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Laser Polymer Welding:

Flexible Laser Welding Station

The PolyScan is a fully equipped laser station for contour or quasi-simultaneous welding of almost all thermoplastic polymers.

The flexible LaserCAD software allows a wide range of highly sophisticated welding contours and quick change of parameters.

Depending on application requirements the PolyScan can be equipped either with diode (808, 940 nm) or Nd:YAG lasers (1064 nm). For example this gives extra flexibility for the welding of colored or quasi-transparent workpieces, where the laser wavelength is found to be crucial important.

The power spectrum of up to 150 W is sufficient for welding all medical device samples with high productive requirements.

The seam width ranges from 100 µm up to 3 mm at a typical speed of 10 – 150 mm/sec (depending on polymer material).

The PolyScan can be equipped optionally with a rotary axis.

Main application areas include welding of tubes, syringes, microfluidics, packaging or sensors.

Polymer welding with lasers is based on the principle of overlap welding. As a result the welding zone is covered in the inside of the sample.

The principle advantage of laser welding compared to conventional welding methods therefore includes benefits like

- contamination free welding
- no heat affected zone (i.e. welding seams can be positioned extremely close to heat sensitive materials)
- easy and cost effective design of workpieces
- high optical quality
- contact free welding (i.e. no deterioration of welding quality)

For conveyer belt applications the lasers can also be integrated directly.



Fig. 1

The PolyScan is a fully equipped laser workstation for welding of thermoplastic polymers.

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