



E/E SYSTEMS

- › CABLE ASSEMBLY
- › CONTROL UNITS
- › POWER DISTRIBUTION UNIT
- › SOFTWARE AND BUS SYSTEMS



WÖLFLE
CLEVER. EFFICIENT. CREATIVE



POWER DISTRIBUTION UNIT (PDU)

HIGH-VOLTAGE, LOW-VOLTAGE, ACTIVE AND PASSIVE

The majority of functions in a vehicle are electrically operated. The consumers require a safe and reliable energy supply that distributes the energy flows to them according to their needs. Power distribution is a wide-ranging topic challenged with ensuring high reliability, avoiding losses and guaranteeing safety for operators and users. This starts with simple distribution boxes with relays and fuses and ends with highly complex high-voltage modules with different voltage levels through integrated converters, smart circuit-breakers, integrated safety electronics up to the integration of heat flows into thermal management.

AN OVERVIEW OF SAMPLE SOLUTIONS

Our extract of implemented customer solutions will provide you with a brief overview of our range of services in the area of central electrical systems:



01

POWER DISTRIBUTION UNIT HYDROGEN TRUCK

- > Voltage measurement via CAN-Bus (up to 850 VDC)
- > Current measurement via CAN-Bus (up to 1500 A)
- > Contact protection through interlock plug
- > Sealed enclosures and busbars in in-house production



02

CIRCUIT BOARD ROAD PAVER

- > Complete power distribution and protection
- > Integrated safety module
PL d of EN ISO 13849-1
- > Pressing and soldering technology



03

CENTRAL ELECTRICAL SYSTEMS EXCAVATOR

- > Modular scalable vehicle options
- > Die-cast housing
- > 100% testing through own testing systems



04

CENTRAL ELECTRICAL SYSTEMS TRACTOR

- > Customised sheet metal housing in in-house production
- > Conventional wiring
- > Integrated vehicle options

WIRING SYSTEM/ CABLE ASSEMBLY

*DIVERSE, TAILORED AND PRODUCED WITH
LEADING-EDGE MANUFACTURING PROCESSES*

Cable assembly means the production of cables or cable harnesses with contacts and connectors and, if required, sheathing to form ready-to-install and ready-to-connect assemblies for vehicles and machines. Pre-assembly is largely fully automatic, thanks to our extensive fleet of machinery including fully automatic machines, automatic crimping machines, automatic twisting machines, ultrasonic splicing technology, connector and cable printing, automatic taping machines and yarn knitting machines. Subsequent installation is carried out in table and cable board production. We manufacture at various international locations and therefore offer economical solutions for every application.



KOMAX FULLY AUTOMATIC MACHINES

AN OVERVIEW OF SAMPLE SOLUTIONS

Our extract of implemented customer solutions will provide you with a brief overview of our range of services in the area of cable assemblies:

01



HIGH VOLTAGE CABLE TRACTOR

- > Fire resistant cables and sheathing
- > Touch-protected interlock plugs
- > Automated high-voltage test systems

02



BATTERY CABLES EXCAVATOR

- > Line cross-sections up to 215 mm²
- > Crimping and soldering technology
- > Sheathing with corrugated tube or yarn

03



VEHICLE HARNESS ROAD PAVER

- > Combination of different sheaths including yarn, corrugated tube, protective hoses, etc.
- > Complete sets of up to 60 kg
- > Top manufacturing quality through continuous process optimisation and our own fixture and testing equipment set-up

04



MOTOR HARNESS CONSTRUCTION MACHINE

- > Fully automatic crimping and crimp force test
- > Cable and connector labelling
- > Extremely heat and vibration-resistant
- > Coating with braided yarn

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CONTROL DEVICES

RELIABLE, ROBUST AND EASY TO INTEGRATE

Control devices are electronic modules and the basis of vehicle electronics. Control devices provide the hardware to control, regulate and monitor vehicle functions and components. Wölfe offers a high-performance product range for this and is your point of contact for customised applications.



TEST SYSTEM FOR ELECTRONICS MANUFACTURING

AN OVERVIEW OF SAMPLE SOLUTIONS

Our extract of implemented customer solutions will provide you with a brief overview of our range of services in the area of control devices



01

CONTROL UNIT FORKLIFT

- > Die-cast housing
- > 16-bit architecture
- > CAN- and LIN-Bus



02

CONTROL UNIT EXCAVATOR

- > Modular extruded aluminium enclosure (shown without enclosure)
- > 32-bit architecture
- > CAN-Bus



03

CONTROL UNIT HYDROGEN TRUCK

- > Modular functional design
- > 32-bit architecture
- > 2x CAN-Bus



04

CONTROL UNIT FIELD SPRAYER

- > Die-cast housing
- > 32-bit architecture
- > 2x CAN-Bus
- > AUTOSAR®

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SOFTWARE AND BUS SYSTEMS

SAFE, INTELLIGENT AND NETWORKED

The challenge of future E/E architectures lies in also mastering the increasingly powerful data streams. Data is generated by sensors, exchanged between control devices and must be delivered to actuators. Different bus systems exist for the different requirements of data transmission – such as transmission speed, availability, prioritisation, etc. With our development environments and various tools, we can also actively assist with commissioning on the vehicle and with fault analyses.

Software expertise is becoming the central discipline for functional scope, convenience, safety and innovation in vehicles. In order to support efficient and safe development processes, high-level software development in particular is model-based on MATLAB®/Simulink® and uses standard operating systems such as Autosar® or Codesys®. With over 25 years of in-house software development experience, we have accumulated extensive specialist and industry expertise and we have developed this area into a core competence.

OVERVIEW OF THE USE OF MODERN SOFTWARE TOOLS AND PROTOCOLS



TOOLS

- > Codeworrier
- > Keil
- > Multisim
- > MATLAB/Simulink
- > INCA
- > ISOLAR
- > CANoe
- > CANalyser
- > E3.Series Formboard & Cable



LANGUAGES

- > C, C++, C#, Assembler, Java
- > STEP7, Codesys, Logo



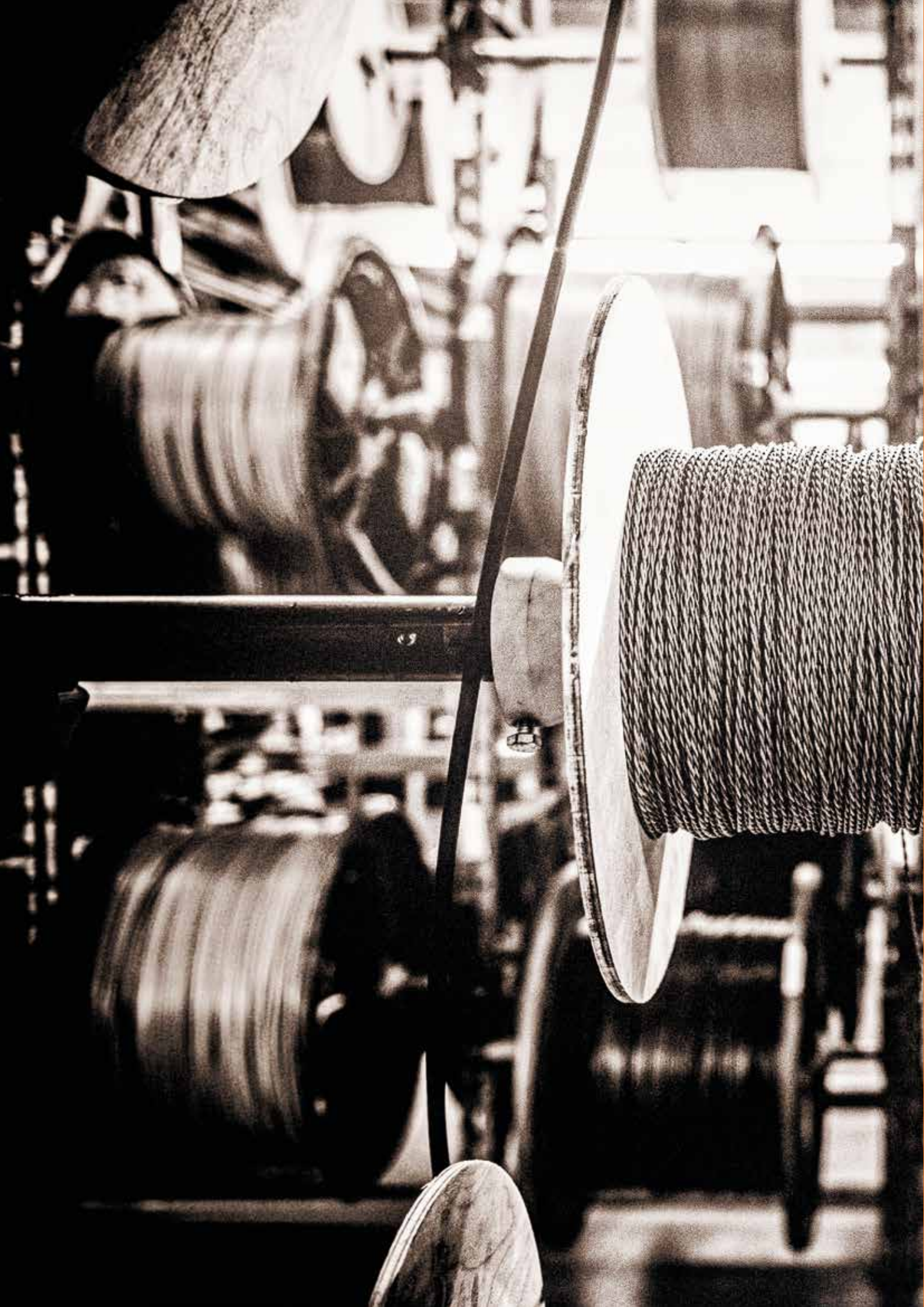
OPERATING SYSTEMS

- > AUTOSAR® 4.3
- > OSEK-NM
- > Windows Compact CE
- > Wölfe OWN



PROTOCOLS

- > UDS, XCP, FireCan, CANopen, J1939, ISOBUS
- > Customer protocols: Liebherr, Wirtgen, Ford, Ziegler, Linde, and more besides



THERMAL SYSTEMS / CONTROL SYSTEMS / E/E SYSTEMS / SPECIAL CABS

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