



| ENG

WELDING AUTOMATION BOOK02

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WELDING AUTOMATION BOOK02

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WELDING AUTOMATION



On January 1st, 2013 **PASSERINI Srl** merged with **CARPANO EQUIPMENT Srl** though since September 2011 both Companies had already moved to Bologna and joined their activity in the new factory of 2200 m² for the purpose of unifying their construction programs into such a wide and complete range of products as to meet the challenges of welding technology advance.

Established in 1962, PASSERINI immediately started producing rotators, turntables and manipulators, the sizes and performances of which were constantly upgraded to comply with the growing demands of the market so as to rank, by the end of the 80's, among world leaders in this sector and to qualify as strategic supplier to most of Italian and European industries for plants meant to mechanize and automate any welding process.

CARPANO EQUIPMENT began their activity in 1992 with the production of portable automation as well as of complementary equipment and, in the next years, went on with the first manipulators made of Aluminium and with applying CNC to any plant, of any kind and whichever was the amount of axis numerically controlled including welding parameters, which caused the outburst of their growth.

We are proud to present you, by this new WELDING AUTOMATION BOOK02, our complete manufacturing program dealing with such a wide range of top quality products as to satisfy the most demanding requirements for the mechanization and automation of any welding process.

For further detailed information about specific products, see their specific catalogue in our website.



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PORTABLE AUTOMATION

This section is dedicated to motorized carriages. They are robust machines which at the origin were designed for outdoor yards but that later proved they could be effectively used also in shop applications. Their main features are simplicity of use and low cost.

They are available in two executions:
with guidance rail or without.

SQUIRREL 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

WITHOUT RAIL :

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

Tortuga with two torches for welding of bridge beams



Squirrel with oscillator for vertical welding



W-Track special execution for welding of tubes nest



SQUIRREL

ON RAIL, 3 DIFFERENT EXECUTIONS

SQUIRREL MOTORIZED CARRIAGES MOVE 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 fixed directly on the work piece or on external structures, thanks to different fixtures like magnets or omega supports.

Squirrel is available in 3 different executions, the standard features of which are specified hereafter 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 weld on/off.



CESM - Squirrel 1

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

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



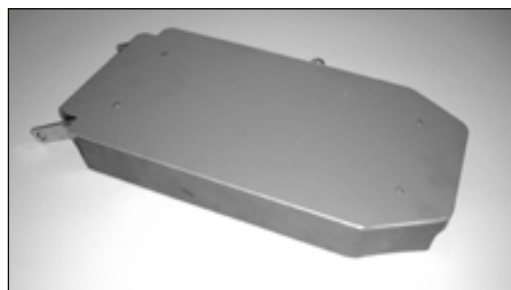
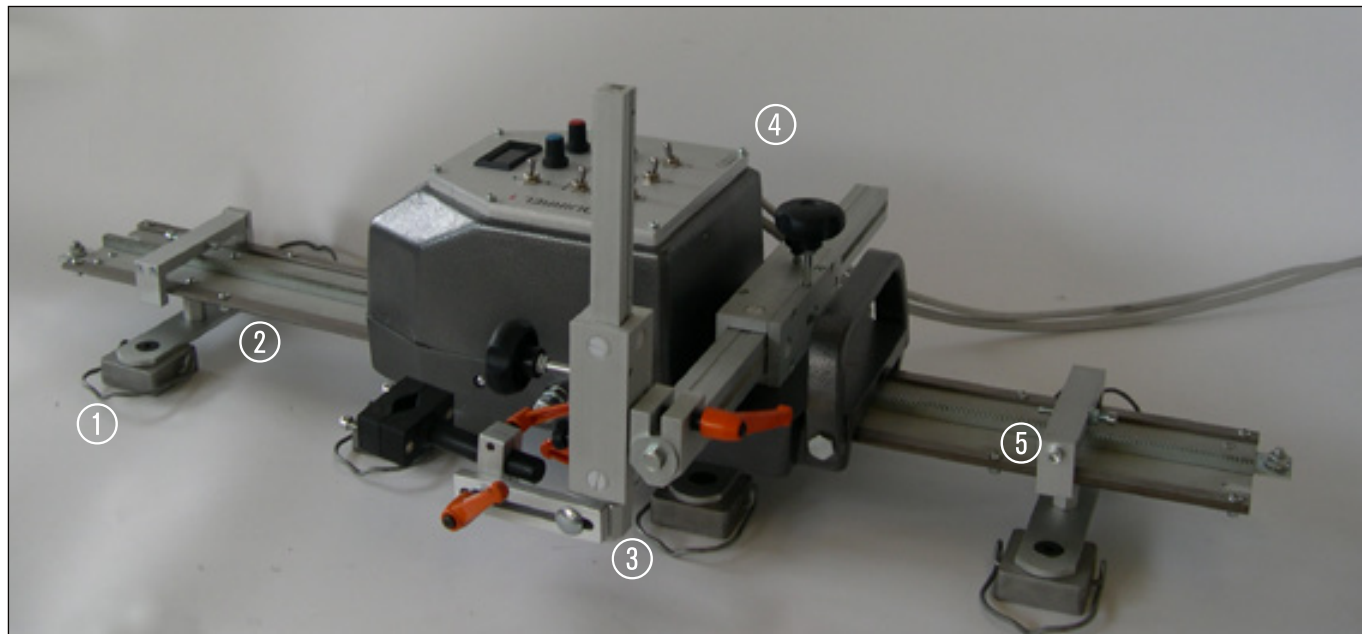
S80 - Squirrel integrating an electronic oscillator

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, that's: amplitude, frequency, centre and pause.

SQUIRREL

ON RAIL, THE ACCESSORIES



CENMS

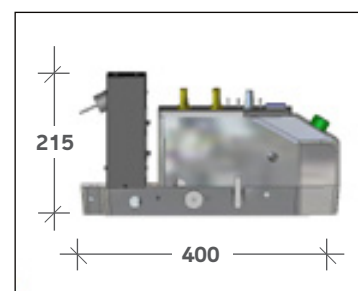
Idle trailer towed by Squirrel and moving on the same semi-rigid rail. Meant for carrying the wire feeder, the fumes recovery inlet, etc. it comes complete with draft fittings.

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



CEFC

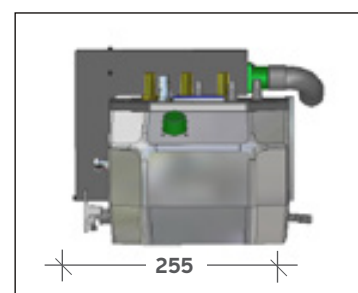
Pair of limit switches. It comes complete of signals to be fixed on the rail at the desired stop points.



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



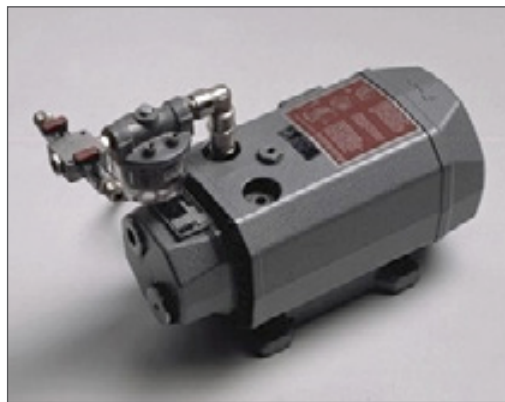
CECV

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



CECM

Pair of magnets, featuring attractive power more than 100 kg, complete with connectors and release levers.



CEPV

High capacity vacuum pump complete with air filter and pneumatic connectors

CEPO

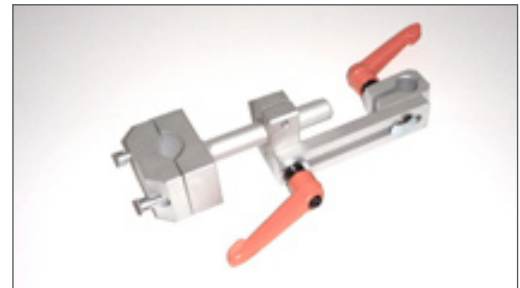
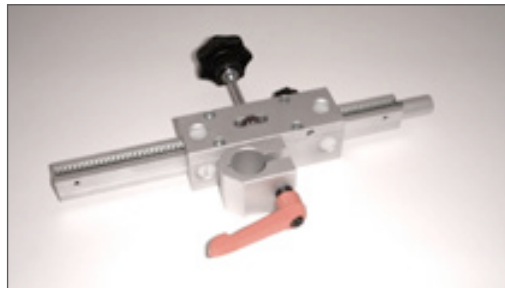
Omega aluminium profile to fix permanently the rail. Complete with appropriate holes and bolts. Available lengths:

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 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 comes complete of torch holder and of clamp to fix it to CEB30M



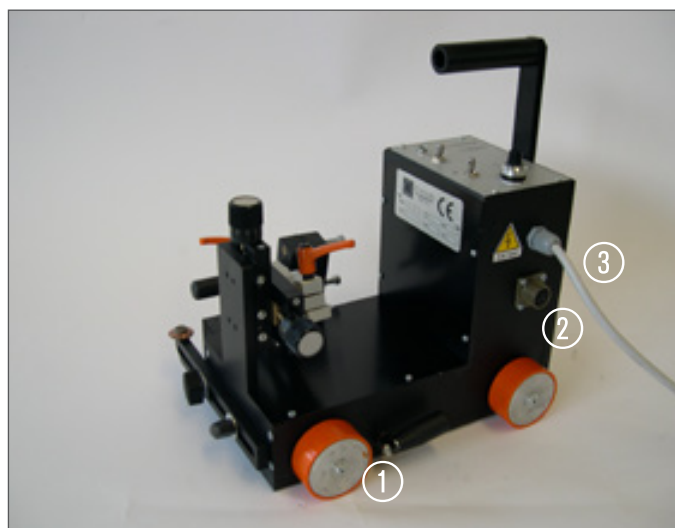
CETMA

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



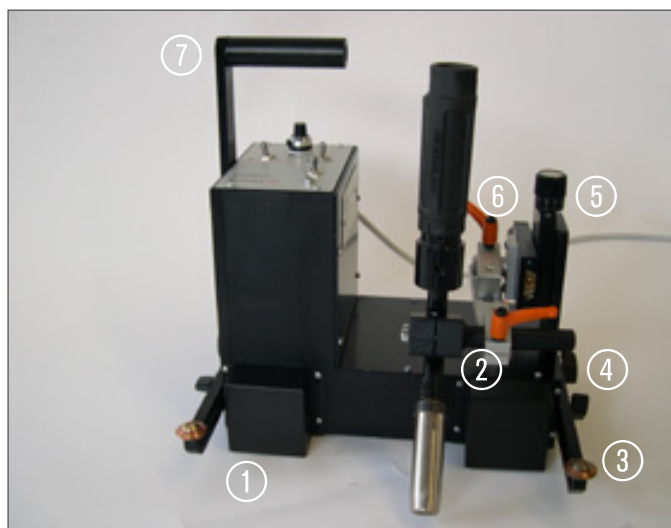
W-TRACK

CARRIAGE WITHOUT RAIL, SELF-TRACKING BY PERMANENT MAGNETS



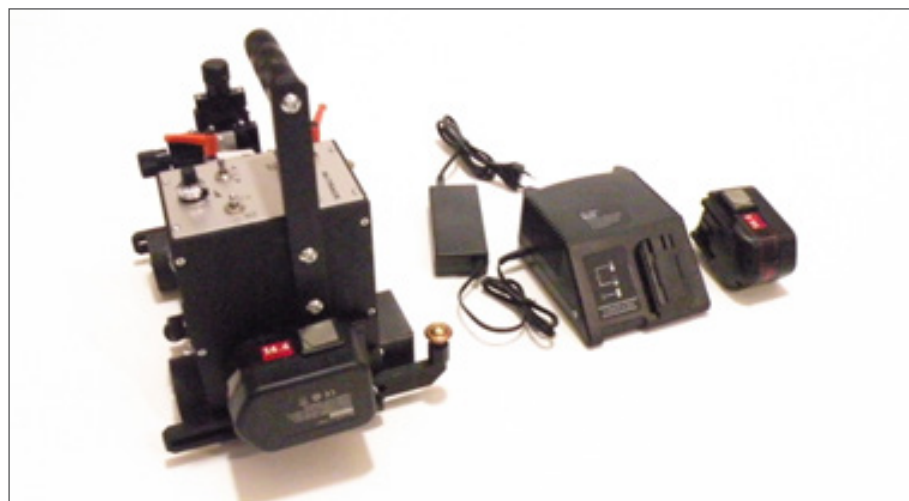
WTK BASE

- 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 comes complete with 1 spare battery and of battery charger

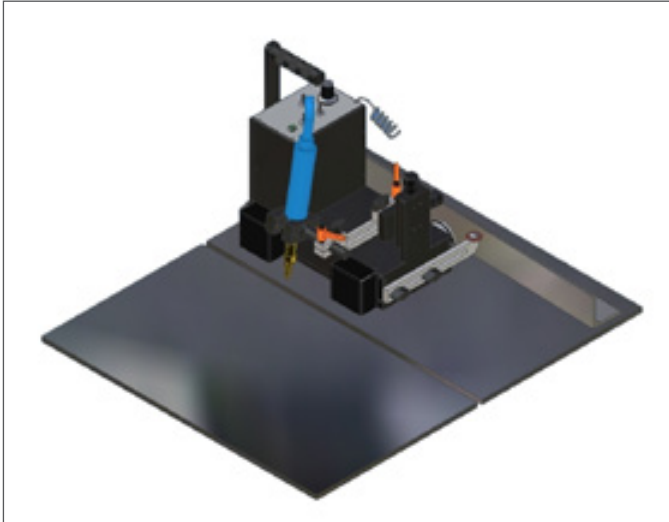


CONTROL PANEL

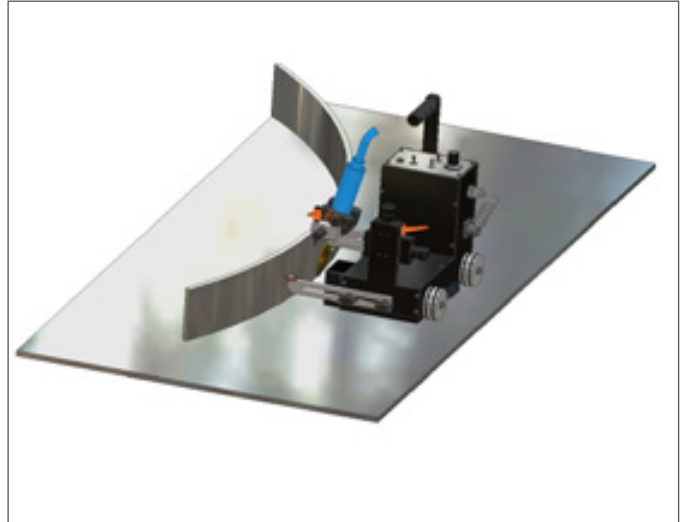
- 1. Line lamp
- 2. Power switch
- 3. Direction: forward - stop - reverse
- 4. Switch weld on/off
- 5. Speed adjuster

TECNICAL DATA	WTK BASE	WTK BATT
Feeding	230V 50-60 Hz	14.4VDC
Speed range mm/1'	200-2000	90-980
Attractive 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

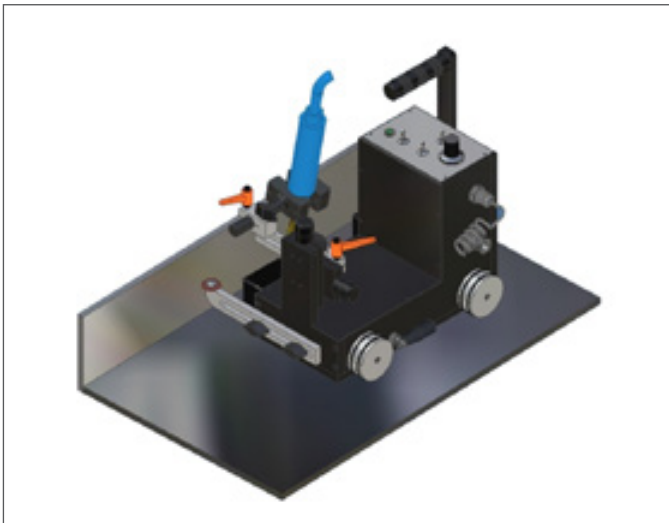
W-TRACK CARRIAGE WITHOUT RAIL SOME APPLICATIONS



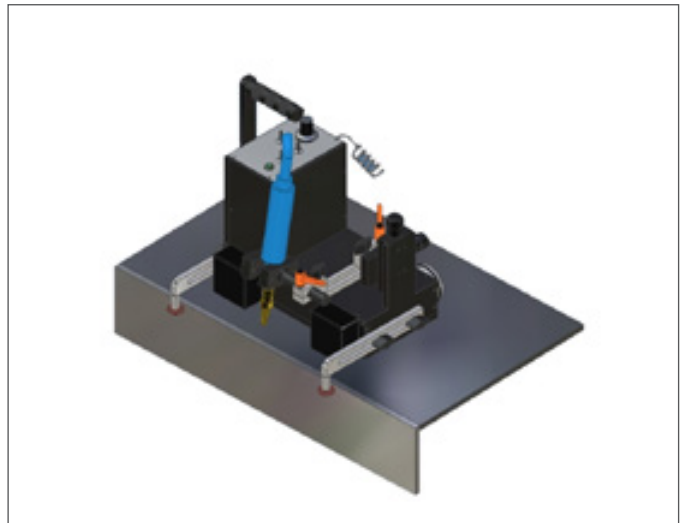
FLAT EDGE-TO-EDGE BEVEL JOINT WELDING: It's possible to place an angular or tubular profile parallel to the joint and the carriage will follow it



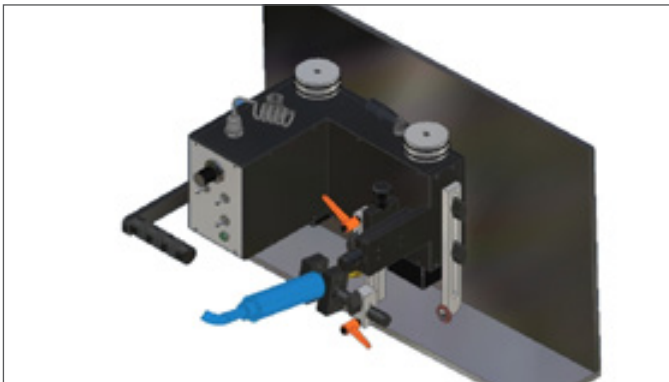
CIRCULAR WELDING: On diameter 3 m or greater



INTERNAL FILLET WELDING: Guidance wheels stand inside and upward



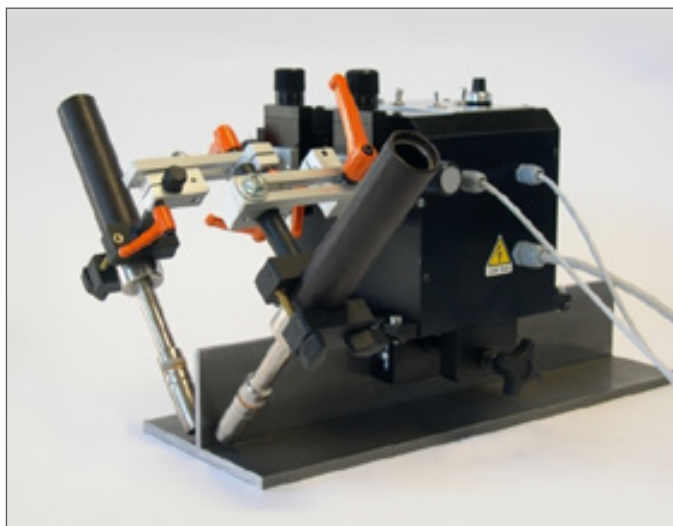
EXTERNAL FILLET WELDING:: Guidance wheels stand outside and downward



FILLET WELDING WITH CARRIAGE OVERTURNED:
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 if there are any, or, if not, on an add-on commercial profile. It can be provided of one or two torch holders. TRT BASE (1 or 2 accordingly to the torch holders installed) works on flat track minimum height 50 mm and thickness 5 to 80 mm.

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

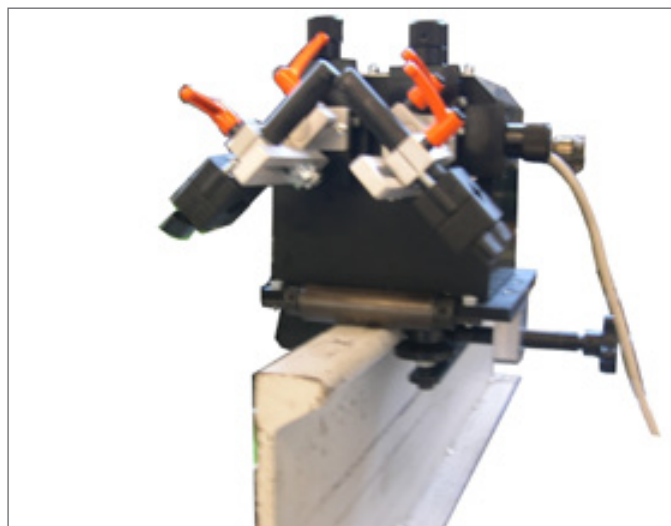
Both TRT BASE and TRT STW are available in Pulse execution for intermittent stitch welding.



TRT BASE CONTROL FUNCTIONS

1. Switch start/stop
2. Switch on/off
3. Weld on/off (torch 1)
4. Speed adjuster
5. Weld on/off (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 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

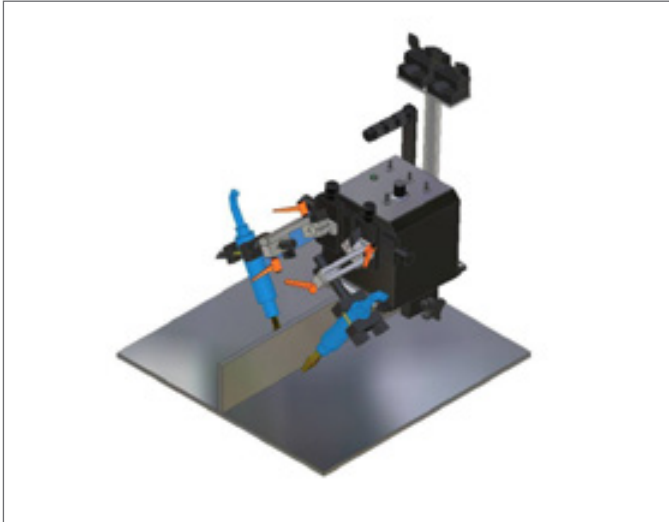
TRT PULSE 2



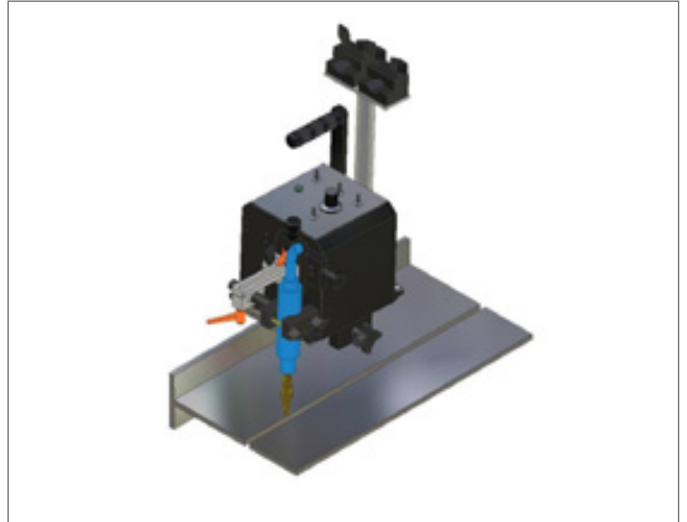
TORTUGA

CARRIAGE WITHOUT RAIL

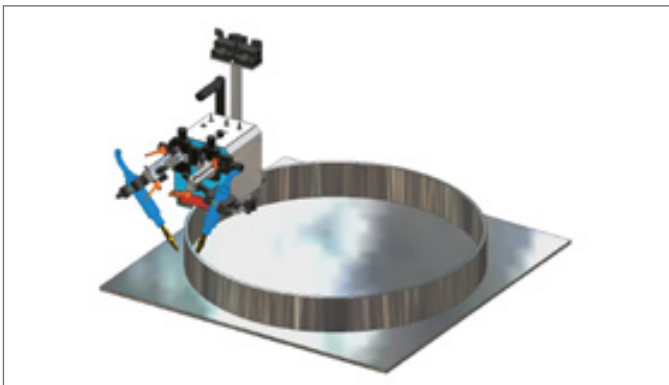
SOME APPLICATIONS



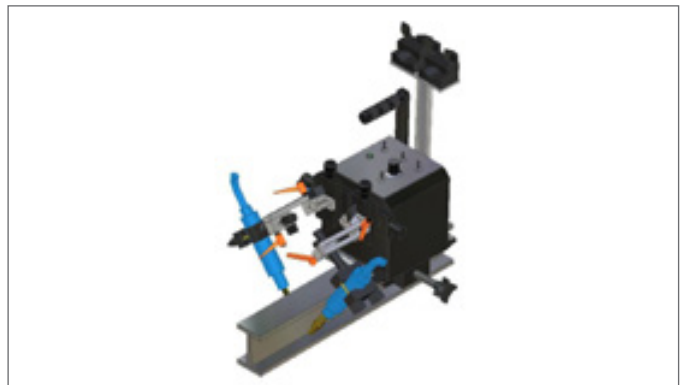
FILLET WELDING, using the vertical plate as a rail.



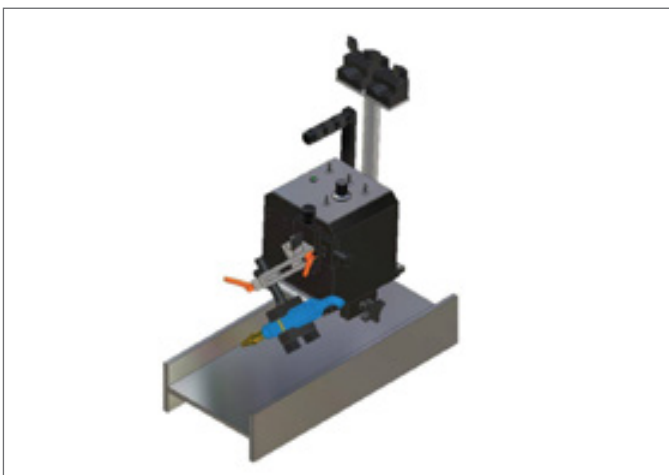
PLASMA OR FLAME CUTTING of plates or beams, where the vertical guidance plate can be replaced with an add-on tubular profile.



CURVED SURFACES with minimum \varnothing 800 mm.



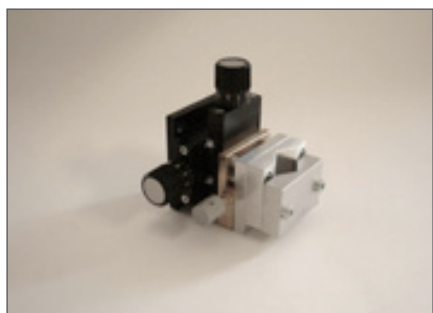
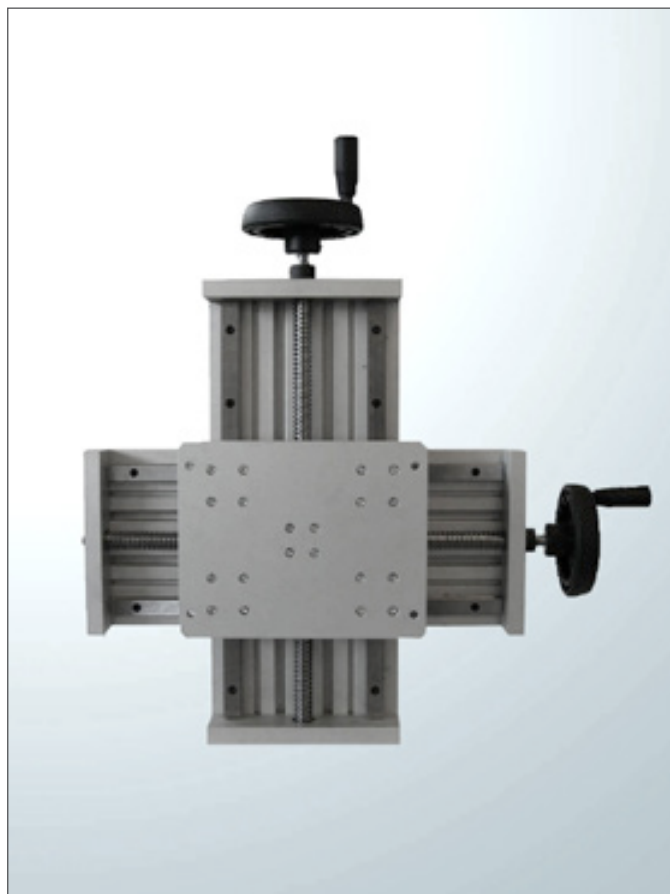
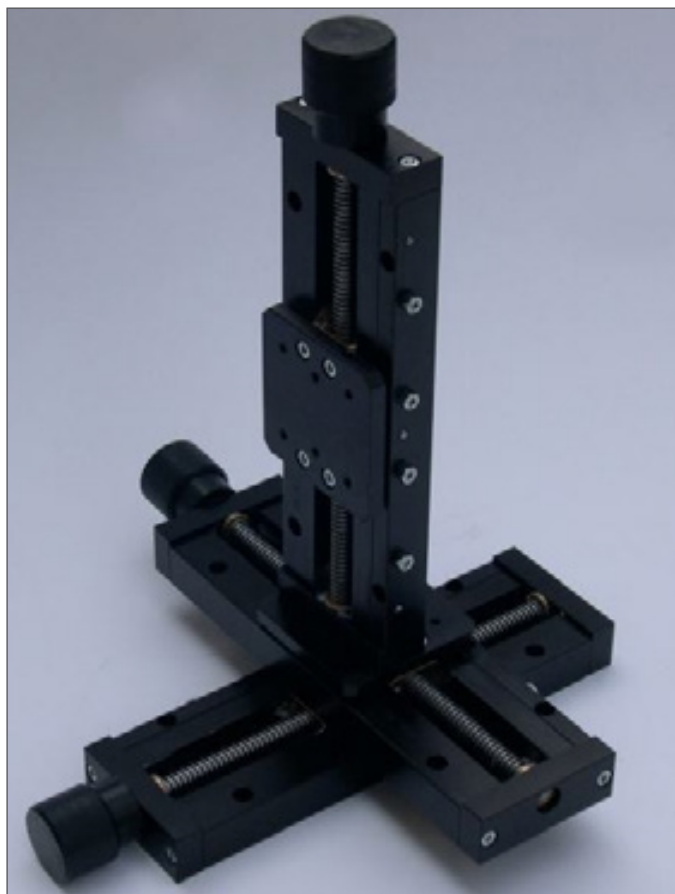
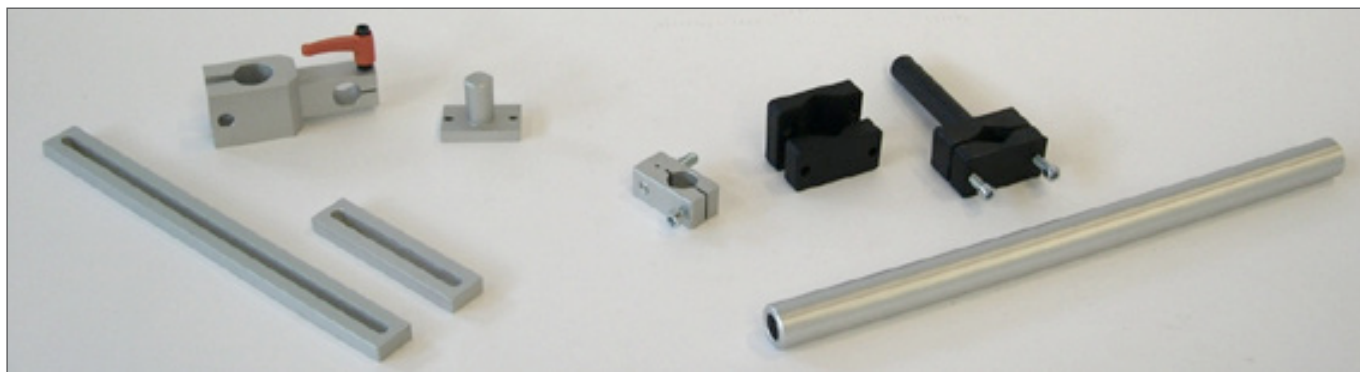
I – BEAM WELDING, with vertical web, one or two torches



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

COMPLEMENTARY EQUIPMENT

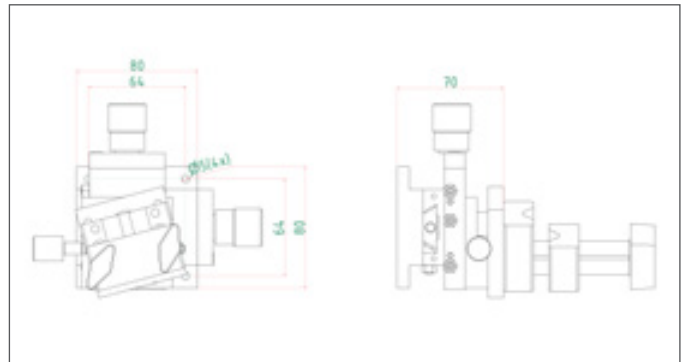
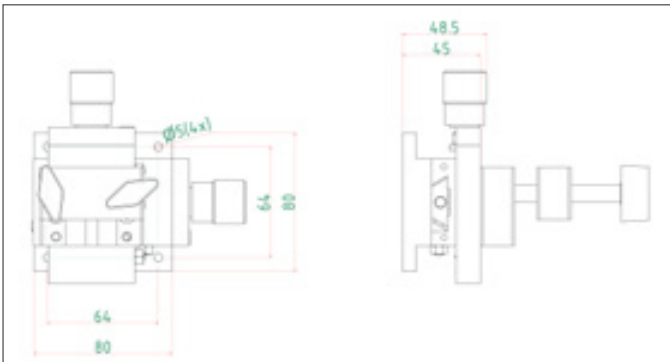
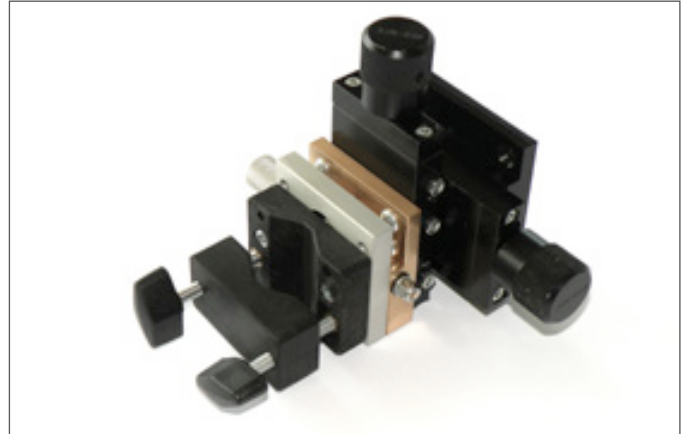
This section is dedicated to a wide range of manual and motorized slides, as well as to oscillators, AVC, joint tracking systems, weld monitoring systems and many other fixtures to complete the automation and enhance productivity of welding and cutting plants.



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

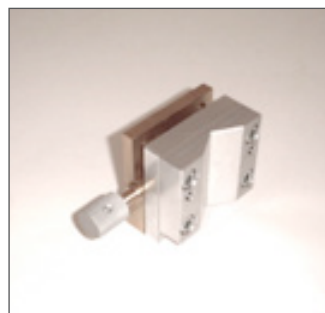
Made of synthetic material, suitable for torch Ø 18 to 40 mm

SM/FR rotating flange

complete with torch clamp

SM/F

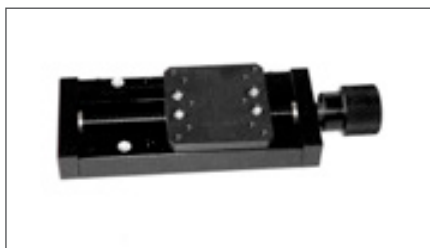
flange complete with holes and bolts for fixing to any structure



MANUAL SLIDES

MICROMETRIC SLIDES STROKE 80-160 MM

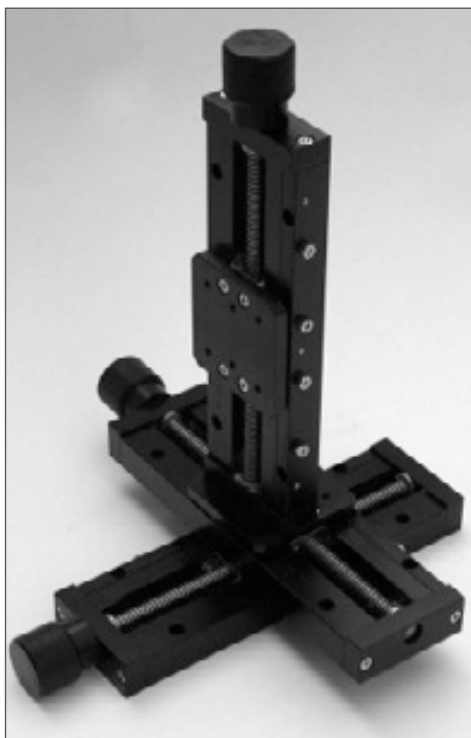
PAYLOAD 10 KG AT 50 MM



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

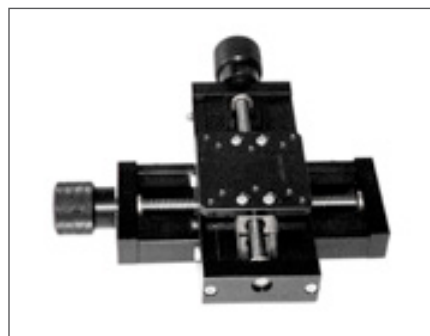


SMMD 160-3 three-axis slide assembly
consisting of 3 slides SMMD160-1,
strokes 160 x 160 x 160 mm



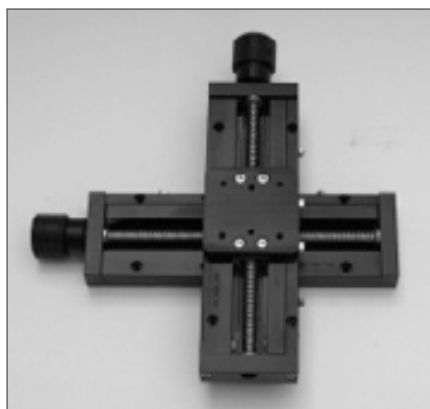
SMMD 80-3 three-axis slide assembly
consisting of 3 slides
SMMD80-1, strokes 80 x 80 x 80 mm

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



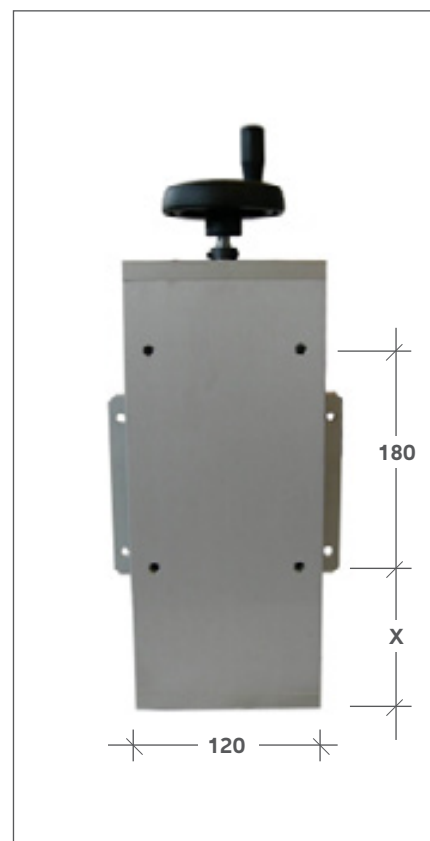
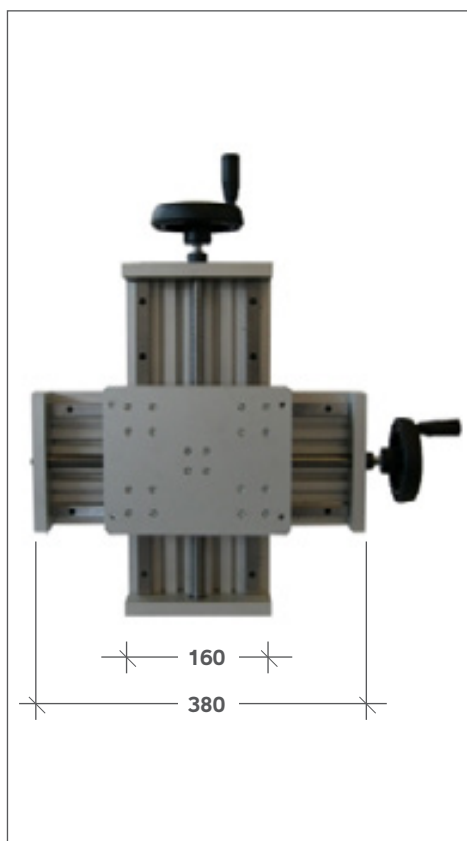
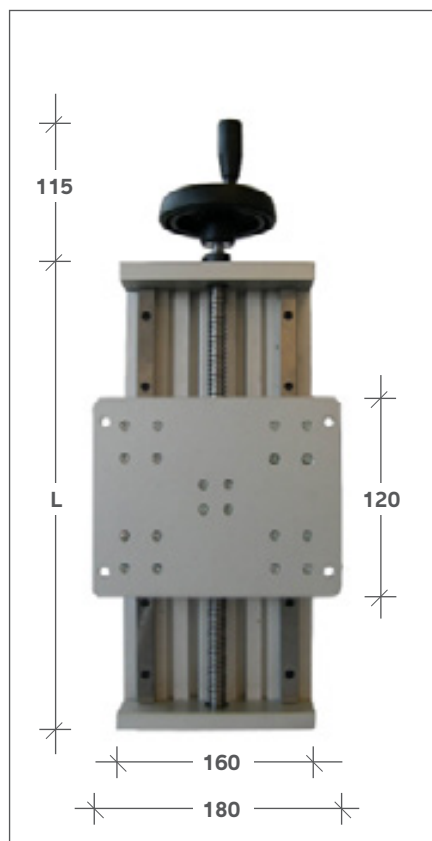
SM MD-FR rotating flange,
± 30°, with torch clamp



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.

Stocked with 190 mm stroke for immediate delivery, upon request it can be supplied 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 in right position.



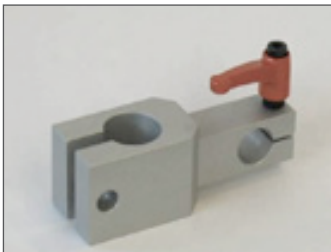
MONO 1 axis 360° rotating torch holder, with angle indication, clamp for torch Ø 18 to Ø 40 mm and brake to fix in right position.



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



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



CEBTM25V double support Ø18 and 25 mm.

MORD8 Ø18 mm clamp, with thread shaft M8 for connecting PT001 to slotted ASTA's.



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



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



PT001 bracket with shaft Ø18 made in aluminium and machined for torch Ø 18 to 40 mm.

PT003 bracket made of aluminium to be combined with PT002AL.

PT003AL bracket made of aluminium to be combined with PT002AL.

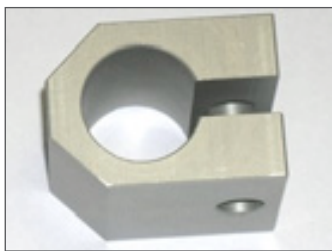


PT002AL bracket made of aluminium to be combined with PT001AL or PT003AL.

PT001AL bracket made of synthetic material to be combined with PT001 or PT003.



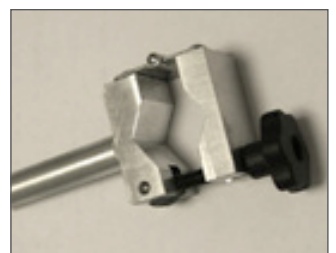
TUBO Ø25 X 400 mm
Pipe made of aluminium.



MORS.D.25 clamp Ø25 mm
for connecting ASTA's to TUBO



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 quick locking of automatic torches Ø35 to 42 mm



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

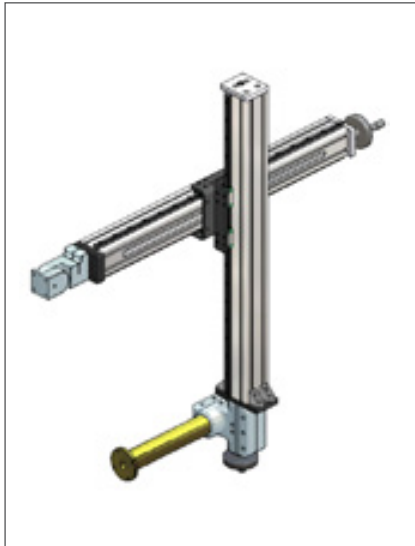


B150001+2 two-axis swivel with clamp for pipe Ø 60 mm and flange for fixing to slides MM MINI, payload 10 kg.



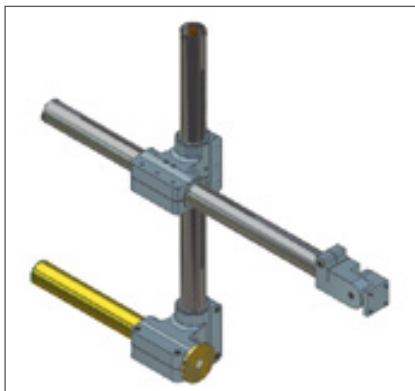
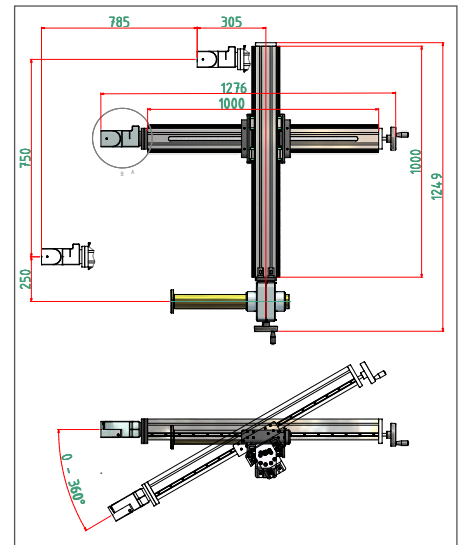
Asta, aluminium plate, with slot 8.5 mm, available in 3 lengths:
ASTA 115 mm
ASTA 200 mm
ASTA 300 mm

CROSS ARMS AND PNEUMATIC SLIDES



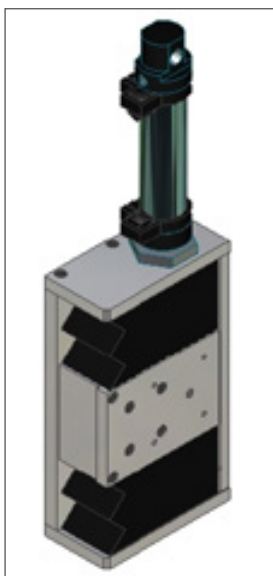
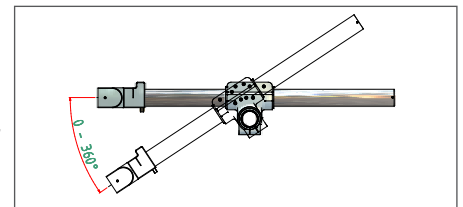
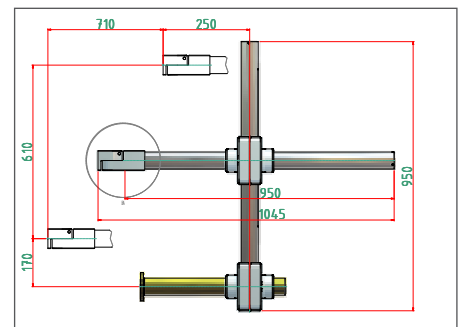
JD ARM cross arms assembly, both axis driven by hand wheel

- 2 clamps made in aluminium casting and machined.
- Horizontal tube $\varnothing 60 \times 500$ mm for connection to a table positioner or to other fixture.
- Strokes 750×750 mm, both axis made of aluminium profiles 90×90 mm, moving on precision ball guides driven by trapezoidal screw and hand wheel.
- Horizontal arm end provided of two-axis clamp for manual, motorized or pneumatic slides.



JD BB cross arms assembly, both axis without hand wheel drive

- 2 clamps made in aluminium casting and machined.
- Horizontal tube $\varnothing 60 \times 500$ mm for connection to table positioner or to other fixture.
- Vertical tube $\varnothing 60 \times 900$ mm.
- Horizontal arm end provided of two-axis clamp for manual, motorized or pneumatic slides.



JD PNEUMO pneumatic slide

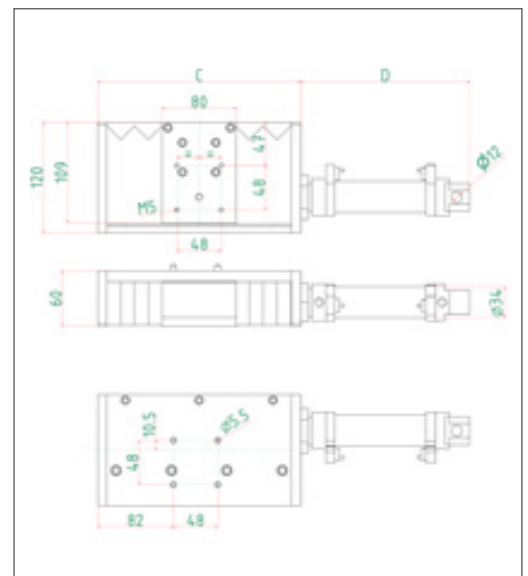
- Aluminium machined body.
- Inductive limit switches.
- Linear ball bearing guide.
- Protection bellow.
- Complete of pressure adjuster, manometer and electro-valves.

JD PNEUMO 80, stroke 80 mm

- C=220 mm D=183 mm.

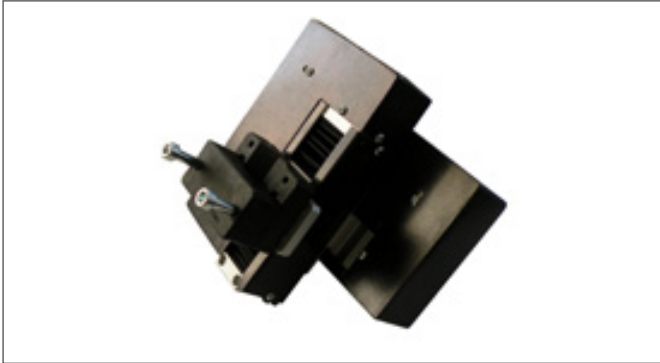
JD PNEUMO 180, stroke 180 mm

- C=320 mm D=283 mm.



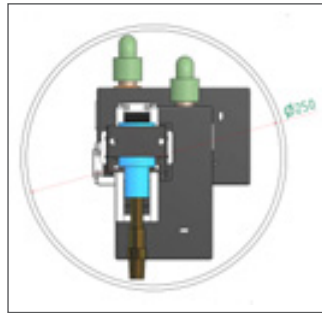
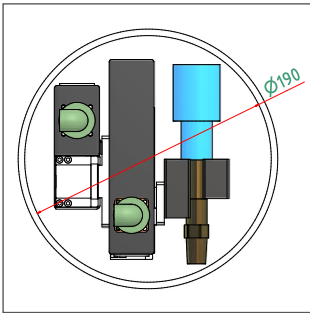
MOTORIZED SLIDES

MM MICRO 40 PAYLOAD 5 KG AT 50 MM



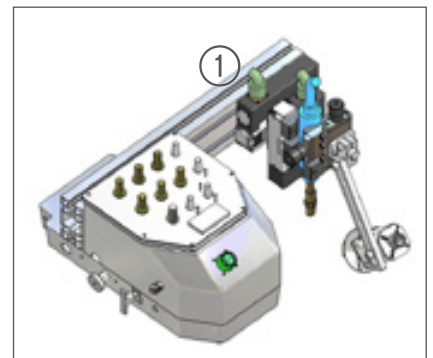
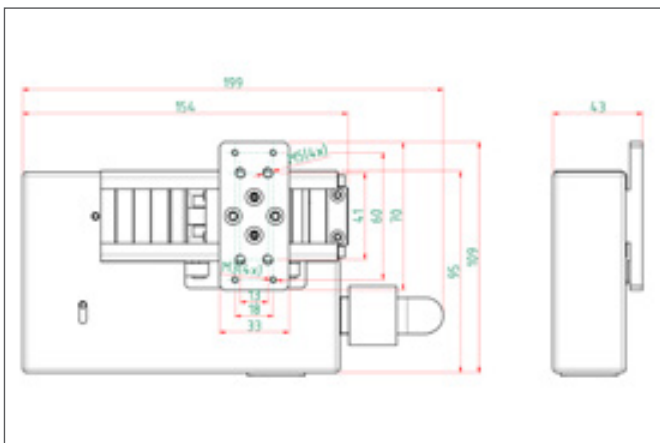
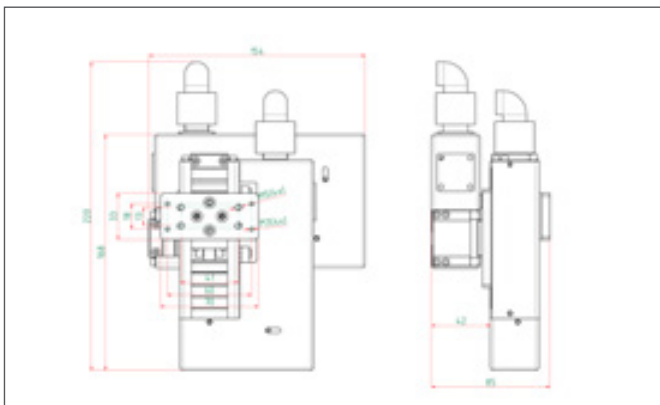
COMPACT AND LIGHT
MM MICRO 40/1: ONE AXIS, STROKE 40 MM, WEIGHT 1.05 KG
MM MICRO 40/2: STROKE 40X40 MM WEIGHT 2.1 KG

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

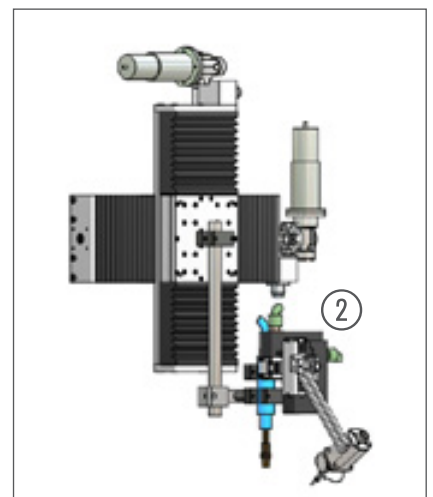


Effectively used on any CARPANO complementary equipment: manual slides, joint tracking systems, oscillator, AVC, integrated in CNC work cycles...

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



1. Driven by IG tactile probe on a SQUIRREL carriage



2. For the purpose of shifting IG tactile probe relatively to 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:

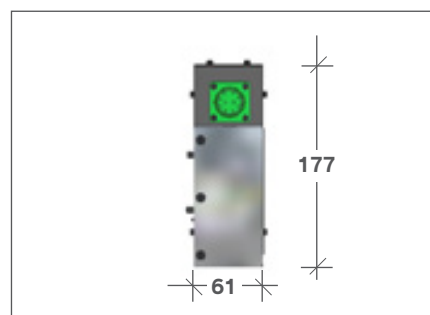
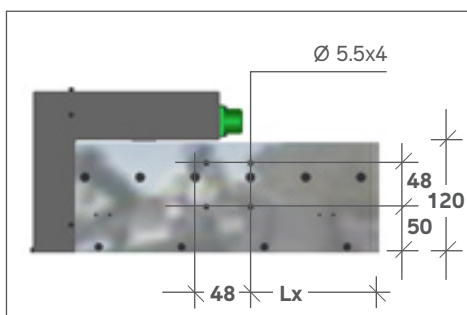
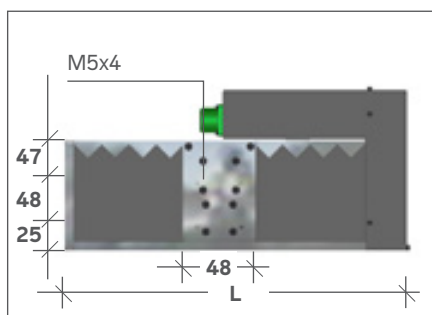
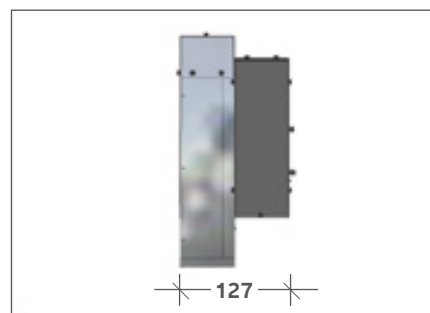
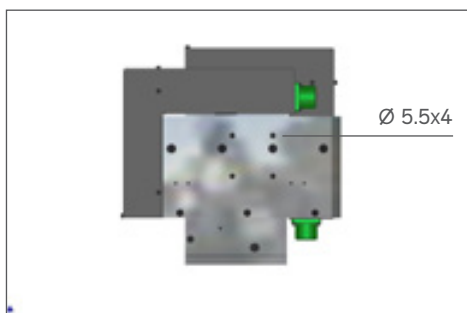
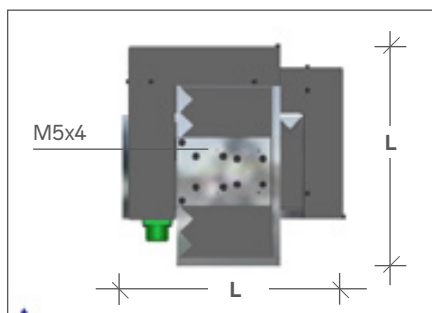
- Control panel feeding 230V 1-phase
- Remote control with joystick and speed adjuster
- Kit of connection cables 10 m
- Driven by ball screw and ball guides
- Protection bellow
- Torch holder PT002 and PT003

MM MINI – one axis stroke

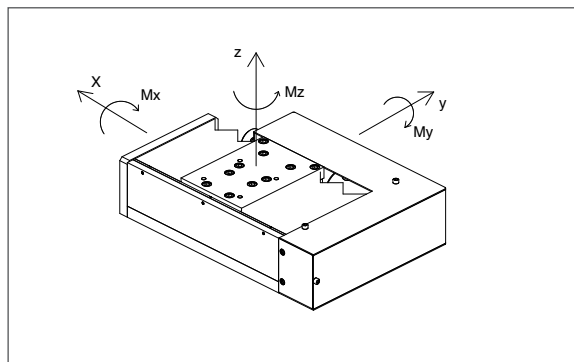
- MM MINI 80/1 80 mm
- MM MINI 180/1 180 mm
- MM MINI 250/1 250 mm
- MM MINI 300/1 300 mm

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

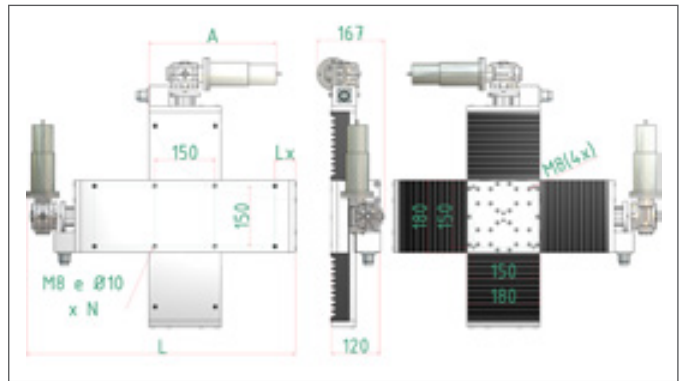
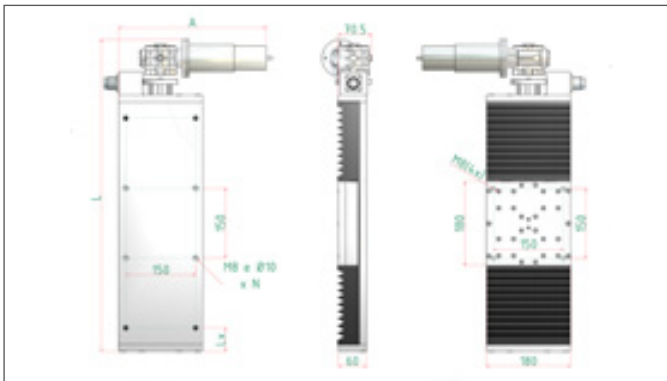


MOTORIZED SLIDES
MM MIDI, STROKES 100 TO 600 MM
PAYLOAD 60 (STANDARD) OR 150 KG (HD)



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

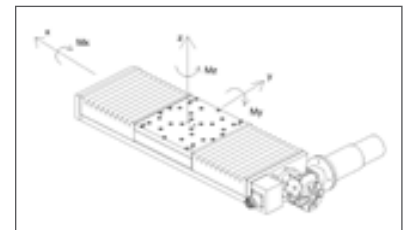
- MM MIDI 100/1 HD 100 mm
- MM MIDI 250/1 HD 250 mm
- MM MIDI 400/1 HD 400 mm
- MM MIDI 600/1 HD 600 mm

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 (Kgmm)	24	24	24	24	24	24	24	24
My (Kgmm)	26	26	26	26	26	26	26	26
Mz (Kgmm)	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
The 3 modules on one base.

IT CONSISTS OF THREE MODULES: 2 WD FEEDER, WIRE REEL HOLDER AND CONTROLLER, IN THREE DIFFERENT COMBINATIONS.

Control functions:

- Digital display of wire speed.
- 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 controller loose. 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

Meant for automatic torches, it features a 3-axis micrometric adjustment and dimensions smaller than CEFF.



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

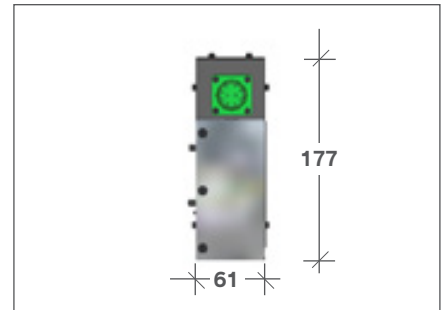
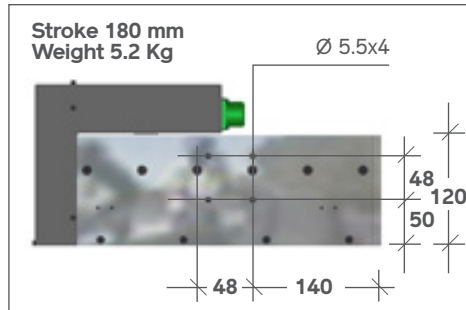
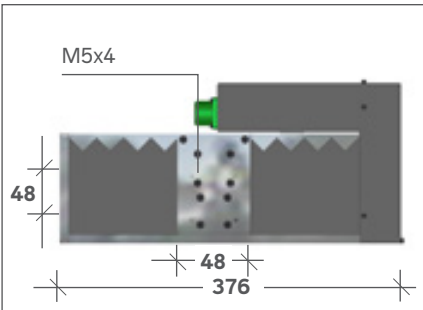
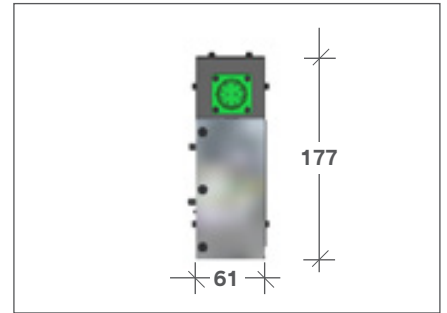
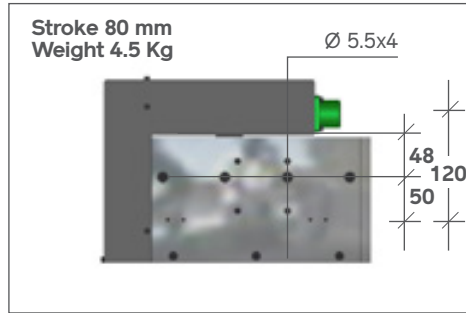
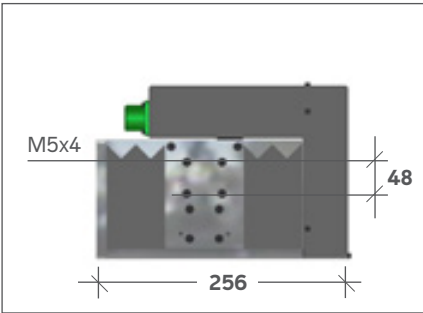
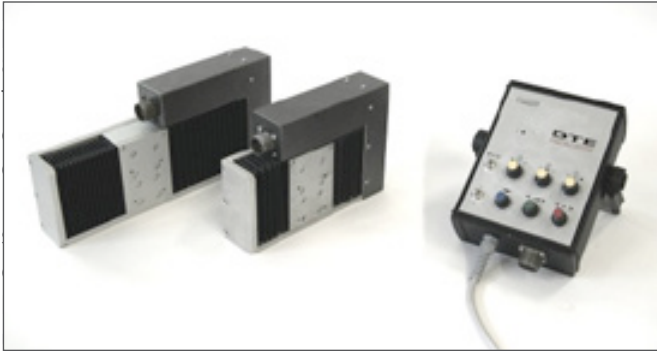


LINEAR OSCILLATOR MOTION ELECTRONIC INVERSION AND ANALOGUE CONTROL

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 as well as for hard facing of wear parts of valves and of other fixtures. 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/'	20-2800 mm/'
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 MOTION ELECTRONIC INVERSION 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:

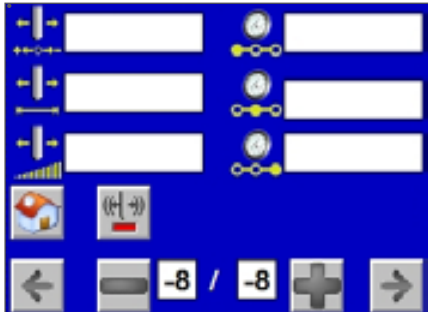
- Amplitude.
- Oscillation speed.
- Oscillation centreline.
- Dwell left / centre / right.
- Emergency cut-off.
- Start / stop push buttons.
- Push buttons for shifting oscillation centreline.
- Slide actuating the oscillation: see motorized slides MM MINI and MM MIDI.

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:

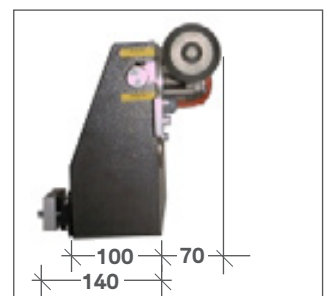
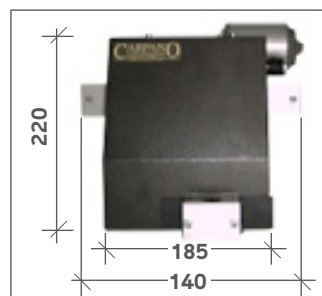
- Step or helical motion
- Recall of different data at each weld pass



CEW2 - MECHANICAL LINEAR OSCILLATOR

It 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 ENHANCE PRODUCTIVITY AND IMPROVE QUALITY OF YOUR TIG AND PLASMA WELDS AND OF PLASMA CUTS AS WELL, PERFORMING:

- Smooth and uniform welds and cuts.
- Increase of the process speed.
- Reduction of the waste of time for process start up and for joint preparation.
- Cut of costs for consumables and torch spares.
- Operation by low skilled workmanship.

Most frequent applications:

- On manipulators for circle welding of tanks.
- On seamers for longitudinal welding.
- On turntables.
- On rotators, lathes and pantographs for plasma cutting.

Useful whenever the arc gap must be kept constant

AVC PLC REMOTE CONTROL INCORPORATES:

- Display of arc voltage
- Arc length adjustment
- Speed of reaction
- Setting of upwards retract position
- Setting of downwards work position
- Switch automatic / manual
- Start delay with respect to arc strike
- Upwards retract delay with respect to arc extinction
- Cycle start push button
- Cycle stop push button
- Manual up & down push button
- Emergency cut-off



Selection for TIG or Plasma welding or for Plasma cutting



* Upon request, other lengths up to 50 m

TECHNICAL DATA	AVC PLC
Feeding	230V 50-60 Hz
Sensitivity	100 mV
Controller to slide cable *	10 mt
Remote control cable *	10 mt
Controller to power source 2x70 mm ² cable	1,5 mt
Controller weight	22 Kg
Controller dimensions	180 x 350 x 450 H
Remote control dimensions	260 x 150 x 62 H
Motorized slide	See Carpano's slides range

JOINT TRACKING

TACTILE IG, LASER IG LAS LASER IG 2D



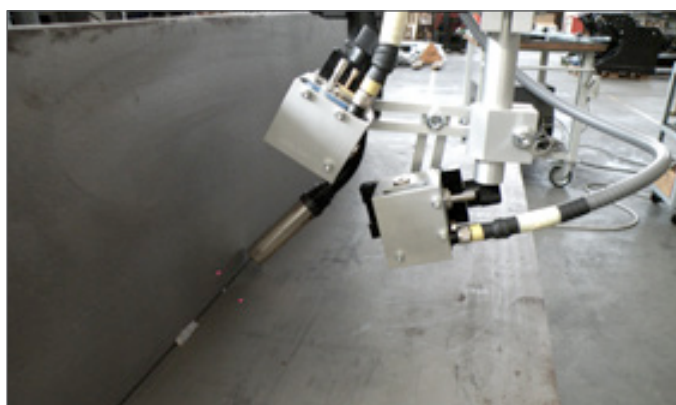
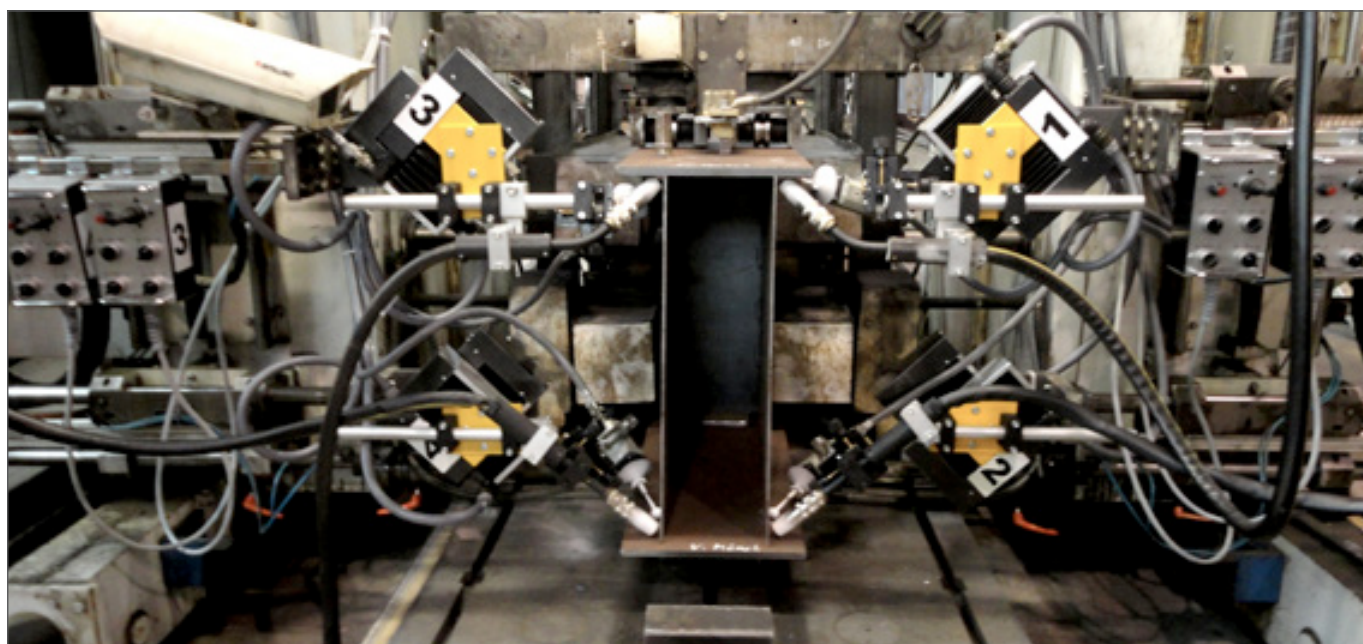
A WELDING PLANT CAN BE CONSIDERED AUTOMATED IF THE OPERATOR CAN BE RELIEVED FROM THE TASK OF ATTENDING CONTINUOUSLY THE PROCESS.

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

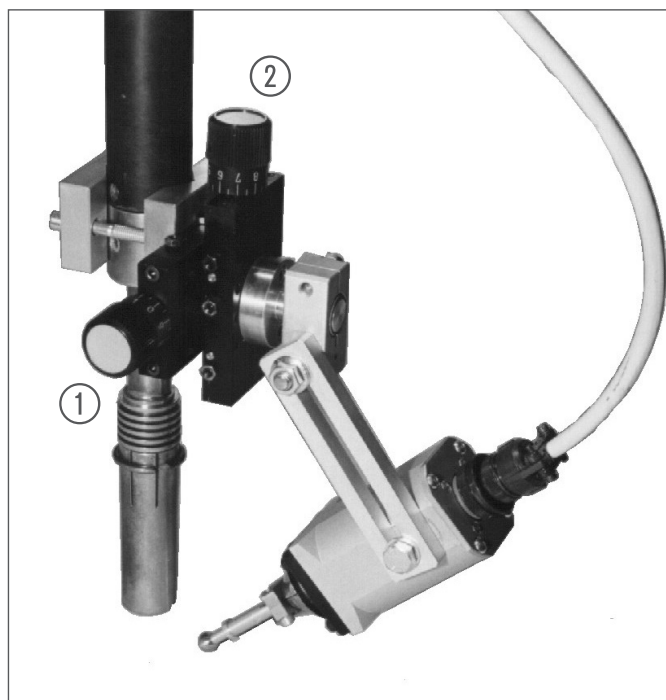
Our range includes 3 models of joint tracking systems:

- 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 keeps the torch constantly in touch with the joint and automatically delivers 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.

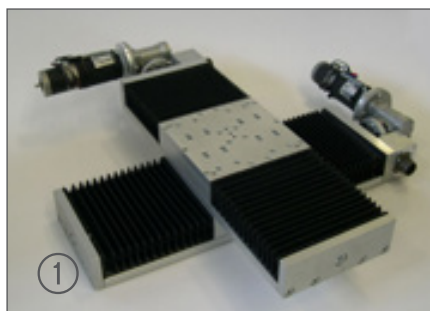
Single axis tracking can be performed by motorized slide or by side beam carriage and x/y tracking by motorized cross slides MM MICRO, MM MINI, MM MIDI, MM MIDI HD.

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 (see slides MM MINI).
- **MD**, payload 70 kg at 400 mm from face plate, stroke 100 – 250 – 400 – 600 mm, suitable for single wire SAW or MIG process in combination with oscillator (see slides MM MIDI).
- **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 of aluminium and machined, are driven by ball screw and ball guides, are provided of protection bellows and equipped with DC motors controlled by tacho generator or by encoder.

Vertical axis of HD has a more powerful motor with brake

Ordering code

Ordering code of IG tracking system depends from the motorized slides it is combined with:

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

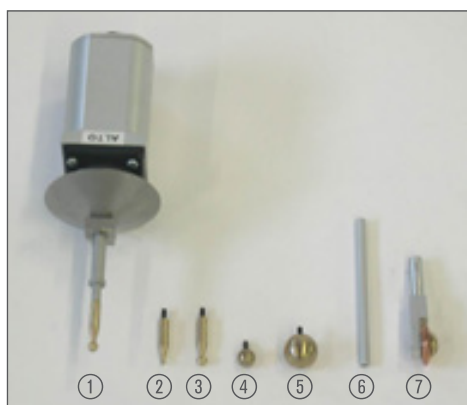
IG MINI 180/1 H identifies a 1-axis system with horizontal MM MINI slide stroke 180 mm

IG MD 250/1 V identifies a 1-axis system with vertical MM MIDI slide stroke 250 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 the shape and length of which suits best the joint geometry:

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 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.

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. The measurement ranges from 80 to 300 mm with a 0.3 mm precision. The sensor body is made of aluminium with the possibility of cooling whenever temperature is greater than 50C°. Each sensor comes complete of micrometric cross slides and of 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 of them complete of micrometric cross slides and of connection bracket.
- 1 or 2 motorized slides MM MINI, MM MIDI, MM MIDI HD (see page 33 of this catalogue).
- Kit of 10 m cables to connect the controller to slides and sensors (up to 40 m upon request).

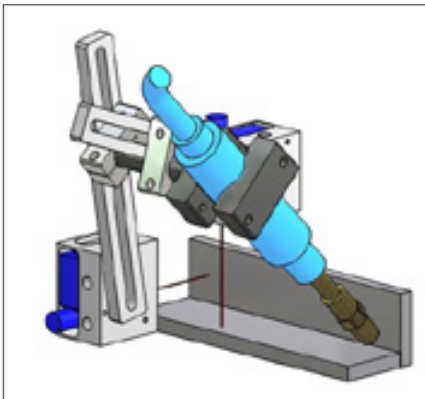
SOME EXAMPLES OF CODE BUILDING:

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

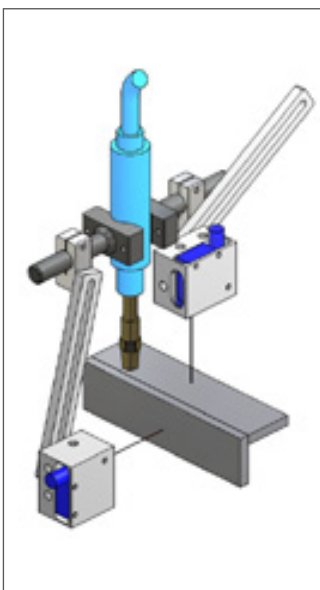
IG LAS LT 80/1 V is a system consisting of 1 sensor and of V (vertical) motorized slide MM MINI stroke 80 mm.

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

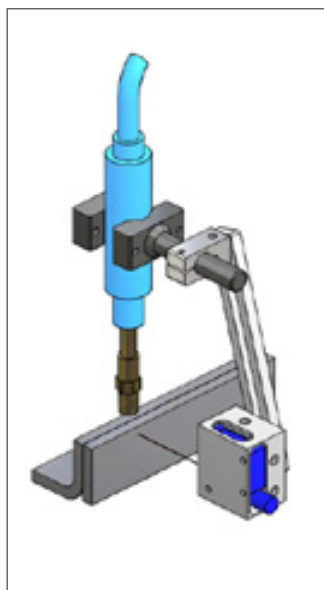
IG LAS MD 600/2 is a system consisting of 2 sensors and of motorized cross slides MM MIDI stroke 600x600 mm.



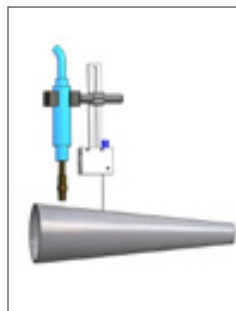
Fillet welding with 2 sensors IG LAS



Corner welding with 2 sensors IG LAS



Horizontal tracking with 1 sensor IG LAS



Vertical tracking with 1 sensor IG LAS on conical work pieces



IG 2D, LASER JOINT TRACKING

IG PLC, CONTROLLER



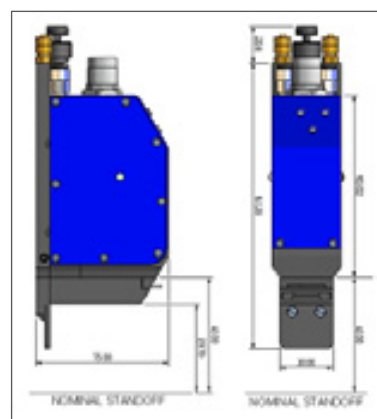
IG 2D probe uses triangulation principle to deliver the continuous scanning of the joint. In comparison with IG tactile system, allows tracking of joints with side wall, rebate or gap as small as 0.5 mm

Other functions of the system are:

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

and, upon request:

- Automatic adjustment of speed with regard 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: Instead of 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.

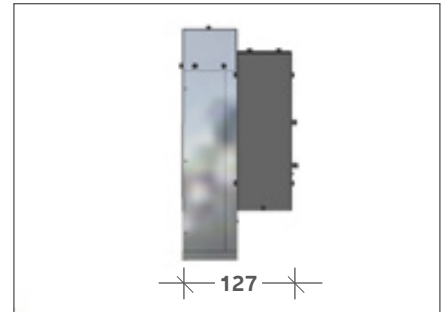
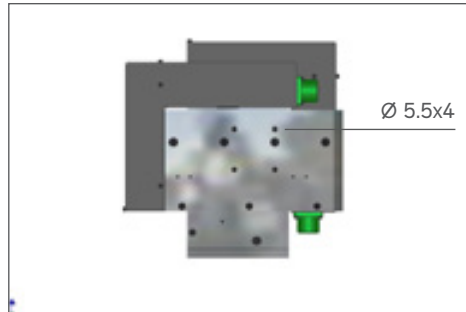
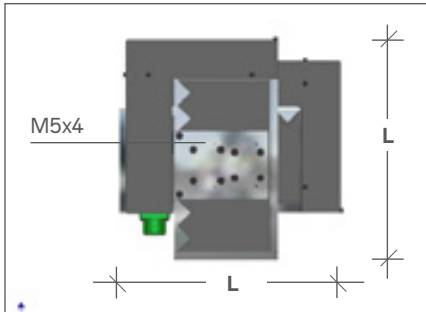
Such a device allows to create different work sequences so as to suit any automatic tracking need and to be integrated with work cycle of table positioners and lathes.



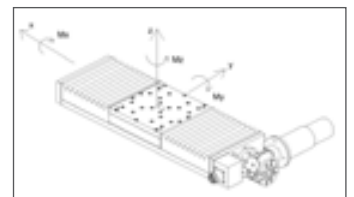
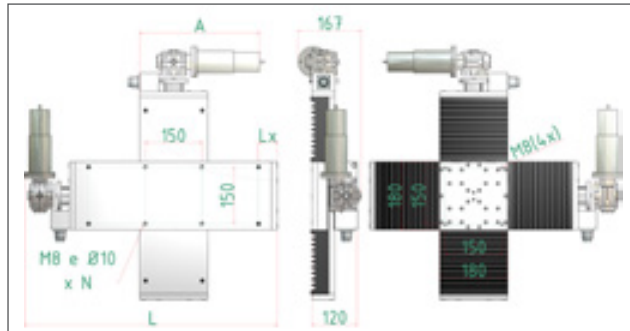
JOINT TRACKING SYSTEMS THE SLIDES

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
Weight (kg)	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 tacho generator and MIL connector
- PVC protection bellows
- Electro-mechanical limit switches



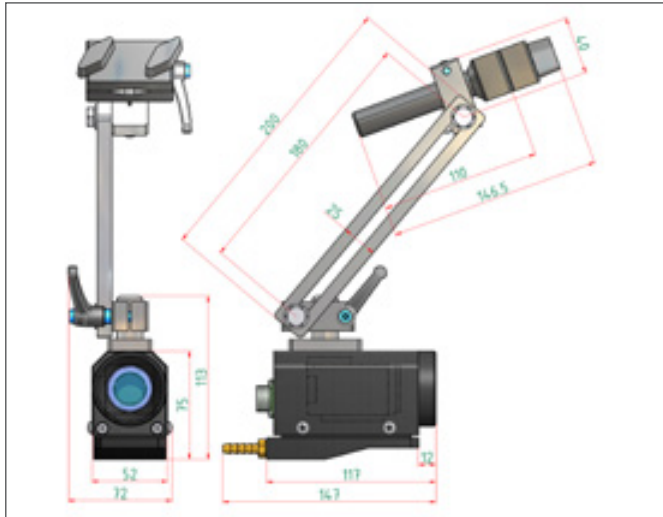
MM MIDI - HD	100	100 HD	250	250 HD	400	400 HD	600	600 HD
L (mm)	490	490	665	665	890	890	1155	1155
A (mm)	330	360	330	360	330	360	330	360
Lx (mm)	110	110	50	50	160	160	140	140
Fixing holes	4	4	8	8	8	8	20	20
Motor power (W)	200	350	200	350	200	350	200	350
Payload (Kg)	70	150	70	150	70	150	70	150
Speed 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

MONITORING SYSTEMS



TSV 09: STANDARD COMPONENTS

- Camera with auto-darkening shield for open arc processes, without for monitoring SAW
- LCD colour monitor 15"
- 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

VIDEO CABLE,

1 m for connecting controller to monitor



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.



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

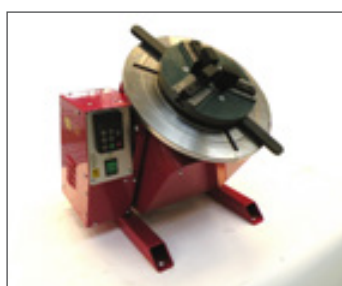


EL LASER M4303

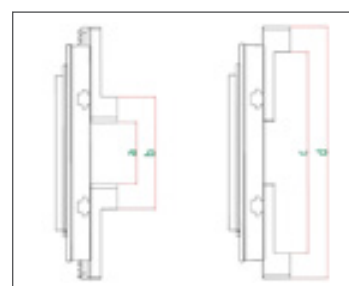
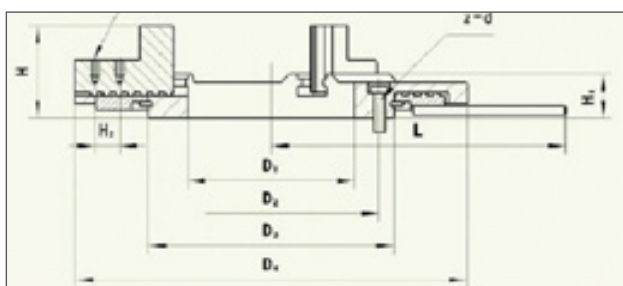
Laser spot to track wire position in SAW process:

- Ø 18 x 150 mm, connector included
- 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



GRIP 200 installed on ONE



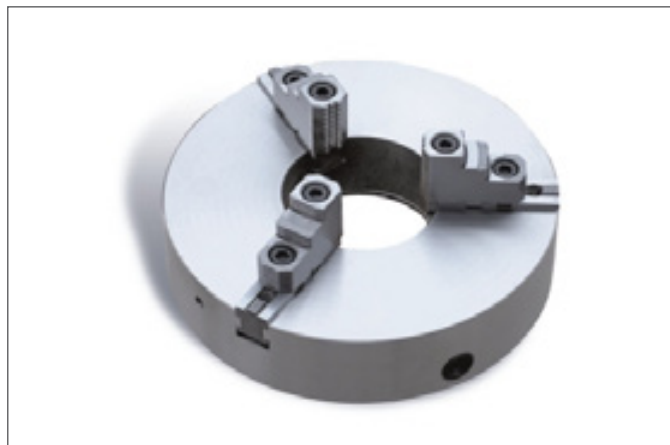
MODEL	GRIP 200	GRIP 300	GRIP 400	GRIP 500
D1	80	100	170	240
D2	100	120	220	280
D3	120	150	250	320
D4	200	300	400	500
H	67,5	67,5	95	110
H1	39	39	45	60
H2	21	21	25	25
L	200	240	300	350
Z-d1	6-M6	6-M6	6-M6	6-M6
Z-d	3-M8x35	3-M8x30	3-M10x40	3-M12x55

MODEL	GRIP 200	GRIP 300	GRIP 400	GRIP 500
Gripping force	200 Kg	250 Kg	350 Kg	800 Kg
Max load capacity	Ø 6-150	Ø 24-240	Ø 110-320	Ø 180-250
Clamping Ø range A	Ø 76-210	Ø 100-300	Ø 180-400	Ø 430-500
Clamping Ø range B	Ø 100-240	Ø 120-320	Ø 220-450	Ø 300-560
Extended clamping Ø	Ø 170-310	Ø 190-400	Ø 290-520	Ø 370-630
Chuck weight	5 Kg	12 Kg	23 Kg	41 Kg

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 holes spot-faced and stepped 120°, which avoids troublesome and expensive flanges for connecting the chuck to the positioner face plate.

CONVENTIONAL CHUCKS



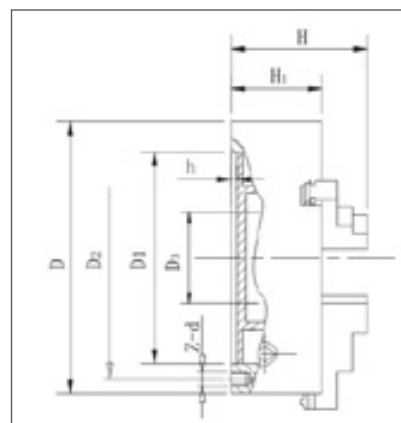
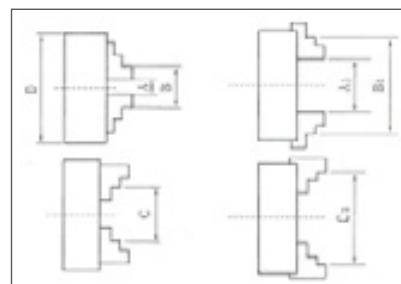
CHK-ST SELF CENTERING CHUCK with 3 jaws and hollow spindle

3 models are available
with inner and outer
jaws made 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 A-A1	chuck-off B-B1	chuck-on 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

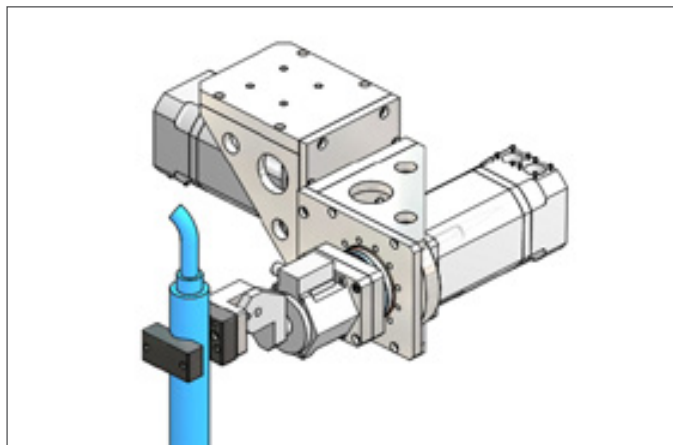
CHK-ST	80	125	200	250	315	400	500	630
D	80	125	200	250	315	400	500	630
D1	55	95	165	210	260	340	440	560
D2	66	108	180	226	285	368	465	595
D3	16	30	65	80	100	130	200	260
h	3,5	3,5	5	5	6	6	6	8
Z-d	3-M6	3-M6	3-M10	3-M12	3-M16	3-M16	6-M16	6-M16
H	66	84	109	133	142,5	155,5	160	200
H1	50	58	60	80	90	100	115	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» gears can turn and tilt the torch with extreme accuracy and repeatability, both for positioning and interpolated motion control.

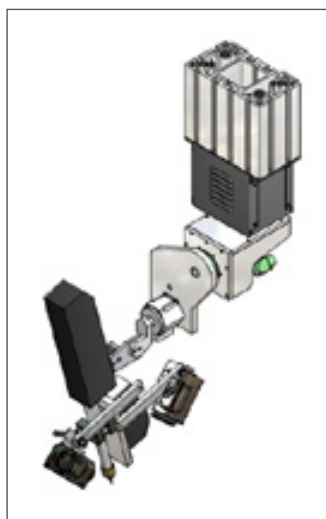
An example of a 2-axis wrist installed at the boom end of a manipulator, to provide resetting the torch at different angles.



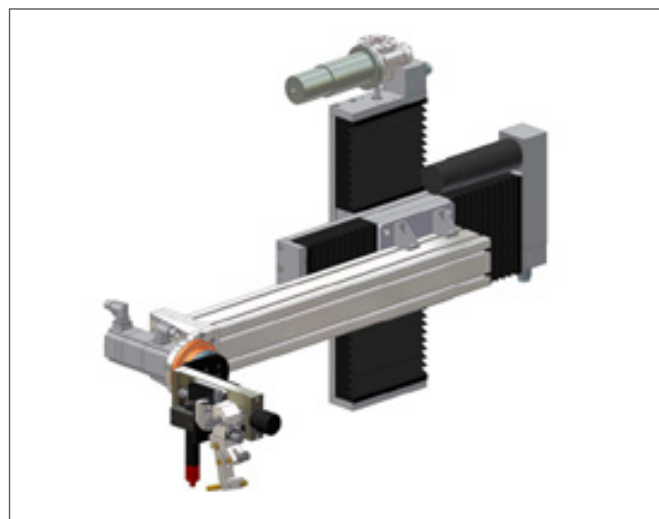
A 2- axis robot wrist allows to turn the torch 0° to 180° to allow welding in both directions as well as tilting it 45° to perform longitudinal fillet welding, thus avoiding idle back strokes and manual setting of torch position.

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 torch tilt angle at each welding pass



ROLL SHIELD



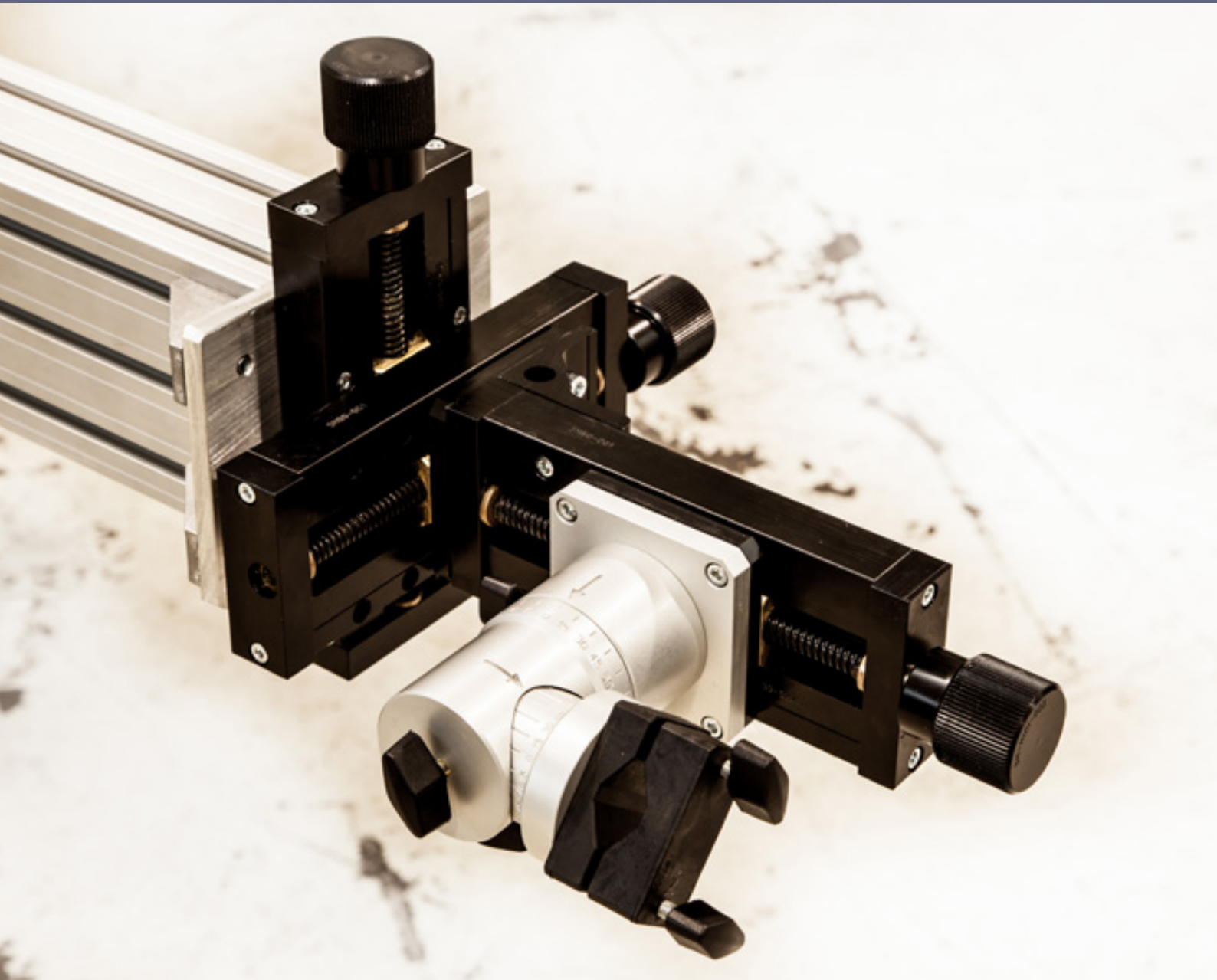
ROLL SHIELD is a panel that protects from flashes and projections operators working in the neighbourhoods of the welder.

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

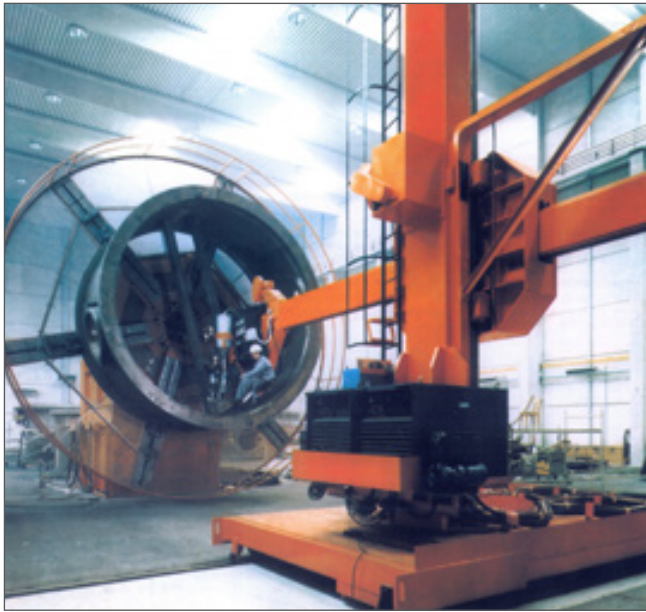




MANIPULATORS BEAM CARRIAGES GANTRIES

Endowed with complementary equipment, the extended range of manipulators, side beam carriages and gantries included into Carpano & Passerini manufacturing program provides customized plants, all parts of which are tuned by a centralized control panel to deliver fully automated work cycles.

MANIPULATORS, BEAM CARRIAGES, GANTRIES ■



THREE MANIPULATORS FAMILIES ARE AVAILABLE:

- AL Power, made of aluminium profiles, the axis of which, upon demand, can directly integrate AVC or joint-tracking functions.
Strokes 1x1 m to 3x3 m.
- I Power, made of steel, ball screw lift drive and ball linear guides.
Strokes 3x3 and 4x4 m.
- Passerini's, made of steel, machined steel guides, lift drive by cable, 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 of aluminium with ball 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.



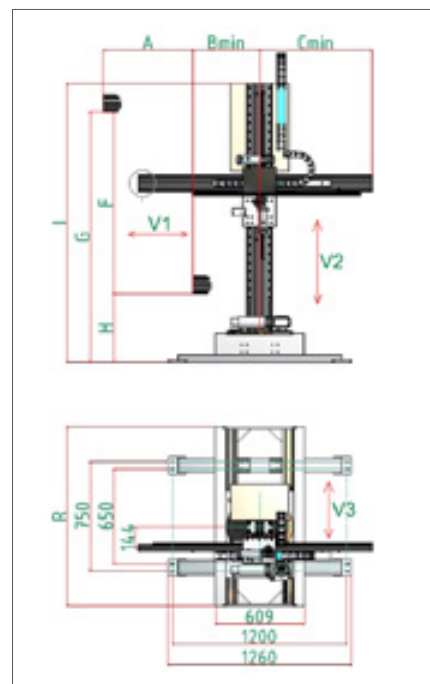
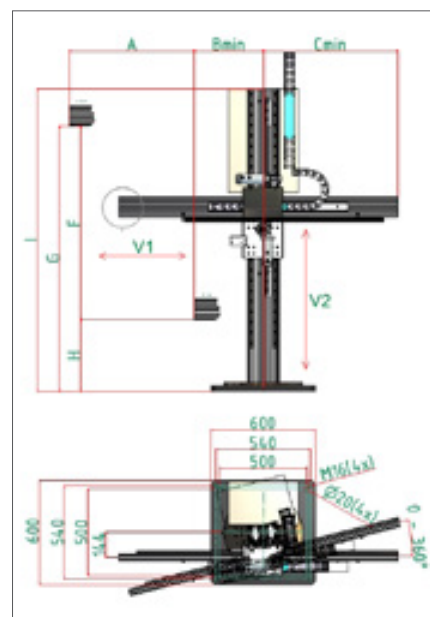
APMICRO-MOT

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



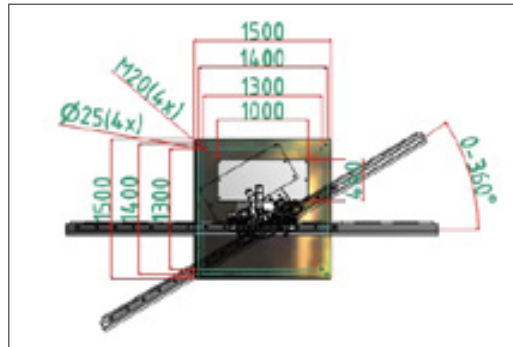
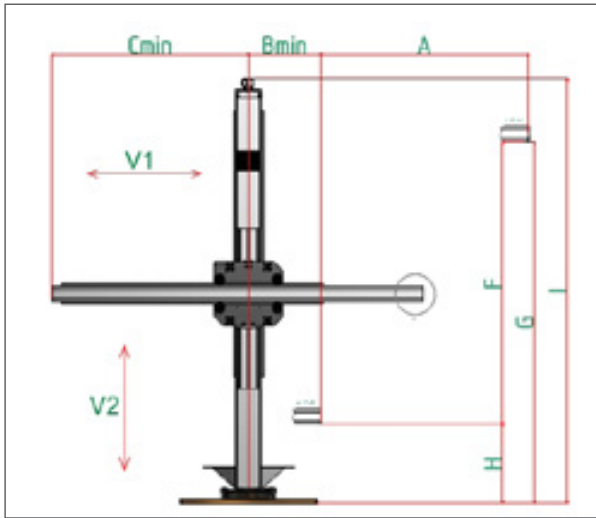
APMICRO-CM

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



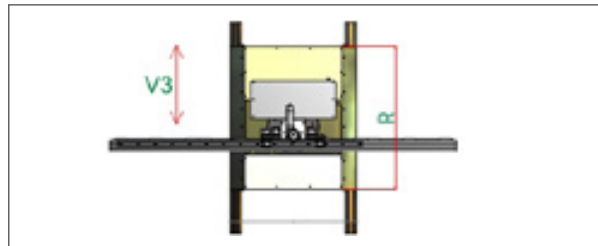
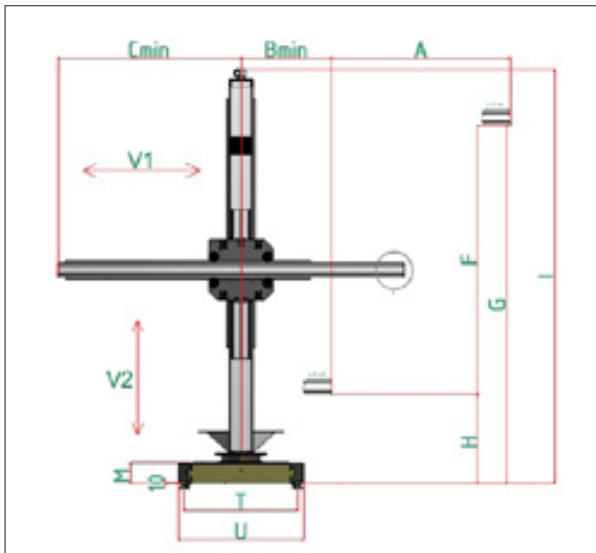
MODEL	u.m.	MAN/MOT 10	MAN/MOT 15	CM 10	CM15
A	m	1	1,5	1	1,5
V1 min/max	mm/°	- / 50-1900	- / 50-1900	50-1900	50-1900
B	mm	458	458	458	458
C	mm	142	142	142	142
F	mm	1000	1500	1000	1500
V2 min/max	mm/°	- / 50-1900	- / 50-1900	50-1900	50-1900
G	mm	1545	2045	1707	2207
H	mm	545	545	707	707
I	mm	1750	2250	1912	2412
V3 min/max	mm/°	-	-	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 shoes
- Manual rotation of the column, incorporating power source holder
- Column made of aluminium, section 220 x 120 mm with ball linear guides and protection bellow
- Boom made of aluminium, section 120 x 80 mm, ball 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.

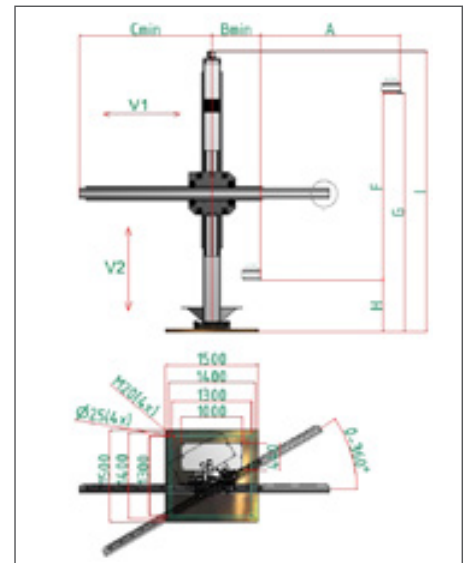
MODEL		MOT 15	MOT 20	CM 15	CM20
A	m	1,5	2	1,5	2
V1 min/max	mm/'	- / 50-1900	- / 50-1900	50-1900	50-1900
B	mm	610	610	610	610
C	mm	390	390	390	390
F	mm	1500	2000	1500	2000
V2 min/max	mm/'	- / 50-900	- / 50-900	50-900	50-900
G	mm	2200	2700	2370	2870
H	mm	700	700	870	870
I	mm	2820	3320	2290	3490
V3 min/max	mm/'	-	-	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

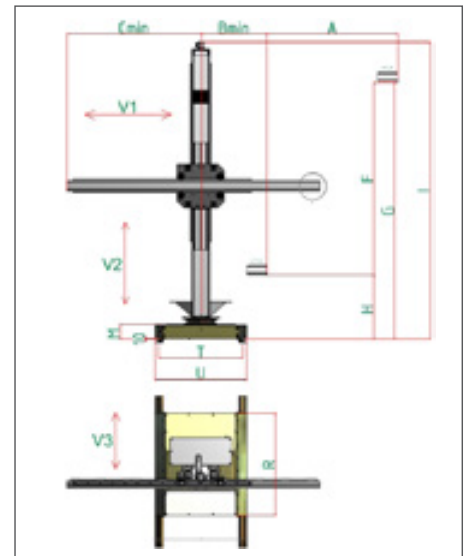
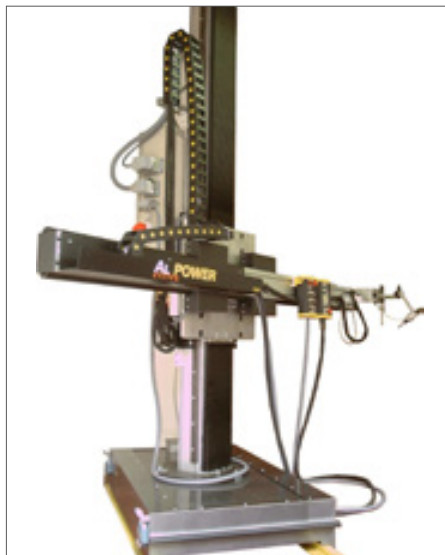
AP MD BF (AL POWER MIDI FIXED BASE)

- Steel base plate with levelling shoes.
- Manual rotation of the column, incorporating power source holder.
- Column and boom made 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/°	- / 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/°	- / 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/°	-	-	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

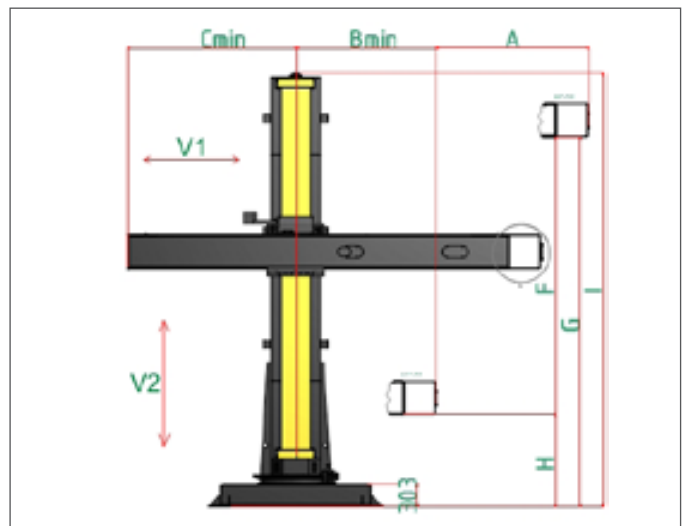
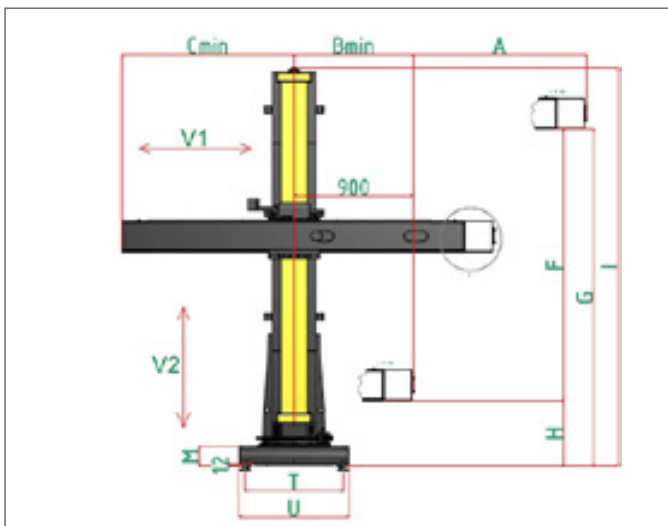
Boom lift by ball screw and anti-fall device safety nut.

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/'	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/'	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/'			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 were for heavy duty jobs, current models avail themselves of updated construction technologies and of top quality components, featuring:

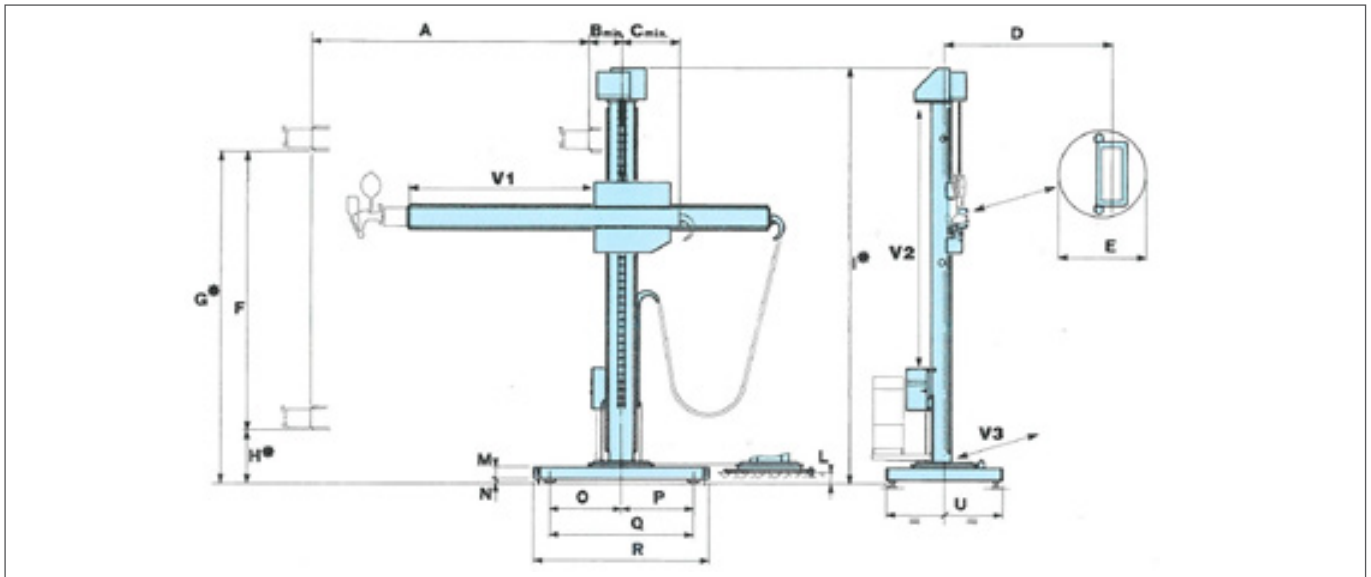
-
- A large industrial pipe is being moved by a red DEMAG crane in a factory setting. The pipe is positioned horizontally, and the crane is lifting it. A yellow forklift is visible in the background.



Technical drawing of a four-way valve assembly. The drawing shows two views of the valve, labeled 'a. 2)' and 'b. 2)', and a side view labeled 'c. 2)'. The dimensions are as follows:

- Top view (a. 2'): Overall width 135, distance between mounting holes 65, mounting hole diameter 40, distance from mounting hole to center 45.5, distance between center lines 220 min, distance from center line to mounting hole 55, distance from center line to mounting hole 55.
- Bottom view (b. 2'): Overall width 135, distance between mounting holes 65, mounting hole diameter 40, distance from mounting hole to center 45.5, distance between center lines 220 min, distance from center line to mounting hole 55, distance from center line to mounting hole 55.
- Side view (c. 2'): Overall width 135, distance between mounting holes 65, mounting hole diameter 40, distance from mounting hole to center 45.5, distance between center lines 220 min, distance from center line to mounting hole 55, distance from center line to mounting hole 55.

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		15,5/3	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/°	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/°	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/°	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 side 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 side 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 regard to carriage motion.

The picture shows:

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



The picture shows:

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

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

APTMMINI:

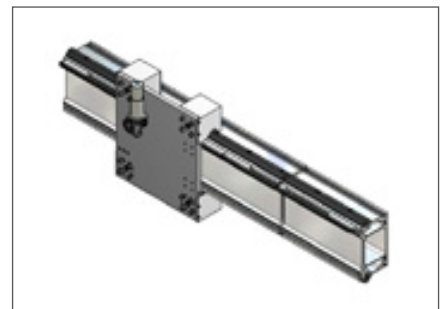
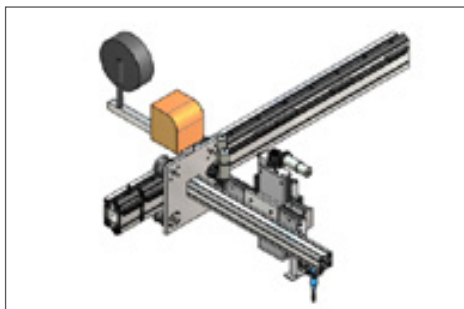
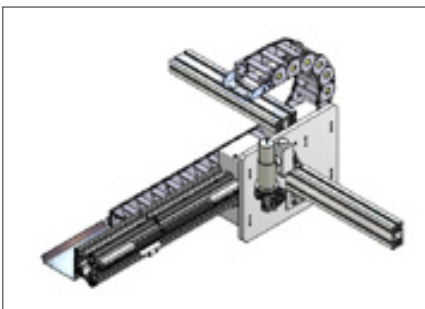
Motorized side carriage on beam section 100x100 mm with steel guides 35x16 mm.

APTMMIDI:

Motorized side carriage on beam section 170x120 mm with steel guides 55x25 mm.

APTMMAXI:

Motorized side carriage on beam section 280x170 mm with steel guides 55x25 mm.



GANTRIES



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

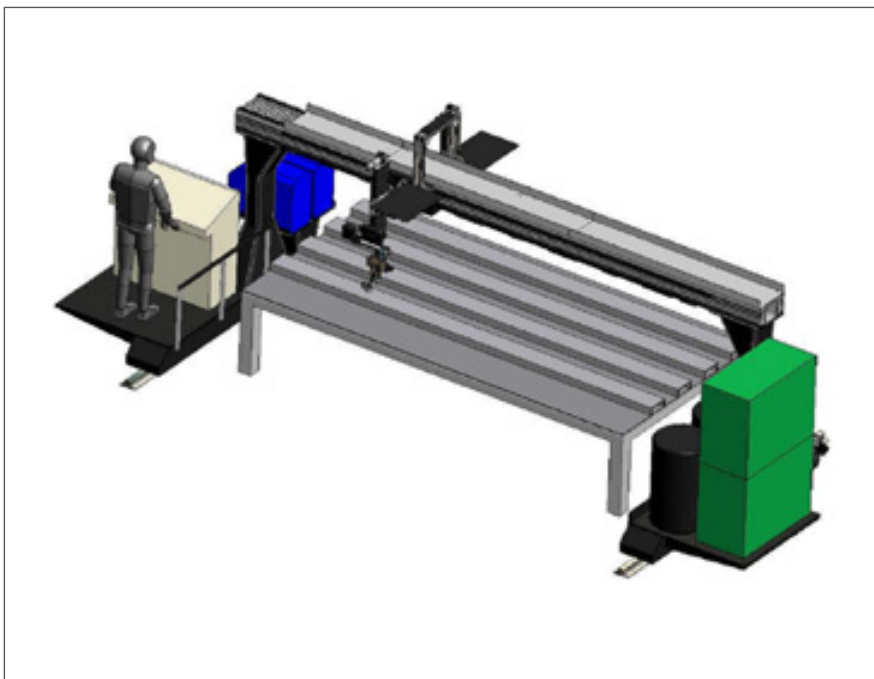
Max. span: 4 m

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 MIG WELDING OF ALUMINIUM PANELS.

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

From 0.1 to 100 tons.

This section offers to our customers an impressive choice of standard solutions which, if needed, 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 can be specially fit for handling irregular work pieces.

THE RANGE

- ONE, 100 kg bench positioner.
- 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.



ONE 100 KG BENCH POSITIONER



ONE BASE

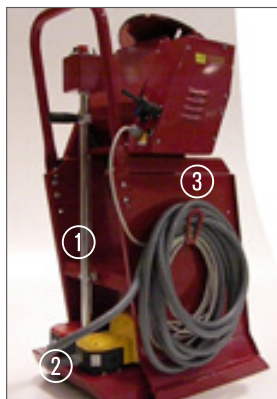
- Table Ø 320 mm
- Weld ground 300 A
- Step less manual tilt 0° to 120°
- Rotation driven by AC servo-ventilated motor and vector inverter, with speed display in rpm

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

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

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

Its base is provided of 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:

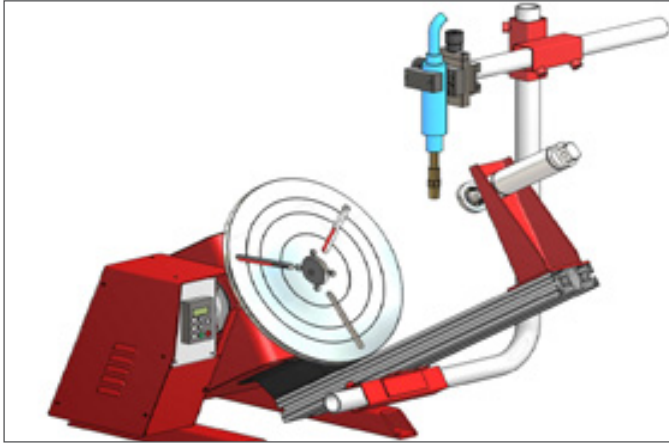
- Speed monitor in rpm
- Emergency cut off with reset on the inverter panel
- 10-turn potentiometer
- Push buttons start / stop
- Push buttons rotation clockwise / counter clockwise
- Switch weld on / off
- Switch speed adjusted / maximum
- Switch pneumatic tailstock IN / OUT (manual cycle)
- Switch pneumatic torch holder tilt ON / OFF (manual cycle)
- 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 carter
3. Hook for cables

ONE 100 KG BENCH POSITIONER

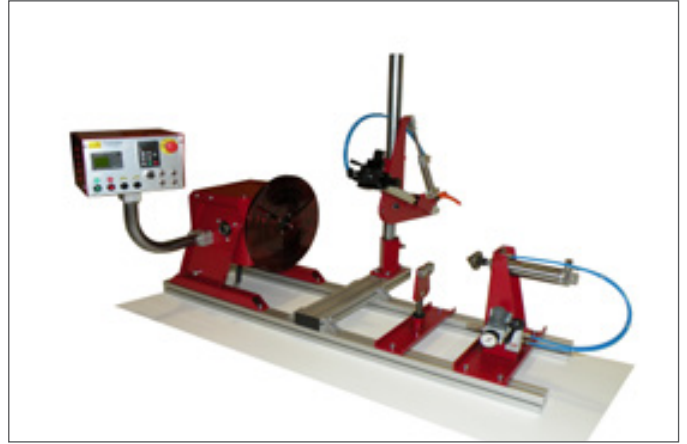


ONE SWAN

«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 of pneumatic torch holder, of dolly and of 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 micrometric cross slides type SM50/2, installed on 600 mm aluminium base profiles



P and PE

2 and 3 AXIS, MOTORIZED TILT



STANDARD FEATURES:

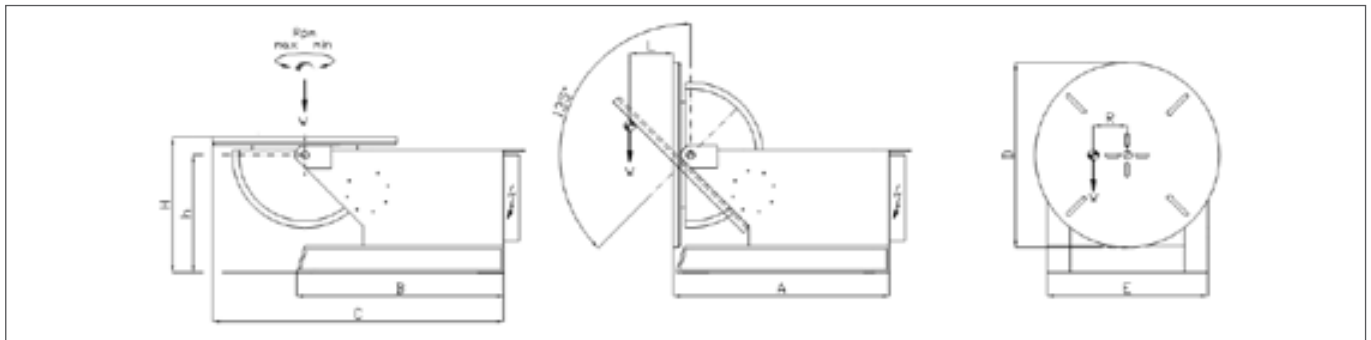
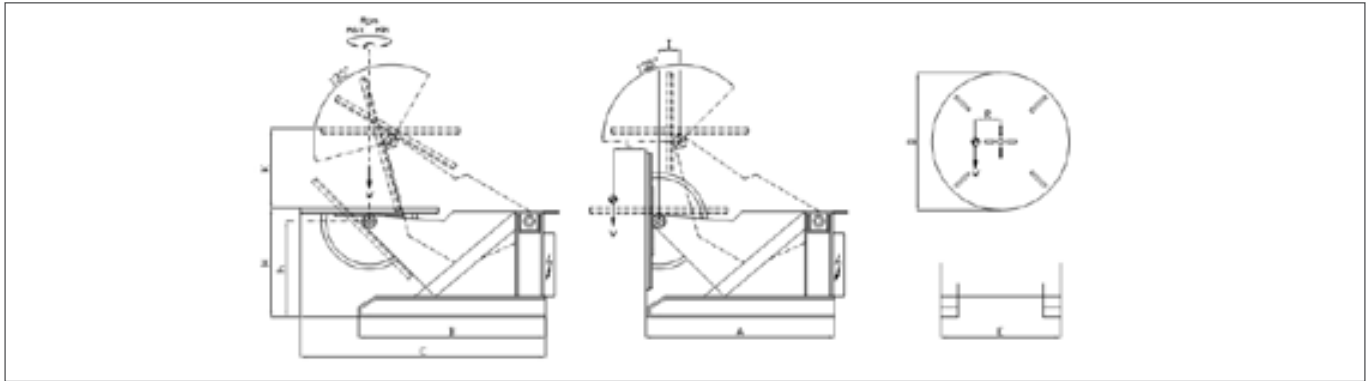
- Rotation driven by AC servo-ventilated motor and vector inverter
- Mechanical tilt at fixed speed
- Hydraulic lift (PE models only)
- Interface to automatic welding machine
- 24V remote control by push button set
- Weld ground 400 to 1200 A
- Feeding 400V 50 Hz

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, h, H, K, I = 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	770	0,4
JODA8	0,8	0,31	0,124	0,1/1,30		965	1365	1255	900	910	800	928	0,85
P012	1,2	0,36	0,15	0,06/0,92	0,11/1,60	705	870	1120	1000	840	720	805	1
JODA20	2	0,51	0,2	0,07/1,0		1350	1675	1680	1200	1145	950	1010	1,2
P030	3	0,9	0,36	0,08/0,80	0,05/1,00	1155	1290	1630	1200	1070	750	880	1,4
P060	6	2,7	0,5	0,07/0,70	0,065/1,30	1530	1610	2105	1400	1160	890	1020	2,2
P125	12,5	5,5	1,2	0,05/0,50	0,045/0,90	1655	1700	2350	1700	1500	1000	1155	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

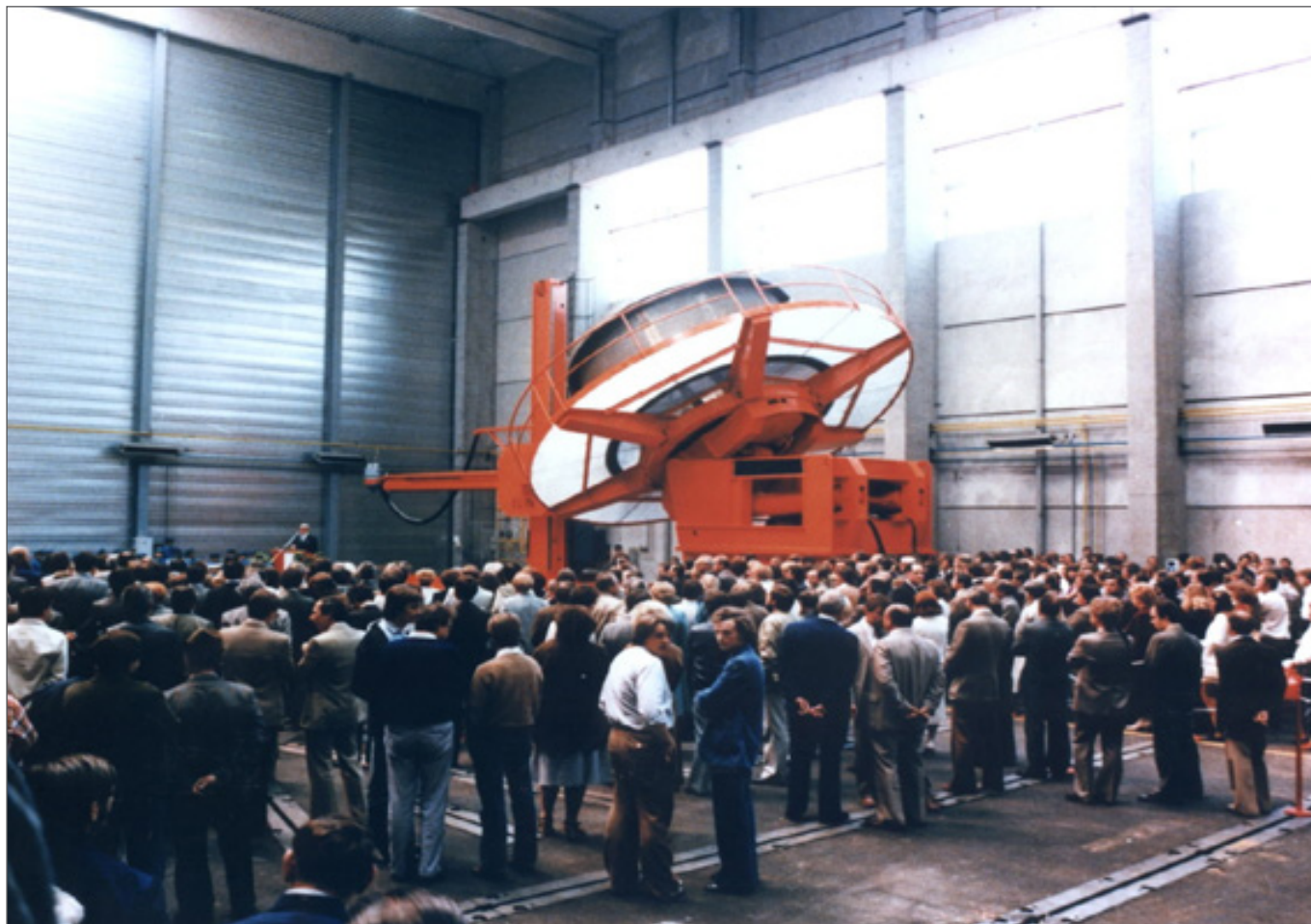
POSITIONERS 3-AXIS (AC rotation, Mechanical 135° - Hydraulic Lift)

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	1260	1370	1550	750	815	690	770	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	0,07/0,70	0,065/1,30	2225	2080	2630	1400	1505	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



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)

Model PI e ET

Type	W	WxL	WxR	E1E	E2E	A	B	C	D	E	h	h1	H	P
PI030	3	1,2	0,36	0,08/0,80	0,05 /1,00	1250	1385	1725	1200	1000	750	- -	880	1,3
PI060	6	3,2	0,5	0,07/0,70	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	12	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	2800	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

PI and ET 2 AXIS, HYDRAULIC TILT



ET-250: SAW of forged elbows



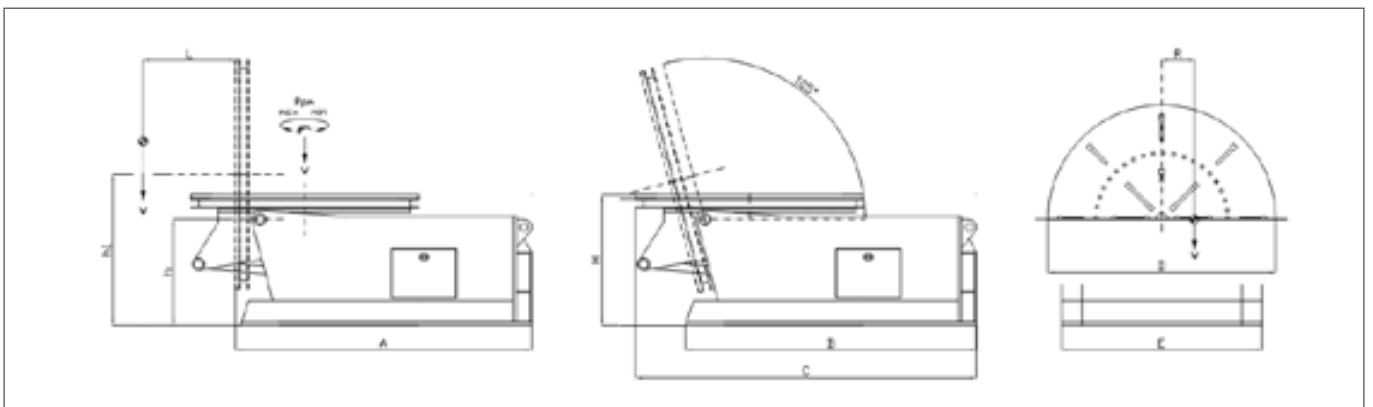
ET-600

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.



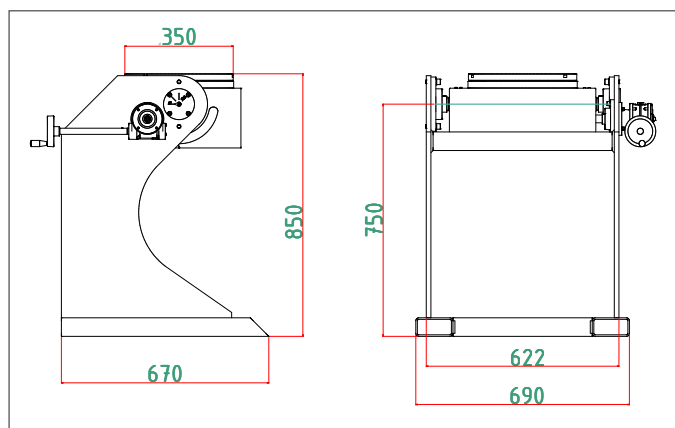
HOLLOW SPINDLE



JD 1-100

HOLLOW SPINDLE Ø 100 MM

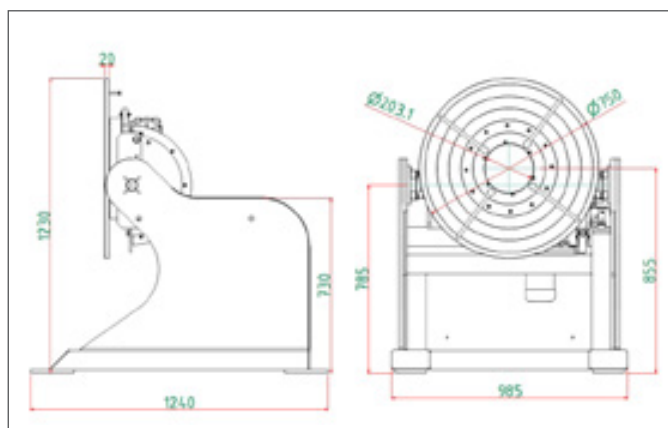
- Weight capacity 100 kg
- Tilt torque 40 kgm
- Rotation torque 12 kgm
- Table Ø 350 mm, three T radial slots stepped 120°
- Manual tilt 0° to 135° by gearing and hand wheel
- Speed range 0.1 to 4 rpm driven by DC motor with tacho generator
- Weld ground 400 A
- Remote control by push button set
- Feeding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



JD 5

HOLLOW SPINDLE Ø 200 MM

- 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 gear-motor
- Speed range 0.05 to 2 rpm driven by brushless motor and encoder
- Weld ground 400 A
- Remote control by push button set



HOLLOW SPINDLE



JD BF JODA BI-FACE

HOLLOW SPINDLE Ø 200 MM

MOTORIZED TILT 180°

- Weight capacity 300 kg
- Tilt torque 120 kgm
- Rotation torque 60 kgm
- Table Ø 750 mm
- Motorized tilt 0° to 180° in 30 sec
- Speed range 0.1 to 2 rpm (other ranges on demand)
- Weld ground 400 A
- Switch to select MIG / TIG with cold wire
- Work cycle: start delay, 360° + x° overlapping, - x° backstroke
- Remote control by push button set



JD10S400 JODA

HOLLOW SPINDLE Ø 400 MM.

- Weight capacity 1000 kg
- Tilt torque 200 kgm
- Rotation torque 100 kgm
- 3-jaws chuck, hollow spindle Ø 400 mm
- Motorized tilt 0° to 135°
- Speed range 0.05 to 2 rpm (other ranges on demand)
- 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.

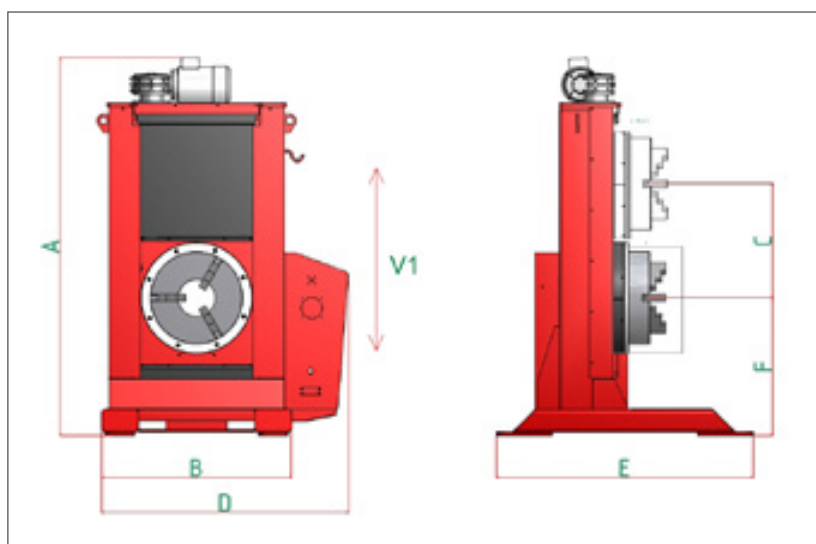
The hollow spindle (Ø 200 or 260 mm accordingly with the chuck installed) allows introducing the pipe through the rear side as well as observing welding through the inside of the pipe and feeding back-up gas

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		JDHE1	JDHE2
W	kg	1000	2000
W x K	kgm	300	560
W x R	kgm	100	200
V1	mm/'	560	560
E1	rpm	0,2 – 10	0,05 – 2
A	mm	2055	2830
B	mm	1030	1120
C	mm	600	1000
D	mm	1338	1430
E	mm	1390	1400
F	mm	745	890



3 AXIS ORBIT and ELEVATING



JDTRIPLE

3-AXIS ORBIT AND ELEVATING POSITIONER

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

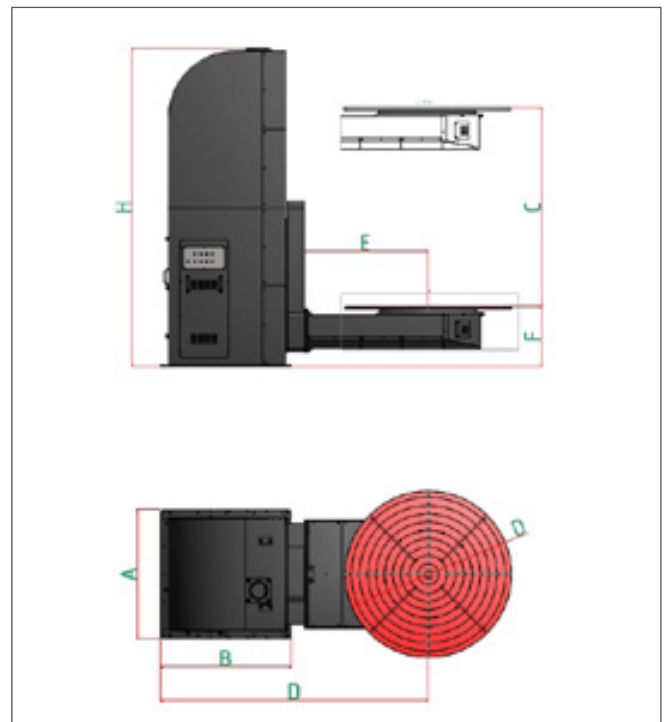
Lift is performed by ball screw with safety nut and the whole lift transmission is protected by bellows.

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

MODEL		JD TRIPLE 1	JD TRIPLE 3
W	kg	1000	3000
W x K	kgm	300	1000
W x R	kgm	130	400
A	mm	770	1550
B	mm	780	1570
C	mm	850	1700
D	mm	900	2000
E	mm	890	1485
F	mm	575	575
H	mm	1915	3830



JODA MICRO



Modules of JODA MICRO 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.

Standard modules are:

- Motorized headstock
- Pneumatic Tailstock
- Feet for horizontal standing in fixed position, or alternatively JDMCR.ST fixture for rotating 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
- Beam lengths available from 1000 to 4000 mm (or up to 1500 mm if the lathe is installed on rotating fixture)
- Weight capacity 200 kg
- Maximum work piece Ø 450 mm

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.

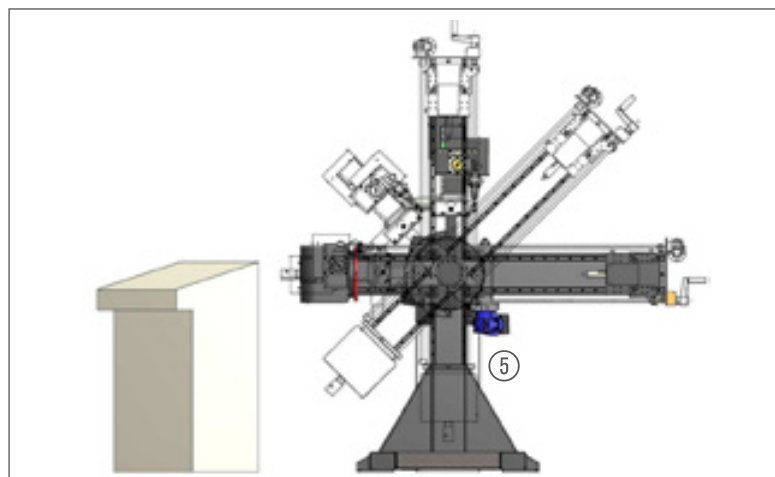
Rotation of both headstock and tailstock are motorized and synchronized, the tailstock being also provided of axial stroke driven by pneumatic cylinder, thus allowing the edge-to-edge welding without any stitching.

JODA MICRO with rotating fixture

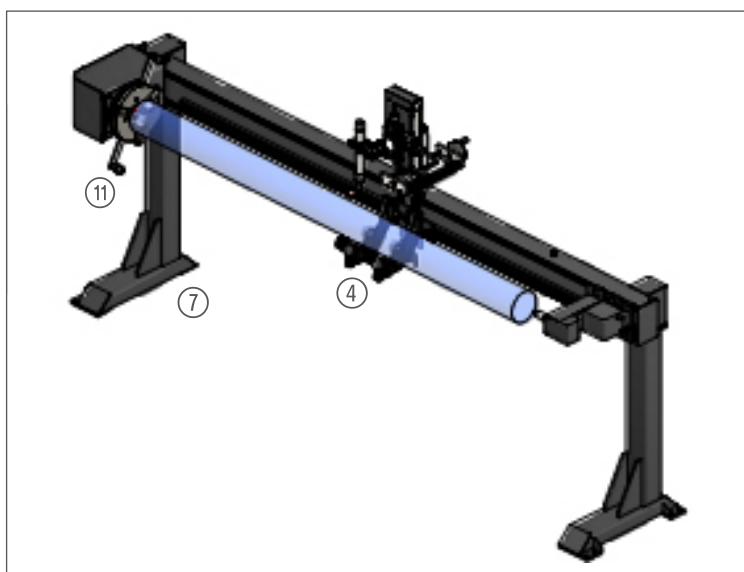
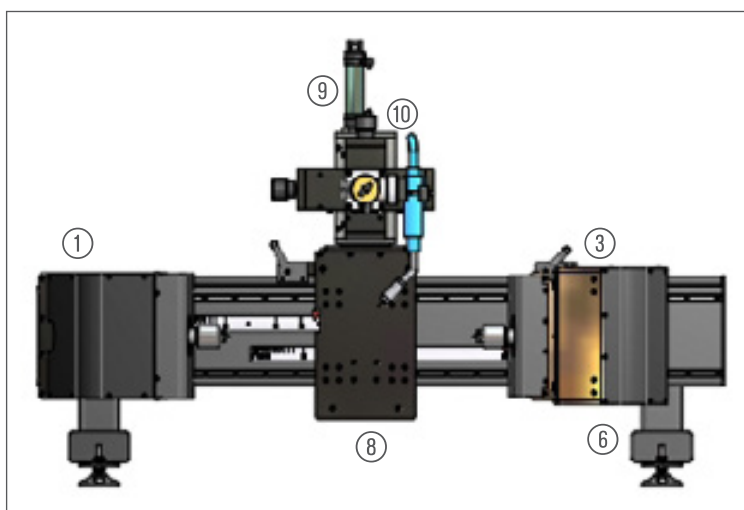
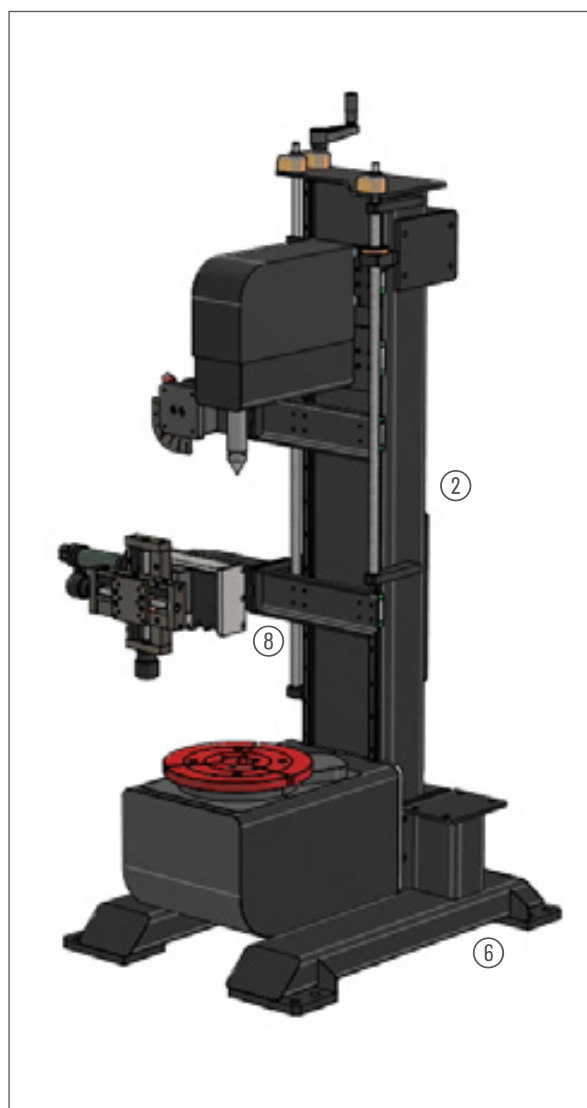
Module JDMCR.ST allows rotating the whole assembly of headstock – beam – tailstock – torch holder without modifying the alignment of any component.



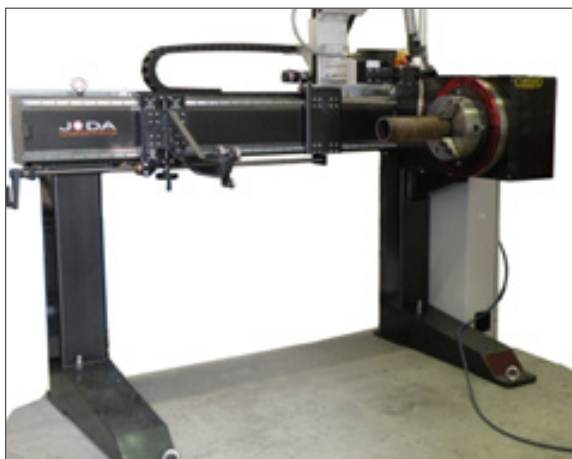
Picture aside:
JODA MICRO
without cell



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 TWIN torch holder
11. Chuck Grip 300

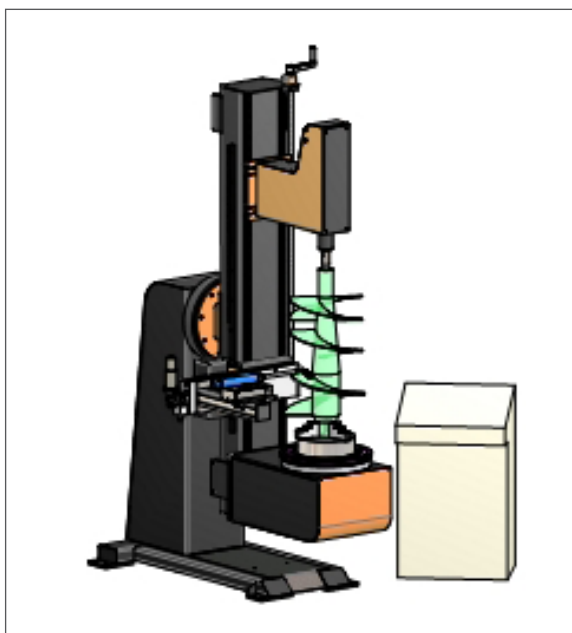


JODA MIDI

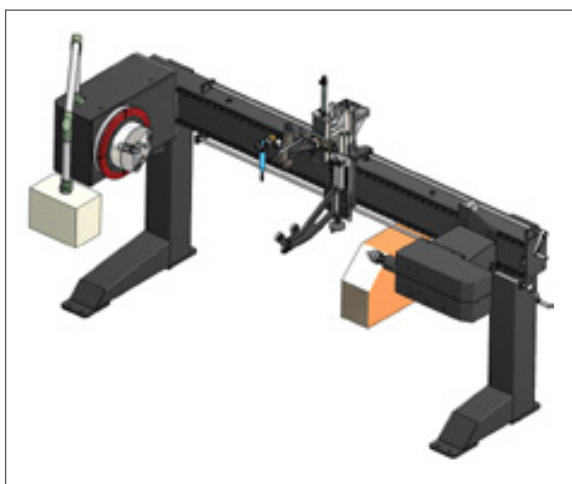


MODULES OF JODA MIDI LATHE CAN BE COMBINED TOGETHER AS WELL AS WITH ANY CARPANO'S ITEM OF COMPLEMENTARY EQUIPMENT SO AS TO DELIVER PLANTS SUITABLE FOR ANY NEED.

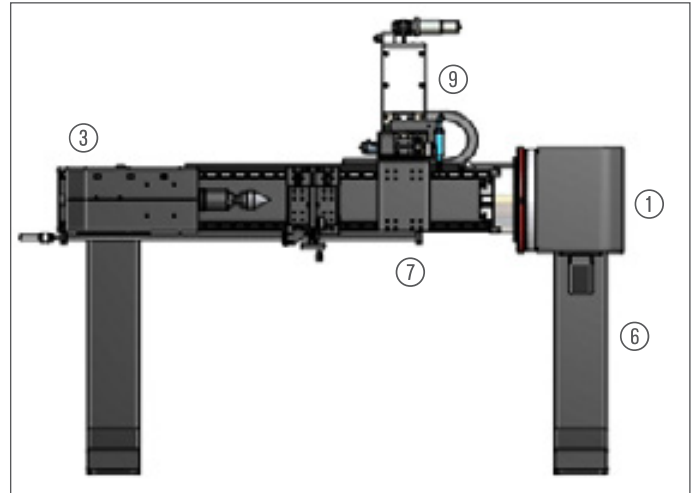
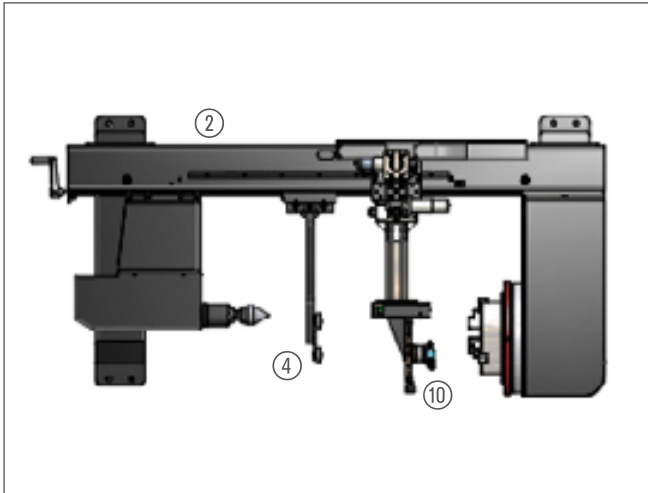
- Motorized headstock
- Pneumatic Tailstock with manual or motorized traversing
- Feet for horizontal standing in fixed position , or alternatively support to rotate the lathe 0° to 90° to optimize weld angle
- One or two side beam torch carriages which can be equipped with manual, pneumatic or motorized 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



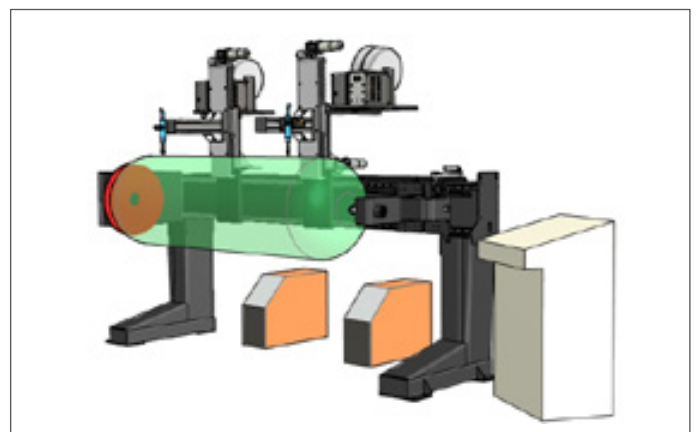
JODA MIDI lathe on -90° to + 45° rotating support for hard facing of worm screws.
The torch carriage equipped with x/y motorized slides.
Remote control desk.



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

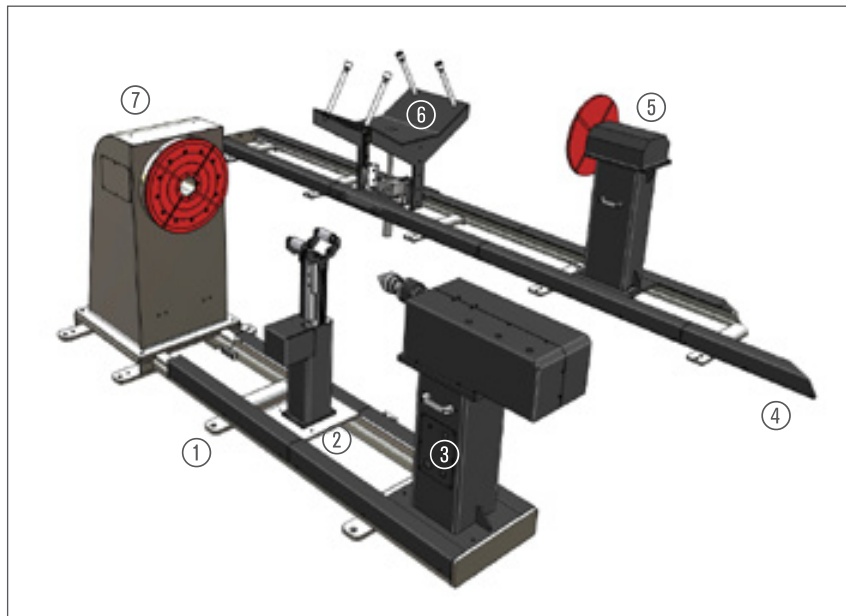


1. JDMD.TM Headstock
2. JDMD.B _ _ _ Beam
3. JDMD.CP Tailstock
4. JDMD.LS Dolly
5. JDMD.ST Rotating support
6. JDMD.P Pair of feet
7. JDMD.CR Carriage (manual or motorized)
8. CHK-ST-315A Chuck
9. MM MIDI 250/1 Vertical motorized slide
10. SM MIDI Manual slides



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 DELIVER 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.

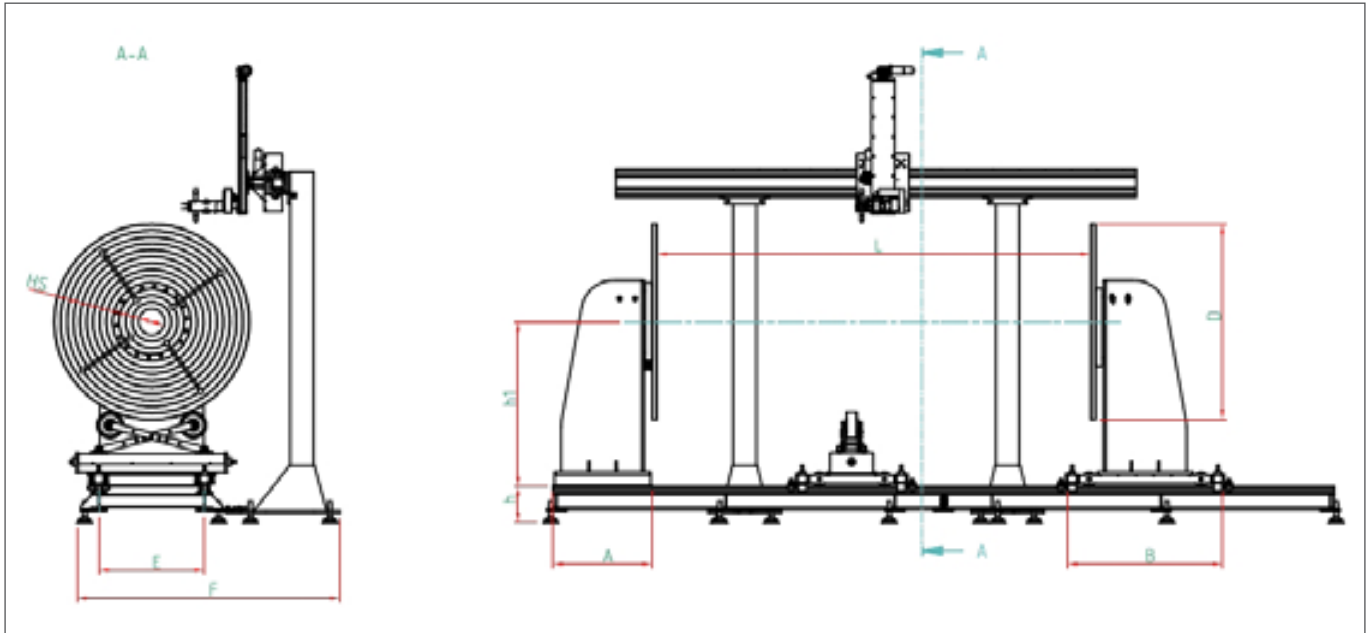


LATHE JDH04 CONSISTING OF:

- 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 JDHCP10 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.



[*] OPTIONAL FEATURES

1. Different torque
2. Different speed range or drive
3. Pneumatic tailstock
4. Different diameter
5. Different work cycle (start delay, $360^\circ + x^\circ$ 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
JDH04	400	60	200	0,05/2,0	1000 / 6000	500	100	760	850	810	1250	250	780
JDH10	1000	200	350	0,05/2,0	1000 / 6000	900	100	760	1000	810	1600	250	1020
JDH20	2000	300	500	0,01/0,5	1000 / 6000	1200	200	760	1190	810	2000	250	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 = Rotation torque Ton x m
W x R = Tilt 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

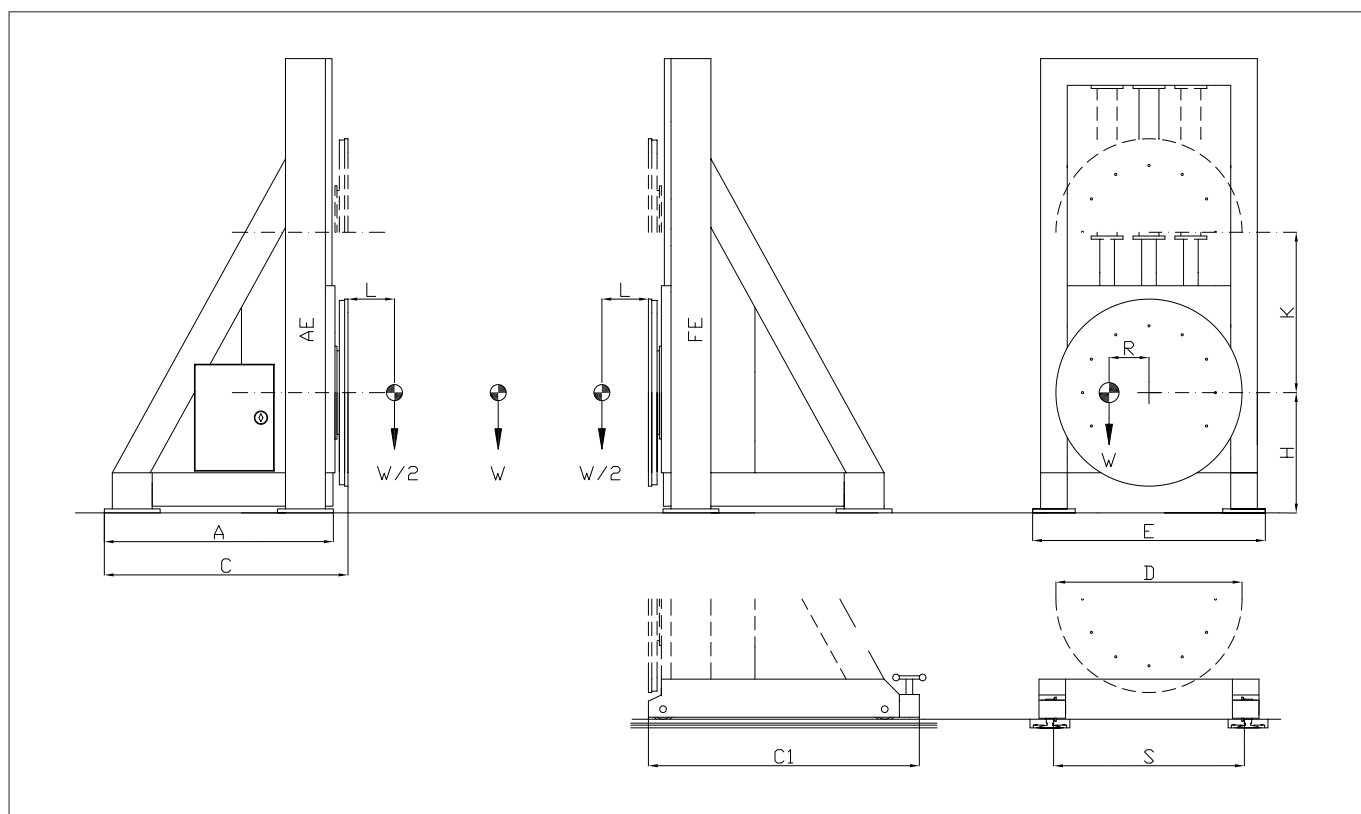
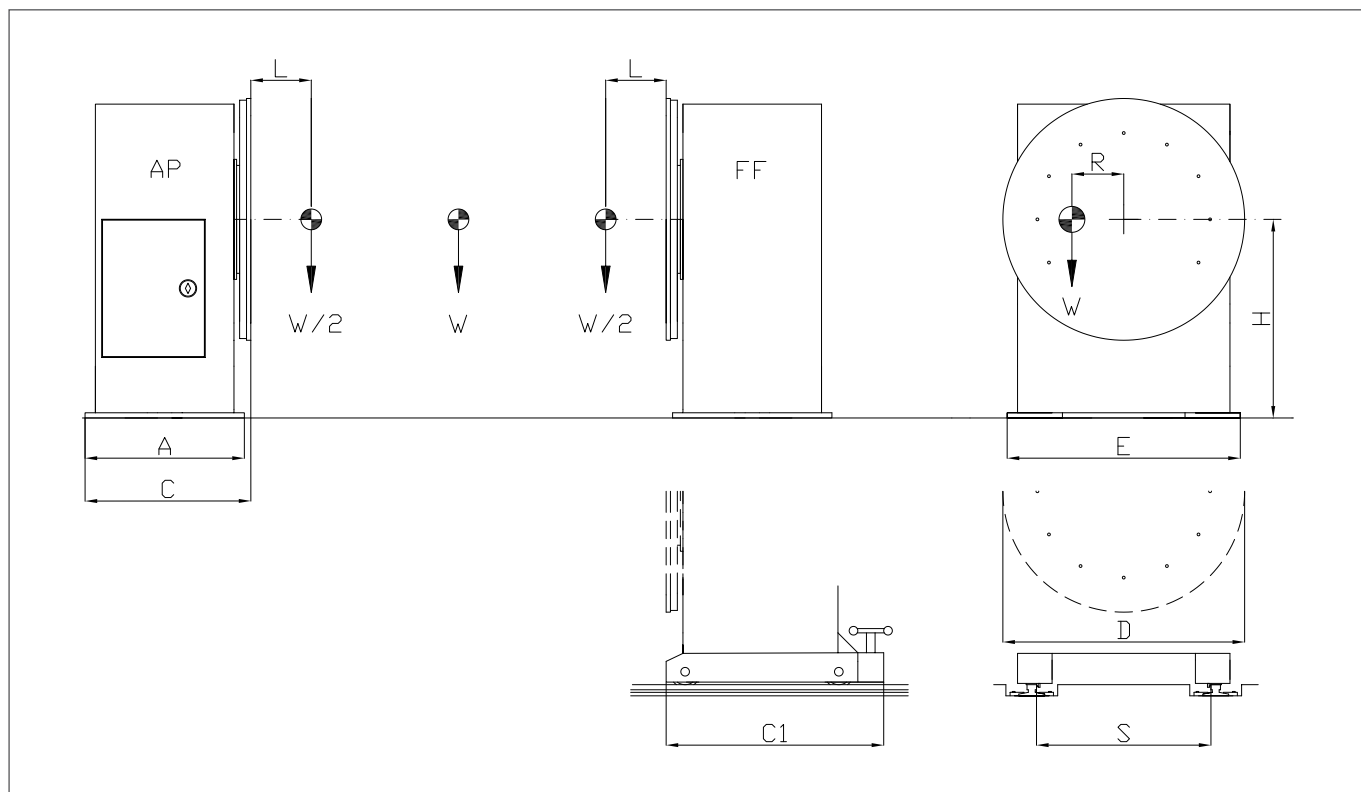
AP+FF: THE BIG LATHES

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)

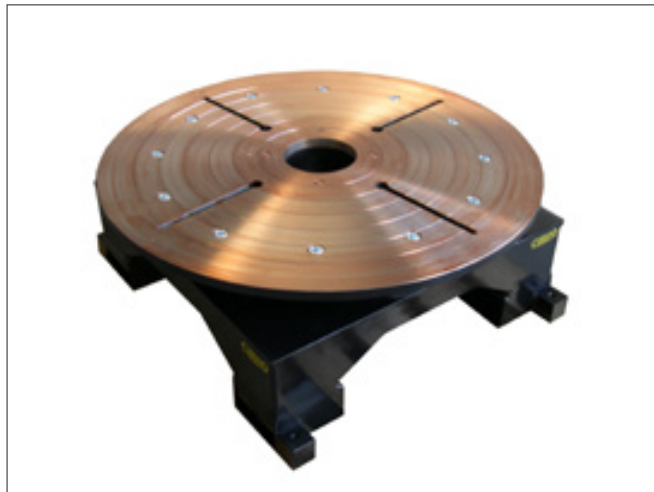
Type	W	W/2xL	WxR	E1	F1	A	C	C1	D	E	H	K	S	P/AE	P/FE
AE020+FE020	4	0,4	0,15	0,05/0,5	0,5	750	810	1150	1000	1300	800	750	1000	1,4	1,2
AE050+FE050	10	1	0,4	0,05/0,5	0,5	800	995	1690	1200	1700	800	1000	1000	3,4	2,36
AE100+FE100	20	3	0,8	0,05/0,5	0,5	1050	1370	1890	1400	1800	1000	1000	1000	5	3,7
AE200+FE200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



JODA PLANO and AV

JDPL25



JDPL50 , incorporating electric cabinet and remote control



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.

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

W = Weight capacity ton

W x R = Rotation torque ton x m

E1 = Speed range min/max rpm

D, F, H = Dimensions mm

P = Weight ton

HORIZONTAL TURNABLES

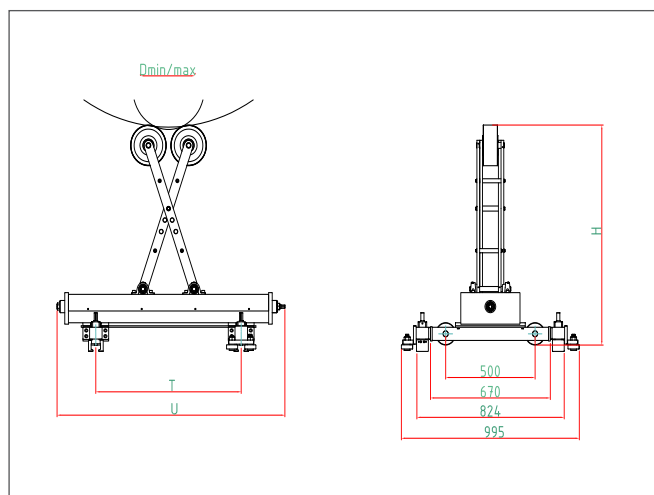
Type	W	WxR	E1E	D	F	H	P
JDPL25	2,5	0,15	0,065 /1,0	900	150	362	0,6
JDPL 50	5	0,35	0,065 /1,0	1500	150	400	0,9
AV 100	10	0,5	0,085 /1,3	1400	40	800	1,65
JDPL 150	15	0,9	0,065 /1,0	2000	500	426	1,65
AV 200	20	1,2	0,060 /0,9	1700	60	850	3
AV 300	30	1,7	0,033 /0,5	1900	85	880	4,3
AV 400	40	2,3	0,016 /0,25	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.
- Feeding 400V 50Hz (230V only JDPL25).

IP TRE

IDLE ROLLS DOLLIES



IP TRE IS AN IDLE ROLLS HEIGHT ADJUSTABLE DOLLY

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

STANDARD FEATURES

- Height adjustment by screw and hand wheel
- Two models available, payload 1000 or 1500 kg
- Stationary execution or with lorries for traversing on rails

TECHNICAL DATA	IP TRE 10	IP TRE 15
Weight capacity	1000 Kg	1500 Kg
Ø min - max	250 - 1250 mm	250 - 1500 mm
Polyurethane coated wheel Ø	250 mm	250 mm
T (Different gauge upon request)	813 mm	813 mm
U	1128 mm	1275 mm
H	993 mm	1080 mm

ROTATORS

FROM 1 TO 460 TON (AND MORE UPON REQUEST). Besides conventional rotators, unmatched for reliability, you'll find bench, bi-motor, self-aligning and the new Fit-Up models which can all be combined with other products of ours, mostly with manipulators, to deliver a complete plant controlled either by a unique or more cabinets.

THE RANGE:

- ROLLO1: 1000 kg bench rotator.
- R025: 2500 kg rotator «the pipe fitter».
- OBY 8 and OBY 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

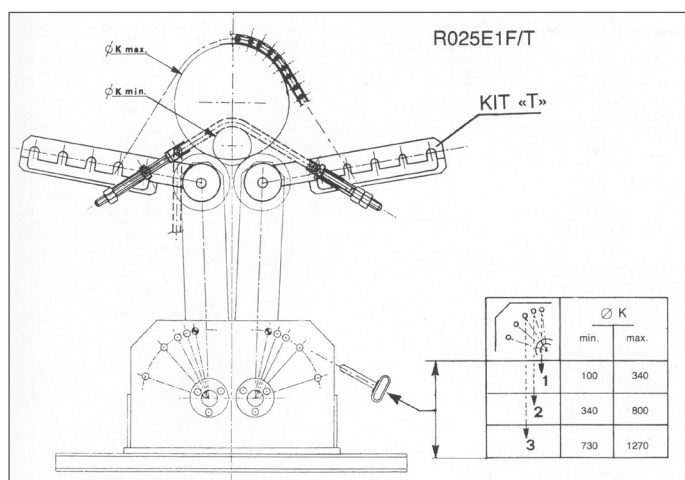
1. Emergency cut-off push button
2. Potentiometer 10-turns
3. Switch weld on / off
4. Switch rotation direction
5. Switch speed fast / adjust
6. Multi-function panel displaying speed in cm / min, emergency reset, inverter lay-out
7. Fuse
8. Main switch
9. Torch contact connector
10. Feeding cable 230V one-phase
11. 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

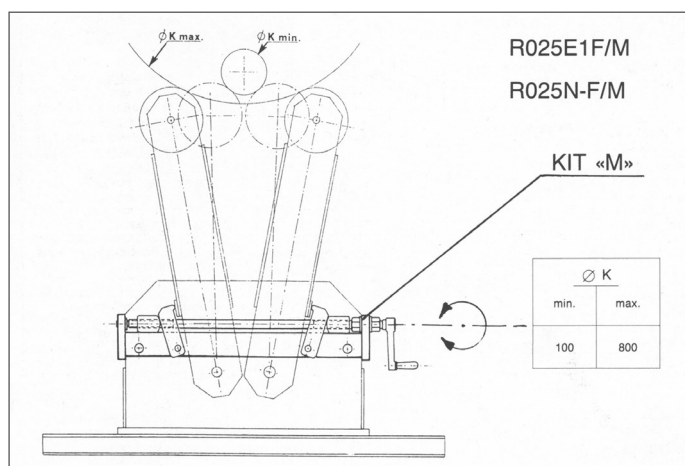


POWER SECTION EXECUTION R025E1F/T

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

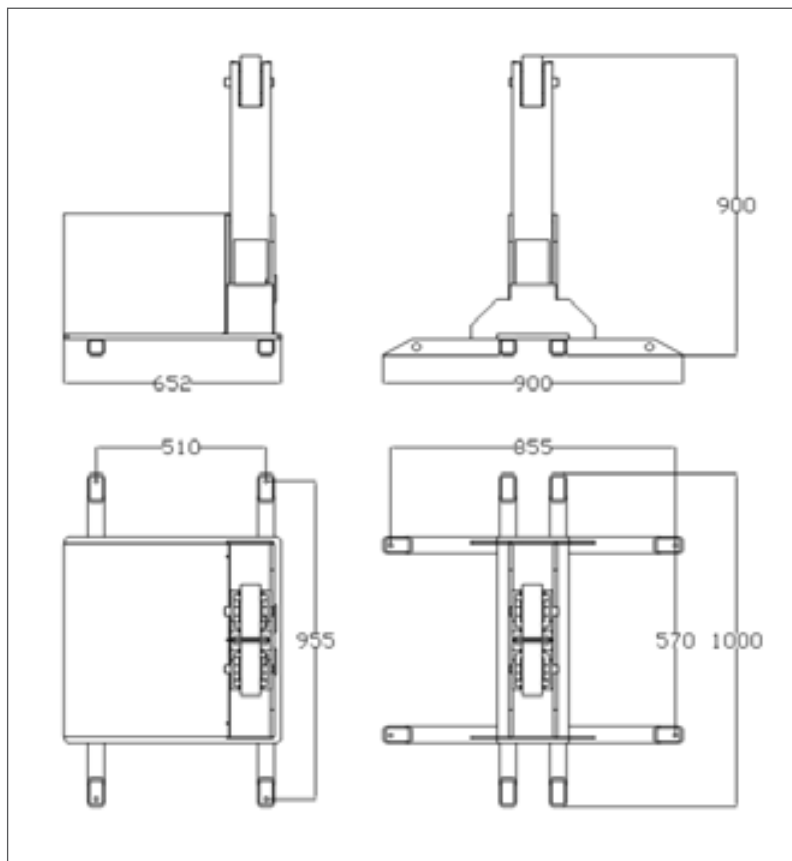
IDLE SECTION EXECUTION R025N-F/M

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

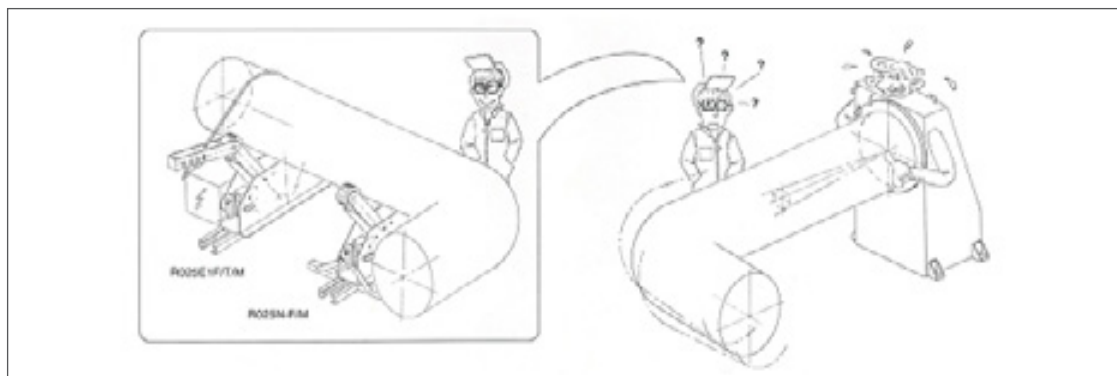
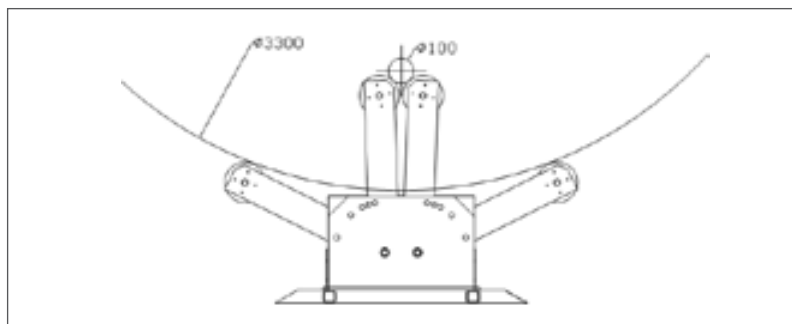
Speed range	114-1370 mm/'
Max drive capacity	2,5 ton
Weight	190 kg
Feeding	230/400 50 Hz
Weight capacity	1,25 ton

Idle unit R025N-F

Weight	105 kg
Weight capacity	1,25 Ton

GENERAL DATA

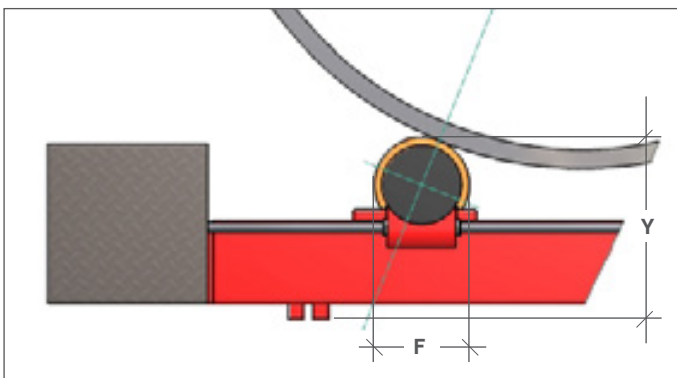
Weight capacity D+I	2,5 Ton
Rolls Ø	160 mm
Rolls width	50 mm
Rolls center-center	175 - 1245 mm
Rolls material	Polyurethane
Work piece Ø	100 - 3300 mm



5.5 TON/SET to 460 TON/SET

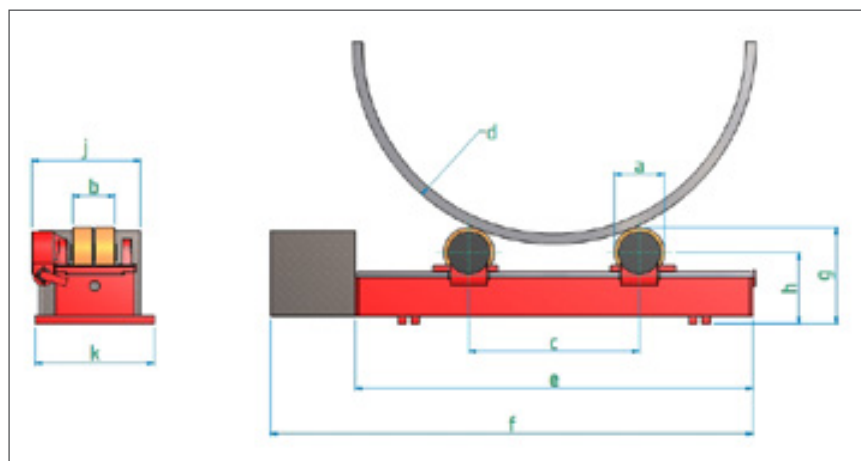


1. Worm screw gearings coaxial to wheels are specially designed and built by PASSERINI so that:
 - The diameter of the casing being smaller than the one of any commercial product, height Y results lower than any rotator of the same capacity built by competitors;
 - Owing to the bronze crown and worm screw special executions, the torque is greater than the one quoted by most competitors;
 - 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.

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

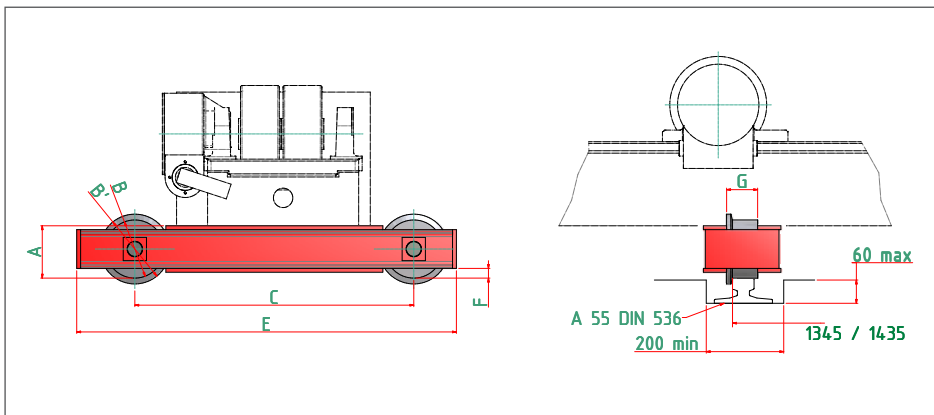
Drive		R055_F	R060_A	OBY8	R110_F	R120_A	R125_G	R150_M	OBY15	R200_F	R300_F	OBY40	R500_M
_E1	mm/min	148-1480	148-1480	120-1200	110-1100	110-1100	94-945	94-945	120-1200	100-1000	100-1000	120-1200	100-1000
_E2	mm/min				240-2400	240-2400	170-1700	150-1700		130-1300	170-1700		130-1300
_E3	mm/min									200-2000			
CTR	Ton	9	10	15	18	20	18	22,5	25	30	45	50	90
C Idler		R055N-F	R060N-A	OBY10NF	R110N-F	R120N-A	R125N-G	R150N-M	OBY20NM	R200N-F	R300N-F	OBY40NF	R500N-M
P (1D+1C)	Ton	5,5	6	10	11	12	12,5	15	20	20	30	40	50
P (1D+2C)	Ton	8,25	9	15	16,5	18	18	22,5	15	30	45	50	70
P (1D+3C)	Ton	9	10		18	20			25				90
Øa x b	mm	200x80	198x80	300x200	250x100	248x100	250x320	250x330	350x180	250x210	350x210	400x200	350x335
c min/max	mm	210/1500	210/1500	400/1700	290/1550	290/1550	290/1540	290/1540	450/2200	290/1540	380/1550	600/2200	412/1986
d min/max	mm	200/3850	170/3850	250/4500	250/4000	200/4000	180/4000	180/4000	350/5000	180/4000	600/4700	400/5000	700/5000
e	mm	1740	1740	2500	1970	1970	1970	1970	2800	1970	2490	3200	2640
f	mm	2240	2240	2500	2790	2790	2690	2690	2800	2690	3360	3200	3680
g	mm	315	315	492	375	374	437	437	542	437	488	645	512
h	mm	265	265	342	315	315	352	352	367	352	338	445	367
j	mm	500	500	560	520	520	500	500	578	755	950	689	1050
k	mm	426	426	470	476	476	700	700	470	590	620	590	750
W D	Kg	250	270	410	330	370	520	550	600	550	1000	1250	1300
W C	Kg	125	145	290	170	210	350	380	400	380	700	800	900

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

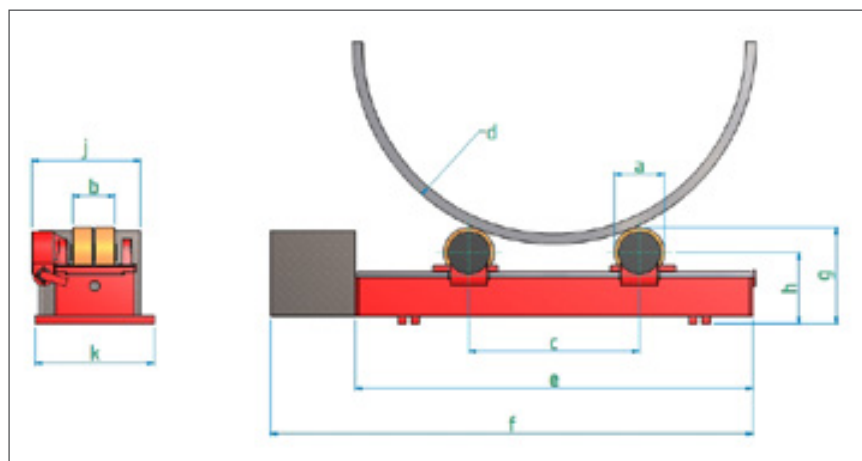


FIT UP MODELS

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.



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)

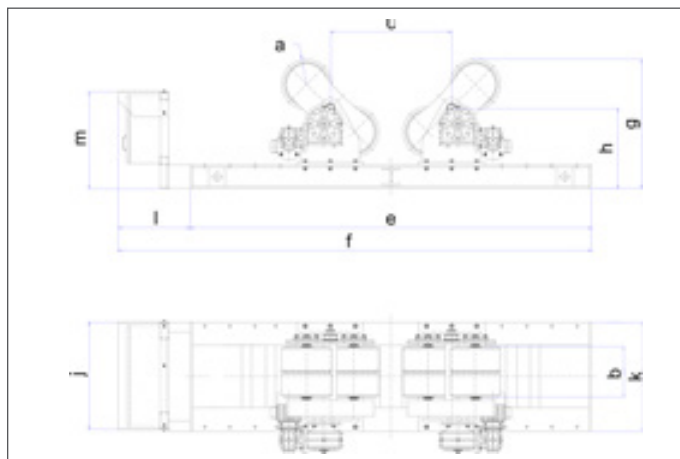
P = Weight capacity

E1, E2, E3 = Minimum /maximum speed

W = Net weight

D Drive Section		R07C_A	R07C_M	R14C_A	R14C_M	R20C_M	R23C_A	R35C_A	R46C_A
_ E1	mm/min	85/850	85/850	60/600	60/600	70/700	70/700	70/700	70/700
_ E2	mm/min	130/1300	130/1300	78/780	78/780	85/850	85/850	85/850	85/1200
_ E3	mm/min			120/1200	120/1200	120/1200	120/1200	120/1200	
CTR	Ton	100	100	200	200	280	330	500	650
C Idler		R07CN-A	R07CN-M	R14CN-A	R14CN-M	R20CN-M	R23CN-A	R35CN-A	R46CN-A
P (1D+1C)	Ton	70	70	140	140	200	230	350	460
P (1D+2C)	Ton	100	100	200	200	280	330	500	650
Øa x b	mm	350x150	350x450	500x200	515x520	710x555	690x250	690x250	690x250
c min/max	mm	425/2167	425/2167	610/2710	610/2710	810/2760	790/2740	790/2740	790/2740
d min/max	mm	700/5000	700/5000	900/6000	900/6000	1300/6000	1300/6000	1300/6000	1300/6000
e	mm	2780	2780	3490	3490	4040	4040	4040	4040
f	mm	3810	3810	4520	4520	5315	5315	5315	5315
g	mm	580	580	720	730	985	1004	1045	1100
h	mm	430	430	495	495	649	689	735	795
j	mm	1050	1050	1200	1200	1370	1275	1380	1420
k	mm	750	1000	900	1000	1000	1200	1200	1200
W D	Kg	2000	2200	2900	3400	7300	6700	8600	10400
W C	Kg	1400	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 idle unit

TYPE		RB60	RB120	RB200	RB300	RB500
E1	mm/1'	120 -1200	100 - 1000	100 - 1000	100 - 1000	80 - 800
P	Ton	6	12	20	30	50
P/2	Ton	3	6	10	15	25
Øa x b	mm	250x150	300x150	320x250	400x300	500x300
c min/max	mm	210/1500	210/1500	290/1550	290/1550	290/1540
d min/max	mm	800/3000	800/4000	1000/4000	1250/4500	1500/5000
d1	mm	400	400	500	500	500
e	mm	2000	2060	2180	2350	2920
f	mm	2420	2610	2645	2850	3520
g min/max	mm	525/725	705/780	780/860	740/910	850/1070
h	mm	450	480	455	515	575
k	mm	600	700	900	950	1100
l	mm	630	750	920	1000	1140
m	mm	550	625	670	670	670
W D	Kg	510	650	1150	1350	2400
W C	Kg	360	450	850	1000	1600

ANTI-DRIFT SYSTEMS

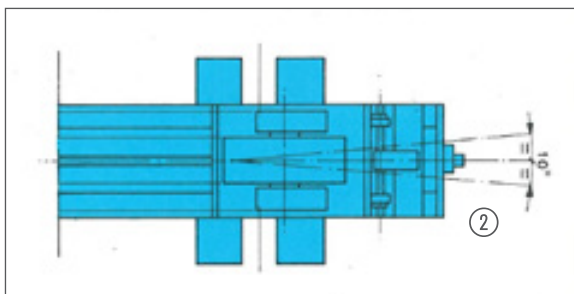
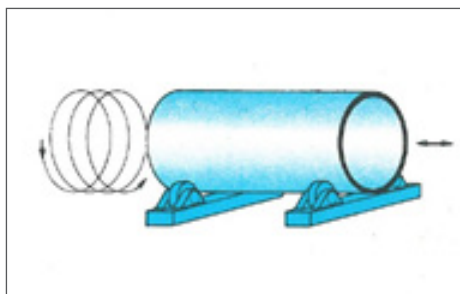


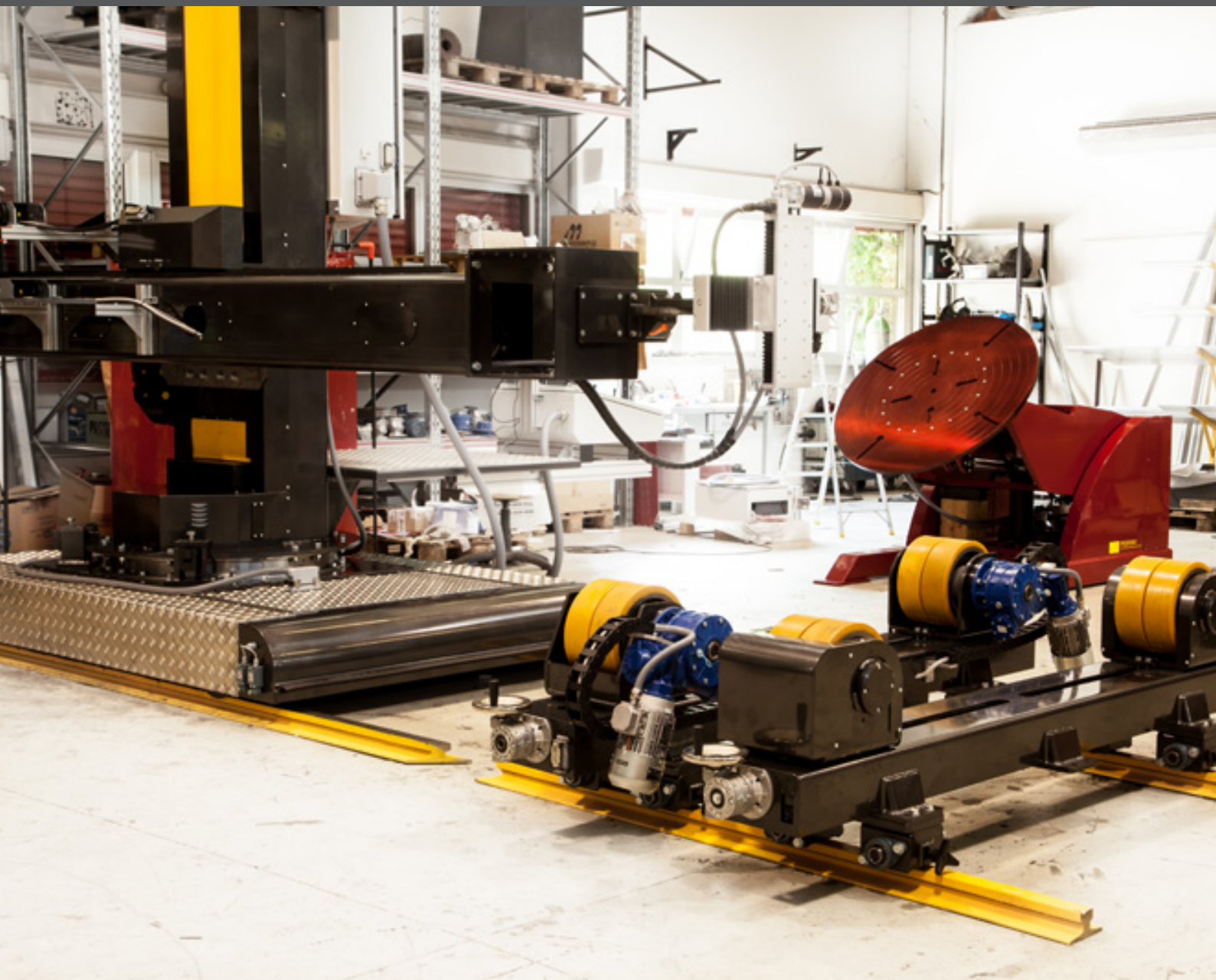
ANTI-DRIFT BUMPERS

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, in truth the seamer is a rather complicated machine owing to the attention to be paid and the various fixtures to be installed to suit the different welding processes which can be performed on it.

That's why the following pages give only some suggestions, with the understanding that exhaustive technical specification shall accompany any offer you'll request.

We underline that CNC can be applied to all models in order to meet with any possible requirement.

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

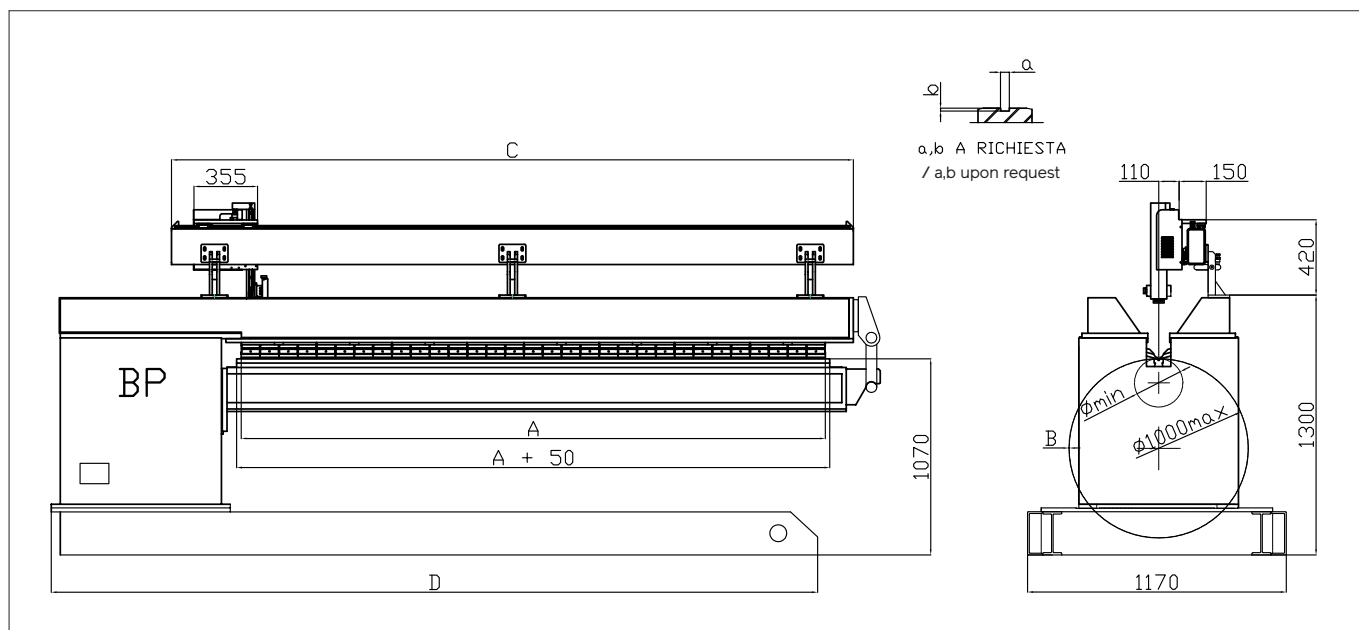
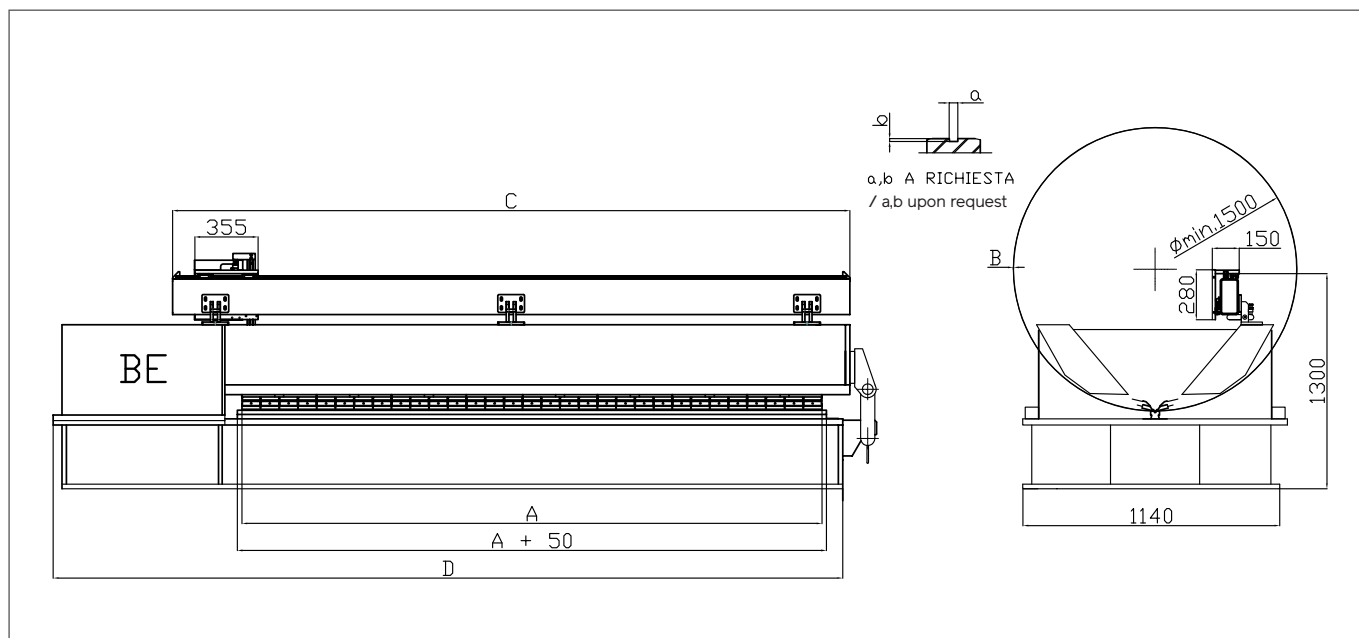
- Operator platforms hanging from both sides
- Platform provided of Teflon guides and of clamps for rounding the cylinder, height adjustable and motorized for automatic load/unload



**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	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:

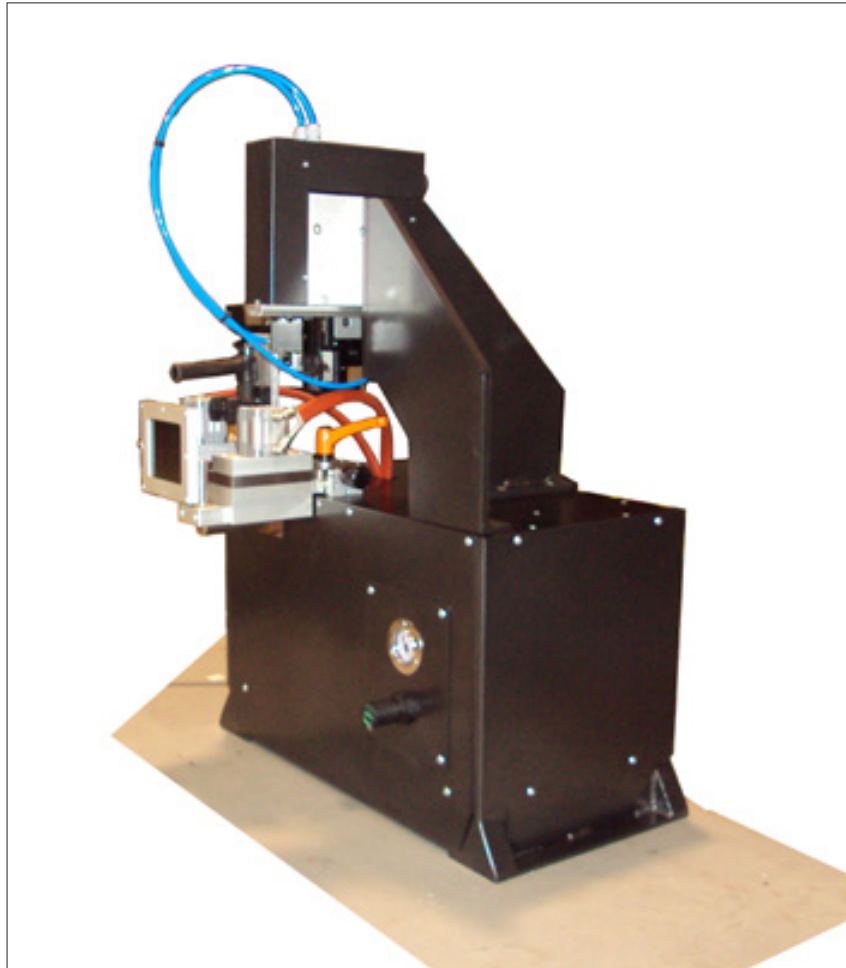
- Positioning of the left edge
- Clamping of left edge
- Positioning of the right edge
- Clamping of right edge

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



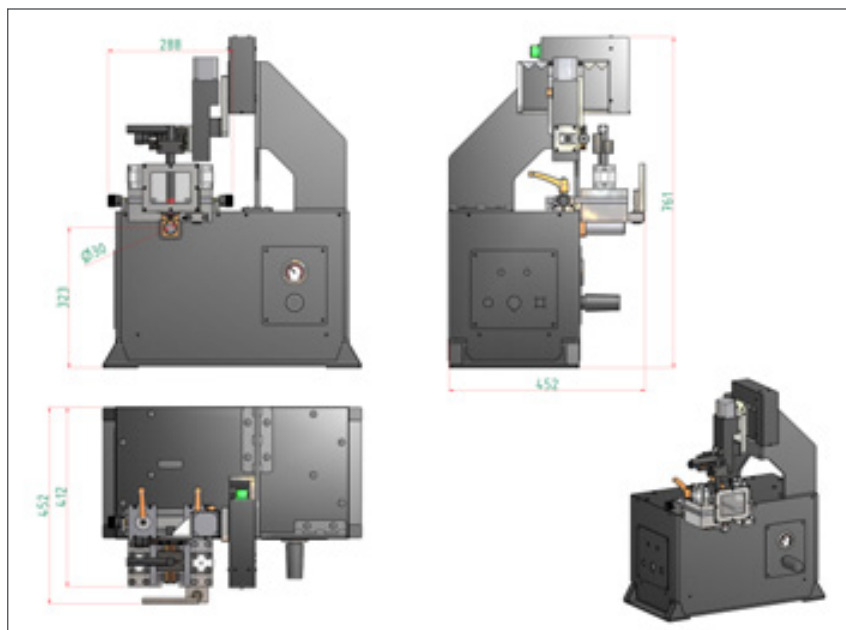
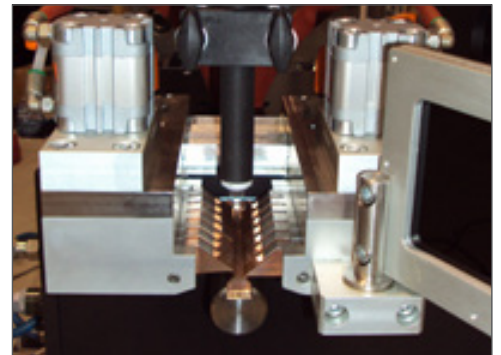
High precision for thin walls

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

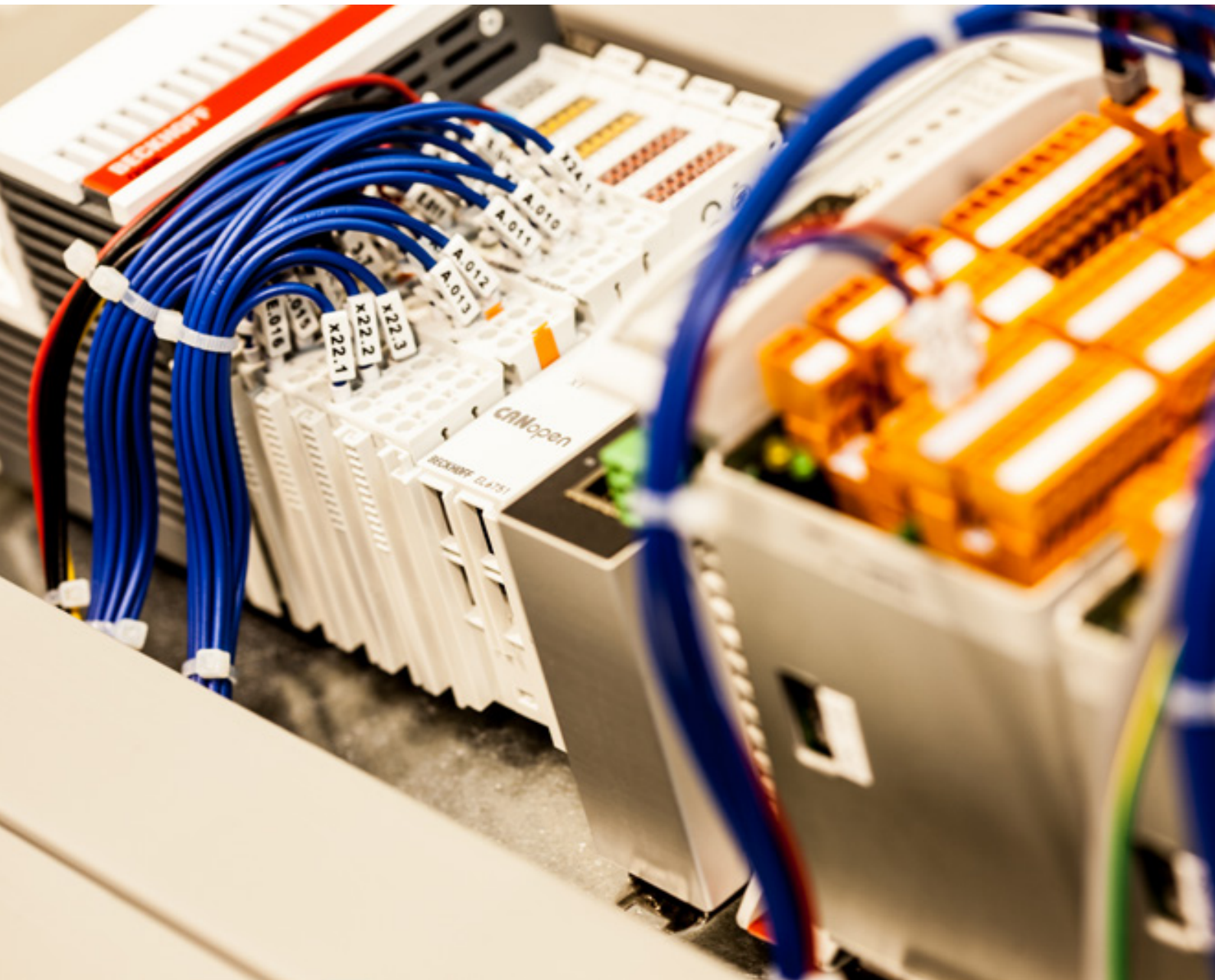
The success of an automatic welding plant depends from its efficiency, output rate, quality and repeatability of work cycles, as well as from the time it takes to pay back investment costs.

That is why CARPANO has since a long time developed original computer numerical control systems and keeps recommending customers to have them installed on the welding plants they ask for.

CNC APPLIED TO WELDING PLANTS

Let's consider for instance a CNC turn & tilt table positioner, which won't differ from its conventional standard execution other than for the stunning degree of accuracy it can carry out complex welding tasks and deliver constant quality of jobs attended by different operators and repeated after long periods of time.

For the purpose of giving you some hints, the next pages show a collection of our most 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



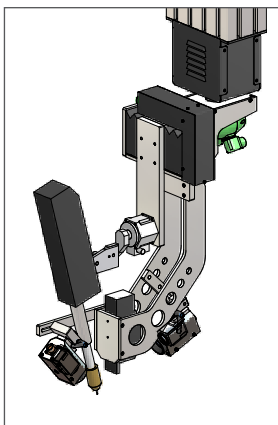
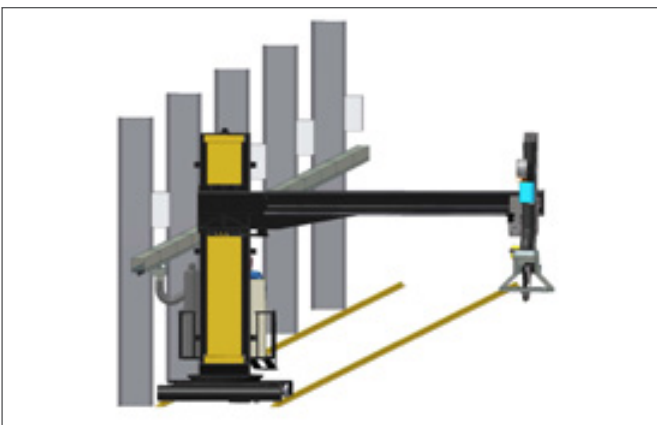
TRANSPORTATION

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 boom not retractable but height adjustable, works on both left and right sides on jigs laid 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 the IG tactile tracking system. 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 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 we've 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

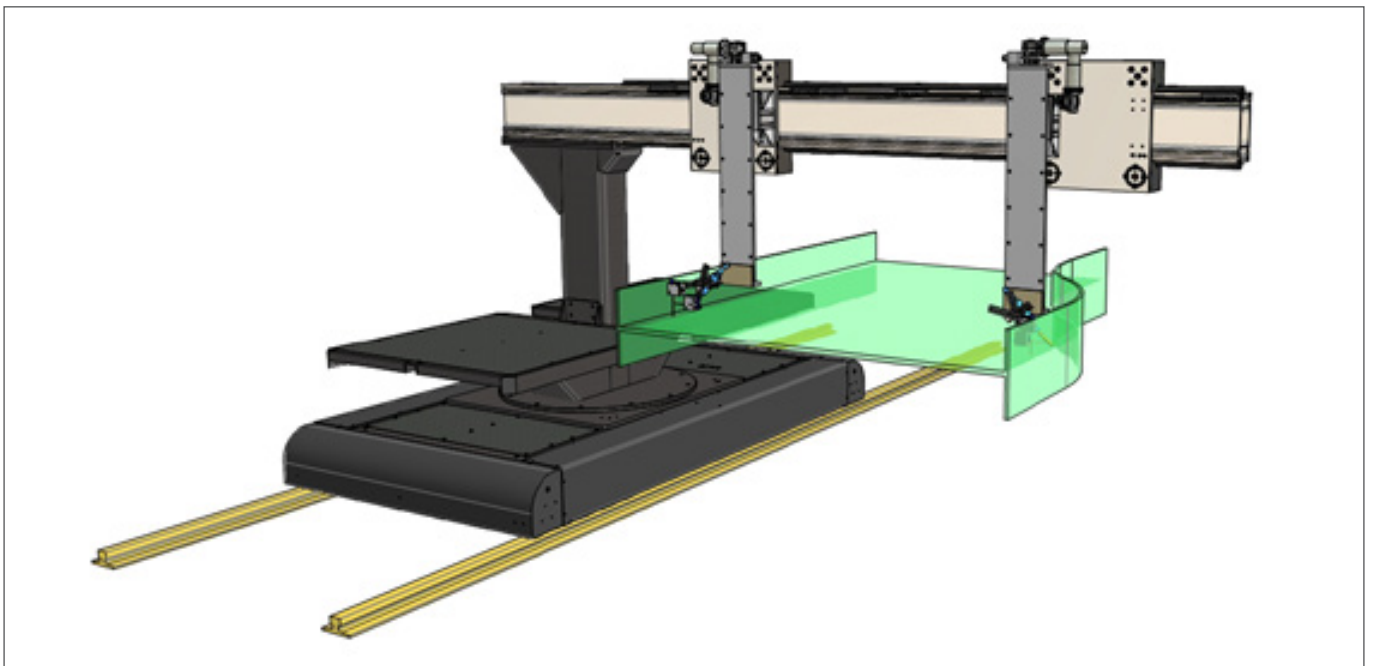
TRUCK TRAILERS SUB-FRAME

VARIABLE WEB H BEAMS



TRUCK TRAILERS SUB-FRAME

MIG single head plant for welding steel straight H beams. The manipulator, with boom not retractable but height adjustable, 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.

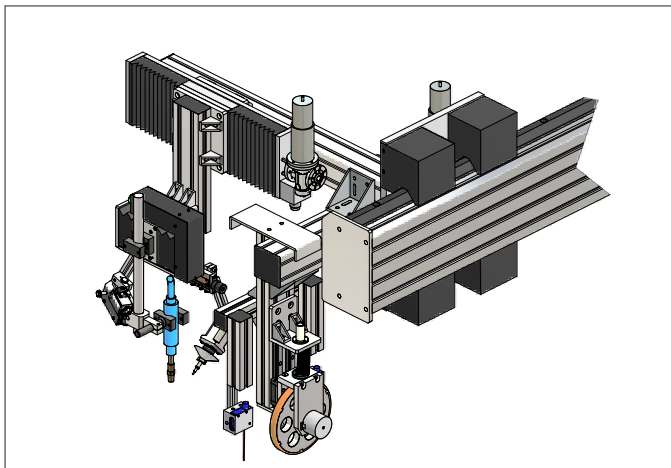
TRANSPORTATION

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



MIG WELDING OF CAR WHEELS

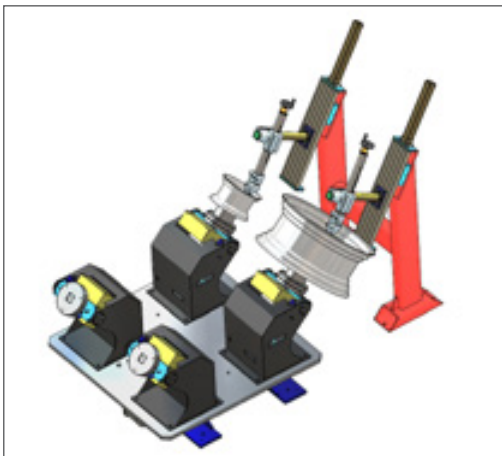
Plant for MIG welding of car wheels, production rate 10 sec / wheel. A 90° rotary index table driven by globoidal cams houses 4 jigs for centring the wheel rim.

The flange is automatically pressed into the rim and welding is performed by 4 torches.

The power sources together with the wire drums and the fumes aspirator are installed on the platform overhead.

CNC panel allows to record countless jobs, each of which including the wheel diameter and the welding length as well as weld parameters.

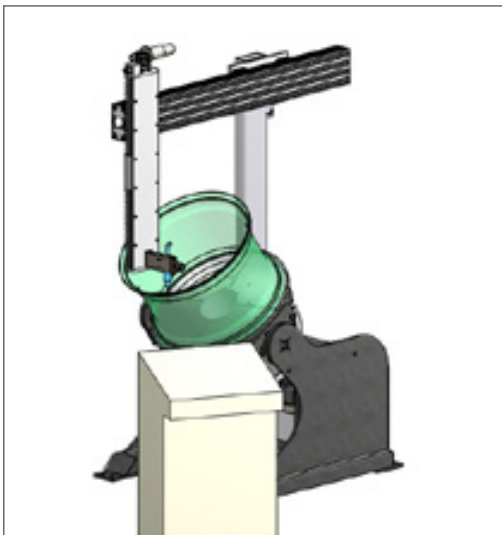
Manual unloading.



MIG WELDING OF EXCAVATOR WHEELS

Plant for MIG welding of excavator wheels.

Turntables alternate themselves in welding and load/unload positions. CNC panel allows setting of all job parameters including current, tension, welding speed, start delay, overlapping.



MIG WELDING OF EXCAVATOR WHEELS

Turn and tilt table positioner Joda 8, motorized horizontal slide stroke 800 mm installed overhead and carrying a vertical motorized diving boom stroke 600 mm.

The welding cycle asks for 2 welds to be sequenced and performed in different positions.

A 4 – axis CNC panel allows to record countless jobs, each of which including weld parameters.

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.

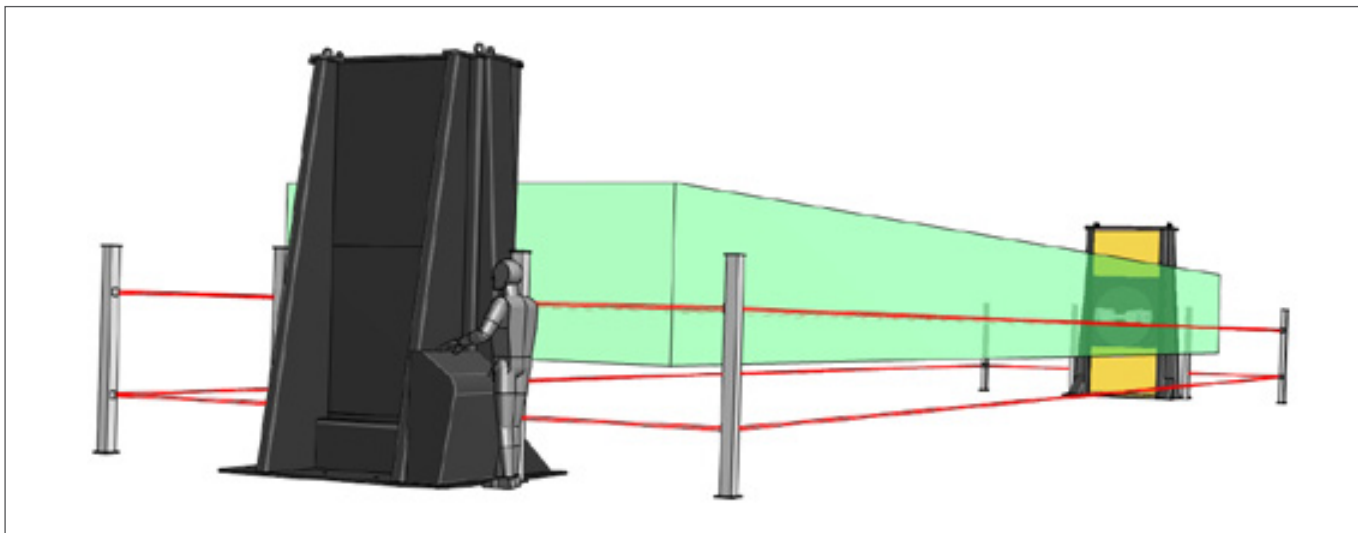
A peculiar feature is that both Headstock and Tailstock, provided of motorized base, move on rails laid transversal to the handling axis of the frame that is brought to load position and evacuated by a shuttle on optical guides.



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



OFFSHORE PLATFORMS YARD

The pipes, the length of which can be greater than 100 m and the weight of which heavier than 200 ton, are pre-assembled on a «rotator bed» (so called pile rack or rolling) made of rotators model R500, R07C and R14C, consisting of synchronized drive sections (5 to 8 units) and of at least twice as many idle sections, all units equipped with idle or motorized lorries for traversing on rails. Owing to climate conditions, protection degree is equal to IP55 or greater. The total turning power of synchronized drive sections is normally 3 to 4 times greater than the pipe weight that, for several reasons (misalignment, distortion, etc.), is not equally shared among the drive sections but it is sometimes laid only on 2 or 3 of them.

Repair of welding machines and comfortable work conditions of operators are provided by the shelters depicted by the photo (which are in facts pre-fabricated houses), each of which moves on rails driven by the motorized base of a Column & Boom manipulator model Z or I POWER, equipped with SAW machine as well as with video TSV-3 and joint-tracking IG systems.

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 6m 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

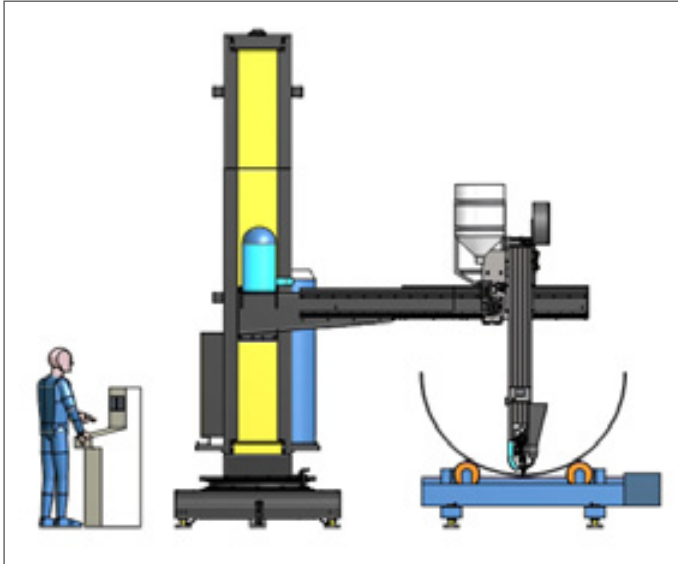
The turbo-alternator case is positioned into rings and laid on rotator mod. R60C, special execution, weight capacity 600 ton/pair, steel wheels superficially hardened, Ø 1200 x 600mm width, tangent force delivered by motorized section 26 ton.

The wrong positioning of the case inside the rings, causes sometimes 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.

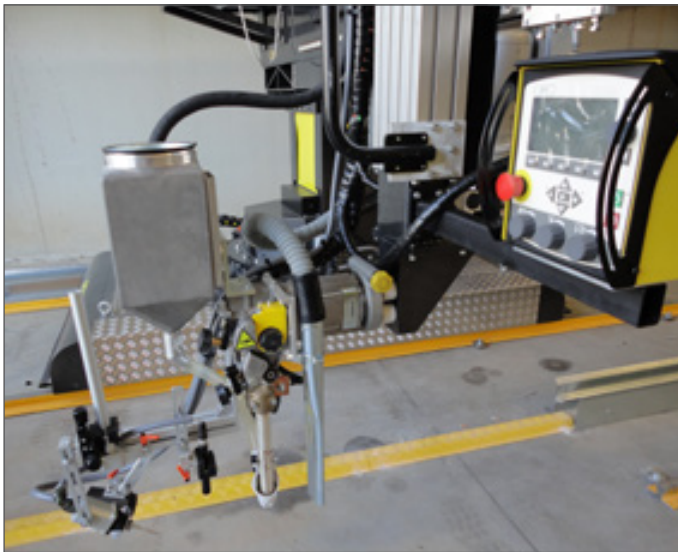
ENERGY

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

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

The tower is handled by a rotator consisting of drive section 200E1F and of R110N-F idler the height of which can be adjusted to keep joints parallel to floor level.



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 m², 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.

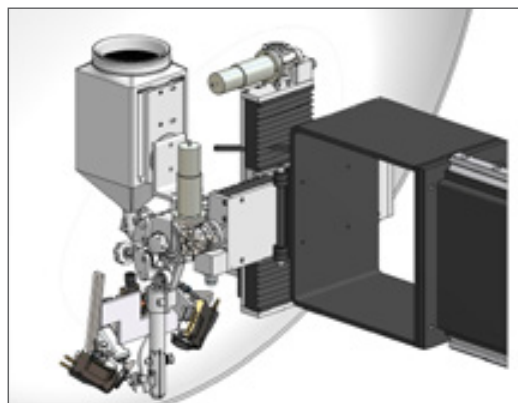
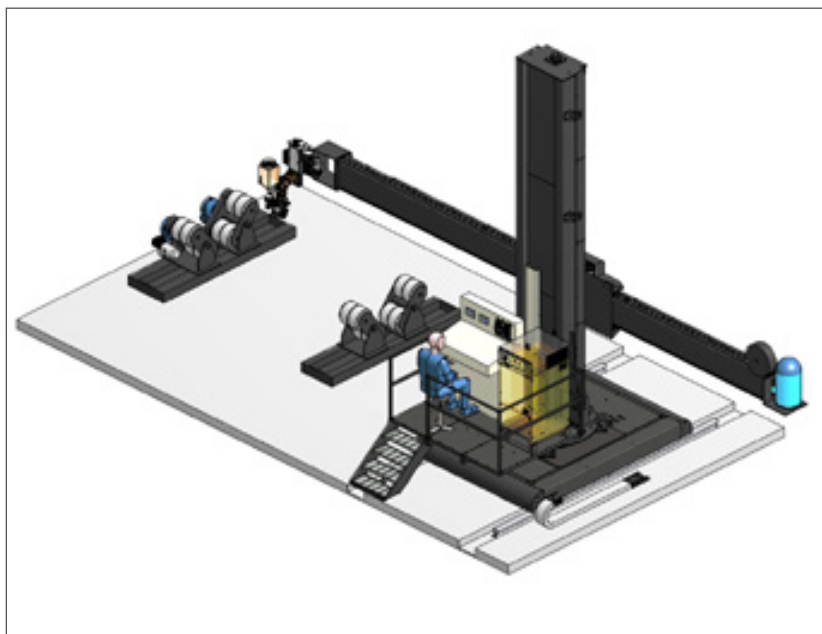
FIELD CUTTING WORKSHOP

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



MIG AND TIG COLD OR HOT WIRE HARD FACING

The plant consists of manipulator AI Power MIDI and AVC integrated into boom vertical stroke and equipped with electronic oscillator type DTE 250, 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 torch handling axis and to both power sources, thus allowing the operator to program all work cycle steps and weld parameters as well.

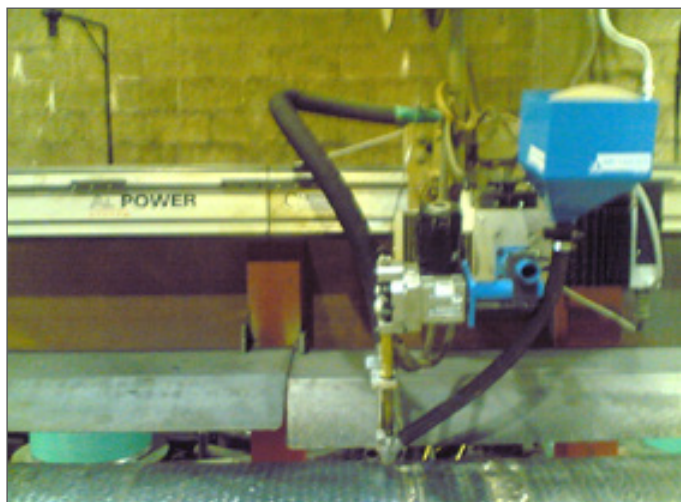


The photo aside draws your attention to the special MIG torch that can get inside of diameters as small as 70 mm.

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



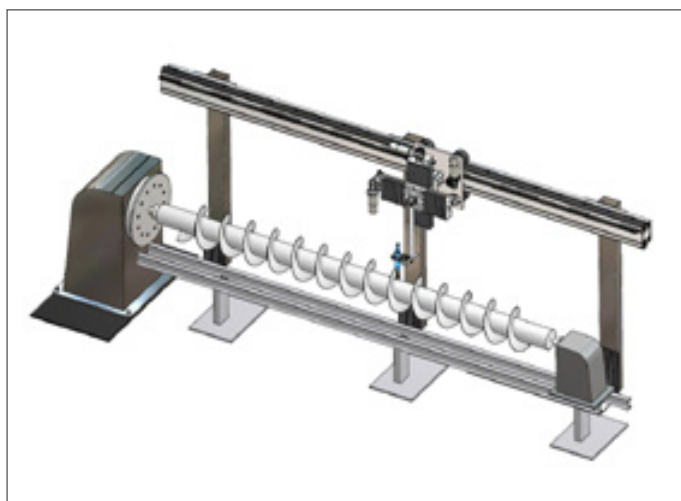
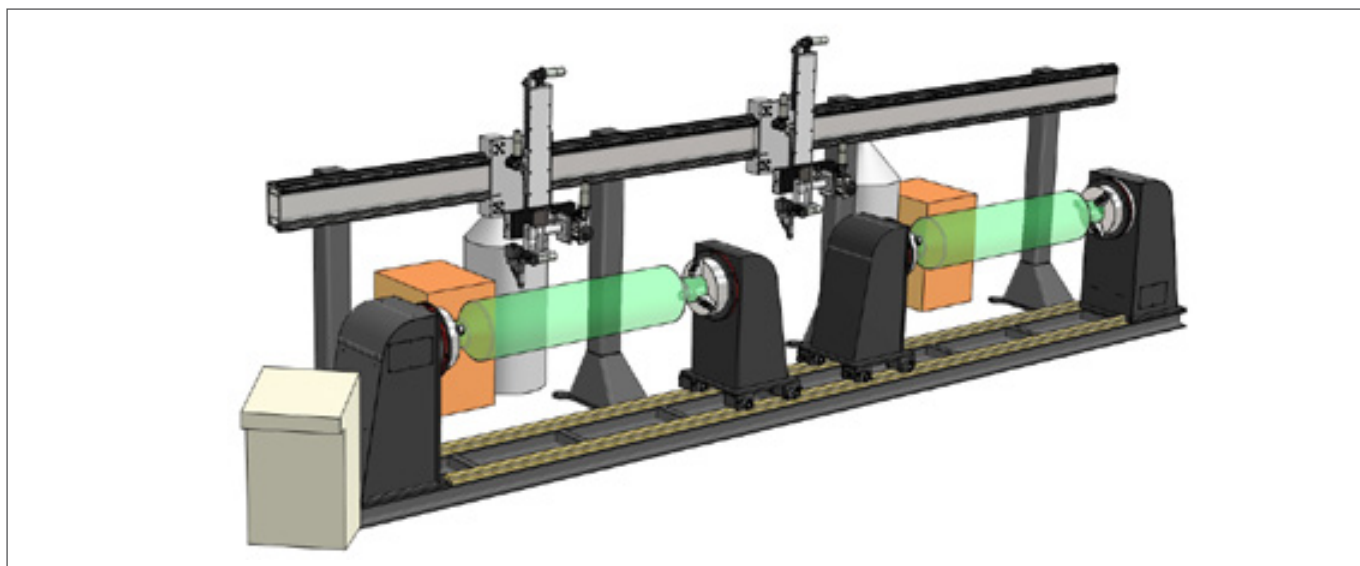
HARD FACING



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.

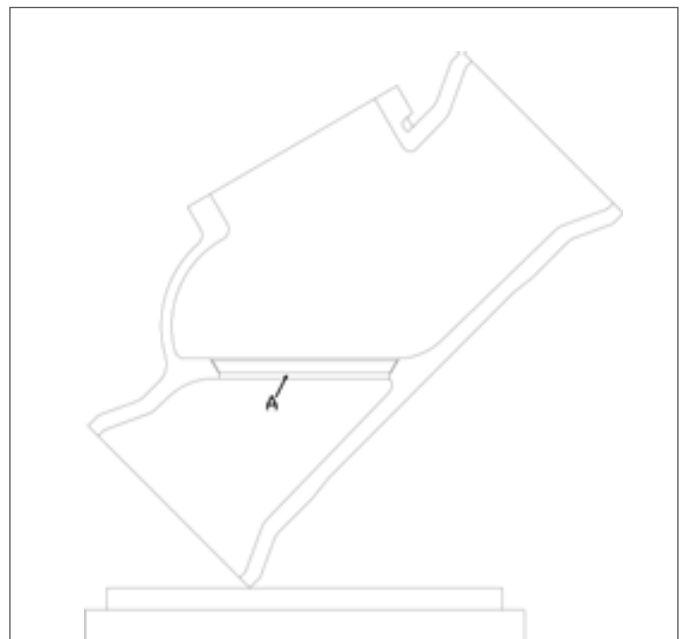
HARD FACING



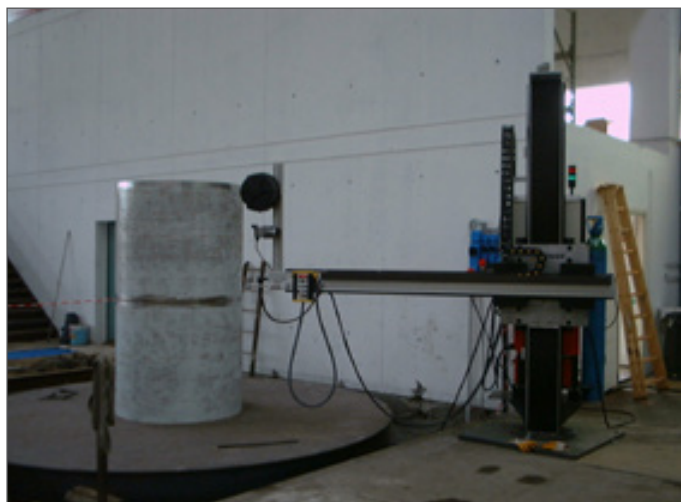
VALVES

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 beer stainless steel tanks laid on JODAPL special execution with cross beams to enlarge table diameter.

The I Power manipulator features:

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

Overall view of the above plant showing that 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 linear guides thus delivering a smooth and constant motion.



FOOD AND BEVERAGES

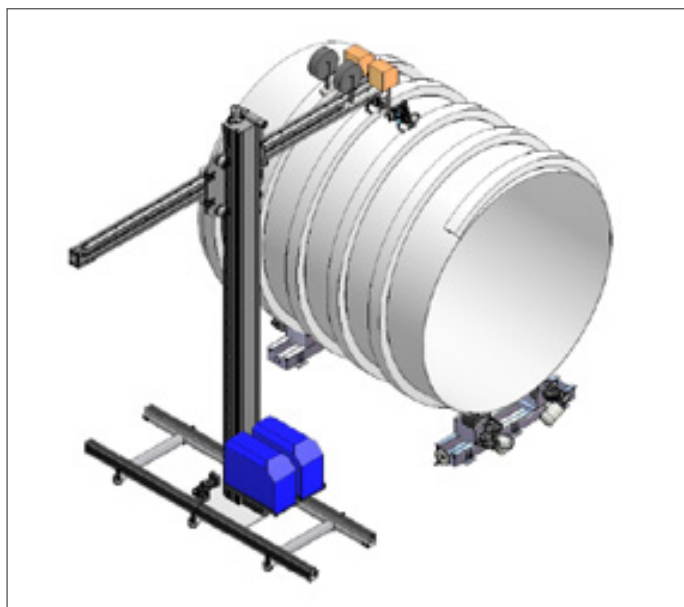


PLASMA KEY HOLE WELDING OF COOLING CHANNELS (TANKS LAID ON TURNTABLE)

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

The AI Power MIDI manipulator 3x3 features:

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



WELDING OF COOLING CHANNELS (TANKS LAID ON ROTATOR)

MIG welding of channels on thermal controlled tanks laid on twin motors rotator.

The AI Power MIDI manipulator is provided with motorized base, driven on special rails by ball 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



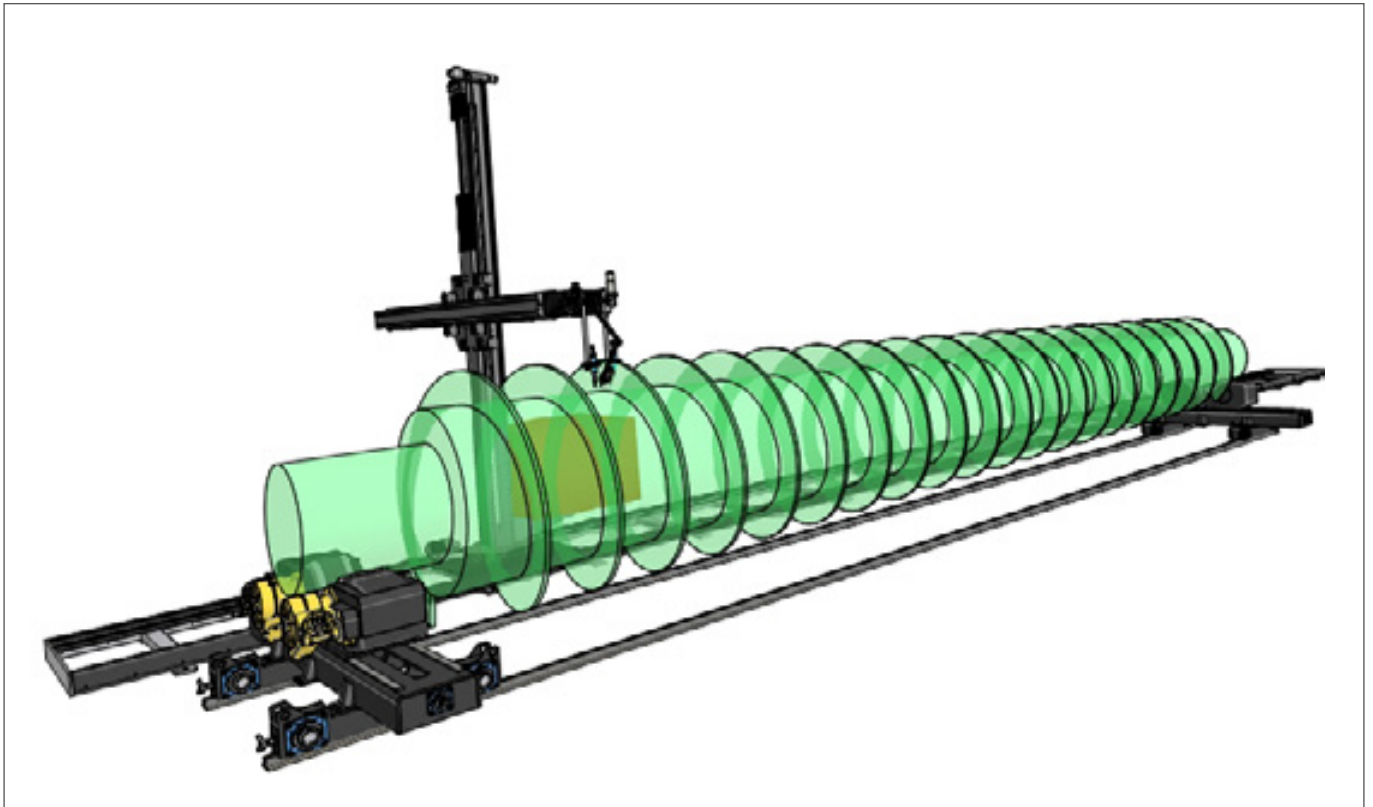
WORM SCREWS

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 of ball linear guides. Such features altogether deliver friction - free and precise joint tracking performed by IG LAS system.

The control cabinet incorporates PLC/2 - axis CNC to take care of rotation and of manipulator base speeds to keep 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 of which including:

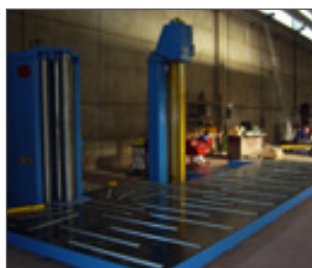
- Seam weld speed in mm/min
- Seam weld length in mm
- Carriage start delay in sec.
- Torch parking and weld start positions
- Arc length in V
- Tack weld cycle for wall thickness greater than 5 mm

Pressing machine to straighten welded panels of a maximum length 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 envil. Front latch is manually operated with automatic safety device for stopping any activity in case the latch is not perfectly locked. A laser line helps to align weld seam to pressure wheel trajectory.



VERTICAL SEAMER

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



OTHER APPLICATIONS

EXCAVATOR BUCKETS

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

- The table tilt angle does not change and its position is maintained perfectly constant during the 1 m elevation stroke.
- Rotation and/or tilt are automatically cut off till such an altitude that the operator can freely preset is reached as to prevent the bucket to interfere with the factory floor.

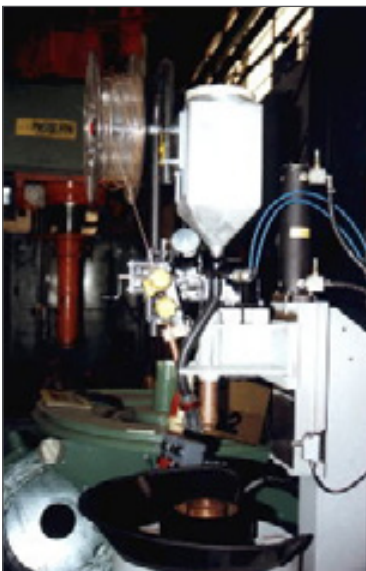


LPG BOTTLE

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 to provide for full penetration. The flux fallout is automatically conveyed to a tank placed underneath and recycled to the head hopper.

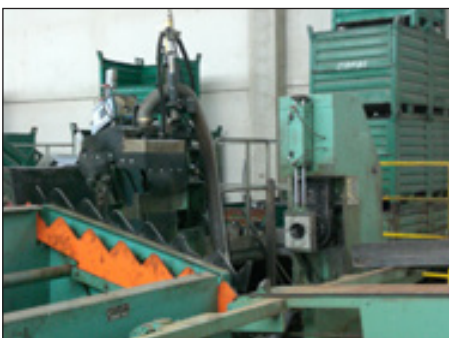
Work cycle is ruled by PLC.

Intermittent MIG welding of the handle and of the foot to respective 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 welding of bottoms.

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

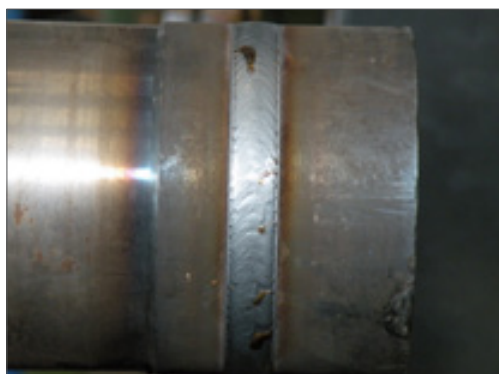


OTHER APPLICATIONS



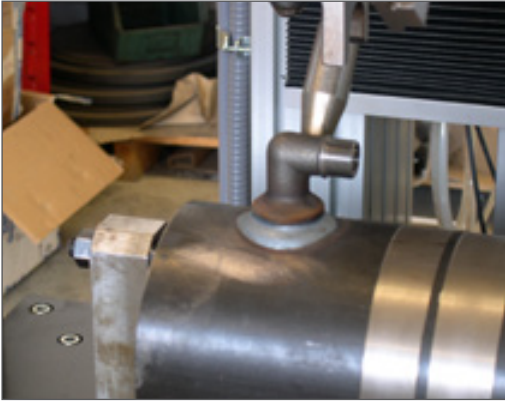
WELDING OF HYDRAULIC CYLINDERS

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



CNC allows recording of countless jobs and rules the whole process, including multi-pass welding so as to change at each revolution the torch position as well as rotation speed and oscillation and weld parameters.

OTHER APPLICATIONS



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



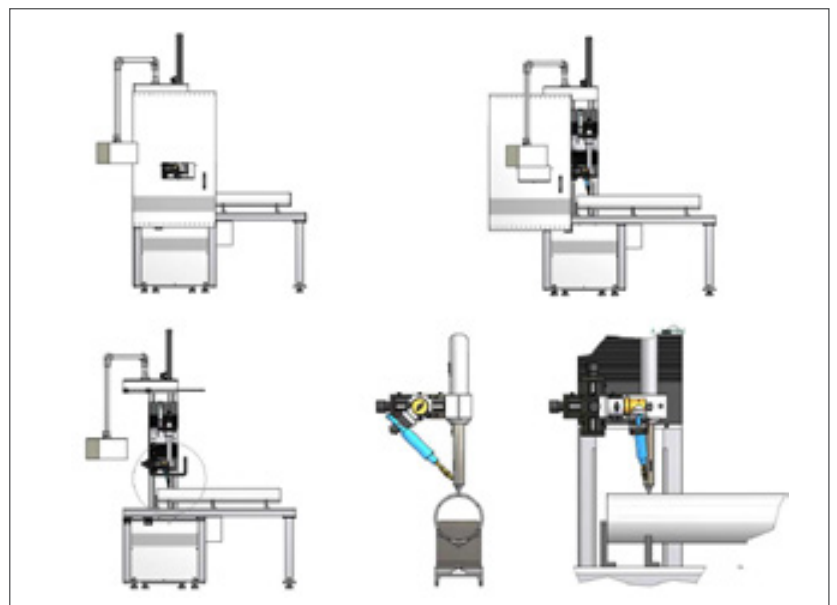
WELDING OF NIPPLES AND OF ELBOW INLETS ON CYLINDERS

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

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

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

The machine body incorporates a sliding door for load/unload facilities as well for segregating the weld process thus protecting the operator from arc radiation and hot sparks.



OTHER APPLICATIONS



WELDING OF TRACK STRETCH WHEELS

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

The desk cabinet incorporates CNC with a 10" soft touch screen and digital key-board for the recording of countless jobs, each of which 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.



Joint pre-heating prior to automatic welding.



Welded joint

Pre-heating

Induction pre-heating has been preferred owing to its safety, to its quickness and precise control of temperature.

OTHER APPLICATIONS



WELDING OF CRANE TELESCOPIC BOOMS

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 is installed a motorized carriage equipped with IG MD 400/2 joint tracking system. CNC rules the whole process and automatically positions the job at 90° steps.



OTHER APPLICATIONS



WELDING OF BOX BEAMS

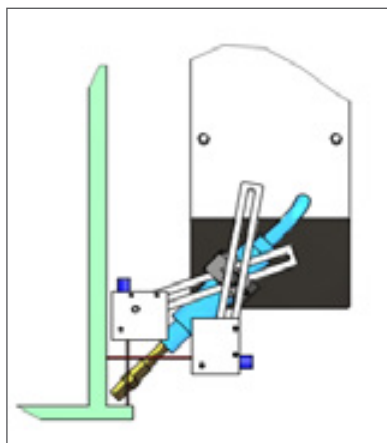
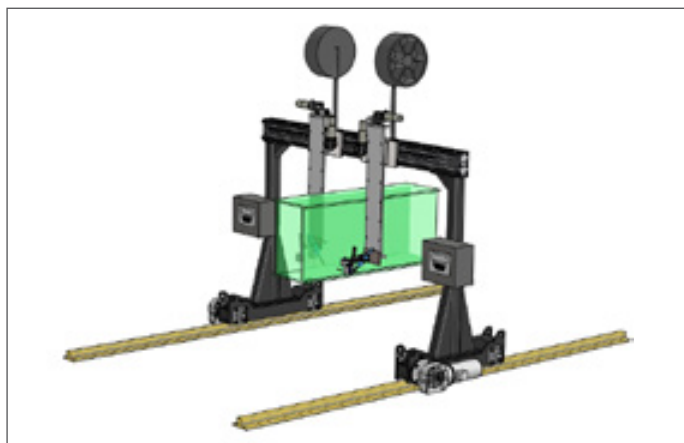
4 longitudinal joints (2 fillet and 2 overhead) are simultaneously performed by MIG torches on box beams, each torch equipped with IG LT 80/2 joint tracking system.



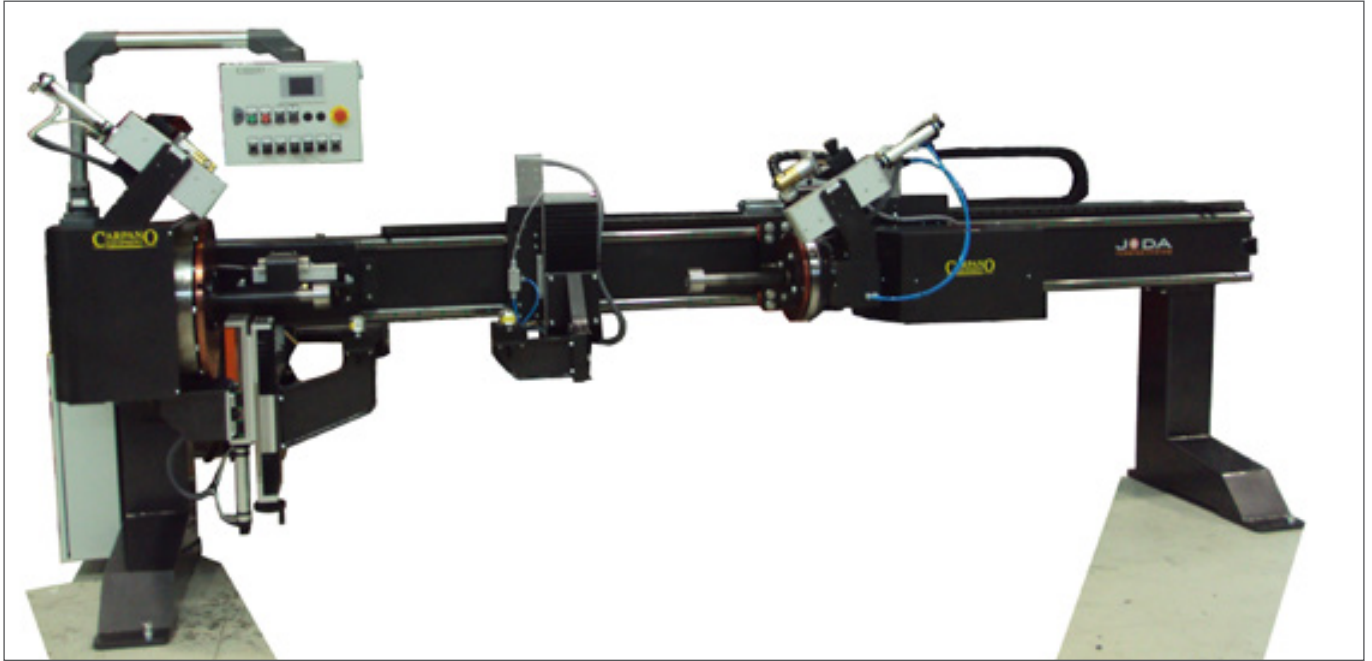
WELDING OF BOX BEAMS

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 motorized vertical slide type MM MIDI HD and motorized carriage traversing on the gantry horizontal beam.



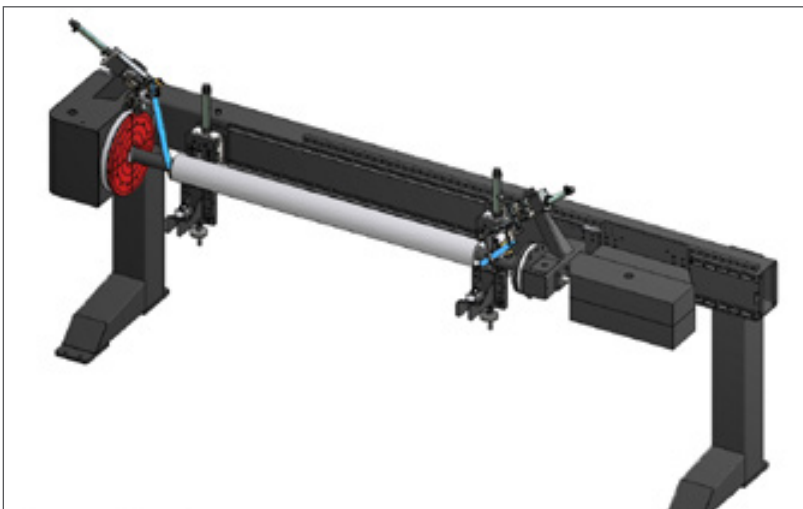
OTHER APPLICATIONS



WELDING OF CONVEYOR ROLLS

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



NOTE

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NOTE

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WELDING AUTOMATION BOOK02

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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.

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