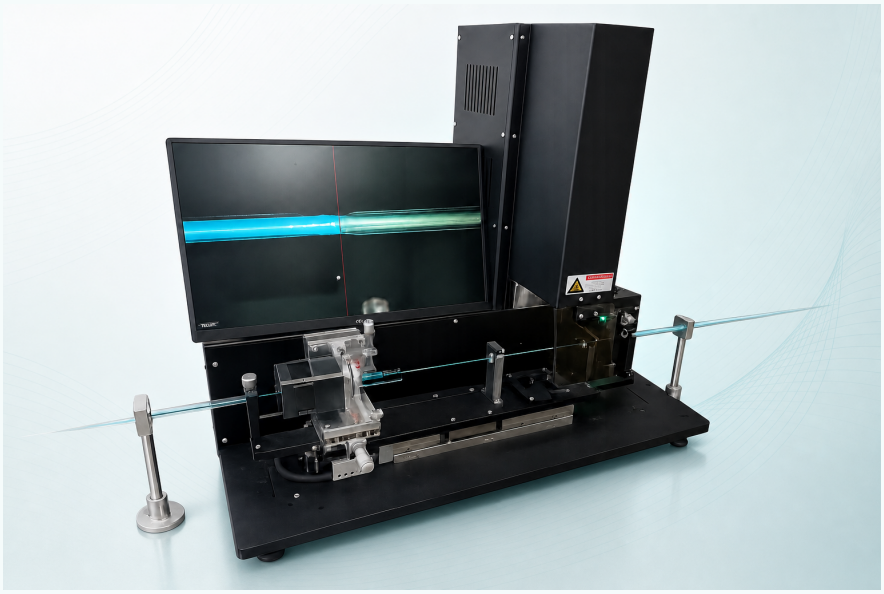
CATHETER ASSEMBLY LASER BONDING

Laser Bonder

Precision bonding of fine thermoplastic tubing used in balloon catheters and other minimally invasive medical-device assemblies.



Localized Energy at the Joint

The Laser Bonder uses a localized CO2 laser process for balloon-to-shaft bonding, tube-to-tube joining, tapered transitions, and distal-tip forming. Controlled energy delivery helps create short, flexible weld zones while limiting thermal exposure to surrounding balloon material.

- Balloon-to-shaft bonding	- Fine thermoplastic tube-to-tube joining
- Tapered polymer transitions	- Distal-tip forming

TECHNICAL DATA

Technical Specifications

Specification	Value
Laser source	Air-cooled CO2 laser
Laser output	1 W
Wavelength	10.6 um
Spot size	0.5-1.5 mm
Target response at 0.5 W	>=95% within 4 s
Settled power stability	+/-1%
Rotation speed	Up to 500 rpm
Bonding length	Up to 50 mm
Dimensions	596 x 357 x 500 mm
Machine weight	25 kg

Application Development and Transfer

Engineering and manufacturing teams can evaluate actual components, establish repeatable process recipes, and transfer documented bonding conditions from feasibility testing to pilot production. PET- and PE-based assemblies can be included in application evaluation, with material compatibility and final parameters confirmed against the actual material stack, joint geometry, and acceptance criteria.

DISCUSS YOUR BONDING APPLICATION

Provide the material stack, component drawings, joint geometry, process challenge, and acceptance criteria for an application-specific review.

www.polymerex.com/laser-bonder.html