

## AUTOMOTIVE



## MACHINERY MANUFACTURE



## TELECOMMUNICATIONS



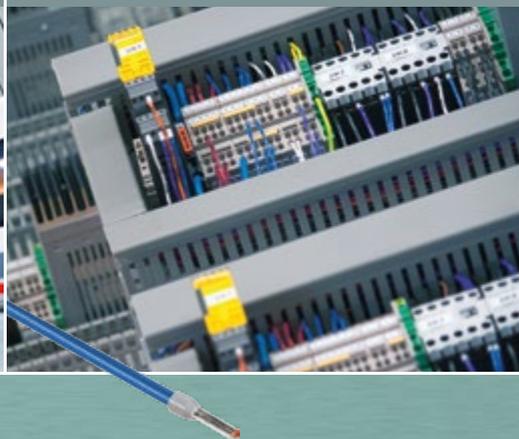
# PRODUCT CATALOGUE

FOR CABLE AND CORRUGATED TUBE PROCESSING

## RAIL VEHICLES



## CONTROL CABINET MANUFACTURE



## NEW TECHNOLOGIES



<b>3</b>	<b>PRECISION MEETS EFFICIENCY</b>
<b>4</b>	<b>METZNER MATERIAL WORLD</b>
<b>5</b>	<b>CUT AND STRIP</b>
5	Metzner AM 2000
6	Metzner AM 3000 Series
10	Metzner AM 5000 Series
13	Processing Possibilities with Metzner AM Machines
<b>14</b>	<b>CABLE SHIELD PROCESSING</b>
15	Metzner CS Series
<b>16</b>	<b>AUTOMATION IN CONTROL CABINET MANUFACTURE</b>
16	Metzner Triathlon System
<b>19</b>	<b>CUT-TO-LENGTH</b>
19	Metzner Cut-to-Length Machines
<b>21</b>	<b>CORRUGATED TUBE PROCESSING</b>
21	Metzner CT 4000 Series and SM 4000
<b>24</b>	<b>CUSTOMER-SPECIFIC SOLUTIONS</b>
24	Planning, Design and Completion to Customers' Requirements
24	Customer-specific Processing Lines
<b>26</b>	<b>MINERAL INSULATED THERMOCOUPLES</b>
26	Metzner Cuting Machines for Mineral insulated Thermocouples
<b>27</b>	<b>PERIPHERAL EQUIPMENT</b>
27	Loop Control Units and Prefeeder
28	Metzner Semi-Automatic Cable-Rack
29	Dereeling and Feeding
30	Metzner Ink Jet 3
31	Printing and Marking
32	Take-off and Coiling
33	Effective Software Solutions
<b>34</b>	<b>METZNER SERVICE</b>
34	Analysis, Concept and Implementation
35	After Sales Service
<b>36</b>	<b>METZNER WORLDWIDE</b>

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## PRECISION MEETS EFFICIENCY

SYSTEM SUPPLIER FOR COMPLETE AND COMPLEX APPLICATIONS

**As a long-time partner of different industry sectors we have a profound understanding of the high demands of modern cable and corrugated tube processing. Today, excellent cutting quality, high length precision and increased productivity at cut-to-length, insulation stripping and crimping are a standard of a Metzner machine. Our innovative concepts for processing and assembly automation increase the performance even further and enable a customer specific design that is perfectly matched to individual requirements.**

Our comprehensive range of machinery for the processing of cables, wires and corrugated tubing extends from economy cut-to-length machines right up to fully-automatic converting lines. Thanks to the modular design of all our machinery, retro-fitting and rapid extension to a full production line is easily possible. With Metzner you are not only well equipped to meet today's demands but also are prepared for whatever the future might bring.

Proven experience and on-going engineering efforts at robotics, sensor systems and IT-integration enable Metzner to develop efficient solutions for complex applications. Including automatic printing or marking systems, systematic take-off, winding and sorting units, pick-and-place solutions, integrated quality monitoring and automatic database management and production statistics.

As a systems provider of complete solutions for your applications in cable and corrugated tube processing, Metzner has a highly capable engineering team with many years of experience and know-how providing convincing and ground-breaking solutions to match your demands and meet your targets for cost, quality and output.

# METZNER MATERIAL WORLD

PERFECT PROCESSING, MATCHED TO MATERIAL CHARACTERISTICS

## Processing of wires and cables:

For processing cable in the range from 0.14 mm<sup>2</sup> to 6.0 mm<sup>2</sup>, wires (up to 1.5 mm<sup>2</sup>) or for crimping of cable ends (0.5 mm<sup>2</sup> up to 2.5 mm<sup>2</sup>), Metzner offers many solutions. For more information: pages 5 and 16 onwards.



## Processing of single-core cables:

For processing of flexible, single-core cables in the range 10 mm<sup>2</sup> to 240 mm<sup>2</sup>, Metzner machines from the AM 3000 and AM 5000 series are used. For more information: page 6 onwards.



## Processing of multi-core cables:

Metzner offers perfect machine solutions with outstanding equipment features for processing multi-core cabling in the diameter range 2.0 mm to 30 mm. For more information: page 5 onwards.



## Processing of shielded cables:

For multi-stage processing of shielded cables, as well as for the cable shield itself, Metzner offers first-class, patented machine solutions. For example for hybrid cables or co-axial cables. More information: page 14 and 24 onwards.



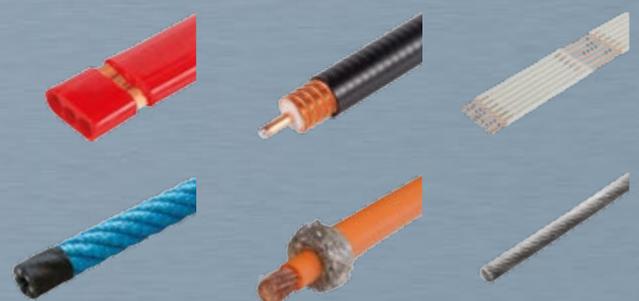
## Processing of semi-rigid cables:

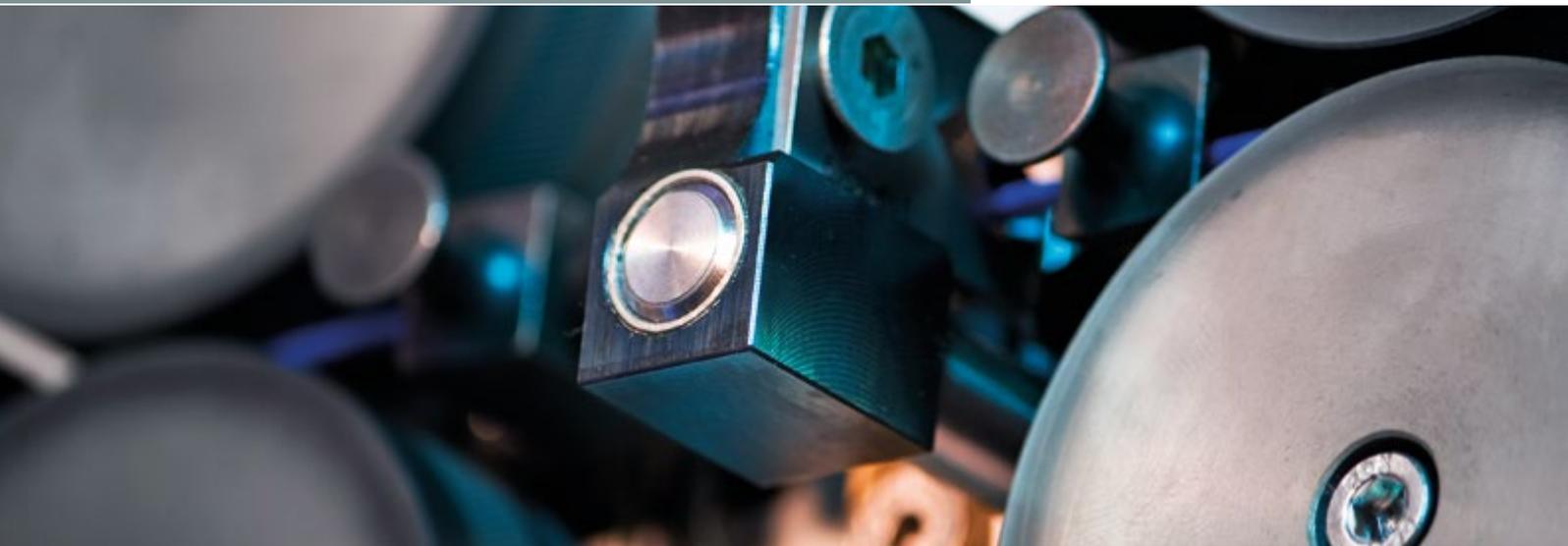
Metzner machines are well suited to multi-stage processing or hard-covered cables or semi-rigid cables such as Sucoform. For more information: page 6 onwards.



## Special materials:

For special materials, such as aluminium battery cabling, silicon motor wiring, rigid high-frequency coaxial cables or steel cables, Metzner offer practically proven solutions. For more information: page 24 onwards.





## METZNER AM 2000

EFFECTIVE WIRE CUT-TO-LENGTH AND STRIPPING TECHNOLOGY

The Metzner AM 2000 automatic cut-to-length and stripping machine processes cable up to 6 mm<sup>2</sup> and wire up to 1.5 mm<sup>2</sup> with high precision and repeatability. For all industry sectors, in which secure processing, flexibility and rapid production in cable converting is demanded, the Metzner AM 2000 offers a standard of equipment which is unique in its price class.

Processing of cable and wire is done with speed and precision. The operator carries out all the cut-to-length and stripping operations via the machine control system with just a few settings. Numerous pre-set functions make for easy set-up and provide many processing possibilities (for more information see page 13). Further special features are the standard automatic end-of-material stop and a standard RS-232 interface, with which the Metzner AM 2000 is equipped for PC-supported working as well as printing.

Before the cut-to-length stripping process, a standard high-spec wire straightener arranges all the braids and wires, which often come from tightly wound spools, to ensure that they are guided into the machine in an orderly fashion. Also, after processing, the Metzner AM 2000 standard specification offers the convenience of a moveable storage tray to provide orderly storage of the finished cables.



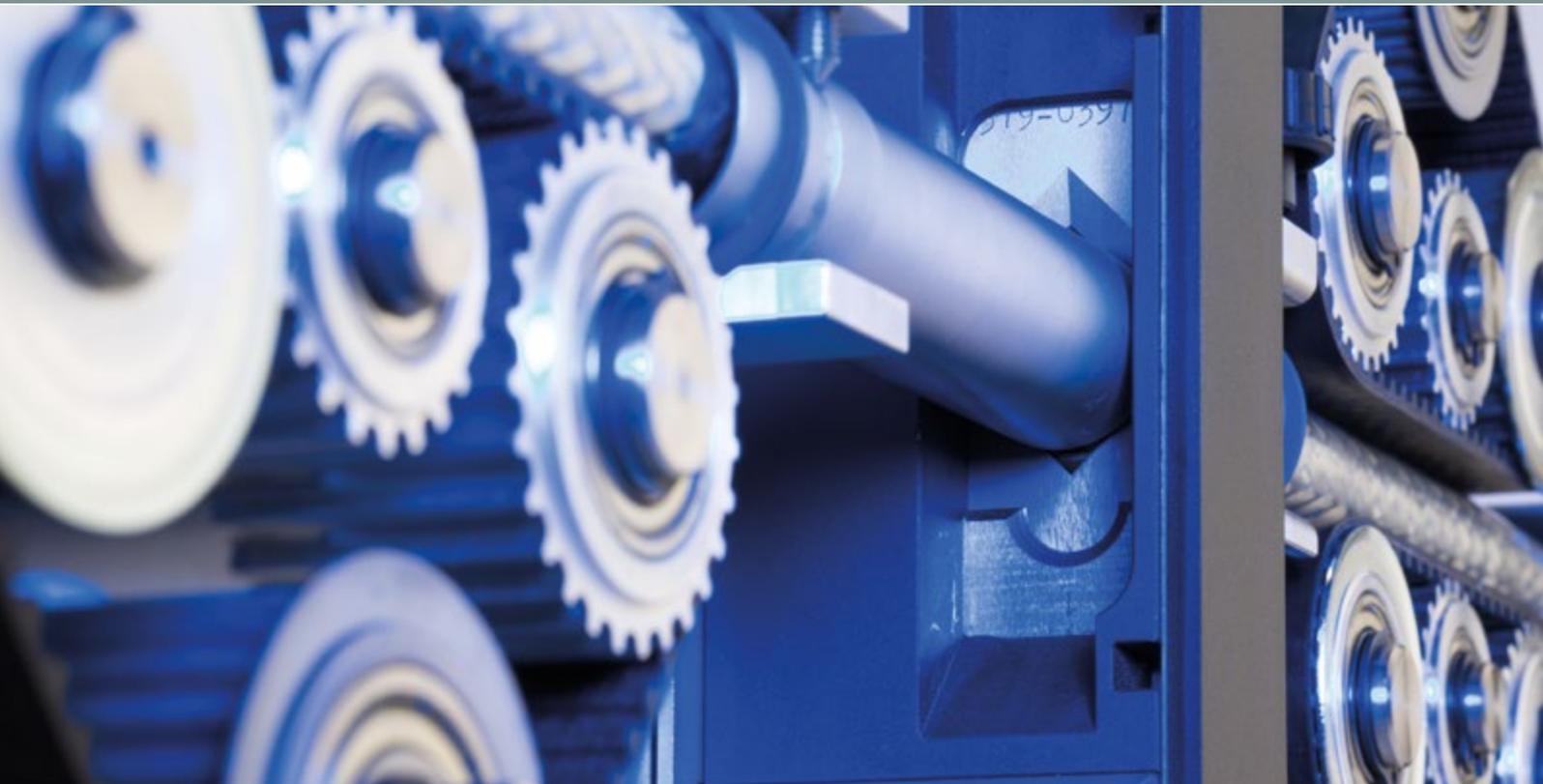
## TECHNICAL DATA

Performance Data	Metzner AM 2000
Cable outer diameter max.	6 mm
Wire size range stranded <sup>1)</sup>	0.14 – 6 mm <sup>2</sup>
Wire size range solid <sup>1)</sup>	0.14 – 1.5 mm <sup>2</sup>
Feeding speed max. <sup>2)</sup>	60 m/min
Pull-off length max. 1st side	70 mm
Pull-off length max. 2nd side	40 mm
Cable length	10 mm – 999 m

Technical Data	
Electrical connection	230 V, 50/60 Hz, 0,26 A
Power source	electric
Dimensions (LxWxH)	615 x 375 x 580 mm
Weight	50 kg

Equipment	
Cutting system	V-blade
Feeding system	Roller feeds
Interfaces for printing	●
Interfaces for peripheral equipment	●
Interfaces for IT network <sup>3)</sup>	●

<sup>1)</sup> depending on material | <sup>2)</sup> infinitely adjustable | <sup>3)</sup> in combination with optional PC | ● = standard, ○ = optional, — = not available  
Specifications are subject to change without notice.



# METZNER AM 3000 SERIES

VERSATILITY AND PERFORMANCE BY DESIGN

**The cable processing machines of the Metzner AM 3000 series stand out by their outstanding cutting and pull-off power and robust, long-life design for continuous industrial use.**

Developed and equipped with a performance potential to deal with complete processing of cables up to 70 mm<sup>2</sup>, these machines offer comprehensive processing possibilities: from standard stripping processes up to multi-stage stripping, even of very short shielded coaxial cables. Metzner offers seven models for this, all with different cutting powers and equipment levels. In addition, their blade technologies vary with different blade contours to suit the requirements of different applications. The patented »Double-Blade Cutting System«, for example, with two knives operating together in one working pass to perform different cutting processes (see page 13) and the additional rotary cut, providing precise circumferential cutting for cables with very thin or tough insulation and for coaxial cables.

All models in the Metzner AM 3000 series are prepared – as standard – for a full set of interfaces for peripheral equipment and to facilitate IT integration. In this way, these machines are converted easily and without the need for further design work into complete production lines (see page 12) to further increase production automation.





## Metzner AM 3500

The versatile Base Model. The top performer in terms of power and speed for cables up to 50 mm<sup>2</sup>:

- Automatic cut-to-length and multi-stage stripping
- »Double-Blade Cutting System«
- V-blade (HSS) as standard
- Roller or belt transport as standard
- PC-controlled or PLC-controlled production as an option



## Metzner AM 3700

Powerful processing of cables up to 70 mm<sup>2</sup> and a diameter up to 15 mm:

- Automatic cut-to-length and multi-stage stripping
- »Double-Blade Cutting System«
- V-blade (HSS) as standard
- Roller or belt transport as standard
- PC-controlled or PLC-controlled production as an option

Machines without rotary cutting module



## Metzner AM 3800

Cut-to-length and cut-and-strip of the next generation. Top-of-its-class performance for cables up to 70 mm<sup>2</sup> and a diameter up to 20 mm:

- Automatic cut-to-length and multi-stage stripping
- »Double-Blade Cutting System«
- V-blade (HSS) as standard
- Belt transport as standard
- Integrated PC-Control



## Metzner AM 3800 production line with the following features:

- PC-controlled production
- Dereeling unit with material accumulator to provide tension-free material transport.
- Integrated cable ring coiler Metzner CPC 400



### Metzner AM 3550

The Base Model – a perfect combination of power and speed for cables up to 50 mm<sup>2</sup>:

- Rotary cutting module
- Automatic cut-to-length and multi-stage stripping (see page 13)
- »Double-Blade Cutting System«
- V-blade (HSS) as standard
- Roller or belt transport as standard
- PC-controlled or PLC-controlled production as an option



### Metzner AM 3550 Semi-Rigid

The »Precision Model« for complex and very short lengths down to 20 mm:

- 3-stage stripping down to very short lengths of 20 mm
- Rotary cutting module for very short insulation lengths – also for coaxial cables
- Automatic cut-to-length and multi-stage stripping (see page 14)
- V-blade (HSS) as standard
- Belt transport as standard
- PC-controlled or PLC-controlled production as an option



### Metzner AM 3750

For demanding and complex processing of cables up to 70 mm<sup>2</sup> and a diameter of 15 mm:

- Rotary cutting module
- Automatic cut-to-length and multi-stage stripping (see page 13)
- »Double-Blade Cutting System«
- V-blade (HSS) as standard
- Roller or belt transport as standard
- PC-controlled or PLC-controlled production as an option



### Metzner AM 3850

Cable processing of the next generation. With rotary cutting for challenging and complex cables up to 70 mm<sup>2</sup> and a diameter of 20 mm:

- Automatic cut-to-length and multi-stage stripping (see page 13)
- Rotary cutting module
- »Double-Blade Cutting System«
- V-blade (HSS) as standard
- Belt transport as standard
- Integrated PC-Control

## TECHNICAL DATA

Performance data	Metzner AM 3500	Metzner AM 3700	Metzner AM 3800
Cable outer diameter max.	15 mm	15 mm	20 mm
Cable size range stranded <sup>1)</sup>	0.5 – 50 mm <sup>2</sup>	0.5 – 70 mm <sup>2</sup>	0.5 - 70 mm <sup>2</sup>
Cable size range solid <sup>1)</sup>	0.5 – 10 mm <sup>2</sup>	0.5 – 16 mm <sup>2</sup>	0.5 - 16 mm <sup>2</sup>
Feeding speed max. <sup>2)</sup>	180 m/min	180 m/min	180 m/min
Pull-off length 1 <sup>st</sup> side <sup>3)</sup>	210 mm	210 mm	210 mm
Pull-off length 2 <sup>nd</sup> side	110 mm	110 mm	110 mm
Cable length	20 mm – 999 m	20 mm – 999 m	20 mm – 999 m

Specifications			
Electrical connection	230 V, 50/60 Hz, 1,8 A	230 V, 50/60 Hz, 1,8 A	230 V, 50/60 Hz, 2 A
Dimensions (LxWxH)	765 x 705 x 500 mm	765 x 705 x 500 mm	690 x 710 x 565 mm
Compressed air connection	6 bar	6 bar	6 bar
Weight	130 kg	135 kg	100 kg

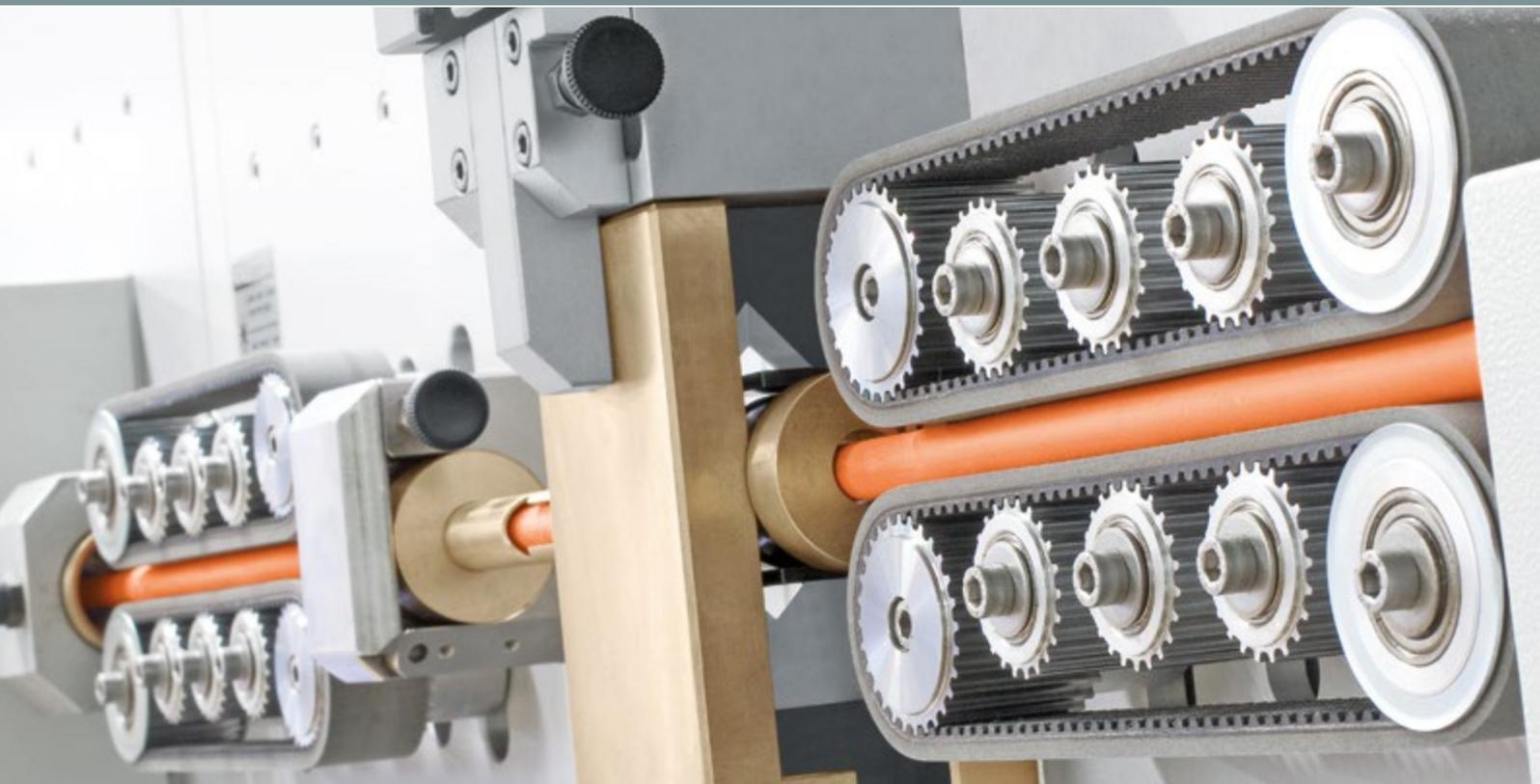
Equipment			
Cutting system	Double-blade	Double-blade	Double-blade
Feeding system	Belt or roller feeds	Belt or roller feeds	Belt or roller feed
Control	PC / PLC	PC / PLC	PC / PLC
Interfaces for printing <sup>4)</sup>	●	●	●
Interfaces for peripheral equipment	●	●	●
Interfaces for IT network <sup>4)</sup>	●	●	●

Performance data	Metzner AM 3550	AM 3550 Semi-Rigid	Metzner AM 3750	Metzner AM 3850
Cable outer diameter max.	15 mm	8 mm	20 mm	20 mm
Cable size range stranded <sup>1)</sup>	0.5 – 50 mm <sup>2</sup>	0.5 – 6 mm <sup>2</sup>	0.5 - 70 mm <sup>2</sup>	0.5 - 70 mm <sup>2</sup>
Cable size range solid <sup>1)</sup>	0.5 – 10 mm <sup>2</sup>	0.5 – 1.5 mm <sup>2</sup>	0.5 - 16 mm <sup>2</sup>	0.5 - 16 mm <sup>2</sup>
Feeding speed max. <sup>2)</sup>	180 m/min	30 m/min <sup>3)</sup>	180 m/min	180 m/min
Pull-off length 1 <sup>st</sup> side <sup>3)</sup>	210 mm	40 mm	210 mm	210 mm
Pull-off length 2 <sup>nd</sup> side	110 mm	40 mm	110 mm	110 mm
Cable length	20 mm – 999 m	20 mm – 1000 mm	20 mm – 999 m	20 mm – 999 m

Specifications				
Electrical connection	230 V, 50/60 Hz, 1,8 A	230 V, 50/60 Hz, 2,1 A	230 V, 50/60 Hz, 2 A	230 V, 50/60 Hz, 2 A
Dimensions (LxWxH)	765 x 705 x 500 mm	835 x 710 x 500 mm	690 x 710 x 565 mm	885 x 775 x 565 mm
Compressed air connection	6 bar	6 bar	6 bar	6 bar
Weight	130 kg	160 kg	100 kg	130 kg

Equipment				
Cutting system	Double-blade and Rotary cut	V-blade and Rotary cut	Double-blade and Rotary cut	Double-blade and Rotary cut
Feeding system	Belt or roller feeds	Belt feeds	Belt or roller feed	Belt feed
Control	PC / PLC	PC / PLC	PC / PLC	PC / PLC
Interfaces for printing <sup>4)</sup>	●	●	●	●
Interfaces for peripheral equipment	●	●	●	●
Interfaces for IT network <sup>4)</sup>	●	●	●	●

<sup>1)</sup> depending on material | <sup>2)</sup> infinitely adjustable | <sup>3)</sup> reduced speed due to extreme precision | <sup>4)</sup> machine height with controls 710mm | <sup>5)</sup> in combination with optional PC  
 ● = standard, ○ = optional, — = not available | Specifications are subject to change without notice.



# METZNER AM 5000 SERIES

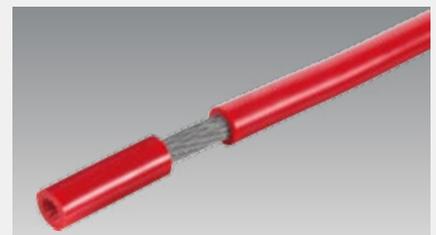
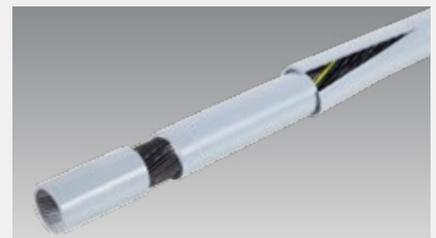
POWER, PRECISION AND VERSATILITY FOR CABLES UP TO 240 MM<sup>2</sup>

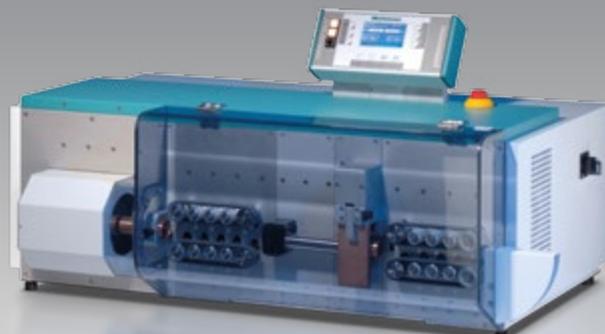
**For production where large diameter cables are processed reliably and with precision, the Metzner AM 5000 series is available, giving a solution with the highest level of cutting and pull-off power, ease of operation and long service life.**

The Metzner AM 5000 series was specially developed for cables up to 30 mm diameter and sections up to 240 mm<sup>2</sup>. The particularly high-torque and powerful 3-phase stepper motors are guaranteed to give the necessary power for the pull-off and cutting operations. Their precise finger-tip way of working also makes the Metzner 5000 series suitable for processing thinner cables from 1,5 mm<sup>2</sup> (all processing possibilities on page 13).

All models are equipped with an electronically controlled »Vario-Press«. This innovative system ensures that the belt closing pressure of the feeders is matched with the necessary applied pulling force in fractions of a second. This ensures optimum gripping pressure of the cables both for stripping and forward feeding of the cables.

To ensure unbroken, automatic production, the material feed is monitored by several sensors. If a material blockage occurs, the production is stopped automatically and the operator is informed about the cause of the stoppage.





## Metzner AM 5300 / AM 5300 HD

**Outstanding level of cutting and pull-off power, many processing possibilities for cables up to 240 mm<sup>2</sup>:**

- Electronic cable processing machine
- Automatic cut-to-length and multi-stage stripping (see page 14)
- Patented »Double Blade« system as standard
- Double system monitoring as standard
- Comprehensive memory capacity for cable processing programs, which are available at the press of a button
- Powerful »Heavy-Duty« version for very thick and hard to process cables

## Metzner AM 5350

The »Top-Of-The-Class« machine, equipped with rotary cutting module for processing cables up to 185 mm<sup>2</sup>:

- All features of the Metzner AM 5300, plus:
- Rotary cutting module for processing shielded cables, hybrid cables, control cables with thin covering and many other applications

# TECHNICAL DATA

Performance Data	Metzner AM 5300	Metzner AM 5300 HD	Metzner AM 5350
Cable outer diameter max.	30 mm	30 mm	30 mm
Cable size range stranded <sup>1)</sup>	1.5 – 185 mm <sup>2</sup>	1.5 – 240 mm <sup>2</sup>	1.5 – 185 mm <sup>2</sup>
Cable size range solid <sup>1)</sup>	1.5 – 16 mm <sup>2</sup>	1.5 – 16 mm <sup>2</sup>	1.5 – 16 mm <sup>2</sup>
Feeding speed max. <sup>2)</sup>	150 m/min	150 m/min	150 m/min
Pull-off length full strip 1st side	270 – 450 mm	270 – 450 mm	270 – 450 mm
Pull-off length full strip 2nd side	90 – 270 mm	90 – 270 mm	90 – 270 mm
Pull-off length partial strip max. 1st side	450 mm	450 mm	450 mm
Pull-off length partial strip max. 2nd side	270 mm	270 mm	270 mm
Cable length	20 mm – 999 m	20 mm – 999 m	20 mm – 999 m

Technical Data	Metzner AM 5300	Metzner AM 5300 HD	Metzner AM 5350
Electrical connection	3~400 V, 50/60 Hz, 2,6 A	3~400 V, 50/60 Hz, 2,6 A	3~400 V, 50/60 Hz, 2,8 A
Power source	electric	electric	electric
Compressed air connection	—	—	—
Dimensions (LxWxH) <sup>3)</sup>	1045 x 860 x 500 mm	1045 x 860 x 500 mm	1445 x 860 x 500 mm
Weight	180 kg	200 kg	250 kg

Equipment	Metzner AM 5300	Metzner AM 5300 HD	Metzner AM 5350
Cutting system	Double-blade	Double-blade	Double-blade and Rotary cut
Feeding system	Belt feeds	Belt feeds	Belt feed
System monitoring	●	●	●
Interfaces for printing	●	●	●
Interfaces for peripheral equipment	●	●	●
Interfaces for IT network <sup>4)</sup>	●	●	●

<sup>1)</sup> depending on material | <sup>2)</sup> infinitely adjustable | <sup>3)</sup> machine height with controls 710mm | <sup>4)</sup> in combination with optional PC

● = standard, ○ = optional, — = not available | Specifications are subject to change without notice.



**Metzner AM 3550 line with the following features:**

- PC-controlled production
- Integration of an ink-jet printer for the efficient marking of cables
- Dereeling unit with material accumulator, belt conveyor and loop control for a tension free material transport
- Take-Off unit with belt conveyor for systematic material take-off.



**Metzner AM 3700 line with the following features:**

- PC-controlled production
- Integrated ink-jet printer for loss-free marking of the cables (no waste when changing material)
- Dereeling unit with material accumulator to provide tension-free material
- Modified CRC 350 cable ring coiler, automatic take-off and bundling station with freely-programmable robot handling



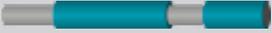
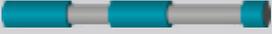
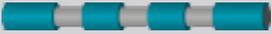
**Metzner AM 5300 line with the following features:**

- Integration of a »Metzner AM 5300 HD«
- Metzner DR 12.1000 with accumulator arm for cable feeding
- Fully automatic cut-to-length and stripping of cables up to 240mm<sup>2</sup>
- Integration of a heavy-duty wire straightener for twist-free feeding
- PC-controlled production - Cable coiling with a Metzner CRC 750
- Marking with separate label printer



**Metzner AM 5350 line with the following features:**

- PC-controlled production
- Integration of an ink-jet printer for the efficient marking of cables
- Belt conveyor and loop control for a tension free material transport
- Integrated cable ring coiler

Bearbeitungsmöglichkeiten mit Metzner AM-Maschinen		AM 2000	AM 3500	AM 3700	AM 3800	AM 3550	AM 3550 SR	AM 3750	AM 3850	AM 5300	AM 5300 HD	AM 5350
	Cut-to-length	●	●	●	●	●	●	●	●	●	●	●
	Stripping with partial and full pull-off	●	●	●	●	●	●	●	●	●	●	●
	Window stripping	—	●	●	●	●	●	●	●	●	●	●
	Extremely long pull-off in multiple stages	—	●	●	●	●	●	●	●	●	●	●
	Jacket stripping of multi conductor cables	—	●	●	●	●	●	●	●	●	●	●
	Flat ribbon stripping and inner strands processing <sup>1)</sup>	—	○	○	○	○	—	○	○	○	○	○
	Incise cutting and length slitting	—	●	●	●	●	●	●	●	●	●	●
	Stripping of very thin insulations	—	●	●	●	●	●	●	●	●	●	●
	Metal braid stripping with protection cap	—	●	●	●	●	●	●	●	●	●	●
	Multi-step stripping	—	●	●	●	●	●	●	●	●	●	●
	Multi-step processing of coaxial cables	—	—	—	—	●	●	●	●	—	—	●

<sup>1)</sup> depending on material | ● = standard, ○ = optional, — = not available | Specifications are subject to change without notice.

## BLADE TYPES



Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 1 **V-blade** for cable cut-to-length

Fig. 2 **Radius V-blade** for cut-to-length and stripping

Fig. 3 **Double radius V-blade** for cutting through very thick cables

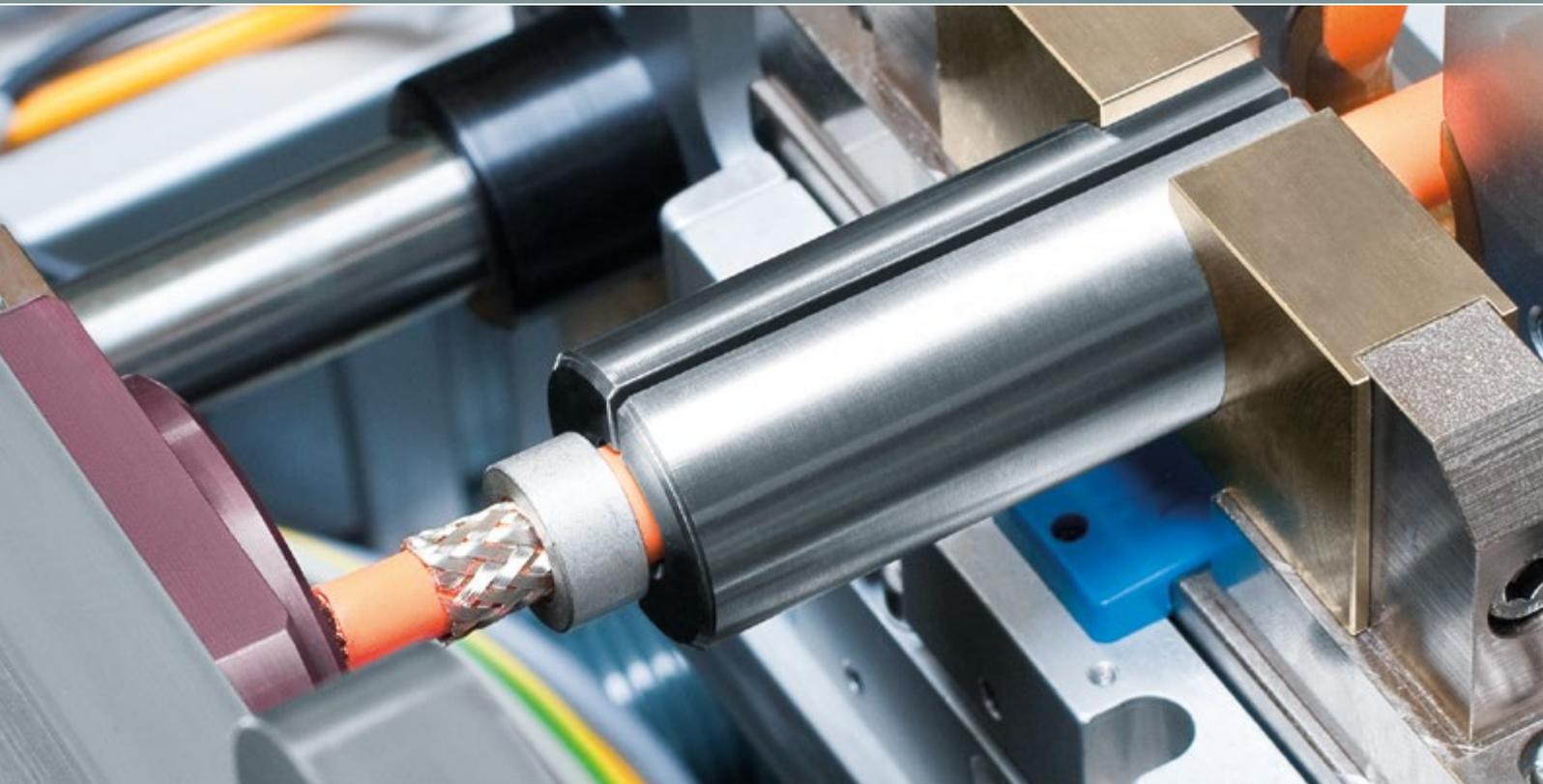
Fig. 4 **Radius blade** for stripping the insulation

Fig. 5 **Slitting blade** for lengthways slitting of the insulation

Fig. 6 **Flat blade** for processing flat cables

Fig. 7 **Customer-specific profile blade** for processing very thin wire and other demanding processes

The blades shown are some examples. For every type of cable, there are many different blades, which are matched to your specific requirements.



# METZNER CABLE SHIELD PROCESSING

PATENTED PROCESS FOR AUTOMATIC CABLE SHIELD PROCESSING WITH HIGHEST PRECISION

**The semi-automatic cable shield processing machines »Metzner CS-10« and »Metzner CS-20« are patented solutions for quick and extremely precise processing of cable shields and cable braids.**

Developed for cable shield processing in hybrid and electric vehicles, this machine uses a unique process to provide complete cable shield processing: Opening the cable shield, cutting, folding down and stripping the outer sheath or inner conductor.

With the »CS-10« and »CS-20« Metzner offers two processing concepts that define itself by the outer diameter of the cable. For all cables up to 20 mm in diameter the shielding braid is opened by a patented procedure before it is cut and everted. Cables with an inner conductor can then be stripped easily. This process is reversed for smaller cables up to 8 mm in diameter: Stripping of the outer sheath first, then opening, everting and cutting of the cable shield. Additionally, a precise cut-to-length is possible for cables up to 8 mm in diameter.

All processes are designed to eliminate damaging the sheath, the inner insulation or the shielding braid. The user-friendly control panel can be used to programme many parameters including pull-off length and insertion path.





## Metzner CS - 10

- Automatic processing of the cable shielding braid with consistent processing quality
- Opening the cable shield
- Cut the cable shield to length und everting the cable shield
- Stripping of the cable sheath, inner conductor or insulating material
- Processing of cables up to 8 mm in diameter
- Integrated end-cutting
- Extremely fast and superior cycle time compared to similar processing methods.

## Metzner CS - 20

- Automatic processing of the cable shielding braid with consistent processing quality
- Opening the cable shield
- Cut the cable shield to length und everting the cable shield
- Stripping of the cable sheath, inner conductor or insulating material
- Processing of cables up to 20 mm in diameter
- Integrated end-cutting for cables up to 8 mm in diameter
- Fast and superior cycle time compared to similar processing methods.

## TECHNISCHE DATEN

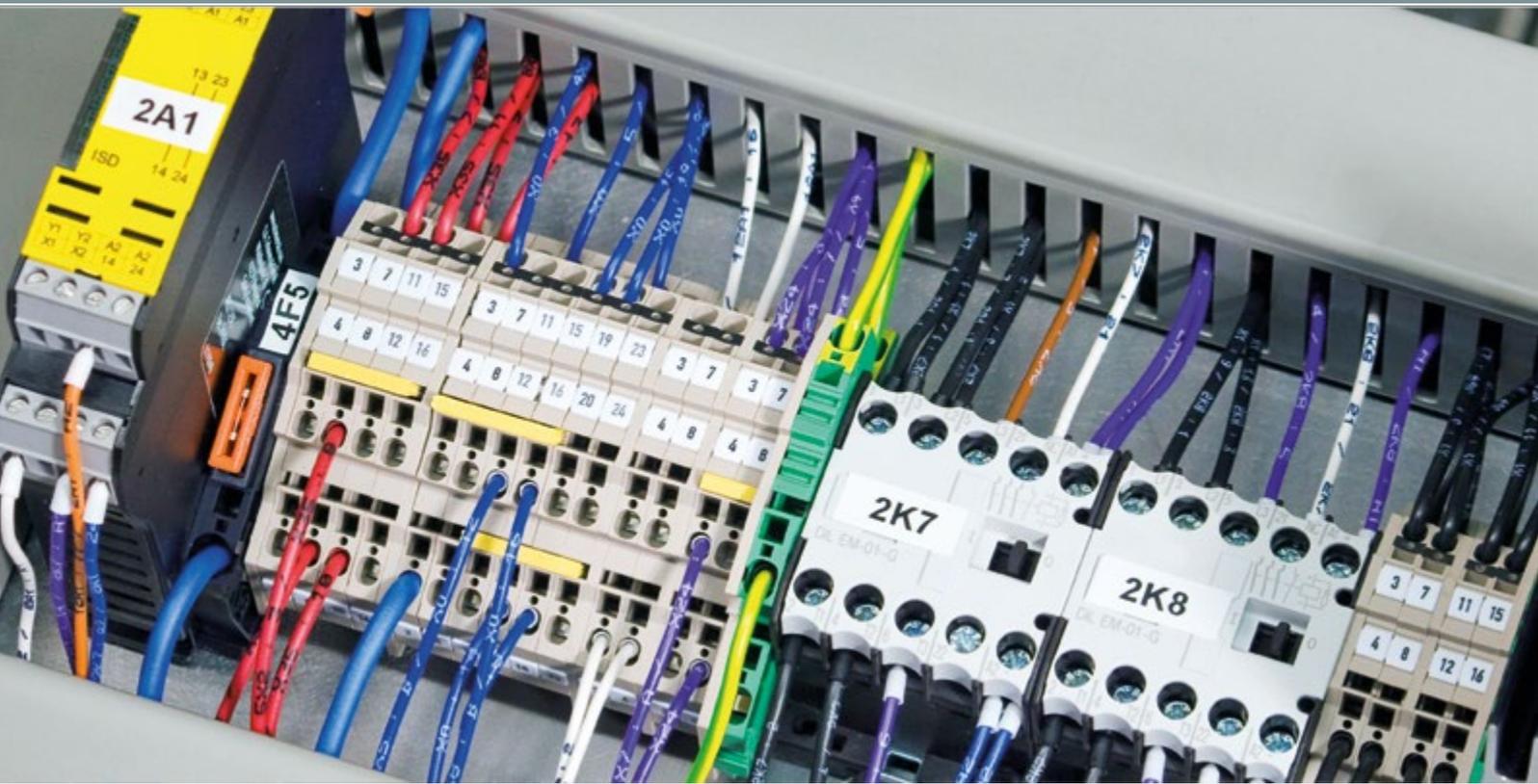
Performance data	Metzner CS-10	Metzner CS-20
Max. cable outer diameter	8 mm	20 mm
Opening the cable shield: Starting position	0 - 10 mm	0 - 10 mm
Opening the cable shield: Interim steps <sup>1)</sup>	0 - 5 mm	0 - 5 mm
Opening the cable shield: Number of indentation processes <sup>1)</sup>	20	20
Opening the cable shield: Indentation depth <sup>1)</sup>	0 - 5 mm	0 - 5 mm
Cutting teh Cable shield: max. length	fixed, defined by tool	fixed, defined by tool
End cut <sup>2)</sup>	0 - 5 mm	0 - 5 mm
Stripping length of inner conductor / outer sheath	0 - 15 mm	0 - 15 mm
Length of shield to open <sup>2)</sup>	25 mm	25 mm

Specifications	Metzner CS-10	Metzner CS-20
Electrical connection	230 V, 50/60 Hz, 1,5 A	230 V, 50/60 Hz, 1,5 A
Dimensions (LxWxH)	620 x 880 x 1265 mm	620 x 880 x 1265 mm
Compressed air connection	6 bar	6 bar
Weight	200 kg	200 kg

Equipment	Metzner CS-10	Metzner CS-20
Cutting system	Double-blade	Double-blade
Control	PLC	PLC
Process monitoring	●	●

<sup>1)</sup> infinitely adjustable | <sup>2)</sup> depending on material

● = standard, ○ = optional, — = not available | Specifications are subject to change without notice..



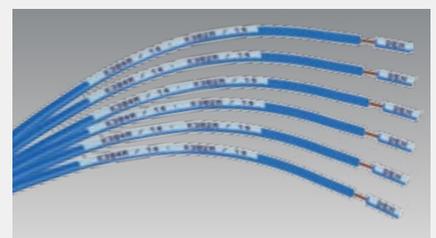
# METZNER TRIATHLON SYSTEM

AUTOMATION AND COST REDUCTION IN CONTROL CABINET MANUFACTURE

**Automation in control cabinet manufacture is not only a worthwhile proposition for long production runs. Particularly for single component and small series production, considerable economies and improvements in efficiency can be achieved by the adoption of an automatic converting processes.**

With the Triathlon System, Metzner offers a unique and complete system solution for reducing your costs in the manufacture of control cabinets. Dependent on the actual requirements, different solutions are available to you, solutions which differ in their construction, performance and their degree of automation. From the budget-level »Triathlon 2000« up to the flexible and fast »Triathlon 3000+«, we can offer you the right solution to match your requirements.

All Triathlon models cut cables and strands to the correct length, strip the wires at the precise positions and crimp the cable end terminals. At the same time, they add freely-programmable text and logos and take-off the processed material according to pre-arranged sorting programs. Not only in the cutting and preparation of the cables but also in the subsequent wiring of the control cabinets, you save valuable time and costs: Because all the cables are printed and pre-sorted into their component groups, the cabinet wiring can be carried out considerably faster than previously. In addition, the number of wiring faults is reduced to virtually zero.





## Metzner Triathlon 2000

The economy entry-level model »Triathlon 2000« is equipped for all the principal automation processes in control cabinet manufacture:

- Precision cut-to-length stripping and single or double-sided stripping
- Crimping of cable ends (single or double-sided)
- Individual printing of the wires (ink jet printing with one or two printers, thermal transfer printing and Brady Wraptor printing – more information on page 27)



## Metzner Triathlon 3000

With similar equipment to the »Triathlon 2000«, the »Triathlon 3000« offers further outstanding features:

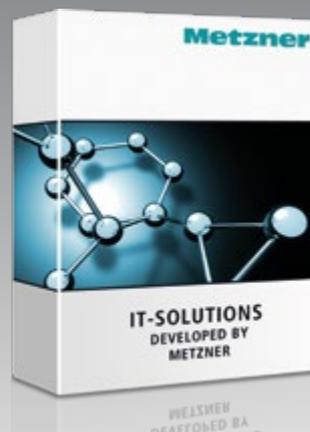
- All features of the Metzner »Triathlon 2000« plus:
- Total performance spectrum of the Metzner AM 3000 series (see page 9) i.e. processing of cables up to 35 mm<sup>2</sup> and up to 15mm outer diameter
- Multi-stage cable processing and lengthways slitting unit
- Automatic printing of all cables and wires in normal use for control cabinets



## Metzner Triathlon 3000+

The modular extendable version of the »Triathlon 3000« system with the following features:

- All features of the Metzner »Triathlon 3000«, plus:
- Equipped with a modular crimping unit for a fast extension of the processing possibilities
- Extension of the maximum cross section to crimp up to 4 mm<sup>2</sup> or 6 mm<sup>2</sup>.



## Metzner Triathlon Soft®

The simple, easy-to-follow software package for the digital creation of a control cabinet layout:

- Production of all the data required for the subsequent automatic machining
- Compatible with all commonly-used drilling centres
- Comprehensive and problem-free import and export functions: e.g. for EPLAN, Elcad, Ruplan, Siggraph-ET, Caddy, ECD-Cad, ESP, TreeCad and lots more

# TECHNICAL DATA

Performance Data	Metzner Triathlon 2000	Metzner Triathlon 3000	Metzner Triathlon 3000+
Wire outer diameter max.	4 mm with crimping, 6 mm w/o crimping	4 mm with crimping, 15 mm w/o crimping	4 mm with crimping, 15 mm w/o crimping
Cross section wire cutting to length <sup>1)</sup>	0.14 mm <sup>2</sup> – 6 mm <sup>2</sup>	0.5 mm <sup>2</sup> – 35 mm <sup>2</sup>	0,5 mm <sup>2</sup> – 35 mm <sup>2</sup>
Cross section wire crimping max. <sup>1)</sup>	2.5 mm <sup>2</sup> , optional: 4 mm <sup>2</sup>	2.5 mm <sup>2</sup> , optional: 4 mm <sup>2</sup>	2,5 mm <sup>2</sup> , optional: 4 mm <sup>2</sup> and 6 mm <sup>2</sup>
Wire length min. <sup>2)</sup>	160 mm	250 mm	250 mm
Wire length max.	999 m	999 m	999 m
Stripping length max. side 1	70 mm	220 mm	220 mm
Stripping length max. side 2	40 mm	170 mm	170 mm
Feeding speed max.	1 m/sec	2 m/sec <sup>3)</sup>	2 m/sec <sup>3)</sup>
Numbers of crimping stations	1	1	1
Printing systems	One or two ink jet printers, thermal transfer printer, Brady-Wraptor	One or two ink jet printers, thermal transfer printer, Brady-Wraptor	One or two ink jet printers, thermal transfer printer, Brady-Wraptor

Technical Data			
Electrical connection	230 V, 50/60 Hz, 1,4 A	230 V, 50/60 Hz, 3,1 A	230 V, 50/60 Hz, 3,1 A
Compressed air connection	6 bar	6 bar	6 bar
Noise level w/o material	< 75 dB(A)	< 75 dB(A)	< 75 dB(A)
Dimensions (LxWxH)	1450 x 1050 x 1450 mm	1750 x 1100 x 1520 mm	1750 x 1100 x 1520 mm
Weight	200 kg	250 kg	250 kg

Equipment			
Cutting system	V-blade	Double-blade	Double-blade
Feeding system	Roller feeds	Belt feeds	Belt feeds
Interfaces for printing	●	●	●
Interfaces for peripheral equipment	●	●	●
Interfaces for IT network <sup>5)</sup>	●	●	●

<sup>1)</sup> depending on material | <sup>2)</sup> shorter lengths possible without crimping and stripping | <sup>3)</sup> higher speeds possible without printing | <sup>4)</sup> with closed cover | <sup>5)</sup> in combination with integrated PC

● = standard, ○ = optional, — = not available | Specifications are subject to change without notice.

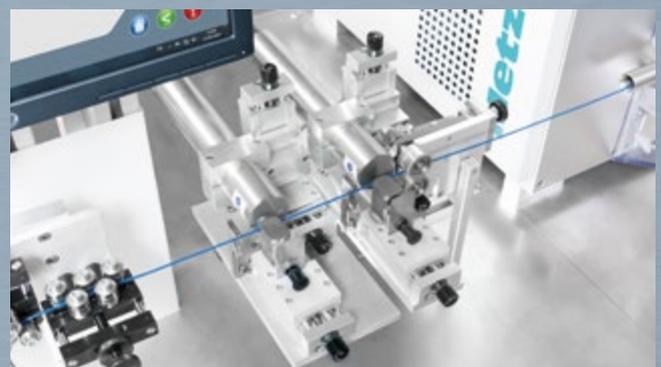
## Intelligent software

Triathlon Soft® starts with the control cabinet layout and automatically calculates the lengths for all the wires, cable trays and cable ducts. At the same time, Triathlon Soft® produces all the data for the printing of the cables and the machining of the assembly baseplates. Via an interface to its CAE system, the software collects all the necessary data in the form of wiring lists, sub-assembly lists or terminal lists and processes them on this basis into a production-orientated layout for the control cabinet.

Triathlon Soft® is compatible with all commonly-used drilling centres and automatically creates all the data for the mechanical processing of the assembly baseplates. All the NC-data for automatic machining are produced by working from the construction plan and an optimised interface transfers the data to a drilling and milling machine.

## A choice of printing systems

Wires and cables used in control cabinets typically require individual identification and marking. To meet the different requirements, Metzner offers different printing and marking processes: Ink jet printing (more information on page 30), thermal transfer printing and Brady Wraptor printing (more information on page 31).





## CUT-TO-LENGTH MACHINES

HANDY BENCH MODELS WITH OUTSTANDING PRICE/PERFORMANCE RATIO

Metzner cutting to length machines are robust and reliable base models. Depending on the material the machines are equipped with the correct cutting technology (die cut, shear cut, tube cut) which can be changed very easily. According to your demand there is a choice of three different machine equipment levels: »Red«, »Green« and »Blue«.

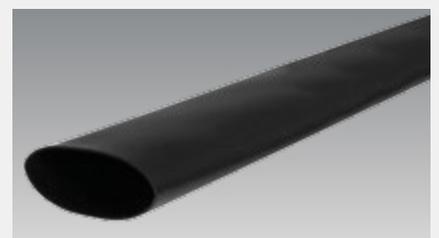
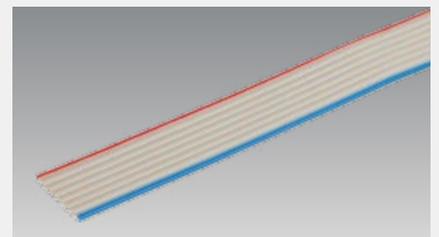
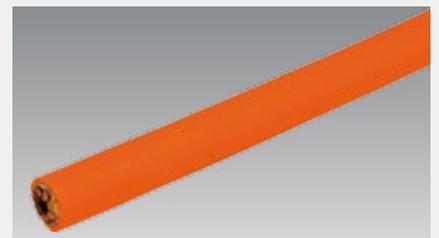
All universal cutting machines are designed for automatic cut-to-length and cutting of a wide spectrum of materials. For wires, cables, braids and also shrink sleeves, flexible profiles, tubes, plastic pipe, lace, seals, the universal cutting machines deliver precise results with good cut quality and high working speeds.

The three equipment levels Red – Green – Blue are differentiated by the following features:

**Red:** The least expensive version with solid and robust basic functions, a reduced specification, a lower-cost control system and a lower – but for many applications quite adequate – working speed.

**Green:** Stands for a complete fully-equipped version, a control system with more operator-friendly features, higher working speeds and torque capability.

**Blue:** Stands for a complete fully-equipped version, a control system with more operator-friendly features, higher working speeds and torque capability.





### Metzner Variocut

The high-performance »Universal cutting machine« with excellent pulling and cutting force for cables and other materials, e.g. shrink sleeves and cable protective materials up to 30 mm diameter:

- Optimal for versatile applications with frequent changes
- Material changeover in less than three minutes
- PLC controls with CoDeSys programming
- Stepper motor for exact positioning and variable speeds is standard
- Pneumatic lifting and lowering of the upper belt with controlled gripping pressure and 100mm cutting width

### Metzner ST-OB

The high-performance »Universal cutting machine« with excellent pulling and cutting force for cables and other materials, e.g. shrink sleeves and cable protective materials up to 30 mm diameter:

- Very smooth belt pressure adjustment (hand wheel with counter)
- Variable cutting depths (Green-Version)
- PLC controls with CoDeSys programming
- Stepper motor for exact positioning and variable speeds is standard
- Long-life robust design

## TECHNICAL DATA

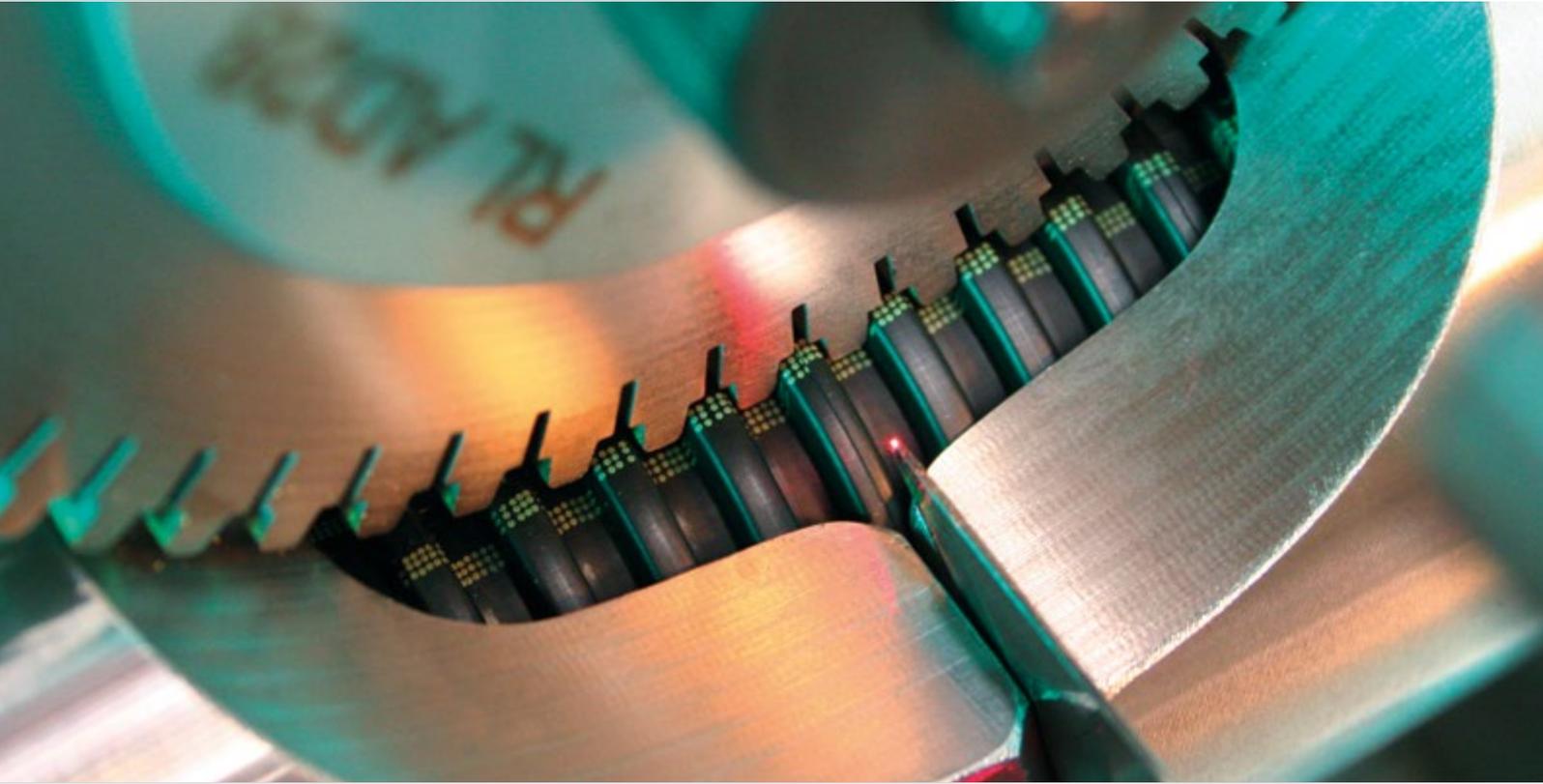
Performance Data	Metzner Variocut Red	Metzner Variocut Green	Metzner Variocut Blue	Metzner ST-OB Red	Metzner ST-OB Green
Cable outer diameter max.	30 mm	30 mm	30 mm	25 mm	30 mm
Wire size range stranded (copper) <sup>1)</sup>	50 mm <sup>2</sup>	50 mm <sup>2</sup>	50 mm <sup>2</sup>	50 mm <sup>2</sup>	50 mm <sup>2</sup>
Wire size range solid (copper) <sup>1)</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>	10 mm <sup>2</sup>
Feeding speed max. <sup>2)</sup>	45 m/min	90 m/min	120 m/min	45 m/min	60 m/min
Cable length	0.1 mm – 999 m	0.1 mm – 999 m	0.1 mm – 999 m	0.1 mm – 999 m	0.1 mm – 999 m

Technical Data	Metzner Variocut Red	Metzner Variocut Green	Metzner Variocut Blue	Metzner ST-OB Red	Metzner ST-OB Green
Electrical connection	230 V, 50/60 Hz, 1,6 A	230 V, 50/60 Hz, 1,6 A	230 V, 50/60 Hz, 1,6 A	230 V, 50/60 Hz, 0,5 A	230 V, 50/60 Hz, 0,5 A
Power source	3~stepper motor				
Compressed air connection	6 bar				
Dimensions (LxWxH)	795 x 530 x 510 mm	795 x 530 x 510 mm	795 x 530 x 510mm	735 x 440 x 670 mm	735 x 440 x 670 mm <sup>3)</sup>
Weight	65 kg	65 kg	65 kg	50 kg	70 kg

Equipment	Metzner Variocut Red	Metzner Variocut Green	Metzner Variocut Blue	Metzner ST-OB Red	Metzner ST-OB Green
Feeding system	Belt feeds	Belt feeds	Belt feeds	Belt feeds	Belt feeds
Interfaces for printing	—	●	●	—	●
Interfaces for peripheral equipment	—	●	●	—	●
Interfaces for IT network <sup>4)</sup>	—	●	●	—	●

<sup>1)</sup> depending on material | <sup>2)</sup> infinitely adjustable | <sup>3)</sup> dimensions without control unit | <sup>4)</sup> in combination with optional PC

● = standard, ○ = optional, — = not available | Specifications are subject to change without notice.



## CORRUGATED TUBE PROCESSING

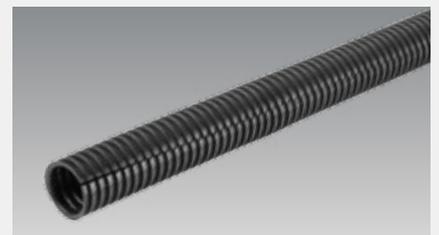
POWERFUL PRECISION CUTTING MACHINES FOR SLIT AND NON-SLIT CORRUGATED TUBES

**Standard, split or corrugated tubes with muffs and flexible conduits are used for protecting cables and wiring harnesses. Cutting these protective coverings to length depends on cutting accurately on the crest of the ridge. Otherwise sharp cut edges are formed which results in damage to the cables.**

Metzner corrugated tube cutting machines offer absolute precision with the cut on the crest of the corrugation. All types of corrugated tube – slit, non-slit, re-sealable or with muffs – are cut reliably and precisely. The machines offer processing for corrugated tubes from 4.5mm up to 35mm diameter. This wide spectrum is unique and makes these models a future-proof investment.

High-performance sensors guarantee reliable reading of the tube profile and place the cut precisely on the top or in the valley – providing just the processing result you expect.

The patented Metzner SM 4000 with »Laser toothed wheel« system is the only solution available in the market to process pre-slit corrugated tube. The material specific feed wheels guarantee a form-fit and twist proof feed of the pre-slit material. The laser sensor controls the position of the feed wheels and releases the blade precisely on the crest of the ridge - with precise repeatability and up to 8000 cuts per hour.





### Metzner CT 4100

The entry-level model cuts corrugated tubes exactly on the crest and guarantees optimal processing results:

- For corrugated tubes from 4.5 mm to 35 mm in diameter
- Tube cut for precise cutting on the crest and short cutting times
- Quick-change system for all guides
- Belt feeding as standard



### Metzner CT 4150

The Metzner CT 4150 offers in addition an integrated lengthways slitting unit for automatic lengthways slitting of non-slit corrugated tubes:

- For corrugated tubes from 4.5 mm to 35 mm diameter
- Tube cut for precise cutting on the crest and short cutting times
- Lengthways slitting unit with practical cutting height adjustment
- Quick-change system for all guides
- Two belts are standard for optimal process results of cutting on the crest and for lengthways slitting



### Metzner SM 4000

A worldwide unique machine, the SM 4000 offers patented transport and cutting technology for slit corrugated tubes:

- For corrugated tubes from 4.5 mm to 40 mm diameter
- Patented Metzner »Toothed wheel laser system« guarantees slip-free, rotation-free material transport
- Laser sensors monitor the position of the gear wheels
- »Toothed wheel« transport system as standard



### Metzner customer-specific processing line

- Integration of a »Metzner CT 4150« corrugated tube processing machine for processing corrugated tubes with a fiberglass reinforced silicon covering. Cutting on the crest of the corrugation is guaranteed with an application specific sensor system.
- Metzner DRS 3 unwind unit
- Metzner PF 235.30 feeding unit with loop control

## TECHNICAL DATA

Performance Data	Metzner CT 4100	Metzner CT 4150	Metzner SM 4000
Corrugated tube diameter min. <sup>1)</sup>	4.5 mm	4.5 mm	4.5 mm
Corrugated tube diameter max. <sup>1)</sup>	35 mm	35 mm	40 mm
Feeding speed max. <sup>2)</sup>	90 m/min	90 m/min	160 m/min

Technical Data	Metzner CT 4100	Metzner CT 4150	Metzner SM 4000
Electrical connection	230 V, 50/60 Hz, 1,2 A	230 V, 50/60 Hz, 1,2 A	230 V, 50/60 Hz, 1,5 A
Power source	electro-pneumatic	electro-pneumatic	electro-pneumatic
Compressed air connection	6 bar	6 bar	6 bar
Dimensions (LxWxH)	820 x 810 x 480 mm <sup>3)</sup>	820 x 810 x 480 mm <sup>3)</sup>	1215 x 1175 x 1400 mm
Weight	95 kg	100 kg	200 kg

Equipment	Metzner CT 4100	Metzner CT 4150	Metzner SM 4000
Cutting system	Tube cut	Tube cut	Laser & toothed wheel
Length slitting unit	—	●	—
Feeding system	Belt feeds	Belt feeds	Toothed wheel feeds
Interfaces for printing	○	○	○
Interfaces for peripheral equipment	●	●	●
Interfaces for IT network <sup>4)</sup>	○	○	○

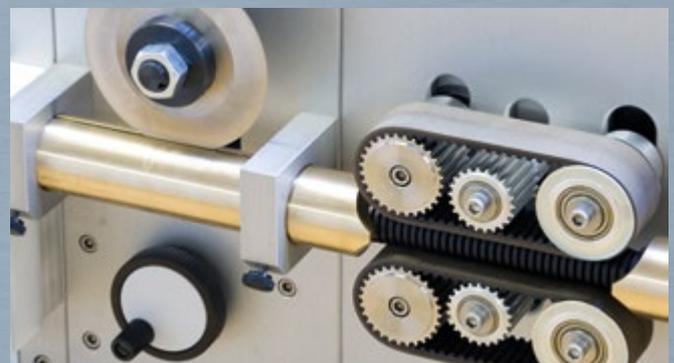
<sup>1)</sup> depending on material | <sup>2)</sup> infinitely adjustable | <sup>3)</sup> machine height with controls 710mm | <sup>4)</sup> in combination with optional PC  
 ● = standard, ○ = optional, — = not available | Specifications are subject to change without notice.

Metzner corrugated tube cutting machines process corrugated tubes reliably and precisely. With our long years of experience in corrugated tube processing, we know all about the challenges presented by some tubes and are thus prepared for them. Our wide spectrum of standard equipment ensures the best possible processing of your corrugated tubes.

**1. Optimal accommodation of material requirements by material-specific feed system:** for each type of corrugated tube, our corrugated tube processing machines offer the optimal feed system: precise and powerful belt conveyors for unslit tubes, pin-point accurate transport of slit tubes by specially matched gears.

**2. Very short changeover times:** Metzner corrugated tube machines process tubes from 4.5 mm up to 40mm reliably and with precision. When frequent material changes are necessary, short changeover times are particularly important. Thanks to the Metzner »Quick Change System«, which assists in rapid guide changing, material changes are performed easily and without significant downtime.

**3. Fully integral lengthways slitting unit:** The Metzner CT 4150 offers an integrated longitudinal slitting unit for automatic slitting of unslit corrugated tubes. With the practical height adjustment of the circular blade via a hand wheel, you can set the cutting height of the slitting blade for each different tube diameter.



**4. Outstanding productivity:** The unique combination of superior conveyor speed (CT 4000 series 90 m/min and with the SM 4000 even 160 m/min) and the shortest cutting times makes the CT 4000 series a key to increasing the productivity of your processing line.

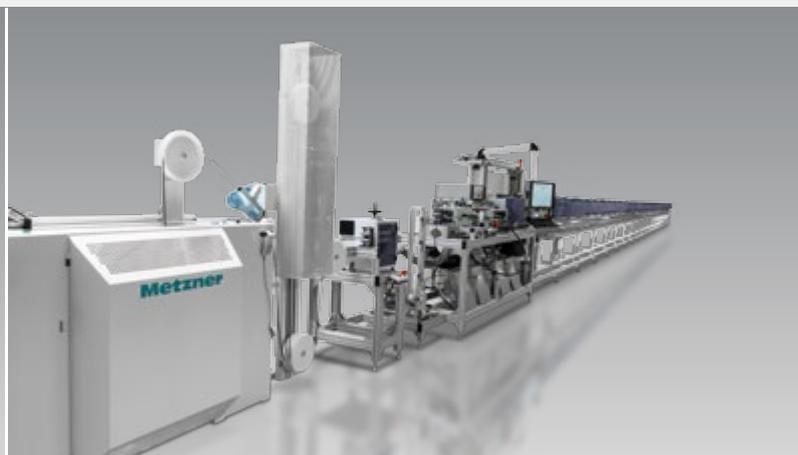
# CUSTOMER-SPECIFIC SOLUTIONS

PLANNING, DESIGN AND COMPLETION TO CUSTOMERS' REQUIREMENTS

**Complex processing lines for rail vehicles or challenging solutions for cutting of automobile sensor cables – at Metzner we satisfy our customers by our competence in finding solutions for their specific requirements.**

For applications that require functionality over and above those of the standard machines, we plan, develop and manufacture customer-specific solutions. In this way, and based on our long years of experience as a machine-builder for cable processing, completely individual solutions are created and matched to each application, so that they perform under highly demanding conditions. Metzner offers total responsibility for the entire development process, from initial analysis and advice through to the successful delivery.

On the following pages, we present several customer-specific solutions and processing lines as examples. Discover some interesting ways to approach your own applications!

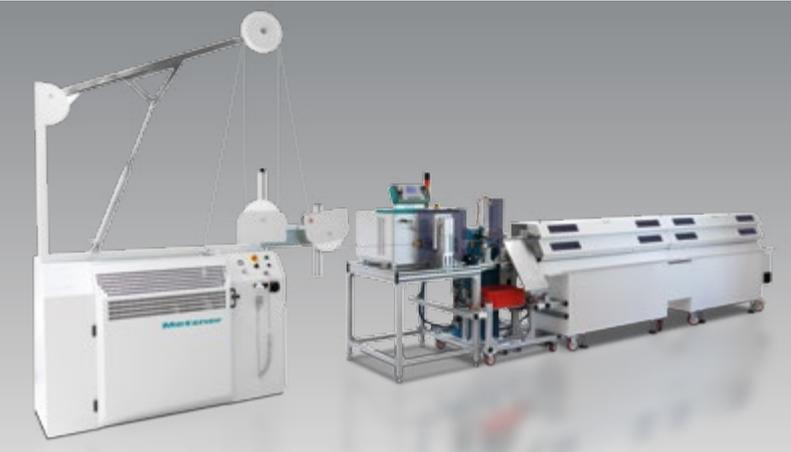


## **Metzner special machinery for fully automatic processing of high-frequency coaxial cables:**

- Automatic cutting into the exterior cover down to the inner core and pulling off of the insulation
- Window stripping of the outer sheath insulation
- Cleaning the core and dielectric to avoid copper particle deposits, chamfering or de-burring of the inner core
- PC-controlled production

## **Metzner special machinery for fully automatic processing of entire wiring harnesses:**

- Completely automatic line for the processing of all wires and braids from 0.5 mm<sup>2</sup> to 16 mm<sup>2</sup> of a complete rail vehicle
- Complete IT-integration into the existing production network including the import of CAD based production data
- Efficient operation – including set-up – by only one operator
- Printing and marking in compliance with requirements for rail vehicles
- Automatic and »assembly-friendly« sorting of the produced wiring harnesses with subsequent bundeling.



**Metzner customer-specific processing line for the cutting of insulated and bare steel cables:**

- Automatic stripping
- Automatic cut-to-length by an electric welding mechanism
- Automatic and systematic take-off up to a length of 4 m.



**Metzner customer-specific processing line for the cutting of sheathed steel cables:**

- Automatic wrapping and printing of the steel cables
- Automatic cut-to-length
- Automatic and systematic take-off up to a length of 12 m.
- PC-controlled production



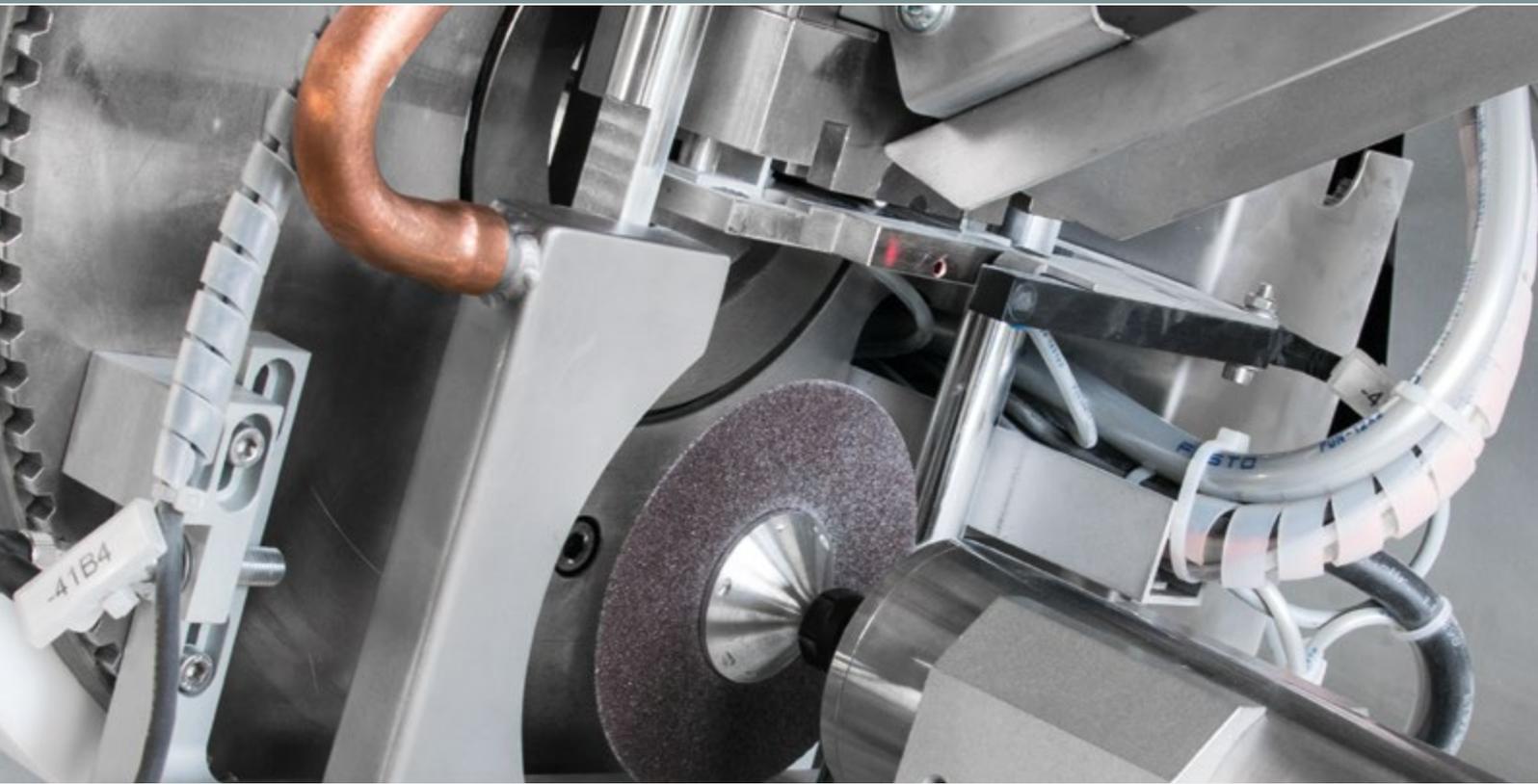
**Metzner special machinery for fully automatic processing of ESP sensor cables:**

- Automatic roughening of the core for air-tight injection moulded couplings
- Automatic printing of the wires
- Automatic cut-to-length and stripping
- Automatic take-off cable stacker up to 6 m long
- PC-controlled production



**Metzner customer-specific processing line for the cutting of steel cables:**

- Automatic processing of steel cables for the construction industry
- Automatic cut-to-length, stripping and degreasing of steel cables up to 100 m length and a diameter of 25 mm
- Integration of a take-off conveyor with sorting and cross-conveying functions for cables up to 100 m length
- Integration of a semi-automatic bundling unit



# MINERAL INSULATED THERMOCOUPLES

SOLUTION FOR AUTOMATIC CUT-TO-LENGTH OF RIGID MINERAL INSULATED THERMOCOUPLES

**A flawless processing of mineral insulated thermocouples cannot be achieved with a standard cutting machine. Therefore Metzner developed a fully automatic solution for cutting-to-length and orbital lancing of mineral insulated thermocouples of up to 6 mm in diameter.**

## Prerequisites

The machine processes mineral insulated thermocouples with an outer diameter between 1.0 mm and 6.0 mm. The processing includes the precise cutting of the steel sheath down to the inner conductor, as well as the straightening and cutting-to-length. As an option, thermocouples longer than 700 mm can be placed in a tray after processing automatically.

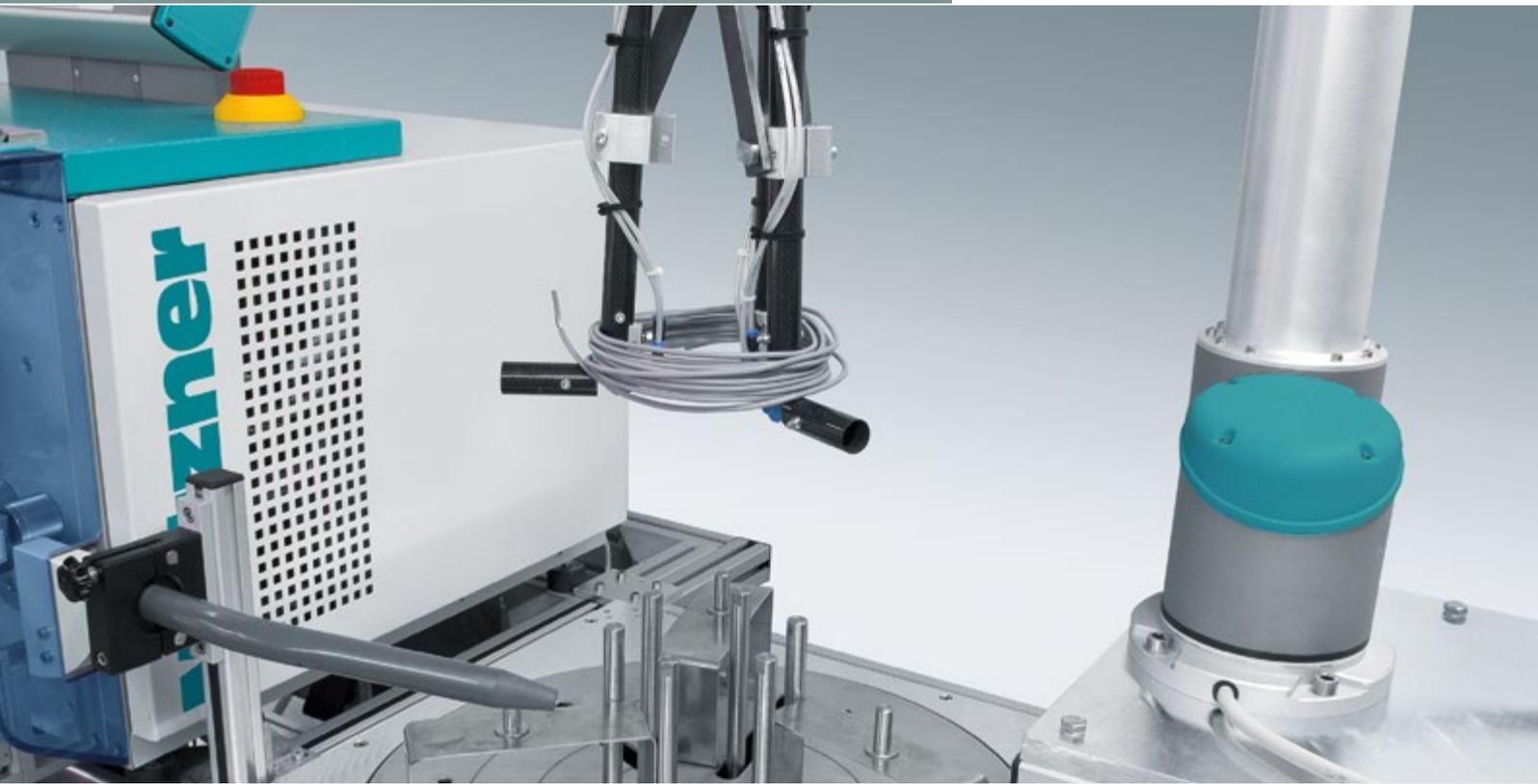
Key to the process is Metzner's patented orbital cut. In this case working with an electrical drive with integrated circular saw. The cutting depth is program controlled and adjustable in steps of 0.1

mm.

## Benefits

The fully automatic processing of the Metzner machine guarantees outstanding results. With the elimination of manual labor the cost for processing is reduced significantly.





## METZNER PERIPHERAL EQUIPMENT

ESSENTIAL COMPONENTS TO GET THE BEST PERFORMANCE FROM YOUR PROCESSING MACHINES

As well as high-quality processing machinery, Metzner also offers quick, product-friendly and economical peripheral equipment to extend your cut and strip machine into an automatic processing line.

Thanks to the wide spectrum of easy to integrate systems, you can automate your cable cut and strip machine to suit your particular requirements. From a simple dereeler, right up to fully-automated production, we can offer an optimal solution to increase your productivity. We divide our peripherals into the following categories:

- Cable Handling
- Dereeling and feeding (loop control, dereeler, feed unit)
- Printing and marking (Ink Jet, thermal transfer printer, Brady Wraptor, hot stamp marker)
- Take-off and winding (take-off unit, cable ring coiler)

Loop control systems: In combination with a Metzner prefeeder of the PF series (see above illustration), Metzner loop control systems provide contact-free speed regulation. Integral sensors in the loop control calculate the optimum dereeling speed to match exactly the processing speed of the machine. Metzner prefeeders are suitable for cables up to 30mm diameter and even high speeds of up to 180 m/min are no problem.





# METZNER SEMI-AUTOMATIC CABLE-RACK

EFFICIENT SYSTEM FOR PRODUCTIVITY AND IDEAL UTILIZATION OF SPACE

**Modern production often requires very high flexibility for medium batch-sizes down to unit production.**

Therefore, Metzner offers a cable-rack that minimizes changeover times between different cable types, reduces in-production transport and loading times by up to 80% and optimizes the utilization of production space. Due to intelligent system architecture the Metzner cable-rack can be individually adjusted to the required capacity.

## Benefits:

- Best possible utilization of production and warehouse space
- Increased productivity thanks to minimized changeover and set-up times
- Reduction of the in-production cable transport efforts by up to 80%
- Maximum flexibility: one drive for all cable reel sizes
- No direct pull-off from reel; instead the integrated material accumulator leads to decreased maintenance cost, higher availability and shortened production cycles at the subsequent processing machines.
- Flexible in-take to the rack from both front- or backside
- Elimination of heavy-labor
- Fast and cost efficient extension of capacity thanks to modular design
- Made-to-customer requirements
- Integration with third-party systems possible



Performance data	Small Version	Big Version
Reel-dimension	400-800 mm	up to 1250 mm
Reel-weight	up to 250 kg	up to 1000 kg
Cable diameter	up to 35mm	up to 35mm
Reel-number	up to 240	up to 240

## DEREELING AND FEEDING

SAFE AND PROBLEM-FREE DEREELING OF BARREL, BUNDLE AND DRUM MATERIALS

To achieve optimal results in cable processing, the tension-free cable feeding to the machine is an important pre-requisite.

Metzner offers a wide range of solutions for dereeling and feeding, irrespective of whether your material comes in a drum or on a spool and weighs ten, a hundred or a thousand kilos.

Electrically driven cable dereelers (Metzner DR series) are the ideal addition to your cable processing machine for automatic high-speed cable feed and, at the same time, gentle handling with minimum tension. For cables with lesser sensitivity to tension, our passive Metzner DRS dereelers are used.



### Metzner DR 8.300

- Motorised high-performance dereeler for automatic, tension-free material feeding
- Drum diameter: 800 mm
- Max material weight: 300 kg

### Metzner DR 10.600

- Motorised high-performance dereeler for automatic, tension-free material feeding
- Drum diameter: 1000 mm
- Max material weight: 600 kg

### Metzner DR 12.1000

- Motorised high-performance dereeler for automatic, tension-free material feeding
- Drum diameter: 1200 mm
- Max material weight: 1000 kg



### Metzner Unwinder

- Motorised dereeler
- Drum diameter: 500 mm
- Max material weight: 50 kg
- Cable accumulator as standard

### Metzner DRS 1

- Passive dereeler for spools; with mechanical brake
- Max spool width: 350 mm
- Max material weight: 20 kg

### Metzner DRS 3

- Passive dereeler for drums; with mechanical brake
- Max spool width: 890 mm
- Max material weight: 1000 kg

### Metzner DRC 1

- Passive dereeler for metal rings; with mechanical brake
- Available with: 800 mm / 1000 mm diameter
- Max material weight: 50 kg



# METZNER INK JET 3

THE COST EFFICIENT SOLUTION FOR MATERIAL MARKING UND LABELLING

**Innovative, versatile and with a very attractive price. The ink jet printers of the »Metzner Ink Jet 3 Series« are the innovative and fully equipped result of years long experience in the integration of touchless material marking systems.**

With its very high printing speeds these ink jet printers, if combined with Metzner processing machines, form high performance production lines. Latest technology in hydraulics, electronics and design of the print head guarantee a minimum consumption of ink, solvent and energy, as well as maintenance efforts.

Performance Data	Metzner Ink Jet 3
Application	For both non-pigmented or highly pigmented inks
Printing speed max.	6,6 m/s
Fonts	Regional and industry-specific fonts: Arabic, Cyrillic, Chinese, Persian
Font height	0.8 – 16 mm, depending on print head type and nozzle size
Nozzle size	50 µm, 60 µm und 70 µm
Operating temperature	5°C to 45°C 90% humidity max. (noncondensing)

Technical Data	
Electrical connection	230 V, 50/60 Hz, 40 VA
Dimensions (LxWxH)	486 x 286 x 446 mm
Weight	22 kg

Equipment	
Display	10.4" color TFT-Touch-Display
Data Input	Via PC-HMI of Metzner processing machine, or via Touch-Display if used as stand-alone device
Interfaces	USB, Ethernet, serial port, RS 232, RS 422



Technische Änderungen vorbehalten.

## PRINTING AND MARKING

ECONOMICAL SOLUTIONS FOR CABLE MARKING AND PRINTING

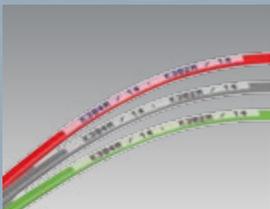
**For product identification and to determine assembly positioning, cables, wires and other products often have to be printed or marked. In response to a variety of requirements, Metzner offers four different printing systems from leading manufacturers, which can be combined with all Metzner machines.**

**Ink-Jet printers** can produce freely programmable text, logos and markings on the running product without any lost time. Ink-Jet printing is a comparatively economical process, but the print quality is not as high as thermal transfer printing or hot stamp marker. Text input and configuration is carried out via the PC-operator panel of the machine or the internal touch-screen display.

Digitally programmable **thermal transfer printers** combine first-class print quality and individual text printing. The printer transfers variable texts, logos or graphics as well as barcodes in 300 dpi print quality. For printing, approximately 1.5 seconds is required.

**The Brady Wraptor** also gives very high print quality. The special feature: All texts are printed on a white background and then wrapped with a transparent film. This provides the best contrast and visibility for the text.

For printing of cables with the same text markings, a **hot stamp marker** is employed. Pre-heated text marks are printed on to the surface of the material by means of a coloured embossing foil.



### Ink Jet Printing

- Very good text contrast thanks to choice of ink colour
- Optimal software matching to Metzner processing machines
- Printing »on the fly« without any lost time
- Self-diagnosis system with faults displayed as text
- Freely programmable graphics, barcodes and text
- Modern touch-screen operation or PC keyboard



### Thermal Transfer Printing

- Excellent quality thanks to high resolution 12 points/mm (300dpi)
- Optimal software matching to Metzner processing machines
- Patented printing technology
- Variable text positioning: 0°, 90°, 180° and 270°
- Freely programmable graphics, barcodes and text
- Time needed for print: approx. 1.5 seconds



### Brady Wraptor Printing

- Excellent quality thanks to high resolution: 300dpi
- Optimal software matching to Metzner processing machines
- Best possible contrast by using white film
- Freely programmable graphics, barcodes and text
- Time needed for print: approx. 5 seconds



### Hot Stamp Marker

- Very good print quality
- Optimal software matching to Metzner processing machines
- Exact setting of parameters possible (emboss temperature & time, application pressure)
- Time needed for print: 0.5 – 1 second

# TAKE-OFF AND COILING

HANDLING OF WIRES AND CABLES IN SEQUENCE AND WITHOUT DAMAGE

After the cable, wire or corrugated tube processing, precise take-off, sorting or coiling of the products is a logical step in the quality assurance of the total process. For this, Metzner offers well thought-out and practically proven peripheral solutions.

Active material take-off units, for example, lay the processed cables or wires in order in a tray, thus providing an optimal starting point for further working. Cable ring coilers, which synchronise the coiling with the speed of the processing machine and thus give tension-free winding are also a good solution for material storage or onward transport.



## Metzner MA 2000

- Active material take-off for cables from 1.5 mm up to 30 mm outside diameter
- No process interruption at take-off
- Extendable for cables up to 6 m long (standard), special applications up to 36 m



## Metzner CPC 200

- Automatic cable ring coiler with two electrically driven coiling heads
- For cables up to 12.5 mm diameter



## Metzner CPC 400

- Automatic cable ring coiler with a choice of either two or four electrically driven heads
- For cables up to 30 mm diameter



## Metzner CRC 350

- Cable ring coiler with controlled functional sequence to the cut and strip machine
- For cable diameters up to 15 mm or 30 mm
- For cable ring inner diameter from 115 mm up to 350 mm
- Winding mandrels can be lowered



## Metzner CRC 450 Duo

- Cable ring coiler with double winding function and controlled functional sequence to the cut and strip machine
- For cable diameters up to 15 mm
- For cable ring inner diameter from 150 mm up to 450 mm
- Winding mandrels can be lowered



## Metzner CRC 750

- Cable ring coiler with controlled functional sequence to the cut and strip machine
- For cable diameters up to 30 mm
- For cable ring inner diameter from 250 mm up to 600 mm
- Winding mandrels can be lowered



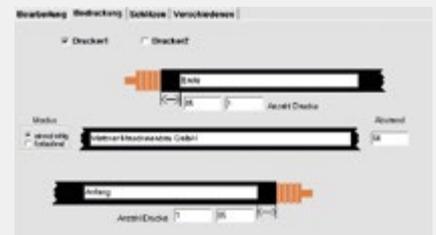
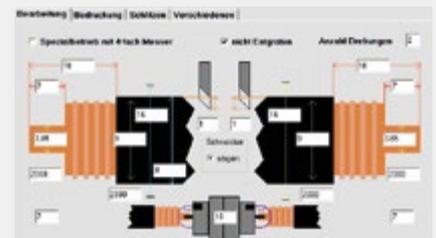
## EFFECTIVE SOFTWARE SOLUTIONS

AUTOMATIC PRODUCTION PROCESSES AND IT INTEGRATION

For effective cable and corrugated tube processing, Metzner offers powerful software solutions that have been proved in practice. All our software packages provide comprehensive functionality such as, for example, the supervision and processing of complex parts lists for materials with different lengths and diameters as well as individual printing and marking.

Software solutions in local mode control the working process of the machine and all its peripheral equipment. All the process parameters are collected via an intuitive, logical and easy-to-operate unit and saved in a database. Tried and tested assistance functions and help menus support the entering of the data. Data collection takes place independently of the processing machine, which can continue its work unaffected.

Many companies control their production via company-internal IT networks. In such cases, Metzner offers full integration into the existing IT network. All production orders are transferred on-line or in their own data structure to the machine control system for processing. In return the machines send back information for production control. The operator thus receives a real-time overview of the current machine condition, the production status and all the completed and remaining processes.





# ANALYSIS, CONCEPT AND IMPLEMENTATION

METZNER IS WITH YOU ALL THE WAY

**Since 1980, Metzner have been developing cutting machines and customer-specific solutions for cables, wires and corrugated tubes. Patented technologies and high quality standards ensure that you achieve your production targets of cost, productivity and quality. Our after-sales service gives you the support to maintain first-class quality production over the total life of the Metzner machinery.**

We view your purchase of a Metzner product as the beginning of a long-term partnership, whereby for us your productive capacity and the security of your investment are the foremost considerations. This is true whether we recommend a standard machine or a customer-specific solution to suit your requirements.

## **Documented pre-delivery functional and application testing**

Before delivering your machine, a fully-documented functional test is carried out in our factory, together with an application test using your

material, so that the performance, parameters that are so important for your production, can be determined and recorded by machine capability testing.

You are always welcome to witness the demonstration of these results personally, before your Metzner machine leaves our plant. This quality, together with the features and characteristics proven for your production, gives you the assurance of successful installation and commissioning in your factory and a successful production start-up.

## **Installation – Commissioning – Training**

After delivery, we are available to carry out specialist installation and commissioning of your machine in your production as well as training your operating and maintenance personnel. Usually, only a few hours are required in order to give your employees the necessary knowledge and confidence in the use of the new machine.

## AFTER SALES SERVICE

A STRONG PARTNERSHIP OVER THE TOTAL WORKING LIFE

**With our after sales service you benefit from our long-term support to enable you to keep your Metzner machine operating profitably throughout its whole working life. Apart from the basic characteristics and performance data of the machine, there are a number of additional factors that play an important part in achieving this. So we have put together a team with a spectrum of service capabilities to give you active support.**

### **Advice and machine modification to meet new requirements**

Not infrequently, the materials to be processed and the tasks to be performed by a Metzner machine in your production change over time. It is often possible for us optimally to modify the machine to meet such new requirements by mechanical adjustments, a software update, or addition of an accessory or further equipment. Our After Sales Service Team can make recommendations to optimise your material processing and to modify your existing machinery accordingly.

### **Training of new operator personnel**

The productivity of a cutting machine in your production and the resulting product quality are often strongly influenced by the operator personnel and their knowledge of the functions and settings of the machine. Often, when personnel changes occur, important knowledge is lost with the result that processing tolerances and machine output can suffer. A few hours or perhaps a day of new operator training is an effective step towards maintaining high quality and performance in your manufacturing.

### **Service contracts**

The constant use of your production machinery inevitably causes wear of certain parts or makes re-adjustments necessary to compensate for the wear. With a service contract, we ensure that, at intervals agreed with you, preventative maintenance is undertaken to avoid unscheduled interruptions in production. You profit from this by avoiding short-notice emergency service call-outs.

### **Spare parts service**

For current Metzner machines, we hold stocks of the most frequently

required replacement and wear parts for immediate delivery in our store. For customer-specific parts and more slow-moving, we start an immediate order for manufacture the parts in initial equipment quality as soon as your order is received.

### **Repair service**

To deal with machine breakdowns, Metzner has experienced personnel ready to make sure that your production machinery is rapidly made available again. According to your instructions, the repairs to your machine can be carried out either in our works or locally in your premises.

### **E-Service**

Many Metzner machines have the facility to be fitted with an E-Service module for remote machine interrogation. The machine either receives an individual IP address or a connection to the mobile telephone network. In this way, Metzner Service can provide rapid and cost-effective fault diagnosis, spare parts advice or make repair recommendations.

Metzner – a strong partnership over the total working life of your cable and corrugated tube processing machines. Contact our After Sales Team as follows:

### **Metzner Maschinenbau GmbH**

Messerschmittstrasse 30

89231 Neu-Ulm | Germany

Email: [aftersales@metzner.com](mailto:aftersales@metzner.com)

Phone: +49 731 40199-62

Fax: +49 731 40199-34

[www.metzner.com](http://www.metzner.com)





## **METZNER SALES PARTNERS WORLDWIDE**

Internationally, Metzner is represented in more than 30 countries by qualified partners for sales and service. Metzner is working actively on further developing its global presence. Specialised partners for the business segments cable processing or rubber and plastic processing offer professional sales consulting and service know-how.

## **FIND YOUR LOCAL PARTNER AT:**

[www.metzner.com](http://www.metzner.com) » Service & Support » Sales Partner Worldwide

## **HEADQUARTERS**

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