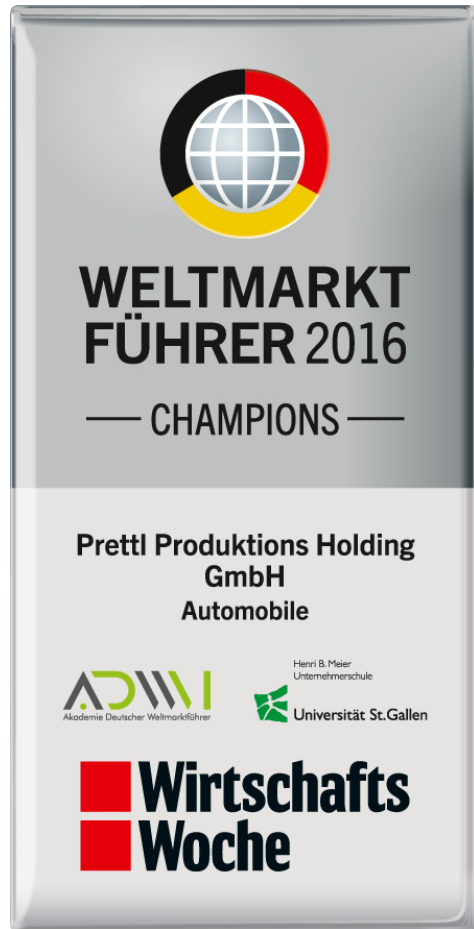


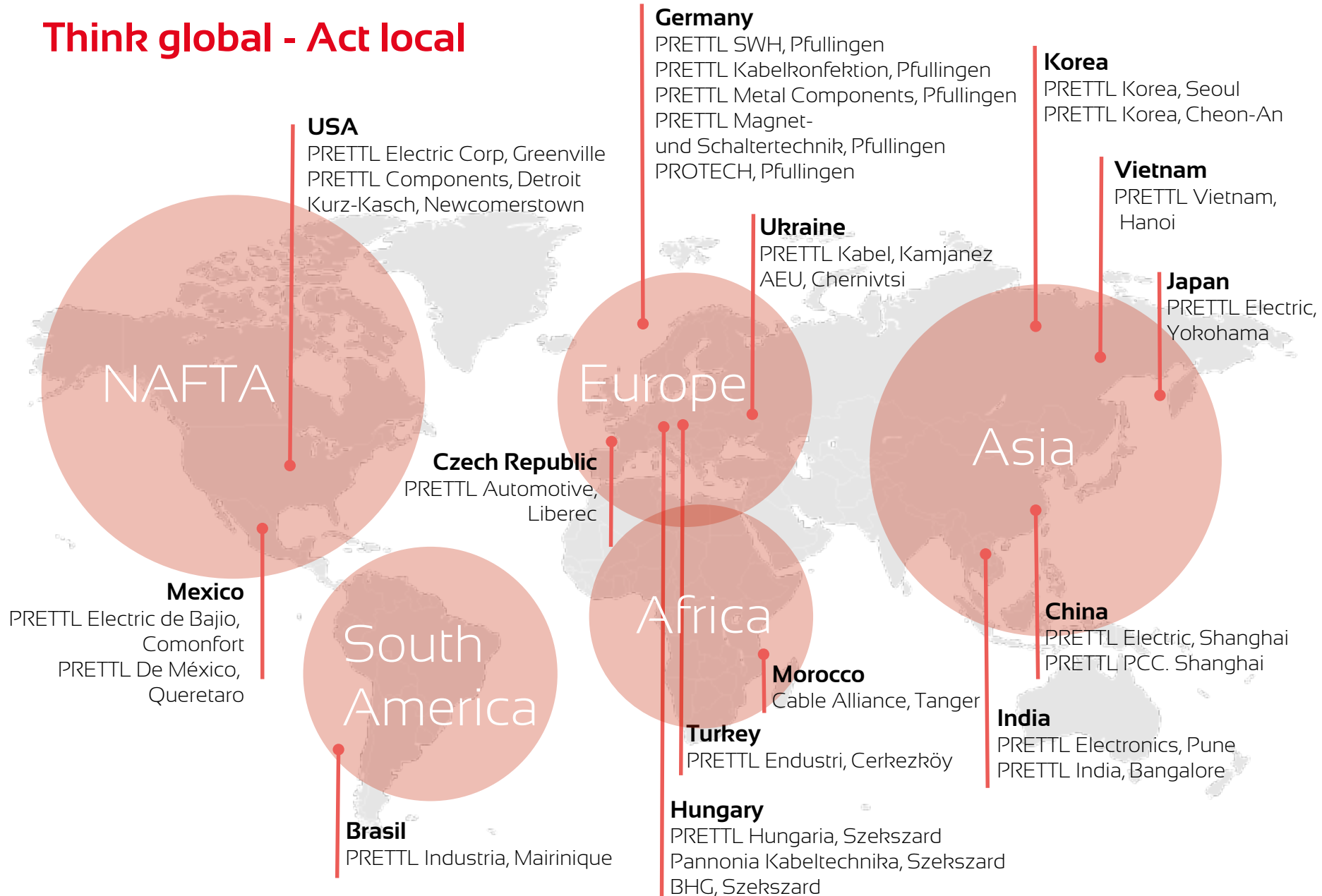
The PRETTL automotive division presentation

PRETTL automotive at a glance



- development and production of complex cable assemblies and modules
- Customer base: leading system suppliers within the automotive industry
- 16 locations in 3 continents
- Empl.: over 7000
- Turnover: about 400M EUR/ year
- “World market leader 2016” for sensor wires and cable assemblies.

Think global - Act local



Expertise



Winding

Crimping

Welding

Injection molding

Assembly

- Longlasting experience in globalization
- Customer oriented developement and engineering of products and processes
- Connector Technology
- Global production, engineering and services network

Product portfolio at a glance

Prettl Automotive Electric: Focus areas for applications

Motor & Powertrain

- Steering Systems
- Injection Systems
- Powertrain
- Transmission
- Chassis

Efficiency & Environm

- E-mobility
- Exhaust Gas Aftertreatment
- Turbocharger
- Alternative technologies e.g. Oxygen sensors,- NOX reduction

Safety

- ABS sensors
- Seatbelt switches
- Vehicle occupant protection systems e.g. Airbag
- Driver Assistance e.g. Camera systems



BE EFFICIENT







BE GREEN



BE SAFE

Product Division: Sensor Wire Harnesses

Some of our core products

	Emission	ABS/ESP	DNOx	Steering
Product				
Application	<ul style="list-style-type: none"> - air fuel-ration in the exhaust gas stream - optimization of vehicle's fuel efficiency & reduction of harmful exhaust emissions 	<ul style="list-style-type: none"> - Measurement of vehicles' wheel rotational speed for ABS braking - Usually hall effect type sensor 	<ul style="list-style-type: none"> - Determine the Nox concentration in the exhaust gas stream - Used to regulate LNT and SCR aftertreatment 	<ul style="list-style-type: none"> - Determine the steering angle/ driver-applied torque - Used in ESP to regulate steering support applied by electric power steering

Our growth markets

RS actuation

E-mobility

Cooling system

Product



Application




- Reduction of vehicle roll during cornering
- Increase in comfort & safety and decrease of emission

- High voltage wiring for hybrid and electric vehicles
- Collaboration on Li-ion battery assembly

- Wire harnesses for e-bike batteries & drive units
- Single wire harnesses supplier for the leading e-bike engine developer

- Cooling fan modules to ensure optimal supply of cooling air to the vehicles cooling circuit

Further growth markets

Product	<p>Camera applications</p> 	<p>LF antennas</p> 	<p>Other „driver assistance“</p> 
Application	<ul style="list-style-type: none"> - Cables for rear/ front/ mirror integrated view camera, system for measuring the distance to the vehicle ahead 	<ul style="list-style-type: none"> - Radio frequencies/ central locking systems - For Keyless Entry & Go Systems 	<ul style="list-style-type: none"> - Sensors for seat belt buckle switch - Adapter cables with PCB - Brush cards for seat belt retractor - Exhaust gas reduction application

Product Division: Coils & Components

Some of our core products

XL 3



DNOx 2.2



DMV 24



S2.7



Product

Application

- Modular Power Group XL3
- Magnet coil, injection molded for direct fuel injection systems for passenger cars

- Magnet used for Denoxtronic 2.2 syst.
- System for medium to heavy weight vehicles used as actuator for the control valve
- used to switch the flow direction in the pumping system

- Magnet coil, injection molded for direct diesel injection

- Injector Actuator for construction machines

Further core products

DMV 25



AFS Sperre



DNOx 6HD



DNOx 6.5



Product

Application

- Injector for Diesel injection system for truck engine

- Locking element with proportional behavior
- project active steering
- Lock function in case of failure of active steering

- For the development of DNOx 2.2 project

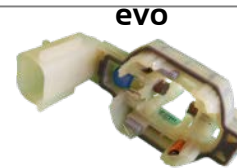
- Solenoid for evacuation of exhaust systems
- Used in adblue engines

Some of our Brushcards

Brush Holder GPG



Brush Holder FPG2



Product

Application

- Used in window lift motor
- With sealing system and suppressor components

- Liftermotor with suppressor components for high current
- Asymmetrically arranged brush holder

Our top partners



PRETTL Automotive Electric

**Marktstrasse 155
72793 Pfullingen
Germany**

**Telephone +49 7121 707-0
Fax +49 7121 707-105**

**info@prettl.com
www.prettl.com**