



KRAMSKI

POWER SOLUTIONS

TRENDS & CHALLENGES

With the ongoing digitalization and emerging technologies like green energy, electrical drives and e-mobility demands in the automotive, medical and industrial sectors are ever increasing. High efficiency and high quality are of utmost importance. Every electrical component needs to be of highest reliability and durability, have maximum power density and be robust against wide temperature swings, switching frequencies and mechanical vibrations. These requirements together with customer

specific needs in design, materials and other parameters pose various challenges to the supplier industry of power electronics applications.

As high-performance toolmakers, we are experts in precision and put our own demand for perfection into practice, even in highly complex series production. That is why we are the all-in-one solution partner along the challenges of the power electronics industry.

UNIQUE SKILLS & PROCESSES FOR POWER ELECTRONICS

PERFECT SUITABILITY FOR FURTHER PROCESSING

- Zero defects and perfect surface finish for optimal semiconductor adhesion
- Unique process - endless on reel for maximum cleanliness and surface quality

TAILORMADE GEOMETRIES & SYNERGIES FOR PLATFORM MANUFACTURING

- High-precision stamping tools for the production of extremely complex and very fragile geometries
- Process design incorporating readiness for variant manufacturing

MAXIMUM QUALITY & CUSTOMER SPECIFIC CRITERIA

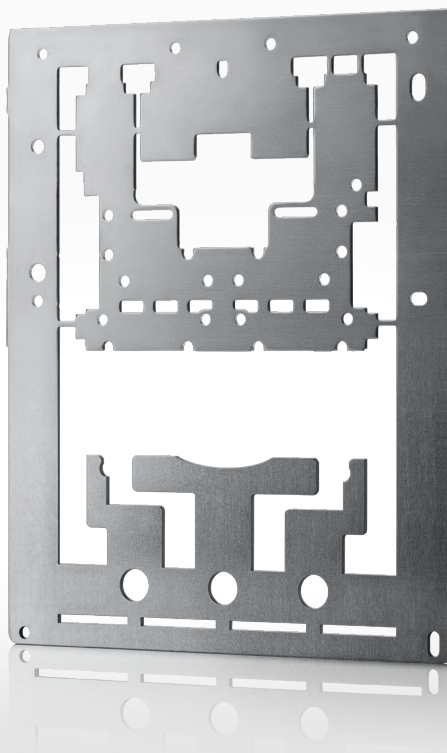
- Compliance to tightest tolerances via uncompromising quality control in all stages of the project
- 100% quality inspection with high-precision camera systems available
- Targeted quality checks according to customer specific parameters

FLEXIBILITY IN CUSTOMER CONNECTION

- Diverse types of signal pins available to match all needs of the product
- Traditional solder pin
- Solder-free press-fit pin available
 - KRAMSKI Compliant Pin
 - EloPin®
- Completely customizable

MODULARITY OF MATERIAL COMBINATION

- Puzzle technology for combining multiple materials according to product specifications
- Nearly any metals can be combined: copper, copper alloy materials, aluminum, etc.
- Establishment of a reliable and durable connection via riveting or laser welding



KRAMSKI AT A GLANCE

>40

YEARS OF EXPERIENCE &
BEST MANUFACTURING

>3 BN

STAMPING & PLASTIC-METAL
COMPOSITES PER YEAR

4
WORLDWIDE
LOCATIONS

GERMANY, USA, INDIA &
SRI LANKA

CERTIFIED QUALITY

IATF 16949

ISO 9001

ISO 14001

ISO 50001

OUR COMPETENCIES

- SINGLE-STAGE PRODUCTION WITH DIFFERENT MATERIALS AND THICKNESSES
- HIGHEST FLEXIBILITY IN GEOMETRIES AND VARYING CUSTOMER CONNECTIONS
- COMPLEX COMBINATION OF DIFFERENT SURFACES

THE KRAMSKI SOLUTION

STANDARDIZED & CUSTOMER SPECIFIC

The production of highly complex components for power electronics applications requires advanced machining know-how, targeted process development and the most precise manufacturing quality. Together with our customers we realize projects in a modular and scalable way. We offer both standardized and completely customized solutions.

Our customers profit from our wide variety of combinable materials, different types of signal pins as customer connections, up to 100% inspection of customer specific quality criteria. With our KRAMSKI solution we provide the ideal basis for successful projects in almost any application field of power electronics.

4 REASONS FOR KRAMSKI

①

MAXIMUM EFFICIENCY

Efficiency-optimized output thanks to long tool-life and high stroke rates

②

GLOBALLY CONNECTED PRODUCTION

Maximum flexibility thanks to globally positioned value creation

③

COMPREHENSIVE DEPTH OF PRODUCTION

Holistic view and processing of projects across all levels

④

100% INSPECTION POSSIBLE

Uncompromising quality management at all stages of the project

Like no other partner, we answer our customers' challenges with our more than 40 years of experience in high-performance toolmaking and series production of the most complex parts. Our extensive technical know-how complements our ability to develop specific solutions and adapt tools and manufacturing processes to the individual needs of our customers.

Our multifaceted portfolio reaching from electrical contacts over bus bars, battery cell connectors, components for press-fit technology, crimp contacts, lead frames and inserts up to complete modules complements our constant striving for perfection – this makes us the ideal partner for the development and series production of any power electronics application.