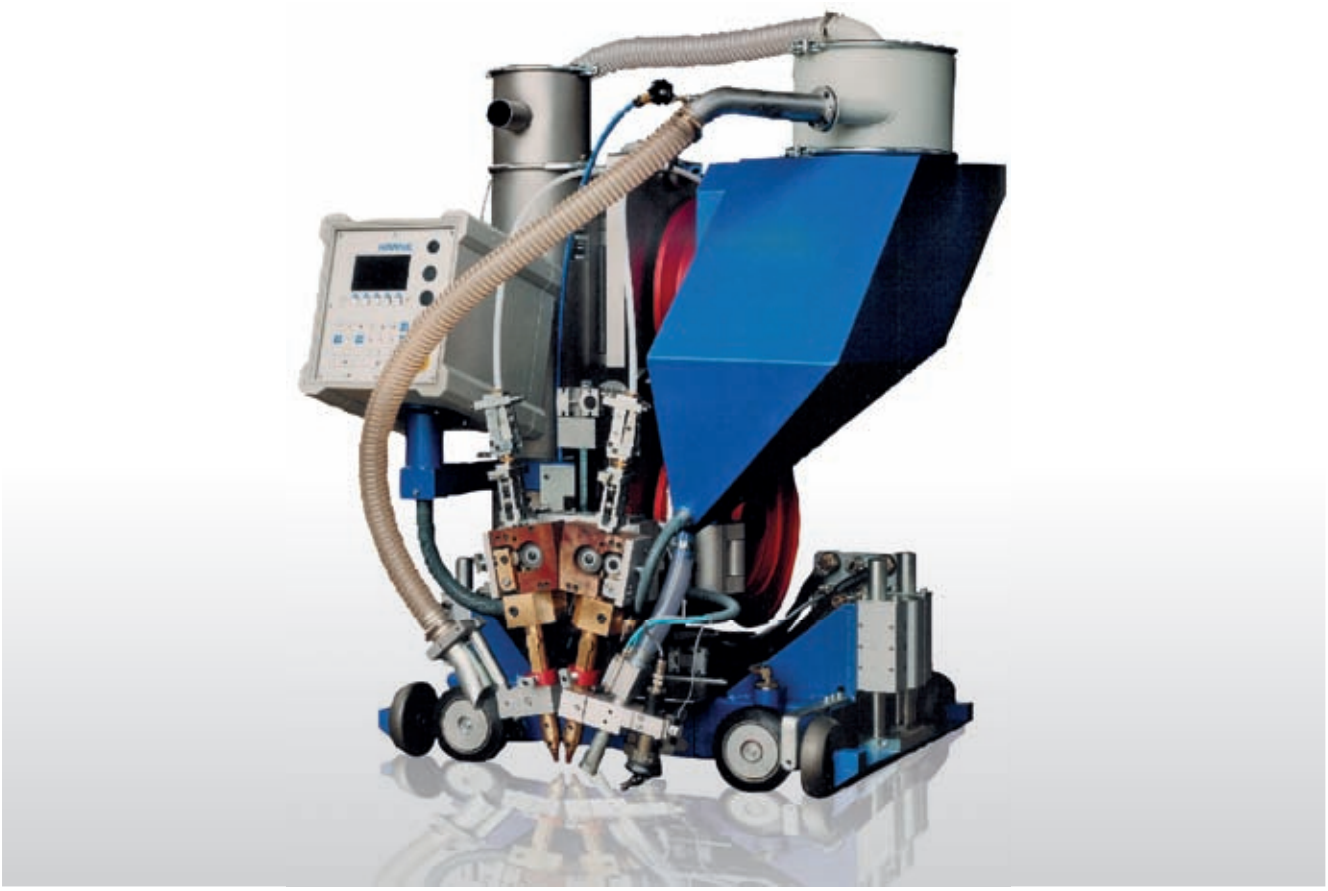
8. WELDING TRACTORS



- CNC-controlled SAW-tractor AWS 1000
- CNC-controlled SAW-tractor AWS 1200

CNC–CONTROLLED SUBMERGED ARC WELDING TRACTORS

Increased work output and improved quality of weld seams

- CNC compact control for welding head, tractor, motor slide, sensor and powder cycle.
- Fast tractor motion.
- Path-dependent change of welding parameters via CNC control.
- Program memory for more than 100 sets of parameters.
- Motor slide with servo drives, highly loadable, free of play.
- Sensor guidance of the welding head.

High precision, high degree of stability and long service life

- Solid tractor carriage designed to accommodate torsion forces in steel/weld design.
- Four-quadrant transistor converter, control accuracy ‹ 1% as motor regulator.
- Large wheel base and gauge.
- Anti-friction guideway slide, free from play, including covering of threaded spindle and guide.

High flexibility

- Quick change of gauge.
- Single wire, double wire and double wire – Narrow gap equipment.
- Hand or motor slide with two strokes.
- Wheels equipped with rubber or steel tyres for rail guide.
- Motor-controllable design.
- Support rollers for guide support.
- Easily retrofittable sensor guidance.

High level of security and availability

- Avoidance of shears and bruises acc. to DIN 31001, DIN EN 394, DIN EN 294.
- Protection of feed gear mechanism and wire straightener.
- Smooth-surfaced wire drum.
- Generously dimensioned drive units.
- Standard jack ring.
- CE compliant design.

8.1. TECHNICAL DATA

		AWS 1000	AWS 1200
Welding current max.	A	1500	1500
Wire diameter	mm	1.6 – 5	1.6 – 5
Wire diameter double wire	mm	2 x 1.2 - 2 x 3.0	2 x 1.2 - 2 x 3.0
Wire rings in 70 or 100mm width	kg	20 – 30	20 – 30
Wire rings in 70 or 100mm width double wire	kg	2 x 20 – 30	2 x 20 – 30
Wire feed speed	mm / min	50 – 8800	50 – 10000
Weld feed speed	mm / min	70 – 2000	50 – 2000
Tractor fast motion	mm / min	13000	10000
Wheel base	mm	400	600
Gauge, adaptable	mm	240, 280, 320	600
Wheel diameter	mm	150	160
Powder funnel	Litre	6 or 12	60
Height adjustment	mm	150 or 330	350
Transversal adjustment	mm	150 or 330	200
Swivelling range of the welding head at 2 levels	degree	45	45
Inside welding from tube diameter (without suctioning)	mm	1300 (1000)	1500
Service hatch through manhole in disassembled status	mm	650	1600
Weight without wire and powder	kg	68 – 114	465
Supply voltage	V	24	24
* Specifications subject to alterations			

8.2. CNC-CONTROLLED SAW-TRACTOR AWS 1000

- Driving gear, completely maintenance-free with almost low play for all 4 wheels through hermetically close high-precision mechanisms including hardened and ground toothed wheels.
- The wire feed gear motor and the gear motor for the tractor mechanism are completely identical and interchangeable. These are high-performance worm gear units with permanently excited DC motor and mounted DC tachometer generator.
- The height and lateral adjustment of the welding head is carried out by encapsulated precision anti-friction guideway slides. The adjustment slides for lifting and transversal motion are optionally designed as hand slide or as servo slides with DC-motor and mounted DC-tachometer generator.
- Current tubes (SAW-torch) for contact jaws or contact nozzles in single wire design.
- Wire feed back-geared motor including clamped flange and current tube at 2 levels, continuously swivelling and clampable.
- Clamped flange, fully isolated, including integrated feed and pressure roll, protected pursuant to UVV. Wire straightening device, plugged on and rotating.
- Welding head, displaceable cross slide bed or capable of being put on to the slide front side.
- Holding device for one or - in the case of double wire welding - 2 wire coils, swivelling by 90 degrees and indexable.
- Control box including CNC-control, swivelling.
- Powder funnel with level control, capacity normally 6l.
- Powder suctioning through injector.

8.3. CNC-CONTROLLED SAW-TRACTOR AWS 1200

- Tractor drive, completely protected and maintenance-free via DC-servomotor with mounted DC-tachometer generator and worm gear unit with hollow shaft. The driving axle is plugged through the hollow shaft. The drive has a low degree of play; it runs smoothly and is very sturdy.
- The height adjustment of the welding head is carried out by a high-precision anti-friction slide and a completely protected threaded spindle with hand wheel. The setting range is 350 mm.
- The smallest possible inner diameter of the tube is 1600 mm with the powder suctioning unit being mounted.
- Controls the height slide and the combined cross and steering slide.

OPTIONALLY AVAILABLE:

- Steerable design with combined cross and steering slide. The cross slide of the basis version of the steerable slide is driven by a servomotor while operating the steering at the same time. The setting range of the slide is 100 mm and the smallest steering radius is 1500 mm.

  The cross slide and thus the steering can be controlled via a sensor. In addition to the cross and steering slides, a second motor-driven cross slide is provided. This slide allows for the exact positioning of the torch, indpendently from the steering slide. The setting way, too, is 100 mm.
- Electronic water level for the synchronisation of the tractor feed speed with the advance movement of a roller stand. The water level controls the tractor without cable connection to the roller stand in exact synchrony to the advance speed of the roller stand. The inclination of the tractor can be adjusted from the horizontal position - +/- 2,0° in steps of 0.5° using the operator panel of the CNC control.
- Longitudinal travel device for an easy displacement within one tube. Traverses including 2 rollers each having a diameter of 150 mm, are mounted to each front side of the tractor. The tractor can thus be lifted from its driving wheels and be shifted inside the tube manually. This allows for a quick shifting through the tube and an exact and simple positioning at the single circumferential seams.
- Automatic-pneumatic powder suction through magnet valve.
- Powder store through capacitive level sensor.
- Air filter unit including filter cartridges and automatic-pneumatic dedusting of the filters.
- Sensor guidance of the welding head including height adjustment through servomotor opposite the manual adjustment in the case of the basic design. The tactile sensor controls the height slide and the combined cross and steering slide.