



Scanner LSP-U (universal) for evaluation of butt and fillet welds of control welded joints (WPS) of plates.



Fig.1 Scanner LSP-U

a) the position of the laser sensor when scanning the surface of the welded seam of the WPS plates;

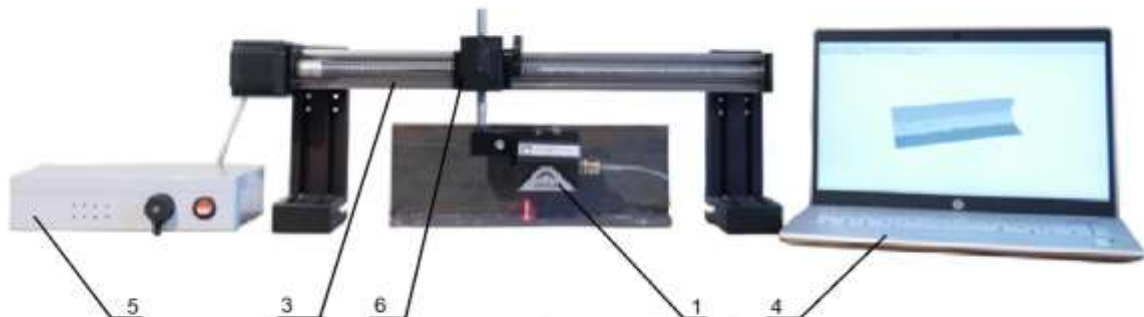


Fig.1 Scanner LSP-U

b) the position of the laser sensor when scanning the surface of the fillet weld of the WPS plates.

The LSP-U scanner is designed for non-contact measurement and digitization of the front and root surface of the weld of butt welded steel plates, and the front surface of fillet welds of T-joint steel plates for subsequent assessment of the practical skills of welders in fusion welding using 3DLD technology.

The LSP-U scanner (Fig. 1) consists of a laser sensor LS2D (1) for scanning the surface of the welded joint of the RCC, an actuator (3), a switch (5), a PC (4), a positioning mechanism (6) of the laser sensor LS2D.

LS2D (1) is a modern 2D triangular laser sensor that reads the scanned surface at a speed of up to 1000 sections per second and determines the coordinates of 1024 points in each section.

The actuator (3) provides longitudinal movement of the LS2D laser sensor (1) to a predetermined length and consists of a standard stepper motor, a screw pair, and a guide rail.

PC (4) standard, running MS Windows 10, with Wi-Fi, at least 2 USB ports and RJ-45 port.

The commutator (5) connects the PC (4) with the stepper motor of the actuator (3) and the laser sensor LS2D (1).

The positioning mechanism (6) provides discrete rotation of the LS2D laser sensor (1) around the mounting axis by 45° and smooth height adjustment. The positioning mechanism (6) makes it possible to orient the laser sensor LS2D (1) for scanning the surfaces of the welded seam of butt joint plates (Fig. 1a), for scanning the surface of fillet welds of T-joint joint plates (Fig. 1b).

The LSP-U scanner software controls the process of non-contact measurement and digitization of the scanned surface of the welded joint, transfers the measurement data to the computer RAM, visualizes digital replicas of the welded joint surface on the monitor, calculates the Welder Qualification Index (WQI), generates the Welder Certificate, and saves the data on the hard PC disk.

Technical characteristics of the LSP-U scanner.

Scanned objects	Butt and fillet welds of WPS plates
Width of welded seam, not more (mm)	70
Weld height measurement range(mm)	- 2 ... + 10
Length of KSS plates (mm)	Nor more 350
Discreteness of the angle of rotation of the laser sensor around the mounting axis (deg)	45 ⁰
Vertical stroke of positioning mechanism (mm)	45
Measurement speed (sections / s)	1000
Scanning speed (mm/s)	12
The absolute measurement error for the height of the seam is not worse (mm),	0,05
The absolute measurement error along the width of the seam is not worse (mm),	0,4
Operating temperature range (°C)	-5 + 50
Relative humidity at 25 °C (%)	20 - 80
AC supply voltage (B)	220 - 230
Dimensions W x H x D (MM)	170 x 250 x400
Weight without PC, not more (kg)	5