TOTAL WELDING SOLUTIONS FOR THE SHIPBUILDING INDUSTRY



www.lincolnelectric.eu

SHIPBUILDING WELDING SOLUTIONS

For over 125 years, Lincoln Electric has been at the forefront of arc welding, automation, and innovation. Our advanced solutions are paired with unwavering support across the globe.

In shipbuilding, our extensive expertise in welding, cutting, and automation ensures adherence to stringent codes and aims to maximize your return on investment.

Our customized solutions are designed to deliver unmatched efficiency, reliability, and value. Rely on Lincoln Electric for superior shipbuilding solutions, built on a legacy of excellence





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WELDING SOLUTIONS FOR SHIPBUILDING

Lincoln Electric offers Total Welding Solution for all types of vessels: Regular ships, Chemical tankers, Liquid gas carriers, Submarine vessels, Defence surface ships, Aluminum boats.





REGULAR SHIPS, CRUISE LINERS, CONTAINER SHIPS

Major Classification Societies as Det Norske Veritas, Bureau Veritas, Lloyds Register, Germanischer Lloyd and the American Bureau of Shipping, led to grading of mild steels of between **0.16%** to **0.23% Carbon content. Grades A, CS, DS, B, D,** and **E** are progressively tougher mild steels. **High strength steels** have three grades, **AH, DH** and **EH.** Each of these high tensile grades is available in three levels of strength, **32, 36** and **40**, the latter being the strongest. Toughness and strength are determined at the steel mill by means of process control and the addition on traces of aluminium, niobium and/or vanadium.

Weldability is of preliminary importance; shipyards require: "no preheat and no complex procedures".

This result in a restriction on steel types, high carbon steels can't be used to enhance strength because **HAZ cracking must be avoided**.

High tensile welding consumables are to be used for high tensile steel, f.e. in submarines. Carbon equivalent (CE) is used to indicate permissible levels of alloying elements and carbon in steel for specific welding conditions.



CHEMICAL TANKERS

Chemical tankers are a composition in **duplex stainless steel**. Duplex stainless steel is finding an increasing uptake in the shipbuilding sector, mainly due to its **higher strength** and **corrosion resistance** properties.

The cargo tanks are constructed from **duplex stainless steel UNS S32205 (Mat. Nr. 1.4462)** which is a higher grade of stainless steel as opposed to austenitic AISI 316LN grade (UNS S31653) that is often used for inland navigation tankers.

Duplex stainless steel has a higher strength combined with a **favorable corrosion resistance** (excellent stress and pitting corrosion), two properties that have governed the choice of this material as a way of increasing the number of chemical products that can be loaded and transported by these chemical tankers.

The **corrosion resistance** can be calculated and expressed by the **Pitting Resistance Equivalent (PRE)**, adjusted for nitrogen containing stainless steel.

Duplex stainless steel UNS S32205 (Mat. Nr. 1.4462) also has **excellent weldability**. Depending on the required welding positions during construction, as well as the various base material combinations, the selection of **welding processes** and **welding consumables** have been made and tested in accordance with the rules of the shipbuilding Classification Societies.







DEFENCE -SUBMARINES

For Submarine Vessels, high strength is required due to the pressures encountered at depth. High strength Quenched and Tempered steels with a **high carbon equivalent** value are used. **Welding is consequently more complex**. Typical steels for submarine applications are **HY 80, HY 100, HRS 650M.**



DEFENCE -SURFACE SHIPS

Surface ships in Defence refer to naval warships designed for warfare on the water's surface, capable of engaging various targets. Their main characteristics lightweight, highstrength materials like advanced composites and steels, along with stealth technology to reduce radar and sonar signatures, and modular designs for adaptability and rapid customization. Typical material steel used are **EH32, EH36.**



PLEASURE BOATS

Aluminium has been used in shipbuilding industry as marine vessels, Yachts etc. for more than 100 years because of its light weight and ease of fabrication. Aluminium combines both good corrosion and fatigue resistance. For the hull construction commonly 5086 (AIMg4Mn) and 5083 (AIMg4.5Mn) are used and are easy to weld. Hull plating of 4.5 mm and above easily accommodates MIG-Pulse welding. TIG welding will be used for the more difficult detailed work such as attachments.



WELDING CONSUMABLES SOLUTIONS



Duesees	Product name	Clas	sifications	A
Process		AWS	ENISO	Approvais
MCAW	Outershield MC710-H	E70C-6M H4	T 46 3 M M21 2 H5	ABS, LR, BV, DNV, RINA, TUV, DB
	Outershield MC715-H	E70C-6M H4	T 46 4 M M21 2 H5	ABS, LR, BV, DNV, RINA, TUV, DB, CWB
FCAW	Outershield 71M-H	E71T-1/9C-H4 E71T-1/9M-H4	T 46 3 P C1 1 H5 T 46 2 P M21 2 H5	ABS, LR, BV, DNV, RINA, CRS, PRS
	Outershield 71E-H	E71T-1M-J E71T-1C-H4	T 46 3 P M21 1 H5 T 42 0 P C1 1 H5	ABS, LR, BV, DNV, RINA, TÜV, CWB
	Outershield 81Ni1H	E81T1-Ni1M-J	T 50 5 1Ni P M21 2 H5	ABS, LR, BV, DNV, TÜV
	Outershield 690H	E111T1-K3M-JH4	T69 4 Z P M21 2 H5	ABS, DNV

• Coils (5/16kg) • PE Foil and/or Aluminum Foil



Brococc	Product name	Class	ifications	Annxovala
Process		AWS	EN ISO	Approvais
MCAW	FLUXOFIL M10	E70C-6M H4	T 46 4 M M21 1 H5	ABS, LR, BV, DNV, TUV, DB, CWB
FCAW	FLUXOFIL 14HD	E71T-1M-J E71T-1C-H4	T 46 3 P M21 1 H5 T 42 0 P C1 1 H5	ABS, LR, BV, DNV, RINA, TUV, DB, CWB
	FLUXOFIL 19HD	E71T-1C-JH4	T 46 3 P C1 1 H5	ABS, LR, BV, DNV, RINA, TUV, DB
	FLUXOFIL 464M	E71T-1M-JH4	T 46 4 P M21 1 H5	ABS, LR, BV, DNV, RINA, TUV, DB
	FLUXOFIL 42	E110T5-K4M-H4	T 69 6 Mn2NiCrMo B M21 2 H5	ABS, BV, DNV, TÜV, DB, CCS



WELDING CONSUMABLES SOLUTIONS MMA





VPMD vacuum pack

A rugged multi-layer Al-PE foil is used as barrier against moisture absorption.

Alloy	Product name	Clas	Approvals	
		AWS	ENISO	
	PANTAFIX	E6013	E 38 0 RC 11	ΤÜV
	SAFER G48N	E6013	E 38 0 RC 11	LR, BV
	SAFER GTI	E6013	E 42 0 RC 11	LR, BV, TÜV
	SUPERCITO	E7018-1 H4	E 42 5 B 42 H5	ABS, LR, BV, DNV, RMRS, TÜV, DB
Milu Steel	SUPERBAZ	E7018 H4	E 42 4 B 42 H5	ABS, LR, BV, DNV, RINA, TUV, DB
	CONARC 49C	E7018-1 H4R	E 46 4 B 32 H5	ABS, LR, BV, DNV, TÜV, DB
	SAFER NF 510A	E7018 H4	E 42 4 B 32 H5	ABS, LR, BV, DNV, RINA, TÜV
	FERROD 165A	E7024-1	E 42 2 RA 73	ΤÜV
Low alloy	KRY01/1P	E7018-G-H4R	E 50 6 Mn1Ni B 32 H5	ABS, LR, BV, DNV, TÜV, DB
	TENAX 35S	E7018-1 H4	E 42 5 B 32 H5	ABS, LR, BV, DNV, RINA, TÜV, DB
	TENAX 885	E8016-G H4	E 50 6 Mn1Ni B 12 H5	ABS, LR, DNV
Stainless steel	AROSTA 304L	E308L-16	E 19 9 L R 12	BV, TÜV
	AROSTA 316L	E316L-16	E 19 12 3 L R 12	ABS, LR, BV, DNV, TÜV, DB
	AROSTA 3095	E309L-16	E 23 12 L R 32	ABS, BV, TÜV
	29.9 SUPER R (LIMAROSTA 312)	E312-17	E 29 9 R 1 2	ABS, LR, BV, DNV, RMRS, TÜV, DB
Low chromium VI	CLEARINOX E309L	E309L-17	E 23 12 L R 2 2	ABS, BV, DNV, TÜV
	CLEARINOX E316L	E316L-17	E 19 12 3 L R 2 2	ABS, BV, DNV, TÜV
Duplex	ULTRAMET™ 2205 (AROSTA® 4462)	E2209-16*	E 22 9 3 N L R 32	BV, DNV, TÜV
Nickel	NIMROD 625KS	ENiCrMo-3	E Ni 6625	BV, TÜV



Carton Boxes Universal packaging for stick electrodes

WELDING CONSUMABLES SOLUTIONS



WHY FLUXOFIL ?

- Manufactured from a solid tube, Copper coated with Improved electrical contact and reduced liner and tip wear
- Resistant against harsh storage conditions
- Outstanding wire feeding combined with stable arc
- Low hydrogen and reduced risk of coldcracking, delivering highest quality levels
- Excellent slag removal and regular bead appearance
- Superior welding productivity
- Preferred solution for long distance feeding, mechanisation and robotic, no seam to open on deformation, and wire placement accuracy due to straightness

THE LATEST PRODUCTION TECHNOLOGY

New market requirements call for base materials and welding products delivering highest yield strengths and impacts at low temperatures.

Such demanding applications require **outstanding consistency of mechanical properties** combined with **superior welding performance and productivity**.

- Best in class deposition rate combined with exceptional arc stability and operability
- Very good results of low temperature impact. Alloying and micro-alloying elements are precisely selected and controlled during wire fill and rolling processes
- Consumable and flux homogeneity

50 YEARS* OF EXPERTISE IN SEAMLESS FLUX CORED WIRE PRODUCTION



INDUSTRY CHALLENGES

Skills Shortage

- Automation
- Mechanization
- Robotics
- Leveraging ARC for customer training
- Virtual Welding

Health and Safety

- Automation/Mechanisation
- ▶ PPE : PAPR
- Low Fume consumable range
- Fume extraction
- Ergonomics and Weight control <25 kg</p>

CONNECTIVI

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Cable management

Global Competitiveness (Quality/Productivity)

- Automation/Mechanization
- Increased Productivity
- Reduced Distortions
- Dedicated After Sales and Support
- Additive Manufacturing

Energy Cost

- Inverter Technology
- Data Collection
- Equipment monitoring

HYPERFILL®

ONE PROCESS FOR ALL APPLICATIONS

STT[®], FCAW, GMAW, RAPIDARC[®] 1F/1G/PA 2F/PB 3F/5G/PF,PG 4F/PD 2G/PC



GMAW PROCESS

Due to its innovative twin-wire design, HyperFill® is able to utilise two smaller diameter wires to produce a larger weld droplet and arc cone. In return, this generates a large weld puddle that is easy to manage and control, allowing operators to increase deposition by an average of 50% over traditional single wire processes.

STT

FCAW PROCESS

Thanks to a new high-performance contact tip, operators can use the HyperFill process in flux-cored applications for increased deposition rates up to 15lb/h. This solution also delivers the flexibility to weld in flat, horizontal, vertical-up, and overhead positions.

RAPIDARC®

HyperFill technology combined with RapidArc[®] waveform allows for tighter and more focused arcs with increased travel speeds of up to 58% compared to traditional CV or pulse single wire processes in automotive and heavy fabrication industries

HyperFill technology combined with the waveform benefits of STT will allow pipe manufacturers to take advantage of faster, more precise welding. The STT (surface tension transfer) waveform is primarily used on open root pipe welding, making it possible to increase root pass travel speeds up to 57% and delivering increased pipe diameter (inches/day). The combination of this waveform with the productivity gains of HyperFill will allow operators to see increased efficiencies throughout the welding process.

ADVANCED SOLUTIONS

POWER WAVE® S500

When you are facing demanding production schedules, you need a welding power source you can rely on. The Power Wave® advanced welding platform delivers just that. From semiautomatic welding applications to complete robotic welding systems, the Power Wave® platform has you covered – day after day, shift after shift

TWIN WIRE SOLUTION ON A SINGLE SETUP

AUTOMATION/MECHANIZATION SOLUTIONS

LONG STICK OUT PROCESS (LSO)

The long stick-out (LSO) is a highly efficient submerged arc welding process developed by Lincoln to maximize productivity. This technique leverages the natural resistivity of the welding wire. By significantly increasing the electrical stick-out, the wire is preheated, making it easier to melt. Consequently, for a given amperage, the deposition rate can be doubled compared to conventional stick-out procedures.



THE MODIFIED SERIES ARC™

The Modified Series Arc[™] Welding process was developed to join plates from one side using an open gap. Modified Series Arc[™] is different from conventional Tandem SAW because the lead and series electrodes are connected to the same power supply(s) and the electrodes intersect above the bottom of the joint.



Electrodes The Lead, Series and Trail electrodes are located, as illustrated above.

To date, the Modified Series Arc[™] process has been in use with a 3/16" [4.8 mm] dia. lead electrode and a 1/8" [3.2 mm] dia. series electrode. The purpose of the first two electrodes is to make a weld in the open gap that will have a good bead appearance on the bottom of the plate. A trail electrode is used to re-melt the top of the root pass, fill the remainder of the joint and produce a good looking bead on the top of the plate.

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DC-1000

500 amp output connections enhance arc characteristics for low amperage submerged arc procedures. The single range control ensures precise output and easy operation. Its low profile case allows for installation under a workbench and stacking up to two machines, conserving valuable floor space



FLEXTEC 650 SUBARC

Delivers up to 815A of welding power, making it ideal for a wide range of applications, including construction, shipbuilding, and heavy fabrication. It operates on a broad spectrum of voltage inputs and is IP23 rated for outdoor use and storage. With extensive compatibility, the Flextec 650 Subarc works seamlessly with nearly any Lincoln Electric[®] SAW wire feeder and controller.



INROTECH'S ADVANCED AUTOMATED SOLUTIONS

inrotech

Inrotech'~ welding automation systems are built on adaptive intelligence - a proprietary operational logic embedded in the company's self- developed software. This software seamlessly integrates with robots and welding power sources from various manufacturers.

Unlike traditional welding automation, which often relies on repetitive, simple programming for identical tasks, Inrotech offers advanced solutions tailored to complex environments. For instance, in shipyards where components and tolerances vary significantly, Inrotech's robotic welding systems, such as the Inrotech-Classic and Inrotech-MicroTwin, automatically identify weld requirements and assess tolerances. They calculate, in real time, critical parameters such as the number of weld passes needed. This adaptive and intelligent approach is what sets Inrotech's solutions apart from conventional systems.







Shipbuilding Industry

This welding robot is Intended for the welding of **open block assemblies** in the shipbullding industry, yet this welding robot can be used for a number of other purposes.



Sensologic Technology

Once the object has been recognized, the **welding process commences automatically**. This continues until the entire panel is welded.



Two Simple Instructions

One operator is able to **handle six Inrotech-Classic** with Inrotech's intuitive user Interface that does not require any robot programmer experience or knowledge.



Shipbuilding Industry

Specifically designed for the welding of **micro panels**, **sub-assemblies and T-profiles** in the shipbuilding industry, however it can be used for a number of other purpose.



Sensologic Technology

Works fully automatic, push the "start" button; after completed scanning the welding starts automatically. It only takes a few minutes with a scanning speed of 36 sqm per minute.

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User-friendly interface

The user-friendly interface gives you **full control over the robot** from one single touch screen, while providing accurate report from the process.

PYTHON X CUTTING SOLUTIONS

PythonX Systems from Lincoln Electric[®] are the trusted international name in robotic fabrication systems. New machines and capabilities allow you to fabricate structural steel and pipe.

PythonX machines are versatile and complete solutions that automate your processing operations in your fabrication shop while providing you with increased productivity, unmatched cut quality, and predictable and consistent throughput. In addition, our signature simplicity of operation gives you the confidence to implement a new machine and start seeing a return on your investment immediately. PythonX machines deliver the solutions that you need to help your business where it counts the most...your bottom line.



COBOT SOLUTIONS









Easy User Interface

Step-by-step on-screen instructions allow operators to learn how to teach points and create a program fast.

Smart Torch

Smart Torch design provides an ergonomic grip for users to easily move the collaborative robotic arm. The integrated buttons allow users to program from the torch.

THE COOPER APP

The Cooper App includes presets based on wire size, type, gas mix, and thickness of material being welded and/or joined. The Weld By Numbers[™] feature offers preset weld settings. Dozens of parameters are preset in these numbers, which correlate to the material thickness to optimize weld performance and quality.



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ADDITIVE SOLUTIONS

Lincoln Electric Additive Solutions 3D metal printing services gives your business a big advantage over castings, forgings and other traditional manufacturing processes with the fast delivery of new and replacement parts and tooling. With the largest 3D metal printing capacity in North America, we can expedite production for large industrial parts for your application and industry.





- Making large parts quickly
 - Faster turn-around time
 - Reduction in lead times from months to weeks
 - Faster prototype testing



- More design freedom
- Less waste, virtual inventory
- Complete finished part provider

7,000 m² FOR LARGE FORMAT PRINTING SYSTEMS

Approximate build volume: 1.2m x 1.5m x2m With positioner (more complex geometries): up to 1,500kg and 1.5m high. Off the floor: 3,600kg and 2.5m high



MANUAL EQUIPMENT WELDING SOLUTIONS

SMAW/GTAW EQUIPMENT

SPRINTER 160S & 180S

Unmatched Power, Unparalleled Portability

- Experience high performance in a compact form. Weighing under 9kg, the Sprinter S is your lightweight, portable powerhouse. With an impressive 180A output, you can easily weld all types of electrodes (up to 4.0mm), including 7018 and 6010. But that's just the beginning. The Sprinter S isn't just a stick welder; it combines superior stick functionality with DC LIFT TIG mode and dual input voltage (120V/230V), giving you ultimate versatility



SQUARE WAVE® 400 ADV

Prime choice for industrial aluminum welding Struggling with inconsistent weld quality and high energy costs? The SQUARE WAVE® 400 ADV addresses these issues by combining power and precision for superior welding results.

Tired of equipment failing in tough conditions? Its robust design ensures reliable performance in the most challenging environments. Plus, with the latest energy-saving technology, you can significantly reduce operational costs while boosting productivity.



• TIG (GTAW) • Pulsed TIG (GTAW-P) • Stick (SMAW) • Air carbon arc (CAC-A)

• Aluminum • Magnesium • Copper alloys • Steel • Stainless steel • Low alloy steel

LINC[®] i400S

• DC Stick • DC Lift TIG

The LINC i400S[®] is engineered with cutting-edge energysaving technology, making it exceptionally suited for the most challenging environments. Its unique design incorporates advanced communication devices and digital transmission systems, enabling operators to effortlessly monitor and track welding operations. With a dedicated kit paralleling system, the LINC[®] i400S can deliver up to 800 A of output by utilizing two power sources simultaneously.

- MMA Gouging TIG lift
- MMA manual & Synergic Pulse
- Premium Cellulosic 6010 Stick capability
- Steel Stainless steel Low alloy steel





PLASMA CUTTING

TOMAHAWK®30K

The Tomahawk[®] 30K plasma cutting system arrives ready to go for fast and precise cutting. With the 30K, forget the grinder – simply pick up the torch and cut in seconds. INTERNAL

COMPRESSOR OR

EXTERNAL AIR

MANUAL EQUIPMENT WELDING SOLUTIONS MULTI-PROCESS EQUIPMENT

YARDTEC[®] 300C

Lightweight, portable multi-process **power source** with an integrated **wire feeder**, making it an ideal solution for shipyards and construction sites. This versatile product is perfect for customers who need to perform welding in large facilities, where moving equipment, extending its range, and working in hard-to-reach areas can be challenging.

- GMAW Manual and Synergic FCAW Manual and Synergic
- SMAW GTAW (Lift TIG) Gouging (with 4mm electrode)
- Steel Stainless steel Aluminium





Compact case designed for harsh welding environments with limited access.

An ergonomically designed handle made for safe transport and handling - manually or crane-lifted by cable.

FLEXTEC[®] 350XP

Equipped with CrossLinc[®] technology, the Flextec 350XP can be controlled from hundreds of feet away without expensive and inconvenient control cables. Desert Duty[®] and IP23 rated, these welders can withstand harsh outdoor conditions and outperform other welders in their class.

LN-25X

CrossLinc[®] and True Voltage Technology[™] (TVT[™]) helps you get the job done with drastically less movement

ACTIV8X®

Small enough to fit through manways and light enough to carry around the site

ACTIV8X[®] PIPE[™]

Features STT Field and Pulse waveform outputs



CROSSLINC® TECHNOLOGY

Output Control at the Arc, No Additional Cable CrossLinc feeders enable voltage control at the feeder without the extra cable. The result is greater productivity, safety, and quality. Avoid the negative aspects of across the arc models and adding a control cable, while enjoying all the benefits.





SAFETY AND PPE SOLUTIONS MAKING FUME MANAGEMENT EASY

Lincoln Electric manufactures portable, stationary, and customized weld fume control solutions

- System Design: Environmental specialists offer custom designs for optimal circulation and air filtration
- Installation and Service: Experienced team installs arms, hoods, filter banks, and duct work on-site







DID YOU KNOW?

Lincoln Electric does it all! We manufacture, design, install, and service all of our own weld fume control equipment.

RESPIRATORY PROTECTION

EuropurePLUS[™] RANGE TH3 Class

Ergonomic and smart protection. Fully integrated safety, with respiratory, head, eye and skin protection options. Designed to work together for maximum comfort.

Superior Battery Life

Lincoln Electric Extended Battery	16 hrs	
Lincoln Electric Standard Battery	9 hrs	
Competitor	бhrs	

125 mm

EuropurePLUS[™] 5500 LS

MMA, MIG/MAG

GRINDING

EuropurePLUS[™] LE FACE SHIELD GRINDING, BRAZING, OXYFUEL CUTTING

^{EuropurePLUS™} CLEAR

GRINDING, BRAZING, OXYFUEL CUTTING



VERSATILE PROTECTION WITH ADDED VALUE AND MODULARITY!

AUTODARKENING HELMETS

VIKING[™] 3250D FGS[™] VIKING[™] 3350 SERIES EUROWAVE 3.0 LS Variable Variable Variable shades shades Viewing area Viewing area shades Viewing area 8 11 13 8 11 13 HNOLOG Grind mode / Grind mode / Grind mode / Shade control Shade control Shade control Lens switching Low TIG amps rated speed Comfort Optical class Arc sensors $\langle \Box \rangle$ 1/1/1/1



ACCESSORIES SOLUTIONS CUTTING AND GRINDING DISCS

DUCTIFLEX PRO

Top quality cutting disks for professional use.

DUCTIFLEX

A grinding range for standard structural steel.





DUCTIFLAP

Abrasive flap disks. These disks are made by cutting abrasive fabrics, then cutting as flaps and bonding them on a fiberglass or nylon backing plate by an adhesive.



GOUGING ELECTRODES



CARBONAIR

Pointed electrodes Versatile multi-

purpose round gouging electrodes (most popular type)



Hollow electrodes Versatile multi-

purpose round gouging electrodes

Flat electrodes Rectangle shape for

close tolerance metal removal and/or to create rectangle grooves.



CARBONAIR PLUS

Jointed electrodes

Round electrodes with male and female ends to eliminate stub loss



ACCESSORIES SOLUTIONS

GAS AND FLAME





GAS REDUCERS

Complete line of industrial pressure regulator products designed to perform in critical applications.

GAS DISTRIBUTORS

Extensive line of gas delivery systems for industrial and specialty gas applications.

FLAME STRAIGHTENING TORCH

Wide variety of torch products that will meet

the needs of most fabricators.





CERAMIC BACKINGS Dimensions (mm) 3D diagram Type Application Process Cylindrical / round type Medium to heavy KFRALINF RANGE GMAW, thickness. V- or TR FCAW, X-grooves for identical d = 6, 7, 8, 9, 12 or How to improve the process and increase productivity (DCR)? SMAW or dissimilar thickness 15 mm Flat with rounded concave groove Avoid welding both sides of the metal part 27 Metal cored Nice appearance of the root pass |**≁×**+| Medium to heavy or solid wire ΤA NOT NECESSARY TO TURN THE METAL thickness without **CURVED OR FLAT** slag PARTS x = 6, 9 or 13 mm Flat with square concave groove on aluminum tape **OUR KERALINE IS NOT** Save filler metal 27 Cored wire **SENSITIVE TO AMBIENT** |**≁**≁| Same thickness. with slag. **REDUCES OVERHANG** 7.3 ΤF **TEMPERATURE VARIATIONS** medium or thick MIG MAG. V-bevel x = 6, 9 or 13 mm Circular ceramic backings RAD Welding material Flat with rounded concave groove Support tape on metallic support (to be glued to the welding material) ТΜ 5.5 x = 13 or 18 mm Ceramic part (many shapes to choose for Keraline support type: the best adjustment) Ceramic on aluminum-tape Articulated, Flexible following the parts geometry, adjustable, heat resistant, easily detachable after welding. Ceramic on metallic support Quick implementation, easily positioned, adjustable, heat resistant.



Application Resource Centers, or ARC facilities, feature Lincoln Electric's newest technologies and experts who develop and deliver productivity solutions.

These centers provide dedicated spaces and equipment for demonstrating and testing welding, cutting, virtual welding, and automation solutions. Each ARC also includes classrooms for training on available processes, machines, ad products to develop and conquer any shipbuilding needs, along side dedicated application experts who assist customers with welding problems, procedures, and more.





CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company® is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for information or advice about their use of our products. Our employees respond to enquiries to the best of their ability based on information provided to them by the customers and the knowledge they may have concerning the application. Our employees, however, are not in a position to verify the information provided or to evaluate the engineering requirements for the particular weldment. Accordingly, Lincoln Electric does not warrant or guarantee or assume any liability with respect to such information or advice. Moreover, the provision of such information or advice does not create, expand, or alter any warranty on our products. Any express or implied warranty that might arise from the information or advice, including any implied warranty of merchantability or any customers' particular purpose is specifically disclaimed.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change - This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.eu for any updated information.



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