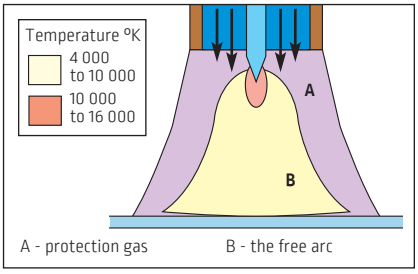
# WELDING PROCESSES

## TIG Technology



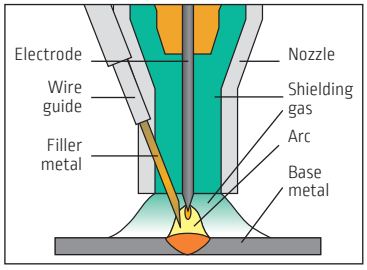


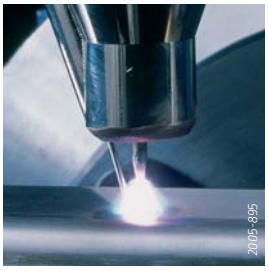
Metals are fused together by heating them with an electric arc. The electric arc is established between a non-consumable (does not melt) tungsten electrode and the workpiece. A filler metal may be used depending on the joint design. The molten metal is shielded from the atmosphere by a stream of inert gas supplied through the torch. The resulting deposited weld metal has the same integrity as the base material. This welding process is used for welding of carbon steel, stainless steel, aluminium, titanium, copper...

**The benefits are:**

- Good weld bead appearance,
- Adapted for fine thickness,
- Aluminium weldability,
- Welding in all positions.

## TOPTIG Technology



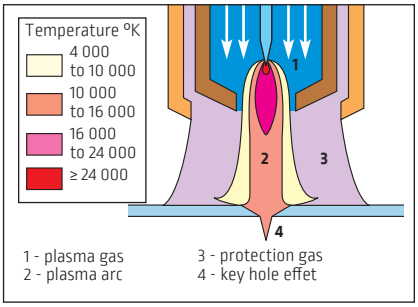




Based on principle of TIG process, an additional filler metal is fed through the nozzle directly into the arc with an angle of 20° to the electrode. This concept guarantees a high deposition rate and an efficient metal transfer. This welding process is used for welding of carbon steel, stainless steel, titanium, inconel, electro-galvanized coated steel (brazing)...

**The benefits are:**

- TIG high quality welding and guaranteed spatter free,
- Good global productivity,
- Excellent appearance of the weld bead,
- Torch accessibility and welding in all positions.

## PLASMA Technology



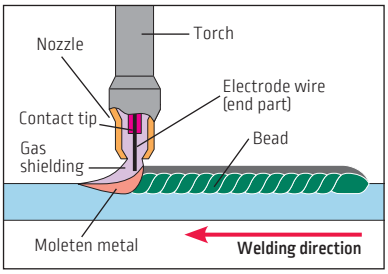


The contribution of energy necessary for welding is ensured by an electric arc in an atmosphere of plasmagene neutral gas. This arc established between an infusible electrode and the parts to be assembled is forced through a nozzle which constricts it mechanically and pneumatically. This welding process is used for welding of carbon steel, stainless steel, duplex, titanium, Inconel, nickel and alloys...

**The benefits are:**

- Reduction in the preparation times for assemblies by eliminating bevelling for thicknesses up to 10 mm,
- Joint quality: Complete and regular penetration guaranteed, 100% X- ray quality,
- Reduction of the heat affected zone thanks to the arc concentration,
- Respect of the base material chemical composition,
- Low distortion,
- Reduction or elimination of finishing operations,
- Excellent visual aspect.

## MIG/MAG Technology



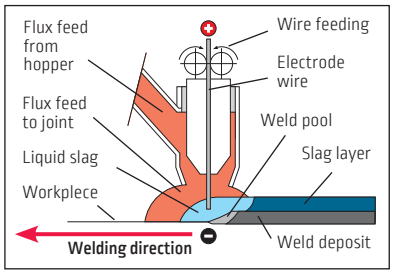


An electric arc forms between a consumable wire electrode and the workpiece (metal) which heats the workpiece metal causing them to fuse. The arc and weld pool are shielded by an inert or active gas. Metal is transfered in the form of drops through the arc towards the workpiece. This welding process is used for welding of carbon steel, stainless steel, aluminium, copper...

**The benefits are:**

- Easy implementation,
- High welding speed,
- Welding in all positions,
- Low welding investment cost.

## SAW Technology





Similar to MIG/MAG welding, SAW involves the formation of an arc between a continuously fed wire electrode. Covering flux is used to generate protective gas and slag protecting the weld metal. The flux can also help donate alloying elements. It is dedicated mainly for flat and fillet welding. This process is generally used for the welding of materials as carbon steel and stainless steel.

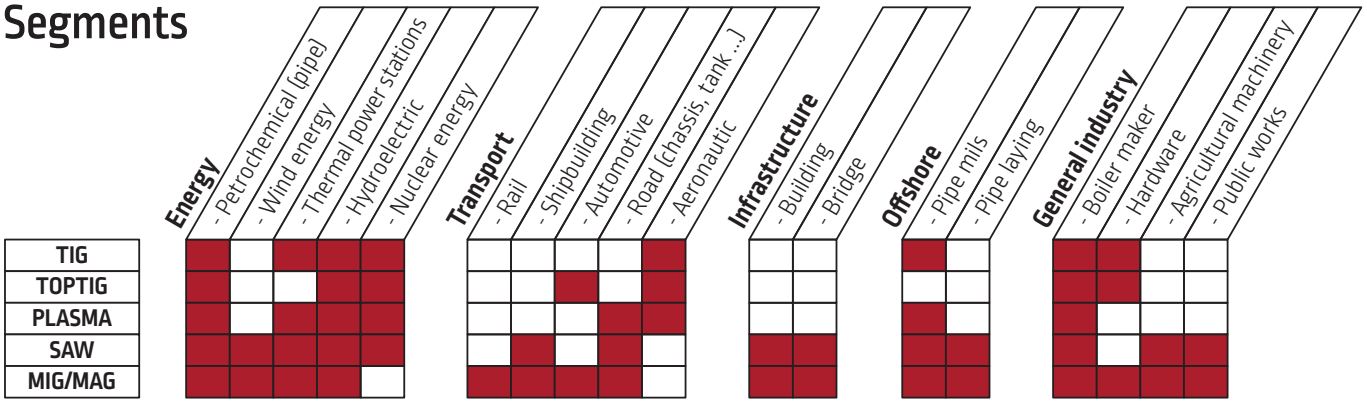
**The benefits are:**

- High deposition rates,
- High penetration,
- Large execution speeds obtained by the use of high currents on one or more electrode-wires,
- Excellent compact joints with good mechanical properties,
- High duty cycle,
- Operator comfort: low fumes and invisible arc.

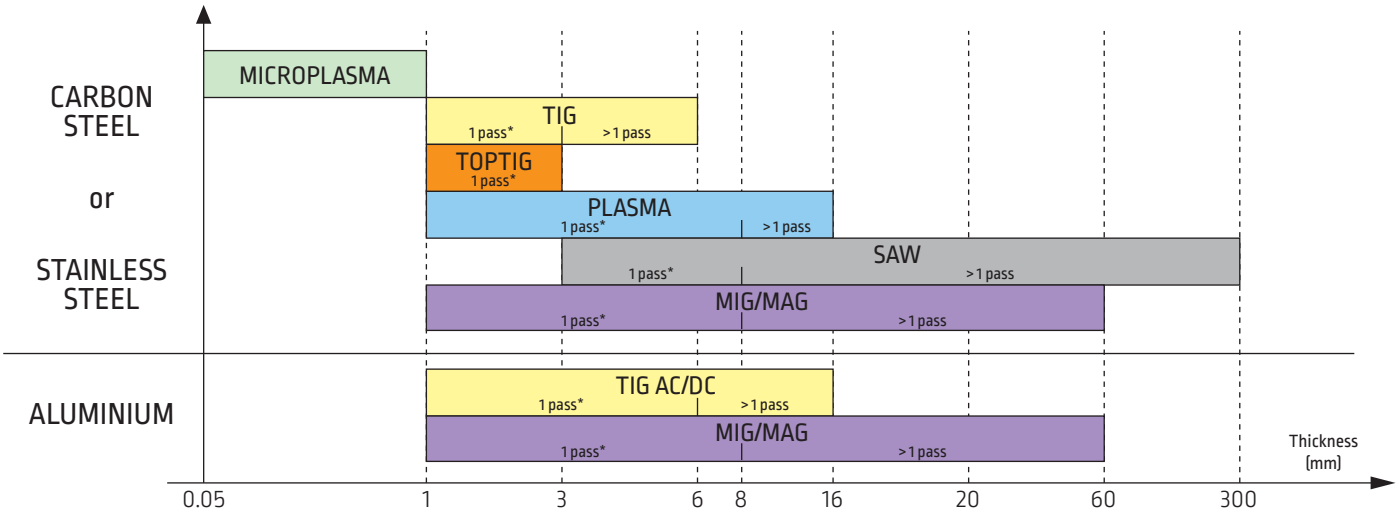
**Lincoln Electric** offers a large choice of welding processes through its products.

Several criteria allow to define the best process adapted to the customer application, function of materials, thicknesses, technology, quality and productivity required.

## Segments




## Welding perfomances




* indicative value depending of materials, preparations, applications...

## Comparison of the main welding processes

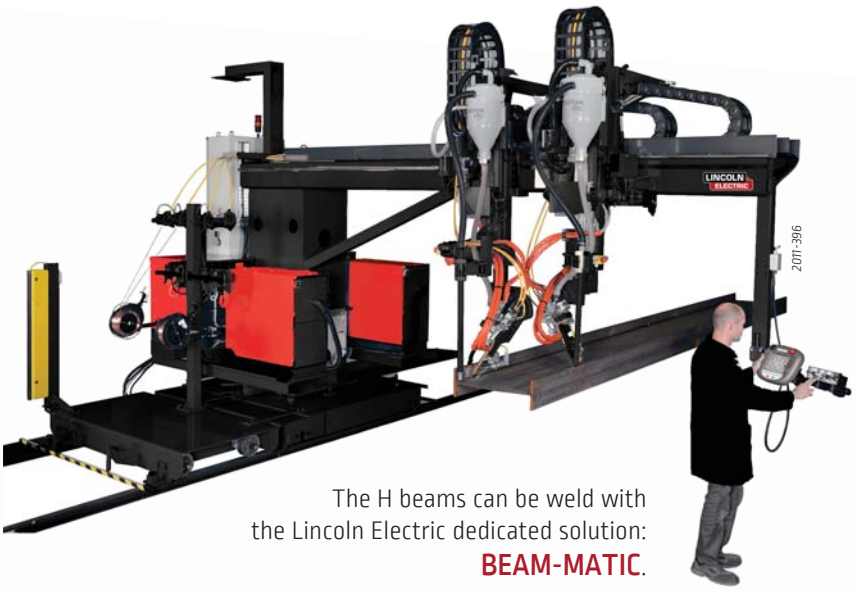
| | PROCESSES | | | | |
|---|---|---|---|---|---|
| Choice criteria | TIG | TOPTIG | PLASMA | SAW | MIG/MAG |
| Quality | ● | ● | ● | ● | ● |
| Speed | ● | ● | ● | ●● | ●● |
| Spatter | ● | ● | ● | ● | ● |
| Completion | ● | ● | ●● | ● | ● |
| Cost | ● | ● | ● | ● | ●● |

● *Excellent*
● *Good*
● *Fair*

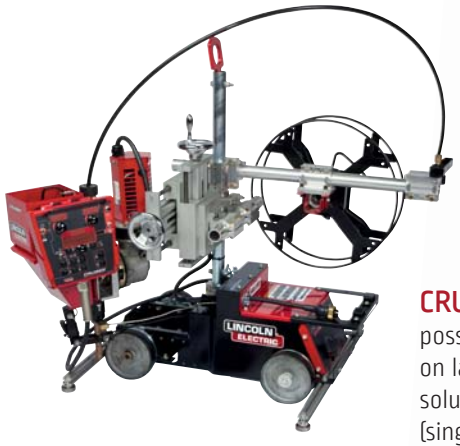
# SAW MACHINE RANGE


The **SAW equipments** are used in various segments from the simple head for any autonomous installation to complete welding systems for infrastructure, energy and piping industries.

**Lincoln Electric** developed turnkey solutions for the main applications we can found in these sectors of activity.

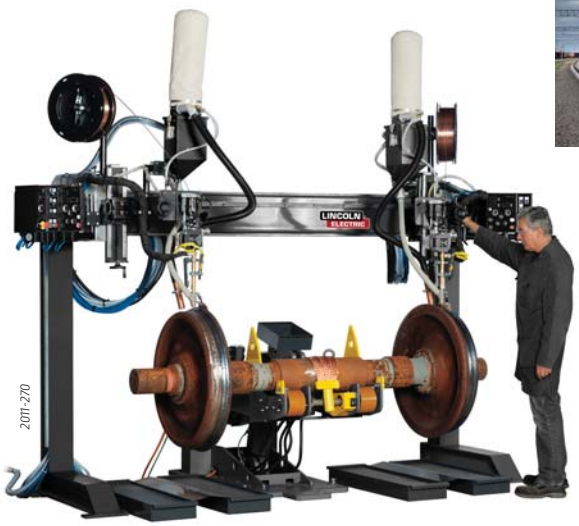



The H beams can be weld with the Lincoln Electric dedicated solution: **BEAM-MATIC**.




**CRUISER** SAW carriage offers the possibility to weld in restricted area and on large pieces. It is the ideal economical solution for welding on site or in workshop (single arc or tandem arc version).


The **Autonomous SAW head** can be combined with all external support.


Some dedicated platforms exists as the **wagon wheels cladding** applications.

2012-582

**Internal welding boom** allowing the longitudinal and circumferential welding of pipes.

Weld the I-beams in vertical positions, without tacking thanks to the **T-MASTER solution**.

2015-370

2014-137

**Multiple arc heads** allowing to increase productivity in the longitudinal, helical and circumferential of pipes.



2010-311

Lincoln Electric has solutions for **Windmills** applications thanks to the heavy duty SAW Column and booms and rotators.


2011-245

2356-053

2013-484

The **Lamp post machine** allows to increase of productivity in this very competitive segment.

# SAW SUBMERGED ARC WELDING INSTALLATION

## Applications

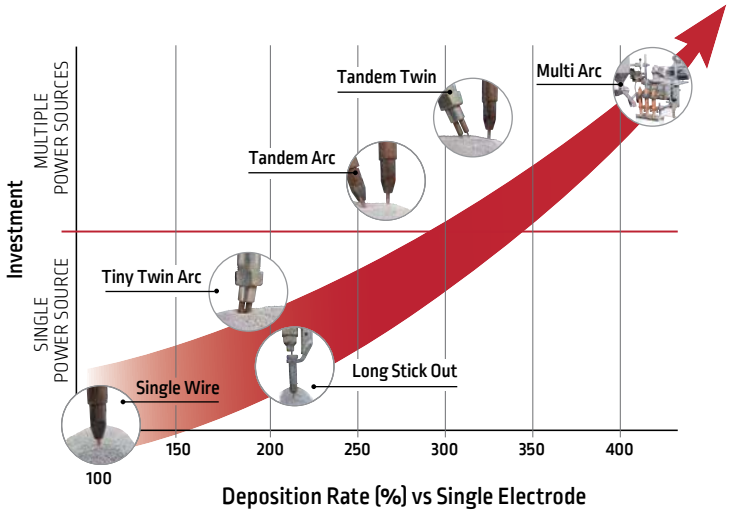
Process for welding and hard surfacing of low alloyed carbon steel, stainless steel and refractory steel.

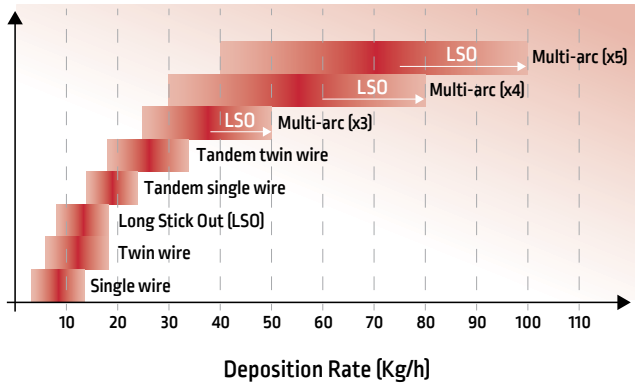
It combines productivity, quality and operator comfort.

It is used in thicknesses from 3 to 300 mm and provides a high welding speed and high deposition rates.

With one or more wires, it is found in many industries: infrastructure, shipbuilding, offshore pipe mill, heavy duty pressure vessels, energy...

## SAW process and performances



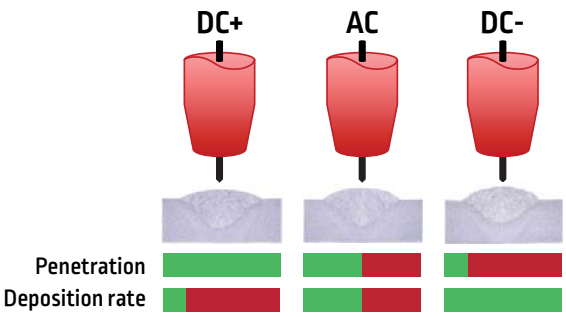



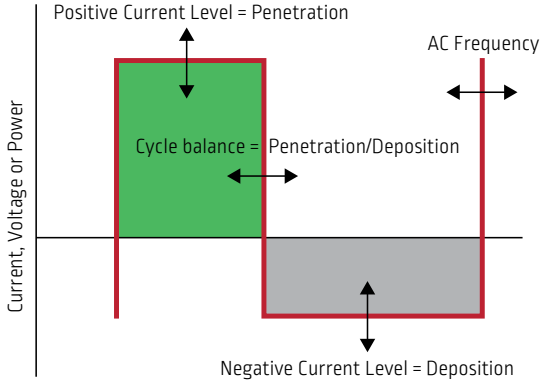

(Values are indicative and depend on the material and the quality required)

## AC current management

Complete management of the AC wave form with the control of the frequency, balance and offset for a maximum flexibility of production.

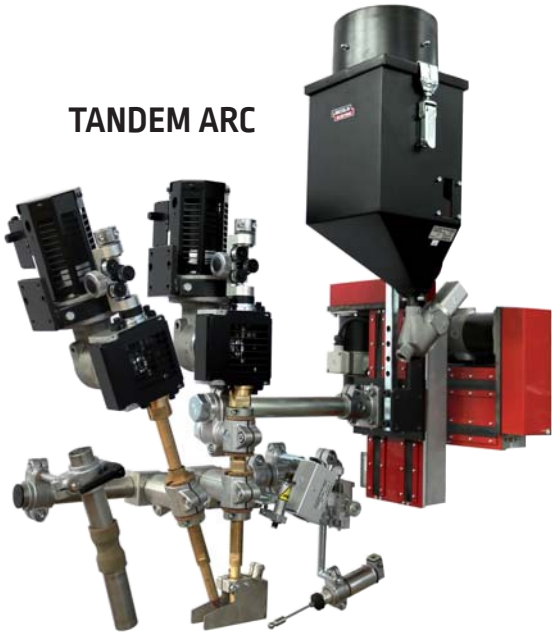
Control the penetration and geometry of the weld bead. Eliminate the effect of magnetic arc blow.



SINGLE ARC

TANDEM ARC



PERFORMANCES

# SAW equipments: inverter technology Power Wave AC/DC 1000SD

The **Power Wave AC/DC 1000 SD** proposes a complete range of equipment combining performance, flexibility of use and ensuring high reliability in welding cycle management.

## MAXsa 10: Mobile Console


The **MAXsa 10** associated to the **Power Wave AC/DC 1000 SD** allows to manage the main welding parameters for a total control of the Submerged Arc process.

- Selection of the polarity *(DC+, AC, DC-).*
- Selection of the mode *(CV or CC).*
- Selection of the wire material and diameter.
- Management of programs and memorization.
- Manual control of wire and flux feeding.
- Power Manager software to configure the installation.
- Production monitoring and CheckPoint software for a full traceability ot the welding data.

## Remote control RC-MATIC

For immediate action throw push buttons, a remote control can be added to the **D2C SAW** welding system. Connected at the welding head throw a cable of 5 m, the operator can get the useful basic function of SAW head management. Fixation of the remote control is secured by a magnet.

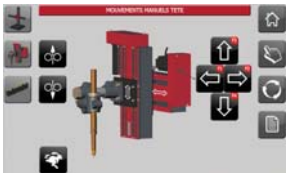
## D2C SAW: Digital Cycle Control

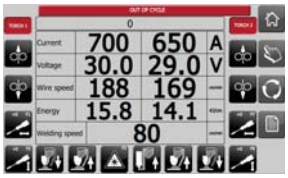

**Power Wave AC/DC 1000 SD** can be associated to **PLC controller D2C SAW** via analog interface *(MAXsa 10)* or via fieldbus protocol *(MAXsa 19)* for a complete management of the machine with the submerged Arc process.

The **D2C SAW** thanks a large color touch screen friendly to use is able to control all the devices linked to the welding as:

- All welding and positioning axes *(Column & Boom, Rotator, Positioner, ...).*
- Crossed slides of the head.
- Seam tracking, laser spot...

The welding monitoring during the cycle is facilated thanks direct manual controls *(joystick and encoder buttons...)*
**D2C SAW** is easy to adapt for a particular request or specific cycle needed for the final customer application.





# SAW INVERTER POWER SOURCES

Lincoln Electric offers inverter technology for DC and AC SAW applications:

- Efficient power consumption reducing operating costs,
- High duty cycle: 1 000 A at 100% (40 °c),
- Easy to integrate from conventional interface to digital unit,
- Multi-purpose installation:
  - CV: Constant Voltage,
  - CC: Constant Current.

A second model of DC power source can be associated with MAXsa 10: **FLEXTEC 650X**.

| | POWER WAVE AC/DC 1000 SD | FLEXTEC 650X |
|---|---|---|
| **Power supply (3x 50-60Hz)** | 380-400-460-500-575 V | 380-460-575 V |
| **Effective power at 100%** | 55 kVA | 46 kVA |
| **Current range** | 100-1 000 A | 40-650 A |
| **Duty cycle at 100%** | 1 000 A / 44 V | 650 A / 44 V |
| **Weight** | 363 Kg | 75 Kg |
| **Dimensions L x l x H** | 1 248 x 501 x 1 184 mm | 745 x 410 x 554 mm |
| **Protection index** | IP 23S | IP 23 |

**POWER WAVE AC/DC 1000 SD**



**FLEXTEC 650X**

# Power Wave® Software Solutions

## Power Wave Manager

- Check the status of every component in your welding system.
- View and easily adjust the information associated with your welding operation.
- Setup the configuration of the differents components of the welding installation.
- Display of all real-time measurement values like voltage, ampere, wire feed speed, torque.


## CheckPoint™: Welding Production Monitoring

CheckPoint's secure, cloud-based access allows key stakeholders to view and track welding operations anywhere in the world, on any device:

- Track real-time weld production data 24/7.
- Create custom custom alerts and notifications.
- Operator Arc on Time.
- Material Consumption.
- Weld and Assembly Information.

## Production monitoring™

Production monitoring monitors a lot of information for the management of the customer production.

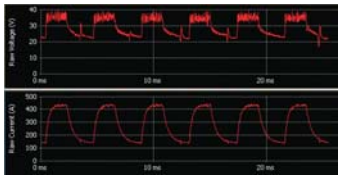
- Current status and shift analysis.
- Weld listing and downtime analysis.
- Monitoring by Weld ID, Employee ID or Consumable Lot ID.

## Weldscore™

Allows you to score each weld based on a trained sample of acceptable welds.

**Great for:**

- Expanding quality control capabilities,
- Training school monitoring, grading and final examinations,
- Critical welds with specific quality control requirements,
- Operator testing and certification programs or Consumable Lot ID.

# SAW DC MULTI-PROCESS INSTALLATIONS

If an application requires pure welding power combined with multi-process power, then the **IDEALARC range** with smooth DC output is your best investment. Designed for Semi-automatic and automatic welding, the precise control of the **IDEALARC® DC 1000** provides superior MIG, flux-cored, submerged-arc welding and excellent air carbon arc gouging with up to 16.0 mm diameter carbons.

The **IDEALARC® DC 1500** is a multi-process DC arc welding power source for automatic welding applications. It produces outstanding arc characteristics on both constant voltage and constant current processes for great welding versatility from a single power source.

**IDEALARC® DC 600**

**IDEALARC® DC 1000**

**IDEALARC® DC 1500**

| | IDEALARC® DC 600 | IDEALARC® DC 1000 | IDEALARC® DC 1500 |
|---|---|---|---|
| **Power supply (3x 50-60Hz)** | 220-380-440 V | 380-440 V | |
| **Effective power at 100%** | 44 kVA | 74 kVA | 121 kVA |
| **Duty cycle at 100%** | 600 A / 44 V | 1 000 A / 44 V | 1 500 A / 44 V |
| **Weight** | 237 Kg | 372 Kg | 644 Kg |
| **Dimensions L x l x H** | 988 x 567 x 781 mm | 991 x 567 x 781 mm | 965 x 566 x 1 453 mm |

# NA-3 & NA-5 Control & Heads

Improve productivity with the **NA-3S** or **NA-5** automatic wire feeders. These systems have been specially designed to deposit more weld metal at faster travel speeds which eliminates bottlenecks and cuts costs.

**NA-3S**

## Features

- Solid state controls allow precise control of welding procedures, striking characteristics, as well as bead size and shape.
- Easily adjusted for a wide range of processes, feed speeds and wire sizes.
- Compact units with excellent flexibility to fit into simple fixtures or the most complex automated production lines.
- Rugged construction minimizes downtime and maintenance costs.

**NA-5**

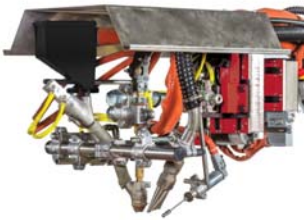
**NA-5F head**

# SAW EQUIPMENT

## SAW welding head

**Lincoln electric** offers a large range of welding heads from standard to special models for a perfect adaptation to the customer application.

Standard tubular head



Compact tubular head

Internal head

Narrow gap head

2012-641

## Seam tracking

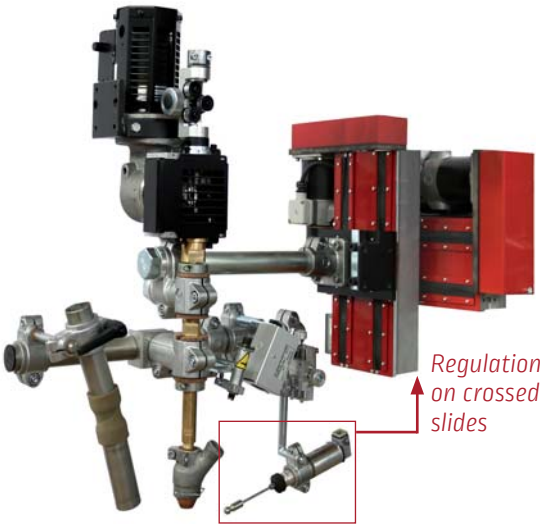
**TRACKMATIC** device guarantees the good positioning of the torch in the joints to be welded without operator intervention.

A sensing probe finger or an inductive or laser sensor allows joint tracking (height or alignment) and commands the necessary corrections required to the torch trajectory thanks to motorised slides travel 100 - 200 or 500 mm.

Whilst increasing productivity, it ensures a constant weld quality, a reduction in repair operation and easier use for the operator.

*Seam tracking with sensing probe*

*Seam tracking with inductive sensor*




*Seam detection*

## Video camera

Combined with a laser spot, the video camera unit allows to view the welding area and can remotely control the positioning of the torch in the joint.

This is an essential tool for welding in difficult acces area like inside a tank of small diameter.

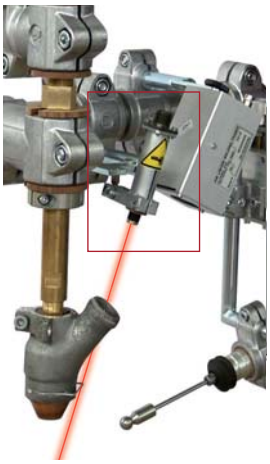
The equipment is supplied with a spot light to Illuminate over viewed area, and a color LCD industrial screen high definition 15".

2008-312

2003-035

## Laser spot

To show the wire point of impact relative to the joint on the workpiece. The spot projects an illuminated point in front of the electrode wire for guiding. One spot is used for horizontal alignment and the association of two spots make it possible to monitor the horizontal and vertical position.



# Flux management

Equipment to improve productivity and ensure operator safety.

## Flux recovery equipment

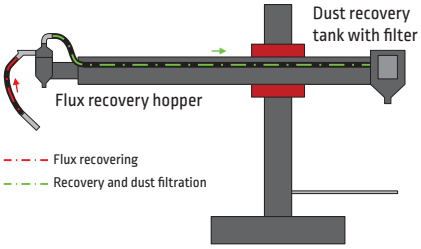
A compact unit to significantly reduce manual refilling of the flux feed hopper 10 liters. Powered by compressed air. Pressure 4 to 6 bar. Venturi device completed with tank and filter cartridge for recovery and dust filtration.

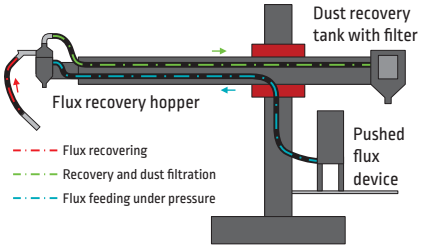
## Flux supply equipment

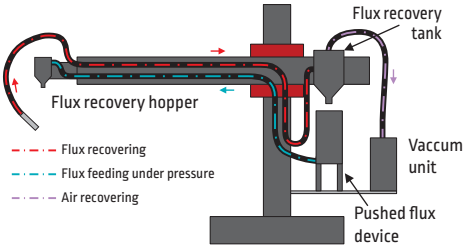
Pushed flux supply system providing a greater welding autonomy due to the flux tank capacity of 70l.


## Centralised recovery

Centralised flux recovery system through pushed flux device and electrical turbine with filtration of flux dust. Ideal system for heavy duty application with reduced flux consumption and minimum flux handling. The system can be equipped with a device to keep the temperature of the flux up to 120 or 200 °C.




# Wire management

Lincoln electric proposes optimized packaging solutons for submerged arc welding.
All wires are free from any organic component limiting the diffusible hydrogen contribution to the weld metal.


25 kg spool

100 kg coil

300 kg spool

1000 kg coil



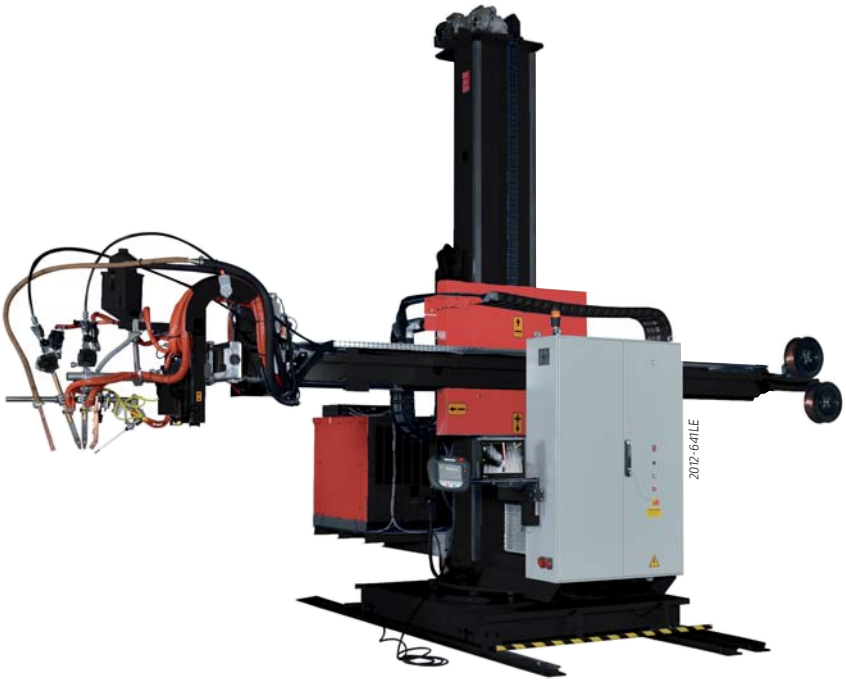
Drums from 350 to 1000 kg

## Drum accessories:


**Turn table** designed to dispense all sizes and grades of wire.
4-axis adjustable arm with ceramic inlet guide prevents wire shaving.
Quick disconnect allows for easy conduit connections.

**The pneumatic Feed Assist** provides an economical method to assist your wire feeder in moving wire through the conduit in applications where long conduit runs are necessary.

# SAW NARROW GAP




## Applications

Narrow Gap process used for welding thick plates,
mainly for the following industrial applications:
Power Generation, Nuclear, Pressure Tanks, Windmill, Petrochemical.


## Process

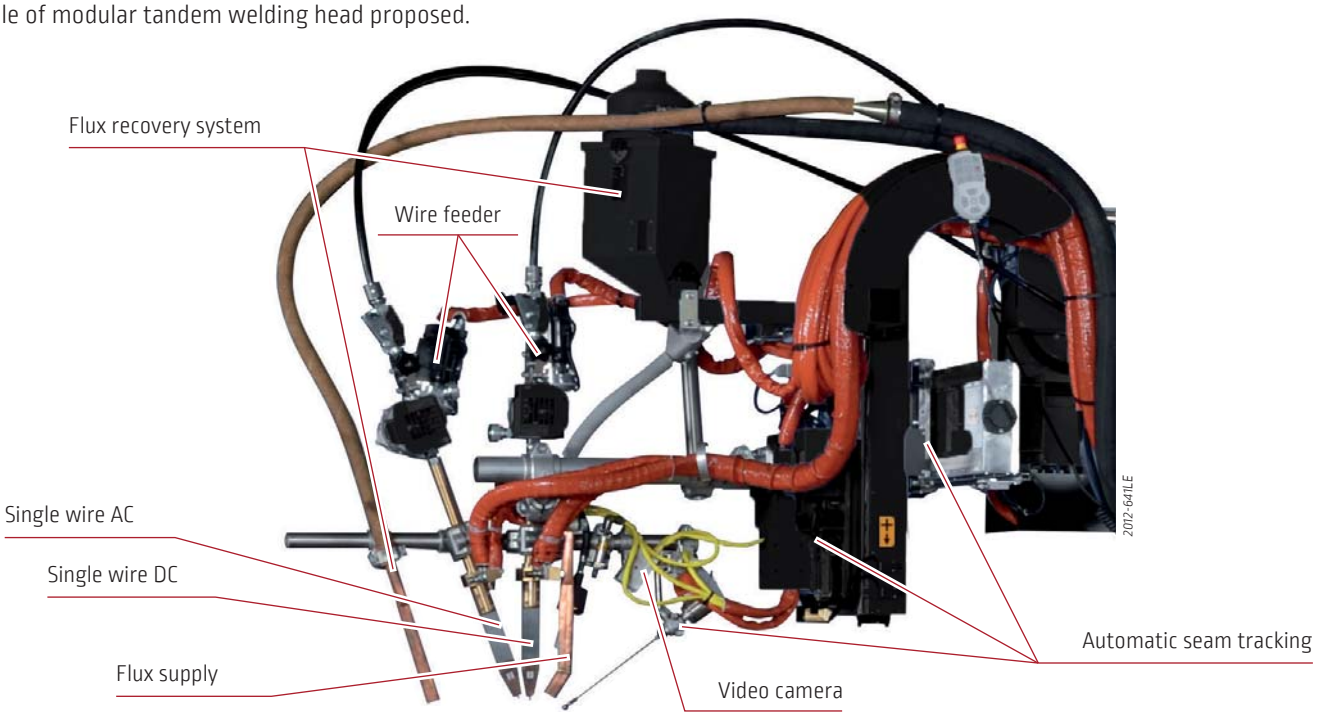
It is a Submerged Arc process with single or tandem narrow gap torch, designed to weld thick plate (generally over 50 mm) using practically parallel sides and narrow gap preparation.

Narrow gap process allows to increase productivity and to result in lower cost welding by decreasing the volume of metal needed and the welding time compared to conventional preparation with bevel.

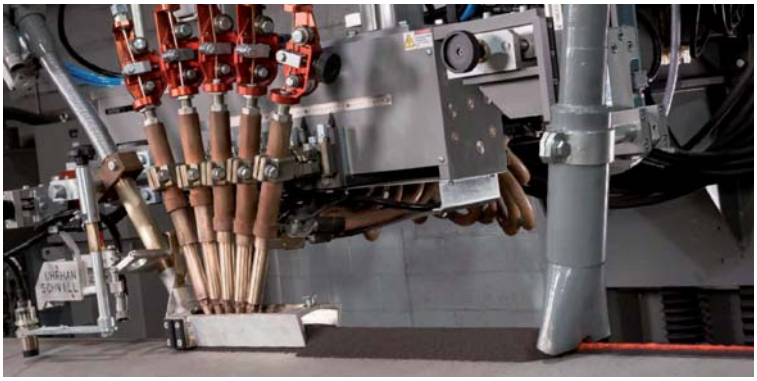
The process is adapted for both longitudinal and circumferential welding.

### Equipment: LINCOLN ELECTRIC provides a full range of equipment for every application

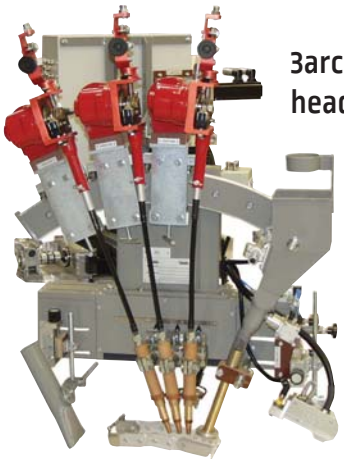
Example of modular tandem welding head proposed.



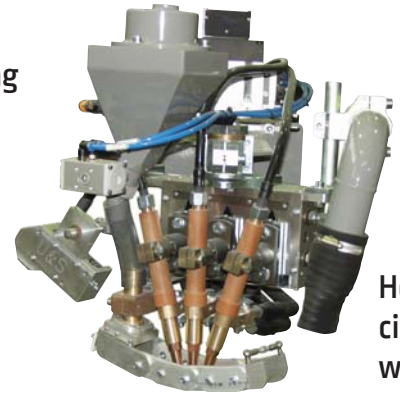
# SAW MULTIPLE WIRES



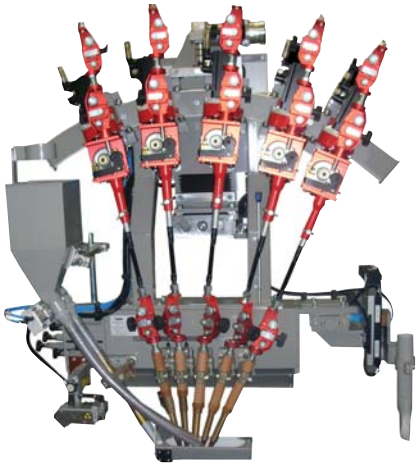
Uhrhan-Schwill SCHWEISSTECHNIK
A Lincoln Electric Company



3arc welding head



Helical or circumferential welding



Longitudinal welding

PERFORMANCES

# SAW MULTI-ARCS SYSTEM (heads and controllers)

The **Lincoln Electric** Automation proposes to integrate multiple wires head from Uhrhan & Schwill Gmbh company world-renowned specialist for Pipe Mills segment.

## E5 system

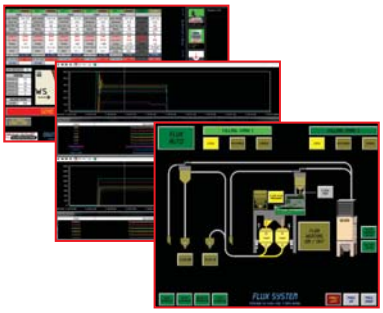
The E5 system manages all the parameters of the multi-arcs welding and it can be associated to D2C controller for a complete management of the machine:

- Single arc, Tandem arc or triple arc,
- Long Stick Out process,
- Touchscreen based remote control,
- Management of programs and memorization,
- Manual control of wire and flux feeding,
- Display of all real-time measurement values like voltage, ampere, wire feed speed, torque.

## Z5 system

The Z5 system manages the complete machine components and all the parameters of the multi-arcs welding:

- From single arc to multiple arc (x6),
- Long stick out process,
- Large touchscreen,
- Full control of wire and flux feeding system,
- Display and recording of all real-time measurement values like voltage, ampere, wire feed speed, torque, movement speed...
- Seam tracking by laser scanner.

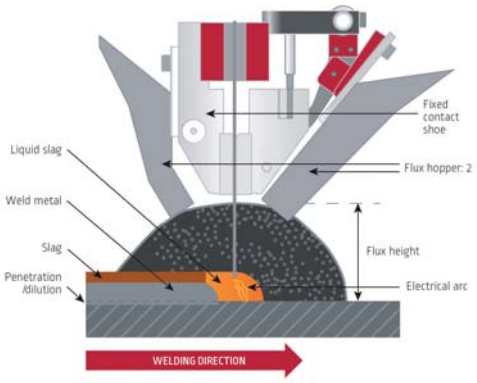


# STRIP CLADDING PROCESSES

**Cladding** is a fundamental process in the pressure vessel industry and is applied across whole spectrum of applications, from Nuclear, Oil and Gas industries to Chemical Processing equipment and steelmaking.
Cladding is required on the process side of high pressure critical process plant equipment to provide corrosion resistance against highly severe corrosive service fluid or to increase wear resistance of a component being subjected to heavy wear and tear applications e.g. continuous casting rollers in steel mills.

## Submerged arc strip cladding

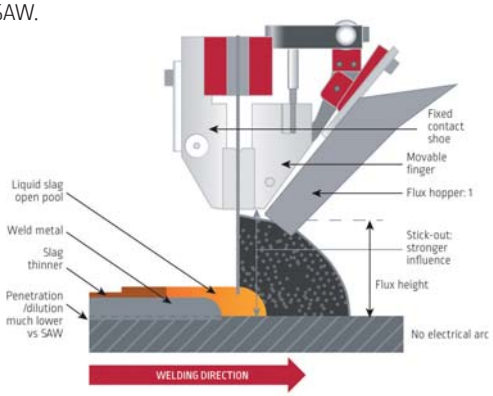
- The arc causes more penetration into the base material, resulting in dilution levels of ~20%.
- Deposition rate : 12-14 kg/h for 60 x 0,5 mm strip.
- Current range restricted to limit dilution.




## Electro slag strip cladding

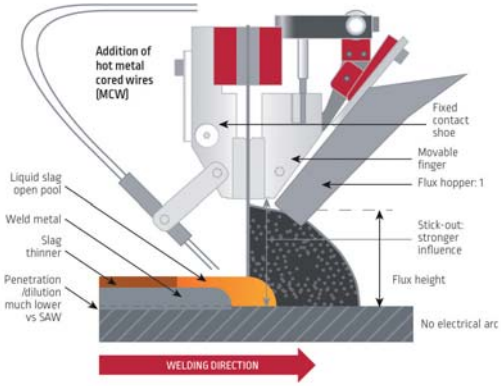
### Conventional

- Arc-less process, use conductive flux and works on Joule's resistance heating principle.
- The strip current passes through the molten slag. The resulting resistance heating effect melts the strip and deposits the molten weld pool onto the base material.
- Low dilution level (9 to 12%). Process has significant advantages over SAW.



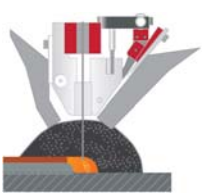

### Hybrid Technique*

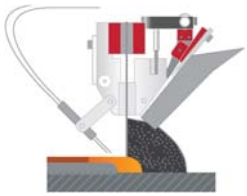
- Hot metal cored wires added to the molten pool as 3rd constituent.
- Always in single layer, coupled with high welding speed.
- Lowest dilution level coupled with the highest deposition and faster surface coverage rates.



## Comparison:

- Submerged arc (SAW).
- Electro slag conventional (ESW 2D).
- Electro slag hybrid* (ESW 3D).





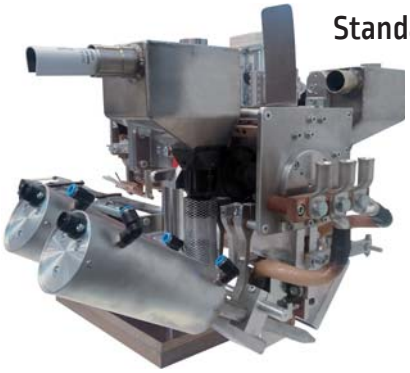
| | Submerged Arc | Electro slag | |
|---|---|---|---|
| | | Conventional | Hybrid* |
| Consumables | Strip + SAW Flux | Strip + ESW Flux | Strip + Metal Cored Wire + ESW Flux |
| Deposition rate (Kg/h) 60 x 0.5 mm strip | 12-14 | 22-30 | 28-42 |
| Welding speed (cm/min) | 10-14 | Normal speed: 15-18<br>High speed: 24-35 | 1 |
| Minimum number of layer in Ni-625 to achieve <5% Fe chemistry | 2 | 2 | 1 |
| Flux type for high speed cladding in single layer | NA | Alloyed | Neutral |

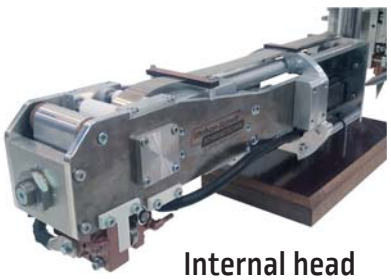
** Patent Pending*

# Welding heads

- In-house designed heads for strip widths 15 to 120 mm.
- Water cooled and robust modular design.
- Power cables can be added as required.
- Easily oriented for desired welding direction.

### Standard head





### Internal head

# E5 controller

- Management of the welding process with the E5 system and its mobile console.

# SAW TRACTORS

## LT-7 Tractor


**LT-7 Tractor**
Single or twin wire

The **LT-7 Tractor** is a self-propelled mechanized wire feeder, designed for submerged arc process with track system capabilities. It is self-guiding and easy to operate. For welds butts, horizontal fillet and lap joints to the left or right side of the tractor frame.

### Features

- Travel speed from 0,12 to 1,8 m/min
- Wire diameters from 2,4 to 4,8 mm
- Wire speed from 2,5 to 10,2 m/min

## Cruiser Tractors

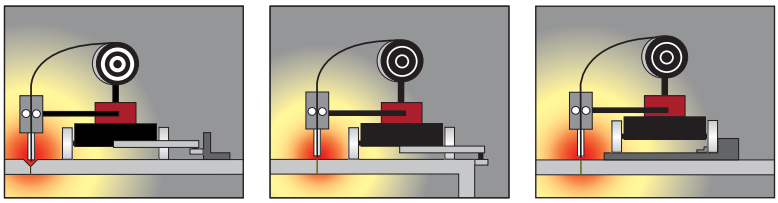
The self-propelled modular **Cruiser** and **Tandem Cruiser** travel carriages can deliver deposition rates up to 13kg per arc per hour for butt and fillet joints on lengthy plate welding applications common in bridge or barge decking, large tank fabrication or shipbuilding. It is suitable for all those positions below.

### Features

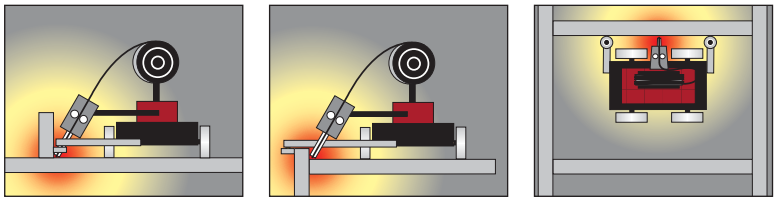
- Advanced control pendant.
- 3 or 4 wheels guiding.
- Travel speed from 0,25 to 2,5 m/min.
- Wire diameters from 2,4 to 5,6 mm.
- Wire speed from 0,4 to 12,7 m/min.


**Cruiser**
Single or twin wire

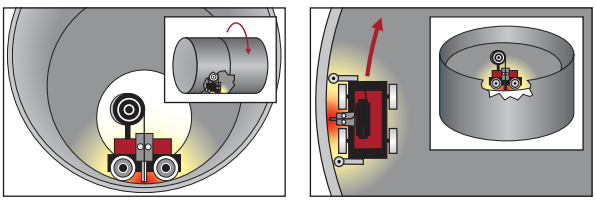
### Flat butt welding

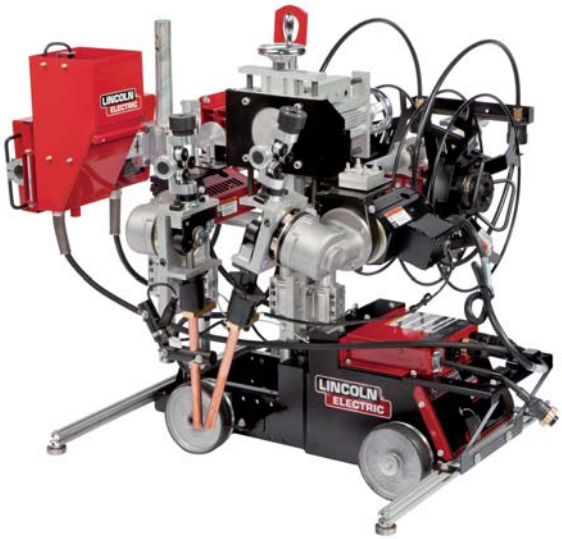


### Fillet welding



### Circular welding of large vessels with ø over 1 600 mm






**Tandem Cruiser**
Single wire

# SAW INTERNAL BOOM

**Lincoln Electric can propose several solutions of internal boom welding.**

The main processes are:

- Pipe manufacturing by internal longitudinal welding,
- Assembling of 2 pipes by circular welding.

Once the internal weld is done, the outside weld is performed by an other equipment.

The structure and configuration of the internal boom depends of the length of the pipes.

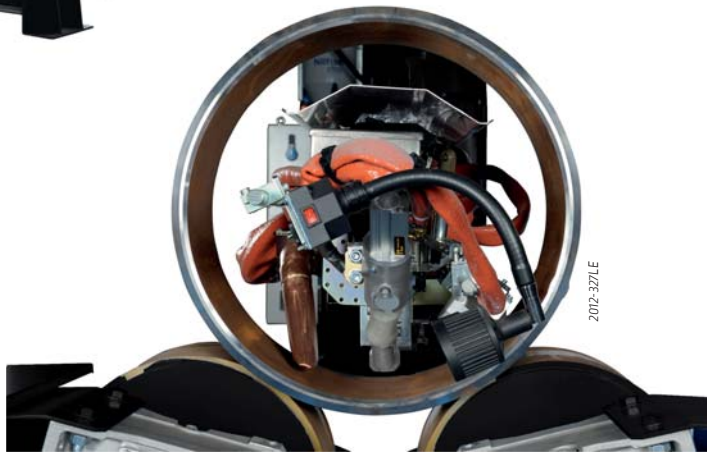
Pipes from 4 m to 12 m long.


2013-485LE

2013-485LE

Internal welding head with single wire, video and seam tracking.

2012-582LE

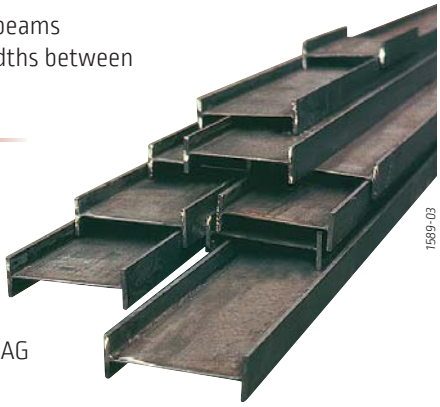


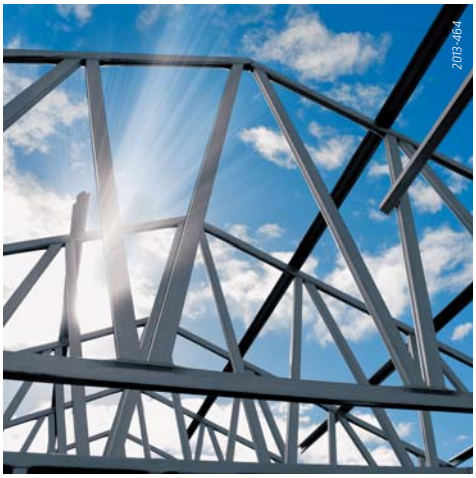
2012-327LE

# BEAM-MATIC

The automation of long workpieces welding (beams, wagons, box section constructions) requires sophisticated machines which move on rails.

The **BEAM-MATIC** system is used to weld beams of constant or varying cross-section in widths between 220 and 2 000 mm *.


1589-03


2013-464

** Other dimensions on request.*

2 types of **BEAM-MATIC** are available:

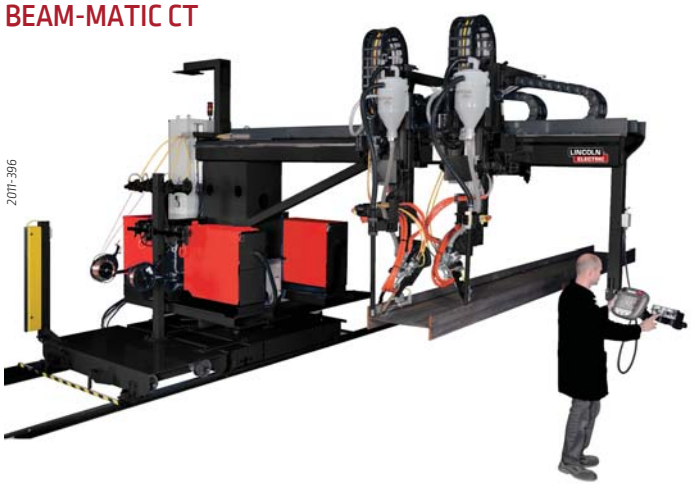
- Cantilever: CT,
- On base column and boom: LM.

The **BEAM-MATIC** allows to weld in MIG-MAG or SAW (single or twin wire) process.
In standard, the machine is equipped with a flux recovery device and a pushed flux supply.

Possibility to use wire spools or wire drums on the 2 **BEAM-MATIC**.

The torch level is fix on the **BEAM-MATIC CT** and it's possible to lift the torch level on the **BEAM-MATIC LM**.

## BEAM-MATIC CT


2011-396

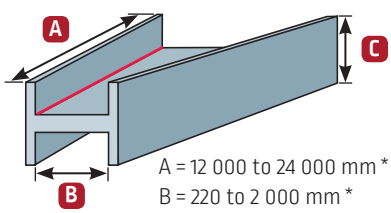
## BEAM-MATIC LM


2008-414

## Clamping bench:

The clamping bench allows the positioning of the web and the flanges before the welding, with an additional clamping bench it's possible to save time and increase productivity.

Standard / Dimensions for clamping bench




A = 12 000 to 24 000 mm *
B = 220 to 2 000 mm *
C = 120 to 500 mm *

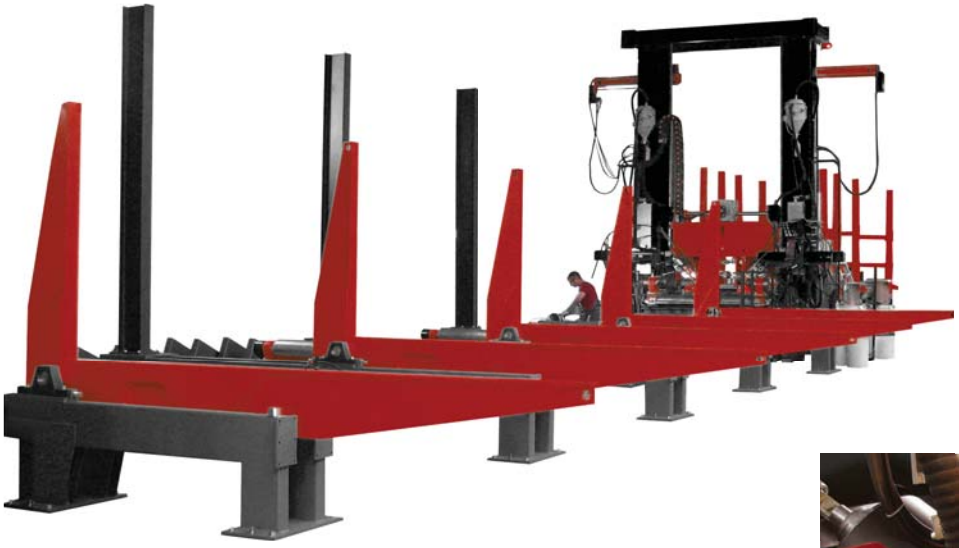
Web thickness: 4 to 20 mm
Flange thickness: 10 to 30 mm

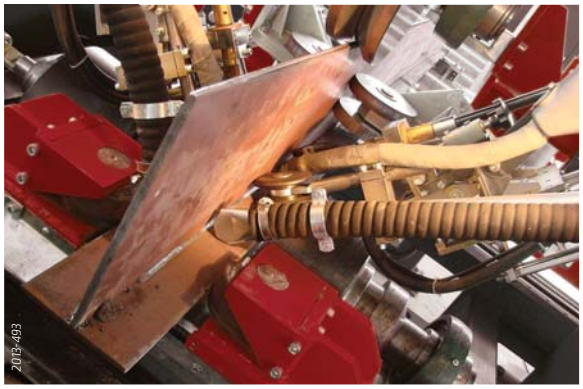
** Other dimensions on request.*

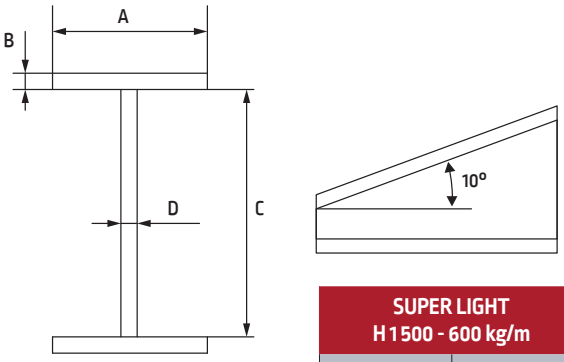

2009-524

# T-MASTER

The **T-MASTER** "Big size beam welding line" is designed to weld with Submerged arc process the T and I beams with the web in vertical position without need of continuous tack-welding of beam. A short tack is only needed at the beam leading edge.




| | | SUPER LIGHT H 1 500 - 600 kg/m | | LIGHT H 2 000 - 1 000 kg/m | | MEDIUM H 3 000 - 2 000 kg/m | | HEAVY H 4 000 - 3 000 kg/m | |
|---|---|---|---|---|---|---|---|---|---|
| | | mini | maxi | mini | maxi | mini | maxi | mini | maxi |
| **A: Flange length** | mm | 150 | 800 | 150 | 1 000 | 200 | 1 250 | 200 | 1 500 |
| **B: Flanges thickness** | mm | 5 | 30 | 6 | 40 | 8 | 65 | 8 | 80 |
| **C: Web length** | mm | 200 | 1 500 | 200 | 2 000 | 250 | 3 000 | 300 | 4 000 |
| **D: Web thickness** | mm | 5 | 15 | 6 | 25 | 8 | 30 | 8 | 40 |
| **L: Beam length** | mm | 6 000 | 12 000 * | 6 000 | 12 000 * | 6 000 | 12 000* | 6 000 | 12 000 * |
| **Weight / meter** | kg / m | | 600 | | 1 000 | | 2 000 | | 3 000 |
| **Taper angle** | ° | | 10 | | 10 | | 10 | | 10 |

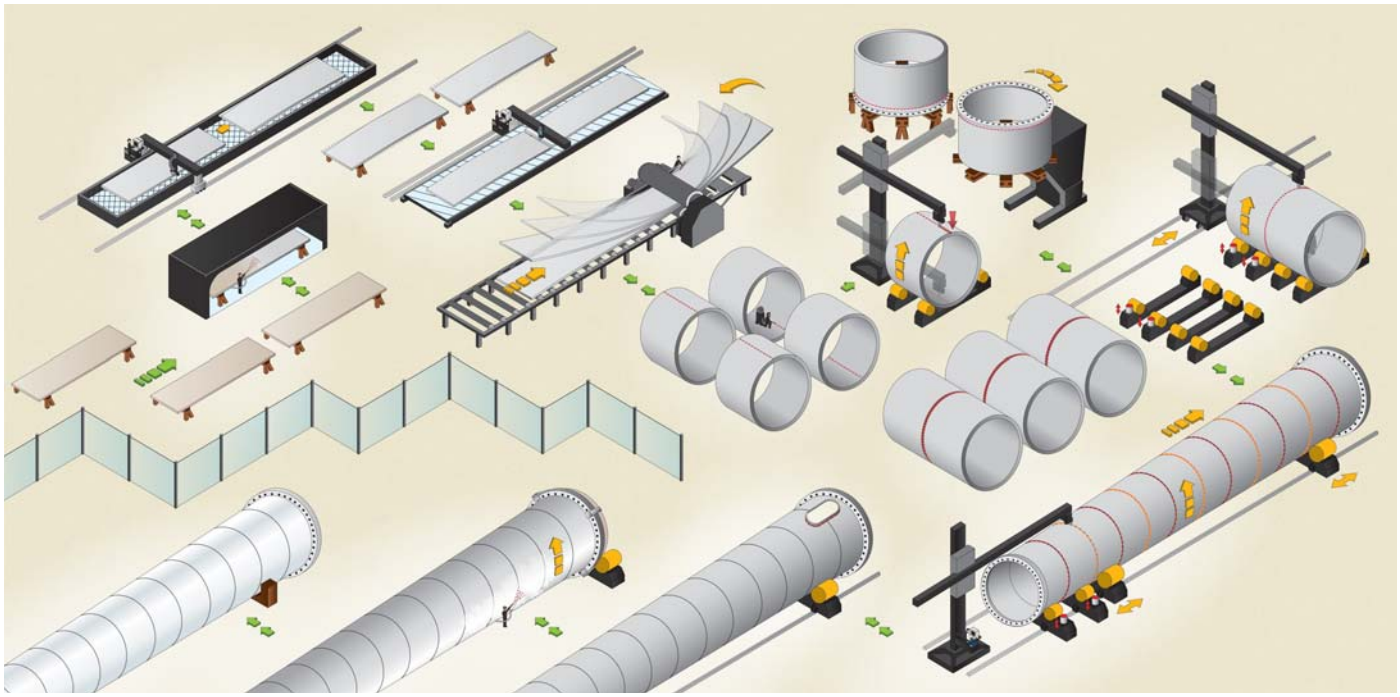
** additional length by 3 m*

** Other dimensions on request.*

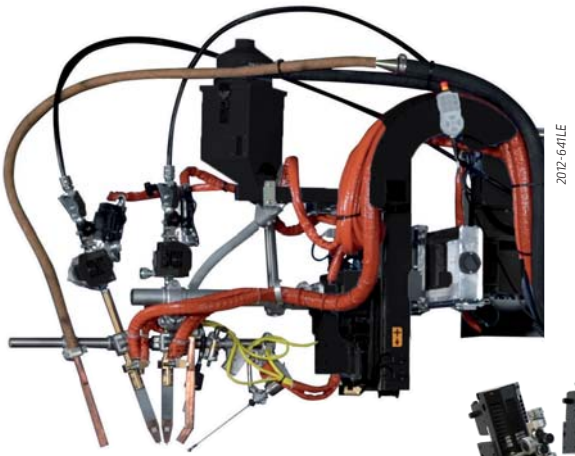
# WINDMILL SOLUTIONS

Working closely with engineering departments and major manufacturers in this sector, **Lincoln Electric** is constantly working to develop processes, equipments and consumables meeting the ever more demanding requirements of increasingly hostile environments.

This constant innovation has resulted in a complete range of equipment and consumable solutions specially designed for wind-power industries.

Example of layout for windmill towers fabrication.




Heavy duty welding heads:
Narrow gap or SAW tandem head.

Large column and booms, rotators and positioners are proposed in this windmills solution.

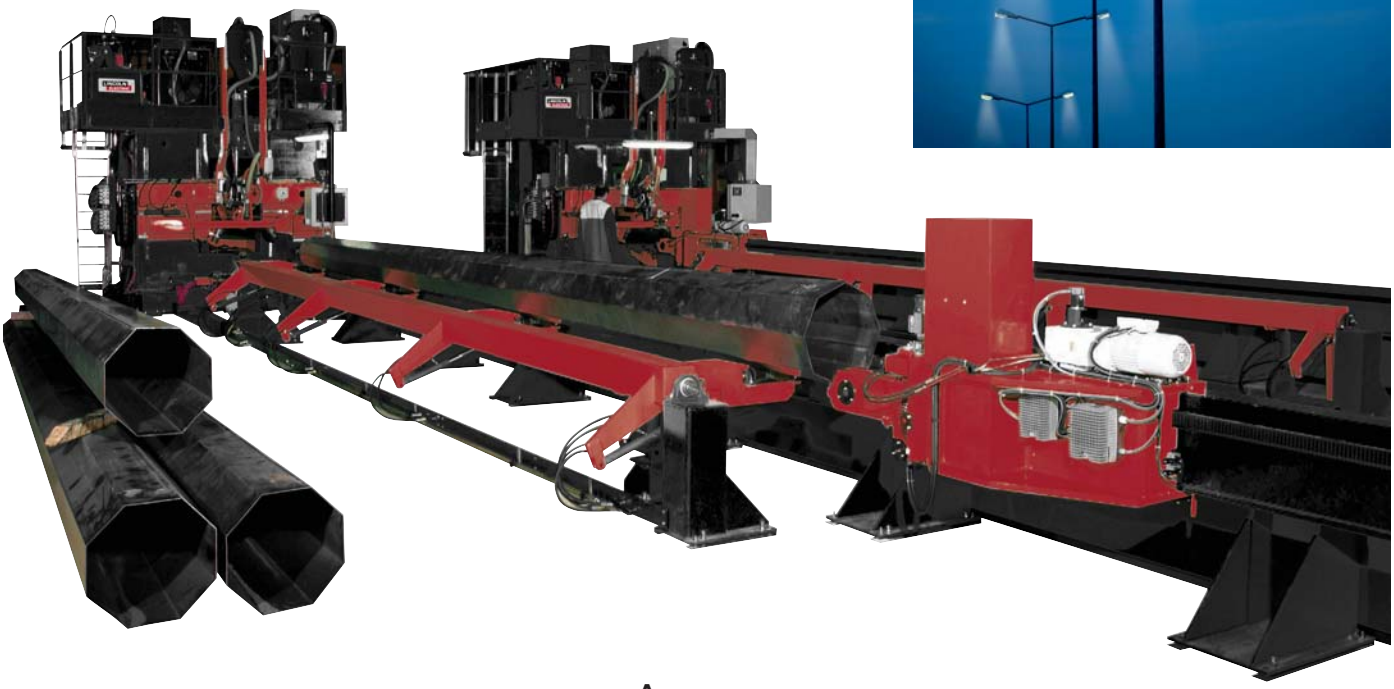
# LAMP-POST SOLUTIONS

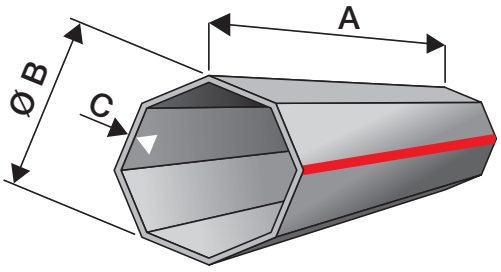
High productivity performance machine equipped with SAW or Plasma welding process. No tacking of parts is required.

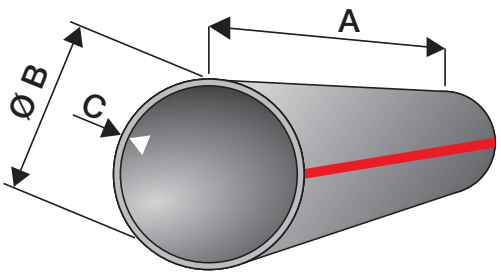
A dedicated software manages the lamp post production including automatic positioning of the pole edges before welding according to the various shapes and conicity of each product.

A burner ramp under the lamp-post reduces the welding distortions.

*Several options are available on request.*






**A**: 3 to 17 m
**B**: 60 mm mini - 600 mm maxi
**C**: 3 to 6 mm
Round conical, polygonal
(32, 16 and 8 sides)
Conicity maxi: 50%

## WELDING PROCESSES

- SAW single wire diameter from 1.6 to 5.0 mm
- Plasma welding 3 or 4 heads

## MACHINE CYCLE

- SIEMENS controller
- Overview and control in real time of the machine, parameters recording, remote connection

## PERFORMANCES / OUTSTANDING POINTS

- Joint tracking with camera and operator joystick
- Only 1 operator
- Machine availability: 95%
- Fix machine / Movable piece
- Speed range: 1 m/min to 3 m/min according to process and thickness

2956-053

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