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Newsletter to Dürr Group customers: December 2009



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Proven technology at low cost: Dürr Ecoclean presents a new entry-level model for solvent cleaning

„Focusing on essentials“ – under this motto Dürr Ecoclean has now launched its „EcoCBase C2“ compact cleaning system on the market. The cost-effective entry-level model for solvent cleaning can be utilized, even in its basic configuration, for single-stage degreasing or particle cleaning with vacuum drying.

EcoCBase C2 allows an easy entrance into cleaning technology. In addition its excellent price-performance ratio makes it an attractive solution for reduced capital expenditure budgets.

The compact plant is fully standardized, works with simple, proven technology and with its small footprint requires little space. Especially powerful halogen-free hydrocarbons are used as a cleaning agent to remove oils, grease and chips safely and economically. EcoCBase C2 can be used in either intermediate or final cleaning by small companies with low production capacities and by large enterprises with decentralized cleaning stations.

Dürr Ecoclean has rounded out its product range for solvent cleaning with the new EcoCBase C2. The basic version with flood tank, vacuum drying and both full flow and bypass filtration, can handle multiple cleaning tasks - from degreasing of work pieces to removing smaller particles less than $< \mu\text{m} 100$ in size.

Dürr Ecoclean also offers upgrades for immediate implementation relating to cleaning performance, solvent treatment or operation. On request, fea-

tures such as a distillation unit, a second flood tank, an ultrasound unit or a combination filter can be installed.

All in all EcoCBase C2 offers all the essentials for solvent cleaning: functional technology, excellent cleaning performance and high quality design.

top: EcoCBase - an entry-level-modell for solvent cleaning.

A view of the maintenance side of EcoCBase with its water separator and vacuum pump

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EcoEMOS Energy Monitoring – Transparency as a foundation for optimization

Rising costs and increasingly stringent emission levels are placing a great deal of pressure on all production companies to make their utilization of energy more efficient. Before energy management itself can be undertaken, however, many manufacturers require a survey of the status quo: how much energy does the plant actually need and where? Dürr is now offering its EcoEMOS Energy Monitoring software pack for this purpose.

Energy Monitoring fully records and displays all energy values, identifies those system components having the highest energy consumption and makes these clearly verifiable. This “fundamental research” at the customer’s own factory provides a foundation for the control

and reduction of energy consumption.

Energy Monitoring, which was previously available as part of Dürr’s EcoEMOS Energy Management supervisory control module, is now also being offered as a separate pack. Implementation

can be carried out quickly and easily. Once existing data points have been entered and target values have been mutually defined, EcoEMOS Energy Monitoring can be run on an existing EcoEMOS platform. If the latter is unavailable, integration into the existing system structure is no problem. In addition to recording the status quo on energy consumption, the software also offers the possibility of monitoring the efficiency of measures introduced and of identifying further optimization potential.

Building on the basis of the monitoring program, further EcoEMOS energy management functions can be installed to

enable users to control and reduce energy consumption.

Utilization of Energy Monitoring has already led to noticeably lower costs for many customers in the automotive and automotive supply industries.

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Re-positioned – Successful optimization with Dürr Consulting

KUMERA Drives OY, a Finnish manufacturer of industrial power transmissions, is taking advantage of this time of global economic crisis to reposition the company. After several years of work loads exceeding capacity, a new course for the future is now being plotted in conjunction with Dürr Consulting.

Kumera Drives OY has, in recent years, enjoyed steadily rising sales figures. While production was running at full capacity and with extra shifts, little time could be spared to reconsider work processes or to optimize them to suit the changing situation. A clearly structured 3 day assessment was carried out with Dürr Consulting to first analyze the “as is” situation, define future challenges and areas requiring action and, on this basis, to formulate suitable methods of approach and concrete projects.

Central tasks were to survey the overall situation, to identify areas of focus and those for action, to define areas of potential and to propose specific projects evolving from these. Dürr

Consulting’s tailor-made analysis tools played a major role in doing so.

Areas of potential that had been identified by the end of the three day period provided the goals for the follow-on project: optimization of existing assembly processes, a reduction in processing time, an increase in value addition ratio and a future-oriented assembly and layout concept. Conclusions drawn from time studies and process observations led to segmentation of product groups and the development of optimized standard sequences and process modules as well as the preparation of a concept for changing from the general principle of box assembly to line assembly.

This gave rise to a new assembly layout, an optimized material flow and a new logistics and control concept as well as a specification of all the assembly and logistical equipment this would require.

In consultation with all of the employees affected, the planned processes, layouts and equipment were validated through mediated shop floor workshops. The results were as follows: clear and structured processes, a reduction in order processing time of approx. 3 weeks, a reduction of approx. 40% in the time required for assembly, a higher value addition ratio and an increase in flexibility. Excellent cooperation with the very dedicated members

of the customer’s project team proved a significant factor in the success of this target-driven optimization program.

The project is currently being implemented with the continued guidance and support of Dürr Consulting

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Mobile test cyclone – Optimize separation of your solids and liquids

Dürr's *EcoMultiCyclone* is a high quality system for the separation of solids and liquids that has mainly been utilized so far in automobile painting. This efficient product also recommends itself as an option for other processes - for the cleaning of cooling water circulation systems, for example, or for activated carbon separation. In order to explore additional potential applications Dürr has a mobile cyclone on offer, with which tests can be carried out on site at customers' premises.

For a particle size $>40 \mu\text{m}$ and density of 2.7 g/cm^3 the separation efficiency achieved by the *EcoMultiCyclone* is almost 100%. When particle size is approx. $15 \mu\text{m}$ the system still separates 50% of particles from the process solution. Not only auto paint shops but also other processes can profit from this efficiency. To make it easier for interested parties to move into this technology and in order to explore other process possibili-

ties and evaluate them, Dürr is now offering the *EcoMultiCyclone* as a mobile unit, with which tests can be carried out on site at customers' premises.

Test runs are conducted in accordance with a predefined procedure. This serves to form a basis for a professional approach to working jointly with the customer and, at the same time, protects the expertise which Dürr brings to the test program.

The benefits that the *EcoMultiCyclone* can bring to new applications can be presumed on the basis of utilization in its present field: studies carried out in the auto industry show that 30% of investment costs and 33% of energy costs can be saved in comparison with conventional filtration systems and quality standards can be improved by up to 100%.



EcoMultiCyclone is now available as a mobile test unit

Ihr Ansprechpartner

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1st e-coated body – Paint shop goes into operation at Mahindra

November 10, 2009 was the big day. With great pleasure high level Mahindra managers joined the project team to witness the painting process in action, for the first time, at the new factory at Pune, India: the ED plant went into operation with the dipping of a small truck. Four days later activities were extended to the robots in the primer spray booth. By December 15 the whole of the new paintshop will be operative.

For this new 45 unit-per-hour paint shop project Dürr took on the job of General Contractor. Small trucks and both saloon and pick-up model SUVs will be produced there.

The paint shop installed by Dürr covers all production stages. The line begins with pretreatment and cataphoretic dip painting.

This is followed by underbody protection (UBS), cavity sealing and seam sealing. Primer and top coat painting are also part of Dürr's scope of supply, as are the ovens related to each stage of the painting process. Work stations, internal and external conveyors together with electrical systems complete the delivery spectrum.



The complete paint shop was installed in what must be a record-breaking time of just six months; commissioning was carried out within three months. Comp-

45 small trucks will be painted per hour at Mahindra.

liance with this tight project timeframe was made possible by close cooperation between the members of the planning team in Germany and their col-

leagues responsible for implementation in India. This was underpinned by a strong emphasis on the support of local Indian suppliers.

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Windpower plants – Siemens develops a global reference standard for the assembly of wind turbine nacelles together with Dürr Consulting.

A single global reference layout for new wind turbine assembly lines: this vision projected by Siemens' Wind Power Business Unit has been realized by planning company Dürr Consulting. The result is a cost optimized and effective standard plant for flow principle assembly of nacelles, the machine rooms for wind generators.

According to Per Kelly, Head of Global Production Technology (PTA) at Siemens Wind Power, the particular challenges presented by this project lay in "the moving, positioning and ergonomic assembly of components weighing a total of up to 100 tons".

To this end Dürr Consulting opted in its planning for new assembly standards and an especially cost attractive and effective flow production concept that required no conveyor rails. Compared to the two rail system normally used in nacelle assembly, this reduced investment costs by around 50 per cent. In the planning of the reference standard installation

Dürr Consulting utilized "Dürr SnapPlanner", a specialist visualization software. The 3D software generates an impression of

future process sequences that is close to reality and offers an optimum basis for communication between all project participants. The result - a digital 3D factory layout - forms the essential planning basis for new Siemens' wind turbine assembly plants all over the globe and especially in the Asian and American regions.

"The new transport and assembly trailer, designed for efficient assembly on a flow principle, proved convincing to us. Not only from the investment point of view but also because it matches our expectations and fulfils the sometimes very complex requirements associated with our very weighty product", says Dr. Kay Biebler, Director Global Nacelles at Siemens Wind Power. "Dürr Consulting is also supporting us very successfully with the design of the individual work stations, which will raise the efficiency of nacelle assembly by up to another 15%.

Workers, too, will benefit from assembly on flow principle lines as the new assembly standards are targeted towards process optimization throughout. As Project Leader Thorkild Lystbaek of Siemens Wind Power at Brande explains, "This means that optimum consideration has especially been given to the main aspects of work ergonomics."

Everyone involved in the project at Siemens has expressed overall satisfaction; Dr. Biebler summarized the results of the project with the following words: We are very pleased with the plan-



Dürr Consulting planned the manufacture of nacelles on a flow principle using a single rail system.

ning performance of Dürr Consulting and have found in that company a valuable partner for the future.”

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Food is served – Dürr optimizes catering logistics at Göttingen’s University Hospital

Several times a day 170 food distribution trolleys pass through the University Hospital at Göttingen (Germany); they need to be loaded, transported, returned, cleaned and then reloaded. A modern Dürr conveyor system now assures continuity in the flow of this “food chain”.

At the beginning of this year Dürr Service received an order for the construction of an automatic food trolley storage system in the kitchen section of University Hospital. Since September 2009 the new system has been making sure that the daily food requirements of up to 1,400 patients and around 6,600 employees are taken care of.

After cleaning, the food trolleys are transferred to a storage area; Dürr replaced the previous store with a high quality, stainless steel system equipped with conveyor, drive and control technology. The system, which is made up of roller beds, tilters and turntables, operates quietly and transports the food trolleys from the cleaning system to the two-tier store. There, the emptied and cleaned trolleys are transferred, with the aid of belt conveyors, into the storage spaces, which are positioned one above the other. From here, the trolleys are taken to the kitchens for reloading.

A cross transfer table with lifting



gear is used to raise and lower the trolleys into and out of the two level store. A new, fully automatic control system takes care of storage and transport sequencing, ensuring that the trolley store and its conveyor

Dürr Consulting launches series of wind power conferences

On November 2, 2009 Dürr Consulting was the organizer and host of the first Windpower Manufacturing Workshop held at the Bietigheim Campus. Three of the top six manufacturers of wind power generation plants took part in the workshop designed to foster an exchange of ideas and experiences and to encourage networking. Participants also came, for example, from the fields of gearbox manufacture and component development or were new entrants to the growth market of wind power. Insight was provided not only on the subjects of the manufacture, assembly and logistics of wind power generators but also on those of paint finishing, environmental aspects and the cleaning of large parts.

During the day emphasis was also placed on optimization of processes, integrated factory planning and solid project management as factors for success in the efficient production of wind power generation plants, which to date still demonstrates a low level of automation. Dürr Consulting referred to real examples drawn from practical experience to round off the theoretical technical papers presented. As a result of positive feedback from those attending the event and in view of the anticipated changes in the windpower industry, Dürr Consulting plans to continue this series of conferences in 2010.



elements function smoothly.

Dürr’s scope of services and supplies for the project included not only the manufacture of the conveyor technology at its factory at Radóm in Poland but

left: Cross transfer car with lift system.

right: Turntable and belt conveyor

also project management, installation supervision and design engineering as well as electrical planning, controls, system visualization and commissioning.

In the preceding years Dürr had already modernized the electrical equipment for the previous store at Göttingen's University Hospital and also introduced

the first non-contact electrical monorail system for general goods transport (GGT).

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Aircraft assembly – Dürr and EDAG realize a complete final assembly line together with Airbus at Tianjin, China

The hangar, in which partners Dürr and EDAG, in conjunction with Airbus, built an assembly line for the Airbus 320 in just 13 months, is 250 meters long, 70 meters wide and 30 meters high. Four large stations were installed within the line and connected to sections provided by Airbus. In addition Dürr supplied the platform systems for painting operations at Tianjin.

The whole of the aircraft assembly process is completed in these four stations; it begins with the joining of the two pre-assembled halves of the fuselage. After the wings and undercarriage have been assembled, structural and system components are installed and interior outfitting is begun at the third station. Extensive inspections of electrical and hydraulic systems then follow together with a check on the cabin's leak tightness.

nation effort was necessary than on other large projects. At peak times up to 150 people worked on the project. Airbus expressed its complete satisfaction with the quality of the systems in ongoing production operation, "The customer gave us very positive feedback when the first parts were placed in the plant and everything went perfectly from the start", says Werner Lotz, head of EDAG's aircraft assembly division

This successful project has a signal effect in the aircraft construction industry.

According to Dürr Aircraft Systems head, Dr Uwe Siewert, "The magnitude of what Dürr and EDAG supplied as a single source in Tianjin is something new in the field of aircraft construction. Dürr and EDAG have exactly the capabilities needed for such projects: system and product expertise, the ability

to deal with large volumes and project management with global presence."

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The "Dock", supplied by EDAG, is the final station on the assembly line. Here carpeting is laid, seats and baggage compartments are mounted and interior outfitting is almost completed. Painting of the aircraft, using platform systems supplied by Dürr, is carried out in two paint shops plus a separate paint plant for tail fins. In the "Final Phase" section, built by EDAG, the aircraft are finally equipped with engines, any assembly work that still remains to be done and a final check is carried out to ensure that all customer requirements have been met.

Through working closely in a project partnership with just two large suppliers customer Airbus benefited on several levels. Dürr and EDAG installed the four stations ordered by Airbus "on time" and "on budget" and less coordi-



Assembly of the Airbus 320.

Official unbalance: Schenck test laboratory for balancing technology receives accreditation

Schenck RoTec GmbH's test laboratory has received official accreditation from the German technology accreditation agency DATech. For the first time users and service providers can have their test equipment and measurement technology certified here – impartially and irrespective of manufacturer – where the procedure is documented and traceable on the basis of international SI units.

Test weights, set up rotors, master rotors – whenever it is necessary, in the interests of quality, to determine unbalance, these working standards are the accepted measures of all things. They are balancing technology's classic test items and are used for the calibration of balancing machines. The crucial questions however are always the same: Just how reliable are these standards? How close to the truth are their characteristics in reality? With accreditation of Schenck's test laboratory by the German DATech agency, as a world first an officially authorized laboratory exists, whose testing methods and processes have been approved, in line with DIN EN

ISO/IEC 17025:2005, for the qualification of working standards, spin test and balancing machines. The balancing technology test laboratory can now issue generally accepted certificates for test items and measurement systems, more specifically for those which must comply with ISO 2953 and ISO 11342, SAE ARP (4162, 2048, 4050 and 5323) and other relevant standards.

The Schenck test laboratory offers three service packages on the basis of its DATech accreditation. These differ in the extent of the technical measurement scope and of the documentation provided: At the premium service level, the user receives a



test certificate with information on the specific measurement uncertainty, comprehensive documentation and the confidence of knowing that the testing of his working standards or balancing machine – irrespective of who manufactured it – has been carried out with the greatest reliability conceivable at the present time.

Schenck Rotec's Test Laboratory is authorized to issue independent balancing technology test certificates

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In brief

Dürr receives award from Hyundai

September 24th of this year was a great day for Hyundai: The Czech plant in Nosovice outside Ostrava officially opened with a festive ceremony. In the course of this celebration, plant manufacturer Dürr was recognized for its outstanding achievements in the construction of this plant. Dürr received this award for its services as general contractor for the paint shop. Included in the delivery was robust and low-maintenance technology from pretreatment to cathodic dip painting through to spray booths and dryers in combination with the required conveyor technology. Dürr was able to complete the handover of the painting line despite a tight deadline before the appointed date.

Jun-Ha Wang, General Manager of HMMC (Hyundai Motor Manufacturing Czech), handing the awards to the Dürr project managers.



Upcoming events

:january 2010

05.-11. Auto Expo Delhi, India
Application Technology

:february 2010

04.-06. Panel and Engineered Lumber Conference Atlanta, GA, USA
Environmental and Energy Systems

:march 2010

02.-03. Aircraft Maintenance, Repair and Overhaul (MRO), Russia and CIS
Aircraft and Technology Systems

06.-18. Pump Users Symposium TX, USA
Balancing and Assembly Products

10. Automotive Seminar Wuhu, China
Cleaning and Filtration Systems

15.-19.

Announcement:

"Sustainable solutions supplied by Dürr" at our 7th Open House

From March 15 to March 19, 2010 Dürr's own in-house exhibition will be held as a 7th "Open House" for customers, business partners and trade journalists. "Efficient use of energy and resources" is the theme, on which information will be provided to you covering recent developments and new advances in our products and solutions. The display will include innovations from all » Dürr business units.

We are looking forward to welcoming you in Stuttgart and will be pleased to receive registrations via http://www.durr-registration.com/index_en.php.

Publishing information

Business information

The Dürr Group is a supplier of plant and equipment that commands leading global market positions in its areas of activity. Business with the automotive industry accounts for about 85% of its sales. Dürr also supplies innovative manufacturing and environmental technologies for the aircraft, mechanical engineering, chemical and pharmaceutical industries. The Dürr Group operates in the market through two divisions. The Paint and Assembly Systems division supplies production and painting technologies, mainly for automotive body & chassis manufacturing. The equipment and systems supplied by the Measuring and Process Systems division are used, among other things, for engine and transmission production and for final vehicle assembly. Dürr is present in 45 locations in 20 countries around the world. The group achieved sales of € 1.6 billion with approximately 6,100 employees in 2008.

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Frohe Weihnachten
und die besten Wünsche
für ein erfolgreiches neues Jahr.

Season's Greetings
and best wishes for a
successful and happy New Year.