

# Product Brochure

## Welding Automation - Engineering

## 产品手册 焊接自动化 - 工程项目



**伊萨焊接切割器材(上海)有限公司**  
ESAB Welding & Cutting Products (Shanghai) Co., Ltd.

中国上海北京东路689号东银大厦10楼A-J座, 200001  
Room A-J, 10th Floor, No. 689 Beijing Road, East Eastern Tower, Shanghai, P.R.China, 200001  
电话 +86 21 2326 3000 传真 +86 21 6566 6622 产品咨询热线: 8008208115  
网址 [www.esab.com.cn](http://www.esab.com.cn) 电子邮箱 [Welding@esab.cn](mailto:Welding@esab.cn)

# Contents 目录

HNG 窄间隙焊 .....	1
SAW/ESW Cladding 埋弧 / 电渣带极堆焊 .....	3
Pipe Mill 管道焊接 .....	5
Wind Power 风塔焊接 .....	7
HLAW 激光复合焊 .....	9
FSW 搅拌摩擦焊 .....	11
CaB Systems 焊接操作架系统 .....	13
Stand CaB 标准焊接操作架 .....	13
Telebo™ 伸缩臂式焊接操作架 .....	15
Gantries 焊接龙门架 .....	17
Handling Equipments 焊接工装设备 .....	19
Roller Bed 焊接滚轮架 .....	19
Positioner 焊接变位机 .....	21
Resistance Welding 电阻焊 .....	23
Others 其它 .....	25
Retrofit 翻新改造 /Circotech 储罐小车 .....	25
FFRS 焊剂输送与回收 /Camera 摄像 /Weldlog 焊接参数监控 .....	27

# HNG

## Single or Tandem.

The HNG Multi welding head has been designed for both Single (AC or DC) and Tandem (DC/AC or AC/AC) wire welding in parallel or almost parallel joints.

The HNG Multi meets the demands for a fully automatic welding process with accurate controlling of all parameters for reduced welding times and perfect weld metal when welding high-tensile material. HNG Multi is suitable for continuous operation under heavy conditions -with preheated welding objects still maintaining the same high precision and wear characteristics.

### Technical description

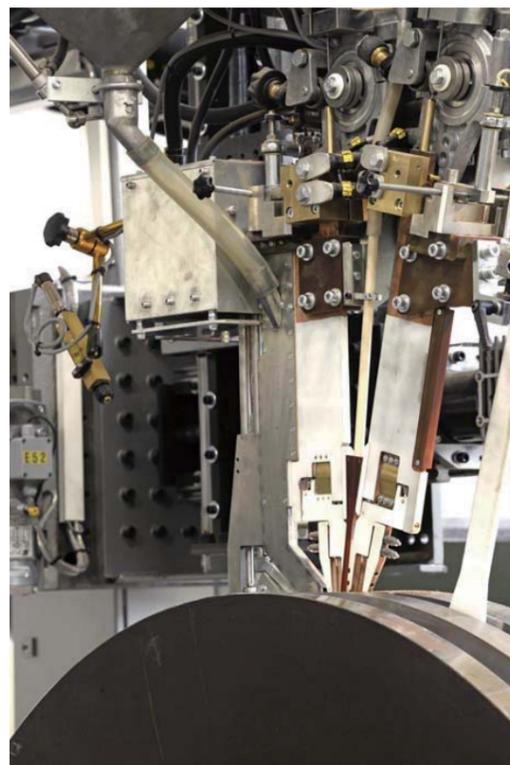
Weld joint type:	Butt;
Wire dimension:	Ø 3 - Ø 4 mm;
Wire feed motor:	A6 VEC;
Wire feed speed:	max.4m/min;
Max welding current:	DC/AC Max 800 Amp;
Beads in each layer:	2-4;
Deposition rate, kg/h:	approx. 7/16 (Single/Tandem);
Tilting angle of weld nozzle:	±3.5°;
Joint depth, max mm:	350 mm;
Joint width, mm:	18-50mm;
Accuracy of joint tracking, mm:	±0.15mm;
Weight, kg:	140/165 kg (Single/Tandem).

### Joint tracking

- Follows the side that is being welded.
- Separate systems for the horizontal and the vertical joint tracking.
- Pre-programmed number of beads at different joint width.
- Automatic positioning to the middle of the joint (for root bead/partial bead).
- The joint tracking is integrated in the control system.
- Actual value and reference value of the sensor position are shown, as well as the position of the welding head.
- An alarm is activated if the actual values are not correct (are not the same as the reference values).

### Typical applications

Nuclear reactors  
Turbine shafts  
Pressure vessels  
Rotor shafts



- Continuous double-sided joint tracking gives a high reliability at shift overlap
- Continuous measuring of joint width.
- Short-circuit protected, welding head-work piece
- Automatic positioning
- Possible to weld up to 50 mm joint width
- Air-cooled torch
- Reliable and uniform high weld quality
- High productivity
- Minimum of supplementary work

# HNG窄间隙焊

## 单丝/双丝

伊萨窄间隙焊有单丝(交流或直流)和双丝(直流/交流或者交流/交流)两种焊接方式可供选择。

伊萨全自动窄间隙焊接系统在全球超过 100 个的用户表明: HNG 窄间隙焊接系统可以提供无缺陷的焊缝金属,并可满足自动化焊接的需求,实现对焊接参数和相关动作的精确控制。

### 技术参数

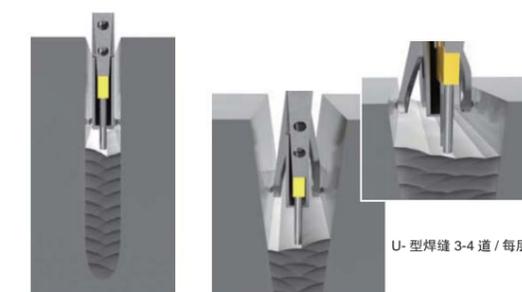
焊缝类型:	对接;
焊丝直径:	Ø 3 - Ø 4 mm;
送丝电机:	A6 VEC;
送丝速度:	最大 4m/min;
焊接电流:	DC/AC Max 800 Amp;
每层焊道数:	2-4;
熔敷率:	7/16 Kg/h(单/双丝);
导电嘴偏转角:	±3.5°;
坡口深度:	最大 350 mm;
坡口宽度:	18-50mm;
坡口跟踪精度:	±0.15mm;
机头重量:	140/165 kg(单/双丝)。

### 焊缝跟踪

- 焊缝实时跟踪,水平(双侧)、纵向跟踪各自独立;
- 自动焊缝中心定位(打底焊/定位焊);
- 由焊缝宽度可预设焊道数;
- 焊接参数/信息实时显示;
- 控制系统集成焊缝跟踪;
- 焊接超差报警。

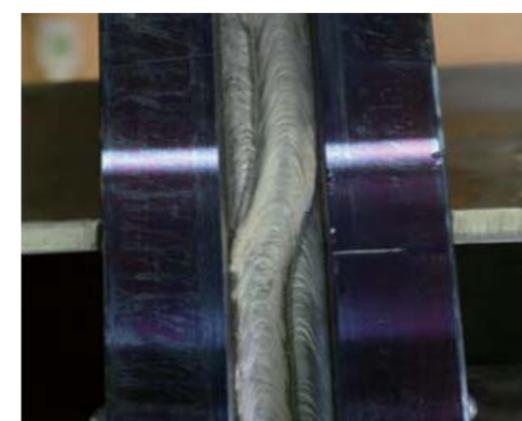
### 典型应用

- 核电站反应堆容器
- 压力容器
- 汽轮机转子系统
- 涡轮轴系统



传统的一层两道窄间隙

U-型焊缝 3-4 道 / 每层



- 连续的双侧跟踪确保了搭接换道的可靠性
- 可靠而一致的高质量焊接效果和高效率
- 焊缝宽度不间断测量反馈
- 焊头 - 工件间的短路保护
- 可焊达 50mm 宽度的焊缝
- 最小的辅助工作量,实现高效生产
- 自动定位



# Strip Cladding

## SAW or ESW

Highly alloyed materials, such as stainless steel or nickel-base alloys, are needed in many applications to provide protection against corrosion. However, the comparatively high cost of these materials in many cases makes deposition of a protective layer on a less expensive load bearing mild or low alloy steel economically the most realistic alternative.

Furthermore, weld surfacing with ESW/SAW Strip Cladding head gives the designer and the fabricator a great degree of freedom providing the possibility to choose a wide variety of parent materials and consumables. Cladding by weld surfacing also allows for flexibility in production of objects having various shapes and sizes. Stainless steel cladding is widely used in production of components where corrosion resistance is required together with strength above that of standard stainless grades.

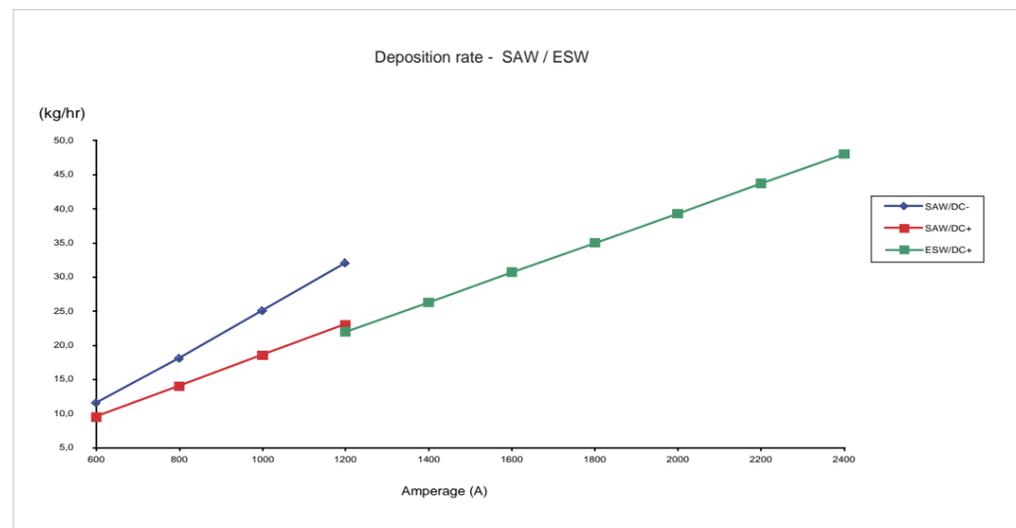


### Technical description

Weld Process:	SAW/ESW;
Max welding current:	2500 A max;
Strip width:	30-120 mm;
Strip feed motor:	A6 VEC;
Strip feed speed:	max.3.9m/min;
Deposition rate, kg/h:	max. 50(ESW);
Weight, kg:	15/18 kg (SAW/ESW).

### Typical applications

- Nuclear & Energy Industry
- Pulp & Paper Industry
- Off-shore Industry
- Pressure vessels
- Steel Industry



# SAW/ESW

## 埋弧/电渣带极堆焊

伊萨在带极堆焊系统方面具有丰富的经验,可提供包括设备、材料和工艺上全面的解决方案。在带极堆焊设备上有埋弧和电渣两种焊接工艺方法供选择。

带极埋弧和电渣堆焊两种焊接工艺都具有高熔敷,低稀释的特点。一般而言带极埋弧堆焊的应用更加普遍;但如果追求更高的生产效率并对稀释率有更加严格的要求则推荐采用带极电渣堆焊。

### 技术参数

焊接类型:	带极埋弧 / 电渣堆焊;
最大电流:	2500 A max;
焊带宽度:	30-120mm;
送带电机:	A6 VEC;
送带速度:	最大 3.9m/min;
熔敷率:	最大 50 kg/h (ESW);
重量:	15/18 kg (SAW/ESW).

### 典型应用

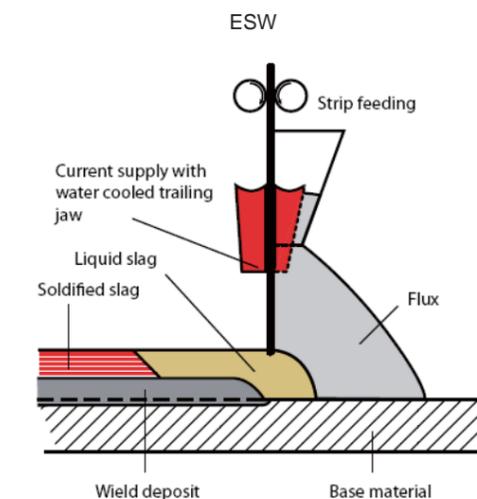
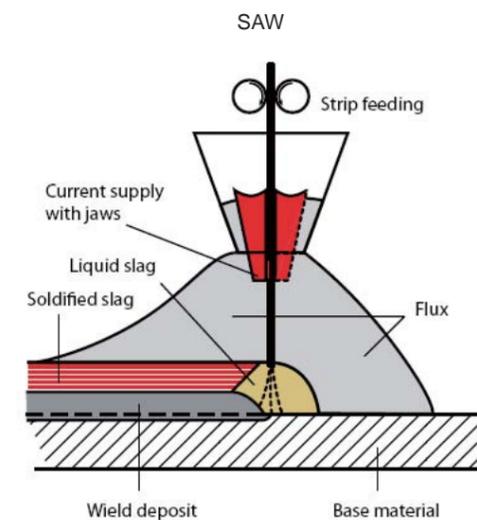
- 核电及能源业
- 制浆造纸业
- 海洋工程
- 压力容器
- 钢材制造



ESAB SAW 机头



ESAB ESW 机头



# Pipemill

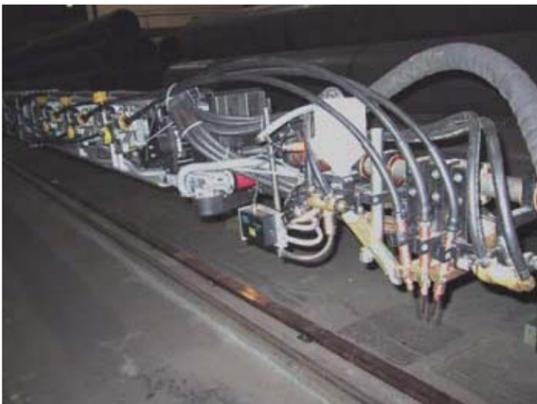
For more than 60 years, ESAB have been the preferred partner for industries all over the world when it comes to equipment for advanced submerged arc welding in thick materials. Comprehensive solutions for welding ships, pressure vessels, trailer beams, earthmoving equipment, cranes... the list is long.

ESAB have also been a reliable supplier for pipe mills for many years. We have delivered robust DC and AC power sources, extended welding heads using additional wires, replaced wire-feed systems with our strong feed system and incorporated process controllers and documentation systems with connections to local networks and quality assurance systems.

Our concept for longitudinal submerged arc welding is suitable for pipes in a normal diameter range of 20" – 64", a normal wall thickness of 6 to 40 mm and a length of up to 18m.

Welding heads are available for 2- and 3-wire inside/outside welding for use in spiral mills and for 4 and 5 wire inside /outside welding for use in longitudinal mills.

## Internal Pipe Welding



- Up to 4 wire welding
- Push & Pull wire feeding system;

## Welding heads for spiral and longitudinal welding.



- Up to 6 wire welding
- Laser joint tracking

## External Pipe Welding



- Up to 5 wire welding
- Laser joint tracking

# 管道焊接

60 余年来，在厚板材料的先进埋弧焊设备领域，伊萨一直都是全球行业内的首选合作伙伴，为船舶、压力容器、拖车钢结构、推土机械、起重机等等各行各业提供了全面的解决方案。

伊萨多年来已成为管道制备工厂的可靠供应商。我们提供了强大的 DC 和 AC 焊接电源。用我们可靠的送丝系统与一体式过程控制器替代了传统的送丝系统，与本地化网络和质量保证体系建立了联系。

直缝埋弧焊接钢管公称直径范围为 20" – 64"，公称壁厚 6-40mm，长度到 18 米。

螺旋管内外焊使用 2-3 丝，直缝管内外焊使用 4-5 丝。

## 内焊



- 多至 4 丝
- 推拉丝送丝系统

## 螺旋和直缝焊头



- 多至 6 丝焊接
- 激光跟踪

## 外焊



- 多至 5 丝
- 焊缝激光跟踪



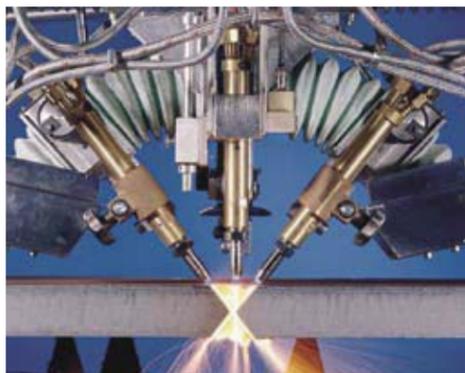
# Wind Power

The secret behind the efficient production of wind towers is a smooth component flow in the workshop. The benefit of a high deposition welding process is completely lost if the set up or handling of components in any area of the process fails or takes an unacceptable time. ESAB can assist with the welding and cutting process in wind tower production, and deliver finely tuned solutions for each step in your welding production.

With a complete package from ESAB there is only one supplier and one time plan. This results in a large project being organised efficiently, with a fixed cost and agreed time schedule. Smooth production flow is a part of the complete delivery.

High productivity welding with a deposition rate of up to 40 kg/hour with a tandem twin submerged-arc welding head is possible.

A dedicated wire and flux combination can eliminate major obstacles such as reduced impact strength in the weld, and poor slag release in narrow joints. OK 12.22 wire and OK 10.72 flux from ESAB gives good impact strength at minus 50 degrees, to satisfy offshore wind tower applications.



# 风塔焊接



高效风塔生产背后的秘密是生产车间内顺畅的组装流程。若任何区域内的流程发生问题，装配或零部件转运时间过长，则无法实现高熔敷率的焊接工艺优势。伊萨能在风塔生产过程中提供焊接与切割工艺的支持，为您焊接生产的每个环节提供精心规划的解决方案。

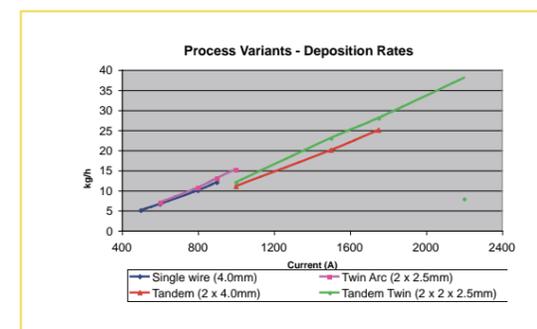
伊萨提供的完整方案组合造就了同一供应商的一次性解决方案，实现大型项目的高效组织管理、成本控制稳定，时间进度把握良好。顺畅的生产流程是全面产品交付的关键部分。

通过 Tandem-twin 双弧四丝埋弧焊机头，可以实现熔敷率高达 40kg/h 的高效焊接。

专用的焊丝与焊剂组合能消除各种重大的问题，如降低焊缝中的冲击强度，狭窄接头部位内的不易脱渣等。伊萨的 OK 12.22 与 OK 10.72 焊丝 / 焊剂组合能提供 -50°C 条件下良好的冲击强度，满足海洋工程行业风塔制造应用的要求。



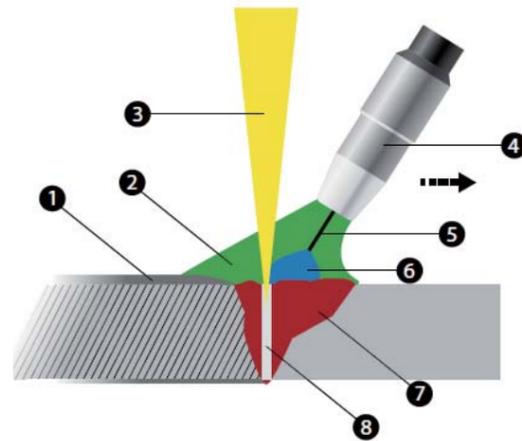
熔敷率对比



# HLAW

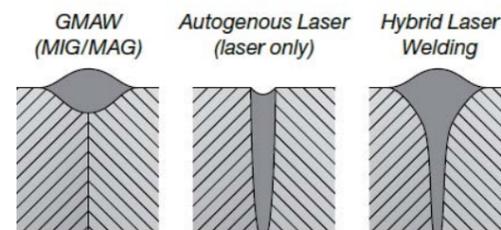
Quite simply, the best of two worlds. Combining the key benefits of laser and Gas Metal Arc Welding (GMAW), Hybrid Laser Welding delivers multiple gains, such as radically higher welding speeds and a dramatic reduction in consumable consumption. Sound good? Add enhanced mechanical properties, reduced joint volumes and heat input and greatly reduced part distortion. Sound even better? The introduction of ESAB's fifth generation Hybrio™ technology launches a new era in advanced welding.

Hybrid Laser Welding combines a high-energy laser beam with conventional arc welding (commonly GMAW) to create an optimal weld pool. The system can be configured in two ways, for different applications: with the GMAW torch leading (butt welds) or the laser leading (fillet welds).



### Hybrid Laser Welding Process

- 1 Newly formed weld bead
- 2 Inert shielding gas
- 3 Focused laser beam
- 4 GMAW torch
- 5 Wire electrode
- 6 Electric arc
- 7 Molten pool
- 8 Keyhole

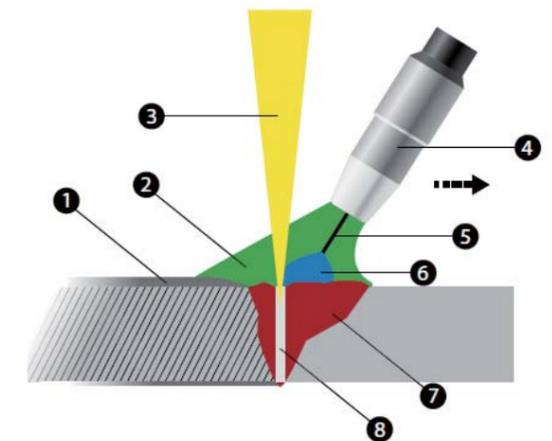


# 激光复合焊



激光复合焊结合了激光焊和气保焊中主要的优点，如极高的焊接速度，焊接耗材的大幅减少，加上增强的机械性能，接头填充量的减少，热输入和局部变形的大幅减少。ESAB 第五代激光复合焊在高级焊接领域开创新纪元。

激光复合焊结合高能光束和传统电弧焊接（通常是气保焊），以获取最佳的熔池。系统被设置为两种方式和不同应用：气保焊(对焊)或激光焊(角焊)。



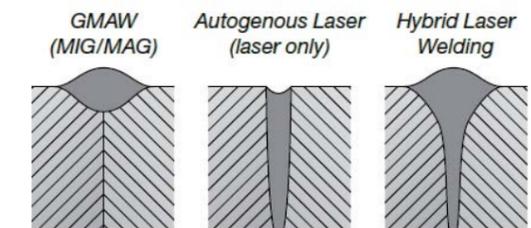
### Hybrio™ 价值所在:

- 生产操作成本减低 50—80%
- 生产效率提高 300—1000%
- 热输入和变形减低 80—90%
- 焊接修补率降低
- 通过自动化焊接减少人工数量
- 易操作的微机控制器, 减少对操作者的技能要求
- 通过减少零部件的变形量, 降低下游装配、焊接和表面处理的成本
- 提高工厂的总产出与收益
- 实现全新、重量更轻、更坚固的产品设计与生产方式
- 来自 ESAB 团队工艺中心的专家和服务专业人士提供全力支持



### 激光复合焊工艺

1. 新型焊接头
2. 惰性保护气体
3. 跟踪激光光束
4. 气保护焊枪
5. 电极丝
6. 电弧
7. 熔池
8. 小孔

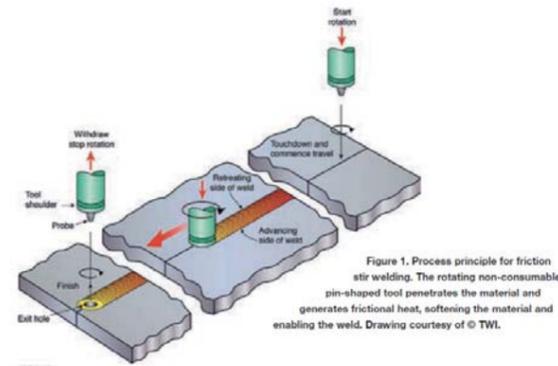


# FSW

Friction Stir Welding (FSW) is a truly 'revolutionary' process, developed and patented by TWI in the UK in 1991.

As a joint sponsor of its ongoing development and commercialization, ESAB has been instrumental in promoting the multiple industrial applications of this innovative technology.

ESAB's ongoing development programme is producing an ever-expanding range of applications. Friction Stir Welding is ideal for joining straight profiles and flat plates. With larger and more powerful welding heads and improved rotating tools, our latest FSW machines can weld flat plate in thicknesses from 1.2 to 130 mm, with full penetration.



Rosio Friction Stir Welding Robot

# 搅拌摩擦焊

搅拌摩擦焊(FSW)是一种真正的'革命性'工艺,由英国 TWI 于 1991 年开发并注册专利。

搅拌摩擦焊 (Friction Stir Welding) 是一种纯机械化连续的固相连接方法,在搅拌摩擦焊过程中,一个柱形带特殊轴肩和针凸的搅拌头旋转着插入被焊工件,搅拌头和被焊材料之间的摩擦产生了摩擦热,使材料热塑化,当搅拌工具沿着待焊界面向前移动时,热塑化的材料由搅拌头的前部向尾部转移,并且在搅拌工具的机械锻造作用下,实现工件间的固相连接。

作为项目开发与商业化的合作伙伴,伊萨在推广这项创新型多行业应用技术的过程中,起到了建设性的作用。

伊萨目前的开发项目产生了前所未有的应用范围。搅拌摩擦焊是连接笔直型材和平板材的理想之选。配备大尺寸和更为强大焊接机头及性能更强的旋转工具后,全新 FSW 设备能焊接 1.2 ~ 130mm 厚度的平板材,熔深良好。



## What can be welded by FSW

### In production today:

Aluminium and Aluminium alloys, Copper.

### Suitable for production today:

Magnesium, Zinc, Lead.

### In laboratory today, for future production:

Stainless, Carbon steel, Titanium etc...

## 可焊材料

现在产品中可以焊接的材料:

- 铝及铝合金;
- (板材,铸件、挤压成的型材都可以应用 FSW 焊接)。

现可适合焊接的产品材料:

- 镁,铜,锌,铅; 异种材料也可以焊接。

现实验室中可焊材料,即未来可焊材料:

- 不锈钢,碳钢,钛合金等等。

## 与其它工艺相比优异的焊接质量

- 无填充金属;
- 节约能源;
- 无需保护气体;
- 非消耗类工具;
- 无需过多的质量控制;
- 无需过多的表面处理工作;
- 无需熟练焊工或技师认证

## 典型应用

- 航空工业;
- 船舶工业;
- 汽车工业;
- 钢铁及其它高温材料(HTM);
- 地铁、城轨及高铁



# CaB

ESAB column & boom manipulators are designed to the most exacting standards – for the most demanding heavy industrial applications. These high volumes, high quality units can be optimized for SAW, MIG and mechanized TIG welding for a broad range of steels and alloys. The following may help you decide about your next column and boom unit.

Thanks to smart modular design, just three basic models – Standard, Modular or Custom format – can be configured for almost any automated welding requirement. A comprehensive range of “add-on” equipment, combined with multiple profiles, ensures optimum flexibility on the most demanding product lines.

## Columns

Centric, eccentric, manual rotation, motorized rotation, auxiliary modules.

## Booms

Horizontally fixed, Horizontally and vertically fixed, auxiliary modules, Swivel brackets, operator seat, ladder with basket.

## Welding and handling

Welding heads, Process controller, Quality supervision, rectifiers, transformers, flux feeding & recovery systems, Positioners, roller beds, Joint-tracking systems, air-handling equipment, monitoring systems and cameras, Wire-handling equipment.



# 焊接操作架

伊萨的焊接操作架设计能满足最为精准的标准 – 适用于要求最为严格的重型工业应用。这些巨大的操作立柱、高质量的设备可以整合用于各类钢材与合金的 SAW、MIG 和自动化 TIG 焊。以下内容将帮您设计出您所需要的立柱和横梁装置。

凭借先进的模块化设计，系统提供标准型、模块型或定制型三种标准型号，配置后能满足几乎所有自动化的焊接要求。全面的“附加设备”，配合多种外形，确保在要求最严格的生产线上实现最佳的灵活性。

## 立柱

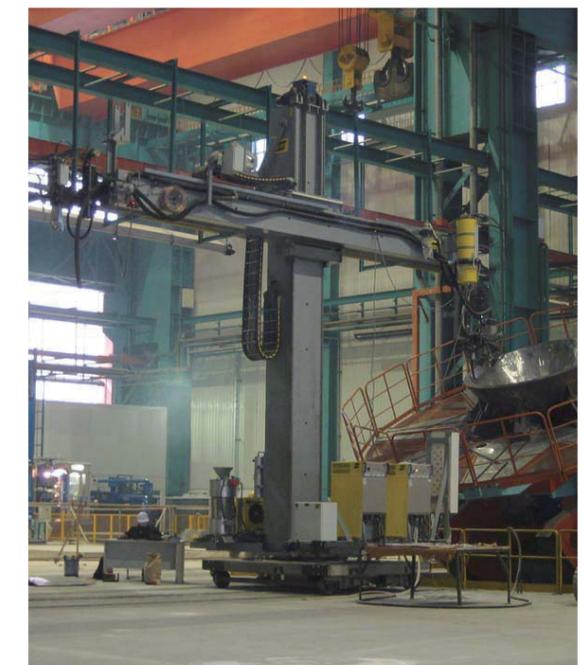
含同心、偏心、手动旋转、电动旋转和辅助模块等

## 横梁

水平安装、水平与垂直安装、辅助模块、旋转支架、操作员座椅、带吊篮的爬梯

## 焊接与相关处理单元

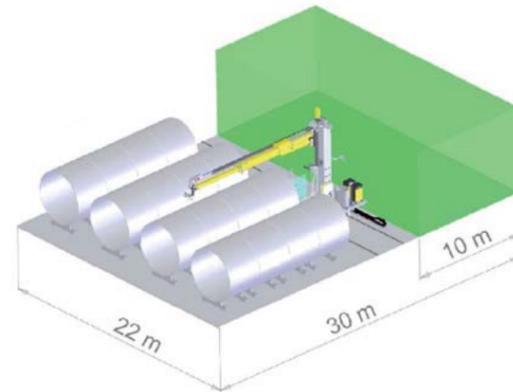
焊接机头、过程控制器、质量监控装置、焊接电源、焊剂供给与回收系统、变位机、滚轮架、接头跟踪系统、空气处理系统、监控与摄像系统、焊丝搬运系统



# Telbo™

## ESAB Telbo™ -Description

- Telbo™ -A giant innovative step towards highly productive automatic welding. Saving valuable workshop space by means of the unique 3-section telescope-like retraction of the boom and securing the safety of operator.
- Outstanding 12 m reach-out with boom end loading capacity of heavy 500 kg with capacity to ensure superior productivity and quality of weld.
- Telbo™ -Ideal for internal/external circumferential welding of wind tower applications.
- Flexible production is the lodestar, no matter if mixed sizes and plate thicknesses are to be welded – productive results are obvious.
- Loaded with 1000 kg Flux BigBag and 1000 kg Wire EcoCoils, welding is continuously performed and costly dwell times are minimized.



## Features

- PLC Control System for Synchronized Boom Motion;
- Automatic "Wind Back" of Wire during Boom Retraction;
- Telescopic Wire Guides;
- Remote Controlled Flux Nozzle (option);
- Remote Controlled Height Adjustment of Joint Tracking Sensor (option).

## Key Benefits

- Saving in Factory-Floor Foot-Print;
- Increased Workshop Safety;
- Enables Flexible Production;
- Ready for "Big Pack" Handling Concepts (Flux & Wire).

## Market Segments

- Power-generation, especially wind tower mfg lines;
- Pipe-line, pipe-mill contractors;
- General fabrication (small workshops with limited space).

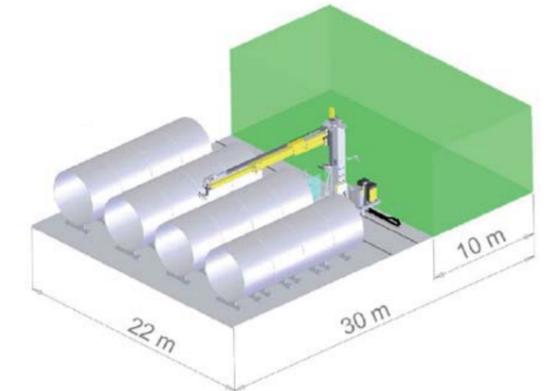


# Telbo™ 伸缩臂式操作架



## 伊萨Telbo™伸缩臂式操作架 – 描述

- Telbo™ - 高效自动化焊接生产发展过程中的伟大创新。通过独特的三段式可伸缩回收型横臂节省宝贵的现场空间, 确保操作人员的安全。
- 出众的 12m 伸出距离, 横臂末端载重可达 500kg, 确保生产力和高品质的焊接质量。
- Telbo™伸缩臂式操作架 – 风塔应用时内外环缝焊接的理想之选。
- 不论组合后的尺寸和所需焊接的板厚, 生产灵活性是最重要的 – 高效生产是明显的优势。
- 装载 1000kg BigBag 包装焊剂和 1000kg EcoCoils 焊丝后, 能实现连续焊接, 大大降低因停工造成的高昂成本。



## 特点

- 横梁同步运行的 PLC 控制系统
- 横梁回收时焊丝自动“回绕”
- 伸缩式焊丝引导装置
- 遥控控制的焊剂喷嘴(可选)
- 遥控控制的接头跟踪传感器调节装置(可选)

## 主要优势

- 节省现场空间
- 增加车间的安全性
- 实现生产灵活性
- “大包装”焊材搬运理念(焊剂 / 丝)

## 行业领域

- 能源电力, 尤其是风塔生产线
- 管线、管道生产承包商
- 通用制造(空间狭小的小型生产车间)



# Gantry

ESAB has a variety of gantry designs, most often customized for customer applications.

## Gantrac

This gantry is rigid, and has dual drive system to ensure a uniform and stable welding speed. Operator controls welding process from platform mounted on one bogie carriage. Well proven A6 subarc heads are mounted on rack and pinion slides with long working range for easy access to various size work pieces. Automatic joint tracking ensures consistent welding quality. Heads can be rotated 90 degrees for welding in horizontal direction, as well as 180 degrees for welding in the return direction. Flux feed and recovery system for continuous welding, while reducing flux consumption and keeping the installation clean.

## Gantry station

A rail travelling Welding Gantry equipped with a narrow gap welding system. The horizontal beam of the gantry is fixed to the gantry-legs and their carriages. The welding head with its heavy duty slide cross will be bolted on to a vertical beam which runs on linear slides on the top horizontal gantry beam. The linear slides holding the top horizontal and vertical boom will together work as a course setting slide cross fixing the welding head into position prior to welding or moving the welding head to a parking position. The heavy duty slide S4/S5 New type slide cross will mainly be used for fine positioning and joint tracking.



# 龙门架

伊萨拥有大量的龙门架设计，大多能用于定制型的客户应用。

## 门架式小车

门架结构牢固，拥有双驱动系统，确保均匀、稳定的焊接速度。操作员能通过安装在承载小车上的平台控制焊接过程。性能良好的 A6 埋弧焊机头安装在机架上，超长工作范围的齿轮托板能轻松到达不同尺寸工件的各个位置。自动接头跟踪系统确保始终如一的焊接质量。机头能旋转 90 度，实现水平方向的焊接；旋转 180 度后能完成返回路线的焊接作业。焊剂供给与回收系统实现连续焊接的同时，减少焊剂消耗，并确保专机设备的清洁。

## 门架式工作站

沿轨道运行的焊接龙门架能搭配窄间隙焊接系统。龙门架的水平横梁与门架支腿和小车固定。焊接机头及其重载型的十字托板可以通过螺栓与沿顶部水平龙门架横梁上线性托板运行的垂直横梁连接。支撑顶部水平与垂直横梁的线性托板能相互配合组成运行设定十字托板，在焊接开始前或将焊接机头移动至停放位置前固定机头。重载型的 S4/S5 新型十字托板主要用于精确定位和接头跟踪。



# Roller Beds

Roller beds provide assistance in the handling of containers, tubes, pipes and other revolving objects during welding, painting or assembly. By means of a roller beds, the work piece can always be placed in the most advantageous working position. The use of roller beds also reduces set-up times to the minimum.

ESAB offers a large range of roller beds of different models and load possibilities. The range partly consists of conventional roller beds, where the operator manually and mechanically sets the distance between the rollers to different diameters, and partly self-adjusting roller beds, where the rollers automatically adjust themselves to the diameter of the workpiece.

All roller beds are designed to be easily combined with ESAB A2/A6 program and can be controlled via a remote control unit or from the programming unit PEK.

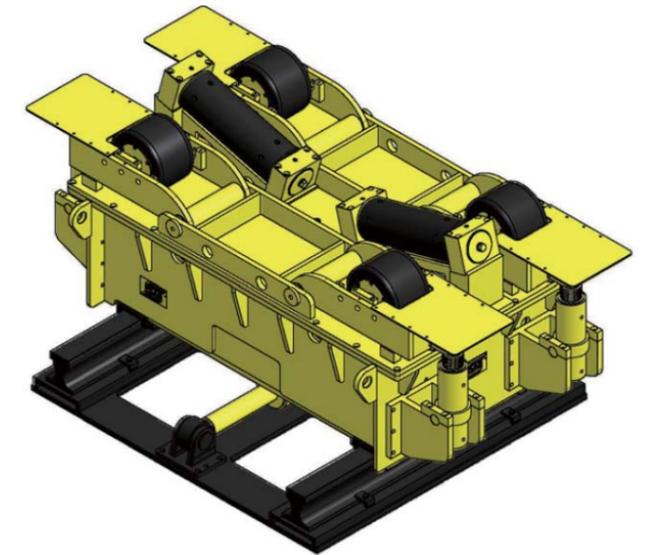


# 滚轮架

滚轮架能在焊接过程中帮助实现容器、管子、管道和其它物体的支撑和旋转。通过滚轮架系统，能将工件始终放置在最有利于焊接的位置。采用滚轮架后，还能将安装时间缩短到最低。

伊萨能提供不同型号和装载能力的各种滚轮架。产品系列一部分包括传统型的滚轮架，让操作人员手动或自动设定不同直径滚轮之间的距离；另一部分包括自动调节的滚轮架，能实现设备自动调节适应工件的直径。

滚轮架设计能与伊萨 A2/A6 程序实现轻松整合，并可以通过遥控装置，或编程装置 PEK 进行控制。



# Positioners

Welding times can be drastically reduced by placing the workpiece on a positioner when welding. Up to 25 – 30 % higher welding speed can be achieved if the joint is welded lying down instead of vertically. The optimum welding position can always be obtained with ESAB's positioners.

Welding in the optimum position improves the welding quality as welding work becomes considerably easier for the welder to carry out in a safer way. The arc time factor also increases when welding in the positioner, especially when working on large, heavy workpieces. The changes in position of the workpiece is reduced to a minimum in comparison to using a spindle guide or other lifting tool, which often means unproductive waiting times.

ESAB has a wide program range of positioners for welding and these can also be used for installation work. During automated welding, a positioner is often a part of the total application and the all models are fully designed to be combined with ESAB's automation program, which means that they can be controlled remotely or connected by the application's process controller PEK.



# 变位机

焊接过程中,将工件放置在变位机上后,可以大大缩短焊接时间。若焊缝接头采用向下焊接而不是垂直焊接的方式,可以提升 25 - 30% 的焊接速度。通过伊萨的变位机可以达到最佳的焊接位置。

由于可以采用更安全的工作方式,焊接作业更加轻松,焊接能在最理想的位置实施,提升焊接质量。采用变位机进行焊接时(尤其是超大的重型工件),燃弧时间因数增加。相比采用等待时间较长的低效心轴引导装置或起升工具,工件位置的改变被降到最低。

伊萨拥有全面的焊接变位机产品系列,还可以用于安装作业。在自动化焊接过程中,变位机通常是整套应用中的一部分,所有的型号设计能实现与伊萨的自动化程序进行组合,然后进行遥控控制或与应用过程控制器 PEK 装置连接。



# Resistance welding

## ESAB Chain Making Equipment for cost-efficient production and superior quality

### ZAC 42M- Automatic production of mining chains

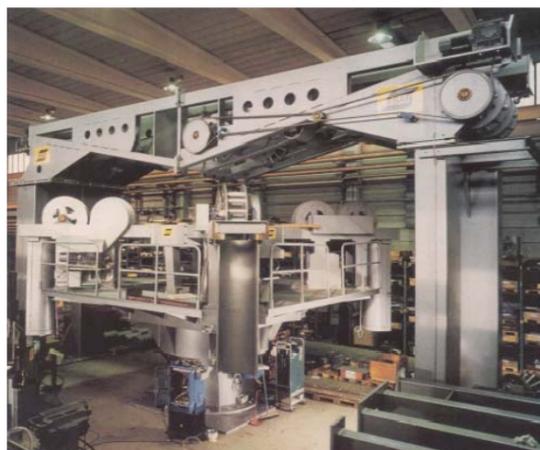
ZAC 42M is a high capacity fully automatic manufacturing system for mining chains. In the ZAC 42M system the bars are heated in the high capacity resistance heater, formed to links, welded and trimmed longitudinally, while hot. Low energy consumption because welding takes place immediately after the heating/bending operation. Advantages achieved by the process are among others superior weld quality and unsurpassed production rate. The system can weld chains for coal shearers and conveyor chains for stage loaders and feeders, and similar chains. ZAC 42M meets International Standards: DIN 22252, ISO R 610 D and BS 2969:1980, Grade C.

### Carousel – The anchor chain-making system

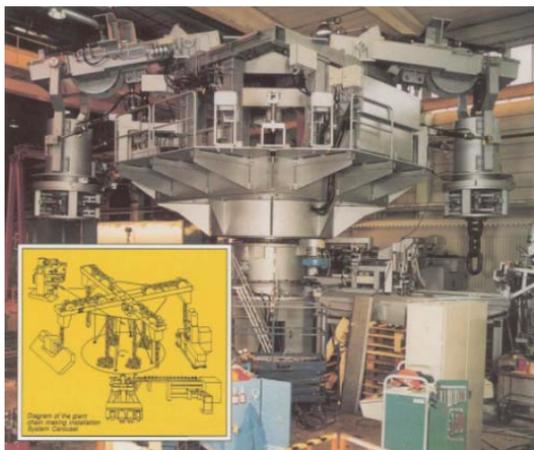
Carousel Has become the world's most popular chain making system thanks to its flexibility and large capacity. The Carousel system for semi-automatic production

Installation-Size	Nominal link material- $\phi$
5	18-47
6	25-63
7	30-81
8	60-107
9	80-127
10	90-173

### Semi-automatic and automatic production of offshore and oil rig chains.



Chains which can be produced:  
Offshore chain (oil rig and supply ship)  
Between  $\phi 30-122\text{mm}$  grade U3/K3 and U4/K4  
Ordinary anchor chain with normal material  $\phi 30-122\text{mm}$ .  
Similar chain types for general use.



# 电阻焊接

## 为经济高效生产和优异质量而生的 ESAB 链条制造设备。

### ZAC 42M – 矿链的自动化生产

ZAC 42M 是矿链高负载全自动制造系统, 在 ZAC 42M 系统内, 棒料经过高载荷电阻加热, 编织成链, 焊接, 去毛刺, 全部都在热态下完成。

在加热 / 折弯操作后立刻进行焊接减少了能量消耗, 工艺上的优点带来优异的焊接质量和无与伦比的生产效率。

此系统可焊接采煤机和装载机的传输链条, 及类似链条。

ZAC42M 符合国际标准: DIN 22252, ISO R 610 D 和 BS 2969:1980, Grade C。

### 转塔 – 锚链制造系统

### 转塔

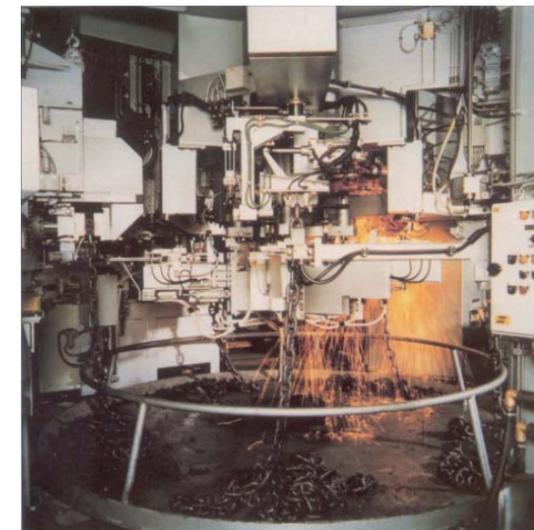
由于灵活及大容量的设计, 已成为世界上最流行的链条制造系统, 半自动生产的转塔系统。

设备型号	链条公称尺寸 $-\phi$
5	18-47
6	25-63
7	30-81
8	60-107
9	80-127
10	90-173

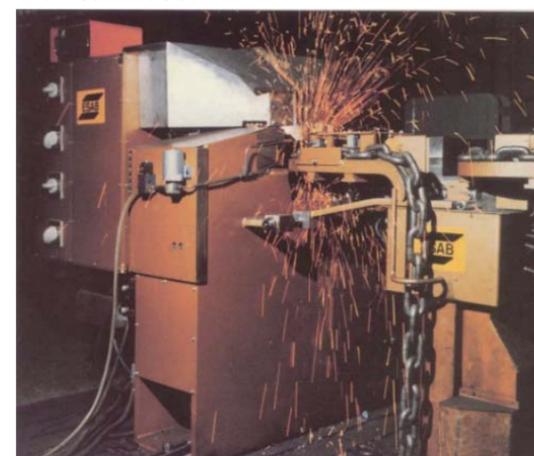
### 半自动及全自动生产海洋平台及油井链条



可生产链条:  
海洋平台链条(油井及补给船),  $\phi 30-122\text{mm}$ , 等级 U3/K3, U4/K4;  
常规锚链, 公称直径  $\phi 30-122\text{mm}$ .  
类似常规链条。



### 链条传输与链条圈



# Others

## Retrofit

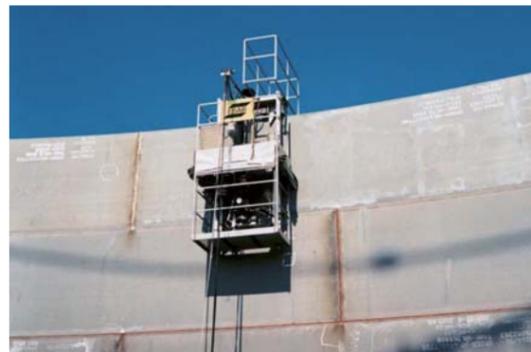
In our world, there is no best-before date. Even very old carriers of welding equipment can be revitalised, thereby securing production. ESAB Retrofit is a service using which will help you to modernize welding stations – of every brand – using the very latest technology. It is an ideal alternative to investment in new equipment. Not least when it comes to the added values that frequently accompany this kind of upgrade. In addition to increased availability, a conversion of this kind frequently also leads to a substantial rise in productivity and quality, not to mention improvements to the working environment.



Bladt Industries in the Danish town of Asilberg produces large steel structures. Wind power towers for use at sea are one important product. These towers are produced in thicknesses ranging from 20 to 60 mm with diameters of up to 6 m.

## Circotech

Circotech is a series of self-propelled 3 o'clock welding equipment primarily developed for on-site erection of large storage tanks, silos, blast furnaces and similar cylindrical objects. It is available as a single-side version and a double-side version. Usually it is designed to travel on the top edge of the tank shell. As there are different ways of building tanks, one machine in the series is designed to travel on a rail which is temporarily fixed to the shell or on a stand-alone ring outside the shell.



# 其它

## 翻新改造系统

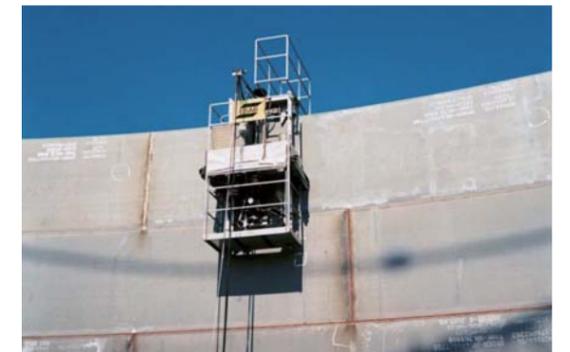
在伊萨的世界里, 永远没有最佳使用日期的说法。即便是陈旧的焊接设备也能够重新焕发出活力。伊萨的翻新系统是一种利用最新技术, 帮您将各种品牌焊接工作站实现现代化改进的服务。这是新设备投资的一种最佳替代方法, 更不用提伴随频繁更新为工作站带来的附加价值。除了增加可用性外, 这类转变还能大大提升生产力和质量, 并实现对工作环境的改进。



Bladt Industries in the Danish town of Asilberg produces large steel structures. Wind power towers for use at sea are one important product. These towers are produced in thicknesses ranging from 20 to 60 mm with diameters of up to 6 m.

## Circotech 储罐小车

Circotech 是一系列自动推进的三点型焊接设备, 主要用于大型储罐、料仓、熔炉和类似柱形物体的现场安装。提供单侧型和双侧型两种配置。通常设计能沿着容器的壳体边缘运行。由于容器建造的不同方法, 该系列中的一种设备能沿临时固定在壳体上的轨道或壳体外的独立式环形装置运行。



# Others

## FFRS - Flux Feed & Recovery System

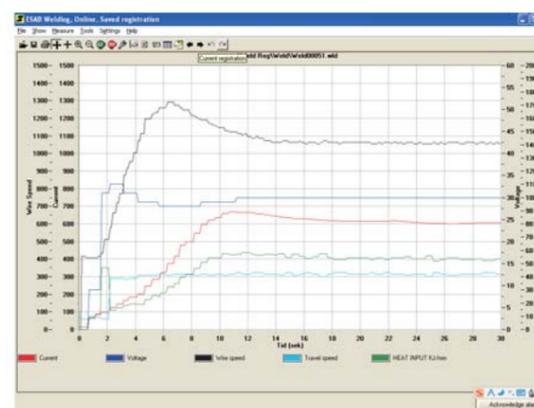
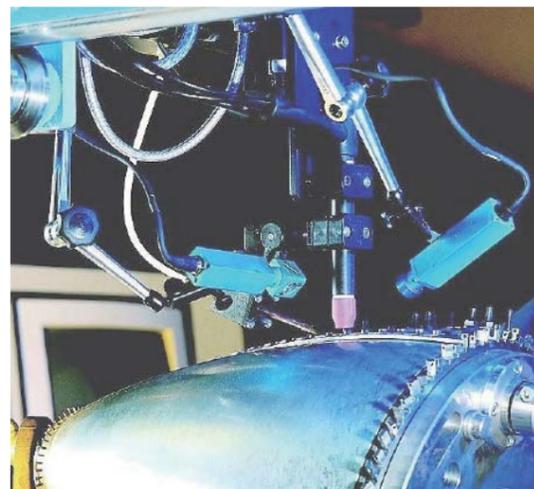
The FFRS system is designed for continuous, high-capacity welding operations. It is ideal for long runs and mass production. The system is built on two different modules: the OPC Basic and Super, which are based on the ejector principle. The Basic type is for normal welding operation. The Super is used with increased flux bed and heat conditions.

## Camera systems

These camera systems will substantially facilitate the operation of your welding stations. Together with a laser or pilot lamp you can control your welding process from wherever you find it convenient. The system basically consists of a purposeful designed camera with built-in crosshair generator to provide a continuous and distinct joint scanning.

## Weldlog

Computer program for welding supervision and documentation. To log measured weld data with a visual online presentation of the data. Measure and calculate heat input and metal deposition rate. Be able to analyze the measured data after completed weld. Create a summarized report of the welded joint including alarms. Online presentation of up to 24 channels measured data on up to 8 axis simultaneously, both graphically displayed and with numerical values.



# 其它

## FFRS - 焊剂输送与回收系统

FFRS 系统设计用于连续、高负荷的焊接作业,是超长焊缝与大规模生产的理想之选。系统配备两种基于喷射原理的不同模块,OPC Basic 和 Super。Basic 型适用于普通焊接操作,Super 型适用于较厚的焊剂堆层与较高的工作温度。

## 摄像系统

摄像系统能为焊接工作站的操作提供极大的便利,配合激光或指示装置,就可以方便的在任何位置控制整个焊接过程。系统主要包括一个带内置十字线发生器的多用途摄像机,提供连续、清晰的接头扫描。

## 焊接参数监控系统

用于焊接监控和记录的计算机程序,将测得的焊接参数采用直观的在线数据形式反应出来,能测定并计算出热输入与金属熔敷率。能在焊接完成后分析测得的相关数据。最终可创建一份包括报警信息在内的焊缝接头总结报告。可提供 8 通道(多达 24 通道)的在线数据测量,并提供图表和数值显示。

