



LINEUP FROM CONCEPT TO PRODUCT

Products and Services of the POLYRACK TECH-GROUP

Leading technology since 1979 - the POLYRACK TECH-GROUP is your competent technology partner for integrated electronic packaging.

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/04 HISTORY

When Horst Rapp founded POLYRACK Electronic-Aufbausysteme GmbH as the first company of today's POLYRACK TECH-GROUP, he started with a one-man team, but with an even greater vision for the electronics industry.

On the way to becoming a global player with more than 500 employees worldwide, a constantly dynamic development of the portfolio towards a full-range supplier followed, which has a holistic expertise from development, design to the production of entire system solutions. Parallel to its areas of expertise, POLYRACK also developed its international orientation at an early stage. Under the motto "Globalization as an opportunity", the American subsidiary was founded in Rhode Island in 2006 and moved into its new building in 2008. Further locations in Europe and Asia followed.

But also at the headquarters in the northern Black Forest, the Rapp family of entrepreneurs and the entire TEAM POLYRACK pushed ahead with a dynamic development. In 2007, the company moved into the state-of-the-art Plant 2, which allowed the technology areas of systems technology, plastics technology and surface treatment to be brought together under one roof. This was followed in 2014 by the opening of the highly productive manufacturing site in Ettlingen, which has grown in two expansion phases to almost 12,500 sqm of production space in the meantime. Shortly before the company's 40th anniversary in 2019, further production capacity was secured with the acquisition of Metalle in Form in Karlsruhe and in 2024 with the majority shareholding in VEROTEC Ltd. based in Hampshire, UK.

Despite all the global, area-wide and cross-technology expansion, the POLYRACK TECH-GROUP has retained its core values as a reliable family business, both in the relationship with its customers and partners and with its employees without compromise.

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"I am proud that, even after 45 years, we have remained a family-owned company with clear structures that guides the company's fortunes with a sense of proportion and responsibility and will continue to do so in the next generation. As entrepreneurs, we have a fundamental responsibility towards our customers and our employees.

As the family that owns the company, we want to continue to take on this responsibility in the future and be a reliable partner for our business partners and employees."

> HORST RAPP Founder of the POLYRACK TECH-GROUP

/05 HISTORY

The POLYRACK TECH-GROUP has grown as a familyowned company. Founded by Horst Rapp in 1979 with the first employee, the company went through more than four decades of continuous and organic growth.

Today, POLYRACK TECH-GROUP employs over 500 people, including many members of the Rapp family, not only Horst Rapp's son Andreas, who has been part of the management team since 2013. What POLYRACK has preserved through all this development is not only the independence of an ownermanaged business, but also the precious values of a



ANDREAS RAPP CEO

family business. Uncompromising reliability, fairness and stability characterize the interaction and cooperation at POLYRACK, both towards the customers and the employees.

POLYRACK is a large family that pursues common goals with the utmost commitment, stands up for each other and pulls together. That's what makes us special and that's what makes us proud.



HORST RAPP FOUNDER & CEO

1979

FOUNDATION **POLYRACK GMBH**

Foundation of POLYRACK Electronic-Aufbausysteme GmbH as the first company of the group.

1990

PLANT 1

Building of the present HQ in Straubenhardt, Germany. (2.500 qm / total 3.800 qm). RAPP Oberflächenbearbeitung GmbH.

1996

SYSTEMS TECHNOLOGY

New business division "Systems Technology".

2000

EXPANSION

TECHNOLOGY

Ittersbach, Germany.

(3.600 gm / total

12.100 qm).

SYSTEMS

2006

POLYRACK USA

North America Corp., Rhode Island, USA.

2008

COMPANY **BUILDING USA**

First office building POLYRACK North America Corp., USA (1.400 qm)

2013

EXPANSION PLANT 4

to Plant 4, Ettlingen, Germany. (4.400 qm / total 23.900 qm).

2015

MOVE OF POLYRACK CHINA

Expansion and move of POLYRACK Science & Technology within Shenzhen,

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2018

NEW ESD-AREA IN SYSTEMS TECHNOLOGY

area of plant 2.

1993

RAPP **KUNSTSTOFF-**TECHNIK

Foundation of RAPP GmbH, Germany as well as POLYRACK

1981

FIRST OFFICE BUILDING

Purchase of the first office building in Straubenhardt, Germany (1.300 qm).

2007

PLANT 2

Building of plant 2 in Straubenhardt. Move of GmbH and of the total 21.200 qm).

2009

POLYRACK CHINA

Foundation of POLYRACK Science and Technology

2014

FOUNDATION POLYRACK **BENELUX SRL**

2019 **40 YEARS**

POLYRACK

Purchase of Metalle in Form Geräteteile GmbH.

2016**EXPANSION** PLANT 4

Expansion of the production hall section

2020

FOUNDATION POLYRACK **AEROSPACE GMBH**

Foundation of POLYRACK Aerospace GmbH in

2024

VEROTEC LTD.

Hampshire, UK.

2023

LOGISTICS CENTER

Building of a logistics

Expansion of the company building of the POLYRACK Corp.

2025 POLYRACK

TOWER

of the POLYRACK TOWER in Germany (3.500 Mid of 2024.



/08 GROUP OF COMPANIES



SUBSIDIARIES



/09 POLYRACK TECH-GROUP

Our group of companies – POLYRACK Electronic Aufbausysteme GmbH, RAPP Kunststofftechnik GmbH, POLYRACK Aerospace GmbH, Metalle in Form Geräteteile 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.





Effective: 01.01.2025





TELECOMMUNICATION

/10 **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.







MEDICAL TECHNOLOGY



MULTIMEDIA & BROADCAST

AUTOMATION TECHNOLOGY



/11 **ACROSS INDUSTRIES AND INTERNATIONAL – THE BASIS FOR EVERY PRODUCT DEVELOPMENT**

The market success of a product depends primarily on a fast and reliable development. We are firmly convinced of this, which is why our development and manufacturing processes are based on this premise.

The POLYRACK TECH-GROUP employs high skilled personal especially in development, material choice consultancy, engineering and mass production for the cross-technologycompany philosophy. This results in the scientific knowledge, which is the guarantee for the implementation of your product.

Economical and future-orientated solutions are our driving focal point to meet complextasks in different markets. A high-grade vertical manufacturing range and over 45 years of company history





know-how provides our customers with a versatile project managementand comprehensive services in one place.

OUR ACTIVITIES FOCUS ON THE FOLLOWING INDUSTRIES:

- Telecommunication
- Measurement & Control •
- Medical Technology •
- Automotive .
- Transportation
- Automation Technology •
- Machinery & Plant Engineering •
- Aerospace & Defense •
- Multimedia & Broadcast •
- Energy Technology





/13 KNOW-HOW FROM CONCEPT TO PRODUCT

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 element of every development is the dialog with the customer.

A close communication with our customers







CUSTOMIZED SOLUTION PanelPC 2 series with multi-touch as sheet-metal solution and milled aluminum

CUSTOMIZED SOLUTION Case made of aluminum die-case with custom conductive cooling concept

CUSTOMIZED SOLUTION

made of sheet-metals, metal castings and thermoplastic foam casting process including surface treatment



guides 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

Due to our experience and know-how in various technologies, we always offer a competent contact person from the relevant area of expertise.

The outstanding strength of the POLYRACK TECH-GROUP lies in the cross-technological product solution.





CUSTOMIZED SOLUTION Case made of plastic and complementary features





OUR EXPERTISE AND EXPERIENCE, based on more than 45 years of company history embrace the fields of mechanics, systems technology, plastics technologyandsurfacetreatment.Thisdiversityisthe basis for unique and target-oriented developments.

The specific requirements of our customers are at the heart of our activities.

The result: tailor-made products and customized solutions.

- Professional project management in the development process and in collaboration with our customers
- Design studies
- Various simulations

- Cost and manufacturing optimized designs as • well as realization
- Preparation of pilot runs and development prototypes

During the course of the development process our customers are supported by experienced project managers. Those serve as a central interface in the communication with our customers across all technologies.

SUPPORTED ANALYSIS ALONG DEVELOPMENT (AMONG OTHERS):

- RAMS / ILS
- MTBF
- FMECA

PILOT RUN

CUSTOMER INPUT

RELEASE PROCESS DEVELOPMENT **DESIGN STUDY**

SERIES PRODUCTION LOGISTICS







CUSTOMER-SPECIFIC SOLUTION

ATR-chassis in combination with milled parts, dip-brazing and a custom VPX backplane (ruggedized solution)



CUSTOMER-SPECIFIC SOLUTION

Case in a material combination of sheet metal bending technology, aluminum extrusion process and aluminum die-casting

/17 KNOW-HOW DEVELOPMENT TOOLS

AT THE BEGINNING there are many decisions to be made such as the optimization of development and realization time, selection and dimensioning of material as well as the filling of the mold. POLY-RACK TECH-GROUP uses different development tools as decision-making aids for this purpose:

STRUCTURAL ANALYSIS

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

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

THERMAL SIMULATION

A thermal simulation is performed using "Solid-Works Flow Simulation" for optimization of the heat management: to determine the measures required to optimize heat dissipation or to localize socalled 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.





/19 **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.



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For all its progressiveness, society also needs traditional values such as reliability and honesty.

/20 **TECHNOLOGIES** MECHANICS

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

PRODUCTS AND SERVICES

- Cases •
- 19"-Subracks
- Front panels, modules
- Mechanical components •
- Aluminum- / zinc and magnesium die-cast solutions
- Extruded aluminum profiles

DIMENSIONS

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

BONDING TECHNOLOGY & SEALS

All commercially available materials in 1C from medium - to high-viscosity dispense substances are suitable, such as abrasive substances like UV adhesives and sealing materials, silicones, MS polymers, PUR, silicones with particles (EMC).

So-called compact materials with a hardness of 16 - 60 Shore A are available for applied sealing technique.





MANUFACTURING TECHNOLOGIES

- Punch-nibbling technology and punch / laser cutting technology
- Laser cutting
- Bending •
- Robot and laser spot welding .
- CNC milling •
- Press-in technologies •
- Tool-based manufacturing •
- Other mechanical processing •

TYPICAL MATERIALS

- Aluminum
- Steel with various surfaces •

These media are not self-compressible and require space for the lateral expansion after the joining process.

Bonding is the technique of the future. Volumetric dosing machines allow the application of a wide range of adhesives, such as epoxy resins, acrylates, PUR, silicones, etc., in a reproducible and reliably condition.







FRAMETEC

Elegant case solution with a high degree of flexibility in design and dimensions



CUSTOMER-SPECIFIC SOLUTION

PanelPC 2 series with Multi-Touch as sheet-metal solution or milled aluminum

/23 TECHNOLOGIESSYSTEMS TECHNOLOGY / ELECTRONICS

THE AREA OF SYSTEMS TECHNOLOGY

reflects the logical and consistent development of our group of companies. We apply our longstanding experience for mechanical solutions in the development of optimized system applications. We also have sound knowledge of electronics at your disposal. We use this for example, in the development of backplanes to international standards or with CompactPCI, VME64x and VPX requirements.

Integration services are offered in close coordination with our customers for final products tested on function and safety.





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PRODUCTS AND SERVICES

- Partially and fully assembled systems
- ESD compliant assembly / integration
- Backplanes
- Subassembly service
- SMD-equipped modules

MANUFACTURING TECHNOLOGIES

- Semi-automatic, process-monitored press-fit technology for backplane production
- Cable assembly
- Partially and fully automated, stationary and mobile test systems for functionality and safety testing
- Interface connection test for backplanes





THE DEVELOPMENT OF PLASTICS

SOLUTIONS is part of the wide range of products and services that the POLYRACK TECH-GROUP offers. We pursue a comprehensive manufacturing process for thermoplastic parts beginning with consultation in the development, prototyping and own tool making department and culminating in a highly automatedinjection molding process environment to certified quality standards.

PRODUCTS AND SERVICES

- Tool design and construction •
- Thermoplastic parts •
- Back-molded plastic parts •
- Thermoplastic foam injection molding (FIM) •
- Multi-component technology (2C, 3C) •
- Prototype parts (stereolithography, selective • laser sintering, vacuum casting, 3D print)
- Custom machine engineering / insert molding

MANUFACTURING TECHNOLOGIES

• Process controlled injection molding; performance category of injection molding machines (clamping force): from 25 to 1300 tons

- Ultrasonic welding •
- 5-axis and conventional milling techniques
- Electric discharge machining, turning, grinding
- 5-axis and conventional milling techniques •
- Electrical discharge machining, turning, • grinding
- Comprehensive test and measurement systems
- Individual assembly and packaging systems

TYPICAL MATERIALS

All types of thermoplastically processable plastics with and without fillers/reinforcement - from standard (PP, PMMA, ABS, PS, ...) to technical (PC, PA, POM, PBT, ...) to high-performance plastics (PVDF, PPS, PEEK, LCP, ...).

To achieve the desired mechanical and thermal characteristics for a product, we use plastic resins in combination with colors, fillers (e.g. glass fibre or glass beads) and modifications (e.g. fire protection, impact strength, demoldability).

WEIGHT PER PART

• 0.5 – 6000 g









CUSTOMER-SPECIFIC SOLUTION

Enclosure for handheld application made of various plastic materials



Dräger

#00051

1210,2015 15:09



CUSTOMER-SPECIFIC SOLUTION

Tube case in aluminum profile technology with front panel

127 TECHNOLOGIESSURFACE TREATMENT

WE PROVIDE THE INDISPENSABLE FINAL TOUCH by finishing the surface in a way that fulfills both, the visual and the technical require-

With the option of powder coating, wet painting or, typically as an example, chromating for purely technical parts, the optimal choice for the required surface finish is given. In addition, the parts can be individually marked by appropriate printing or laser engraving.

PRODUCTS AND SERVICES

- Silk screen and pad printing as well as costoptimized HD printing
- Powder coating

ments of the product.





- Laser marking
- Surface treatment by passivation
- Dispensing, bonding
- Wet painting

MANUFACTURING TECHNOLOGIES

- Fully and semi-automated silkscreen and pad printing
- Manual and fully automated powder coating
- Manual wet painting
- Process-controlled and environmentally safe
 electroplating
- Fully automatic dispensing system for industrial adhesive, sealing or EMC applications





/28 **PRODUCTS & SERVICES** STANDARD PRODUCTS

IN MANY CASES, PRODUCTS from our standard range can be used as the basis for various developments.

The POLYRACK group can serve both standardized applications and very individual requirements and areas.

The product portfolio in the area of standard products offers holistic and comprehensive solutions for electronics, such as:

- Cases •
- 19" subracks
- Fan trays
- Front panels
- Cassettes •
- Systems based on
 - VMEbus and VME64x
 - CompactPCI and CompactPCI Plus I/0
 - VPX
 - other standards
- PanelPC and HMI Applications (e.g ITX-Standard)
- Backplanes •
- Additional accessories









// CAD-DATEN DOWNLOAD

download area



19"/10 U VME64x system with system management controller



/31 **PRODUCTS & SERVICES** SERVICES

WE OFFER A WIDE RANGE OF SERVICES SUCH AS:

MOUNTING AND ASSEMBLY

- ESD-compliant assembly
- Sub-unit assembly
- Complete assemblies •
- Full system assemblies
- Mechanical and electronical final tests •
- Customer-specific final inspection / quality control
- Installation and testing of software

LOGISTICS

- Standard or customized packaging concepts •
- Worldwide storage facilities Europe, North America, Asia
- Customized logistics concepts





STANDARD PRODUCT

EmbedTEC systems platform desktop case product version



SOURCING / SUPPLY CHAIN MANAGEMENT

- Qualified purchasing managemente
- Specifically oriented sourcing
- Access to suppliers all over the world thanks to the qualified staff in many locations

EXTERNAL TECHNOLOGY SERVICES THROUGH PARTNERS (E.G.)

- Anodization
- Galvanizing (chrome, zinc, nikel)
- Wet painting

EXTERNAL TEST SERVICES THROUGH PARTNERS (E.G.)

- Shock / vibration tests
- EMI / RFI shielding tests



/32 QUALITY

QUALITY AND ENVIRONMENTALLY CONSCIOUS THINKING AND ACTING is 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.

CERTIFIED QUALITY IN ALL PROCEDURES AND PROCESSES within the POLYRACK TECH-GROUP.

In the following, you will find an overview of all certificates and management systems of our companies:

- DIN EN ISO 9001 (Quality Management System)
- DIN EN ISO 3834 (Welded sheet and profile housings, cabinets)
- Quality management for suppliers in the aerospace industry according to EN 9100 •

DEVELOPMENT, ADVANCED QUALITY PLANNING

- Quality planning for prototypes, pre-series and series according to customer / project requirements
- Development and construction of product-specific inspection and testing facilities •
- Samplings according to PPAP, PPF, VDA or the respective customer specifications •

REACH

According to our current state of knowledge, the products supplied by the POLYRACK TECH-GROUP do not contain SVHC (Current status of the Candidate List: 2023/06/14).

WEEE

POLYRACKTECH-GROUPisnotamanufacturerinaccordance with the European Directive 2012/12/EU (WEEE) and is therefore essentially released from this directive.

ROHS

POLYRACK TECH-GROUP products correspond to the requirements of European Directive 2011/65/ EU under consideration of the delegated Directive 2015/863 unless we have been given information to the contrary.



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

/33 **EDUCATION & SPONSORING**

EDUCATION AT POLYRACK

The group of companies with POLYRACK Electronic-Aufbausysteme, as well as RAPP Kunststofftechnik and all other companies invites you to get to know a wide range of training and technology in a family-oriented environment.



SPONSORING

As the main sponsor, POLYRACK supports the gymnastics club KTV Straubenhardt. The KTV is one of the sporting flagships of the community of Straubenhardt and the region. The main team competes in the 1st national artistic gymnastics league.

The youth embodies the greatest potential of the KTV Straubenhardt. The promotion of its own talents lays the foundation for sporting success in the future. The sponsoring association includes numerous sponsors, one of them is POLYRACK TECH-GROUP. They all enable the KTV Straubenhardt a professional youth work as well as the establishment of the 1st team in the national league.

KTVSTRAUBENHARDT

The selection of apprenticeships at POLYRACK TECH-GROUP is as large as the product and technology variety. The POLYRACK TECH-GROUP attaches great importance to the training of its own specialists and offers interesting apprenticeships with excellent prospects. From the classical technical and commercial apprenticeship up to the dual study.

In a particularly furnished and equipped training workplace, all knowledge in the metal-processing electronics industry is established for the later career entry or the internally promoted further education.

The commercial training at POLYRACK benefits from the company's global presence and cultural character.



Industrie- und Handelskammer



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