



StoneShield
ENGINEERING



2023 Catalogue

Including:

HV Solutions

The Developer of Robotic Solutions
for The Wire Harness Industry

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StoneShield ENGINEERING

The developer of robotic solutions for the wire harness industry.
An engineering company specialized in the design and development of machines for industrial applications.

Specialized in Robotics Applications



Our wide experience combined with the energy and innovation of a new generation of engineers, enable us to bring and apply robotics to traditional processes, always keeping in mind the wire harness industry's characteristics and demands.

Contacts and Location:

Operations Center:
Zona Industrial de Castelo Branco
Rua D, Lt. 120, Mod. A1
6000-790 Castelo Branco, Portugal

www.stshield.com

info@stshield.com

+351 272 327 253

N 39.801913, W 7.533327

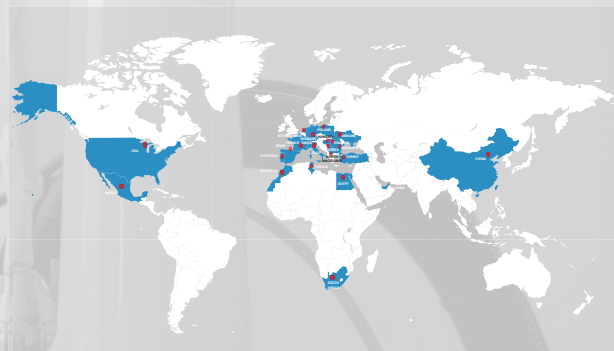
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ISO9001:2015 Certification:



Worldwide Location



More than 100+ machines, of 20+ different models, deployed in 4 different continents.

Focus on Development



Innovation and new developments are part of our core values.

The increasing pressure for automatization in the wire harness industry, requires the constant development of new solutions, not only using robotics, but also a complete new sort of technologies and innovations.

Our development team, of 25+ development engineers, with an experience of 6 years in the development of robotics, taping and high-voltage solutions, combined with the constant training and contact with client's shop floors, is the ideal team to help you innovate and differentiate your processes in terms of automation and technology information.



Interactive Catalogue
Navigate through objects and press to access videos, links, technical information, etc.

Products



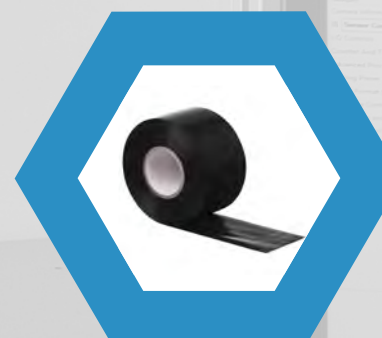
Robotic Solutions

Robot Integration Solutions for Automating Complex and Repetitive Tasks



High-Voltage Solutions

Standard and Customized Projects and Solutions Designed for EV's Applications



Taping Solutions

Taping Machines for Insulating, Marking, Labeling, Fixating and Bundling of Splices and Wires



Engineering Solutions

Special and Custom Projects Designed and Built for Specific Applications

Robotic Solutions

CRAE - Connector Robotic Assy Equipment
To assembly connector parts

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RoCAM - Robotic Connector Assembly Machine
To assembly connector parts, with flexible hardware

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RPM - V+ RPM with Vision Inspection
To punch pins from plastic mini connectors with final vision inspection

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RoSI - Robotic Seal Inserter
To insert hard pins and/or blind seals into connectors

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AFRA - Aut. Fuse and Relay Assembly
A complete and fully automatic assembly line designed to assembly screws, fuses and relays into fuse boxes that are already mounted in the complete wire harnesses.

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High-Voltage Solutions

High-Voltage Solutions
Integrating robotics, taping, pre-assembly, final assembly, etc.

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Taping Solutions

FTM - Flexible Taping Machine
Spot taping to insulate splices

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STM - Simple Taping Machine
Low cost/low maintenance spot taping machine

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ITM - Integrated Taping Machine
Spot and continuous taping integrated inline and in other machines

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DLT - Double Layer Taper
To produce double layer tapes

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Engineering Solutions

SASi - Semi-Automatic Seal Inserter
To insert seals into connectors in a semi-automatic way

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APM - Automatic Punching Machine
To punch plastic pins from connectors

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P-AOI - Punching Automated Optical Inspection
To perform visual inspection of punched connectors

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MHT - CC - Multi Head Twister for Cables with Connectors
To perform wire twisting

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CRAE

Connector Robotic Assembly Equipment

P/N: 01-03-0006



Applications:

Assembly of individual components into connectors



The CRAE – Connector Robotic Assembly Equipment, is a semi-automatic robotic system designed to assembly connector parts.

It has the capacity to assemble 3 different sets and it handles all its distinct components (rubber, plastic, etc), using always the same hardware.

It has rotating trays in order to ensure nonstop production, allowing the machine to operate in one side of the trays, while the operator is loading or unloading components on the other side.

A vision system is used to detect the components, their orientation and to perform the final visual inspection: an electric clamp with force sensor is used to pick up the components and a load cell is used to measure the insertion force.

The system is a perfect example of combining robotics with vision systems in order to automate delicate and complex tasks, providing flexibility and ensuring 100% quality.

By using vision systems and components with high flexibility, instead of the traditional probes and pins used in tight tolerance jigs, a practically maintenance free machine is obtained and ready to be adapted to other assemblies without the need of reworking the entire machine.

RoCAM

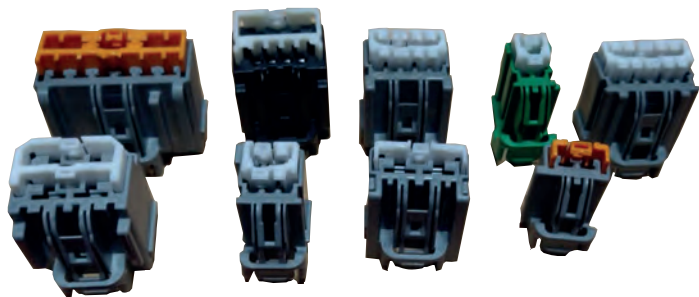
Robotic Connector Assembly Machine

P/N: 01-03-0012



Applications:

Assembly mini connectors in a fast and flexible way



Technical Data:

Dimensions:

Length: 1600 mm
Width: 2100 mm
Height: 2200 mm
Weight: 950 kg

Connections:

Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket

Consumption: 750 W (peak)

Air pressure: 4.5 to 6 Bar - quick-coupler socket - 8 mm

Interface: Touchscreen, buttons, tower LED, Ethernet, USB



The RoCAM is designed to assembly mini connectors in a fast and flexible way, allowing to change parts to be assembled without need for hardware modifications.

Its uses 2 flexible feeders, that use vision systems to detect the orientation of the parts and 2 Scara robots that pick up the parts and assembly them in a flexible conveyor.

It performs the OK/NOK parts checking using a vision system, automatically sorting the assembled parts to the respective storage.

It includes force and position control to perform the assembly.

Keeping almost the same speed of assembly when comparing with hardware dedicated assembly machines, it allows to use the same machine in different configurations and, more importantly, in new connectors just changing software.

RPM-V+

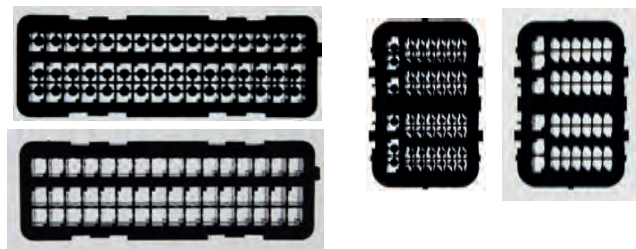
Robotic Punching Machine with Vision

P/N: 01-03-0004



Applications:

Break plastic pins from connectors



Options:

Punching Tools
P/N: 08-05-0001

Connector's Nest
P/N: 08-05-0002

A robotic system designed to break plastic pins from connectors (punching system) in a fast and automatic way. It has an integrated vision system to inspect and validate the end results of the punching process.

It has dedicated tools for each vias' pattern and allows the processing of different connectors, in the same operation.

The standard machine can handle 8 different connecotrs with 8 different punching tools.

After selecting the pattern with a barcode reader or a network file (KSK server), the operator puts the connectors in the selected nests. The machine will pick the necessary tool and angle and start the punching process.

At the end of the process, the vision system will check each of the connectors to ensure that the punching process is accurate and burr free, identifying OK and NOK parts.

Technical Data:

Dimensions:

Length: 1300 mm
Width: 850 mm
Height: 2290 mm
Weight: 350 kg

Connections:

Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket

Consumption: 750 W (peak)

Air pressure: 4.5 to 6 Bar - quick-coupler socket - 8 mm

Interface: Touchscreen, buttons, tower LED, Ethernet, USB



RoSI

Robotic Seal Inserter

P/N: 01-03-0003



Options:

Connectors Tray (Pair)
P/N: 08-06-0001

Feeder Module
P/N: 08-06-0002

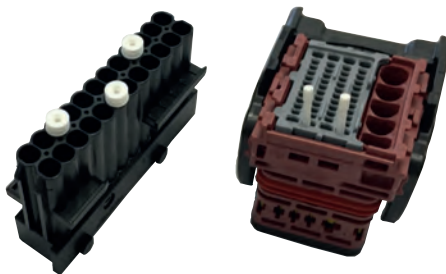
Insertion Tool
P/N: 08-06-0003



Nominated for the
productronica
innovation award 2019

Applications:

Blind seal insertion into connectors
Hard pins insertion into connectors



Technical Data:

Dimensions:

Length: 1350 mm
Width: 1820 mm
Height: 1900 mm
Weight: 900 kg

Connections:

Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket

Consumption: 1.5 kW (peak)

Air pressure: 5 to 7 Bar - quick-coupler socket - 8 mm

Interface: Touchscreen, USB, Ethernet



RoSI is designed to insert blind seals and/or hard pins into connectors in a fast, fully automatic and controlled way.

It has a rotating working area with 2 trays where the operator puts the connectors after selecting the production order, i.e. the connector, the insertion pattern and the quantity to produce.

The workstation rotates the tray inside and the robot automatically picks up the needed insertion tool and the insertion process begins, with the seal feeder shooting the seals to the head of the robot and then into the connector's via.

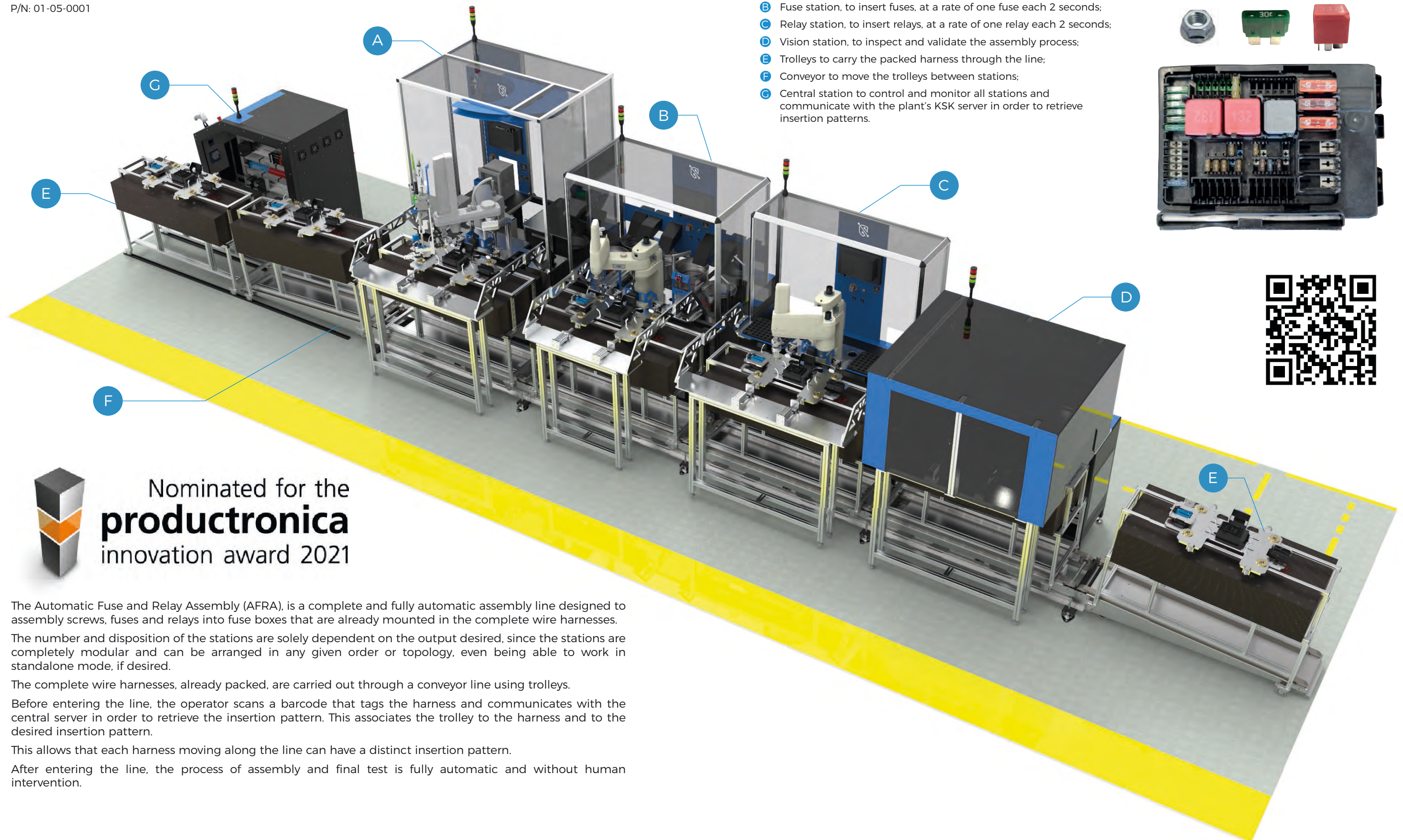
It can work with up to 4 seal feeders, which allows up to 4 different seals per connectors. The entire process is done automatically and at the end, a vision system will inspect the insertion process.

Can also be supplied with an automatic connecotrs feeding system, for increased automation and autonomy.

AFRA

Automatic Fuse and Relay Assembly

P/N: 01-05-0001



Nominated for the
productronica
innovation award 2021

The Automatic Fuse and Relay Assembly (AFRA), is a complete and fully automatic assembly line designed to assembly screws, fuses and relays into fuse boxes that are already mounted in the complete wire harnesses.

The number and disposition of the stations are solely dependent on the output desired, since the stations are completely modular and can be arranged in any given order or topology, even being able to work in standalone mode, if desired.

The complete wire harnesses, already packed, are carried out through a conveyor line using trolleys.

Before entering the line, the operator scans a barcode that tags the harness and communicates with the central server in order to retrieve the insertion pattern. This associates the trolley to the harness and to the desired insertion pattern.

This allows that each harness moving along the line can have a distinct insertion pattern.

After entering the line, the process of assembly and final test is fully automatic and without human intervention.

HV-Process Steps





HV-RAM
Pag. 16

In Partnership with:




komax
komaxgroup.com

Kappa Series



HV-RoFAL
Pag. 14

Lambda Series:
Lambda 240
Lambda 440



HV-RAM



HV-TM
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HV-FA
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HV-OI
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HV-SACA
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HV-IAT
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HV-TI
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HV-RoFAL

High-Voltage Robotic Fully Automated Line



The High-Voltage - Robotic Fully Automated Line (HV-RoFAL), is a complete and fully automatic line to cut, pre-assemble components and perform cable processing operations, in HV cables and HV connectors.

It is a technological combination of Komax's machines Kappa (B) and Lambda 240 (D) with StoneShield's HV-RAM (C).

The entire process is fully automatic and without operators' intervention:

The machine is fed with the wire's spools and with the connector's components in bulk in feeders;

From here, the cable is cut, fed directly to the HV-RAM, that performs the pre-assembly of components;

The HV-RAM handles the cable and feeds it directly to the Lambda, to perform the wire processing operations, like cutting, stripping and crimping;

After the Lambda completes its cycle, the HV-RAM picks up the finished product and stores it into a cable rack for later pickup.

The solution can work both for single core or double core cables, which if it is the case, two dereelers are used and the Kappa cuts both wires simultaneously.

Combined with the full autonomy, an error free process is obtained since the products' quality is controlled throughout the entire process.

The seamless communication between all machines also ensures the complete traceability of the process.

Line Components:

The system is made by the following components:

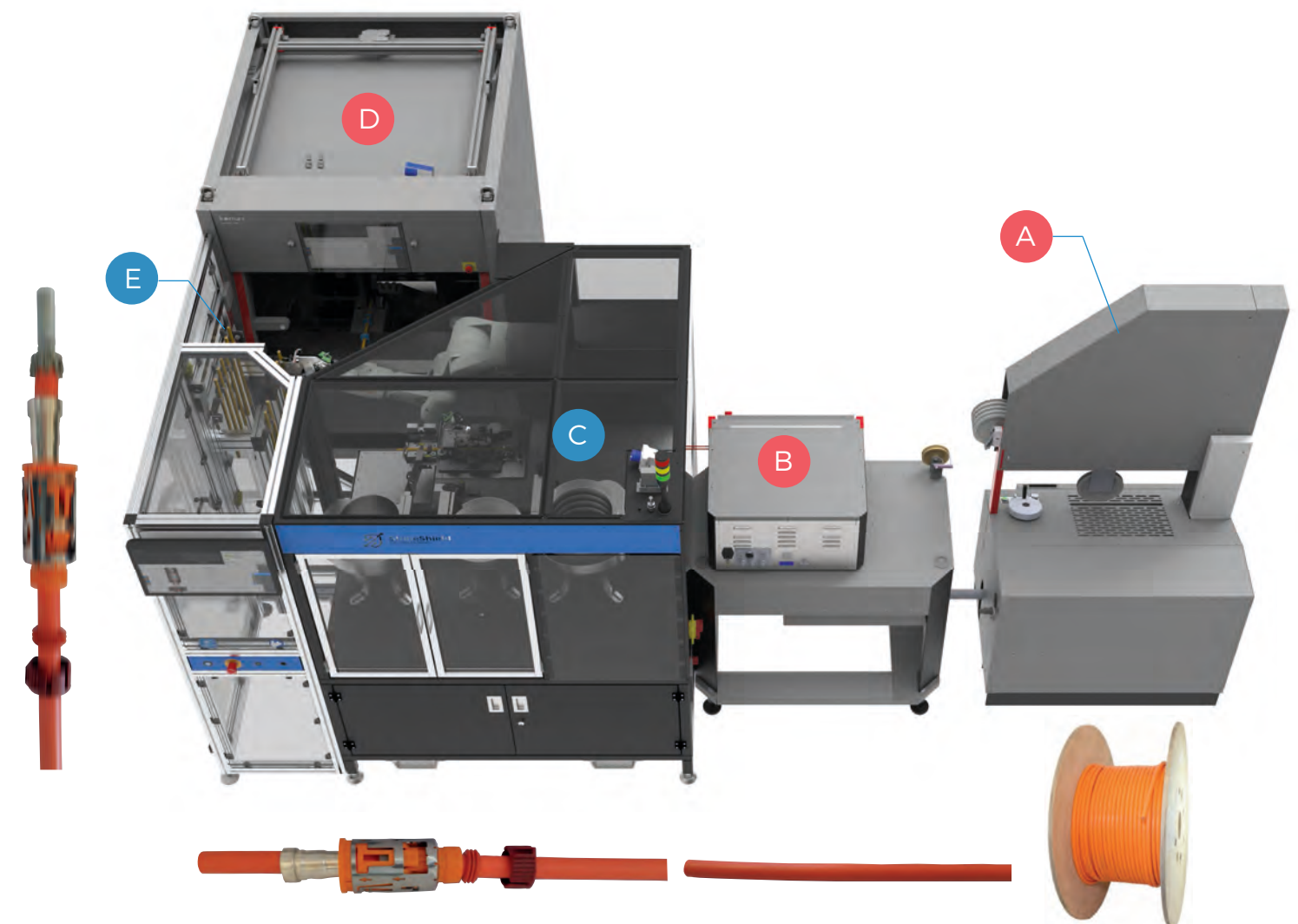
- A Dereeler. If double core wires are used, 2 units required;
- B Kappa machine to cut the wires;
- C HV-RAM: to perform the pre-assembly, handling of wires to Lambda for processing and retrieving wires from Lambda after processing;
- D Lambda 240, for cable operations;
- E Cable rack to store final product.

In Partnership with:

komax
komaxgroup.com

Applications:

Fully automated assembly line to cut, pre-assembly and perform cable process operations of HV cables (single and double core).



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HV-RAM

High-Voltage - Robotic (pre) Assembly Machine

P/N: 01-03-0007

In Partnership with:

komax
komaxgroup.com



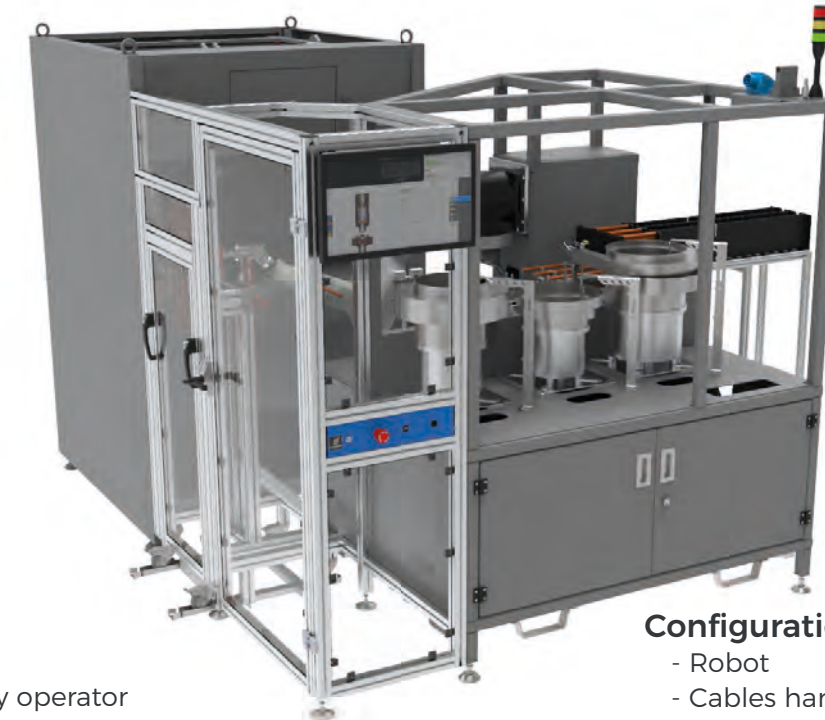
Configuration:

- Cobot
- Cables handled by Cobot
- Dedicated feeders
- 5 components
- Tacktime 32 sec.



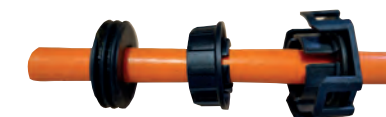
Configuration:

- Robot
- Cables handled by operator
- Dedicated feeders
- 4 components
- Tacktime 18 sec.



Configuration:

- Robot
- Cables handled by Robot
- Dedicated feeders
- 3 components
- Feeds Komax's Lambda 240 directly and stores processed cables into rack
- Tacktime 15 sec.



Applications:

Pre-assembly of connector's parts in HV cables



Nominated for the
productronica
innovation award 2021

The HV-RAM, High-Voltage Robot (pre) Assembly Machine, is a solution for assembling HV cable components, using Cobots or Robots in pre-assembly (before cutting, stripping, etc).

Several configurations are possible, using dedicated bowl feeders to supply each of the components in a fast and autonomous way or flexible vibrational feeders to provide additional flexibility.

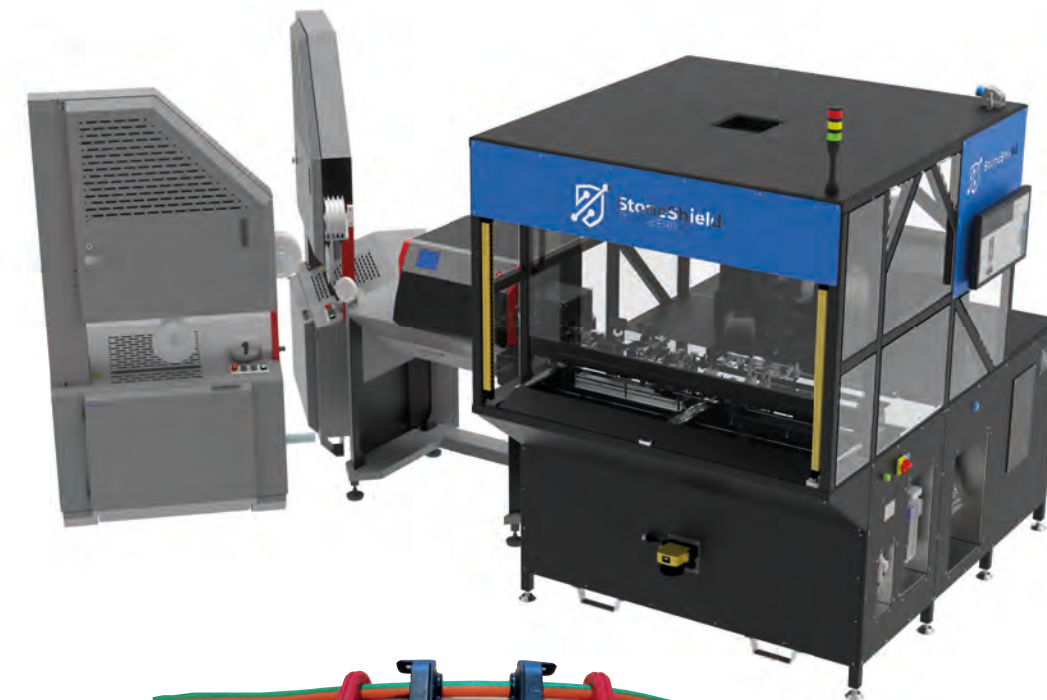
It can work in standalone mode or integrated with other machines, such as cutting and/or post processing machines (integration made in partnership with Komax machines).

Also, the robot can handle the cables or these can be handled by the operator, depending if additional autonomy or faster tacktimes are required.

The robot picks up the individual components and puts them into poke-yoke jigs. If the cable is handled by the robot, it then picks up the cables from a rack that holds them after being cut, or the cable is fed directly from the cutting machine and performs the pre-assembly. after the pre-assembly, it can feed the assembly to a Lambda machine, or put the pre-assembly into a storage rack.

The process has a tacktime of 4.5 seconds per component.

The complete configuration: Kappa->HV-RAM->Lambda (HV-RoFAL), automates the tasks of 4 manual operations.



Configuration:

- Robot
- Cables handled by Robot
- 2 cables processed simultaneously
- Flexible feeders
- 2x2 components
- Cable fed directly from Komax's Kappa cutting machine



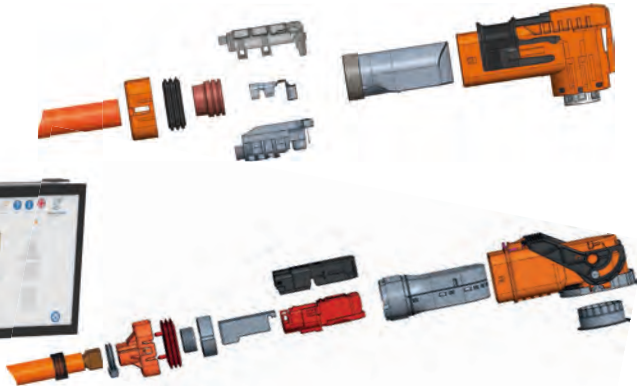
HV-FA

High-Voltage - Final Assembly

P/N: 01-06-0005



Applications:
Final assembly of HV connectors.



Technical Data:

Dimensions:
Length: 1300 mm
Width: 1300 mm
Height: 2300 mm
Weight: 450 kg



Connections:
Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 750 W (peak)
Air pressure: 4.5 to 6 Bar - quick-coupler socket - 8 mm
Interface: Touchscreen, buttons, tower LED

The HV-FA - High-Voltage - Final Assembly is a system designed to perform the final assembly of HV connectors, in a controlled and monitored way.

The operator places the components into poke-yoke jigs (in some cases, these components are loaded automatically from feeders), and after detecting the presence of all components, a servo motor performs the insertion.

Some key aspects of the final assembly, for example: the position of the outer conductor is monitored by a vision system, with multiple cameras, that relays the information to the servo motor, in a closed loop control system, in order to achieve the perfect position.

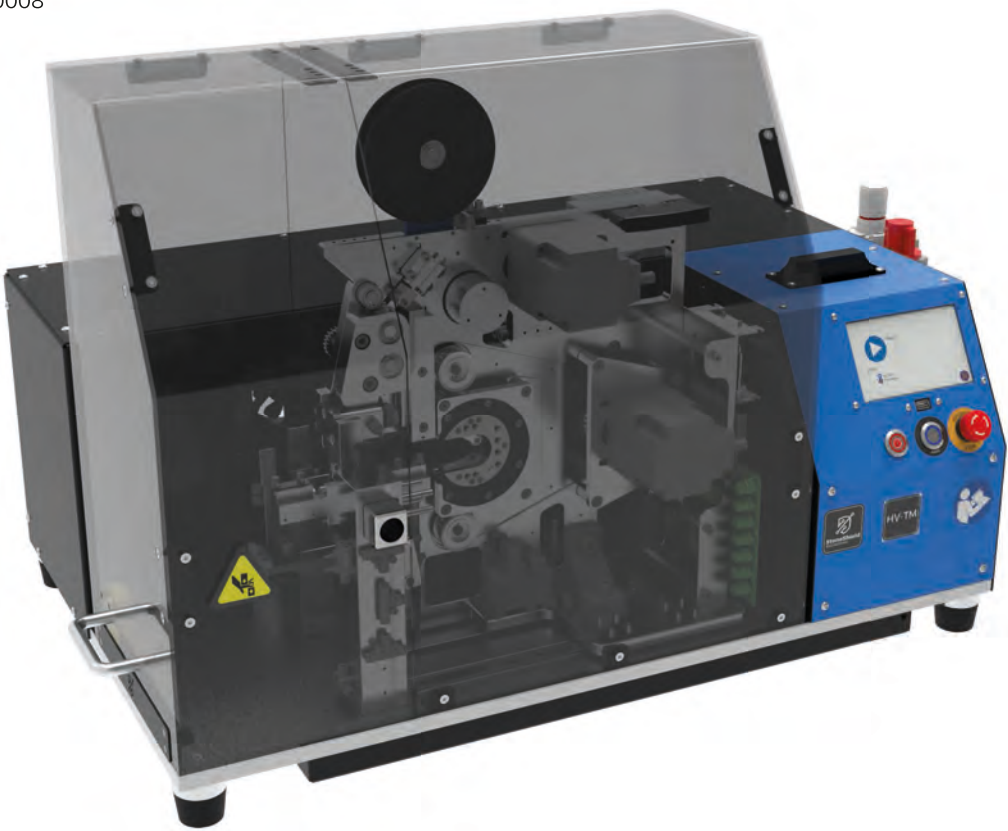
The vision system and laser sensors are also used to ensure the correct final position of the components.

With inbuilt OPC-UA communication, full traceability of the process is ensured and reported to the MES servers.

HV-TM

High-Voltage - Taping Machine

P/N: 01-02-0008



Applications:
Precise shield taping of HV cables with 5 (up to 9) mm tape width.



Technical Data:
Dimensions:
Length: 650 mm
Width: 450 mm
Height: 377 mm
Weight: 50 kg
Connections:
Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 1.5 kW (peak)
Air pressure: 4.5 to 6 Bar - quick-coupler socket - 8 mm
Interface: Touchscreen, USB, Ethernet



The HV-TM, High-Voltage Taping Machine, is a spot taping machine designed to perform a precise spot tape that ties and protects the wire shield of HV cables.

The position where the spot tape is made is highly precise, with a tolerance of +/- 0.5 mm. This position is ensured using sensors to detect the cable's position.

The machine is able to operate with different cross sections, by changing two side clamps. The clamp setup is very quick, since it uses plungers to secure them.

The machine recognizes the clamps installed and automatically adjusts the taping parameters.

The change of tape is done in a very fast and easy way, in less than 50 seconds.

The machine is designed as standalone, but also can be modified to be integrated with other machines or to work inline, since the cable is fixed and its the taping head that goes to the wire.

HV - SACA

High-Voltage - Semi-Automatic Component Assembly

P/N: 01-06-0001



Applications:

Assembly of flaps' modules of EVs' charging ports



Technical Data:

Dimensions:

Length: 900 mm
Width: 700 mm
Height: 810 mm
Weight: 80 kg

Connections:

Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 1.5 kW (peak)
Air pressure: 4.5 to 6 Bar - quick-coupler socket - 8 mm
Interface: Touchscreen, USB, Ethernet



The HV-SACA, High-Voltage - Semi-Automatic Component Assembly, is a machine designed to assemble, in a controlled way, the flaps' modules of EVs' charging ports.

It can process 4 different variants of flap modules. The variant is selected using a barcode reader.

The operator places each component in poke-yoke jigs, which upon detection, automatically performs the assembly.

After the assembly process, the machine measures the spring constant modulus of each flap independently.

The result of the assembly and the spring constant value is printed into a dedicated label.

A touchscreen displays every step of the assembly process.

HV-OI

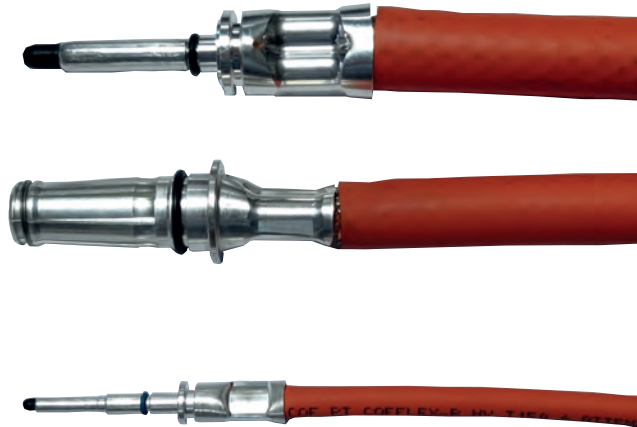
High-Voltage O-Ring Inserter

P/N: 01-06-0002



Applications:

O-Ring insertion into HV cables' terminals.



Technical Data:

Dimensions:

Length: 800 mm
Width: 1450 mm
Height: 810 mm
Weight: 120 kg

Connections:

Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 500 W (peak)
Air pressure: 4.5 to 6 Bar - quick-coupler socket - 8 mm
Interface: Touchscreen, USB, Ethernet



The HV-OI, High-Voltage - O-Ring Inserter, is a machine designed to insert O-Rings into HV cables' terminals in an automatic way.

Each cable type/O-ring type, has a dedicated inserter. The number of inserters is unlimited, only influencing the machine size.

The operator selects which type is to be processed using a barcode reader. Once selected, the machine lights a LED to inform where the operator should put the cable and shows the information on the touchscreen.

The operator places the cable on the selected inserter (only this one activates) and the machine locks the terminal, verifying if its the correct and if so, the O-Ring is inserted by pressing a button.

Each inserter has it's own O-Ring feeder with an average capacity of 40 units.

HV-IAT

High-Voltage Interactive Assembly Table

P/N: 01-06-0003



Applications:

To perform the assembly of HV harnesses in an interactive way.



Technical Data:

Dimensions:

Length: 2640 mm
Width: 1200 mm
Height: 1600 mm
Weight: 600 kg



Connections:

Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 1 kW (peak)
Air pressure: 4.5 to 6 Bar - quick-coupler socket – 8 mm
Interface: Touchscreen, USB, Ethernet

The HV-IAT, High-Voltage - Interactive Assembly Table, is a machine designed to guide and assist operators during the assembly of HV cables' harnesses.

Each assembly table has 3 different assembly panels, arranged in a triangle configuration, which allows the simultaneous usage of 2 different panels. The rotation of the panels is done manually, but the machine recognizes which variation is selected.

Each assembly panel is made by fixtures, where the operator places the different components. During this process, indicative LEDs guide the operators to ensure all steps are made correctly and a general touchscreen shows the progress and reference being produced.

Other processes, like tightening and straps application are also monitored. All data is stored for traceability.

When the assembly is finished correctly, the harness is released and a label is printed.

HV-TI

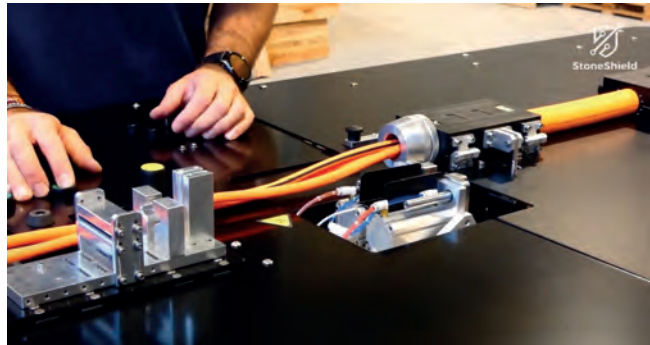
High-Voltage - Tube Inserter

P/N: 01-06-0004



Applications:

Insert tubes into HV long tubes



Technical Data:

Dimensions:

Length: 6000 mm
Width: 1000 mm
Height: 1200 mm
Weight: 180 kg



Connections:

Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 750 W (peak)
Air pressure: 4.5 to 6 Bar - quick-coupler socket – 8 mm
Interface: Touch buttons, tower LED

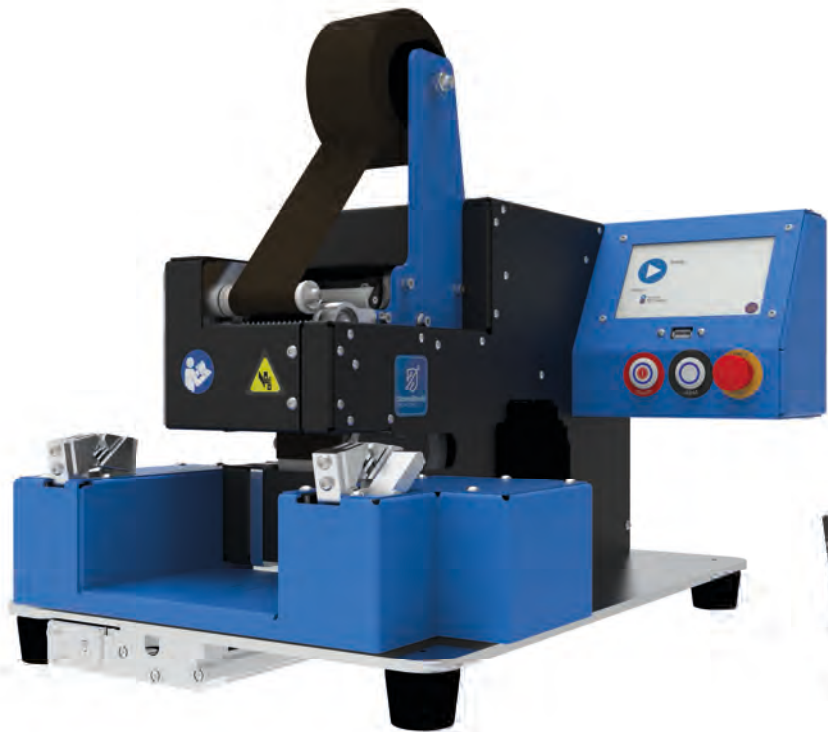
The HV-TI - High-Voltage Tube Inserter is a system designed to insert a braid shield and wires into long HV corrugated power distribution tubes, with more than 5 meters.

It uses jigs to conform the tube into position and a motor to push the braid and wires along the tube, making a complex and laborious manual task, into an automatic and simple process.

FTM

Flexible Taping Machine

P/N: 01-02-0001



Applications:

Spot taping for bundling; fixating; insulating; marking, labeling, etc. of normal and end-splices



Technical Data:

Bundle diameter:	1 to 12 mm
Minimum bundle length:	180 mm
Tape width:	9 to 53 mm
Tapes allowed:	Any standard adhesive tape

Dimensions:

Taping Head:

Length:	454 mm
Width:	375 mm (taping head: 320 mm)
Height:	390 mm
Weight:	35 kg

Control Module:

Length:	304 mm
Width:	325 mm
Height:	172 mm
Weight:	8 kg

Connections:

Electrical:	230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption:	1.5 kW (peak)
Air pressure:	4.5 to 6 Bar - quick-coupler socket - Ø 8 mm
Interface:	Touchscreen, barcode, buzzer and LED

The FTM - Flexible Taping Machine, is a workbench taping machine for performing spot taping to insulate or bundling splices and/or wires.

The control module is separated from the taping head, which allows for a compact design that results in a more ergonomic use and more free space in the workbench.

It has a typical processing time of 1.8 seconds.

The FTM is an all-in-one machine, since in the same machine it is possible to process normal and end-splices, without additional setups.

It also has: centering system that ensures that the tape is applied always in the middle of the splice;

Diameter detection (smart gripper) supplied as standard; Easy tape replacement; Simple and intuitive program configuration (just 3 parameters); Communication with ultrasonic welding machines; Easy program selection, using barcode readers or manually; Network communication; Partial and global cycle counters; Working time counter; Several system's languages; Easy upgradable software, that can be done using a USB stick.

STM

Simple Taping Machine

P/N: 01-02-0010



Applications:

Spot taping for bundling; fixating; insulating; marking, labeling, etc.



Technical Data:

Dimensions:

Length:	420 mm
Width:	210 mm
Height:	530 mm
Weight:	24 kg

Connections:

Air pressure:	4.5 to 6 Bar - quick-coupler socket Ø 8 mm
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The STM, Simple Taping Machine, is a spot taping machine designed to perform spot taping to insulate or bundling splices and/or wires.

It has a typical processing time of 3 seconds.

The machine is fully pneumatic, not requiring electrical connections.

The process starts by the operator putting the bundle into the machine and moving the cables inside it. This action initiates the taping process automatically.

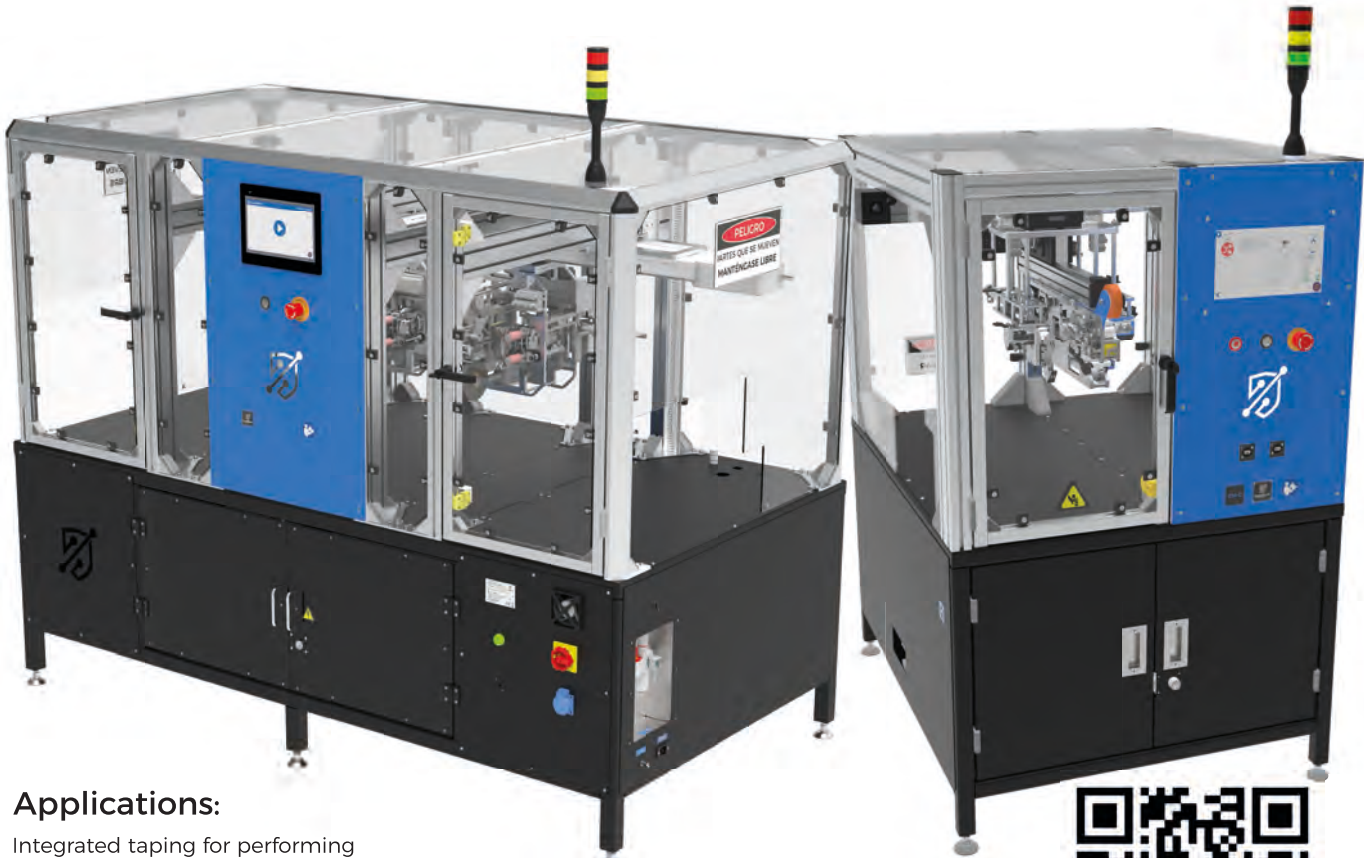
The quantity of tape is adjusted using a fast screw.

Low maintenance, fully adjustable and cost efficient machine.

ITM

Integrated Taping Machine

P/N: 01-02-0007



Applications:

Integrated taping for performing several spot tape or continuous taping on in-line processes.



- Connections:**
- Electrical:** 230 VAC @ 50 Hz -
1 IEC standard male socket
- Consumption:** 1.5 kW (peak)
- Air pressure:** 4.5 to 6 Bar -
quick-coupler socket - Ø 8 mm
- Interface:** Touchscreen, barcode,
buzzer and LED

The ITM is a taping machine, assembled in a XY axis system, which can be integrated in other in-line processes and that performs several spot tapes or continuous taping along a cable or a cable bundle

The number and positions of the taping places are fully configurable. These parameters are combined into a program, which is stored in memory and activated when requested by an external machine.

Each tape operation can be configured with it's own parameters.

The entire spot tape process (positioning and tape) is done in only 4 seconds. For continuous tape, the speed is 100 mm/s.

The machine can be supplied with a complete structure to be fully and easily integrated into an existing production line, or simply the taping module can be integrated into an existing machine.

It is connected to other machines by MODBUS/TCP (or other protocol if desired), receiving from the master controller the program ID and the start signal. Once it finishes, it returns the feedback signal, indicating the result of the taping process.

DLT

Double Layer Taper

P/N: 01-02-0004



Applications:

Production of double side tapes from single side tapes.



Technical Data:

- | | |
|-----------------------------------|----------------------------|
| Single tape widths: | 25 to 40 mm |
| Inner core single tape: | 38 mm or 76 mm |
| Single tape length: | Up to 66 meters (Ø 150 mm) |
| Double tape widths: | 35 mm to 50 mm |
| Inner core double tape: | 38 mm |
| Average linear reel speed: | 165 mm/s |
-
- | | |
|-----------------------|---|
| Dimensions: | Connections: |
| Length: 630 mm | Electrical: 230 VAC @ 50 Hz -
1 IEC standard socket |
| Width: 750 mm | Consumption: 1.5 kW (peak) |
| Height: 400 mm | Air pressure: 4.5 to 6 Bar -
quick-coupler socket
- Ø 8 mm |
| Weight: 50 kg | |

The DLT- Double Layer Taper, is a workbench taping machine to produce double layer tapes from 2 single layer tapes.

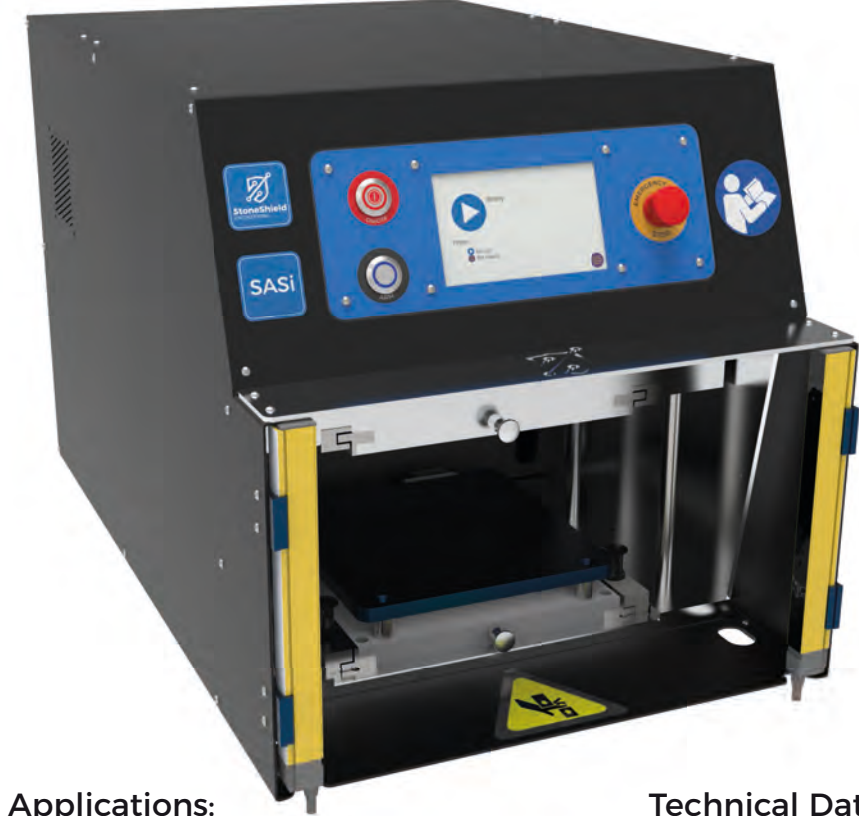
The use of double layer tapes in the taping process of wire harnesses has many advantages, being the most important the fact that the glue will not stick to the wires, allowing free movement and flexibility of the cables.

The machine allows to produce double tapes with different configurations, stored in pre-defined programs. It is possible to define the overlap of tapes, the diameter of tapes and the desired length of the final tape. It also allows to process tapes with different widths and to adjust the speed of reeling.

SASi

Semi-Automatic Seal Inserter

P/N: 01-01-0004



Options:

Connector's Tray

P/N: 08-15-0001

Seal Mask + Insertion Pattern Pair

P/N: 08-15-0002

Storage Unit (for 12 sets)

P/N: 08-15-0003

Applications:

Seal Insertion in a semi-automatic mode.



Technical Data:

Dimensions:

Length:	620 mm
Width:	385 mm
Height:	390 mm
Weight:	50 kg
Area of Connectors	
Trays:	140x140 mm

Connections:

Electrical:	230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption:	500 W (peak)
Air pressure:	4.5 to 6 Bar - quick-coupler socket - Ø 8 mm
Interface:	Touchscreen, USB, buzzer and LED



APM

Automatic Punching Machine

P/N: 01-01-0003



Options:

Punching Tool Head

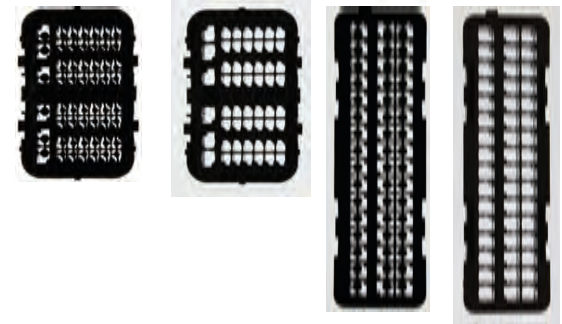
P/N: 08-07-0001

Connector's Nest

P/N: 08-07-0002

Applications:

Break plastic pins from connectors



Technical Data:

Dimensions:

Length:	448 mm
Width:	345 mm
Height:	500 mm
Weight:	30 kg

Connections:

Electrical:	230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption:	250 W
Air pressure:	4.5 to 6 Bar - quick-coupler socket - Ø 8 mm
Interface:	Touchscreen, 1x USB



The APM is a automatic system designed to break plastic pins from connectors (punching system) in a fast and automatic way.

It ensures high quality and precise results with burr free cut and undamaged connector's vias.

It has dedicated tools for each vias' pattern.

The punching patterns are changeable semi-automatically or manually.

It can punch 2 connectors in each operation.

Combined with this flexibility, it also has a high productivity, since all pins are broken at the same time.

The same machine can be used for different connectors by changing the connector's nest.

It has teh configuration mode password protected; Partial and global connector's counters; Working time counter; Automatic tool and connector detection; Automatic production and statistics reports; Several system's languages; Easy upgradable software, that can be done through a USB stick.

The SASi - Semi -Automatic Seal inserter machine, is a low cost solution for seal insertion, with error proof and automatic insertion of seals.

The machine is completely flexible, being able to work with different seals, connectors and insertion patterns.

For selecting different combinations, the machine has the following quick setup exchangeable components: a connectors tray, an insertion pattern tray and a seals mask. These components are bundled into a pre-programmed reference, which can be later used during production.

The operation starts by selecting which reference the operator wants to produce and then by inserting the correspondent trays into the machine.

In order to avoid any error or wrong combination, each tray is equipped with a RFID tag, which are verified before the operation starts. If all components are ok, the operator positions the connectors into the respective tray and the seals into the seal's mask and presses 2 buttons or a foot pedal to insert the seals. All seals present in the configuration are inserted at the same time.

For organization purposes, the machine can be supplied with a storage unit to store all trays.

P-AOI

Punching - Automated Optical Inspection

P/N: 01-01-0005



Applications:

Performs visual inspection and validation of connectors after the punching process



Technical Data:

Dimensions:
Length: 420 mm
Width: 210 mm
Height: 530 mm
Weight: 24 kg



Connections:
Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 1000 W (peak)
Interface: Touchscreen, USB, buzzer and LED

Options:

Connector Matrix + Inspection Program

P/N: 08-16-0001

The P-AOI - Punching Automated Optical Inspection is a system designed to perform visual inspection of previously punched connectors in order to check if the punching process is in accordance with the required. The machine verifies if the correct holes are punched and the quality of the punch (hole clearance and burr dimensions). The punching pattern to be verified is selected using a barcode reader or supplied by an APM machine. The patterns are defined locally, by the user as well as the hole clearance and acceptance threshold. The user places the punched connectors into a matrix and presses a button to start the inspection process. The software automatically identifies if the pattern is the correct one and which holes are OK and NOK. The matrix is flexible for different connectors, but can also be exchanged if needed. New connectors identification software can be easily upgraded into the machine.

MHT-CC

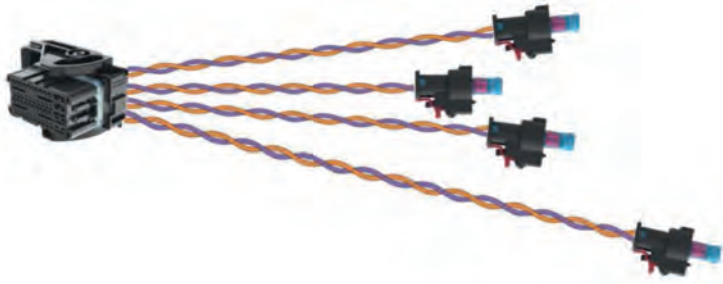
Multi Head Twister for Cables with Connectors

P/N: 01-01-0006



Applications:

Perform wire twisting in cables with mounted connectors



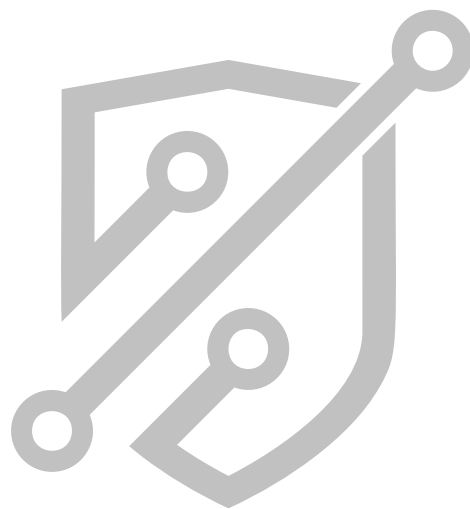
Technical Data:

Dimensions:
Length: 2400 mm
Width: 850 mm
Height: 1850 mm
Weight: 430 kg



Connections:
Electrical: 230 VAC @ 50 Hz - 1 IEC standard male socket
Consumption: 750 W (peak)
Air pressure: 4.5 to 6 Bar - quick-coupler socket - 8 mm
Interface: Touchscreen, USB, Ethernet

The MHT-CC, Multi Head Twister for Cables with Connectors, is a wire twister for cables that have connectors already assembled. It is prepared up to 4 completely independent twisting heads (can go up to 6) and can process wires up to 2 meters length (this value can be extended). For each twisting head, it's possible to define the pitch directly or through the number of turns and the wire tension applied. All parameters are stored in memory and can be selected using a barcode reader, touchscreen display or remote server connection. It enables high speed production with one operator, enabling to obtain a complete multi-cable product in one single cycle.



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Certifications:




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StoneShield
ENGINEERING

 **Operations Center:**
StoneShield - Engineering, LDA
Zona Industrial de Castelo Branco
Rua D, Lt. 120, Mod A1
6000-790 - Castelo Branco - Portugal

 info@stshield.com

 +351 272 327 253

 N 39.801913, W 7.533327

 www.stshield.com



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