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Welding Machines

Automatic welding machines for longitudinal, circumferential and complex seams – from compact seam welders to column and boom manipulators and CNC portal machines.

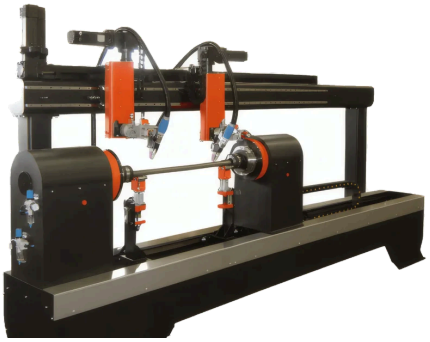
1.1 Longitudinal Seam Welders • VSV • VSV-HYD • VSV-S **8**

1.2 Circumferential Seam Welders • KMK • KMK-T • KMO • KMS • KEG **14**

1.3 Column and Boom Welding Manipulators • KVS **19**

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1.1 Longitudinal Seam Welders

VSV • VSV-HYD • VSV-S

Longitudinal butt welding of sheets and tubes. Special versions weld from 0.3 mm, the standard machine covers 1–10 mm, and thicker material is possible as a custom build. AVP's unique centering device makes clamping fast and accurate.

Applications Pipes and tubes, chimneys, exhaust systems, pressure vessels, tanks, wine tanks.



VSV 191-1500 (laser welding)



VSV-S 401



VSV 301 (with platform)

Description

AVP longitudinal seam welders clamp and weld sheets and tubes with high quality. Special versions of the machine weld from 0.3 mm thickness, the standard machine covers 1–10 mm, and thicker material is possible as a custom build. The machines are used for plates, tubes, boxes, cones and other parts in various materials, with TIG, MIG/MAG, laser, plasma and submerged arc (SAW) processes. Welding lengths up to 5 m are available on request.

Each machine consists of a frame, a mandrel with a pneumatic clamping system, a torch bridge on linear guides and torch positioning elements. Speed and travel are exceptionally repeatable (speed ±0.1 %, travel ±0.05 mm). AVP's unique centering device makes clamping fast and precise. The mandrel carries a water-cooled backing bar with gas backing. The torch can be positioned on three axes and corrected on the move during welding. All functions are operated, and welding programs stored, on a touchscreen.

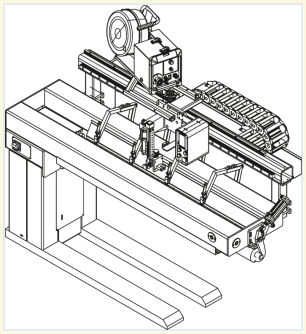
> **35 years of development and improvement for exceptional welding results**

Options

- AVC integration (Arc Voltage Control)
- Multi-stage clamping
- 2-axis motorized slides
- Laser seam tracking
- Automatic detection of workpiece start and end
- Welding cameras
- Line laser
- Additional latch safety mechanism
- Stainless steel mandrel
- Wire feeder
- Upgrade to a larger 10.1" display
- Free-standing control console

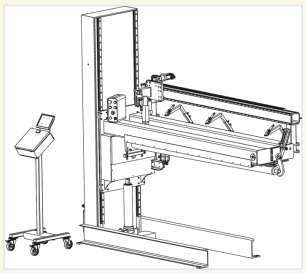
1.1 Machine types

Longitudinal Seam Welders



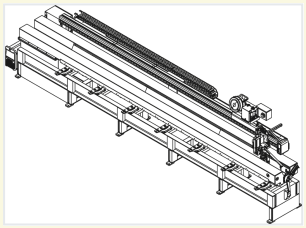
VSV (standard) **Best seller**

The standard VSV is designed for outside longitudinal seam welding. It suits demanding series production of parts in various materials. A built-in automatic latch and a centering device are standard.



VSV-HYD (hydraulic) **Standard up to Ø2,000 mm**

For outside longitudinal seam welding. The upper part of the machine is raised hydraulically, so work is easy and ergonomic whatever the workpiece size. Tube diameters up to 2,000 mm are standard; larger ones are available on request.



VSV-S **Perfect for TIG keyhole**

A low-profile VSV for internal welding of tubes and flat sheet. Welds tubes from Ø1,350 mm; welding length can be over 10 m. In general, the VSV-S is a very competitive offer.

Type overview

	VSV	VSV-HYD	VSV-S
Welding position	Outside	Outside	Inside
Welding length [mm]	1,050 / 2,050 / 3,050 (up to 5 m on request)	1,050 / 2,050 / 3,050 (up to 5 m on request)	2,050 / 3,050 (over 10 m possible)
Tube diameter	80 – 1,500 mm*	80 – 2,000 mm*	min. 1,350 mm
Special feature	Standard machine	Hydraulically operated	Special centering device

*Other diameters on request. See the technical data on the following pages.

Designation system

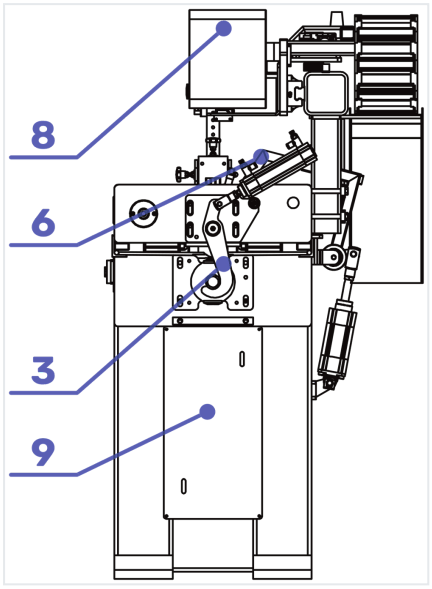
VSV	1	0	1
Machine type designation	Welding length [m]	Welding process*	Number of torches

Welding process: 0 TIG (GTAW) • 1 MIG/MAG (GMAW) • 2 SAW • 3 Plasma • 9 Laser

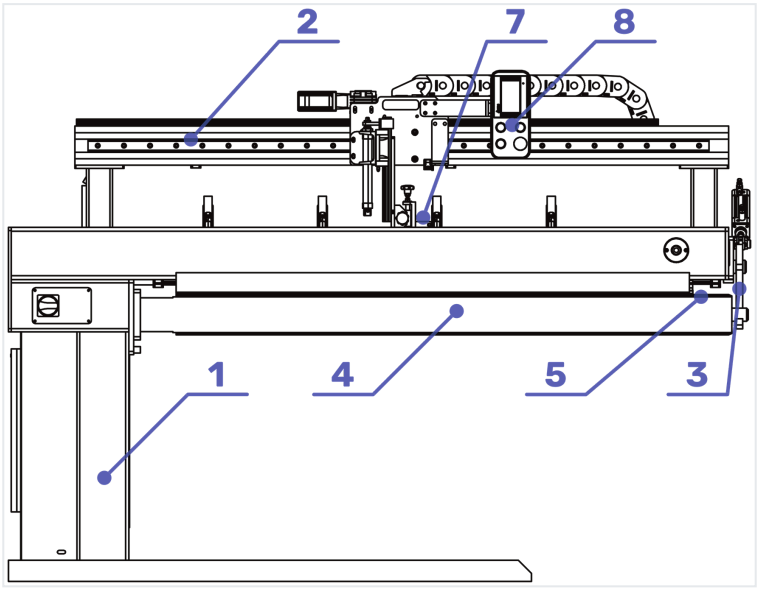
Example: VSV 101 – welding length 1 m (1,050 mm), TIG, one torch.

1.1 VSV – standard

Main components



Front view



Side view

Components

1. **Frame**
   Various sizes and designs.
2. **Bridge**
   Longitudinal torch travel.
3. **Latch**
   Pneumatic.
4. **Mandrel**
   For various tube diameters; pneumatic clamping system.
5. **Backing bar (welding bar)**
   Water- or air-cooled.
6. **Centering device**
   Enables precise clamping.
7. **Torch**
   Several torch types available.
8. **Control panel**
   Setting of welding parameters.
9. **Control cabinet**
   Main electrical cabinet.
10. **Foot switches**
    For clamping and unclamping.



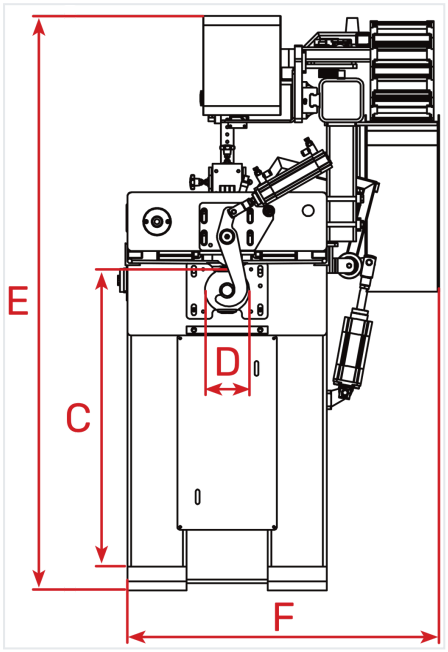
VSV 101-1500



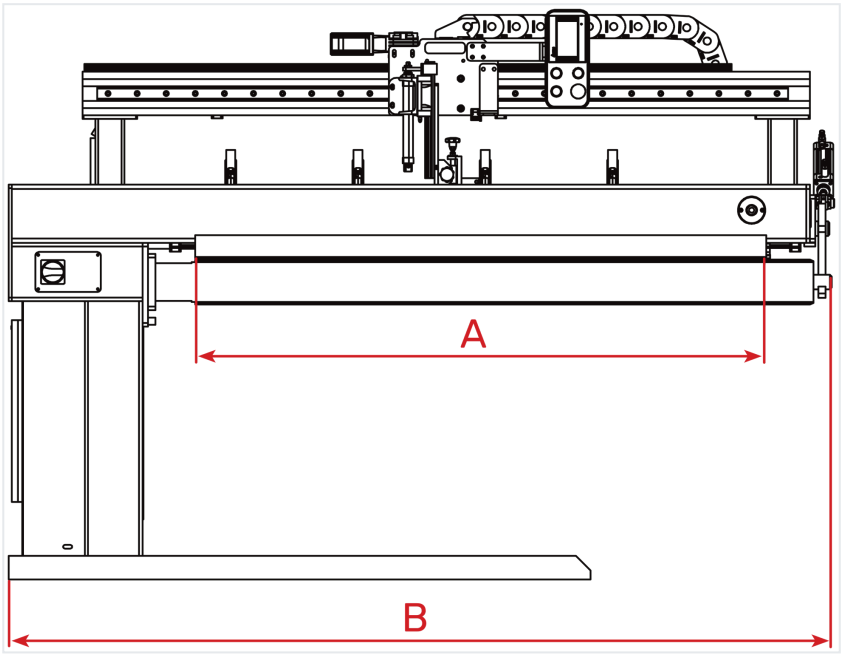
VSV 301 with platform

1.1 VSV – technical data

Dimensions and models



Front view



Side view

Dimensions [mm]

	VSV 101 / 111 / 121 / 191		VSV 2XX	VSV 3XX
A*	1,050	1,550	2,050	3,050
B	1,800	2,500	3,000	4,000
C	800 (900)	1,000	1,000–1,300	1,000–1,500
D (min)	80 / 75	100	130	180
E	1,600	1,800	1,800–2,100	2,000–2,500
F	850	850	850	1,000

"XX" refers to the welding process and the number of torches; both can be customized. *Other dimensions are possible. Welding lengths up to 5 m are available on request.

Welding specifications

		VSV 101	VSV 201	VSV 301
Tube diameter min./max.*	mm	80 / 800	130 / 1,300	180 / 1,500
Welding length	mm	1,050	2,050	3,050
Welding speed	cm/min		10 – 300	
Rapid traverse speed	cm/min		up to 800	
Speed repeatability	%		±0.1	
Travel repeatability	mm		±0.05	
Rated voltage	V		230	

*Minimum/maximum diameter depends on the welding length: typically, a longer welding length means a larger minimum diameter, because the mandrel must be larger. On a standard VSV the diameter can be extended to 2,200 mm on request. Larger diameters require a modular construction.

1.1 VSV-HYD

Longitudinal Seam Welders • hydraulically operated

Tube diameters up to 2,000 mm are standard; larger diameters are available on request.

Standard up to Ø2,000 mm



VSV-HYD 311 (hydraulically operated)

The VSV-HYD is used for outside longitudinal seam welding. The upper part of the machine is raised hydraulically, so work is easy and ergonomic whatever the workpiece size.

Available for TIG, MIG/MAG, plasma and laser welding in three welding lengths.

Technical data

Max. welding length	mm	1,050	2,050	3,050
Welding speed	cm/min		10 – 300	
Rapid traverse speed	cm/min		up to 800	
Rated voltage	V		230 / 400 (50 Hz)	
Speed repeatability	%		±0.1	
Travel repeatability	mm		±0.05	
Min. tube diameter	mm	80	130	180
Max. tube diameter*	mm		2,000	

*Larger diameters are available on request. Welding lengths up to 5 m are available on request. Material thickness depends on the welding process and is always determined by customer requirements.

1.1 VSV-S

Longitudinal Seam Welders • internal welding

Low-profile VSV for internal welding of tubes and flat sheet. Welding length can be over 10 m.

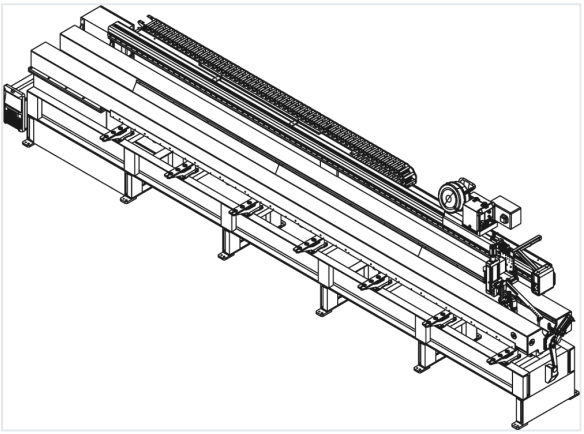
Perfect for TIG keyhole



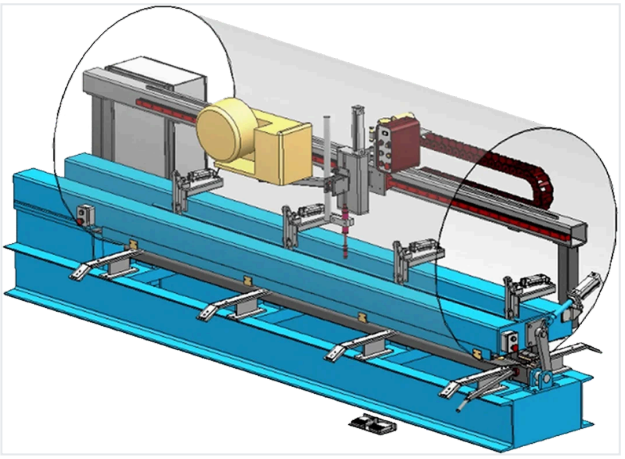
VSV-S 311



VSV-S 611



VSV-S – isometric view



VSV-S 311 with a vessel as the workpiece

Description

The VSV-S type is used primarily for internal longitudinal welding, and welds tubes from Ø1,350 mm upward. Its special construction makes it suitable for intensive series production. Bearing supports help the operator insert a steel plate or tube easily and align it to the centre. A centering device for heavy workpieces is fitted. To make monitoring of welding inside the tube easier, we recommend welding cameras and a free-standing control console outside the machine.

- The mandrel with backing bar is easy to exchange. A mandrel with a bar for welding aluminium or a copper bar for welding steel can be fitted. Two backing bars can also be placed on one mandrel (bottom and top); to change, simply rotate the mandrel by 180° around its axis.
- All welding parameters can be set and stored on the display of the NC system.

Technical data

		VSV-S
Welding process		All processes
Material thickness	mm	1 – 12 (thicker as a custom build)
Min. tube diameter	mm	1,350
Welding length	mm	2,050 / 3,050 (over 10 m possible)
Welding speed	cm/min	10 – 300
Rapid traverse speed	cm/min	up to 800
Speed repeatability	%	±0.1
Travel repeatability	mm	±0.05
Rated voltage	V	230