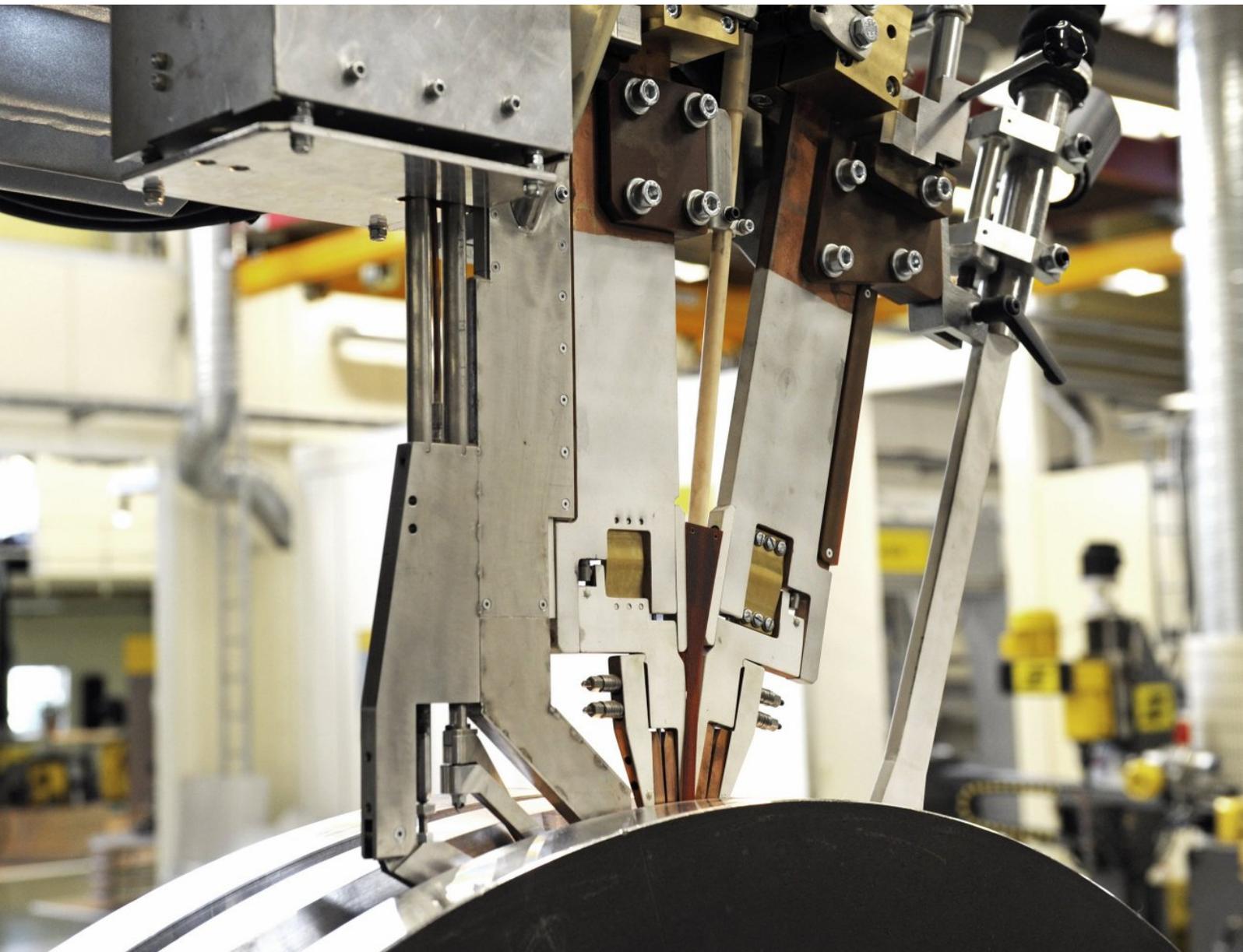


# HNG Multi

## Narrow Gap Welding Head



# HNG Multi

## 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, ranging in width from 18 mm and in depth down to 350 mm.

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

The welding head HNG Multi has been designed around the flat, welding nozzle. The reciprocating movement of the nozzle is accomplished by means of a pneumatic three position cylinder and is transferred from cylinder to nozzle through a shaft transmission system. The amplitude of this movement is set by means of screws located on the upper part of the welding head. Individual lateral offset between wire tips and joint side wall as well as distance (longitudinal) between the two wires can be adjusted as required.

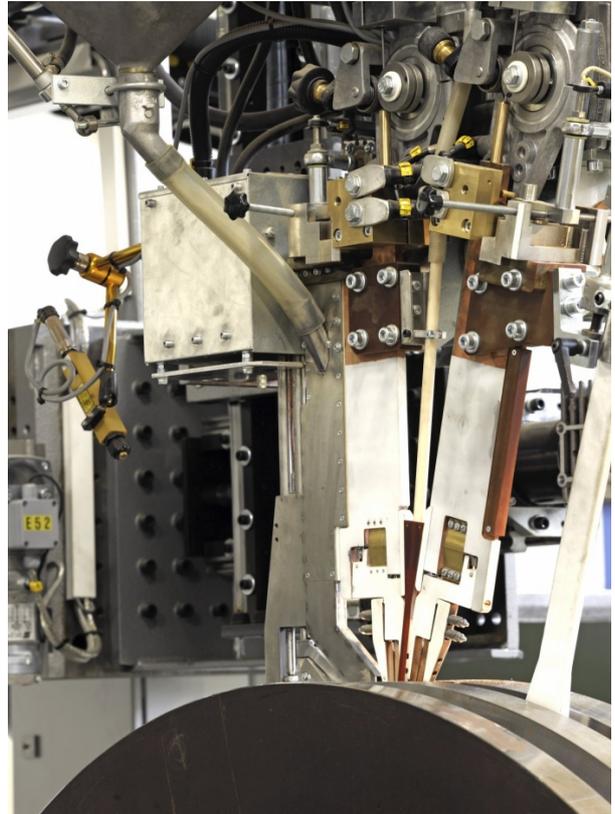
ESAB's well-known worm gear motor A6-VEC is used for the wire feed. The double wire straightening devices for each wire are also located on respective motor, 2-dimensionally mounted with displacement of 90°. Each device contains five hardened rollers, which are readily positioned as required.



*Double-sided joint tracking*

### Typical applications

- Pressure vessels
- Rotor shafts
- Nuclear reactors
- Turbine shafts



The flux hopper is made of silumin and holds approx. 10 litres. Flux is led from the hopper to the pneumatically controlled flux valve. The hopper has been designed to match first rank flux feeding system, type FFS with a pressurized container, which can be mounted elsewhere on the carrier (see separate leaflet).

The flux suction unit on top of the container represents a further development of ESAB's well-known ejector suction unit, type OPC. It has been made from a special heat resistant material to enable its use in combination with pre-heated flux.

The welding head is equipped with separate joint tracking system for vertical and horizontal joint tracking, respectively.

In the vertical there is a spring-loaded roller, while horizontal tracking is accomplished by means of a spring loaded trailing device.

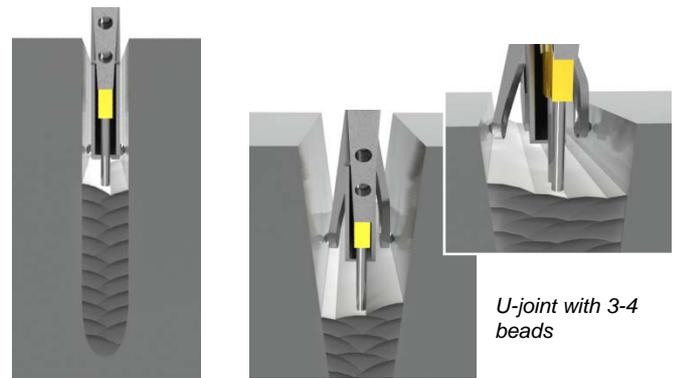
For changeover between longitudinal and circumferential welding a pivoting link has been mounted in the immediate vicinity of the weld centre.

- Air-cooled torch
- Reliable and uniform high weld quality
- High productivity
- Minimum of supplementary work
- Control system in Basic or PLC version
- Continuous double-sided joint tracking gives a high reliability at shift overlap (with PLC)
- Continuous measuring of joint width, max 50 mm (with PLC)
- Short-circuit protected, welding head-workpiece (with PLC)
- Automatic positioning (with PLC)

# Technical information.

## Technical Data

Weld joint type	Butt
Wire dimension, mm	3-4
Wire feed motor	A6-VEC 156:1, 4000 rpm
Wire feed speed, max m/min	4
Max welding current DC, A	800
Max welding current AC, A	800
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
Joint width, mm	18-50
Wire angle between wires	15°
Distance between wires, mm	15 (valid for 30 mm stick-out)
Accuracy of joint tracking, mm	± 0.15
Max heat resistance, workpiece, °C	300
Min weld diameter, mm	500/1200 (Single/Tandem)
Flux hopper capacity, litres	approx. 10
Flux hopper unit	OPC Super
Min clearance internal weld	
- Longitudinal, Ø mm	1500
- Circumferential, Ø mm	1500
Weight, kg	140/165 (Single/Tandem)



Traditional Narrow Gap joint with 2 beads

U-joint with 3-4 beads



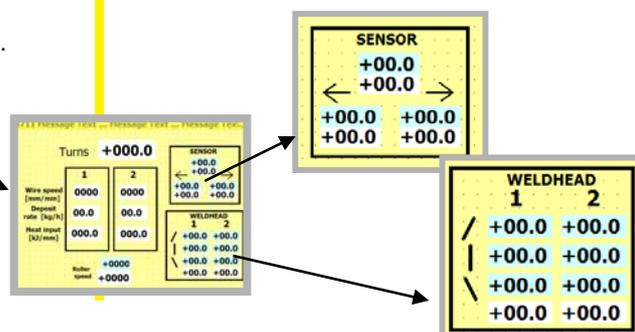
Automatic shift overlap

## Joint tracking.

- Follows the side that is being welded
- Separate systems for the horizontal and the vertical joint tracking

### Additional features when using PLC:

- 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)



## Options

- Laser lamp with dot pointer
- Laser lamp with cross pointer, mounted on a flexible arm
- Tracking kit for welding diameter 1200-2000 mm
- Tracking kit for welding diameter 500-1200 mm

# WeldLog – optional equipment for PLC.

Computer program for welding supervision and documentation.

## Purpose

- To log measured weld data with a visual online presentation of the data.
- To measure and calculate heat input and metal deposition rate.
- To be able to analyze the measured data after completed weld.
- To create a summarized report of the welded joint including alarms.

## Features

- Online presentation of up to 24 channels measured data on up to 8 axis simultaneously, both graphically displayed and with numerical values
- Logged reference values for:
  - Voltage
  - Current
  - Travel speed
  - Wire feed speed
- Logged actual values for:
  - Voltage
  - Current
  - Travel speed
  - Wire feed speed
- Heat-input logged and displayed [kJ/mm].
- Metal deposition rate logged and displayed [kg/h]
- Possibility to registers external alarms with a 2D axis position (X, Y)



2011-06-28 / ESAB reserves the right to alter specifications without prior notice



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