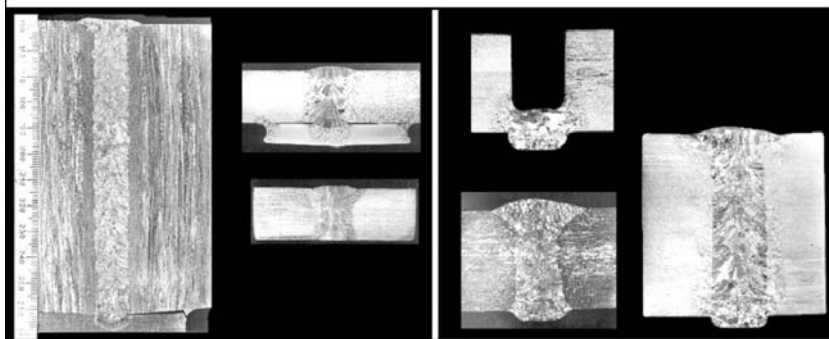
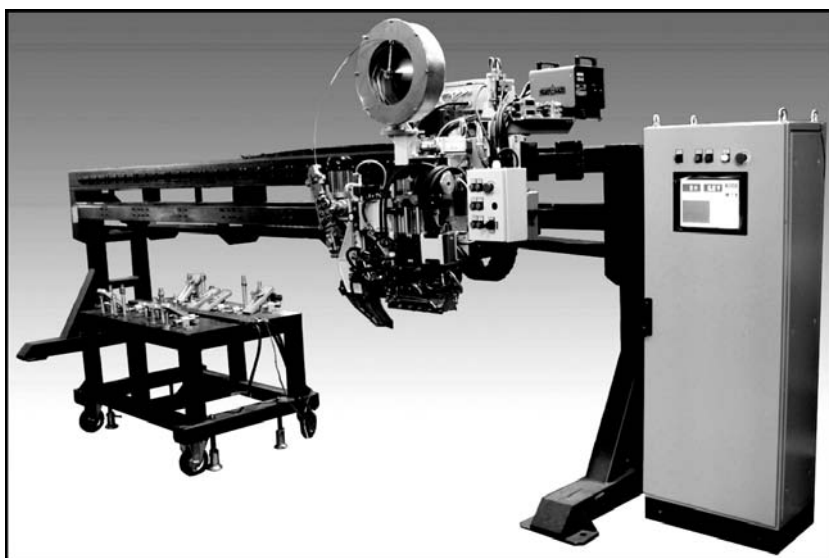


## NEWS

## NARROW-GAP WELDING OF HIGH-STRENGTH TITANIUM ALLOYS OF UP TO 110 MM THICKNESS

A technology and portal type unit for narrow-gap arc welding of titanium and high-strength titanium alloys of up to 110 mm thickness were developed in the E.O. Paton Electric Welding Institute. The technology provides for application of TIG welding process with magnetically-impelled arc and feed of filler wire in narrow gap of 8–12 mm width. An alternating devia-

tion of arc to side walls of narrow-gap groove is achieved due to its magnetic control and, respectively, uniform fusion of vertical walls with deposited bead as well as beads between themselves is attained. An electric arc burns under constricted conditions in narrow-gap welding, besides, at that, except tungsten electrode a guide for filler wire and magnetic circuit of electromagnet are situated in the gap groove that makes control of the process of welding difficult for operator. A small-size video camera VK-27, equipped with right angle attachment and designed for TV monitoring of process of TIG welding of structures from titanium and titanium alloys with up to 500 A current was developed for visual control of welding process and control of a state of tungsten electrode and position of filler wire in the groove.



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The main advantages of developed technology:

- reduction of weld width and heat-affected zone;
- decrease in volume of deposited metal;
- increase of welding process efficiency;
- reduction of welding process laboriousness;
- providing of high quality of welded joints independent on thickness of elements being joint;
- strength of welded joint — at the level not less than 0.9 of strength of the base metal.