



welding automation

| ENG

# WELDING AUTOMATION BOOK03

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# WELDING AUTOMATION BOOK 03



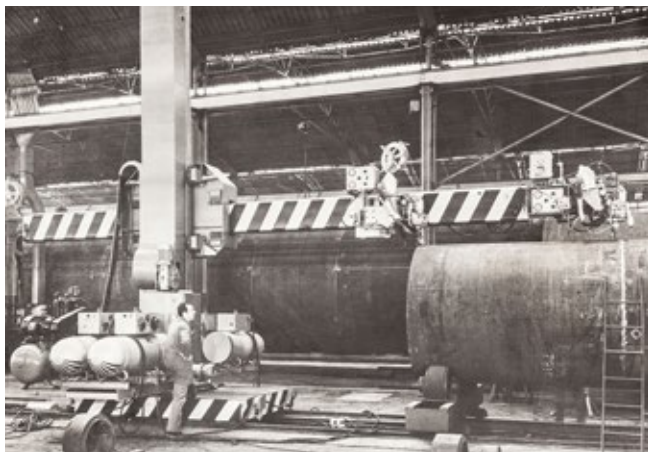
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Ver. 01/2017



# WELDING AUTOMATION

**CARPANO**  
EQUIPMENT

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welding automation



**PASSERINI**  
AUTOMATING WELDING SINCE 1962

**CARPANO EQUIPMENT** starts its activity in 1992 with the production of portable automation and complementary equipments.

Later on begins to manufacture the first manipulators in Aluminium by applying CNC to any single plant, despite its configuration and the axis to be handled determining, by this way, an exponential growth of its business.

**A further increase is achieved with the purchasing in 2011 of PASSERINI's brand and projects, a historic manufacturer in the same field since 1962.**

Now seated in Via del Legatore, in a factory of 3.500 mq, CARPANO EQUIPMENT commits itself every day to manufacture machines granting the customers:

- Quick pay-back
- Accurate process repeatability
- User-friendly
- Spare-parts availability and technical assistance even on older machines

The present catalogue shows the wide range of the standard products, splitted by types. In the second part then, there are significant examples of applications in several industrial fields.

For further details about specific products, would you kindly take a look to the most updated catalogues on our website **[www.carpano.it](http://www.carpano.it)**.

**In case you should need more information, do not hesitate to get in touch with us directly : our skilled staff will be glad to help you in any possible way.**





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# PORTABLE AUTOMATION

This section is dedicated to motorized carriages. Sturdy machines at first conceived for outdoor yards, then used also like plant accessories.

They are user-friendly and cheap, available in two version: with guidance rail or without it.

## CARRIAGES ON RAIL WITH RACK & PINION TRANSMISSION, IN 3 MODELS:

- **Squirrel 2**, handy and cheap
- **Squirrel 1**, with automatic welding cycle and stitch welding
- **S80**, with integrated oscillator

## CARRIAGES WITHOUT RAIL :

- **W-Track** with 4 wheels and magnet adhesion.
- **Tortuga** working on work piece profile.

Tortuga with two torches for bridge beams welding



Squirrel with oscillator for vertical welding



W-Track special execution for nest welding tubes





# SQUIRREL

## ON RAIL, 3 DIFFERENT EXECUTIONS

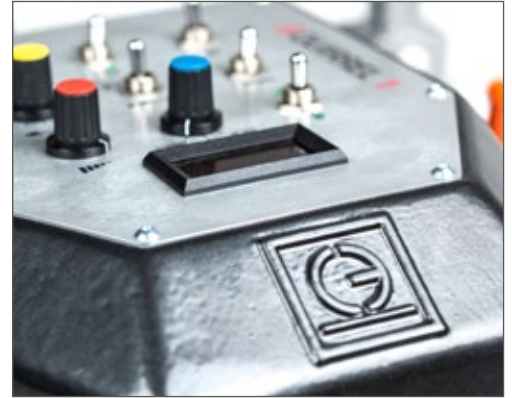
### SQUIRREL: MOTORIZED CARRIAGES MOVING ON SEMI-RIGID RAIL.

The use of the rail allows to employ the carriage in any position: horizontal, flat, vertical and overhead.

The semi-rigid rail can be used for both linear and circle welds on a minimum diameter of 6 m or greater.

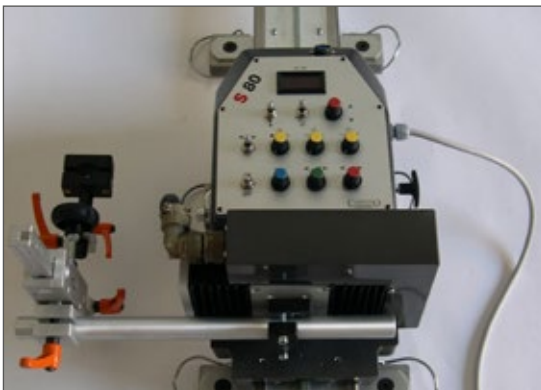
The rails can be directly fixed on the work piece or on external structures, thanks to different fixtures like magnets or omega supports.

Squirrel is available in 3 different executions, standard features are below specified together with the wide range of accessories designed to suit any job.



### THE THREE DIFFERENT EXECUTIONS OF SQUIRREL HAVE THE SAME MECHANICAL FEATURES:

- Structure in aluminium casting
- Worm screw gear-motor and transmission with rack and pinion
- Clutch lever to release the pinion and to allow idle and quick re-positioning
- Feeding 230V 1-phase, 42/48V upon request



# SQUIRREL

## ON RAIL, 3 DIFFERENT EXECUTIONS



### CESM2 - Squirrel 2

The simplest and cheapest model, provided of:

- Potentiometer to adjust the speed from 5 to 130 cm/min, other ranges upon request
- Switches forward-reverse, start-stop and on/off weld



### CESM - Squirrel 1

It can automatically perform 2 work cycles, as it is provided of

- Switch continuous / intermittent stitch welding.
- Speed setting from 5 to 130 cm/min.
- Weld stitch length setting from 0 to 99.9 cm.
- Idle length setting from 0 to 99.9 cm covered at fast speed 130 cm/min
- Display of welding speed, weld stitch length and idling length
- Switch to select fast return to zero or not
- Switch weld on/off for 2 torches
- Carriage start delay after arc ignition



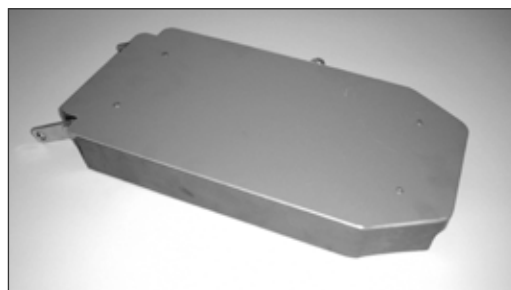
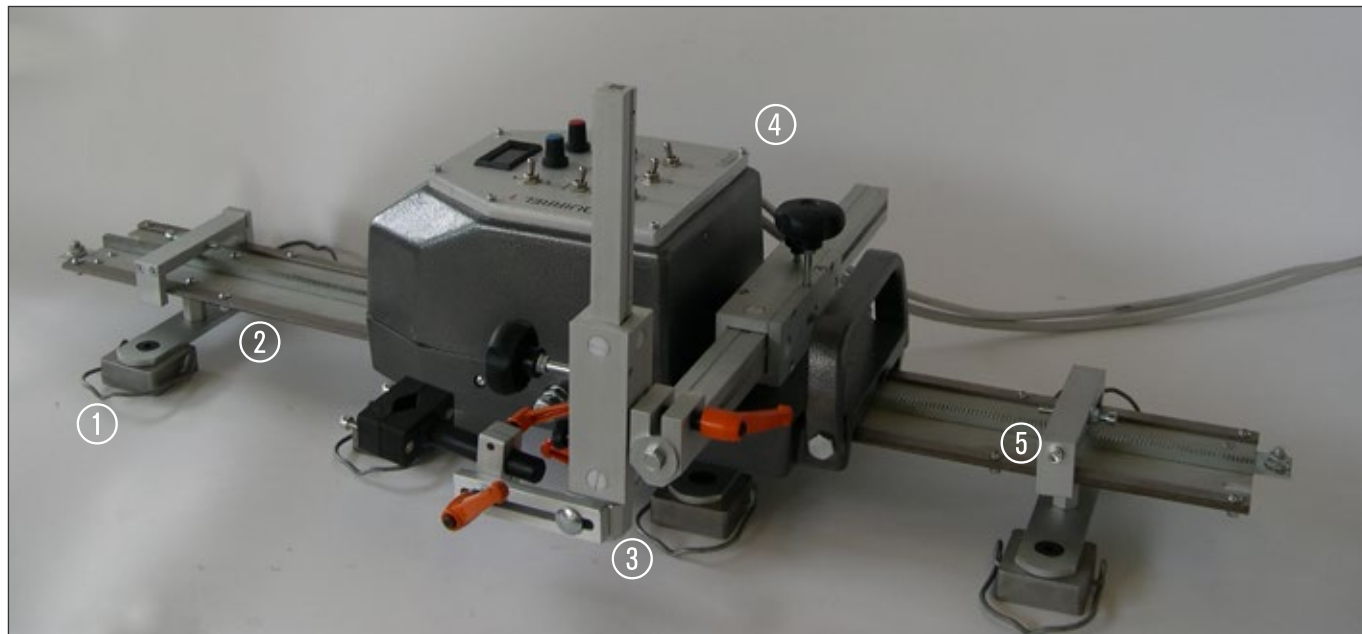
### S80 - Squirrel integrating an electronic oscillator

It combines the functions of the carriage with those of the electronic oscillator for filling thick joints or for hard facing:

- Speed adjuster 5 to 130 cm/min
- Switch forward-stop-reverse and weld on/off
- Torch oscillation: amplitude, frequency, centre and pause

# SQUIRREL

## ON RAIL, THE ACCESSORIES



### CENMS

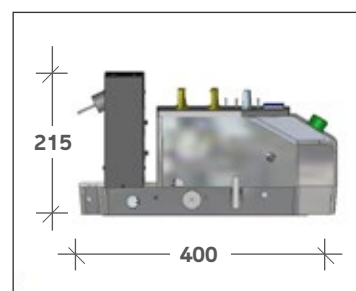
Idle trailer towed by Squirrel and moving on the same semi-rigid rail. Meant for carrying the wire feeder, the fumes recovery inlet, etc. it is supplied complete with draft fittings.

- 1. CECM: pair of magnets
- 2. CEBS: rail
- 3. CEBC: complete torch holder
- 4. CESM: Squirrel 1
- 5. CEFC: limit switch



### CEFC

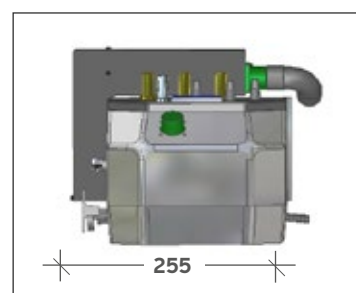
Pair of limit switches. It is supplied complete of signals to be fixed on the rail at the desired stop points.



### CEBS semi-rigid rail

With high precision steel guides, it can be bent to a diameter of 6 m or greater, complete with rack, mounting holes and connectors for jointing other pieces.

- CEBS1 rail 1 m length
- CEBS2 rail 2 m length
- CEBS3 rail 3 m length







## CECS

Support bracket complete with connections to the rail. It can be alternated with magnets to avoid any bending of the rail



## CECV

Pair of suckers to be used on nonmagnetic materials, complete with pneumatic and mechanical connectors for vacuum plant.



## CECM

Pair of magnets, with attraction more than 100 kg, attraction face, complete with connectors and release levers.



## CEPV

High capacity vacuum pump complete with air filter and pneumatic connectors

## CEPO

Omega aluminium profile to permanently fix the rail. Complete with appropriate holes and bolts. Available lengths:

CEPO1 1 m length  
CEPO2 2 m length  
CEPO3 3 m length



## CEB20M

Boom retractable by rack & pinion through a 20x20 mm saddle and 300 mm stroke, it comes complete with clamp, friction dowels, bolts or extra clamp for connection to the twin boom



## CEB30

Boom retractable by rack & pinion through a 30x30 mm saddle and 500 mm stroke, it comes complete with friction dowels and bolts



## CEBT

Four axis torch holder. It can be installed on CEB20M or on CEB30M

## CETM

Mechanical probe for automatic adjustment of torch height. It is supplied complete of torch holder and of clamp to fix it to CEB30M



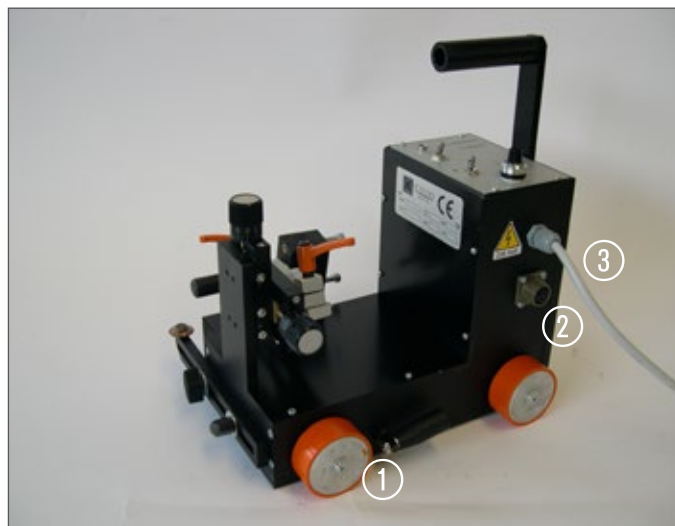
## CETMA

Mechanical probe for fillet joints. It automatically keeps constant the distance of the torch from the joint throat and is supplied complete of torch holder and of clamp to fix it to the CEB30M



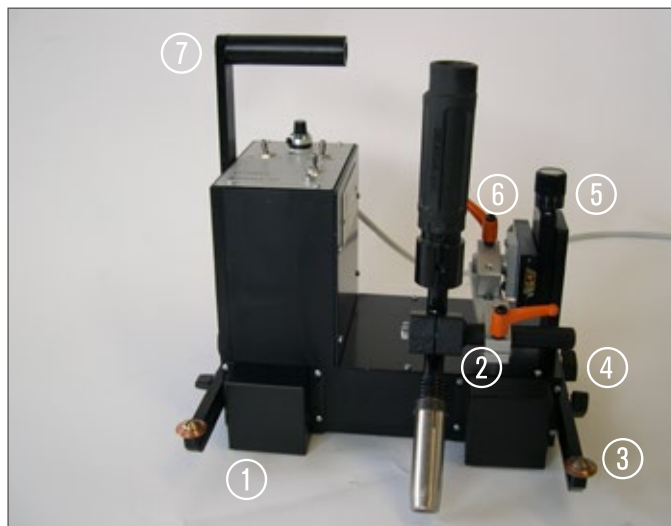
# W-TRACK

## CARRIAGE WITHOUT RAIL, SELF-TRACKING BY PERMANENT MAGNETS



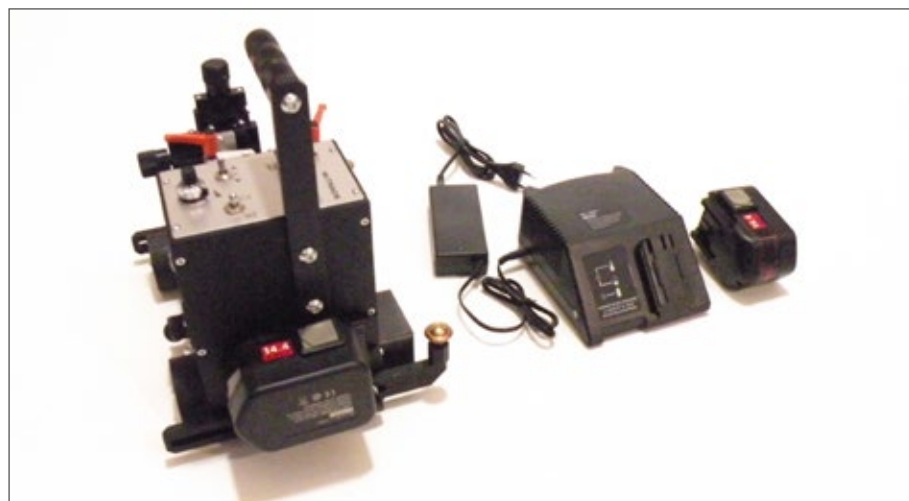
**WTK BASE**

- 1. Magnet unclutch lever
- 2. Torch controls
- 3. Feeding



- 1. Wheels protection
- 2. Adjustable torch holder
- 3. Copper wheel
- 4. Tracking adjuster
- 5. Vertical slide stroke 50 mm
- 6. Horizontal slide stroke 50 mm
- 7. Carrying handle

**WTK BATT** is supplied complete with 1 spare battery and of battery charger

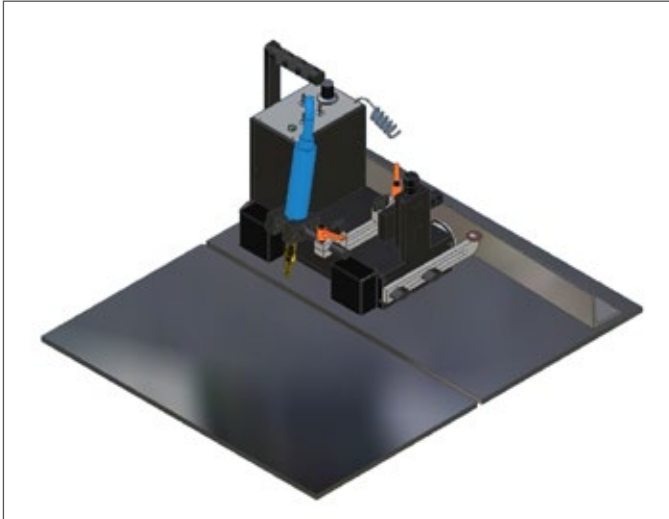


### CONTROL PANEL

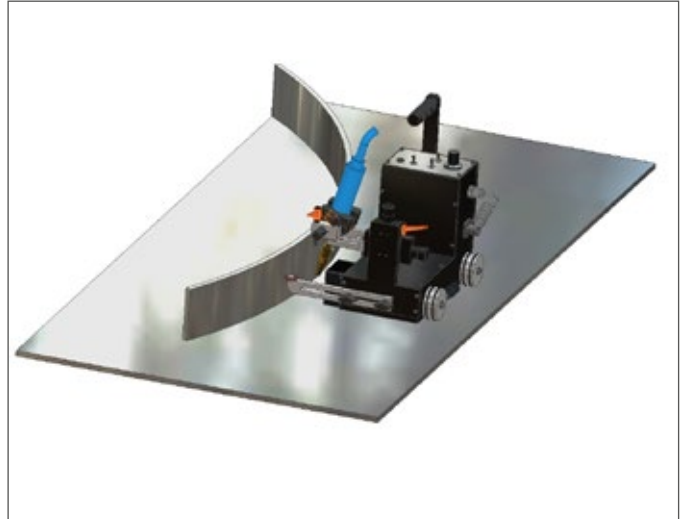
- 1. Line lamp
- 2. Power switch
- 3. Direction: forward - stop - reverse
- 4. Switch on/off weld
- 5. Speed adjuster

| TECNICAL DATA              | WTK BASE      | WTK BATT               |
|----------------------------|---------------|------------------------|
| Feeding                    | 230V 50-60 Hz | 14.4VDC                |
| Speed range mm/1'          | 200-2000      | 90-980                 |
| Attraction magnets         | permanent     | permanent              |
| Motor power W              | 70            | 70                     |
| Wheels material            | rubber        | rubber                 |
| Weight: Kg                 | 9.5           | 9.5                    |
| Battery autonomy           | -             | 6h at 50% of max speed |
| Battery recharge time      | -             | 2h                     |
| Feeding of battery charger | -             | 230V 50-60 Hz          |

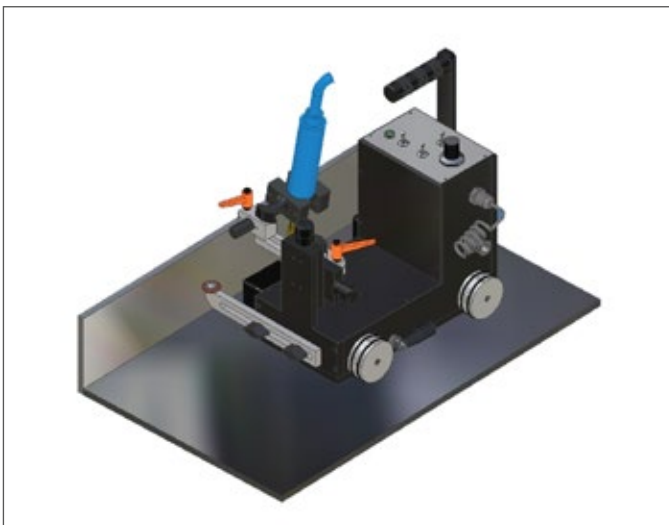
# W-TRACK CARRIAGE WITHOUT RAIL SOME APPLICATIONS



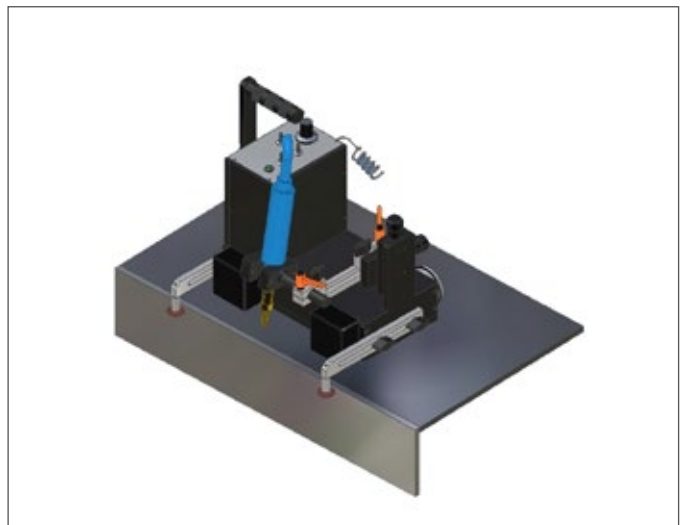
**FLAT EDGE-TO-EDGE BEVEL JOINT WELDING:** possibility to place an angular or tubular profile parallel to the joint and the carriage will follow it



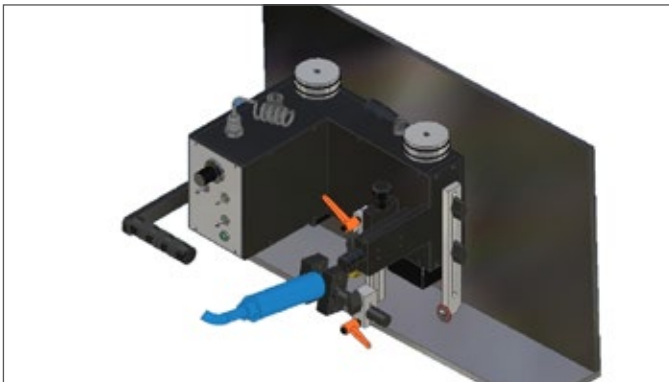
**CIRCULAR WELDING:** On diameter 3 m or greater



**INTERNAL FILLET WELDING:** Guidance wheels stand inside and upward



**EXTERNAL FILLET WELDING:** Guidance wheels stand outside and downward

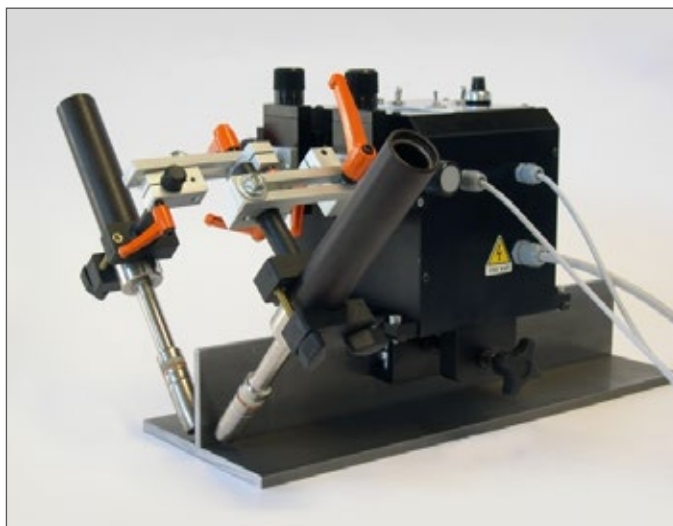


**FILLET WELDING WITH OVERTURNED CARRIAGE:**  
To meet with the small width of lower plate, the carriage works overturned



# TORTUGA

## CARRIAGE WITHOUT RAIL, SELF-TRACKING ON WORK PIECE OR BY ADD-ON PROFILE

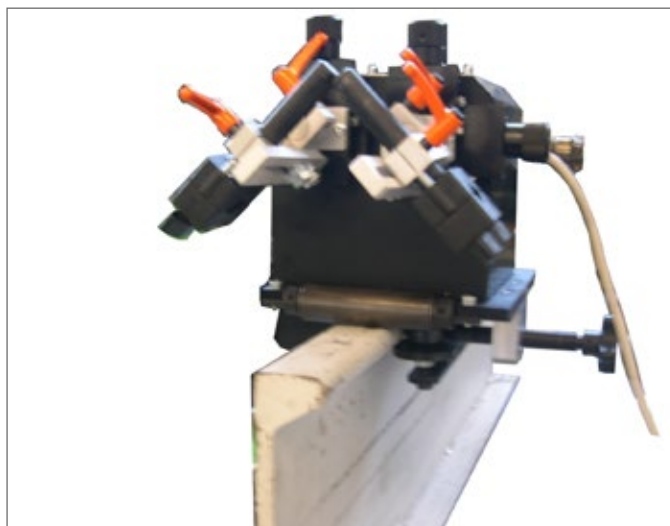


**TRT BASE 2**

Tortuga can track itself on work piece edges in case they are present otherwise on an added-on commercial profile. It can be provided of one or two torch holders. TRT BASE (1 or 2 accordingly to the installed torch holders) works on flat track minimum height 50 mm and thickness from 5 to 80 mm.

TRT STW (1 or 2) is designed on purpose for shipyards to weld bulbs or stiffeners from 80 to 300 mm high.

**Both TRT BASE and TRT STW are available in Pulse execution for intermittent stitch welding.**



**TRT STW 2**

### TRT PULSE CONTROL FUNCTIONS

- Switch on/off
- Switch start/stop
- Switch to set weld speed and weld/idling length
- Setting of weld/idling speeds
- Weld on/off torch 1 and torch 2
- Switch continuous/intermittent welding



### TRT BASE CONTROL FUNCTIONS

1. Start/stop switch
2. On/off switch
3. On/off (torch 1) weld
4. Speed adjuster
5. On/off weld (torch 2)

| TECHNICAL FEATURES            | TRT BASE      | TRT PULSE                   |
|-------------------------------|---------------|-----------------------------|
| Feeding                       | 230V 50-60 Hz | 230V 50-60 Hz               |
| Speed range mm/1'             | 200-2000      | 50-2000                     |
| Tracking edge thickness mm    | 5-80          | 5-80                        |
| Motor power W                 | 70            | 70                          |
| Weight: Kg                    | 9.5           | 9.5                         |
| Setting of weld stitch length | -             | 0 to 99.9 cm                |
| Setting of idle length        | -             | 0 to 99.9 cm at 130 cm/min. |
| Carriage start delay          | -             | 0 - 5 sec                   |

**TRT PULSE 2**



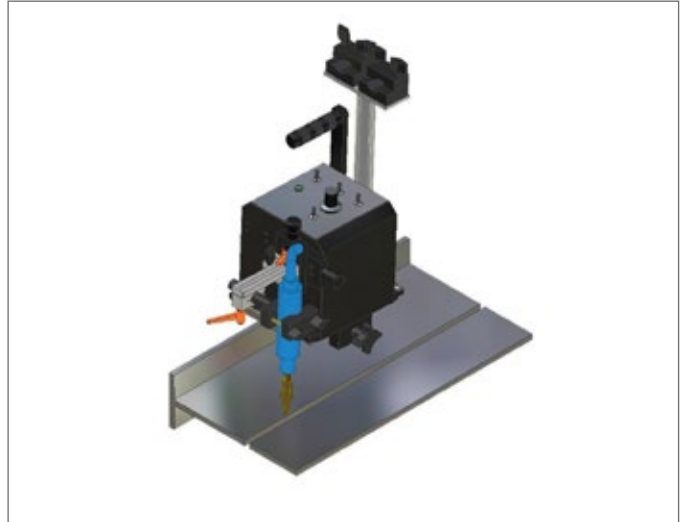
# TORTUGA

## CARRIAGE WITHOUT RAIL

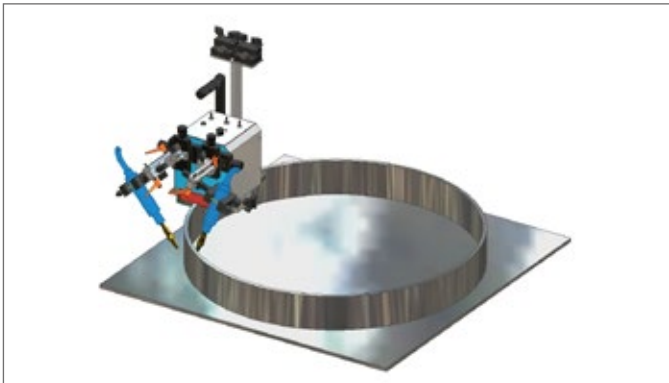
### SOME APPLICATIONS



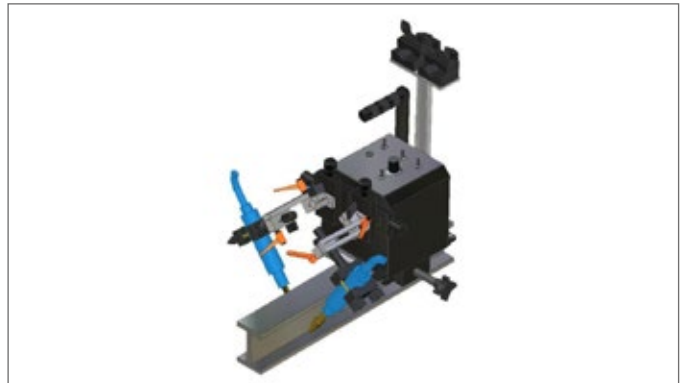
**FILLET WELDING**, using the vertical plate as a rail.



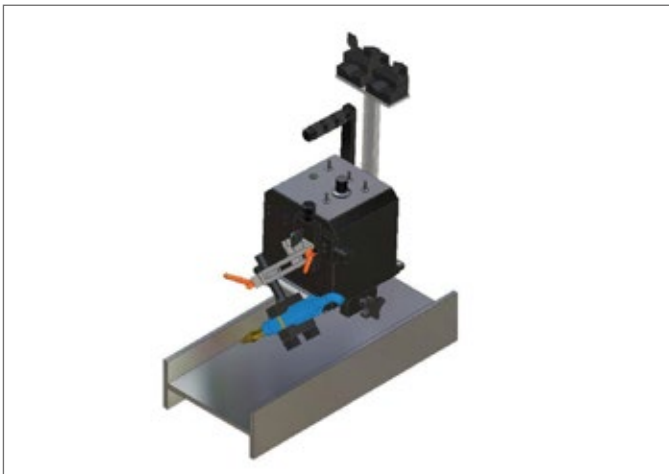
**PLASMA OR FLAME CUTTING** of plates or beams, where the vertical guidance plate can be replaced with an added-on tubular profile.



**CURVED SURFACES** with minimum  $\varnothing$  800 mm.



**I – BEAM WELDING**, with vertical web, one or two torches

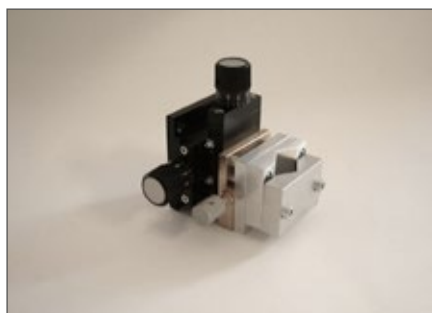
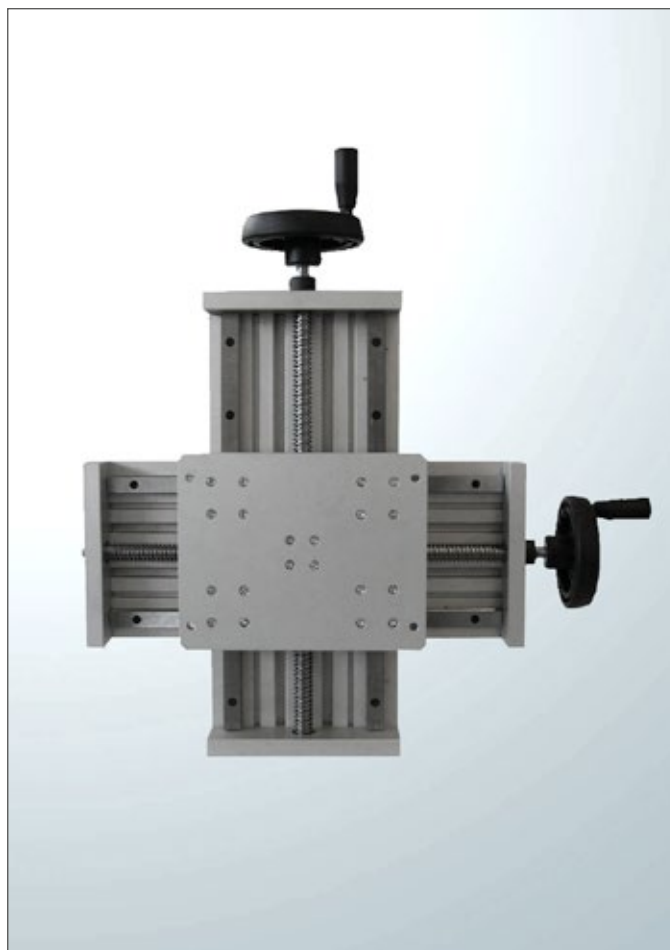
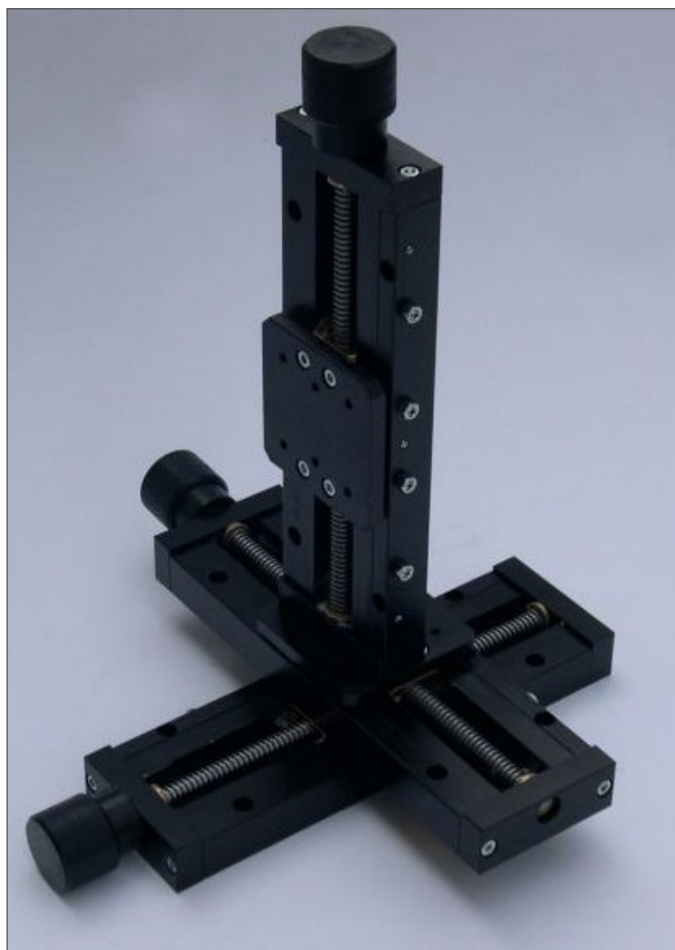
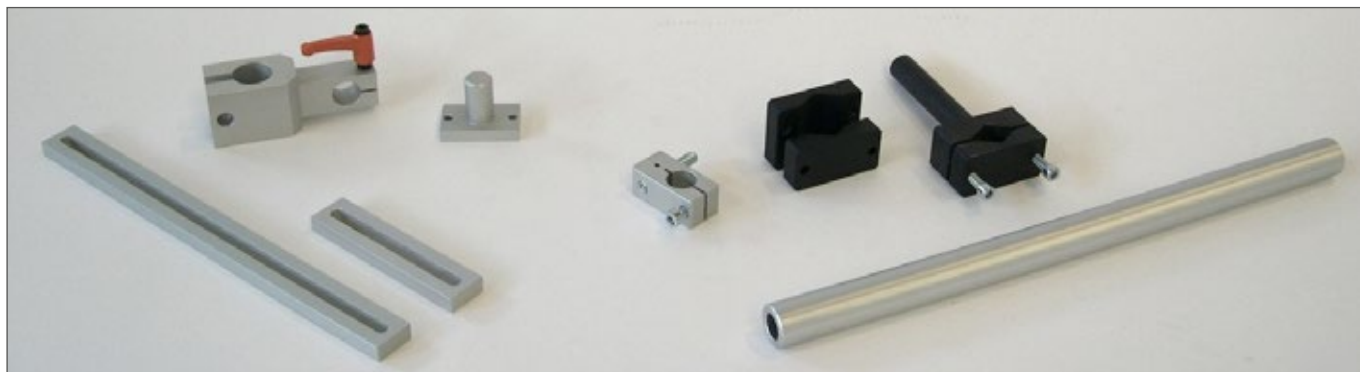


**I – BEAM WELDING**  
with horizontal web,  
one or two torches

# COMPLEMENTARY EQUIPMENT

This section is dedicated to a wide range of manual and motorized slides, as well as to oscillators, AVC, joint tracking systems, weld monitoring systems and many other fixtures to complete the automation and enhance productivity of welding and cutting plants.

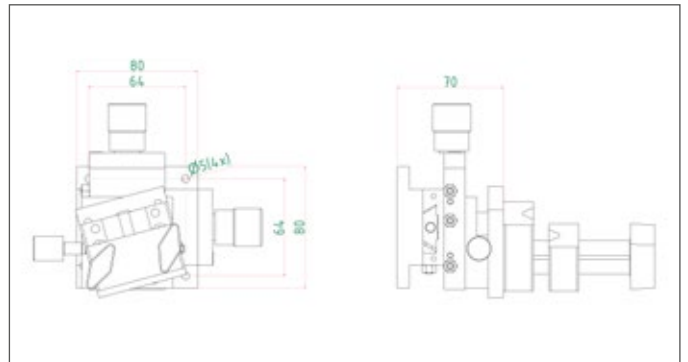
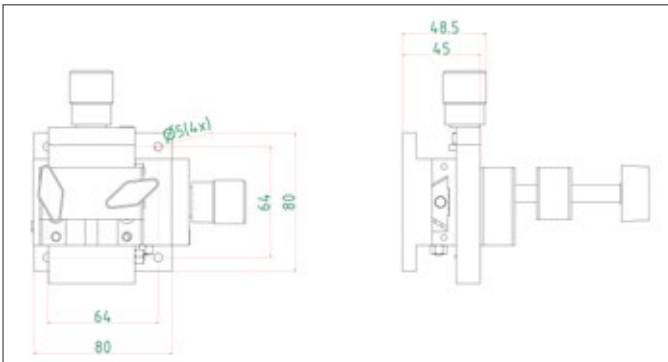
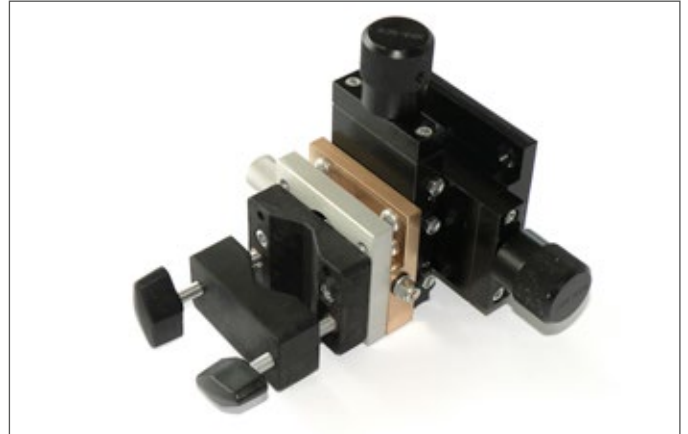




# MANUAL SLIDES

## MICROMETRIC SLIDES STROKE 50 MM

### PAYLOAD 2 KG AT 50 MM



#### SM50/F, CROSS-SLIDE ASSEMBLY

consisting of:

- 2 slides SM50/1
- 1 flange SM/F
- 1 torch clamp SM/PT

#### SM50/FR, CROSS-SLIDE ASSEMBLY

consisting of:

- 2 slides SM50/1
- 1 flange SM/F
- 1 torch clamp SM/PT
- 1 rotating flange SM/FR

#### SM50/1, ONE-AXIS SLIDE, STROKE 50 MM

- Aluminium machined body,
- Brass slider and screw,
- Steel nut for a/m screw
- Grub screws to adjust floating

#### SM/PT torch clamp

Made of synthetic material, suitable for torch Ø 18 to 40 mm

#### SM/FR rotating flange

complete with torch clamp

#### SM/F

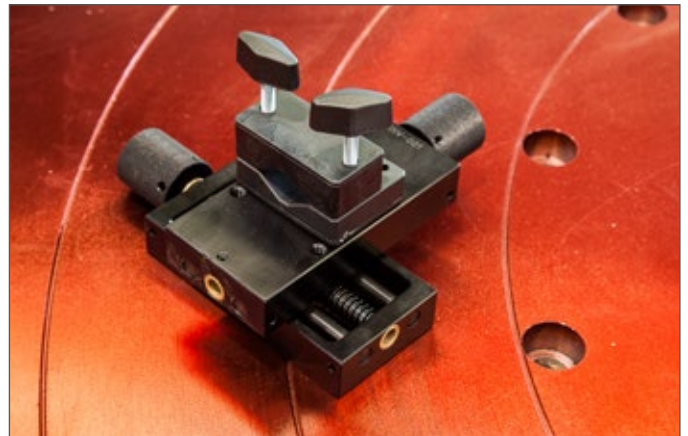
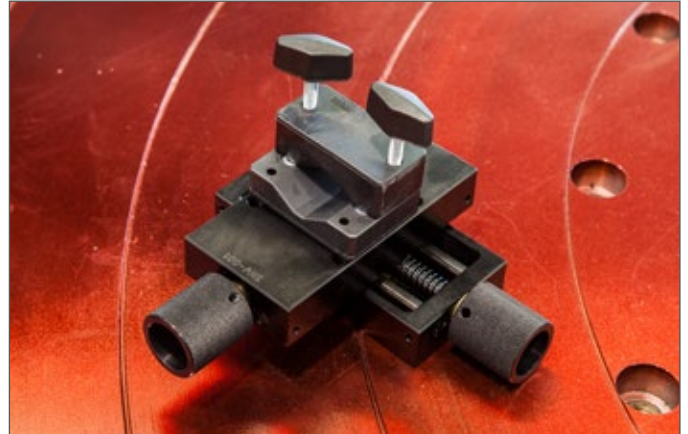
flange complete with holes and bolts to be fixed to any structure



# SM-60 MANUAL SLIDES

## MICROMETRIC SLIDES STROKE 60MM

### PAYLOAD 4 KG AT 50 MM



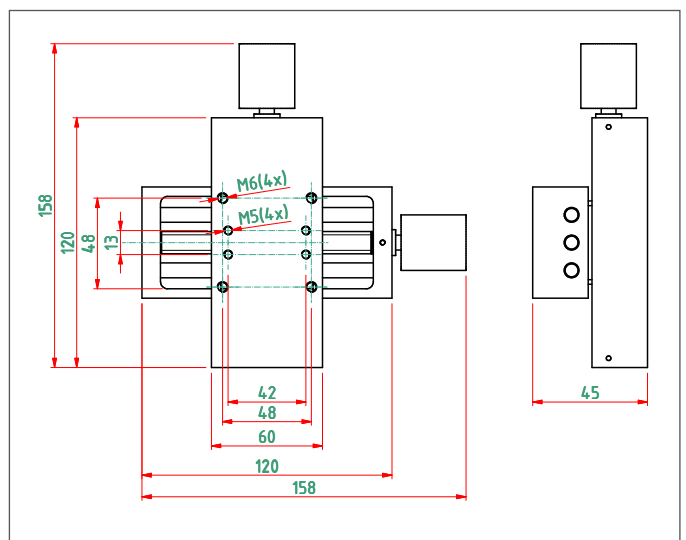
#### SM 60/2

Micrometric cross slide assembly with stroke 60x60 mm

- Aluminium machined body
- Steel trapezoidal screw Ø12, lead 3 mm, with brass nut
- Two steel axis with brass bushing
- Max load 4 kg, out 50 mm

#### SM 60/F

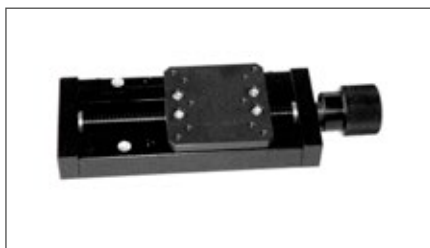
Cross slide assembly with torch holder



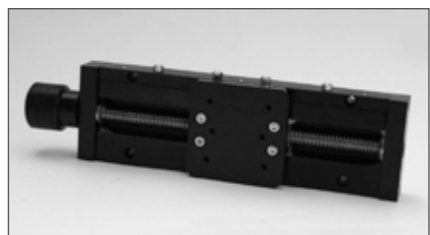
# MANUAL SLIDES

## MICROMETRIC SLIDES STROKE 80-160 MM

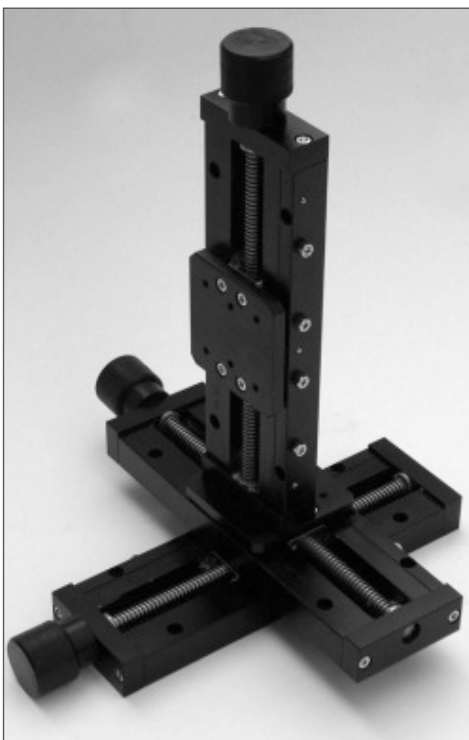
### PAYLOAD 10 KG AT 50 MM



**SMMD 80-1 one-axis slide, stroke 80 mm**  
 Aluminium machined body,  
 brass screw, bronze nut,  
 brass dovetail slider with adjuster,  
 knob in knurled aluminium



**SMMD 160-1 one-axis slide, stroke 160 mm**  
 Aluminium machined body,  
 steel screw, bronze nut,  
 brass dovetail slider with adjuster,  
 knob in knurled aluminium

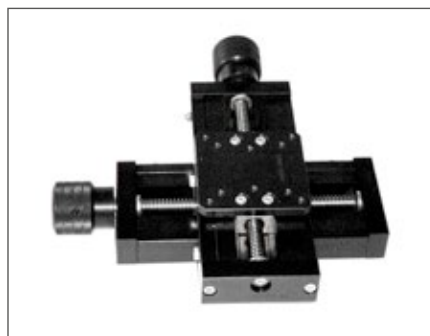


**SMMD 160-3 three-axis slide assembly**  
 consisting of 3 slides SMMD160-1,  
 strokes 160 x 160 x 160 mm



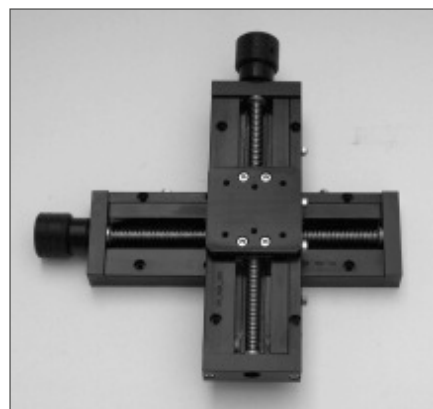
**SMMD 80-3 three-axis slide assembly**  
 consisting of 3 slides  
 SMMD80-1, strokes 80 x 80 x 80 mm

**SMMD 80-2 cross-slide assembly**  
 consisting of 2 slides SMMD80-1, strokes  
 80 x 80 mm

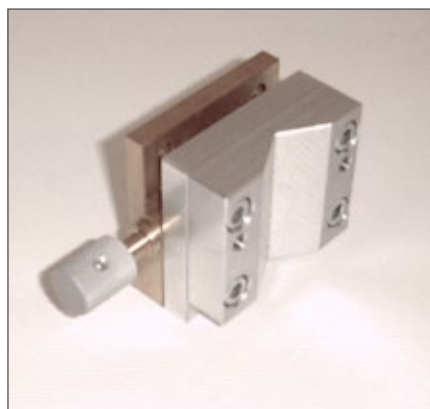


**SMMD-PT, torch clamp**  
 Made of synthetic material, suitable for torch Ø  
 18 to 40 mm, it can be fixed in horizontal or  
 vertical position

**SMMD 160-2 cross-slide assembly**  
 consisting of 2 slides SMMD160-1,  
 strokes 160 x 160 mm

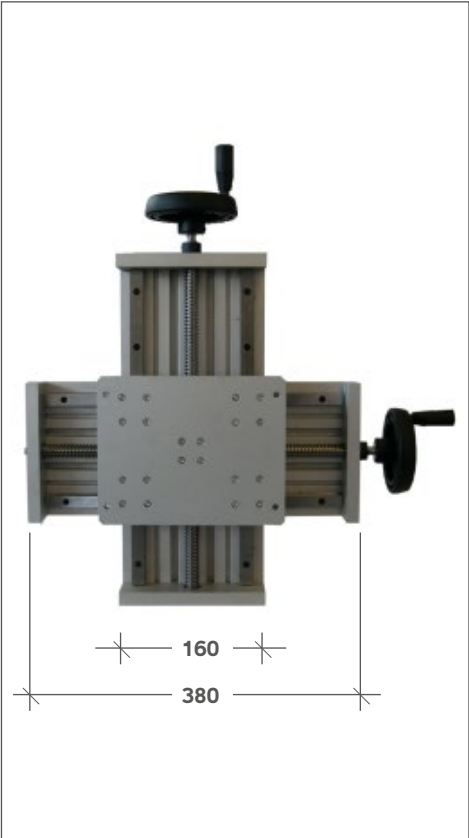
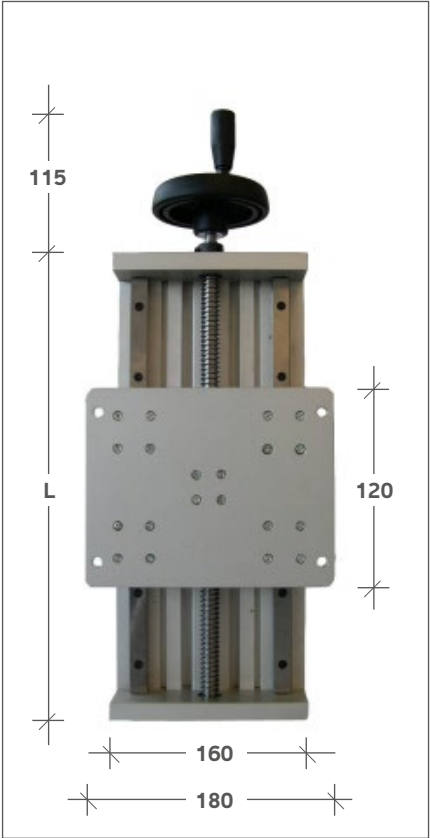


**SM MD-FR rotating flange,**  
 ± 30°, with torch clamp





MANUAL SLIDES  
STROKE 100, 190 OR 400 MM  
PAYLOAD 60 KG AT 400 MM



**SM BIG** is made of aluminium plates and profiles, it moves on linear precision ball guides driven by trapezoidal screw. Payload 60 kg at 0.4 m from face plate allows to combine it with other slides and makes it suitable for heavy duty jobs and SAW.

Available on stock with 190 mm stroke for immediate delivery, it can be supplied upon request with 100 or 400 mm strokes, either single axis or cross assembled.

| SM BIG           | 100 | 190 | 400 |
|------------------|-----|-----|-----|
| L (mm)           | 290 | 380 | 590 |
| Lx (mm)          | 55  | 70  | 170 |
| Screw pitch (mm) | 4   | 4   | 4   |
| Weight (kg)      | 5,4 | 6,1 | 7,8 |

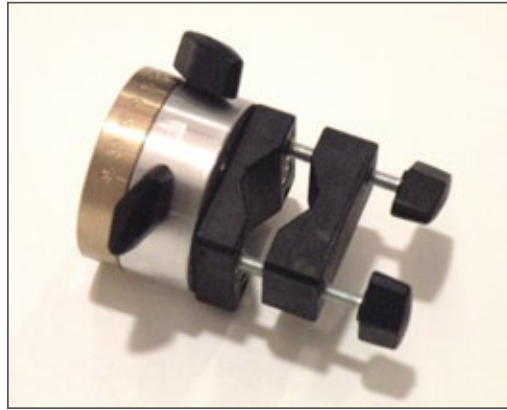


# ACCESSORIES

## TORCH HOLDERS AND POSITIONING ACCESSORIES



**TWIN 2-axis rotating torch holder,**  
360° on both axis, with angle indication,  
clamp for torch Ø 18 to Ø 40 mm and brake  
to fix it in the right position.



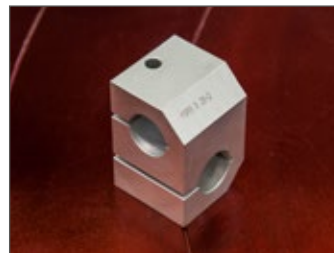
**MONO 1-axis 360° rotating torch holder,**  
with angle indication, clamp for  
torch from Ø 18 to Ø 40 mm and brake to  
fix it in the right position.



**S8006.009 one-axis swivel**  
0° to 180°, with end flanges,  
payload 10 kg, ideal for  
MM MINI slides.



**B150001+2 two-axis swivel**  
with clamp for pipe Ø 60 mm  
and flange for fixing to slides  
MM MINI, payload 10 kg.



**MORS.D.25 - cross clamp 2 x**  
Ø25 at 90°



**TUBO25 - Aluminium pipe Ø25**  
X 400 mm



**CEBTM25V double support**  
Ø18 and 25 mm.



**CEBTM16 torch holder** with  
support Ø16 for rack & pinion  
boom 20 x 20 mm CEB20M.

**CEBTM25 torch holder with**  
support Ø25 for rack & pinion  
boom 30 x 30 mm CEB30M.

## ACCESSORIES TORCH HOLDERS AND POSITIONING ACCESSORIES



**PT001 bracket** with shaft Ø18 made up of synthetic material and machined for torch Ø 18 to 40 mm.

**PT001AL bracket** made up of aluminium to be combined with PT002AL or PT003AL.



**PT002 bracket** made up of synthetic material to be combined with PT001 or PT003.

**PT002AL bracket** made up of aluminium to be combined with PT001AL or PT003AL.



**PT003 bracket** made up of synthetic material to be combined with PT002.

**PT003AL bracket** made up of aluminium to be combined with PT002AL.



**PT60 holder for torches** Ø 30 to 60 mm, two fixing holes Ø6.5 mm spot - faced, centre distance 48 mm.



**CEBTCN hinged torch holder** for automatic torches Ø35 to 42 mm quick locking



**PER18 flange with shaft Ø18** mm and 2 holes Ø5.5, centre distance 41 mm.



**MORD8** Ø18 mm clamp, with thread shaft M8 to connect PT001 to the slotted rod.

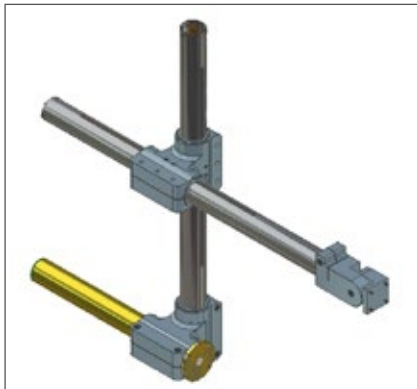


**ROD**, aluminium plate, with slot 8.5 mm, available in 3 lengths:  
**ASTA 115 mm**  
**ASTA 200 mm**  
**ASTA 300 mm**



**MORS.D.25 clamp Ø25 mm** for connecting the rod to pipe

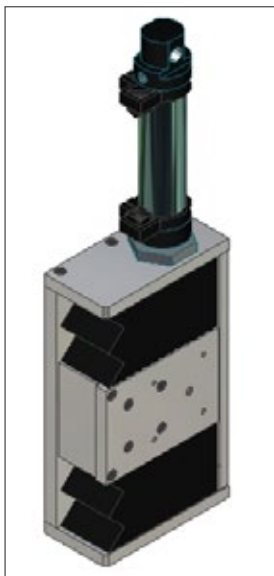
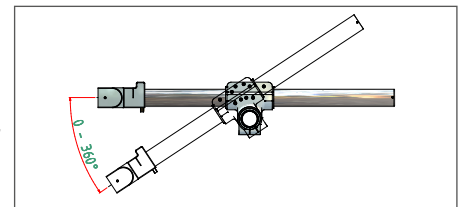
Technical drawing of the 3D printer frame. The main view shows a cross-section of the frame with dimensions: 785 (total width), 305 (width of the central column), 1276 (width of the main body), 1000 (width of the main body), 1249 (total height), 750 (height of the main body), 250 (height of the base), and 1000 (height of the main body). A detail view of the base is shown with a 0-360° rotation range.



Technical drawing of a mechanical assembly, likely a shaft-hub assembly, showing dimensions in millimeters (mm). The drawing includes a side view and a cross-sectional view (indicated by a circle and a section line 'A-A').

Dimensions shown:

- Overall length: 710
- Distance from left end to first hub: 250
- Distance from left end to second hub: 610
- Distance from left end to third hub: 170
- Distance between first and second hubs: 360
- Distance between second and third hubs: 950
- Distance from third hub to right end: 1045
- Overall width: 550

[illegible]

# MOTORIZED SLIDES

MM MICRO 40 PAYLOAD 5 KG AT 50 MM

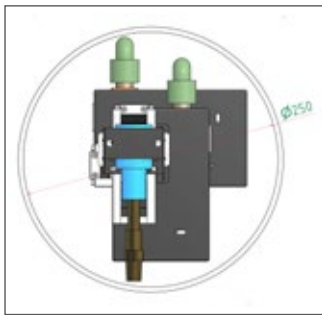
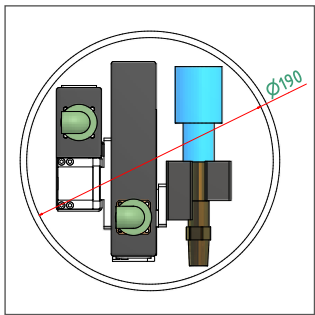


## COMPACT AND LIGHT

**MM MICRO 40/1: ONE AXIS, STROKE 40  
MM, WEIGHT 1.05 KG**

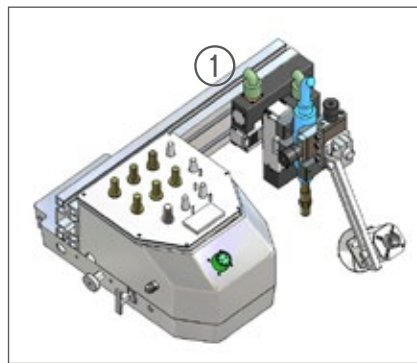
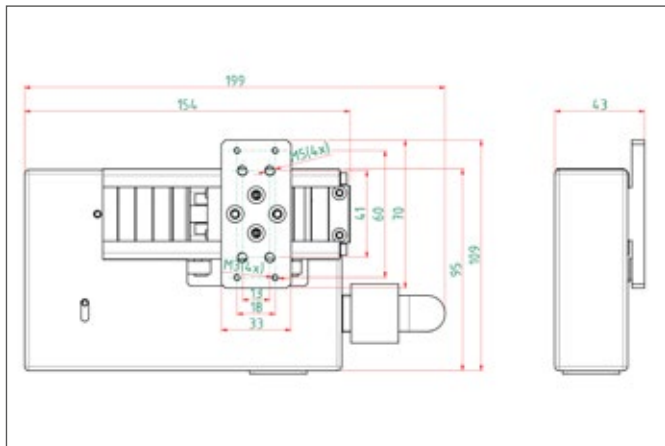
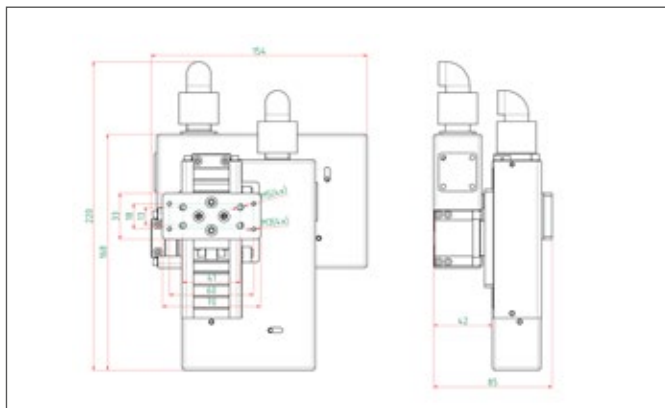
**MM MICRO 40/2: STROKE 40X40 MM  
WEIGHT 2.1 KG**

- Payload 5 kg at 50 mm from face plate
- 24V DC motor with encoder
- Maximum speed 2000 mm/min
- Protection bellow
- Driven by ball screw and ball guide

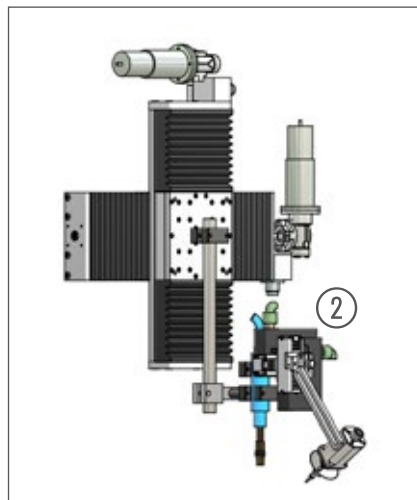


Used on any CARPANO complementary equipment:  
manual slides, joint tracking systems, oscillator, AVC,  
integrated in CNC work cycles...

Compact dimensions allow MM MICRO cross assembly to perform x/y torch corrections inside very small pipe diameters thanks to the possibility of charging the connectors position.



1. Driven by IG tactile probe on a SQUIRREL carriage



2. Allow to shift  
IG tactile probe  
according to the  
torch position



# MOTORIZED SLIDES

## MM MINI, STROKES 80 TO 300 MM

### PAYLOAD 10 KG



**MOTORIZED SLIDES MM MINI ARE AVAILABLE WITH ONE AXIS OR IN CROSS ASSEMBLY EXECUTION, FEATURING:**

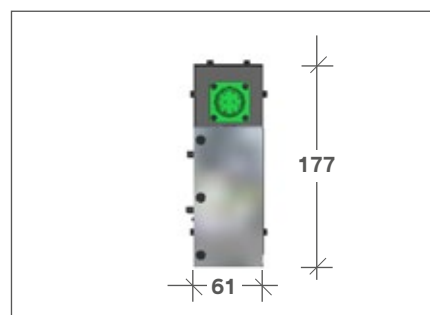
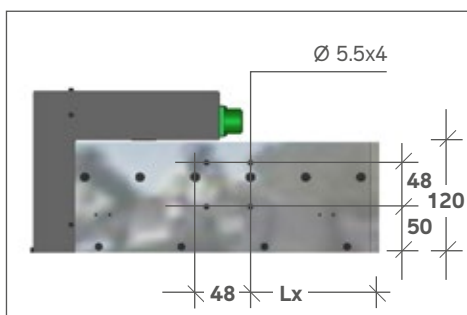
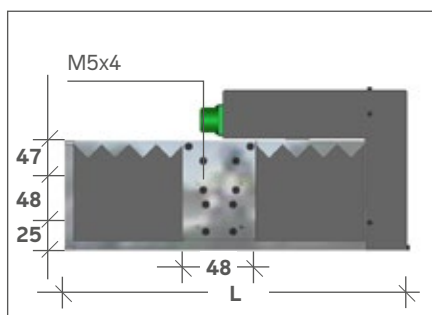
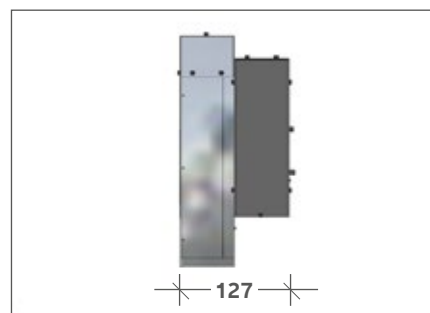
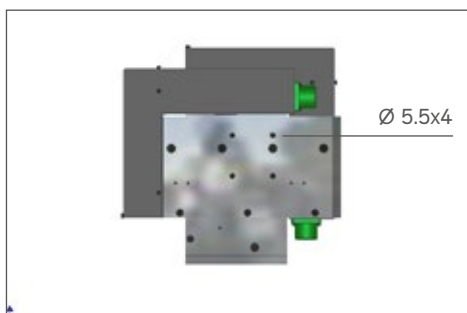
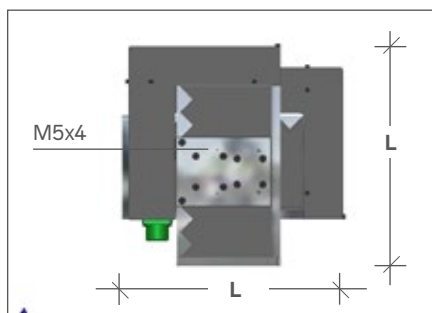
- Control panel feeding 230V 1-phase
- Remote control with joystick and speed adjuster
- Kit of connection cables 10 m
- Driven by ball screw and ball guides
- Protection bellow
- Torch holder PT002 and PT003

#### MM MINI – one axis stroke

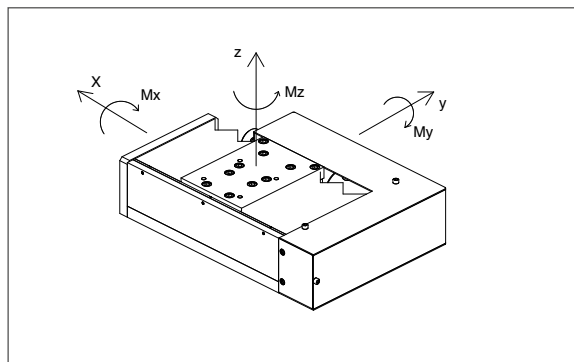
- MM MINI 80/1 80 mm
- MM MINI 180/1 180 mm
- MM MINI 250/1 250 mm
- MM MINI 300/1 300 mm

#### MM MINI – cross stroke

- MM MINI 80/2 80x80 mm
- MM MINI 180/2 180x180 mm
- MM MINI 250/2 250x250 mm
- MM MINI 300/2 300x300 mm



| MM MINI              | 80      | 180     | 250     | 300     |
|----------------------|---------|---------|---------|---------|
| L (mm)               | 256     | 376     | 476     | 536     |
| Lx (mm)              | 80      | 140     | 196     | 226     |
| P motor power (W)    | 31      | 31      | 31      | 31      |
| Payload (Kg)         | 10      | 10      | 10      | 10      |
| Speed range (mm/min) | 50/2300 | 50/2300 | 50/2300 | 50/2300 |
| Mx (Kgm)             | 4       | 4       | 4       | 4       |
| My (Kgm)             | 3       | 3       | 3       | 3       |
| Mz (Kgm)             | 3       | 3       | 4       | 4       |

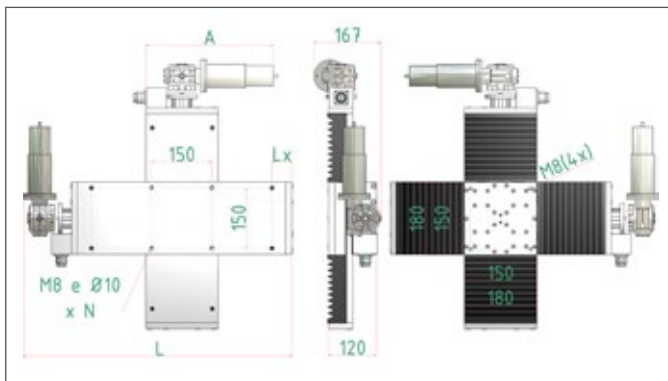
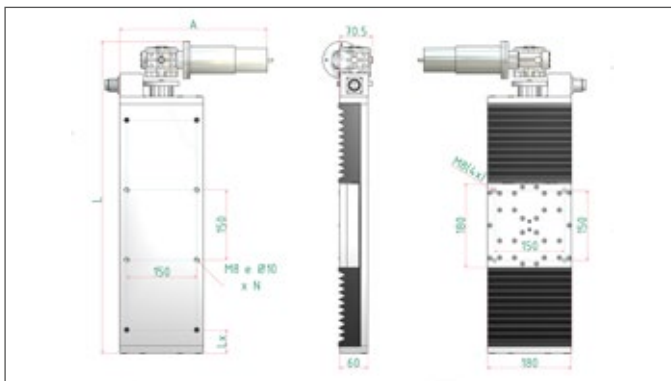


**MOTORIZED SLIDES**  
MM MIDI, STROKES 100 TO 600 MM  
PAYLOAD 60 (STANDARD) OR 150 KG (HD)



**MOTORIZED SLIDES MM MIDI ARE AVAILABLE WITH ONE AXIS OR IN CROSS ASSEMBLY EXECUTION, FEATURING:**

- Control panel feeding 230V 1-phase.
- Remote control with joystick and speed adjuster.
- Kit of connection cables 10 m.
- Driven by ball screw and ball guides.
- Protection bellow.
- DC motors with tacho generator, vertical axis of MIDI HD equipped with brake.



## MM MIDI standard one axis stroke

- MM MIDI 100/1 100 mm
- MM MIDI 250/1 250 mm
- MM MIDI 400/1 400 mm
- MM MIDI 600/1 600 mm

### MM MIDI HD- one axis stroke

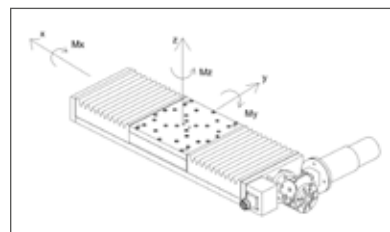
- MM MIDI 100/1 HD 100 mm
- MM MIDI 250/1 HD 250 mm
- MM MIDI 400/1 HD 400 mm
- MM MIDI 600/1 HD 600 mm

### MM MIDI standard cross stroke

- MM MIDI 100/2 100x100 mm
- MM MIDI 250/2 250x250 mm
- MM MIDI 400/2 400x400 mm
- MM MIDI 600/2 600x600 mm

## MM MIDI HD – cross stroke

- MM MIDI 100/2 HD 100x100 mm
- MM MIDI 250/2 HD 250x250 mm
- MM MIDI 400/2 HD 400x400 mm
- MM MIDI 600/2 HD 600x600 mm



| MIDI standard - HD   | 100     | 100 HD  | 250     | 250 HD  | 400     | 400 HD  | 600     | 600 HD  |
|----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| L (mm)               | 490     | 490     | 665     | 665     | 890     | 890     | 1155    | 1155    |
| A (mm)               | 330     | 360     | 330     | 360     | 330     | 360     | 330     | 360     |
| Lx (mm)              | 110     | 110     | 50      | 50      | 160     | 160     | 140     | 140     |
| N Fixing holes       | 4       | 4       | 8       | 8       | 8       | 8       | 20      | 20      |
| P Motor power (w)    | 200     | 350     | 200     | 350     | 200     | 350     | 200     | 350     |
| Payload (Kg)         | 60      | 150     | 60      | 150     | 60      | 150     | 60      | 150     |
| Speed range (mm/min) | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 |
| Mx (Kgm)             | 24      | 24      | 24      | 24      | 24      | 24      | 24      | 24      |
| My (Kgm)             | 26      | 26      | 26      | 26      | 26      | 26      | 26      | 26      |
| Mz (Kgm)             | 26      | 26      | 26      | 26      | 26      | 26      | 26      | 26      |
| Weight (kg)          | 13,3    | 15,8    | 14,4    | 16,9    | 18,9    | 21,4    | 22,3    | 24,8    |

# VIPER COLD WIRE FEEDER



**VPR-02 VIPER COMPLETE**  
3 modules on one base one base.

**MADE UP OF THREE MODULES: 2 WD FEEDER, WIRE REEL HOLDER AND CONTROLLER, IN THREE DIFFERENT COMBINATIONS.**

## Control functions:

- Wire speed digital display
- Wire feed mode: continuous / pulse
- Wire speed adjuster
- Wire start delay
- Wire pulse setting by 2 timers
- Wire retract at the end of welding
- Standard drive rolls 1.0 -1.2  
upon request: 0.6 – 0.8 / 0.8 – 1.0 / 1.2 – 1.6

## Options:

CEFF, wire adjuster.  
VPR-12, current sensor.



**VPR-03 VIPER WITH SEPARATE CONTROLLER**  
Feeder and reel holder on one base and loose controller. Connection cable 5 m, other lengths upon request.



## CEFF - WIRE ADJUSTER

Used in TIG-Plasma technologies for a 4-axis micrometric adjustment of wire position, to be clamped to the torch, can be combined with swivels S8006.009 and B150001+2.



**VPR-01, VIPER WITH SEPARATE MODULES**  
Connection cables 5 m, other lengths upon request.



CEFF compared with 3D-WIRE.



## 3D-WIRE WIRE ADJUSTER

Conceived for automatic torches, it was got a 3-axis micrometric adjustment. Its dimensions are smaller than the CEFF.



**VPR-12 CURRENT SENSOR,** to allow starting and stopping the feeder. Cable length 5 m with connector

## VPR-4WD 4 ROLLS COLD-WIRE FEEDER WITH DIGITAL CONTROL



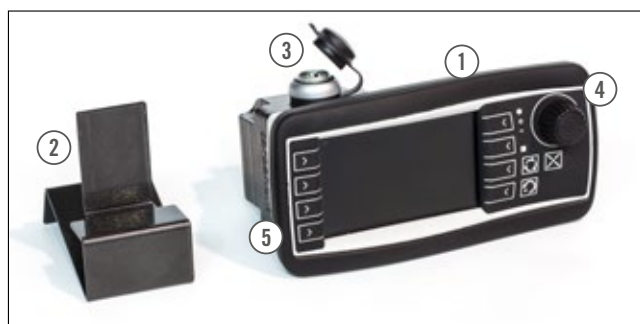
**VPR-4WD IS A 4 WHEELS WIRE FEEDER** with DC motor with encoder that can grant invariability and precision in wire feeding during TIG and Plasma processes either in "cold wire" mode or in "hot wire" mode.

The product has been conceived for modular use so as to meet any possible need:

- Manual with torch to be hold with hands: in this case the wire feeder will manage all the job
- Automatic with wire feeder provided with programmable controller, but managed together with other equipments
- Automatic with wire feeder without its own programmable controller, but directly managed by the machine PLC.

### ACCESSORIES

1. 3D-WIRE, 3 axes wire adjuster
2. CEFF, 4 axes wire adjuster
3. Manual torch with cold wire kit
4. Steel sheath, up to 4m.



### Control panel description

1. VPR4.P001 Control panel
2. VPR4.013 Remote control support
3. USB door for software updates
4. Multifunction knob
5. Single function buttons

- Panel extension cable available : 5 and 10 m length

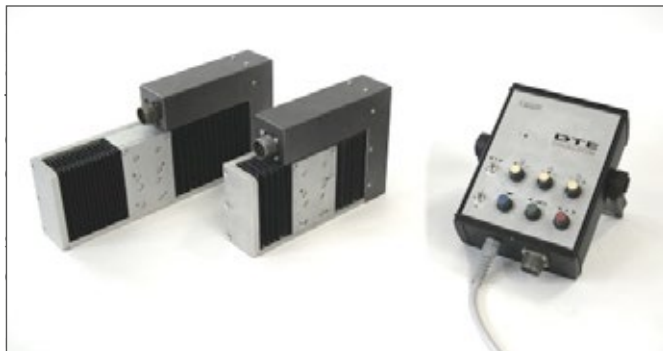


### Components

1. VPR-4MOT gearmotor group
2. VPR-4RC control panel
3. VPR-4RCS panel support
4. VPR-4SUP transport frame
5. VPR-4BOB wire reel holder

# LINEAR OSCILLATOR

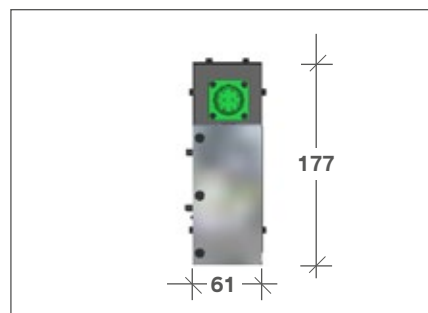
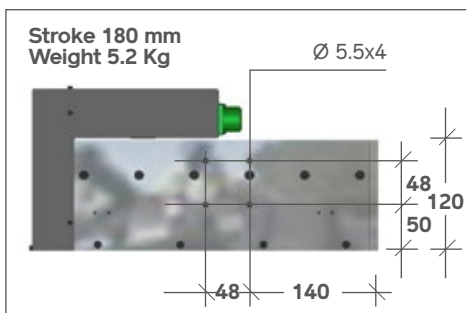
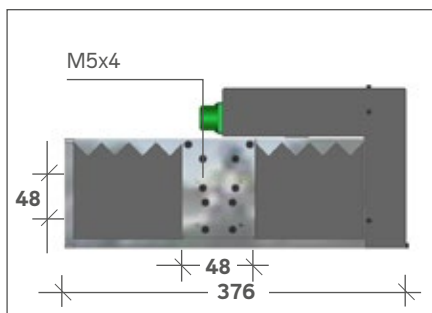
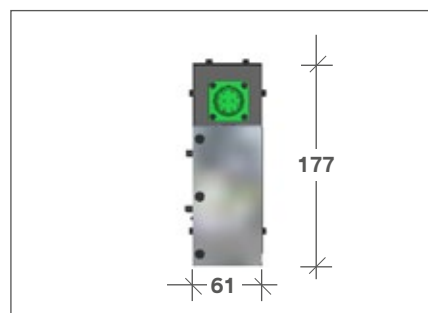
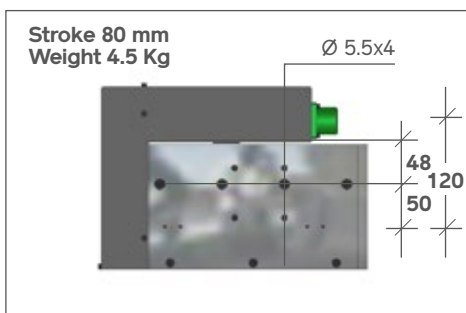
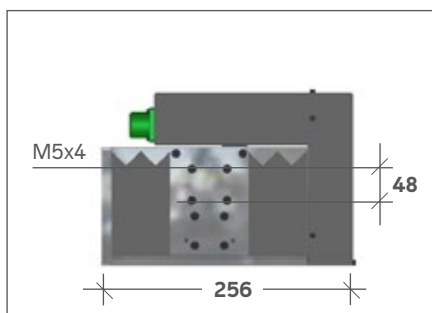
## ELECTRONIC INVERSION MOTION AND ANALOGUE CONTROL



### DTE 80/180

Linear oscillators with electronic inversion, stroke 80 or 180 mm.

They allow to alternate the torch stroke direction and to adjust the oscillation amplitude, frequency, centreline and left / centre / right (l / c / r) dwells. Effectively used for the filling of thick joints and for hard facing of wear parts of valves and of other fixtures ads well. Payload is 10 kg at 100 mm from face plate. With protection bellow.



1. Start - Stop
2. Dwell left
3. Dwell centre
4. Dwell right
5. Line on/off
6. Amplitude
7. Speed
8. Oscillation centreline

| TECHNICAL DATA         | DTE 80               | DTE 180              |
|------------------------|----------------------|----------------------|
| Feeding                | 230V 50-60 Hz        | 230V 50-60 Hz        |
| Oscillation speed      | 20-2800 mm/min       | 20-2800 mm/min       |
| Oscillation amplitude  | 0-30 mm              | 0-50 mm              |
| Oscillation centreline | ± 25 mm              | ± 60 mm              |
| Dwell l / c / r        | 0-5 sec              | 0-5 sec              |
| Controller dimensions  | 200x 82x169 mm       | 200x 82x169 mm       |
| Controller weight      | 3 kg                 | 3 kg                 |
| Connection cable       | 10 mt, or at request | 10 mt, or at request |
| Payload                | 10 kg at 100 mm      | 10 kg at 100 mm      |





# LINEAR OSCILLATOR

## DTE PLC ELECTRONIC INVERSION MOTION AND DIGITAL CONTROL



### DTE PLC features:

- Feeding 230V, 1-phase
- Motor power according to slide size

Remote control with 10 m cable and digital setting of:

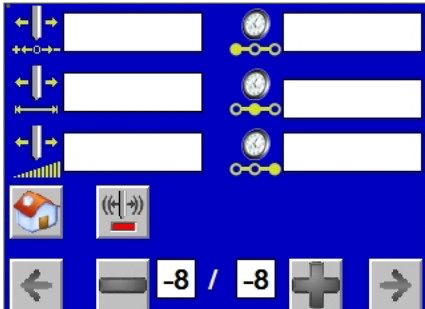
- Amplitude.
- Oscillation speed.
- Oscillation centreline.
- Dwell left / centre / right.
- Emergency cut-off.
- Start / stop push buttons.
- Push buttons for shifting oscillation centreline.
- Slide actuating the oscillation: see motorized slides MM MINI and MM MIDI.

The PLC installed on the remote control allows to record custom built functions and cycles. DTE PLC can be combined with any MM MINI and MM MIDI slide.

### PLC control panel display

Besides basic functions, special functions can be associated such as:

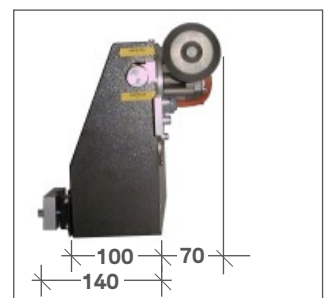
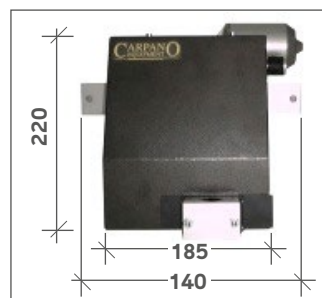
- Step or helical motion
- Recall of different data at each weld pass



### CEW2 - MECHANICAL LINEAR OSCILLATOR

Features:

- Mechanical setting of amplitude 0 to 33 mm
- Oscillations 5 to 150 per minute
- Payload 6 kg at 100 mm from face plate



# AVC PLC ARC CONTROL FOR TIG AND PLASMA

## AVC PLC will grant several benefits to your welding :

- high uniformity and quality of welding/cutting
- considerable increasing of process speed
- great reduction of plant starting up and joint preparing time
- decreasing of consume of torches spare parts
- low-skilled operators required

## Most frequent applications:

- on manipulators for circle tanks welding
- on seamers for longitudinal welding
- on turntable positioners and on lathes for pipes welding on pantograph
- on lathes for pipe cutting



Useful anyhow for any application in which torch changes its distance from work-piece during welding process.

With AVC PLC **Carpano Equipment** offers to its Customers a product provided with lots of features.

## The same machine can be employed in each of the following welding processes:

- TIG DC
- Pulsed TIG, minimal frequency 2Hz
- TIG AC
- "Hot wire" TIG and "cold wire" TIG
- MIG and pulsed MIG

## PLC allows integration with other systems such as:

- Oscillator
- Cold wire feeder
- Linear or rotating axes
- 3 axes max. In this case there are only one control panel and only one control box

## AVC PLC can be coordinated with:

- Any kind of Carpano's motorized slide
- AI Power manipulators



### AVCPLC80mini

- 01. Control box
- 02. Motorized slide MINI80
- 03. Remote control
- 04. 10m cable for standard slide. Other length upon request
- 05. 5m feeding cable
- 06. 1,5m nr. 2 cables for connection to power source

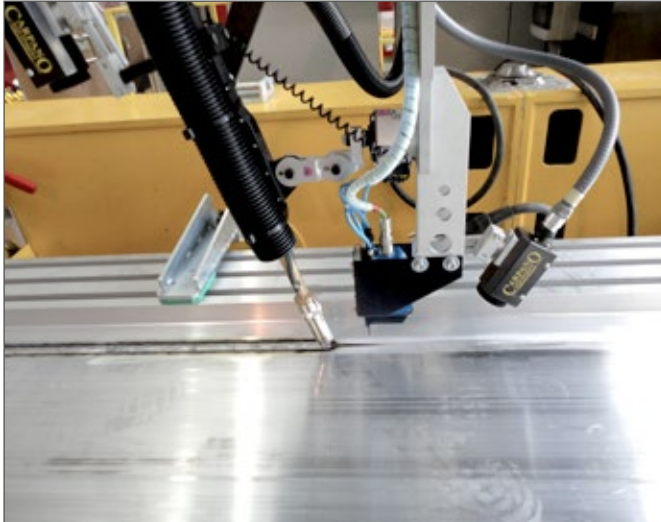
### AVCPLC250MIDI

- 01. Control box
- 02. Motorized slide MIDI250
- 03. Remote control
- 04. 10m cable for standard slide. Other length upon request
- 05. 5m feeding cable
- 06. 1,5m nr. 2 cables for connection to power source



# JOINT TRACKING

## TACTILE IG, LASER IG LAS LASER IG 2D



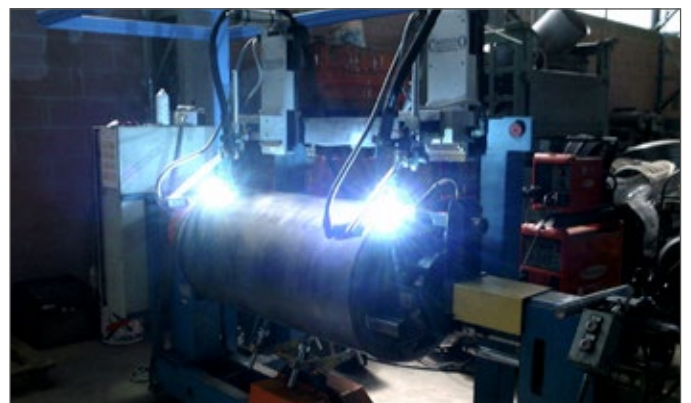
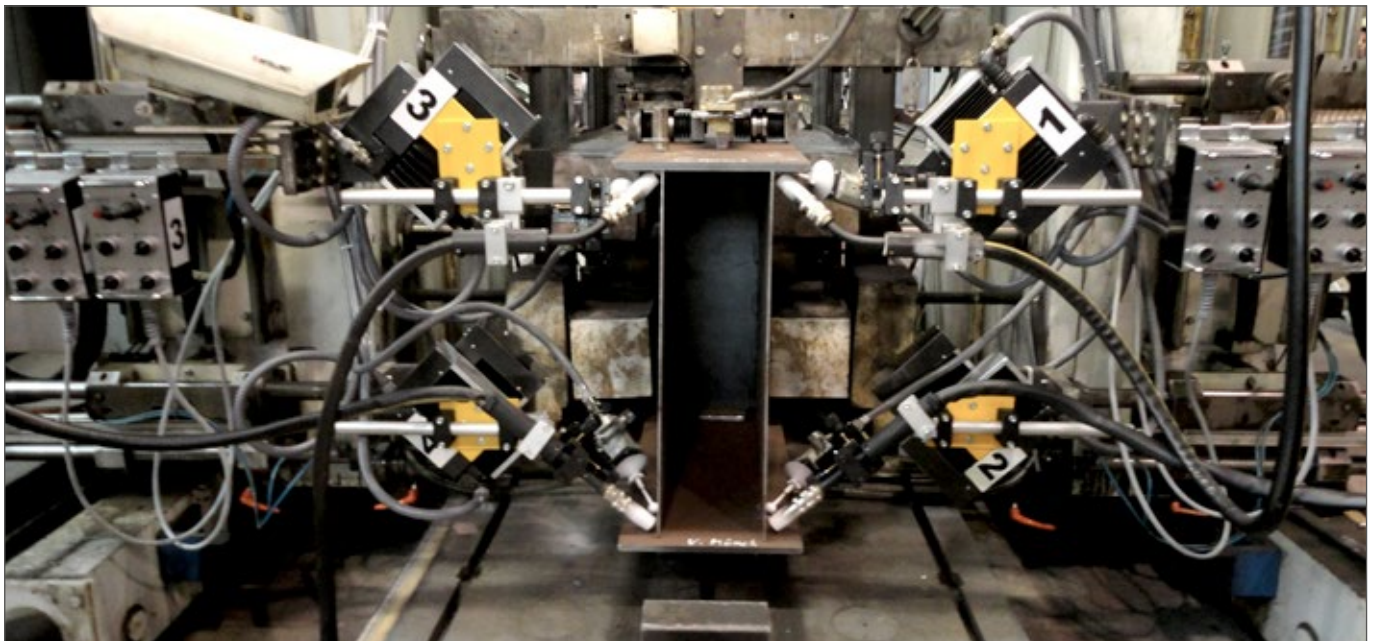
**A WELDING PLANT CAN BE CONSIDERED AUTOMATED IF THE OPERATOR CAN BE RELIEVED FROM THE TASK OF CONTINUOUSLY ATTENDING THE PROCESS.**

When the geometry of work pieces is irregular and/or when welding heat input distorts them, joint tracking systems effectively solve these problems and enhance both the productivity of the plant and the quality of the joint as well.

**Our range includes 3 models of joint tracking systems:**

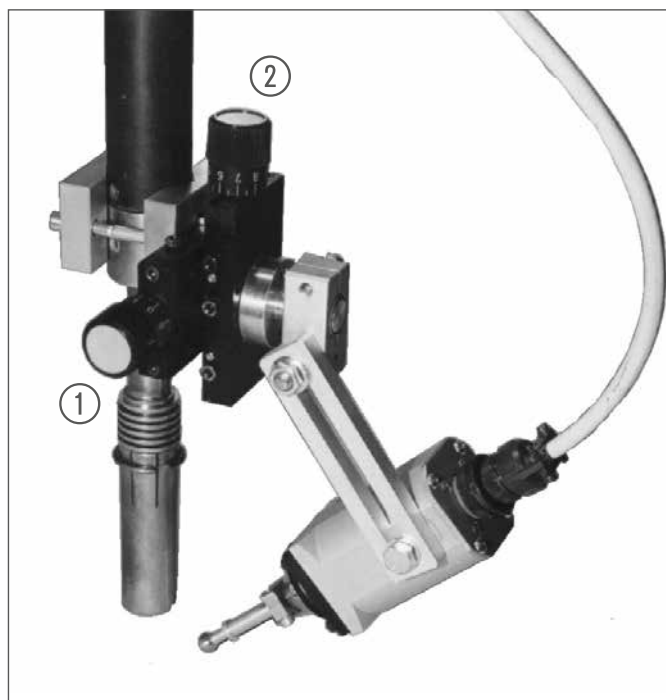
- IG, 2-axis, with tactile proportional probe.
- IG LAS, 1-or 2-axis, with one or two laser probes.
- IG 2D, 2-axis laser scanner.

See their standard features in the next pages.





# IG, TACTILE JOINT TRACKING



1. Torch horizontal adjustment
2. Torch height adjustment

## WORKING PRINCIPLE

IG tactile system constantly keeps the torch in touch with the joint and automatically performs precise tracking for any welding process.

After moving straight downwards, the probe shall automatically pursue its tracking start position moving in the direction left-centre-right that has been pre-set.

After reaching that position, whenever the probe senses a deviation greater than 0.2 mm, cross slides shall move and correct the torch at a speed proportional to the error the probe has detected.

Single axis tracking can be performed by motorized slide or by side beam carriage and x/y tracking by motorized cross slides MM MICRO, MM MINI, MM MIDI, MM MIDI HD.

Essential condition for horizontal tracking is a 2 mm side wall, rebate or gap.



## PLANT COMPOSITION:

1. One or more motorized slides.
2. Connecting cables length 10 m for the slides and for the probe
3. Control box.
4. Probe with manual cross slides.
5. Pendant with 10 m of cable. On demand all cables can have different lengths.



## IG, TACTILE JOINT TRACKING



### IG SYSTEM CAN BE COMBINED WITH 3 MODELS OF MOTORIZED SLIDES:

- **LT**, payload 10 kg at 100 mm from face plate, stroke 80 – 180 – 250 – 300 mm, generally used for MIG and TIG processes (MM MINI see slides).
- **HD**, payload 150 kg at 400 mm from face plate, stroke same as MD, suitable for SAW Twin or Tandem (see slides MM HD).

All a/m slides are made up of aluminium and machined, driven by ball screw and ball guides, provided of protection bellows and equipped with DC motors controlled by tacho generator or by encoder.

HD Vertical axis has got a more powerful motor with brake

### Ordering code

IG tracking system ordering code depends from the motorized slides and it's combined with:

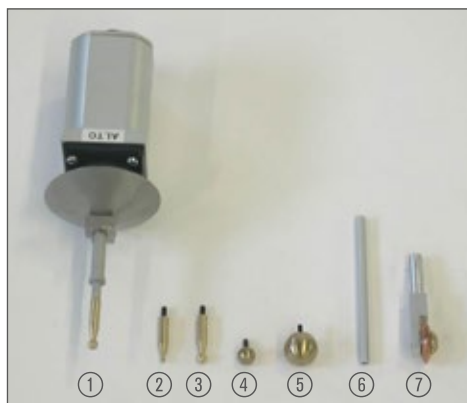
**IG LT 80/2** identifies a 2-axis system with MM MINI slides stroke 80 x 80 mm

**IG MINI 180/1 H** identifies a 1-axis system with horizontal MM MINI slide stroke 180 mm

### IG tactile probe

The probe is the most important component of the system and must be provided of a tip and of a finger whose the shape and length suit the joint geometry best:

1. IGS001 Complete probe
2. IGP03 Tip Ø 3 mm
3. IGP06 Tip Ø 6 mm
4. IGP10 Tip Ø 10 mm
5. IGP20 Tip Ø 20 mm
6. IGMT J002 Finger extension 100 mm
7. IGROT copper wheel tip
8. IGT.03-BR Joint made up of aluminium and bakelite for thermal insulation of the probe tip.

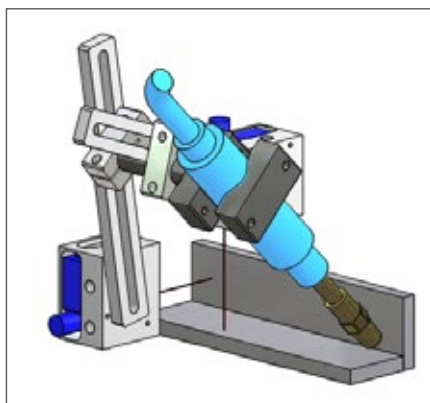




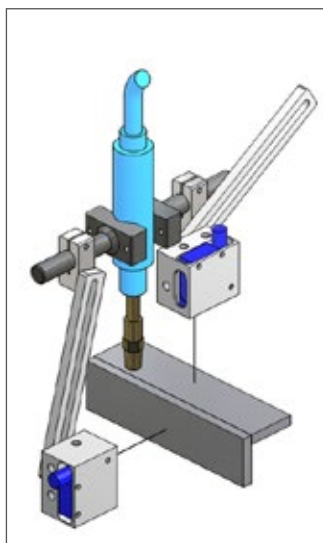
# IG LAS, LASER JOINT TRACKING



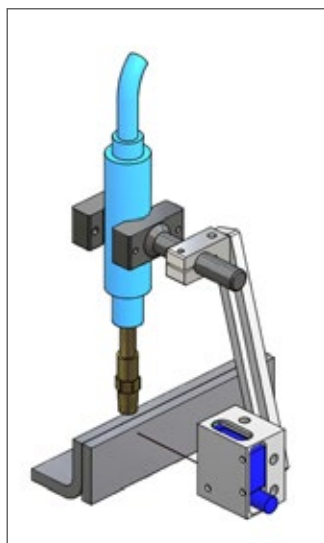
IG LAS, 1-probe and 2-probes tracking systems, do not need to touch the joint, as IG tactile probe does.



Fillet welding with 2 sensors IG LAS



Corner welding with 2 sensors IG LAS



Horizontal tracking with 1 sensor IG LAS

The laser sensor measures the distance from the joint accordingly to one direction. The measurement is proportional so that a correction at slow speed shall be delivered for small errors whereas greater errors shall be corrected at greater speed. Measurement ranges from 80 to 300 mm with a 0.3 mm precision. The sensor body is made up of aluminium with the possibility of cooling whenever temperature is greater than 50C°. Each sensor is supplied with micrometric cross slides and connection bracket.

## ORDERING CODE:

IG LAS, 1-axis and 2-axis tracking systems consist of:

- Controller.
- Remote control with 10m cable (up to 40m upon request).
- 1 or 2 laser sensors, each one complete of micrometric cross slides and of connection bracket.
- 1 or 2 motorized slides MM MINI, MM MIDI, MM MIDI HD (take a look at page 36 of this catalogue).
- Kit of 10 m cables to connect the controller to the slides and to the sensors (up to 40 m upon request).

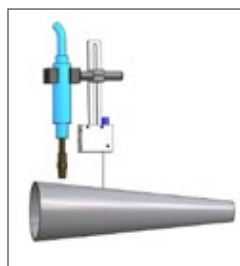
## SOME EXAMPLES OF CODE BUILDING:

**IG LAS HD 250/2** is a system consisting of 2 sensors and of HD motorized cross slides stroke 250x250 mm.

**IG LAS LT 80/1 V** is a system consisting of 1 sensor and of V (vertical) MM MINI motorized slide stroke 80 mm.

**IG LAS MINI 180/1 H** is a system consisting of 1 sensor and of H (horizontal) MM MINI motorized slide stroke 180 mm.

**IG LAS MD 600/2** is a system consisting of 2 sensors and of MM MIDI motorized cross slides stroke 600x600 mm.



Vertical tracking with 1 sensor IG LAS on conical work pieces



# IG 2D, LASER JOINT TRACKING IG PLC, CONTROLLER



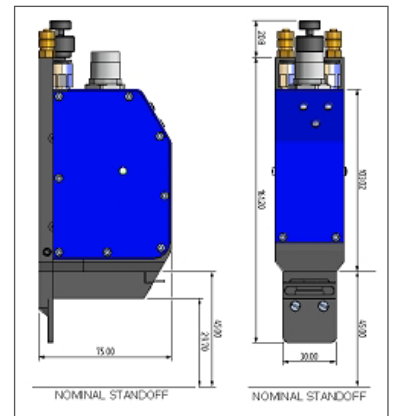
**IG 2D** probe uses triangulation principle to carry out a continuous scanning of the joint. In comparison with IG tactile system, allows joints tracking with side wall, rebate or gap up to 0.5 mm

**Other functions of the system are:**

- «Look ahead», i.e. delayed correction according to welding speed
- «Joint search», i.e. automatic search of the joint
- «Auto cut-off», i.e. sensing the end weld
- «Stitch search», i.e. sensing weld stitches

**On request:**

- Automatic speed adjustment according to bevel width



| TECHNICAL DATA              |     | IG 2D 050 probe           |
|-----------------------------|-----|---------------------------|
| Sensing field               | mm  | 50                        |
| Sensing field depth         | mm  | 70                        |
| Sensing field height        | mm  | 65                        |
| Horizontal resolution       | mm  | 0.05                      |
| Vertical resolution         | mm  | 0.08                      |
| Hor. measurement precision  | mm  | ±0.1                      |
| Vert. measurement precision | mm  | ±0.1                      |
| Weight of the sensor        | kg  | 0.65 without cables       |
| Cooling                     | by  | fluid flow or chilled air |
| Exercise temperature        | °C  | - 40° to + 55°            |
| Maximum cable length        | m   | 50                        |
| Connection to controller    | via | Ethernet                  |
| Laser power                 | mW  | 30                        |
| Average wave length         | nm  | 685 (660 to 699)          |
| Camera frame rate           | fps | 25                        |
| Feeding                     | V/A | 24 / 1.7 max.             |

**IG PLC CONTROLLER:** further to the normal analogue control box, we can supply the new IG PLC control box that can indifferently control IG tactile, IG LAS and IG 2D probes.

Such a device allows to create different work sequences so as to suit any automatic tracking need and to be integrated with table positioners and lathes work cycle.

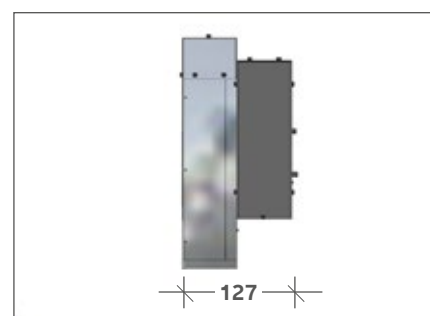
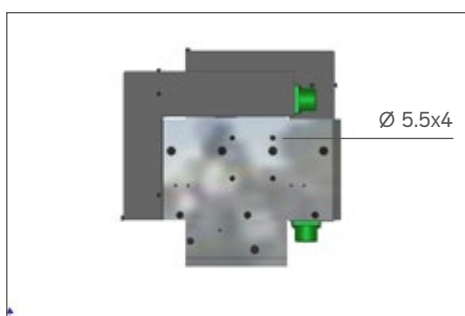
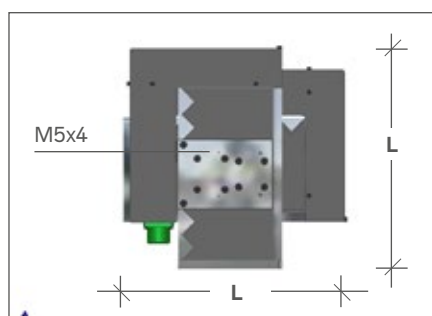


# JOINT TRACKING SYSTEMS

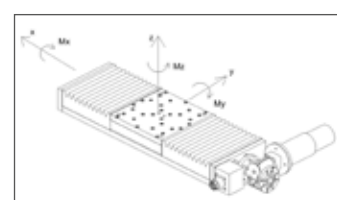
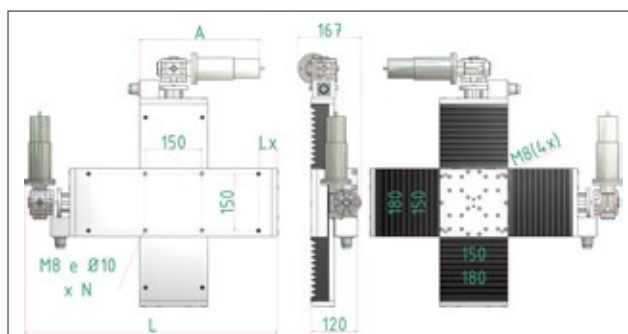
## THE SLIDES

|                             |         |         |         |         |
|-----------------------------|---------|---------|---------|---------|
| <b>L (mm)</b>               | 256     | 376     | 476     | 536     |
| <b>Lx (mm)</b>              | 80      | 140     | 196     | 226     |
| <b>P Motor power (W)</b>    | 31      | 31      | 31      | 31      |
| <b>Payload (Kg)</b>         | 10      | 10      | 10      | 10      |
| <b>Speed range (mm/min)</b> | 50/2300 | 50/2300 | 50/2300 | 50/2300 |
| <b>Mx (Kgm)</b>             | 4       | 4       | 4       | 4       |
| <b>My (Kgm)</b>             | 3       | 3       | 3       | 3       |
| <b>Mz (Kgm)</b>             | 3       | 3       | 4       | 4       |
| <b>Weight (kg)</b>          | 4,6     | 5,6     | 6,5     | 7       |

- Made of aluminium and machined
- Driven on single ball guide by ball screw
- With belt and pulley transmission
- DC motor with encoder and MIL connector
- PVC protection bellows
- Inductive limit switches



- Made of aluminium and machined
- Driven on two ball guides by ball screw and worm screw gearing
- DC motor with tachogenerator and MIL connector
- PVC protection bellows
- Electro-mechanical limit switches



| MM MIDI - HD                | 100     | 100 HD  | 250     | 250 HD  | 400     | 400 HD  | 600     | 600 HD  |
|-----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| <b>L (mm)</b>               | 490     | 490     | 665     | 665     | 890     | 890     | 1155    | 1155    |
| <b>A (mm)</b>               | 330     | 360     | 330     | 360     | 330     | 360     | 330     | 360     |
| <b>Lx (mm)</b>              | 110     | 110     | 50      | 50      | 160     | 160     | 140     | 140     |
| <b>Fixing holes</b>         | 4       | 4       | 8       | 8       | 8       | 8       | 20      | 20      |
| <b>Motor power (W)</b>      | 200     | 350     | 200     | 350     | 200     | 350     | 200     | 350     |
| <b>Payload (Kg)</b>         | 70      | 150     | 70      | 150     | 70      | 150     | 70      | 150     |
| <b>Speed range (mm/min)</b> | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 | 50/1500 |
| <b>Mx (Kgm)</b>             | 24      | 24      | 24      | 24      | 24      | 24      | 24      | 24      |
| <b>My (Kgm)</b>             | 26      | 26      | 26      | 26      | 26      | 26      | 26      | 26      |
| <b>Mz (Kgm)</b>             | 26      | 26      | 26      | 26      | 26      | 26      | 26      | 26      |
| <b>Weight (kg)</b>          | 13,3    | 15,8    | 14,4    | 16,9    | 18,9    | 21,4    | 22,3    | 24,8    |

## MONITORING SYSTEMS

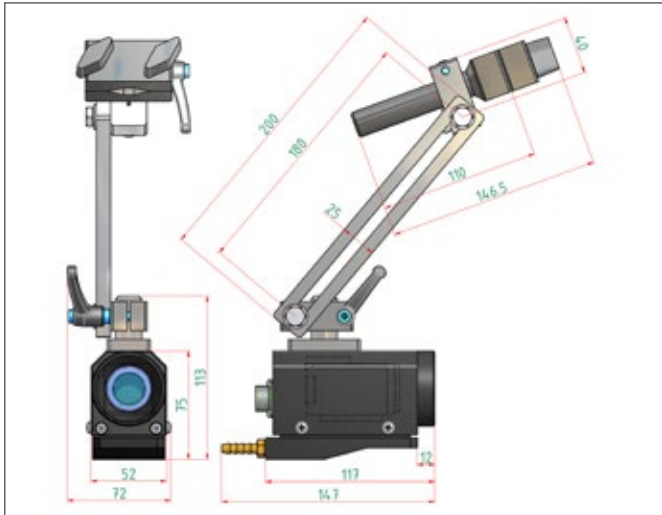


**VIDEO CABLE,**  
1 m for connecting  
controller to  
monitor



### TSV 09: STANDARD COMPONENTS

- Camera with auto-darkening shielded for open arc processes, without for monitoring SAW
- 15" LCD colour monitor
- Controller
- Controller - camera connection cable 10 m
- Controller - monitor connection cable 1 m



**CAMERA:** The camera is very light and compact. Its casing is made of aluminium and it comes complete of connector and fixing bracket.

### THE TSV VIDEO SYSTEMS RANGE

- **TSV 03 SAW**, for SAW, without cooling
- **TSV 03 SAW-W**, for SAW, preset for cooling
- **TSV 09** for open arc processes, without cooling
- **TSV 09-W** for open arc processes, preset for cooling

**THE TSV VIDEO SYSTEMS ARE SPECIALLY DESIGNED TO WORK IN THE BLINDING LIGHT OF OPEN ARC PROCESSES AS WELL AS IN THE DARKNESS OF SAW AND THEIR USE GIVES SEVERAL ADVANTAGES:**

- Capturing the arc image through narrow accesses such as small diameter pipes
- Relieve the operator from taking uncomfortable, unhealthy and sometimes dangerous positions
- Allow one only operator to survey more welds at the same time
- Increase the torch positioning precision thanks to the great enlargement of the image
- Avoiding electric arc beams for a healthier work



**CONTROL CABLE**  
connecting controller  
to camera, standard  
length  
10 m, upon request  
up to 40 m



**TSV 03 SAW  
CONTROLLER**  
Featuring simpler  
control  
functions for SAW and  
incorporating:

- Zoom up to 40X
- Autofocus
- Manual focus



### EL LASER M4303

Spot laser to track wire position in SAW process:

- Ø 18 x 150 mm, included connector
- 5 m cable with connector
- Feeding 12-24V DC/AC, max 20mA
- Focus distance 15 to 40 cm
- Upon request: LASER SUPP swivel bracket, with two clamps Ø 18 mm

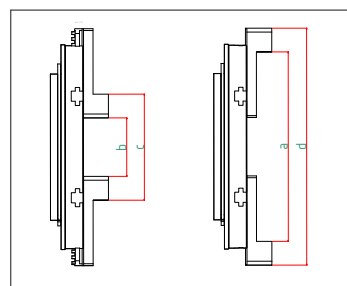
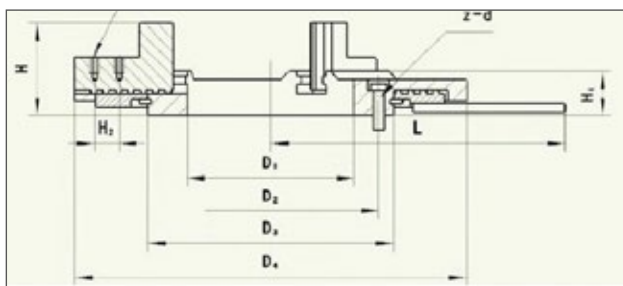


# FAST CLAMPING KEYLESS CHUCKS



## KEYLESS GRIP CHUCKS OUTSTANDING FEATURES ARE:

- Fast clamping / releasing by hand lever
- Small thickness and low weight
- Large hollow spindle Ø which makes them particularly suitable for pipe handling
- External bolting by means of 3 spot-faced and stepped holes 120°, which avoids troublesome and expensive flanges for connecting the chuck to the face plate positioner.



GRIP 200 installed on ONE

| MODELLO | GRIP 200 | GRIP 300 | GRIP 400 | GRIP 500 | GRIP 600  | GRIP 750  |
|---------|----------|----------|----------|----------|-----------|-----------|
| D1      | 80       | 100      | 170      | 240      | 365       | 515       |
| D2      | 100      | 120      | 220      | 280      | 400       | 542,5     |
| D3      | 120      | 150      | 250      | 320      | 425       | 570       |
| D4      | 200      | 300      | 400      | 500      | 600       | 750       |
| H       | 67,5     | 67,5     | 95       | 110      | 170       | 170       |
| H1      | 39       | 39       | 45       | 60       | 105       | 105       |
| H2      | 21       | 21       | 25       | 25       | 40        | 40        |
| L       | 200      | 240      | 300      | 350      | 425       | 500       |
| Z-d1    | 6-M6     | 6-M6     | 6-M6     | 6-M6     | 6-M12     | 6-M12     |
| Z-d     | 3-M8x35  | 3-M8x30  | 3-M10x40 | 3-M12x55 | 6-M12x110 | 6-M12x110 |

| MODEL              | GRIP 200 | GRIP 300 | GRIP 400 | GRIP 500 | GRIP 600 | GRIP 750 |
|--------------------|----------|----------|----------|----------|----------|----------|
| Gripping force     | 110-210  | 130-300  | 250-380  | 360-500  | 400-620  | 550-800  |
| Clamping Ø range a | 110-210  | 50-220   | 120-250  | 200-360  | 150-410  | 380-580  |
| Clamping Ø range b | 85-200   | 120-300  | 190-320  | 270-430  |          |          |
| Clamping Ø range c | 85-200   | 120-300  | 190-320  | 270-430  |          |          |
| Clamping Ø range d | 175-300  | 200-370  | 320-450  | 430-570  |          |          |
| Chuck weight       | 5 Kg     | 12 Kg    | 23 Kg    | 41 Kg    |          |          |

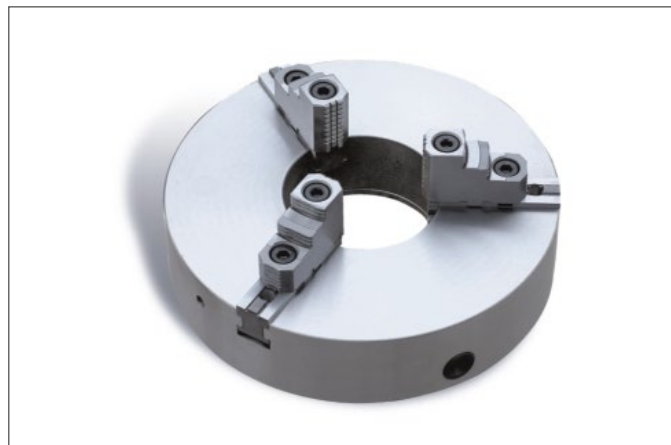
# CONVENTIONAL CHUCKS



**CHK-ST**  
**SELF CENTERING CHUCK**  
with 3 jaws and hollow spindle

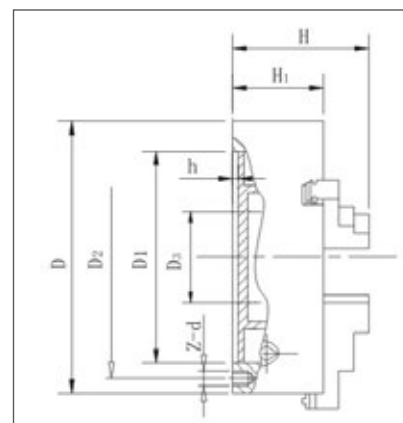
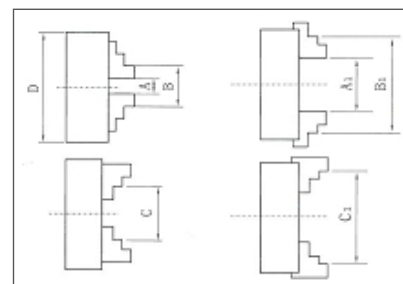
3 models are available  
with inner and outer  
jaws made up of one  
piece:

- Ø 80 mm
- Ø 125 mm
- Ø 200 mm



5 models are available  
with reversible jaws  
made of two pieces:

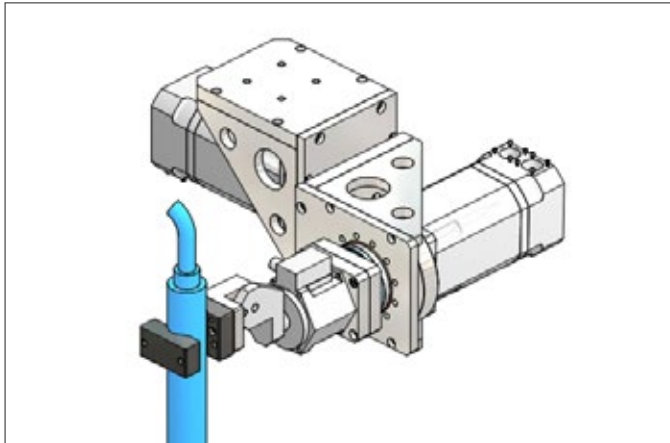
- Ø 250 mm
- Ø 315 mm
- Ø 400 mm
- Ø 500 mm
- Ø 630 mm



| CHUCK Ø | INNER CLAMPING   |                   | OUTER CLAMPING   |
|---------|------------------|-------------------|------------------|
|         | chuck-on<br>A-A1 | chuck-off<br>B-B1 | chuck-on<br>C-C1 |
| 80      | 2-22             | 25-70             | 22-63            |
| 125     | 2.5-40           | 38-125            | 38-110           |
| 200     | 4-85             | 65-200            | 65-200           |
| 250     | 6-110            | 80-250            | 90-250           |
| 315     | 10-140           | 95-315            | 100-315          |
| 400     | 15-210           | 120-400           | 120-400          |
| 500     | 25-280           | 150-500           | 150-500          |
| 630     | 50-350           | 170-630           | 170-630          |

| CHK-ST    | 80   | 125  | 200   | 250   | 315   | 400   | 500   | 630   |
|-----------|------|------|-------|-------|-------|-------|-------|-------|
| D         | 80   | 125  | 200   | 250   | 315   | 400   | 500   | 630   |
| D1        | 55   | 95   | 165   | 210   | 260   | 340   | 440   | 560   |
| D2        | 66   | 108  | 180   | 226   | 285   | 368   | 465   | 595   |
| D3        | 16   | 30   | 65    | 80    | 100   | 130   | 200   | 260   |
| h         | 3,5  | 3,5  | 5     | 5     | 6     | 6     | 6     | 8     |
| Z-d       | 3-M6 | 3-M6 | 3-M10 | 3-M12 | 3-M16 | 3-M16 | 6-M16 | 6-M16 |
| H         | 66   | 84   | 109   | 133   | 142,5 | 155,5 | 160   | 200   |
| H1        | 50   | 58   | 60    | 80    | 90    | 100   | 115   | 130   |
| Weight Kg | 4    | 10   | 19    | 25    | 41    | 71    | 118   | 210   |

# CNC TORCH HANDLING WRIST



## 1-AXIS OR 2-AXIS ROBOT-LIKE WRISTS TO PROGRAM TORCH POSITIONING

Brushless motors, absolute encoders and planetary «zero backlash» gearings can turn and tilt the torch with extreme accuracy and repeatability, both for positioning and interpolated motion control.

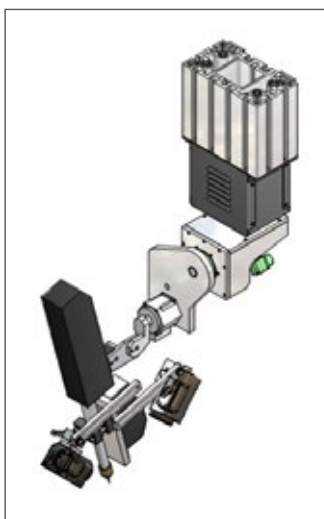
An example of a 2-axis wrist installed at the boom end of a manipulator, to provide resetting the torch at different angles.



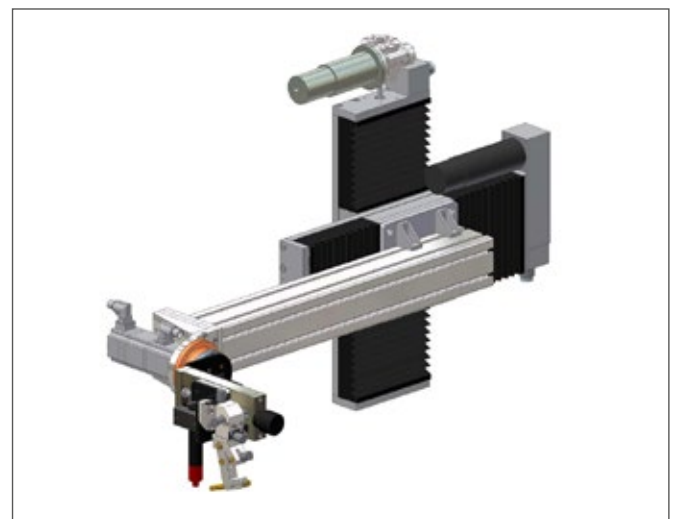
A 2- axis robot wrist allows to turn the torch 0° to 180° to allow welding in both directions and tilting it to 45° as well to perform longitudinal fillet welding, thus avoiding idle back strokes and manual setting of torch position.

### Wrist payload allows carrying:

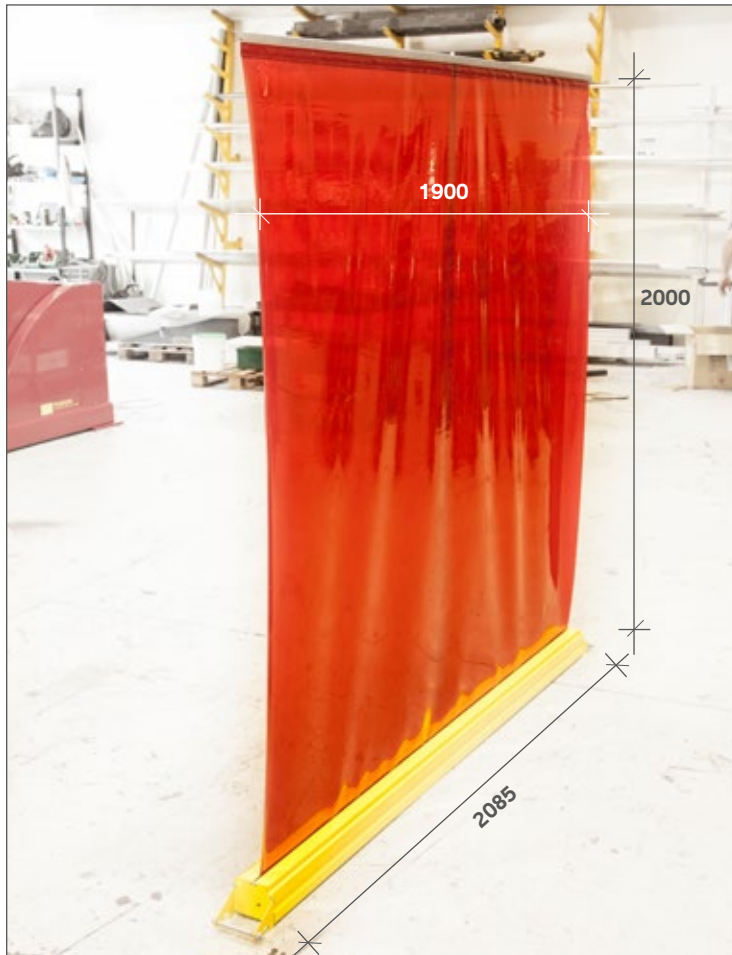
- A linear oscillator.
- An IG 2D tracking system.
- Two cameras installed ahead and downstream welding.
- A torch anti-shock system.
- A vertical slide with AVC function.
- A torch tilt axis.



TIG cold wire application, allowing to modify the tilt angle torch at each welding pass



# ROLL SHIELD



**ROLL SHIELD** is a panel that protects from flashes and projections operators working in the neighbourhoods of the welder.

It can be quickly and easily recovered into its blind box and moved to another work site.

### MAIN TECHNICAL FEATURES

- Complying with norms UNI EN 1598 DL 626/94 and DL81/2008
- Weight: 8,9 Kg
- Frame material: Al profile
- Feet and back up support material: Al
- Red panel material: fire proof



# MANIPULATORS BEAM CARRIAGES GANTRIES

Endowed with complementary equipment, the extended range of manipulators, side beam carriages and gantries included in our manufacturing program provides customized plants all managed by CNC for fully automated work cycles.



# MANIPULATORS, BEAM CARRIAGES, GANTRIES ■



## THREE MANIPULATORS FAMILIES ARE AVAILABLE:

- AL Power, made up of aluminium profiles, whose axis, on request, can be directly integrated with AVC or joint-tracking functions. Strokes 1x1 m to 3x3 m.
- I Power, made up of steel, ball screw lift drive and ball bearings linear guides. Strokes 3x3 and 4x4 m.
- Passerini's, made up of steel, machined steel guides, lift drive by chain or screw. Strokes 2x2 m up to 10x10 m.

**All models are available with fixed or motorized base, retractable or fixed boom.**



# AL POWER MICRO

## MAIN FEATURES

- Manual rotation of the column.
- Column & boom made up of aluminium with ball bearings linear guides.
- Worm gear-motor with rack and pinion transmission.



### APMICRO-MAN

- Fixed base.
- Strokes 1x1 m or 1.5x1.5 m, both axis driven by hand wheel.



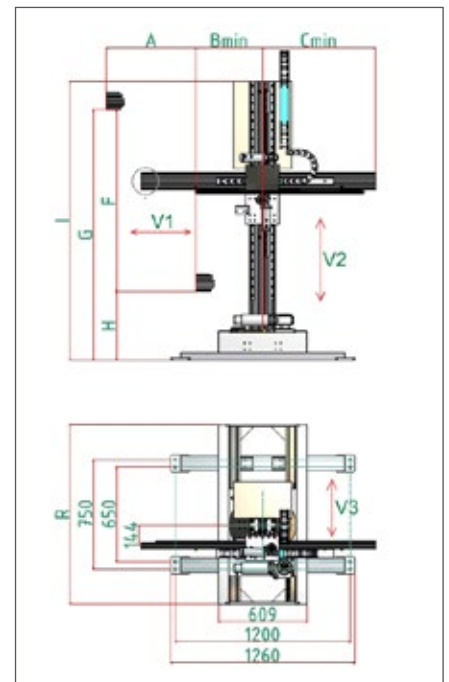
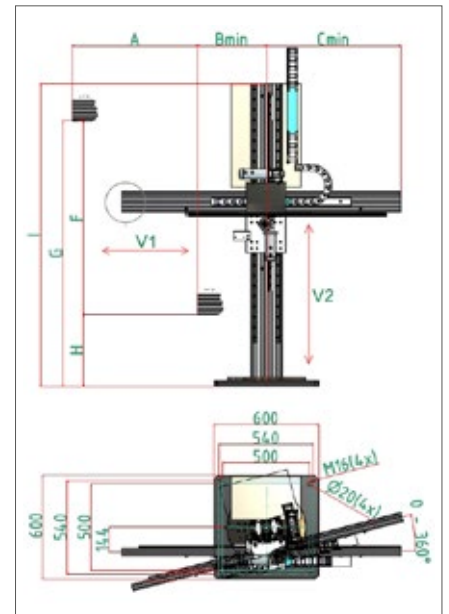
### APMICRO-MOT

- Fixed base.
- Strokes 1x1 m or 1.5x1.5 m, both axis motorized.



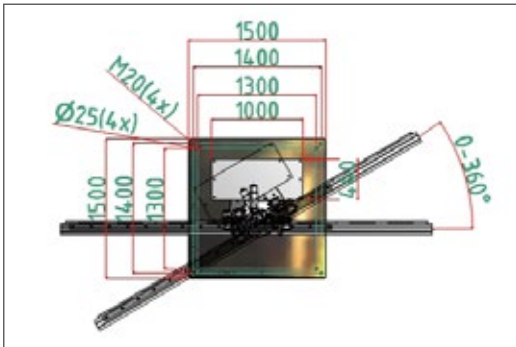
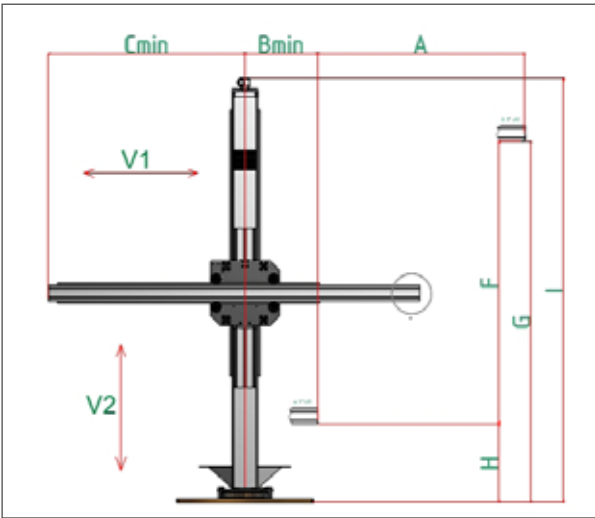
### APMICRO-CM

- Motorized base, base stroke on demand.
- Column and boom motorized, strokes 1x1 m or 1.5x1.5 m.



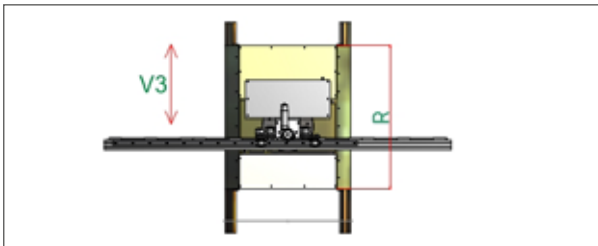
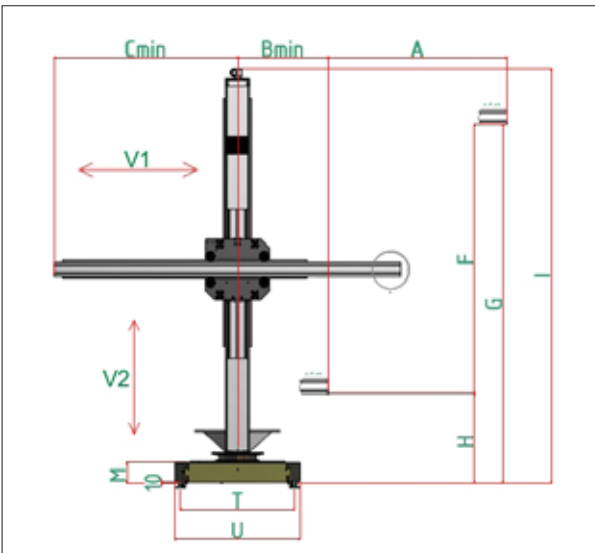
| MODEL      | u.m.   | MAN/MOT 10  | MAN/MOT 15  | CM 10     | CM15      |
|------------|--------|-------------|-------------|-----------|-----------|
| A          | m      | 1           | 1,5         | 1         | 1,5       |
| V1 min/max | mm/min | - / 50-1900 | - / 50-1900 | 50-1900   | 50-1900   |
| B          | mm     | 458         | 458         | 458       | 458       |
| C          | mm     | 142         | 142         | 142       | 142       |
| F          | mm     | 1000        | 1500        | 1000      | 1500      |
| V2 min/max | mm/min | - / 50-1900 | - / 50-1900 | 50-1900   | 50-1900   |
| G          | mm     | 1545        | 2045        | 1707      | 2207      |
| H          | mm     | 545         | 545         | 707       | 707       |
| I          | mm     | 1750        | 2250        | 1912      | 2412      |
| V3 min/max | mm/min | -           | -           | 50-1900   | 50-1900   |
| R          | mm     | ON DEMAND   | ON DEMAND   | ON DEMAND | ON DEMAND |
| Weight     | Kg     | 300         | 350         |           |           |
| Payload    | Kg     | 40          | 20          | 40        | 20        |

# AL POWER MINI



## AP MN BF (AL POWER MINI FIXED BASE)

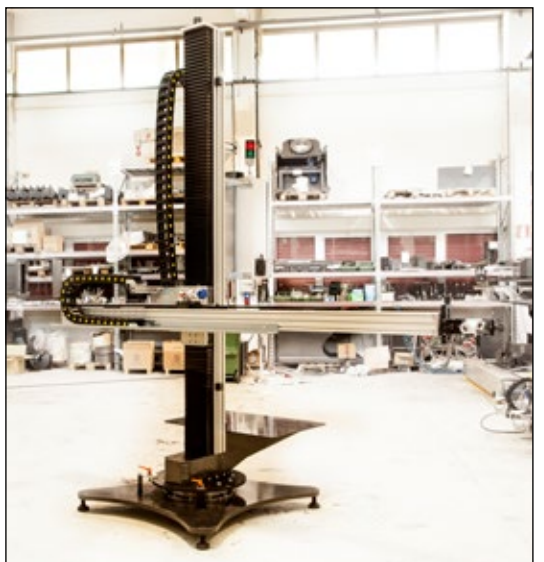
- Base plate with levelling feet
- Manual rotation of the column, incorporating power source holder
- Column made up of aluminium, section 220 x 120 mm with ball bearings linear guides and protection bellow
- Boom made of aluminium, section 120 x 80 mm, ball bearings linear guides, rack and pinion transmission
- Both vertical and horizontal axis driven by brushless motors and encoder



**AP MN CM (AL POWER MINI MOTORIZED BASE)**

- Motorized steel base
- Brushless motor and encoder
- Limit switches and safety front and rear bumpers
- Anti-overturning safety fixtures
- Other features: see AP MN BF

| MODEL      |        | MOT 15      | MOT 20      | CM 15   | CM20    |
|------------|--------|-------------|-------------|---------|---------|
| A          | m      | 1,5         | 2           | 1,5     | 2       |
| V1 min/max | mm/min | - / 50-1900 | - / 50-1900 | 50-1900 | 50-1900 |
| B          | mm     | 610         | 610         | 610     | 610     |
| C          | mm     | 390         | 390         | 390     | 390     |
| F          | mm     | 1500        | 2000        | 1500    | 2000    |
| V2 min/max | mm/min | - / 50-900  | - / 50-900  | 50-900  | 50-900  |
| G          | mm     | 2200        | 2700        | 2370    | 2870    |
| H          | mm     | 700         | 700         | 870     | 870     |
| I          | mm     | 2820        | 3320        | 2290    | 3490    |
| V3 min/max | mm/min | -           | -           | 50-3000 | 50-3000 |
| U          | mm     |             |             | 970     | 970     |
| T          | mm     |             |             | 845     | 845     |
| R          | mm     |             |             | 1450    | 1450    |
| Weight     | Kg     | 650         | 700         | 770     | 820     |
| Payload    | Kg     | 40          | 40          | 40      | 40      |

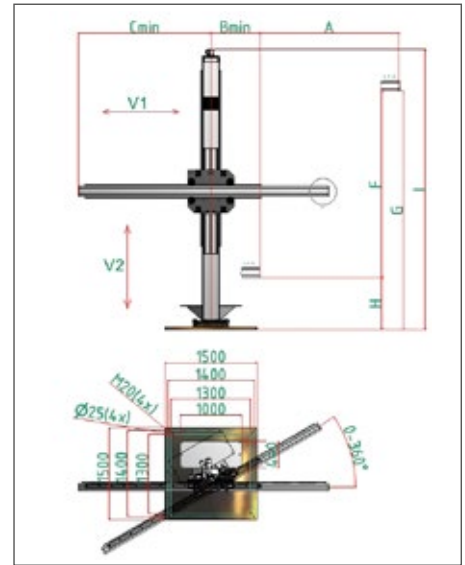




# AL POWER MIDI

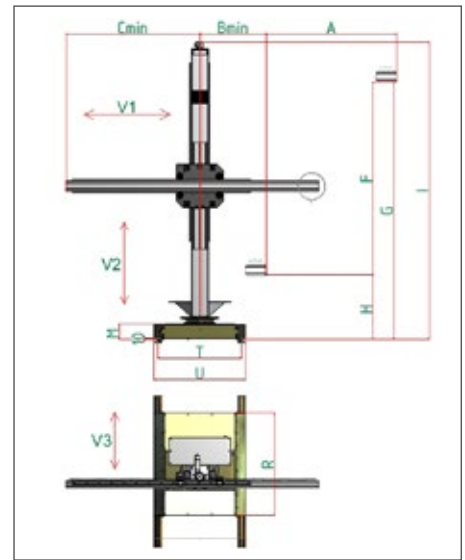
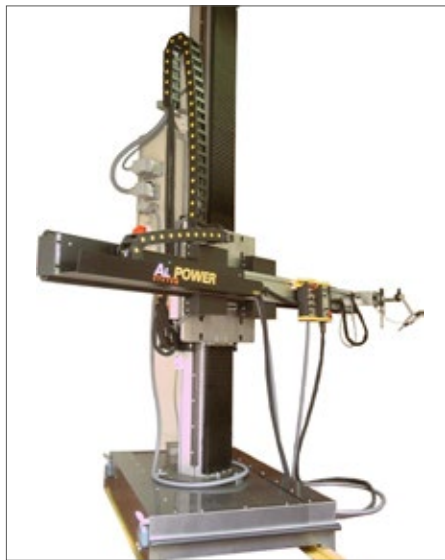
## AP MD BF (AL POWER MIDI FIXED BASE)

- Steel base plate with levelling feet.
- Manual rotation of the column, incorporating power source holder.
- Column and boom made up of aluminium, with steel guides.
- Lift drive by ball screw, safety nut and protection bellow.
- Both vertical and horizontal axis driven by brushless motors and encoder.



## AP MD CM (AL POWER MIDI MOTORIZED BASE)

- Motorized steel base
- Brushless motor and encoder
- Limit switches and safety front and rear bumpers
- Anti-overturning safety fixtures
- Other features: see AP MD BF



| MODEL      |        | AP MD BF 20 | AP MD BF 30 | AP MD CM 20 | AP MD CM 30 |
|------------|--------|-------------|-------------|-------------|-------------|
| A          | m      | 2           | 3           | 2           | 3           |
| V1 min/max | mm/min | - / 50-1900 | - / 50-1900 | 50-1900     | 50-1900     |
| B          | mm     | 600         | 600         | 600         | 600         |
| C          | mm     | 400         | 400         | 400         | 400         |
| F          | mm     | 2000        | 3000        | 2000        | 3000        |
| V2 min/max | mm/min | - / 50-700  | - / 50-700  | 50-700      | 50-700      |
| G          | mm     | 2840        | 3840        | 3050        | 4050        |
| H          | mm     | 840         | 840         | 1050        | 1050        |
| I          | mm     | 3875        | 4875        | 4090        | 5090        |
| V3 min/max | mm/min | -           | -           | 50-2700     | 50-2700     |
| U          | mm     |             |             | 1470        | 1470        |
| T          | mm     |             |             | 1345        | 1345        |
| R          | mm     |             |             | 1655        | 1655        |
| Weight     | Kg     | 1200        | 1300        | 980         | 1080        |
| Payload    | Kg     | 100         | 100         | 100         | 100         |



## I-POWER

### ALL STEEL MADE MANIPULATOR

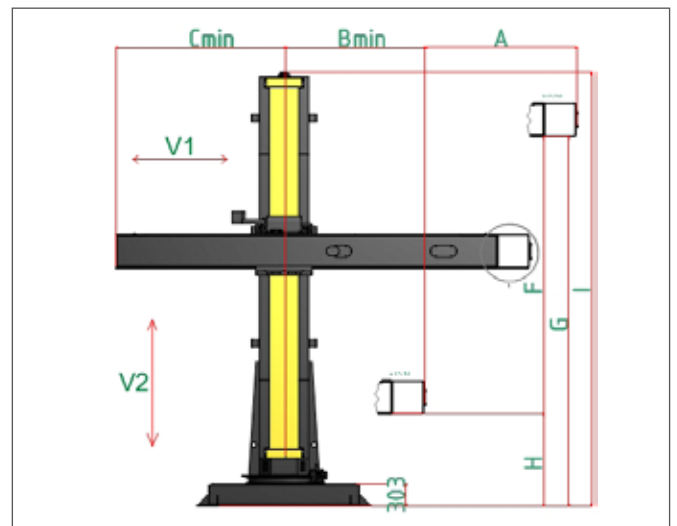
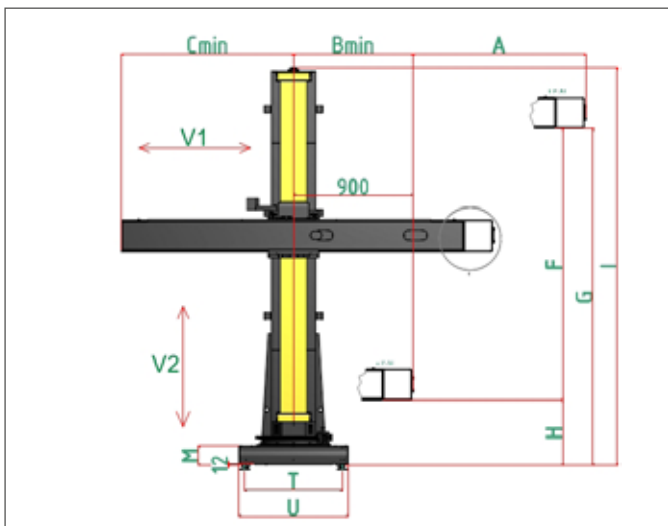
Boom lift by ball screw and anti-fall device safety nut.

Boom and lift traversing on ball linear guides.

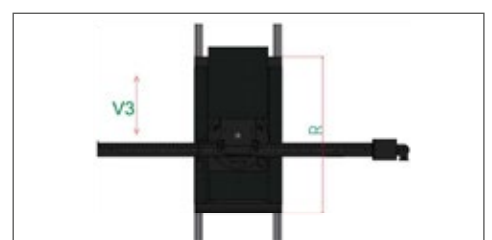
AC drives with vector inverter or brushless motors for CNC application

Available with fixed or motorized base.

Strokes 3x3 m or 4x4 m



| MODEL      |        | IP BF 3x3 | IP BF 4x4 | IP CM 3x3 | IP CM 4x4 |
|------------|--------|-----------|-----------|-----------|-----------|
| A          | m      | 3         | 4         | 3         | 4         |
| V1 min/max | mm/min | 200-2000  | 200-2000  | 200-2000  | 200-2000  |
| B          | mm     | 900       | 900       | 900       | 900       |
| C          | mm     | 565       | 565       | 565       | 565       |
| F          | mm     | 3000      | 4000      | 3000      | 4000      |
| V2         | mm/min | 980       | 980       | 980       | 980       |
| G          | mm     | 3918      | 4918      | 4900      | 3900      |
| H          | mm     | 918       | 918       | 900       | 900       |
| I          | mm     | 4776      | 5718      | 4760      | 5760      |
| V3 min/max | mm/min |           |           | 300-3000  | 300-3000  |
| U          | mm     |           |           | 1616      | 1616      |
| T          | mm     |           |           | 1450      | 1450      |
| R          | mm     |           |           | 2900      | 2900      |
| M          | mm     |           |           | 285       | 285       |
| D          | mm     | 1620      | 2320      |           |           |
| E          | mm     | 1540      | 2240      |           |           |
| L          | mm     | 1400      | 2100      |           |           |
| Weight     | Kg     | 1200      | 1300      | 980       | 1080      |
| Payload    | Kg     | 300       | 250       | 300       | 250       |



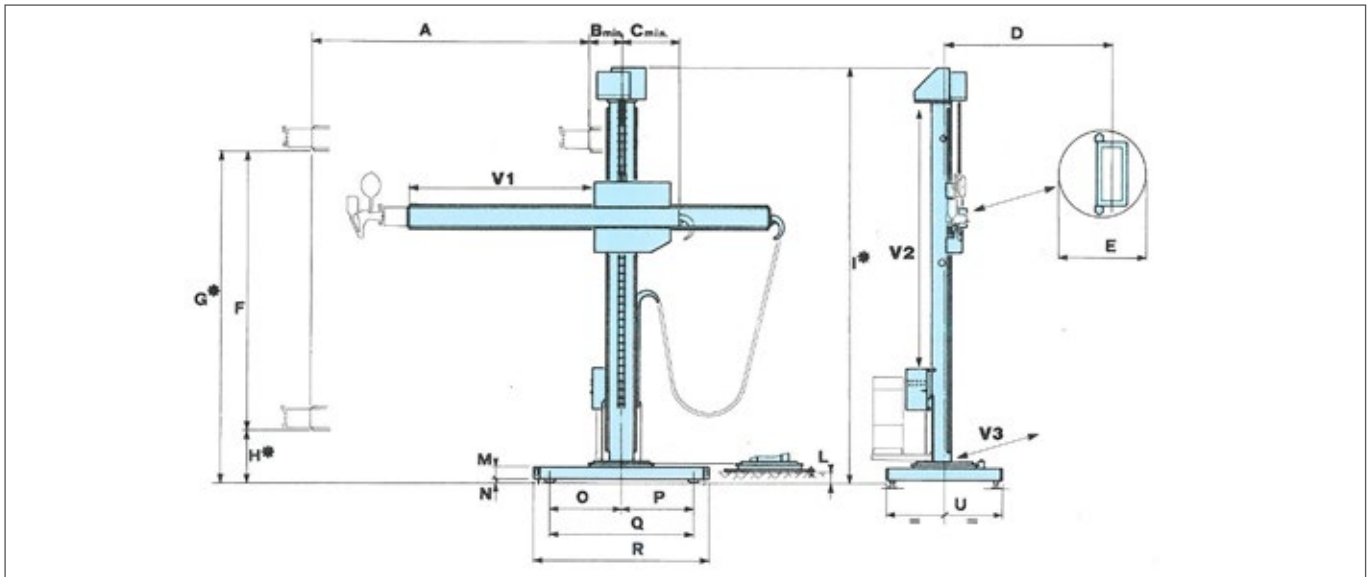


Still designed as the originals for heavy duty jobs, current models avail themselves of updated construction technologies and of top quality components, featuring:

- 
- A large industrial pipe is being moved by a red DEMAC 2000 crane in a factory setting. The crane is positioned over the pipe, and a yellow forklift is visible in the background. The pipe is being transported through a large industrial building with a high ceiling and steel beams.



# ZA-ZX-ZB-ZP-UD-UE-UF



| MODEL      |        | ZA       | ZX        | ZB        | ZP        | UD        | UE       | UF       |
|------------|--------|----------|-----------|-----------|-----------|-----------|----------|----------|
| A min/max  | m      | 1,5/3    | 1,5/4     | 2/6       | 2/8       | 2,5/10    | 3/10     | 4/10     |
| F min/max  |        | 1,5/3    | 1,5/5     | 2/6,5     | 2/8       | 2,5/5,8   | 3/8,5    | 4/8,5    |
| Type       |        | ZA30A30F | ZX40A50 F | ZB60A65 F | ZP80A80 F | UD90A85 F | UE10A85F | UF10A85F |
| A          | mt     | 3        | 4         | 6         | 8         | 9         | 10       | 10       |
| V1 min/max | mm/min | 180/1800 | 180/1800  | 180/1800  | 180/1800  | 180/1800  | 180/1800 | 180/1800 |
| B          | mm     | 390      | 430       | 450       | 592       | 1020      | 1230     | 1230     |
| C          | mm     | 490      | 510       | 890       | 1068      | 1080      | 1230     | 1630     |
| D          | mm     | 198      | 200       | 258       | 364       | 481       | 790      | 790      |
| E          | mm     | 300      | 345       | 420       | 500       | 590       | 1250     | 1250     |
| F          | mt     | 3        | 5         | 6,5       | 8         | 8,5       | 8,5      | 8,5      |
| V2         | mm/min | 1000     | 900       | 925       | 750       | 720       | 1000     | 1000     |
| G          | mm     | 3760     | 5667      | 7320      | 8907      | 9600      | 9605     | 9605     |
| H          | mm     | 760      | 667       | 820       | 907       | 1100      | 1105     | 1105     |
| I          | mm     | 4770     | 6880      | 8795      | 10577     | 10954     | 11245    | 11545    |
| L          | mm     | 300      | 300       | 315       | 235       | 352       | -        | -        |
| V3 min/max | mm/min | 180/1800 | 180/1800  | 180/1800  | 180/1800  | 180/1800  | 180/1800 | 180/1800 |
| M          | mm     | 260      | 260       | 276       | 276       | 450       | 455      | 455      |
| N          | mm     | 40       | 40        | 29        | 29        | 40        | 45       | 45       |
| O          | mm     | 1100     | 1100      | 1250      | 1400      | 2000      | 1800     | 1800     |
| P          | mm     | 900      | 900       | 1250      | 1400      | 1750      | 2150     | 2650     |
| Q          | mm     | 2000     | 2000      | 2500      | 2800      | 3750      | 3950     | 4450     |
| R          | mm     | 2440     | 2440      | 3000      | 3400      | 4850      | 4760     | 5340     |
| S          | mm     | 1345     | 1345      | 1345      | 1945      | 2445      | 2945     | 2945     |
| T          | mm     | 1400     | 1400      | 1400      | 2000      | 2500      | 3000     | 3000     |
| U          | mm     | 1755     | 1755      | 1755      | 2260      | 2775      | 3390     | 3390     |
| Weight     | Kg     | 2000     | 3400      | 5200      | 8940      | 14750     | 20470    | 24560    |
| Payload *  | Kg     | 130/160  | 170/220   | 180/250   | 180/250   | 220/350   | 420/620  | 940/1340 |

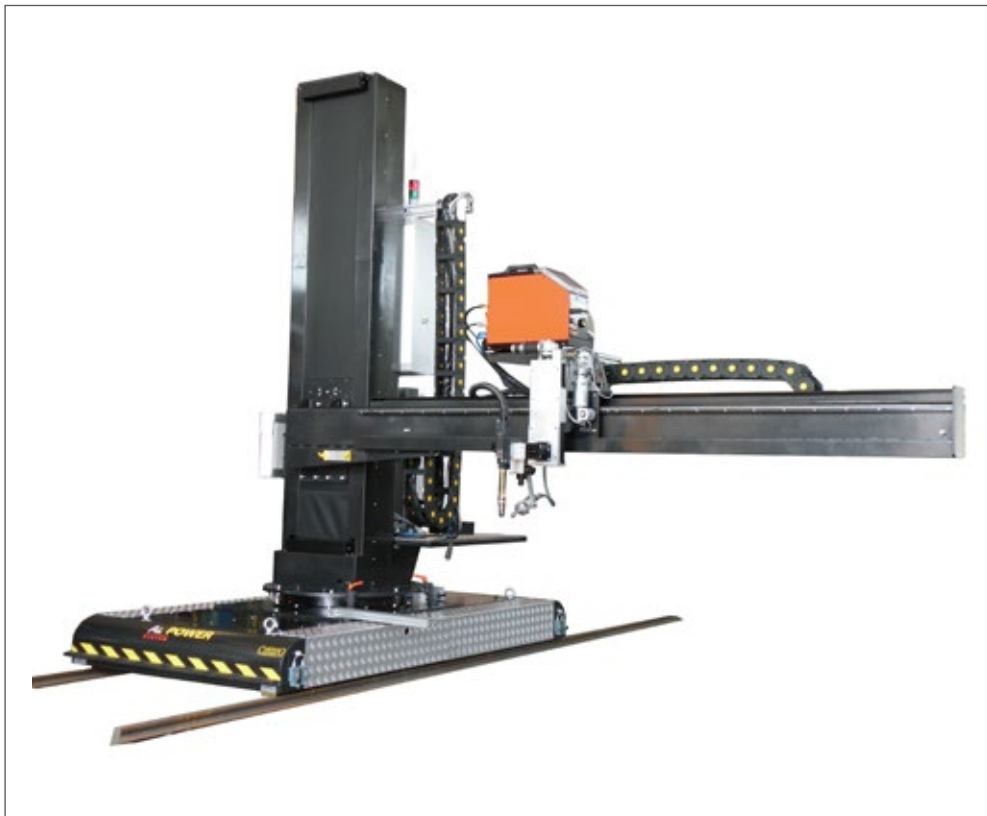
\* at 0.5 m from one end face plate / total

# FIXED BOOM MANIPULATORS



Manipulator for longitudinal SAW of beams:

- Motorized base.
- Fixed boom held at fixed height.
- Two motorized slides. beam carriages (with the function of x joint tracking axis).
- Two motorized slides. (diving-like mounting with the function of y joint tracking axis).
- Two IG tactile joint tracking systems.



Fixed boom, manipulator I Power for MIG welding of railway coach panels:

- Motorized base.
- Motorized boom lift.
- One motorized slide beam carriage (with the function of x joint tracking axis).
- One motorized slide (diving-like mounting) with the function of y joint tracking axis.
- One IG tactile joint tracking system.





## SIDE BEAM MOTORIZED CARRIAGES

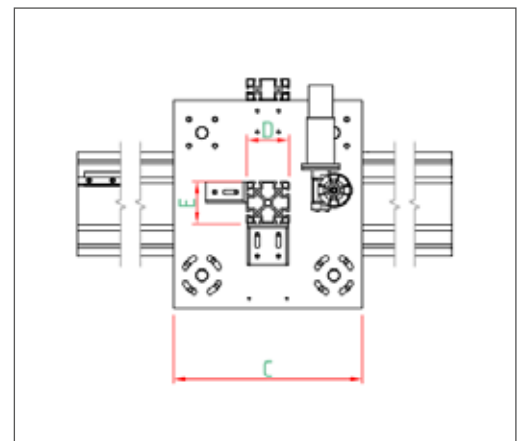
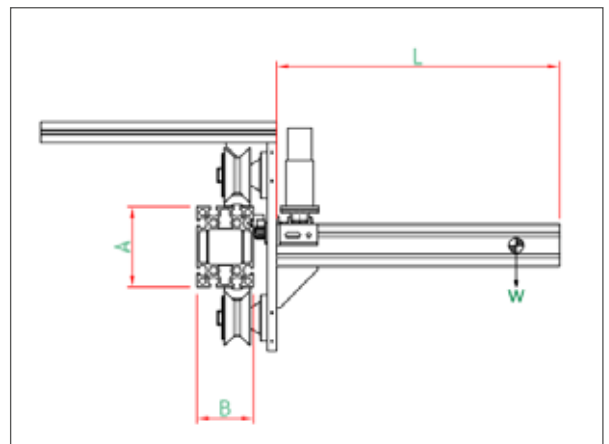
They share with AI Power manipulators accurate design, efficiency and top quality finishing. They can all be combined with our servo-mechanisms and coordinated with extra axis either vertical and/or transversal with according to carriage motion.

**AP TM MIDI** motorized side beam carriage, with IG x/y joint tracking system, for MIG welding of box beams made of U profiles



**AP TM MIDI** motorized side beam carriage, carrying a 2 m stroke diving boom (with the function of y joint tracking axis) in its lower end a transversal slide (with the function of x joint tracking axis) and a TSV 09-W camera are installed.

The wire drive and a manual slide are installed on the diving boom. The remote control cabinet incorporates also the video system monitor.



| DATE    | AP TM MINI | AP TM MINI | AP TM MAXI |
|---------|------------|------------|------------|
| A       | 100        | 170        | 280        |
| B       | 100        | 120        | 170        |
| C       | 440        | 400        | 500        |
| D       | 90         | 90         | 90         |
| E       | 90         | 90         | 90         |
| L       | 600        | 600        | 600        |
| W a 500 | 50 Kg      | 100 kg     | 200 kg     |

# GANTRIES



**AP GANTRY LT, SUITABLE FOR CARRYING TWO MIG OR SAW HEADS**, but without power sources on board.

Max. span: 4 m

Max. height of horizontal boom: 2 m

Max. stroke of diving booms: 600 mm

The picture shows the gantry used for welding of box beams, each head equipped with IG tactile joint tracking system.

The gantry moves on rails Burback 1, driven by two brushless motors with encoders and electronic synchronization. The base is provided of automatic safety anti-collision bumpers



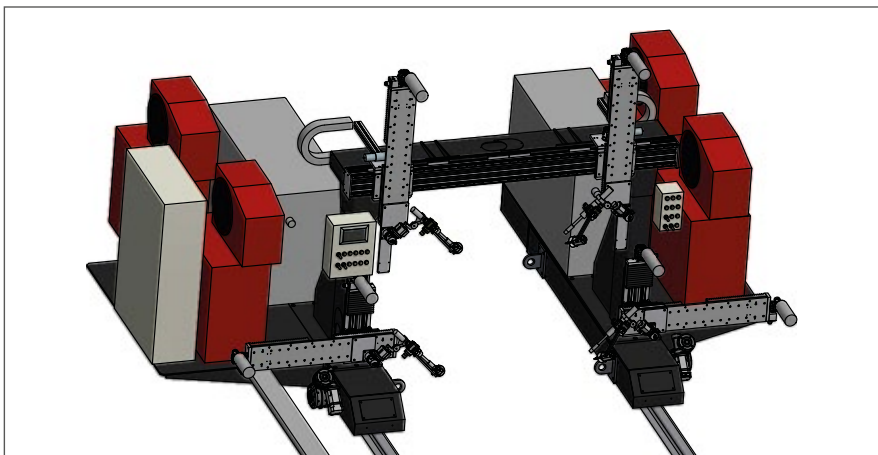
**AP GANTRY MD EQUIPPED WITH MIG HEADS FOR WELDING U PROFILES ON FLAT PANELS.**

Both heads are provided of IG tactile joint tracking systems. The gantry moves on rails Burback n° 2, driven by two brushless motors with encoders and electronic synchronization.

The base is provided of automatic safety anti-collision bumper and features platforms on both sides for housing:

- The operator with general control panel.
- Two power sources.
- Fumes aspirator.
- Two wire drums.

In order to optimize their distance from torches, MIG wire drives are installed on the opposite faces of side beam carriages.





# GANTRIES



## AP GANTRY HD FOR ALUMINIUM PANELS MIG WELDING OF.

The gantry base is driven by synchronized motors and it is provided of platforms on both sides for housing the operator control panel, two power sources, fumes and brush dust aspirators, two wire drums.

The horizontal boom is height adjustable and carries 4 diving booms, stroke 1.2 m, two for welding and two for brushing. Each welding head is handled by robot-like 2-axis wrists, is provided of laser joint tracking and of video systems.

# **TURNTABLES LATHES AND DOLLIES**

**From 0.1 to 100 tons.**

**This section offers our customers an impressive choice of standard solutions which can be combined with manipulators, rotators and all complementary equipments.**

**Besides standard drives and control modes, all models can be integrated into complex work cycles or specially fitted to handle any kind of work pieces.**



## THE RANGE

- ONE, 100 kg bench positioner
- TWO and FIVE 200 and 500 kg positioners.
- P and Joda, 2-axis, motorized tilt
- PI and ET, 2-axis, hydraulic tilt
- PE, 3-axis
- Joda Plano and AV, fixed vertical axis
- Joda Horizontal and AP, fixed horizontal axis
- JDHE and AE, elevating horizontal axis
- Lathes
- Dollies



# ONE - 100 KG BENCH POSITIONER



## ONE BASE

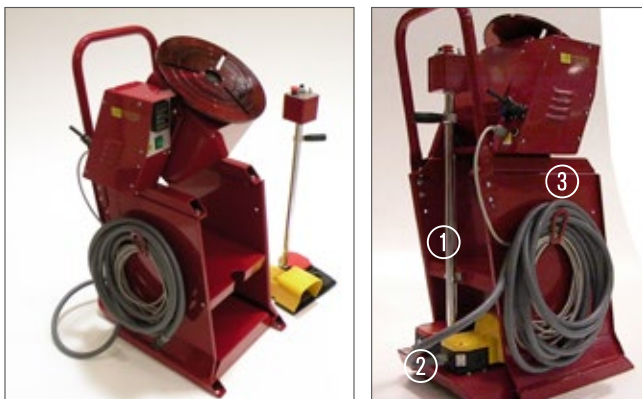
- Table Ø 320 mm
- Weld ground 300 A
- Step less manual tilt 0° to 120°
- Rotation driven by AC servo-ventilated motor and vector inverter, with speed display in rpm

### 5 m cable remote control by foot-switches, incorporating:

- Emergency cut off
- 10-turn potentiometer
- On / off Switch weld
- Switch clockwise / counter clockwise rotation
- Switch speed adjusted / maximum
- Feeding 230V 50 Hz, auxiliaries 24V

**ONE - SHUTTLE:** Wheeled carriage on which ONE can be laid and carried.

Its base is provided with a large handle, of shelves for storing tools, of a side hook on which cables can be wound and of a clamp to hold ONE BASE remote control during transport.



## ONE PLC

- Rotation driven by AC servo-ventilated motor and vector inverter

### Control cabinet on swinging support incorporating:

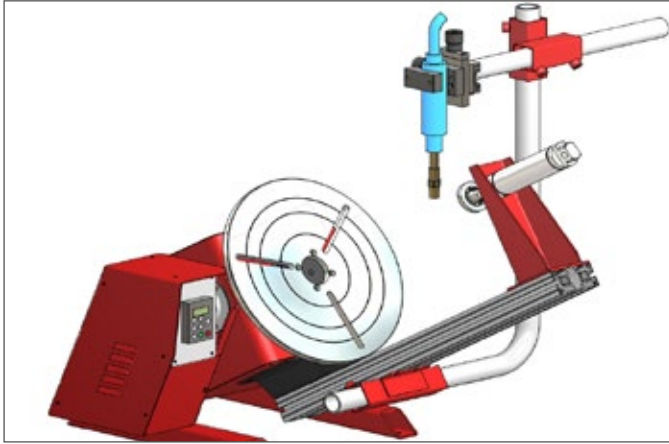
- Speed monitor in rpm
- Emergency cut off with reset on the inverter panel
- 10-turn potentiometer
- Start/stop push buttons
- Clockwise/counter clockwise push buttons rotation
- On/off switch weld
- Adjusted/maximum switch speed
- IN/OUT (manual cycle) switch pneumatic tailstock
- ON/OFF (manual cycle) switch pneumatic torch holder tilt
- Setting on digital panel of overlap and of start delay in sec

## ONE PLC WORK CYCLE

- Tailstock IN (manual)
- Automatic cycle start (optional: tailstock IN, after cycle start)
- Torch holder DOWN
- Arc strike and rotation start delay
- 360° rotation + x° overlapping
- Arc OFF
- Torch holder UP
- Rotation reset – x° to starting position
- Tailstock OUT (manual)

1. Clamp to hold the remote control
2. Wheels protected by cover-guard
3. Hook for cables

# ONE - 100 KG BENCH POSITIONER



### ONE SWAN

«Lathe-like» execution, where both pneumatic tailstock and torch holder can tilt together with the table.

Work piece maximum Ø 320 mm

Maximum distance in-between table faces 300 mm



### ONE LATHE

«Lathe-like» execution provided with pneumatic torch holder, dolly and pneumatic tailstock.

Work piece maximum weight 100 kg

Work piece maximum Ø 320 mm

Maximum distance in-between table faces 1500 mm

### ONE ARM Pneumo

Execution provided of pneumatic torch holder with 30° automatic tilt stroke, micrometric cross slides type SM50/2, installed on 600 mm aluminium base profiles.



### ONE ARM

Execution provided of X / Y torch holder with SM50/2 micrometric cross slides, installed on 600 mm aluminium base profiles





# TWO- 200 KG MOTORIZED ROTATION, MANUAL TILTING

Turntable positioner with 200 Kg. maximum weight capacity, available with several different electronic controls. It can be equipped by a large range of optional devices for a semi-automatic or a fully automatic use



## TWO BASE

- Driven by an AC servo-ventilated motor, managed by vector inverter, speed from 0,4 to 4 rpm.
- Rollo1-CD foot remote control with 5 m cable made up of :
  - Start and stop foot devices
  - Emergency stop push-button.
  - 10-turns potentiometer.
  - RPM digital tachograph.
  - On/off weld switch.
  - Clockwise/counterclockwise switch.
  - Adjustable/maximum speed switch.

## TWO BASE DC

- DC motor with speedometer dynamo, managed by closed-loop electric drive, with adjustable speed from 0,1 to 4 rpm.
- Further optional devices as per ONE BASE model.



## TWO PLC

- AC servo-ventilated motor, managed by vector inverter, speed from 0,4 to 4 rpm.
- Control cabinet on adjustable support made up of :
  - RPM digital tachograph.
  - Emergency stop push-button with reset on the inverter panel.
  - 10 turns potenziometer.
  - Start / stop cycle push-button.
  - Clockwise/counterclockwise switch.
  - On/off weld switch.
  - Adjustable/maximum speed switch.
  - On/off pneumatic tailstock switch.
  - On/off tilting pneumatic torch holder switch.
  - Overlap and delayed start in seconds digital setting.

## TWO PLC WORKING CYCLE

- Forward tailstock (by means of the a.m. switch) [\*]
- Start cycle (Forward tailstock after starting cycle on request) [\*]
- Tilting torch holder DOWN [\*]
- Arc strike and delayed rotation start
- 360° rotation + x° overlapping
- OFF Arc
- Tilting torch holder UP [\*]
- Reset – x° to the Start position
- Back Tailstock (by means of the a.m. switch)[\*]

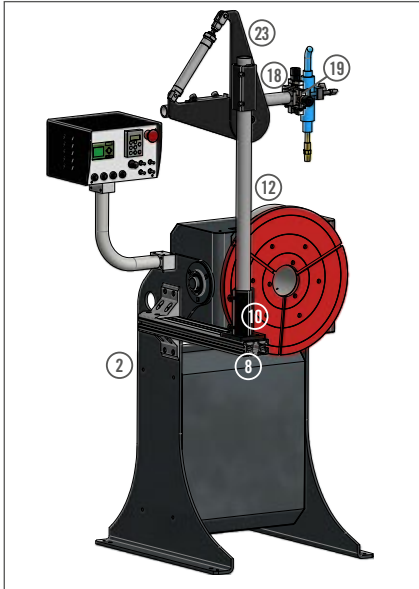
## TWO PLC DC

- DC motor with speedometer dynamo, managed by closed-loop electric drive, with adjustable speed from 0,1 to 4 rpm
- Further optional devices as per ONE PLC model.

[\*] These working cycles are obviously omitted in case the tailstock and/or the torch holder are not installed



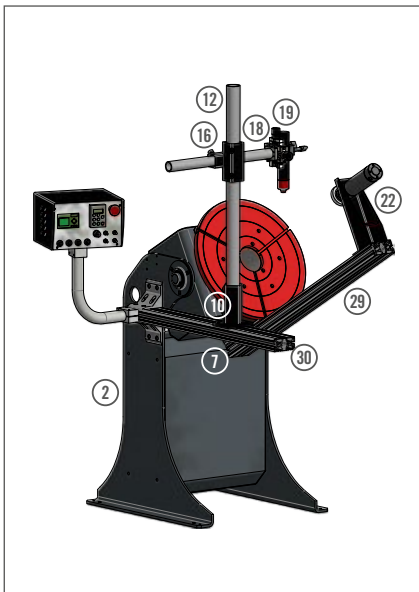
## TWO- 200 KG EXAMPLES OF POSSIBLE CONFIGURATIONS



### TWO PLC with TWO ARM Pneumo

Such configuration includes :

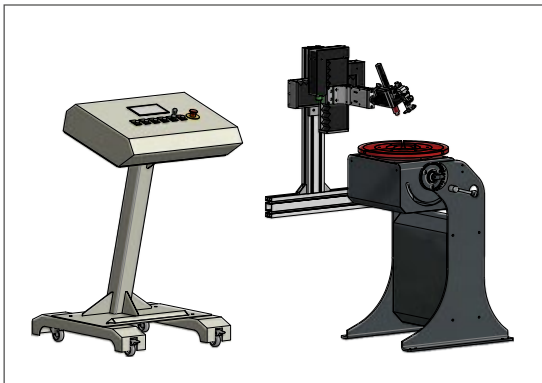
- Two PLC
  - TWO ARM Pneumo torch-holder arm with pneumatic actuator
- |    |              |  |
|----|--------------|--|
| 02 | TWO PLC      | 200Kg tilting rotary table                           |
| 08 | ONE-2050     | 500mm (Al 40x80x500mm) crossbar with fixing brackets |
| 10 | ONE-2110     | Vertical column base                                 |
| 12 | ONE-3075     | 750mm vertical column                                |
| 18 | ONE-3040     | 400mm horizontal pipe                                |
| 19 | SM 50/2 + PT | Torch-holder with 50x50mm. cross micrometric slides  |
| 23 | ONE-TL-100   | ARM PNEUMO : 30° tilting arm                         |



### TWO PLC with TWO Swan and TWO ARM MAN

Such configuration includes:

- TWO PLC
  - TWO ARM MAN torch-holder arm without pneumatic actuator
  - TWO SWAN tailstock Assembly
- |    |             |   |
|----|-------------|---|
| 02 | TWO PLC     | 200Kg tilting rotary table positioner               |
| 07 | ONE-033     | Rail connection- pos. 29                            |
| 10 | ONE-2110    | Vertical column base                                |
| 12 | ONE-3075    | 750mm. vertical column                              |
| 16 | ONE-2054    | Cross connection for Ø 40/35 mm. pipes with lock    |
| 18 | ONE-3040    | 400mm horizontal pipe                               |
| 19 | SM50/2 + PT | Torch-holder with 50x50mm. cross micrometric slides |
| 22 | TWO-TS-075S | 75mm. Stroke pneumatic tailstock                    |
| 29 | TWO-2085    | 850mm (Al 40x80x850mm) rail                         |
| 30 | TWO-2075    | 750mm (Al 40x80x750mm) rail                         |



### Fully automated TWO for multi-layer cold wire TIG circular welding:

- PLC with 7" Touch-sensitive screen Panel
- AVC control vertical slide
- Swinging control horizontal slide
- Cold wire managed by PLC
- PLC with welding torch JOB recall
- Possibility to enter at least 200 working programs, for each program it is possible to set the step number and for each step it is possible to set :
  - Ø of the item in mm.
  - Rotation delay
  - Overlap in mm
  - Arc Voltage in Volt
  - Swinging parameters : width, speed, center, pause left-center-right
  - Welding torch Job, with bus connection

#### Optional devices:

- Modem connection, for Remote-control or to update programs
- 4.0 Industry Package : for monitoring working parameters, off-line programming, OPC UA server to communicate with the production management system.

# FIVE - 500 KG

## MANUAL OR MOTORIZED TILTING, Ø 100 HOLLOW SPINDLE



### FIVE: Available Versions

**FIVE:** motorized rotation, tilting manual hand-wheel

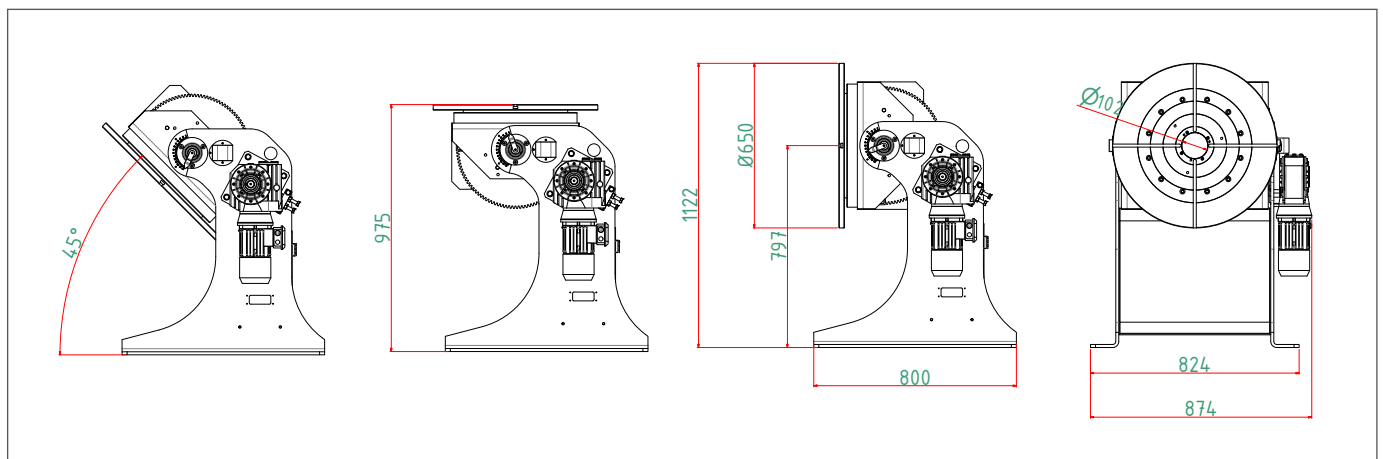
**FIVE BR:** motorized rotation by means of Brushless motor with encoder and tilting manual hand-wheel

**FIVE MOT:** motorized rotation and motorized tilting

**FIVE MOT BR:** motorized rotation by means of Brushless motor with encoder and motorized tilting

**FIVE PLC OPTION:** overlap control, delayed tilting and pneumatic arm management

| MODEL                 | Five               | Five BR            | Five MOT           | Five MOT BR        |
|-----------------------|--------------------|--------------------|--------------------|--------------------|
| W-Max weight capacity | 500 kg             | 500 kg             | 500 kg             | 500 kg             |
| WxL-Tilting torque    | 100 kgm            | 100 kgm            | 100 kgm            | 100 kgm            |
| WxR Rotation torque   | 65 kgm             | 65 kgm             | 65 kgm             | 65 kgm             |
| Tilting               | hand-wheel         | hand-wheel         | Motorized          | Motorized          |
| Weld ground           | 400 amp            | 400 amp            | 400 amp            | 400 amp            |
| Rotation speed        | 0,2 - 2 rpm        | 0,02 - 2 rpm       | 0,2 - 2 rpm        | 0,02 - 2 rpm       |
| Infeed                | 230V, single-phase | 230V, single-phase | 230V, single-phase | 230V, single-phase |
| Remote control        | Rollo1-CD          | Rollo1-CD          | Push-button panel  | Push-button panel  |
| Weight                | 315 Kg             | 315 Kg             | 340 Kg             | 340 Kg             |



## JD TRIPLE 3 AXIS, ORBIT AND ELEVATING



**JDTRIPLE** features motorized lift at fixed speed and two (orbit tilt and rotation) 90° axis.

Lift is performed by ball screw with safety nut and the whole lift transmission is protected by bellows.

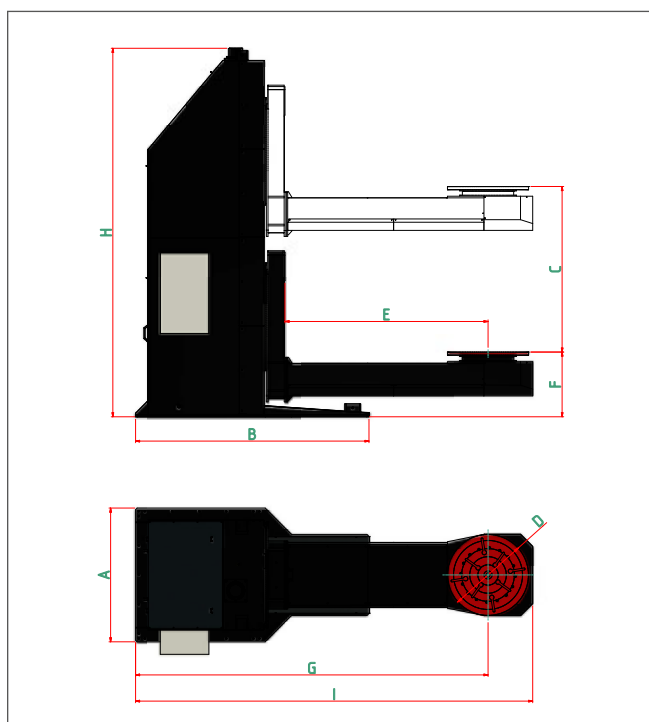
Standard execution is equipped with AC motors at speed fixed or adjustable by vector inverter.

Brushless motors with encoder can also be installed for CN control of movements and of positions.



- **W** = Payload Kg
- **W x L** = Tilting torque Kgm
- **W x R** = Rotation torque Kgm

| MODEL        | u.m. | JD TRIPLE 1 | JD TRIPLE 3 |
|--------------|------|-------------|-------------|
| <b>W</b>     | kg   | 1000        | 3400        |
| <b>W x L</b> | Kgm  | 550         | 1785        |
| <b>W x R</b> | Kgm  | 160         | 545         |
| <b>A</b>     | mm   | 1350        | 1650        |
| <b>B</b>     | mm   | 2080        | 2885        |
| <b>C</b>     | mm   | 1700        | 2000        |
| <b>D</b>     | mm   | 600         | 1000        |
| <b>E</b>     | mm   | 2000        | 2500        |
| <b>F</b>     | mm   | 700         | 800         |
| <b>G</b>     | mm   | 3488        | 4349        |
| <b>H</b>     | mm   | 3918        | 4547        |
| <b>I</b>     | mm   | 3854        | 4900        |





# P and PE

## 2 and 3 AXIS, MOTORIZED TILT



### STANDARD FEATURES:

- Rotation driven by AC servo-ventilated motor and vector inverter
- Mechanical tilt at fixed speed
- Hydraulic lift (PE models only)
- Interface to automatic welding machine
- 24V remote control by push button set
- Weld ground 400 to 1200 A
- Feeding 400V 50 Hz

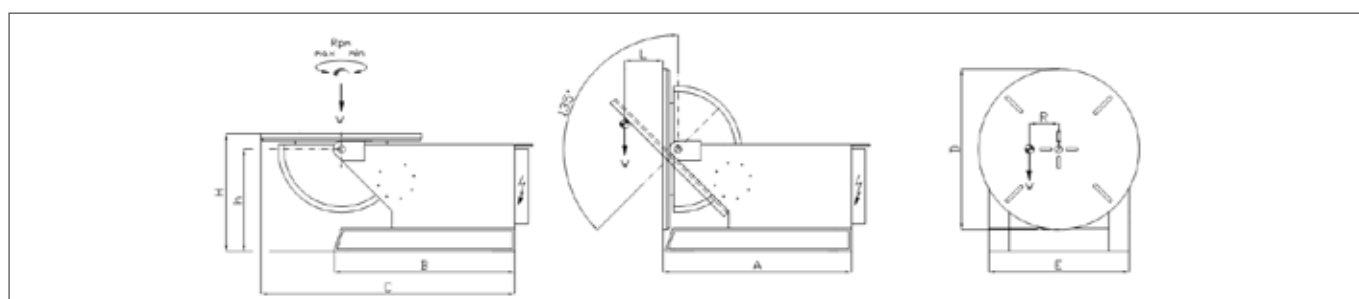
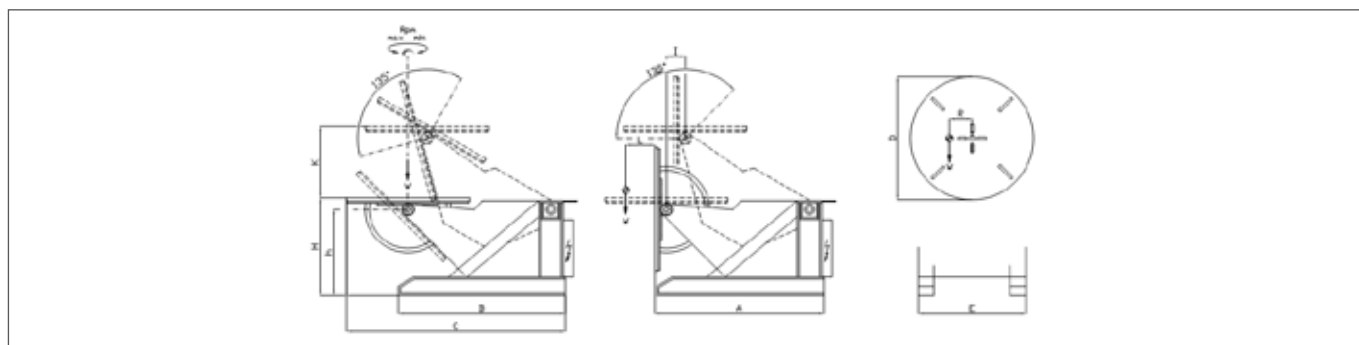


### Optional features:

- Different speed ranges
- Different speed range ratios by brushless motor, with encoder for CNC incorporating one or more axis
- Different feeding
- Start delay, overlapping, etc.
- Self-centring chucks up to Ø 630 mm (see
- Complementary equipment)
- Digital tachometer



## P and PE 2 and 3 AXIS, MOTORIZED TILT



W = Weight capacity Ton  
W x L = Tilt torque Tonxm  
W x R = Rotation torque Tonxm

E1, E2 = Standard speed range min/max rpm  
A, B, C, D, E, h, h1, H = Dimensions in mm  
P = Machine weight Ton

### POSITIONERS 2-AXIS (AC rotation, Mechanical Tilt 135°)

#### Model P e JODA

| Type   | W    | WxL  | WxR   | E1E        | E2E         | A    | B    | C    | D    | E    | h    | H    | P    |
|--------|------|------|-------|------------|-------------|------|------|------|------|------|------|------|------|
| P002   | 0,2  | 0,07 | 0,03  | 0,19/2,30  | 0,33/4,90   | 500  | 600  | 735  | 600  | 520  | 650  | 715  | 0,3  |
| P005   | 0,5  | 0,15 | 0,06  | 0,15/2,40  | 0,27/4,00   | 580  | 700  | 875  | 750  | 685  | 690  | 780  | 0,4  |
| JODA8  | 0,8  | 0,31 | 0,124 | 0,05/1,30  |             | 965  | 1365 | 1255 | 900  | 910  | 800  | 928  | 0,85 |
| P012   | 1,2  | 0,36 | 0,15  | 0,06/0,92  | 0,11/1,60   | 735  | 870  | 1120 | 1000 | 850  | 720  | 820  | 1    |
| JODA20 | 2    | 0,51 | 0,2   | 0,04/1,0   |             | 1350 | 1675 | 1680 | 1200 | 1145 | 950  | 1010 | 1,2  |
| P030   | 3    | 0,9  | 0,36  | 0,08/0,80  | 0,05/1,00   | 1144 | 1290 | 1630 | 1200 | 1070 | 752  | 856  | 1,4  |
| P060   | 6    | 2,7  | 0,5   | 0,085/0,85 | 0,065/1,30  | 1560 | 1635 | 2130 | 1400 | 1160 | 890  | 1020 | 2,2  |
| P125   | 12,5 | 5,5  | 1,2   | 0,05/0,50  | 0,045/0,90  | 1663 | 1700 | 2350 | 1700 | 1500 | 1000 | 1162 | 4,1  |
| P250   | 25   | 10   | 1,7   | 0,03/0,33  | 0,025 /0,50 | 2165 | 2135 | 2900 | 1900 | 1660 | 1170 | 1385 | 5,5  |
| P500   | 50   | 18   | 2,8   | 0,02/0,22  | 0,02 /0,40  | 2370 | 2350 | 3235 | 2200 | 1900 | 1350 | 1585 | 12   |

### POSITIONERS 3-AXIS (AC rotation, Mechanical Tilt 135° - Hydraulic Lift)

#### Model PE

| Type  | W    | WxL  | WxR  | E1E        | E2E        | A    | B    | C    | D    | E    | h    | H    | K    | I   | P    |
|-------|------|------|------|------------|------------|------|------|------|------|------|------|------|------|-----|------|
| PE005 | 0,5  | 0,15 | 0,06 | 0,15/2,40  | 0,27/4,00  | 1110 | 1210 | 1387 | 750  | 790  | 690  | 780  | 500  | 160 | 0,65 |
| PE012 | 1,2  | 0,36 | 0,15 | 0,06/0,92  | 0,11/1,60  | 1450 | 1615 | 1865 | 1000 | 925  | 800  | 885  | 600  | 190 | 1,2  |
| PE030 | 3    | 0,9  | 0,36 | 0,08/0,80  | 0,05/1,00  | 1825 | 1950 | 2225 | 1200 | 1230 | 840  | 965  | 700  | 190 | 2,1  |
| PE060 | 6    | 2,7  | 0,5  | 0,085/0,86 | 0,065/1,30 | 2225 | 2314 | 2630 | 1400 | 1382 | 1030 | 1165 | 900  | 260 | 3,5  |
| PE125 | 12,5 | 5,5  | 1,2  | 0,05/0,50  | 0,045/0,90 | 2585 | 2335 | 3120 | 1700 | 1875 | 1125 | 1280 | 1000 | 250 | 6    |
| PE250 | 25   | 10   | 1,7  | 0,03/0,33  | 0,025/0,50 | 3175 | 3000 | 3750 | 1900 | 2005 | 1065 | 1300 | 1000 | 235 | 8    |

# PI and ET

## 2 AXIS, HYDRAULIC TILT



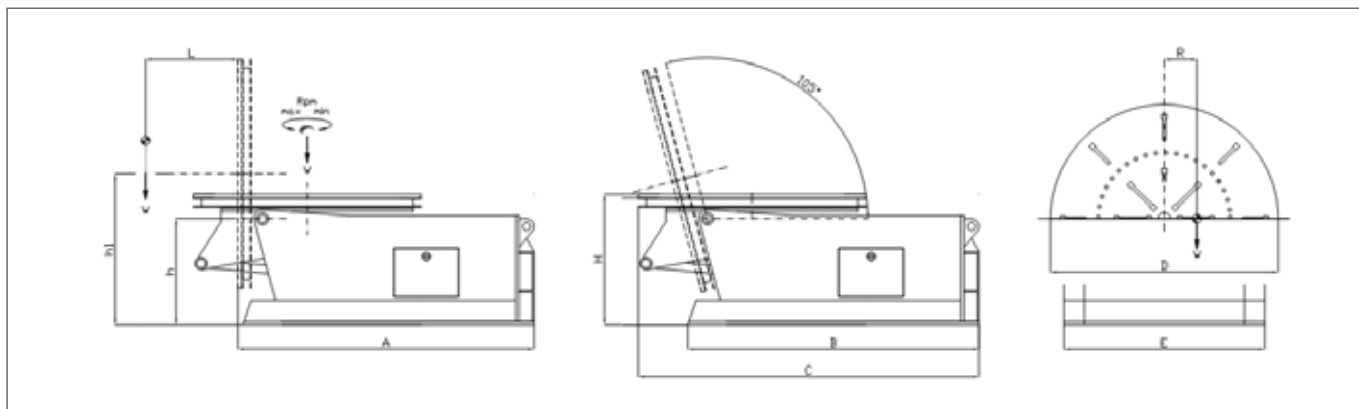
### STANDARD FEATURES:

- Rotation driven by AC and vector inverter.
- Hydraulic tilt 120° or 105° according to model.
- Interface to automatic welding machine.
- 24V remote control by push button set.
- Weld ground 800 to 2200 A according to model.
- Feeding 400V 50 Hz.

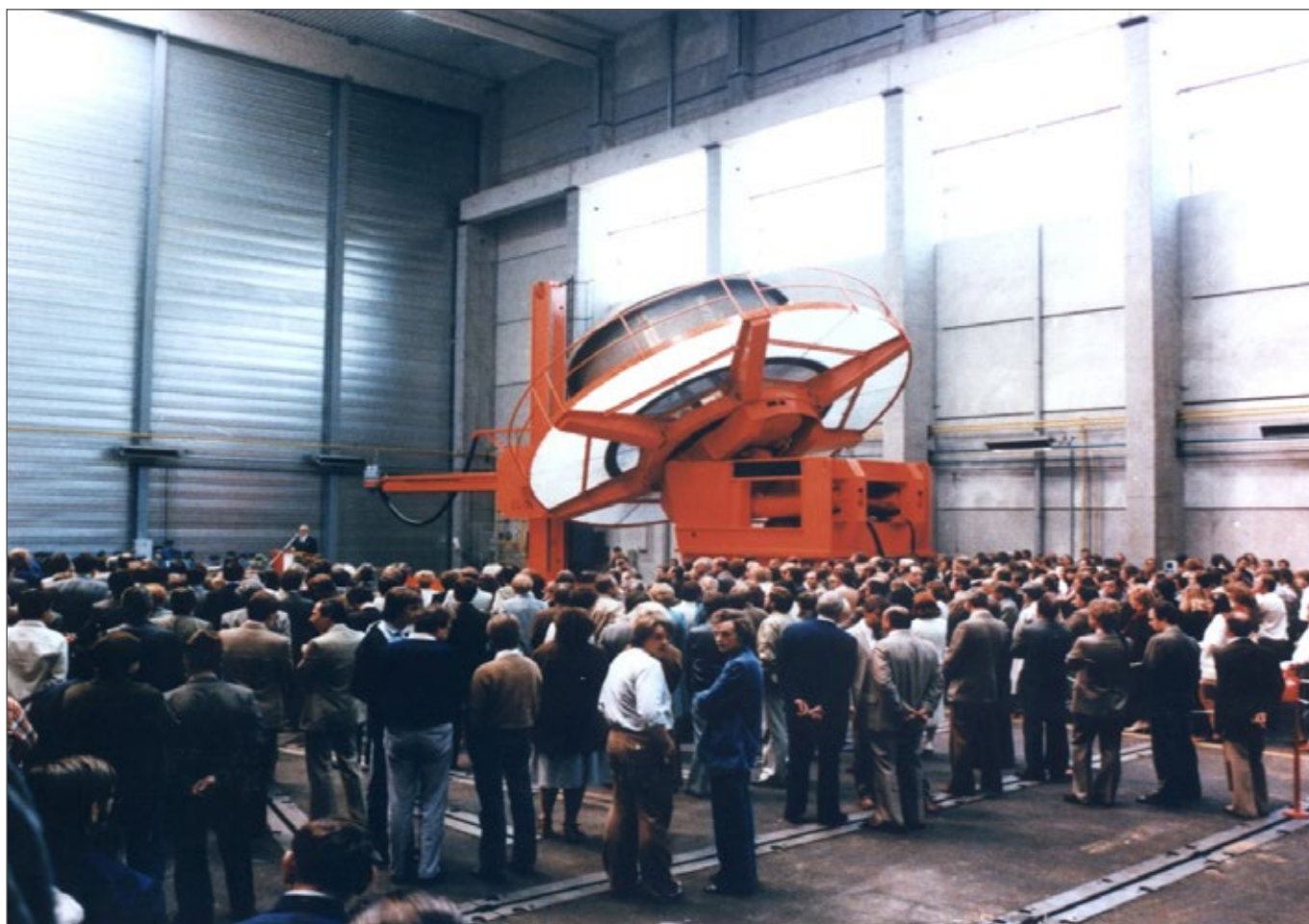


### Optional features:

- Different speed ranges.
- Different feeding.
- Digital tachometer.
- Wireless remote control.
- Arms to amplify table Ø up to 8 m.
- Frame without front feet.
- Elevation shelves.



## PI and ET 2 AXIS, HYDRAULIC TILT



W = Weight capacity Ton  
W x L = Tilt torque Tonxm  
W x R = Rotation torque Tonxm

E1, E2 = Standard speed range min/max rpm  
A, B, C, D, E, h, h1, H = Dimensions in mm  
P = Machine weight Ton

Tilt = 120° or 105° according to model

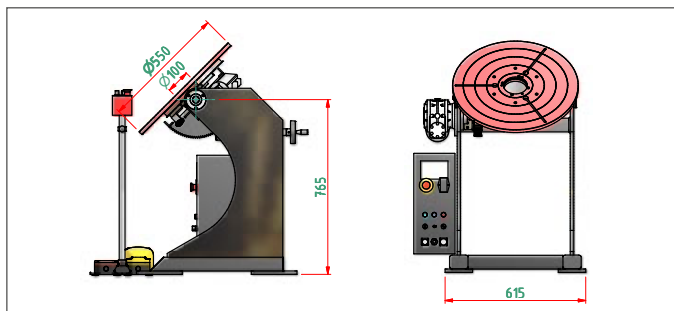
### POSITIONERS 2-AXIS (AC rotation, Hydraulic Tilt )

#### Modelli PI e ET

| Tipo   | W    | WxL  | WxR  | E1         | E2          | A    | B    | C    | D    | E    | h    | h1   | H    | P   |
|--------|------|------|------|------------|-------------|------|------|------|------|------|------|------|------|-----|
| PI030  | 3    | 1,08 | 0,36 | 0,08/0,80  | 0,05 /1,00  | 1387 | 1575 | 1884 | 1200 | 1070 | 750  | - -  | 854  | 1,3 |
| PI060  | 6    | 3,2  | 0,5  | 0,085/0,85 | 0,065 /1,30 | 1650 | 1730 | 2225 | 1400 | 1250 | 890  | - -  | 1020 | 2,4 |
| PI125  | 12,5 | 6,6  | 1,2  | 0,05/0,50  | 0,045 /0,90 | 1810 | 1855 | 2505 | 1700 | 1550 | 1000 | - -  | 1155 | 4   |
| PI250  | 25   | 10   | 1,7  | 0,033/0,33 | 0,025 /0,50 | 2365 | 2335 | 3100 | 1900 | 1720 | 1170 | - -  | 1385 | 5,1 |
| ET250  | 25   | 15   | 2,8  | 0,021/0,21 | 0,020 /0,30 | 3200 | 3350 | 4200 | 2500 | 2100 | 1350 | 1600 | 1350 | 13  |
| ET400  | 40   | 30   | 6    | 0,021/0,21 | 0,020 /0,30 | 3400 | 3380 | 4050 | 2500 | 2400 | 1400 | 1800 | 1570 | 19  |
| ET500  | 50   | 36   | 6,5  | 0,021/0,21 | 0,020 /0,30 | 3625 | 3595 | 4325 | 2800 | 2430 | 1400 | 1700 | 1600 | 20  |
| ET600  | 60   | 45   | 7,5  | 0,021/0,21 | 0,020 /0,30 | 3625 | 3595 | 4325 | 2800 | 2470 | 1450 | 1800 | 1600 | 25  |
| ET800  | 80   | 100  | 12   | 0,021/0,21 | 0,020 /0,30 | 3900 | 3780 | 4450 | 3700 | 2600 | 1750 | 2200 | 1850 | 33  |
| ET1000 | 100  | 130  | 16   | 0,021/0,21 | 0,020 /0,30 | 4200 | 4180 | 4550 | 3700 | 2950 | 2100 | 2700 | 2500 | 41  |



# HOLLOW SPINDLE



## JD 2-100

### POSITIONER WITH Ø 100 MM HOLLOW SPINDLE

Max load capacity : 100 Kg

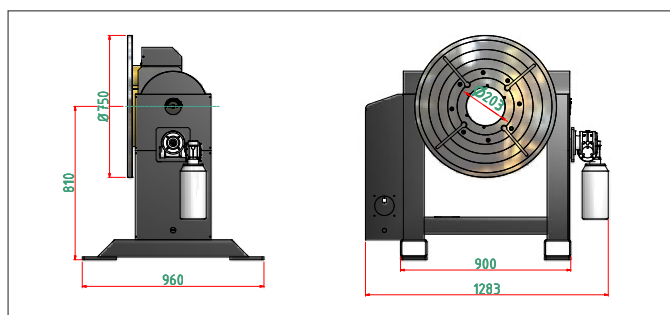
- Tilting torque : 60 Kgm
- Rotation torque : 30 Kgm
- Ø100 mm. hollow spindle, on Ø550 mm table with Nr. 3 120° T-slots
- Manual tilting by means of toothed-sector and hand-wheel from 0 to -135°
- Rotation by means of DC motor with tako
- Standard speed rotation from 0,1 to 4 rpm, different ranges on demand
- Weld ground : 400 Amp
- Push-button panel for manual controls
- Infeed : 230V 50-60 Hz.



## JD BF JODA BI-FACE

### TILTING ROTARY TABLE -90°/+90°

- Max weight capacity : 300 kg
- Ø 750 mm table with 200 mm. hollow spindle
- Weld ground 400 A
- Rotation speed from 0,05 to 2rpm, other ranges on demand
- Motorized tilting : 180° in 30 sec
- Tilting torque : 120 kgm
- Rotation torque : 60 kgm
- Push-button panel for manual controls
- Infeed : 230V 50-60 Hz.





## HOLLOW SPINDLE



### JD 5

#### WITH Ø200 MM HOLLOW SPINDLE

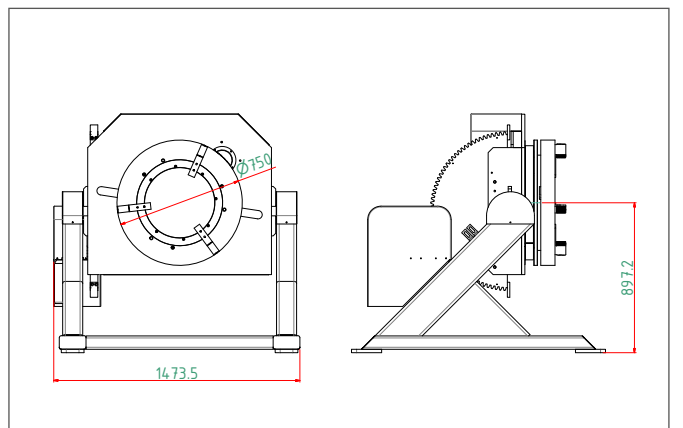
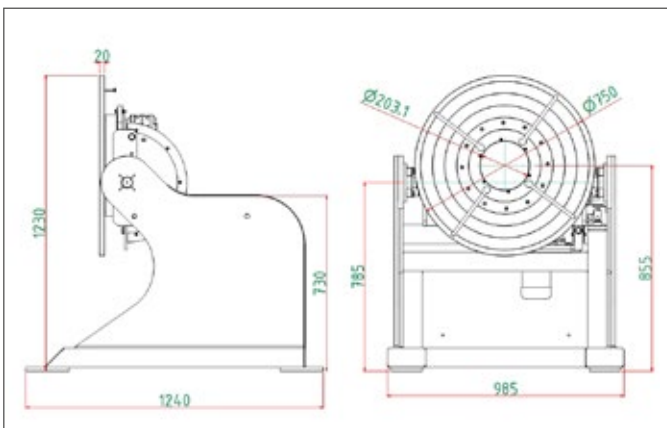
- Weight capacity 100 kg
- Tilt torque 40 kgm
- Rotation torque 12 kgm
- Table Ø 350 mm, three T radial slots stepped 120°
- Manual tilt 0° to 135° by gearing and hand wheel
- Speed range 0.1 to 4 rpm driven by DC motor with tacho generator
- Weld ground 400 A
- Remote control by push button set
- Feeding 230V 50 Hz



### JD10S400 JODA

#### WITH Ø400 MM HOLLOW SPINDLE

- Weight capacity 500 kg
- Tilt torque 200 kgm
- Rotation torque 100 kgm
- Table Ø 750 mm, four T radial slots stepped 90°
- Motorized tilt 0° to 135° by AC self-brake gearmotor
- Speed range 0.05 to 2 rpm driven by brushless and encoder
- Weld ground 400 A
- Remote control by push button set



# HOLLOW SPINDLE



## JDHE

### HOLLOW SPINDLE Ø 200 OR 260 MM ELEVATING POSITIONER

**JDHE** is a turn & lift table positioner specially designed for handling of pipes with elbows or T branches that can be laid on fixed height dollies as it's the table that moves up and down.

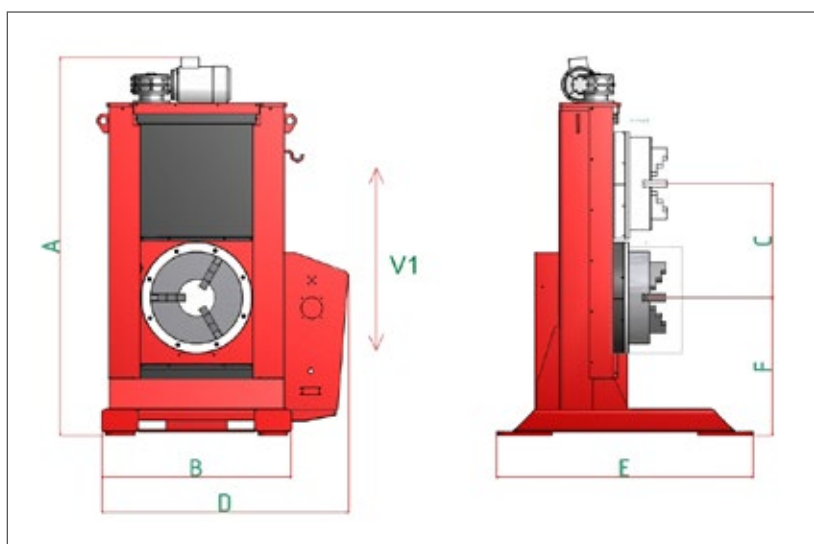
The hollow spindle (Ø 200 or 260 mm accordingly with the chuck installed) allows introducing the pipe through the rear side as well as observing welding through the inside of the pipe and feeding back-up gas

Lift transmission is protected by bellows.

- **W** = Weight capacity
- **W x L** = Tilt torque
- **W x R** = Rotation torque
- **E1** = Speed range min/max rpm (other ranges on demand)

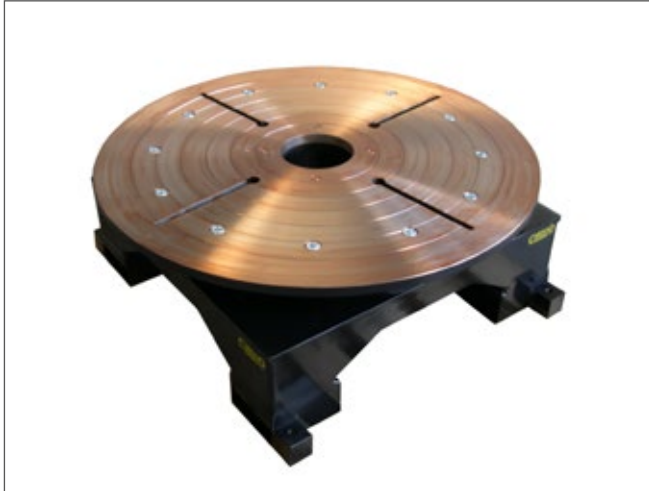


| MODEL        | u.m.   | JDHE1    | JDHE2    |
|--------------|--------|----------|----------|
| <b>W</b>     | kg     | 1000     | 2000     |
| <b>W x L</b> | kgm    | 300      | 560      |
| <b>W x R</b> | kgm    | 100      | 200      |
| <b>V1</b>    | mm/min | 560      | 560      |
| <b>E1</b>    | rpm    | 0,2 – 10 | 0,05 – 2 |
| <b>A</b>     | mm     | 2055     | 2830     |
| <b>B</b>     | mm     | 1030     | 1120     |
| <b>C</b>     | mm     | 600      | 1000     |
| <b>D</b>     | mm     | 1338     | 1430     |
| <b>E</b>     | mm     | 1390     | 1400     |
| <b>F</b>     | mm     | 745      | 890      |

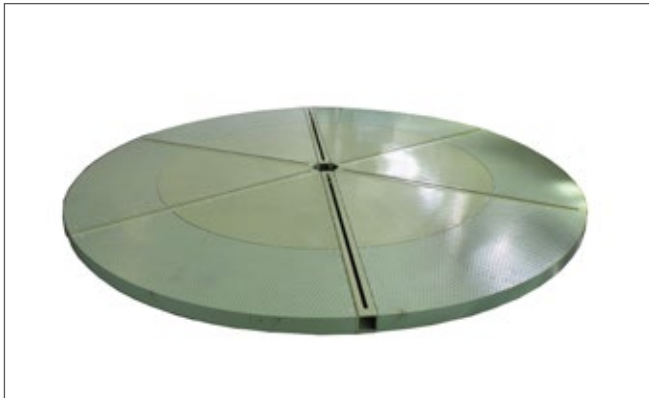


## HORIZONTAL TURNTABLES

JDPL25



JDPL50 , incorporating electric cabinet and remote control



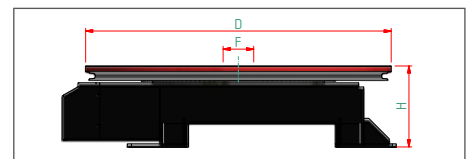
JDPL50 special execution with 6 extension arms to Ø 4500 mm covered and connected by steel plate

- **W** = Weight capacity
- **W x L** = Tilt torque
- **W x R** = Rotation torque
- **E1** = Speed range min/max rpm (other ranges on demand)

| HORIZONTAL TURNTABLES |     |      |             |      |     |      |      |
|-----------------------|-----|------|-------------|------|-----|------|------|
| Type                  | W   | WxR  | E1E         | D    | F   | H    | P    |
| JDPL25                | 2,5 | 0,15 | 0,065 /1,0  | 900  | 150 | 362  | 0,6  |
| JDPL 50               | 5   | 0,35 | 0,065 /1,0  | 1500 | 150 | 400  | 0,9  |
| AV 100                | 10  | 0,5  | 0,085 /1,3  | 1400 | 40  | 800  | 1,65 |
| JDPL 150              | 15  | 0,9  | 0,065 /1,0  | 2000 | 500 | 426  | 1,65 |
| AV 200                | 20  | 1,2  | 0,060 /0,9  | 1700 | 60  | 850  | 3    |
| AV 300                | 30  | 1,7  | 0,033 /0,5  | 1900 | 85  | 880  | 4,3  |
| AV 400                | 40  | 2,3  | 0,016 /0,25 | 1900 | 85  | 1020 | 5    |
| AV 600                | 60  | 2,8  | 0,025 /0,40 | 2200 | 85  | 1155 | 7,5  |
| AV 1000               | 100 | 4    | 0,013 /0,20 | 2200 | 85  | 1385 | 9    |
| AV 2000               | 200 | 6    | 0,013 /0,20 | 2500 | 150 | 1585 | 12   |

### STANDARD FEATURES:

- AC drive.
- Interface to automatic welding machine.
- Remote control (24V) by push button set.
- Weld ground 400A to 1200A according to model.
- Protection bellows (AE and FE only).
- Feeding 400V 50Hz (230V only JDPL25).



### OPTIONAL FEATURES

- Different speed ranges.
- Rotation CNC.
- Different feedings.
- Digital tachometer.
- Weld ground up to 2200A 100%.
- Larger table diameter.
- Extension arms up to 8 m diameter.
- Lower / greater height of table face.
- Rotary distributors for gas, fluid or compressed air through table hollow spindle.

# JODA MICRO



## 1. Special cell execution

A sliding door with actinic glass automatically starts work cycle and the hood overhead can be connected to a fumes aspirator. Digital connection of CNC to power source allows ruling the whole process.

Rotation of both headstock and tailstock are motorized and synchronized, the tailstock being also provided of axial stroke driven by pneumatic cylinder, thus allowing the edge-to-edge welding without any stitching.



## 2. JODA MICRO with rotating fixture

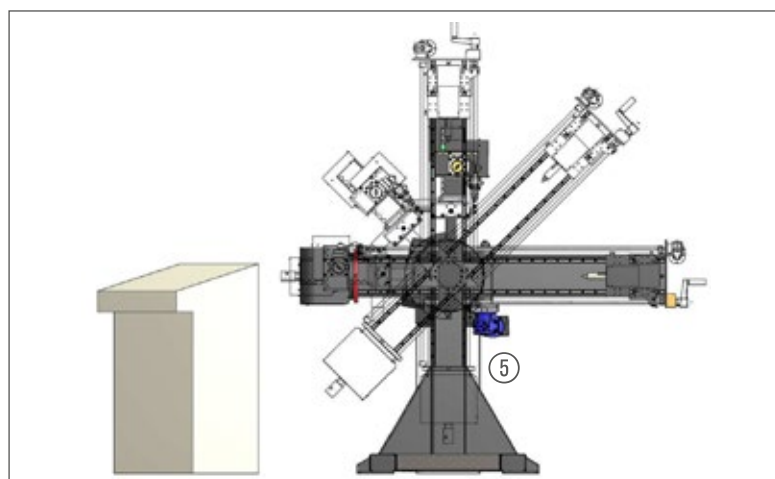
JDMCR.ST Module allows rotating the whole assembly of headstock – beam – tailstock – torch holder without modifying the alignment of any component.



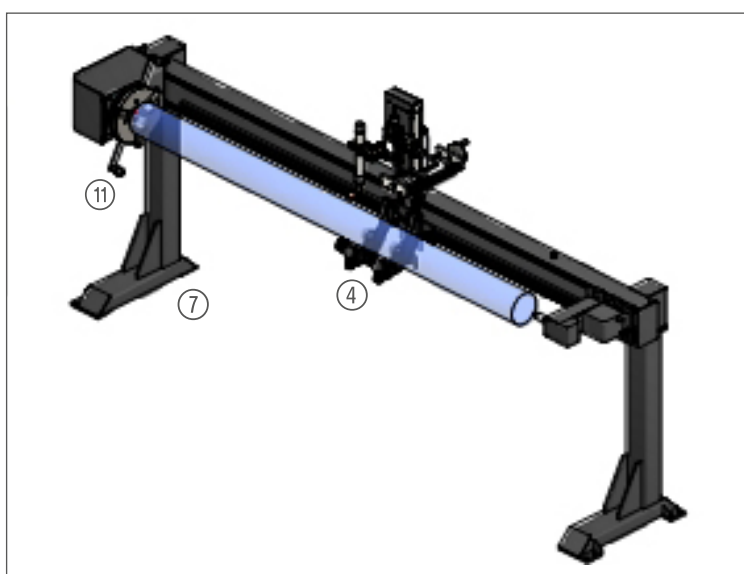
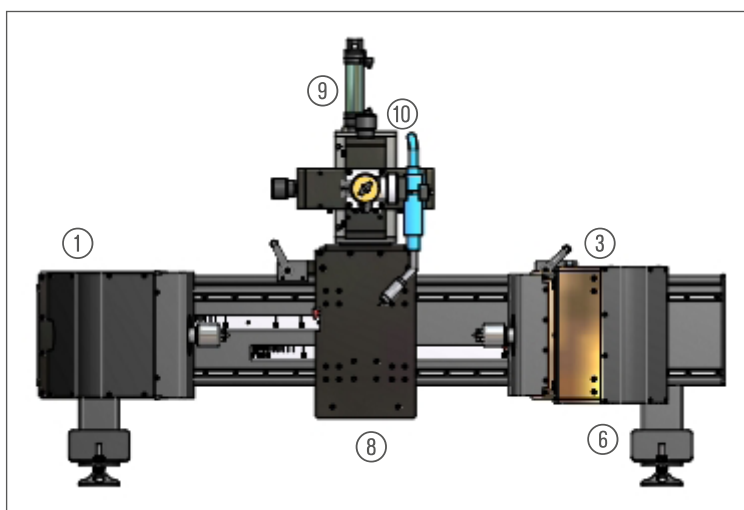
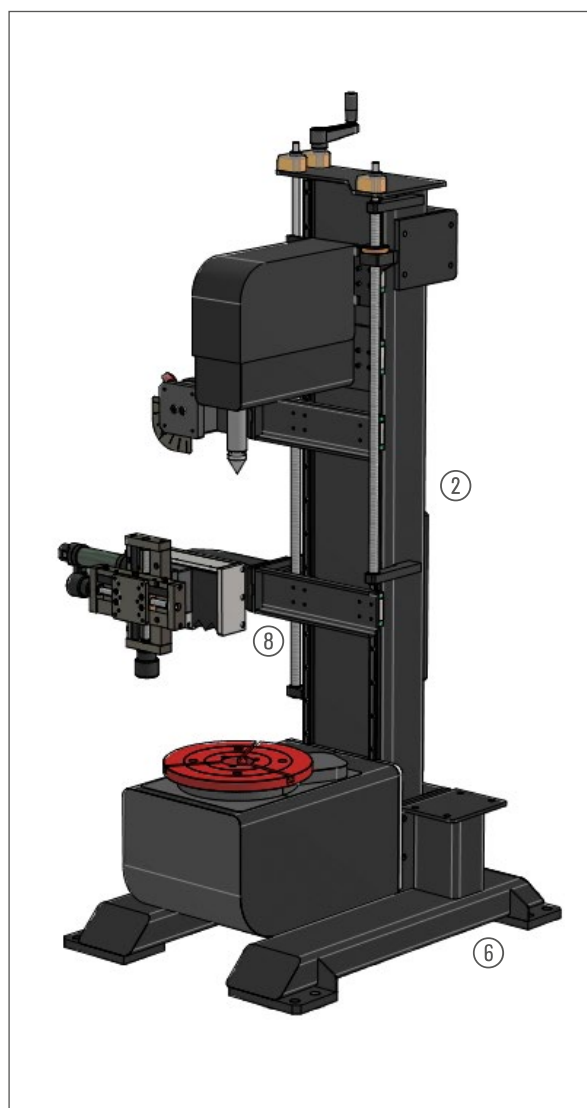
- **W** = Weight capacity
- **W x L** = Tilt torque
- **W x R** = Rotation torque

Picture aside:  
JODA MICRO  
without cell





1. JDMCR.TM Headstock
2. JDMCR.B \_ \_ Beam
3. JDMCR.CP Tailstock
4. JDMCR.LS Dolly
5. JDMCR.ST Rotating support
6. JDMCR.P Pair of low feet
7. JDMCR.P1000 Pair of high feet
8. JDMCR.CR manual carriage. CRM motorized carriage
9. JD Pneumo 80 Pneumatic slide
10. Manual slides SM MINI 80/2 with
11. TWIN torch holder
12. Chuck Grip 300

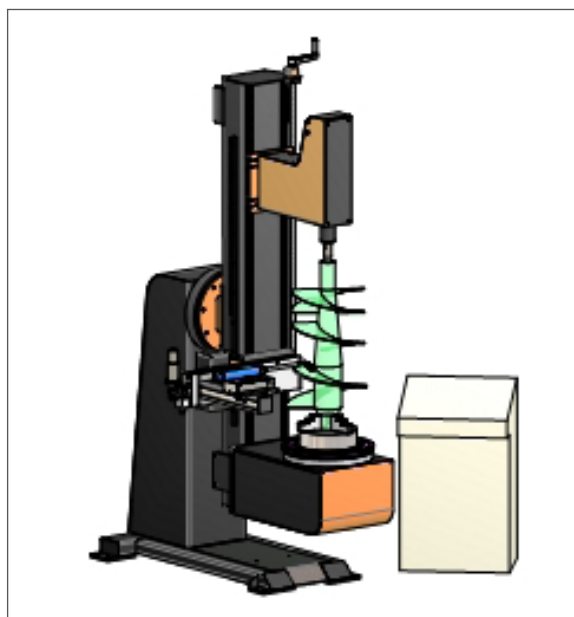


# JODA MIDI

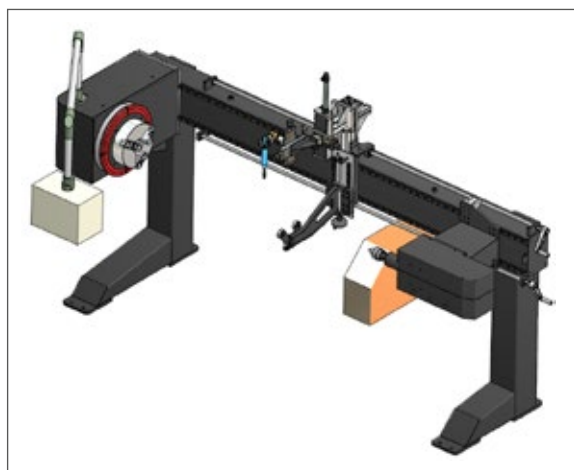


**MODULES OF JODA MIDI LATHE CAN BE COMBINED TOGETHER AS WELL AS WITH ANY CARPANO'S ITEM OF COMPLEMENTARY EQUIPMENT SO AS TO DELIVER PLANTS SUITABLE FOR ANY NEED.**

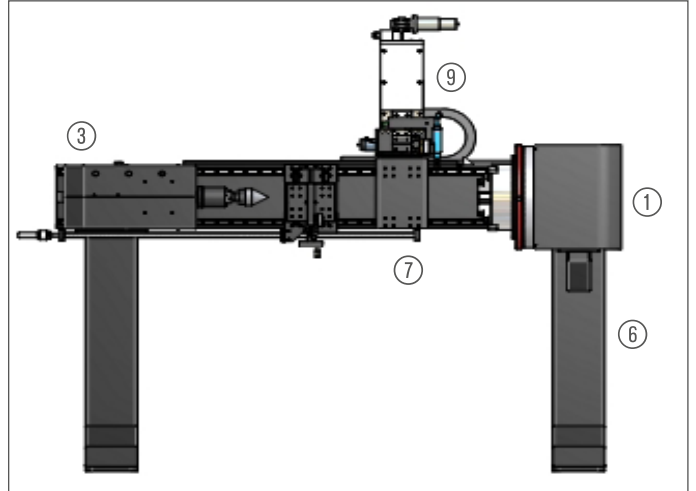
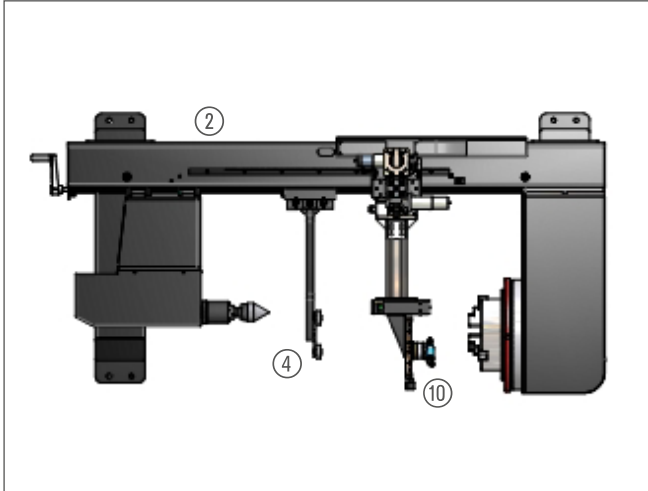
- Motorized headstock
- Pneumatic Tailstock with manual or motorized motion
- Feet for horizontal standing in fixed position , or alternatively support to rotate the lathe 0° to 90° to optimize weld angle
- One or two side beam torch carriages which can be equipped with manual, pneumatic or motorized slides as well as with height adjustable dollies
- 3-jaws self-centring chucks
- Manual, pneumatic or motorized slides with torch holder
- Beam lengths available from 1000 to 6000 mm
- Weight capacity 400 kg
- Maximum work piece Ø 900 mm



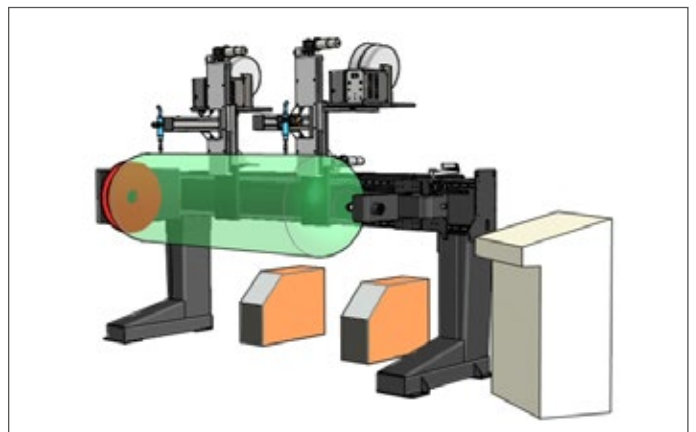
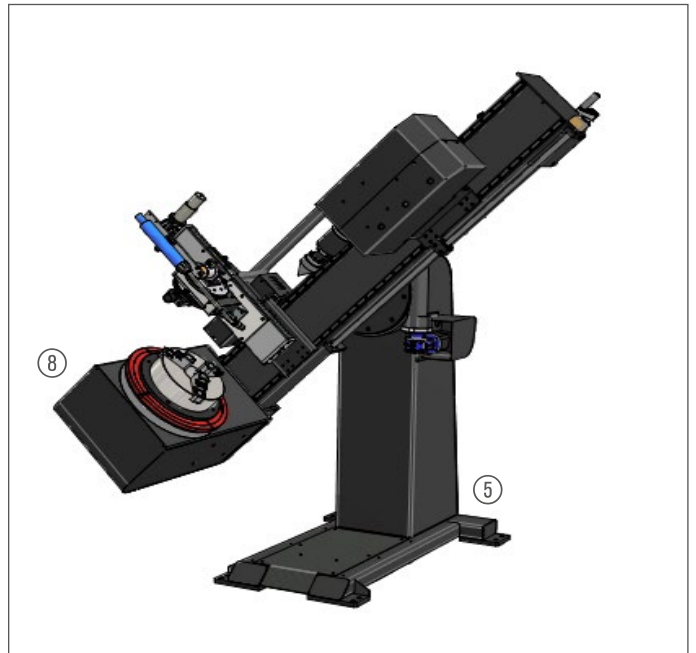
JODA MIDI lathe on -90° to + 45° rotating support for hard facing of worm screws. The torch carriage equipped with x/y motorized slides. Remote control desk.



Joda MIDI lathe standing horizontally, torch carriage with pneumatic and manual slides. Machine tool-like swivel control pendant.

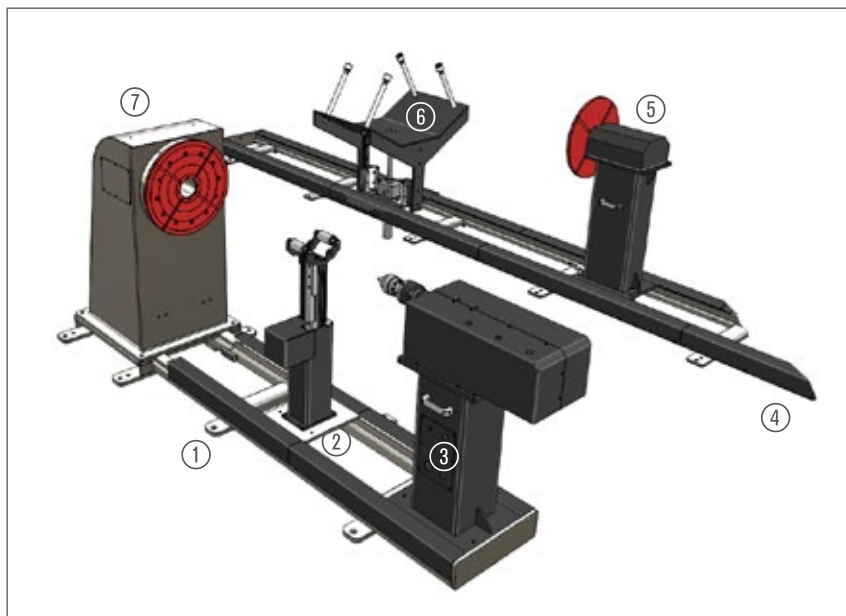


1. 1. JDMD.TM Headstock
2. 2. JDMD.B \_ \_ \_ Beam
3. 3. JDMD.CP Tailstock
4. 4. JDMD.LS Dolly
5. 5. JDMD.ST Rotating support
6. 6. JDMD.P Pair of feet
7. 7. JDMD.CR Carriage (manual or motorized)
8. 8. CHK-ST-315A Chuck
9. 9. MM MIDI 250/1 Vertical motorized slide
10. 10. SM MIDI Manual slides



MIG welding of boiler bottoms.  
Each JDMD.CR loaded with  
its own wire feeder.  
Remote control desk

# JODA HORIZONTAL



- |                   |                           |
|-------------------|---------------------------|
| 1. JDR 2000/C     | 5. JD TF                  |
| 2. JD SE          | 6. JD EL                  |
| 3. JDHC and JDHCP | 7. JDTM – Joda Horizontal |
| 4. JDR 3000/C     |                           |

## MODULES OF JODA HORIZONTAL CAN BE COMBINED TOGETHER TO GET 3 SIZES:

JDH04, JDH10 and JDH20 each of which consists of:

- Headstock JDTM
- Manual tailstock JDTF or pneumatic tailstocks JDHC or JDHCP
- Base JDR, with ball linear guides, covers and levelling screws, available in sections of 2 m (JDR 2000/C) or of 3 m (JDR 3000/C)
- Height adjustable dollies JDSE, JDEL and IPTRE to suit different diameters.



## LATHE JDH04 CONSISTING OF:

- Headstock JDTM04 driven by brushless motor and encoder for CNC, equipped with CHK-ST-500A self centring chuck.
- Dollies JDSE height adjustable by rack and hand wheel, movable on the base by hand.
- Pneumatic tailstock JDHCP04 featuring axial stroke 150 mm, thrust 300 kg at 6 Bar, movable on the base by hand
- Base JDR 5000/C
- Remote control desk cabinet.

Overhead the lathe are installed different kinds of Carpano's complementary equipment.

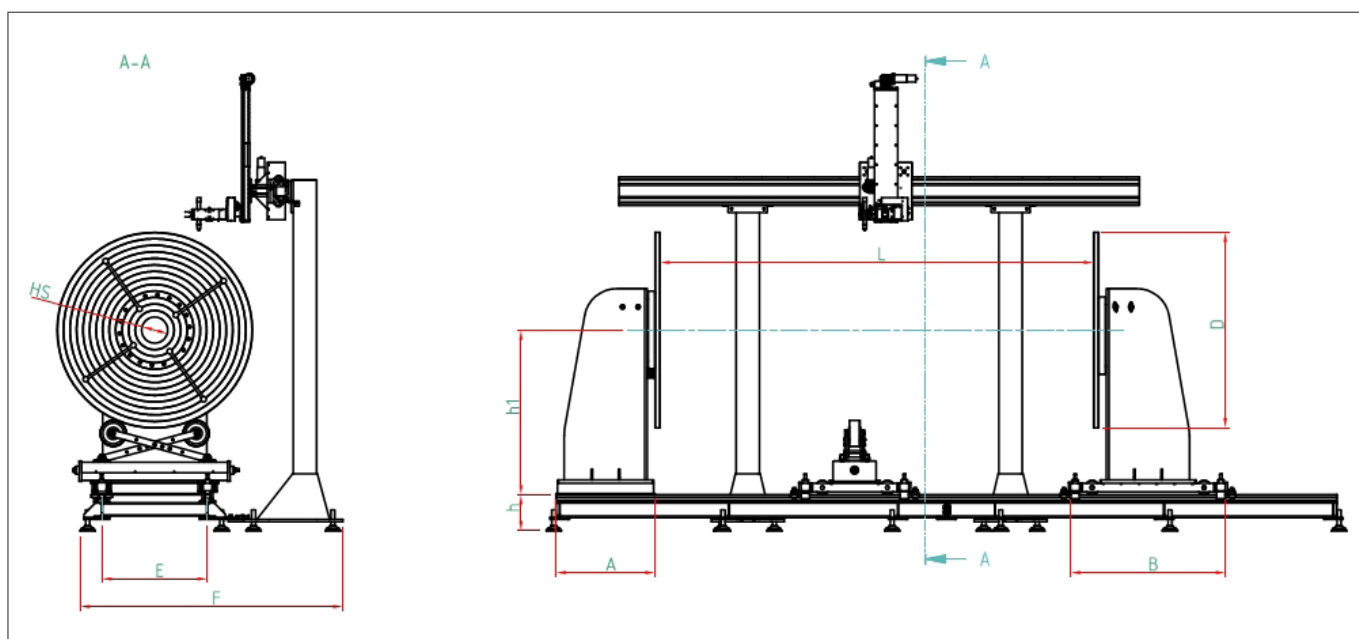


## JODA HORIZONTAL



### STANDARD FEATURES

- Feeding 230V 1-phase or 400V
- 3-phase.
- Work cycle CNC [\*5].
- Weld ground 400 A [\*6].
- Remote control desk cabinet.



### (\*) ON REQUEST:

1. Different torque
2. Different speed range or drive
3. Pneumatic tailstock
4. Different diameter
5. Different work cycle (start delay, 360° + x° overlapping, back stroke -0°)
6. Up to 1000 A 100%
7. Different arrangements of control cabinet integrating video and joint tracking systems as well as installation of Carpano's Complementary equipment such as AVC, chucks, wire feeder...

**W** = Weight capacity kg

**W x R** = Rotation torque [\*1]

**W x K** = Tilt torque kgm

**E1/Be** = Speed range min/max rpm / Brushless motor + encoder [\*2]

**L min/max** = Distance in-between tables mm

**D** = Table diameter mm [\*3]

**HS** = Hollow spindle diameter [\*4]

**A, B, E, F, h, h1** = Dimensions mm

| Joda Horizontal |      |       |       |          |             |      |     |     |      |     |      |     |      |  |
|-----------------|------|-------|-------|----------|-------------|------|-----|-----|------|-----|------|-----|------|--|
| Type            | W    | W x R | W x K | E1 / Be  | L           | D    | HS  | A   | B    | E   | F    | h   | h1   |  |
| <b>JDH04</b>    | 400  | 60    | 200   | 0,05/2,0 | 1000 / 6000 | 500  | 100 | 760 | 850  | 810 | 1250 | 200 | 780  |  |
| <b>JDH10</b>    | 1000 | 200   | 350   | 0,05/2,0 | 1000 / 6000 | 900  | 100 | 760 | 1000 | 810 | 1600 | 200 | 1020 |  |
| <b>JDH20</b>    | 2000 | 300   | 500   | 0,01/0,5 | 1000 / 6000 | 1200 | 200 | 760 | 1190 | 810 | 2000 | 200 | 1260 |  |

# AP + FF and AE + FE



## STANDARD FEATURES

- AC drive
- Remote control (24V) by push button set
- Weld ground 400A to 1200A according to model
- Protection bellows (AE and FE only)
- Feeding 400V 50Hz

## [\*] OPTIONAL FEATURES

- Different speeds E1 and F1
- Different feedings
- Interface to automatic welding machine
- «Two-hands» remote control
- Wireless remote control
- Vertical stroke K up to 2200 mm
- Idle tailstock FF / FE mobile on rails with jaw brakes
- Idle tailstock FF with axial stroke driven by hydraulic cylinder
- Work piece clamping tools

**W** = Weight capacity Ton

**W/2 x L** = Tilt torque Ton x m

**W x R** = Rotation torque Ton x m

**E1** = Speed range min/max rpm

**A, C, C1, D, E, H, K, S** = Dimensions mm

**P/AP, P/FF, P/AE, P/FE** = Weight Ton

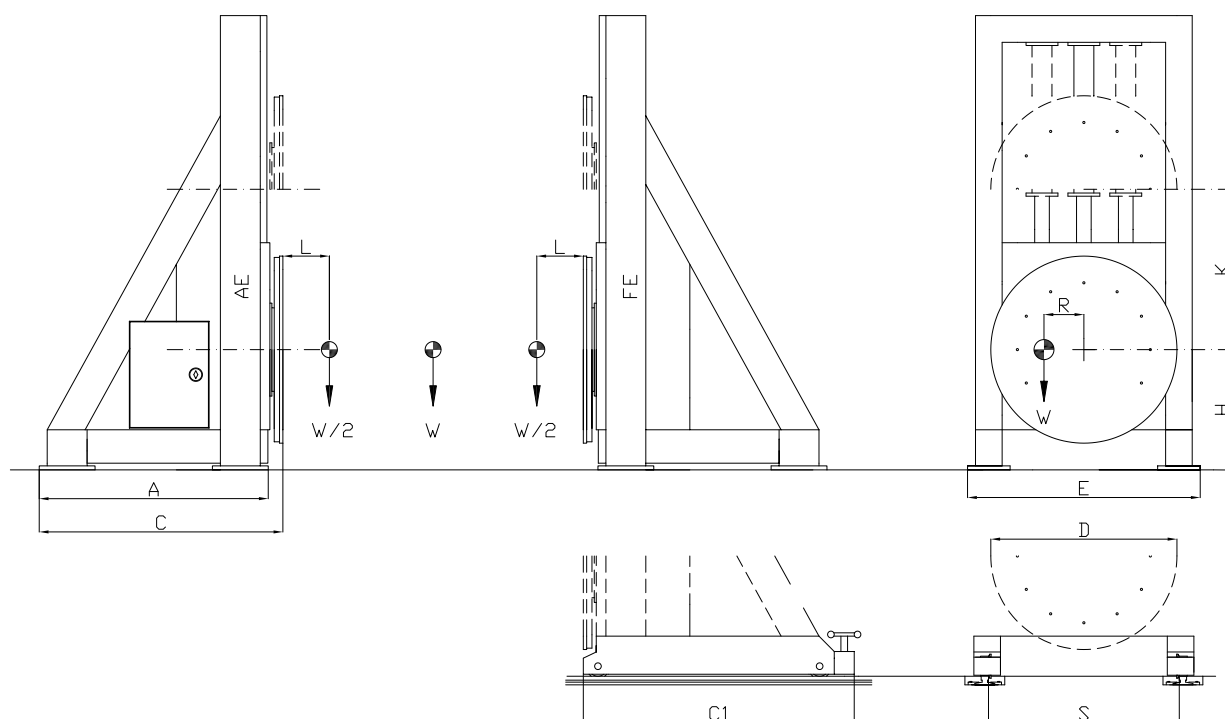
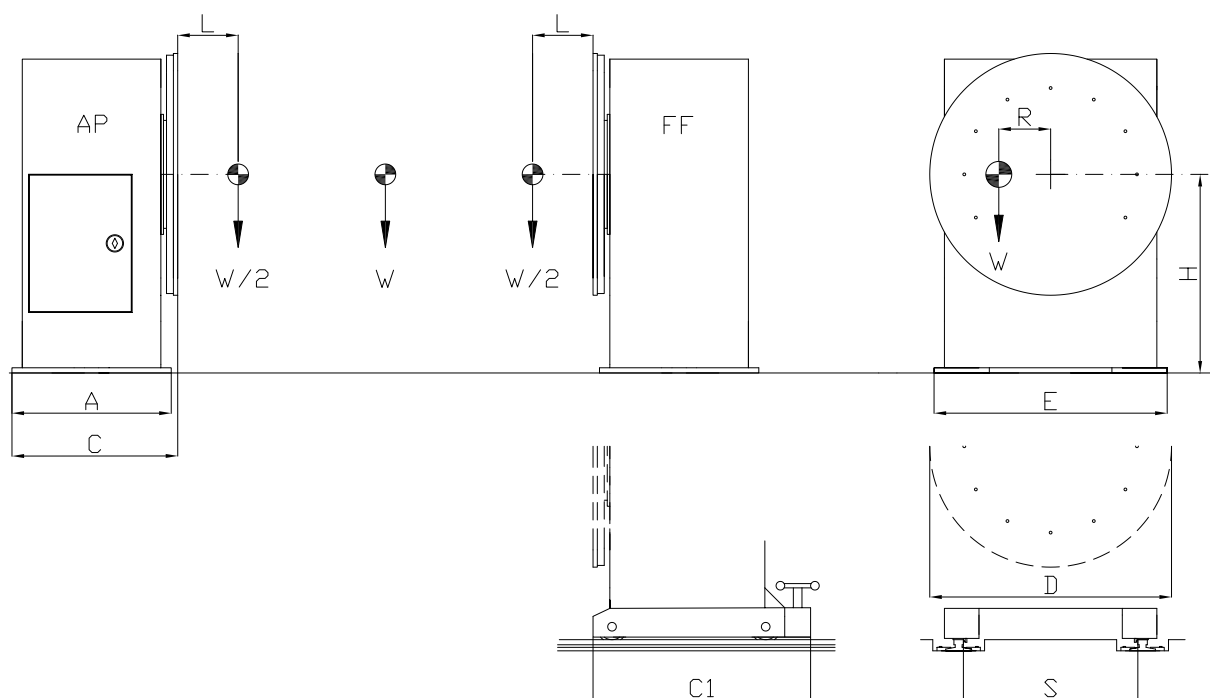
## AP+FF: THE BIG LATHES

| Type        | W  | W/2xL | WxR  | E1       | F1  | A    | C    | C1   | D    | E    | H    | S    | P/AP | P/FF |
|-------------|----|-------|------|----------|-----|------|------|------|------|------|------|------|------|------|
| AP020+FF020 | 4  | 0,4   | 0,15 | 0,05/0,5 | 0,5 | 600  | 660  | 1000 | 1000 | 1200 | 800  | 1000 | 0,7  | 0,6  |
| AP050+FF050 | 10 | 1     | 0,4  | 0,05/0,5 | 0,5 | 680  | 875  | 1570 | 1200 | 1600 | 800  | 1000 | 1,9  | 1,5  |
| AP100+FF100 | 20 | 3     | 0,8  | 0,05/0,5 | 0,5 | 800  | 1120 | 1640 | 1400 | 1700 | 1000 | 1000 | 3    | 2,2  |
| AP200+FF200 | 40 | 6     | 1,2  | 0,05/0,5 | 0,5 | 1300 | 1630 | 2200 | 1700 | 1850 | 1200 | 1200 | 5    | 4    |

## AE + FE (HEIGHT ADJUSTABLE)

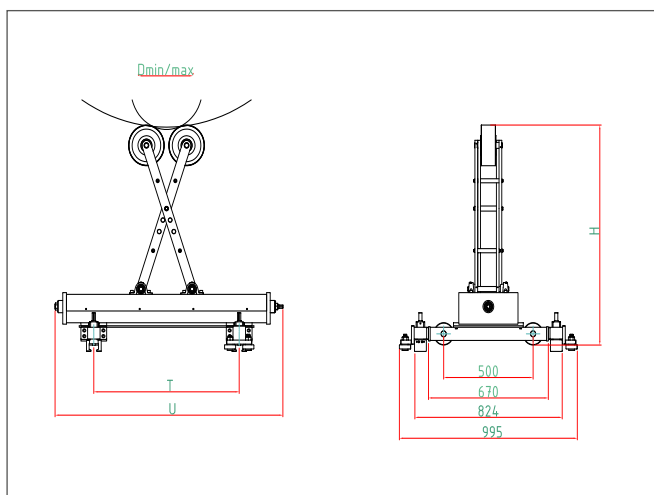
| Type        | W  | W/2xL | WxR  | E1       | F1  | A    | C    | C1   | D    | E    | H    | K    | S    | P/AE | P/FE |
|-------------|----|-------|------|----------|-----|------|------|------|------|------|------|------|------|------|------|
| AE020+FE020 | 4  | 0,4   | 0,15 | 0,05/0,5 | 0,5 | 750  | 810  | 1150 | 1000 | 1300 | 800  | 750  | 1000 | 1,4  | 1,2  |
| AE050+FE050 | 10 | 1     | 0,4  | 0,05/0,5 | 0,5 | 800  | 995  | 1690 | 1200 | 1700 | 800  | 1000 | 1000 | 3,4  | 2,36 |
| AE100+FE100 | 20 | 3     | 0,8  | 0,05/0,5 | 0,5 | 1050 | 1370 | 1890 | 1400 | 1800 | 1000 | 1000 | 1000 | 5    | 3,7  |
| AE200+FE200 | 40 | 6     | 1,2  | 0,05/0,5 | 0,5 | 1400 | 1730 | 2500 | 1700 | 1900 | 1200 | 1000 | 1200 | 9    | 7,2  |

# AP + FF and AE + FE



# IPTRE

## IDLE ROLLS DOLLIES



### IPTRE IS AN IDLE ROLLS HEIGHT ADJUSTABLE DOLLY

Effective and cheap solution for supporting pipes and driving their rotation either manually or in combined with motorized turntables.

### STANDARD FEATURES

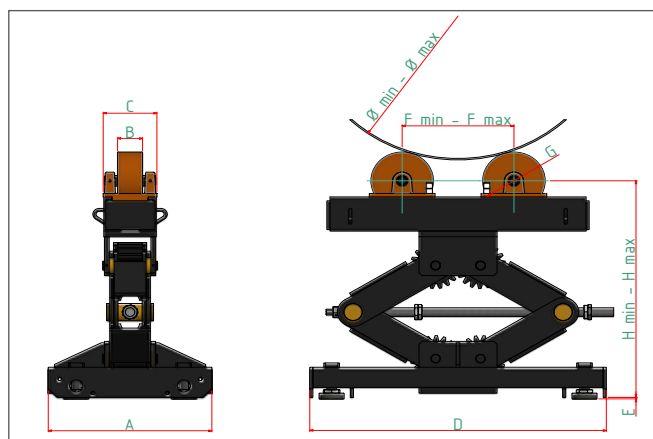
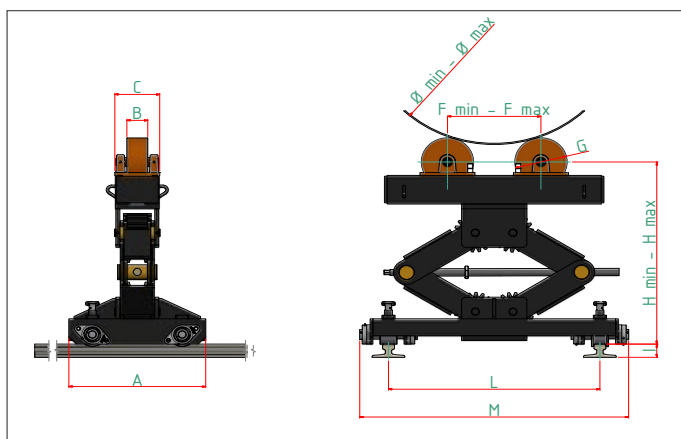
- Height adjustment by screw and hand wheel
- Two models available, payload 1000 or 1500 kg
- Stationary execution or with carriages to be easily moved on rails.

| TECHNICAL DATA                   | IPTRE 10      |
|----------------------------------|---------------|
| Weight capacity                  | 1000 Kg       |
| Ø min - max                      | 250 - 1250 mm |
| Polyurethane coated wheel Ø      | 250 mm        |
| T (Different gauge upon request) | 813 mm        |
| U                                | 1128 mm       |
| H                                | 993 mm        |



**Jack 10** and **Jack 30** height adjustable dolly, stationary execution, standing on four levelling feet or on idle wheels easily moving on rails. Wheels have got variable wheel-base and can be supplied both in polyurethane PU (standard version) or in metal.

# JACK IDLE ROLLS DOLLIES



| MODEL                 |    | JACK10      | JACK30      |
|-----------------------|----|-------------|-------------|
| <b>W</b> Max Capacity | kg | 1000        | 3000        |
| <b>A</b>              | mm | 500         | 524         |
| <b>B</b>              | mm | 80          | 80          |
| <b>C</b>              | mm | 132         | 168         |
| <b>D</b>              | mm | 950         | 950         |
| <b>E max</b>          | mm | 90          | 5           |
| <b>F min/max</b>      | mm | 220/310     | 210/590     |
| <b>Ø min/max</b>      | mm | 50/600      | 50/1200     |
| <b>G</b>              | mm | 200         | 200         |
| <b>H min/max</b>      | mm | 315/815     | 630/1030    |
| <b>I</b>              | mm | 55          | 55          |
| <b>L</b>              | mm | 810         | 810         |
| <b>M</b>              | mm | 1030        | 1030        |
| <b>Wheels</b>         |    | poliurethan | poliurethan |
| <b>Wheight*</b>       | kg | 110/145     | 265/285     |



\* With or without idle carriages

# ROTATORS

**From 1 to 460 tons (even more on request).**

**Besides standard rotators, unmatched for reliability, you can find bench-rolls, bi-motor, self-aligning and the new Fit-Up models which can be combined with other products of ours, mostly with manipulators, to give birth to complete plants controlled by a unique or by multiple check-points as well.**

## THE RANGE:

- ROLLO1: 1000 kg bench rotator.
- R025: 2500 kg rotator «the pipe fitter».
- OBY 3, 8 and 15: the bi-motor.
- Conventional rotators: 5.5 to 460 Ton/set.
- RB: self-aligning.
- Fit-Up models.









# ROLLO 1 TON/SET



Rotator Model ROLLO is mainly designed for manual or semi-automatic welding of small and medium size pipes. However, provided as it is of interface to the welding machine and of digital display for speed monitoring located on the electric panel, it can be effectively used as well for automatic welding processes. Its rugged structure, that has been lightened as much as possible, features convenient handles as well as large bases allowing both drive and idle units to be laid on bench. Separate foot switches actuate rotation on/off whereas the potentiometer to adjust speed, the emergency cut-off push button as well as the switches weld on / off, speed direction and speed fast / adjust are all located on top of the remote control stand.



## 1. Drive unit ROLLO1-E1F

|                      |                  |
|----------------------|------------------|
| Weight capacity      | 0.5 Ton          |
| Max turning capacity | 1.0 Ton          |
| Speed range          | 90 to 1350 mm/1' |
| Feeding              | 230V one-phase   |
| Machine's weight     | 37 kg            |

## 2. Idle unit ROLLO1-NF

|                  |         |
|------------------|---------|
| Weight capacity  | 0.5 Ton |
| Machine's weight | 15 kg   |

## Standard features

|                         |              |
|-------------------------|--------------|
| Set weight capacity     | 1.0 Ton      |
| Wheels Ø                | 200 mm       |
| Wheels width            | 50 mm        |
| C-to-c wheels' distance | 215 / 298 mm |
| Wheels coated with      | polyurethane |
| Ø of work piece         | 20 to 800 mm |

## 3. ROLLO1-CD

- Emergency cut-off push button
- Potentiometer 10-turns
- Switch weld on / off
- Switch rotation direction
- Switch speed fast / adjust
- Multi-function panel displaying speed in cm / min, emergency reset, inverter lay-out
- Fuse
- Main switch
- Torch contact connector
- Feeding cable 230V one-phase
- Foot switch connector

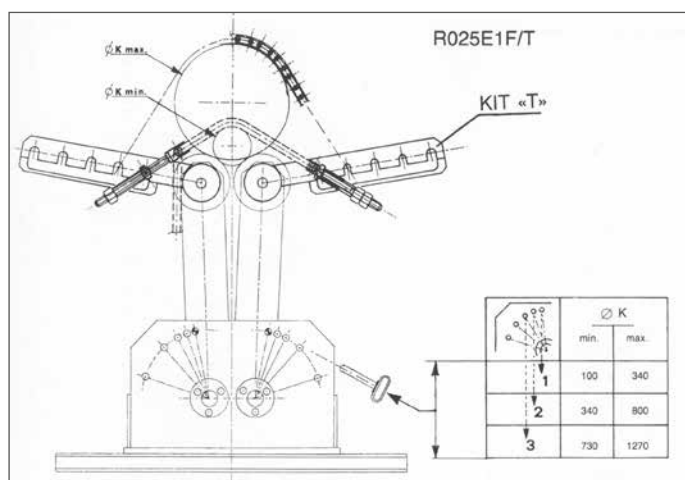


# R025 2.5 TON/SET «THE PIPE FITTER»



Model R025 is much more than a conventional rotator. It's a make-up system that allows to provide power and idle section with special fixtures that enable them to do jobs that a conventional rotator couldn't afford.

These fixtures can be installed either upon delivery of the new rotator (purchase order shall state the execution required) or later by purchasing the do-it-yourself kit of components

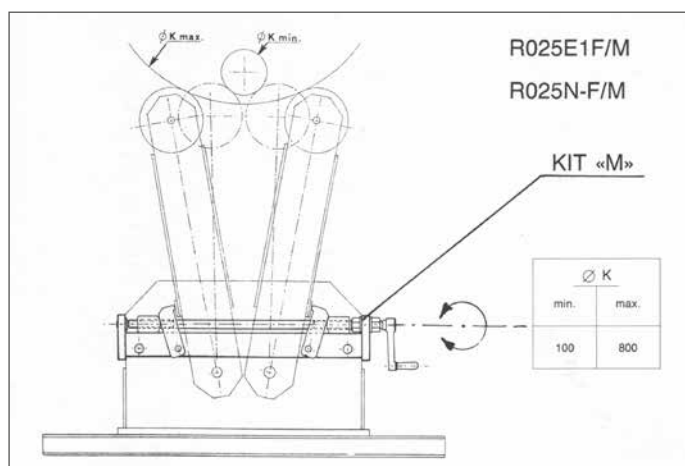


## POWER SECTION EXECUTION R025E1F/T

type R025E1F + KIT T

In order to allow the welding of light weight pipes and/or of straight pipes with side branches or with elbows at their end, the power unit is equipped with a special device consisting of a roller chain, both ends of which are fixed to the extension arms and engaged into a simple tractive system for tightening the chain and exert on the pipe as much pressure as necessary to ensure smooth and precise rotation speed.

The extension arms as well as the chain are easily removable and the rotator can be reset to standard execution.



## POWER SECTION EXECUTION R025E1F/M

type R025E1F + KIT M

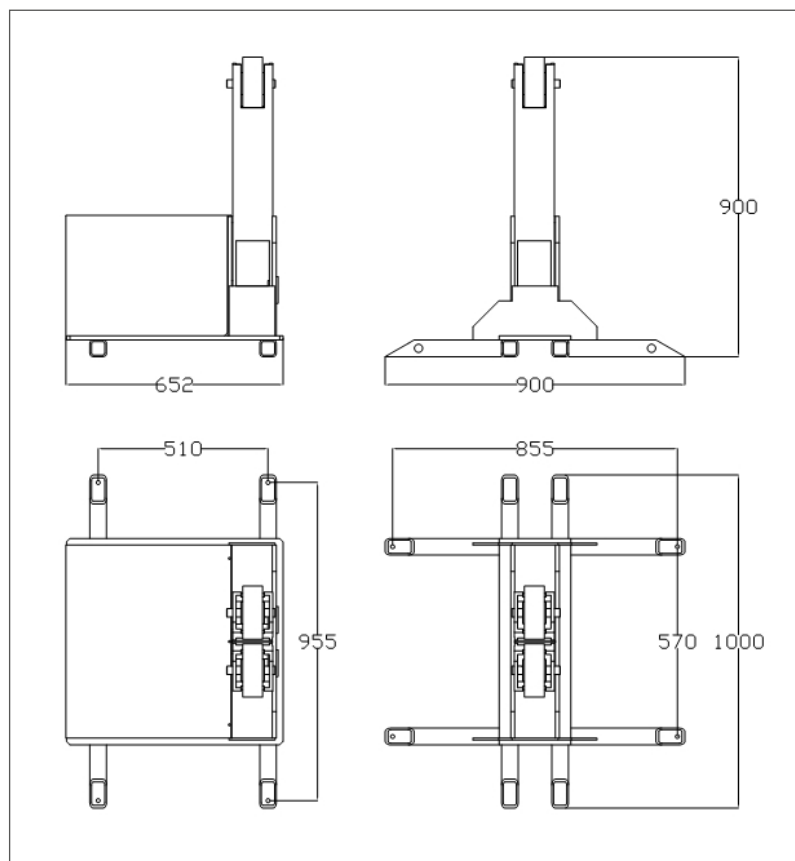
## IDLE SECTION EXECUTION R025N-F/M

type R025N-F + KIT M

Both sections can be equipped with a special fixture allowing stepless, symmetrical and simultaneous adjustment of rolls for pipe's diameter ranging from 100 to 800 mm. The adjustment is executed by hand wheel and it's allowed with no load laid on the rolls.

The power unit can be equipped with both kit "T" and "M" at the same time and, in that case, it's designated as R025E1F/T/M

# R025 2.5 TON/SET «THE PIPE FITTER»



## DRIVE UNIT

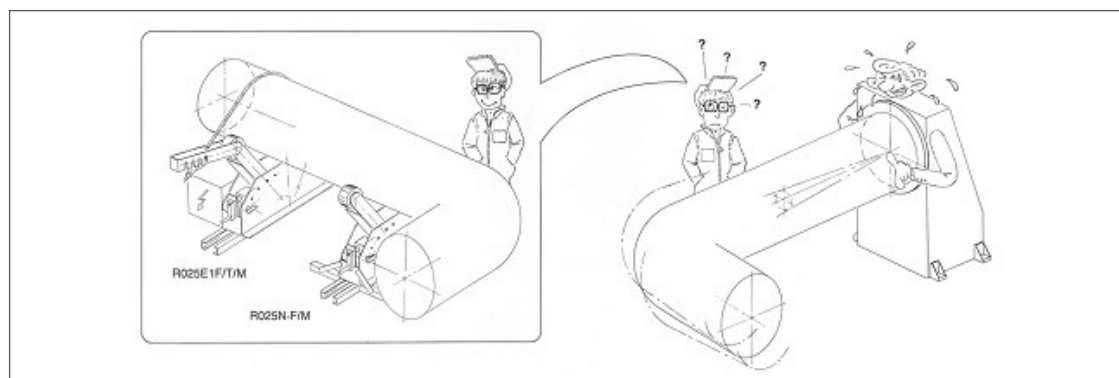
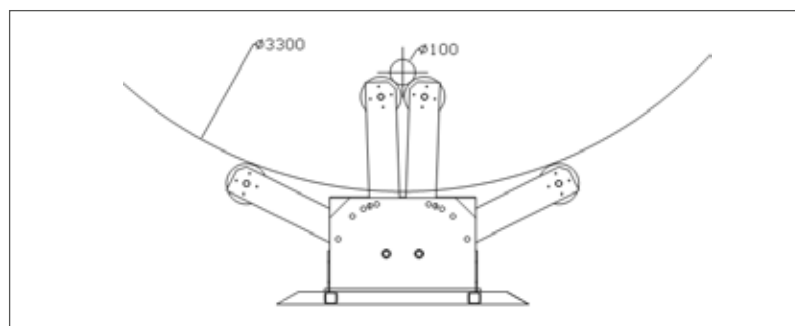
|                    |                          |
|--------------------|--------------------------|
| Speed range        | R025E1F<br>114-1370 mm/’ |
| Max drive capacity | 2,5 Ton                  |
| Weight             | 190 kg                   |
| Feeding            | 230/400 50 Hz            |
| Weight capacity    | 1,25 Ton                 |

## IDLE UNIT

|                 |          |
|-----------------|----------|
|                 | R025N-F  |
| Weight          | 105 kg   |
| Weight capacity | 1,25 Ton |

## GENERAL DATA

|                     |               |
|---------------------|---------------|
| Weight capacity D+I | 2,5 Ton       |
| Rolls Ø             | 160 mm        |
| Rolls width         | 50 mm         |
| Rolls center-center | 175 - 1245 mm |
| Rolls material      | Polyurethane  |
| Work piece Ø        | 100 - 3300 mm |



# OBY



OBY3, OBY8 and OBY15 are twin-motor rotators with capacities 3, 8 and 15ton/set respectively. Their base consists of strong U profiles welded, machined and painted. Guides on which move rolls brackets are accurately machined to assure precision both on planarity and on rolls alignment. Rolls consist of a cast iron hub coated with polyurethane (Pu). Both rolls of power unit are motorized, each of them driven by AC servo-ventilated gear-motor and both controlled by a vector inverter. Any crossbeam is provided with a Rollo1-CD electric cabinet or with a holding remote control. OBY.C3 moving on rails can be assembled on rotator units (Nr. 4 pc of OBY.C3 per unit) even after having bought OBY3, OBY8 and OBY15 stationary executions.

## Available on request are also:

- synchronized power units
- higher speed
- brushless motors with encoder
- rolls made up of steel or coated either with rubber or HDNT

1. Rollo 1 - CD remote control with 5 m cable

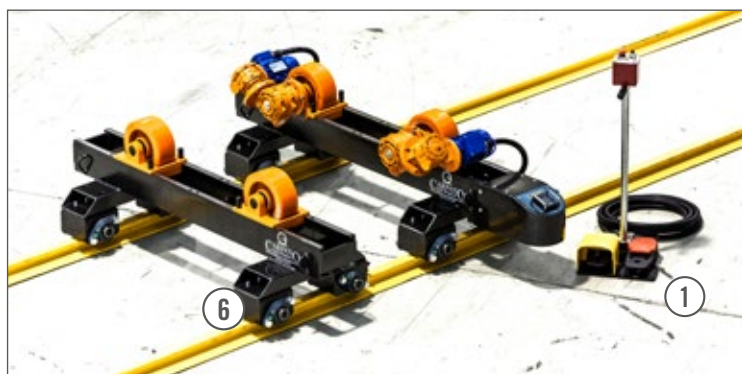
2. In the OBY 3, the rolls wheelbase adjustment can be done at fixed steps by means of precision pins.

3. Both in the OBY8 and in the OBY15 the rolls wheelbase adjustment can be done by means of the right/left screw with a continuous hand-wheel movement.

4. Guides on which rolls brackets move are accurately machined to assure precision on planarity and on the alignment of rolls axles as well to minimize drifting of the vessel.

5. A scale shows the operator how to properly place the rolls wheelbase according to the vessel diameter.

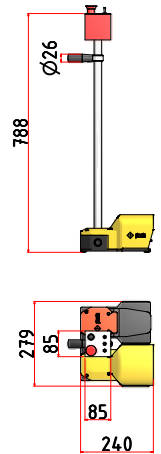
6. OBY.C3 - Idle lorries to easily move on rails  
Can be assembled to the rotator units (Nr. 4 pcs. of OBY.C3 per unit) even after having bought OBY3, OBY8 and OBY15 stationary executions.



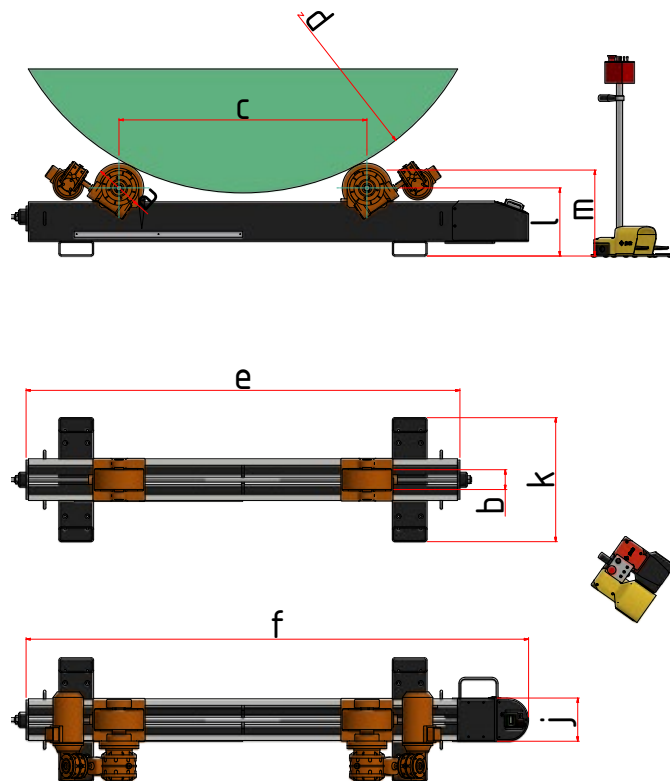


## OBY 3 - 8 and 15 – Technical features

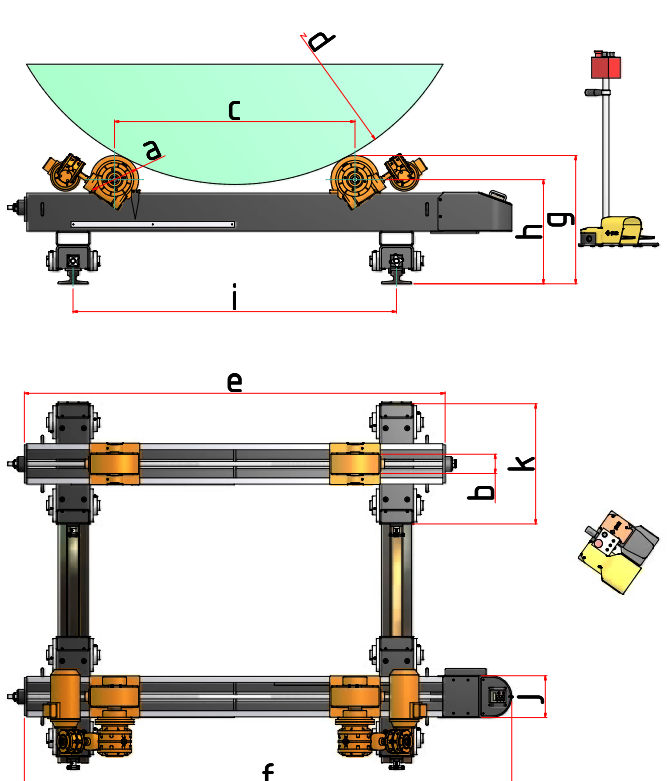
|                       | OBY3                   | OBY8                   | OBY15                  |
|-----------------------|------------------------|------------------------|------------------------|
| Unit weight capacity  | 1500 kg.               | 4000 kg                | 7500 kg                |
| Wheelbase rolls       | at steps               | cont. adj.by screw     | cont. adj. by screw    |
| Rolls                 | Ø200x80 mm in Pu       | Ø200x80 mm in Pu       | Ø250x100 mm in Pu      |
| Min / max vessel      | 200/3000 mm            | 200/3850mm             | Ø250/4000 mm           |
| Infeed                | 230V,single-phase      | 230V,single-phase      | 230 V,single-phase     |
| Power installed       | 0,18 kW                | 0.36 kW                | 0.74 kW                |
| Speed range           | 100 to 1000 mm/min     | 100 to 1000 mm/min     | 100 to 1000 mm/min     |
| E1F Power unit weight | 110 kg (150 kg+OBY.C3) | 200 kg (240 kg+OBY.C3) | 250 kg (290 kg+OBY.C3) |
| Idle unit weight      | 70 kg (110 kg+OBY.C3)  | 130 (170 kg+OBY.C3)    | 180 (220 kg +OBY.C3)   |



### Stationary execution



### On OBY.C3 carriages



| OBY   | a   | b   | c        | d        | e    | f    | g   | h   | j   | k   | i    | l   | m   |
|-------|-----|-----|----------|----------|------|------|-----|-----|-----|-----|------|-----|-----|
| OBY 3 | 200 | 80  | 210-1100 | 200-3000 | 1350 | 1627 | 494 | 394 | 174 | 500 | 945  | 235 | 335 |
| OBY 8 | 200 | 80  | 210-1500 | 200-3850 | 1750 | 2027 | 534 | 434 | 174 | 500 | 1345 | 275 | 375 |
| OBY15 | 250 | 100 | 290-1550 | 250-4000 | 1970 | 2266 | 594 | 469 | 212 | 500 | 1345 | 310 | 435 |

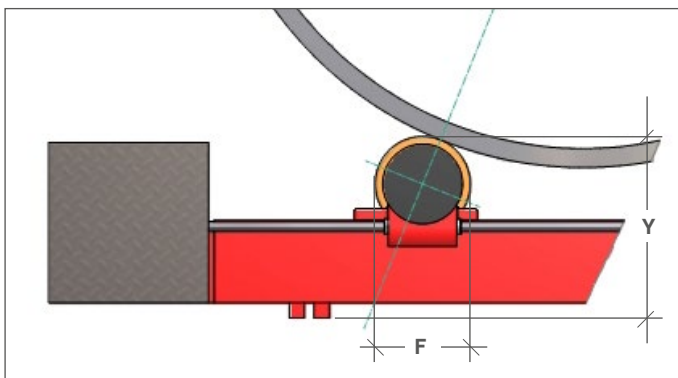
Dimensions in mm, weights in kg.

# MODEL R

## 5.5 TON/SET to 460 TON/SET



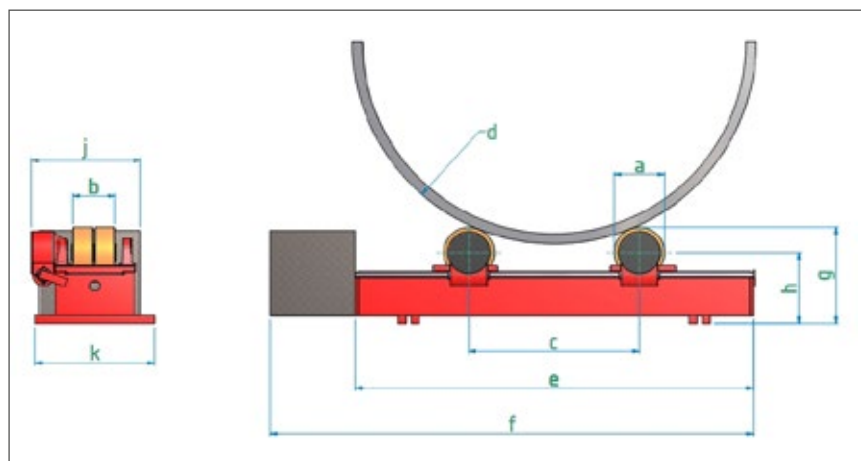
1. Worm screw gearings coaxial to wheels are specially designed and built by PASSERINI so that:
  - The diameter of the casing being smaller than the one of any commercial product, height Y results lower than any rotator of the same capacity built by competitors;
  - Owing to the bronze crown and worm screw special executions, the torque is greater than the anyone else
  - The case is made of cast iron or steel and not of aluminium as the one of common gearings;
  - Thanks to the small height Y, the projection of load F falls on the wheel's bracket and doesn't stress the screw that adjusts the wheels' centre-to-centre distance.
2. Wheels are available:
  - Made of solid steel (superficially tempered upon request)
  - Coated with rubber or with polyurethane
  - Made of high density synthetic material
- 2a The polyurethane coating is laid on a toothed metal core in order to double the face contact and to prevent any breakaway of the polyurethane layer.
3. Drive wheels are mechanically synchronized by a transmission shaft and the motor is protected by a strong carter made of chequered steel plate
4. Frames are extremely robust and machined on their upper face
5. Lead screw to adjust centre-to-centre distance of wheels is made of one single piece without any in-between joint.



② a.

# MODEL R

## 5.5 TON/SET to 50 TON/SET



### STANDARD FEATURES

- DC or AC drives depending from the model
- Interface to automatic welder
- Remote control (24V) of all functions on portable pendant
- Centre-to-centre distance of wheels adjustable by screw
- Transmission statically and dynamically irreversible provided by worm screw gearings manufactured by us
- Feeding 230/400V 50 Hz

### OPTIONS

- Different speed ranges
- Weight capacity up to 800 Ton/set
- Synchronization of 2 or more drive units
- Anti-drift systems
- Wheels made of solid HDN/T resistant to very high specific pressure
- Brushless motor with encoder and interface for plants highly automated
- Different feedings
- Lorries for traversing on rails with idle flanged wheels (with/without brakes) or motorized

### KEY OF READING

#### Material of rolls:

**F** = Polyurethane

**A** = Steel

**G** = Rubber

**M** = Mixed rubber/steel

**CTR** = Max. drive capacity (concentric tons)

**P** = Weight capacity

**E1, E2, E3** = Minimum /maximum speed

**W** = Net weight

| Drive             |        | R055_F   | R060_A   | R110_F   | R120_A   | R125_G   | R150_M   | R200_F   | R300_F   | R500_M   |
|-------------------|--------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>_ E1</b>       | mm/min | 148-1480 | 148-1480 | 110-1100 | 110-1100 | 94-945   | 94-945   | 100-1000 | 100-1000 | 100-1000 |
| <b>_ E2</b>       | mm/min |          |          | 240-2400 | 240-2400 | 170-1700 | 150-1700 | 130-1300 | 170-1700 | 130-1300 |
| <b>_ E3</b>       | mm/min |          |          |          |          |          |          | 200-2000 |          |          |
| <b>CTR</b>        | Ton    | 9        | 10       | 18       | 20       | 18       | 22,5     | 30       | 45       | 90       |
| <b>C Condotta</b> |        | R055N-F  | R060N-A  | R110N-F  | R120N-A  | R125N-G  | R150N-M  | R200N-F  | R300N-F  | R500N-M  |
| <b>P (1D+1C)</b>  | Ton    | 5,5      | 6        | 11       | 12       | 12,5     | 15       | 20       | 30       | 50       |
| <b>P (1D+2C)</b>  | Ton    | 8,25     | 9        | 16,5     | 18       | 18       | 22,5     | 30       | 45       | 70       |
| <b>P (1D+3C)</b>  | Ton    | 9        | 10       | 18       | 20       |          |          |          |          | 90       |
| <b>Øa x b</b>     | mm     | 200x80   | 198x80   | 250x100  | 248x100  | 250x320  | 250x330  | 250x210  | 350x210  | 350x335  |
| <b>c min/max</b>  | mm     | 210/1500 | 210/1500 | 290/1550 | 290/1550 | 290/1540 | 290/1540 | 290/1540 | 380/1850 | 412/1986 |
| <b>d min/max</b>  | mm     | 200/3850 | 170/3850 | 250/4000 | 200/4000 | 180/4000 | 180/4000 | 180/4000 | 600/4700 | 700/5000 |
| <b>e</b>          | mm     | 1750     | 1740     | 1970     | 1970     | 1970     | 1970     | 1970     | 2490     | 2640     |
| <b>f</b>          | mm     | 2240     | 2240     | 2790     | 2790     | 2690     | 2690     | 2690     | 3360     | 3680     |
| <b>g</b>          | mm     | 365      | 365      | 440      | 439      | 477      | 477      | 477      | 513      | 542      |
| <b>h</b>          | mm     | 265      | 265      | 315      | 315      | 352      | 352      | 352      | 338      | 367      |
| <b>j</b>          | mm     | 500      | 500      | 520      | 520      | 500      | 500      | 755      | 950      | 1050     |
| <b>k</b>          | mm     | 426      | 426      | 476      | 476      | 700      | 700      | 590      | 620      | 750      |
| <b>W D</b>        | Kg     | 250      | 270      | 330      | 370      | 520      | 550      | 550      | 1000     | 1300     |
| <b>W C</b>        | Kg     | 125      | 145      | 170      | 210      | 350      | 380      | 380      | 700      | 900      |

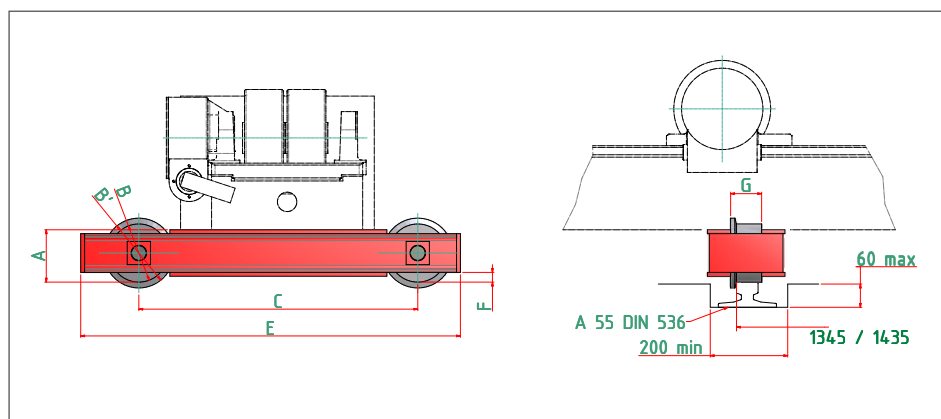
# MODEL R

## IDLE WHEEL LORRIES FOR ROTATORS 5.5 TON/SET to 70 TON/SET

| For model  | R055   | R060   | R110   | R120   | R125   | R150   | R200   | R300   | R500   | R07C   |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Lorry Type | CR094U | CR094U | CR136U | CR136U | CR240U | CR240U | CR488U | CR488U | CR488U | CR750U |
| A          | 70     | 70     | 87     | 87     | 135    | 135    | 135    | 135    | 135    | 135    |
| B          | 90     | 90     | 110    | 110    | 150    | 150    | 150    | 150    | 150    | 150    |
| B*         | 110    | 110    | 130    | 130    | 180    | 180    | 180    | 180    | 180    | 180    |
| C          | 342    | 342    | 386    | 386    | 720    | 720    | 720    | 720    | 720    | 720    |
| D          | 115    | 115    | 130    | 130    | 170    | 170    | 170    | 170    | 170    | 170    |
| E          | 540    | 540    | 605    | 605    | 980    | 980    | 980    | 980    | 980    | 980    |
| F          | 20     | 20     | 22     | 22     | 25     | 25     | 15     | 15     | 15     | 135    |
| G          | 56     | 56     | 56     | 56     | 80     | 80     | 80     | 80     | 80     | 1250   |
| Weight Kg. | 18     | 18     | 24     | 24     | 70     | 70     | 120    | 120    | 120    | 160    |

### OPTIONS

- Shoe brakes on 2 wheels
- Jaw brakes on 2 wheels
- Motorized lorries (2WD and 4WD)
- Lorries for rotators with capacity greater than 70 Ton/set



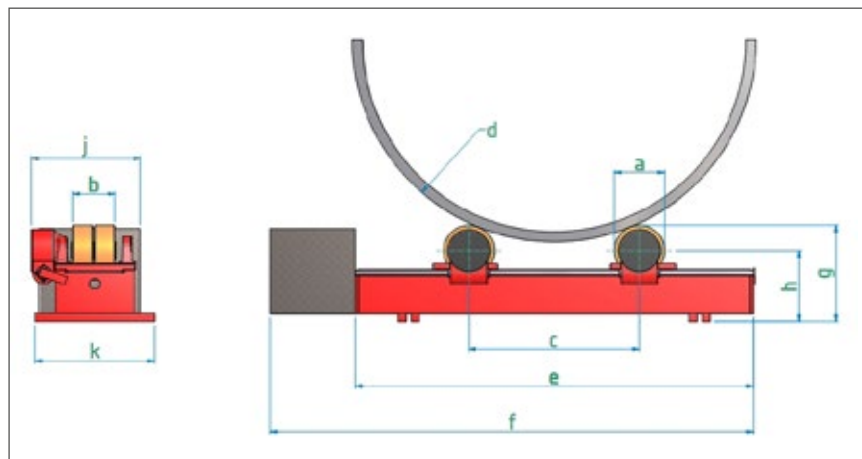
### FIT UP MODELS

Available for any set weight capacity and for any vessel diameter, besides allowing a better sharing of the load, their upper wheels can be handled by hydraulic jacks in order to perform butt to butt alignment of the vessel edges for tack welding.



# MODEL R

## 70 TON/SET to 460 TON/SET



### STANDARD FEATURES

- DC or AC drives depending from the model
- Interface to automatic welder
- Remote control (24V) of all functions on portable pendant
- Centre-to-centre distance of wheels adjustable by screw
- Transmission statically and dynamically irreversible provided by worm screw gearings manufactured by us
- Feeding 400V 50 Hz

### OPTIONS

- Different speed ranges
- Weight capacity up to 800 Ton/set
- Synchronization of 2 or more drive units
- Anti-drift systems
- Wheels made of solid HDN/T resistant to very high specific pressure
- Brushless motor with encoder and interface for plants highly automated
- Different feedings
- Lorries for traversing on rails with idle flanged wheels (with/without brakes) or motorized

### KEY OF READING

#### Material of rolls:

**A** = Steel

**G** = Rubber

**M** = Mixed rubber/steel

**CTR** = Max. drive capacity (concentric tons)

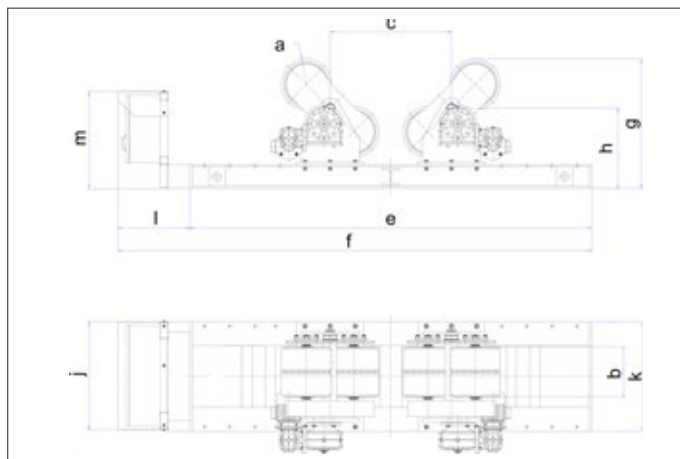
**P** = Weight capacity

**E1, E2, E3** = Minimum /maximum speed

**W** = Net weight

| D Drive Section  |        | R07C_A   | R07C_M   | R10C     | R14C_A   | R14C_M   | R20C_M    | R23C_A    | R35C_A    | R46C_A    |
|------------------|--------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|
| <b>_E1</b>       | mm/min | 85/850   | 85/850   | 100/1000 | 60/600   | 60/600   | 70/700    | 70/700    | 70/700    | 70/700    |
| <b>_E2</b>       | mm/min | 130/1300 | 130/1300 |          | 78/780   | 78/780   | 85/850    | 85/850    | 85/850    | 85/1200   |
| <b>_E3</b>       | mm/min |          |          |          | 120/1200 | 120/1200 | 120/1200  | 120/1200  | 120/1200  |           |
| <b>CTR</b>       | Ton    | 100      | 100      | 140      | 200      | 200      | 280       | 330       | 500       | 650       |
| <b>C Idler</b>   |        | R07CN-A  | R07CN-M  | R10CN-A  | R14CN-A  | R14CN-M  | R20CN-M   | R23CN-A   | R35CN-A   | R46CN-A   |
| <b>P (1D+1C)</b> | Ton    | 70       | 70       | 100      | 140      | 140      | 200       | 230       | 350       | 460       |
| <b>P (1D+2C)</b> | Ton    | 100      | 100      | 140      | 200      | 200      | 280       | 330       | 500       | 650       |
| <b>Øa x b</b>    | mm     | 350x150  | 350x450  | 360x150  | 500x200  | 515x520  | 710x555   | 690x250   | 690x250   | 690x250   |
| <b>c min/max</b> | mm     | 425/2167 | 425/2167 | 440/2650 | 610/2710 | 610/2710 | 810/2760  | 790/2740  | 790/2740  | 790/2740  |
| <b>d min/max</b> | mm     | 700/5000 | 700/5000 | 700/6000 | 900/6000 | 900/6000 | 1300/6000 | 1300/6000 | 1300/6000 | 1300/6000 |
| <b>e</b>         | mm     | 2780     | 2780     | 4200     | 3490     | 3490     | 4040      | 4040      | 4040      | 4040      |
| <b>f</b>         | mm     | 3810     | 3810     | 4777     | 4520     | 4520     | 5315      | 5315      | 5315      | 5315      |
| <b>g</b>         | mm     | 605      | 605      | 669      | 745      | 755      | 1005      | 1034      | 1080      | 1140      |
| <b>h</b>         | mm     | 430      | 430      | 489      | 495      | 495      | 649       | 689       | 735       | 795       |
| <b>j</b>         | mm     | 1050     | 1050     | 856      | 1200     | 1200     | 1370      | 1275      | 1380      | 1420      |
| <b>k</b>         | mm     | 750      | 1000     | 920      | 900      | 1000     | 1000      | 1200      | 1200      | 1200      |
| <b>W D</b>       | Kg     | 2000     | 2200     | 2400     | 2900     | 3400     | 7300      | 6700      | 8600      | 10400     |
| <b>W C</b>       | Kg     | 1400     | 1600     | 1600     | 2200     | 2700     | 5700      | 5200      | 6600      | 8100      |

# SELF-ALIGNING



## STANDARD FEATURES

- Feeding 400V 50 Hz
- AC motors with vector inverter
- Chain or gear trasmission according to models
- 100% load carried by coated wheels
- Rolls adjustment stepped by holes and pins

## OPTIONAL FEATURES

- Idle or motorized lorries for traversing on rails.

**E1** = Speed range

**P** = Weight capacity on 4 wheels (upper and lower)

**P/2** = Weight capacity on 2 wheels (lower wheels only)

**d min/max** = Vessel diameter (full load P)

**d1** = Minimum vessel diameter (half load P/2)

**W D** = Weight drive unit

**W C** = Weight ilde unit

| TYPE             |        | RB60      | RB120      | RB200      | RB300      | RB500     |
|------------------|--------|-----------|------------|------------|------------|-----------|
| <b>E1</b>        | mm/min | 120 -1200 | 100 - 1000 | 100 - 1000 | 100 - 1000 | 80 - 800  |
| <b>P</b>         | Ton    | 6         | 12         | 20         | 30         | 50        |
| <b>P/2</b>       | Ton    | 3         | 6          | 10         | 15         | 25        |
| <b>Øa x b</b>    | mm     | 250x150   | 300x150    | 320x250    | 400x300    | 500x300   |
| <b>c min/max</b> | mm     | 210/1500  | 210/1500   | 290/1550   | 290/1550   | 290/1540  |
| <b>d min/max</b> | mm     | 800/3000  | 800/4000   | 1000/4000  | 1250/4500  | 1500/5000 |
| <b>d1</b>        | mm     | 400       | 400        | 500        | 500        | 500       |
| <b>e</b>         | mm     | 2000      | 2060       | 2180       | 2350       | 2920      |
| <b>f</b>         | mm     | 2420      | 2610       | 2645       | 2850       | 3520      |
| <b>g min/max</b> | mm     | 525/725   | 705/780    | 780/860    | 740/910    | 850/1070  |
| <b>h</b>         | mm     | 450       | 480        | 455        | 515        | 575       |
| <b>k</b>         | mm     | 600       | 700        | 900        | 950        | 1100      |
| <b>l</b>         | mm     | 630       | 750        | 920        | 1000       | 1140      |
| <b>m</b>         | mm     | 550       | 625        | 670        | 670        | 670       |
| <b>W D</b>       | Kg     | 510       | 650        | 1150       | 1350       | 2400      |
| <b>W C</b>       | Kg     | 360       | 450        | 850        | 1000       | 1600      |

# ANTI-DRIFT SYSTEMS

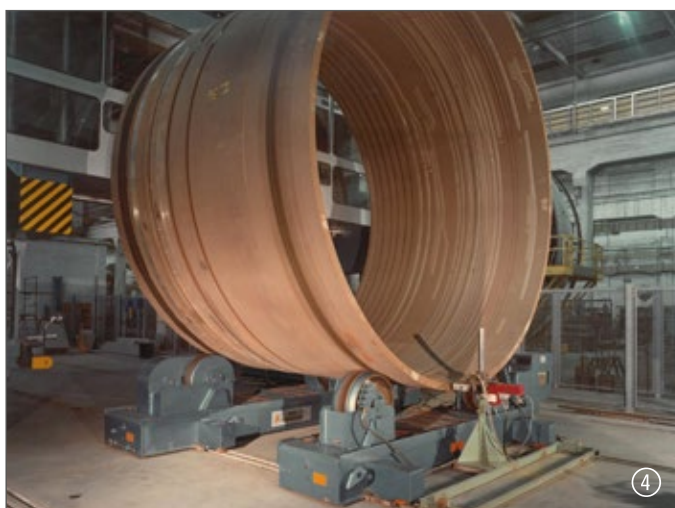
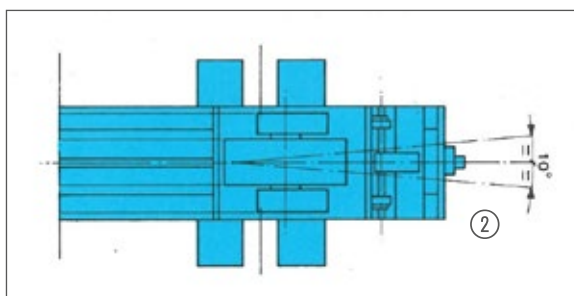
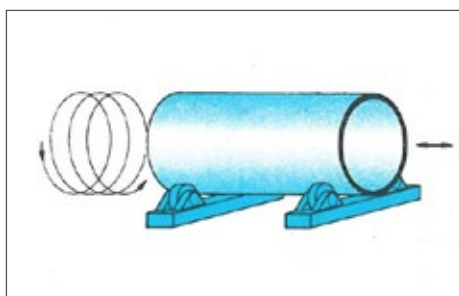


## ANTI-DRIFT BUMPERS

A wheel fixed to either or both drive and idle units prevents the vessel from drifting, as per picture 1.

## Anti-drift steering idle unit (manual or automatic)

Idle unit steering can be operated manually (as per picture 3) or (as per picture 4) automatically by means of an hydraulic jack controlled by tactile inductive or proximity laser sensor.



# SEAMERS

Apparently simple, the seamer is a rather complicated machine that can perform several different welding processes.

CNC can be applied to any different model. The following pages just supply you some examples of possible configurations. Anyway our skilled staff will be at your complete disposal to study with you customized machines finding out the best possible solution to suit your needs.



**BP2226E5, FOR TIG WELDING WITH  
AVC, SPECIAL EXECUTION FEATURING:**

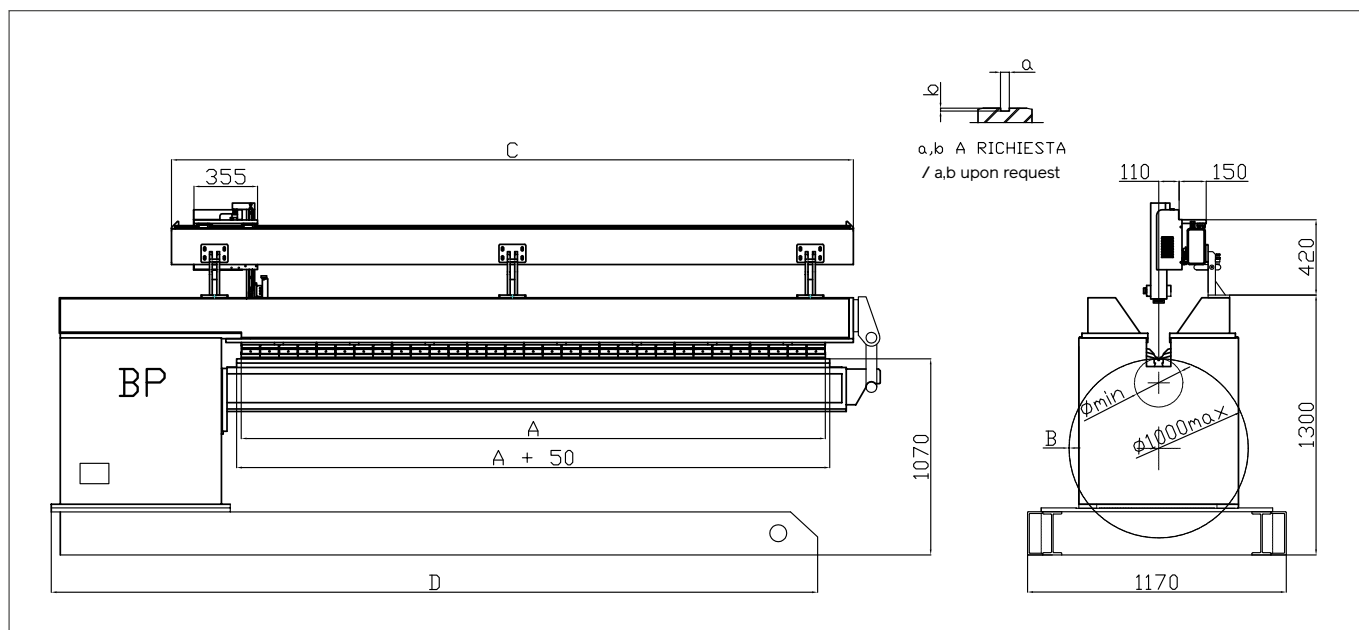
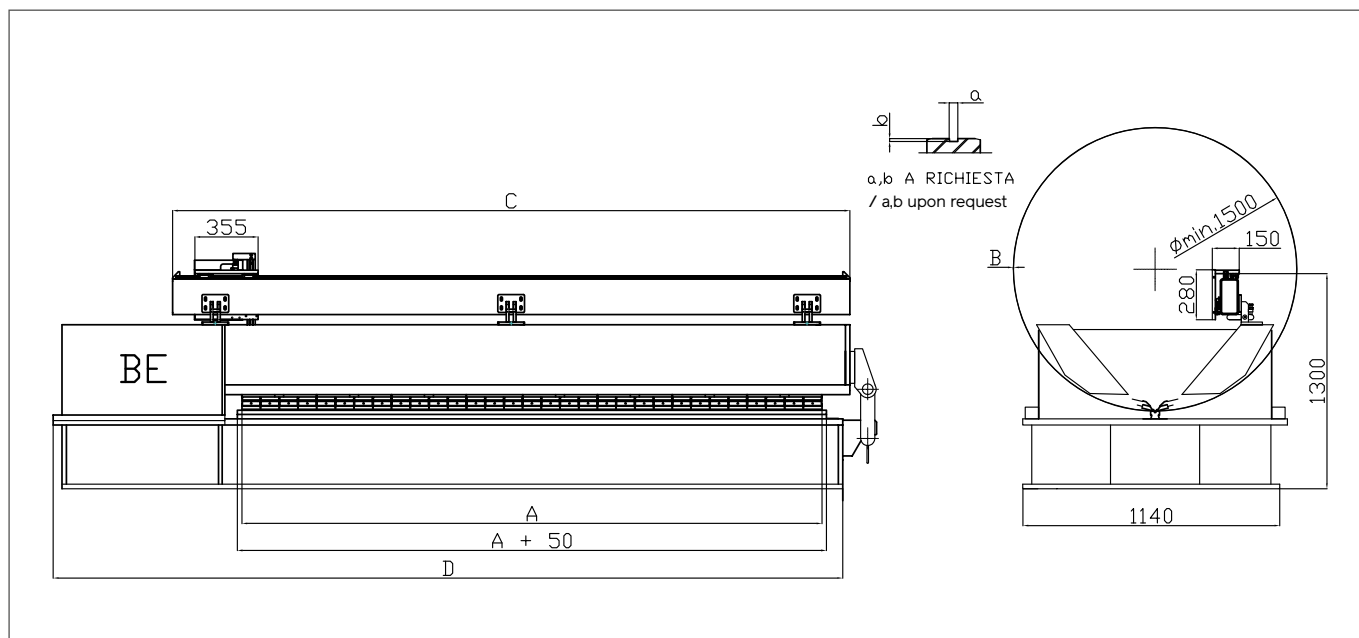
- Operator platforms hanging from both sides
- Platform provided of Teflon guides and of clamps for rounding the cylinder, height adjustable and motorized for automatic load/unload



**BP3131D3, FOR PLASMA WELDING,  
STANDARD EXECUTION, WITH OPTIONALS:**  
AVC, CNC and pendant swivel control cabinet.  
In the background: straightening machine, spec.  
exec.



# HORIZONTAL SEAMERS



# HORIZONTAL SEAMERS

| Description               | BE341005 | BE391005 | BE451505 | BE501505 | BE551504 | BE601504 |
|---------------------------|----------|----------|----------|----------|----------|----------|
| A                         | 3570     | 4095     | 4725     | 5250     | 5775     | 6300     |
| Ø min                     | 1500     | 1500     | 1500     | 1500     | 1500     | 1500     |
| B min                     | 1        | 1        | 1        | 1        | 1        | 1        |
| B max without stitching 5 |          | 5        | 5        | 5        | 4        | 4        |
| B max with stitching      | 10       | 10       | 10       | 10       | 8        | 8        |
| C                         | 5220     | 5745     | 6375     | 6900     | 7425     | 7950     |
| D                         | 5090     | 5615     | 6245     | 6770     | 7295     | 7820     |
| a                         | 1        | 1        | 1        | 1        | 1        | 1        |
| b                         | 2        | 2        | 2        | 2        | 2        | 2        |
| c                         | 1        | 1        | 1        | 1        | 1        | 1        |
| d                         | 1        | 1        | 1        | 1        | 1        | 1        |
| e                         | 1        | 1        | 1        | 1        | 1        | 1        |
| f                         | 2        | 2        | 2        | 2        | 2        | 2        |
| g                         | 2        | 2        | 2        | 2        | 2        | 2        |
| h                         | 2        | 2        | 2        | 2        | 2        | 2        |
| i                         | 1        | 1        | 1        | 1        | 1        | 1        |
| l                         | 2        | 2        | 2        | 2        | 2        | 2        |
| Kg.                       | 5520     | 5850     | 6390     | 6840     | 7300     | 7760     |

| Code | Description          | TYPE             | TYPE               |
|------|----------------------|------------------|--------------------|
| a    | CLAMPING MODE        | (1) PNEUMATIC    | (2) HYDRAULIC      |
| b    | ALIGNMENT JIGS       | (1) MANUAL       | (2) PNEUMATIC      |
| c    | BAR COOLING          | (1) FIT FOR      | (2) SEALED CIRCUIT |
| d    | GAS BACK UP          | (1) UPON REQUEST | (2) INCLUDED       |
| e    | LATCH                | (1) MANUAL       | (2) PNEUMATIC      |
| f    | CARRIAGE BACK STROKE | (1) MANUAL       | (2) MOTORIZED      |
| g    | PNEUMATIC SLIDE      | (1) UPON REQUEST | (2) INCLUDED       |
| h    | CABLES ARRANGEMENT   | (1) FESTOON      | (2) CABLE BELT     |
| i    | MM/MIN               | (1) 100/1900     | (2) 50/2500        |
| l    | HF SHIELDING         | (1) UPON REQUEST | (2) INCLUDED       |

| Description               | BP0512G3 | BP0717B5 | BP1012G2 | BP1213A3 | BP1217B4 | BP1221C5 | BP1517H3 | BP2221C3 | BP2221D4 | BP2226E5 | BP2521D3 | BP2526E5 | BP3121D3 | BP3126E4 | BP3131F5 |
|---------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| A                         | 525      | 735      | 1050     | 1260     | 1260     | 1260     | 1575     | 2310     | 2310     | 2310     | 2625     | 2625     | 3255     | 3255     | 3255     |
| Ø min                     | 120      | 170      | 120      | 130      | 170      | 210      | 170      | 210      | 210      | 260      | 210      | 260      | 210      | 260      | 310      |
| B min                     | 0,5      | 1        | 0,5      | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| B max without stitching 3 | 5        | 2        | 3        | 4        | 5        | 3        | 3        | 4        | 5        | 3        | 5        | 3        | 4        | 5        |          |
| B max with stitching      | 6        | 10       | 4        | 6        | 8        | 10       | 6        | 6        | 8        | 10       | 6        | 10       | 6        | 8        | 10       |
| C                         | 1470     | 1850     | 2000     | 2380     | 2380     | 2630     | 2520     | 3675     | 3675     | 3675     | 3990     | 3990     | 4620     | 4620     | 4620     |
| D                         | 1100     | 1800     | 1400     | 1800     | 1800     | 2025     | 1800     | 2930     | 2930     | 2930     | 3170     | 3170     | 3690     | 3690     | 3690     |
| a                         | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| b                         | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        |
| c                         | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| d                         | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| e                         | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| f                         | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        |
| g                         | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        |
| h                         | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        |
| i                         | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| l                         | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        |
| Kg.                       | 1100     | 1250     | 1450     | 2600     | 2630     | 2650     | 2820     | 3815     | 3830     | 3840     | 3950     | 3970     | 4100     | 4120     | 4160     |

# VERTICAL SEAMER 1500 or 2000 mm



## STANDARD FEATURES

It's designed for automatic vertical seam welding of flat sheets or of cylinders Ø 500 mm or greater, thickness 0.8 to 3 mm without stitch welding, up to 10 mm with stitches, clamping lengths 1550 or 2050 mm.

Thanks to the robust structure of the mandrel, it doesn't need to install any AVC sensor.

After welding, a gear motor lifts the mandrel to allow unloading the job.

## Description

- Base structure made of steel profiles and machined
- Steel mandrel with back-up copper bar
- Back-up copper bar fit for cooling (cooling unit not included)
- Back-up gas flow
- Pneumatic clamping by independent foot switches
- Side beam carriage driven by DC gear motor and rack&pinion transmission;
- The carriage is made of aluminium and it moves on linear ball bearing linear guides. On demand: wire feeder support
- 2-axis CNC cabinet with 5" touch screen complying with CE norms
- Pneumatic slide to release the torch after welding
- Cross slide (stroke 80 mm) for micrometric adjustment of the torch
- Centring jigs driven by pneumatic cylinders

## Work cycle

### MANUAL work cycle:

- Positioning of the left edge
- Clamping of left edge
- Positioning of the right edge
- Clamping of right edge

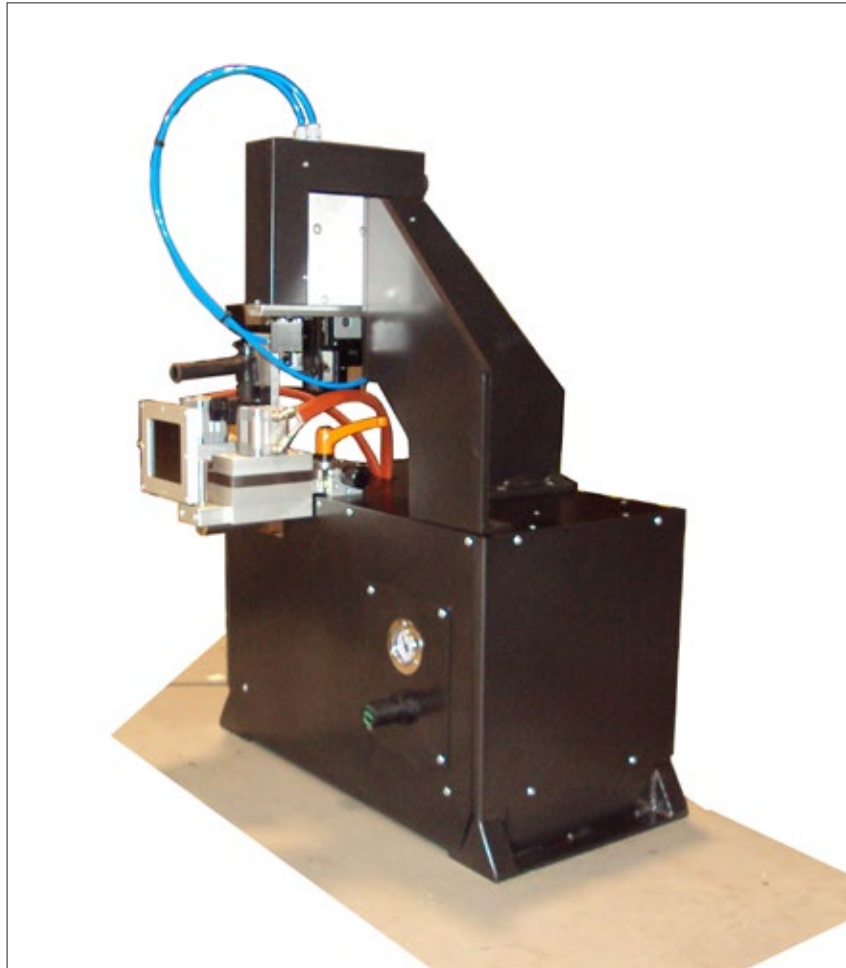
### AUTOMATIC work cycle:

- Carriage onward from home to weld start position
- Down stroke of pneumatic slide and arc ignition
- Start delay and cold wire start (if any)
- Welding to recorded weld end position
- Arc extinction and post gas time
- Upstroke of pneumatic slide
- Carriage backward to home position





# PARALLELO DESK SEAMER



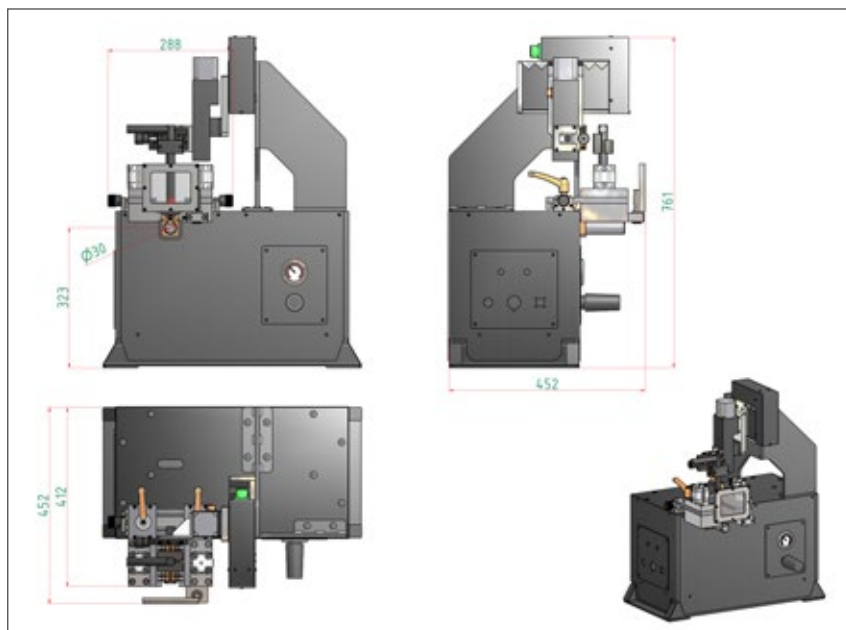
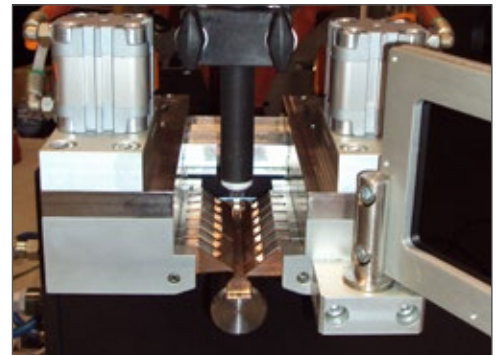
## High precision for thin walls

Provided of pneumatic clamping fingers, it is suitable for vessel walls and for flat plates as thin as 0.2 mm.

Micrometric adjustment of fingers in-between distance is made by high precision slides.

Torch longitudinal traversing by MM MINI 180 motorized by DC motor with encoder and driven by ball screw on ball linear guides.

Torch up/down strokes by JD PNEUMO 80 pneumatic slide.



Work cycle stepped by PLC with 3.5" soft touch screen, which allows setting of:

- Weld start point.
- Weld longitudinal stroke mm.
- Speed mm/min.
- Start delay sec.
- Torch up stroke delay in sec.

| PARALLELO DESK   |               |
|------------------|---------------|
| Ø min -max       | 35 - 300      |
| L min - max      | 10 - 150      |
| Thickness        | 0,2 - 3 mm    |
| Gas back up      | yes           |
| Bar cooling      | no            |
| Feeding          | 230 V - 50 Hz |
| Working pressure | 2 - 6 bar     |

# TECH REPORT

The success of an automatic welding plant and its ability to be shortly paid back, does not depend at all on the initial costs, but mainly on its performances, efficiency, quality and work-cycles repeatability.

For such reasons, Carpano during the last 10 years has always recommended his customers plants providing advanced process controls.

### CNC APPLIED TO WELDING PLANTS

Installing a CNC, even if on a simple turntable positioner, allows the operator to be sure of the set up parameters, but above all cancels any possible process discretion in case several operators work on the Plant, allowing a constant output quality.

To supply you some more examples or ideas, we invite you to take a look to the following significant CNC applications.





# TRANSPORTATION

## HIGH SPEED TRAIN

Plant for welding the frame and the roof of high speed trains.

A gantry moves on rails with a work volume of 66 m length x 4.5 m width x 1.2 m height.

Its crossbeam height is automatically adjustable and four motorized carriages are installed on it, each carriage equipped with diving boom stroke 1200 mm . The lower end of 2 diving booms is equipped with automatic MIG welding torches that are both provided of IG SCAN as well as of video systems and that are both handled by 2 – axis zero backlash robot wrists whereas automatic brushing machines are carried by the other pair of diving booms.

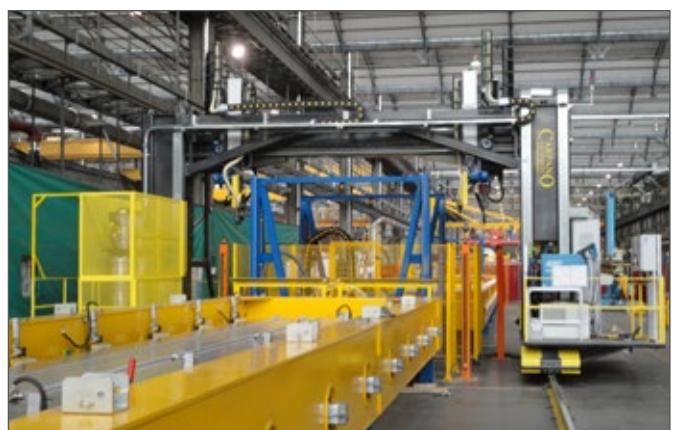
A 16-axis CNC allows the recording of countless jobs each of which including the brushing as well as the welding sequence and parameters.



The height adjustment of the crossbeam allows to elevate it above the fixtures that overturn the job and to lower it back to its work position.

On the gantry motorized bases take place:

- MIG power sources with chillers
- Wire drums
- Fumes aspirator and ATEX dust recovery system
- Control cabinet with operator seat





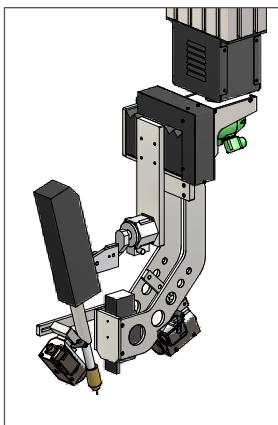
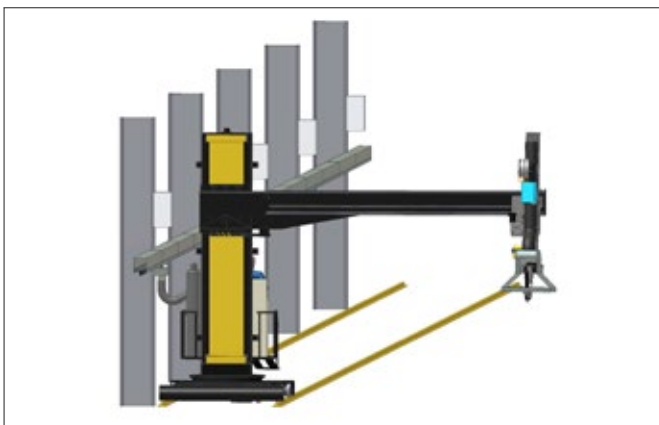
# TRANSPORTATION

## LOCAL TRAIN



Plant for welding the frame and the roof of aluminium local trains.

A manipulator, with boom not retractable but height adjustable and with motorized base moving on rails and delivering a work volume of 60 m length x 4.5 m width x 1.2 m height. On the boom is installed one motorized carriage equipped with diving boom stroke 1200 mm, the lower end of which features the torch handling system consisting of a 2 – axis zero backlash robot wrist and of a linear oscillator. A 6-axis CNC allows the recording of countless jobs each of which including the welding sequence and parameters.



The core of the plant is the torch handling system consisting of 2 motorized rotational axis to set torch angle as well as of linear oscillator, torch anti-shock, wire push pull, two video and of IG SCAN joint-tracking systems.

# TRANSPORTATION

## COACH PANELS



Plant for welding the aluminium panels of train coach. The manipulator, with not retractable but height adjustable boom, works on both left and right sides on jigs laid parallel to the track on which moves its motorized base.

On the boom one motorized carriage and a motorized vertical slide to deliver x/y axis of the IG tactile tracking system are installed. The wire feeder is housed on a/m carriage in order to have a short torch sheath, whereas power source with chiller and fumes aspirator are properly laid on the manipulator base.



See photo on the left: a particular arrangement of weld ground made up of carbon brushes crawling on the rail and connecting the power source to the jigs that hold the job, which avoids the frequent replacement of ground cables and improves electrical conductivity



The plant is very similar to the one described above but, in that case, the torch is equipped with IG 2D joint tracking system and can rotate to perform longitudinal and transversal welds. The control panel hangs from the boom tip where the operator can stand and effectively survey and program the welding process.



The welding head with TSV09 video and IG 2D laser tracking systems.



Control panel with a 10" soft touch screen and a 7" monitor for video system and MIG power source setting of parameters.

# TRANSPORTATION

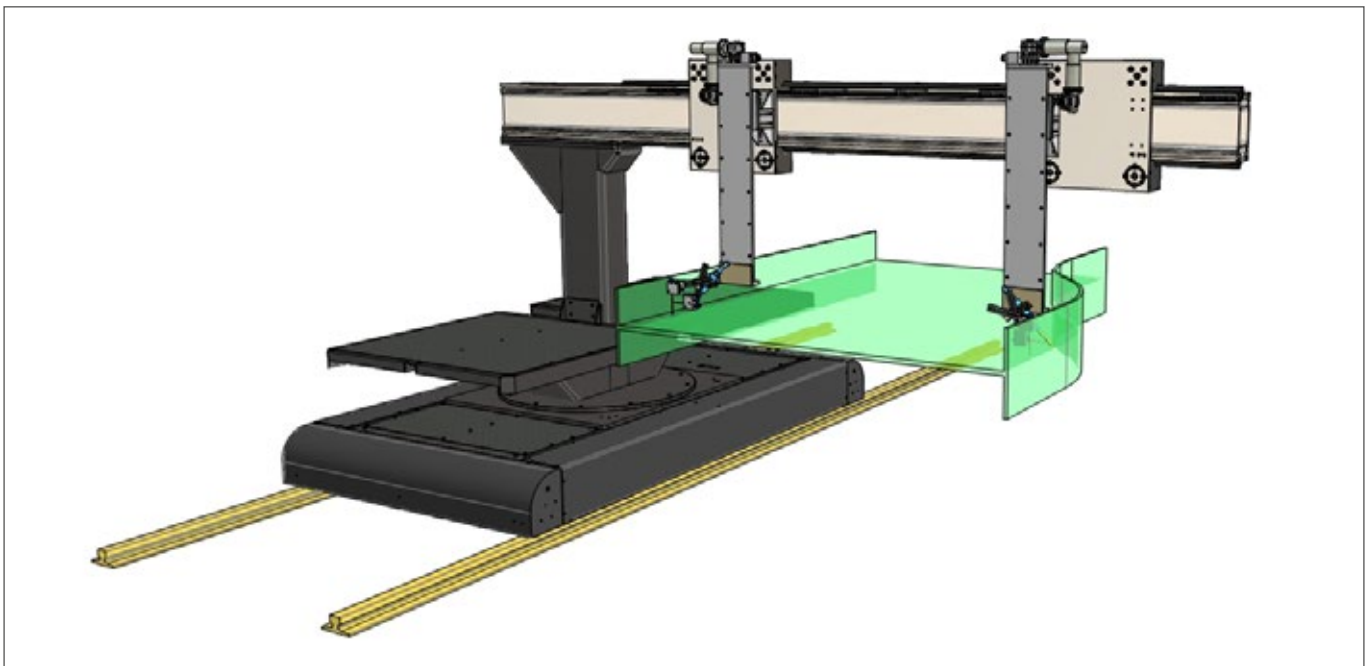
## TRUCK TRAILERS SUB-FRAME

### VARIABLE WEB H BEAMS



#### TRUCK TRAILERS SUB-FRAME

MIG single head plant for welding steel straight H beams. The manipulator, with not retractable but height adjustable boom, works on jigs laid on both left and right sides parallel to the track on which moves its motorized base. On the boom are installed one motorized carriage and a motorized vertical slide to deliver x/y axis of an IG tactile tracking system. The wire feeder is housed on a/m carriage in order to have a short torch sheath, whereas the power source with chiller is laid on the manipulator base.



#### VARIABLE WEB H BEAMS

MIG or Sub-Arc double head plant for welding steel straight or sway H beams.

In that case, both heads are provided of IG LAS joint tracking systems. The motorized base can house the power sources and ancillary equipment.



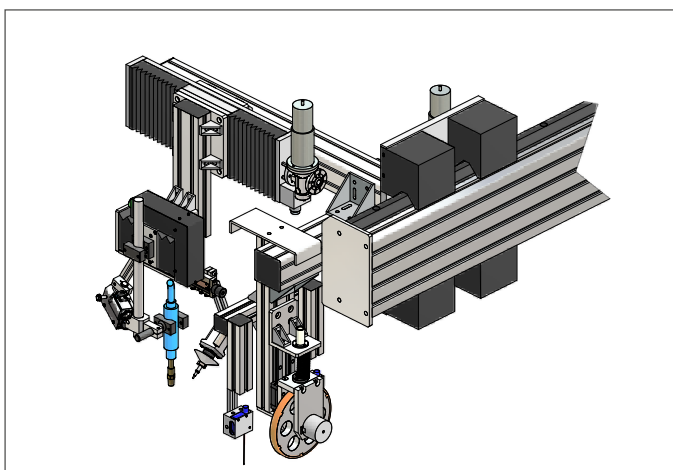
# TRANSPORTATION

## TRUCK ELLIPTICAL TANKS



### MANIPULATOR AND ROTATOR FOR WELDING OF POLYCENTRIC TANKS

Manipulator for automatic MIG welding of elliptical and polycentric tanks laid on rotators incorporated into CNC work cycle.



On the boom a motorized carriage and a transversal motorized slide which are both serviced by an IG system for the purpose of tracking the joint, are installed.

A metric wheel measures the peripheral speed and 2 IG LAS probes move back and forth the carriage in maintain the torch on the top of the tank.

CNC picks up the metric wheel signal and automatically adjusts the rotator's speed.

The plant is complete of TSV 09 video system



The manipulator base houses the control panel from which the operator, by means of the video system, can effectively and safely survey the whole process without any need for unstable platforms and/or step ladders.

On the base are also laid the power source and the fumes aspirator.

As usually, the wire feeder is housed on the boom in order to have a sheath as short as possible.

On the 10" soft touch screen and via CNC countless programs can be recorded and played at any time.



# TRANSPORTATION



## PLANT TO WELD WHEELS FOR INDUSTRIAL MACHINERIES.

The machine has got 2 stations : while 2 turntables are welding, the other 2 are loading/unloading.

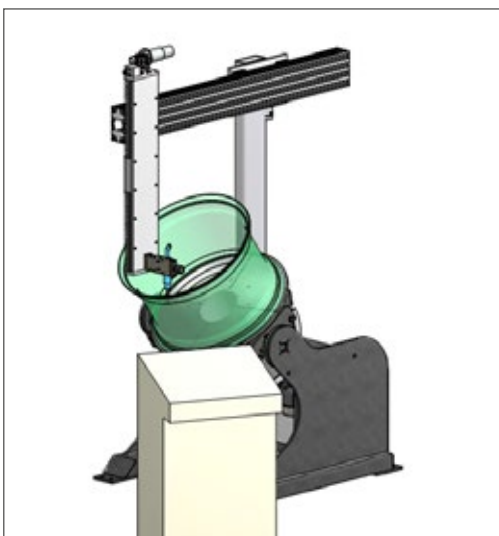
Each table has got a max loading capacity of 200 kg, the 180° exchange takes place in about 6 seconds.

The 2 MIG welding heads are tandem, to increase both the dimensions of the welding bead and the speed.

The whole process is managed by PLC having got 10" touch panel. It allows to enter at least 200 working programs and includes the 4 welding devices as well, in CAN OPEN connection.



Remote connection via modem for tele-service



## WHEELS WELDING FOR EARTH MOVING MACHINERIES

Joda 8 turntable with electrical tilting, vertical column in carpentry, horizontal axle with 800 mm stroke and diving vertical slide with 600 mm stroke.

Electrical panel with 4 axes CNC to manage the working cycle.

The machine automatically position itself again on 2 different joints, for each joint it recalls a different program on the power unit.

# TRANSPORTATION



## HEAD & TAILSTOCK AE + FE

Elevating Head and Tailstock AE + FE for handling truck frames.

In - between distance of tables 14 m, weight capacity 10 ton, vertical stroke 1500 mm driven by synchronized hydraulic cylinders.

To meet with the frame deflection, retractable jigs are installed on both the headstock and the tailstock tables.

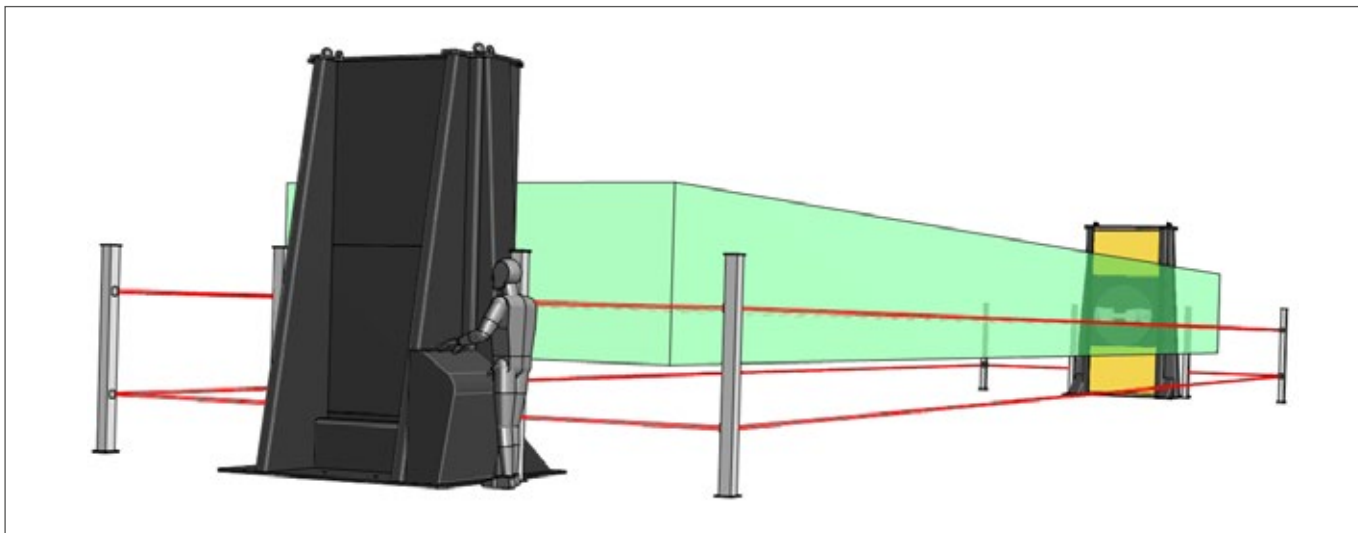
A peculiar feature is that both Headstock and Tailstock, provided of motorized base, move on rails laid transversal to the handling axis of the frame that is brought to load position and evacuated by a shuttle on optical guides.



## JDHE20, ELEVATING TURNTABLES SPECIAL EXECUTION

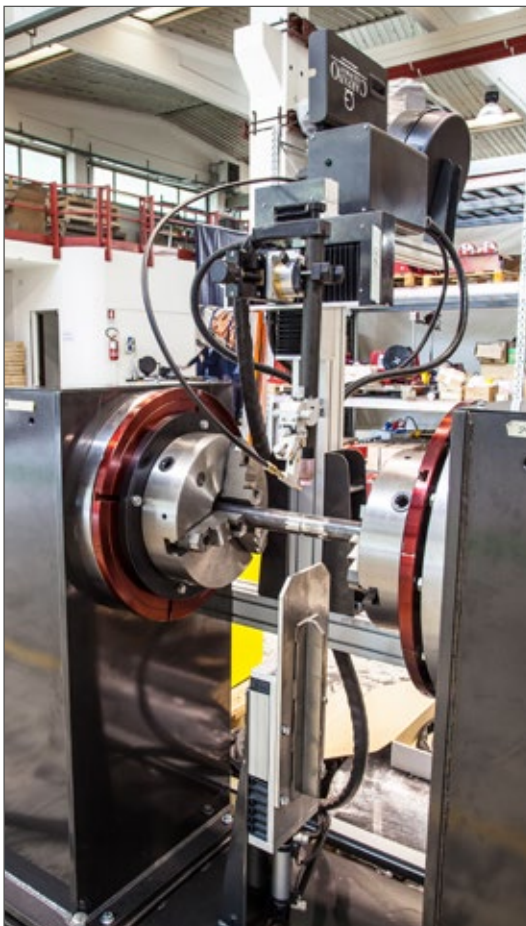
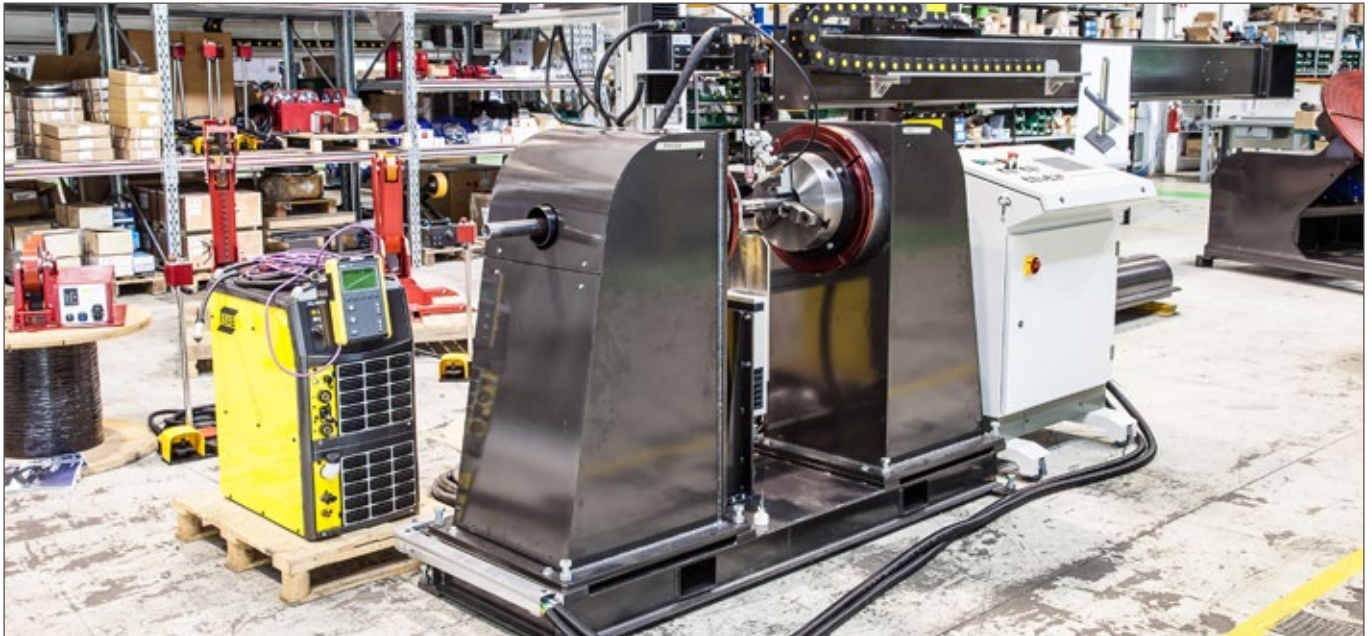
JDHE20 elevating Head and Tailstock, handling a jig on which is laid a train coach body.

In - between distance of tables about 25 m, weight capacity 20 Ton, job section 4000 x 1500 mm.





# ENERGY PLANT TO WELD PIPES



**This plant has been studied on purpose to make pipes junctions**

- Ø from 20 to 96 mm
- thickness from 2 to 4 mm
- Length from 12 to 60 m
- The welding process is : TIG cold-wire in single or multi-layer..

The 2 heads are both motorized and synchronized in electric axis, such feature allows not to fix the pipes in order to be able to accurately rotate them even if they reach 60m length.

Between the 2 heads there is an end-stroke with pneumatic clamp to position the first pipe, with great accuracy and precision under the welding torch.

**The welding head is made up of:**

- Vertical slide with AVC function
- Horizontal slide with swinging function
- VPR-4WD cold-wire feeder with CEFF slide

**This plant is managed by a PLC with 10" HMI to:**

- Enter at least 200 different working programs
- For each program it is possible to set up uncountable different steps
- For each step it is possible to set any parameter, welding programs included
- Connection to welding power unit by means of Profibus protocol.

# ENERGY



## WIND TOWERS

A manipulator mod. ZB60A50F, strokes (hor. x vert.) 6 x 5 m, on motorized base, equipped with SAW Tandem heads, is used both for prefabrication ( longitudinal welding ) of sections length 3 to 6 m and for the assembling of towers (circle welding) which are lined-up in 3 parallel rows on self-aligning rotators RB300.

The operator sits on the boom tip to survey the process though SAW heads are provided of IG tactile joint tracking system.

Power sources as well as flux feed and recovery systems are laid on the base, whereas 30 kg wire reels are installed at the rear end of the boom.



## TURBO-ALTERNATORS

The turbo-alternator case is positioned into rings and laid on rotator mod. R60C, special execution, weight capacity 600 Ton/pair, steel wheels superficially hardened, Ø 1200 x 600mm width, tangent force delivered by motorized section 26 ton.

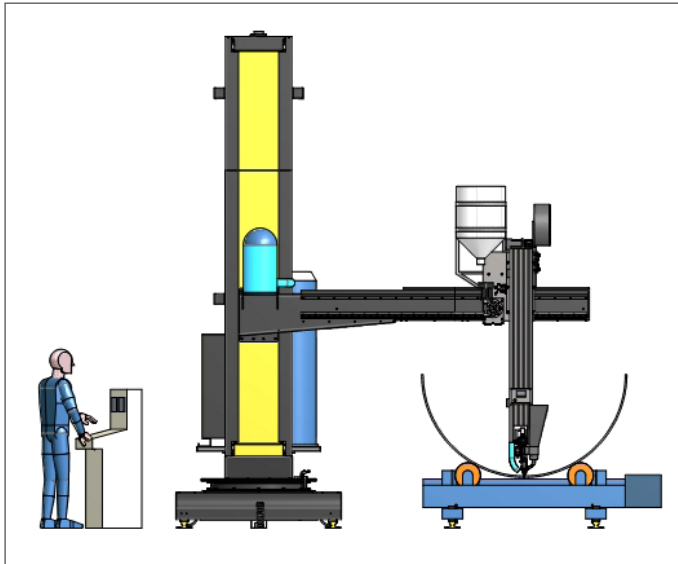
The wrong positioning of the case inside the rings, sometimes causes an axial drift of such an extent and drifting speed that can't be effectively opposed by the anti-drift automatic system installed on the idle section. Therefore, both drive and idle sections have been equipped with electronic probes that, when detecting the approach of rings to pre-set safety limits, automatically stop any activity.

Rotation can only be reactivated after a safety procedure and by means of a key switch.



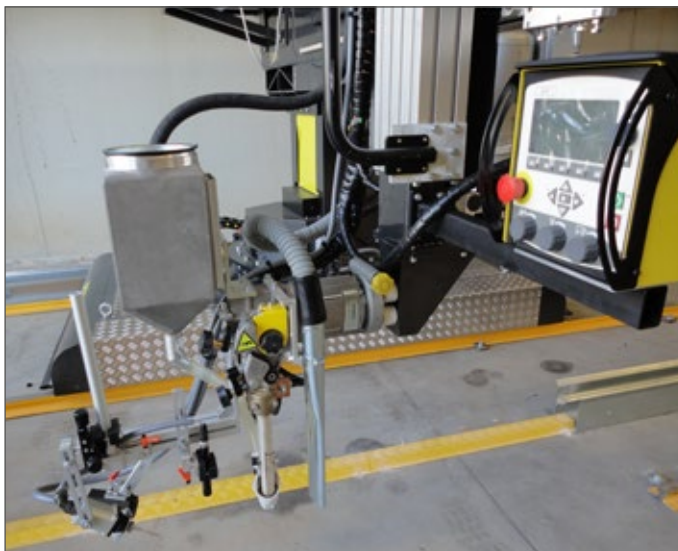
# ENERGY

## POLYGONAL TAPERED AND CONICAL TOWERS



I-Power manipulator on motorized base for SAW of polygonal tapered towers. The boom is height adjustable but not retractable. A motorized carriage moves along the boom a vertical diving slide stroke 1200 mm., the carriage and the vertical slide delivering x/y axis of the IG tactile joint tracking system. The power source as well as the flux feed ( with heating resistances ) and electrical recovery systems are laid on the base. The tower shells are laid on an OBY 15 rotator to perform 2 to 4 longitudinal welds and to prefabricate half towers later assembled for completing the job. The height of OBY 15 idle section can be adjusted to keep joints parallel to floor level.

All controls are concentrated on a desk cabinet including a TSV 03 video system.



## POLYGONAL TAPERED AND CONICAL TOWERS

ZB manipulator on motorized base for MIG welding of polygonal towers. The plant is provided with IG tactile joint tracking, TSV09 video systems and an electronic oscillator as well.

The tower is handled by a rotator consisting of drive section 200E1F and of R110N-F variable height cross beam.



# ENERGY



## SAW OF HEAVY TURBINES HANDLED BY TABLE POSITIONER TYPE ET1000E2E

100 ton positioner, 0° to 105° hydraulic tilt, tilt torque 130000 kgm, rotation torque 16000 kgm, table Ø 3700 mm with 8 extension arms to Ø 8000 mm connected by checker plates for load / unload facilities.

Manipulator mod. UE, strokes (hor. x vert.) 7x6m, rotation of the column motorized 0.1 rpm on motorized base, is equipped with SAW Tandem heads installed on motorized slides MM MIDI 250/2 HD controlled by IG tactile joint tracking system and specially combined to a 0° to 50° tilt fixture allowing to align their vertical axis (in diving execution) or to tilt it 45° with regard to the horizontal boom.

In facts, the plant had to meet with the particular geometry of the turbine, that's with the joints to be performed inside of it, which made having the operator to sit at the end of the boom and to be «sunk» about 1500 mm below the boom lower face.



As the operator seat, to comply with safety norms, could not hang from the lower end of a «diving» slide, the problem was solved by tilting a section of the boom end about 1800 mm long without any prejudice of the boom work stroke which was about 5 m with its end tilted and set back to 7 m when its end was brought back to horizontal position.



# ENERGY



**BTC (Baku Tbilisi Cheyang) pipeline:**  
DJ yard at Yevlah Camp – Azerbaijan

## PIPELINE

DJ «double joint» yard to double the progressing speed of pipelines Ø 30 to 50" which usually consist of cans 12 m length jointed at a maximum rate of 100 pc/day consequently delivering a pipeline onwards step of about 1.2 km /day. The yard produces pipes 24m by coupling 12 m cans and joining them by MIG/SAW or MIG only multi - pass process in accordance with targeted production rate.

The 24m pipes are handled and conveyed to the different work stations normally distributed and laid on a surface of about 6000 m<sup>2</sup>, and finally brought to their final destination where, laid at the rate of 100 pc/day, they'll deliver a pipeline onwards stepping of 2.4 km/day.

The yard is equipped with motorized and idle rotator height adjustable sections, of biconical or «diabolo» roll motorized conveyors, of hydraulic side-unload fixtures and of C & B manipulators. The pipe handling is interlocked by safety systems and it's sequenced by desk control panels connected by walky-talkies.



The container has also inlets for connection of gas bottles to perform flame cutting.

The start-up time (from container closed to cutting operational) is about 40 minutes, that's as much the time it takes to pack back the whole and to close the container.

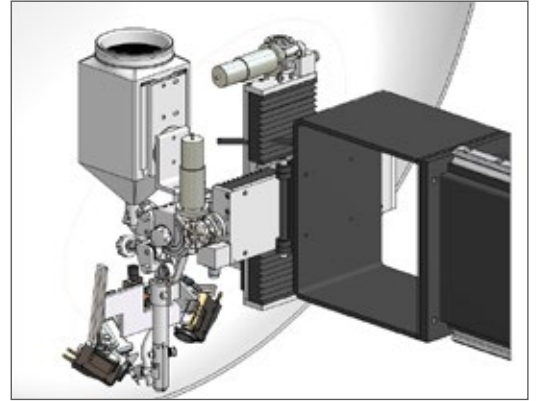
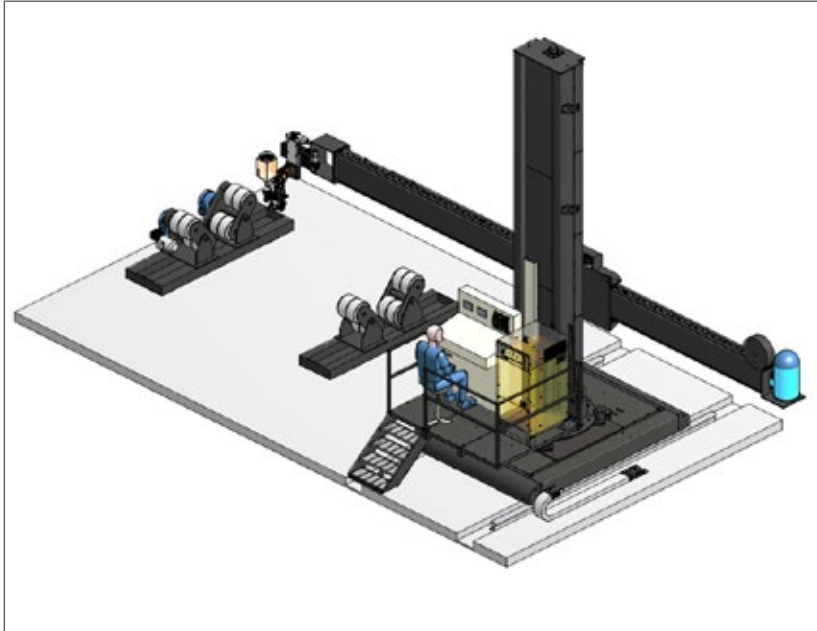
## FIELD CUTTING WORKSHOP

The 20' container is provided with hinged walls and doors as well as of electric wirings for both industrial (Plasma cutting power source and fumes aspirator) and civil use (inside lighting with emergency lamps).

### Inside the container are housed:

- The Plasma power source
- The manipulator with all the adjusters and fittings needed for setting the gun at straight or angle cutting
- The automatic pipe load on levers
- The rotator, weight capacity 11 ton, the idle section of which equipped with motorized lorry for automatic onward stepping of the pipe to cutting position
- 8 m track, 4 m fixed to the container floor and 4 m assembled in a frame to be laid outside with levelling shoes
- Desk control panel with display for monitoring the cut speed

# ENERGY



## PRESSURE VESSELS

SAW of pressure vessels carried out by manipulator mod. I POWER, stroke (vert. x hor.) m 4 x 6, on motorized base. The welding head A6 Arc Master provided with laser spot as well as of IG HD 250/2 tactile joint tracking and of 2 TSV 03 SAW video systems.

The base houses the power source LAF 1251 and the desk control cabinet incorporating the PEK head control box, the 7" video monitors and the 10" soft touch screen that allows CNC recording of countless jobs each of which including the manipulator 3-axis motions as well as SAW parameters.

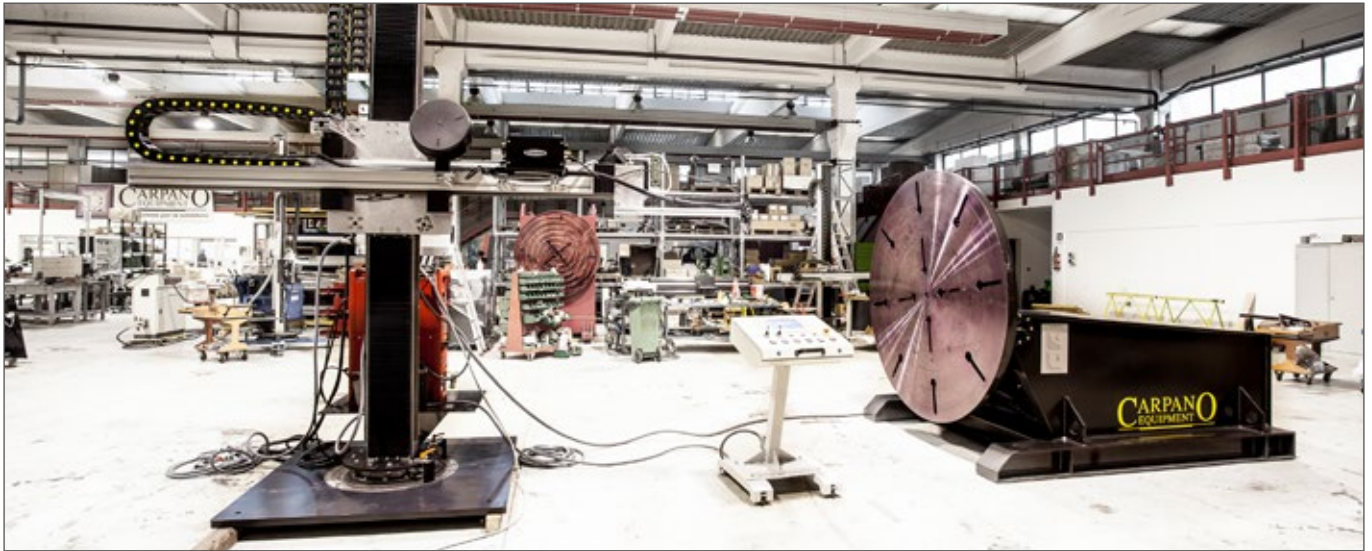
In facts, CNC is extended to power source LAF1251 and to PEK control box and weld parameters effectively used, besides their digit setting, can be recorded via DATA LOGGING and transferred to other data storage devices through a USB port.

The manipulator axis are all driven by brushless motors provided with encoders and connected via CAN OPEN to digital control.



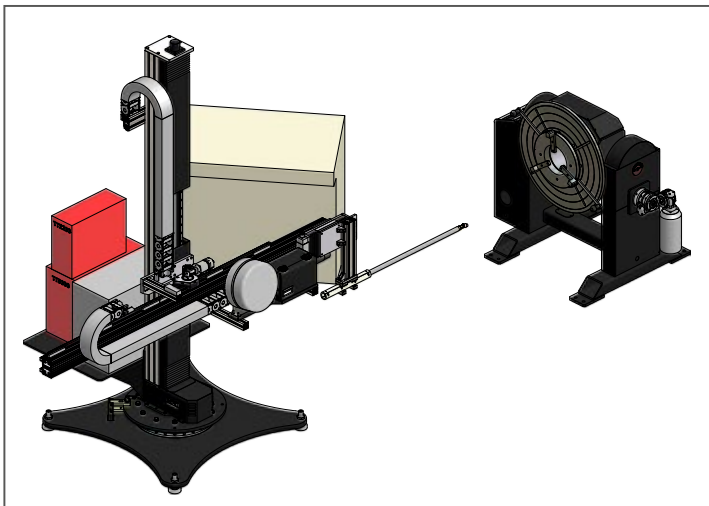
# HARD FACING PLANT FOR TIG HOT-WIRE HARD FACING

The plant has been studied on purpose for hard facing in TIG hot-wire on oil valves



**It is made up of :**

- 3x3 AI Power MIDI manipulator on a fixed base
- Swinging slide
- Feeder with 3D-Wire wire-adjuster
- AVC in the manipulator column
- PI200 20 ton. table positioner
- TIG for 500 amp torch power unit and 220 amp hot-wire power unit
- PLC to manage the work-cycle with Can open connection to the 2 power units
- 10" touch-screen panel
- Allows to enter at least 200 working programs
- Possibility to choose between slalom or spiral motion programs
- Remote control for teleservice or for programs updating

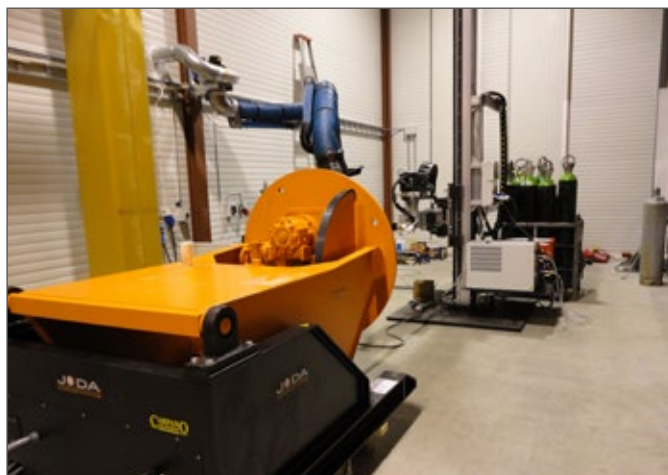


## Pipes inner hard-facing in TIG hot-wire

Plant made up of :

- AI Power MINI 2x2 manipulator with AVC on the vertical axis
- MIDI swinging slide 100 mm stroke
- Joda BiFace positioner with Ø200 through-hole and Grip 400 spindle
- TIG hot-wire torch for small Ø starting from 38 mm, with 800 mm lenght
- 500 amp TIG power unit per torch
- 220 amp hot-wire power unit
- Control panel with PLC, with Can open connection to the welding machines
- Possibility to choose between hard facing step and spiral motion programs

# HARD FACING



## MIG AND TIG COLD OR HOT WIRE HARD FACING

The plant consists of AI Power MIDI manipulator and AVC integrated into the vertical stroke boom and equipped with DTE 250 electronic oscillator, performing both MIG and TIG cold and hot wire hard facing on jobs handled by PE030 elevating positioner.

Both wire feeders are installed on the boom. The desk cabinet incorporates CNC that has digital connections to the handling axis torch and to both power sources, allowing the operator enter several welding programs (at least 200) and for each one setting the complete working-cycle and the welding parameters.

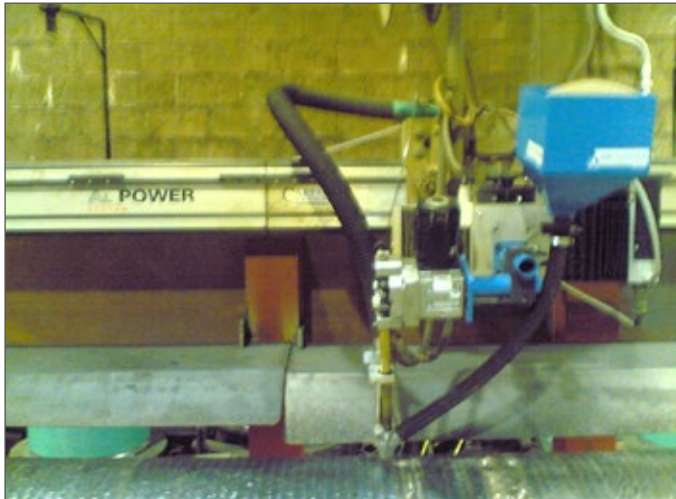
The photo draws your attention to the special MIG torch that can get inside of diameters as small as 70 mm.



**Detail of TIG torch,** held at the tip of a boom  
1500mm long and suitable for inner  
diameters as small as 45 mm .



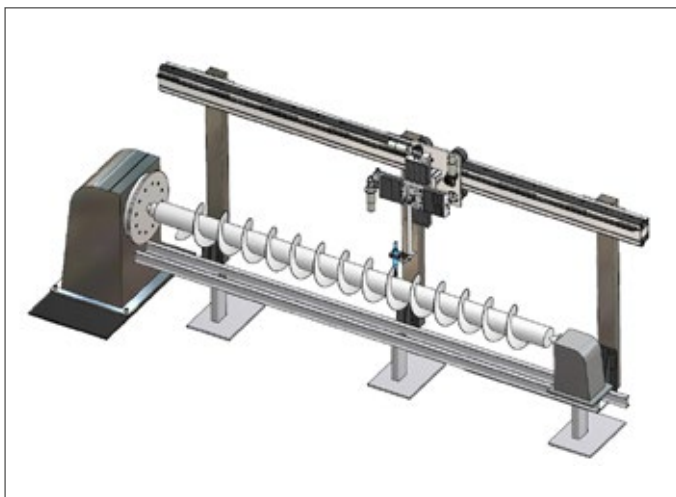
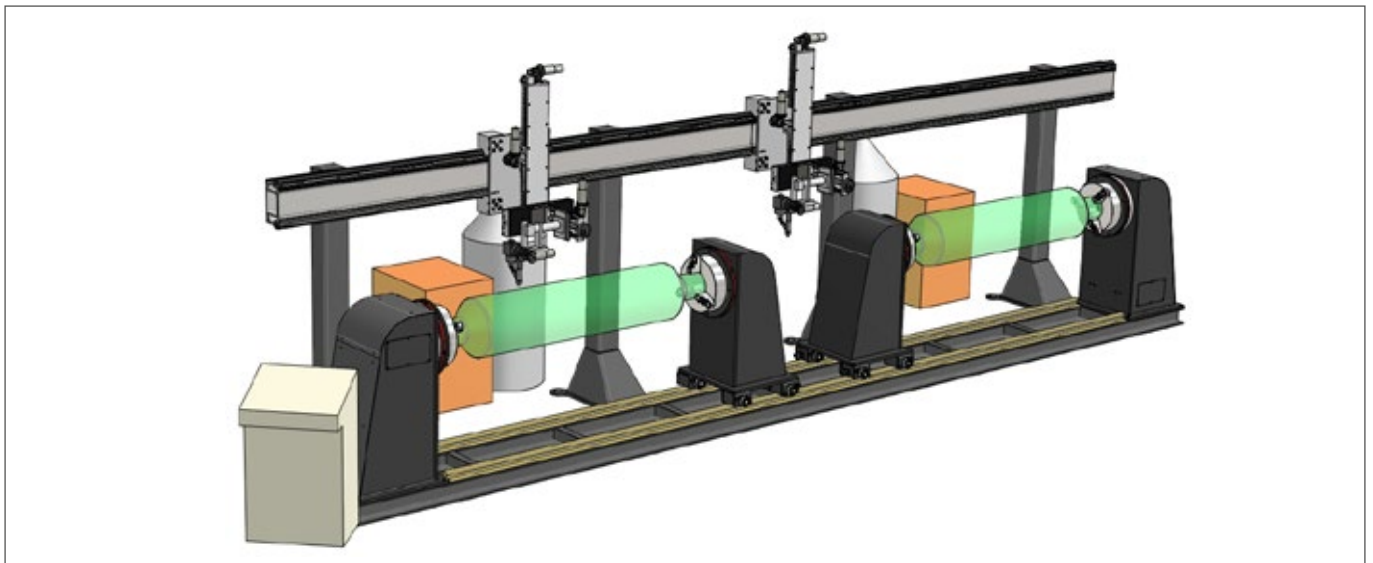
# HARD FACING



## SAW ON MILL ROLLS

The plant consists of a pair of lathes JDH10, the tailstock mobile on the base frame, both headstock and tailstock tables equipped with CHK - ST self-centring chucks, performing SAW hard facing of mill rolls by 2 heads installed overhead and equipped with DTE HD oscillators.

SAW heads are installed on independent carriages which can work either on the same lathe or separately. CNC rules the whole process and allows to memorize countless jobs each of which including roll diameter, rotation speed and (for step hard facing mode) weaving amplitude and carriage side step or (for spiral mode) carriage speed and both start and end points.



## PTA ON WORM SCREWS

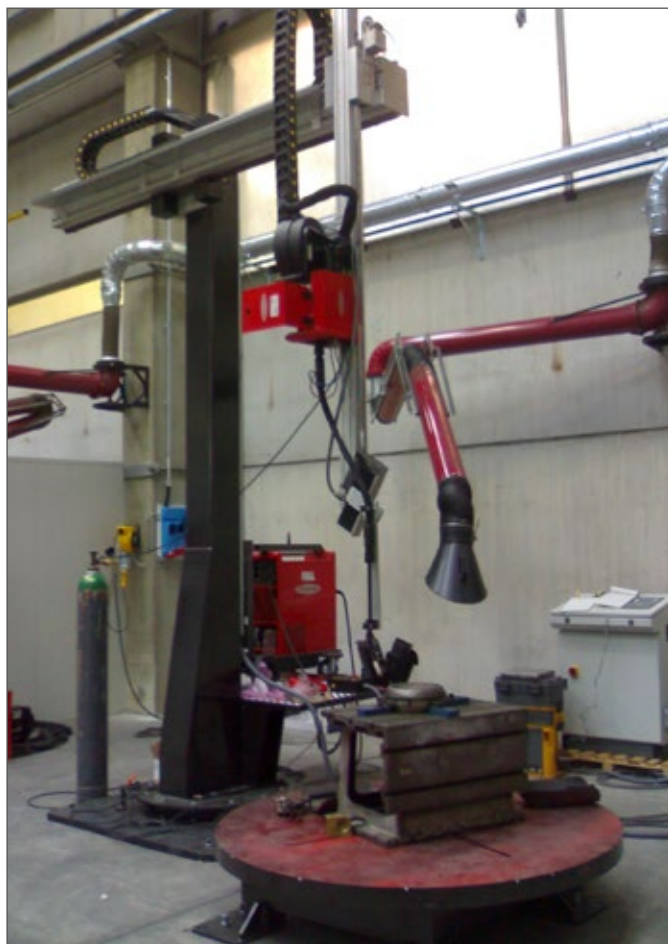
The plant consists of a lathe JD Horizontal performing PTA hard facing of worm screws.

On the beam overhead moves a motorized carriage equipped with AVC and electronic oscillator DTE.

CNC synchronizes rotation and longitudinal traversing of the carriage.



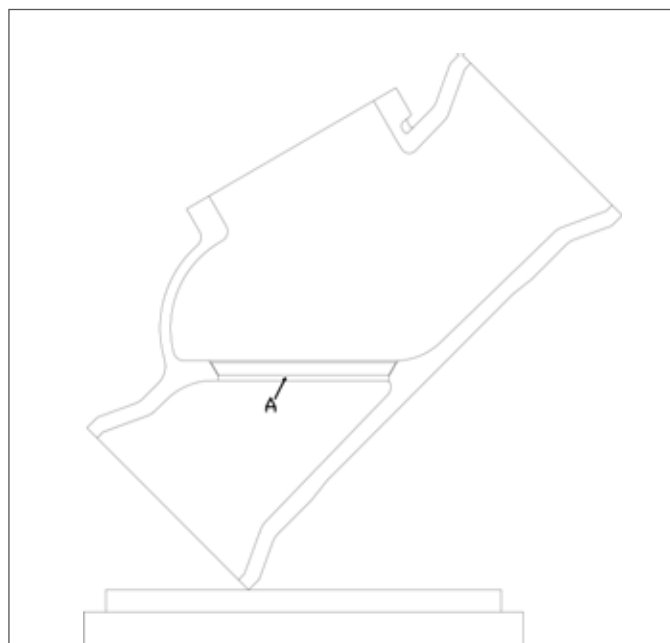
# HARD FACING



## VALVES

The plant is meant for internal hard facing of valves and it consists of:

- Manipulator with horizontal boom at fixed height but retractable stroke 2400 mm, the a/m boom tip equipped vertical motorized fixture stroke 2000mm with a 2-axis swivel support holding a DTElectronic oscillator stroke 180 mm. The manipulator base plate is firmly secured to the floor.
- Turntable JODA PLANO 50
- Desk cabinet incorporating a 4-axis CNC to rule the whole process.





# FOOD AND BEVERAGES

## STAINLESS STEEL WINE TANKS

TIG cold wire longitudinal and circle welding of wine stainless steel tanks laid on JODAPL special execution with large table diameter.

The manipulator AI Power MIDI has its base laid on the floor with levelling screws and its axis are both driven at variable speed, the vertical axis incorporating AVC to meet with the tank out-of-rounds.



The VIPER wire feeder is installed at the boom end with CEFF to provide for wire adjustments.



**Wine stainless steel tanks, above plant:**  
detail of the remote control



# FOOD AND BEVERAGES



## PLASMA KEY HOLE WELDING OF STAINLESS STEEL BEER TANKS

Plasma Key hole welding of stainless steel beer tanks laid on JODAPL special execution with cross beams to enlarge table diameter.

I Power manipulator features:

- Motorized base
- Motorized cross slides integrating the functions of AVC and oscillator
- Video system with 2 cameras monitoring the process up & downstream of the weld
- CNC extended to welding power source

Overall view of the above plant showing it can perform front circle welds on tanks laid either on JODA PLANO or rotators. Front vertical seam welds can also be performed as the I Power vertical stroke is driven by brushless motor and by ball screw on precision ball bearing linear guides thus delivering a smooth and constant motion.





# FOOD AND BEVERAGES

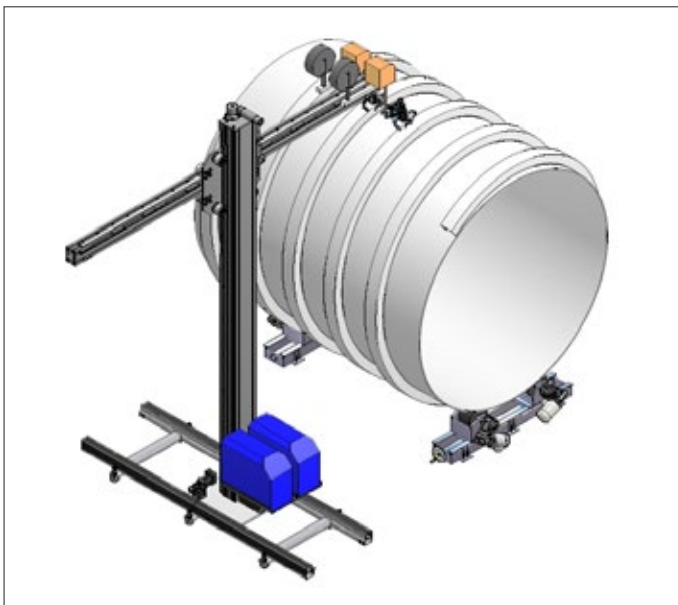


## PLASMA KEY HOLE WELDING OF COOLING CHANNELS (TANKS LAID ON TURNTABLE)

Plasma Key hole channels welding on thermal controlled stainless steel tanks laid on JODA PLANO special execution.

AI Power MIDI manipulator 3x3 features are:

- Base platform with levelling screws
- Laser IG SCAN system to track spiral channels



## WELDING OF COOLING CHANNELS (TANKS LAID ON ROTATOR)

Channels MIG welding on thermal controlled tanks laid on twin motors rotator.

The AI Power MIDI manipulator is provided with a motorized base, driven on special rails by ball bearings linear guides, by rack & pinion transmission and controlled by IG tactile system to track spiral channels.

Two MIG wire feeders are installed at the boom end.

# FOOD AND BEVERAGES



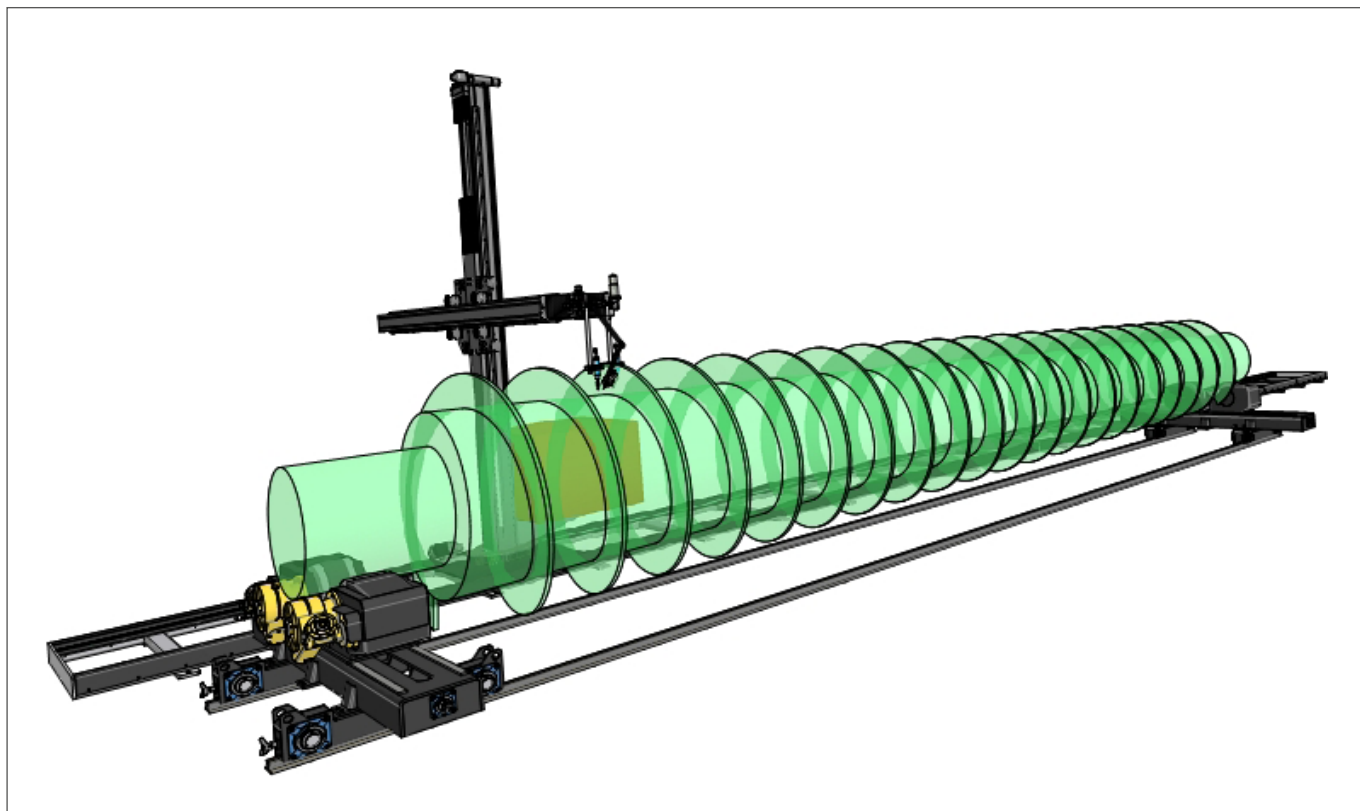
## WORM SCREWS

Welding of the helical tooling on bulk conveyors (photo on the left) and on conical pulp presses (below).

In the latter case, the AI Power MIDI motorized base is driven by Brushless motor with encoder and with rack and pinion transmission.

Rails are specially provided with ball linear guides. Such features deliver friction-free and precise joint tracking performed by IG LAS system.

The control cabinet incorporates PLC/2 - axis CNC to take care of the rotation and of the manipulator base speeds to keep the helical weld speed constant on the conical job.





# FOOD AND BEVERAGES



## HORIZONTAL SEAMER FOR FOOD TANKS AND FOOD TANK PANELS

Seamer type BP3131D3, for PLASMA Key hole and cold wire welding, clamping driven by pneumatic hoses, copper bar provided of back-up gas and of chiller for both bar and torch cooling, motorized carriage with AVC slide.

CNC is incorporated into the electric cabinet and a swivel pendant integrates both the display and the soft touch keyboard to allow the recording of countless jobs, each one including:

- Seam weld speed in mm/min
- Seam weld length in mm
- Carriage delayed start in sec.
- Torch parking and weld start positions
- Arc length in V
- Tack weld cycle for wall thickness greater than 5 mm

Pressing machine to straighten welded panels of a maximum length of 3200 mm and 6 mm maximum thickness. The carriage moves at variable speed and the pressure wheel delivers a thrust of 4 ton on a tempered anvil. Front latch is manually operated with automatic safety device for stopping any activity in case it is not perfectly locked. A laser line helps to align weld seam to pressure wheel trajectory.



## VERTICAL SEAMER

MERIDIANO is a seamer conceived for automatic vertical welding of cylinders Ø 500 mm or greater and up to 20 m, in this case it works in coordination with the plate bending machine. Its work cycle is managed by CNC.



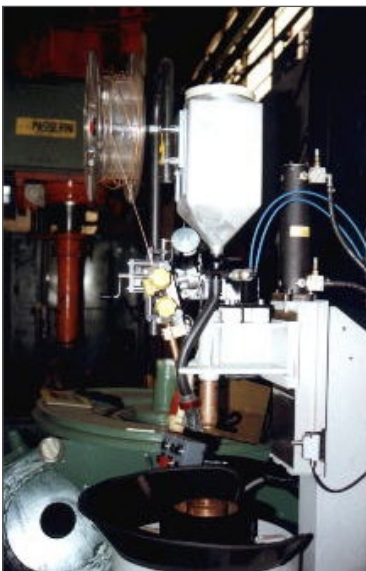
# OTHER APPLICATIONS



## EXCAVATOR BUCKETS

**Welding of heavy excavator buckets handled by a PE125 turn, tilt and elevating positioner special execution:**

- The table tilt angle does not change and its position is maintained perfectly constant during the strike to the 1 m elevation.
- Rotation and/or tilt can be automatically cut off till from the operator who can freely preset a minimum elevation quote is reached as to prevent the bucket to interfere with the factory floor.



## LPG BOTTLE

**SAW of the nut to the upper bottom of LPG bottles** carried out on turntable with tailstock that presses the job on a copper centring jig allow full penetration. The flux fallout is automatically conveyed to a tank placed underneath and recycled to the head hopper. Work cycle is ruled by PLC.

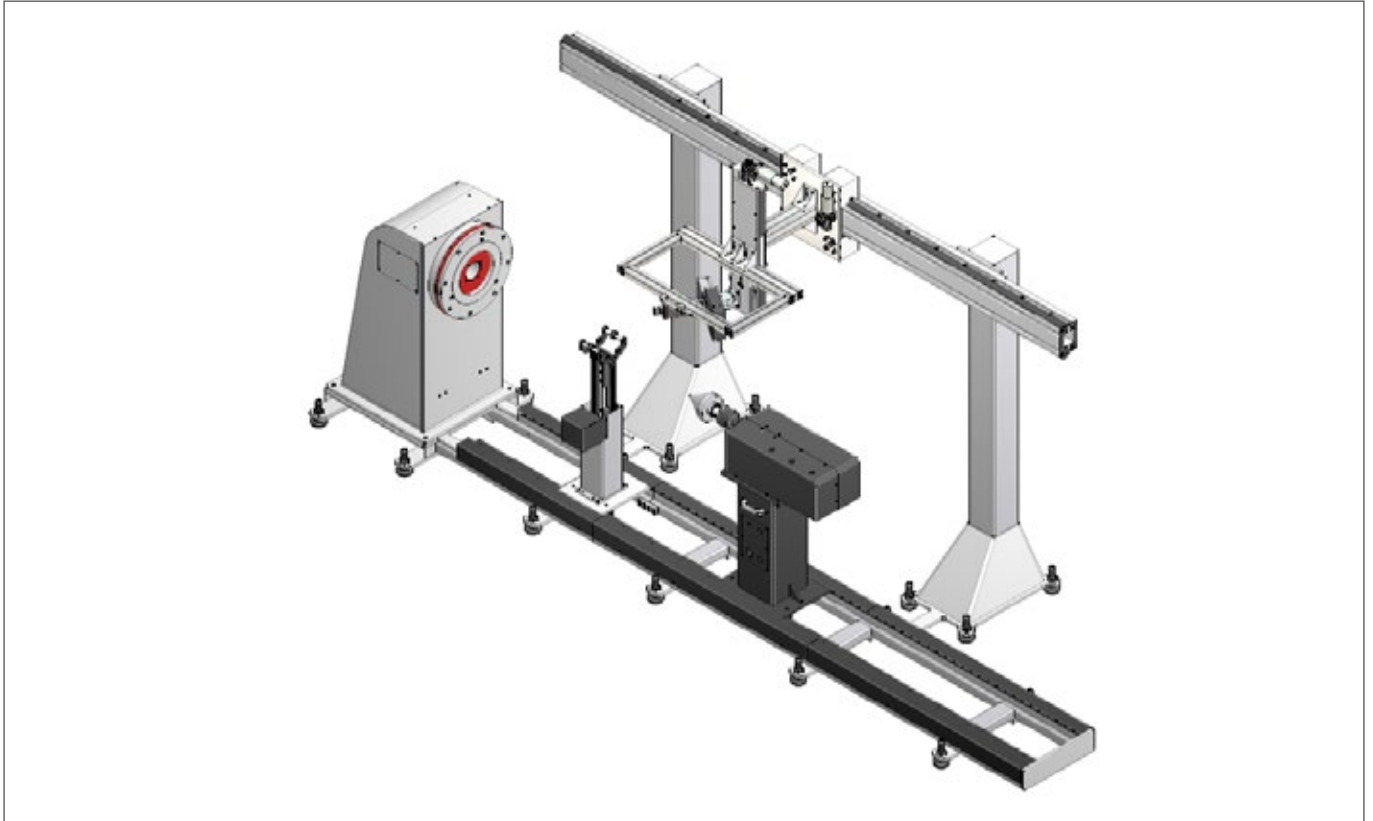
**Intermittent of the handle and of the foot MIG welding** to their bottoms, both the handle and the foot placed onto special jigs, performed by one torch that alternatively moves back and forth thus hiding load / unload times. CNC rules the work cycle.



## SAW longitudinal welding of shell and circle bottoms welding.

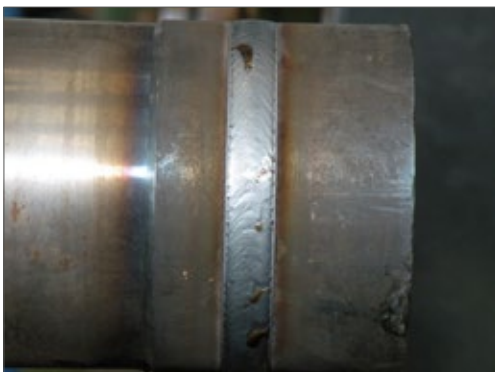
A targeted production rate of 150 bottles/shift with negligible wastes fails to be reached because of Sub-Arc seam shell welding and circle bottoms welding. Such a goal can be achieved (see hereunder) by the special seamer and the step conveyor that automatically loads the bottle to be welded (bottoms and shell firmly pre-assembled) and unloads the complete bottle in hidden times cnc rules the work-cycle.

# OTHER APPLICATIONS



## WELDING OF HYDRAULIC CYLINDERS

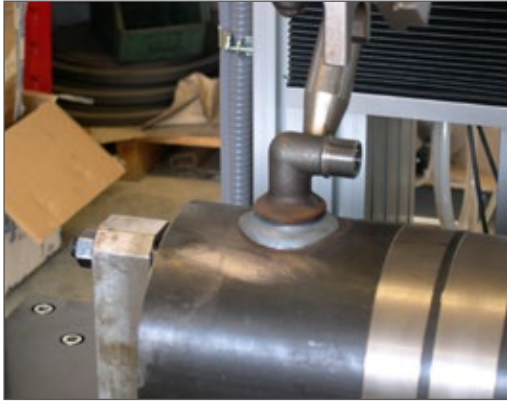
MIG welding of rods or bottoms on hydraulic cylinders made up of JODA Horizontal lathe with AP TM MIDI overhead beam, motorized vertical slide and oscillator.



CNC allows entering several programs and rules the whole process, including multi-pass welding in order to change at each revolution the torch position the rotation speed the oscillation and the welding parameters.



# OTHER APPLICATIONS



Elbow inlet automatically kept in vertical position without any need for stitching prior to automatic welding.

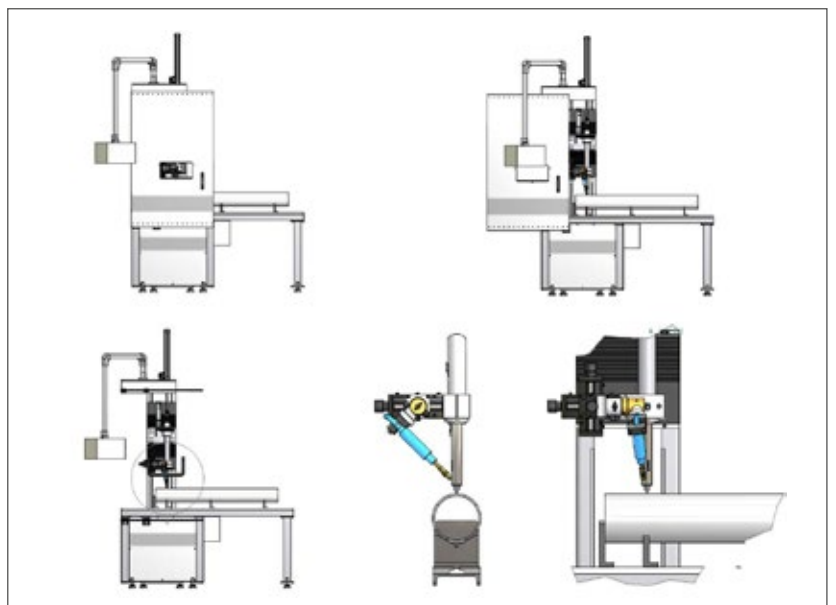
## WELDING OF NIPPLES AND OF ELBOW INLETS ON CYLINDERS

CNC coordinates 2 motorized axis in order to follow up the sinusoidal trajectory described by the intersection of the nipple and the cylinder.

A pneumatic fixture keeps the nipple in position without any need of stitching prior to automatic welding.

The setting up of the machine and its resetting to different jobs are extremely simple as CNC allows the recording of the cylinder the nipple diameters, the welding speed, the overlapping amplitude and start of delayed, etc.

The machine structure incorporates a sliding door to load/unload facilities and to segregating the welding process in order to protect the operator from the arc radiation and hot sparks.





# OTHER APPLICATIONS



## WELDING OF TRACK STRETCH WHEELS

While carrying on SAW in one station, the other station aside performs pre-heating induction.

The desk cabinet incorporates CNC with a 10" soft touch screen and digital key-board for the recording of several programs, each of one including:

- Multi - pass parameters delivered at each revolution and at each second by power source 1000 AC / DC such as current and tension
- Torch position
- Rotation speed
- Oscillation

A/m data are all memorized in a file that can be transferred to any peripheral storage electronic device via USB port.



pre-heating joint prior to automatic welding.



Welded joint

### Pre-heating

Pre-heating induction has been preferred being safer quicker and allowing a more precise control of the temperatures.

# OTHER APPLICATIONS



## CRANE TELESCOPIC BOOMS WELDING

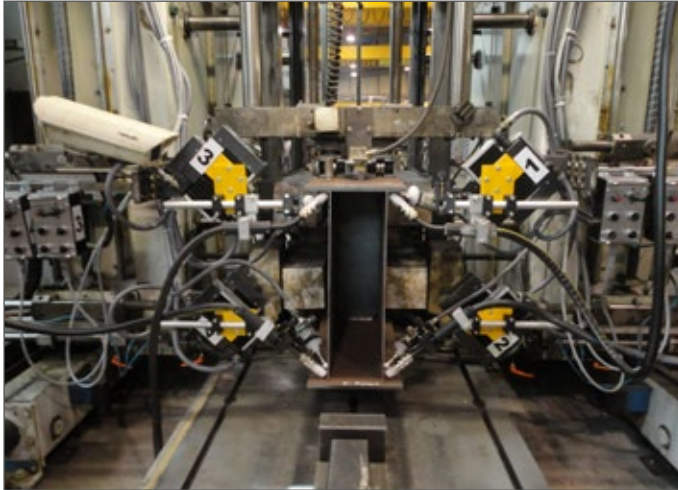
C&B manipulator AI Power MINI 2x2 on motorized base carries on MIG longitudinal welding of crane telescopic booms handled by a lathe that automatically positions the job at 90° steps.  
Column and boom axis integrate IG joint tracking system.

## WELDING OF CRANE TELESCOPIC BOOMS

MIG welding of telescopic booms is carried on by lathe JODA Horizontal with tailstock movable on the base track and overhead beam AP TM MIDI on which a motorized carriage equipped with IG MD 400/2 joint tracking system, is installed CNC rules the whole process and automatically positions the job at 90° steps.



# OTHER APPLICATIONS



## WELDING OF BOX BEAMS

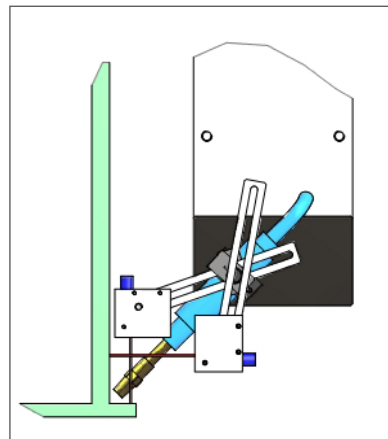
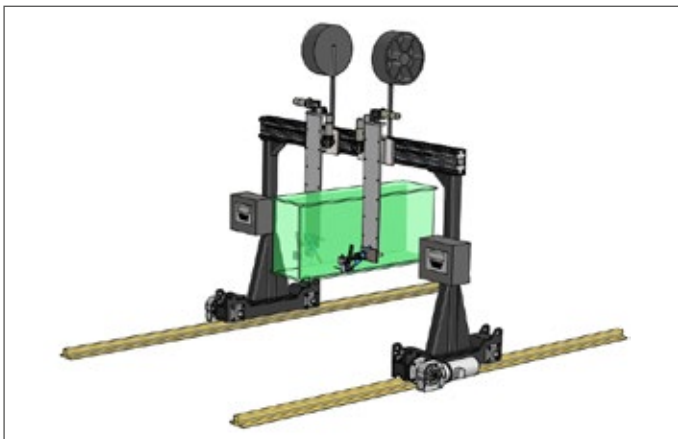
4 longitudinal joints ( 2 fillet and 2 overhead ) are simultaneously performed by MIG torches on box beams, each torch is equipped with IG LT 80/2 joint tracking system.



## WELDING OF BOX BEAMS

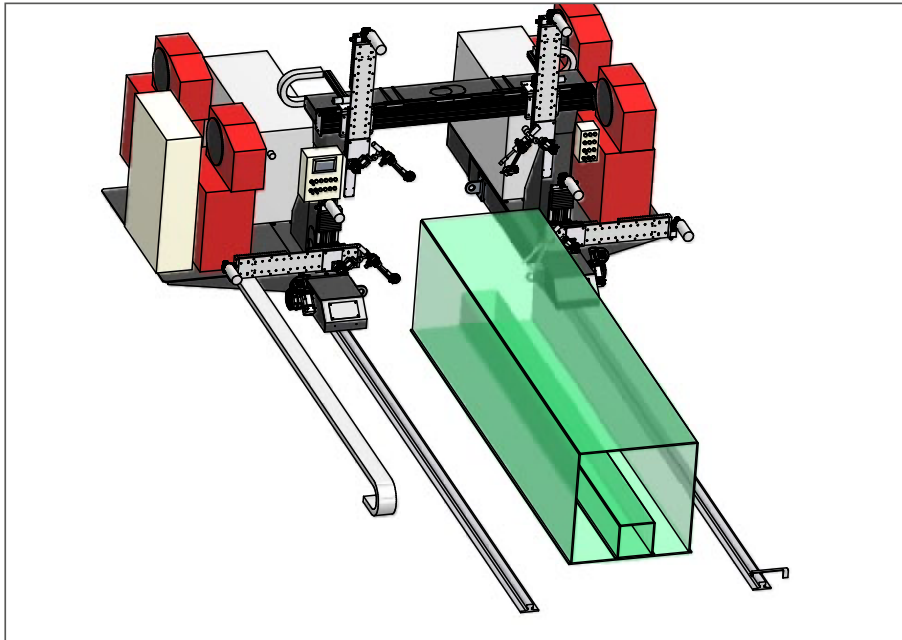
2 MIG heads are installed on a gantry with synchro 2 WD motorized base.

Each torch is provided of IG LAS system that automatically tracks the joint via MM MIDI HD motorized vertical slide and motorized carriage traversing on the gantry horizontal beam.





# OTHER APPLICATIONS

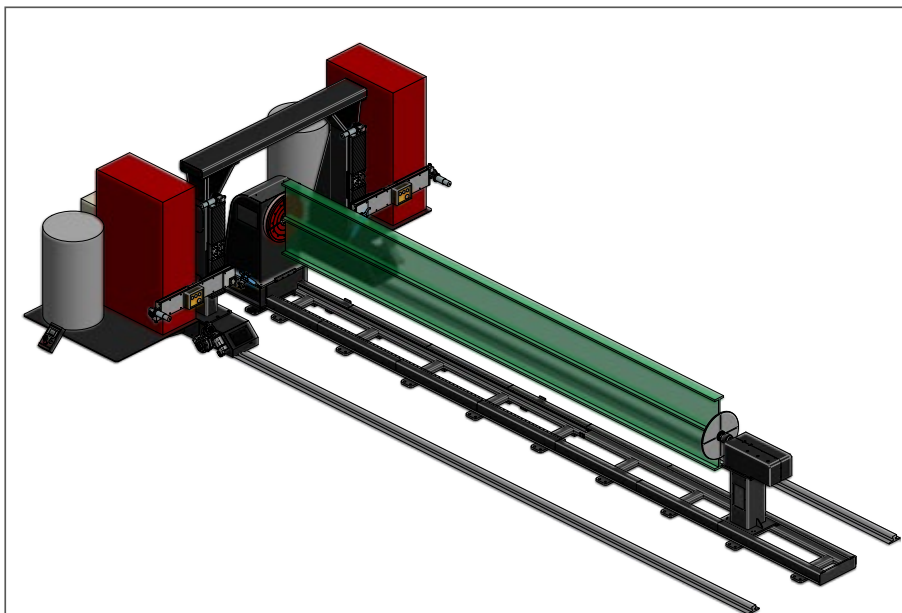


## PORTAL TO WELD BOXED BEAMS WITH 4 MIG TORCHES

The portal is equipped with 4 welding heads, each head is made up of a tactile joint tracking device.

The machine structure allows to board :

- 4 welding power units with relevant wire feeder
- Fumes extractor for the 4 torches



## PORTAL WITH 2 HEADS - MIG/MAG ONES - TO WELD H BEAMS, WITH TILTING LATHE

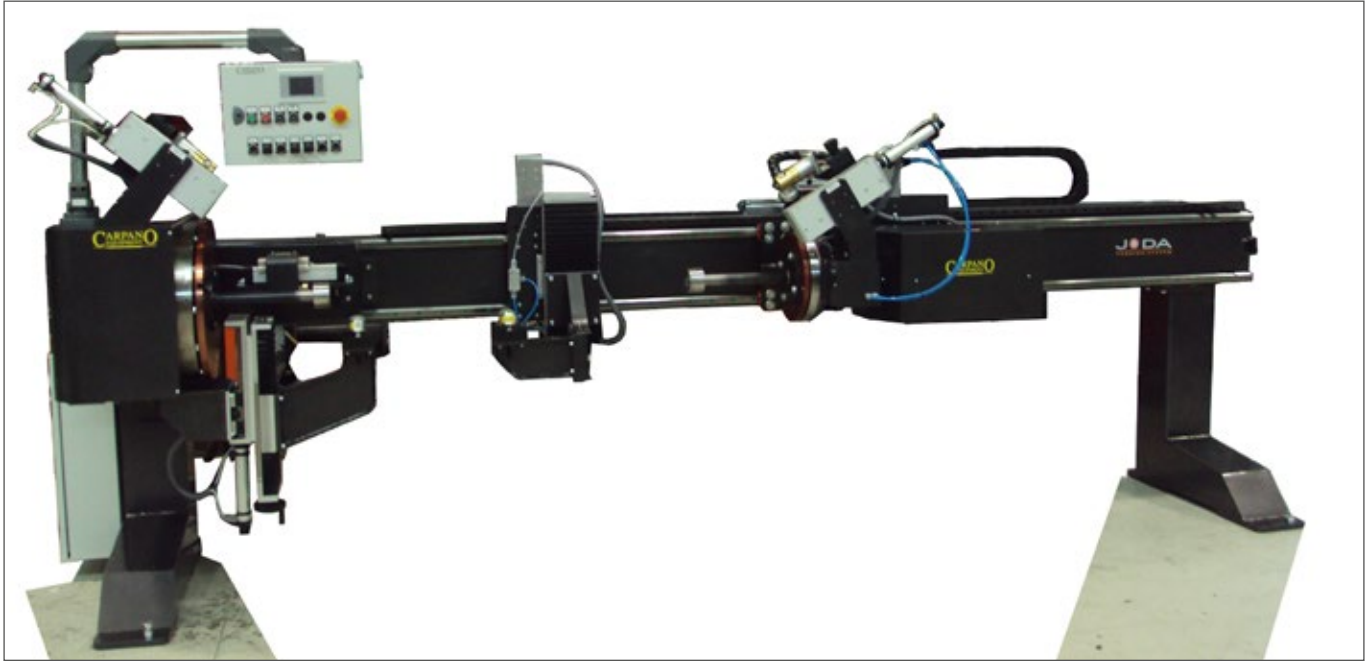
Portal with synchronized bases with some free space to transport the 2 power units with relevant wire feeder and 2 wire drums.

The PLC automatically allows:

- The positioning on the joint
- Welding and return to zero
- 180° tilting of the item
- Possibility to make spot-welding, and to select the section length



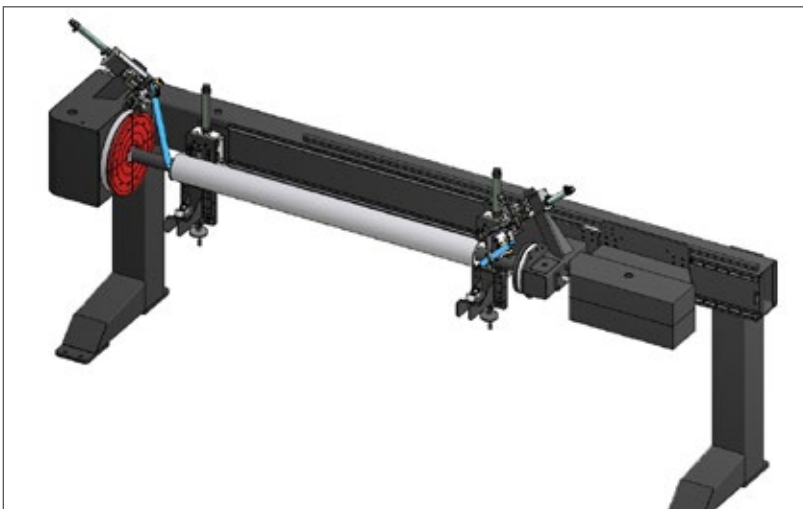
# OTHER APPLICATIONS



## MIG WELDING OF CONVEYOR ROLLS

MIG simultaneous welding of caps at both ends of rolls the conveyors is carried out JODA MIDI lathe. Conveyor rolls are laid on pneumatic dollies to suit different diameters and to ease/unload. Both torches are moved in & out by JD Pneumo slides, one of which works on the headstock side.

The other welding head moves together with the tailstock stroke to meet with unavoidable slight differences of the rolls length and to assure precise positioning of the torch at the roll end.



# CREDITS

## **General Coordination**

Carpano Equipment Srl

## **Graphic Layout**

FabbricaFotoGrafica // Bologna

## **Contents by**

Marketing Carpano

## **Printing**

Tipitalia Srl

## 1. SUPPLY OBLIGATION ARRANGEMENT

The following general terms of business are always to be considered applicable to every order made by the buyer. Therefore, any supply clause written by the buyer on his orders or any other document given to the seller, which may result to be conflicting with the present general conditions, will be considered not written. The buyer has to forward the orders to the seller in writing. The seller reserves the authority to accept telephone and verbal orders. The order is to be considered executed when the buyer receives the written acceptance of the same (order confirmation) by the vendor or, in the absence thereof, automatically 15 days after the order receipt by the seller. All offers and prices are just an indication and are not binding. Therefore the seller considers himself to be bound only to what is declared in his order confirmations.

## 2. TERMS FOR DELIVERY

The delivery dates indicated by the seller as well as the ones written on the buyers' orders have to be considered just as an indication and are not binding and are subject to the punctual supply by the buyer of all the specifics, to the variations due to the availability of the goods with the suppliers or to reasons of force majeure: delays in the delivery due to said availability variations are not attributable to the seller, who is not in duty bound to the compensation for damages suffered by the buyer. Reasons of force majeure have also to be considered the accidents (industrial injury, disease, etc) and any other circumstances which may cause a total or partial job reduction, as well as the lack of raw materials, troubles with transportation, etc. The seller reserves the authority to suspend the delivery of the goods if the buyer has not seen to the payment of the invoices relative to other supplies whose terms of payment are overdue. The goods are understood as being delivered for all intents and purposes to the buyer from the time they were picked up by the carrier or the buyer himself at the seller's warehouse.

## 3. PAYMENT AND TERMS OF PAYMENT

The payments have to be made to the seller's domicile and in accordance with the established conditions. In the event of a delay, the due amounts of money will automatically imply the charge of interests based on the official discount rate plus 5 points. In the event of a non-payment, the buyer is to be considered in default without the necessity of any formal notice by the seller. The presence of possible faults and/or defects in the products does not excuse the buyer for suspending the payment of the invoices. Should the client suspend and/or delay the payments, the seller may suspend the supplies, with the authority to consider the contract automatically terminated by rights and to demand for damages.

## 4. WARRANTY

CARPANO EQUIPMENT guarantees the products for a period of 24 months starting from the delivery date, for a daily work cycle of 8 hours. The warranty is intended ex works CARPANO EQUIPMENT. CARPANO EQUIPMENT guarantees the performance of its products in accordance with the instructions written in the relative manuals. For the products based on job orders, the warranty is pertaining to the specifics agreed with the client.

## 5. VOID WARRANTY

In case of any tampering or unauthorized intervention the warranty shall be deemed void.

## 6. LIABILITY FOR DAMAGE

The seller's liability is limited only to the obligations above and it's expressly agreed that the seller does not accept any liability for damages resulting from any cause connected with the use and utilization of the sold products.

CARPANO EQUIPMENT is not responsible and for no reason whatsoever may the expenses be charged for:

- Machine downtime.
- Direct or in direct damage due to the non-operation of the equipment.
- Working hours spent to solve possible problems on the equipment.

## 7. RESERVATION OF OWNERSHIP

Until the payment in full of any credit resulting from business relations has taken place, included any additional credit and until the payment of bills and cheques has been made, the property in the goods remains in the seller.

## 8. COMPETENT COURT

It's established that the court of Bologna will be the sole competent court for every dispute relative to this contract.

## 9. APPLICABLE LAWS

The applicable law is the Italian law.

**CARPANO EQUIPMENT Srl**  
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