010	www.analyticachina.com
Ilmac	Basel, Switzerland	21-24 September 2010	www.ilmac.ch
Het Instrument Utrecht	Amsterdam, The Netherlands	28 Sep - 1 Oct 2010	www.hetinstrument.nl
P-MEC/CPhI/ICSE Europe	Paris, France	5-7 October 2010	www.p-mec.com
Biotechnica 2010	Hannover, Germany	5-7 October 2010	www.biotechnica.de
K-2010	Düsseldorf, Germany	27 Oct - 3 Nov 2010	www.k-online.de
Pharmtech 2010	Moscow, Russia	23-26 November 2010	www.pharmtech-expo.ru/en/

Cryogenic synthesis controlled reliably

The production of high-quality chemico-pharmaceutical intermediate and end products is highly demanding in terms of the quality and reliability of all components involved in the process (temperature control system and reactor with peripheral equipment). One example from the field of chemical cryogenic synthesis is a system at AllessaSyntec in the Höchst industrial park in Frankfurt/Main. Here, chemical reactions are carried out down to $-100\text{ }^{\circ}\text{C}$ in reactors with volumes of up to 1,000 litres.

AllessaSyntec is a company which specialises in the process development and production of complex, high-quality chemicals. They provide complex laboratory syntheses for customers on a technical scale and produces high-quality intermediate and end products for the areas of fine and special chemistry, electronic materials, agro, pharmaceuticals and functional polymers on a technical scale. One core area is the synthesis of organometallic compounds at low temperatures.

Many chemical syntheses only become feasible at all with low temperatures or run more selectively in the cold. Here, temperature control requires a very high level of experience: homogeneity of the solution; observance of temperature stages during heating and cooling phases; many parameters determine the quality of the sensitive end products.

In cryogenic technology, AllessaSyntec has special reactors with volumes from 100 to 1,000 L, which can be operated using a heating/cooling circuit with an inert heat transfer medium in the range from -115 up to $200\text{ }^{\circ}\text{C}$. In the reactor, it is therefore possible to guarantee stable cooling down to $-100\text{ }^{\circ}\text{C}$ even for exothermic reactions. "The structure of the cryogenic reactor plays a big part here," emphasises organometallic specialist Dr Roland Zenk from AllessaSyntec.

A Kryopac system from LAUDA is used as the heating and cooling system. The enthalpy of evaporation from liquid nitrogen is used here and the heat energy is drawn from a liquid heat transfer medium. Kryopac systems are secondary circuit systems, which are cooled with liquid nitrogen on the primary side. Secondary circuit systems use existing thermal energy, for example such as steam, cooling water and brine – so-called primary systems. This requires the incorporation of the existing infrastructure and optimum use of the thermal energy on the primary side. Thus, a system is created with only a single heat transfer circuit – a so-called monofluid system. In monofluid systems, the entire temperature range can be achieved with only one heat transfer medium. The decisive advantages of monofluid systems include low compressive load, no corrosion of pipes and in the reactor shell, and the possibility of realising rapid heating and cooling curves.

Some important advantages are gained from the use of only one heat transfer liquid: The seamless and reproducible temperature control over the entire temperature



1,000 litre-reactor for cryogenic syntheses at AllessaSyntec: the Kryopac heating and cooling system in the background

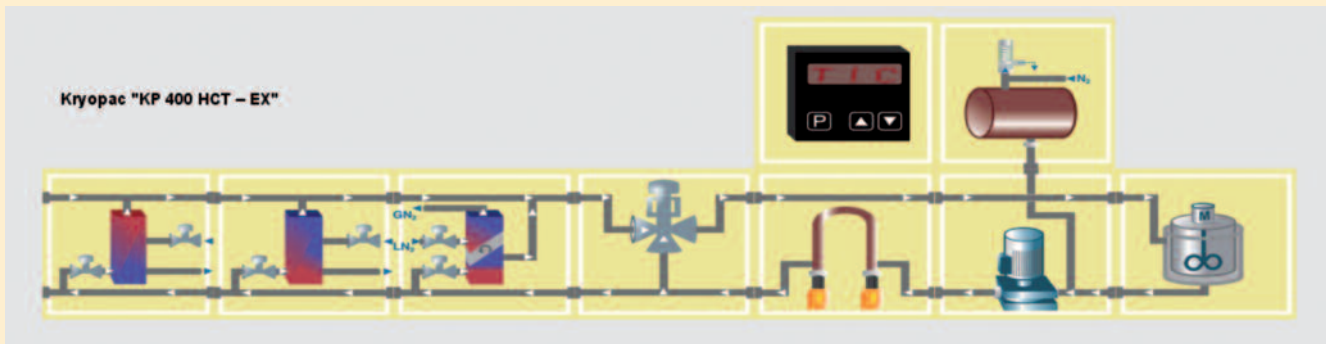
range eliminates the need for switching to different media. The low volumes result in a rapid, low-inertia system. Additionally, the use of thermal oil keeps the operating pressures low and the heat transfer medium serves as a separating medium between the product and the environment.

Modular engineering

Heating and cooling systems of such complexities and size require careful planning. The experienced LAUDA team is available to the user from the creation of the concept through production and initial operation to support over the entire working life. In close consultation, the individual system is designed in the planning process. The watchword here is “modular engineering”. The basis is a modular construction kit from which any conceivable temperature control system can be planned and assembled according to a constantly recurring pattern. This concept saves costs in planning, execution, initial operation, documentation and maintenance, as every module has been tried and tested for itself many times over. Furthermore, it facilitates the achievement of a maximum safety standard. Every individual LAUDA planning module is subject to constant development, so the high quality standard can be guaranteed.

Kryopac system

A LAUDA Kryopac is used at AllessaSyntec. Integrated into this are the following heating and cooling system modules: circulation pump, expansion tank, electric heater, LAUDA SR 501 controller, three-way valve and LN₂ Kryopac – an extremely compact heat exchanger system for powerful yet gentle heat dissipation from chemical processes. This system allows the reliable control of cryogenic reactions and prevents freezing of the heat transfer medium. An electric flange heater with DIN 4754 compliant safety equipment is used to heat the heat transfer medium from -100 to 200 °C. A pump that is suitable for this extreme temperature range ensures the circulation of the heat transfer liquid. With the patented heat exchanger, Kryopac systems can be produced to be particularly compact. The system is delivered only after a successful FAT (factory acceptance test) in which all safety functions and the required performance parameters are checked and documented. The user receives a completely insulated, ready-to-connect unit with a switchboard that has a CE mark – a so-called “plug and play module”. Freezing problems with the heat exchangers are a thing of the past. Standard heat transfer media can be cooled down virtually to the pour point.



Schematic representation of the Kryopac system with modules

LAUDA has developed a special process to solve the infamous problems of freezing. A suitable intermediate medium extracts the heat from the heat transfer medium (thermal oil) and transfers it to the nitrogen, which vaporises at $-196\text{ }^{\circ}\text{C}$. LAUDA obtained the European patent (no. 1 030 135) for this process.

Tried and tested in theory and practice

In order to avoid the need to test each individual module in operation, the complete systems are tested thoroughly in the LAUDA test room before delivery. All the required adjustment work is carried out here and performance tests are run. Future users can familiarise themselves with the system in the test room. This saves a lot of time and money in the forthcoming initial operation and protects against unpleasant surprises. As the heating/cooling systems comprise units that are ready for assembly, they require only to be “docked” on site. Transport, insertion and erection are already taken into account in the planning. Issues of assembly, pipe layout, insulation, safety technology and explosion protection must also be resolved in advance. LAUDA specialists are up to date here and provide competent advice.

LAUDA heating and cooling systems are designed for continuous operation and work with very little maintenance. Nonetheless, international regulations and safety ordinances demand regular maintenance. The respective requirements are best met with a maintenance plan that is tailored to the specific system. These regular cycles of maintenance are carried out by experienced service technicians. Abroad, the support is provided by qualified partners. For the operator, the system is therefore always maintained in accordance with regulations and proven as safe – particularly if the ordinance on industrial safety and health demands recurrent testing. In special cases, the service team is also available 24 hours a day.

The Kryopac heating and cooling system from LAUDA works not only in theory, it has also passed its first big practical test at AllessaSyntec. “The new system was finished in time to produce several hundred kilograms of a special organic boronic acid for a large pharmaceutical company. The heating and cooling system works perfectly and meets our expectations,” summarises AllessaSyntec Operations Manager Dr Christoph Naumann. Sales and Marketing Manager Dr Steffen Partzsch notes that, in economic terms too, the investment has been a complete success. “With the 1,000 litre volume of the new cryogenic reactor, we are able to produce the special boronic acid quickly and efficiently and therefore to offer it at an attractive price.”

Data & facts:

LAUDA Heating and Cooling Systems from the family of the KP (Kryopac) range secondary circuits always include the following modules: circulation pump, expansion tank, electric heater and the special Kryopac system – a heat exchanger developed especially for the vaporisation of liquid nitrogen. This system allows the reliable control of cryogenic reactions. The Kryopac system stands out for the following advantages:

- Low investment costs
- Compact unit based on patented Kryopac process
- Easy-assembly Atex version
- Ideal for batch and continuous processes
- Meets high requirements at high and low temperatures from 200 down to $-130\text{ }^{\circ}\text{C}$
- Optimised for low consumption of liquid nitrogen
- Precise temperature control with an accuracy of $\pm 0.5\text{ K}$ as standard
- Minimum maintenance

Resonant images in the LAUDA FactoryGallery

Creating works inspired by the extremely appealing landscape on the Thuringia-Saxony border, the painter, illustrator and photographer Uwe Klos, who lives and works in Cossengrün in Vogtland, has not only made a name for himself in the Gera area and Thuringia. Uwe Klos lives and works in a spartan and more or less secluded – but in no way lonesome – environment, devoid of any real relationship with the locals, but with a deep bond with nature and his garden. He beams with delight when talking about his life of “independent self-sufficiency” that allows him to follow his calling as an artist in an almost uncompromising manner. Uwe Klos processes impressions that originate externally as well as in his own experiences, the upshot of which is a collection of expressive images of unbridled wildness and narrative power. These landscapes and configurations can be primarily interpreted as inner landscapes, as

formulations frequently conceived as dreamy improvisations, as emotions set in colour. His world is full of bright and strong colours, which he explores and reflects with wonderful facility and a confident feeling for rhythm, contrast and tone; as the English writer John Ruskin once proclaimed, “the world is an arrangement of different colours”.



ges from Uwe Klos. Even the relevance of lines created in the paint with a specific brush style have been increasingly lost to a painting style based on greater masses of paint. Conceptionally more important, however, are the “stratifications”, layers of colours representing layered thoughts and stages of recollection, events that have been discarded

Artist Uwe Klos at the installation of the large-format work “Untitled (25700)” in the LAUDA FactoryGallery entrance area.

However, signs and symbols that influence the vision and thoughts are becoming increasingly scarce in the latest, large-format canvas ima-

and yet stored. A work is first complete when it has a striking resonance, just like a successful musical composition; only then it is valid.

LAUDA art calendar 2010

Twelve months of art from “Good Old Germany”. With this maxim, Dr Gerhard Wobser welcomed his guests for the handover of the “LAUDA FactoryGallery 2010” art calendar. Those present included the production team responsible

and four of a total of six artists whose work is represented in the new calendar.

Satisfied faces: the management presents the new art calendar for 2010 hot off the press to the artists and makers involved.



Win with LAUDA...

Today's price question is:

What are the names of the two high-performance control heads in the new LAUDA ECO equipment range?

- a) Copper and Platinum
- b) Ruby and Sapphire
- c) Silver and Gold

The closing date for entries is the 28 June 2010. All entries will be included in a draw for five wine presents from the lovely Tauber valley.

The winners will be drawn and informed in writing. Entry is not open to staff or their families. There is no right of appeal. No request for information is required in order to take part in the draw. All details will be treated as confidential in accordance with data protection regulations.

The winners of the last competition in Therminus issue 1/2009 were:

Georg Lattner, Vienna (Austria)

Franz Kneißl, Burgkirchen (Germany)

Thomas Konrad, Unterföhring (Germany)

Edmund Salm, Dietikon (Switzerland)

Günter Halbritter, Hanau (Germany)

Congratulations!

Fax +49 (0)9343 503-283

The solution to the prize puzzle is:

Please use BLOCK CAPITALS. Thank you.

Title: _____

First name: _____

Surname: _____

Department: _____

Company: _____

Building: _____

Street: _____

Town, post code: _____

Country: _____

E-mail: _____

Telephone: _____

Telefax: _____

Please send me the following information:

- "LAUDA - the big one" overall brochure
Thermostats, Circulation chillers, Water baths
- Alpha Heating and Cooling Thermostats brochure
- ECO Heating and Cooling Thermostats brochure
- Proline Kryomats brochure
- Integral XT Process Thermostats brochure
- Heat transfer liquid brochure
- Accessories brochure
- Tensiometer information
- Viscometer information
- iVisc brochure
- Heating and Cooling Systems brochure
- Service range: calibration and homogeneity