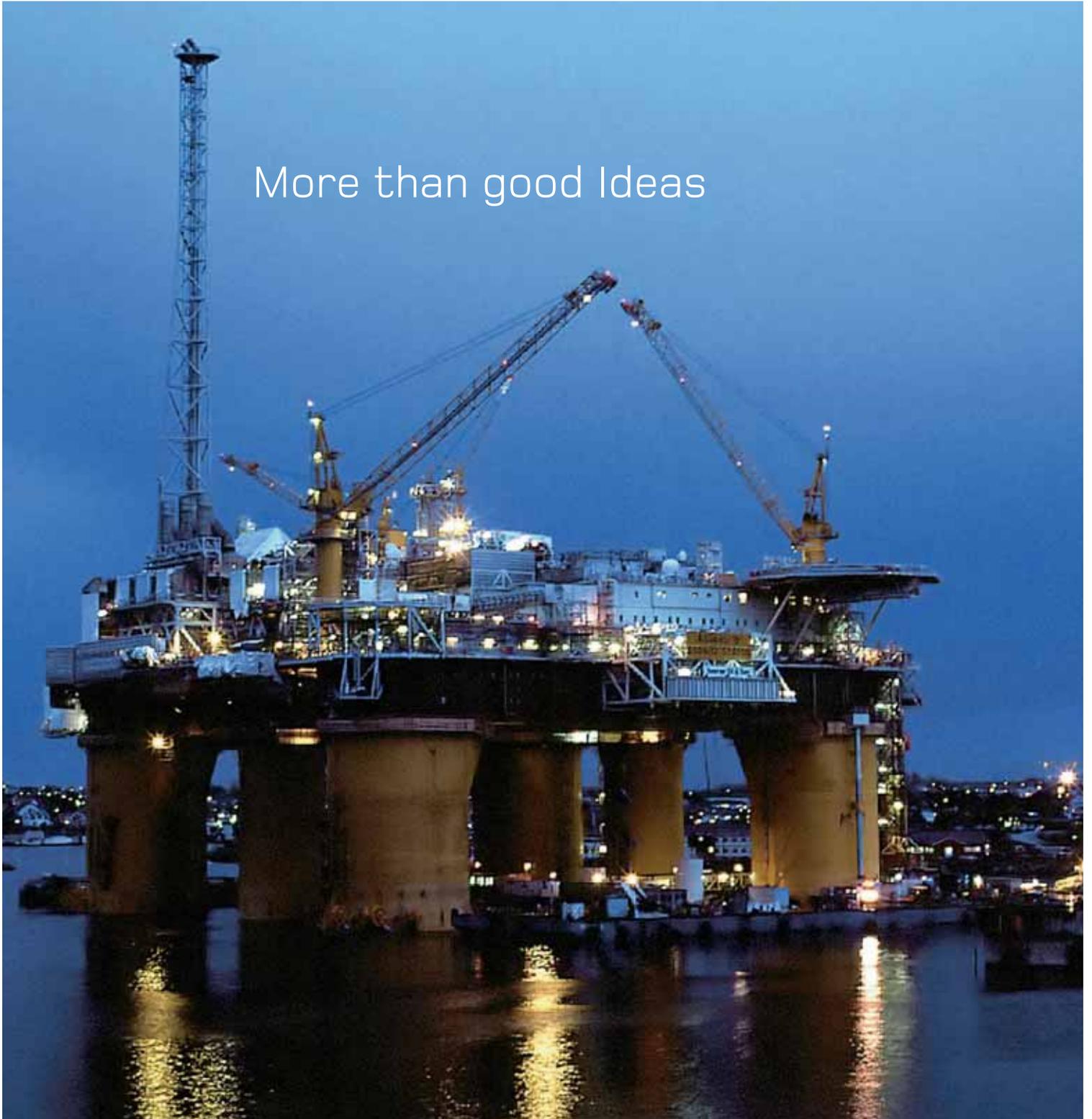


**KAEFER GROUP** Expansion into future regions **INDUSTRY** Major orders in Abu Dhabi – KAEFER ApS is the new scaffolding specialist in Denmark **OFFSHORE** Snøhvit shortly before completion – KIO breaks into Australia **SHIPBUILDING** 'FREEDOM OF THE SEAS' sets sail – New KAEFER face at SMM fair **CONSTRUCTION** AWI order for Antarctic Station Neumayer III **AEROSPACE** Service portfolio expanded to include OLUTEX and KTN

# K | WERT

More than good Ideas



# KAEFER 2006



**Spring 2006**  
Foundation of new Aerospace Division



**July 2006**  
New company PARKER KAEFER founded for the offshore market in Canada

JANUARY '06

FEBRUARY '06

MARCH '06

APRIL '06

MAY '06

JUNE '06



**April 2006**  
KAEFER WANNER begins work on LNG terminal in Guangdong, China



**May 2006**  
KAEFER Industry presents new exhibition stand at the AICHEM in Frankfurt



**June 2006**  
Scaffolding work begins for the shut-down of SAPREF refinery, South Africa



**Spring 2006**  
KAEFER awarded contract for insulation and anti-corrosion work at the Woodside Train V gas liquefaction plant, Australia



**April 2006**  
Snøhvit project enters crucial phase, workforce must be increased



**June 2006**  
Completion of offshore platform Buzzard in Cadiz, Spain



**April 2006**  
'FREEDOM OF THE SEAS' delivered to Royal Caribbean International



**April 2006**  
KAEFER receives order for insulation and interior finishing of BMW World in Munich, Germany



**Spring 2006**  
OLUTEX, manufacturer of primary insulation for the Airbus programme, joins the KAEFER Group



**August 2006**

KAEFER takes over majority interest of KAEFER Punj Lloyd Limited in India



**September 2006**

At the 3rd Soccer Cup in Paris a tombola was organised in support of the KARP Foundation



**November 2006**

Ceremonial opening of KAEFER branch in Shanghai, China

KAEFER GROUP



**July 2006**

Camp Qatar is completed, providing accommodation for 850 employees

INDUSTRY



**September 2006**

Training ship 'HANSEATIC EXPLORER' completed in time for SMM Fair

OFFSHORE

SHIPBUILDING



**August 2006**

Fire protection work completed in the Horburg tunnel in Basel, Switzerland

CONSTRUCTION



**July 2006**

KTN, producer of GRP parts, expands the service portfolio of KAEFER Aerospace



**September 2006**

Roll-out of the first AWACS-Boeing to be insulated by KAEFER

AEROSPACE

**Dear Employees,  
Dear Friends of KAEFER,**



This year witnessed a welcome revival of demand for engineering services in the insulation sector – worldwide and in almost every region. Group turnover was boosted especially by a number of major projects for the gas, oil and chemical industries, surpassing the already high levels of the past two years. The large number of offers recently submitted is further indication of a continuing healthy order book.

Equally encouraging are the initial signs of renewed growth on the domestic market in Germany, where we expect a further boost for our branch in the coming years – especially in the field of power stations. Similarly reassuring developments are emerging in the European core market, and our recent market entry into China, India, Canada and Mexico will add further momentum to medium-term growth.

Nevertheless, this overall positive scenario for KAEFER brings with it a set of new and heightened challenges for us all. Major industrial projects like Snøhvit in Norway or Woodside in Australia inevitably call for a high degree of international mobility on the part of our employees – especially those with the technical expertise to be found largely at our German locations. Many of the services previously performed exclusively at Bremen Head Office must now be expanded internationally – whether in the field of finance or controlling, IT or communication and advertising. We cannot afford to sit on our laurels.

Altogether, calls upon our powers of flexibility and adaptability have been magnified. Even major projects come to an end – and it is unlikely that similarly large orders will always follow in the same country. This gives rise to issues that must be addressed by national management.

We will utilise the sound results produced during this and the prior year for investment to round off the product spectrum with corrosion protection and scaffolding, as well as to expand the new Offshore and Aerospace business segments. Simulta-

neously, it is essential that we continue to develop the skill-sets and qualifications of our employees. Focal points are global support for junior engineers in proficient project management, training in business subjects and foreign languages, as well as training and further education for our industrial workers.

Particular importance must be attached to the capability of our junior managers to act with foresight at all levels of business life. Reality constantly brings change and unexpected developments – scarcity of raw materials and the consequent price hikes, the recent unexpected difficulties in the delivery of insulation materials, delays in the production of certain aircraft types, etc. Competent medium-term business planning is therefore indispensable across all our business areas. In addition, we must all be constantly prepared to react to unforeseen disruptions and swiftly adopt suitable countermeasures.

Dear KAEFER personnel, thanks to your capability and commitment, we managed to cope successfully, with the demands placed on the company over the past year. The shareholders, the Advisory Board and the Management join in expressing their thanks and recognition. Despite the positive outlook, the years ahead are likely to confront us with ever-higher demands. I am sure we are capable of meeting whatever challenges arise with an ongoing readiness to accept innovation and change in the interest of our customers – and thus in the interests of our company as well!

Norbert Schmelzle  
Chairman of the Board

Jörn M. Fetkötter  
Managing Director

Peter Hoedemaker  
Managing Director



### New Business Segment – KAEFER Aerospace

Interdisciplinary project team sets up strategic business development in the aerospace industry.

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### Australia: Rope access in place of building scaffolds

During an extensive maintenance project on a large plant at the Alcan Gove aluminium works, KAEFER draws on experience gained in its offshore activities.

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### KAEFER IKM: Top address for refurbishing offshore accommodation

In the North Sea offshore market KAEFER IKM, with its 60 employees, is among the leading suppliers of refurbishing services.

page 33



### KAEFER Shipbuilding: Late entry turns into success

In spite of the tight schedule KAEFER completes the interior finishing and insulation work for the training ship “HANSEATIC EXPLORER” in time for the SMM fair in Hamburg.

page 37



### KAEFER WANNER: The challenging renovation of a Lycée

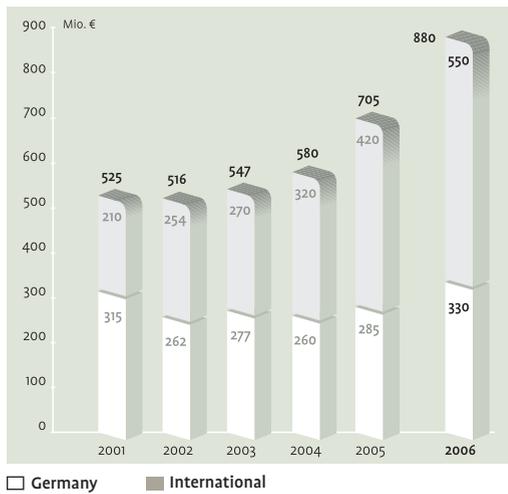
During renovation of the A. Daudet Lycée the noise and fire insulation is integrated in the building in such a way as to keep the historical architecture thoroughly intact.

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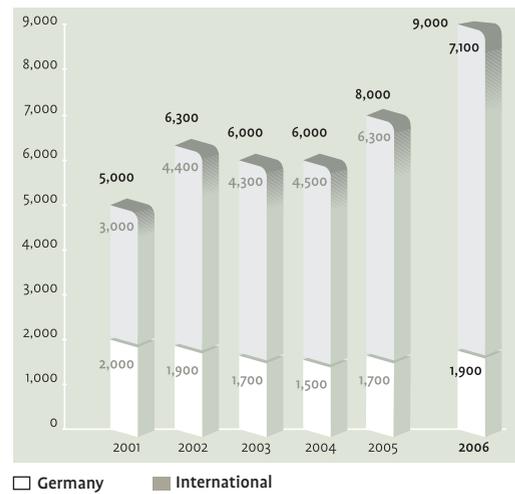
## KAEFER Group 2006



□ Germany ■ International

### Turnover of the KAEFER Group in million euros

The 2006 financial year was very successful. This is reflected in the significant increase in turnover of 25 % over the previous year. Growth in other countries was especially noteworthy (+30 %), the reason being company acquisitions as well as the organic growth of a number of KAEFER locations. The significant increase (+15 %) in the turnover of KAEFER's domestic operations is also gratifying. The new Aerospace segment is primarily responsible for this.



□ Germany ■ International

### Employees of the KAEFER Group

There was also a positive trend in the number of employees, some 77 % of whom are resident outside Germany. This development is not the result of outsourcing company activities, but due to organic growth together with acquisitions. In Germany itself the number of employees rose by 11.8 %.

## IMM 2006 in Budapest

83 members of KAEFER's management teams, from 22 nations, met for two days to discuss strategies in the present buoyant market situation.



IMM 2006  
participants in  
Budapest, Hungary

This time 16 new members were welcomed – the result of national and international acquisition as well as support from Group Head Office. Guest speaker Per-Sigve Marken, Sales Manager

at IKM Testing AS Norway, talked about international possibilities for cooperation. The participants also took the opportunity to discuss cooperation with the Managing Director of a Hungarian

company who had been invited to gain a personal impression of KAEFER.

After an intensive exchange of ideas, there was time to explore the beautiful city of Budapest. The itinerary included a visit to the castle that was once home to Empress 'Sissi'. On a less cultural note, many members took the opportunity to watch the opening match of the FIFA World Cup – Germany v. Costa Rica.

The organisational team of Beate Bemmert and Hanna Cichor, with local assistance from Zsolt Böröndy, planned everything perfectly.

A new development, during breaks in discussions, was to watch a slide show of the KAEFER Year Revue. The theme was 'When friends and family get together, they look at photos' – an idea that everyone appreciated. The positive atmosphere was rounded off by the presentation of this year's awards.

The German Industry Division won the award for 'Best National Performing Business', while Construction

Bremerhaven/Bremen was awarded 'Best National Turnaround'.

Internationally, KAEFER IKM Norway was declared 'Best International Performing Business'. KAEFER Engineering

Thailand and KAEFER South Africa shared the accolade of 'Best International Development', and KAEFER Malaysia was given the award for 'Best International Turnaround'.

All in all, IMM 2006 was a highly successful gathering and an ideal opportunity for an intensive exchange between our international management.

## New Business Segment – KAEFER Aerospace

**The KAEFER Group is the world's largest independent company for heat, cold, noise and fire insulation. With over 9,000 employees in 38 different countries, KAEFER possesses a wealth of expertise as a General Contractor, service provider, outfitter and systems supplier. This expertise is applied on land, on water, and now in the air as well!**

In view of the worldwide surge in rail and air passenger numbers, KAEFER Managing Director Jörn M. Fetkötter was prompted to consider which of KAEFER's core competences this growth market might be in need of. Does the aerospace industry require heat, cold, noise and fire protection? Could there also be a demand for wall, ceiling and flooring systems, or even interior finishing services for passenger cabins on land and in the air? How could the experience gained from shipbuilding and RECORE systems also be made attractive for aerospace customers?

An interdisciplinary project team was set up to develop a strategic business plan for the aerospace industry. They subsequently came up with a plan to integrate OLUTEX for primary insulation with KTN for ventilation/air-conditioning ducts and wall/ceiling panels as strategic target activities within the KAEFER Group's portfolio. Backed up by KAEFER resources, engineers and project leaders, these activities now constitute the basis of the new Aerospace business segment.

On the following pages we present some details of the fast-growing programmes and specific activities in this area.

This article outlines their organisation, the practical merging of new and existing services and products, the integration of aircraft construction and the building of rail vehicles – with the added inclusion of auxiliary products and materials like RECORE, for instance. The congruence of requirements in the development and construction of advanced means of passenger transport, especially in the high-speed category, was reason enough to incorporate rail activities within the Aerospace Division.

The award of orders for complete interior packages is commonplace in both industries, with the bundling of equipment and outfitting components into systems providing an ideal basis for developing activities in depth as well as in breadth. Floor coverings, curtains, kitchens, compartments: a cabin may be a confined space, but it provides broad scope for ambitious and inspired thinking.

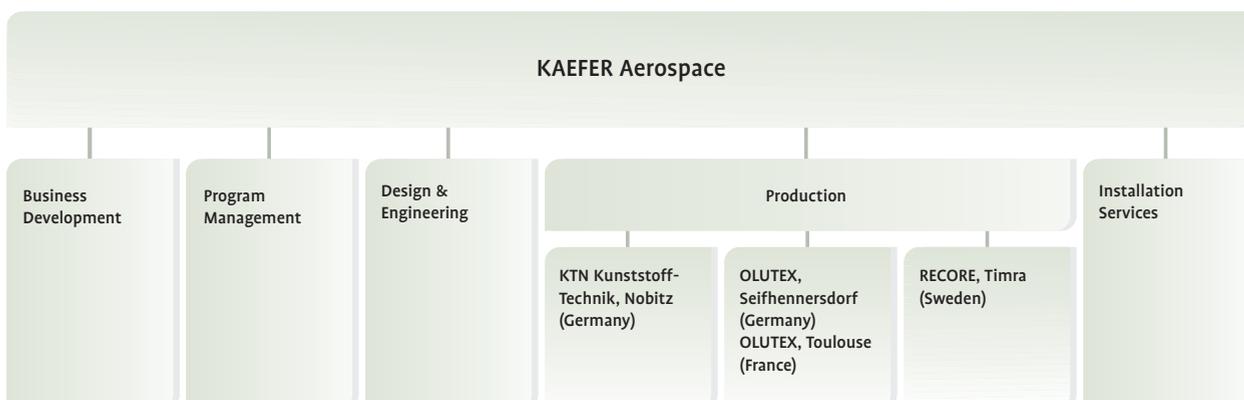
The aim is to complement existing skill sets, not merely in production, installation and after sales, but also in more upstream stages of the value-added chain involving research, development and design. In this way, we aspire to build more binding partnerships with the manufacturers of aircraft and rail vehicles.

Meanwhile, the number of projects acquired is steadily rising and includes A400M, A380 and other Airbus programmes and the fitting out of AWACS aircraft for NATO. In this scenario the parallel task of creating sustainable organisational structures is a challenging one, with pivotal consequences for future performance. With the assistance of management teams from the new companies and areas of activity we have worked out a structure for this family in the new Aerospace segment.

The areas of sales and development have been reorganised so as to be more geared to customer orientation, with the programme management and administration of OLUTEX, KTN and RECORE now united in KAEFER Aerospace. At the same time we have concentrated our engineering and installation capabilities in resource pools. Consequently, specific individual expertise and specific individual resources are now at the disposal of all activities within the new segment.

This activity is not limited to the strategic locations of Toulouse, Hamburg, Bremen, Seifhennersdorf, Saint-Nazaire, Nobitz and Timra. Organisational models are being constructed for new markets, with all the meetings, schedules, discussions and decision-making that entails. Within this process, our experts are combining technical requirements and organisational strategies to come up with sound solutions, helping to consolidate KAEFER's position in this international and demanding market.

We can hardly wait for the next exciting news – from China, India or Spain perhaps?



Organisation chart of KAEFER Aerospace

## Engagement on the East Coast of Canada



**FPSO vessel  
"WHITE ROSE"**

KAEFER has entered one of the fastest-growing insulation and offshore markets in the world. In April 2006 KAEFER and the Canadian company Parker Brothers Contracting Ltd. founded PARKER KAEFER. The new company's Head Office is in the town of Halifax in the province of Nova

Scotia on the Atlantic coast of Canada, and KAEFER holds the majority interest.

In Parker Brothers KAEFER has secured the cooperation of the region's market leader in industrial insulation and one of the biggest local companies in the branch. More than 70 employees provide services

in the areas of insulation, corrosion protection and scaffolding. The new company benefits from each partner's many years of experience. For example, Parker Brothers possesses valuable local expertise in industrial insulation and surface protection. For around 50 years Parker Brothers has been a reliable partner of industry along the Canadian Atlantic coast.

Canada is one of the world's most important economies. This vast country between the Atlantic and the Pacific Oceans proffers ideal framework conditions: one of the highest rates of GDP growth, a positive business climate, low levels of bureaucracy and an extraordinarily fair legal system. On top of this Canada is among the world's leading oil-exporting nations. After Saudi Arabia the country possesses the second-largest oil reserves in the world. Services for LNG import terminals are a core activity of the new company PARKER KAEFER. At the present time three such terminals are being planned within a 300-kilometre radius of Halifax. The total investment involved in these projects is around 500 million euros in each case.

## Opening ceremony in Shanghai

**The promises of our new subsidiary in China, which is operating under the auspices of NECL, were ceremoniously opened on 22nd November: the newly formed team has already taken up their work.**

The plans we reported on extensively in K-WERT 23 have now come to fruition. Thus the premises of our new subsidiary in China, which is operating under the auspices of NECL, were ceremoniously opened on 22nd November and the newly formed team has begun its work.

KAEFER Managing Director Peter Hoedemaker and Head of Division Henry Kohlstruck welcomed employees of our first Chinese customers in the presence of a representative from Shanghai Chemical Industrial Park SCIP.

Horst Körner, Managing Director of KAEFER Grand China and his co-worker, engineer Olivier Gazeau (costing, procurement, distribution), together with Michael Chen (projects) and Pamela Tsao (administration) proudly presented their new premises and updated guests on current developments. The 300 m<sup>2</sup> of office space will serve primarily as an arena for intensive training. Under the expert eye of Michael Chen, an initial team of 15 workers is being trained for jobs as industrial insulation fitters in the well-equipped metal workshop located in the

3,000 m<sup>2</sup> hall. By fortunate design the training facility is located directly opposite the offices, where a thermal conductor with expansion bends is a perfect example of poor insulation. The first task of the trainees is therefore to re-insulate the thermal conductor so that it can act as a perfect demonstration of the quality we wish to sell to industrial customers in China. The next step in 2007 will be to set up the production of nuclear cassettes – five nuclear power plants have already been supplied by NECL and KAEFER from our workshops in Germany. Offers have been submitted for a further four, with the aim of producing these in China itself. The third item on the agenda will then be the production of insulation for turbines and other forms of mattress-insulating materials.

**KAEFER China's new  
building at Shanghai  
Chemical Industrial  
Park**



## International growth strategy bears fruit

The internationalisation of industrial markets is progressing rapidly. KAEFER is an active part of this development and continues with its expansion thrust into other countries. The most recent acquisitions and newly formed companies like PARKER KAEFER (Canada), Ippokampos (Greece), KAEFER Punj Lloyd Limited (India) and KAEFER Insulation Engineering Shanghai (China) provide ample proof of this.

About eight years ago the KAEFER Management set the new strategic course. It was planned to raise the share of international turnover in the medium term to 50 % of Group turnover – without any cuts in domestic business. This target has subsequently been reached and the sights have been set even higher: international turnover is now to be increased to two-thirds of total KAEFER revenue and domestic activities are to be intensified, too.

But growth alone cannot remain our sole goal. Organic and sustainable growth of the whole KAEFER organisation and the simultaneous acquisition of interesting partners in important growth regions around the world must be accompanied by an improved profit-turnover ratio. It is only in this way that the financial foundations for future growth can be laid and the prerequisites for lasting competitiveness created.

Our multi-track strategy has enabled us to reach our growth targets. On the basis of an exhaustive study of world markets, KAEFER duly identified the most important markets for insulation – e.g. China, India, Canada. We then set about finding strategic partners in these regions. Selected companies which fit into the KAEFER concept are either taken over, or we seek to secure a majority holding. Recently, KAEFER China was founded. In May 2006 the KAEFER Insulation Engineering Shanghai Co. Ltd. was set up in Shanghai. The official opening ceremony took place in the finished workshops and offices in November this year.

Last August in India we set up a company together with Punj Lloyd Limited (PLL). The new company bears the name KAEFER Punj Lloyd Limited and KAEFER is the 51 % majority shareholder. With PLL, one of India's largest engineering and building enterprises, we have secured a strong partner and we are confident that the planned expansion of activities will be successful. A sound basis for this is provided by our takeover of PLL's insulation segment. The company's main activities lie in the field of industrial



insulation, heat, cold and noise insulation. On top of this, KAEFER Punj Lloyd possesses many years of experience in the area of Liquefied Natural Gas (LNG).

Another newcomer to the KAEFER family (in March 2006) was the Greek specialist for the interior design and fitting out of mega and luxury yachts, the Athens company Ippokampos S. A. Ippokampos is a provider of high-grade turnkey services and numbers among the most important companies of its type in the whole Mediterranean region.

Last but not least, since April 2006 KAEFER has been present on the east coast of Canada with PARKER KAEFER. Here KAEFER has entered one of the fastest growing markets for insulation and offshore services. PARKER KAEFER is the region's market leader in the field of industrial insulation and offers services which cover the whole spectrum of insulation, corrosion protection and scaffolding.

Strong growth markets, unique selling propositions, regional market

leadership and a sound company structure – these are the conditions which must be fulfilled before KAEFER considers acquiring a new company. To date this strategy has proven 100 % successful – all our new subsidiaries are operating successfully and contributing to the planned growth.

In addition KAEFER perceives an improvement in internal processes and the elevation of synergies between individual companies in the Group. A worldwide networking strategy facilitates our activities, which now span regions and continents. This intensified communication between KAEFER employees around the globe draws the KAEFER community closer together. Internationality is not only a phenomenon at the executive level – the International Management Board (IMB), for instance. It is also reflected in new recruitment as well as in training and further education, for example JEP (Junior Executive Programme) and IGETP (International Graduate Engineer Trainee Programme).

*The world's most promising future regions*

## Best prospects in India



*KAEFER Managing Director Peter Hoedemaker and Vimal K. Kaushik (MD, Punj Lloyd Group)*

KAEFER has entered the growing Indian market. We recently set up a company in cooperation with Punj Lloyd Limited (PLL), one of the biggest engineering and construction companies on the Indian subcontinent, whose head office is in New Delhi. The new company is called KAEFER Punj Lloyd Limited. KAEFER holds 51% of the shares, PLL 49%.

At present Punj Lloyd is involved in the construction of liquefied natural gas terminals, the oil and gas sector, fertilizer factories and power stations.

KAEFER Managing Director Peter Hoedemaker is very optimistic about the entry into the Indian market: "The

booming Indian economy harbours enormous prospects for growth. The combined expertise of two companies like KAEFER and Punj Lloyd open up new channels for innovative solutions in different areas of activity." On top of this the partners perceive global possibilities for successful cooperation.

First orders in the field of LNG (Liquefied Natural Gas) and petrochemicals are already coming in. The new company has a target turnover of 20 million euros in three years. The management concept entails three Managing Directors: two to be named by KAEFER and one by PLL.

## Eastern Europe: New structures for penetrating new markets



*Boiler and plant insulation at Elsterwerda power station, Germany*

For some five years now KAEFER has been investing and expanding our Eastern Europe Division.

Some highly successful projects were acquired in Poland, Sweden and Ireland, for instance. The future course also heads in the direction of expansion. "There is a lot going on in Eastern Europe. We have a good order book and intend to expand activities further to reinforce our market

position," says Robert Skrobisz, Regional Director of KAEFER Eastern Europe. But in order to dispose of sufficient resources to penetrate new markets in Kazakhstan, Russia or the Ukraine there remains some work to be done on existing structures.

Poland, Lithuania, Latvia, the Czech Republic, Hungary, Sweden and Ireland all belong to the KAEFER region 'Eastern Europe', with a total of 16 KAEFER

companies present in these countries. Poland alone is host to seven companies. Five of these belong to TERMOIZOLACJA S. A., of which two will be merged with the parent company at the end of 2006. In Lithuania all three subsidiaries will be merged with their parent in Kaunas. "This will result in less administrative effort and fewer legal formalities such as shareholders' meetings etc.," Skrobisz explains. "This frees up capacity at management level so that we can concentrate on further expansion."

The new branches in Kosovo are an example of such expansion. In July 2006 a new branch with five employees was opened in Pristina. The official ceremony followed at the end of September. "We hope to benefit from the reconstruction going on in the region," says Skrobisz. "Many buildings are still in ruins, but investment in industrial premises is now beginning to pick up." KAEFER also wants to position itself as a provider of know-how and consultancy. "A lot of new laws and building legislation have been passed. Among other things we want to have our fire protection standards recognised." The Pristina location will be supported from Poland in matters of costing, technical backup and looking after key customers. The number of local

employees is to be increased. There will be a shift in the focus of activities in Poland itself. "Up to now our large projects were mainly located in other countries," says Skrobisz. "In 2007 operations will be more concentrated on the domestic market, with a lot of investment pending in power stations and the petrochemical industry." Within the next four years he expects capacity bottlenecks to appear, but is counting on wholehearted support

from the Polish workforce. "In 2006 up to 580 people were working for us abroad," explains Skrobisz. "Here price levels are much lower and we are unable to match the very good conditions they enjoyed in Germany, Finland, Norway or Sweden. Now it is up to us to motivate people to return to Poland."

There is plenty of encouragement for younger employees. TERMOIZOLACJA S. A. is the only company in the region with its

own school, in which metal fitters and insulation workers receive a professional three-year training course. Up till now there has been one new class a year with 30 trainees; as of this year there will be two. The school workshops are also now being used as a training centre for KAEFER employees from the whole region.

## Luis Ortiz: Managing Director, KAEFER Mexico

Luis Ortiz, a Peruvian by birth, has lived in Mexico for fifteen years. He studied mechanical engineering and later went on to obtain an MBA. His last position was as head of department for project planning, financial controlling and contract management at an important

Mexican company specialising in the planning and execution of engineering services in the fields of construction, industry and offshore.

We are extremely pleased to have won Luis Ortiz for our Group and wish him an enjoyable and successful start. Luis

Ortiz will be supported in the future expansion of KAEFER Mexico by Mr. Alvaro Atxutegi, Head of Sales (previously KAEFER Spain), and Mr. Javier Martinez, Project Manager (lent by KAEFER Spain). We wish the new team every success!



Luis Ortiz

## Tom Fitzpatrick: General Manager, Atlantic Canada

Congratulations on this promotion as of 1st August 2006!

From 1999 to 2005, Tom Fitzpatrick was vice president of the Parker Brothers subsidiary 'Argo Protective Coatings' (heavy industrial coatings and galvanising, with three production locations). He went on to become project manager

for industry, shipbuilding, refineries and gas processing at Parker Brothers.

In his new position Tom Fitzpatrick will mainly be responsible for projects and expansion of our activities in the areas of insulation, protective coatings, fire protection and scaffolding in the Atlantic Canada region, i.e. Nova Scotia, New-

foundland, New Brunswick and Prince Edward Island.

Main branch activities include onshore/offshore oil exploration and gas processing as well as industry and shipbuilding.



Tom Fitzpatrick

## New team at KAEFER Spain

Following 37 years with KAEFER Spain (30 of which were as Managing Director) Juan Carlos Allica went into retirement on 28th February 2006. We very much want to put on record our thanks to Juan Carlos Allica for these long years of close and successful cooperation.

He was succeeded on 1st March 2006 by a new Managing Director – Christian Martín of KAEFER Spain. Mr. Martín has been with KAEFER Spain since June 1998 in various capacities, most recently as Manager of Distribution and Central Technology, and as Deputy Managing Director.

On the same day, 1st March 2006, Mr. Iñigo Bujedo was appointed Deputy Managing Director and Manager of Distribution and Central Technology at KAEFER Spain. Mr. Bujedo has been with KAEFER Spain since December 2000, and in his last position was Manager of Cold Storage and Interior Finishing.

Christian Martín and Iñigo Bujedo are already an experienced team, both having made significant contributions to the development of KAEFER Aislamientos S.A. We would like to wish both colleagues every success in their new positions.



Iñigo Bujedo (left) and Christian Martín (right) take over management from Juan Carlos Allica (centre).

## Controllers meet in Paris



ICC team in Paris

The international KAEFER organisation is growing rapidly. It would be impossible to successfully steer the activities of the Group in the absence of a system of cross-national controlling. This is why the International Controller Committee (ICC) was set up in March 2004. In November 2005 the working group convened in Paris for its second meeting. Besides the usual participants, comprising members of the International Controlling Team and the Regional Controller, some special guests also travelled to the French capital – including several Regional Directors and

the Managing Director of KAEFER WANNER. Topics dealt with in the course of the two-day meeting were project evaluation methods, a balanced scorecard system and cash planning, including the hedging of exchange-rate risk. In addition to these items the further development of the Management Information System was also on the agenda. “One should never underestimate the importance of meetings like these for building up the Group’s controlling network,” says Rainer Donalies who, as Head of International Controlling, initiated the meetings.

## KAEFER Australia: ongoing integration

**K-WERT 2005 ran a report on the incorporation of KAEFER Integrated Services Pty. Ltd. into the KAEFER Group. This development has continued to progress over the past year, with considerable success.**

A significant achievement was an order from Woodside Energy, Australia’s biggest producer of oil and gas, for the insulation and painting of components for the ‘Northwest Shelf LNG Train V’ gas liquefaction plant. This was supported by the excellent cooperation between KAEFER in Australia and Indonesia. While the pre-assembly is performed on Batam Island (Indonesia), the pre-insulation and final assembly takes place in Australia itself. At the beginning of the year Justin Cooper and Francisca Gorgodian assumed their duties as Managing Directors for the areas of operations and administration respectively.

### SAP software introduced

In the wake of restructuring it was also decided to introduce a new ERP (Enterprise Resource Planning) system. This complex software supports the planning of resources throughout the company and is a further step towards the integration of the KAEFER Group. Over a period of nine months, and with energetic support from local as well as KAEFER Germany teams, modules for procurement, finance and accounting, and human resources were successfully implemented.

## Eric Brouwer: Managing Director, Middle East



Eric Brouwer

On 1st May 2006 Eric Brouwer succeeded Ian Parrot as MD. Mr. Brouwer studied marine engineering, possesses an MBA, and has a wealth of experience in the area of business development in the region. It would be hard to find anyone better suited for the job.

Eric Brouwer is a Dutch citizen, aged 45, with many years of experience of living in the United Arab Emirates and Saudi Arabia, most recently as Regional Director for turbine control instruments.

Besides involvement in our existing activities in UAE and Qatar, Eric Brouwer

will also reinforce our position in Iran and Oman, as well as overseeing expansion in growth areas like Saudi Arabia and Egypt.

Eric Brouwer will be based at KAEFER LLC in Abu Dhabi. We extend a hearty welcome and wish him every success.

## ISO certification in the Middle East

In the constant pursuit of quality, safety and environmental protection KAEFER Abu Dhabi was the first company in the United Arab Emirates to obtain internationally recognised classification. Not wishing to leave the job half done, they simultaneously applied for threefold classification according to ISO 9001, 14001 and OHSAS 18001. That was in 2002 and this certification has now been prolonged for a further three years up to the end of

April 2009. Spurred on by these pioneering successes and a committed management team, the employees in Qatar were also awarded all three certifications in July 2006. Now, backed up by this additional formal recognition of our quality awareness, KAEFER is going on to consolidate its leading position in the market and has commenced the certification process in Oman as well.

## Education and condoms against AIDS

KAEFER in South Africa set up the 'KAEFER Aids Relief Programme', KARP for short, in July 2005. A few figures illustrate just how important it is to help people with HIV. Some 5 million people in the country are HIV positive and 600 die of the disease every day. In 2005 alone, 6 KAEFER employees died as a result of AIDS and probably around 80 others are infected.

KARP was conceived as a long-term AIDS relief programme. In its first phase it encompasses prevention, advice and the provision of tests. Moreover, in the long run the aim is to give fundamental assistance to AIDS victims and their families. Since February 2006 the 41-year-old KAEFER employee Lindiwe Lilian James has been KARP coordinator, responsible for raising awareness of the disease and building up a programme of prevention

and advice. Originally employed in Human Resources, her first contact with the KARP initiative came through her involvement in the Junior Executive Programme (JEP).

One of Lindiwe James' tasks is to train additional trainers who will then spread the prevention message in the workforce. In addition to this, she maintains contacts with clinics and doctors.

In the meantime the project has become firmly established throughout the South African KAEFER organisation. A steering committee and a relief fund have been set up. Lindiwe James has visited all the hospitals in the region where KAEFER is active and five KAEFER employees have attended a seminar to prepare them as AIDS advisors. Besides this, final details are being worked out for



*Lindiwe Lilian James*

a set of written rules. And finally, since the beginning of September condom vending machines can be found at all the company's branches.

## KAEFER International Soccer Cup ISC

**Never mind the FIFA World Cup – the KAEFER International Soccer Cup is the one to win. And that's why over 300 employees and fans from 11 countries flocked to the Seine.**

They came by train, by plane, or tumbled out of minibuses, like the squad from TERMOIZOLACJA who arrived after an 18-hour drive across several national frontiers to defend their 2004 title.

It all kicked off on Friday 8th September at the Château de Grande Romaine, with burning sunshine and burning ambitions.

In the first round, 22 teams competed for goals and points, with teams from Hungary, Lithuania, Belgium and the Netherlands competing for the first time.

France Sud even brought their own cheerleader, Aurélie Vassallo, who spurred her boys on with enthusiasm and achieved her own victory by winning the tournament's fair-play trophy! After half-time, the sweat and grime of the first round were soon forgotten, and host KAEFER WANNER extended an evening invitation for a trip on the Seine, cruising by Notre-Dame, the Eiffel Tower and leaving lasting impressions of Paris at nightfall.

A tombola raised over 2,500 euros for the KAEFER South Africa Aids Fund 'KARP', which the Puteaux host then bolstered by



another 10,000 euros – many thanks to those who sponsored the prizes!

Saturday saw the grand finale: The German/French newcomer team from Aerospace were winners on their first appearance and took gold – coached by OLUTEX Managing Director Dieter Richter, whose striker Maik Schirmer also won the title 'Goal King'. Silver went to Hungary, bronze to Industry Hanover. Czech Yiri Cingel from Construction National was 'Best Goalkeeper'. And then the party really

got underway with fun and games in the Château. KAEFER was celebrating – with a conjurer, a brilliant firework display, and a disco. Upon departure the next day, everyone expressed grateful thanks to the wonderful organisational team (Stéphanie Le Guen, Luna Semara, Ersan Dogu and Pedro Vazquez). And there was already talk of the next tournament. Where would it be in 2008? Saarbrücken, Bremen or Paris? But one thing was abundantly clear – taking part is the best part of all!

*The winning team from OLUTEX under the leadership of Managing Director Dieter Richter*

## Industrial Construction Munich/Ingolstadt: Donation for Harlaching children's hospital



Organiser Markus Listl (middle), Erwin Witterich (left), Yesidim Yildirim (second from right)

Six years ago our Munich branch started livening up their Christmas celebrations with a tombola – to the joy of the young patients on the children's cancer ward in Harlaching.

For it is they who benefit from the proceeds – directly and with a complete lack of bureaucracy. Many of the children are undergoing therapy that takes weeks and purchases of things like DVD players,

discmans or toys enabled by the donation are greeted with delight!

Last Christmas the tombola, sponsored by suppliers and KAEFER Munich, resulted in record proceeds of 2,000 euros. The donation was handed over by the organisers Markus Listl (centre), Erwin Witterich (left) and Yesidim Yildirim (right).

## Young KAEFER insulation apprentices participate in European Championship in Croatia

Two young KAEFER insulation workers travelled to the Adriatic – but instead of holidaying on the beach they had to show what they were capable of.

Kévin Verheecke from KAEFER WANNER and Frank Pempel from the Leipzig branch of KAEFER took part in the European Contest of Young Insulation Apprentices held at the beginning of June. The championship is organised every two years by the European Association of Insulation Companies, FESI (Fédération Européenne des Syndicats d'Isolation). At this year's two-day championship in

Dubrovnik, Croatia a total of 15 participants from ten nations competed against each other. Among the contestants were apprentices from Germany, Austria, Switzerland, Denmark, Finland, Sweden, France, Great Britain, Hungary and the Netherlands. The aim of this contest is the international exchange of methods and procedures and to promote high quality standards in the field of insulation.

This year's contest was won by an apprentice from Switzerland for the best quality work on heat insulation. Unfortunately, the two KAEFER participants didn't



Frank Pempel



Kévin Verheecke

manage a place on the podium – but they can look back on two interesting days in Dubrovnik, an exciting contest and some interesting experiences.

## Two new programmes for KAEFER trainees



Walter Bremeyer explains a variety of topics to KAEFER trainees.

The LNG (Liquefied Natural Gas) market is booming – and KAEFER is consolidating its position as a competent partner for project management, engineering,

materials supply and installation for LNG facilities worldwide.

To ensure that it stays that way, in 2006 KAEFER developed a special trainee programme for graduates. The dedicated practice-based programme trains participants for project management in the fast-growing LNG area, a segment in which the KAEFER Group intends to expand.

Alexander Lüder, Head of Corporate Human Resources, together with Henry Kohlstruck, Head of the NECL Export Department, are responsible for the training schedule and quality assurance. The contents of the technical foundation course are determined by Dr. Holger Carlsburg, Head of Corporate Technical

Services, and his team, who have developed a modular training programme to suit all KAEFER trainees. The modules are put together according to the requirements and technical topics to be covered in the individual programme.

In June two trainees from Thailand started on their programme in Bremen, and two others from India began in November. On completion of the one-year programme the participants will gradually take on project management responsibility.

All trainees begin with a three-month intensive introduction to aspects of insulation in general, and cryogenic insulation in particular.

After about three months the trainees are exposed to LNG in real-life situations. Thus, for the following six months they spend periods at different LNG building sites around the world, learning 'on the job' about what such projects entail – from A for accommodation to Z for zone-delivered pricing. Finally, they come back to Bremen for three months where, under the supervision of Henry Kohlstruk, they receive training in project calculation and project settlement.

Following the trainee programme the participants will work closely with Project Managers and gradually grow into this role.

Another new development is the European Trainee Programme (ETP). It is

run jointly by KAEFER Germany and five other European KAEFER companies, the purpose being to recruit trainees to cover specific personnel requirements. The company in question employs a suitable graduate, who is provided with a twelve-month training course to suit a certain future position.

The training can take place in any of the companies participating in ETP, with trainees spending about eight months in a company outside their own country. In this way they have the opportunity to learn the specific competences of individual locations and develop an international orientation. In August 2006 the first trainee was taken on in the Aerospace segment. In September and October the second and third trainees

joined KAEFER WANNER and KAEFER Aislamientos respectively. Austria, Ireland and Finland have also subscribed to the programme.

Here, too, Corporate Human Resources is responsible for the training schedule and quality assurance. Soon, up to ten trainees will be moving around Europe at the same time, which calls for effective coordination to stop them all turning up at the same location! During the programme the trainees will spend at least four weeks at Corporate Technical Services in Bremen. A specially designed modular training concept, similar to that for LNG, has been developed for these trainees.

## JEP Alumni Meeting



In September 2006 the first meeting of current and past participants of the Junior Executive Programme (JEP) was held in Bremen. The gathering was organised around an event termed 'Business meets

Science', which took place on the campus of the International University Bremen (IUB).

Here, attendees were able to talk to renowned professors and debate topical

economic issues they had prepared in small work groups. Any networking was a welcome bonus. At times the Regional Directors also took part in this programme.

*The JEP alumni group together with Regional Directors and Peter Hoedemaker*

## Even in Chile: If you can't hear you must ...

... consult KAEFER's CAI (Central Acoustics Engineering) department. This is where knowledge is gathered concerning the evaluation, calculation and measurement of air-borne and structure-borne noise, as well as the know-how for its reduction.



Photo top:  
Talcahuano

Photo right:  
Participants of  
acoustics training  
course

In Talcahuano, a small town on the Pacific coast about 500 km north of Santiago, you will find Chile's biggest shipyard, founded in 1895. Operating under the name of ASMAR for the past 40 years, the yard builds and carries out repairs to (mainly) fishing boats and naval vessels. It also maintains close relations with the German Fassmer shipyard in Berne.

When technical support in the area of acoustics was requested with regard to the building of an offshore patrol vessel,



the people in Berne turned to their longstanding business partner KAEFER.

And this is why, in the spring of 2006, CAE's Jörg Simon found himself holding a two-week seminar on acoustics in front of 25 Chilean naval engineers and building supervisors.

Towards the end of the seminar he handed over to Ralf Witte from Shipbuilding, who gave some practical examples of how to deal with acoustics problems.

Both sides learned a lot, and thanks to Bremen know-how, future crews on ships built by ASMAR will have cause to celebrate audible – or inaudible! – technological progress.

Meanwhile, Jörg Simon brought home some lasting memories of a technological leap in time, friendly people and a fascinating landscape full of southern flair.

## Quality management yesterday and today

Success does not simply materialise – it is planned. In all Group activities KAEFER maintains constantly high levels of reliability and safety – due not least to the fact that the organisation of processes occupies such an important position. KAEFER's commitment to quality, safety and environmental protection is reflected not only in numerous ISO, SCC, MED, and USCG certifications, among others, but also in its economic success. A comprehensive management system, therefore, is not an end in itself, but a crucial factor for success in an increasingly competitive market.

Thinking in categories of quality is a tradition at KAEFER. We were working according to proven patterns and specifications long before the wave of certifications in the 1990s. In 1984 KAEFER was one of the first insulation companies in Germany to set up a department for 'quality assurance'. A comprehensive quality assurance manual existed, containing detailed formal predefinitions and structures. As time went by it became evident that this statistical method of quality management was too complicated and voluminous, and therefore of limited practical use.

In addition to this framework, conditions were being transformed. Internationalisation and the appearance of new business segments called for a more overarching and integrated management system dedicated to the themes of work safety, quality assurance and the environment. "We have set down the processes, together with brief rules in which all these themes are contained," says Heribert Frantzen. Visible evidence of the new approach to QM was the new edition of the Quality Management Manual, now simply entitled Management Manual.

'KAEFER Prozesslandschaft' describes all the core processes, subordinate processes and relevant quality rules for the entire area of German activities. Compact, clearly arranged and – above all – flexibly adaptable to changing conditions, it represents a tool that everyone can easily read and understand, providing clarification and transparency of company processes.

The next step will be to include our foreign companies and subsidiaries. Successful cooperation with the Polish TERMOIZOLACJA is paving the way for this.

Nobody questions the necessity of management systems any more. The successes are too obvious. These are not only reflected in the various systems of certification, but above all in the reduction of customer complaints and accidents at work. For instance, the quota of work-related accidents at KAEFER is well below sector averages.

#### ZSQ in figures (status 2005)

8 members of staff, 190 different projects, of which 110 visits to construction sites, approx. 20 departmental audits, 6 supplier audits, 13 training measures and much, much more ...

## The customer is king – and so are our colleagues

**KAEFER's Corporate Technical Services researches, develops and disseminates technical know-how. And it has set up a new centre of competence for Fire Protection.**

The Central Technical Department has been renamed 'Corporate Technical Services', and this for good reason. Obviously, technical know-how continues to be a crucial component for the success of the KAEFER Group, but the question of disseminating this knowledge is becoming increasingly important. "We are an internal service provider for everything technical," says Dr. Holger Carlsburg, leader of Corporate Technical Services. "We don't just sit around and wait until a problem crops up. Instead, we actively accompany the operations of our departments and support the strategic development of the KAEFER Group as a whole."

Carlsburg and his team seek to reinforce KAEFER's reputation as the world's leading group of companies with regard to technical and engineering competence. That means optimising processes in all areas of heat, cold, noise and fire insulation, developing management systems, and qualifying KAEFER products and systems for classification approval.

To achieve this they must go on the offensive: "All the companies within the KAEFER Group are our customers. Now we have to show them what we can do," says Carlsburg. On the operations side this means that Corporate Technical Services Engineering has to deliver sensible technical solutions, accompany installation tasks, apply for approval of materials and systems, and continually put forward improvements to quality management and work safety.

This strategic orientation is new and is intended to support the KAEFER Group as it moves forward. This encompasses research, development and technical systems solutions, but also technical marketing and the penetration of growth markets. To ensure that everyone pulls together, Carlsburg and his team also take care of personnel development and



training. This includes information meetings and seminars, such as the Fire Protection Conference held on 3rd May 2006, for instance, or the special training for LNG projects set up for new employees from Thailand and India. Such interaction among our employees is vital. "Only by adopting a mutual approach to problems can we make maximum use of our know-how," says Carlsburg.

Heat and cold insulation, noise and fire protection – so-called centres of competence – have been created across all the core activities of the KAEFER Group. The aim is to combine the knowledge and capability of our employees. In the fields of thermal insulation and noise protection such centres have existed for some time – now there is a centre of competence for fire protection.

"On the one hand, the safety of people in buildings has assumed greater significance," explains Carlsburg. "On the other hand, many buildings built in the 60s and 70s are now due for renovation and refurbishment. Environmental and risk protection are the new requirements

we need to fulfil – and we can." The laws and technical conditions in these areas are extremely complex – one reason why KAEFER tries to convince customers that it makes sense to opt for its complete fire protection solutions.

One of the tasks of the new centre of competence is to set up and carry out experiments with fire, and the subsequent qualification of product solutions. On top of this, KAEFER prepares the ground for the certification of systems, taking care of all the technical preparation necessary and accompanying the practical implementation of its own approved products.

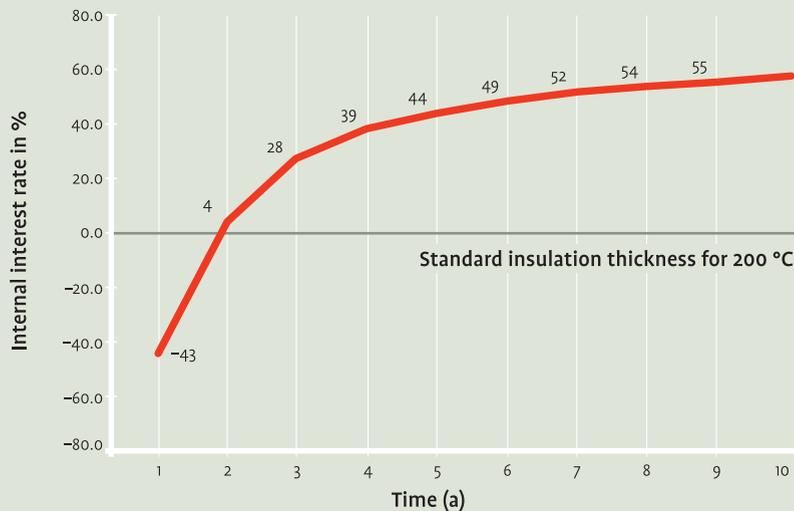
Young employees are integrated at an early stage. Young industrial insulation workers, for instance, receive training in fire protection during their apprenticeships. A fire protection seminar, held in cooperation with Central Personnel and the Würth company at the Bau-ABC training centre in Rostrup near Bad Zwischenahn, is now a firm component of the apprenticeship training programme.

*Graphic demonstration of fire protection know-how*

## Thermic calculations made simple

With KAEFER's own WTB programme on the internet – a special service and an interesting marketing tool

Amortisation of the additional cost of pipe insulation (DN250 with a transit temperature of 200 °C) with economical insulation thickness for 150 w/m<sup>2</sup>



Energy costs continue to soar and in spite of sources of alternative energy the watchword is always the same: save, save, save. In order to achieve savings you need both sensible insulation and a holistic insulation concept. Only in this way is it possible to ensure that every aspect has been covered and costs/benefits optimised.

Insulation is one of the key means by which energy savings can be made. And no one has more expertise in this field than KAEFER.

But before you embark on energy saving measures you need to ask certain questions. What is the most sensible insulation thickness? When does it pay to install thicker insulation? And at what

point can so much energy be saved as to warrant new insulation?

KAEFER has the answers – thanks largely to the know-how of our employees and to a programme for thermic calculations (WTB). This programme is a KAEFER development that has undergone permanent optimisation.

KAEFER is one of only a few companies in the world to administer its own WTB programme and to carry out continual updates and development. The background data is extremely complex and the result of many years of accumulated experience with insulating materials and scientific involvement in mathematical formulas for making thermic calculations. It is even possible to calculate the

reduction in CO<sub>2</sub> emissions that follow as result of optimising insulation. KAEFER Germany is working very efficiently with the method, but it is still relatively unknown in other countries. This is to change and it is now being translated into English to ensure that as many people as possible are able to use the WTB programme. The operating screen will also be made more user-friendly.

It is planned to post a more compact and modified version of the programme on the Internet, by means of which the most economical insulation thickness can then be calculated. Thicker insulation might be more expensive, but at a certain point the investment becomes worthwhile, depending on how much money can be saved by the reduction in energy consumption. Customers will now be able to calculate this break-even point themselves.

KAEFER is interested in promoting a discussion about energy costs and energy-saving insulation. This discussion should prompt as many customers as possible to go onto the internet or consult KAEFER on the cost-efficiency of the insulation thickness they have been using up to now.

By allowing customers to use WTB in order to calculate savings themselves, we will convince customers of our technical competence. Thus they will be more likely to contract KAEFER to carry out energy-saving insulation work. This turns the WTB programme into an innovative marketing instrument as well as an aid for making thermic calculations.

## Semi-automated production of LOLAMAT

Rockwool has an outstanding reputation as supplier of the mineral cotton used for LOLAMAT panels. And, as the biggest producer of rockwool insulating materials, the company possesses considerable know-how in the area of production.

KAEFER has the process know-how together with many years of experience gained in the manual production of LOLAMAT in Bremen.

So it made sense for the two companies to combine their expertise in

order to build a new, highly-automated factory for the production of LOLAMAT panels. "Demand is rising and we have to expand our capacity," says Dr. Holger Carlsburg, Managing Director of CF-SYSTEMS GmbH. "By means of automated

production we can also reduce costs and improve the quality of the panels."

Working in close partnership, it took the two companies no more than a year to develop the manufacturing engineering, plan the new factory, procure the machines

and equipment, erect a new production shed and commence operations.

First of all, a self-conceived pilot facility was developed and tested in Bremen before being moved to Flechtingen. This is near Magdeburg, which is where Rockwool produces the product of the same name. Thus the LOLAMAT panels can be made in the immediate vicinity, avoiding unnecessary transport. The panels are produced in standard sizes; finishing, project preparation and coating of the surfaces are carried out in Bremen, or on-site in the case of bigger projects.

More than 3.5 million euros have been invested in the new production facility, which went on-stream in October 2006. All things being equal, it will soon be possible to begin series production at the factory.



*Production line for LOLAMAT panels*

## Noise protection at work – KAEFER extends product spectrum

When does sound become noise? When does noise become a hazard to health? Kurt Tucholsky once remarked: “Noises are the sounds of others.” So that’s it: noise depends on subjective perception, a function of the individual’s state of mind, preferences, or mood.

From a scientific viewpoint, noisier are sounds which, according to their loudness and characteristics can be either damaging to health or seen as a disturbance by people and the environment. In 2003 the EU issued a new directive concerning noise protection at the workplace, which must be implemented in national law within certain time limits. “This directive determines that a level of noise in excess of 80 db(A) over a period of 8 hours can result in damage to health. Should this noise level be exceeded, the employer has to provide personal protection and where necessary resort to other noise protection measures,” explains Hans-Joachim Rennecke, Head of Central Engineering/Acoustics (CEA).

The new directive lowers the previously acceptable level by 5 db(A). This means that innumerable workplaces, in particular in the manufacturing industry, fall foul of the new UVV regulations. Something therefore has to be done. “We can help companies to implement the

regulation and at the same time expand our service spectrum,” says Rennecke. Indeed, CEA offers complete solutions spanning evaluation of current status up to actually carrying out noise protection measures for customers in all branches of industry.

For instance, the Bremen acoustics experts recently received an order from a concrete processing works. “The package comprises ascertaining the current noise situation in the form of noise cards, making up so-called individual persons exposition level and, finally, carrying out the necessary countermeasures,” reports the CEA leader. Unlike engineering consultants, KAEFER is also able to carry out the protection measures – a significant competitive advantage. “Besides the concrete processing works we are also in talks with a firm in the food sector,” Rennecke reveals. Here, too, the chances of obtaining an order are good – and this bodes well for the further successful expansion of CEA activities.

*Measuring noise levels in the workplace*



## Middle East: Refractory linings

In 1997 KAEFER Middle East made its first entry into the complex segment of installing refractory linings. Our first order was for Dubai's electricity and water utility, entailing the lining of a boiler and a number of steam turbines. These first tentative steps started KAEFER out on a development that would make us the region's specialist for refractory materials. Over the years the spectrum has spread to include the oil and gas industries, power stations, aluminium smelting works and cement factories.

In 1998 an order for the Ras Al Khaimah cement works took us into the United Arab Emirates. Since then we have carried out three shutdown maintenance operations to the complete satisfaction of this customer. The biggest project in the cement

industry so far was at the Sharjah plant, where in 2001 KAEFER installed some 3,000 t of different refractory materials.

The Qatar market was first penetrated in 2004 with the NGL-4 project at Qatar Petroleum. This was followed in 2005 by work on boilers and thermic reformers at the first Gas-to-Liquid plant "Oryx" in Ras Laffan; in the same year Oman came into the fold with 1,000 t of material (Plibrico, Sohar Refinery).

Today, KAEFER can draw on more than 75 experienced and technically skilled people to carry out installation work in the Middle East. The scope of services also includes supply of the materials and a versatile machine park enables us to carry out major projects throughout the region.

## Passive fire protection in Norway

In Norway the owners of houses are personally responsible for providing fire protection and ensuring that it is adequate. Moreover, a large number of other buildings reveal deficits in this area. Two good reasons, then, why in November 2006 KAEFER Norway began to specialise in the market for passive fire protection.

The market breaks down into four categories: fire protection for supporting structures, doors, fire lobby cut-offs (walls and ceilings) including sealant for penetrations, as well as complete solutions for entire buildings.

Steel might not burn, but when exposed to extreme heat it expands and

loses strength. It is vital that the steel remains stable during a fire so as to enable firefighters to extinguish the fire and rescue people. Fire protection for steel can take the form of cladding made from soft insulation material or cladding comprising mineral boards, as well as passive and active fireproof coatings.

In order for walls and ceilings to satisfy fire regulations, the sealant used to seal penetrations – the weakest spots for walls, pipes, cables and ducts – must fulfil the specifications for fire stops. The greatest care must be exercised when selecting materials and throughout all stages of installation. Fire protection systems make use of approved products like cable, pipe or joint sealants.

KAEFER Norway is a supplier of noise and fire protection solutions for doors made of solid wood, as well as for steel doors and gates. The concept of supplying these products as turnkey solutions complete with installation is a convincing one. In this way KAEFER complies with the most rigorous standards of safety and fire protection.

KAEFER offers a number of fire protection solutions and our own experts ensure that quality is maintained at every stage. This includes meticulous and accurate documentation of the fire protection measures employed – of our own work as well as of all the products used.



Sliding fire protection door

## KAEFER Australia: Maintenance contract with Alcan Gove extended

January 2006 saw the resumption of KAEFER Australia's strong relationship with Alcan Gove in the Northern Territory, Australia. This is where Alcan operates an alumina refinery and mine employing approximately 1,100 workers and where, for some time, KAEFER has been carrying out maintenance and insulation work.

In 2006 KAEFER Australia successfully received a 3-year roll-over of their existing contract at Alcan Gove. This is attributable to a strong support from the management as well as the considerable improvement in site safety. In September 2006 KAEFER marked a year free of accidents and notable

incidents on this site. Dave Ashworth, KAEFER Site Manager for Alcan Gove, puts this impressive HSE record down to three factors: training and communication, excellent leadership at all levels, and ongoing assessment of performance.

## Australia: Rope access in place of building scaffolds



When carrying out repairs or maintenance on large industrial plants, it is common practice to erect scaffolds. But this method can be both expensive and time-consuming. For the situations where time is of the essence, KAEFER proposes an alternative. This was recently the case at the Alcan aluminium site in the Northern Territory.

During a comprehensive maintenance project on-site, KAEFER was able to draw on experience gained in its offshore activities in Norway. There, the abseiling

technique, i.e. controlled descent by rope, was used by a team of experts to gain access to places which would have otherwise been difficult to reach.

The group of seven workers used ropes to access the alumina drying facility on the rotary kilns, where they carried out insulation removal.

The result: the team finished their work two days ahead of schedule. The rope access method saved both time and money, so future applications are already in the planning stages.

On a second job they are currently working on stress, corrosion and cracking repairs, then carried out work to combat fissuring and corrosion. They also undertook some of the welding and sand-blasting activities. Whilst rope access was used to assist with the majority of the work, some support scaffolding and elevator platforms were used to provide additional access space for the project.

*Photo left: Access by rope during Alcan Gove project*

*Photo bottom: The KAEFER abseiling experts*



## South East Asia: Alcan Gove extension almost finished

In September 2004 Alcan Inc. announced an important enlargement of the Alcan Gove Aluminium Refinery in Australia's



Dehumidification equipment

Northern Territory. The extension work is a particularly ambitious project and will almost double production capacity.

By the end of 2006 the G3 extension was about 90 % complete. KAEFER South East Asia made a significant contribution to the project through a total of five contracts in Thailand, Malaysia, Vietnam and Korea. These contracts related to individual modules for the refinery, which were prefabricated in neighbouring countries before being transported to Australia.

The scope of KAEFER's contracts included the supply and installation of insulating materials and scaffolding, as well as patented TIPS® and INSTALAG® insulation systems for tanks and pipelines supplied by KAEFER Australia.

Within the context of the G3 project in Thailand, KAEFER insulated 81,000 m<sup>2</sup> with an order value of USD 7 million.

A second Thai contract completed in mid-November was for insulation and scaffolding. This time the order value was USD 7 million for 38,000 m<sup>2</sup> of insulation, 52 t of fireproofed material and more than 300,000 m<sup>2</sup> of scaffold.

The work carried out in Malaysia was worth some USD 4 million and included the production and installation of more than 20,000 m<sup>2</sup> of TIPS®.

In Vietnam KAEFER insulated more than 10,000 m<sup>2</sup> and was responsible for the scaffolding.

In Korea insulation work was carried out for an order value of USD 230,000.

KAEFER South East Asia executed all these contracts on schedule and to the highest standard of quality. The G3 project leaders were thoroughly satisfied and they have announced an intention to collaborate with KAEFER in the future.

## South Africa insulates gas turbines for Siemens

Due to the growing demand for electricity, South Africa is building its first new electric power stations for 15 years.

Siemens Power Generation is supplying the Eskom electricity company with a total of seven gas turbines of the type SGT5-2000E, worth some 230 million euros, for two new power stations. The turbines have such low levels of emissions that they even outperform the stringent standards laid down by the World Bank.

When they go on-stream in April 2007 the two liquid-fuel-fired power stations will produce enough electricity to cope with

peak loads. They are being built in the industrial area of Atlantis, 20 kilom north of Cape Town (four generating units, each capable of producing 150 MW) and in Mossel Bay, 400 km east of Cape Town on South Africa's south coast. Here, three generating units of the same capacity are being built.

KAEFER South Africa has responsibility for all the insulation work on the turbines. The project scope encompasses all work involved with the insulation, from supervision up to the supply of materials.

## Qatar: Another Dolphin gas project milestone

The first of four stages in this large project has been successfully completed.

KAEFER LLC Qatar is working on the Dolphin gas project as subcontractor for JGC Middle East. All in all KAEFER will install some 300,000 m<sup>2</sup> of insulation and the scaffolding for an order value of more than USD 11 million. Part of the work involves two large warehouses (75 x 50 m) equipped with MABI metal fabrication machines. Over 350 KAEFER installation workers are engaged on the project – they live in the recently completed camp in the vicinity of Al Khor near Ras Laffan. The camp can accommodate 850 people.

Dolphin Energy Limited is a joint venture between UAE Offset Group, Total Fina Elf and Occidental Petroleum. Once finished, the plant will process the extracted gas before it is then transported from the northern gas field in Qatar to other parts of Qatar, the United Arab Emirates, and Oman.

The JGC Corporation, Japan, is subcontractor for the upstream and compression facilities, entailing a contract value of some USD 1.6 billion. JGC is responsible for the detailed planning and development, supply and installation of the onshore gas processing plant in Ras Laffan. Ras Laffan in North Qatar is one of the largest natural gas fields in the world.

## Qatargas II: Large order in the Middle East

KAEFER has won an order to insulate five gas tanks for the Qatargas II Onshore project in Ras Laffan. Each tank has a holding capacity of 140,000 m<sup>3</sup> and this major turnkey project, worth around USD 13 million, was commissioned by Ishikawakima-Harima Heavy Industries Co. Ltd., Japan. As many as 200 KAEFER workers will be involved and work is scheduled to be finished in autumn 2008. Although you might be forgiven for

thinking that sand is no rare commodity in the desert countryside of Qatar, some 11,000 t of it will be imported from Saudi Arabia to provide foundations for the tanks. Other work to be carried out by KAEFER includes the laying of foam glass, installation of glass-wool mats, perlite filling and the entire scaffolding. This is the fourth contract acquired by the KAEFER LNG/LPG tank construction team in Qatar in the past three years.

## Camp Qatar: New standards

In order to transform natural gas into liquid gas it must be frozen down to -160 °C. This necessitates all the pipelines being kept at -160 °C, too – which is quite a task in countries such as the United Arab Emirates, Iran and Qatar, where the outside temperature sometimes goes up to 50 °C. KAEFER produces the necessary insulating material for plants located in the region. This calls for large numbers of workers, many of whom come from other countries like India. For instance, a large number of KAEFER employees are currently in Qatar, working on major projects like the Dolphin Gas project (cold insulation) and the IHI project (five LNG tanks). As a rule they stay for two to three months in Abu Dhabi or Qatar. KAEFER provides accommodation for these workers and ensures that they enjoy the best possible living and working conditions. A staff camp has just been completed with accommodation for some 850 KAEFER workers. The men also spend all of their leisure time in the camp. “We place great importance on maintaining good living standards for our employees,” says Eric Brouwer, KAEFER Managing Director for the Middle East. “We want them to feel good so that they enjoy working for KAEFER and stay with us.” In September the camp received an unannounced inspection from representatives of our partner oil companies, who include Qatargas and Rasgaz. It was given the distinction of ‘Best Camp’ and is regarded as a model for other camps in the region of Ras Laffan. “We perceive our workers as indispensable human capital. They are needed for both current and future projects and make a significant contribution to KAEFER’s success in the entire Golden Region,” says Brouwer.

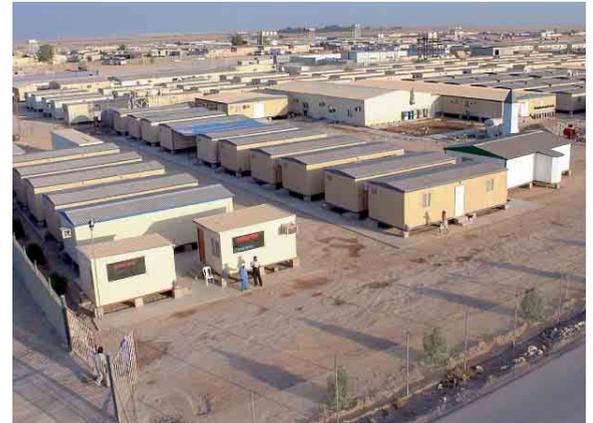
**Iran: Commitment in Bandar Assaluyeh**  
Iranian gas processing plants increasingly rely on insulation by KAEFER. After being

purified, desulphurised and compressed, liquid gas has to be transported at a temperature of -160 °C. Other forms of gas from which olefin, diesel oil or various chemicals can be obtained are also produced at these plants. KAEFER now intends to produce the insulating material used at the plants locally, reducing the need for transport and saving time and money. At the same time KAEFER wants to consolidate its foothold in Iran. This is a country where 30 % to 35 % of the population is unemployed, more than half of them aged under 20. Understandably, the Iranian government is keen to attract investment to boost job prospects for young Iranians. “Companies who contribute local content have good opportunities to benefit further from the gas industry and do good business here,” says Eric Brouwer, KAEFER’s Managing Director for the Middle East. Bandar Assaluyeh is at the centre of the gas and chemicals industry in Iran. The South Pars Field is located in this region (the same field from which Qatar draws its gas). Iran is approximately five times bigger than France and long journeys to work are inevitable. This is why KAEFER recently set up a camp for workers in Bandar Assaluyeh, complete with leisure attractions and other facilities – even a building for prayers, for example. About 250 workers will be accommodated at the camp for several weeks at a time. KAEFER greatly appreciates those who work within its group of companies – and in Bandar Assaluyeh we intend to provide the best possible living conditions while also paying attention to the particular needs of the indigenous population.

### India: Calculation centred in Delhi

Following the foundation of KAEFER Punj Lloyd Limited, the KAEFER Group has now set about expanding its activities in India.

At the beginning of October 2006 KAEFER opened an office to deal with calculations and offers, employing about 20 people. The staff will also be engaged on project management as well as the KAEFER Group’s shut-down activities. “Most of them have received professional training as mathematicians or engineers, but it is still difficult for them to obtain long-term visas for the Emirates or Qatar,” explains



Eric Brouwer, Managing Director for the Middle East. “There is new and very strict labour legislation which places severe constraints on the employment of Indian and Pakistani workers.” For further education and seminars the engineers and other administrative staff now have to travel from Abu Dhabi to Delhi. In fact, entire IT systems are now being transferred from Abu Dhabi to be integrated in Delhi. The residential manager Sanjay Suri works for KAEFER in Delhi, where he has the task of setting up the office there. All the KAEFER companies in the Middle East – and soon the whole KAEFER Group – will now be able to call on the services offered by the team in India. The process has only just begun and it won’t be long before offers prepared for KAEFER locations in Saudi Arabia, Egypt and Kuwait come from Delhi.

Camp Qatar

## South Africa: Double success



**Photo top:**  
SAPREF refinery

**Photo right:**  
KAEFER receives  
award for  
5 million  
accident-free  
hours

SAPREF, South Africa's largest oil refinery, is situated in Prospecton, about 16 kilometers from Durban. The refinery is a joint venture between Shell and BP, and is operated by Shell. In 2006 it was shut down for several months, the longest maintenance shutdown in its history.

KAEFER South Africa carried out all the work connected with the scaffolding, insulation work and industrial cladding. Securing such an important contract was a great success for KAEFER and can be traced to the outstanding reputation we



have built up in this area. Between June and September 2006 more than 300 workers were needed to erect and dismantle the scaffolding, 45 m at the highest point. Many of the scaffold structures had to be put up under extremely difficult conditions, some of them on the inside of chimneys.

The insulation work was carried out by about 70 KAEFER employees. They delivered high quality throughout and finished the job bang on time. Altogether, the 440 KAEFER personnel involved put in

almost 300,000 man-hours during the shutdown. The entire three months passed without a single worker needing medical attention – making it seven years and more than 5 million man-hours that KAEFER has been working at the refinery without an accident. This represents a real success story for KAEFER and the SAPREF management conveyed their personal congratulations – because no other contractor at the refinery has ever managed this before.

## Spain: A big customer with big challenges



The Dow Chemical Company, whose headquarters are in Michigan, USA, is one of the largest chemical companies in the



world and among the biggest producers of plastics like polystyrene and polyethylene. The company is building a new

production plant in Tarragona in the north-east of Spain – with the help of KAEFER Aislamientos Spain.

Between mid-2006 and completion of the work in November, some 120 KAEFER personnel were working on the thermal insulation. KAEFER Aislamientos installed materials worth a total of 1.3 million euros during the heat and cold insulation work. This compares with a total order value of 4.7 million euros. "It was a major project for us," says Mikel Mugica of KAEFER Aislamientos. "The customer placed particularly high demands on the cold insulation – a challenge we were able to deal with successfully."

Dow Chemical is an important customer of KAEFER Aislamientos and the end of 2006 saw KAEFER working simultaneously on a number of projects for this company.

## Spain: Pilot project for new solar technologies

In the south of Spain one of the country's biggest engineering companies, Sener, is building a photovoltaic plant called SOLAR 3. A special pilot facility was built beforehand for testing purposes and to ensure that the plant will eventually be equipped with the very best solar technology.

KAEFER Aislamientos is supporting Sener not only in construction of the pilot

facility, but also in the design, and is therefore fast becoming a front runner in this sector. As soon as the new technologies have proven to be efficient it is planned to add many more large solar plants throughout Spain. "That could develop into an important new market for us," says Mikel Mugica of KAEFER Aislamientos. "We are doing our utmost to support the customer and to ensure a

successful test outcome." KAEFER is installing virtually all the insulation at the pilot facility. This is being done in such a way that it can be removed relatively easily. "Throughout the time the facility remains in the test phase and different paradigms are still being tried out, it is important that parts of the insulation can be removed at short notice," Mugica explains.

## LNG terminal in Guangdong

KAEFER WANNER goes east – and with considerable success.

Since April 2005 the company has been working for STTS Energies (SAIPEM) on the construction of a new LNG terminal in the Chinese town of Guangdong. This is China's first LNG terminal (LNG= Liquefied Natural Gas). Guangdong Province is the biggest LPG importer (LPG= Liquefied Petroleum Gas) in China and the new terminal will reinforce its position on the gas market.

All this is taking place with energetic support from KAEFER WANNER, which is supplying and installing the cold insulation material that has to ensure a temperature of  $-160\text{ }^{\circ}\text{C}$  in the tanks and pipes. KAEFER's work will end with completion of the third tank in September 2007 and the order is worth more than

three million euros. The work in Guangdong, in particular the insulating, is being carried out on-site by CNI 23 under the leadership of Jean Marie Quillet and Alain Lefrançois.

The materials come from Italy, the Netherlands and the USA, where the foam glass is produced before being processed locally by our Chinese partner company Speedo.

KAEFER WANNER is cooperating closely with KAEFER Insulation Engineering Shanghai Co. Ltd. on the Guangdong project. For instance, KAEFER WANNER sent Olivier Gazeau to Shanghai to represent the French company on-site, where he is better able to deal with customers and to supervise local activities in the area of industrial and nuclear heat insulation.



First LNG terminal in Guangdong, China

## Belgium: Competence in nuclear power sector proven once again

Electrabel is the biggest electricity producer in Belgium. Among other locations it operates the Tihange nuclear power station. In 2006, Electrabel entrusted KAEFER WANNER Luxemburg with the task of providing the entire heat insulation for all three blocks.

Work started in March 2006 on Block 3 during a maintenance shutdown. In order to facilitate coordination between the Electrabel workers and our French employees, KAEFER WANNER put up an on-site workshop – further proof of our longstanding and excellent cooperation.

Recently, KAEFER WANNER was commissioned to renew the steam generators in both the Tihange and the Doël nuclear plants. Electrabel can count on our experience in the nuclear area and on the competence of the whole KAEFER WANNER team.

## KAEFER WANNER: Work in record time at a Total refinery



KAEFER WANNER accomplished an exceptional feat during a shutdown at the Total La Mède refinery in France.

From March till May 2006 employees of the asbestos removal department of the Normandy branch and the Etang de Berre branch, supported by KAEFER subsidiary TERMOIZOLACJA, were fully occupied working on the 5-million-euro order. And in those 3 months, the KAEFER team managed to complete a remarkable number of tasks.

Access ways to the refinery presented a particular challenge, especially the footbridge that had to be built over the railway lines. In cooperation with the Entrepouse company, employees of the Etang de Berre branch assumed responsibility for all the scaffolding needed. Throughout the construction stage they had to ensure the safety of the refinery's 3,000 workers.

Scaffolding for a 63-metre-high chimney at Total refinery



Scaffolding for footbridge

The C1 chimney is 63 m high with a diameter of 7.5 m. First of all, some 300 t of scaffolding had to be erected. After this the asbestos disposal team had to install 4,000 m<sup>2</sup> of retractable thermal blankets, before removing 1,200 m<sup>2</sup> of thermal cladding. The whole task took just 2 weeks to complete. TERMOIZOLACJA then fitted the new insulation to the chimney.

The work on columns C13 and C15 required 4 t of stainless steel sheets and 600 m<sup>2</sup> of insulation material. It took some 2,000 man-hours to complete.

Employees from Etang de Berre and TERMOIZOLACJA performed most of the work on Unit D4, an industrial tract where furnaces H3A and H3B are located. This required approximately 1,400 man-hours for the insulation of 600 m of pipes and 6 heat exchangers. More than 6,000 man-hours went into insulating the two furnaces in this unit.

Total also commissioned KAEFER WANNER to carry out insulation of the pipes and scaffolding in connection with integrating the new furnace F2. Workers from Agence West had to be brought in specially to erect 70 t of scaffolding. Most of the insulation work was carried out by TERMOIZOLACJA and took about 17,000 man-hours.

## KAEFER WANNER benefits from a new tendering system

PGAC stands for 'Prestation Globale d'Assistance Chantier' and is a new system for tenders proposed by Electricité de France.

EDF is the market leader in France and numbers among Europe's top electricity companies. PGAC was developed to facilitate servicing and maintenance at

nuclear power stations. A PGAC contract runs for a minimum of 4 years. The contractor agrees on behalf of EDF to take over the logistics involved in servicing equipment, to ensure works safety, to ensure that radioactive waste is correctly disposed of and stored, and to generally

provide support for all the work in and around the reactor.

KAEFER WANNER has already concluded 4 contracts with EDF for work at the Gravelines, Flamanville, Blayais and Golfechis nuclear power stations. In each case the company is cooperating with

partner enterprises specialising in carrying out maintenance at industrial plants. Among other things KAEFER WANNER is responsible for scaffolding, heat in-sulation and maintenance work. The contracts are performance-based:

EDF expects that processes are optimised and result in productivity gains.

Each PGAC programme is organised and supervised by employees of KAEFER and partner companies on the spot. They assume the tasks of coordination and

communication and are the contact partners for EDF. They keep EDF informed about the services rendered and are responsible for the programme.

## Non-stop at Neste Oil refinery



Work at the Neste Oil refinery site in Kulloo, Finland, has been going on since 2000. So far this year insulation has been carried out on about 57,000 m of pipeline and 8,000 m<sup>2</sup> of plant and equipment.

In addition, KAEFER Finland insulated two storage tanks, each with a holding capacity of 1,000 m<sup>3</sup>, as well as the accompanying pipeline with a length of 30,000 m.

## KAEFER in Ireland: Becoming a leading player

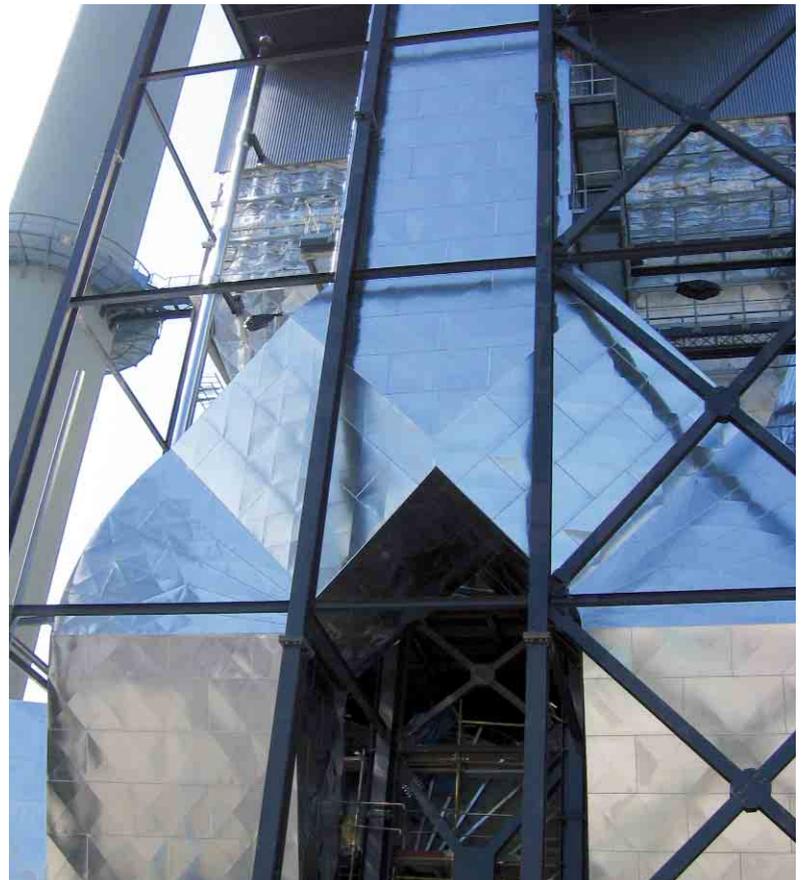
2003 saw KAEFER's first activities in Ireland with an order for KAEFER's subsidiary in Poland, TERMOIZOLACJA S. A. The order came from the Finnish company Foster Wheeler and business in Ireland has developed steadily ever since – in a process that continues to go from east to west.

In 2006 TERMOIZOLACJA won a major contract worth 10 million euros. Our customer Lurgi-Lentjes, based in Ratingen near Düsseldorf, placed an order for the insulation of a desulphurisation plant at Moneypoint in the west of Ireland. The work was for 58,000 m<sup>2</sup> of insulation to three blocks of a coal-fired power station. The order also encompassed the installation of approximately 20,000 m<sup>2</sup> of industrial facade. In addition, TERMOIZOLACJA is supplying the scaffolding for all the work at the site.

The project is scheduled to run until mid-2008 and could well lead to further work, boosting the total amount to 15 million. On average, about 60 workers are permanently on-site. Very high demands are placed on the stability and quality of the material. "The region is notorious for its strong winds and we need to have especially sturdy foundation structures," says Robert Skrobisz, Regional Director of KAEFER Eastern Europe. "On top of this the air is very wet and salty, accelerating corrosion."

Skrobisz intends to expand activities further in Ireland and to establish KAEFER among the top 3 players in the market. Other projects are already in the final negotiation stage and Skrobisz expects orders for 2007 to approach the 10-million euros. "We foresee a steady development," he says. TERMOIZOLACJA maintains a branch office in Dublin, where two employees concentrate on the acquisition of new orders. They receive support from the various site supervisors and another position is planned.

Ventilation duct in Shannonbridge power station



## The feeding of the 100,000

**What do you do when 100,000 people have to be catered for – every single day? Well, before you set the chefs to work, first call in the engineers.**

The Viennese CMS – Club Menu Service – counts some 100,000 diners among their customers every day. When they needed a new kitchen they turned to the Czernin Group, a firm of consulting engineers. As



100,000 meals can be prepared in the Mega Cooking Centre

could be expected, the Czernin Group came up with a successful concept for a 'mega cooking centre'.

And they decided to work with a very special ingredient – KAEFER. In July 2005 Czernin placed an order with KAEFER for a panel facade of about 10,000 m<sup>2</sup> and the construction of some 5,000 m<sup>2</sup> of cold storage areas. This order was worth around 1.5 million euros.

About 0.5 million euros were involved for the second stage, the insulation of 7,000 m<sup>2</sup> of air inlet pipes (made of 19 mm rubber) as well as the pipes for heating, air conditioning, sanitary and steam piping (mineral wool with aluminium sheet).

The third stage involves acoustic insulation, lifting platforms, ramps, cold

storage doors and sliding doors, fast-opening doors and diverse plumbing work.

This means teamwork between three departments: Industrial Construction, Cold Storage Construction and Industrial Noise Protection. The work, which began in the autumn of 2005 and took a full year, placed great demands on Project Manager Helmut Paiszler and Construction Supervisor Markus Stelzer. Indeed, it probably cost them several kilos in weight – despite the stomach-filling objectives. But we are pleased to say everything is on track and CMS will once again be able to expand their customer base in 2007 without any bottlenecks in the kitchen.

## The Netherlands/Belgium: Classic KAEFER scaffolding and insulation

**2006 in Dordrecht (the Netherlands) and Sint Niklaas (Belgium) was dominated by industrial activities – scaffolding and insulation for heavy industry and modular constructions, for conventional and nuclear power stations, as well as for the food industry and building construction.**

### **BASF Antwerp, aniline project**

A new customer, Alois Lauer GmbH, a steel and pipeline construction firm based in Ludwigshafen, placed an impressive order worth some 1.5 million euros. Scaffolding was needed for the entire second half of the year in connection with the construction of a new aniline plant.

A parallel order for insulation of the pipelines, tanks and auxiliary equipment was carried out in part by our subsidiary

company IZOKOR Poland, involving 25 installation workers over a period of four months.

### **Stop Central 1, Doel / Antwerp**

Electrabel Doel, another new customer, commissioned us to erect scaffolding for maintenance work to be done on a nuclear power station during August and October.

### **Corus shutdown furnaces 6 and 7, IJmuiden**

Another job for the steel construction company Iemants NV, who this time placed an order worth 600,000 euros for scaffolding in connection with maintenance and repairs to charging conveyors. The work, which went on for the entire second half of the year, was remarkable due to the specified carrying capacity of 1,000 kg/m<sup>2</sup>. This requirement, at working heights of up to 30 m, could only be fulfilled with sturdy support constructions and the use of special elements.



Scaffolding for BASF, Antwerp

Special scaffolding for Corus shutdown



### **Cracking furnace, DOW Terneuzen**

This involved carrying out scaffolding and insulation work for our longstanding customer Technip Benelux, an international industrial construction company. The work was begun in June and finished in December. Here, too, as in the case of BASF in Antwerp, the insulation work was carried out in part by our Polish subsidiary IZOKOR Plock S. A.

## KAEFER ApS: Something good in Denmark



In recent years Denmark has transformed itself into a modern service economy and is now riding a wave of economic development. This has resulted in the lowest rate of unemployment for 30 years and enabled the funding of mammoth projects such as the bridges at Øresund.

KAEFER is well placed to benefit from this trend, having identified Denmark as a market with significant potential some years ago.

KAEFER ApS was founded in 1996 by KAEFER Finland, which in 2005 became part of KAEFER Isoliertechnik GmbH & Co. KG. Meanwhile, KAEFER's Hamburg Industry Department had been carrying out a number of projects in Denmark since 2000.

In 2005, the Hamburg Industry Department began to work with KAEFER ApS in Denmark to maximise opportunities there. The management comprises Jürgen Wende and Bernd Beermann, together with the head of the Industry Division, Helmut Hecht.

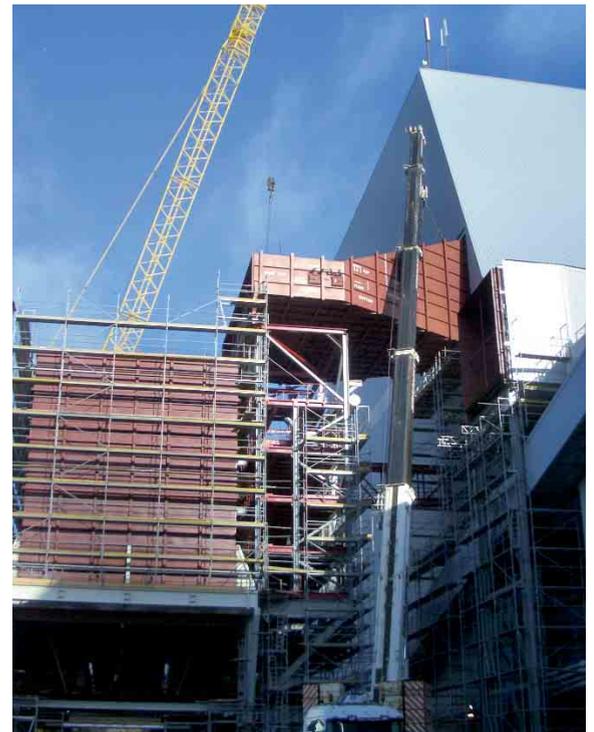
And it was in 2005 that the first big breakthrough came for the Danish KAEFER team. This entailed an order placed by BWE (Burmester & Wain Energy), acting as main contractor. The contract, worth over 1 million euros, involved scaffolding and insulation for a DeNOx facility at a power station belonging to the Danish Elsam Group in Studstrup. The work was carried out between March and October.

While the project was still in progress, an option was secured for the second building phase. At the same time KAEFER ApS was commissioned to carry out scaffolding and insulation work at Denmark's biggest refinery, Statoil in Kalundborg. In connection with this project a large investment was made in improving know-how and in building a stock of scaffolding materials and equipment so that KAEFER will be fully prepared for future projects.

Currently, approximately 40 workers are employed at Danish sites.

Such is KAEFER's progress in Denmark that in 2006 offices and a workshop were leased in Fredericia. A promising future is predicted and over the next few years our presence is to be expanded. And the commitment and foresight of the Hamburg team has been fully justified.

*Scaffolding for a DeNOx plant in Studstrup, Denmark*



## Renewable energy – KAEFER insulates biodiesel plant in Mecklenburg-Western Pomerania

In mid-May 2006 a new production facility in Sternberg, Mecklenburg-Western Pomerania, became operational. This 32-million-euro plant will produce 100,000 t of biodiesel per year, processed mainly from Mecklenburg rape.

Between February and August 2006 KAEFER Hamburg installed 13,000 m<sup>2</sup> of thermal insulation. This type of pro-

tection against heat and cold considerably reduces the plant's energy consumption. Some 20,000 man-hours went into the Sternberg project, which occupied up to 20 KAEFER installation workers. This order was acquired and successfully brought to completion as a result of a joint effort by KAEFER Hamburg and KAEFER Hanover.

*Biodiesel plant in Sternberg, Germany*



## Shell shutdown: KAEFER Hamburg in action

From January to September 2006, KAEFER Hamburg was kept busy with insulation work at the Hamburg Shell refinery. The plant was shut down while KAEFER attended to some 65,000 m<sup>2</sup>

of surface area. As many as 60 installation workers were in action – dismantling, renewing and installing conventional insulation. The order was worth about 3 million euros.



Shell refinery in  
Hamburg, Germany

## Tight schedule, cramped space, multiple tasks: Overhaul at Piesteritz agrochemicals park

Workers at KAEFER Leipzig are long-term partners of the SKW Piesteritz nitrogen works, taking care of ongoing maintenance and the annual overhaul.

This year SKW Piesteritz' annual plant shutdown was once again used for major maintenance work and new investment. KAEFER was commissioned to upgrade insulation of the ammonia separator – also known as the “cold drum” – and the primary reformer of ammonia facility I.

The order for work on the cold drum, which is approx. 28 m long and 2.6 m in diameter, came directly from SKW Piesteritz. As part of the contract KAEFER also coordinated the scaffolding and anti-corrosion work. The insulation had to be laid at temperatures of up to –35 °C. It comprises aluminium foil and in-situ PUR foam with an insulation thickness of 40, 100 and 120 mm.

The order for the primary reformer was placed by EHR Essener Hochdruckrohrleitungsbau. This work entailed coping with a number of complex insulation tasks and logistical challenges according to a complicated time schedule, working in confined spaces and doing a variety of different jobs. For example, the insulation on the exhaust collector has to withstand ambient temperatures of more than 1,000 °C; and in order to facilitate speed of installation and ease of maintenance the 504 gas supply pipes, known as “pigtailed,” had to be insulated with mattresses. Over the years KAEFER has amassed consid-

erable know-how with respect to the works insulation specifications, especially for the exhaust collector and the “pigtailed”.

At the same time as the shutdown at SKW Piesteritz, AMI's melamine plant – also located on the Piesteritz agrochemicals park – was closed down for routine maintenance. Here, too, KAEFER workers were on the scene to carry out insulation work, this time on behalf of MCE Industrieservice. During the four-week core shutdown period in July/August some 50 KAEFER personnel were occupied at the SKW and AMI plants.

Insulation of the primary reformer at the SKW nitrogen works, Piesteritz, Germany



## 5 months, 50 men, 150 t of stainless steel

**Just some of the more basic data on a major project for the Industrial Construction Department. The contract was performed by the Pfungstadt branch of the department, for a Japanese chemicals company located at the Kalle-Albert industrial park in Wiesbaden.**

The Shin-Etsu Group has its headquarters in Tokyo, Japan. It is the world's largest producer of methyl cellulose, an additive used in the chemical industry, for building materials and paints, as well as for diesel exhaust catalysers.

Thanks to the construction of an additional production facility SE Tylose, a Shin-Etsu subsidiary, was able to raise its previous annual output of 27,000 t by a full 10,000 t.

First, though, 100 million euros had to be invested in insulating the entire plant, a task taken care of by KAEFER installation workers between July and November 2006. A remarkable 150 t of stainless steel sheeting was used and it all came from our Pfungstadt workshop. During this time our workshop personnel had to keep their machines running at full capacity for several weeks.



## BP Lingen: Flexibility and cooperation successfully master shutdown

In summer 2006 the BP refinery at Lingen underwent a complete overhaul, necessitating the complete shutdown of all plant and equipment between August and October. Besides the 50-million-euro overhaul, BP Lingen spent another 20 million euros on repairs and maintenance.

In this short time some 50 reactors, 50 columns, 20 furnaces, 100 air coolers and 650 heat exchangers had to be inspected and overhauled. The work involved more than 60 different contractors.

KAEFER was responsible for all aspects of insulation and KAEFER's Bremen Industry Department had to cope with a number of challenges simultaneously. On the one hand, they only had 12 weeks to carry out the complex work, which had a total value of 3.5 million euros. And on the other hand, during the 3-week engineering phase, the KAEFER team was reduced to just 60 men.

This represented quite a challenge – even for these experienced men, for whom such major projects are nothing new. This was due not so much to the task of planning and coordinating the work, which at peak periods called for as many as 180 installation workers, but to the extremely short time available in which to react, make decisions and implement suitable action.

Even though preliminary planning of the work had begun several months beforehand, there were still a few surprises to come. No matter. Thanks to the close cooperation between the on-site team and the personnel in the Bremen KAEFER Industry Department, the contract was completed successfully. Once it is operational again in October 2006, the refinery will be fit to run for another 5 years before the next overhaul is due.

*BP Lingen refinery, Germany*



## Snøhvit: The largest contract in our history

Photo right:  
Pipeline bridge  
fitted with weather  
protection



Photo top:  
The care of the gas  
liquefaction plant,  
built in Cadiz, Spain



Photo centre:  
Scaffolding



Photo bottom:  
Weather protection



In 2003 KAEFER Norway was awarded a contract for insulation, scaffolding and surface treatment by the Statoil Group.

The work was for the gas liquefaction plant in Hammerfest in the Arctic Circle. With an order value of some 60 million euros the Snøhvit project was the biggest contract in KAEFER's history. Due to the size of the project, it has been necessary to involve KAEFER employees from Spain and several other countries as well as Norwegian KAEFER personnel.

Work commenced in 2004. The heart of the plant, the gas liquefaction facility, was built in Spain at Dragados Offshore in Cadiz, with KAEFER Aislamientos completing an order for extensive insulation work. The facility is the first of its type to be built away from its destined location and in July 2005 it was towed some 5,000 km by barge to the Norwegian island of Melkøya inside the Arctic Circle.

Here, the construction of the gas liquefaction facility entered its final stage.

And the nearer completion of the facility approaches, the more important the work connected with its insulation becomes. Anti-corrosion protection and scaffolding also form part of the important services being provided by the KAEFER personnel. As a consequence of its integral role in the project, KAEFER Norway has been responsible for many project milestones.

KAEFER gradually raised the number of employees on the site during the labour-intensive phases of the project. For several months the average number of KAEFER installation workers employed there topped 1,800 – presenting a formidable challenge for management and on-site logistics. Our two years of experience on the Snøhvit project, together with high levels of cooperation with the other on-site contractors, has contributed significantly to the excellent overall progress.

In April 2006 the Management was confronted with some far-reaching

changes. As a result the workforce had to be increased and the Management reinforced. These organisational changes proved to be successful and KAEFER Norway is now working not only to plan, but is ahead of schedule in some areas. Project Leader Karsten Gudmundset is full of praise: "The whole organisation has performed magnificently. Our partners Aker Kvaerner and our customer Statoil are well pleased."

Work remains to be carried out on fire protection measures, the insulation of pipes, maintenance of scaffolding and weather protection. In the coming year the plant will be filled with gas. Then the turbines, generators and compressors will be tested for functionality, and the 'hot phase' for the facility will have begun. We will then have implemented an order volume of about 300 million euros.

## KAEFER Australia: Woodside project

In June 2005 Woodside Energy, Australia's biggest energy provider, decided to carry out major extensions to its gas liquefaction plant in Karratha, 1,400 km north of Perth. Operating under the name of Woodside Train V, KAEFER Australia won the contract for the insulation, scaffolding and anti-corrosion work. This represents the biggest order ever to be awarded to a single insulation contractor in Australia.

The Woodside contract will be performed in three modules. The plant components are prefabricated on Batam Island (Indonesia). Preliminary insulation and anti-corrosion work is carried out in Kwinana near Perth, and insulation work

as well as corrosion, scaffolding and fire protection on-site in Karratha.

Altogether 57 different plant components of various sizes have to be transported on 16 ships from Batam Island to Australia. Prefabrication is being carried out by the J. Ray McDermott Yard on Batam Island, 12 km southeast of Singapore, where the galvanising and cold insulation work will also be carried out. Since February 2006 the Project Management have had their hands full ensuring that all the tasks involved remain on schedule and that the rigorous safety programme is adhered to. Even after some 75,000 man-hours, there have been no delays due to

accidents. The project on Batam Island will probably be completed in March 2007. Then the team around Project Managers Steve Burrows and Robert Gramstad will go to Karratha to work on the next phase of the Woodside project. In the meantime the preliminary work on insulating the pipe spools will have been completed on the Australian mainland.

The whole LNG Woodside contract is worth some 60 million Australian dollars. Work should be complete by March 2008. Above all, it was our strategy of presenting ourselves as a company with global, regional and local competence that played a pivotal role in securing the contract.

## KAEFER International Offshore: First Australian order

In April 2006 KAEFER and IKM Testing merged in order to offer a wider scope of services to the Australian oil and gas industry. The first fruits of this cooperation have now materialised in the form of a one-year contract for maintenance work on the Four Vanguard facility in Carnarvon Basin on the northwest coast of Australia.

This FPSO vessel (floating, production, storage and offloading system) became operational in April 2003 and the drilling facility lies at a depth of around 100 m. It is operated by Australian FPSO Management, a subsidiary of the Premuda Group.

In October 2006 the KAEFER IKM team began work on pressure cleaning the ballast tanks. Other tasks, including coatings and alternative methods of inspection, are being considered for the future. This contract evidences the strong partnership between KAEFER and IKM which were key to securing a breakthrough in this demanding sector. It is also an indication of the local demand for service providers who are capable of carrying out different tasks in different areas.

*FPSO vessel "FOUR VANGUARD"*



## KAEFER Aislamientos goes Offshore



KAEFER Aislamientos performed extensive insulation work on the Buzzard platform, just off the Spanish coast near Cadiz.

Working for Dragados Offshore, between August 2005 and June 2006 the KAEFER team put in more than 73,000 man-hours in order to fulfil the order, which was for approximately 3 million euros.

All told, a surface area of 500 m<sup>2</sup> as well as 10,000 m of pipes had to be insulated, for the most part requiring both thermal and noise insulation. As many as 50 KAEFER workers were involved.

*Buzzard offshore rig*

## Statfjord changes over to gas



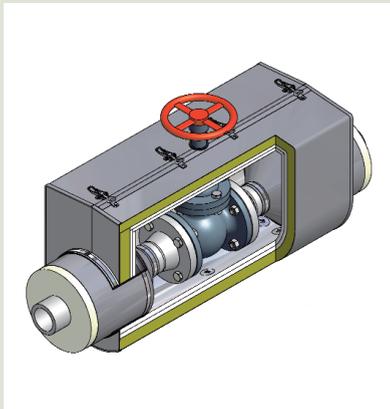
*Statfjord A offshore platform*

Prices for crude oil remain high, making it increasingly worthwhile to tap residual reserves of oil and gas. This is what prompted 'Statfjord Late Life', a project to prolong the exploitation of fields in the North Sea just off the Norwegian coast. The aim is to enable the Norwegian Statfjord oilfield to continue production of oil and gas up to the year 2018. Platforms A, B and C are currently being prepared for this task – and KAEFER IKM has concluded a contract with Aker Kvaerner Offshore Partner (AKOP) that encompasses installation work and the supply of materials and personnel.

Within the scope of this joint project, KAEFER IKM is responsible for scaffolding, corrosion protection, passive fire protection and insulation, and the installation of heating and air-conditioning equipment. KAEFER IKM will also supply the building sites with insulation materials and take charge of resource scheduling and logistical coordination.

The work is occupying some 100 KAEFER IKM employees on the platforms and up to 5 KAEFER personnel onshore. They are working in shifts, day and night. In the summer of 2006 KAEFER IKM was involved in two major shutdown operations. Among other things this work included extensive preparations for the forthcoming installation of gas production facilities.

## New products for higher standards



*New insulation boxes for flanges and valves*

"More than good ideas" – this KAEFER slogan represents more than mere lip service: it is actually put into practice worldwide.

In the past year, for instance, KAEFER IKM implemented the raised specifications laid down by NORSOK standards in innovative product solutions. The NORSOK standard was established by the Norwegian oil industry together with Norwegian suppliers to promote the development of innovative products and solutions, as well as to secure the involvement of insulation companies in the



*Fire test for insulation boxes*

early stages of product development. In the past year Standard R-004 for piping and equipment insulation was revised. KAEFER IKM subsequently designed and tested new insulation boxes for flanges and valves. The development process was accompanied and supported by the Technical Department in Bremen.

In addition, KAEFER IKM is currently refining a pipe penetration system that has already been in use on drilling platforms for a number of years. And it doesn't stop there – KAEFER personnel in Norway are planning to adapt the vacuum insulation systems developed in Bremen for use in the oil industry.



Recreation areas  
on an oil rig

## KAEFER IKM: Top address for refurbishing offshore accommodation in the North Sea

Almost all the oil platforms in the Norwegian oil fields are showing their age. By means of new technologies and innovative solutions, it is possible to prolong the life of the platforms and equipment. However, since the 1970s, when the first offshore accommodation for oil platform crews was installed, there has been a considerable change in demands placed on the work and living-area environments. For instance, the requirement for a clear demarcation between living and work areas is far more prominent than in the initial years.

KAEFER IKM's architect and outfitting department offers a complete spectrum of services for the Norwegian offshore industry. This encompasses maintenance and refurbishing work – including planning and design, through all installation work up to and including turnkey contracts. At all times the

Norwegian KAEFER specialists work according to the rigorous NORSOK criteria. This comprehensive body of rules and regulations lays down instructions and guidelines on the work environment, health and safety, outside working conditions and much more. With some 60 employees (comprising 8 administrative staff, 10 supervisors and 42 installation workers) KAEFER IKM is among the leaders in the North Sea offshore market for refurbishing work.

The large number of successfully completed orders heralds a positive result for the 2006 business year. For instance, on several platforms, including Ekofisk Kilo, KAEFER IKM converted the twin cabins to single cabins. And outline agreements have been negotiated on extensive interior outfitting for whole exploration areas, each with several platforms. For example, KAEFER IKM is

responsible for all interior outfitting work on the cabins and offices, relaxation and sport areas, mess and canteen areas, communication centres and multi-function rooms on the Statfjord, Gullfaks, Snorre and Visund platforms. Over the past year, 260 wet rooms in the cabins on the Statfjord A and Gullfaks B platforms were completely refurbished.

The spectrum of services offered by KAEFER IKM encompasses everything needed to complete a project – from project planning, through project management, right up to the supervision of all the work involved in a project, e.g. CAD, engineering services, procurement, installation and product development. The department's success is reflected in the figures. Whereas in 2005 turnover amounted to 6 million euros, in 2006 it is expected to be double that.

## KAEFER WANNER and KIS: A solid team



'MSC MUSICA'

Three years ago, KAEFER WANNER presented its credentials and capabilities to DCN, one of Europe's leading shipbuilders. With the support of KAEFER International Shipbuilding (KIS), DCN was invited to visit Germany, where it rapidly became convinced of the KAEFER Group's competence in matters surrounding warships.

As a consequence, DCN recently awarded KAEFER WANNER a contract for the development and design of the entire fire, heat and noise insulation for eight frigates to be built for the French navy.

Each frigate is 137 m in length and is equipped for a crew of 108 men. Two types are under construction, differing only in their equipment. Thanks to the ideas developed by the KAEFER Shipbuilding Division, the weight of the frigates has been significantly reduced.

The contract, which runs until 2010, evidences the successful cooperation between the partners NMI and DCN in Lorient and Brest. Several new joint projects are currently in the pipeline, including the building of an aircraft carrier. In 2008 KAEFER WANNER will start on an order for nine further frigates to be built by 2015.

KAEFER WANNER is firmly establishing itself in the military sector and is on track to become the leading company for the maintenance of operational readiness of naval vessels.

On 1st June 2006 the Aker Group took over the shipyard Alstom Marine Chantiers de l'Atlantique, which has been renamed AKERYARDS S. A. As a result of the takeover, KAEFER WANNER is now involved in several important projects at the shipyard.

Between August 2005 and April 2006 KAEFER WANNER MARINE and TERMOIZOLACJA had already successfully installed 485 turnkey cabins on 'MSC MUSICA', which is destined to cruise the Mediterranean. In September 2006, work commenced on the second ship, the 'MSC ORCHESTRA'. Besides the cabins, KAEFER WANNER MARINE is also responsible for installation of the walls and ceilings in the wellness and fitness areas of the ship. This is the first time that LOLAMAT walls and ceilings will be used in the building of a French cruise liner.

Together with its partners, KAEFER WANNER intends to intensify activities in this field, counting on valuable support from KIS in disseminating our shipbuilding expertise in Germany, France and Finland. Growth in the cruise liner sector and the cooperation of Aker Yards in France are positive omens for the future development of KAEFER WANNER.

Over the past two years, and with support from KIS, KAEFER WANNER has restructured and combined competences at the Saint Nazaire location. The company is now well established in this important maritime centre and is able to offer a complete spectrum of services – primarily for cabins, walls, and insulation but also for cold storage rooms. All our services also encompass development, logistics, installation and complete project settlement.

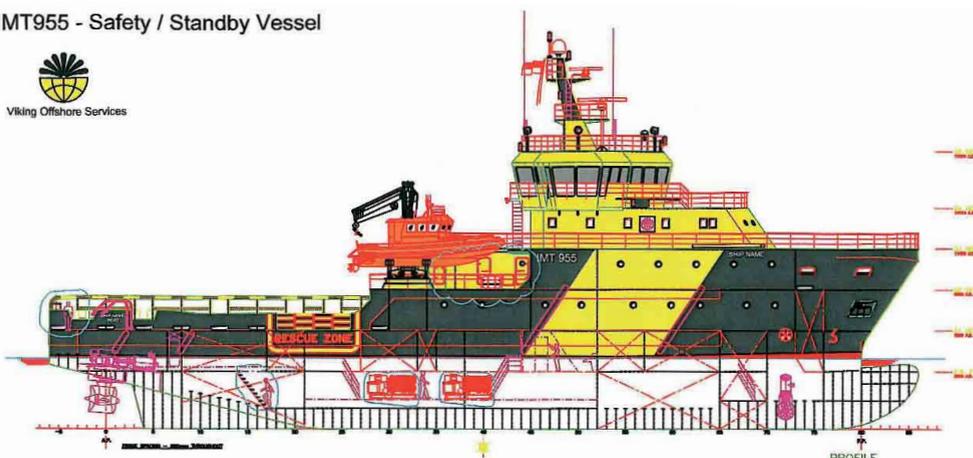
In 2006 KAEFER WANNER carried out another project on behalf of Aker Yards S. A. This involved some 60 employees, who over a period of seven months completed extensive insulation work on gas tanks at Saint-Nazaire sur les Chantiers. Here, too, the high level of technical expertise and excellent cooperation between KAEFER WANNER and TERMOIZOLACJA formed a package with which the customer was highly satisfied.

## Spanish supply vessels for Norwegian company

### IMT955 - Safety / Standby Vessel



Viking Offshore Services



KAEFER Aislamientos has acquired a major order for the interior outfitting of nine offshore supply vessels.

The ships in question are standby vessels for the Norwegian company Viking Offshore Services. They are being built by the Spanish shipyard Astilleros Zamakona in Bilbao, between 2006 and 2009.

For KAEFER Spain the order is worth 1 million euros per ship. Work began in August 2006.

## KAEFER Finland: At home on all ships sailing the seas

Color Line is the biggest ferry owner in Norway and one of the leading passenger ship operators in Europe.

In May 2005 the company commissioned Aker Finnyards to build the 'COLOR MAGIC' at a cost of around 325 million euros. Building commenced in winter 2005/06 and delivery is due in autumn 2007, when she will ply her trade between Kiel and Oslo.

With a length of over 223 m and a 35 m beam, 'COLOR MAGIC', together with her sister ship 'COLOR FANTASY', numbers among the biggest vehicle-carrying cruise ships. 'COLOR MAGIC' has 1,021 cabins, 5 more than her sister.

On board, passengers will find numerous shops and a variety of entertainment offers, generously proportioned meeting rooms, and a wellness and spa area. Altogether, the 'COLOR MAGIC' has room for 2,750 passengers, 250 crew and 750 cars. Some of the cabins are being supplied by KAEFER Finland, who will install some 250 cabins over an area of 3,200 m<sup>2</sup> as accommodation for the crew and passengers.

Also at Aker Finnyards, a high-speed ferry has been under construction for the Estonian Tallink Group since July 2006. The ferry is to begin a regular service between Helsinki and Tallinn in spring 2007, covering the route in less than two hours. KAEFER Finland is responsible for 161 cabins over an area of 2,500 m<sup>2</sup>. The high-speed ferry is 185 m long, has a beam of almost 28 m and room for 1,900 passengers on board.

With assistance from KAEFER Finland, Aker Finnyards is building a RoPax ferry for the French shipowners Brittany Ferries. From autumn 2007 the ferry will operate between Great Britain,

France and Spain. At 168 m in length and almost 27 m wide, she has 120 cabins on board. There are three vehicle decks covering a distance of 2.2 kilom. Building commenced in October 2006 and here, too, KAEFER Finland is supplying 164 cabins over an area of 2,150 m<sup>2</sup>.

KAEFER will also be involved with the third ship of the Freedom class which, together with its sister vessels, will be among the largest cruise liners in the world. All in all, 558 cabins have to be installed over an area of 8,800 m<sup>2</sup>. Work began in summer 2006 and the ship will be completed in April 2008. And the Finnish shipping company Viking has commissioned KAEFER to supply and install 255 cabins for a high-speed ferry for delivery in November 2008.

In summer 2005 KAEFER acquired MML Shipbuilding Oy. Shortly afterwards MML was awarded a contract for the renovation of the spa area on the cruise liner 'CRYSTAL SERENITY'.

In 2006 another order followed for the 'CELEBRITY CENTURY'. MML was responsible for revamping the spa area, discotheque, restaurants and bar. More than 350 workers from eleven countries succeeded in completing this complex task within a period of just 28 days.

In September 2006 MML received an order to refurbish the windjammer restaurant onboard the 'MAJESTY OF THE SEAS', located in the Bahamas. Work will be spread over a period of 24 days and involve 200 employees from different nations, possibly including India, who will carry out renovation work over an area of 3,000 m<sup>2</sup>.

'COLOR FANTASY',  
sister ship of  
'COLOR MAGIC'



## 'FREEDOM OF THE SEAS' sets sail on schedule



'FREEDOM OF THE SEAS' in Oslo, Norway

'FREEDOM OF THE SEAS' is the world's biggest cruise liner. She is 340 m long, has over 1,800 cabins and can carry up to 4,370 passengers.

The first ship of the modern Freedom class, 'FREEDOM OF THE SEAS' was built at Aker Finnyards in Turku, Finland. She was delivered to the Royal Caribbean International Line in April 2006, bang on schedule, and has since been sailing the seven seas – particularly the western Caribbean.

KAEFER Finland contributed as a turnkey supplier in the spa and solarium area. The area is called 'Lagoon', and the name says it all. There are golden palms up to 15 m in height, while a teak deck and natural stone around the sumptuous swimming pool create the almost perfect illusion of being in a South Sea lagoon. Two large parrots at the edge of the pool enhance this feeling. In the pool itself the holidaymakers can gaze through glass walls onto banks of coral, and underwater

loudspeakers play gentle background music for the swimmers. The chief attraction in this theme complex are the two whirlpools which appear to be mounted outside the ship's walls. Visitors have the impression of floating alongside the ship – anything is possible on the 'FREEDOM OF THE SEAS'.

The sauna and wellness area, covering 1,870 m<sup>2</sup>, encompasses saunas, steam baths, beauty salons, as well as massage and relaxation rooms. This part of the ship was a real test of KAEFER's competence in ship outfitting. A circular staircase with glass steps leads into the area populated by the more sporty passengers, with an original-size boxing ring, 100 items of fitness apparatus, and 25 treadmills – each with its own television!

In fact, the fitness area on 'FREEDOM OF THE SEAS' is the biggest ever to be installed on a ship.

But it won't be the only one of its type for much longer. By February 2008 Aker Finnyards will have completed another two identical ships for the Royal Caribbean International Line – with KAEFER's help, of course.

The second ship 'LIBERTY OF THE SEAS' is due to be delivered in 2007, and the third ship in February 2008. On this, the last ship of the series, KAEFER will not only be responsible for the bathing and wellness areas, but also for the interior outfitting of two accommodation decks for the crew as well as the ship's hospital.

## KAEFER keeps cool over an ice-cold challenge

**Ethylene and liquid petroleum gas (LPG) have to be transported at -104 °C. Building the ships that can achieve this is a challenge – but it's one that the experts from KAEFER and Meyer Werft are accustomed to. After all, the current new projects 653, 654, 681 and 682 are not the first ships the two specialists have worked on together.**

The work to be carried out by KAEFER Shipbuilding involves insulation of the three Bilobe tanks and the deck tanks, adding up to a capacity of 17,000 m<sup>3</sup> per ship with a total surface area of more than 6,000 m<sup>2</sup>.

The Neptun shipyard in Warnemünde is installing the classic 200-mm polystyrene insulation with lead-lined covering. As you

can imagine, dealing with the order calls for close cooperation between the shipbuilding locations Bremerhaven and Rostock.

The last ethylene tankers to be built by the yard, better known for its cruise liners, was with KAEFER participation in 1998/99. Construction of the current series of ships will take place between October 2006 and April 2008.

## Very fast but also very quiet – noise insulation on ships

Fast ships like patrol boats and corvettes require very special insulation against noise. Our Central Engineering/Acoustics Department (CEA) provides innovative insulation solutions for the desired effect.

Recently our acoustics experts were called in to assist during the building of two corvettes. The task was to insulate the operations room on this high-speed vessel against vibrations and noise from the propeller, auxiliary equipment and engine room. “The difficulty is that a noise level of 60 db(A) must not be exceeded at any time,” says the Head of the CEA Department, Hans-Joachim Rennecke.

And that’s a problem when that noise level will be exceeded at almost any speed up to and including 25 knots.

The challenge facing CEA was that they needed calculations for the different cruising speeds before they could propose the most suitable noise insulating measures. Together with the yard, so-called ‘worst case scenarios’ were simulated to cover all eventualities. One of the problems they faced is that at a certain rate of knots, particularly very high speeds, the ship’s propeller causes cavitation, the effects of which it is extremely difficult to predict with any accuracy. “Even though our instructions were to save weight, our solution eventually involved deadening the noise in the operations room by means of massive alterations to its interior construction,” Rennecke explains. Thus the ceilings and walls were

insulated with heavy lead-lined mineral cotton.

The department was confronted with a similarly difficult task during the acoustic evaluation of the operations room on board an aircraft carrier. The problem is that the centre is located directly underneath the area used by Harrier vertical takeoff jets and separated from the landing deck by just 20 mm of steel plating. On top of this, several generators are located in a confined area almost adjacent to the operations room, also causing noise. CEA has calculated different models and proposed corresponding noise insulation measures. At the time of going to press no decisions had yet been reached. The next issue of K-WERT will contain an update.

## Late entry turns into success

**The Fassmer Yard in Berne is world-renowned for its expertise in building lifeboats. But thanks to KAEFER Shipbuilding the tight schedule of this very special project could be saved.**

Work on outfitting the hull of a training ship was to begin in February 2006. But just 6 weeks beforehand a rival company failed to perform – and KAEFER was called to the rescue. Diverse design tasks, several agreements and a large number of subcontracts were quickly accomplished by project leader Okke Müller-Röhlck. Then it was over to supervisor Torsten Dunkhase to implement the new schedule within the strict time constraints. The project entailed the complete supply and installation of interior units for the crew’s cabins and guest area, which was fitted with LOLAMAT panels. In addition the technical insulation, deck fittings, as well as cold-storage rooms and galley, then the sauna, fitness room, sanitary facilities and all the shelving systems were all accomplished according to schedule at the end of September. Now nothing stood in the way of the ship’s planned debut at the SMM fair in Hamburg ...

In Hamburg the 48-metre ‘HANSEATIC EXPLORER’ caused quite a stir. It was conceived by the owner Peter Harren as a training ship for his fleet of 38 vessels comprising feeders, bulkers, heavy lift carriers and tankers. As such the nautical equipment matches exactly that on board the chemical tankers operated by Harren & Partner. Ice class GL-E3, 50 % capacity reserve on the main engine, an additional electrical ‘bring me home’ propulsion, stabilisers and other ship’s equipment round off the unusually complex equipment for a ship of this size.

The first voyage into the Antarctic is scheduled for 2007 and, in addition to 12 trainees, the ‘HANSEATIC EXPLORER’ is also taking up to 12 guests on its voyage halfway around the globe.

It’s a unique opportunity for passengers to find out for themselves what working life on board ship is really like.

*Training vessel ‘HANSEATIC EXPLORER’*



## SMM shipbuilding fair in Hamburg

From 26th to 29th September 2006 this leading shop window for the maritime industry once again provided an opportunity for the 1,600 exhibitors to show the industry what they can do. Approximately 50,000 trade insiders attended the fair, with up to a third of them coming from abroad.



Exhibition stand at the SMM in Hamburg, Germany

Of course KAEFER was there with an eye-catching stand in Hall 2, adorned with the new KAEFER design. Among the products on show were our USPH-compliant galley panels, the patented detachable ceiling elements used in yacht building, and the cross-section of a floor, complete with shock absorbers, supporting structure and LOLAMAT/RECORE/-combined floor covering. A 'revolving'

video on non-stop loop featured the entire spectrum of services covered by the Shipbuilding Division and our foreign subsidiaries. In the foreground at all times, though, were the crucial talks with customers and old acquaintances that pave the way for new contracts. KAEFER Shipbuilding was very happy with the way things went. Additional information was also available on a Siemens stand directly

in front of the entrance to Hall 2, where visitors could marvel at a practical demonstration of the KAEFER and Puren 'Pursonic-Sound-System' – KAEFER being Puren's exclusive shipbuilding partner. This delivers better-than-hi-fi quality music "straight from the wall," with no visible loudspeakers. Live and very impressive!

## Stralsund: Always busy

Our longstanding customer Volkswerft Stralsund is building ten VWS 2500.3 container ships for Maersk Shipping between October 2007 and February 2009. These are modified versions of the original series – and KAEFER is on board once again.

The first 22 ships of this successful type were sold to various German and international shipping companies. Now another 10 are being built for Maersk, part of the AP-Møller Group.

Orders like these are bread- and butter-jobs for our Stralsund location and the scope of KAEFER's activities on each ship is extensive. It incorporates insulation/sheathing of the decks, walls and

tanks; floating floors, noise protection, insulation of pipes and flues as well as sheathing and jacketing. Then there is the supply and installation of galleys, pantries and refrigerated rooms including stainless steel shelving, as well as installation of wall and ceiling panels. Finally, KAEFER finishes and fits all the living and working areas including supplying the furniture and shelves.

All projects are going like clockwork and are being accomplished increasingly fast.

Captain's quarters on the 'MAERSK NEUCHATEL'



Engine room

## Volkswagen-hall in Brunswick

**Not a tale of two cities, but a tale of KAEFER's Berlin-Hanover Interior Finishing Department participating in general contracting. Work entails the finishing of a multi-purpose hall in the town of Henry the Lion for the Sport and Culture Foundation.**

The contract was awarded in May 2006 and work commenced in the same month. The planned completion date is October 2006. The project encompasses twenty outside contractors for plastering, painting of concrete, floor coverings, metalwork, paintwork etc. KAEFER is contributing interior doors and complex dry-mortarless construction work, particularly in the area of

acoustic plaster and coffered ceilings. KAEFER will have its work cut out if it is to finish the 1 million euro project with its customary punctuality and quality. Sounds stressful? Head of department Marcel Segebarth and Project Manager Adrian Preissner don't know the meaning of the word – they just get on with the job.

## KAEFER helps to shape "BMW World" in Munich

**Want to shape the world – who wouldn't? This prestigious Munich project for the world-renowned car maker offers this opportunity to two KAEFER divisions simultaneously.**

The new building in the Bavarian capital, where owners can pick up their new cars, is not only intended to impress the customers. It must also represent the company – and at the same time be a public attraction and architectural highlight for Munich.

First, the Industry Department in Munich was commissioned by its long-standing customer BMW to provide some of the more 'basic' work such as heat and cold insulation, as well as preventive structural fire protection.

Then, in April and August, the Hamburg interior finishing department, part of the Construction Division, was entrusted with finding solutions for two further tasks, both of which place demands on performance and scheduling that reflect the building's complexity.

The first part of the order involves the fitting of partition walls and suspended straight-through acoustic ceilings – which have to be chilled and heated. Besides this the order includes all the wooden doors

and plaster boards for the walls. The second part of the order is no less ambitious.

The walls for the forum and the stage, audience and equipment areas are to be lined with a complex design of aluminium plates. Another design element is coupled with a technical function: the chilled ceilings are assembled partly from stainless steel and partly from aluminium coffers – their reflection on the shiny new automobiles will be absolutely stunning.

*Aerial photo of BMW premises. In the foreground BMW World begins to emerge.*



## -40 °C, force 12 winds, snowdrifts

The Neumayer III station in the Antarctic, commissioned by the Alfred Wegener Institute, is beginning to take shape. And KAEFER is (once again) on the spot, with Construction BB and Shipbuilding working in close cooperation. So what lured our men to the coldest continent?



Artist's impression of the Neumayer III station

In matters of polar exploration, all roads lead to Bremerhaven. There we met with Project Manager Dietrich Thöns, surrounded by walls covered with constructional drawings, specimen components and a 6-metre long 1:25 scale model of the station.

An appraising glance, congratulations on the new order – and then directly to the point: What is to be built? Why build a new station in the first place? And how did KAEFER get involved in this exciting project? That was the prelude to two fascinating hours ...

Built in 1992, Neumayer II was constructed as a tube-like tunnel in the snow. Ever since it has been gradually melting its way deeper and deeper into the snow, while new snow has been piling up on top. This is no accident, but the calculated fate of conventional stations in the permanent ice.

Neumayer III, on the other hand, will always remain at the same height. This is due to a new stilted construction which, it is hoped, will enable Neumayer III to remain operational for more than 25 years. By lifting the legs simultaneously in pairs and then packing snow under their hydraulic columns, the structure will always remain 6 m above ground and therefore cannot be smothered by snowdrifts.

Nevertheless, this ingenious construction still cannot escape the tempestuous Antarctic weather. And that's where KAEFER comes in. The initial plan was to construct a 'cold shell' (interior same as exterior temperature) to act purely as a break against the wind and snow, enclosing a 2-storey 20'-container structure with accommodation and workspace, as the habitable core.

This idea was given up in favour of an insulated shell with a temperature of +5 °C, resulting in less insulation material being needed to maintain the airconditioned containers at 22 °C. This had the big advantage of requiring considerably less complicated individual insulation for the large number of service pipes running between the outer and inner shell.

LOLAMAT turned up trumps for the inside. These sturdy wall and floor panels with their finished surface and light weight exhibit superb insulating capability. The fact that they give off no toxic fumes in the event of fire makes LOLAMAT the clear choice

for all the living and working areas. In addition to this, KAEFER finished all the communal service areas, laboratories and workshops.

In another block, the engineering work for the airconditioning and heating, as well as water supply/disposal and sanitary facilities also fall under KAEFER's responsibility, as does all power generation, which is taken care of by five diesel generators incorporating the very latest fuel injection technology.

This project convincingly illustrates KAEFER's unique competence when it comes to meeting the Antarctic challenge. Our parallel tradition as systems supplier was reflected in subsidiary offers of solutions for insulation, airconditioning and heat recycling, as well as fire protection and room acoustics. Many valuable tips were obtained via direct recourse to our Central Department's accumulated expertise.

As impressive as these technical and economic aspects may have been, they would never have been achieved without the commitment of the people involved.

Cooperation between what is now ARGE partner KAEFER and J. H. Kramer (responsible for the hydraulics, steel construction, 380 V power installation and all information technology, measuring, and automatic control engineering) goes back to the construction of Neumayer II, for which KAEFER was the partner for the interior finishing. Many of the men from those days find themselves working together again today – a crew whose experience and proven teamwork goes hand in hand with their technical skill-sets.

It only remains to wish them a cool head and warm clothing – and we look forward to receiving exciting progress reports over the coming two years.

### More photos from the antarctic:

[www.awi-bremerhaven.de/Polar/ImageGallery/Neumayer](http://www.awi-bremerhaven.de/Polar/ImageGallery/Neumayer)

### More background information:

[www.awi-bremerhaven.de](http://www.awi-bremerhaven.de)

## Always something new from Wuppertal

**On the Barmer Versicherung building site in Wuppertal our Pfungstadt construction departments are on schedule with lots GWP 6 and 10.**

### GWP 6

Project Manager Torsten Hass is pleased to report that Lot 1, the first of three, was completed on schedule. The Barmer employees subsequently moved in, very happy with their improved working conditions. From their workplaces on the seventh floor they can enjoy a panoramic view of the Bergische Landregion.

Renovation work has also been finished on the floor containing the computing centre in Building 3 which – “good as new” and much brighter than before – is likewise already back in use. The ground floor of the building is now being gutted and extensive fire insulation work is in full swing.

In November, work begins on the intermediate Building 2 which connects the existing building with Lot 1. This is being converted to function as a training centre for Barmer employees all over Germany. The reconstruction in Lot 2 is planned to commence in April 2007.

Indeed, the skeleton structure already stands half a metre high.

### GWP 10

Quite independent from GWP 6, this work involves extensive asbestos removal, followed by the demolition of Building I and the bridge connecting it to the remaining Building II.

The project is being carried out by KAEFER Entsorgungstechnik in ARGE, with UTS Hahn acting as the commercial partner. Work has been in progress since November 2005 and will end in twelve months' time on completion of a number of supplementary tasks and demolition of the skeleton steel structure.

By then the team around Project Manager Jochen Hutter will have decontaminated and removed 75,000 m<sup>2</sup> of material and will be able to hand over some 3,500 m<sup>2</sup> of ‘new’ building land for Barmer's expansion plans.



*Demolishing the steel skeleton structure of Building I*

## ‘Pont du Clair’, Mainz-Gonsenheim

**A major project – the refurbishing and interior finishing of a barracks. And a French name. Those who regularly follow the activities of the General Contracting Department could be forgiven for having a sense of déjà-vu.**

That's right – “Parc du Bois” in Potsdam! And once again, a regular client has entrusted us with an equally extensive project. Only this time it lies on the River Main instead of the Havel, and the previous occupiers bore a different army postal code. The former American barracks, with its 17,000 m<sup>2</sup> of grounds, is

located in a part of town that older residents affectionately refer to as ‘Gunsenum’. Due to its proximity to downtown Mainz, and an extensive green belt, ‘Gunsenum’ is much in demand as a residential area. A motorway connection adds to the attraction. Reason enough to build 213 new homes, 130 underground

parking spaces and 100 outside parking lots. Construction has already begun under the supervision of Holger Helmers, Project Manager, and Peter Braun, Site Manager.

Completion of this 20-million-euro project is planned for the end of 2008.



*Photo left: View of Pont du Clair – the tarpaulin in front of it shows what the building will look like when finished.*

*Photo right: Show apartment*

## MICROSORBER: Form integrates function!

**Düsseldorf, Königsallee, Rheinuferpromenade – not only does the new NRW Bank building blend perfectly into the neighbourhood ambience, it also meets all expectations with regard to the interior design. This is not least due to the contribution made by KAEFER.**



The Düsseldorf Interior Finishing Department, part of the Construction Division, fitted the chilled and acoustic ceilings that ensure pleasant working conditions throughout the building. For the foyer – a representative customer hall complete with a stage for special events – the architects Rhode-Kellermann-Wawrowsky designed a translucent lit wall. Attractive, yes – but seen together with all the other glass surfaces it presents quite a problem for the room acoustics.

*Foyer of NRW Bank in Düsseldorf, Germany*

A perfect opportunity, therefore, to demonstrate the brilliance of MICROSORBER when it comes to optimising optics and acoustics.

Micro-perforated plastic glass plates made from KAEFER MICROSORBER were used to 'finish' the wall. The translucent, light-scattering wall has thus become not only an architectural eye-catcher – it also achieves high-quality acoustics with short reverberation periods: form integrates function!

## New Viennese landmark on Danube Canal

**The Uniqa insurance company selected an eye-catching design, based on the company's logo, for its new headquarters.**



*Uniqa Tower in Vienna, Austria*

The Uniqa Tower, elliptical and slightly tapered towards the ground, is a spectacular idea that has been elegantly realised. The interior architecture is no less impressive and features an atrium that extends through all storeys.

The inner facade is also made entirely of glass, creating a transparency that pervades the entire building. Vision remains unimpaired throughout – even the partitioning and cubicles in the open-plan offices are made of glass.

Such an ambitious design, dominated by glass with very few acoustic breaks, called for KAEFER expertise in the form of MICROSORBER.

With the aid of specially developed stainless steel consoles, KAEFER Austria faced the glass interior walls on all 15 storeys with 500 m<sup>2</sup> of micro-perforated 5-mm plastic glass panels made in Bremen. These MICROSORBER panels have transformed the experience of working in the building by delivering superb room acoustics. And, because they are completely transparent, they have done so without diluting the architect's original vision.

The luxury of all-round transparency – made possible by MICROSORBER.

## Tivoli football stadium, Innsbruck

**KAEFER Austria loves football as much as it loves satisfied customers. The proof: 6,000 m<sup>2</sup> of F90 steel structure cladding.**



*Tivoli Stadium in Innsbruck, Austria*

The people of Innsbruck have more than just skiing on their minds. To tackle the task of providing fire insulation on the steel structure during the building of the Tivoli Stadium, the Stahlbau Zeman company once again commissioned KAEFER Austria.

Under KAEFER supervision, 6000 m<sup>2</sup> of 20-mm Type H Promatect panels were installed over a six-month period. The

construction workers certainly needed a head for heights, with exterior work 18 m above the ground calling for 100 % concentration.

As is customary, the order was completed on schedule.

And when the first match kicks off, it won't matter how red-hot the game is – nothing will burn, because KAEFER and Promatect will have done their job.

## Vienna Parliament and KAEFER: Mutual benefit

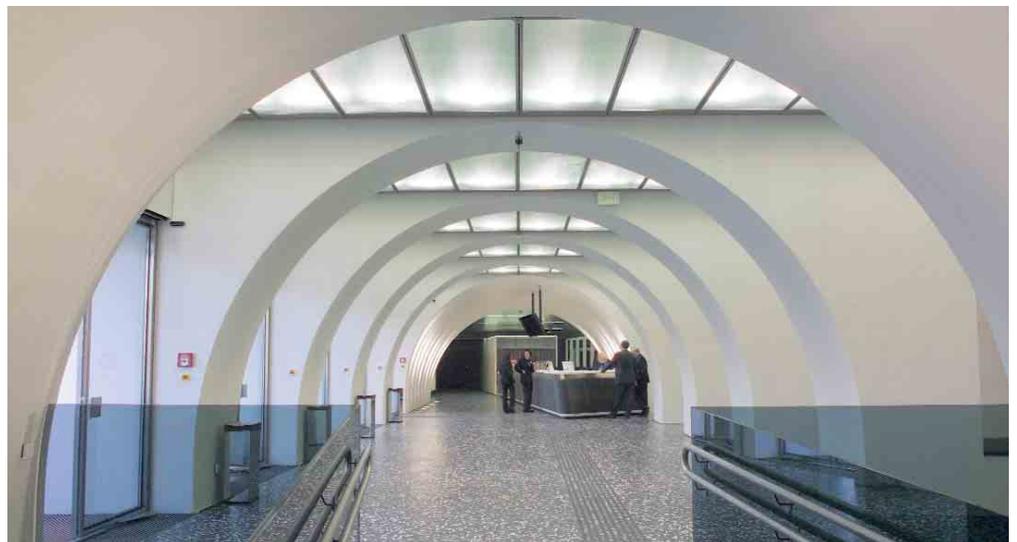
**During restyling of the visitor centre at the Austrian Parliament, the dome-shaped ceilings had to be fitted with barrel-shaped screens.**

The special challenge presented by this prestigious order was to fit the classical vaults with precision-tailored GRP panels, replicating the arches and using a minimum of filling.

The visitor centre was officially opened in the presence of high-ranking members of parliament during a celebration on the Austrian national holiday.

The restyled centre met with all-round approval and the ceiling has been judged a total success.

Indeed, in a contest organised by the suppliers Rigips, KAEFER was awarded the BPB Trophy for superior dry-mortarless construction. This is the top prize in Austria and our specialists can be very proud of receiving such an honour.



*Reception area for visitors to the Austrian Parliament*

## Bremerhaven/Bremen Construction Department is lured to the Baltic Sea ...

**... in order to erect two turnkey villas with apartments and shops in Binz on the island of Rügen. But don't worry – the General Contractors' BB offices remain at their usual place on the North Sea coast.**

The contract for two new buildings is worth some 4.5 million euros. One building – 'Villa Helene' – will have 11 apartments and 2 shops. The other – 'Villa Nympe' – will incorporate 33 apartments and an underground garage. Both buildings face directly on to the seafront. The architecture is in the old spa style, with bright ornamental facades and protruding balconies. The

extravagant finish of the two- to four-room flats, which offer between 50 and 175 m<sup>2</sup> of living space, should meet the most exacting requirements.

Following commencement in May 2006, Project Manager Ralf Komm predicts the work will be completed on schedule in the autumn of 2007.

## The show must go on

**DeTelmobilien wants to ‘batten down the hatches’ and provide more fire protection for its buildings. But the work must go on. The solution? KAEFER!**

The Frankfurt Interior Finishing/Toxic Disposal Department, part of the national Construction Division, has a great deal of experience with this type of order, especially in buildings full of technical telecommunications equipment. That was reason enough to be entrusted this summer with one building in Wiesbaden and another in Frankfurt am Main.

The contract involves a significant amount of fire protection installation and interior finishing, including the fitting of 500 fire

doors. Then there's plumbing, decorating, plastering and floor laying, as well as structural engineering and work on electrical equipment for dust-proof protection, core drilling and waste logistics.

The work will be spread over a period of almost two years and, due to the fact that the building will remain in continual use, will be carried out mainly at night. Our objective is to ensure that the customer doesn't notice a thing – apart from the successful outcome.

## Whether new build or heritage preservation ...

**... the interior finishing of hospital buildings always presents a challenge. Ruppiner Kliniken GmbH is a new customer, whose order encompasses the entire spectrum of this particularly complex task.**

In December 2005 the Berlin-Hanover Interior Finishing Department was contracted to carry out work on the Ruppiner Clinics' new Building X. This was followed in April 2006 by a more or less parallel contract to refurbish Building C.

The conversion of Building C, a 'heritage' building for general nursing, entailed 2,100 m<sup>2</sup> of F90 plasterboard ceilings, 1,200 m<sup>2</sup> of walls, 1,800 m<sup>2</sup> of F90 dry screed as well as door-frames. And it all had to be done in just three months.

On the other hand, the construction of Building X – twice as big as Building C – will take a full year. This work encompasses 1,500 m<sup>2</sup> of metal ceiling, 2,600 m<sup>2</sup> of F30A and F90A fireproofed

walls, and 400 m<sup>2</sup> of radiation-proof walls in the X-ray department. Door-frames and wall protection will complete the work to be undertaken by KAEFER.

Project Manager Dirk Stephanski has a wealth of experience in finishing hospital buildings. He is happy with the way in which the work has progressed and has also enjoyed his stay in the 'town of fountains' on Ruppiner Lake.

Ruppiner Clinics, with their rambling buildings, are integral to the town's economy. Indeed, exhibitions on the history of medicine as well as other related events are a constant attraction for visitors from way beyond the region.

## Bad Segeberg: All good things come to those –

**Work on the hospital, which encompassed interior finishing and new construction, took rather longer than expected. This caused headaches for the Interior Finishing Department of the Construction Division in Kiel. But in spite of the difficulties, quality and safety standards, as well as compliance with due dates, were all met.**

Ward in Bad Segeberg hospital, Germany



Our new client, Segeberger Kliniken GmbH, is happy, even though completion was originally planned for 2005 rather than early 2007.

The order was originally placed by Kreis Segeberg, the owners at that time. This change of ownership and subsequent rescheduling was the ultimate cause of the delay. Project Manager Maik Riphahn-Bendig says: "The stretched schedule, resulting in a total of ten phases of construction during ongoing hospital operation, made it difficult to find the right workmen at short notice".

However, together with Site Manager Andre Alt, he skilfully coped with the large number of often short-notice changes of plan. As such, he successfully dealt with: 7,000 m<sup>2</sup> OWA-acoustic ceilings conforming to various hygienic requirements in the medical areas, 2,500 m<sup>2</sup> of folding down Dipling F-30 metal cored ceilings in the corridors, 800 m of beechwood hand rails, approximately 600 Neuform T-30 and T-90 doors, some of them automatic, and 8,000 m<sup>2</sup> of GRP partition walls/veneers conforming to varying fire and radiation protection categories.

In April 2007, the last blue overalls should be departing from the scene, to be replaced once and for all by white medical gowns.

## Fire protection: Made-to-measure from Butzbach

The activities of the fire protection department in the Construction Division are wide-ranging. They encompass development, production and distribution, project management and installation for buildings and tunnels, and smoke extraction systems for underground transport facilities.

The construction of a brand-new, fully equipped workshop is enabling the department to maximise its potential. Key to this development are two new CNC-operated machines – a HOMAG Optimat and a Holzma HPL.

Both machines permit the precision cutting of all types of gypsum plasterboard, Promat- and mineral wool panels.

They are also able to mill to any size of angle, making it possible to produce machined parts with completely smooth curves, eliminating the need for expensive finishing with filler and spatula.

The Head of Department, Ralf Leithäuser, Workshop Supervisor, Zoran Budic, and the rest of the team are delighted with the improved capability, not least because it has helped monthly output to rise to some 8,000 m<sup>2</sup> of class A1 building material panels.



Production facility for fire protection panels

## Under rivers, through mountains ...

... our tunnel robot really gets around. After its groundbreaking work in Germany and the Netherlands, it visited Switzerland this summer.

The fire insulation department of the Construction division in Frankfurt dispatched the robot to help with an order from Basel.

As part of a wider reconstruction project, it was necessary to upgrade the

walls and ceilings of a motorway tunnel in order to meet modern day fire protection requirements. The tunnel runs through the town of Horburg and there are houses on top.

The work, commissioned by Basel City Council, commenced on 10th June and was finished in record time by 11th August, despite the complexity of the tunnel's irregular geometry.

A considerable part of the 6,000 m<sup>2</sup> of single-layer cladding, comprising large-format fire insulation panels, had to be separately fixed in place by hand with anchoring nails. Project Manager Sven Burgard and his assistant Heiko Unger said: "The differences in height as well as longitudinal and lateral banking in the tunnel presented us with some real headaches."

On top of this, some complex special solutions involving cantilever steel structures with detachable fireproof cladding were needed for the ceiling openings.

Nevertheless, after just three weeks for each tube, the team, led by Manfred Roitzheim, had completed the task and our robot was on its way back to the Weser.

Horburg tunnel in  
Basel, Switzerland



## KAEFER WANNER: The challenging renovation of a Lycée

The Lycée A. Daudet in the town of Nîmes in the south of France was originally built as a 'Palace of the Arts' in 1373. Since 1815 this historical building in the middle of the ancient city of Nîmes has been a school and it is now in need of restoration. The work is to be spread over three phases and KAEFER WANNER is involved in phases 2 and 3, carrying out the renovation and insulation of the walls and ceilings for an order value of 770,000 euros. The project

presents a special challenge because the historical architecture must remain intact. For this reason the noise and fire protection has to be provided by means of special walls and intermediate ceilings. KAEFER WANNER has already carried out several projects of this type in the south of France, including two schools and two retirement homes.



Restored ceiling of the Lycée A. Daudet in Nîmes, France

## KAEFER Aislamientos builds a cold storage facility for Nestlé



Insulated door in Nestlé cold storage warehouse

Nestlé, the world's largest food company, has its headquarters in Switzerland. It has a presence in more than 80 countries and employs over 250,000 people worldwide. In 2006 KAEFER Aislamientos was commissioned to build a 40-metre-long and 8-metre-high turnkey cold storage facility for Nestlé Spain S.A. It is equipped to operate at temperatures as low as  $-20^{\circ}\text{C}$ . Between April and July almost 20 workers were on the site for KAEFER and altogether they installed some 2,000 m<sup>2</sup> of sandwich panelling, facades, roof and four doors. Some other work, including installation of the fire protection system, was carried out by subcontractors. The order was worth over 400,000 euros.



Airbus A400M

## A400M – moving into new dimensions

**Even for members of the experienced Airbus insulation team in our new Aerospace Division, this military transport plane presents some tricky challenges.**

Altitude 1,200 feet, outside temperature  $-10^{\circ}\text{C}$ , speed almost 200 knots. The hissing of the airstream and the drone of the powerful 10,000 hp engines combine to create a monotonous melody. The men wait tensely at their stations. Stand by to unload! – 4 pallets of supplies must be dropped to people waiting on the ground. The floor of the aft section lowers with a hydraulic whine, the cargo hatchway swings out – and then the wind bursts in, tearing at equipment and overalls, making voice communication impossible. If the A400M were designed like a passenger aircraft, much of the plane would go overboard with the supplies – parts of the interior lining, for instance, together with the insulating material ...

The task of the ten designers and two managers that make up our A400M project team is to stop this happening. Actively involved in the design of the aircraft from the outset, they have recently redeveloped the entire primary insulation of the main fuselage to meet performance specifications, including the aft area and the fastening elements. They

boast that you can now perform pull-ups on the insulating pads.

Usually, design and manufacturing are pursued in accordance with predetermined specifications. So assuming additional responsibility for the design, whilst also participating in concurrent engineering processes in the complex product environment with the EDP systems used by Airbus, is a novelty in Germany.

This obviously poses quite a challenge – but the additional scope for the designers also opens up opportunities for product refinement and even technical breakthroughs. When we suggest that these opportunities may lead to important advances, Torsten Dehlwes – in keeping with the military nature of the subject matter – is not very forthcoming. He neither agrees nor disagrees – he simply smiles.

But now back to the construction of the aircraft. Components for the fuselage of the A400M are developed in the various countries participating in its manufacture. The primary insulation is fitted in

Bremen. Therefore, since early 2006 the A400M team responsible for the primary insulation at KAEFER Aerospace has been located at Bremen Airport (besides Seifhennersdorf and the assembly locations Hamburg and Toulouse). Working in close cooperation with Airbus engineers, the 12 employees hatch the development and production planning of the new European military transport plane.

As Torsten Dehlwes points out, there is still an awful lot to do before the official test flight at the beginning of 2008. This includes connecting up the preassembled segments in Sevilla, Spain – most probably with the support of the company KAEFER Aerospace España which, as we write, is still in the process of being founded! But, despite his reticence when outlining achievements in the areas of new design, personnel recruitment and production planning, one thing is clear: the interview's confident tone is based on very firm foundations.

## OLUTEX takes flight – with KAEFER Aerospace

For centuries, the Oberlausitz region on the German/Czech border has been a centre for the textile industry. Indeed, the town and textiles are as synonymous as the Black Forest and cuckoo clocks, or the Sauerland and screws. And it is here, in the town of Seifhennersdorf, that OLUTEX is based.



Primary insulation in the Airbus A 320

OLUTEX became a new subsidiary of KAEFER Aerospace early in 2006. The company performs the vital role of producing 'primary insulation'. It is this insulation that separates tranquil aircraft cabins from the 900 km/h airstreams, the howl of turbines, and freezing Arctic temperatures outside.

This insulation is thermal and acoustic, and also offers fire protection. It sheathes the framework and covers the walls, but not in the free-handed way you might insulate the attic at home. Every single one of the 1,500 to 3,000 insulation blankets needed for each aircraft is made to measure. Not only according to dimensions, but also to fit exactly with fastening points, cable penetrations and adjacent components, every one of which is different. In effect, each blanket is a tailor-made suit made from thousands of plans – covering the entire programme in the Airbus range of single-aisle, wide-body and long-range aircraft, not to forget a few Boeing machines. There are no less than 50,000 plans stored in the OLUTEX computers.

Once OLUTEX experts have compiled the design layouts on the basis of 3-D construction plans, they have to create control data sets for the machines in the production hall. These are then capable of precision-cutting GRP mats of

different thicknesses, complete with all the necessary holes, slits etc.

The next step involves providing mechanical protection via shrink-wrapping and individually reinforcing all the numerous penetrations and slits. This is dedicated aircraft production so that the mats arrive just in time for assembly in Hamburg or Toulouse.

From the first cut each of the mats – or blankets as they are known – is labelled with a bar code. Then, by means of a simple scan, the number and exact des-

cription of each blanket, complete with drawing plan, can be conjured onto visual display monitors. This enables the continual tracing and documentation of every single part as it passes through the stages of production, dispatch and installation.

A further challenge lies in its features on the inside. Due to its exceptionally fine extrusion, the glass wool used in aviation weighs just one-fifth of similar products found in building and industry. The market is so small that the entire annual requirement of the aviation industry is supplied by the American manufacturer Johns Manville in a single production run of less than four weeks. Taken together with the extremely expensive certification requirements of the aviation industry, this ensures a nice little monopoly.

The weight factor, acoustic and thermal insulation, fireproofing and condensation resistance are all crucial criteria, and each of these has its own implications.

Weight reduction, for instance, is crucial for the A380, as every excess kilogramme for the primary insulation per aircraft would result in having to pay a high penalty. Managing Director Dieter Richter explains: "Even just a little extra weight, not more than a schoolboy could carry in his satchel, would completely upset our calculations!" As if that were



Assembly of the primary insulation in the Airbus A380

not enough, a significant tightening of other criteria, especially fire protection, is on its way. OLUTEX is confident of being able to cope.

#### A long history

This high-precision existence is just the latest stage in a textile tradition that goes back 200 years. And it follows the difficult years between 1935 and 1989, when companies in Oberlausitz survived through activities such as producing parachutes.

Shortly after the collapse of the GDR, OLUTEX won a contact to Elbe Flugzeugwerken (EFW), a subsidiary of EADS. In the wake of Airbus outsourcing some of its production, someone spotted the connection between the manufacture of highly specialised textile products and insulation mats.

This idea was turned into a business in 1997, and the company beat 15 others to supply Airbus, even though OLUTEX' costs were 20% higher than those of the cheapest competitor. Initially the company

worked solely to order, then assembly and design were added.

With KAEFER's involvement, OLUTEX has really taken off and the company has a crucial role to play as the companies within KAEFER Aerospace expand their market position.

It is this dynamic of complementary capabilities that has made KAEFER Aerospace a major player in the field of interior outfitting in the European aviation industry.

## ... and now Boeing as well!

**For a European supplier to the aviation industry it is essential to maintain business connections to Airbus. In view of this, an order for insulation work on our first Boeing represents a significant step towards more independence – and for the reader, an opportunity to learn something about a truly interesting innovation.**



AWACS-Boeing

NATO's E-3A AWACS-Boeing, a variation of the classic 707 – we are all familiar with pictures of these aircrafts with the big frisbee on top – are on average 25 years old. Within the next six years they are successively coming up for a major overhaul, entailing additional measures to extend their operational lives. The aim is to keep them serviceable until 2040+. No, this is not a typing mistake – just a postponement of the retirement age for aircraft, too!

In this context the primary insulation is not only to be exchanged for more advanced materials, but at the same time considerably upgraded. You guessed it: the contract has been awarded to KAEFER Aerospace.

All the materials used for the new insulation blankets are self-extin-

guishing. The core item, though, is the ceramic "paper" developed by 3M, an integral part of each mat which provides 4-minute fireproofing against the effect of intense fire up to 1,200 °C. Complementary to this, OLUTEX has come up with fastening clips, made of titanium, which are of similar stability. Most importantly, this structural unit has been granted certification by the DGA, the French equivalent of the Luftfahrt-Bundesamt [German Aviation Authority], for use throughout NATO!

The enormous significance of this innovation can be properly appreciated when compared with previous protection values – just 280 °C. Airport fire services can usually reach the scene of a crash within two minutes – so four-minute protection up to 1,200 °C greatly improves

the chances of survival. The American FAA have already tightened their requirements – from 2007 ordinary air passengers as well as airborne military personnel in other areas may also benefit from this added protection.

At KAEFER Aerospace in Seifhennersdorf they have already become accustomed to these brand-new materials. They are now on top of the special requirements and issues involved in working together with fibreglass/ceramic paper/foil and new fastening techniques.

On 26th September 2006 the first aircraft to be fitted with the new fireproofing was successfully 'rolled out' at EADS/DFW in Manching under the critical gaze of the German army's Musterzulassungsstelle [prototype approval office] and their quality control experts.

## KTN and KAEFER Aerospace: Vertical takeoff

When it was 'rolled out' in 2002 this addition to the Group took off like a rocket. KAEFER is helping to ensure that its lucky star keeps shining.



Jörn M. Fetkötter  
(MD KAEFER),  
Matthias Ostendorf  
(MD KTN),  
Dr Guido Bohnkamp  
(MD bmt) (from left)

Photo right:  
Inside view of  
ventilation duct

In 2002, Airbus decided to outsource the manufacture of a whole series of production components previously produced at Laupheim.

A quick and propitious alternative solution was found for the production of GRP parts, including air-conditioning ducts and interior mouldings. That solution was KTN Kunststofftechnik Nobitz GmbH, established in July 2002, which has subsequently teamed up with KAEFER Aerospace to form an integrated supplier to the aviation industry.

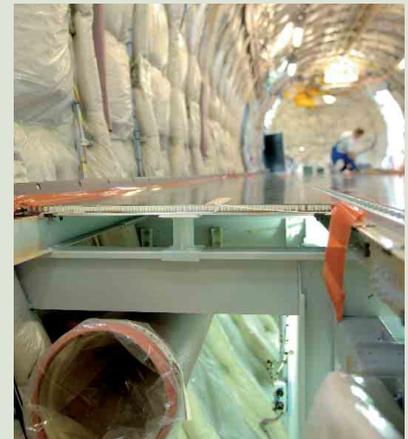
KTN Kunststofftechnik Nobitz GmbH was created with the help of a regional development programme – the German state of Thuringia putting up the necessary capital by becoming shareholder via its TIB investment company. Airbus guaranteed future production capacity and a number of Airbus managers came on board to show the new company the ropes. The company was set up with just 10 employees. Following an investment of some 5 million euros in a brand-new factory (Altenburg-Nobitz) at Thuringia's regional airport, the workforce had risen to 50 by the end of 2002. The company had also obtained QSF-B certification as a supplier to the aviation industry and had started to build up its own design department. In 2003 Airbus awarded KTN the status of partner as supplier of air-conditioning tubes in the crew rest compartment for the Airbus A380; 2004 saw the addition of wall linings for the A380 and the recruitment of more than 30

Photo bottom:  
Ventilation ducts  
in the Airbus A 320

new employees; in 2005 a second hall was built for 4.8 million euros and the company was awarded a development contract for the Airbus A400M military transport plane. By 2006 the payroll numbered 200 employees and turnover was in excess of 10 million. Then KAEFER came along. The acquisition team successfully convinced the banks, customers, management and the regional government that the KAEFER Aerospace division could provide the best home for KTN. Since July 2006 the new addition to the Group has continued to prosper and has enriched the KAEFER service spectrum. It is this service spectrum, encompassing groups of complementary workforces, that has made KAEFER Aerospace a major player in the field of interior outfitting in the



European aviation industry. Now for a look at the HR situation in this fast-growing and enterprising production company. The region has an unemployment rate of 30%. In collaboration with AWA e.V., an international training association accredited by the chamber of commerce, it was possible to cope with an increase in employees from 10 to 200 over a period of just four years. Almost 80% of these employees were previously unemployed, some of them long-term. The recruitment programme was accompanied by training



measures and further education supported by Airbus Laupheim, resulting in the rapid and thoroughly successful integration of all new employees.

The successful implementation of holistic quality control so essential to the aviation industry, and pursued vigorously by the new KAEFER subsidiary and its Managing Director Matthias Ostendorf, provides an indication of just how successful the combined efforts of all those involved have been.

However, the 20% share of white-collar workers in the company is increasing only slowly. The general shortage of specialist engineers on the European labour market is making itself felt and the company's ongoing expansion means there is still a requirement especially for design engineers. Readers with suitable qualifications who would like to join a winning team should make their move by going to [www.kaefer.com](http://www.kaefer.com) (Aerospace).

This site is also recommended to anyone wishing to know more than could be included in this article.

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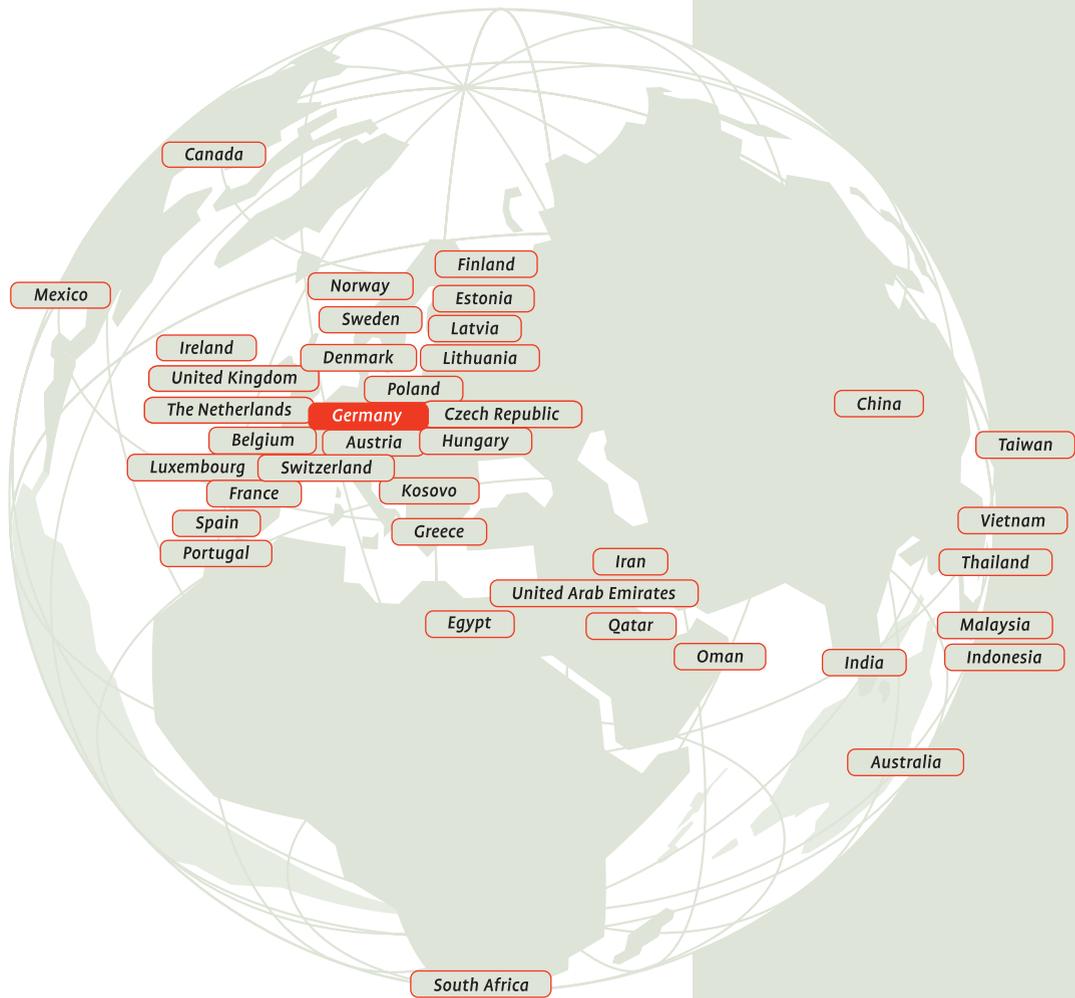
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