

Therminus

The LAUDA info magazine

1/2008



Process thermostats LAUDA Integral XT

- New devices: Integral XT 350 W and Proline P 50
- New services: LAUDA service products
- New organisation: LAUDA Measuring Instruments
- New building: LAUDA Heating and Cooling systems

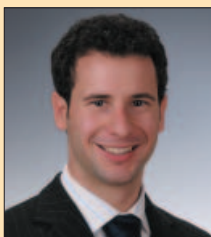
New heads at LAUDA



Frank Jansing has been Director of the newly formed business unit Measuring Instruments since 1 April 2007.



Dr. Michael Seipel was recruited to support the Marketing Department and was nominated on 1 October as a Product Manager for thermostats, circulation chillers and water baths.



Steffen Schlösser has been a member of the Marketing Department since 1 September 2007 and is taking over the tasks of Bettina Müller-Jäkel, who is taking maternity leave for one year.



Dr. Marta Garijo Añorbe joined the company on 1 July 2007 and works in the Sales Department as a Sales Specialist for Europe.



Dr. Alexander Dinger has reported since 1 July 2007 to the Technical Managing Director Dr. Heinrich Paul as the future Manager Development & Design.



Anita Protzner supports the Order Processing and Invoicing Department since 1 July 2007 as an accountant.



Dr. Andreas Wortmann was recruited on 1 May 2007 as the Chief Designer for measuring instruments.

NEWS

Heat transfer liquids:
Information on our bath liquids
is compiled in a revised brochure.



Integral XT:
The latest Integral XT flyer
provides information on our
high-quality process thermostats.



LAUDA Internet site

Our Internet site at <http://www.lauda.de> is available in five languages: German, English, French, Spanish and Russian. Work on a version of the Website in Italian is in progress.



Results count!

Dear customer, we at LAUDA know that you and your colleagues throughout the world face increasing demands on your performance. Research, development and production are subject to constant pressure for improvement. Results are counted in hard currency, namely in time or money. Only those who publish earlier, reach the market sooner, produce more economically or significantly increase quality are amongst the winners. It is our highest priority to integrate LAUDA thermostats, measuring instruments, heating and cooling systems and services in the processes of our customers to this end. We consistently conceive and develop new equipment ranges and services accordingly, or make these more efficient.

The LAUDA process thermostats of the Integral XT range stand for maximum performance and uncompromising quality. We at LAUDA have broken new ground with these, and quite obviously hit the spot. Our engineers have developed an equipment range that LAUDA customers expected. With the LAUDA Aqualine water baths we are successful in a heavily populated market segment for standard laboratory equipment and offer first-class LAUDA quality at the best possible price. Market launches of new equipment ranges are also planned for

2008. We remain dedicated to performance, efficiency, quality and innovation.

LAUDA is backed by 250 committed people. Employees who achieve great things every day, believe in the customer and help each other in mutual respect. In this way, an atmosphere has been created which promotes performance and optimises procedures. We do not cling to obsolete structures, but improve our processes, adapt them to the requirements of our customers and markets to become constantly more efficient. For example, LAUDA formed the Measuring Instruments business unit this year. This concentrates fully on our customers for viscometers and tensiometers. However one highlight of our activities this year is the new construction project. This will consolidate all activities of the business unit Heating and Cooling Systems in a single building complex in spring 2008. This is also a consistent step towards efficiency – with visible benefits for our customers.

I hope that, once again, our Thermanus will provide you with satisfactory information on topical and interesting issues and news from the LAUDA company.

Yours sincerely

Werner Lange
Director Marketing

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Service is primary for Heating and Cooling Systems

LAUDA Heating and Cooling Systems is an effective, customer-oriented partner in project planning, production, sales and after-sales business. LAUDA heating and cooling systems are conceived specifically for the customer for extreme, constant operation. The fields of application are very wide, including examples such as pharmaceutical and centrifuge cooling. The heating and cooling systems require little maintenance in operation, not least because service aspects are taken into account in the early stages of project planning. With the customer-specific planning, a special link is forged between LAUDA and the user.



The systems produced specifically for the customer by LAUDA are extensively tested under practical conditions on the test bench before delivery. The customer is frequently present at the acceptance inspection of the system. After delivery, the system is installed in the production process.

Commissioning is conducted on site by the service specialist who tested the system in the factory. Due to the flexibility of our employees, this cooperative procedure always leads to the complete satisfaction of the customer. Other advantages are the fixed contact person and knowledge of the location of the system. This puts the service technician in a position to react more accurately and quickly if maintenance is required. LAUDA is also at your side after the purchase. Excellently trained specialists and intelligent logistics ensure rapid and reliable maintenance, servicing or, if necessary, repair of your system. The service life of your system is lengthened by regular inspections, maintenance and tests. In this way, the system is always at the latest standard and the service costs are transparent.

Benefit from the extensive LAUDA service offer. Regular service ensures continuous readiness for operation and prevents longer production stoppage times.



LAUDA HKS Service Team with Gabriele Sack from Order Processing

Please send your inquiry to the responsible service co-ordinator:

Volker Mott
 Telephone +49 (0)9343 503-272
 E-mail: service-hks@lauda.de

Further information:

→ www.lauda.de

New service products for thermostats and circulation chillers

We are offering service products at fixed prices from this year onwards. Optimally adapted to the requirements of our customers, our clearly structured service products fulfil the increasing demand for services under the LAUDA brand.

Due to the proverbial LAUDA longevity, numerous systems are in use world-wide, some of which have been exposed to the most stringent conditions for 20, 30 or more years. Maintaining, servicing and, if necessary, repairing these require intelligent service and spare parts logistics. Hard water, unsuitable ambient air or contaminated cooling water are burdens which affect even the most rugged equipment in the long term. With regular, professional maintenance, the problems caused by this are detected at an early stage and can be rectified before repairs become necessary.

Specific topics and areas of action became clear in numerous discussions with customers. For example, preventive measures to secure processes, optimise the cost of service and support in the commissioning of equipment and also periodic maintenance of this are often requested. More and more often, inquiries are made to the LAUDA Service Department for rental over

a limited period, particularly for high-quality and expensive equipment.

Since 2007, LAUDA is responding to this with a unique package of newly defined service products addressing:

- Factory calibration of the process parameters of LAUDA equipment
- Determination of the homogeneity of the temperature in bath liquids
- LAUDA equipment rental service

With our service products, we intend to make things for our customers as simple as possible under the motto: calculable costs of a calculable service. These can be ordered using an order number and a clearly defined service is rendered at a fixed price. The focus is always on the result, not the hours required to achieve it. LAUDA thereby offers its customers a rapid, reliable

and economical allround service from professional commissioning, for example of the new process thermostats Integral XT, through precisely defined service products such as the maintenance of heating and cooling thermostats, or a range of rental equipment, to individually agreed service contracts.

The whole package is offered by the LAUDA service within the German market. Factory calibration and determination of the homogeneity can be easily ordered from abroad and for further service support please contact your local representative.

Info packages are available for more detailed information, and can be requested by customers from the LAUDA Sales Department.

E-mail: serviceproducts@lauda.de



Further information on service products:

- www.lauda.de
- Fax coupon

Our highly qualified specialists offer all-round service.

LAUDA Integral XT 350 W – product range process thermostats extended

The range of LAUDA Integral process thermostats has been extended by the model Integral XT 350 W. This closes the gap between the successful model Integral XT 250 W and the Integral XT 350 HW. The process thermostats LAUDA Integral XT are characterised by extremely fast temperature changes caused by the low internal volumes of the temperature-controlled heat carrier liquids. Integral XT process thermostats are used mainly for the temperature control of mixing vessels and glass or stainless steel reactors in chemistry, pharmaceuticals or biotechnology. Regardless of changing ambient temperatures, the water-cooled process thermostats achieve a constantly high refrigeration performance.



Because the process heat is dissipated by the cooling water, the surrounding air is hardly heated, which is a great advantage particularly in production environments such as in trial or pilot plants, where work is conducted in a very small space. Water-cooled LAUDA Integral XT are also ideal in air conditioned rooms, as they do not put an unnecessary load on the air conditioners.

Technical features LAUDA Integral XT 350 W:

Working temperature range	°C	-50...200
Temperature stability at -10 °C	+/-K	0.1
Max. heater power	kW	3.5
Cooling output at 20 °C	kW	3.1
Max. pump pressure	bar	2.9
Max. pump flow	L/min	45
Filling volume	L	5.0
Filling volume of expansion vessel	L	6.7
Mains connection		230 V; 50 Hz
Cat.-no.		LWP 117

Proline P 50 as successor of the UB 50

The heating thermostat UB 50 of the LAUDA Ultra series is replaced by the Proline thermostat P 50. With the proven Proline technology and simple operation, the new LAUDA Proline P 50 offers great advantages over the P control-heads used in the UB thermostats. The instrument is available as Master (P 50) and as Command version (P 50 C). Both models are equipped with a 50 liter stainless steel bath with a large bath opening and direct temperature control in the bath. The working temperature range lies between 20 and 300 °C at a maximum heater power of 3.5 kW. The powerful pressure and suction pump and a jet pipe ensure good mixing in the bath and thereby ensure a good temperature homogeneity. Suitable through-flow coolers can also be connected.



Further information: → www.lauda.de
→ Fax coupon

Ready for an investment of millions

The LAUDA location development programme, abbreviated STEP, was presented in the year 2005. The planning phase was largely completed by the middle of 2007, so that theory could be put into practice. The LAUDA associates approved the first building tract on 7 March 2007 with an investment volume of over 3 million Euros during an extraordinary meeting of associates. The new tract will be constructed as a ground floor steel-framed building and a three-stored office building in conventional brickwork, and has a total area

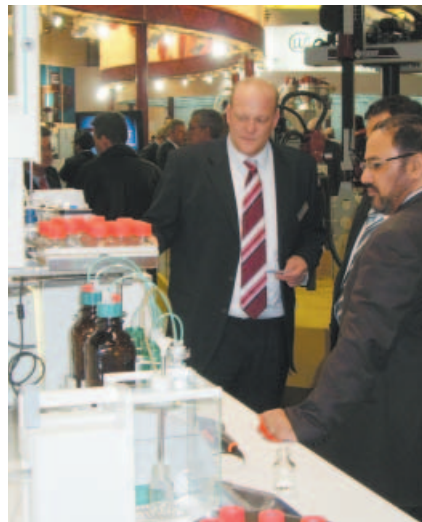
of 2,132 square metres. 968 square metres of this are allocated to the new production hall, with a height of nearly eleven metres. The remainder of the area will be used for test and trial benches as well as offices.

Main reason for the new building was the extraordinarily high growth of this business unit and the associated, increased space requirement. In the future, the production hall will permit optimum movement of the heating and cooling systems, which weigh several tonnes, with three gantry cranes. A separate trial

bench to test the systems and an optimised material flow will simplify and thereby substantially improve the internal processes. The application for planning permission was submitted to the town authorities of Lauda-Königshofen on 24 September 2007. Construction began at the beginning of November, so that the building can be occupied towards the end of June 2008. The second planned tract includes a new building for the production of thermostats and circulation chillers.

Newly formed business unit Measuring Instruments

The newly formed Measuring Instruments business unit exists since 1 April 2007. After the Heating and Cooling Systems, Measuring Instruments are the second business unit consolidated in the sales, development/design and production departments under uniform management. Due to his high qualifications, intensive experience in two first-class major companies and his management qualities, the 38-year old engineering graduate Frank Jansing is well prepared to manage the newly created business unit. Since entering our company,



he has taken part in important development projects and initiated effective impulses for our sales partners and customers with valuable knowledge of the applications.

Frank Jansing, Director of the Measuring Instruments business unit, in discussion with a customer during the demonstration of the LAUDA viscometer system VAS with weighing application.

Successful LAUDA attendance at ILMAC



Around 15,000 specialised visitors from Switzerland and the neighbouring countries gained information on new trends and developments in the pharmaceutical and chemical industry at ILMAC 2007. LAUDA was represented twice – with the business unit

Heating and Cooling Systems and the Swiss LAUDA agent, IG Zürich. Both exhibitors were pleased by the great interest of their customers. LAUDA Heating and Cooling Systems recorded a whole series of substantial conversations on specific projects. Our Swiss agent received lively attention particularly with the LAUDA thermostats, viscometers and tensiometers. An increase of 20 per cent in the qualified contacts in this business

sector is notable. The visitors had above-average interest in the new process thermostats from the Integral XT series as well as in the LAUDA viscometers.

A total of 571 exhibitors presented their products in the fields of laboratory equipment, analysis, biotechnology, cryogenics, process and environmental engineering on an area of 36,000 square metres. The exhibitors particularly appreciated the high degree of decision-making competence of the specialised visitors.

ILMAC 2007 again confirms that this exhibition is an excellent meeting place for the industries in the "Chemicals Triangle" of Switzerland, Germany and France.

Impressions from the new L.A.B.

The international laboratory technology exhibition L.A.B. opened its gates in London for the first time. The exhibition arose from an initiative of the German industry association SPECTARIS and has now been organised for the first time by Messegesellschaft Leipzig. Nearly 100 exhibitors from the United Kingdom, Germany and France displayed their novelties to interested visitors from 2nd to 4th October.

LAUDA participated decisively in initiating the exhibition. There has been nothing comparable in England for years. During an evening held by exhibitors with a boat trip on the Thames, Dr. Gerhard Wobser, Chairman of the Workgroup for Analysis, Biotech and Laboratory Equipment of the SPECTARIS association drew a positive preliminary conclusion. He thanked the 88 participating exhibitors for their commitment. In particular, he praised the team from Messegesellschaft Leipzig. Their organising skills at

the impressive ExCel exhibition site in London were outstanding.

With 1,300 visitors, the resonance at the exhibition was slightly disappointing. Nevertheless, the LAUDA team and the employees of our agency Thermal Exchange, Chris Walker and John Michael, were satisfied with the results of the exhibition. It was possible to initiate several promising projects under the motto "Quality Before Quantity". It remains to be seen whether the L.A.B. in London will become permanently established.



Tensiometry symposium in the Höchst Chemistry Park a great success

The first symposium on tensiometry, organised by the two companies LAUDA and Clariant, brought interested specialists from measuring technology, tenside research and application laboratories together to form a platform for specialists in this important field. The focus of the meeting was on dynamic methods to measure surface and interfacial tension. After a greeting by Frank Jansing, head of the newly formed business unit LAUDA Measuring Instruments, Dr. Armin Hofmann, head of sales for measuring instruments, lectured on the principles and theory of dynamic surface and interfacial tension.



The specialists from the most diverse branches and companies listened with interest to the lectures and lively discussions ensued. Dr. Dennis Miller from Clariant impressed the attentive audience with new methods of characterising tensides.

These methods are excellently suited to determining the effectiveness and efficiency of tensides. Their advantage lies in making competing products transparent and comparable. Dominik Guggisberg from the Swiss research institute Agroscope Liebefeld-Posieux ALP reported on the adsorption behaviour of milk proteins and lipides at the interface – a highly interesting topic which has great significance to the tensiometric analysis of all dairy products. He demonstrated how important knowledge can be gained by the determination of the dynamic interfacial tension using the LAUDA Tensiometer TVT 2.

Other lectures on applications provided exciting insight into artificial interfaces, dispersions, emulsions, paints and varnishes. The new platform thereby offered a very good opportunity for interdisciplinary discussion of various aspects. Dr. Armin Hofmann also presented an extensive overview and comparison of all regulations and standards for the determination of surface and interfacial tension. During an intensive discussion, the specialised audience came to the conclusion that new standards are necessary for the dynamic methods. Possible ways of establishing these were explained in detail.

For the first time, LAUDA also presented a new concept for the determination of dynamic interfacial tension with an extremely short surface age at the symposium.



The new concept could close a gap in existing applications. The audience reacted with enthusiasm to this. Completely new knowledge in the production of emulsions can be gained by this method. After this successful start, the symposium will be continued in the future.

→ www.lauda.de

New LAUDA representation in Italy

Since November 1, 2007 we have been cooperating with a new partner in Italy, the FKV company. It is located in Torre Boldone, in the neighbourhood of Bergamo in northern Italy. FKV is a family company, exactly like LAUDA. It was founded in 1974 by the brothers Paolo and Vanni Visinoni and today FKV is one of the leading Italian distribution companies for scientific equipment. The company, with about 35 employees has its own service department. FKV provides intensive assistance in regard to their products, for example for companies as Analytik Jena and Retsch. The product range of LAUDA fits perfectly in the portfolio of the new representative.



From the left to the right: Paolo Visinoni (FKV, Sales Manager for the Pharma customers), Dr. Gunther Wobser, Dr. Marta Garijo Añorbe, Rainer Hartmann and Vanni Visinoni (Managing Director of FKV) on the fair in Milan.

At the beginning of October we have announced this new cooperation at the RICH-MAC fair in Milan. FKV has exhibited the



LAUDA units in the FKV booth

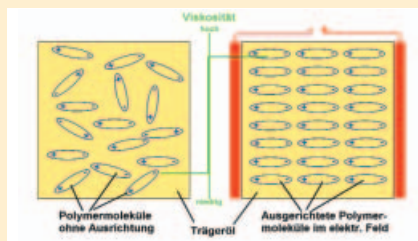
complete LAUDA range of products on their booth. Besides that, our sales specialist Dr. Marta Garijo Añorbe has supported the new representative. The participation in this exhibition was a great success for LAUDA, because first orders and a series of inquiries are already in process. A perfect start for our new representation, as well as the first successful experience for our new sales specialist Europe.

Technically intelligent materials require constant temperatures

Manufacturing materials with engineered properties is of great interest to numerous branches. However, production of these makes great demands on the process engineering. The example of electrorheological liquids shows how important precisely defined production conditions are.

Substances which change their properties according to the physical ambient conditions have great potentials in technical applications. For example, they change their behaviour when the humidity, pressure or temperature changes. Electrorheological liquids become as thick as a gel when a voltage is applied. The great potential for application of these so-called smart materials extends from valves in microsystems to controllable vibration dampers. In reality, they are milky liquids as long as they are not subjected to an electrical tension. If they flow between two electrodes and a voltage is applied, the viscosity of the liquid increases suddenly at this point. The gelatinous substance remains like a plug between the two poles. The main components are an oil and millions of tiny particles finely distributed in it.

In a strong electrical field, the particles join to form long chains and the oil can no longer flow.



Schematic diagram of the electrorheological effect.

Hydraulic valves or mechanically affected wear parts can be constructed on the basis of the electrorheological effect. The flow in these can be stopped within milliseconds by a voltage. Such valves are suitable for pumps or for the grippers of robots which hold particularly sensitive objects. In controlled vibration dampers of machines, electrorheological liquids can ensure that these run more smoothly, faster and more safely. Defined structures such as letters could also be created on a surface by an electrical field. This would make a rewritable "screen" possible which blind people can read by touch. This sounds simple, but is difficult to manufacture in the real world.

In co-operation with industry and the Fraunhofer Institute For Silicate Research, the company Neue Materialien Würzburg GmbH develops pilot plants for the production of technically intelligent materials such as electrorheological liquids for vehicle technology or hydraulics. Constant process temperatures are important in the production process if the polymer suspensions are to develop the desired properties. The reactions occur successively in different double-walled reactors which are held at 35 and 60 °C by LAUDA cooling thermostats. The design of the equipment is conducted according to a precise calculation of the energy of the exothermic reactions which must be dissipated.

The main reaction is cooled by two LAUDA Integral T 2200 process thermostats each with up to 2.2 kW of refrigeration power. The small internal volume of the liquid permits rapid heat dissipation in this process as the exothermic reaction begins. The proportional cooling of the LAUDA Integral controls the cooling rate exactly as required, thereby saving up to 75 percent in electrical energy. The temperature in the reactor is measured by connecting an additional Pt 100 temperature probe, which thereby externally controls the power of the LAUDA Integral T 2200 process thermostat. In this way, the required temperature stability of +/- 0.2 °C is maintained in the reaction.

A further reaction occurs in the course of the process, which releases less energy than the main reaction. The heat of this must also be reliably dissipated. Each double-walled vessel is held by a compact LAUDA Ecoline Staredition cooling thermostat RE 307 at the set temperature of 35 or 60 °C. The employed LAUDA RE 307 is integrated as the Integral T 2200 via RS 232/485 interfaces in the control system of the pilot plant and is monitored by the process control system of the plant. The small volume of the bath permits short reaction times with an effective cooling power of up to 300 Watts.



Combination of LAUDA process thermostats Integral T with LAUDA cooling thermostats RE 307 for flexible cooling of the polymer suspensions.

High-performance air coolers provide substantial potentials for saving

Temperature control with thermal oil is the current industrial standard. This applies particularly to production processes in which a wide range of operating temperatures is required. The partly high temperature requirements can be very well covered with commonly available thermal oils. The operating temperature range usually ranges between 150 and 400 °C. In most processes, cooling is also necessary at this temperature level. The possibility of using the surrounding air as an efficient cooling medium is frequently underestimated. LAUDA represents an exception in this. The entire product range of the LAUDA Heating and Cooling Systems is available with either water or air-cooled heat exchangers.

It is in the high-temperature range in particular that an air cooler provides substantial potential savings. High cooling rates can be achieved even with compact sizes. Air coolers are also extremely reliable in operation and require little maintenance. Despite this, much more expensive water cooling is still mainly used in industry. This makes additional piping and further equipment necessary. Frequently, cooling is also conducted with valuable drinking water, which entails substantial additional costs. The table on the right compares the advantages (++) and disadvantages (-) of air and water coolers.

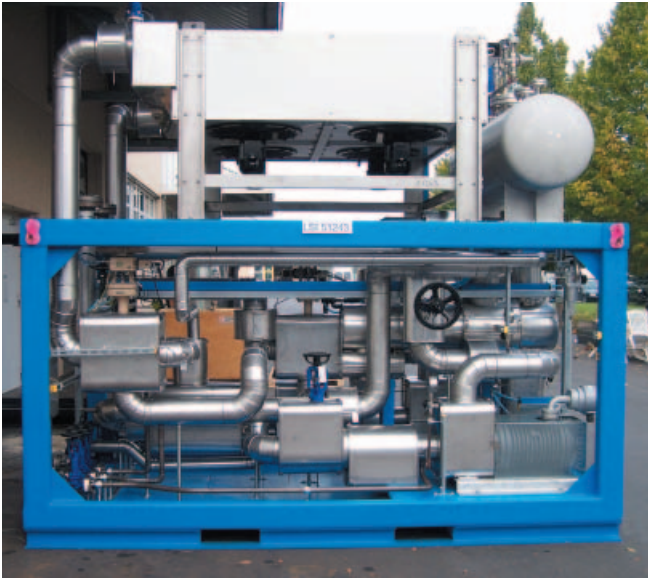
In comparison with water coolers, air coolers have clear advantages and are the more economical and reliable variant. The slightly greater space requirement of air coolers has little effect in comparison, as this circumstance is easily compensated by intelligent construction of the plant.

Feature	Air cooler	Water cooler
Maintenance	++	-
Space requirement	-	++
Operating costs	++	-
Purchase costs	0	++
Cooling power	0	++
Installation	++	0
Corrosion	++	-
Outdoor installation	++	-
Reliability	++	0
Additional costs	++	-
Control capability	++	++

Legend: advantages (++) , disadvantages (-).

Furthermore, pumps with relatively high power ratings are necessary in water-cooled plants. For example, with an average cooling power 300 kW, approx. 20 kW of electrical power must be provided for the pumps to make cooling water available in sufficient quantities. An inadequate volume of cooling water leads to high return temperatures. The latter causes corrosion and dangerous steam blasts. This can make replacement of the entire equipment necessary after just a short time.

With an air cooler, only approx. 2 kW are required for the fans at the same thermal power. Another important argument in favour of the air cooler is that there is no danger of contamination – other than with water-cooled thermal oil systems. If a leak occurs in the latter, oil and water are unavoidably mixed. In high-temperature systems, this can lead to severe problems or interrupted operation. The entire heat carrier must then be purified



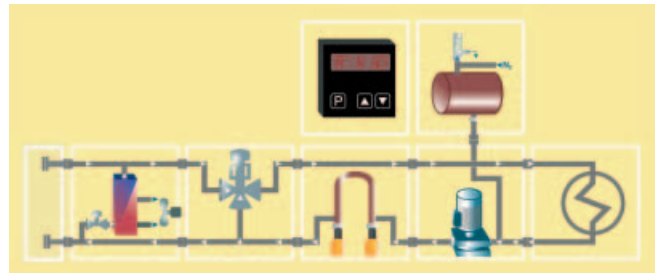
Heat transfer system with air cooler.

by boiling or even be replaced. Furthermore, oil enters the cooling water, which also represents a hazard for the environment. With an air-cooled oil cooler, a leak is detected at an early stage, as it occurs outwards.

To achieve an optimum and safe cooling process, high-temperature air coolers are suitably proportioned and planned in detail. The technical know-how for production plays a decisive part in this. Several aspects make this clear:

The most important planning details:

- The permanent joint between the pipe and the lamella must always be guaranteed even in changing temperatures to ensure the full function.
- The exactly calculated design of the fan and the air volumes ensures optimum cooling power.
- To prevent the fan motors from overheating, they must be located beneath the air cooler.
- Pipes must be held flexibly to compensate for thermal expansion.



Typical flow diagram of a thermal oil system with air cooler.

Further information:

→ www.lauda.de

Participation in the German-Brazilian energy symposium

"Energy saving in chemical and pharmaceutical processes" was the title of the speech by Matthias Mohr, Project Manager for Heating and Cooling Systems (HKS) at LAUDA at the international energy symposium at the Technical University of Brunswick. Current issues of the energy efficiency of machinery in process engineering were the focus. Numerous guests from Brazil accepted the invitation of Prof. Paulo Pfeil, head of the production and process engineering faculty of the UFF (Universidade



Federal Fluminense) in Niteroi - Rio de Janeiro. Among them were representatives of state energy corporations and universities, but also managers from private companies. Prof. Paulo Pfeil co-ordinates the international exchange programme with the University of Ulm. On his personal invitation, Matthias Mohr held a lecture at the event, which was held in English.

In his talk, Matthias Mohr indicated the ecological and technological requirements which will be demanded in the future for all process engineering systems. In view of the high heat transfer rates of HKS systems, a comparison of different methods makes the enormous energy saving effects clear. In a brief introduction, Matthias Mohr presented the greenhouse gas emissions of the industrial and emerging countries during the period from 1990 to 2005. These were compared with the international objectives and activities to reduce the emission of greenhouse gases formulated in the Kyoto Protocol. He then focused on the LAUDA Heating and Cooling Systems in conjunction with chemical stirring tanks. The fundamental equations for the exact proportioning of the required heating and cooling systems were also mentioned.

As an example, the systems, constructed in modular design, were subjected to an energy analysis. Every LAUDA module received a corresponding CO₂ equivalent. This kind of assessment is generally possible for every HKS system. This is conditional on information on energy prices and the specific process parameters of the customer.

LAUDA sets new standards for plant construction in the chemicals and pharmaceutical industries with the introduction of this CO₂ assessment system – abbreviated EGIL for Equivalent Greenhouse Impact LAUDA. Such an assessment shows that in the past a plant with a higher CO₂ equivalent is chosen in most cases. On one hand, this is due to the investment costs for the equipment. On the other, the operating costs also play a decisive part. In the future, all plants should therefore receive an energy certificate which exactly classifies them – much the same as household appliances and buildings. Further decisions by political bodies are required for this.

LAUDA is well equipped and very well prepared for the new requirements. The presented "ECO Concept" includes ecological and economic aspects. With the proven LAUDA modules, an ideal system can be tailor-made for every requirement and customer.

Innerspace with colours and shapes

"Two is company...": in line with this proverb, the LAUDA Factory-Gallery presented a double exhibition from August to September. The presentation of the married artists Christa and Helmut Stiegler shows pictures by the painter in conjunction with highly interesting works by the sculptor, in which the works complement each other in their composition and arrangement.

cal visible things, but matters of the spiritual world. This results in exhibits in mixed techniques with acrylic paints and crayon, sometimes combined with structured and collage materials. The various colours with their different harmonics and wavelengths also stand with their physical distinctiveness for the bodily, mental and spiritual aspects of humans. With these harmonics of

purpose – an advantage for small flats with limited wall space.

With Helmut Stiegler, it is helpful to examine the creative process of his works to gain a better understanding of their aesthetic beauty. This "run-up" begins well before the actual craftsman's work in the studio. The artist frequently connects his forms with questions of meaning. His intention is to invite the viewer to inner communication with himself about the work of art, as "art is food for the soul"; a central statement of the sculptor.



Christa Stiegler has been active since 1990 as an independent painter and seminar leader for intuitive painting with a studio and her own gallery in Steinersdorf near Ansbach. Before that, the 50-year-old completed 8 years of private studies in art and painting. The artist, who has since exhibited regularly in galleries and public rooms, is also trained in discussion leadership, life counselling and psychooncology. The pictures do not describe physi-

cal colours, a kind of bridge is built between the visible and the invisible.

For the first time, a piece of furniture could be seen in the Factory Gallery which combines art and furniture craftsmanship. Interested in art, the creative carpenter Lukas Buckel from Aurach, in Southern Germany, inserted a pictorial motif in the door of a wall cabinet and thereby merged art with a practical



Contact with the artists:

→ www.intuitive-kunst.de

Win with LAUDA...

Today's price question is:

What does the letter "W" stand for in the model designation LAUDA Integral XT 350 W?

- a) wireless
- b) warm thermostat
- c) water-cooled unit

The closing date is the 30 June 2008. All participants will take part in a draw for five sports and travel bags.

The winners will be drawn and informed in writing. Employees and relatives are excluded from the competition. Legal recourse is inadmissible. Participation in the competition is not dependant on a request for information. All information will be handled confidentially in compliance with data protection regulations.

The winners of the last competition in Therminus issue 1/2007 were:

Jürgen Hannemann, Mulfingen

Dr. Andreas Meiswinkel, Pullach

Oliver Nowotny, Erlangen

Dr. Berthold Völkel, Bielefeld

Rainer Amend, Hanau

Congratulations!



Fax +49 (0)9343 503-188

The solution to the prize puzzle is

Please use CAPITAL LETTERS. 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
- Aqualine Water baths brochure
- Integral XT Process thermostats brochure
- Heat transfer liquids brochure
- Heating and Cooling Systems brochure
- Information VRM 4 rinsing module
- Article on solution viscosity
- Service range: calibration and homogeneity