1.3 Column and Boom Welding Manipulators

KVS

A highly adaptable manipulator for welding in several axes, and also for grinding – for light as well as heavy workpieces. Vertical stroke up to 5 m, optional floor rails, synchronization with turning rolls and positioners. Processes: TIG, MIG/MAG, plasma, SAW.

Applications Pipes, pressure vessels, tanks and other cylindrical workpieces, from light to heavy.



KVS on floor rails



KVS on a base



KVS with ON 5t turning rolls

Description

Column and boom welding manipulators are highly adaptable devices for welding in several axes, and also for grinding. They suit light as well as heavy workpieces and work with various welding processes (TIG/GTAW, MIG/MAG/GMAW, plasma and SAW). They are often used for multi-pass welding of thick-walled tubes, even above 10 mm wall thickness. The construction allows installation of seam tracking systems, cameras and other equipment, and the machine can be linked to rotating devices for synchronous operation.

The machine consists of three main parts: the base, the column and the boom. The base can travel horizontally on a floor rail (option) or be fixed directly to the floor. Horizontal travel on the rails can be motorized (adjustable speed) or manual. The vertical column, together with the cross support, rotates manually around its axis. The boom moves on two axes (Z and Y); torch and equipment travel is motorized with adjustable speed.

Axis speeds are always adapted to the purpose of the machine: depending on the task, welding is done with the boom travel, with the Z-axis travel along the column or with travel along the rails. The welding speed is therefore always assigned to the axis used for welding. The boom speed is 25–125 cm/min.

The KVS is usually used together with all kinds of turning rolls and positioners.

Types

Small type (KVS 1×1 and 2×2) is designed for lighter workpieces and shorter strokes. The vertical stroke is up to 2 m and the maximum load at the end of the boom is 50 kg.

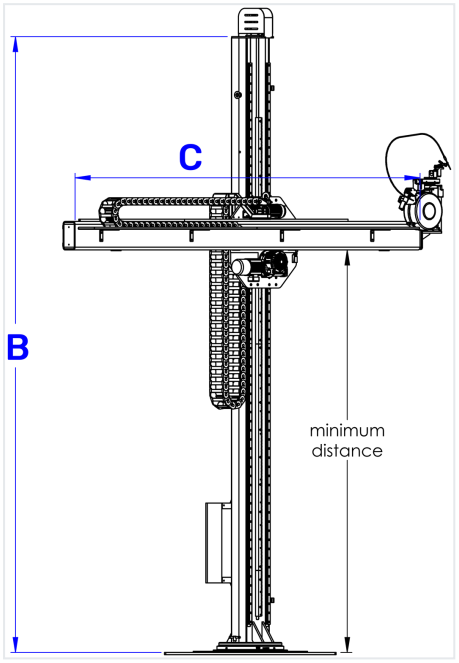
Heavy-duty type (KVS 3×3, 4×4 and 5×5) is designed for heavier workpieces; the construction keeps travel rigid under load. The vertical stroke is up to 5 m and the maximum load at the end of the boom is 350 kg (KVS 3×3), 300 kg (KVS 4×4) and 250 kg (KVS 5×5). A special SAW version with a load capacity of 500 kg is also available.

Options

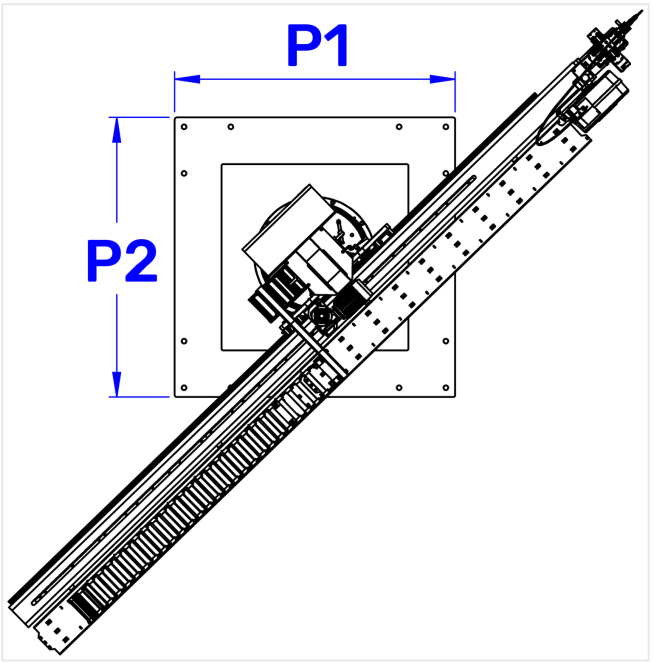
- Welding with two torches at the same time, or tandem welding
- Floor rails / mounting plate
- Servo cross slides (2-axis actuator)
- Synchronization with a turning device
- Laser seam tracking
- Tactile seam tracking
- Mechanical seam tracking
- Welding cameras
- Wired or wireless remote control
- AVC system (TIG/plasma)
- Weld start signal
- Segment welding, numerical (NC) programming
- Touchscreen, control console

1.3 KVS – dimensions

Column and Boom Welding Manipulators



Side view



Top view

Small type

		KVS 1×1	KVS 2×2
B	mm	1,500	2,600
C	mm	1,400	2,700
Z-axis stroke	mm	1,000	2,000
Y-axis stroke	mm	1,000	2,000
Max. load at boom end	kg	50	50
Boom speed	cm/min	25 – 125	25 – 125

Heavy-duty type

		KVS 3×3	KVS 4×4	KVS 5×5
B	mm	4,200	5,400	6,400
C	mm	4,000	5,300	6,500
Z-axis stroke	mm	3,000	4,000	5,000
Y-axis stroke	mm	3,000	4,000	5,000
Max. load at boom end	kg	350	300	250
Boom speed	cm/min	25 – 125	25 – 125	25 – 125

P1, P2 and rail dimensions are customized for each order. Axis speeds are customized for each order and adapted to the purpose of the machine (asynchronous motors / servo system). A special SAW version with a load capacity of 500 kg is available.