

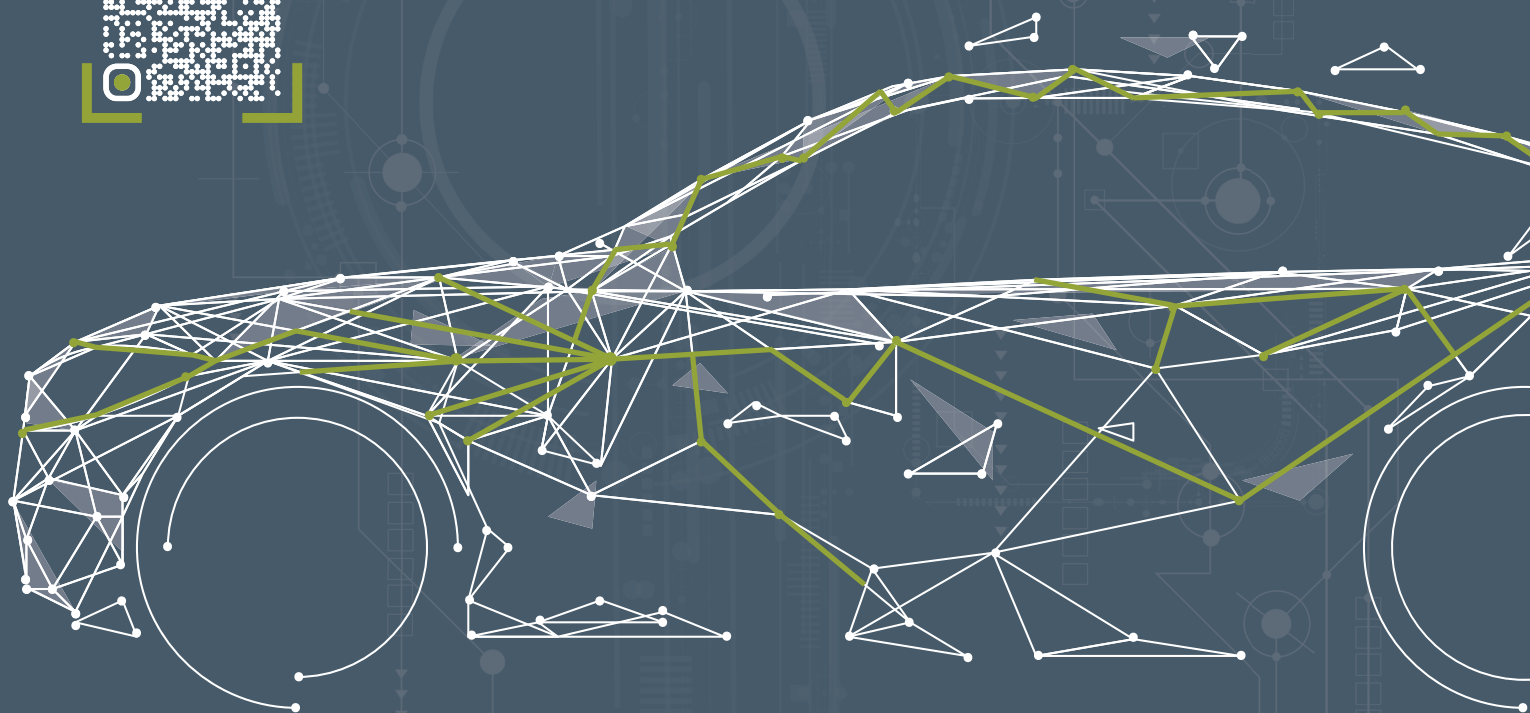


ultra fast. ultra strong. **ultrasonic.**

Sonosystems®

**SCHUNK
SONOSYSTEMS**

ULTRASONIC WELDING FOR WIRE HARNESS



ABOUT US

ultra fast. ultra strong. **ultrasonic.**

Our 500 employees worldwide develop and produce our innovative ultrasonic welding equipment - and together with our representatives we are always close to our customers. In addition to our headquarters in Wetzlar (Germany), we have locations in Boston (USA), Toluca (Mexico), Kenitra (Morocco), Taicang (China), Ansan City (South Korea) and Yokohama (Japan). Furthermore we have a worldwide sales and service network.

APPLICATION AREAS



WIRE HARNESS

- Wire - Wire | Wire - Terminal
- X-/Y-Splices
- Cascade | Mixed-Connections
- Ground and high current contacts
- Busbars | Flat Flex Wires
- High Voltage Applications



COOLING TECHNOLOGY

- Copper tubes for refrigeration circuits
- Capillary tubes for thermostats
- EX-certified



POWER ELECTRONICS

- Power Module
- IPM Module
- Pin / Pin-Housing Welding
- PCB Welding



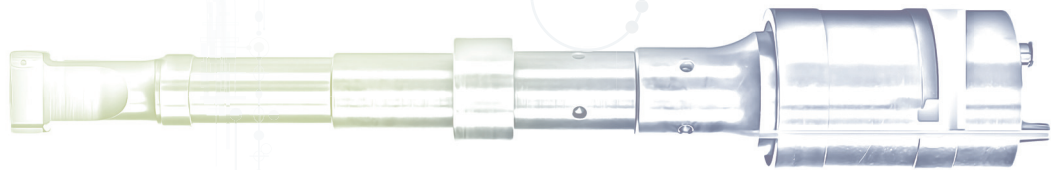
BATTERY TECHNOLOGY

- Battery modules
- Li-Ion Technology
- Capacitors
- Anode/cathode connections
- Copper/Tab connections
- Battery Management Systems



SERVICE

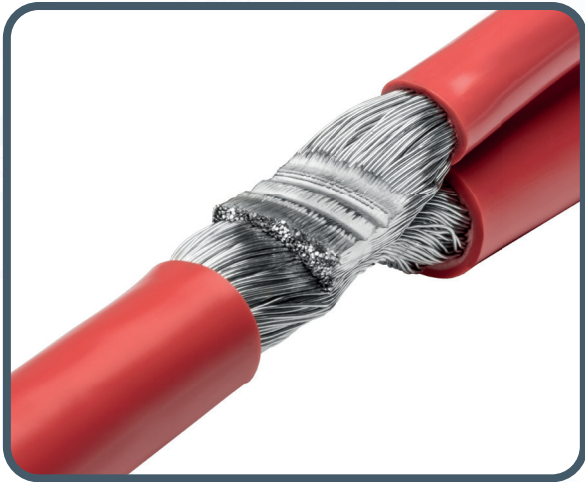
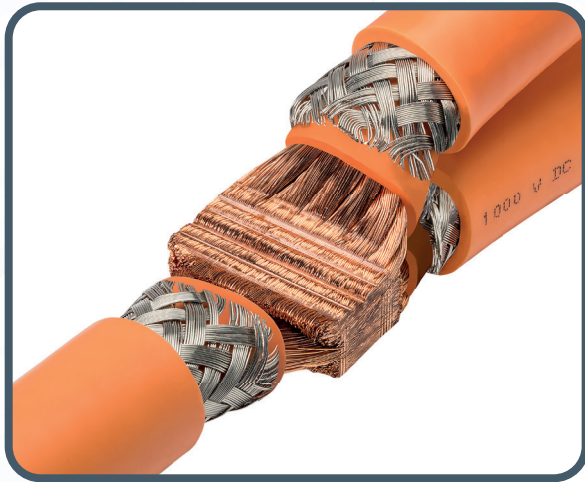
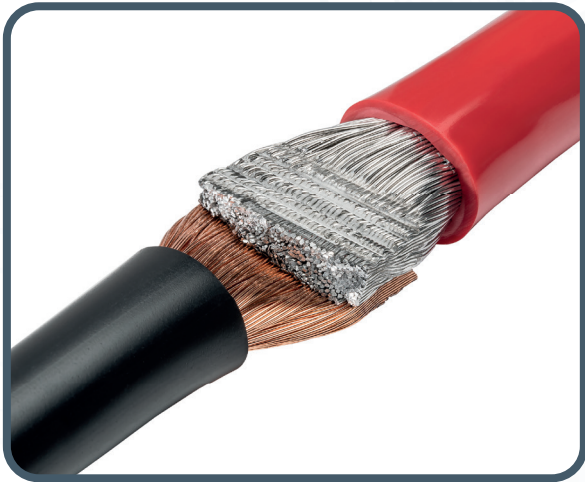
- Technical advice and support
- Process development and integration
- Software development
- Training system



ULTRASONIC WELDING IN THE WIRE HARNESS INDUSTRY

Ultrasonic metal welding is one of the most important joining technologies employed in the manufacture of wire harnesses for the automotive, construction equipment and household appliance industries. Among other things, the process is used for joining multiple wires with each other as well as for joining wires with grounding-, high current- and HV-terminals. The wire cross-section sizes which can be ultrasonically welded ranges from 0.08 mm² to 280 mm². Compared with crimping or resistance welding, ultrasonic welding offers numerous advantages. These include the excellent electrical properties of the joint, extremely low energy consumption and comprehensive process control and corresponding process data management.

WIRE HARNESS | WIRE-WIRE



MINIC-III

The Minic-III is the most modern, fastest as well as most user-friendly and low-maintenance ultrasonic welding machine on the world market today. As a benchmark for the worldwide leading wire-harness manufacturers, this machine has delivered the best welding results with respect to strength, Cmk / Cpk as well as the visual appearance of the splices produced, in all applications.

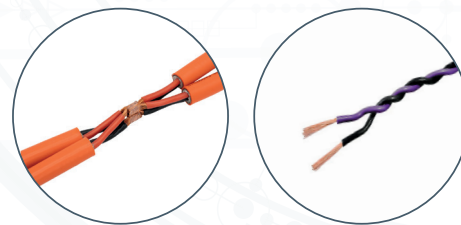
- Cross section range: **0,26 mm² to 30 mm²**
- Suitable for aluminium, copper and mixed connections (cascade)
- Plug & Play functionality through integrated ID chip
- Sequence welding possible
- Easily accessible maintenance and cleaning
- Compressed air-free cooling system
- Designed for manual operation as well as for integration into fully automatic production systems



Numerous insertion aids are available for the Minic-III: Cable fit-in (CFI), welding area illumination, laser positioning system, pick by light. Please do not hesitate to contact us.

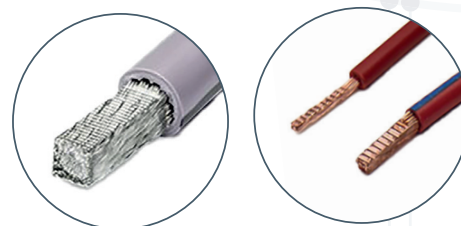
Variation | X-SPLICE

- Suitable for welding X- and Y-splices
- Also available as retrofit kit
- All other applications of the Minic-III can also be welded with this variant
- Among other things also constructed for welding twisted wires



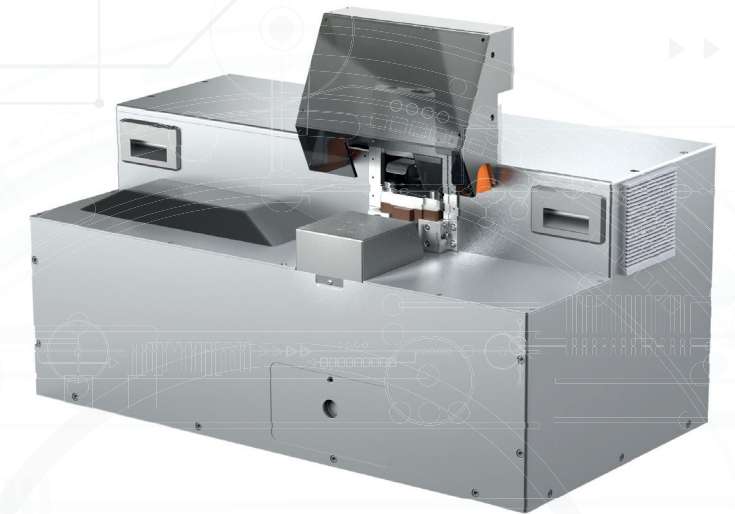
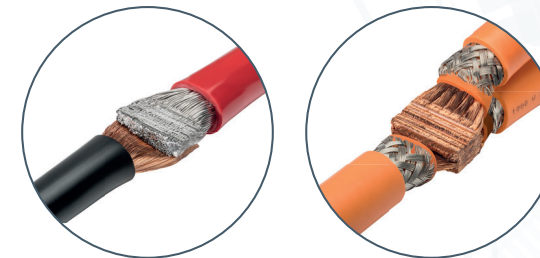
Variation | MINIC-III COMPACTING

- Single Wire Compacting
- Designed for manual operation as well as for integration into fully automatic production systems
- Suitable for aluminium and copper wires
- Best practice in industrial cabinet building



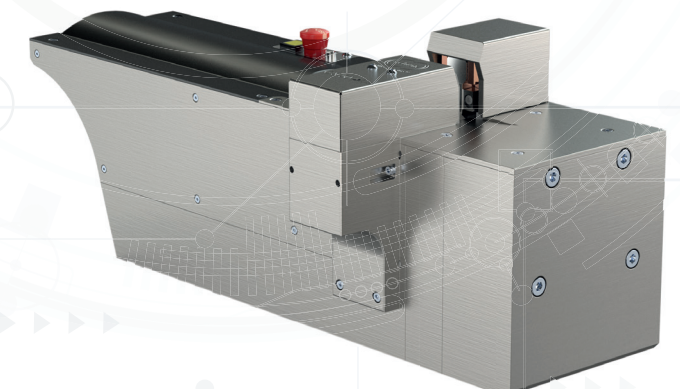
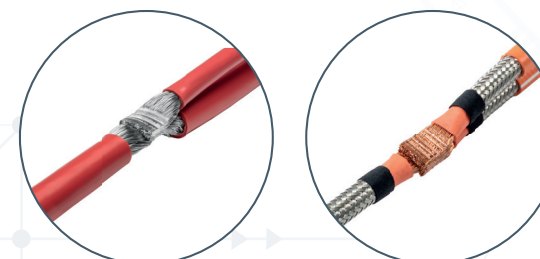
L-SPLICE

- Cross section range: **20 mm² to 100 mm² (variation 100) resp. 20 mm² to 200 mm² (variation 200)**
- Suitable for aluminium, copper and mixed connections (cascade)
- Withstands highest thermal and mechanical loads
- Designed for manual operation as well as for integration into fully automatic production systems
- Two design variants are available for optimum, ergonomic operation
- Wire fixation for manual insertion of wires
- Insertion aid optionally available



GLOBAL-SPLICER

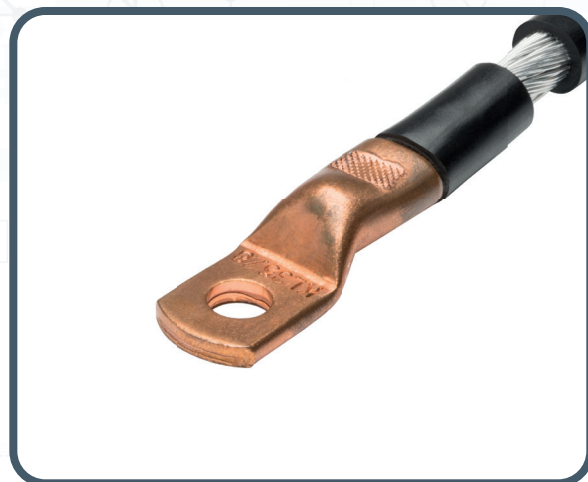
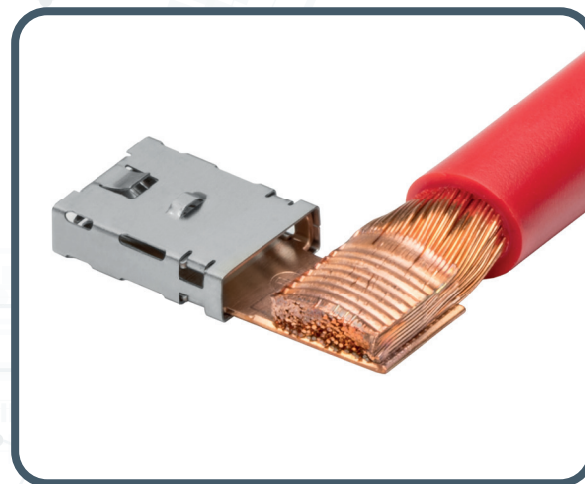
- Cross section range: **1,5 mm² to 40 mm² (GS-40) resp. 4 mm² to 60 mm² (GS-60)**
- Suitable for aluminium, copper and mixed connections (cascade)
- Designed for manual operation as well as for integration into fully automatic production systems
- Two design variants are available for optimum, ergonomic operation
- Short cycletime for mass production (table use)
- Insertion aid optionally available



WIRE HARNESS | WIRE-TERMINAL

TERMINAL WELDING

In addition to wire to wire connections, ultrasonic welding is ideally suited for the welding of wires on terminals. Different material combinations as well as terminal geometries can be welded. The result is a connection with extremely high strength and outstanding electrical properties.

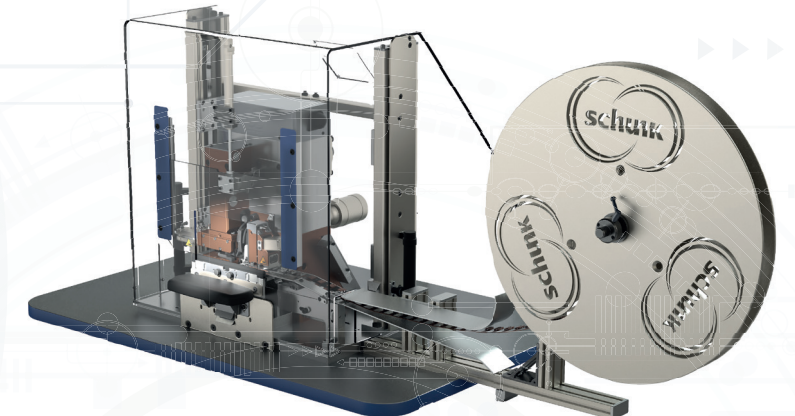


WIRE HARNESS | WIRE-TERMINAL

DS20-III

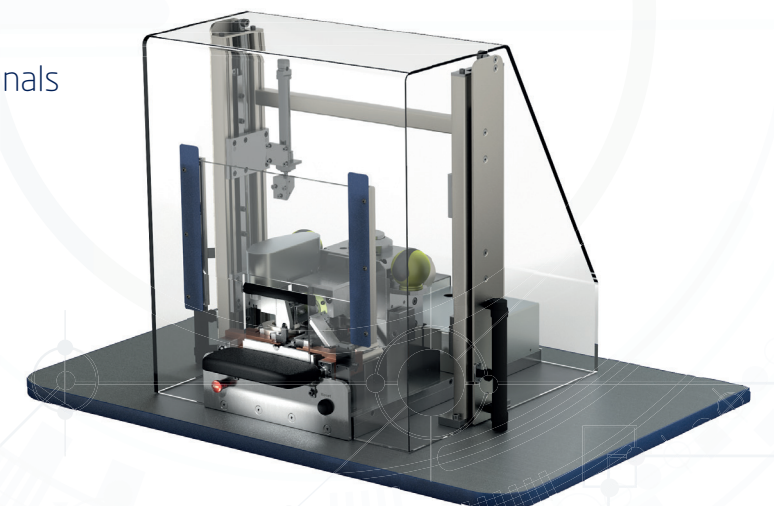
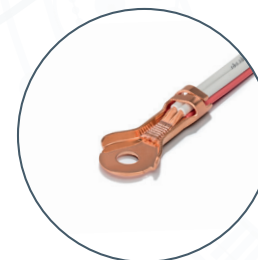
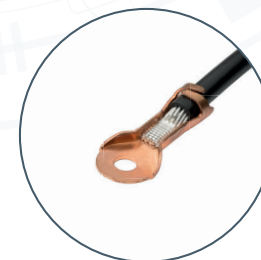
With the DS20-III all common terminals in aluminium and copper can be welded. Thanks to an innovative hood concept, the machine is 360° accessible and therefore very easy to maintain.

- Cross section range: **2,5mm² to 60 mm²**
- Automatic terminal feeding is available in 0°, 90° and 180° versions
- Quick and easy tool change



DS20-GT

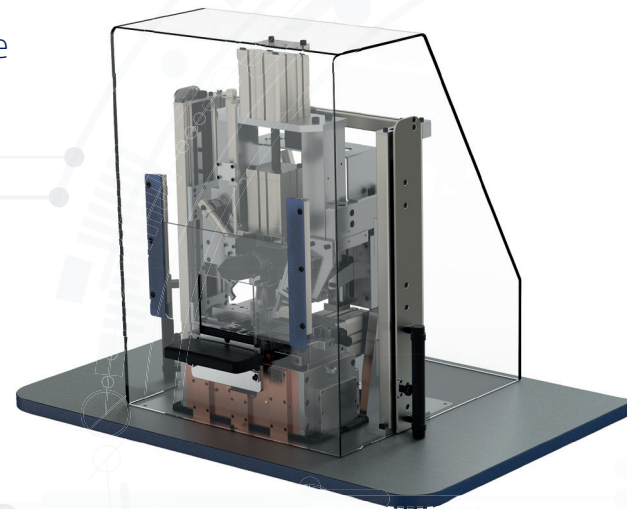
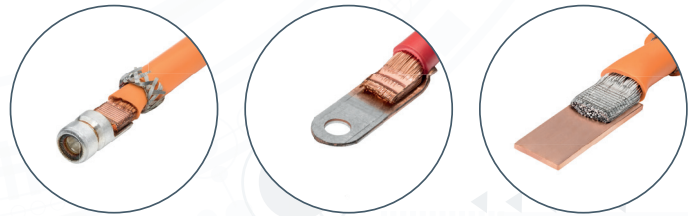
- Cross section range: **1.5 mm² to 25 mm²**
- With insulation crimp
- Applications in the field of ground terminals



DS20-II

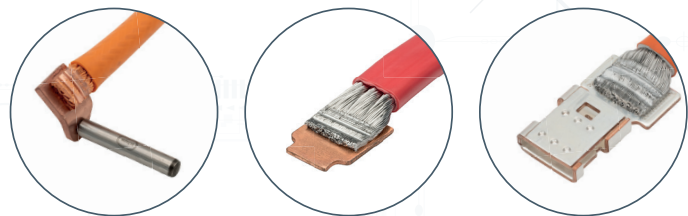
The DS20-II represents a milestone in wire harness production: This machine makes it possible for the first time to weld wires in this cross-sectional area to terminals. The wires can be connected to different contact parts with a precision that is unique in this application area. Thanks to an innovative hood concept, the machine is 360° accessible and therefore very easy to maintain.

- ↪ Cross section range: **6 mm² to 120 mm²**
- ↪ Copper, aluminium and mixed connections are possible
- ↪ With insulation crimp or cutting device
- ↪ Integration into automated production lines possible
- ↪ Optimum accessibility of the welding area



LS-C

- ↪ Cross section range: **6 mm² to 200 mm²**
- ↪ Suitable for numerous terminal applications, such as tubular cable lugs or bus bars
- ↪ Welding of copper and aluminium wires to terminals
- ↪ With insulation crimp and cutting device
- ↪ Integration into automated production lines possible
- ↪ Optimum accessibility of the welding area

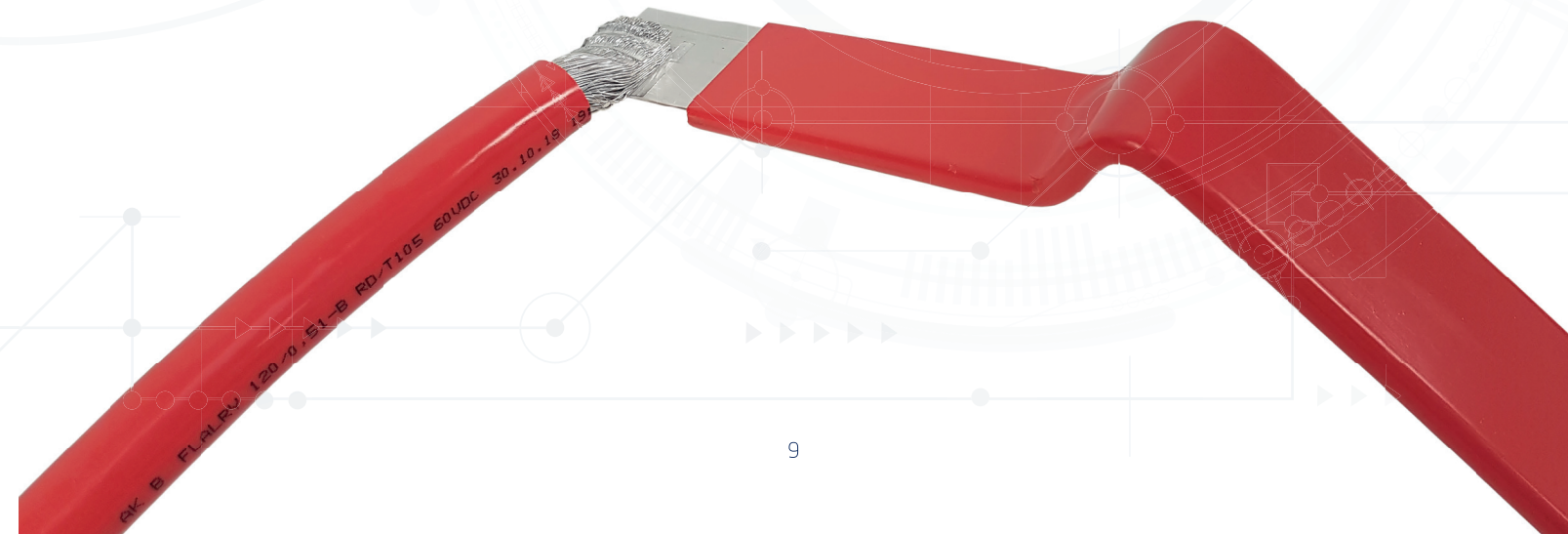
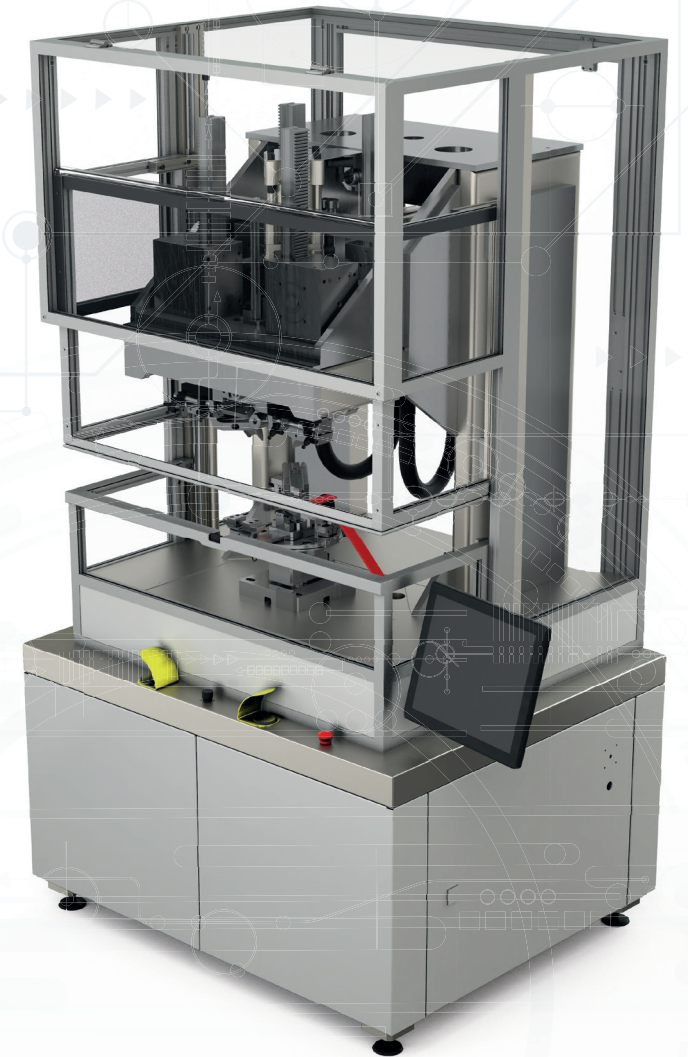


HECTA

HIGH VOLTAGE
E-MOBILITY
COMPLEX SHAPE OF
TERMINALS
ALLROUNDER

NEW APPLICATIONS

NEW POSSIBILITIES



TECHNICAL DATA

SPLICING MACHINES

	MINIC-III	L-SPLICE	GLOBAL SPLICER (GEN.2)
CROSS-SECTIONAL AREA	0,26 - 30 mm²	20 - 100 mm² or 20 - 200 mm²	GS40: 1,5 - 40 mm² or GS60: 4 - 60 mm²
GENERATOR POWER	3 kW	6 kW 9 kW	4 kW 6kW
FREQUENCY	20 kHz	20 kHz	20 kHz
POWER SUPPLY	3 x 400 V, N, PE 16 A or 3 x 220 V, PE 16 A	3 x 400 V, N, PE 16 A (6kW) or 3 x 400 V, N, PE 32 A (9kW)	3 x 400 V, N, PE 16 A (4 6kW) or 3 x 220 V, PE 16 A (4kW)
COMPRESSED AIR	6,5 bar	6,5 bar	6,5 bar
WEIGHT (KG)	ca. 13 (incl. cutting and pneumatic system)	ca. 320	ca. 30



Various options and versions are available for all our splicing and terminal machines. They can be equipped with features such as a camera, a cooling system or an extraction system. There is also the option of different table variants, insertion aids, touchscreens and barcode scanners.

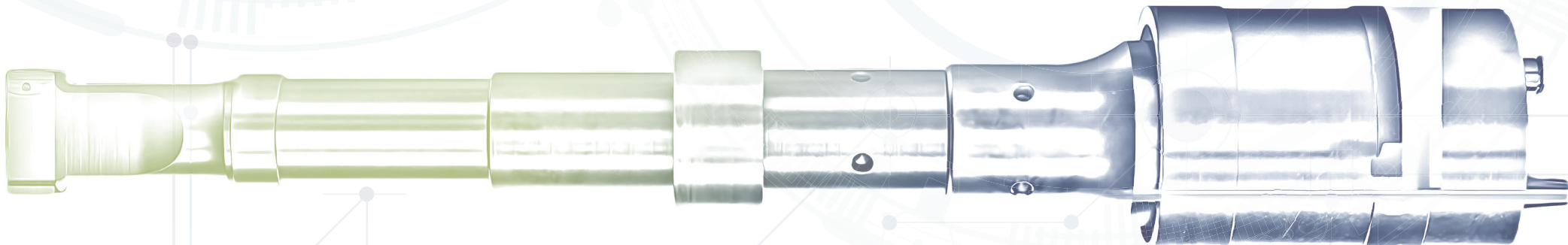
The usage of the equipment and possible splice cross section is depending on the application type and design. The cycle time and production output depends as well on the use cases and can be optimized with additional addons like SonoVac or ConCool. Just contact us!



TECHNICAL DATA

TERMINAL MACHINES

	DS20-III	DS20-GT	DS20-II	LS-C	HECTA
CROSS-SECTIONAL AREA	2,5 to 60 mm²	1,5 - 25 mm²	6 - 120 mm²	6 - 200 mm²	6 - 200 mm²
GENERATOR POWER	4 kW 6kW	3 kW	4 kW 6 kW 9 kW	4 kW 6 kW 9 kW HighPower	4 kW 6 kW 9 kW HighPower
FREQUENCY	20 kHz	20 kHz	20 kHz	20 kHz	20 kHz
POWER SUPPLY	3 x 400 V, N, PE 16 A (4 6kW) or 3 x 220 V, PE 16 A (4kW)	3 x 400 V, N, PE 16 A or 3 x 220 V, PE 16 A	3 x 400 V, N, PE 16 A (4 6 kW) or 3 x 400 V, N, PE 32 A (9kW) or 3 x 220 V, PE 16 A (4 kW)	3 x 400 V, N, PE 16 A (4 6 kW) or 3 x 400 V, N, PE 32 A (9 HighPower) or 3 x 220 V, PE 16 A (4 kW)	3 x 400 V, N, PE 32 A
COMPRESSED AIR	6,5 bar	6,5 bar	6,5 bar	6,5 bar	6,5 bar
WEIGHT (KG)	ca. 300	ca. 150	ca. 600	ca. 900	ca. 1800



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