



ESAB CaB Systems **One source** **– complete solutions**

GLOBAL SOLUTIONS FOR LOCAL CUSTOMERS – EVERYWHERE



Ski-lift pylons - a typical ESAB CaB (Column & Boom) application.



Welding girders this massive is a real challenge - another typical application for ESAB CaB units.

ESAB

■ **“Selecting the right product is easy – with the right partner”**

In the capital-intensive world of automated industrial welding, any long-term investment in equipment must feature extreme flexibility, if manufacturers are to remain competitive in today's fast-changing market. This demands vision and an informed understanding of where the industry is headed. Supplying equipment is one thing. Selecting the right equipment is quite another. This requires a partner – a partner that can help clarify and define key technical and commercial priorities.

ESAB has been resolving the challenges of the welding industry for more than a century, in transport, offshore engineering, shipbuilding, power generation, process engineering, aerospace and construction. Close partnership with customers has enabled a continual upgrade of products and services, to exploit the full potential of the latest materials and technologies. Not forgetting the benefits of long-term reliability, ongoing technical support and true life-cycle economy. Which is not something you can buy off the shelf.

Modular design for unlimited flexibility

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.

One-stop shop for non-stop productivity

Wholesale welding suppliers offer broad choice and competitive prices. But once the equipment is purchased, where to go for

Why invest in welding automation?

Increased deposition rates.

Consistent weld quality.

Increased operator comfort and safety.

technical support, maintenance, upgrades or modifications? Who not only supplies welding consumables for every application (covered electrodes, cored wires, solid wires, TIG rods, strips and fluxes), but can help optimise each process? Who'll help keep downtime down? We will – because our customers' business is our business.

Whether you choose a competitively priced 'standard' unit, a multifunctional 'modular' unit or a specialised 'custom' unit for your welding application, you are choosing something more. You are choosing a long-term partner, dedicated to enhancing the quality, capacity and efficiency of your welding operation.

Advanced technology for advanced performance

Heavy investment in advanced research & development, ensures that ESAB welding products stay ahead of the crowd – to keep you ahead of the game. Using the latest design,

production management and modular construction techniques, we offer customised products at production-line cost. Products renowned for robust, reliable and safe technology, for consistent performance and exceptional productivity.

Environmentally responsible

The environment and safety are two key areas of focus. ESAB is one of few international companies to have obtained the ISO 14001 and OHSAS 18001 standards in Environmental, Health & Safety Management Systems across all our global manufacturing facilities.



Our range

■ High quality, high capacity and high productivity

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

Standardized or customized?

Standardized

Manufactured in standard dimensions, in compliance with standard specifications. Key benefits are rapid delivery and minimal investment.

Modularized

Greater application flexibility, while still a highly cost-efficient alternative. More closely adapted to customer requirements, as far as standard modules will allow.

Customized

Top-of-the-range column and boom units. Designed to the customer's precise specifications and special dimension requirements.

Light or heavy load?

CaB 300

This refers to the height of the boom profile (300 mm). More than adequate for mounting single or twin wire heads for welding moderately sized objects.

CaB 460

Tandem welding heads, where the wire bobbin is mounted on the end of the boom, require a 460 mm boom profile. This dimension also permits mounting of an operator's seat close to the welding head, or a camera system.

CaB 600

The 600 mm boom profile is dimensioned for the most demanding applications, offering extreme reach and load capacity.

Small or large objects?

Small

Required working range up to approximately 3x3 metres. Due to the limited boom length, most systems in this range are based on the 300 mm boom profile (height).

Medium

Required working range up to approximately 6x6 metres. The 460 mm boom profile is most common in this range, although 300 mm and 600 mm columns and booms are also available, depending on the actual load.

Large

Required working range over 6x6 metres. Large installations for bulky objects, normally requiring a 460 or 600 mm boom profile. Larger objects demand special designs. These may involve standard or custom booms. Boom profiles up to 800 mm in height have been specified for very large objects and heavy loads.

Firmly based

CaB units can be specified with several different bases, from floor-mounted metal base plates and fixed concrete bases to mobile single or twin-tracked bases. Rail-borne concrete bases for the CaB 300 and CaB 460 feature a 1730 mm standard track width, and 2500 mm for CaB 600 units. Where space is limited, a CaB 300 can be operated on a compact track, rack-and-pinion drive carriage. The larger CaB 460 and CaB 600 can be operated from a single-rail carriage with a wall-supported column.

Carriage features include stepless tachoregulated weld-speed control and a fixed, rapid transport speed. All carriages are equipped with anti-tipping devices.

Safe and easy column operation

Available in centric (standard) or eccentric (optional) versions, columns can be specified with manual or motorised rotation. Internal counterweights balance boom and welding equipment. The robust design of profiles and saddle (featuring guide rollers) ensures optimum load-bearing capacity and generous safety margins. The chain-operated lift drive features a multiple safety factor and a security locking device, to prevent sudden descent of the boom in the event of a breakdown.



Built to withstand harsh conditions, wind turbine towers place extreme demands on weld quality. ESAB is often the preferred choice when investments in welding equipment are being decided.

Welding a power revolution

Swedish welding know-how has helped DS SM A/S become a 'towering' force in Denmark's fast expanding windpower industry. With its three ESAB semi-automatic tack-welding units, DS SM A/S produces as many as 20 tapering tower sections (10-15 shells each) a week. And they can weigh as much as 75t, are up to 40 metres long and in diameters varying from 1.5 to 6.0 metres!

Turnkey solution

ESAB planned, designed, delivered, installed and commissioned the original welding production line for DS SM A/S in 1999. It comprised a 50t-capacity head-and-tailstock (H&T) positioner, rounding jig, support roller bed, a circumferential welding tractor and CaB 460 stations for internal/external and longitudinal/circumferential welding. A second line was installed in 2000, a third in 2002 (with 80t-capacity H&T positioner) and two further lines are on order – including 120t H&T positioners.

Greater productivity – same high quality

Equipped with Tandem-Twin SAW heads for optimum deposition rate and extreme consistency, a CaB 460 can be configured to meet almost any internal/external, longitudinal or circumferential submerged-arc welding requirement. Welding may be just one link in a long process – but a crucial one!



Combining exceptional welding quality with high production capacity, our CaB units are operated throughout the wind tower manufacturing industry.



Standardized

■ **Standard format, exceptional economy**
CaB 300 / 460 S

Focusing on standardized dimensions and components, the ESAB 'S' series of CaB units offers economy and performance that is anything but standard. A major additional gain is extremely short lead times. No long and costly delays before production is up and running! And once in production, you can rely on local support from a global network – round the clock. This is the difference between a supplier – and a partner.



Station configuration
Conventional column-and-boom, with a movable boom, and welding head at boom end. Welding equipment can be positioned along four axes.

The first step in automated welding

The natural choice when taking the first step from manual to automated welding. Ideal for smaller volumes and/or less complex work pieces. Common 'S' series features include a single



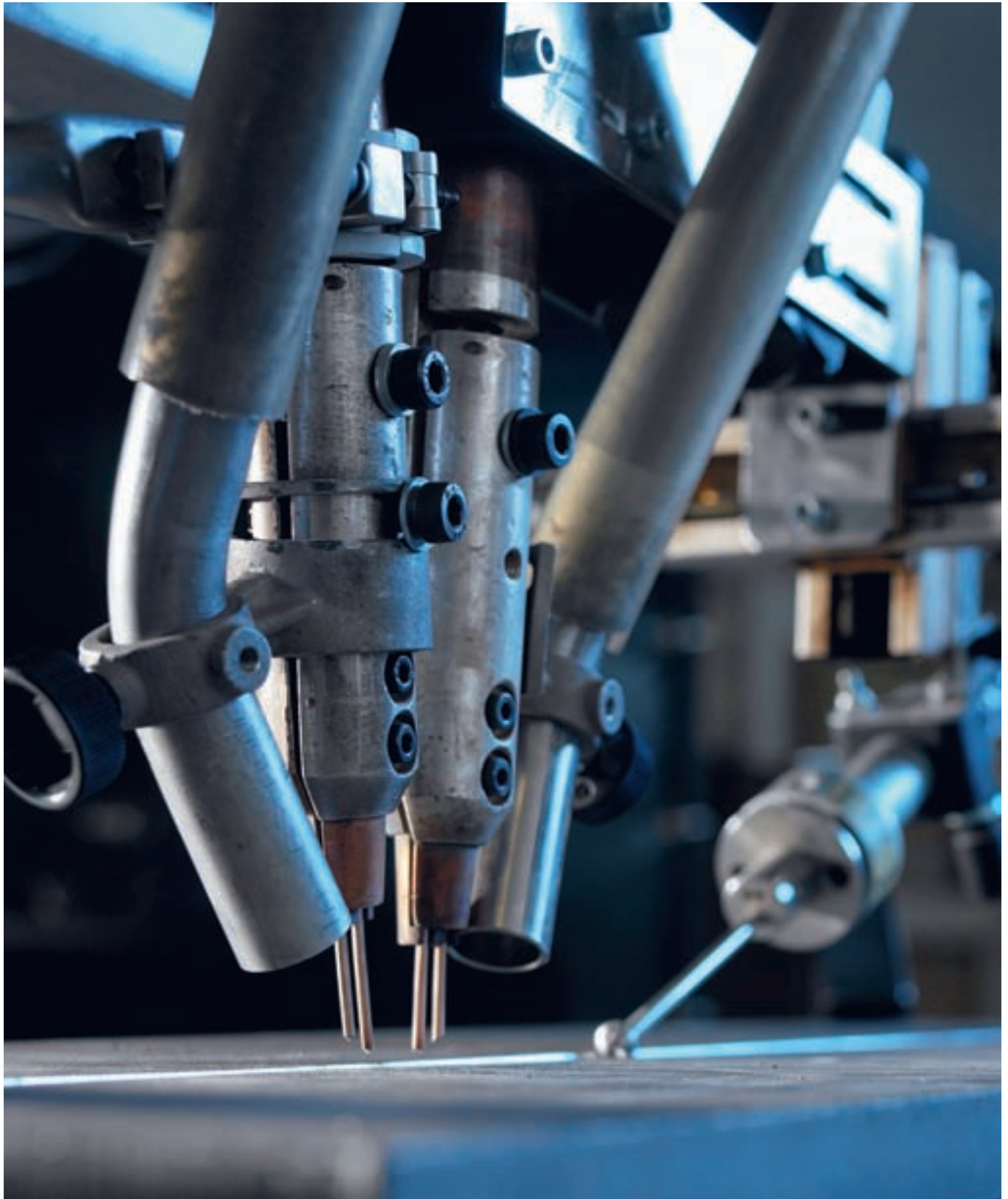
boom-end welding head, centric column and manual rotation (+/- 180°), with an action radius of 3-5 m or 5-7 m. Supporting end-boom loads of up to 240 kg (300 S) or 450 kg (460 S), the units can be operated with ESAB's A2 or A6 welding systems.

Key benefits

- Competitive price
- Short delivery time
- Very easy handling

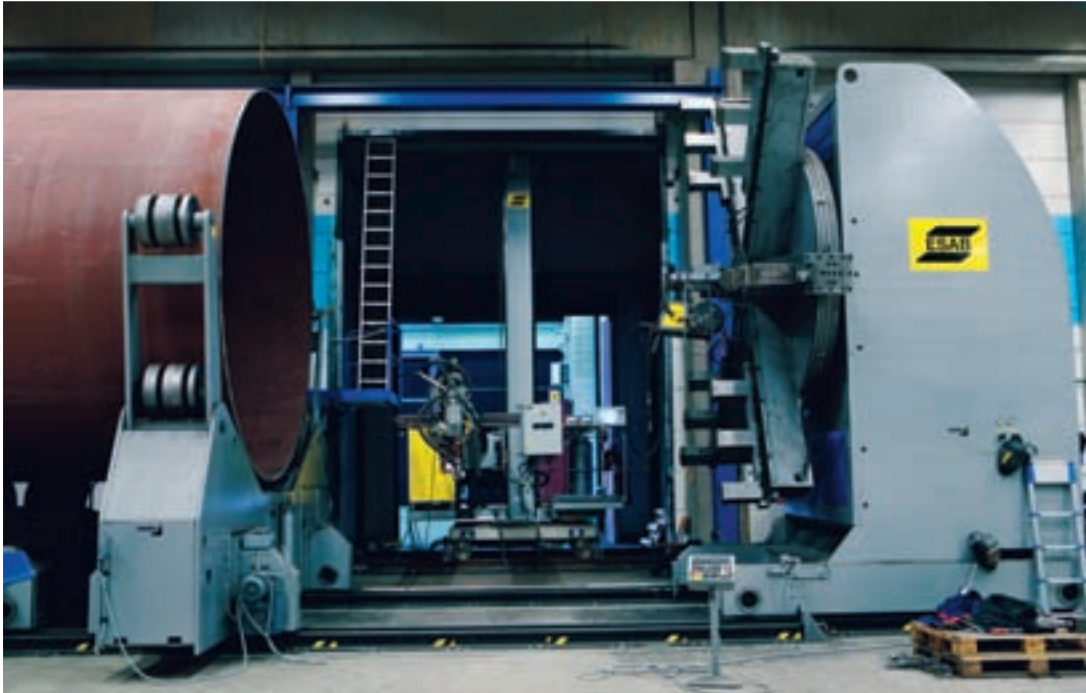
Accessories

- Welding heads - A2S or A6S, twin or single, SAW or GMAW
- Power sources - LAF rectifiers
- Joint tracking – joystick-controlled PAV; sensor controlled GMH
- Optional camera control
- Flux handling (ejector type) - OPC and FFRS Super



Tandem twin speed.

Longitudinal welding with enhanced productivity at a significantly lower cost. Twice the deposition volume, but a lower joint bevel angle (fewer passes with less filler metal). Greater weld consistency and maintained quality down to -50°C. ESAB Tandem Twin SAW technology, with ESAB wires and fluxes.



Modular format, extended functionality

CaB 300/460/600 M

The 'M' (modularized) series of column and booms can provide almost tailor-made solutions to meet customers' versatile requirements.

The next step in automated welding

Marking the next step to a higher level of automation, the 'M' series offers significant gains in welding process capability and functionality. Available in several load and stroke sizes, these modularized units can be configured to satisfy most common welding requirements. By combining standard components in different configurations, customers are assured of multiple options with maximum flexibility at minimum cost – and impressively short lead times.

Key benefits

- Modular flexibility for multiple applications, without a costly rebuild.
- Fully integrated electronic (remote) control system.
- Robust profile and saddle design for optimum working and load range.

- Optional bases: foot plate, concrete stand or rail carriage
- Smooth tachometric-controlled rack-and-pinion drive
- Fail-safe boom-locking device and anti-tipping device (rail carriage)
- CAD software for optimum configuration
- Full range of SAW and GMAW welding heads
- Single or Tandem heads, motorised rotation, cable chains.

Accessories

CaB 300M

- Welding heads - A2S, A6S, twin or single, SAW or GMAW
- Power sources - LAF rectifiers
- Joint tracking – PAV or GMH and camera control
- Flux handling (ejector type) - OPC, FFRS Super or FFRS 1200
- Motorised column rotation
- Rear mounted wire reels (30 or 2x30 kg)

CaB 460/600M

As for CaB 300M, but with the following additional options:

- Welding heads for tandem process
- Operator seat
- Rail carriage with 2 or 4-wheel drive
- Higher capacity rear mounted wire reels (100 or 2x100 or 4x100 kg)
- Flux handling FFRS 3000



Station configuration

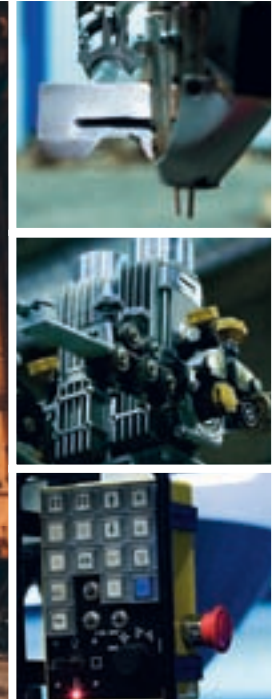
Conventional column-and-boom, with a movable boom, and welding head at boom end. Welding equipment can be positioned along four axes. Cable chains are included.



Custom-built productivity

In some cases, the demands of productivity and flexibility necessitate custom-designed solutions. Collaborating closely with the welding industry, ESAB has developed an application-specific CaB range, based on integrated modular design for optimal flexibility. These units can be individually designed to customers' unique requirements, and configured to handle a variety of applications. No need for extensive rebuilding.





Customized

■ Custom format, special capabilities

CaB 300/460/600/.... C

Each 'C' column and boom unit is customized to individual requirements and specifications.

The ultimate step in automated welding

When off-the-shelf or modular solutions are simply not an option, ESAB can design a CaB welding unit to your precise specifications, dimensions and load tolerances – whatever the requirement. These 'C' (customized)

units provide the ultimate solution, where a specialized configuration is required for complex and sometimes product-specific automated welding applications. Centric or eccentric, longitudinal or transversal, single or double-track boom, multiple heads (standard, floating or narrow-gap), joint and/or seam tracking, SAW (single, twin, tandem or tandem-twin wire), GMAW or TIG, fully automatic flux management – just ask.



Station configuration 3
Side-boom manipulator with horizontally fixed boom, supporting one or two welding heads. This welding station, which offers flexible movement, is the basic unit for welding girders and profiles, and for joining plates and sections.



Station configuration 1
Conventional column-and-boom, with a movable boom, and welding head at boom end. Welding equipment can be positioned along four axes.



Station configuration 2
Conventional column-and-boom, with a movable boom and one welding head at boom end, combined with a boom-carriage-mounted welding head (not CaB 300).



Station configuration 4
Side-boom manipulator with double-track boom. The welding heads are mounted either side of the boom. The boom carriages can be individually controlled by the joint tracking systems, on separate tracks. The welding motion from the rail carriage ensures a highly efficient welding process. Ideal for transversal double-fillet welding of stiffeners.

Configuration

■ Designed for flexibility



Bases

Stationary

Metal base plate
Concrete fixed base

Rail carriage

Standard

Concrete rail carriage

Customised

Compact carriage and track
Walltrack (single lateral rail with wall support)

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.



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