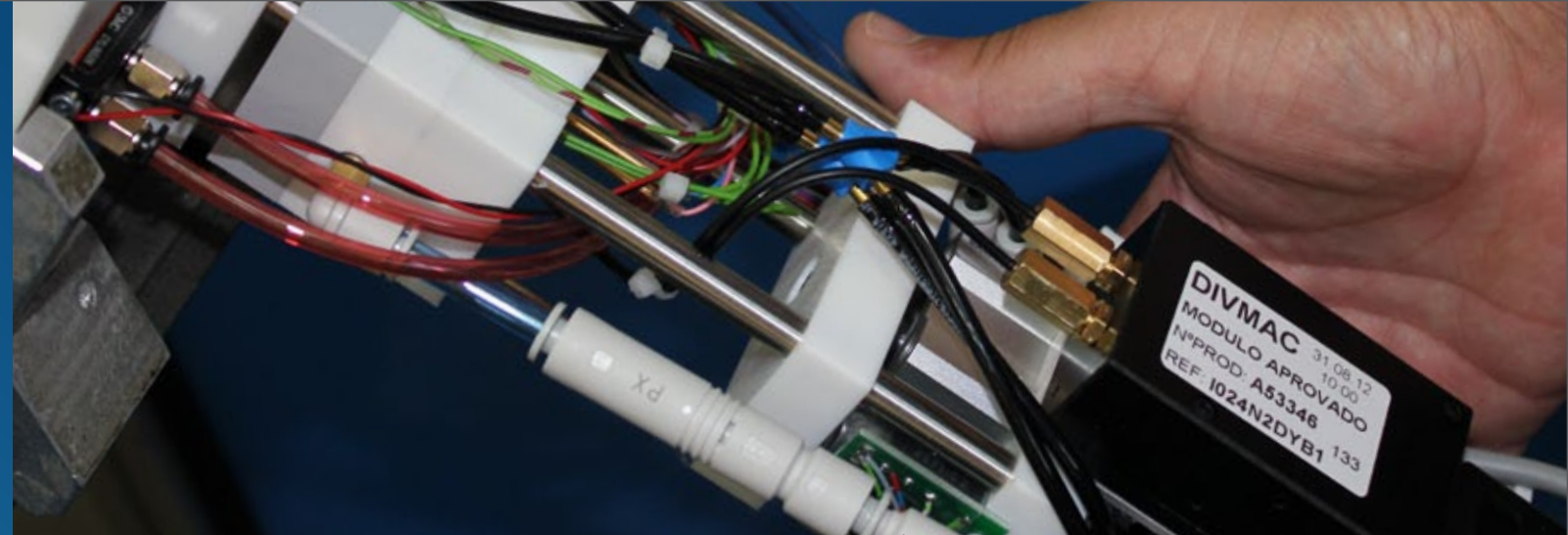
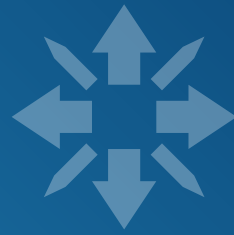




# AUTOMATISMS AND INDUSTRIAL PERIPHERALS

# ACCURACY INDUSTRIAL DETAIL



## Automatism and industrial peripherals

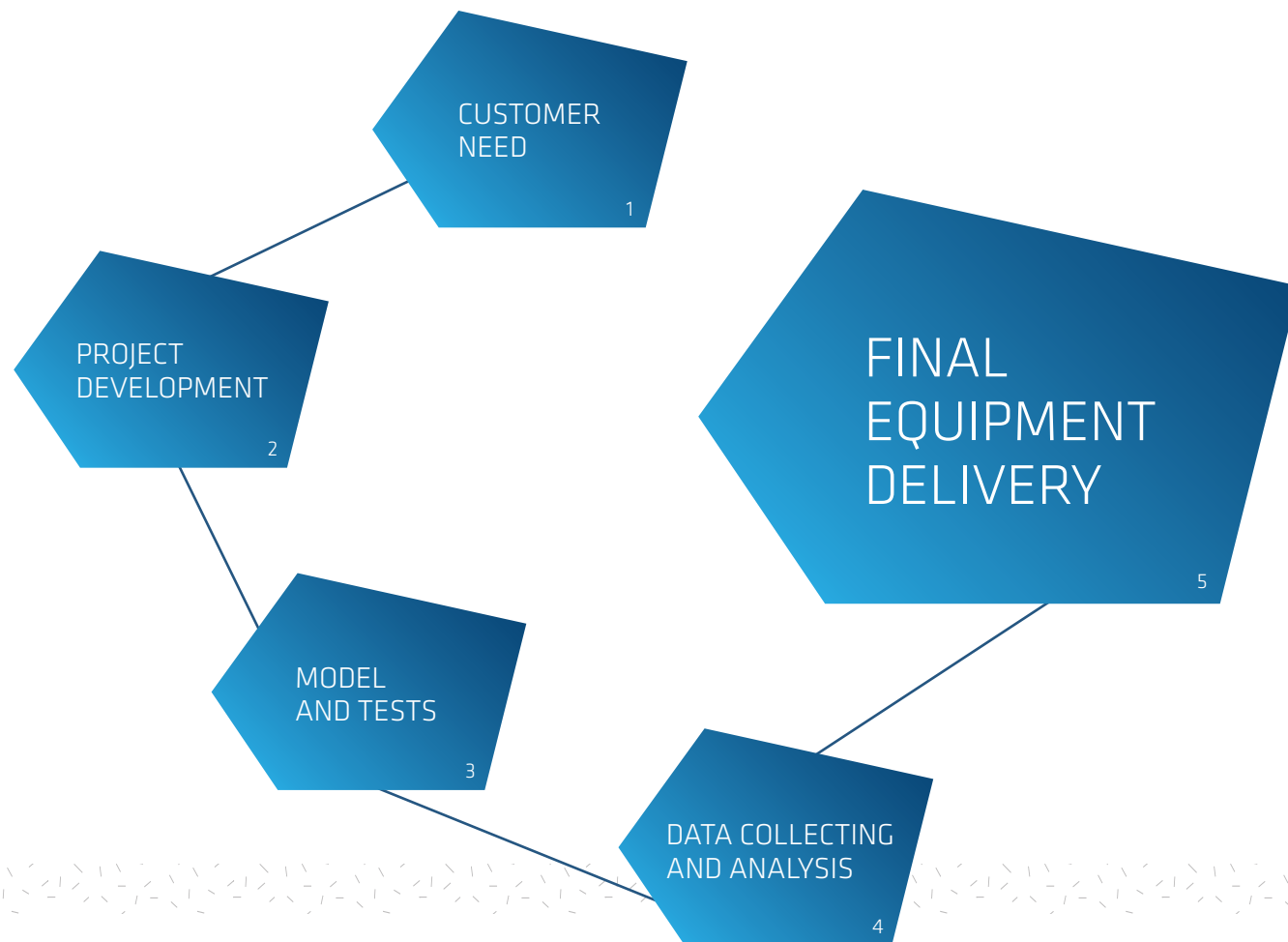
Divmac is a solutions company operating in a wide range of industries, devoted on developing and manufacturing systems and focused on specific customer needs, according to well-defined standards.

Divmac enhances Research, Development and Innovation, as well as the design and manufacturing systems, creating top quality equipment.

From electrical test equipment for the aeronautics and automotive, to industrial automation and peripherals, it develops systems that,

integrated in the production processes of customers, complement or replace hand labor, increase production efficiency and capacity, increment security levels and enhance and/or ensure top quality of final product.

The success of Divmac is the reflected success of its stakeholders and its presence in the ever expanding global market, as well as the recognition by manufacturers known worldwide, is the reward sought for excellence and constant dedication to exceed the expectations presented by our customers.



## WHAT WE DO EQUIPMENTS / SOLUTIONS



### Aeronautics

Through automotive sector "Know-how", and with the aim of diversifying activity sectors, Divmac has continuously been developing high voltage products and solutions according to the Pr-EN2283 standard. Only a strong knowledge and extensive experience on designing and manufacturing equipments, allows Divmac to fulfill its customer needs.



### Automotive

Divmac has developed valences which enable the conception of innovative solutions, focused on fulfilling customer needs, considering as main goal an increase of effectiveness and efficiency of manufacturing processes, as well as quality assurance. It presents a wide range of products, especially intended for quality monitoring, ensuring the full compliance of customer requirements.



### Customized Solutions

Divmac has a strong design and product development team, with a huge "Know-how" in several engineering areas. Through strong capabilities in developing special and customized solutions, its products are designed according to customer needs, and are applicable for components and parts manufacturing, as for after processing assessment control.



### Artificial Vision

Based on sustained growth and overall experience increase in other sectors, and regarding specific customer needs, Divmac develops control software and hardware solutions through artificial vision, which can be used for several segments of industrial activity, since components detection to color detectors, or LCD display analysis.



# KNOWLEDGE STRICT PROCESS



## Strict management

Divmac administration success is achieved by accomplishment of several guidelines:

- . Development of a customer value feeling among employees.
- . Split the scope of action, to attend to multiple stakeholders, interests and influences.
- . Management clearness.
- . Balance between different deadlines, creating results and values cycles.
- . Priorities adaptation depending on differentiation and competitor benefit.
- . Network collaboration stimulation.
- . Time available combined with discipline, to markets and businesses that are beyond sectors operating.
- . Identification, understanding, selection and adoption of top technologies through several trends and innovations available in the market.
- . Systematic innovation promotion based on stout and suitable processes.

## ISO 9001

Organization enhancement is an everyday goal and company certification based on, an initial phase, ISO 9001 standard, and later, on a Quality (ISO 9001), Environment (ISO 14001) and Security (OHSAS 18001) Management System were stages that enable the presented goal.

Always having as first priority customer satisfaction, certification is used to assess actuation needs, production improvement, employees motivation and to establish a balanced ratio between environment, security and good work conditions. This is only possible with collaboration of all staff.

Only with customer satisfaction and betting on innovation, Divmac is able to maintain loyalty and customers trust.



# STAKEHOLDERS RESPECT WORK REFLEX

## People are our success!

People surrounding, integrity, consistency, ethic, professionalism and trust, together with team work, makes people satisfied, compromised and with their own sense of valorization.

## Customers partners!

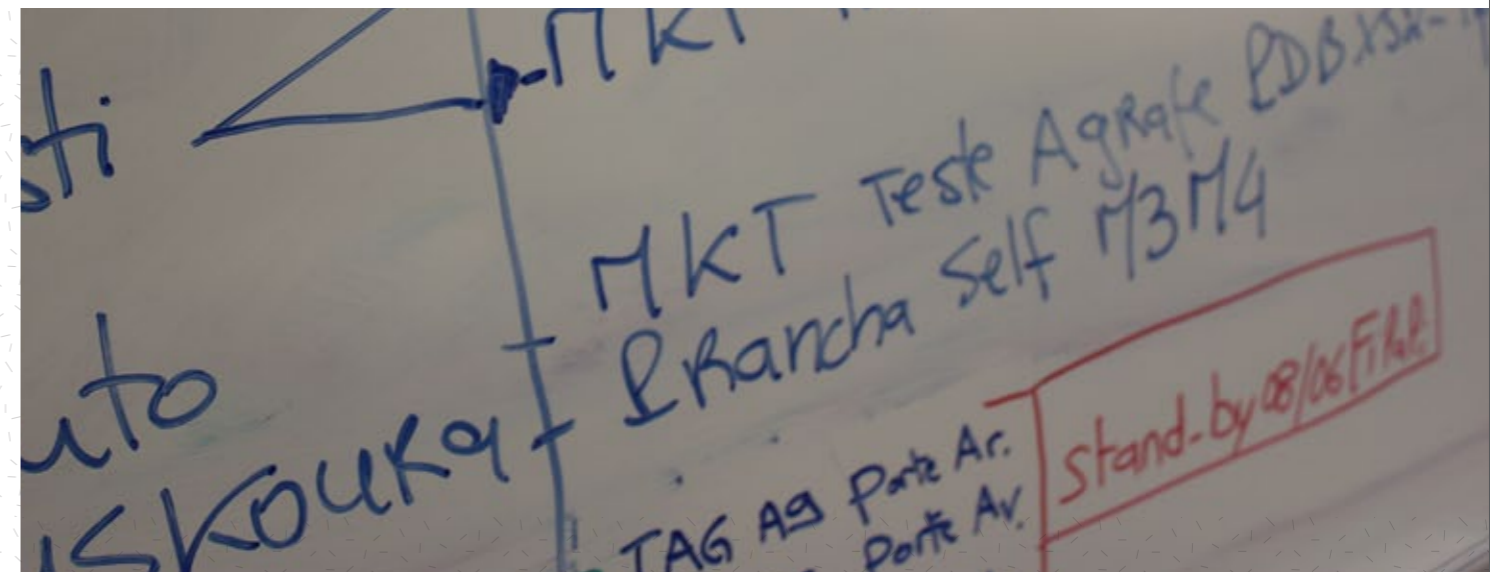
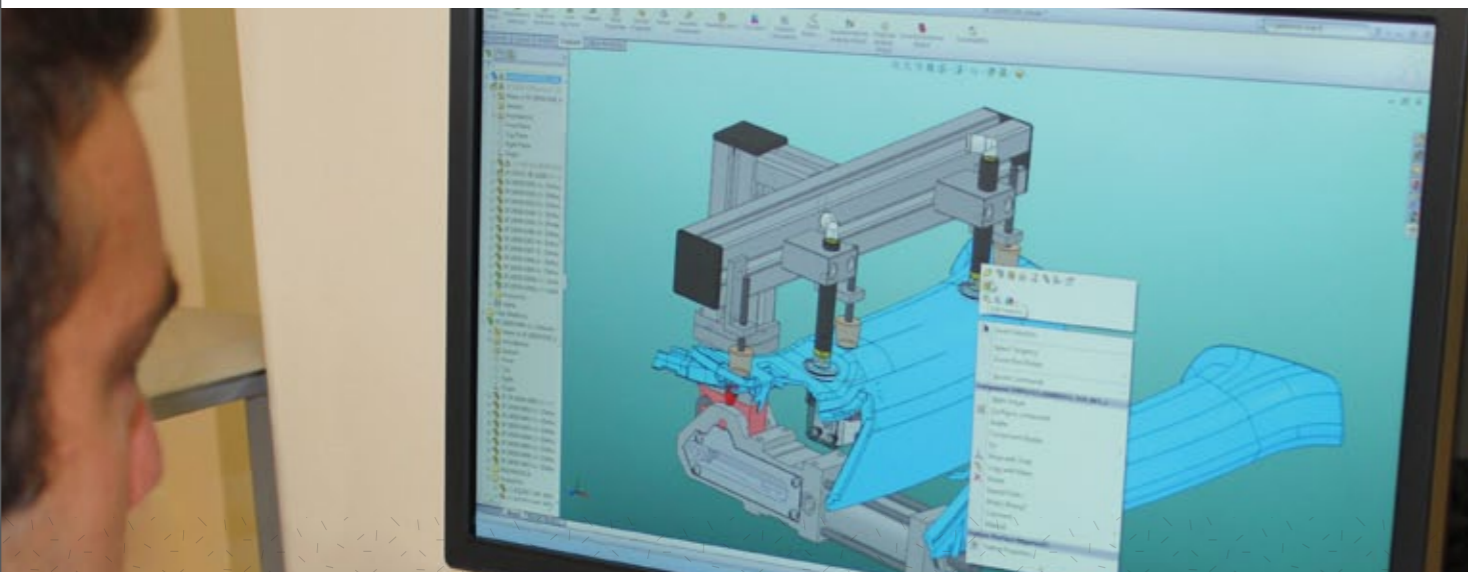
Proud and posture sense, to who we work every day with the goal of needs fulfillment, based on high trust and professionalism compromised levels.

## Socially responsible!

We worry ourselves by an active way of contribution for the society we live.

## Grow sustainably!

Looking for planned strategies that help us reinforce our organization and generate sustainable support, by meeting stakeholders satisfaction (bringing up shareholder profitability and guaranteed respect for life Quality, environment and society in general).



# AERONAUTICS



## HAR-9300 ELECTRICAL TEST

Equipment for high voltage test of helicopter electrical wiring on its production line.

2500 test points expandable up to 17000 through expansion cards addition with 1024 ou 2048 test points / Maximum work voltage: 1300V (Standard Pr-EN2283) / Mobile work station which enables remote control



AERONAUTICS

6

AUTOMOTIVE

8

CUSTOMIZED

14

ARTIFICIAL VISION

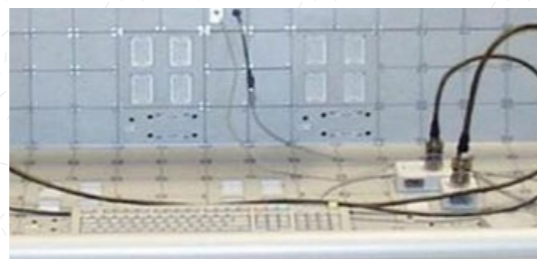
22

## TIGER ELECTRICAL TEST



Equipment for high voltage test of small helicopter electrical wiring.

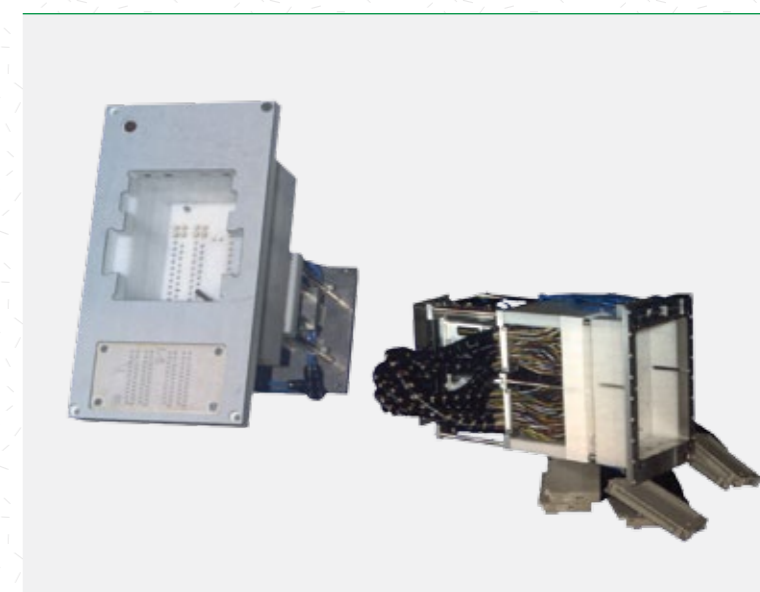
Thousands references in the same equipment / Automatic Recognition of test interfaces / Ergonomic and modular design / 1024 test points expandable regarding customer requirement / Insulation resistance and dielectric rigidity test / Maximum work voltage: 1300V (Standard Pr-EN2283)



## TIGRE/HAR-9300 MODULES ELECTRICAL TEST

Product developed in order to be an extension of test points for test interfaces.

Simple continuity with mobile bloc / Led pushbutton for error indication and connector release / Automatic recognition of test interfaces / Maximum work voltage: 1500V / 512 test points (HAR-9300)



## CONSOLES FUNCTIONAL TEST

Equipment developed for high voltage of functional and electrical test of console command.

Ergonomic design / 1024 test points expandable regarding customer requirement / Relays, lamps and switches functional test / Automatic algorithm software for different test steps / Maximum work voltage: 1300V (Standard Pr-EN2283)



# AUTOMOTIVE



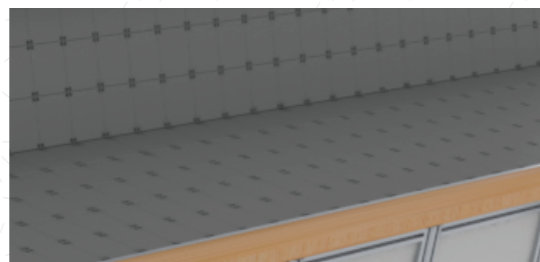
AERONAUTICS 6    AUTOMOTIVE 8    CUSTOMIZED 14    ARTIFICIAL VISION 22

## MTE-99 (2 PLANES) ELECTRICAL TEST



Developed for wiring test, in its design several issues were considered like ergonomics, ease of movement and handling for equipment transport, being a customer requirement equipment.

Ergonomic, functional and operator-oriented design / Easy electrical and pneumatic module connection / Two work planes / Modular design / Available in 1, 2, 3, 4, 5 and 6 meters (customer requirement) / Able to meet one or more workstations / Exterior and interior lighting



## MTE-08 (1 PLANE)

### ELECTRICAL TEST

Developed for wiring test, in its design several issues were considered like ergonomics, ease of movement and handling for equipment transport, being a customer requirement equipment.

Ergonomic, functional and operator-oriented design / One work plane (both sides operations) / Easy electrical and pneumatic module connection / Available in 1, 2, 3, 4, 5 and 6 meters (customer requirement) / Modular elements constitution / Able to meet one or more workstations / Exterior and interior lighting

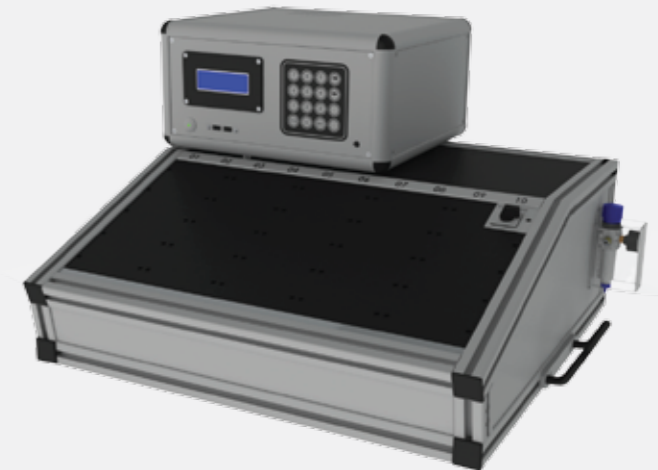


## M-MTE-20-01 (1 PLANE)

### ELECTRICAL TEST

Developed for small wiring test with high cadence whose test requirements are not complex, in its design several issues were considered like workstations ergonomics, being a customer requirement equipment.

Ergonomic, functional and operator-oriented design / Easy electrical and pneumatic module connection / Work plan / Size regarding customer needs / Able to meet one or more workstations / Modular elements constitution / Designed to be installed in a conventional workstation



## SELF PLANK

### ELECTRICAL TEST

Equipment developed together with customer, which enables the complete production of a wiring. This product fits small and with short outputs wirings. In this planks wiring production is made with dimensional control, and the electrical test begins after operator order. Its modules are similar, in characteristics and functions, to the MTE-99 ones, although they are exterior shielded and applied above the plank. The mobile structure has high and leaning regulation and is easily detachable from the plank.

Enables complete production of a wiring / Fits small and with short outputs wirings / Wiring mounting with dimensional control / Electrical test after operator order / Mobile structure with high and leaning regulation / Table base in wood or perforated aluminum



## HAR-700/1000 ELECTRICAL TEST

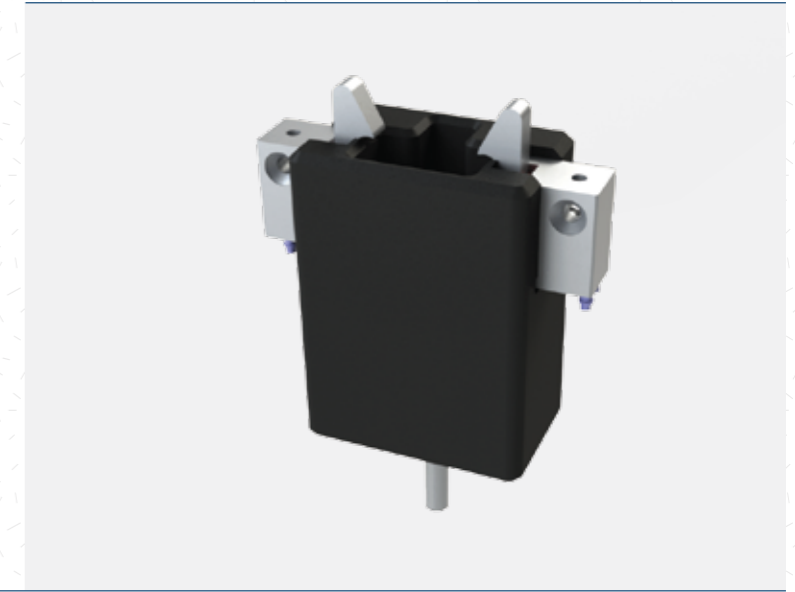
Equipment developed for automobile wiring high voltage test in automatic production lines.



Kelvin test / Maximum work voltage: 1000V / Reference selection testing and test result through high level Inputs and Outputs

## SIMPLE ELECTRIFIED MODULE ELECTRICAL TEST

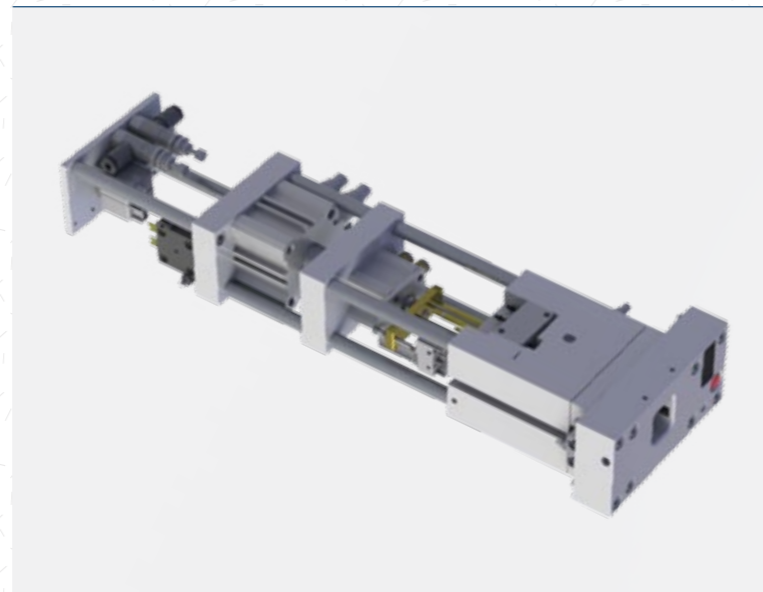
Product with simple electropneumatic design based on customer requirements and/or connector manufacturer for workstations application: Self Plank.



Mechanical connector retention / Individual mechanical release or collective automotive release / Contact by threaded pins or fit pins with forces from 0,8N to 3N and heads indication for the respective terminal / It only enables simple continuity test and vertical detections

## ELECTRICAL TEST WORKSTATION ELECTRICAL TEST

Product with electropneumatic design based on customer requirements and connector manufacturer for workstations application: MTE-99 (2 PLANES) and MTE-08 (1 PLANE). Fitting or own manufacture threaded pin contacts with forces from 0,8N to 25N and with heads indication for respective terminal. Several functions: automatic and with controlled force block closure terminal; connector tightness test by under pressure or vacuum and colour detection by optical detectors



Automatic connector release by power cut / Led pushbutton for error indication and connector release / Several insertion types: fixed bloc; simple contact mobile bloc and "push-back" contact mobile bloc / Several components detection linked by micro-switches or optical barriers / Minimum dimensions 50x100mm; multiples of 50mm / Automatic connector retention by electropneumatic block / System wiring by plug

## MOCKUP CLIPS TEST

Product developed for presence, position and orientation clips (staples) control in the wirings. Presence control by a test system. Mechanical clip block and release, through operator, or pneumatic release in the end of the test. Mockup enables wiring distribution, through forks, whose support it and guarantee clips position control. Can be developed on rotative workstation to right and left wiring.



Clips position control by forks / Presence, position and orientation clips control in the wirings / Presence control by test system (standard or personal) / Table base in wood or perforated aluminum / Enables wiring distribution / Can be developed on rotative workstation to right and left wiring / It enables wiring dimensional control

## SELF PLANK MODULES ELECTRICAL TEST

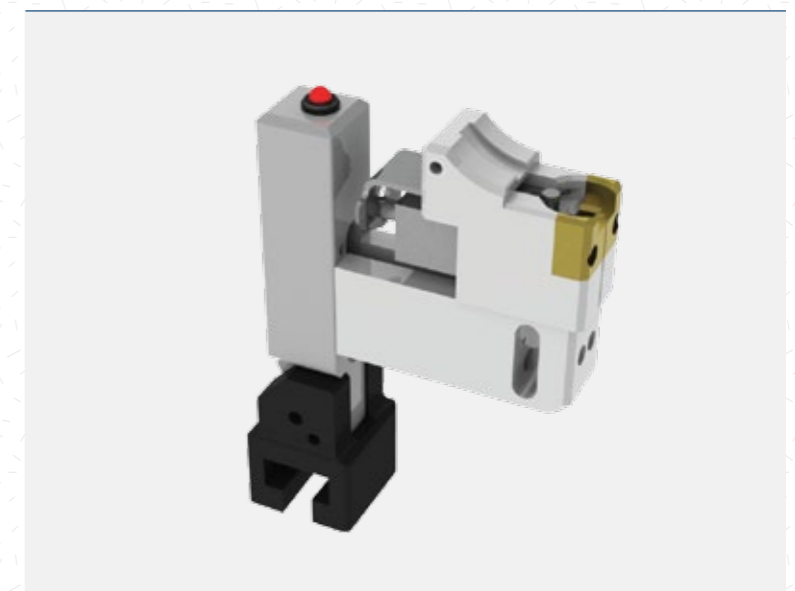
Product with electropneumatic design based on customer requirements and/or connector manufacturer for workstations application: Self Plank. Fitting or own manufacture threaded pin contacts with forces from 0,8N to 25N and with heads indication for respective terminal. Automatic connector retention by electropneumatic block and automatic connector release by power cut. Shielded modules externally to be applied above the plank.



System wiring by plug / Led pushbutton for error indication and connector release / Several insertion types: fixed bloc; simple contact mobile bloc and "push-back" contact mobile bloc / Several components detection linked by micro-switches or optical barriers / Several functions: automatic and with controlled force block closure terminal; connector tightness test by under pressure or vacuum and colour detection by optical detectors

## CLIP MODULE CLIPS TEST

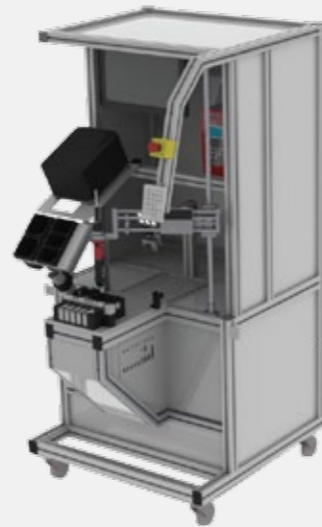
Product developed for clip test mockup introduction for presence, type, position and orientation control of the clip on wiring.



Mechanical clip lock with manual release, through operator, or pneumatic release in the end of the test / Specific configuration to guarantee clip orientation / It guarantee the presence electrically and the clip type mechanically / Led for error indication / Enables rods application with different highs, adjustables and folding

## BFDB BOLTING SYSTEMS

Product developed for bolting terminals in its respective box position and to check elements presence by artificial vision.

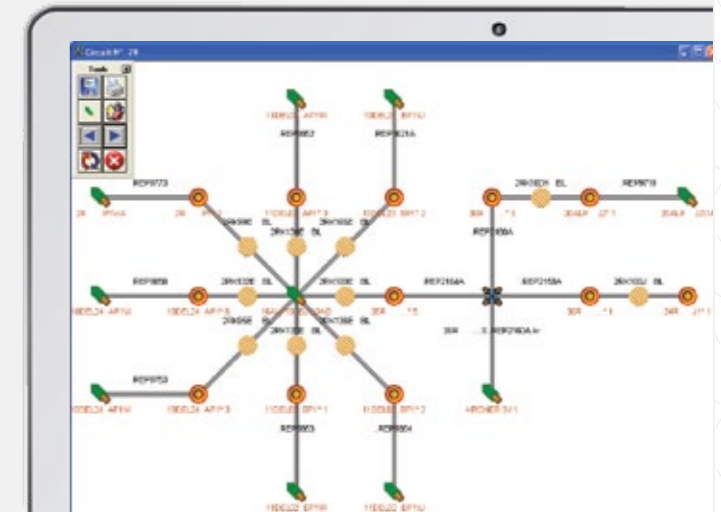


Product type selection by bar code / Guarantees terminal bolting in its right spot / Bolting with torque and angle control / Electrical continuity verification / Elements presence control by artificial vision / Can work independently or integrated in other equipment

## MONCAB/EDCAB SOFTWARE AND HARDWARE

Software developed for references setup and low voltage equipment test control.

Power and intuitive graphical interface for setup and errors presentation on several test equipments / User-friendly and quick learning / Multilanguage / Possible to implement new requirements regarding customer needs / Excel, txt and specific customer formats conversor



## MEF-V2001 TWISTERS

Telescopic machine for wire brade.

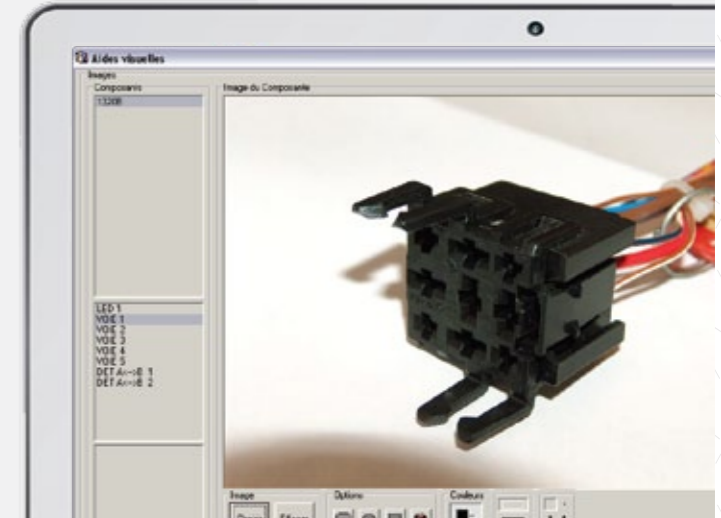


1 workstation / Manual introduction of number of turns according to wire type / Possible to brade 2 or 3 wires per head / 2 winding heads / Possible to brade 2 wires sets of the same type / Easy wire block on the head / Pneumatic wire block on car compensation / Dimensions: 500x3750 to 6100mm

## DV-SCAN SOFTWARE AND HARDWARE

Software developed for setup/control of small wirings.

User-friendly and quick learning / Possible to introduce new requirements based on customer needs / Powerful processes editor / Modular setup



## DIVTESTER SOFTWARE AND HARDWARE

Hardware specially developed for small wiring test.



Up to 256 test points / Test system All-In-One (PC and integrated data acquisition unit) / 8 inputs and 8 setup outputs / Setup with DV-SCAN software or through auto-learning option / Front panel with numeric keyboard, LCD, probe and USB input / Compact metal box 340x170x310mm

## HVAC SENSORS SOFTWARE AND HARDWARE

Software/Hardware developed for functional test of several system HVAC sensors.

Signals reading from several HVAC sensors / Setup and parameterization user-friendly / Gauges and reading comparison / Setup/analysis graphical interface

Reference OK			
Samples:			
Channel 0 : Master Probe	Ref 22,26 °C	Channel 4 : Master: 0 / 0	Probe 22,15
Channel 1 : Master: 0 / 0	Probe 1 22,25 °C	Channel 5 : Master: 0 / 0	Probe 22,54
Channel 2 : Master: 0 / 0	Probe 2 22,51 °C	Channel 6 : Master: 0 / 0	Probe 21,64
Channel 3 : Master: 0 / 0	Probe 3 22,43 °C	Channel 7 : Master: 0 / 0	Probe 21,73

# CUSTOMIZED



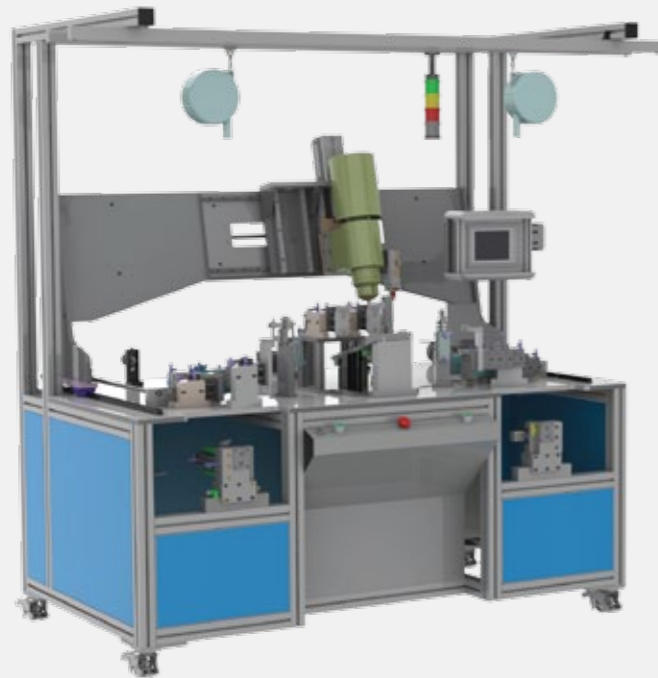
AERONAUTICS 6

AUTOMOTIVE 8

CUSTOMIZED 14

ARTIFICIAL VISION 22

## FRONT END PASSAT COUPE ASSEMBLY



Equipment specially designed for placing metallic rivets on the plastic front end of the VW Passat Coupe.

Pneumatic riveters operation / Rivets application, movements on XYZ axes, for metallic washers with tab crimping / Metallic clips introduction / Checking right placement of all elements / Setup console with all cycle steps / Bimanual control for operator safety / Electric and pneumatic movements.



## GAS BOTTLE ULTRASOUND WELDING

Ultrasound welding equipment (Plastic-Plastic) for gas bottle handles welding.

Manual placing of the chip and handles on the equipment / Chip presence checking / Handles welding by ultrasound / Frontal door for operator protection / Bimanual control / Console for process control and welding parameters introduction



## HEADREST ULTRASOUND WELDING

Equipment specially designed for automotive sector for welding the headrest (plastic piece).

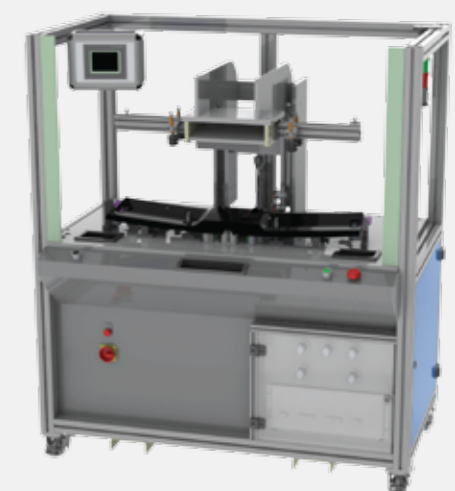
OK warning, when the piece is correctly welded / Frontal protection system / 5 sonotrodes / Console for process control and welding parameters introduction



## ASM PANEL ULTRASOUND WELDING

Equipment developed for ultrasound welding, clips introduction and final checking.

Based on 2 generators and 5 sonotrodes / Automatic system for withdraw the piece from the welding area / Setup console for checking all cycle steps / Safety barriers ensuring operator protection







## C PILLAR L/R A3 ULTRASOUND WELDING

Equipment developed for right and left piece ultrasound welding on the Audi A3, working 2 operators simultaneously on opposite sides of the same equipment.



Based on 4 generators and 6 sonotrodes / Time setup console with all welding steps, since placing the piece until it is ready / Safety barriers for operators protection / Bar code reader

## SURGICAL GOWNS ULTRASOUND WELDING

Equipment developed for surgical gowns production by ultrasound welding.



Ultrasound welding / Parameterization console of pieces quantity by lot / Cycles number count / Continuous welding with tape traction system / Folding tape

## MOLD PARTS 7157 ULTRASOUND WELDING

Equipment developed for simultaneously ultrasound welding in left and right parts.



Based on 9 welding sonotrodes placed on top position / 3 generators / Parameter control console / Safety barriers for operator protection

## COSTADILLO SE250 WELDING BY HOT SPOTS

Equipment for hot spots welding on door panel.



19 Welding by hot spots / 2 Metallic clips introduction / 6 Plastic clips introduction / Safety barriers / Panel block by superior sum descent / Parameterization console and operational sequences visualization

## SOLAR PANEL ULTRASOUND WELDING

Ultrasound welding equipment (Metal-Metal) for welding water pipes on the heat absorbs panel.



Possible to weld pipes with different diameters by gags change / Sonotrode rotation welding / Enables several pipes welding on the same panel / Console for process control and welding parameters introduction / Safety barriers for operator protection

## PASSAGE ROUE ROBOTIC

Equipment developed for elements mounting on pieces after its injection.

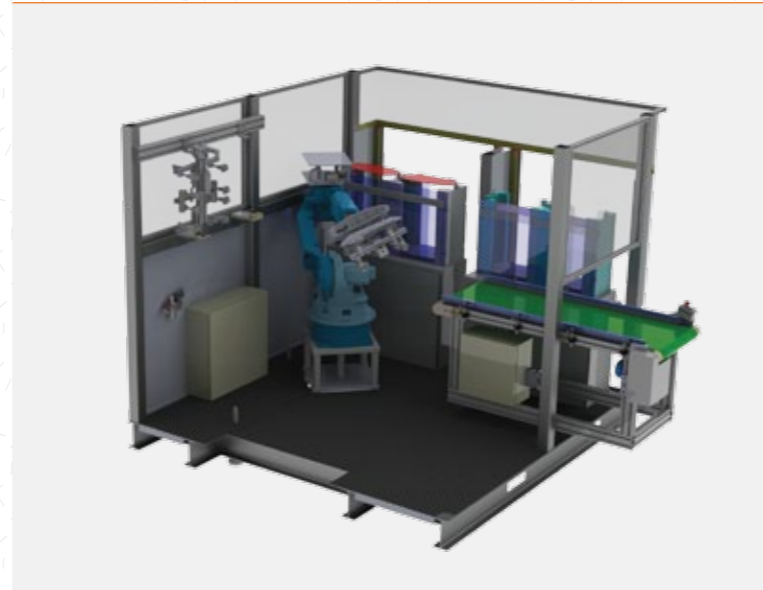


Robot equipment with 6 axes / Robot arm moves from vibration pots, for picking elements, to the piece / Injected pieces are placed and removed from the equipment by the injection machine robot / The detection of the elements placed by the robot is made by a detector located at its head



## ACCOUDOIR M3M4 ROBOTIC

Equipment specially developed for placing tissue locket on injection mold.



Robot equipment with 6 axes / 4 textile locket feeders triggered by gearmotor / Safety barriers for operator protection / Double gripper, linked to 6 axes robot to remove injected pieces and placing medallion / Treadmill for placing injected pieces with tissue

## IRUE PANEL ASSEMBLY

Equipment for 3 sensors assembly and checking.



Operator intervention only in the beginning and operation ending / Checking piece version / Manual placing of the elements in the equipment / Checking sensors assembly through infrared view cameras / Checking OK by hot point regarding piece version / LED's panel for error identification

## REACTION PLATE ASSEMBLY

**Workstation 1** (Spring assembly U type):

- . U-Spring automatic assembly.
- . Spring force checking. . 2 helical springs assembly.
- . Shield for operator protection.

**Workstation 2** (Ultrasound welding):

- . Plastic pins detection.
- . Contours sensor for anomalies checking in the welding tracks.
- . Safety barriers.

**Workstation 3** (checkings):

- . Continuity checking and OK warning.
- . Opening contacts measuring.
- . Checking welding and all the elements by view camera.



Assembly, ultrasound welding and airbag checking equipment / Console for functional parameters introduction

## MOLDING ASM - WS SI ASSEMBLY

Equipment specially designed for assembly and checking elements. Possible to work with one operator, with robot pieces charging, or, instead, work with two operators and manual charging



2 linked structures that can be separated when the equipment is working with two operators / Bimanual control when two operators are working / Injection channel cut / Metallic clips insertion in the pieces / Bimanual control for operator protection / Safety barriers with one operator / LED's frame for errors identification

## GLOVE COMPARTMENT AXE ASSEMBLY

Equipment specially designed for assembly and final checking of the right and left glove compartment axes.



Bimanual control for operator protection / Manual assembly for dumper and backstops / Automatic charging and assembly of the metallic axes / Checking elements through cameras / LED's panel for error identification presented by view cameras

## PANEL ASM-LPLR ASSEMBLY

Equipment specially designed for metallic rings introduction by spiking.



Metallic clips placement / Operator intervention in the beginning and end cycle / Safety barriers for operator protection / Metallic bushings spiking / Torque limit screwdriver / Checking assembly all elements / OK mark on the piece / LED's panel for error identification



## PORTEUR AV CUT EQUIPMENTS

Equipment specially designed to make several holes on the door panel.



After several cuts, the piece is taken out of the cut equipment by a robot / Enables milling operation on two panel doors (right and left) / After remove pieces from injection machine, they are placed on the equipment by a robot / Cuts are made by a system with 4 hydraulic cylinders and cuttings in hardened steel

## PORTEUR AR CUT EQUIPMENTS

Equipment specially designed to make a hole on the door panel.



After remove pieces from injection machine, they are placed on the equipment by a robot / Enables milling operation on two panel doors (right and left) / After several cuts, the piece is taken out of the cut equipment by a robot / Cuts are made by a system with 4 hydraulic cylinders and cuttings in hardened steel

## PANEL CUTTING PRESS CUT EQUIPMENTS

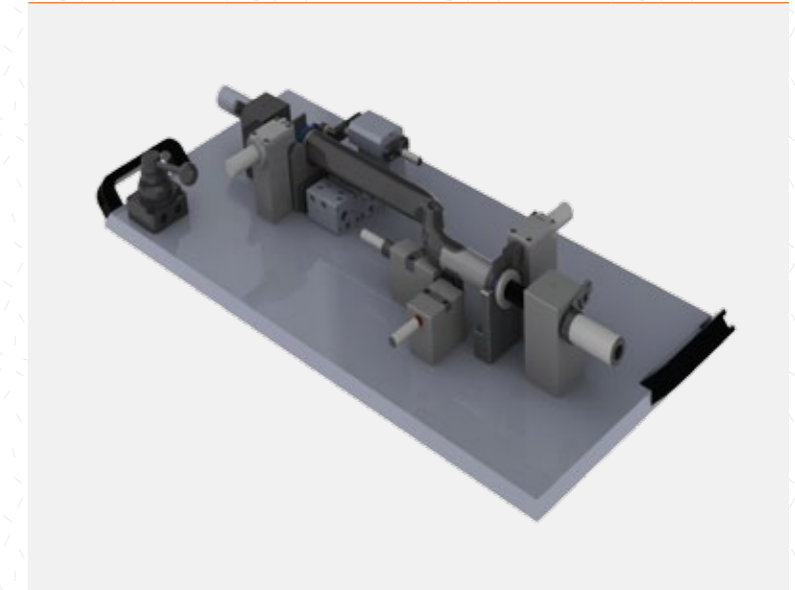
Hydraulic press developed to make holes in 3 different panels. Cut tool with all matrices assembled, with activation depending on the respective version.



Version selection (1, 2 e 3) / It has a setup console where process cycle images are presented / With safety barriers for operator protection / Operator is necessary at the end and cycle beginning

## CONTROL TEMPLATE EQUIPAMENTOS DE CONTROL

Pass don't pass mechanical caliber for dimensional control.



Dimensional control / Position control

## PORTEUR AR M3M4 CONTROL EQUIPMENTS

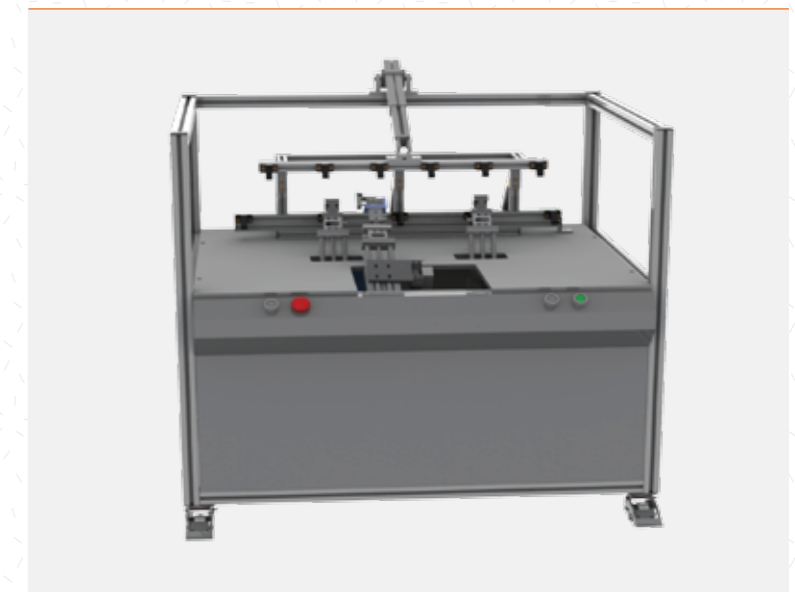
Elements control equipment, which enables the use of the right or left panel by means of template rotation.



Check presence and position of several elements / Enables bolting with handle door torque control / Check the type of tissue used on the armrest by artificial vision / Bar code reader for the reference produced / Label print with final bar code

## AUTOMATIC OPENING (GLOVE COMP.) CONTROL EQUIPMENTS

Laboratory equipment for testing glove compartment opening and closing of the car on its normal assembly position.



Opening and closing test / Opening and closing force measure with load cells / Opening time control / Enables right or left glove compartment testing / Records readed values / Setup console



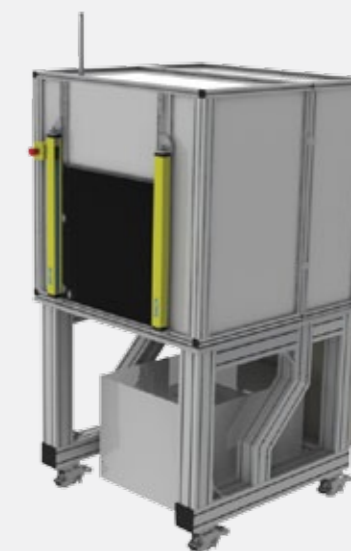
# ARTIFICIAL VISION



## FUSE BOX COMPONENTS

Assembly control of several elements on car fuse box.

Bar code reader for box setup / Check presence and place of several elements by artificial vision / Checking is made by OCR and/or RGB / Right assembly control by laser (heights measure) / Automatic camera movement on X, Y and Z axes



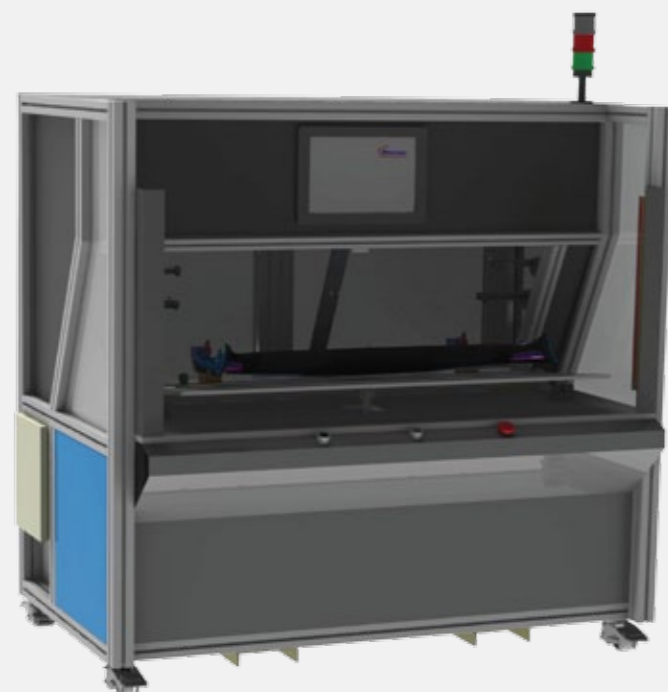
AERONAUTICS 6

AUTOMOTIVE 8

CUSTOMIZED 14

ARTIFICIAL VISION 22

## VW GOLF CABRIO COMPONENTS



Check elements presence and assembly by artificial vision, and enables change pieces accommodation to work with different panels.

Bar code reader for equipment setup / Check presence and place of several elements by artificial vision / Specific lighting / Safety barriers



## FTC50 LCD BRIGHTNESS

Equipment developed for testing car radios LCD's vision angle.

Spectroradiometer for measuring in several angles / Rotating LCD base / Safety barriers



## DV-VISION SOFTWARE

Software developed to check elements by artificial vision.

OCR and/or colour or pattern recognition / User-friendly and quick learning / Possible to add new requirements regarding customer needs / Flexible software, since it can be used with different imaging hardware (Firewire camera, USB, Scanner and file) / Easily integrated with other test softwares



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