POLY RACK
TECH-GROUP








TECHNOLOGIES

MECHANICS, SYSTEMS TECHNOLOGY, ELECTRONICS, PLASTICS TECHNOLOGY, SURFACE TREATMENT, DEVELOPMENT, DESIGN, SERVICES

More than 45 years of experience and know-how have led to an extraordinary in-house production depth in mechanics, systems technology, plastics technology and surface treatment.

Leading technology since 1979 - the POLYRACK TECH-GROUPis your competent partner for electronic packaging.

PRECISION QUALITY
ESIGN ENGINEERING
ER **CONCEPTION** DESI
ES **DESIGN** ASSEMBL
W **ENGINEERING** TEC
CS **TECHNOLOGIES** KI
GE **KNOW-HOW** ELECT
ON **ELECTRONICS** ASS
TY **ASSEMBLY** PRECIS
CS **PRECISION** QUALI
ON **QUALITY** LOGISTIC
IN **LOGISTICS** CONCE
OW ELECTRONICS

/03

CONTENTS

DEVELOPMENT & DESIGN

INDIVIDUALITY, COMPETENCE, PRODUCT DESIGN

/05

DEVELOPMENT & DESIGN

Customer specific Development & Design of products in all technologies of the POLYRACK TECH-GROUP.

Utilizing single-source synergies – POLYRACK supports your plans and projects holistically from beginning to end.

POLYRACK's more than 45 years of experience guarantee customized development and design of your products and provide the prerequisites for a successful outcome and acceptance. We put together personal packages for our customers, providing an individually designed character for their products and solutions. At the same time, the specific requirements and perceptions of our customers are at the heart of our activities.

During the development process, our customers are supported by a professional project team. A designated contact person serves as the central interface in the communication with our customers across all technologies.

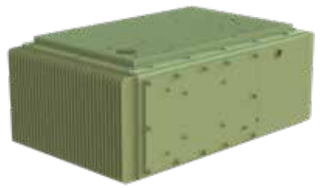
DEVELOPMENT

Development pays close attention to all of the lifecycle phases of a product, from the first rough draft, through design, functionality, dimensioning and manufacturing of the components right through to its use by the consumer. A wide range of customer requirements combined with state-of-the art technologies requires new concepts.

DESIGN

Target-oriented and holistic needs identification, investigation, design and presentation of customer-specific products in cross-functional harmony involving mechanical, systems, plastics and surface technologies.

CUSTOMIZED BACKPLANE



RUGGEDIZED CASE
with cooling concept via heat-pipes and heat sink

COMPACTPCI SERIAL (LEFT)
VPX BACKPLANE (RIGHT)

/07

FROM CONCEPT TO PRODUCT

Starting with individual components, all the way to a completely assembled, fully functional product, we guarantee comprehensive quality – whether small or large.

The development of packaging solutions is POLYRACK TECH GROUP's traditional skill. However, the experience across the industries of our group of companies and the high standard of our R&D and manufacturing expertise extend far beyond that. From the individual component to the fully assembled and fully operational product – comprehensive quality on the small and the large scale.

FOCUS ON INDIVIDUALITY

The most important part of every development is the dialog with the customer. A close communication with our customers guide us to their specific product requirements and result in a solution-oriented implementation. This is how unique and well thought-out product solutions are created.

JOINING DIFFERENT TECHNOLOGIES

We are always able to provide a qualified contact person specialized in the field concerned with the know-how and experience in the various technologies. Cross-technology product solutions represent POLYRACK TECH-GROUP's major strength.

FROM CONCEPT TO PRODUCT

CASE MADE OF ALUMINUM DIE-CAST
with custom conductive cooling concept

CASE MADE OF PLASTIC
and complementary features

/08

FROM CONCEPT TO PRODUCT

We accompany your products over the entire life-cycle:
from the idea to the finished product.

PROJECT CONSULTING & SUPPORT

- Product design support
- Analysis and evaluation of the requirements
- Project management
- Concept development
- Coordination of the work steps
- Scheduling of the project steps

PROJECT DESIGN

- Filling simulation
- Feasibility study
- Distortion analyses

PROJECT DEVELOPMENT

- Adaptation of the product design to your specifications
- CAD design
- Customer-specific technical documentation

PROJECT RELEASE

- Prototyping
- Product testing

PRODUCTION

- Series production according to modern technology standards

ASSEMBLY

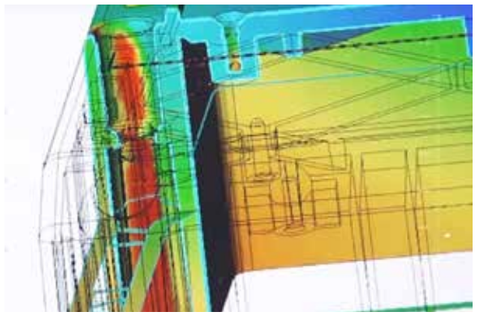
- Final assembly according to your individual requirements

CUSTOMER INPUT
IDEA GENERATION

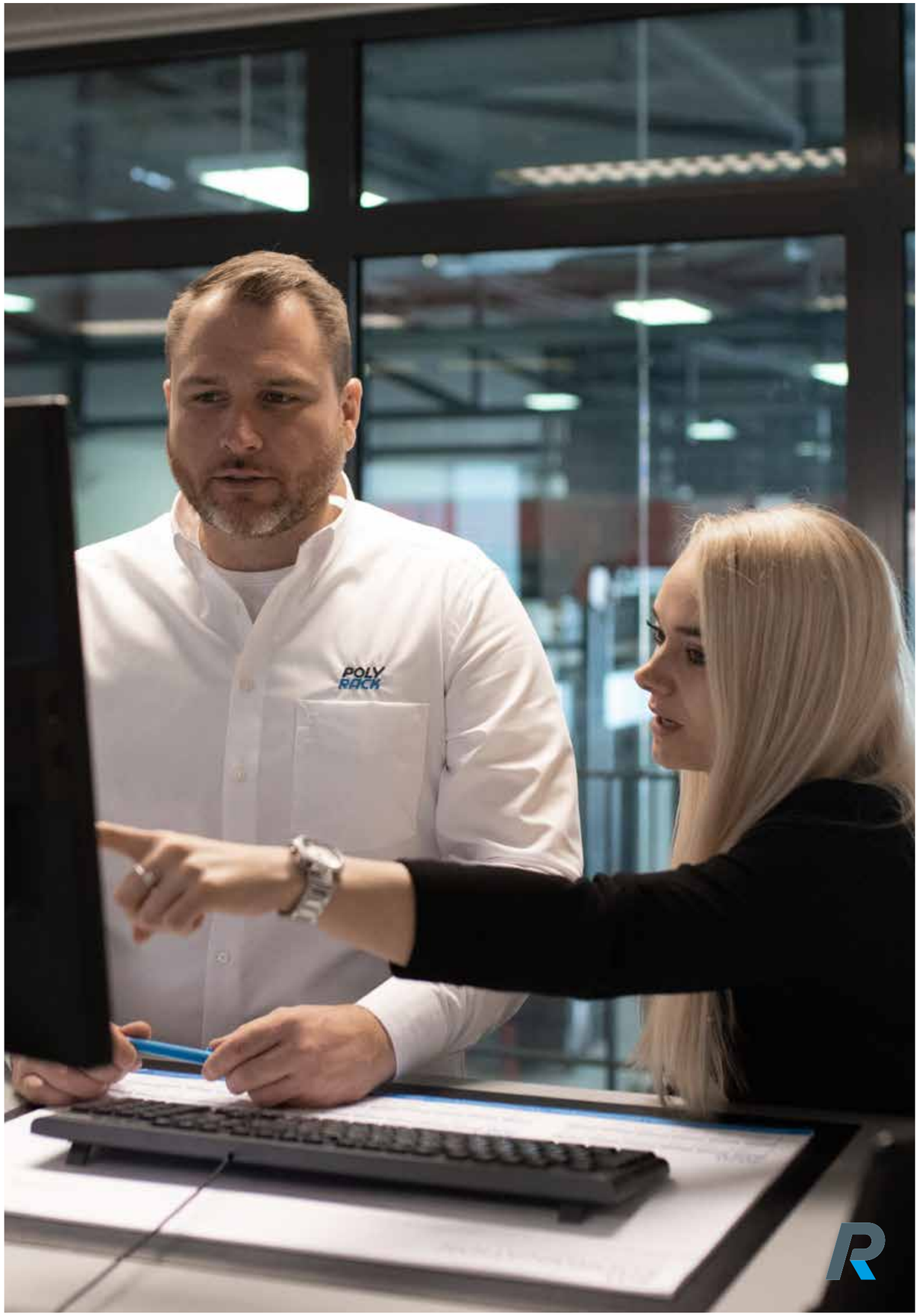
DEVELOPMENT
DESIGN STUDY

RELEASE PROCESS
PILOT RUN

SERIAL PRODUCTION
LOGISTICS



DIFFERENT KINDS OF DEVELOPMENT TOOLS



/11

DEVELOPMENT TOOLS

Optimization of development and realization time, selection and dimensioning of material as well as the filling of the tool – we have the right development tools to help you make the right decisions.

DEVELOPMENT TOOLS

Optimization of development and implementation time, selection and dimensioning of material, mold filling analysis – at the beginning many decisions have to be made. POLYRACK TECH-GROUP uses various different development tools to support the decision-making.

STRUCTURAL ANALYSIS

This simulation tool based on SolidWorks Simulation comprises the following analysis capabilities:

- Stress and displacement analysis
- Frequency and buckling analysis
- Thermodynamic optimization analysis

THERMAL SIMULATION

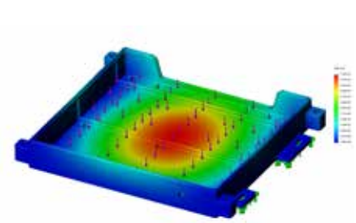
A thermal simulation is performed using „SolidWorks Flow Simulation“ for optimization of the heat management: to determine the measures required to optimise heat dissipation or to localize so-called hot spots – for example with the increasing trend towards fanless computer systems in industrial environments.

MOLD FILLING ANALYSIS

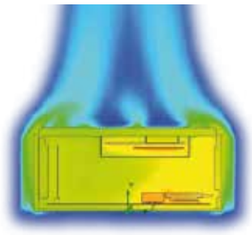
A SolidWorks Plastics mold filling analysis is applied prior to the production of the tool for the plastic parts. The benefit: before the start of manufacturing a cost-intensive tool, potential „problem zones“ during mold filling are identified by means of simulation. Quality issues with parts and time-intensive correction loops can thus be avoided.

IMPEDANCE ANALYSIS

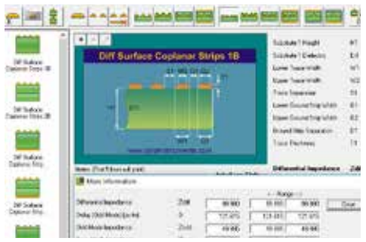
Impedance analysis of multilayer structures is performed using the „POLAR Si8000“ software. This ensures the required signal quality especially in respect to complex multilayer PC boards.



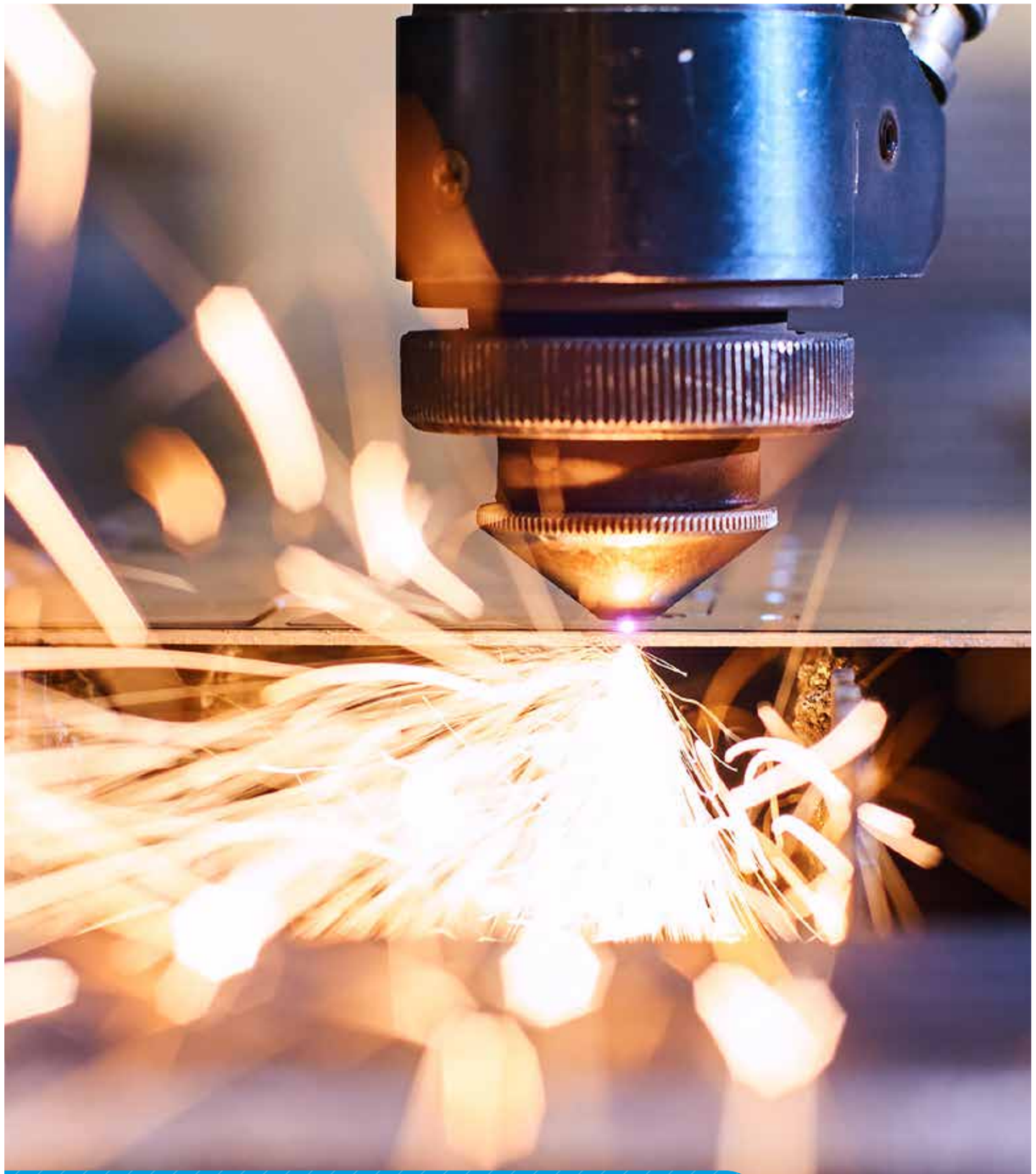
STRENGTH TEST
Ball drop test of a die-cast part



PASSIVE HEAT DISSIPATION SIMULATION OF A MINI-PC



IMPEDANCE ANALYSIS



MECHANICS

SHEET METAL PARTS AND ASSEMBLY GROUPS,
PROFILE AND CASTING PARTS

/13

PRODUCTS & SERVICES

The POLYRACK TECH-GROUP is your professional partner for mechanical manufacturing. From designed components to highly complex, development-intensive assemblies.

19" RACKMOUNT / DESKTOP CASE FOR PLUG-IN UNITS

For mounting plug-in modules or individual assemblies. Cases from the FrameTEC, FreeTEC, Magic and Space series can be used as desktop cases or 19" rackmount cases.

DESKTOP CASE FOR PLUG-IN UNITS

For the mounting of plug-in modules or individual assemblies.

19" DESKTOP CASE

Our product portfolio of desktop cases offers many solutions for the mounting of 19" subracks.

SMALL EQUIPMENT CASE

For mounting plug-in modules, non-standard card formats or individual assemblies. In addition, there are series available for special requirements such as mounting support rails or enhanced IP protection.

FRONT PANELS

For all common plug-in assemblies in 19" technology and individual applications. Different shielding concepts and individual processing are available.

MECHANICAL COMPONENTS

Such as insertion and removal handles, card guides, PCB holders, 19“ blanking plates, mounting material, etc.

DIE-CAST SOLUTIONS

Individual die-cast solutions made of aluminum, magnesium and zinc with high dimensional accuracy and surface quality. In particular, electrical conductivity, high thermal conductivity, and corrosion as well as weather resistance are guarantees for products in rough environmental conditions.

EXTRUDED ALUMINUM PROFILES

Modern sawing centers and deburring technologies make it possible to process extruded aluminum profiles quite simply. Individual systems with loading stations distinguish themselves by the complexity of the single-step processing.

RACKMOUNT / DESKTOP CASE
FREETEC

SMALL EQUIPMENT CASE
EMBEDTEC

CASSETTES

/15

MANUFACTURING TECHNOLOGIES

A cutting-edge machine park is the result of our competence across all mechanical production areas.

PUNCHING- / NIBBLING TECHNOLOGY

State-of-the-art, highly automated processing centers guarantee the processing of complex, precise-fit parts dimensions and three-dimensional sheet-metal parts with integrated deformations and threads in small, medium and large format.

LASER CUTTING

The high precision, speed and versatility of the laser are the major benefits in this manufacturing process for flexible contours and individual cuts.

BENDING

Precision-controlled bending technologies bring components into shape. Angle sensor technology provides for precise-fit edges, ensuring subsequent application.

WELDING / RIVETTING / SPOT WELDING

Combine components inseparably and with the highest precision with exacting, distortion-free welding seams and create stable connections between workpieces and typical studs using MIG/MAG spot welding, laser welding, resistance welding or CNC stud welding.

MACHINING / CNC MILLING

Modern machinery with high-performance control system and CAD/CAM networking is the basis for processing all established materials for challenging dimensions.

PRESS-IN TECHNOLOGY

Press-in and press-fit are joining processes based on elastic deformation. By means of frictional locking, these processes prevent unintentional loosening.

TOOL-BASED MANUFACTURING

Punched and bent parts are produced in an individual tool or a progressive tool, taking economic considerations into account.

OTHER MECHANICAL PROCESSING

Mechanical processing of counterbores, threads or fastening elements.

BONDING TECHNOLOGY & SEALS

Volumetric metering devices enable the use of all sorts of binding and sealing agents in a large variety of forms. The technology is process-reliable and reproducible for each specific application.

PRESSING

Pressing works with linear relative motion of the tools and is known as non-cutting shaping. Typical applications include joining, forming, deep drawing and flanging.

SURFACE TREATMENT

Sandblasting / vibratory finishing (barrel finishing) and grinding of surfaces.

/16

MATERIALS

The handling of the most common materials is guaranteed.

MATERIALS

- Aluminum
- Steel with various surfaces

DIMENSIONS & GRADES

- Raw material (thin metal sheet): 0.5 – 6.0 mm
- Case solutions: max. 1000 x 1000 mm
- Mechanical components: max. 500 x 2000 mm

TYPICAL SHEET METAL QUALITIES

- AlMg3
- AlMg1
- AlMgSi1
- StBl. A2 1.4016
- StBl. A2 1.4301
- StBl. 1.4404
- StBl. A4 1.4571
- StBl. FEP03 galvanized
- StBl. Zincor St12
- StBl. Galvalume (aluzinc)
- StBl. St12
- StBl. St13
- StBl. St37
- Spring band steel soft
- Spring band steel hard
- CuBl.
- Bl. CuZn 37
- Cu-ETP

OTHER MATERIALS

- AlMgSi 0,5 F22 EN AW-6060-T66
- EN AW-2007
- EN AW-5083
- EN AW-6061-T651
- EN AW-6082-T5
- CuZn 39 Pb 3 ZH
- ST48
- ST88
- StBl. 1.4305
- AISI 300
- AISI 416
- GD-ZnAl 4 Cu 1
- GD-AlSi12
- AZ91
- Acrylic glas, scratch-resistant
- Makrolon ®
- Hard paper
- SikaBlock M945
- Vetronit EGS 619
- Foam rubber
- NBR8090
- PU foam 59910 black
- PE foam 59951 white
- Ethafoam
- PE foil

/19

MACHINERY

A modern machine park is the result of our competence in all mechanical production areas.
In the following you will find an overview of some of our technology and machining centres.

PUNCHING / NIBBLING / LASER TECHNOLOGY

- 1 x TRUMPF TRUPUNCH 1000 / 2000R
- 2 x TRUMPF TRUPUNCH 5000
- 1 x TRUMPF TRUMATIC 6000 FMC; Autom.
- 2 x TRUMPF TRUMATIC 7000
- 2 x TRUMPF TRULASER 5030 Fiber
- 1 x BOSCHERT CNC Punching machine
- 1 x AMADA rotary jars 2500 mm plate shear

WELDING

- WIG, MIG, MAG-welding
- Spot welding machine analog and high speed
- 2 x Stud welding machine, operating range (2000 x 700 mm)
- Gun for stud welding
- 2 x Laser welding Alpha Laser 300W
- Laser welding robot TRUMPF TruLaserRobot 5020
- Grinding and satin finishing machine Kuhlmeyer (flat and 3D)

DEBURRING

- SCHMID oscillating deburring and cleaning station
- RASAMAT brush deburring machine
- TIMESAVERS 1300 mm grind and deburring facility
- OTEC 50L barrel finishing system
- IEPCO Micropeen 1100ZP sand blasting cabin
- Bütfering Stell Master Prima – wide-belt sanding machine
- Trowal vibratory grinding machine
- RSA deburring system

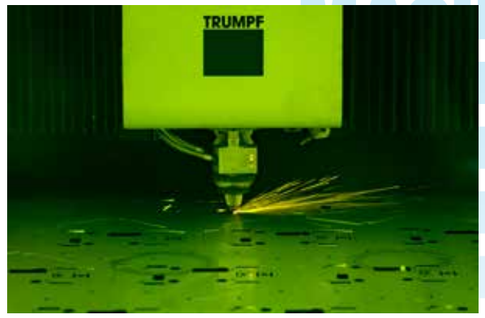
STRAIGHTENING

- Straightening machine ARKU (EcoMaster30)

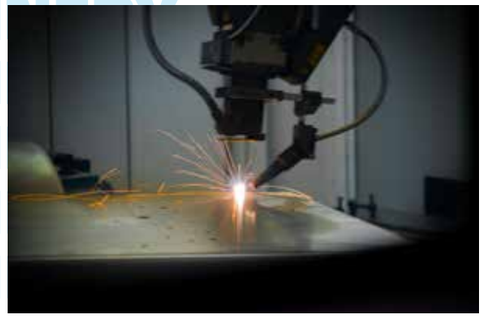
CNC DISPENSER

- Datron PRXL 1000-2C

MACHINERY



LASER



ROBOT WELDING

/20

MACHINERY

A modern machine park is the result of our competence in all mechanical production areas.
In the following you will find an overview of some of our technology and machining centres.

EXTRUSION PROCESSING

- SCHÖN-press 40 t / 60 t / 100 t
- EXNER-press 65 t

INSERTING / STAKING

- 3 x PEMSERTER 2000 Insertion machine
- 1 x PEMSERTER 3000 MB Insertion machine with multi bowl equipment
- 1 x PEMSERTER 2000 Automat / PEMSERTER PS4 Insertion machine
- 1 x Häger insert press
- 1 x Toggle press for manual mounting

BENDING

- 2 x TRUMPF TRUBEND 5130 with angle sensors, bending length: 3200 mm
- 2 x TRUMPF TRUBEND 7036 with angle sensors, bending length: 1020 mm
- 1 x TRUMPF TRUBEND 5170S with Toolmaster and angle sensors, bending length: 4200 mm
- 1 x TRUMPF TRUBEND V85S with angle sensors, bending length: 2720 mm
- 4 x TRUMPF TRUBEND 5085S with angle sensors, bending length: 2720 mm
- 1 x swing bending TruBendCenter 7020 bending length: 2163 mm

EXTRUSION PROCESSING

- BAP extrusion process center
- KALTENBACH saw for profiles
- EISELE saw for profiles

MILLING

- 3 x DATRON M10 pro 3KW-spindle with 40000 U/min
- 1 x DATRON ML Cube 4KW-spindle with 40000 U/min
- 1 x DATRON NEO 2KW-spindle with 40000 U/min
- 3 x DATRON M8 Cube 3KW-spindle with 40000 U/min
- 1 x DATRON MXCube B 8KW-spindle
- 1 x CHIRON F12 17KW-spindle 10000 U/min
- 1 x Milling centre Hyundai WIA F500 PLUS 15KW spindle with 12000 U/min
- 1 x M10 Pro Next 8KW

MACHINERY

PUNCHING / LASER

BENDING

SYSTEMS TECHNOLOGY

SYSTEM APPLICATIONS, BACKPLANES, ELECTRONIC ASSEMBLIES

/23

COMPETENCE

Experience and know-how of more than 20 years in Systems Technology make POLYRACK a good partner for complete systems.

SYSTEM DESIGN

Because a system is more than just the sum of its parts, it is not enough to develop products purely on a board level. Instead, it is important to merge these into an overall system. POLYRACK is very aware of the significance of system design and its impact on the finished product and therefore systematically takes a holistic approach to the implementation of the system principle.

DEVELOPMENT, LAYOUT & SOFTWARE

When developing standard-based backplanes such as **CompactPCI, VME64x and VPX, we use our solid electronics know-how.** With PADS from Mentor Graphics and Altium we use tools that are capable of meeting the most complex and demanding development requirements. Furthermore, within the scope of your project, our highly motivated team of young engineers takes care of all steps - from the first circuit design of the electronics right up to the first prototype.

STANDARDS

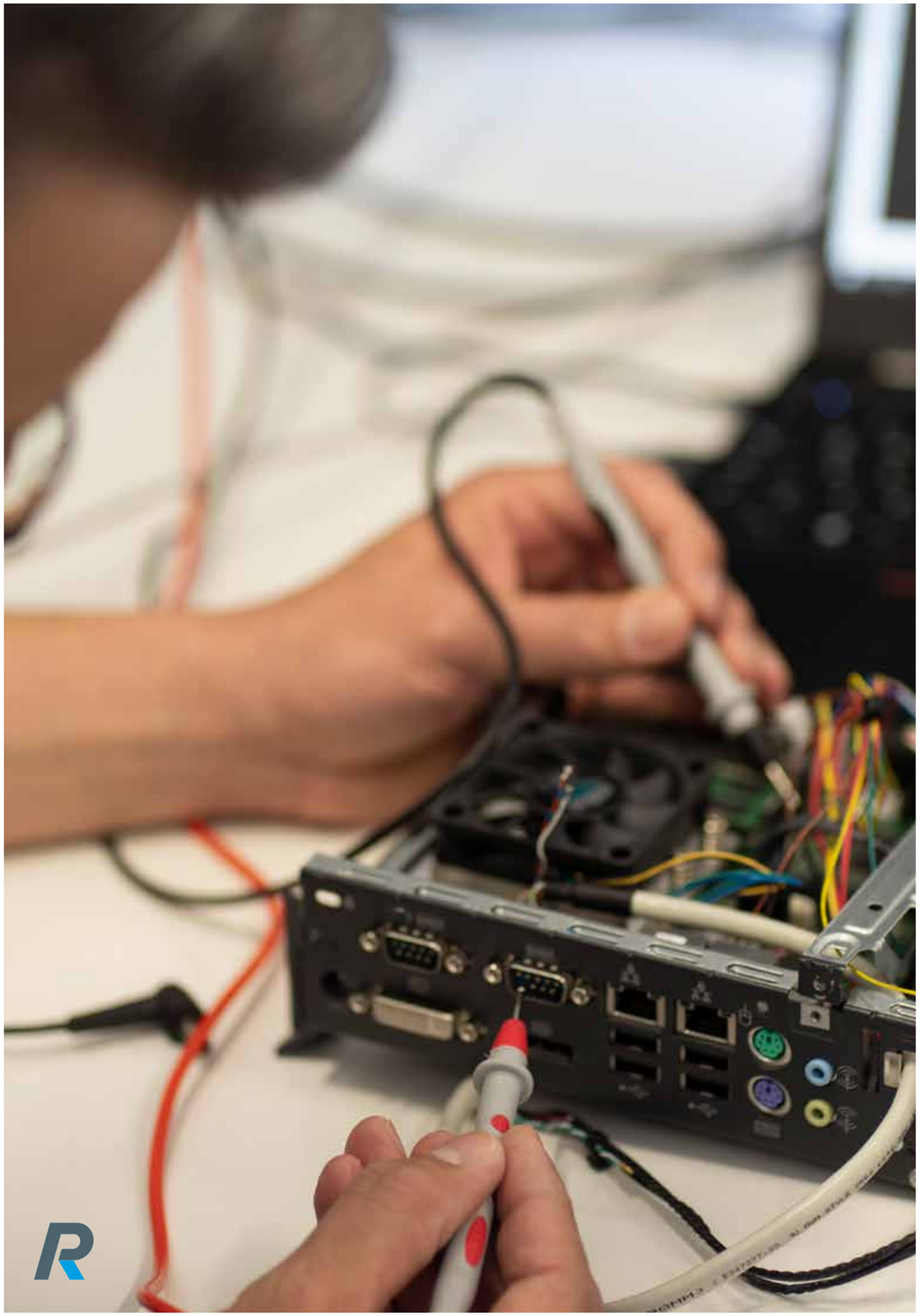
As a member of the VITA and PICMG organizations we have access to the latest technology standards, on which our designs are based. Our internal IPC training program ensures that our products are produced and manufactured to internationally accepted standards, e.g. in the area of cable assembly.

CUSTOMER-SPECIFIC SOLUTION

PanelPC2-Series with Multi-Touch as sheet-metal solution or milled aluminum

COMPACTPCI

ASSEMBLY



/25

PERFORMANCE

Spirit and passion drive us in everything we do.
Our team of motivated specialists devotes its efforts to the requirements of our customers.

ESD-PROTECTED MODULE ASSEMBLY

For ESD-protected module assembly we have an access-controlled ESD assembly area (in accordance with IEC 61340-5) at our disposal. In this area, assemblies with ESD-sensitive components (>100V HBM) are assembled by specially trained staff.

CABLE ASSEMBLY

The system wiring is also an important component of a system and is produced internally to VDE and UL requirements. The product-specific testing of the wiring is a constituent part of our manufacturing philosophy.

- Semi-automatic cutting to length and insulation stripping
- Semi-automatic crimping
- Soldering compliant with J-STD
- Cable assembly compliant with IPC WHMA-620

TESTING

We use a wide range of test and measurement equipment not only to ensure that we meet our demands on quality and safety but on top of that to optimize, qualify and verify our products.

Test and Measurement Systems

- VDE testing stations
- Modular backplane tester NT410 for connection, shortcircuit and component test
- Agilent 34980 A multi-functional, automated, programmable test and measurement unit with automatic data capture
- Development and construction of product-specific test and measurement devices

PERFORMANCE

ESD AREA

CABLE ASSEMBLY

AUTOMATED TEST AND MEASUREMENT UNIT

/26

PRODUCTS

Products from our standard range often serve as the basis for various developments.

BACKPLANES & PRINTED CIRCUIT BOARDS ASSEMBLED

For 20 years we have rounded off our product portfolio with a range of backplanes to various industry standards or of completely customer-specific designs, such as:

- VME64x
- CPCI
- CPCI Serial
- OPEN VPX

In addition to backplanes, we also offer printed circuit board assemblies. Based on existing production documents, we can implement your assemblies together with our premium partners and integrate these as subcomponents into the overall system:

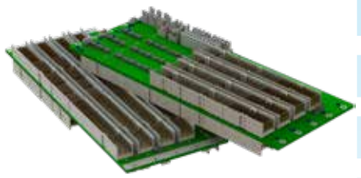
- SMD and THT technology
- Inspection capabilities such as AOI, ICT and X-ray
- Module programming
- Connector assembly using press-in technology

DEVELOPMENT PLATFORMS

Even the longest journey starts with the first step. This also applies to the system environment. With our 3 U / 6 U 19" development chassis we offer a solid development platform as a basis for hardware and software developers.

ASSEMBLY SYSTEMS

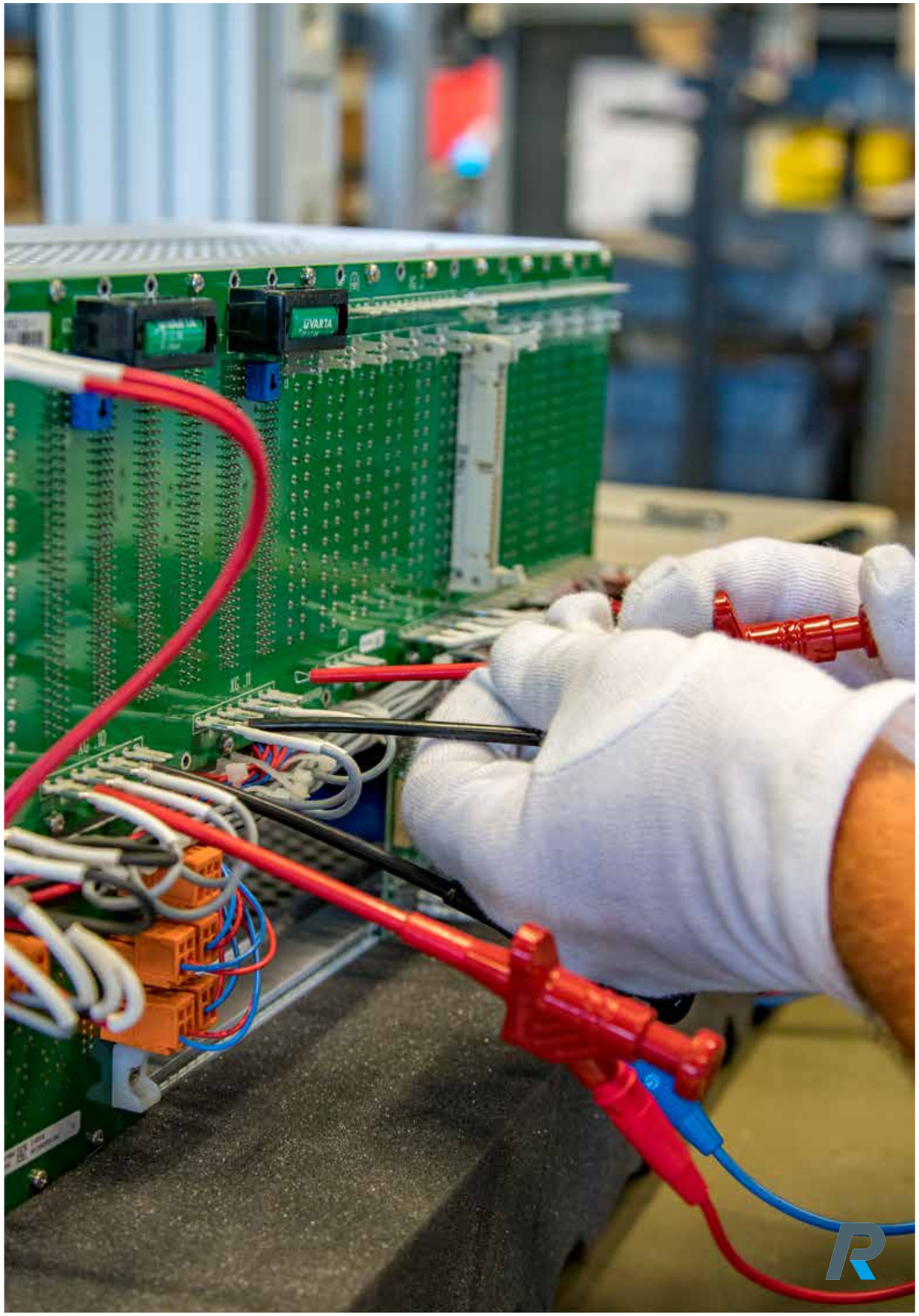
Premium-quality systems need a stable basis to build on. With its assembly systems of the MPS family, POLYRACK has been offering a variety of solutions in the area of 19" systems for a wide range of applications and markets for years.



6 U CPCI BACKPLANE

3 U OR 6 U DEVELOPMENT CHASSIS

RACK SYSTEM MPS03



CUSTOMER SPECIFIC SOLUTIONS

We guarantee comprehensive quality from the individual components right up to the fully assembled and fully functional product.

COMPLETE SYSTEMS

We are happy to keep going right until the very end. Our project management provides full support and advice in order to bring your complete system to fruition. In doing so, we draw on all of the technologies available to us and our partners in order to achieve the optimum for your system. The basis for this is your existing product specification or simply your vision.

HMI & DISPLAY SYSTEMS

Hardly any application today goes without a display or a touchscreen. Our solutions in the field of display systems/HMI are open to your challenge. We offer practical solutions that range from purely mechanical right up to finished systems.

RUGGEDIZED SYSTEMS

We also feel at home in the world of ruggedized or HMI systems. Our AR404 (ATR) product family serves our customers as a solid basis for efficient systems.

VPX BACKPLANES

VPX backplanes are put to use in a wide range of different versions. The VPX pass-through backplane in 3 U and 6-slot assembly is a must for every system developer.
Individual connections on the backplane can be freely defined and enable the creation of a flexible slot profile. This is used in particular with VPX development systems.

PANELPC 2.0

VPX BACKPLANE

CUSTOMIZED EMBEDDED-SYSTEM

PLASTICS TECHNOLOGY

INJECTION MOLDED PARTS, COMPONENTS, ASSEMBLIES

/31

INDIVIDUALITY

We are not just a manufacturer of standardized solutions in plastic, but a professional partner who brings your product to completion in line with your design concepts.

RAPP KUNSTSTOFFTECHNIK GMBH

Part of the wide range of products and services that the POLYRACK TECH-GROUP offers is the development of plastic solutions. Starting with prototyping and tooling, we pursue a comprehensive manufacturing process for thermoplastic parts beginning with the development consulting, prototyping and tool making and fully comprehensive automated injection molding of highest quality.

PRODUCT RANGE & MANUFACTURING TECHNOLOGIES

- Thermoplastic parts
- Injection back-molded plastic parts / film-insert-molding (FIM)
- Foamed thermoplastic parts (injection molding with added chemical foaming agents)
- Multicomponent technology (2C, 3C)
- Parts weights ranging from 0.5 g to 6.000 g
- Insert technology: for overmolding axles, bushes and stamped parts

EXAMPLES OF TYPICAL MATERIALS:

- Standard thermoplastics: PP, PE, PS, ASA, ABS, PMMA
- Technical thermoplastics: PC, PA, POM, TPE, PBT
- High-performance thermoplastic: PPS

In order to achieve the desired mechanical and thermal properties in the product, we deploy the plastic granulate in combination with dyes, bulking agents (e.g. fiberglass, glass beads) and modifications (e.g. for fire protection, impact resistance, demoldability).

INJECTION MOLDING

Our machine park is equipped with handling robots to guarantee cavity-separated stacking and maximum cleanliness.
Process-controlled injection molding; injection molding machines:
25 t, 50 t, 100 t, 200 t, 400 t, 500 t, 650 t and 1300 t (clamping force)

INDIVIDUALITY

SERIAL PRODUCTION

BACK-MOLDED PLASTIC PARTS

/33

PRECISION

High-quality tool construction requires experience and innovative technologies.
With the help of these two factors we realize your tool.

TOOL DESIGN & CONSTRUCTION

Top-quality series tools and equipment for reliable series production:

- Molds for precision injection molding of technically challenging parts
- Molds for thermoplastic foam injection molding
- Simple and family molds
- Multi-cavity molds (e.g. 8 or 16 cavities)
- Multicomponent molds (2C, 3C)
- Molds modification and optimization
- Molds maintenance and repair
- Automation
- Tooling such as handling devices and fixtures

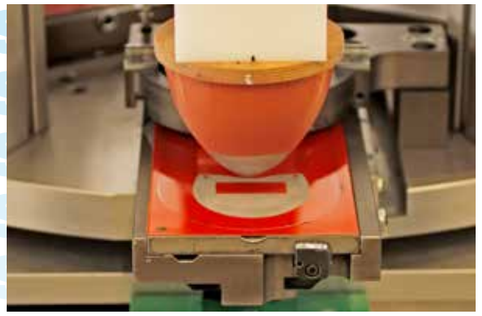
Frequent, proactive maintenance by our qualified personnel ensures that the high quality of the injection molds is kept up for many years. Your valuable molds are stored in our fireproof, heated tool store.

FINISHING: ASSEMBLY & SURFACE TREATMENT

- Module assembly
- Complete assemblies with electronics, final assembly in compliance with ESD requirements
- Laser marking
- Ultrasonic welding
- Electromagnetic resistance welding (ERW)
- Printing (pad, screen and HD printing)
- Orbital riveting
- Bonding technology and gaskets
- Powder coating
- Wet painting (through partners)
- Metallization of plastic parts (through partners)

PRECISION

TOOL DESIGN



FINISHING OF PLASTIC PARTS

/34

PERFECTION

On request, we develop prototype parts to meet your design and functional requirements.

QUALITY

It is a matter of course for our company to think and act with quality and the environment uppermost in our mind. We consider this a key prerequisite for successfully facing the challenges of the international market together with our business partners.

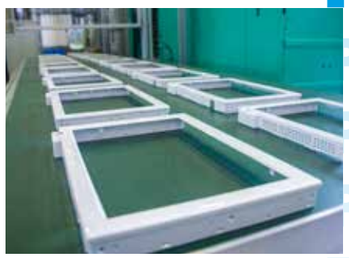
First samples as well as series measurements are performed with the most modern optical and tactile measuring systems in our air-conditioned measuring laboratory. In addition, tests accompanying series production are performed at test stations set up for this purpose in the production area.

MEASURING EQUIPMENT FOR QUALITY ASSURANCE

Among other equipment, we have the following measuring equipment at our disposal for quality assurance:

- 3D coordinate measuring machines (optical and tactile)
- Hygrometer
- Height gage
- Coordinate measuring machine
- Microscope (x 80)
- Surface measuring device
- Tension and pressure test equipment

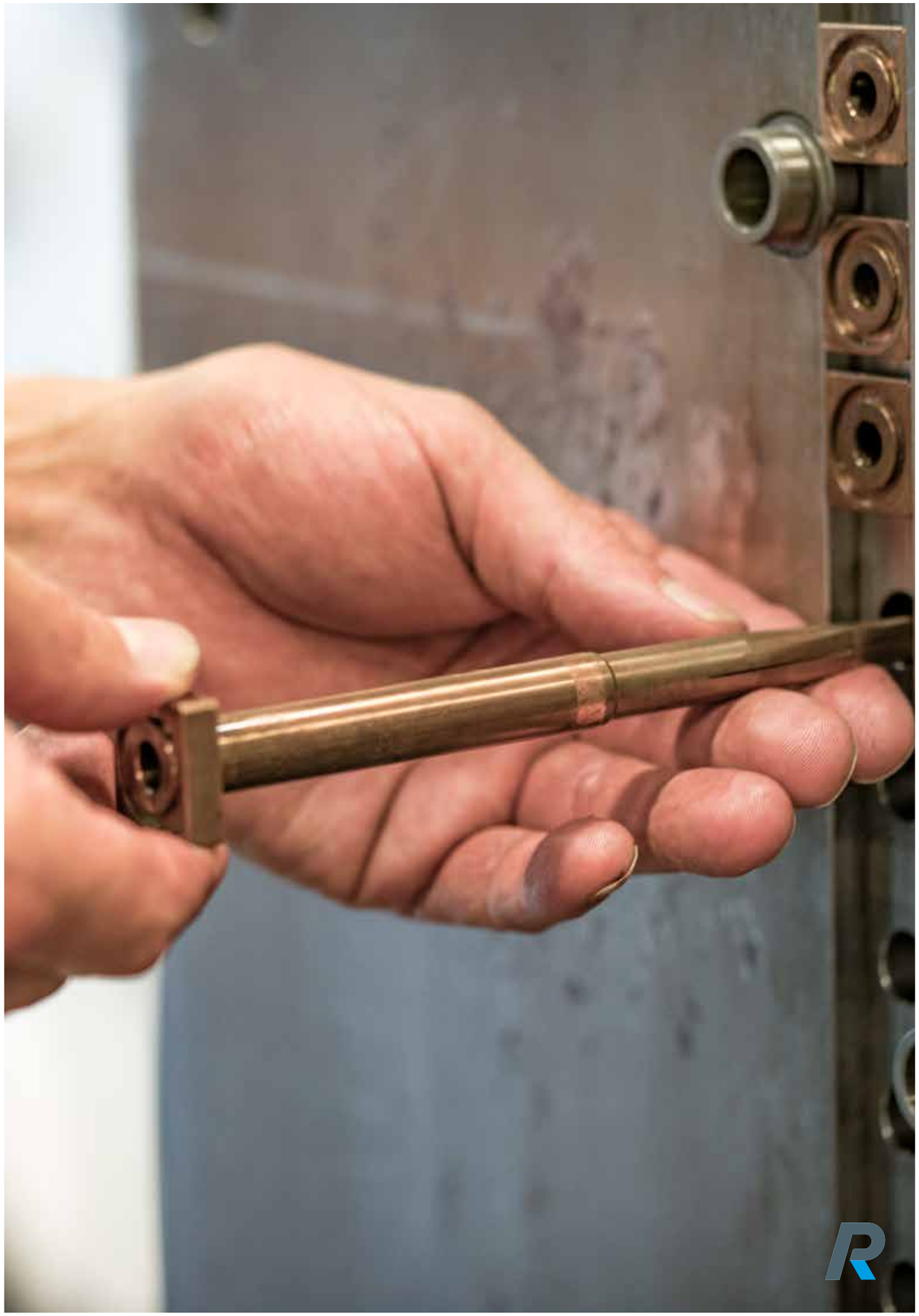
PERFECTION



SERIAL PRODUCTION

MULTI-COMPONENT-PARTS (3C)

QUALITY ASSURANCE



/37

SUCCESS

We want to support our customers with economical and future-oriented solutions in varying business sectors so that they can act fast and successfully in their markets.

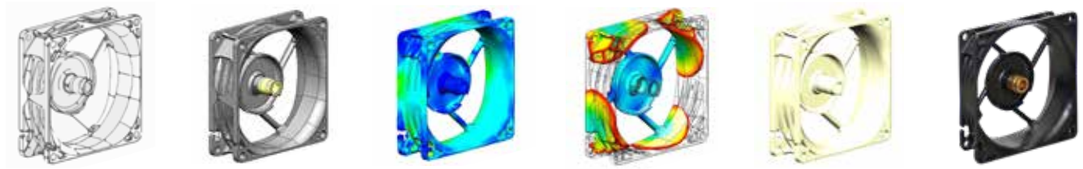
FROM CONCEPT TO PRODUCT

When ideas take shape: We plan, develop and produce high-precision molded plastic parts and complete modules to your requirements.

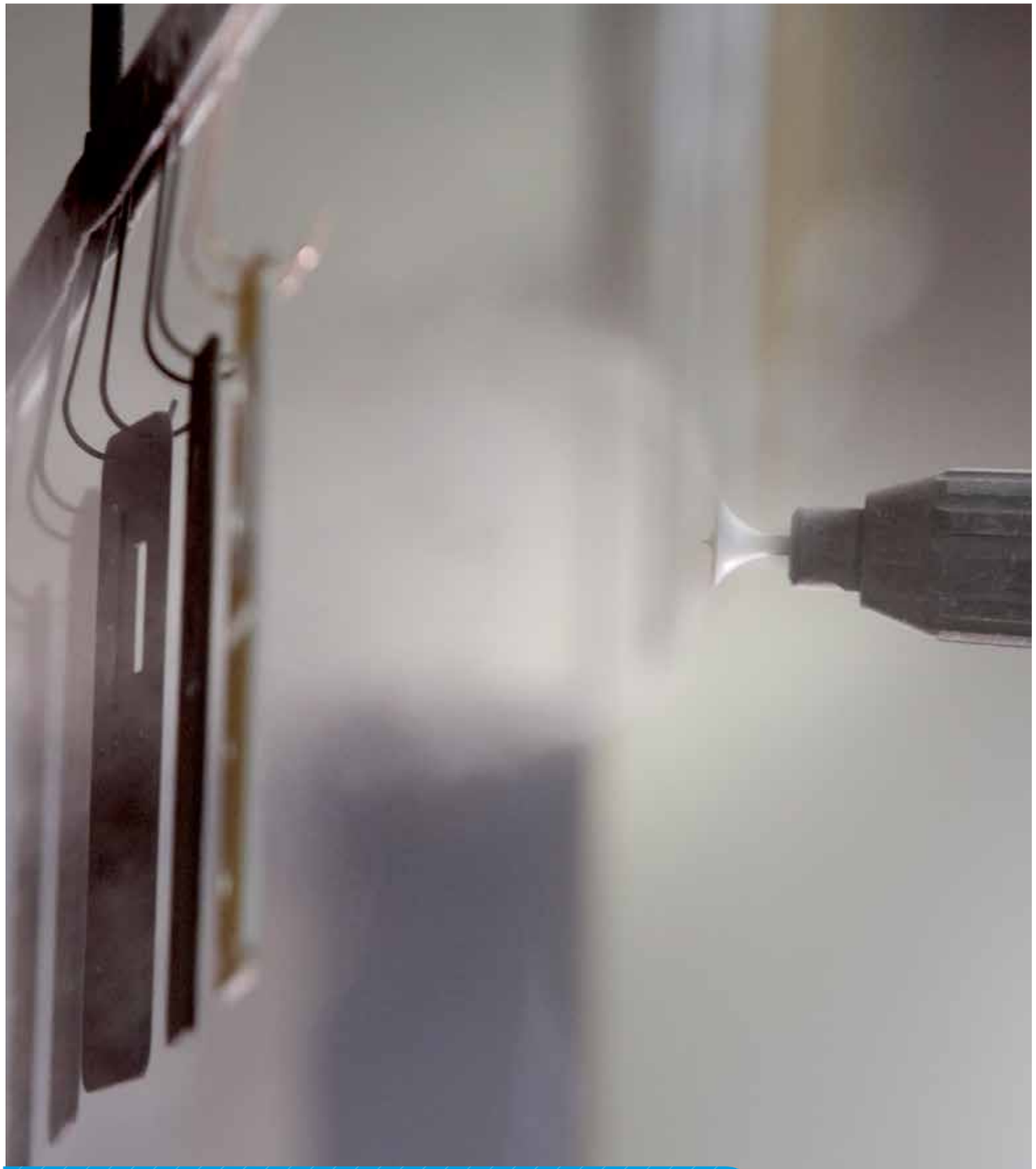
The development phase of an injection molding tool already determines its later stability and process-reliable use. For this reason, POLYRACK´s experienced engineers work with you on creating the ideal basis for the series production of your products.

Based on many years of experience with a wide variety of tool technologies, materials and simulation tools we enable you to achieve your final product, both efficiently and reliably. To do this, we not only design the items with the plastics and tooling in mind, but we also perform mold-filling simulations and thermal analyses.

Based on your requirements, as part of the development process, prototypes can be made before the series tool is built to provide extra certainty for series production as regards design and function.



SCRIBBLE → CAD-MODEL → FEM CALCULATION → FILLING SIMULATION → PROTOTYPE → SERIES PRODUCTION



SURFACE TREATMENT

POWDER COATING, WET PAINTING, PRINT,
ELECTROPLATING, LASER MARKING, ENGRAVING

/39

POWDER COATING & WET PAINTING

We provide the indispensable final touch by finishing the surface in a way that fulfills both the visual and the technical requirements of the product.

WET PAINTING & POWDER COATING

The quality of the final product relies on the perfect finish. Underlying this are the color selection and specification on the basis of all common RAL colors using environmentally acceptable and fully automated powder coating processes or wet painting. Surface treatment stands for visible perfection. Individual requests can be fulfilled with the gloss levels matt, silk gloss and gloss as well as with smooth, fine structure and coarse structure finishes.

For manual and fully automated powder coating, a separate workshop is available. Manual wet painting capabilities extend our product portfolio.

MACHINERY FOR POWDER COATING

- GEMA powder coating system
- WURSTER pre-treatment system
- SWISS SPEEDY KONTUR deburring machine

EXAMPLES FOR TYPICAL MATERIALS

- Aluminum
- Steel
- Stainless steel

USUAL PART SIZES

- Max. height of parts: 900 mm
- Max. width of parts: 450 mm
- Max. length of parts: 450 mm

POWDER COATING & WET PAINTING

FINISHING

POWDER COATING

/41

ELECTROPLATING

Functional electroplating enables metal coatings and is used for protection against corrosion and wear, for protection against external influences and to improve the electrical conductivity.

CHROMATING

The chrome (VI)-free passivation of aluminum is an approved and common practice in many parts of the industry. It is preferred in the electronics industry on account of the low surface resistance and in the aerospace industry because of the high corrosion protection. The method most widely used is colorless passivation, also as a bonding agent for the powder coating and painting that follow. Its properties include low abrasion resistance, the benefits of low coating thickness in combination with homogeneous surface optics with optimum finish quality, electrical conductivity and solderability.

ELECTROPLATING EQUIPMENT

Chromate conversion plant for rack plating

- Number of bath rows: 2
- Number of stations / baths: 32
- Control system: fully automatic program control, individual control if required
- Coating material: Surtec 650
- Parts carrier usable dimensions in direction of motion (dimensions can vary depending on rack and mounting) length: max. 450 mm, width: max. 1250 mm, height: max. 1000 mm
- Approvals / Surtec 650 specifications:
  – IMDS.No.: 30429267
  – MIL - DTL - 81706B
  – MIL - DTL - 5541F
  – LN9368-3 No. 1108

FURTHER TECHNOLOGY SERVICES

- Anodizing
- Electroplating (chrome plating, galvanizing, nickel plating)
- KTL coating

ELECTROPLATING

VOLUME PARTS

SINGLE PARTS

/42

PRINTING

What is so special about today‘s printing applications is their immense diversity and complexity.

SILK SCREEN

The silk screen printing technology is particularly suitable for flat components, like metals, plastics and glass. Printing on case parts, type plates, front panels, graphic signs and advertising material can be done according to individual design requirements. The color ensures durability of the product - spot or special colors are an essential part of screen printing. Durability and stability as well as resistance to chemical, physical and weather influences are characteristics of the process in technical and functional applications.

PAD PRINTING

Pad printing is particularly suitable for three-dimensional objects. With the help of elastic pads made of silicone rubber, it is used as an indirect offset printing process mainly on industrial products. Thanks to its high elasticity, the pad can adapt to all sorts of printing stock without difficulty so that it can print even on coarsely structured surfaces, convex and concave forms, cavities and uneven surfaces.

HD / DIGITAL PRINTING

HD printing is particularly suitable for flat, multi-colored components. The imprint has extremely high resolution and its strength is a major feature. Customized and personalized printing speaks for this economical printing technique. Two-dimensional or partial overprints or structuring form the basis of modern customized series printing on digital models.

TYPICAL COLOR SYSTEMS FOR PRINTING

HKS, RAL, RAL Design, Pantone, colors mixed according to sample

PRINTING

PAD PRINTING

AUTOMATED PROCESS

/45

LASER MARKING

An intense laser beam enables labeling or marking of workpieces and guarantees consistent visible quality during the entire production process.

LASER MARKING / LASER ENGRAVING

Laser marking or laser engraving is permanent, forgery-proof and easy to read. It can be performed fast, automatically and to individual specifications.

On metal or on plastics: laser marking is suitable for many materials and applications. Individual and machine-readable data such as text, numbers, graphics and codes can be applied directly in production.

Laser markers are among the most reliable labeling systems. Laser marking is permanent and also abrasion-resistant, heat resistant, acid-proof, water-resistant, smear-proof and forgery proof.

FIBER LASER

Material

- Cr-Ni Steel (1.4301/ 1.4016) raw
- Cr-Ni Steel (1.4301/ 1.4016) polished
- Steel (S235 JR) galvanized
- Steel (S235 JR) powder-coated
- Aluminium raw and / or anodized
- Copper
- Brass
- All common plastics

Colors

- Black
- White
- Annealing colors

Code

- Data matrix
- Barcode

Data

- Direct marking at the machine
- DXF

LASER MARKING

LASER ENGRAVING

ENGRAVING PROCESS

SERVICES

MOUNTING & ASSEMBLY, LOGISTICS,
SOURCING & SUPPLY CHAIN MANAGEMENT, QUALITY

/47

MOUNTING & ASSEMBLY

Assembly is usually the last stage in the manufacturing process.
Here, components and assemblies are assembled to form finished products or modules.

ASSEMBLY (ESD-PROTECTED, SUB-ASSEMBLIES, COMPLETE MODULES)

In our ESD-protected module assembly, all system-relevant assemblies are assembled by trained specialized staff to customer or standard specification. Tests performed during assembly, a final inspection report as well as serial number tracking are all integral components of overall assembly. If the customer so requires, these can also be performed with UL-monitoring.

FINAL MECHANICAL & ELECTRONIC TESTS

To finalize your product, we offer all necessary mechanical and electronic acceptance inspections.

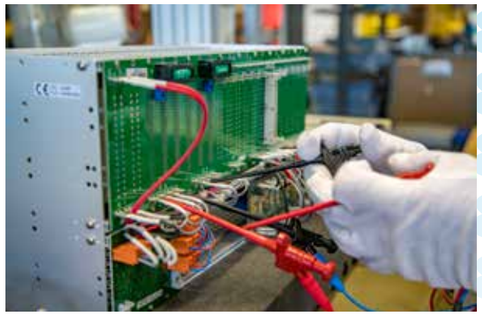
CUSTOMER-SPECIFIC FINAL INSPECTION / QUALITY CONTROL

Before the product is shipped, it undergoes stringent final testing and quality controls as specified in agreement with the customer.

INSTALLATION & SOFTWARE TESTING

Not only standardized but also customer-defined function and final tests are an important part of our manufacturing. To some extent, these are documented fully automatically and can be traced back by means of the product serial number as far as the module level. Software installation and any support that might be needed in the definition of test scenarios also form part of our service. Internal and also external employee seminars, e.g. IPC training, are the basis of the process.

MOUNTING & ASSEMBLY



FINAL ELECTRONIC INSPECTION

CABLE ASSEMBLY

/49

LOGISTICS, SOURCING & SUPPLY CHAIN MANAGEMENT

To ensure that your product reaches its destination on time and undamaged, we arrange for suitable packaging and logistics.

PACKAGING CONCEPTS

We pack your products with due care according to their nature, shape and size and develop suitable packaging concepts that will protect your products against potential damage during transport and further processing.

WORLDWIDE WAREHOUSE ABILITY

Thanks to our locations in Europe, North America and Asia, we can offer our customers warehouse availability all over the world.

LOGISTIC CONCEPTS

Together with our customers we develop individual logistics concepts to ensure that deliveries reach their destination on time and undamaged.

SUPPLY CHAIN MANAGEMENT

Our supply chain management includes not only qualified internal but also global external purchasing and procurement management.

We constantly endeavor to optimize the value chain and to respond quickly to any pending discontinuation of components with the aid of the obsolescence management system and the associated last-time-buy activities.

LOGISTICS, SOURCING & SUPPLY CHAIN MANAGEMENT

FLEET

MODERN PACKAGING TECHNOLOGY

/50

QUALITY

The quality reflects our daily efforts and leads to long-standing results.

QUALITY AND ENVIRONMENTALLY CONSCIOUS THINKING AND ACTING

are a matter of course for all areas of our company group. We consider this a key prerequisite for successfully facing the constantly growing challenges of the international markets together with our business partners.

In order to ensure maximum quality and to meet the requirements of the markets we serve, we focus on the use of state-of-the-art production facilities and high-precision measurement technology. Advance quality planning and the ongoing certification of our processes supplement these.

DEVELOPMENT, ADVANCED QUALITY-PLANNING

Quality planning for prototypes, pre-series and series as well as circuit designs in the field of systems technology are made based on the respective customer / project requirements. Here, our customers also have access to the development and construction of product-specific inspection and testing facilities.

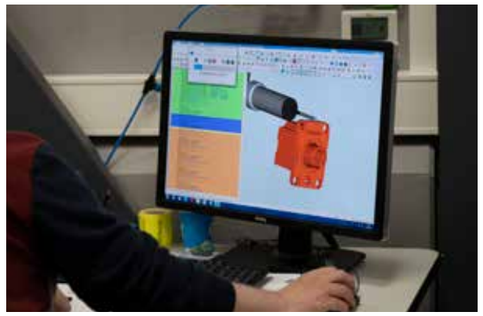
Samplings are made according to PPAP, PPF, VDA or customer procedures, according to the respective customer specifications.

MEASURING EQUIPMENT FOR QUALITY ASSURANCE

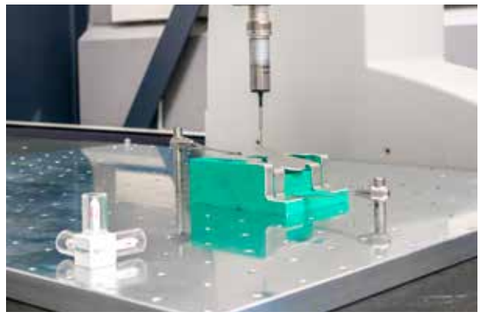
- 3D coordinate measuring machines (optical and tactile)
- Hygrometer
- Height gage 400
- Height gage 700
- Coordinate measuring machine
- Microscope (x 80)
- Surface measuring gage
- Tension and pressure test equipment

TEST & MEASUREMENT SYSTEMS IN THE SYSTEMS TECHNOLOGY AREA

- VDE testing
- Modular backplane tester NT410 for connection, short-circuit and component testing
- Agilent 34980 A multi-functional, automated, programmable test and measurement unit with automatic data capture
- Development and construction of product-specific test and measurement devices



MEASURING LABORATORY



MEASURING LABORATORY

/53

QUALITY

Certified quality in all procedures and processes within the POLYRACK TECH-GROUP

DESIGN

- SolidWorks Composer = Creation of customer-specific installation instructions
- SolidWorksVisualize = Product presentations with photorealistic images or short film presentations

CERTIFICATES

- DIN EN ISO 9001, Quality management system
- DIN EN ISO 3834, welded sheet and profile housings, cabinets
- DIN 2303, Welding quality requirements for manufacturing and repair companies for defense technology products

ROHS

POLYRACK TECH-GROUP products comply with the requirements of European Directive **2011 / 65 / EU** (RoHS) supplemented with European Directive **2015 / 863**, unless we have been given instructions to the contrary.

REACH

Products of the POLYRACK TECH-GROUP comply as of todays status of knowledge to the requirements of REACH regulation **EG 1907/ 2006.**

WEEE

POLYRACK TECH-GROUP is not a manufacturer in accordance with the European Directive **2012 / 19 / EG** (WEEE) and is therefore essentially released from this directive.

QUALITY

QUALITY MANAGEMENT SYSTEM
DIN EN ISO 9001

WELDING QUALITY REQUIREMENT
DIN EN ISO 3834

/54

CROSS TECHNOLOGICAL SYSTEMS PARTNER

Due to the technology crossing company concept POLYRACK distinguishes itself from the market and combines all different fields that are shown below..

PROCESS DEVELOPMENT

Plastic solutions
Tool construction, injection molding

PRODUCT- & SYSTEMS DEVELOPMENT

Mechanical production
Welding, laser robot, CNC punching, milling, etc.

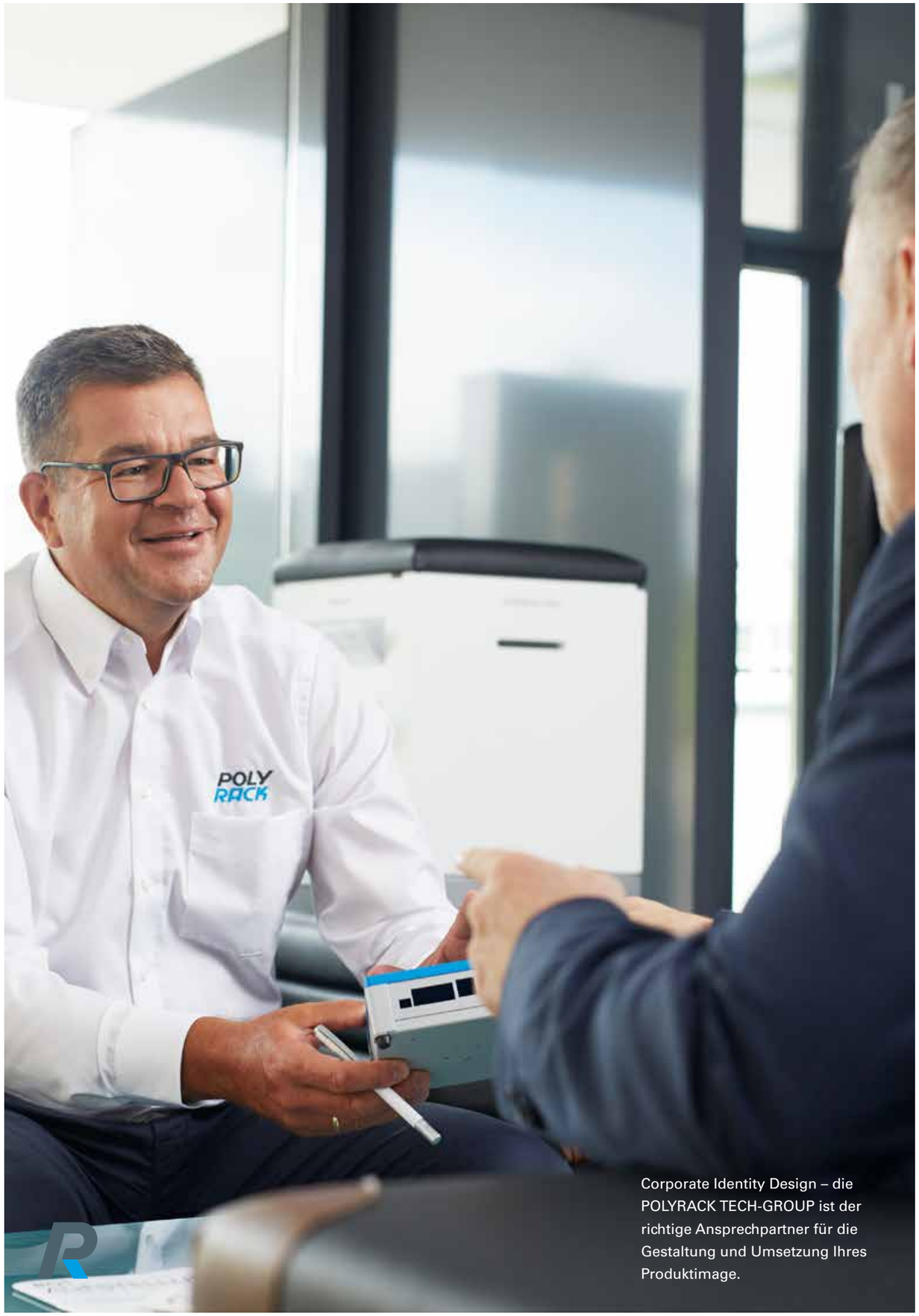
TECHNOLOGY & MATERIAL CONSULTING

Extrusions / Castings
Aluminum-, zinc-, magnesium casting

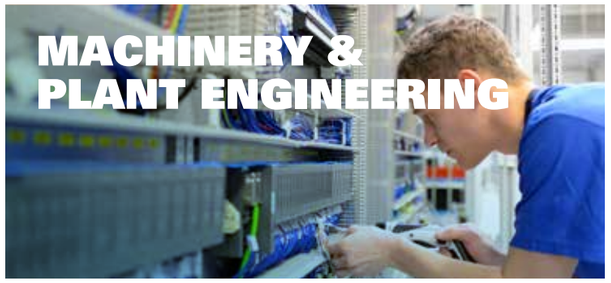
Electronics	• Development and layout of circuit boards • Interface connection test for backplanes	• Partially and fully assembled systems • Cable assembly
Surface Treatment	• Wet painting • Powder coating	• Silk screen, pad printing, HD printing • Electroplating
Mounting and Assembly	• ESD-compliant assembly • Function and final testing	• Quality control • Software installation and testing
Logistics	• Packaging concepts • Global inventory support • Individual logistic concepts	

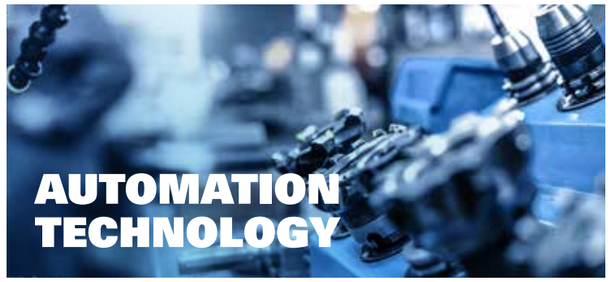
With our wide range of products we can always offer our customers the optimal solution across technologies.

Andreas Rapp



Corporate Identity Design – die POLYRACK TECH-GROUP ist der richtige Ansprechpartner für die Gestaltung und Umsetzung Ihres Produktimage.





MARKETS & INDUSTRIES

Industries at a glance: The more diverse the challenges become, the more individual our solutions are.

Take advantage from our know-how of more than 45 years.

POLYRACK TECH-GROUP

Our group of companies – POLYRACK Electronic Aufbausysteme GmbH, RAPP Kunststofftechnik GmbH, as well as their subsidiaries abroad - offers an innovative and comprehensive range of products that are manufactured in high quality and with the economical benefits of series production.

Our focus is particularly dedicated to the development and manufacturing of customer-specific products and solutions. Extensive consultancy in the conception stage, right at the start targeted and reliable development, production and assembly combined with on-time delivery are characteristic of our service offering.

+2000 CUSTOMERS WORLDWIDE

+45 YEARS OF EXPERIENCE

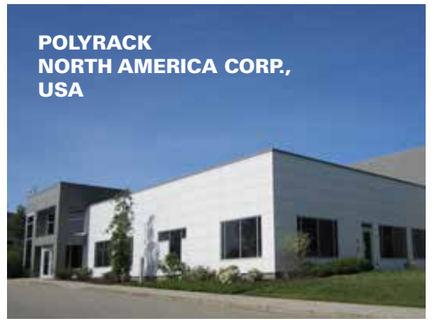
+500 EMPLOYEES WORLDWIDE

+25 TRAINEES

+100 MILLION € TURNOVER

+10 LOCATIONS

Effective: 01.01.2026



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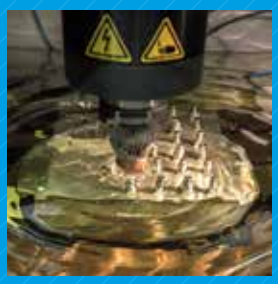

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