

Absolutely flexible -
ept GmbH
Automotive Division



ept – Automotive Solutions

Absolutely flexible – ept Automotive Division

ept GmbH with its headquarters in Peiting, Germany develops and produces PCB connections for customer specific automotive solutions.

Reliable contact technology is our focus, the press-fit zone Tcom press® by ept fulfills all customer needs regarding modern press-fit technology. This technology was approved in the automotive industry several years ago and has been used in various applications.

**Do you need a customized
automotive solution?
Then ept is the right partner for you:**

Our comprehensive technical expertise in development and production of standard components as well as the experience gained from the development of many customer-specific solutions in the automotive sector are directly applied for implementing individual customer solutions.

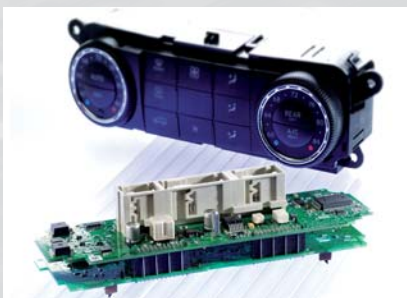


Examples of current ept products are:

- Stamped contacts
- Loaded connectors (straight and angled)
- Overmolded connectors
- Sensor cases with overmolded or inserted contacts
- Board-to-Board connections
- Shielding
- New applications and innovations

These are used in the following applications:

- Control devices (e.g. ABS/ESP, climate control, body & security, engine control, adaptive forward lighting, seat adjustment, power windows)
- Sensor cases (e.g. airbag sensors, rain/light sensors, sunlight sensors, axle position sensors)



AC control unit

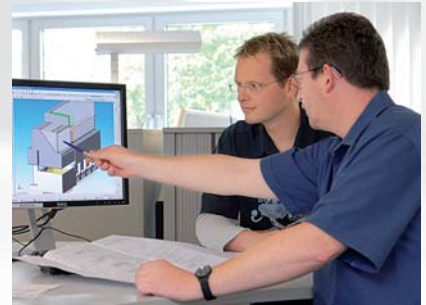


Adaptive forward lighting
control unit



ABS controller

About ept - Automotive Division.



Certified quality

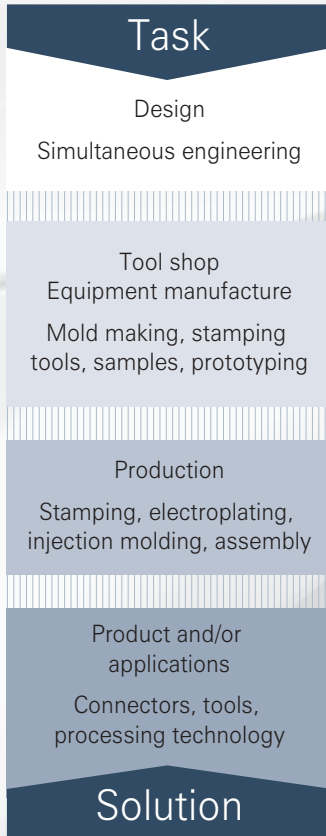
ept locations where components for automotive applications are produced are certified according to the current quality management system ISO 9001 and ISO/TS 16949. Our environmental management system is up to par DIN EN ISO 14001.

This stands for top quality

- Prototyping
- Standardized methods
- Detailed production planning
- Complete handling and technical documentation of all processes
- Assembly processes adapted to your requirements
- Electrical and mechanical testing
- Supplier and customer complaints management



Flexible and fast



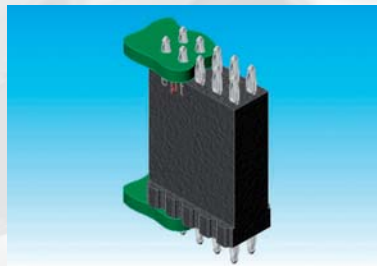
Our strengths are your advantages

- We have many years of successful experience in working together with renowned automobile component suppliers
- We are flexible and fast, due to our own
 - Product development and design
 - Prototyping
 - Test and qualification equipment
 - Toolmaking (stamping and injection molding tool, jig department as well as automation equipment)
 - Stamping shop
 - Injection molding (incl. overmolding)
 - Conveyor galvanic equipment
 - Manual, semi-automatic and fully automatic assembling
- We have subsidiaries all over the world
- We offer you product-specific processing technology according to your specifications and requirements

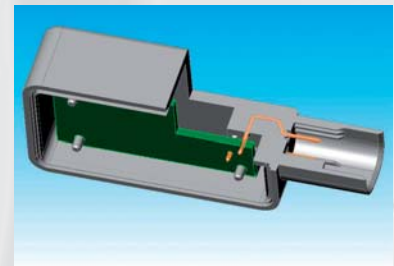
Required by the automobile industry, fulfilled by press-fit technology

- Zero-error philosophy
Tendency to 0 ppm, in the application as well as during manufacturing
- Temperature range
-40 to +150°C
- Resistance to vibration
one of the most important requirements in the automobile industry, as it is a frequent reason for failures (acceleration values of more than 30 g can occur)
- Current-carrying capacity
due to an extremely low contact resistance of $\ll 1\text{ m}\Omega$, a higher power transmission at lower self-heating can be achieved compared to solder contacts
- Processability
automatically processable, uncomplicated and stable process, avoidance of arising problems due to low thermal stress of the PCB and adjacent components, easy repair
- Material compatibility
Compatibility with automotive regulations, e.g. IMDS, RoHS (lead-free, cadmium-free, etc.)
- Acceptance by OEM's
Compatibility with in-house standards

Examples



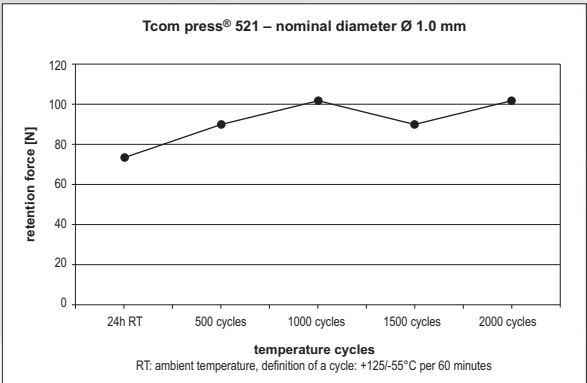
Stacking of PCB's



Integration of PCB's into housing without additional fixing

Millions of good reasons

For automotive developers, especially the extremely high reliability is a significant reason for using the press-fit technology. However, not only the increased product and process quality but also the high economic efficiency of the production process makes press-fit technology the first choice. A demonstrative example for this is the redesign of an ABS-braking controller electronic system. In this case, after tests and trial runs, press-fit contacts (ept Tcom press®) were used instead of solder contacts, predominantly to reduce the failure rate. And this was very successful, since far more than 10 billion contacts in several millions of ABS/ESP-braking controllers have been riding on the roads of the whole world for years now – without any emerged failure so far!



Many experiments and measurements have shown: correctly press-fitted contacts maintain their low contact resistance ($\ll 1\text{ m}\Omega$) and in doing so even increase the retention force in the plated-through hole, even after several thousand times of exposure to thermal stress.

Application example	Application area	ept solution	Advantages
AC control unit	Passenger compartment	64 contacts interface connector with signal and power pins, 22 contacts printed circuit board connector, 4 contacts connector for ventilation motor	Space savings, increased reliability, cost advantages for customer's manufacturing process
ABS/ESP control units	Engine compartment/underbody (safety-relevant)	Different signal, power, pump, coil and locking contacts in press-fit technology	Increased contact reliability in the terminal equipment, cost advantages for the manufacturing process, successful elimination of initial quality problems due to solder technology
Body & security control device (central control unit)	Passenger compartment	Several printed circuit board connectors for the connection of two PCB's	Cost savings in the manufacturing process since the soldering process is omitted, higher reliability, the complete electronics box
Engine control	Engine compartment (high temperature)	Several printed circuit board connectors for the connection of two PCB's	Optimized utilization of the installation space in the control unit; cost savings in processing, since the soldering process is omitted
Control device for adaptive head lighting	Engine compartment	Angled connector with integrated housing wall	Simplification of the processing process, increased vibration resistance
Sunlight sensor housing	Climate control (engine hood outdoor area)	Sensor housing with straight and angled, overmolding signal contacts	Technological advantages for the further processing of the sensor at customer
Airbag sensor	Body (safety-relevant)	Overmolding single contacts and sockets in the sensor case	High contact reliability, simplification of the manufacturing process

... and much more!



International presence – the ept locations

ept, with the Automotive Division, roots are located in the scenic landscape of southern Bavaria and from there ept has set out to become an international company. With production locations and sales offices in several countries as well as competent partners all over the world, ept automotive is able to offer its connectors and solutions worldwide.

ept, Automotive Division – your global partner



For your local contact please refer to **www.ept-automotive.com**

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