

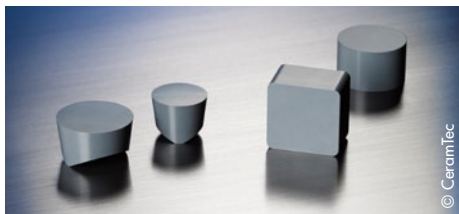
Inside AIRTEC 2015

News of one of the world's best business and technology B2B meeting events in aerospace



Image of Airplane by Boeing

Ideal Partner



Special Exhibitor News

Read about trends and solutions in aerospace from 34 exhibitors



UAV World Workshops & Keynotes

NATO Workshop, Electrical Flying, Top Keynotes and Panels



Congress One day on 3D printing

Additive Manufacturing Trends in Aerospace

Our 10th anniversary comes with a new venue: Visit AIRTEC 2015 in Munich and meet suppliers from around the world!



Diana Schnabel
CEO/President, airtec GmbH & Co. KG

It's time again: Only 4 weeks to go until the 10th edition of AIRTEC, AIRTEC 2015 opens its doors on November 3rd for three days at its new venue, the Exhibition Center, Munich. Once again, AIRTEC gives you an excellent opportunity to gain an insight into the entire aerospace supply chain from design, engineering, materials, composites, metals, all sectors of production, components and systems, electronics, avionics, sensors, up to lifecycle support, you will see new aerospace technologies, innovations and trends from all over the world, all in one place. And it gives you the opportunity to do effectively business.

Again this year we have a further increase of exhibitors, 1st tiers, 2nd tiers, 3rd and other

tiers, from many different nations. Stay on the edge on innovative technologies like additive manufacturing in aerospace and future markets like commercial space and unmanned aerial vehicles. Discover new business opportunities! Network and get inspired! Visit AIRTEC 2015!

This newsletter presents a small selection of whom and what to expect at AIRTEC 2015!

Best regards,

Diana Schnabel, CEO/President

UAV World at AIRTEC: NATO Workshop, Electrical Flying, Top Keynotes and Panels

New horizons for new business: This is the title at its new location in Munich, Germany. Together with the support of the Aerospace Cluster bavAIRia the UAV World gets even more relevant to companies, institutions and experts involved in unmanned aerial systems world-wide.

Highlights and activities at UAV World 2015:

- Workshop by NATO Science and Technology Organisation (STO)
- Electrical Flying: organized by Dr. Josef Mendler, Acentiss / Dr. Frank Anton, Siemens
- Military UAS Operations by Gerhard Schulz, bavAIRia
- UAS in Civil Defence and Disaster Relief: organized by Xaver Schruh, DLRG
- Panel Discussion UAV/RPAS: chaired by Volker Thomalla, Editor-in-Chief, magazine "Flug Revue"

Keynotes by

- Brigadier General Jörg Lebert, German Air Force
- Major Andre Haider, NATO Joint Air Power Competence Center, Germany
- Rear Admiral US Navy Christopher C. Ames, General Atomics, USA

See the program:

www.airtec.aero/congress

UAV World 2015

New horizons for new
business



November 3–5, 2015
Munich, Germany

Exhibit. Participate. www.uavworld.aero

For trade visitors: International B2B matchmaking at its highest level!

The B2B platform for AIRTEC 2015 is already open and very active and dynamic. So, if you are a buyer or a technical expert looking for new technologies and innovation providers, use this effective tool to plan your visit well in advance and efficiently.

Find out more: www.airtec.aero/b2b



Congress: One special day on 3D printing Additive Manufacturing Trends in Aerospace



The aerospace industry is a key growth market for additive manufacturing (AM). Due to this fact the AM session has been extended to a whole AM day. It will be organized by Dr. Terry Wohlers, one of the world's most renowned experts in this field, and his team, comprising keynotes from Airbus, Premium Aerotec, America Makes, ESA and others and an AM Aerospace Supplier Panel with representatives from FIT GmbH, Materialise and SLM Solutions GmbH. This day makes a very valuable addition to the congress and to AIRTEC 2015.

See the program: www.airtec.aero/congress

News Flash + + News Flash + + News Flash + + News

AIRTEC supports young aerospace entrepreneurs
Start-up Initiative: The Bavarian Aerospace Innovation Showcase

Young and rising enterprises from the aerospace sector present their innovations and competences at a dedicated space at AIRTEC 2015.

Seeking suppliers and partners
Indonesian PT Regio Aviasi Industri (RAI) at AIRTEC 2015

Privately owned Indonesian aircraft manufacturer PT Regio Aviasi Industri (RAI) exhibits at AIRTEC, showcasing its Regio Prop 80 airplanes project, also known as R80 and looking for suppliers and partners. It is Regio's first participation at AIRTEC.

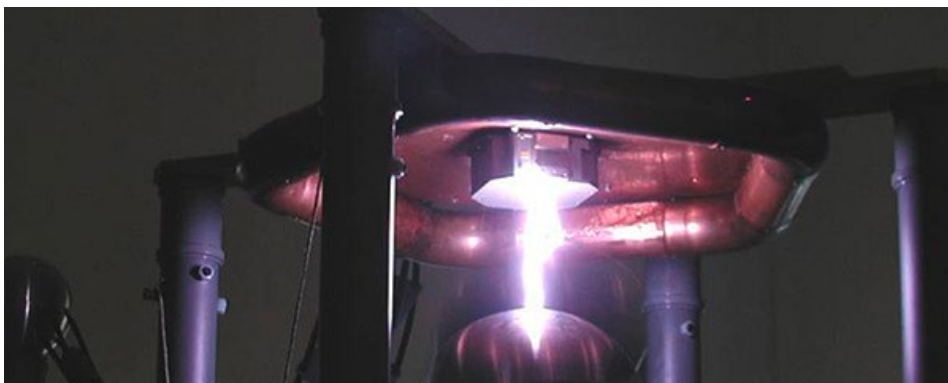
Flying Drones:
Exciting Flight Demonstrations

Drones in action: Live demonstrations of drone technology – see them flying and learn the facts at this year's UAV World.

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EMCC DR. RAŠEK: Pioneers for Progress



EMCC DR. RAŠEK has been a leading independent, international provider for EMC, EMI, radio, electrical safety and environmental simulation for over 35 years. At our innovation centres and on-site at customer facilities anywhere in the world we provide consulting and laboratory testing (ISO17025 accredited) up to certification and approval management. Our teams consist of internationally recognised experts in electromagnetic environmental effects (E3).

As technology has advanced, so have the qualitatively and regulatory requirements imposed on aircraft, avionics and aviation as a whole. The main issues range from electromagnetic interference to environmental factors such as air pressure, temperature and the direct and indirect effects of lightning, to vibration stresses on materials, components, and entire systems. In addition, the market now demands the use of novel materials in aircraft hulls. These offer higher stability combined with lower weight, and drive down costs in comparison to metals. The three main causes of EMC issues are thunderstorms, heavy EMI in air and space and mutual EMI between parts of a system.

Due to the increased use of carbon fibre, the fuselage no longer acts as a Faraday cage, protecting against direct and indirect effects of lightning. Furthermore, system reliability under any conditions is of paramount. Flight safety cannot be guaranteed unless all airborne equipment – from components to entire systems – has passed stringent tests.

Our key developments and innovations include for example:

- Ability to generate (and simulate) direct lightning strikes greater than 100 kiloamps
- ESD tests for discharges exceeding 300 kilovolts
- HIRF tests with electric field strengths up to and exceeding 40,000 volts per metre

We offer comprehensive services in accordance with manufacturers' specifications and standards like EUROCAE, IEC 61000-4-25, MIL-STD, SAE, RTCA/DO-160 and many more. Of course on request, we also provide testing according to customer-specific requirements.

www.emcc.de

A.ABETE: Aerostructures, Engines, Defense and Aeronautical Equipment

A.ABETE srl is an international reference in the design and manufacturing of components and assemblies for aircraft engine and structural parts. It is specialized in NC manufacture of structural parts in aluminum, titanium and steel alloys for the aerospace and aircraft's engines industry. The company works in the field of precision machining in the following areas: Aerostructures, Engines, Defense, Aeronautical Equipment.

ABETE in last 5 years has experienced the following main changes:

- Creation of new Management Areas
- Huge Hardware Investments
- Automation
- Increased capabilities to machine hard materials
- New Foreign Customers
- Increase of Revenue
- Increase of Human Resources

A.ABETE SRL has always given attention to market changes and customer's demands in order to increase its productivity reducing the delivery time. For this reason, the company has implemented a dedicated area to Surface Treatments.

All products can be completed in house with the following processes:

Penetrant Inspection

In the semi-automatic plant for the Fluorescent Penetrant Inspection, both Water-Washable Penetrants and Post-Emulsifiable Penetrants. In this way, it's possible to make the FPI according to the methods indicated in the international standards.

Shot Peening

Among our aims, there are not only the design and the manufacturing of aircraft engine components. We want to focus our attention also on innovation and development for example.

We want to look forward at our equipment search and their updating, to be always the right answer to our market needs. The shot

peening can be a good example. This technology is one of the most important surface processes in aerospace. This machine has seven axis and it is able to shot peen any kind of surface, in term of position, complexity and grade. This means that the shot media stream strikes the parts always between 45 and 90 degree, i.e. that the required value for shot peening intensity is reached everywhere.

Surface Treatments

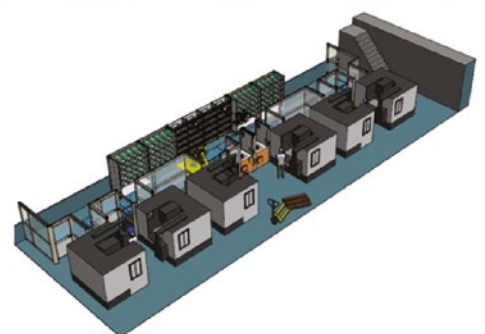
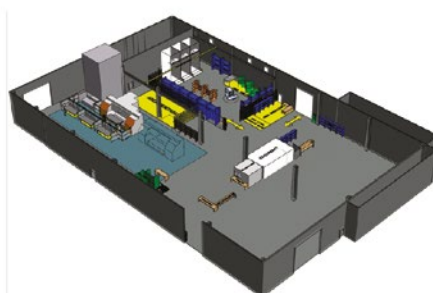
In order to rationalize and to lean the production flow, there are two separate lines, one for the aluminum alloys surface treatment, one for the steel and the titanium alloys surface treatment. In detail, it's possible to realize Chromic Acid Anodizing, Boric Acid-Sulfuric Acid Anodizing, Tartaric Sulfuric Anodizing, Chemical Conversion Coating,

Passivation of titanium, Passivation of steel. To be totally in compliance with the Customer specifications, the automatic plants, which manage the work cycles with PLC, check continually parameters such as temperature, PH, electrical conductivity, tanks level.

Painting

The automatic painting plant is divided in three separate areas: a temperature controlled and humidity controlled chamber, a flash-off zone, a temperature controlled oven. The temporized conveyor, which moves the parts through the three areas, permits to program the work cycles according to the Customer specifications, in order to always respect the flash-off time and the polymerization time.

www.abete.net



Mandelli: Continuous product improvement, efficient resource management

Continuous product improvement, efficient resource management, design and construction of highly performing, customized machines to guarantee its customers the utmost satisfaction.

A winning philosophy, gained along a nearly century-old history in the world of Horizontal Machining Centers, during which Mandelli Sistemi has achieved a leading position worldwide.

Its success is rooted in the historical propensity to advanced technologies and in its virtuous ability to innovate to better compete in ever evolving and demanding markets which, especially in recent years, have progressed towards high customization, turnkey solutions and high added value, in particular the Aerospace sector, where Mandelli Sistemi can boast prestigious collaborations, characterized by materials difficult to machine and complex shapes.

Believing that innovation is the only way to produce the best possible solution, Mandelli's designers have developed the new concept Spark line in which great attention has been paid to the elements that characterize the Aerospace production:

- Large size of the roller slide-ways and FEM optimized structure which combine high dynamics and accuracy in complex profile finishing operations as well as great stability for high stock removal in roughing ones.
- A new range of powerful tilting heads with sophisticated gears without backlash. With torques up to 1250 Nm in continuous and a liquid cooling system ensuring thermal stability and precision, these heads are dedicated to the machining of titanium alloys and Cr-Ni based super-alloys.

- Multitasking Versions, with Direct Drive tables up to 600 rpm and capable of automatically switching from milling operations to processes typical of a vertical lathe, ensuring optimum performance specifically studied for the machining of aircraft engines.
- Multi pallet automation systems, entirely designed and manufactured by Mandelli Sistemi, controlled by a software developed by Mandelli for automatic and flexible unattended production.
- Accessories that further enhance the flexibility during processes such as a powerful angular transmission head for internal diameters drilling and the motorization for facing operations.

A revolution, therefore, which is accompanied by the Rumble 5-axis profiler, dedicated to large titanium aerospace structures, which combines roughing and finishing operations on up to 6 meters long work-pieces.

Power, agility, versatility, endurance. Ever since.

www.mandelli.com



Kanfit: Kanfit Reaches New Heights with Composite Capabilities for the Aerospace Industry

In May 2015, Kanfit reached a major milestone in its strategy to become a leading manufacturer of aerospace-grade structures, with the inauguration of its new autoclave and laboratory facility. The entire autoclave operation was built from the ground up and certified within 13 months.

In the short time that the autoclave has been in operation, not only has Kanfit obtained four autoclave manufacturing contracts, but it has also been receiving exciting new business opportunities. Whereas in the past Kanfit needed to subcontract autoclave work to a third party, it now has the ability to manufacture and test composite components in-house. The result—shortened production and delivery times. This has not only earned the company a great amount of positive customer feedback, but it is also enabling Kanfit to compete on projects that were previously closed to them.

Full Service Supplier of Metal and Composite Parts

Established 1986, Kanfit opened its doors as a composite workshop, and soon started expanding its capabilities with metals—sheet, block and extrusion, and various

types of alloys such as steel, copper and aluminum that undergo machining, forming, heat treatment, chemical coatings, finishing, and assembly. For composites, in addition to autoclave, Kanfit's manufacturing processes include RTM, HP-RTM, LRI, prepregs—oven & vacuum and wet lay-up. Capitalizing on its expertise with both metals and composites, Kanfit produces advanced hybrid assemblies for the aerospace and medical device industries.

With increased customer demand for lighter components, improved fuel efficiency and reduced operating costs, Kanfit continues to find innovative ways to meet customer requirements and specifications, and to enhance its product offerings and services. Kanfit is currently developing new technologies for its manufacturing processes, including 3D additive manufacturing of Ti64, automated fiber placement (AFP) and robotic filament winding of closed frames.

About Kanfit

Kanfit Ltd., a built-to-spec/print aerospace development and engineering company, specializes in manufacturing and integrating primary and detailed parts, subassemblies

and ready-to-mount assemblies for military and commercial jets, rotorcrafts, and UAVs. Products include structural parts, cockpit structures, avionics and main landing gear doors, wing to belly fairings, and more. Its parts have been integrated into Gulfstream G280 and G150, Boeing 787, Airbus A380 & A400, Bombardier CSeries, CRJs, Global-series, Challengers, Embraer ERJs, Eurofighter Typhoon, F-35, F-15, F-16, F-18, C-17, UH-60, CH-47, V-22, AgustaWestland AW1X9, UAVs, RTM chaff and flare magazines, missile and bomb parts, airborne and space antennas, tools, jigs, fixtures, and more.

Kanfit is AS9100C certified and Nadcap accredited for heat treatment and chemical processing, and is certified by aerospace industry leaders including Boeing military and commercial, and Hamilton Sundstrand (UTC). Kanfit also manufactures components and parts for the medical device, wind energy and defense industries.

www.kanfit.com

Come see us at Airtec 2015, Stand C3-D19



Zünd Cutting Systems: Perfection In Every Detail

Whether carbon, glass, Kevlar, or natural fiber, whether for prototyping or high-volume production – whatever your cutting requirements may be – Zünd has what you need to get it done: the Swiss cutting system manufacturer, with its innovative solutions for composites applications, is your first choice in digital cutting.

The requirements for cutting composite materials are extraordinarily diverse. What does Zünd do to meet its customers' needs in such a complex production environment?

Peter Hohl: Composites are challenging materials to process because of the complexity of their characteristics. This is especially true when it comes to clean, precise cutting. The demands on the cutting system for this application are high: flawless cut quality, maximum machine uptime, multi-functionality, high material yield with a minimum of waste, limited operating costs, and the highest-possible throughput. Zünd has more than 20 years of experience with this type of cutting. Because of our direct, on-going contact with end-users, we can stay abreast of our customers' needs and of current market trends. This allows us to keep increasing our know-how in processing these challenging materials and supplying our customers with state-of-the-art digital cutting solutions.

What distinguishes Zünd cutters from others in such demanding production environments?

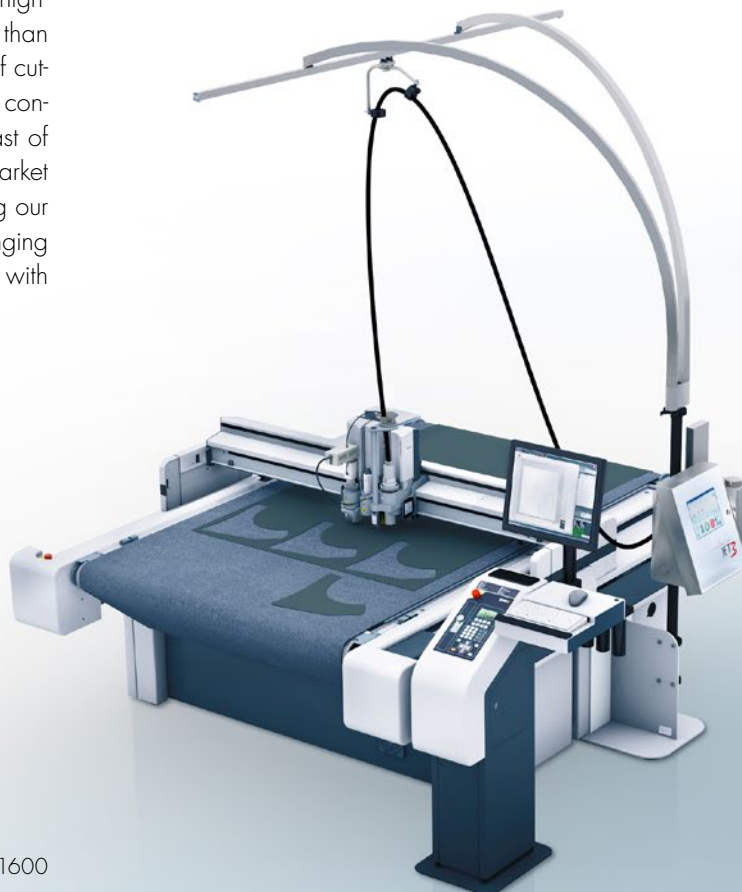
Their unique functional versatility, unmatched reliability and build quality, as well as their ease of use and compelling cost-benefit ratio. No other digital cutting solution on the market handles such a wide range of materials with the same ease: prepreg, dry weave, core materials, engineered laminates, etc. Zünd cutters make it possible for the user to process, on one and the same machine, carbon, glass, and aramid fiber, as well as hard foam and honeycomb, cured CFRP or GRP sheets (carbon-fiber or glass-fiber reinforced polymer).

Composite materials, such as carbon and aramid, tend to be quite expensive. This is why users in these applications are particularly interested in maximizing material

usage. What is Zünd doing to support customers in this effort?

In conjunction with Zünd Cut Center, we offer a powerful nesting software. This software option permits utilizing costly raw materials as efficiently as possible. At the core of the Zünd Cut Center software is a comprehensive, integrated materials' database, which specifies the best processing methods for many different composite materials as well as the corresponding optimal cut parameters. All processing methods are extensively analyzed and tested at Zünd's R&D facilities. In the Cut Queue, we have a seemingly minor but important feature that estimates the processing time for every phase of producing a job. Once a job is completed, this feature saves the actual processing time together with the cut data. This information can be exported at any time for invoicing or for production planning of repeat orders.

www.zund.com



The Zünd G3 M-1600
with inkjet marking system

Plataine: Intelligent Automation for Optimized Production Process

Plataine is an award-winning, leading provider of Industrial Internet-of-Things (IIoT) based, Intelligent Automation software solutions for Composites Part Manufacturers of various industries such as Aerospace and Transportation.

Plataine's TPO (Total Production Optimization) solutions leverage state of the art patent-protected technologies, to enable manufacturers to be more competitive by increasing material utilization, improving productivity, and shortening manufacturing cycles to ensure on-time delivery of products to customers.

Plataine's solutions are used by hundreds of manufacturers worldwide, including Composites Horizons, General Atomics (GA), GE Aviation, GKN Aerospace, Hexcel, Hitco, IAI (Israel Aerospace Industries) and SpaceX.

TPO with the Internet of Things (IIoT) leverages RFID and mobility technologies to better track and manage materials, kits, tooling, assemblies and staff on the production floor. Combining best of class engineering and manufacturing practices and technologies, OEMs and fabricators can further push the productivity envelope, reducing their Buy-to-Fly ratios.

TPO does that by:

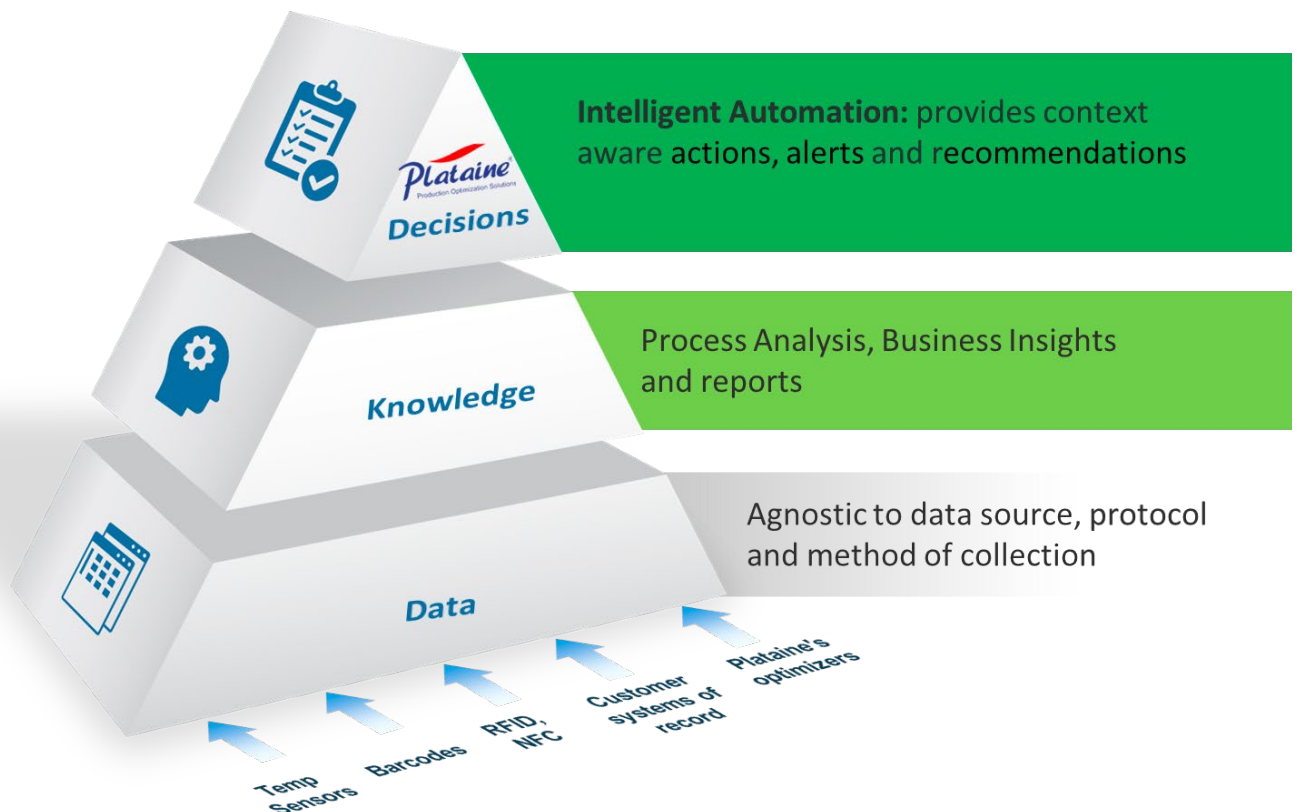
Step #1: Automatic Data Collection and Digital Tracking - allows manufacturers to regain control and visibility by backend systems' dashboards & reports, gain increased traceability and better costing evaluations.

Step #2: Real time information and "context-aware" software enable real time alerts - notifications for supervisors allow real time data-driven actions

Step #3: Context-aware, optimized and automated machine-to-machine decisions and actions by integrated solutions from production planning to execution.

www.plataine.com

AUTOMATE. OPTIMIZE. TRACK. INTELLIGENT AUTOMATION FOR MANUFACTURING.



Toolcraft: Toolcraft invests in M2 cusing multilaser technology

Metal laser melting has mastered the leap from rapid prototyping to recognised production technology. Additive manufactured parts are used in a wide range of industries. Toolcraft has once again expanded its machinery in order to more effectively meet the requirements of customers. The company has invested in an M2 cusing multilaser system made by Concept Laser, thereby extending its range to five laser melting machines.

The future of metal laser melting

Since its inception in 2011, the innovative process has established itself as an independent business sector. Toolcraft is looking to the future of metal laser melting with the new unit. The machine has a workspace of 250 mm x 250 mm x 280 mm in the x, y and z directions. They melt down layers measuring 20-80 µm in thickness at a speed of 2-35 cm³/h depending on the material. The machine has an innovative laser system. Two 400 W lasers are now used instead of one. This significantly increases the output

compared to previous models. In addition, the M2 multilaser system offers the latest developments in process monitoring. The integrated system actually monitors the quality of the component during the manufacturing process.

Complete solutions from one source

The new unit produces precision parts made of nickel-based and titanium alloys, in addition to the new aluminium alloy Scalmalloy® - a corrosion-resistant material with the specific strength of titanium at a simultaneously high ductility. As a partner for complete solutions, Toolcraft provides the entire process chain in-house, from design through to manufacturing and chipping "refinement" and quality testing. The final inspection and an optical measurement are performed exclusively by qualified staff. The quality of the components can also be quickly and reliably verified using a system for non-destructive surface testing.

Comprehensive quality assurance

Additional analysis equipment ensures consistent quality assurance. The company has recently expanded its portfolio in this field and is investing in its own measurement and analysis technology. This is used to check the powder quality and the properties of the molten material. Toolcraft meets standard EN 9100 in the field of aerospace. For this industry, the company manufactures housing components and complex, thin-walled structures for gas turbines. Certified precision parts for the medical technology sector are also produced in Georgensgmünd.

www.toolcraft.de



Swirl, HDV turbine blade and IKZ tool holder recess turning

Ducommun: Custom Product Solutions for the Aerospace Industry

Ducommun is a global provider of manufacturing and engineering services, developing innovative electronic, engineered and structural solutions for complex, high-cost-of-failure applications in aerospace, defense and other technology driven markets. Our full-service collaborative approach, broad capabilities and value-added services like new product introduction, engineering, supply chain strategies and program management support our customers' complex electronic and structural needs.

We have more than 50 years of experience in developing custom product solutions for highly reliable Motion Control, Human Machine Interface and RF applications for the aerospace industry.

Motion Control Devices

- Resolvers and Synchros
- Variable Reluctance Resolvers
- Stepper Motors
- AC-Motors
- DC-Motors
- Actuators and Mechanisms

Human Machine Interface Products

- Illuminated pushbuttons switches
- Annunciators
- Switch matrices
- Keyboards
- Illuminated display panels and bezels
- Time delay modules
- Caution warning assemblies
- Integrated control panel assemblies
- Rotary switch

RF Switches

- FMA PMA certified switches for TCAS and ADS-B applications
- Air agency certificate no.: D5YR708X
- Additional microwave switch applications —SATCOM and GPS applications

Our broad capabilities allow us to offer customers a full-service approach to their complex engineering and manufacturing needs, including:



Engineering

- Electrical and mechanical design capabilities
- Various CAD/CAM capabilities
- Spectral radiometry
- Dedicated teams for each product line

Testing

- Environmental
 - Thermal
 - Vacuum
 - Humidity
- Corona
- High power
- RF to 50 GHz

Assembly

- Lean environment
- Dedicated assembly cells
- Class 10,000 clean rooms with Class 100 flow benches

Mechanical

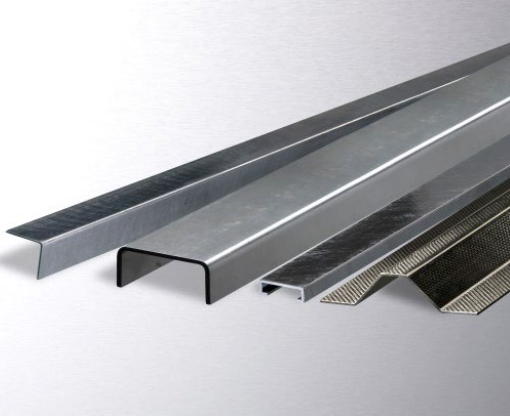
- Sheet metal stamping and forming
- Injection molding
- Tool making center
- Laser etching
- NASA-certified soldering
- Material & component traceability
- CNC center

Certifications

- ISO 9001 certified
- AS9100 Rev C
- MIL-PRF-22885 QPL
- FAA (ACSEP)
- FAA Repair Station (MMF)
- NASA-STD-8739.3
- MIL-L-85762A

For more information, please contact our sales team at:

xperion: Strong but still highly flexible – thermoplastic lightweight components



Thermoplastic components have already become important components in today's aerospace industry, and will also positively influence the efficiency of entire systems of other industries in the future. For more than 25 years, XPERION PERFORMANCE POLYMER COMPOSITES has been a specialist for the production of thermoplastic lightweight components, and because of its superior material and technology expertise, con-

tinues to rank among the globally leading companies of the industry. The company utilizes the Continuous Compression Molding (CCM) manufacturing process to create highly rigid and at the same time ultralight products.

The CCM process enables the production of laminates and non-rotationally symmetrical parts such as V, A, U, H and hat profiles as well as curved components, for example, seat backrests. The modular tooling system allows for an exchange of the forming tool within a very short time, which in turn minimizes downtimes. The current CCM systems from XPERION are able to provide an output of up to 100 m/h with a consistently high quality, depending on the geometry of the manufactured component and type of polymer used. The cycle times are thereby in the range of minutes or seconds. The product manufacturing is performed continuously, and therefore possible with an unlimited length. In the near

future, a production width of up to 1000 mm will also be possible.

Through their low weight, a high impact strength and an extreme flexibility, XPERION products are able to provide decisive advantages. Key characteristics of the utilized high-end polymers with carbon fibers are their corrosion and chemical resistance, as well as a low water absorption. Depending on the respective function and application, it is possible to use fibers made of carbon, glass, aramid or basalt in combination with polymers. The modular machine concept combined with a broad range of machining options such as milling, drilling, sawing, water-jet processing or welding, provide perfect conditions for the utilization of thermoplastic components. This enables XPERION to address specific customer requirements, and thus function as a built-to-print supplier.

www.xperion-composites.de

Neumüller: The best connector to fit your needs is the one you design yourself!

The Scorpion connector can be configured for use as a power connector, a signal level connector or a hybrid of the two. The possible contact variations are nearly limitless — build your own connector with any combination of modular tooling for a final one-piece insulator. These connectors are used regularly in aerospace applications.

Visit booth C3/G77 for more information.

FEATURES

- Well suited to achieve the ideal blend of size, weight and power (SWaP) using modules with contact sizes 4, 8, 12, 16, 18, 22
- Large Surface Area (LSA) contact system

- for energy-saving, low contact resistance
- High conductivity contact materials are available to push the envelope of current carrying capability
- Five (5) options for power contact sizes (#4, 8, 12, 16 and 18)
- PosiBand closed entry contact design
- Tailor high voltage capability with optional spacers/blanks
- Sequential mating options
- Blind mating, float mount, panel mount and cable connector options
- Solder PCB mount, crimp and press-fit terminations
- Venting options for improved cooling

www.neumueller.com



Elbit Systems – Cyclone: Design and Production Center for Aerostructure Components

Elbit Systems – Cyclone, a wholly-owned subsidiary of Elbit Systems, is a design and production center for metal and composite structural aircraft components and assemblies for the leading aerospace primes and OEMs.

Cyclone designs and produces assemblies for civil and military aircrafts such as B737, B787, SSJ100 commercial aircraft and Global 5000/6000 and King Air 350 business aircraft, F-15, F-16 and F-18 fighter aircraft.

Cyclone provides Standard Depot Level Maintenance (SDLM) and other services to fixed and rotary wing aircraft customers worldwide, including systems installation and integration services. Cyclone is certified for AS 9100Rev-C, ISO9001, ISO14000, NADCAP (various processes).

In addition, Cyclone holds various qualifications by its customers quality systems (Boeing, LMA, NGC, Bombardier, Spirit Aerosystems, Bell Helicopter, Sikorsky, USAF, US-Navy, IAF, IAI and more).

Products presented at Airtec 2015:

WINGLET

Beechcraft King Air 350 composite winglet – R&D project

Cargo Floor Structure

Boeing 787 composite cargo floor beam assembly

Aileron

Heron TP, Control Surface - R&D project

Landing gear door

Composite nose landing gear door with honeycomb pore structure

www.elbitsystems.com



Beechcraft King Air 350 composite winglet – R&D project

Orbital ATK: Automated Composites Fabrication and Inspection

Orbital ATK is an industry-leader in automated composites fabrication and inspection with over sixty years of experience. Orbital ATK Aerospace Structures in Clearfield, Utah utilizes innovative and patented, automated technologies across a wide range of domestic and international commercial, military and large launch vehicle products. Our patented Automated Stiffener Forming technolo-

gy is a game-changing innovation that has revolutionized the way commercial aircraft stiffeners and frames are fabricated, and can be extended to many other applications for high performance composite structures. These highly engineered technologies enable Orbital ATK to produce the high quality, dimensionally precise and highly repeatable composite components required by our cus-

tomers at a high-rate of production. Orbital ATK is an aerospace, defense and commercial products company with operations in 21 states, Puerto Rico and internationally.

News and information can be found on the Internet at

www.orbitalatk.com



South Carolina: The top destination for the aerospace and aviation industry

The state of South Carolina is strategically located halfway between New York City and Miami and has cemented itself as a top destination for the aerospace and aviation industry:

- More than 200 manufacturing and defense companies, which collectively contribute 23,000 jobs and \$8 billion in economic output.
- Within 1,000 miles of 67 percent of the U.S. population, allowing effective service to the entire Southeast—which has become a hub for aerospace with Airbus and Honda Jet facilities in the region.
- Greater Charleston MSA ranks as the nation's fastest growing mid-size metro for aircraft manufacturing.

South Carolina offers unparalleled value to companies seeking the ideal business location:

Low Cost of Doing Business

South Carolina businesses thrive thanks to lower operating and capital costs. Industrial power costs in the state average only 5.9 cents per kilowatt hour, the lowest in the Southeast.

Transportation Infrastructure

South Carolina offers manufacturers numerous means of reaching customers and suppliers around the world: The state is served by 5 interstate highways, an efficient port with numerous worldwide shipping connections and the capability to support post-Panamax vessels, two Class One rail carriers and three major airports,

Workforce and Education

South Carolina businesses can rely on a stable, highly-skilled and efficient workforce. The state connects incoming businesses with a top-ranked worker training program, readySC, which is supported by South Carolina's 16 technical colleges.

Research and Innovation

Composites Manufacturing Technology Center of Excellence develops improved manufacturing processes for composites and advanced materials.

Clemson University Advanced Materials Center – the only National Science Foundation Engineering Research Center to focus entirely on film and fiber research.

The McNair Center for Aerospace Innovation and Research at the University of South Carolina recently announced an agreement to conduct advanced research projects to improve Boeing products.

Boeing in South Carolina

In 2009, The Boeing Company selected North Charleston for its second final assembly site and delivery center to support the company's 787 Dreamliner program. Boeing South Carolina rolled out its first 787 in April 2012 and now has more than 6,000 employees.

About the State of South Carolina's Europe Office

The State of South Carolina Europe Office is the European subsidiary of the South Carolina Department of Commerce. The office was first established in Brussels in 1975. Today, operating out of Munich, the office has 40 years of experience assisting European companies establish, relocate and expand business operations in the United States.

For more information please visit

www.SCcommerce.com



Reiser Simulation and Training: Custom designed products to customer specifications

Reiser Simulation and Training GmbH (RST) looks back on more than 25 years of experience in the fields of simulation technology and training devices for the aviation sector. The family-owned company with headquarters and production facilities south of Munich extends from a wide variety of flight simulators to maintenance trainers for both military platforms and commercial aircraft like Eurofighter, NH90, Tiger, PC-21, CH-53 GA. Reiser is also a direct supplier of NH90 maintenance trainers for the German and French armed forces. There are in addition cooperation agreements with the Martin Baker (UK) and Moog (Netherlands) companies. In January 2015 comprehensive cooperation with ADAC HEMS Academy GmbH was announced. This collaboration focuses on developing state-of-the-art training tools and facilities for air rescue crews ranging from cockpit procedure trainers to certified Full Flight Simulators.

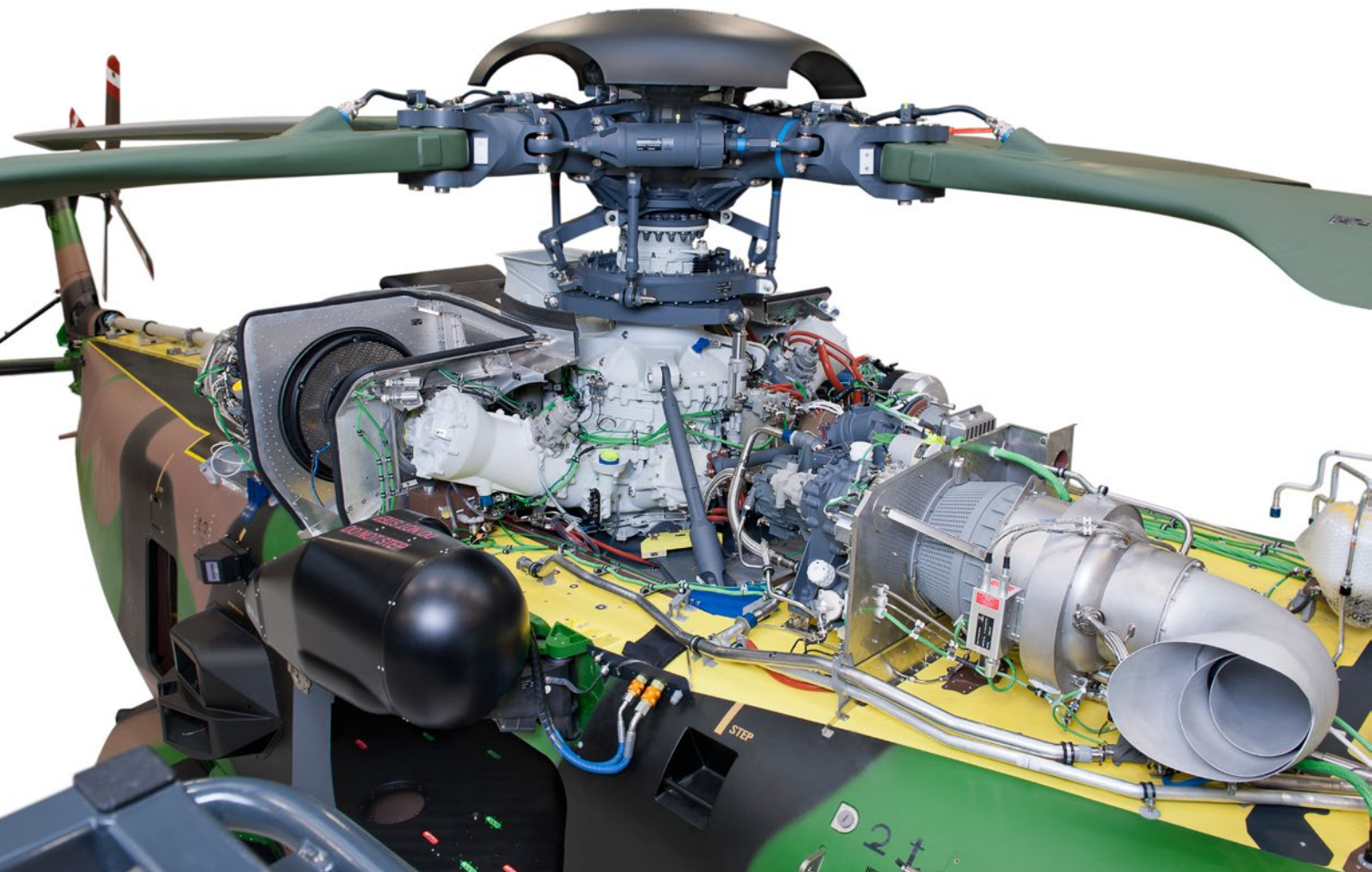
An important major contract marking a milestone in the company's development is the NH90 Maintenance Training Rig (MTR) project. Five different types of NH90 servicing trainers are being developed and manufactured to train aircraft technical personnel. Delivery of the first MTR to the German armed forces in 2013 was followed in 2014 by the provision of the first rig for the French NH90 Joint Training Center. The maintenance training rig is a cost-effective solution for achieving training goals while at the same time protecting the original equipment.

In addition to customized products designed and produced by RST GmbH according to customer specifications, the company can also provide series products like the new active control loading system "ecoline CLS" for simulators of the Flight and Navigation Procedure Trainers (FNPT) and Flight Training Devices (FTD) classes.

Since the company self-produces most of the assemblies and components for its products, it can assure the supply of its systems for many years and realize low life-cycle-costs.

Reiser Simulation and Training GmbH is certified ISO 9001.

www.reiser-st.com



The Peak Group: Integrated Test Systems Based on NI Industry Standards

At AIRTEC 2015, the Peak group is exhibiting its comprehensive range of test equipment, from simple test boxes used by subcontract manufacturers to stand alone high-specification test racks and systems used in the aerospace and defence industries.

Peak is exhibiting jointly with MIC (Mass Interface Connections GmbH), a Munich-based manufacturer and Europe-wide distributor of automated test equipment and interface systems for the ATE and OEM sectors. MIC's customers include global leaders in the automotive, aerospace, defence and industrial electronics industries as well as experienced systems developers and testing institutions. From a single signal contact to a complete test system, MIC co-operates with selected companies from a variety of technical fields to find the right solution to fit customers' needs. MIC works with a number of partner companies including VPC, National Instruments and 6TL Engineering in addition to Peak.

As a National Instruments Alliance Partner, Peak supplies integrated test systems based on NI industry standard platforms along with interconnection hardware from Virginia Panel Corporation (VPC), for which Peak is the UK distributor.

Peak Production specialises in the automation of functional test. Using automation reduces test time and increases consistency of testing while allowing qualified people to do other more skilled work.

In a typical aerospace application, Peak has recently successfully developed and implemented a customised system to test the primary power distribution unit for business jets supplied by a major aircraft manufacturer.

The heart of the test system is a National Instruments 19-inch rack-mounting PXI based computer equipped with dedicated I/O to control all sensors, actuators, switches and relays. An I/O multiplexer system is used

to route various test points from the product under test to cards in the PXI chassis using serial communications, ARINC, RS232 and RS422 interfaces. The system also includes various power supplies for high- and low-current testing and interfaces using Virginia Panel Corporation Mass Interconnect solutions.

Peak is also featuring its modular rack system, which is ergonomically designed for use in all test environments and includes an integrated VPC Mass InterConnect interface receiver adaptor, allowing large numbers of different contact types to be quickly and easily connected in a single operation.

The Peak modular rack system is height, width and depth adaptable to customers' test requirements. It incorporates built-in service panels, high volume cooling, and large doors on the sides and rear, with a wide body allowing for ancillary equipment and circuitry on both sides of the main chassis

www.thepeakgroup.com



Maurer Magnetic: Demagnetization on a whole new level

Residual magnetism in ferromagnetic workpieces causes a long list of serious problems:

- magnetic sticking of ferromagnetic particles
- breakdowns of bearings
- disturbances in highly sensitive navigation instruments
- magnetic moment issues in space applications
- misclassification of eddy current testing
- arc deflection in arc welding or beam deflection in electron beam welding
- disturbances in various coating processes due to magnetic effects

There are many other examples where magnetism generates problems in manufacturing processes.

Maurer Magnetic AG offers our unique and patented "MAURER Degaussing" pulse tech-

nology. Even for the highest requirements, such as in the space industry, our degaussing process is able to reach the demanded results. Maurer Magnetic AG has successfully solved several such ambitious projects and offers the right choice of machines out of our broad product portfolio for each case. Our demagnetizers can either be fully integrated in automated production lines or they can also be operated manually simply by pushing a button.

We highly recommend to our customers to also invest in good measuring equipment. Only with a suitable residual magnetism-measuring device is it possible to reliably verify the results of the demagnetization and to identify magnetic parts. Residual magnetism is often located in very small spots. A measuring device can only identify these spots, if the sensor of the probe is located close to the surface. Our Gaussmeter M-Test

LL has a Hall sensor mounted on the tip of a tangential probe. The measuring distance to the part is 0.5mm (probe in contact with the surface). For precise and reproducible results, the measurements need to be taken in a magnetically shielded area. Otherwise not only residual magnetism, but also induced magnetic fields will be measured (e.g. magnetic field of earth). Therefore Maurer Magnetic AG offers the Zero-Gauss-Chamber, when precise and reproducible measuring results are needed.

For further information about us and our products, please contact our website:

www.maurermagnetic.ch



Makino: Heavy cutting of metal, time and costs

The motto "Heavy cutting of metal, time and costs" is the guideline through Makino's International Aerospace Forum, held from 24 to 26 November 2015 in Kirchheim unter Teck, Germany (close to Stuttgart). Experience the stability of the T-series, the dynamics of the MAG series and visit our International Aerospace Forum.

This event will give you the opportunity to see live some of the most advanced technologies for the production of aerospace components. In addition to the introduction of their latest innovations, Makino has put together a supporting program which will inspire you to improve your productivity through optimizing your processes. With compelling case studies presented by Makino users, presentations on future market developments as well as the possibility to exchange knowledge and experiences with other experts in the field, Makino offers you a menu of enlighten-

ing impressions in a spectrum of interesting areas.

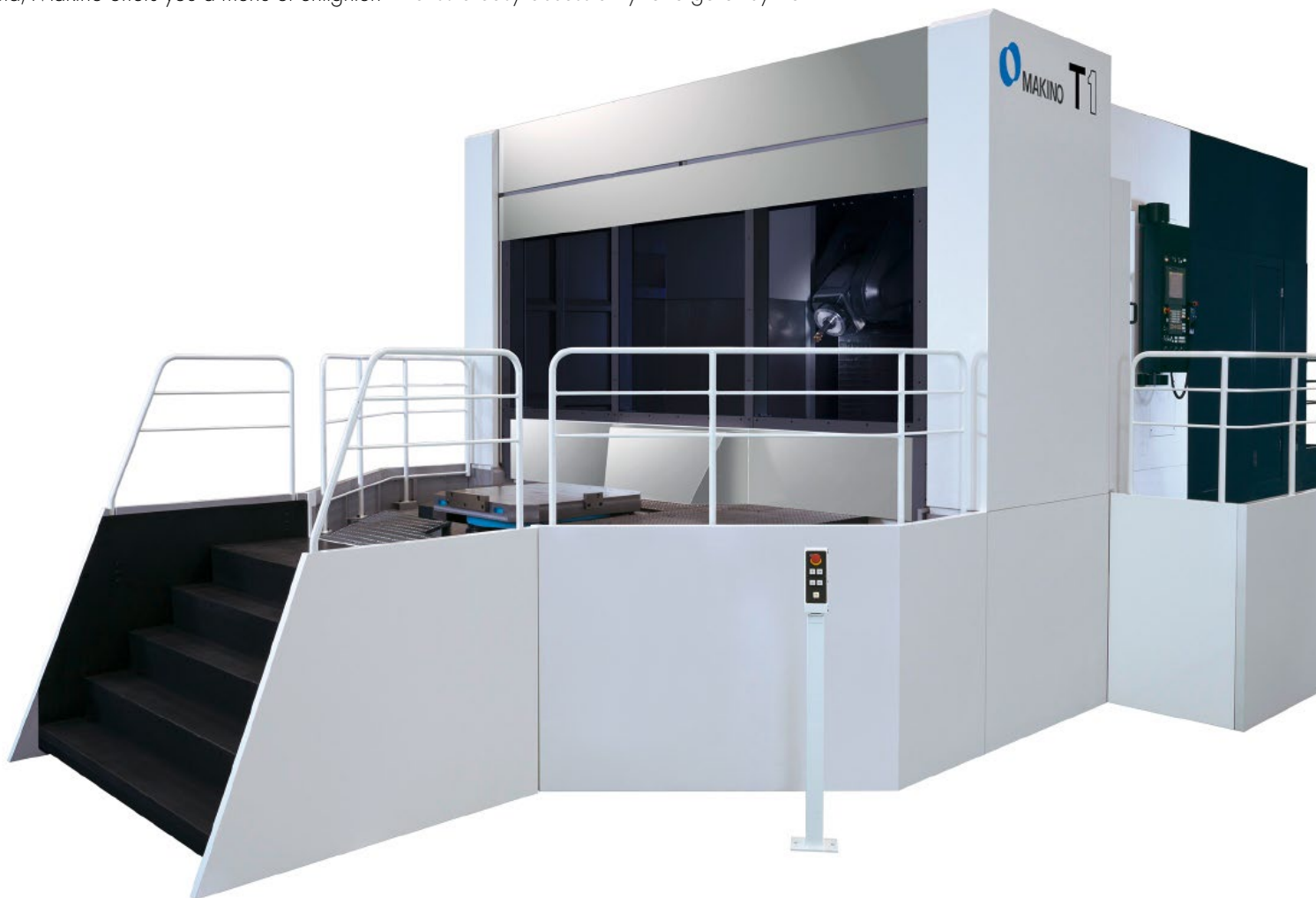
A highlight at the International Aerospace Forum is the T1. A versatile and powerful horizontal machining center that combines the toughness, rigidity and damping of Makino's larger titanium machining centers with the machine dynamics of Makino's aluminum machining centers and the accuracy management of Makino's vertical machining centers. The T1 delivers the dynamic stiffness and rigidity critical to achieving maximum cutting stability when producing large, heavy components or machining material difficult to cut. Squints and the resultant inaccurate part positioning often experienced on traditional trunnion tables are not an issue since the B-axis rotary table and bed casting support such large stresses. Moreover, the T1's unique casting and kinematic structure ensure easy accessibility to large or cylindri-

cal work pieces. The T1 is ideally suited to machining structural parts in titanium alloys and engine components in titanium or nickel alloys, while also delivering good cutting performances in other materials as e.g. aluminum.

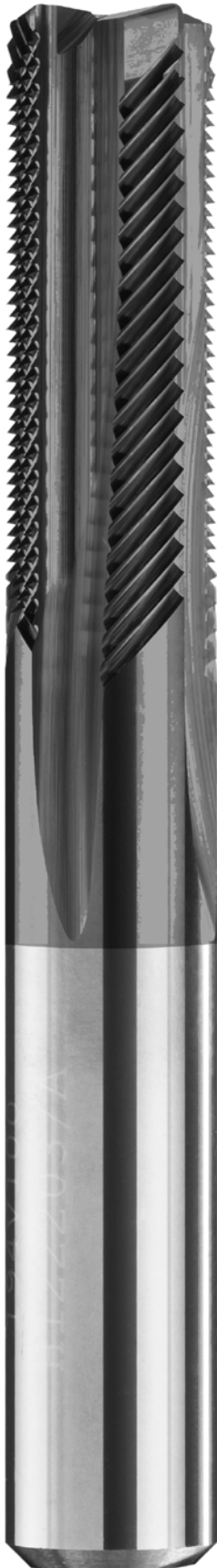
Additionally the Aerospace Forum will be rounded off by practical demonstrations of the following Makino machining centers: MAG1, T2, D500, a51nx, a61nx-5E, a61nx, EDBV8 and PS95.

For more information please visit our website:

www.makino.eu



Hufschmied: Increasing demand for cost-reducing processing strategies



Aerospace is currently amongst those industries with the highest demand for tools that reduce processing costs of fibre-reinforced composites.

Hufschmied machining systems are ready for the challenge. Within the last 12 months, we have optimised a whole range of existing tools tailored to these specific requirements along with the development of completely new devices.

Aerospace industries are faced with high processing costs for the manufacturing of components made from fibre-reinforced composites, in extreme cases amounting to up to 50% of total component costs. This is partly due to the use of specific materials like organic sheets, matrix systems based on duroplastics and thermoplastics with a variable fibre content of 50-70%, various foams and metal-reinforced honeycomb structures. Costs are also incurred owing to stringent requirements regarding both quality and safety.

An example

Following several months of test runs, Hufschmied has developed T-Rex – a new generation of tools for the machining of CFRP structural components. Their distinctive feature: These innovative tools with their variable cutting geometry combine the advantages of a router geometry with the delamination-free cutting quality of a compression tool. This brings about a high abrasion resistance – paired with a long service life. Furthermore, the combination of roughing and smoothing within a single process step leads to an extreme gain in speed when chamfering to a quality standard that does not require any reworking. Cutting back on a second pass decreases processing costs by 30 per cent and increases production capacity by 40 per cent.

Similar scenario

The development of the Fibre Drill Bits follows the same directive – optimising the

overall process. Drilling and countersinking is accomplished in one single production step. Likewise, the new F172-geometry is a take on the wave cut of knives. Implemented to the machining movement of a drill tool, the sharpened drill tip of the Hufschmied "Force Cut" eliminates the constant axial machining stress on the component and thus has a marked effect on the prevention of delamination at the entry and exit points of the bore path. Several benchmark tests showed this new geometry to result in a considerable increase in quality.

Of particular importance

DMG MORI and SAUER recently have introduced ULTRASONIC mobileBLOCK, a mobile milling unit. It was developed for the automated, economic processing in maintenance and repair (MRO) of damaged fibre-reinforced composite components. Participating in this project: Hufschmied machining systems – to this effect we have launched a whole new family of tools. Each one is optimised for a specific material and available in two versions – for stepped or tapered scarfing.

Unique on a global scale

Hufschmied also brings a ground-breaking innovative idea to the table. Engineers from Bobingen have developed VisCheck and brought it up to deployment standard. This is a new software for the quality assessment of CFRP drilling. It provides every industry with the means to perform an automated evaluation of drilling quality with regard to delamination, fraying and chipping.

Enquiries welcome

Feel free to contact us. Our updated portfolio will be of interest to all users pursuing cost-effective processing of new materials.

Hufschmied.

A cut ahead.

NÜRMONT: Industrial Installation, Relocation, Mechanical Production

Over the last 30 years NÜRMONT has been one of the leading companies in the mechanical and plant engineering industry. We offer worldwide one stop solutions ranging from planning and installing to after-sales services. This includes also but is not limited to logistics, manufacturing of customize parts, disassembling, reassembling, all electrical installation and liquid as fluid pipes and systems but also the supervision of initial operations as well as any flow-up installation services.

Industrial installation, relocation, mechanical production and special-purpose mechanical engineering build NÜRMONT's core business. As a service provider we focus on people. This includes our highly qualified and experienced employees who supervise our projects but equally important our customers whose individual requirements are met through our specialized know-how, high levels of flexibility and full professionalism. Operating globally and across all industries for the benefit of our customers - our sphere of influence has no limits.

With us, you speak to experts who know precisely what has to be done. We take complete responsibility from planning a project to commissioning and have offered our services to well-known manufacturers. Together with you as our client we approach individual planning and development tailored to your requirements at the beginning of each project and will come up with the most efficient solution in accordance with your task profile.

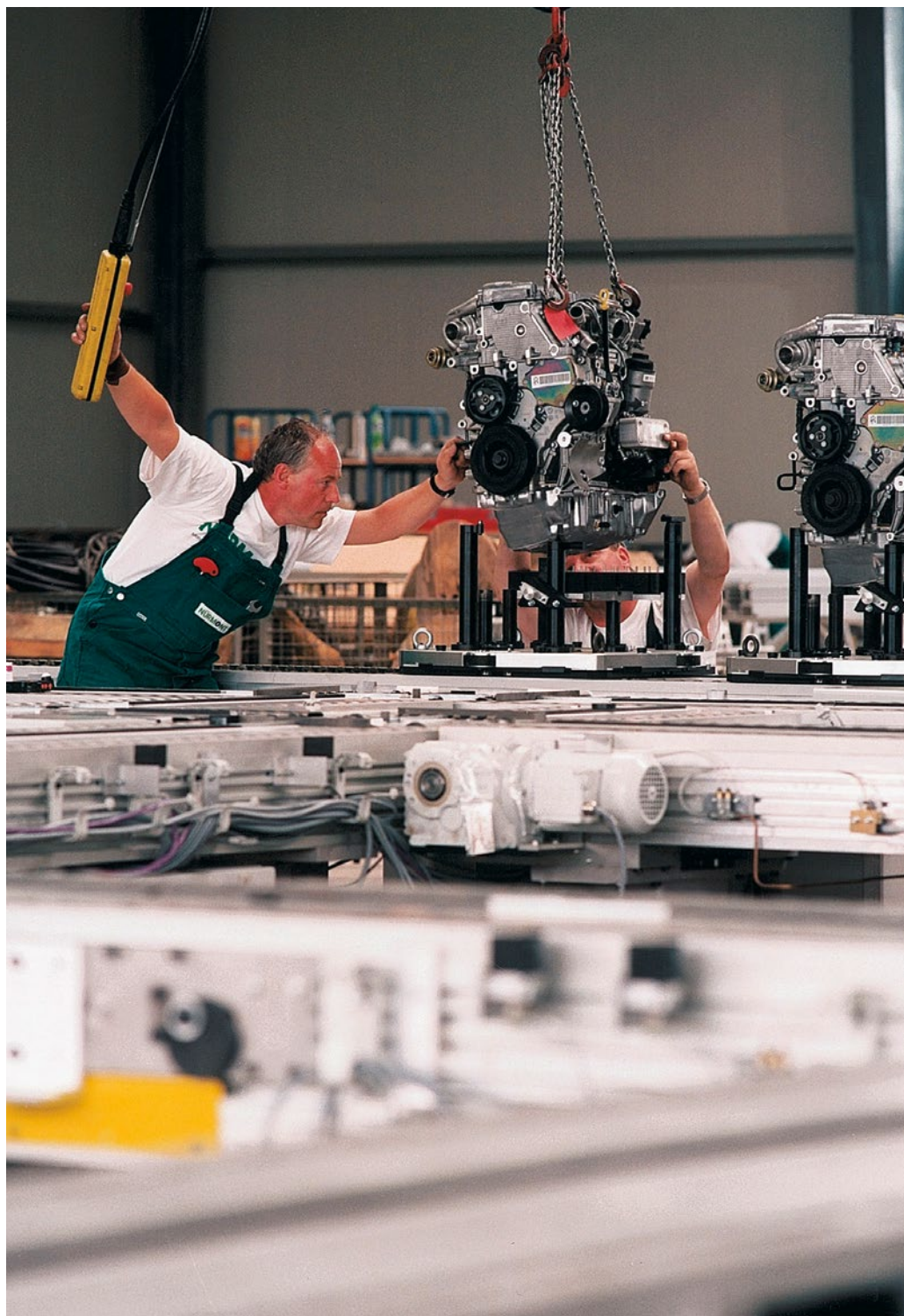
With your core areas such as development, construction and application technology remaining unaffected by us, we focus on our expertise of implementing your project.

We implement mechanical and electrical installation in accordance with your construction and quality specifications, development of sub-assemblies, as well as assembling complete machines and plants.

Based on decades of experience we ensure short relocation times and rapid reintegration of plants into your production processes. One of our biggest goals within our service spectrum is adherence to deadlines. We believe that agreeing on and complying with pre-specified deadlines is the necessary base for successful project implementation.

Our extensive portfolio of services with installation, relocation and mechanical production in combination with our services and products enables us to accompany you across the complete duration of a machine life cycle.

www.nuermont.de/en



RMS Signal & Innovation: Get the Best out of your Measurements

RMS's mission is to provide customers with the tools, means and knowledge to extract the best possible information from their measurements, during environment tests and product validation.

Our clients are well-known companies, such as: AIRBUS, CNES, DASSAULT, MBDA, MICHELIN, RENAULT, PSA, SAFRAN/ SNECMA, THALES ALENIA SPACE...

Sensors start to be used on a large scale, not only in the development of equipment, but also during their operation in order to understand exactly how customers use them. The knowledge gained from these analyses is highly sensitive; a comprehensive understanding of customer usage allows industrialists to improve their products and stand out from the competition.

The major problem dealing with sensors is to ensure their reliability. Reliability is questioned when the number of sensors increases. Faulty measurements can provide a wrong representation of client use conditions and lead to wrong design choices.

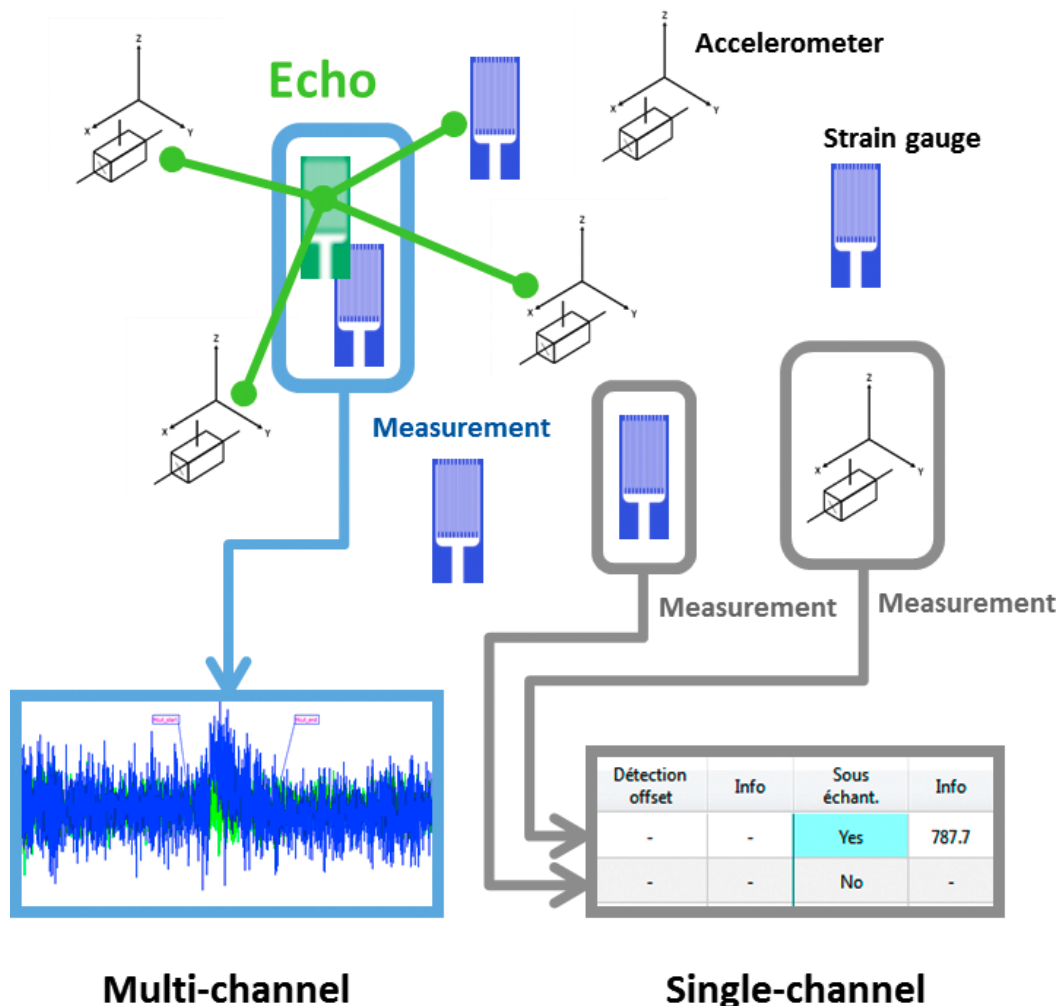
The main contribution of RMS is to automatically detect measurement errors.

The technological breakthrough in this project is to meet requirements in terms of reliability, and availability of sensors networks by an automated approach. This is to be opposed, on one hand with the traditional visual approach, and on the other hand with the use of sensor redundancy. RMS can propose features and performance levels in networks of sensors currently unavailable on the market.

QualiSig allows users to:

- Single-channel: detect and quantify usual errors (under-sampling, under-quantisation, overshoot, clipping, offset, drift, electrical pollution, microcut);
- Multi-channel: detect unusual measurement errors. **QualiSig** works by:
 - learning the behaviour of each sensor from neighboring sensors, on a dataset representative of expected physical phenomenon;
 - detecting abnormal measurement's evolution with regard to a confidence interval expected from the physical context.

www.rms-signal.com



SPRING Technologies unveils NCSIMUL SOLUTIONS V10 at AIRTEC

SPRING Technologies is worldwide leading in delivering dedicated CNC software solutions to enable the optimal use of CNC machines. Its NCSIMUL SOLUTIONS® V10 platform delivers full, integrated control of manufacturing processes, including NC programming, machining simulation, cutting tool management, program transfer and real-time monitoring of the machine status. This unique approach, streamlining the end-to-end machining process, delivers the tools and flexibility required to create the Factory of the Future.

Based in France, Germany, PR China and the USA, the company established in 1983, can rely on a long-term experience with projects in the aerospace sector.

At booth C63 at hall C3, SPRING Technologies will showcase its **NCSIMUL SOLUTIONS V10**. The new version delivers a single, streamlined and unified software environment that represents a technological turning point for manufacturing and produc-

tion. It facilitates the NC programming process for CNC machines with an all-in-one solution that can be added to any existing CAM system, enabling users to deliver a CNC program, self-verified, self-optimized and post-pro free for all machine types.

Collision-free from the first second

Besides experiencing the flagship software **NCSIMUL MACHINE** – with the module **NCSIMUL Composites** for a smart 3D material lay-up simulation focused on composite materials - you can also learn how to increase the profitability of your machine shop floor by optimizing tool lengths and air cutting with our highly efficient add-on **OPTITOOL**.

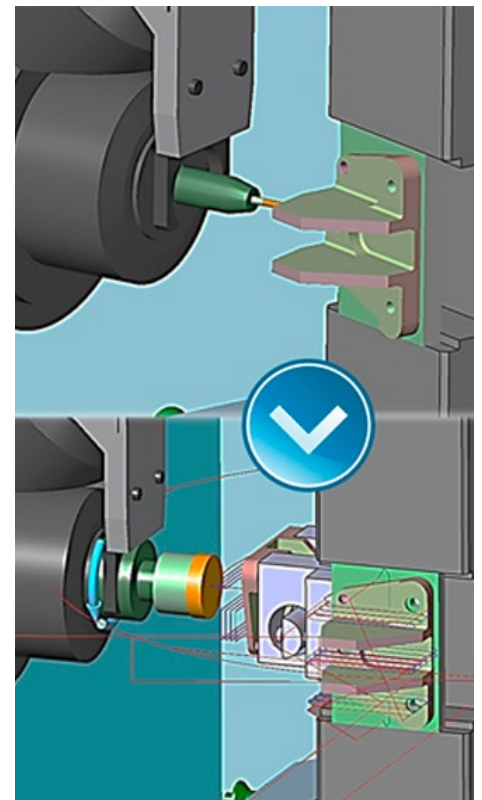
Last but not least, it will be also the German première of the **brand new NCSIMUL CAM**. This cutting-edge product delivers agile CNC programming in order to streamline the current CAM process, providing immediate collision-free programming and unparalleled flexibility on the shop floor. It takes **just one**

click to switch between different machines and generate a valid new CNC program for another machine, **whatever its complexity, kinematics and type of controller**. In this way, production managers can adapt their manufacturing process easily to current requirements and resources.

Faced with the demand to improve production and under constant pressure to optimize costs, a number of major players in the Aerospace industry have been collaborating with SPRING Technologies and have adopted its solutions in order to control costs and production times, while increasing CNC machine uptime and winning the battle of flexibility.

The SPRING Technologies team is looking forward to welcome you at **hall C3 / booth C63**.

www.ncsimul.com



NCSIMUL CAM: From Prototyping (single machining process on a 4X machine) To Series (all machining processes on a Tombstone 4X machine)

CT Engineering: Top Trends in Research & Development



The CT engineering group, one of the top leading engineering services provider, continues to reach new highlights in technology with two new top class tools that improve the daily work methods in the engineering world.

CT3X

CT engineering has developed CT3X, a software tool that combines Digital Mock Up, 3D modelling, and Augmented Reality Technology. It has been designed for maintainability, training and manufacturing processes.

CT3X includes ultimate technology for product life cycle support of products and manufacturing process. It takes the information related to the process and easily shows how to do the task associated to the task. This is shown in a friendly and attractive visual interface both in 2D and 3D environments.

CT3X is oriented to be adapted to any kind of manufacturing process for any Industry interested in improvement and innovation.

CT3X Advantages: Reduction of the operation time / Optimization of the maintenance and repair activities / Reduction of training time and its associated cost / Optimization of logistic management activities.

PHENICIA

One of the most noteworthy R&D projects in CT is **Phenicia, a web interface** designed for the development of an Integrated Electrical Systems Design IT tool that avoids all the problems in engineering projects involving a large number of complex electrical wires.

Phenicia allows the storage and management of the information regarding Wiring Diagrams, Electrical Harnesses and Electrical Installations checking the consistency of the data and allowing the generation of useful and exportable reports and documents.

In addition, **Phenicia** allows the generation of Wiring Diagrams using Microsoft Visio in a quick and dynamic way, starting both from scratch or automatically from a pin-to-pin list.

About the CT ENGINEERING GROUP

The CT engineering group is leader in technological innovation throughout the product cycle, from concept to post-sales services. The CT Engineering group is an international reference in engineering services with over 1,000 professionals and a presence in the aeronautical, naval, rail, industrial plant and sustainable energy sectors. It covers the areas of Product Design, Research and De-

velopment, Manufacturing Engineering and Product Support Engineering.

CT TECHNOLOGICAL CAPABILITIES

Systems Analysis: Avionics, Hydraulics, Electrical Systems, Vision and Lighting Systems & Flight Physics.

Structure Design, Stress & Systems Installations: Design of primary and secondary structures, integration of on board mechanical & electrical systems.

Manufacturing Engineering: Engineering services for industrialization, development and completion of assembly and production support.

Customer Services Engineering: Logistic support, Technical Manuals, Service Bulletins, Product certifications.

CT MAIN CUSTOMERS

AIRBUS - ACITURRI - CASSIDIAN - ITP - AIRBUS MILITARY - AERNNOVA - PREMIUM AEROTEC - GKN - EUROCOPTER - ALESTIS - AEROLIA - ASTRIUM

CT MAIN PROJECTS

A320 - A320 NEO - A400M - A380 - A330MRTT - A350 XWB - CN235 - P3 ORION - A330 - C295 - FALCON 7X - A 340

CT PRODUCTS & SERVICES

Conceptual Design, Styling and Specifications, Structural Design, Stress Analysis, System Engineering & Physics, Mechanical & Electrical Installations, 2D /3D Drawing and Documentation, Testing Design & Validation, Process Engineering, Production Support, Supply Chain Management, Quality & Inspections, Tooling Man & Simulation, Outsourcing, Time Calculation, Lean Process Design, Technical Publications, Training & Online Support, ILS, Product Certification, MRO, Ground Support Equipment Design.

BERGHOFF Group: pure performance – absolute precision

The BERGHOFF Group has been operating internationally for more than 30 years. The company has some 220 employees and four locations in Germany and Switzerland as well as a production space of over 13,000 square metres and has been one of the leading companies worldwide in mechanical processing of highly complex part pieces made of titanium, tungsten, aluminium, steel and cast iron in the area of high mix, low volume, high complexity.

BERGHOFF provides customers with "one invoice", following the principle of everything from a single source, in order to maintain a streamlined and efficient supply chain management.

Services and special features as premium make-to-order specialists include: Assisting

your engineers in developing the most efficient production strategies, coordination and auditing of external partners, milling and turning up to 14,000 mm and 25 tonnes, fully air-conditioned production facilities, MIG welding and E-beam welding, additive manufacturing, partial and full assembly, 3D measurements with test reports, quality assurance including all incoming and outgoing inspections as well as logistics from packaging to transport to export management.

When it comes to part pieces with high complexity, the BERGHOFF Group has been the industry's first point of contact for years and has established long-term strategic partnerships with many well-known international companies who are looking for a total supplier.

BERGHOFF customers have exceptionally high standards of quality, supply security and communication processes. Our focus is on semiconductors, aerospace, mobility and transportation, oil and gas, gas and steam turbines, large engines as well as pumps and extruders.

The family-owned BERGHOFF Group has received multiple awards for its processes, capabilities, environmental standards and quality management and holds numerous certificates and approvals.

www.berghoff.eu



Delta Vigo: Delta Carbon Fiber Technologies

Delta Vigo, founded in 1947 and leader in highly complex technological projects, and its business division Delta Carbon Fiber Technologies, dedicated to composite parts manufacturing by OoA processes, attend to Airtec to present their developments in automated manufacturing of a/c parts.

Delta Vigo extensive experience in the field of **automation and robotization** of manufacturing processes (over 40 years in the automotive sector and over 20 in the aerospace sector) has allowed us to develop **DLRI** and **DRTM**, based on the automatic perform process patented by Delta Vigo. DLRI and DRTM are cost efficient processes which allow **high production rates** and an integrated quality system for 100% of the parts, getting **repeatability, reliability and accuracy** and applicable for the aerospace, automotive and shipbuilding sectors.

In addition, through the automation of the preforms manufacturing we are able to achieve preforms close to the final part geometry and that allows manufacturing of complex integrated structures with a large number of preforms (currently working on part prototypes composed by more than 40 preforms).

These are some of the achieved results with our technology:

Frames:

- Optimization of orientation/distortion of the fibers in the entire frame, controlled in $\pm 2^\circ$.
- Without wrinkles, undulations or impregnation defaults
- Flexibility, from fiber orientation configuration to the stacking sequence, without industrial impact
- Wide flexibility to incorporate transversal and longitudinal reinforcements without thickness limitation
- Longitudinal spring-back control and correction, even with complex frames
- Applicable to any type of structure such as spars, ribs, stringers, fittings

Panels:

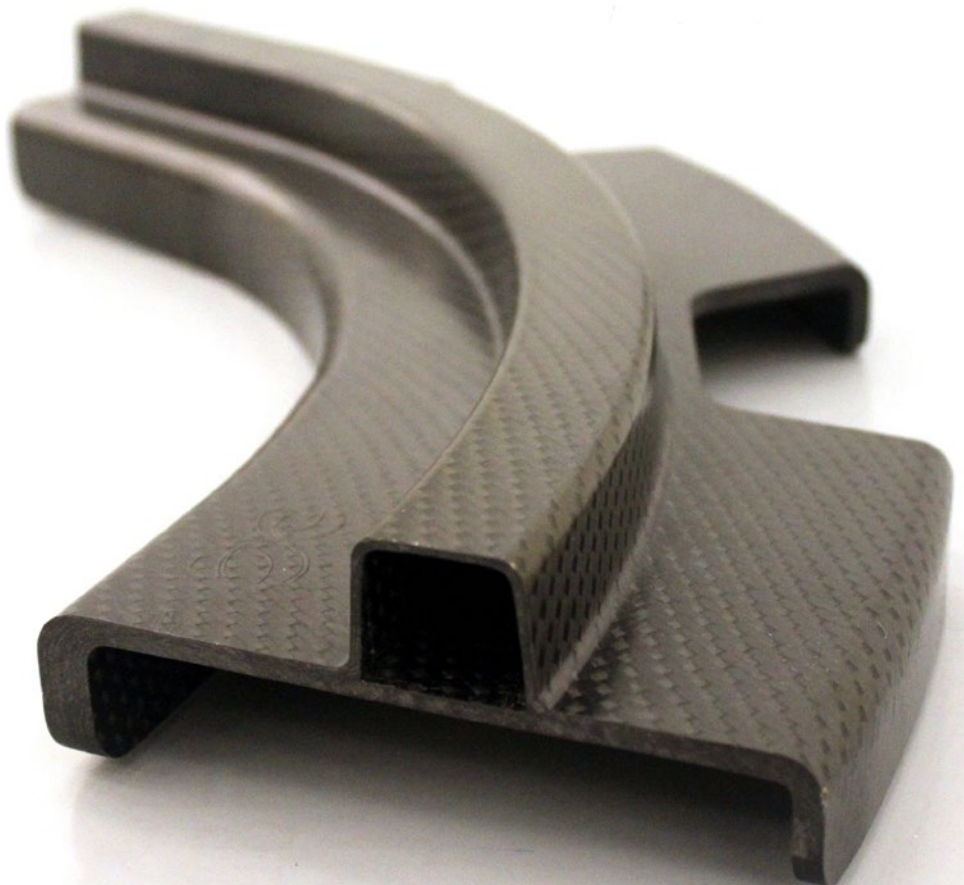
- Applicable to any double curvature panels with integrated stiffeners: fuselage shells, doors, fan cowl
- Manufactured in one-shoot process
- No bonding lines
- No stringers feet: no joggles
- Simple frames male mould: tooling costs reduction
- Easy Spring Back control & correction
- Simple panel female mould

Roving:

- Fiber distribution homogeneity
- Fiber volume (58%)
- Adaptable to any typical filler geometries
- Very wide flexibility in terms of sections
- Ensuring a very tight tolerance in every cross section
- Ensuring the right shape of the plies around the filler without wrinkles or undulations
- Very low RC compared with manual processes

For more information, please visit our stand B33 Hall C3 at Airtec 2015.

www.deltavigo.es



MicroSys Electronics: custom and standard embedded system solutions

MicroSys designs and develops custom specific and standard embedded system solutions.

MicroSys has developed the mirac™ System on Module and Module in Board concepts. They are an excellent means for evaluation purposes, rapid prototyping and final products. Solutions are mainly Power Architecture, e.g. QorIQ-CPU's, ARM or Intel Atom CPU based. With their low power consumption and compact dimensions, they fit into any application in avionics, automotive, automation, medical, transportation and construction or defense markets.

Operating Systems such as VxWorks, OS-9, µC/OS, QNX and Linux or WinCE are supported. Adaptations of com. standards like ARINC, CAN, EtherCAT, Profinet are an integral part of our business.

Why MicroSys?

- Wide spectrum of system platforms available
- Strong RTOS background
- Middleware and tools available to complete systems solutions portfolio
- Mechanics expertise to deliver rugged, conduction cooled and systems for harsh environments
- Certification support to meet specific market requirements, e.g. ISO9001, DO-160, EN50155 and others
- Keep clients production efficient, by e.g. longevity of supply, life cycle support, performance upgrade, change and EOL management
- Local support for hardware and software

Products/services offered at AIRTEC 2015

Autopilot Systems (research cooperation with Technical University of Munich), Single Board Computers, I/O Boards, Electronic Flight Bags, Inflight Entertainment Systems

What kind of customers, suppliers or partners we are looking for?

Companies and partners, that integrate compute devices into complete avionic solutions.

www.microsys.de



Britte-Mustad: Pole of excellence in high precision mechanics for Aerospace Components

"Britte Mustad" belongs to the mechanical division of the family group MUSTAD UNITED GROUP founded in Norway in 1832. This Family Group has built his reputation, not only on the Quality of their products, their diversified and industrial strategy, but also on the respect of their commitments.

Britte Mustad's main mission is:

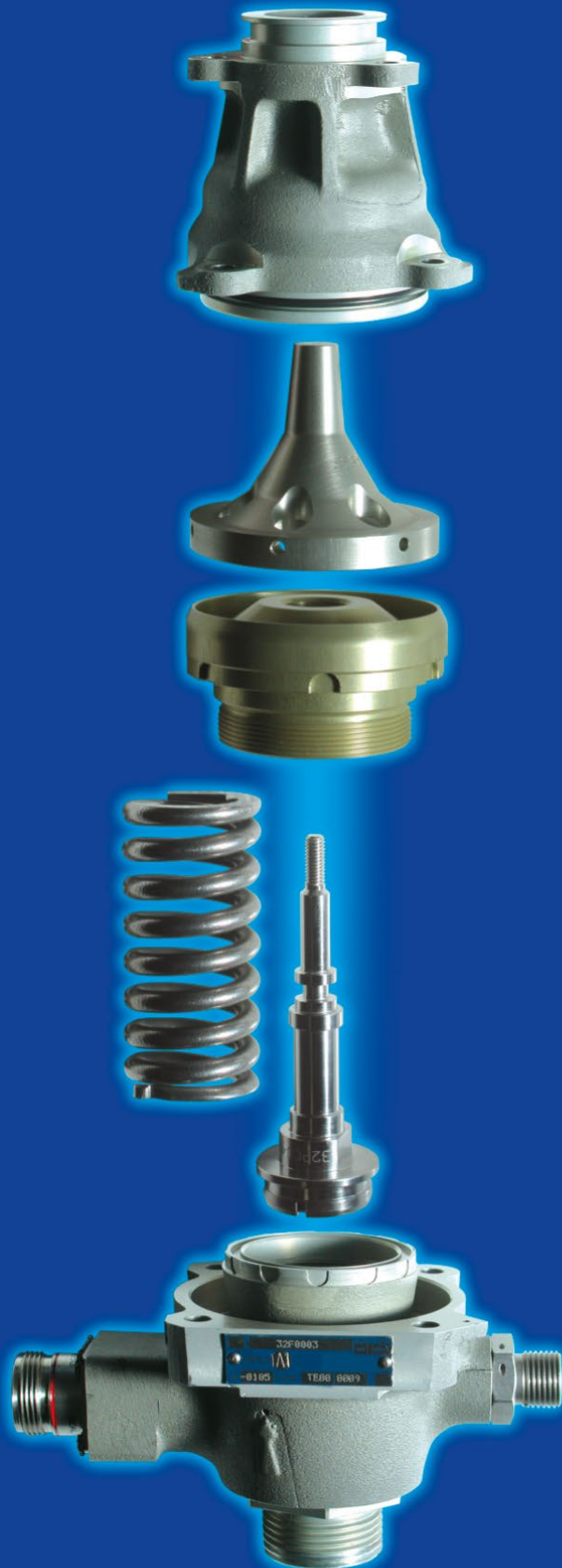
- to machine high precision mechanical components in all existing materials including composite, super alloys ... Milling, turning, grinding and machining on CNC production centers constitute our basic tasks. We can manufacture prototypes or production components in very special alloys, providing high added value in terms of technology, competitiveness of price and service.
- to design and manufacture very complex tools, including measuring and control systems.
- to produce assemblies with final testing for all industrial sectors.

Our Main Customers are considered as key players in the Aerospace World and we are machining critical and very complex parts for many of different engines which equip many Airbus or Boeing airplanes.

Our products are designed not only for Aerospace but also for Defense, Spatial, Energy, Transportation, and Machinery Construction.

In the association with the other nearby division "Mustad Belgium", which produces also mechanical components but by screw-cutting and machining on CNC production centers, we are able to cover a huge range of machining capability and a high level of technology.

www.britte.be



CIMPA: Shortens Damage Capture Service, Secures and Automates Damage Assessment

When aircraft damage occurs, the challenge is to quickly capture and report accurate information to facilitate efficient decision making. Depending on the severity of damage and the operators' processes, such information has to be shared between Operations, MROs and aircraft manufacturers. Our fully-customizable service is based on the smart mobile electronic reporting system DamageFolio™ that can be combined with cutting-edge portable acquisition devices. This damage capture service shortens, secures and automates the damage assessment process making the reporting of damage more efficient.

DamageFolio™ is a user-friendly solution designed for mobile devices. It ensures that all

the required data is gathered during a single inspection. Designed for use with existing operators' systems, it enables seamless access and is available on ios, Android, and Windows. DamageFolio™ connects to an innovative range of non-destructive testing inspection devices for quick and efficient analysis of metallic or composite aerostructures and components. Optical technology, ultrasound and eddy current testing instruments can be connected for accurate and reliable measurement. For instance, connecting a 3D precision scanner to measure a dent in a metallic structure will, with near-instantaneous processing, create a "digital copy" of the damage, with an accuracy up to $\pm 100\mu\text{m}$.

Key features

- Full damage reporting in a single inspection
- Aircraft damage history
- Consultation of repair manuals on mobile device
- Visual representation of aircraft damage
- Ability to take and modify pictures (with the built-in camera) for immediate insertion into reports
- Capability to send damage reports to aircraft manufacturers
- Service is fully customizable to customer needs

www.cimpa.com



ELANTAS: Strong but still highly flexible – thermoplastic lightweight components



ELANTAS Italia S.r.l. Collechio site, has a more of 50 year experience in the formulation of thermosetting resins as Electrical & Engineering Materials "E&EM". It's a problem solving company, very sensitive to environmental and safety issues with a strategy that places Customers satisfaction at the center of its activity. Since 1998, the company is part of the ALTANA group, a German multinational with a strong commitment in chemical specialties and a strong focus on innovation and technical support.

Below are the main activity area of ELANTAS Italia Collechio site:

- Systems for Electrical-Electronic applications, with wide range of self-extinguishing products UL listed and approved as high thermal resistant materials.
- Matrix for Composite Materials with different technologies such as: Wet lay-up, RTM, Press Molding, Infusion, Pultrusion, Filament Winding, pre-pregs, used for the production of sport items, marine, windmill blades with German Lloyd approved Systems for wet lay-up and infusion process.
- Polyurethane tooling boards and Epoxy boards for pre-pregs tools. Liquid Systems (gelcoat, casting epoxy and fast casting PU resins, laminating thermoresistant resins up to 240°C, extruded pastes (close contour pastes) for large models and tools.
- Adhesive systems for structural bonding of composite parts, metal and plastic components, with special emphasis to automotive, renewable energy, mechanics and electric-electronics market.

ELANTAS Italia has a strong technical approach to the markets in which is operating and the operational structure reflects entirely this approach.

Our mission is the constant improvement of product quality and the search of innovative and customized solutions based on the specific application needs. Networking with Public Research Organizations and Universities provides a preferential access to emerging technologies. Participation to European research programs is part of this endeavor.

ELANTAS Italia Srl operates with an integrated management system for Quality, Safety and Environment. Constant improvement of the products in terms of Health. ISO9001 certification active since 1995 is just the formal and visible expression of a quality culture firmly rooted in the Company and shared by all employees and external partners.

Collechio site is an European point of reference for the production of epoxy and polyurethane systems for the entire division ELANTAS Europe. Our constant devotion to product development and strong determination of the group, represents a global reference in the areas in which it operates.

www.elantas.com



Mieschke, Hofmann and Partner: Dynamic Supply Chain Management

Global competition and varying customer demand create a need for responsive and agile supply chains. In consequence, firms need to collaborate and share information. Hence, supply chains are critical determinants for efficiency and effectiveness in the face of rapidly changing and competitive business environments. However, product lifecycles are shortened, competition on a price level increases, and inventories are reduced while the delivery performance shall be improved.

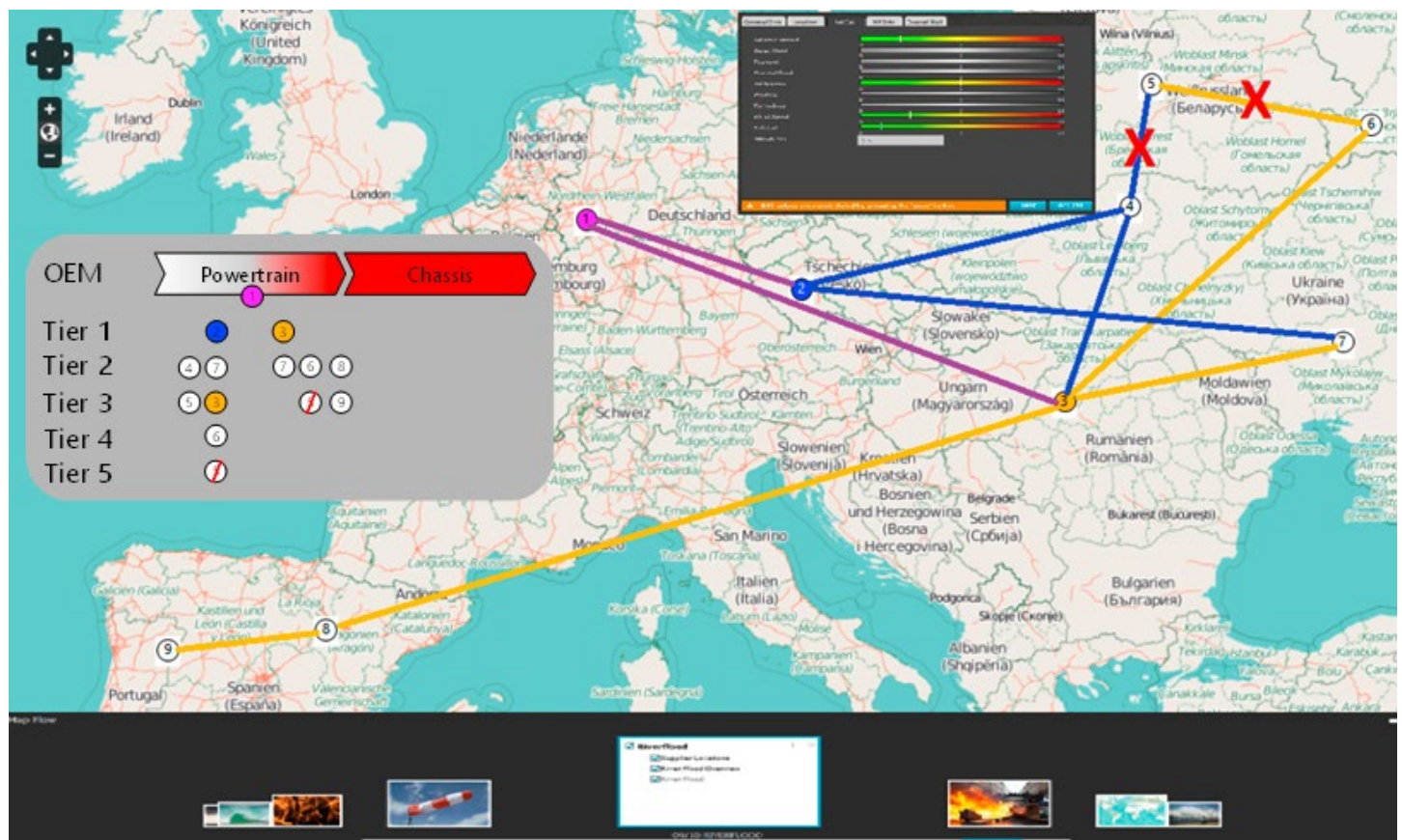
Firms answer that challenge by implementing initiatives such as global sourcing or tracking and tracing in order to ensure competitiveness. Hence, firms have to comprehend the

information and make it useable to establish transparency. One option is the visualization of material flows using a map based approach.

Our solution creates transparency and assess risks about (production) sites on an exact geographical location (versus mailbox address). Further, our solution allows to assess the risk for various risks clusters such as geographical risks, political risks, financial risks (of suppliers) or capacity risks. Moreover, relations between sites can be analyzed and assessed for the defined risk clusters. In addition, a map allows to visualize the supply chain. For example, lines representing the transportation route vary based on

the transport volume and/or frequency. Dynamic aspects such as inclusion of real-time information, simulation, modelling, or further collaboration tools enrich our solution and allows firms to improve supply chain excellence. Hence, firms and supply chain partners can react in real-time on occurring events using a scenario approach. Various scenarios allow firms to solve the conflict between best price and customer satisfaction by ensuring the supply of goods. In addition, a relation to the balance sheet can be implemented or further requirements can be realized.

www.mhp.com



In consequence, firms gain insights on production sites, increase transparency for the supply chain, and visualize the supply of goods. Especially, the visualization enables firms to get back the control of their supply chains by transferring big data into useable

information. In specific, risks can be quantified, risk alerts can be automated, or the impact of risks can be mapped to the supply chain from a qualitative perspective (disruptions of supply) and from a quantitative perspective (effect on the balance sheet).

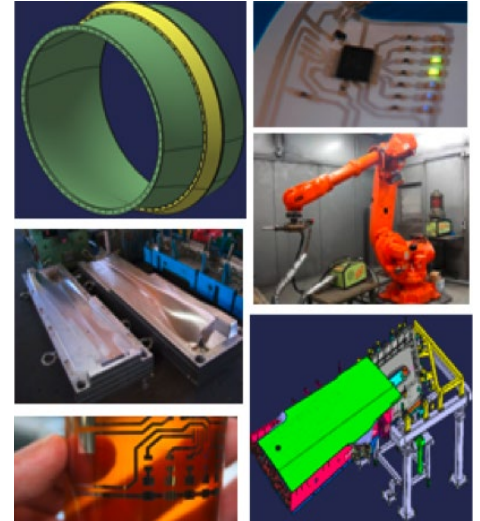
Furthermore, simulations improve the supply chain performance by calculating the best total cost of ownership (TCO) scenario, real-time data can be used to enrich decisions, and routing of goods can be visualized in real-time.

EURECAT: Strong collaboration CLEAN SKY for breakthrough new technologies for future aircrafts

In the course of CLEAN SKY European Union Research and Technology program EURECAT has matured several technologies and products for the Aeronautical industry, among it can be counted the replacement of metal pipes by thermoplastic pipes for a rotorcraft engine, as well the development of critical rotating components for the new architecture of the Contra rotating open rotor ground demonstrator lead by SNECMA. A total of 11 projects have been or are being run by EURECAT whose field goes from development of thermoplastic, metallic and composite components to process automation and tooling development.

These challenging developments give EURECAT the background and knowledge to afford and offer services in the field of the full R&T project development, since the conceptual design up to prototype delivery for Ground or Flight Test Demonstrator, we can cover all associated services to this type of developments.

www.eurecat.org



ALFRED HEYD: Diverse Range of Mechanical Precision Components for Aerospace Applications

ALFRED HEYD GmbH u. Co. KG is an established and worldwide active manufacturer, integrator and supplier of steering and chassis parts, connecting elements and driving elements for automotive, military and railway applications as well as different market segments of the general industry. Our customers are well known manufacturers with a long tradition of providing high quality products. In aerospace industry HEYD supplies leading airplane and helicopter building customers as well as systems integrators with products such as transmission shafts, universal joints and articulating joints, connecting elements like ball pins, ball and socket joints, clevises, connecting rods and further mechanical precision components.

With a wide range of modern machines for all types of mechanical production processes as well as a high degree of automation, HEYD is a suitable partner for a diverse range of mechanical precision components for aerospace applications.

With two manufacturing plants in the area of Stuttgart (Germany) and 400 motivated collaborators we take pride in offering high standard products at competitive pricing levels.

Challenge us with your projects and meet us at **AIRTEC 2015, hall C3 / stand C53**

www.heyd.de



CeramTec: Materials Developed Especially for High-Performance Machining

For approximately three decades the machining of aviation engine components, which are made out of difficult-to-machine superalloys, was mainly carried out by Whisker Ceramics, since there was no alternate cutting material available.

The entry of CeramTec GmbH in the aerospace industry has been made possible by the development of cutting materials and tools which perfectly match the high demands of

the aerospace industry. SPK® CSA 115 and CSA 720 grade cutting materials were developed especially for high-performance machining of aviation engine components. They open up completely new dimensions for the aerospace industry in terms of cutting speeds and depths while simultaneously ensuring ultimate process reliability and economy in machining aviation engine components. A perfect combination for the CSA cutting grades offers the MonsoonTool® Technology. The

MonsoonTool® is an innovative tool system featuring integrated high-pressure cooling lubrication that enables it to eliminate the problematic formation of long chips. Starting at a pressure of 40 bar, the MonsoonTool® system cuts endless chips into short chip fragments with optimum process reliability.

www.ceramtec.de



New tool system with high-pressure cooling lubrication for controlled chip formation and process reliability

ARTS: Strategic Partner for the Aerospace Industry For More than 15 Years

ARTS has been a strategic partner for the aerospace industry for more than 15 years and supports companies within the sector to optimize their business processes for production and staff. As an AS-9100 certified company, ARTS knows the current and future quality requirements of the market and offers innovative sector solutions especially in the areas of Engineering & Manufacturing, Consulting, HR Management and Training. At AIRTEC 2015 ARTS will present Aerospace MatchPro, its self-developed HR management software for the aerospace industry. The matching tool allows ARTS to become even better equipped to meet the sector specific HR requirements and thus steels itself for the "war for talents".

Since 2015 ARTS uses Aerospace MatchPro in order to close the gap between its custom-

ers and specialists in the aerospace industry. It is becoming more and more difficult to find employees in the aerospace industry due to the transition of the employer market into an employee market. Therefore it is necessary that companies not only have a good online reach but that it is also done within a candidate pool which is sector specific. This is exactly where the ARTS tool helps: The HR management software which is based on Open Source technology allows the automatic upload of job postings for aerospace sector jobs via RSS feed into the ARTS database. These job postings are then compared to the internal applicant pool of over 2,000 contacts (applicants, available ARTS employees and freelancers). Aerospace MatchPro knows over 20,000 job titles and roles used by the German Job Centre (Bundesagentur für

Arbeit). Additionally the tool is also familiar with sector specific parameters such as certifications, obligatory medical checks and sector specific trainings. On the basis of this knowledge and with the stored hard and soft skills of the candidates, the software can start an automatic matching process between job specifications and candidate basic data and suggests automatically suitable persons to ARTS recruiters. In addition, Aerospace MatchPro also publishes job offers on the ARTS website as well as on sector relevant job sites (airliners.de, indeed, aircareer.de, aero.de, etc.). Furthermore, all new online applications are added to the ARTS Talent Pool and are integrated into the matching process.

www.arts.aero/en

Nova-Tech: Moving large or heavy mobile equipment safely and precisely

Basic MWS System

- Drive-steer wheelset(s)
- An MWS can be configured with one to eight wheelsets
- All-electric low-voltage power and controls system
- Enclosed PLC controls
- Battery system with charger
- Operator-friendly tethered touchscreen pendant
- Programming for customer-specific needs
- Operation and Maintenance manuals
- Training
- Optional powered vertical lift available

Performance Specifications

- Speed range
 - Maximum 270 feet per minute*
 - Minimum 6 inches per minute*
- * Custom speed solutions available

- Single wheelset drawbar
 - Maximum up to 2,500 lbs. intermittent
 - Maximum up to 1,000 lbs. continuous
- Payload support up to 7,000 lbs. per wheelset
- Non-marking tire compound

Steering Capability

- Car or forklift
- Parallel (crab)
- Anti-parallel (allowing a pirouette about any operator-selected point)

Flexibility

- A system can be reconfigured by changing the number of wheelsets
- An MWS can be relocated to other equipment
- An MWS can be integrated with Nova-Tech's optional path-following guidance technology

- MWS controls can be integrated with Emergency Stop system on other equipment

www.ntew.com



AIRTEC 2015: Venue, Dates & Tickets

Date

November 3–5, 2015
Munich, Germany

Venue

Munich Exhibition Center
Hall C3

Opening hours

Tuesday
9 am – 6 pm

Wednesday
9 am – 6 pm

Thursday
9 am – 5 pm

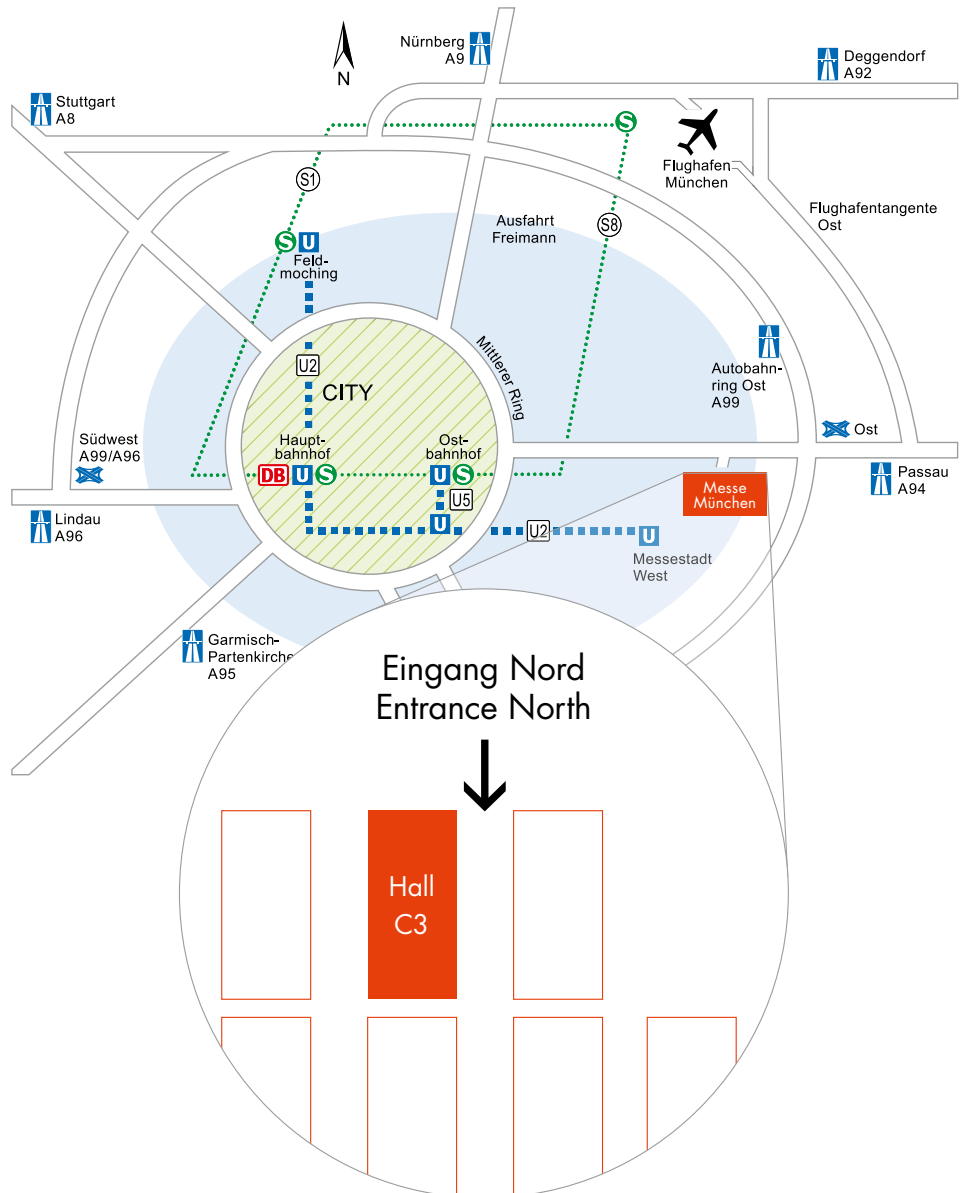
Admission tickets

Day ticket:
€ 30 / **€ 20 online**

Duration ticket:
€ 50 / **€ 40 online**

Admission tickets do not
include congress participation.

How to get there



Organizers

Our business is more than just organizing fairs. It is our experience and management that makes the difference.

We combine our network, know-how and business spirit and support you to create new business. This is how we create value to our customers.

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