



steel mec sold
W E L D I N G E Q U I P M E N T S



TECHNOLOGY PARK



SKILLS , INNOVATION , QUALITY



"here are the foundations of our corporate philosophy and the guidelines in the creation of our products and services"

STEEL MEC sald comes from more than half a century of uninterrupted activity in the field of the metal welding processes.

STEEL MEC sald is today a leader in submerged arc and cladding process applications, providing class-leading performance.

The steady investment in the pursuit of excellence enables us to introduce STEEL MEC Sald to the market with cutting edge solutions in all industries that integrate welding processes, ranging from nuclear to food market.

Since the submission of our proposals up to after-sales service, STEEL MEC sald operates exclusively in accordance with high quality and safety standards.



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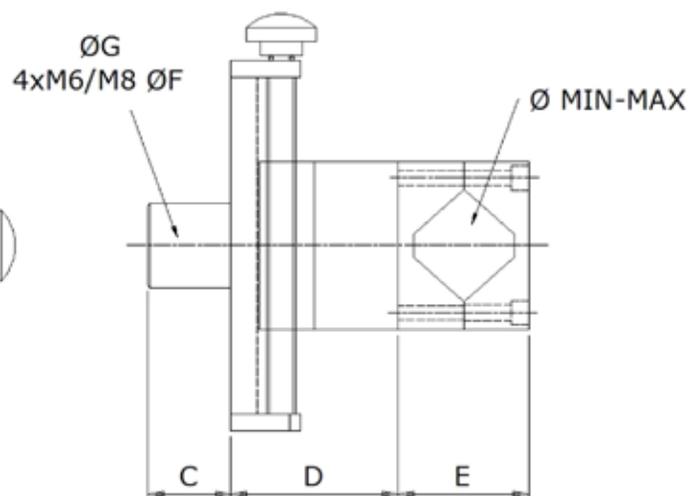
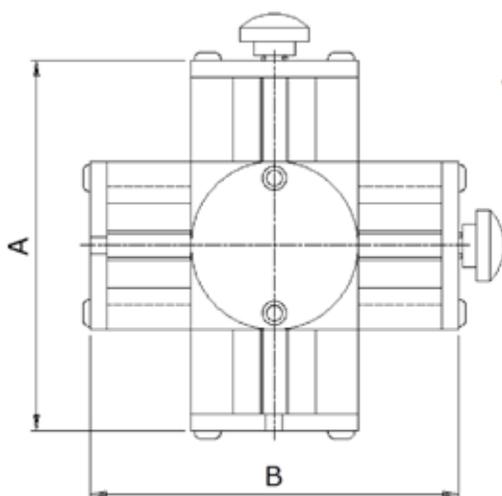
Manual slides torch supports



TORCH SUPPORTS RANGE WITH MICROMETRIC ADJUSTMENT

SMDS 60 / 200 - SLM 100 / 200 [7 - 50 Kg capacity]

Single axis or crossed SLIDES series to support the torch and ensure the micrometric adjustment of the welding point in the space. These slides can be mixed to form systems with 2 or 3 axes even with the inclusion of rotary joints up to 5 degrees of freedom. The series SMDS has an attack with cylindrical pin, diameter 30 mm, for the clamping on the machine, including our two-axis manipulator type B and BA (see page 8). Differently, the series SLM is full of N°4 threaded holes (M8) for the attack on the flange, the spacing of these mounting holes may changes depending on the model and the stroke.





Manual slides torch supports

TECHNICAL DATA	SMDS 60	SMDS 200	SLM 100	SLM 200
Capacity [Kg]*	7	7	50	50
A [mm]	120	260	220	320
B [mm]	120	260	220	320
C [mm]	30	30	•	•
D [mm]	60	60	80	80
E [mm] SMDS only	40	40	-	-
n°4 holes M8 on Ø F [mm]	•	•	80	80
Ø G [mm]	30	30	•	•
Ø MIN - MAX [mm]	30 - 40	30 - 40	-	-

V standard • not available - available as an option

*Capacity calculated at 5 cm from mobile carriage floor

TORCH SUPPORTS RANGE WITH MICROMETRIC ADJUSTMENT

SLMH 200 / 250 / 300 / 350 / 400 [100 Kg capacity]

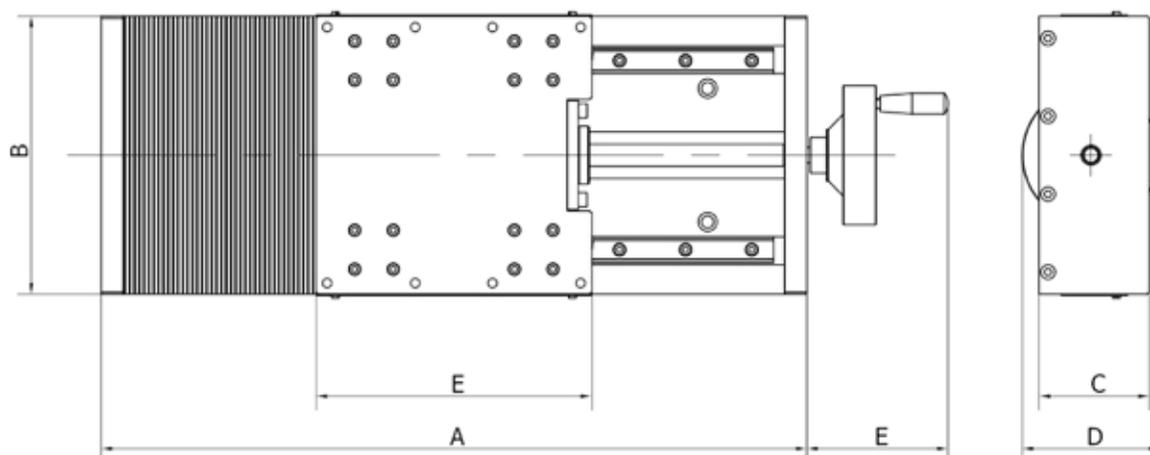
SLIDES series of large-capacity properly designed for a safety support of counterbalances loads up to 100 Kg, calculated at 40 cm from the floor of the carriage. Movement on double recirculating balls linear guideways with a set of four sliders driven by trapezoidal or ball recirculating screw, as option. These slides can be combined to get systems with 2 or 3 axes with the possibility to insert any rotary joints up to 5 degrees of freedom. As for the series SLM, the anchor plates have a series of N°4 threaded holes (M6 or M8) for the machine junction, the spacing of these fastening holes may changes according to the model and the stroke. Compatible with submerged arc welding heads.



SLMH 400



SMLH 200



TECHNICAL DATA	SLMH 200	SLMH 250	SLMH 300	SLMH 350	SLMH 400
Capacity [Kg]	100	100	100	100	100
A [mm]	120	260	300	350	400
B [mm]	120	260	300	350	400
C [mm]	30	•	•	•	•
D [mm]	60	80	80	80	80
E [mm]	40	-	-	-	-
F [mm]	•	80	80	80	80
G [mm]	350	615	845	815	815
Ø MIN-MAX [mm]	180	350	350	500	500

V standard
 • not available
 - available as an option



2 - AXES TORCH SUPPORT ARM WITH RACK - RAIL

MODEL B (MANUAL) BA (PNEUMATIC) ATV - ATR TORCH HOLDERS

Model B Arm Description

The torch holder arm model B allows an easy movement of the same torch, towards the piece to weld. Arm movement is manual. Manual adjustments along the X and Y axes are possible thanks to two manual knobs acting on racks.

The welding torch can be fitted into the hole on the top end of the arm.

As standard, on the top of the arm, is foreseen the torch- ending model ATV, differently, on option, we can provide the ATR ending model or the slide SMDS60. The angle of inclination of the arm is adjustable by means of a mechanical end-switch.

The B arm can be integrated with the rotating table positioners TRSF full series.

Model Ba Arm Description

The torch holder arm model B allows an easy movement of the same torch towards the piece to weld. Arm movement is automatic by means of a pneumatic cylinder. The magnetic sensor placed on the cylinder, provides a normally open contact which guarantee the reachment of the work point. Manual adjustments along the X and Y axes are possible thanks to two manual knobs acting on racks . As standard, on the top of the arm, is foreseen the torch- ending model ATV,

differently, on option, we can provide the ATR ending model or the slide SMDS60. The angle of inclination of the arm is adjustable by means of the positioning, on different quote, of the pneumatic cylinder on the vertical rod.

Are included pressure regulator, filter, air lubricator and solenoid valve.

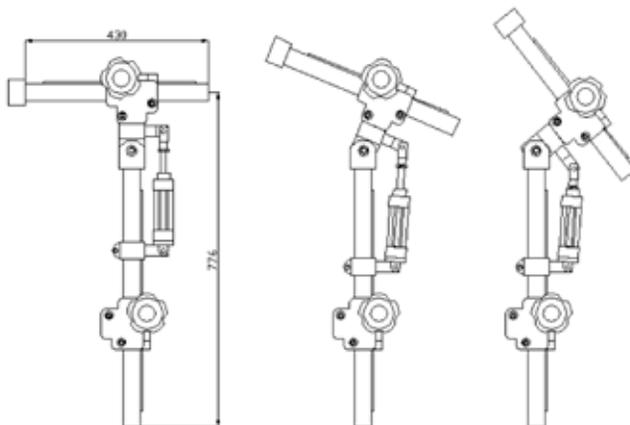
These pneumatic arms are perfectly compatible with TRAF (included bench-model TGA) which may be upgraded with these equipments also after-sales.



ARM MODEL BA
with SMDS 60



SWIVEL TORCH ENDING
MODEL ATR





MODEL B1500

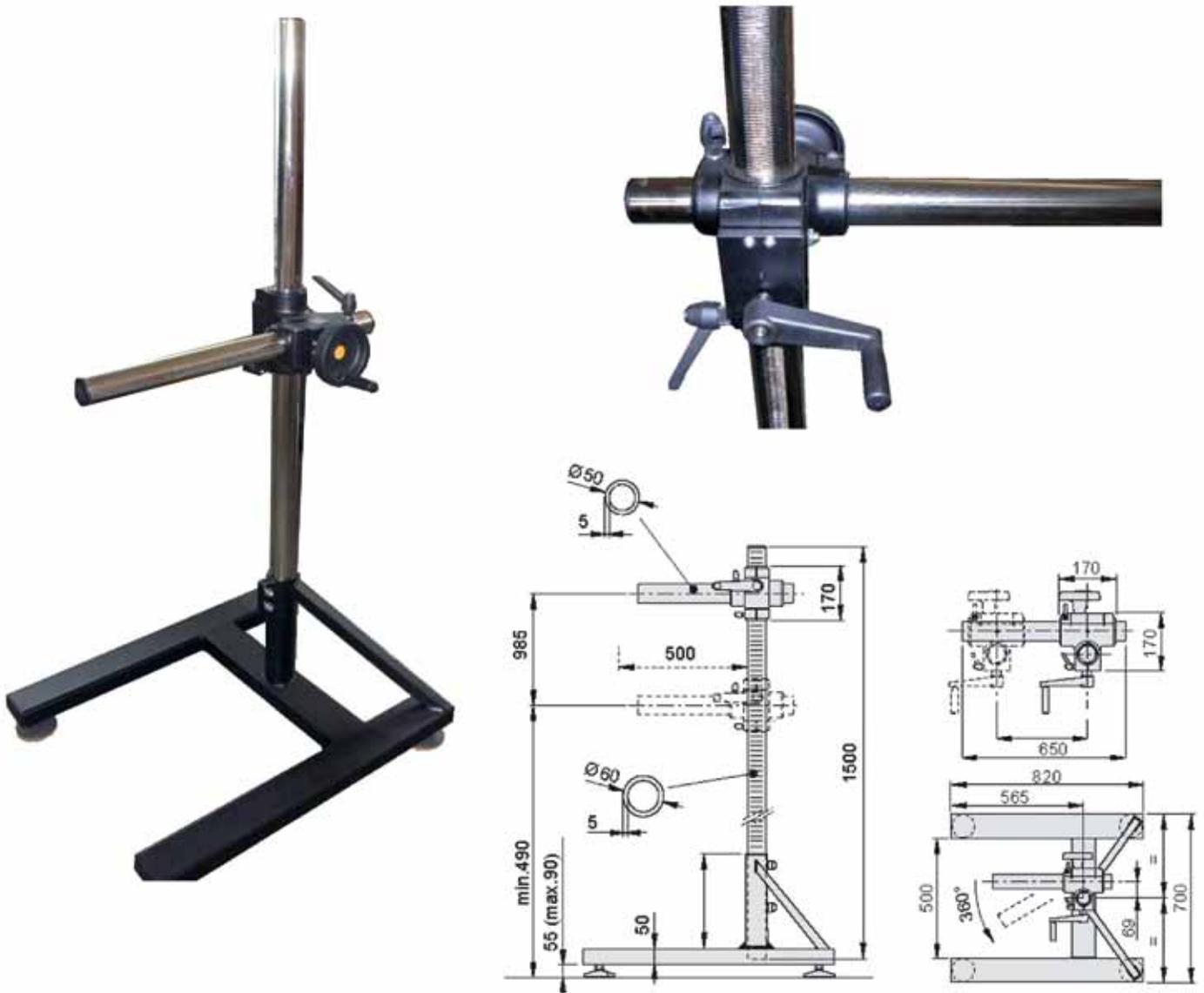
The small manipulator useful up to 50Kg loads

The torch holder model B1500 represent a "small" manual manipulator useful in a lot of jobs when a motorized manipulator is not available and a small arm as our models "B" and "BA" is not enough because of its limited amplitude.

All torch holders and welding oscillators (cross slides as well) can be added on the horizontal arm.

1500mm max vertical height.

1000mm max horizontal length.





Motorized slides



MOTORIZED SLIDES RANGE

MMH 250 / 300 / 350 / 400 [100 Kg capacity]

Series of large-capacity motorized SLIDES, specifically designed for a safety support of counterbalances loads up to 100 Kg. calculated at 50 cm. from the floor of the carriage. Movement on double recirculating balls linear guideways with a set of four sliders driven by a ball recirculating screw. The new MMC series comes without any bellows, represent the state of the art in its field. All STEEL MEC sold products are manufactured in respect of the Machines Directive 2006/42/EC, so, each machine, is full of the necessary safety system device. These slides may be combined to create any 2 or 3 axes systems ensuring fluid and linear movements without any vibration.

Compatible with submerged arc welding heads, are available with d.c. standard motors or with brushless motors included. High capacity (up to 250Kg@50 cm) are also available on request in different sizes and shapes.



MMC 150



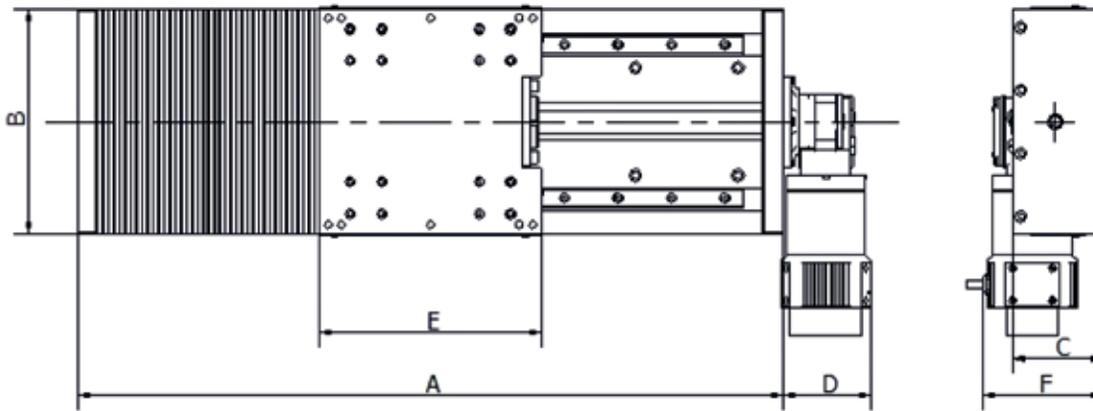
MMH 500 3 axle



MMH 400 2 axle robot



Motorized slides

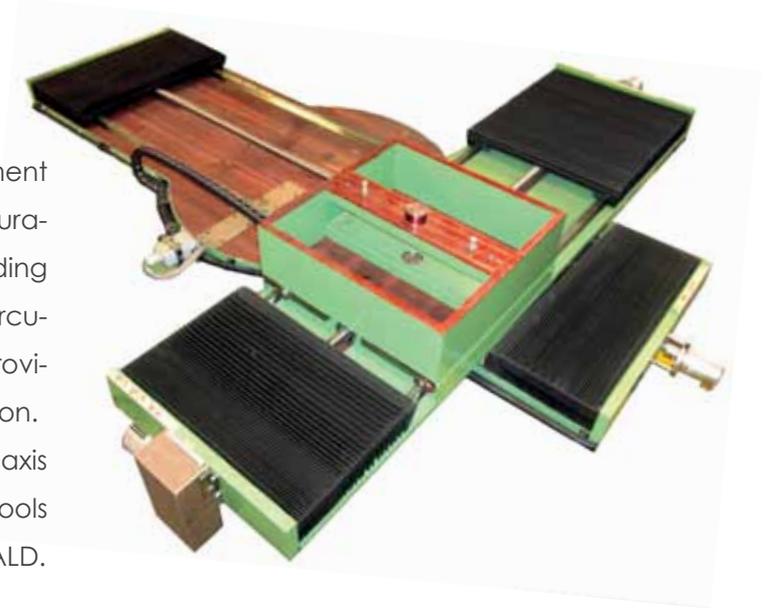


TECHNICAL DATA	MMH 150	MMH 300	MMH 500	MMC 150	MMC 300	MMC 400
Capacity [Kg]	100	100	100	100	100	100
Stroke [mm]	150	300	500	150	300	400
A [mm]	440	600	800	430	580	680
B [mm]	150	150	150	145	145	145
C [mm]	70	70	70	64	64	64
D [mm]	80	80	80	80	80	80
E [mm]	150	150	150	150	150	150
F [mm]	100	100	100	100	100	100



DEDICATED APPLICATIONS

Example of large-capacity 2 crossed axle basement (1500 Kg) manufactured to move with decimal accuracy the column of a manipulator for the robotized welding of a TIG 5 axle system. Brushless motor and ball recirculating screw are included in the standard supply providing a total accuracy and avoid any possible vibration. A section of a complex system for a TIG cold-wire 5 axis controller by CN with clearing station with power tools designed and manufactured entirely in STEEL MEC SALD.



The picture shows a typical X-Y crossed slides system, assembled on a C&B head for SAW procedure.

The control of these axes may be a manual one, by a 2 axes joystick, or an automatic one interpolated to the joint control and the seam tracker function. The careful design and the experience gained over decades of testing and sitetests, allow us to propose solutions in which all the details are considered and analyzed.

We have different solutions for materials and types of mechanical engineering, including bellows cover, made under our specifications, with materials resistant to high temperatures or with other types of carter even more performance (see digital oscillator).



Digital welding oscillator



DIGITAL LINEAR OSCILLATOR

OSCILLATOR MODEL "RED 200/300"

The picture shows the touch screen display with a work-page and the electric axle full of motor. This device it's different respect the other motorized axles, both for motor and for mechanical. In fact, it has been designed and realized specifically to manufacture an oscillator maintaining the necessary requirements. Equipped with watertight closure of the movement for granting immunity to welding fumes and dust while preserving the performance of the ball screw and roller bearings. Made in ERGAL billet end caps for enhanced stiffness and reduce the weight limit of the whole.



The RED linear OSCILLATOR model shows the best device in this field. Its axle is motorized and is complete of bushless motor with resolver which act a ball recirculating rolled screw connected to the trolley holder torch. The control console is full of touch screen 5,7" panel which allows to manage all the following process variables:

- CENTRAL POSITION
- SPEED TRAVEL
- MOVE LEFT
- MOVE RIGHT
- CENTRAL POSITION STOP TIME
- LEFT STOP TIME
- RIGHT STOP TIME

The central position is adjusted by the operator with JOG axis and automatically stored and displayed on the display, all the variables can also be modified in real time during the execution of the work cycle. After storing all the variables you can save the work program of the page program, up to a maximum of 99 different jobs. In addition, all process variables can be installed and modified also by physical controls like a push button and each parameter has two buttons: one to increment the variable and one to decrease the value.

This duplication of commands is particularly appreciated by the user who get a highly professional and accurate tool but at the same time compatible with the actual working environment in which the operator is



Digital welding oscillator

often fitted with gloves not suitable to the use of a touch screen panel. Standard axle strokes: 200 e 300 mm
On request other ones .

The "S" versions retain the same control but are different for the mechanical performance of the motorized axis which in this case has a capacity of 100Kg at 40 cm from the floor of the oscillating carriage.

TECHNICAL DATA	RED 150	RED 300	RED 150 S	RED 300 S
Capacity [Kg]*	20	20	100	20
Stroke [mm]	150	300	150	300
Trolley speed [cm/mm]	0 - 10.000	0 - 10.000	0 - 5.000	0 - 5.000
Stop-time adjusting [sec.]	0 - 10	0 - 10	0 - 10	0 - 10

* Capacity calculated at 10 cm from the floor of the mobile carriage



Turntable positioners



“Since 1952 STEEL MEC design and build rotating tables...”

NANO - TRSF 70 - TRSF 100 - TRSF 200 - TRSF 300 [10 - 300 Kg capacity]

Semiautomatic positioners with 0 - 90° tilting head

Turntable positioners with manual tilting.

The TRSF range is full of control board type “STAGE1” equal for all semiautomatic machines, with capacity 70-300 Kg. The whole range includes the shielding against high frequency noise.

Standard available control:

- Constant and continuous adjustment of the table rotation speed
- Selector clockwise/anticlockwise rotation
- Control logic 2t/4t
- Synchronism function with strike arc on generator (if present)



TECHNICAL DATA	NANO	TRSF 70	TRSF 100	TRSF 200	TRSF 300
Capacity [Kg]	10	70	100	200	300
Tilting angle	0 - 180°	0 - 90°	0 - 90°	0 - 90°	0 - 90°
Table rotation speed [rpm]	0,5 - 12	0,3 - 6	0,3 - 6	0,3 - 5	0,3 - 5
Max welding current [A]	180	350	350	500	500
Passing hole diameter [mm]	0	22	22	50	50
Power supply [V]	230 - 1ph				
Weight [kg]	12	70	100	100	100
A [mm]	350	615	845	815	815
B [mm]	300	550	700	900	900
C [mm]	150 - 210	450	700	800	800
D Ø [mm]	180	350	350	500	500
Width [mm]	180	375	375	470	470



Turntable positioners

The tilting positioners are available as BENCH or COLUMN POSITIONERS. Load capacity from 10 Kg (NANO) up to 300 kg. The machines are equipped with our STEP1 electronic board integrated in the positioner frame. Automatic working cycle is not foreseen. All models are HF shielded.

TGA - TRAF 75 - TRAF 200 - TRAF 300 [70 - 300 Kg capacity]

Series of 2-axis automatic positioners available also with pneumatic torch bracket or an optional item.

The TRAF range is the worldwide "best seller" among the automatic positioners up to 300Kg of capacity. All machines are full of the electronic control panel "STAGE2" which offers all the functions useful for automatic work cycle on 360 degrees + overlap.

The machines are motorized with D.C. systems up to the 200 Kg. Model, differently with inverter and A.C. motor 3ph for 300 Kg. Model. The whole range includes the shielding against high frequency noise.

Standard available control:

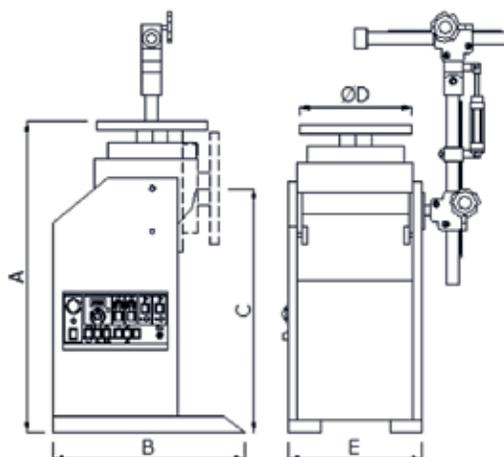
- Constant and continuous adjustment of the table rotation speed with digital display indicator
- Selector clockwise/anticlockwise rotation
- Manual - automatic work cycle
- Control logic 2t/4t
- ON/OFF Pneumatic arm for torch
- Overlap function with TIG or MIG logic
- SETUP button for the positioning of the torch on the pneumatic arm (if present)
- Overlap function, adjustable 0-10 seconds
- Function crater formation, adjustable 0 -10 seconds
- ON/OFF welder selector to synchronize the START with the rotation of the table.
- Wire feeding button (MIG)



TRAF 200



TRAF 200 BA





Series of turntable positioners with automatic or manual working cycle.

The automatic working cycle offers the offers control of the overlap adjustable between 0 and 10 seconds, the crater formation adjustable between 0 and 10 seconds, the synchronization with the pneumatic arm supporting the torch (optional) of the TIG and MIG control during the overlap and the electronic speed adjustment with digital display. Machines equipped with our electronic STAGE2 board.

BA VERSIONS:

As basic models with the addition of an arm supporting the pneumatic torch, also sold separately as an option.

The pneumatic arm allows a rapid and precise matching of the welding torch towards the piece to be welded. It's possible to combine the torch supports of the SMDS60 and derivatives.

BACB VERSIONS:

The most popular series of machines in the field of small automatic lathe. The special design allows you to work with a horizontal axis (typical of the lathes), but also in all angular positions between 0 and 90° (VERTICALLY). The sliding tailstock operated by two-hand pneumatic gear and the single or double arm complete the equipment of these machines.

TECHNICAL DATA	TGA	TRAF 75	TRAF 200	TRAF 300
Capacity [Kg]	70	100	200	300
Tilting angle	0 - 90°	0 - 90°	0 - 90°	0 - 90°
Table rotation speed [rpm]	0.3 - 6	0.3 - 6	0.3 - 5	0.3 - 5
Max welding current [A]	350	350	500	500
Passing hole diameter [mm]	22	22	50	50
Power supply [V]	230 - 1ph	230 - 1ph	230 - 1ph	230 - 1ph
Weight [kg]	70	100	100	100
A [mm]	615	815	815	815
B [mm]	550	900	900	900
C [mm]	450	800	800	800
D Ø [mm]	350	500	500	500
E [mm]	375	470	470	470



PANEL OF THE POSITIONING CONTROLS TGA - TRAF 75 - TRAF 200 - TRAF 300

“ALL THE CHECKS NECESSARY FOR THE AUTOMATIC WELDING ON 360+ OVERLAP”

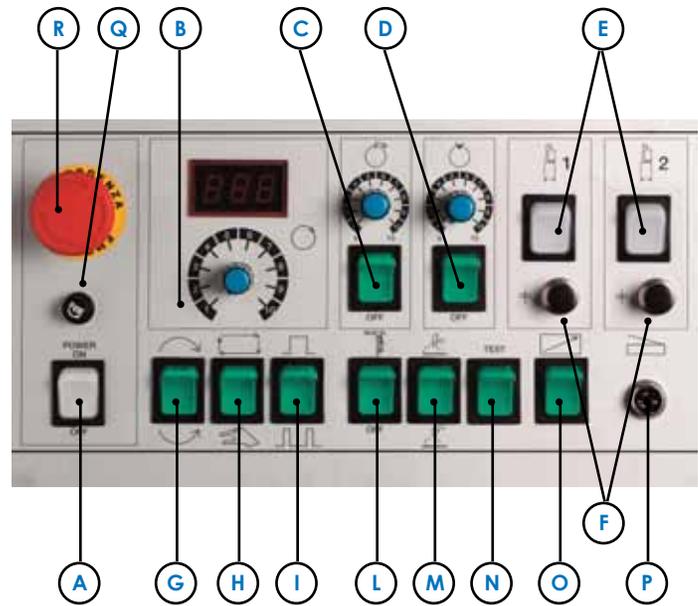
Standard functions for checking the “stage2”:

A GENERAL SWITCH

B ELECTRONIC ADJUSTMENT OF THE TABLE SPEED
with digital display showing the index 0-10

C OVERLAP to be adjusted from 0 to 10 seconds
with precise adjustment in the first part of the
scale

D CRATER FORMATION to be adjusted from 0 to
10 seconds with precise adjustment in the first
part of the scale



E WELDING MACHINES SELECTION you can include the synchronism of the working cycle with the welding
machine
start-up

F WIRE TEST is a useful button for the progress of the wire acting when closing the welding machine contact

G ROTATION DIRECTION it allows you changing the clockwise/counterclockwise direction

H MANUAL / AUTOMATIC CYCLE in manual mode it excludes the overlapping function and ignores the limit
switch at 360°

I L2T / 4T LOGICS it allows you setting the working logics between the 2 times (continuous line) or 4 times
(double line)

L ARM SUPPORTING THE PNEUMATIC TORCH it enables/disables the arm supporting the torch, if there is this
equipment.

M TIG/MIG FUNCTION Enabling the TIG working cycle, the permit to the welding machine is disabled when
reaching the 360° limit switch, namely before overlapping. Then the current ramp is managed directly by
the TIG welding machine. In the MIG position, the welding machine contact remains closed also during
the overlapping phase.

N TEST allows the descent of the pneumatic arm to facilitate the related calibration of the torch position

O SPEED PEDAL (OPTIONAL) it enables the adjustment function of the table speed by a special start up pedal

P PEDALS CONNECTOR cable outlet from the pedals supplied

Q FUSE In case of operation problems, check and eventually replace this fuse



HEAVY SERIES

TX 500 - 800 - 1200 TR 2000 - 3000 MECHANIC TILTING [500 - 3.000 Kg capacity]

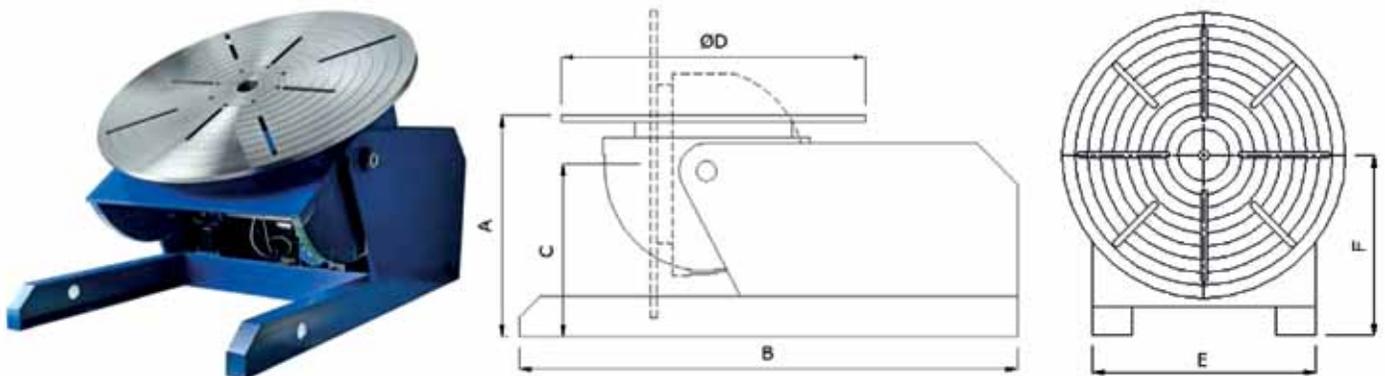
TR 4000 - 5000 - 8000 - 10000 - 20000 - 30000 - 40000 - 50000

HYDRAULIC TILTING AND FLOOR TABLES [4.000 - 50.000 Kg capacity]

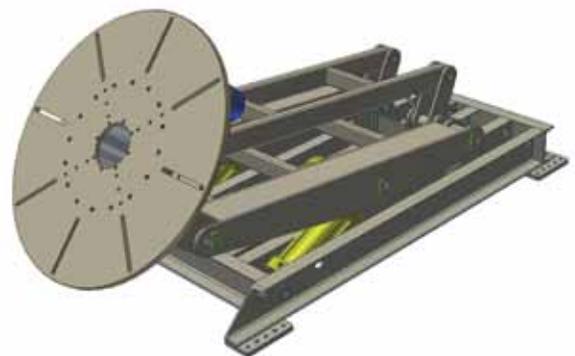
Complete set of high performance tilting rotary positioners, available with different capacity, from 500 Kg up to 50.000 Kg. The models up to 3000 Kg are full of tilting movement adjustment on motor gearbox and toothed bearing. The complete range includes the shielding against high frequency noise.

Standard available control:

- Constant and continuous adjustment of the table rotation speed by vector INVERTER
- Selector clockwise/anticlockwise rotation
- Control logic 2t/4t
- Synchronism function with arc strike on generator (if present)



3 AXIS POSITIONERS WITH PASSING HOLE THROUGH THE TABLE. CONSTANT TILTING DURING THE LIFTING MOVEMENTS.





TX 500 / 800 / 1200 - TR 2000 / 3000, MECHANICAL TILTING

TECHNICAL DATA	TX 500	TX 800	TX 1200	TR 2000	TR 3000
Max load capacity [Kg]	500	800	1.200	2.000	3.000
Tilting angle	0 - 100°	0 - 100°	0 - 100°	0 - 110°	0 - 110°
Rotation speed [rpm]	0.2 - 5	0.1 - 4	0.1 - 4	0.05 - 1.5	0.05 - 1.5
Max welding current [A]	1.000	1.000	1.000	1.000	1.000
Power supply [V]	230 - 1ph	230 - 1ph	230 - 1ph	400 - 3ph	400 - 3ph
A [mm]	885	900	900	900	1.000
B [mm]	1.500	1.600	1.700	1.800	1.900
C [mm]	680	680	680	900	900
D Ø [mm]	800	800	1.100	1.200	1.400
E [mm]	700	800	900	1.200	1.400
F [mm]	680	680	680	900	900
Weight [kg]	500	500	750	1.400	1.800
Bending moment [Nm]	1.000	1.500	2.600	5.000	9.800
Torque [Nm]	500	800	1.200	1.900	4.000

TR 4000 / 5000 / 8000 / 10000 / 20000 / 30000 / 50000, AIR - PNEUMATIC SYSTEMS

TECHNICAL DATA	TR 4000	TR 5000	TR 8000	TR 10000	TR 20000	TR 30000	TR 50000
Max load capacity [Kg]	4.000	5.000	8.000	10.000	20.000	30.000	50.000
Tilting angle	0 - 110°	0 - 110°	0 - 110°	0 - 110°	0 - 110°	0 - 110°	0 - 110°
Rotation speed [rpm]	0.04 - 0.8	0.03 - 0.6	0.02 - 0.5	0.02 - 0.5	0.02 - 0.5	0.01 - 0.4	0.01 - 0.4
Max welding current [A]	1.000	1.000	1.000	1.000	2.000	2.000	2.000
Power supply [V]	400 - 3ph						
A [mm]	1.000	1.100	1.100	1.500	1.800	2.000	2.100
B [mm]	2.000	2.200	2.500	2.800	3.500	4.000	6.000
C [mm]	800	900	900	1.300	1.600	1.800	2.000
D Ø [mm]	1.500	2.000	2.000	2.400	2.400	2.400	Upon request
E [mm]	1.300	1.800	1.800	2.000	2.000	2.000	2.350
F [mm]	800	900	900	1.300	1.600	3.500	2.500
Weight [kg]	2.000	2.500	3.600	5.000	9.400	12.000	Upon request
Bending moment [Nm]	1.500	2.000	2.500	5.000	6.500	12.000	Upon request
Torque [Nm]	500	700	900	1.500	2.000	3.000	Upon request



Lathe positioners



TRAF 75 BAC/B - TRAF 200 BAC/B - TIGGHINO

SERIES OF LATHE POSITIONERS FOR EVERY WELDING PROCESS, WITH SINGLE OR DOUBLE STATION SUPPORTING THE TORCH

STEEL MEC sold has a wide series of solutions in the field of lathe positioners. This page shows the standard machines provided with our STAGE2 controller.

The TRAF models are available in the BAC version where the axis of the tailstock is vertically fixed and the BACB version where the axis of the tailstock can be horizontally and vertically oriented, including all the intermediate adjustments. The TIGGHINO model is the best solution for all the applications where the accuracy is an essential requirement. This positioner is particularly suitable for processes with TIG or MICROPLASMA welding.

Very versatile machines with the possibility to move the pneumatic arm from the tailstock platform to the frame of the turntable. There are available many OPTIONAL accessories like the second pneumatic arm and the tailstock with gas insufflations or the multilayer function to perform up to 6 subsequent revolutions. You can also integrate our devices supporting the SMD560 torch or our electronic AVC systems for the arc check or one or two electronic OSCILLATORS, model RED. The sequence of the pictures above is only an indication of the range on the catalogue. For the TRAF series it's available a detailed documentation that can be downloaded also from our website www.steelmeccsald.it



The TRAF75/200 models are standard machines that are already ready for delivery the useful working length is modifiable on demand as well as any combination with welding generators for each process.

The "V" supports (height-adjustable), the clamping chuck and also custom working cycles are available on request. The ASCO series comes as standard with Siemens PLC control.



Lathe positioners

TECHNICAL DATA	TRAF 75 BAC	TRAF 200 BAC	TRAF 75 BACB	TRAF 200 BACB	TIGGHINO
Capacity [Kg]	75	200	200	200	5.000
Platform tilting	90°	90°	0 - 90°	0 - 90°	•
Table rotation speed [rpm]	0.3 - 6	0.3 - 6	0.3 - 5	0.3 - 5	0.05 - 5
Max welding current [A]	350	500	500	500	2.000
Diameter of the pass. through hole [mm]	20	50	20	0	-
Power supply [V]	230 - 1ph	230 - 1ph	230 - 1ph	230 - 1ph	230 - 1ph
Length [mm]	600	600	600	600	500
Optional lengths [mm]	•	•	1.200	1.200-1.800-2.400	Upon request

V standard
 • not available
 - available as an option

SCA - ASCO - TX

SERIES OF LATHES POSITIONERS FOR EVERY WELDING PROCESS, CON SINGLE OR DOUBLE STATION SUPPORTING THE TORCH



ASCO 2500 DOUBLE HEAD SAW



5 AXIS CONTROLLED LATHE



LATHE FOR BIG DIAMETERS



SCA



We manufacture many welding lathe systems, experimenting every process and material. This pictures show some examples of models that can be easily found and are frequently used. The working length can be changed upon request so as all the combinations with the generators and their options as AVC stylus gauges and/or welding oscillators. For inserting the pieces on board the machine, optionally, we supply manual or automatic saddle systems. The equipment securing the pieces and the working sequence are customized upon request. The ASCO series has the standard control PLC.

Given the number of variables and customizations involved, the adjacent chart is purely indicative

TECHNICAL DATA	SCA	ASCO	TX
Capacity [Kg]	200	200 - 5.000	1.000 - 10.000
Table diameter [mm]	500	500	Upon request
Table rotation speed [rpm]	0.3 - 5	0.2 - 6	0.05 - 2
Max welding current [A]	1.000	1.000	2.000
Diameter of the pass. through hole [mm]	50	-	-
Power supply [V]	230 - 1ph	400 - 3ph	400 - 3ph
Length [mm]	1.200	Upon request	Upon request
Lengths [mm]	2.000 / 3.000 / 4.000	-	-

V standard
 • not available
 - available as an option



ASCO CUSTOM VERSION

AUTOMATIC WELDING STATION WITH LATHE POSITIONER ESPECIALLY MADE FOR COPPER BOILERS "COFFEE TANK BUILDER"



Automatic lathe for the production of tanks for professional coffee machines. Includes double TIG station with cold wire feeder, intelligent tracking system. This machine is equipped by a touch screen control board with PLC to manage all the functions of the system, welding parameters included. Similar solutions are available for a lot of circumferential weldings, also with loading station and automatic discharge.

POSITIONERS FOR WELDING AND ASSEMBLING BIG FRAMES

[1 - 50 Ton capacity]

Lathe machine for production of big frame for industry of train-metro and trucks as well.

In front of the motorized station there were two rails to support the sliding idle unit.

An hydraulic movement can be add to create a "Tailstock" device to close the workpieces in the working area.





Roller positioners



PR SERIES OF ROLLER POSITIONERS WITH CAPACITY FROM 1500KG UP TO 300 TONS

BASIC PR1 500 / 3000 / 6000 MB VERSIONS

Cheap solution with polyurethane high-resistance wheels. Available in three sized of 1500Kg, 3000Kg and 6000Kg per pair. Motorized section with double motors. The adjustment of the distance of the wheels is performed on the bench in fixed positions for securing as shown in the picture (PR 3000 MB version).



PR VERSION - Motorized station

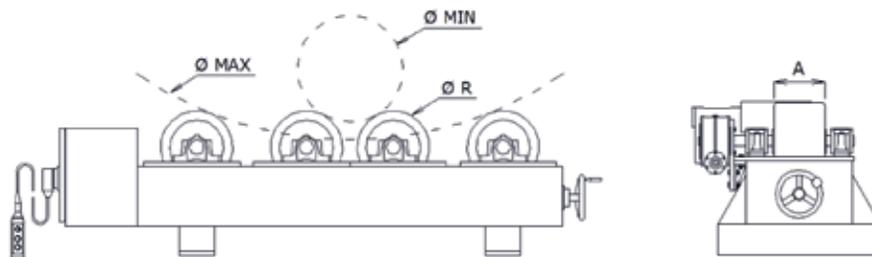
PR VERSIONS

the wheels are made with vulcanized rubber or polyurethane high density or steel on request. Adjusting distance from the wheels by means of a handwheel with acme screw right-left.

Ac motors driven by frequency vector. All the line is available on request to run on rails.



PRA 3000 - Detail of the wheels



TECHNICAL DATA	PR 15MB	PR 30MB	PR 60MB	PR 5K	PR 8K	PR 10K	PR 15K	PR 20K
Capacity in Kg [per pair]	1.500	3.000	6.000	5.000	8.000	10.000	15.000	20.000
Rolls speed [cm/min]	15 - 230	15 - 230	15 - 230	15 - 230	10 - 190	10 - 200	10 - 200	10 - 200
Speed [rpm]	0.15 - 3	0.15 - 3	0.15 - 3	0.15 - 3	0.1 - 2	0.1 - 2	0.08 - 1.6	0.08 - 1.6
Wheels diameter ØR [mm]	250	250	250	250	300	350	400	400
Wheel width A [mm]	60	120	180	100	200	200	300	400
Rotable diameter ØMIN [mm]	150	150	150	300	500	500	500	500
Rotary diameter ØMAX [cm]	150	250	250	300	350	350	400	450
Tension [V]	230	230	230	400 - 3ph	400 - 3ph	400 - 3ph	400 - 3ph	400 - 3ph



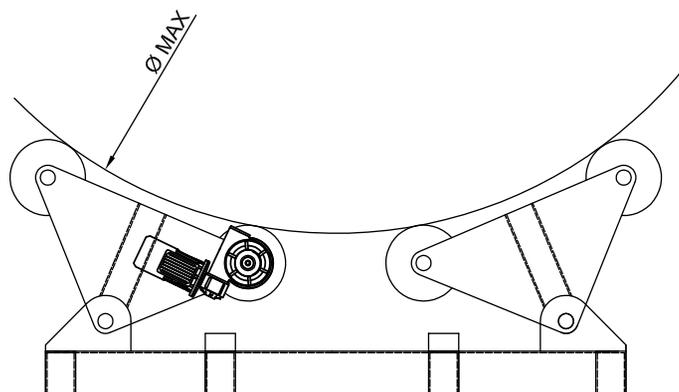
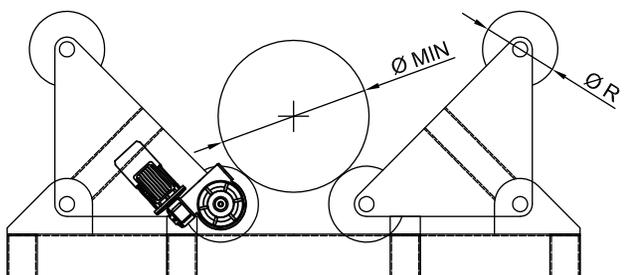
Roller positioners

TECHNICAL DATA	PR 30K	PR 50K	PR 80K	PR 120K	PR 160K	PR 200K	PR 250K	PR 300K
Capacity in Kg [per pair]	30.000	50.000	80.000	120.000	160.000	200.000	250.000	300.000
Rolls speed [cm/min]	15 - 230	15 - 230	15 - 230	10 - 200	10 - 200	10 - 200	10 - 200	10 - 200
Speed [rpm]	0.15 - 3	0.15 - 3	0.15 - 3					
Wheels diameter ØR [mm]	400	500	500	600	600	650	700	750
Wheel width A [mm]	300	200	300	250	300	300	400	400
Rotable diameter ØMIN [mm]	500	700	1.000	1.000	1.000	1.500	1.500	1.500
Rotary diameter ØMAX [cm]	4.500	5.000	5.000	6.000	6.000	7.000	9.000	9.000
Tension [V]	400 - 3ph							

PRA SERIES OF POSITIONERS WITH 4 CONTACTS WITH SELF-CENTERING ROLLS

PRA VERSIONS

Like for the PR version, the machine is manufactured in electrically welded carpentry and machined with machines provided with polyurethane or steel machines, upon request. The new range of rolls PRA positioners allows you covering a wide range of applications, extremely useful in handling tanks and cylindrical bodies in general. Their advantageous self-centering makes them indispensable while handling the cylindrical bodies with variable section where the tilting section of the groups with two wheels allows the self-alignment on the center gravity diameter, thus distributing the weight in a balanced manner. The machines are available in the basic version with fixed supports on the floor or, optionally, with trolley stations to allow the station sliding on the rails.





TECHNICAL DATA	PRA 15	PRA 30	PRA 60	PRA 80	PRA 100	PRA 120	PRA 150
Capacity in Kg [per pair]	1.500	3.000	6.000	8.000	10.000	12.000	15.000
Rolls speed [cm/min]	15 - 230	15 - 230	10 - 190	10 - 190	10 - 190	10 - 190	10 - 200
Speed [rpm]	0.15 - 3	0.15 - 3	0.1 - 2	0.1 - 2	0.1 - 2	0.1 - 2	0.08 - 1.6
Wheels diameter ØR [mm]	250	250	300	300	300	300	400
Wheel width A [mm]	60	120	180	150	150	200	250
Rotable diameter ØMIN [mm]	500	500	500	500	500	600	700
Rotary diameter ØMAX [mm]	1.800	2.500	2.500	2.500	3.000	3.000	3.000
Tension [V]	400 - 3ph						



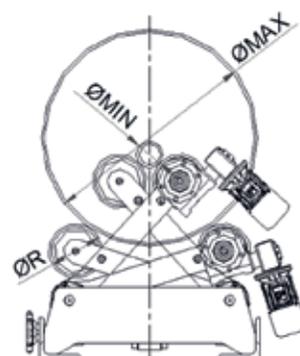
PRX SERIES OF ROLLER POSITIONERS WITH VARIABLE HEIGHT

PRX VERSIONS

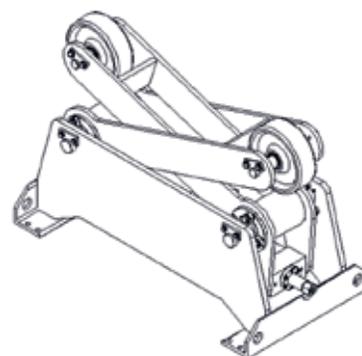
This series of positioners is particularly indicated for all those applications where the rotation axis is bounded by a vertical turntable where the height from the rotation center of the floor remains constant when changing the diameters of the pieces under machining. Thus it's indispensable that the supporting roll can be lifted to fit with different diameters. The typical application (but not the only) is clearly visible in the picture on the left. Also the PRX series is available motorized and idle, with static or fixed base floor of the movable rails. Especially for these machines is a strong personalization functions in the client's needs and the particular job.



PRX 60 Application example



PRX 15



TECHNICAL DATA	PRX 15	PRX 30	PRX 60	PRX 80	PRX 100	PRX 120	PRX 150
Capacity in Kg [per pair]	1.500	3.000	6.000	8.000	10.000	12.000	15.000
Rolls speed [cm/min]	15 - 230	15 - 230	10 - 190	10 - 190	10 - 190	10 - 190	10 - 190
Speed [rpm]	0.15 - 3	0.15 - 3	0.1 - 2	0.1 - 2	0.1 - 2	0.1 - 2	0.1 - 2
Wheels diameter ØR [mm]	250	250	250	300	300	300	300
Wheel width A [mm]	60	120	180	150	150	200	250
Rotable diameter ØMIN [mm]	200	200	300	300	300	300	400
Rotary diameter ØMAX [mm]	1.500	1.500	2.000	2.000	2.500	2.500	3.000
Power supply [V]	400 - 3ph	400V - 3ph	400 - 3ph				



Orbital heads & Circle welder



ORBITAL WELDING

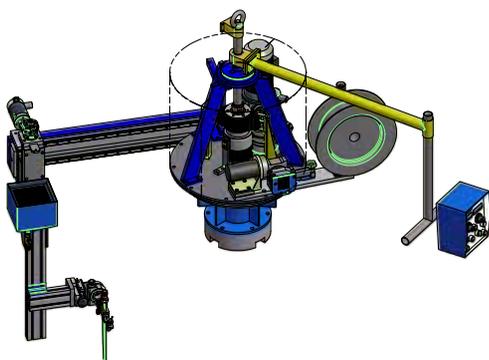
SERIES OF POSITIONERS FOR ORBITAL WELDING 2D-3D FOR STEEL FABRICATION INDUSTRY

The catalogue of the STEEL MEC sold includes a complete series of rotary heads dedicated to all the welding processes: from TIG to SAW ones.

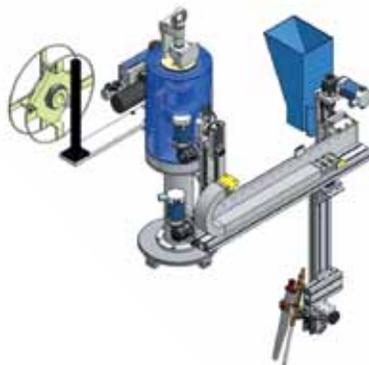
In particular, the head, model . . . is the sole on the market with an overall weight of 70 Kg compared with 400 Kg of other solution with similar performance. The basic version for all the configurations is with a single axis, namely the system performs only the rotation in the center of the axis orthogonal than the welding surface and thus the circular welding occurs only on the plan.

There are also the versions with 2 axes that allow you welding the intersection figure among the two 3 D cylinders, interpolating the circular rotation with the vertical movement of the torch that allows you to follow the welding "saddle". This solution requires to enter the value of the height difference between the starting point of the welding corresponding to the upper dead point and the value reached from the joint in the lowest point.

This 3D variant of the rotary head is available also in the completely electronic version where a powerful system of calculation with the touch-screen interface allows the Operator to enter directly the values of the two diameters of the cylinders to be welded and automatically the machine calculates the welding trajectory. The mechanical items of this variant is of the robot type with brushless motors and reduced gap gearmotors so as to be particularly designed for MIG and TIG applications, where the accuracy of the torch position on the joint is an essential condition.



CWELD 70/1



CWELD 70/2



CWELD 70/3



Orbital heads & Circle welder

TECHNICAL DATA	CW 70/1	CW 70/2	CW 70/3	CW 70/4	ROW 2
Weight [Kg]	380	220	140	70	V
Rotation speed [rpm]	0.05 - 2	0.05 - 2	0.05 - 2	0.05 - 2	0.05 - 2
Minimum diameter tat can be welded [mm]	300	300	200	100	10
Maximum diameter tat can be welded [mm]	1.600	1.200	1.000	500	400
Compatible with MIG - TIG	-	-	-	-	V
Compatible with SAW	V	V	V	V	•
Power supply [V]	400 - 3ph				

V standard • not available - available as an option

ORBITAL HEADS

ORBITAL WELDING WITH 3 INTERPOLATED AXES + 3 AXES FOR THE TORCH POSITIONING

The system depicted allows you performing the immersed arc orbital 3D welding with the exclusive automatic function of maintaining the welding bath on the horizontal plan.

During the rotation of the welding torch, you can enter the movement on the vertical axis and the controlled monitoring of the turntable that, alternatively, tilts the whole structure and adjusts this angle based on the arrangement of the welding bath along the welding perimeter.

Electronic management control by CN and touch screen display to view all parameters included the angular dimension. This function is only available by purchasing together with the orbital head also the rotary table.





3D ORBITAL WELDING “EXCLUSIVE SOLUTION BY STEEL MEC SALD”

RESULTS AFTER 102 ROTATIONS ON EACH SIDE BY AUTOMATIC ORBITAL SAW WELDING

For maintaining the horizontal plan on the welding bath, you can automatically perform all the welds, not only those in the groove, but also the last covering, avoiding the bath fall.

This automation ensures an important reduction of the time and machining costs, allowing the process and product repetibility regardless from the skills of the welder involved.

Steel Mec can provide “turnkey” systems including the welding generators and the system of management of the flow, from the oven to the recovery tank or only the orbital head or the couple formed by the rotating head more rotary table, absolutely necessary to obtain the function of maintaining the bath horizontally during the rotation of the torch.



3D ORBITAL WELDING “EXCLUSIVE SOLUTION BY STEEL MEC SALD”

ROBOT ORBITAL WELDING

Electronic version of the orbital head with two - axis NC for the calculation of the trajectory in real time.

The Operator of this machine must enter on the touch screen only directly the value in millimeters of the base diameter of the horizontal cylinder and the diameter of the vertical nozzle. The electronic control system calculates the real 3D curve of intersection and subsequently stores the mathematical model shown on the display and then drive the two interpolated axes during the execution of the work cycle. The machine in the picture is just an example of use of this technology, thus the rotating head is available in the sliding version on a beam or manipulator or in a mobile version as the classic versions . . .

This solution represents the state of the art in terms of orbital welding on two axes as it makes it extremely simple the format change without intervening with mechanical adjustments on the height difference between the upper dead point and the lower dead point of the welding saddle.





Universal welding manipulators



"Since 1952 our top product..."

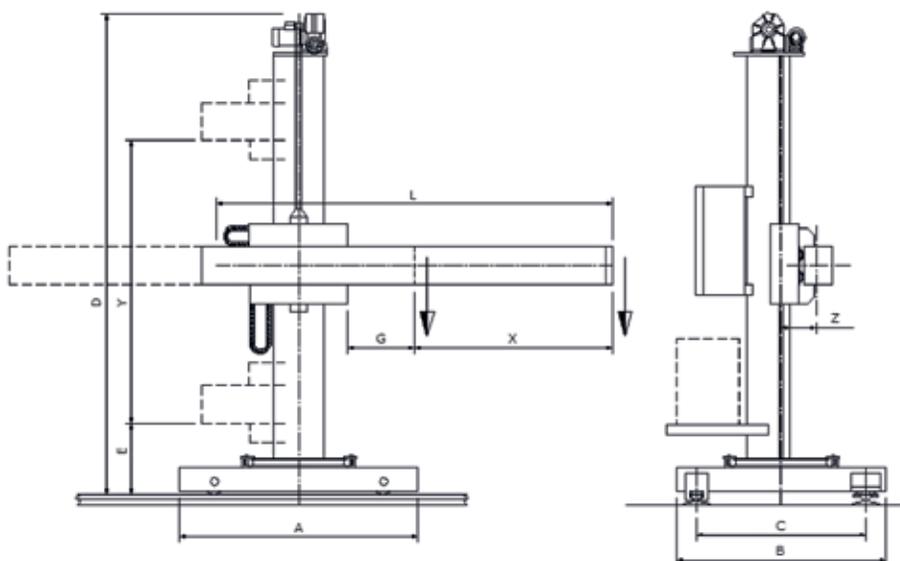
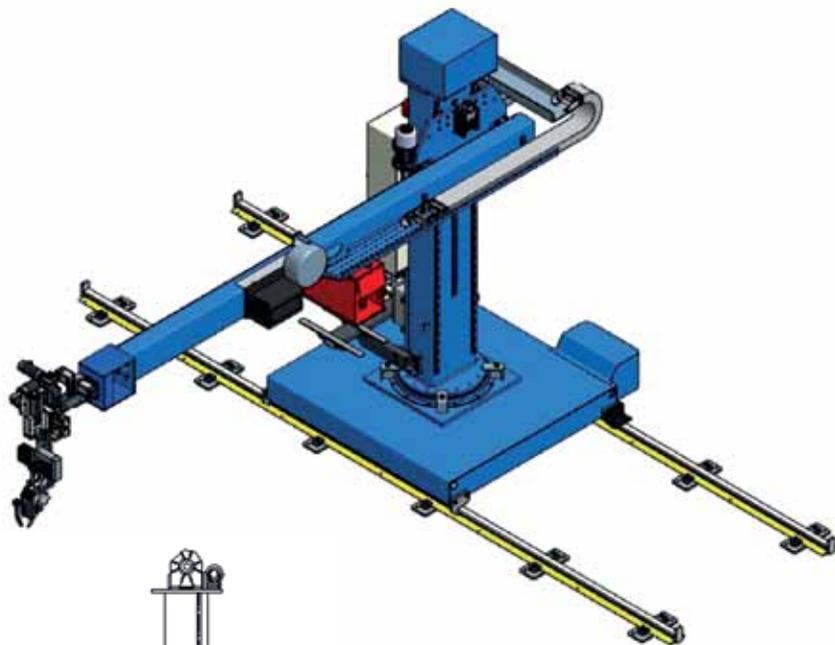


Series of customized manipulators for the specific welding MIG - TIG - PLASMA - SUBMERGED ARC process, with dimensions upon the Customer's request. On the strong electrically welded structures, all the skid are made with linear guides and ball recirculating trolleys to ensure performance and reliability. The vertical column on the ball turntable can manually rotate on 360° with pins (it can be optionally motorized). For all the versions, the lifting of the horizontal beam is provided with a safety anti-falling device operating by forcing a steel item on the electrically welded rack along all the height of the vertical column. The horizontal beam movement and the one of the trolley in the versions with movable trolley on rails is managed by an inverter with adjustable speed from 100 to 2500 mm/min. On the column it's installed the cabinet collecting the general switch, the emergency switch and the controls for the manipulator movement. This column are shown on the anterior end of the beam at the welding head.

- MRL series of "light" manipulators distinguishing for the excellent quality-price ratio, but it is not designed for heavy applications, typical of some immersed arc products. Available from 1.5 to 3 m of stroke.
- MRM series of "medium capacity" manipulators, namely the typical universal welding manipulators designed for all the processes, excluded the double head or combined systems. Available from 2 to 5 m of stroke.
- MRP series of "big" capacity manipulators that are the right solution combined with generators and heads with immersed arc, combined with skids and stylus gauges they ensure excellent performance. Available from 3 to 6 m of stroke.
- MRHP series of manipulators with very big capacity structures, compatible with all the bulky and heavy solutions and with all the vision and control systems. Available from 2 to 7 m of stroke.
- MRHP/2 evolution of the MRHP series extending the stroke available up to 10 and more meters. It's made with supporting structures that are rigid and have a load capacity up to 1000 Kg on the beam. Compatible with man on board.

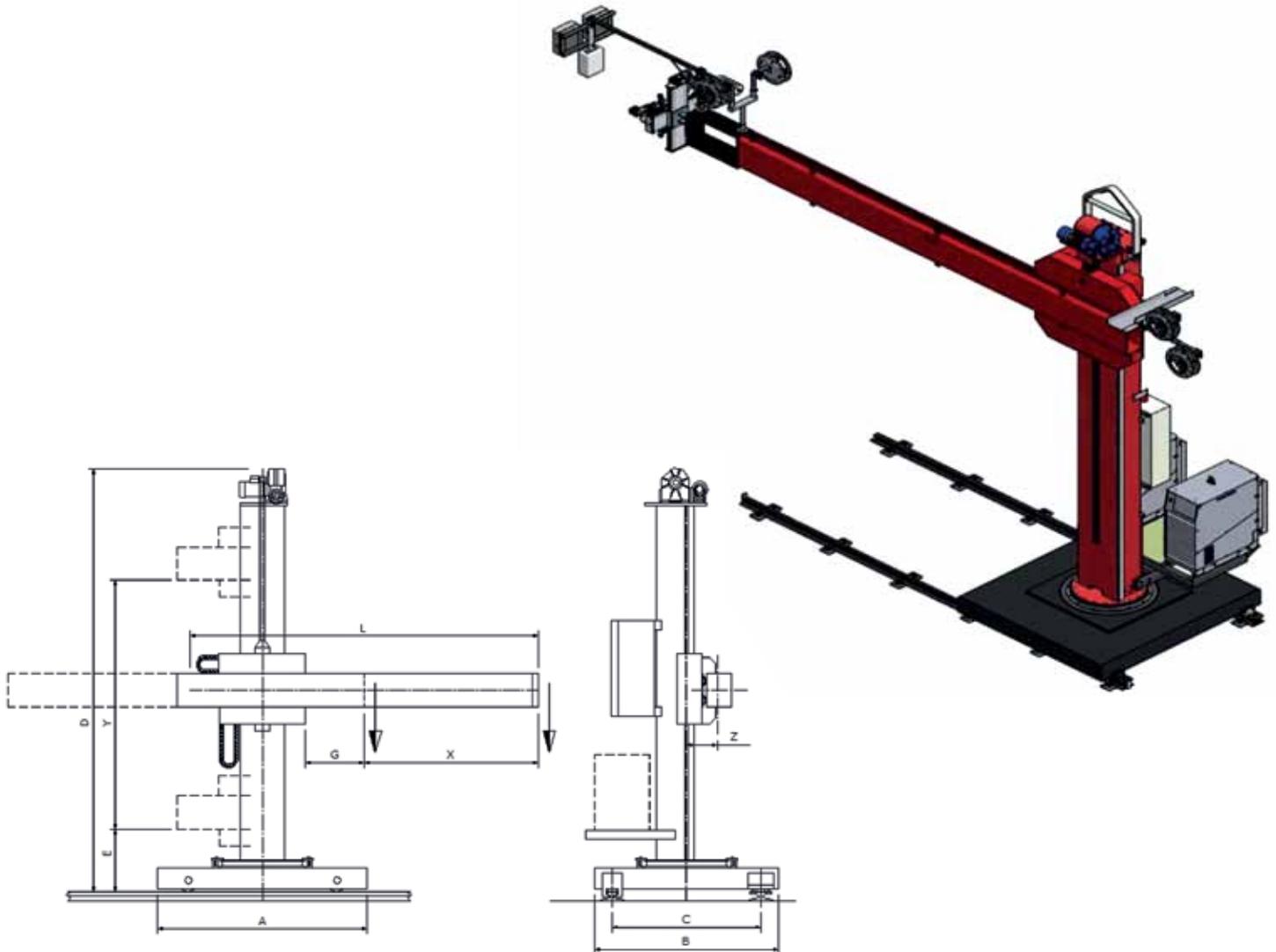


Universal welding manipulators



TECHNICAL DATA	MRL 1.5	MRL 2.0	MRL 2.5	MRL 3.0	MRM 2X2	MRM 3X3	MRM 4X4	MRM 5X5
X [mm]	1.500	2.000	2.500	3.000	2.000	3.000	4.000	5.000
Y [mm]	1.500	2.000	2.500	3.000	2.000	3.000	4.000	5.000
Z [mm]	200	250	250	250	250	300	300	400
A [mm]	1.200	1.500	1.500	1.800	1.800	1.800	1.800	2.000
B [mm]	1.200	1.500	1.500	1.500	1.500	1.500	1.500	1.800
C [mm]	•	•	•	•	1.350	1.350	1.350	1.350
D [mm]	3.400	3.900	4.400	4.900	3.900	4900	5.900	7.000
E [mm]	750	750	750	750	850	850	850	850
G [mm]	-	-	-	-	-	-	-	-
L [mm]	2.600	3.100	3.600	4.100	3.100	4.100	5.100	5.100

■ standard
 • not available
 - available as an option

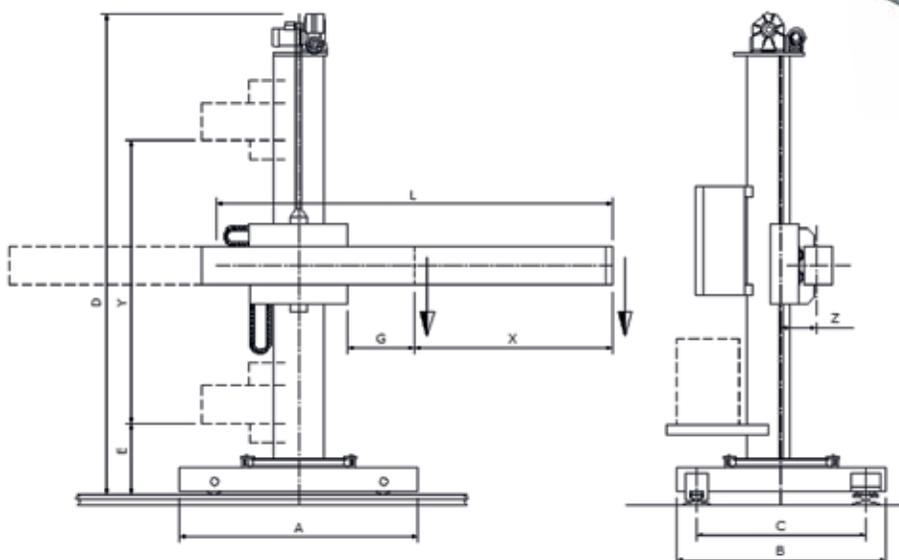
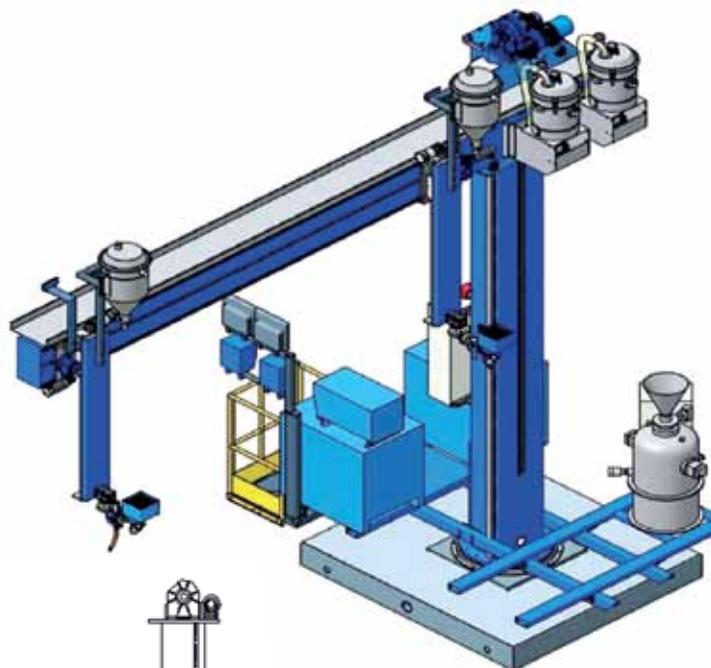


TECHNICAL DATA	MRP 3X3	MRP 4X4	MRP 5X5	MRP 6X6	MRHP 4X4	MRHP 5X5	MRHP 6X6	MRHP 7X7
X [mm]	3.000	4.000	5.000	6.000	4.000	5.000	6.000	7.000
Y [mm]	3.000	4.000	5.000	6.000	4.000	5.000	6.000	7.000
Z [mm]	300	400	500	600	400	500	600	700
A [mm]	2.050	2.050	2.050	2.050	2.500	2.500	2.500	2.500
B [mm]	1.800	1.800	1.800	1.800	2.300	2.300	2.300	2.300
C [mm]	1.650	1.650	1.650	1.650	2.050	2.050	2.050	2.050
D [mm]	5.400	6.400	7.400	8.400	6.800	7.800	8.800	9.800
E [mm]	1.000	1.000	1.000	1.000	1.100	1.100	1.100	1100
G [mm]	-	-	-	-	-	-	-	-
L [mm]	4.350	5.350	6.350	7.350	5.550	6.550	7.550	8.550

▼ standard • not available ▣ available as an option



Universal welding manipulators



TECHNICAL DATA	MRHP/2 5X5	MRHP/2 6X6	MRHP/2 7X7	MRHP/2 8X8	MRHP/2 9X9	MRHP/2 10X10
X [mm]	5.000	6.000	7.000	8.000	9.000	10.000
Y [mm]	5.000	6.000	7.000	8.000	9.000	10.000
Z [mm]	600	700	800	800	900	900
A [mm]	2.500	2.500	3.000	3.000	4.000	4.500
B [mm]	2.250	2.250	2.500	2.500	3.500	3.500
C [mm]	2.050	2.050	2.250	2.250	3.000	3.000
D [mm]	7.500	8.500	9.500	10.500	11.500	12.500
E [mm]	1.100	1.100	1.300	1.300	1.300	1.300
G [mm]	-	-	-	-	-	-
L [mm]	7.000	8.000	9.000	10.500	11.500	12.000

V standard
 • not available
 - available as an option





Seamers

SEAMERS FOR LONGITUDINAL WELDING

SERIES OF SEAMERS FOR OUTDOOR AND INDOOR

Plants made to safely welding fitted or flat metal sheets with end joints through the use of pinch rolls locking the edges.

The Operator of these machines inserts and aligns the welding edges inside the loading area where a blade centering unit helps to keep the alignment between the joint to be welded and the linear path of the torch on board the machine. After the insertion of the metal sheet, a series of pinch rolls along all the length of the welding section are driven by a pneumatic control.

These pinch rolls are made of bronze and are arranged next to each other in order to form two parallel comb lines. The physical support where there are two series of pinch rolls and supporting the entire ferrule is made with a bar, which often is cylindrical, where you can get the area in copper alloy, ensuring along the entire welding path a wear-resistant support. In addition, the cooling fluid will flow and, if required, namely in the TIG/PLASMA processes, also the GAS of protection will flow inside the copper bar. Thanks to this version, you have the perfect protection of the bath and the welding edges along all the path.

In the upper part of the frame and along all the length of the machine, there is a linear beam where the motorized trolley holding the torch slides. The torch is secured also to a pneumatic actuator for the vertical movement between the working and rest position. All the movements are made with the use of linear guides and ball recirculation skids.

The motorization with the DC gearmotor complete with an encoder has an adjustable speed through the numerical control , with return to the zero point at the maximum speed, in a hided time.

The Operator interface is made with a touch screen panel and the working cycle is managed by the PLC on which it's loaded the special working cycle, as, for example, the following process variables:

- length of the welding section in mm, from 500 mm to 12000 mm, precision to a tenth of a millimeter
- welding speed
- delayed starting
- protection gas management
- sections welding
- welding programs recall
- camera system (if needed)
- temperature controls
- more, on demand





The picture above shows a plant, ABLI model, with length of 2000 m for the inner welding of fitted ferrule or flat metal sheets. On this plant you can install every welding generator: from the TIG - PLASMA to the SAW one. The control PLC is supplied as a standard item and through the touch screen panel it allows changing all the parameters in a rapid and intuitive manner.

The picture below depicts a plant, ABLE SAW model, designed for welding flat metal sheets, typical of the PANEL LINE systems. Also this version is provided with pinch rolls locking the metal sheets and the lower bar supporting the welding. All the versions of the assembling benches are available with pinch rolls operated by air sleeve or pneumatic and/or hydraulic cylinders.

STEEL MEC SALD has a large experience in longitudinal seamers that with the manipulators and special installations represent the spearhead of our offer.



ABLE 3000



ABLI 4000

ABI SERIES OF ASSEMBLING BENCHES FOR FLAT METAL SHEETS AND INTERNAL FERRULE WELDING

TECHNICAL DATA	ABI 1000	ABI 2000	ABI 3000	ABI 4000	ABI 5000	ABI 6000	ABI 7000
Max welding length [mm]	1.000	2.000	3.000	4.000	5.000	6.000	7.000
Mini weldable pipe Ø [mm]	1.200 inner	-	-	-	-	-	-
Maxi weldable pipe Ø [mm]	infinite	infinite	infinite	infinite	infinite	infinite	infinite
Weldable thickness [mm]	1 ÷ 8	1 ÷ 8	1 ÷ 8	1 ÷ 12	1 ÷ 12	1 ÷ 12	1 ÷ 12
User-friendly PLC control	V	V	V	V	V	V	V
Cooled underlay bar	V	V	V	V	V	V	V
Constant arc length	-	-	-	-	-	-	-
Backing gas protection	-	-	-	-	-	-	-
Welding processes: TIG, MIG, plasma	V	V	V	V	V	V	V
Welding processes SAW	-	-	-	-	-	-	-

TECHNICAL DATA	ABLI 1000	ABLI 2000	ABLI 3000	ABLI 4000	ABLI 5000	ABLI 6000	ABLI 7000
Max welding length [mm]	1.000	2.000	3.000	4.000	5.000	6.000	7.000
Mini weldable pipe Ø [mm]	80	150	300	500	500	500	500
Maxi weldable pipe Ø [mm]	1.500	1.500	1.500	on request	on request	on request	on request
Weldable thickness [mm]	0.7 ÷ 6	0.7 ÷ 6	0.7 ÷ 6	0.7 ÷ 6	0.7 ÷ 6	0.7 ÷ 6	0.7 ÷ 6
User-friendly PLC control	V	V	V	V	V	V	V
Cooled underlay bar	V	V	V	V	V	V	V
Constant arc length	-	-	-	-	-	-	-
Backing gas protection	-	-	-	-	-	-	-
Welding processes: TIG, MIG, plasma	V	V	V	V	V	V	V
Welding processes SAW	-	-	-	-	-	-	-

TECHNICAL DATA	ABE 1000	ABE 2000	ABE 3000	ABE 4000	ABE 5000	ABE 6000	ABE 7000
Max welding length [mm]	1000	2000	3000	4000	5000	6000	7000
Mini weldable pipe Ø [mm]	80	100	200	300	500	500	500
Maxi weldable pipe Ø [mm]	900	900	1500	1500	1500	1500	1500
Weldable thickness [mm]	0.5 ÷ 4	0.5 ÷ 4	0.5 ÷ 4	1 ÷ 5	1 ÷ 5	1 ÷ 5	1 ÷ 5
User-friendly PLC control	V	V	V	V	V	V	V
Cooled underlay bar	V	V	V	V	V	V	V
Constant arc length	-	-	-	-	-	-	-
Backing gas protection	-	-	-	-	-	-	-
Welding processes: TIG, MIG, plasma	V	V	V	V	V	V	V
Welding processes SAW	-	-	-	-	-	-	-

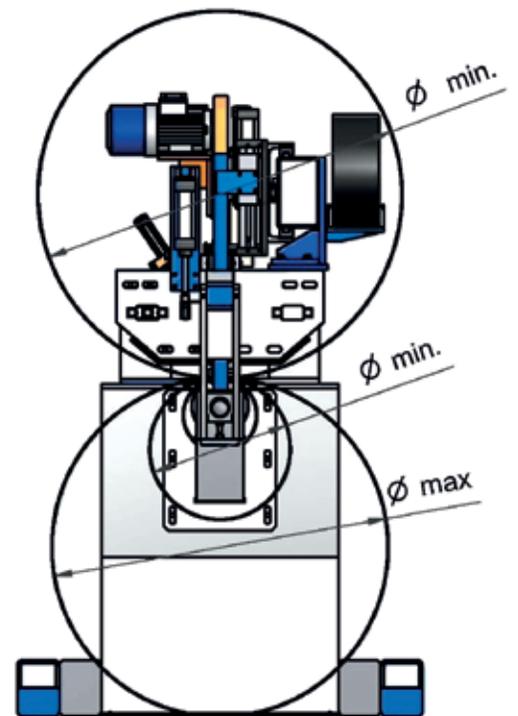
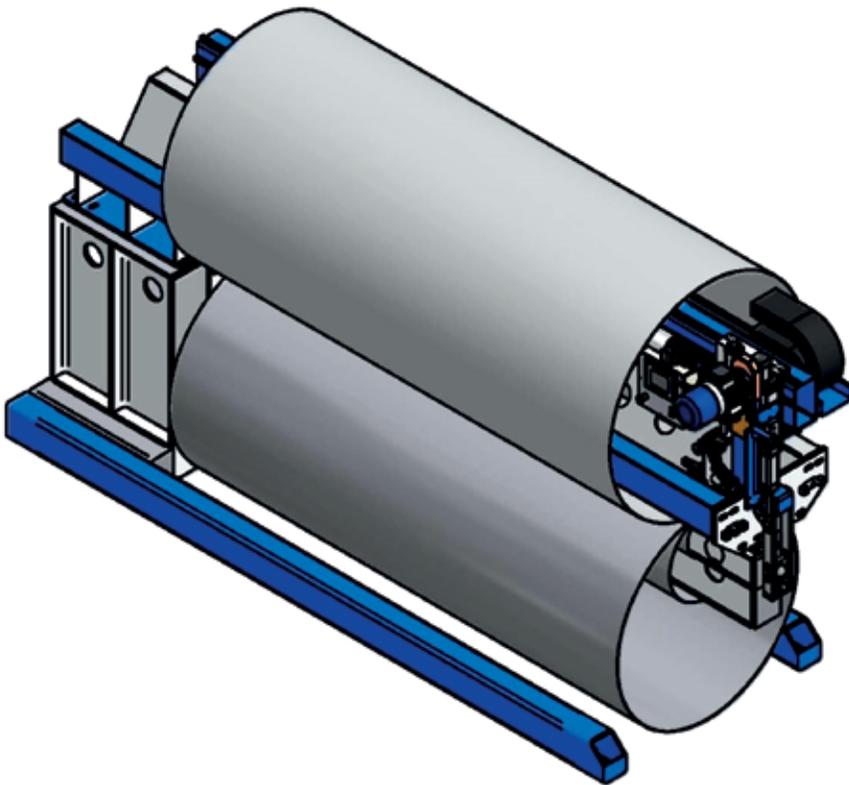
V standard • not available - available as an option



TECHNICAL DATA	ABLE 1000	ABLE 2000	ABLE 3000	ABLE 4000	ABLE 5000	ABLE 6000	ABLE 7000
Max welding length [mm]	1.000	2000	3000	4000	5000	6000	7000
Mini weldable pipe Ø [mm]	200	200	300	500	500	500	500
Maxi weldable pipe Ø [mm]	1.500	1500	1500	1500	1500	1500	1500
Weldable thickness [mm]	1 ÷ 6	1 ÷ 6	1 ÷ 6	1 ÷ 6	1 ÷ 6	1 ÷ 6	1 ÷ 6
User-friendly PLC control	V	V	V	V	V	V	V
Cooled underlay bar	V	V	V	V	V	V	V
Constant arc length	-	-	-	-	-	-	-
Backing gas protection	-	-	-	-	-	-	-
Welding processes: TIG, MIG, plasma	V	V	V	V	V	V	V
Welding processes SAW	-	-	-	-	-	-	-

V standard • not available - available as an option

“JUST A SKETCH” ON THIS MATTER



“THE SILOS BUILDER STATION”

This plant represent a complete solution for the production of Silos and Tanks starting from a coil. In particular we combine five working stations:

- Automatic in-feeding system to unroll the coil
- Rolls as pre-bending to avoid the anti-spring effect
- Bending rolls to realize the desired diameter
- Vertical cutting on final diameter target
- Perfect vertical alignment of the two edges and welding on copper bar with full gas protections.



The same solution is available for indoor installations or “on the field”.

To complete the vertical construction of the tanks we have also the machines to weld in horizontal the rings obtained stacking up the cylinders step by step.

Here below some pictures about the tank welding “word”

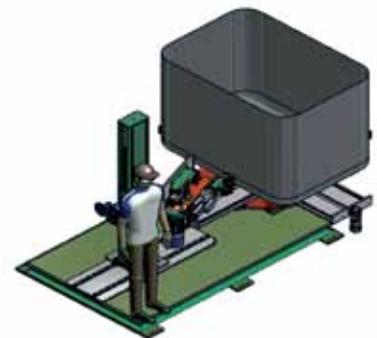
AUTOMATION TO WELD

The last cap on the top of the TANK from the internal “TIG PROCESS”



CIRCLE WELDER FOR MANHOLE

In INOX TANKS for food



LONGITUDINAL WELDING SEAMERS FOR VERTICAL ASSEMBLING OF SILOS / TANKS





Gantry

GANTRY WELDING PLANT FOR BIG SECTIONS

STEEL MEC sald has achieved a strong experience in the automation fields for the immersed arc welding and has collected important skills over the years, also in the manufacture of single and double gantries. In particular, different solutions are available that, based on the needs of the Customer cover all the applications, from the simplest fixed solution on the floor to the big movable structures, "turn key" for the Energy and the nuclear industry according to the ASMEPED and EN requirements. These are high-level solutions fully complying with the laws in force on safety.

Some structures allows the working area where there is the Operator monitoring the temperature of all the floor with a thermal cut than the area below where the great metal masses are often kept at high temperatures due to the increased heat of the pre-heating operations.

The precise design of the structure and the experience gained today allows the STEEL MEC to manage the design and suppli of built-in solutions where the working cycle can be checked by a sole Operator.

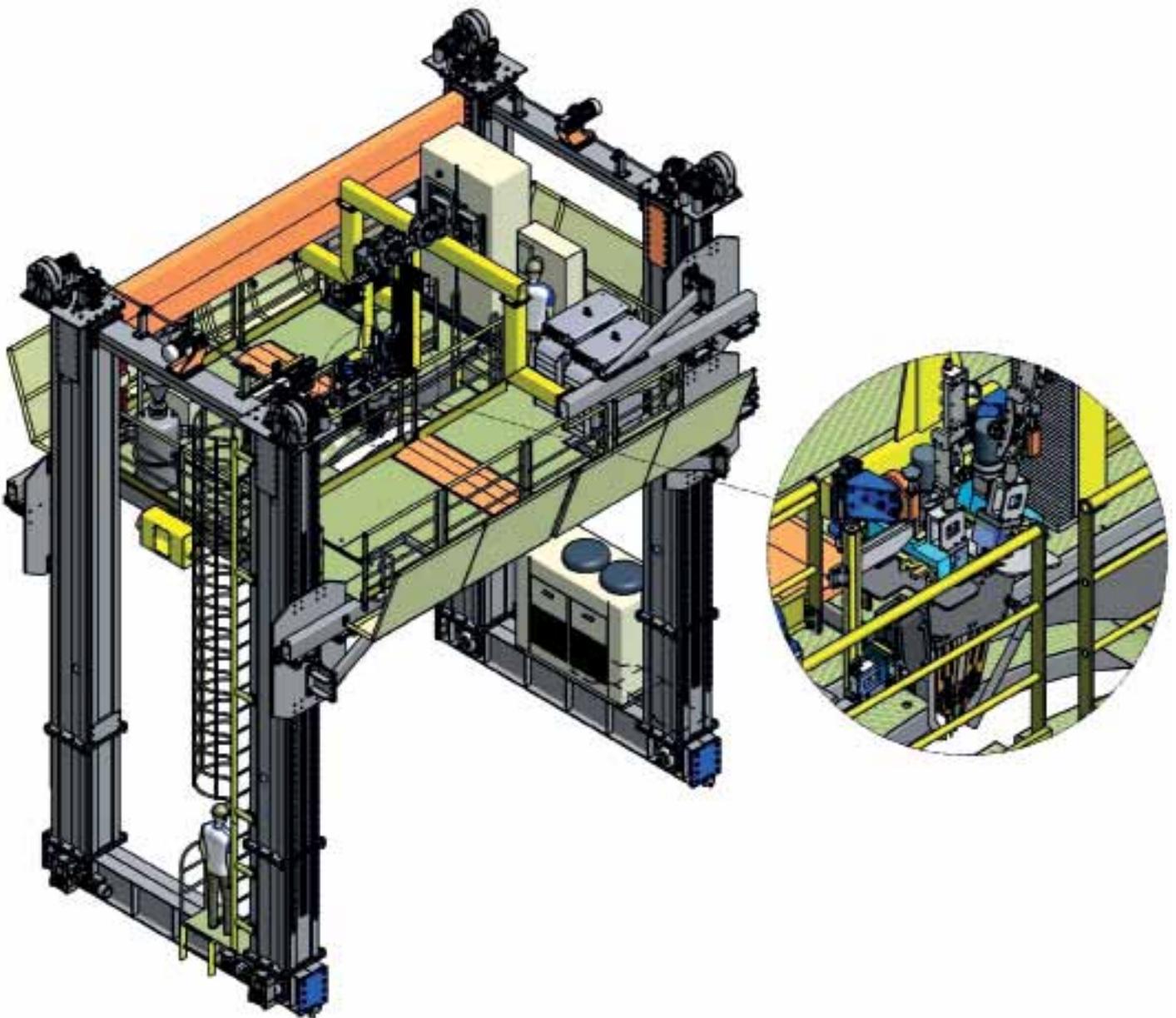
Integrating the most realible and performing welding generators, the STEEL MEC designs and manufactures the following:

- Welding torches
- Systems to drive and stretch the wire
- Devices for the management and treatment of the protection flow
- Axes of the positioning robots
- Laser systems for the inspection and check of the positions on the joints
- Pre-heating and infrared rays treatment plants (with no flame)
- Safety and control sensors
- Welding test and final testing
- Laboratory solution for certified welding



WELDING GANTRY PLANT WITH TANDEM (SAW) NARROW GAP TORCH

Technical drawing of a STEEL MEC sold plant with gantry on the sliding version on rails with thermal cut cooled floor. The working plan can be fitted to cylindrical bodies between 2 m and 7 m of diameter. Welding assembly completely managed by electronic control with proprietary LASER system with recognition and monitoring of the joint being welded. Patented welding head and torch. This system is PED and ASME certified. Based on the process and the dimensions of the pieces being machined, other combinations covering any welding applications are available.





Pipeline e Fit-up systems



WELDING PLANTS FOR ON SITE - OFF SHORE PIPING

The picture shows a system for the immersed arc NARROW GAP welding during the final testing at the STEEL MEC premise.

The turntable is connected with its electrical axis to the rolls station placed at the end of the piece being rotated.

A dedicated software allows you keeping constant the welding speed based on the rotation speed of the turntable and the rolls. Manipulator under standard execution with sliding base on rails (not depicted).



OFF SHORE systems for the IMMERGED ARC

welding of the inner joints of the pipes for submarine PIPE LINE applications.

You can insert 12 m within the pipe.

Compact welding system with inner two-axes sliding. Welding head with cam for the monitoring and system for managing the flow in our compact version.

Min. working diameter of 300 mm.

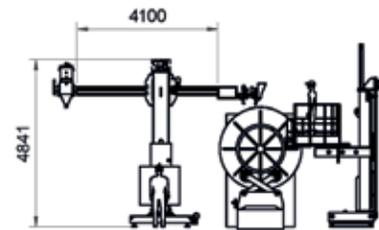
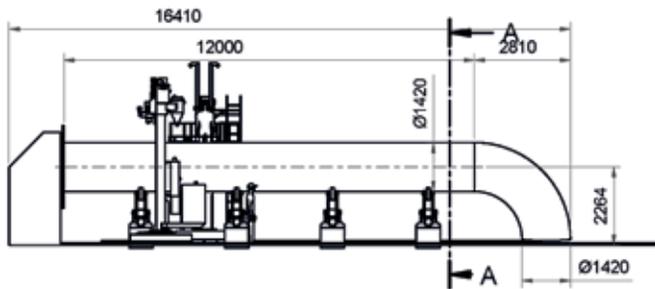
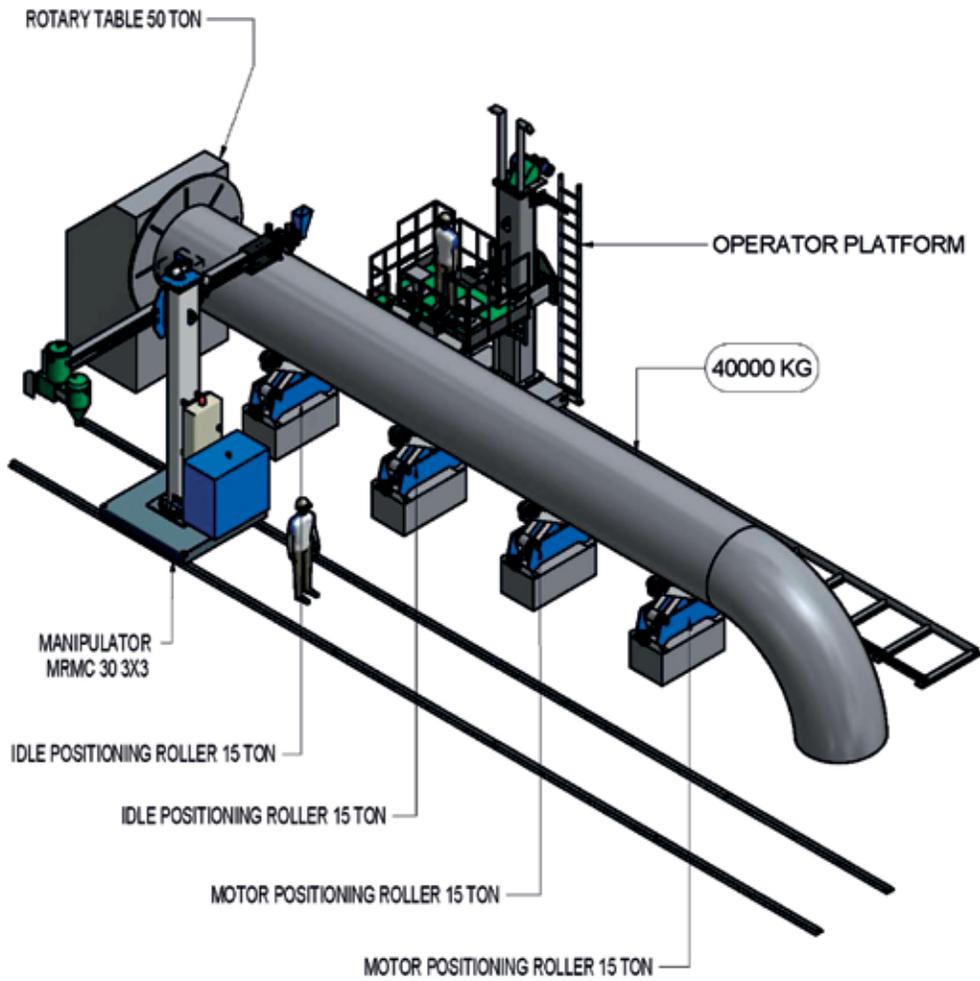
These machines are part of a welding "PIPING" system installed on board a vessel.



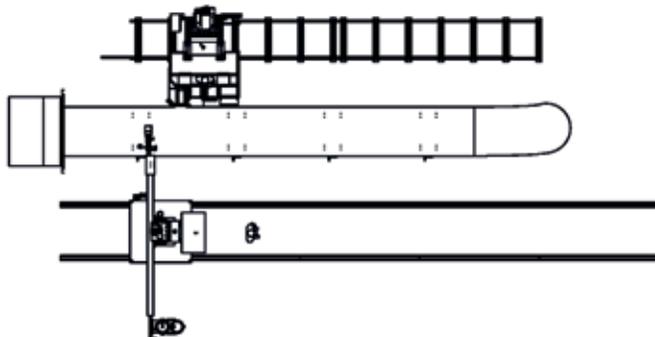
ROLLS SUPPORT WITH HEIGHT ADJUSTMENT FOR PIPES ALIGNMENT



“JUST A SKETCH” ON THIS MATTER



A-A (1 : 100)





Beam welding line



ASSEMBLING STATION



WELDING STATION



OVERTURN STATION



STRAIGHTENING STATION

Complete line to manufacture by welding of girder-beams "T" and "H" with parallel flanges. This high production line allows to obtain finished beams ready to use on-field.

The working cycle takes place on five stages, defined as main operations:

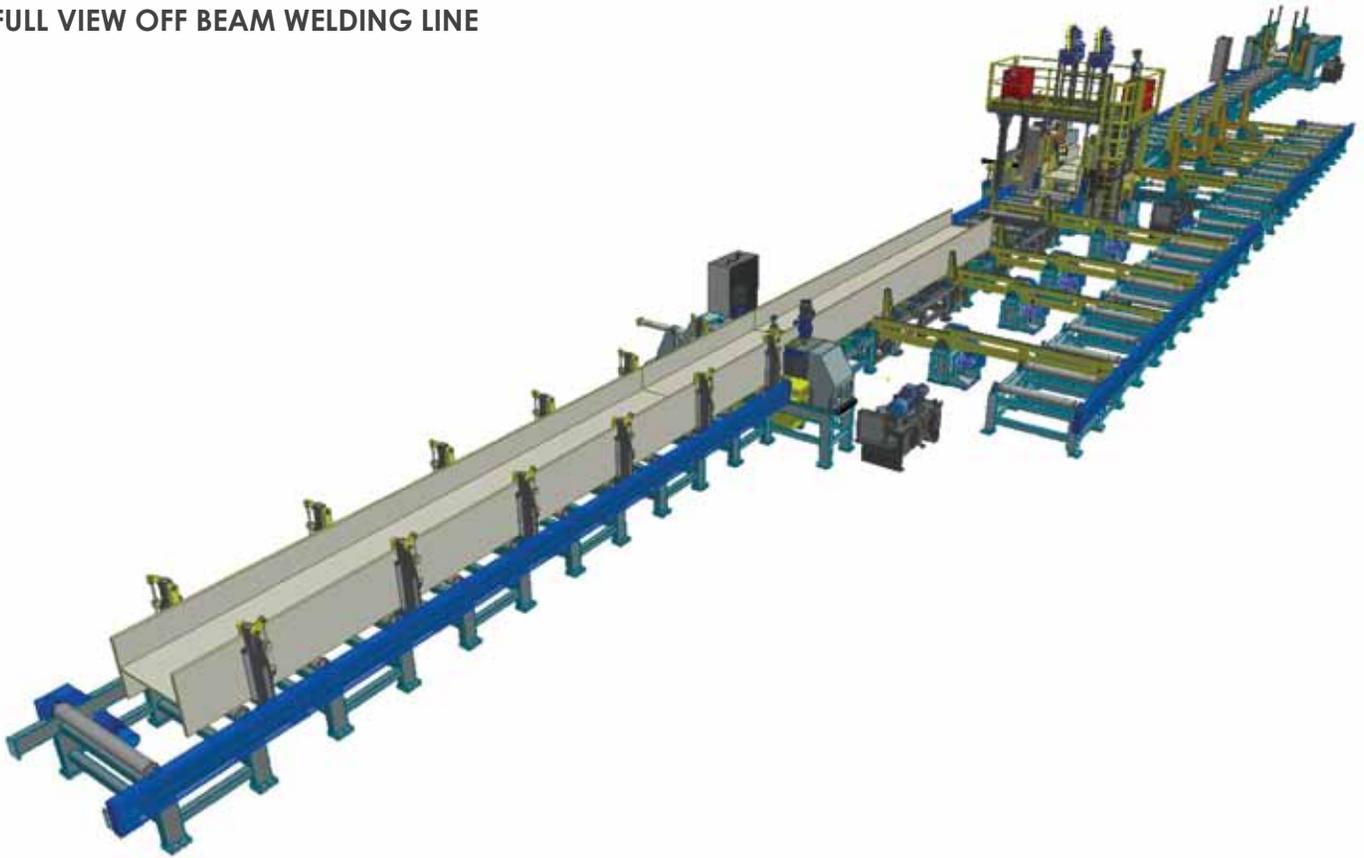
- First step, assembling and tack welding
- Second step: welding first upper side with double welding heads (single/double wire).
- Third step: carousel to overturn the beam and run back to the welding station
- Fourth step: welding second upper side with double welding heads (single/double wire).
- Fifth step: Straightening station ready for the storehouse

This line represent the state of the art on its field because the inevitable welding deforming are from only the two parallel and easily flanges and not into the core.



Beam Welding Line

FULL VIEW OFF BEAM WELDING LINE





Welding torches



STEEL MEC TORCHES FOR NARROW GAP AND CLADDING

SAW - NARROW GAP - CLADDING - SPECIAL UNIT

The STEEL MEC sold activities include also the manufacture of welding torches to be used in non-standard applications.

This means that, when the equipment on the market are a limit for the realization of a project, the STEEL MEC uses its know-how to design and realize all the solution required to comply with the requirements of the special application of the Customer.

The torch for immerse NARROW GAP torch able to work up to a depth of 350 mm in a groove with an opening of only 18 mm is our key product. However. We manufactured and patented also the vision and saving laser system of the welding joint, the sole items on the market to be provided with this technology.

In particular, for this application we designed and realized a machine for removing the non-compliance of the welded section up to the groove bottom (350 mm max depth). All this with a "hole" of only 18 mm.

We have realized welding torches for internal welding up to 12 m in length with a minimum passing diameter of only 50 mm!

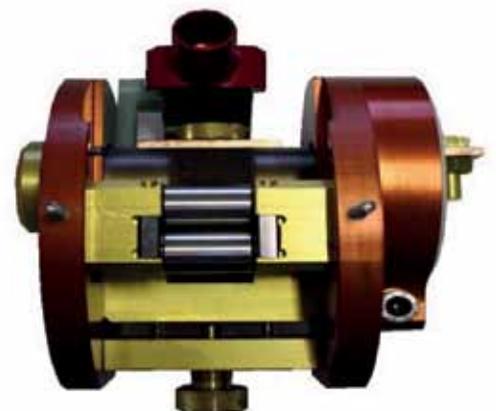


STRIP CLADDING HEADS

It's process method been used for more than 30 years and has been more and more replacing the manual welding processes used for surfacing. It's a economical solution for high alloyed materials, it can guarantee additional strength and corrosion re- sistance where is required.

This welding process can guarantee low dilution with base material and good slag detachability.

The cladding head are available for 30, 60, 90, 120 mm strips.





CLAD TECHNOLOGY AND APPLICATIONS

SAW (Sub-Arc welding)

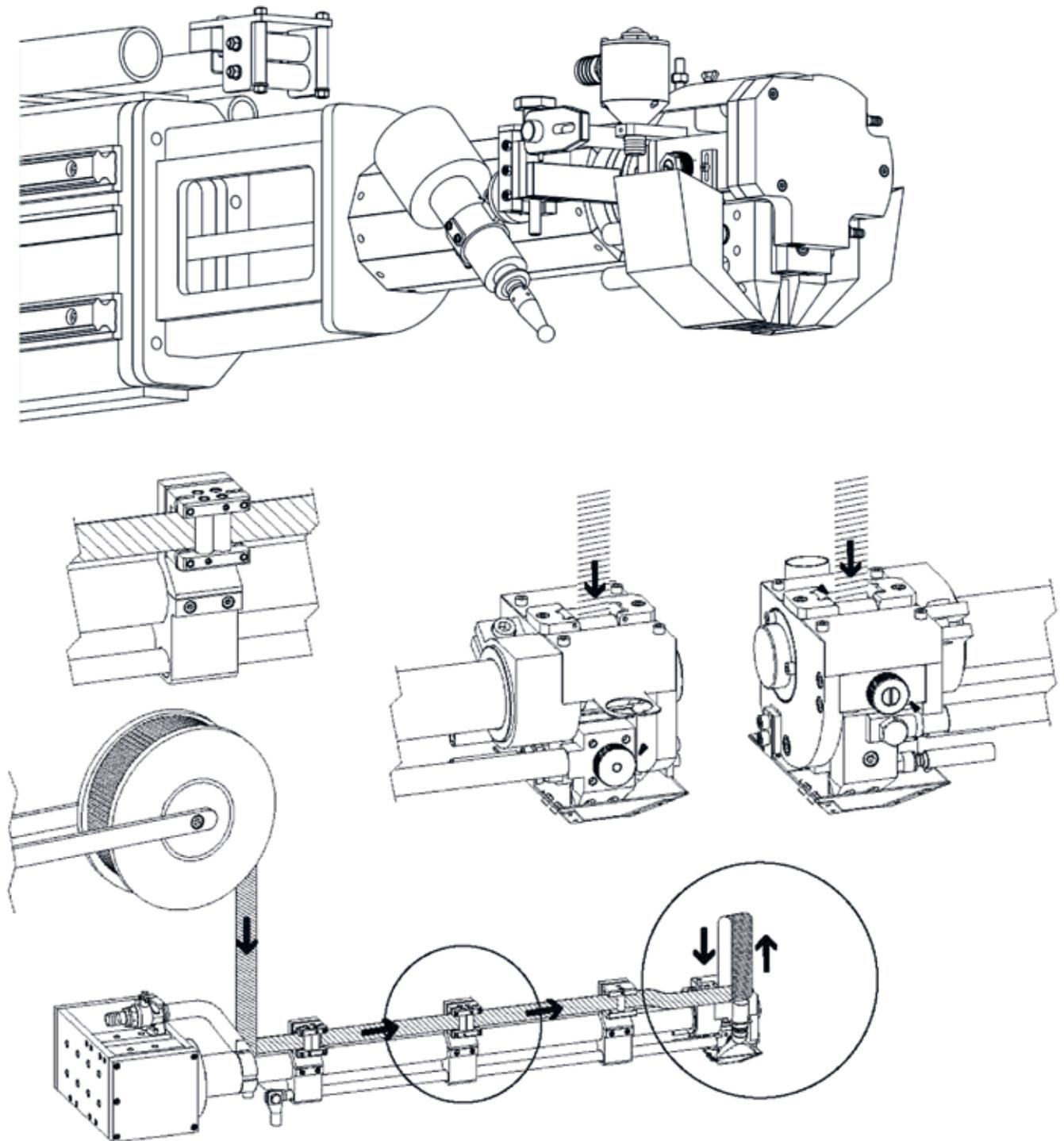
ESW (Electro-Slag welding)

- Low dilution with base material - Good slag detachability
- Chemical and Petrochemical Industry (Hydrocrackers, scrubbers and various pressure vessels)
- Off-shore Industry (Sea and waste water processing)
- Nuclear & Energy Industry (Tube plates, heat exchanger plates and reactor tanks)
- Pulp & Paper Industry (Fiber flow drums)
- Steel Industry (Continuous casting rolls)
- Ship yard (Piston -valve)





FROM THE MULTI-LANGUAGE INSTRUCTIONS BOOK



Drawings taken from the User manual of a cladding belt head.

If the system is complete with a welding head, the Manual for use and maintenance always encloses the document related to the accessories.

All our machines are provided with complete manuals and CE certification.



NARROW GAP TORCHES

Steel mec sald produces state of the art welding solutions for tandem Narrow Gap Submerged Arc Welding (NGSAW). STEEL MEC SALD been devoted to welding automation since 1952, and Submerged Arc Welding (SAW) is our core activity. In this context, tandem NGSAW technology is our flagship system with important awards in the nuclear field and other heavy industry applications. We offer turnkey solutions starting from automation of the process and developing all parts of the system, included a custom narrow gap tandem SAW head and complete monitoring of the welding zone using an advanced laser scanning system for tracking and scanning of the groove.

By using an automated five axis system, it is possible to achieve the desired welding shape controlling the welding zone in real time. The Steel Mec Narrow Gap torch includes a feature to tilt the nozzle in order to respect the sidewall offset programmed in the welding shape, weld pass by weld pass.

Two different torch designs are available to set the sidewall offset. The simplest one is implemented with two pneumatic actuators to tilt the nozzle and setting the stroke is by two adjustable limits.

More precise control is achieved with a pair of digital servomotors with encoder feedback indexed to the main electronic console that manages all the parameters of the plant.

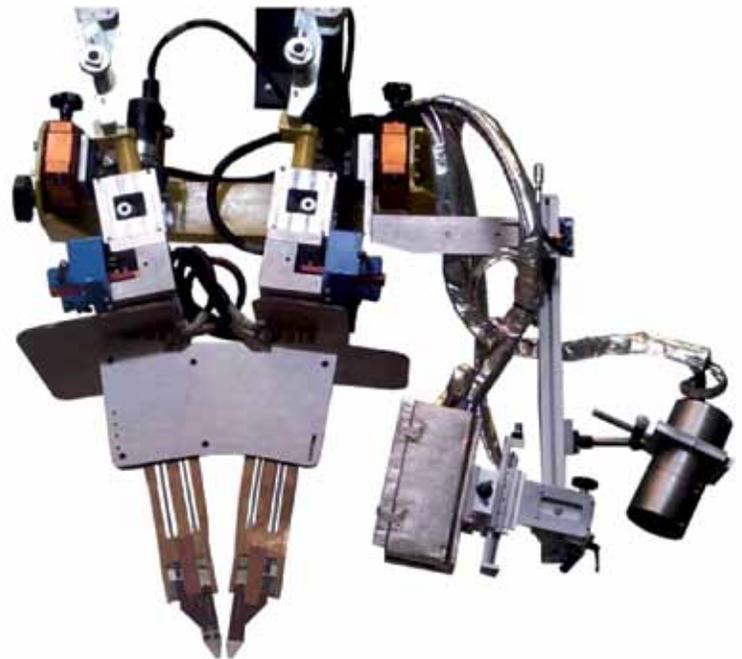
Rotation of the workpiece is also monitored by encoder to manage the number of passes, the welding speed, the positions of the transitions and the overlap spread. These parameters are all programmable in the job page and always visible on the display of the control console. Full job data is logged in a report that allows verification and certification of the status of the workpiece and plant.

Our experience in NGSAW covers all aspects. In fact, we can propose complete turnkey solutions starting from the first layout of the plant, providing the 3D CAD overview, and in particular, including a preheating system (if needed), the welding torches, the motorized axes, the electronic instruments (compatible with high temperature), safety devices, custom wirings, etc. etc. Keeping close to the customer, Steel Mec executes commissioning and testing confirming expectations in accordance with the project design and contract specifications.





Our commissioning services support the startup of the plant alongside the customer which results in quality service during the entire life of the activity. Narrow Groove section SAW welding is desirable for certain vessel manufacturing processes in petrochemical, shipbuilding and other heavy industries. STEEL MEC SALD has designed an automated Narrow Groove Tandem Welding Head for a maximum welding capacity on groove depths up to 350mm. The application temperature of STEEL MEC SALD welding torches is up to 340 °C. Integral to the process is a precision tilting drive unit for both lead and trail wire that allows for the programmable, or joystick positioning, of each wire to either side. This Sub - Arc Tandem Narrow Gap Welding equipment is supplied with a newly developed fully automatic control system with responsibility for the complete weld fill operation, inbuilt quality assurance system with detailed record of all welding parameters. The deposition rate with tandem welding technique will almost be double that of single wire - up to 14 kg/h - and can guarantee better control of the deposit material. Tilting systems are pneumatic or motorized (on demand).





NARROW GAP FEATURES

Maximum Groove Depth – 350mm (groove bevel from 1°)

Head Width 10mm

Pre heating up to 340 °C

Individual Precision Tandem Torch Tilting

- Servo Motor Control with Precision gearbox
- Adjustable range up to 3° inclusive

Precision X-Z weld head motion controls

- Horizontal stroke – 200 mm
- Vertical stroke – 450mm
- Precision Servo Controls for automated standoff, and seam tracking controls

2-axis Wire Straighteners

Flux delivery nozzle, hopper, and mounting

Flux recovery nozzle assembly

Angle setting device for adjustable cross-seam tilt of entire weld head. Adjustable range 3° inclusive

Wire Distance setting – adjusting range 30mm

Tandem 25Kg Wire Spool Mounting and Conduit

Tandem Wire Feeders and adjustable mounting

Adjustable Camera

Laser Sensor adjustable mounting arm for standoff control and cross seam tracking (cooled + special cover to guarantee working cycle up to 340 °C)



Laser control systems



DLS350 LASER CONTROL ON NARROW GAP JOINT

In cooperation with the META, the STEEL MEC SALD created the vision laser DLS350 system, the sole on the market to read with very high accuracy the shape of the joint placed at a depth of 350 mm in a “groove” with an opening of only 18 mm on a piece being rotated at 100°C.

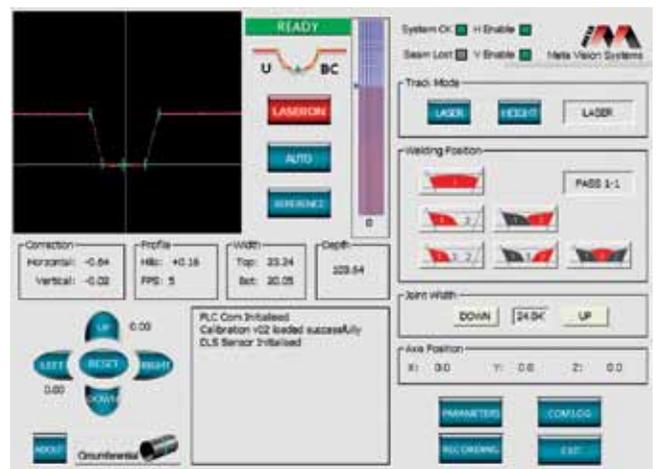
The picture above shows a working page of the software allowing interpolating the information from the laser vision with the position of the torch to perform the special sequence of the step required. Using our NARROW GAP torch, so it's possible to change the deposit area without moving virtually the torch position, arranging the steps as shown on the display.



The touch screen control allows to modify all the parameters in a simple and intuitive, including the positioning of the torch on an XYZ axis directly from the page in the figure.

All the LASER control systems have problems related to the working temperatures with thresholds never more than 50°C. In addition, also the reading on high temperature bodies involves problems with the ray losing the vision easily.

To complete our plants, we built all the chain of the vision system, implementing also innovative heating protection systems, using the cooperation of aeronautics industry.

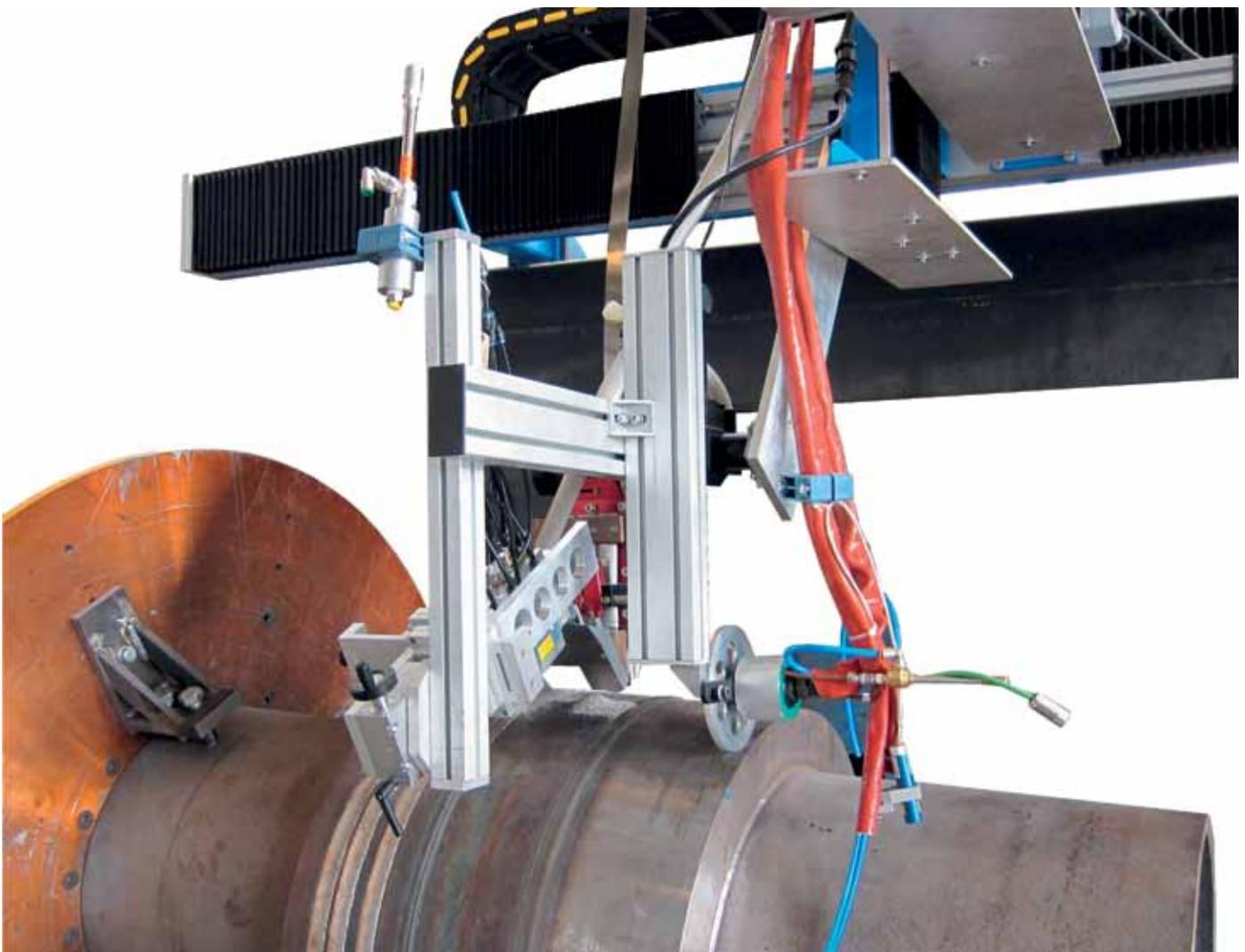


For CLADDING systems we have a laser system capable of tracking the joint, ensuring the maintenance of the overlap between the various zones deposited. By this way it's possible to work within tight tolerances in the order of 0.2 mm as maximum deviation, eliminating all the problems related to the deformations of the pieces and from the performances of the operator.





SLS100 STRIP CLADDING (SPIRAL OR STEP) WITH $\pm 0,1$ MM ACCURACY ON OVERLAP EDGE
MONITORING AND RECORDING ON PC OF WORKING CYCLE PARAMETERS

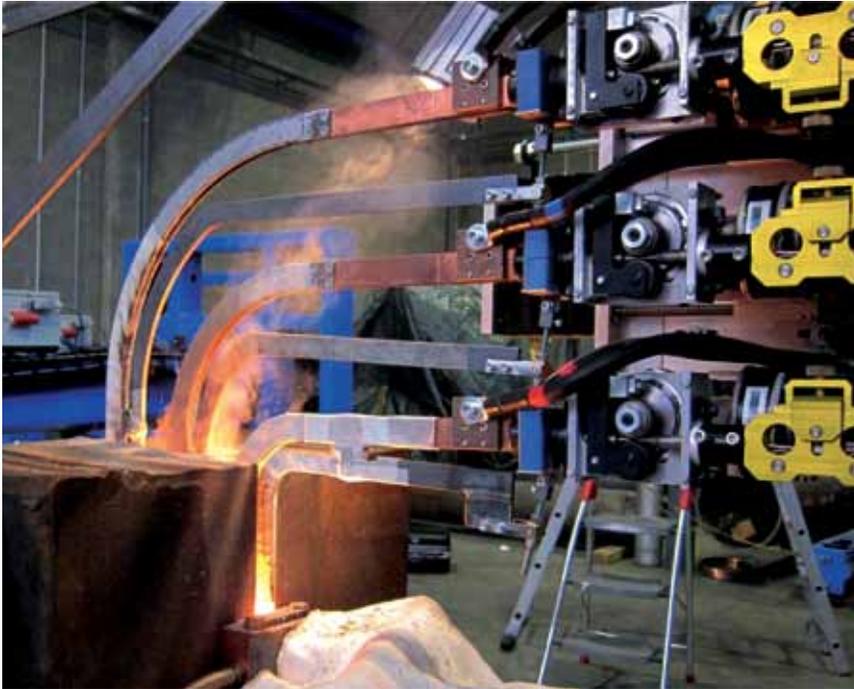




Special equipments



ELECTROSLAG EQUIPMENT!



CLADDING VALVES EQUIPMENT





LABORATORY EQUIPMENT

Laboratory "Full Automatic" Saw Tandem Narrow Gap Machines with laser for the control and set of parameters



This catalogue gives an overview of STEEL MEC sald main production and includes some pictures to convey better the status of the art.

Following the aim of total customer satisfaction, STEEL MEC sald reserves the right to modify, replace, and update all its products included in or omitted from the catalogue.

The machines listed in this catalogue are only a part of the products available with the brand name STEEL MEC sald.

For any special requirement, and for special installations constructed according to requirements specified by the customer, our technical staff is available to study and propose turnkey solutions.



DESIGN AND CONSTRUCTION OF WELDING AUTOMATION BY THE STATE
OF THE ART WITH STANDARD AND CUSTOM SOLUTIONS

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