

# **ESAB Chain Making Equipment**

## **FOR COST EFFICIENT PRODUCTION AND SUPERIOR QUALITY**

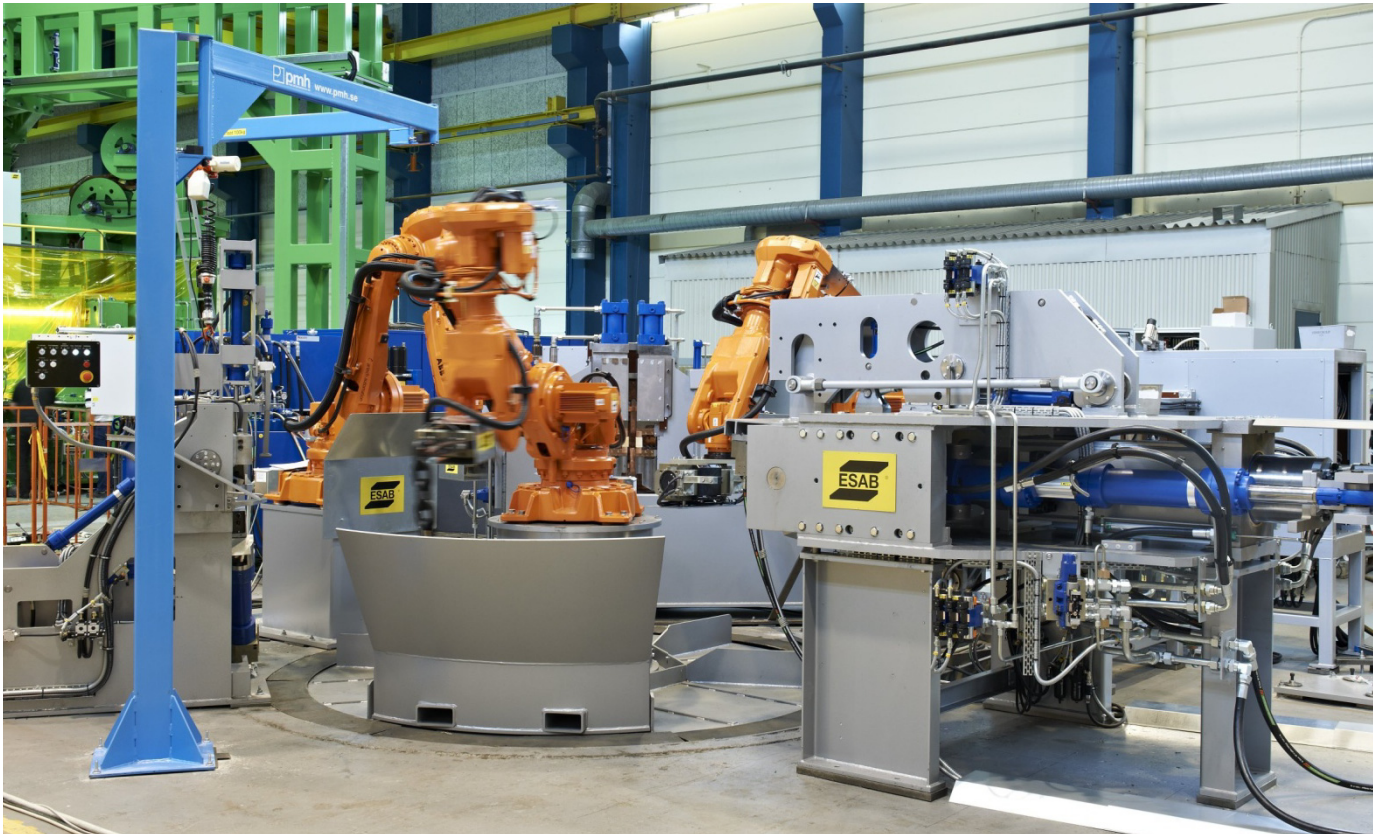




# ZAC 42 MR

## Automatic production of mining chains.

The ZAC 42 MR is a high capacity, fully automatic manufacturing system for chains. In the ZAC 42 MR system the bars are heated in the high capacity resistance heater, formed to links, welded and trimmed longitudinally, while hot.



ZAC 42 MR

### Description

- Operational control is automatic. Pre-setting the number of links to be produced contributes to higher productivity and even quality.
- By using handling robot technique and PLC system we will ensure correct positions of the link during the whole process which will make it possible to run fully automatic.
- The PLC system also control position and force on the hydraulic cylinders. This is a big advantage in connection with changing of link dimension, instead of adjusting mechanical stops the positions is part of the program.
- Low energy consumption due to welding takes place immediately after the heating/forming operation. Rings, single links or short chain lengths can be continuously produced.
- Advantages achieved by the process are among others superior welding quality and unsurpassed production rate.

### Typical chain types

- Chains for coal shearers
- Conveyor chains for stage loaders and feeders

### Main components

- High capacity resistance heater with magazine
- Link forming machine
- Flash butt welding unit
- Flash trimming machine
- Chain transport equipment
- Rotary platform with chain boxes for chain collection
- Main operation table
- Hydraulic power unit

# Carousel

## The anchor chain making system.

Carousel is the most common chain making system thanks to its flexibility and large capacity. ESAB deliver complete installations; semi-automatic or fully automated for one to five operators, depending on the grade of automation.



*Chain Making Carousel*

### Description

- Pre-cut bars are manually put into a magazine of the resistance heater. The bars are automatically transported from the magazine into heating position between the two dies of clamping device.
- Then the bars are hydraulically clamped and heated to a temperature of approx. 900-950°C and after that, the bar is automatically unclamped.
- Carousel installations can, when required, be custom-built to suit individual specifications.
- ESAB also supply single machine units, resistance heaters, bending machines, flash butt welding machines, trimming machines, stud presses, chain transport equipment and manipulator systems.

### Chain types that can be produced automatically or semi-automatically

- Anchor chain (with or without studs)
- Intermediate and end links
- Offshore chain including oil-rig and supply ship chain
- Buoy mooring chain
- Similar types or stud- and studless chain

### Main components

- Automatic resistance heater incl magazine for bars
- Roller track
- Automatic link forming machine
- Automatic flash butt welding machine
- Automatic upset trimming machine
- Automatic stud press
- Chain transport equipment



# Welding Control FBW 2012.

- The control unit is housed into a cabinet standing directly on the floor, separate from the machine. It is built around a welding control that controls both the welding sequence and the auxiliary functions of the machine.
- The welding control can save and handle 100 different welding programs, each recognized by a unique name.
- All programs will be created and edited by means of the welding control. It will be done by means of pop-up menus.



- The programming phase is an easy-to-learn easy-to-use procedure starting with the adding of wished modules (pre-flashing, pre-heating, flashing and upsetting). Later every module will be "opened" in order to set the parameters and choose the working modes.

## ESAB Chain Making Programme.

### Mining chain

ZAC 42 MR

22-42 mm

ZAC 64 MR

30-64 mm

### Anchor Chain

ZAC 554

18-34 mm

Carousel size 7

30-81 mm

Carousel size 8

60-95 mm

Carousel size 10

90-165 mm

Carousel size 12

142-200 mm

## Thickness is not all.

It is overall quality that matters, when performance depends on a single link. Chain manufacturers everywhere have come to trust in ESAB. They know that if the whole operation, and even lives, depend on a single link they can rely on ESAB. Our engineers have designed and constructed complete plants and turn-key projects all over the world. Our installations give you high yield and low production cost. So, if you are looking for lean production in your chain manufacture, ESAB has the solution.

ESAB's chain making equipment is based on the principle of resistance heating and flash butt welding. This folder gives you a few examples of our complete chain production plants but single machine units are of course also available for delivery.



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