LBS6000 Catheter Laser Bonder

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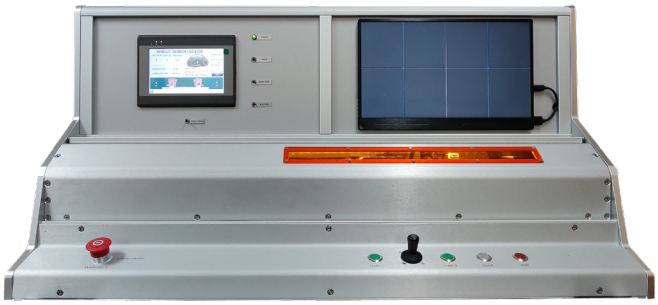
Powered by Innova Design

MMT's LBS6000 Catheter Laser Bonder, powered by Innova Design, provides superior ergonomics and innovative laser safety features with advanced hardware and software features ideal for process engineers. Previous LBS models will be available for existing customers on special request.



KEY FEATURES AND SPECIFICATIONS

- Compact design with horizontal laser shooting.
- 10W CO2 laser with closed-loop control, 2% power stability (with controlled water cooling and PWM % between 20% - 80%).
- Programmable electronic beam shutter for advanced power stability management.
- Integrated diode pointer.
- HDMI machine vision system providing crystal clear picture on screen, including:
  - HDMI camera with steady camera mount
  - Flat 15" LCD monitor
  - Integrated HDMI crosshair generator
- Parallel beam and adjustable slot beam mask (LBS6100).
- Stackable focus lens system allows easy spot size change (LBS6200).
- Motorized focus lens allows programmable spot size (Standard for LBS6300).
- Auto lens position calibration during power-up.
- Spot size retention when power-down and restore during power-up.
- Easy laser aiming adjustment with extra fine threaded adjuster.
- Configurable dual direct drive spindles with servo controller.
- Configurable sample holding system with catheter clamps (LBS6x10) on a fixed aluminum rail.
- Spindles on precision rail with locks (LBS6x20).
- Power open multi-slot segmented sample chuck with 0-1/4" opening (optional).
  - Reliable open/close action with multi-slot segmented sample chuck.
  - No calibration is needed with the multi-slot segmented sample chuck.
  - Compatible with existing 2-slot segmented sample chuck.
- Spindle speed up to 1500RPM (standard 1200RPM), speed change on the fly.
- Spindle spacing greater than 350mm.
- Configurable sample holding system for various types of catheters.
- Laser moving speed 0-30mm/s with 0.01mm/s resolution.
- Joystick laser system jogging (variable speed).
- Joystick spindle jogging (variable speed).
- Laser travel distance 350mm.
- Laser alignment/testing kit.
- 7" high-resolution touch screen HMI.
- Multi-language User Interface (English, Chinese, and Spanish).
- Save up to 1,000 bonding recipes in the controller.
- Allow recipe backup and restore process data export to PC.
- Laser power calibration software included.

MMT – the sole source for automated, process-driven medical manufacturing.

Medical Manufacturing Technologies (MMT) brings together applications expertise, technical solutions, and aftermarket support to revolutionize medical device manufacturing.

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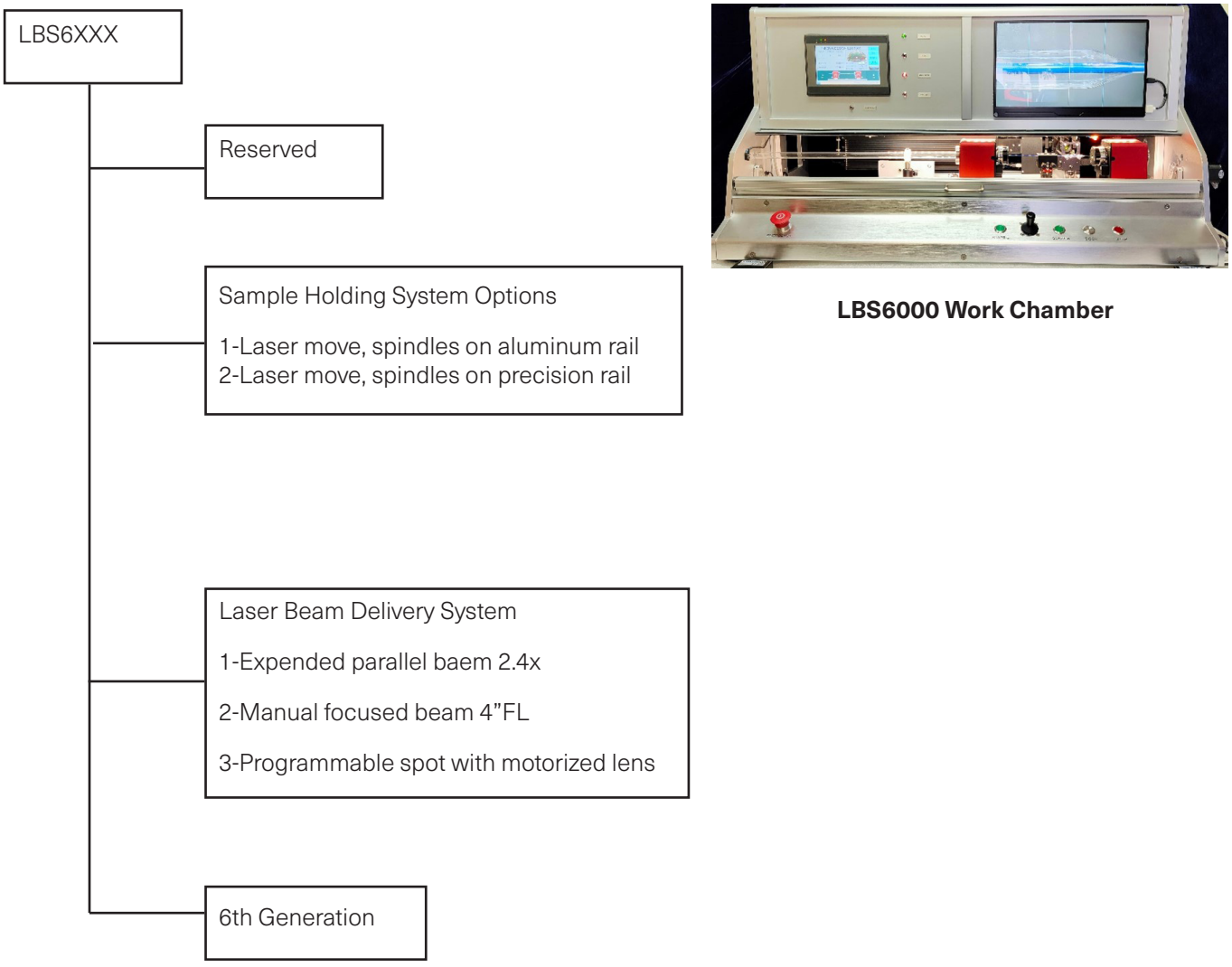
- Multi-step bonding program recipes
  - 40 steps in each recipe
  - Up to 12 parameters in each step
  - Four bonding step types pre-defined:
    1) Static: laser shoots without moving, spindle rotates
    2) Dynamic: laser shoots while moving, spindle rotates
    3) Manual: manually control laser shooting and moving
    4) Swing: spindle swings within an angle while the laser moves
  - Allows incomplete circumferential bond.
  - Laser power, spindle speed, laser travel speed and distance, and laser shooting duration are all programmable in each step.
  - Specify absolute laser power in mW instead of duty cycle %.
  - Easy-to-use touch-screen programming interface.
- Automatic bonding recipe selection with barcode scanner (optional).
- Air cooling capability in each step of a recipe (optional).
- Remote foot switch recipe execution function.
- Execution counters to assist production management.
- Redesigned aluminum safety enclosure with safety door interlock switch, True CLASS I laser system.
- Tinted acrylic viewing window on safety door.
- Motorized revolving safety door.
- Laser cooling system chassis included (1/4" OD tubes directly hoop up with chiller).
- Wide open enclosure design allows easy sample loading/unloading.
- Optional laser power calibration hardware package with auto-calibration.
- Universal power supply (110/220VAC 50/60 Hz).
- Shipping weight 250 lbs (approximately).

LBS6000 MODELS

LBS6000 models support laser movement only. Previous LBS5000 models will be available for existing customers on special request if the customer requires a sample move instead of a laser move.



LBS6000 Work Chamber

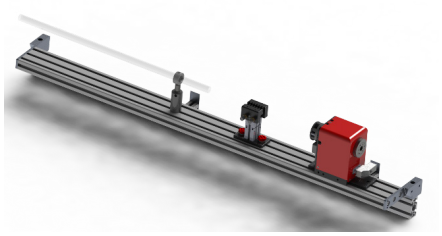
All models have the same base machine. The following table outlines the differences among the models.

Model #	Base Machine	Parallel Beam	Stackable Lens	Motorized Lens	Aluminum Extrusion	Precision Rail	Config #	# of Spindles	# of Clamps	Chucks
LBS6110	10W closed-loop laser with 2% stability, diode pointer, electronic shutter, HDMI monitoring system with crosshair generator, automatic revolving safety door, ULBS HMI and PLC software	x			x		1, 2, 3	1 or 2	1 or more	Any
LBS6210			x		x		1, 2, 3	1 or 2	1 or more	Any
LBS6310				x	x		1, 2, 3	1 or 2	1 or more	Any
LBS6120		x				x		2	0	Any
LBS6220			x			x		2	0	Any
LBS6320				x		x		2	0	Any

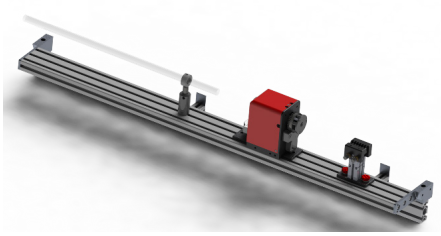
LBS6000 SAMPLE HOLDING SYSTEM

For LBS6x10, spindles and catheter clamps sit on an aluminum extrusion rail. The user can configure the sample holding system as described in the following pictures. Multiple catheter clamps can be used in all three configurations.

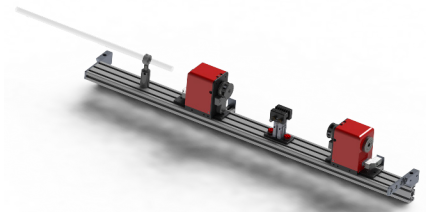
For LBS6x20, both direct drive spindles sit on a precision rail. The cross beam to support the delivery system moves between the two spindles. The user can remove one of the spindles, but not both.



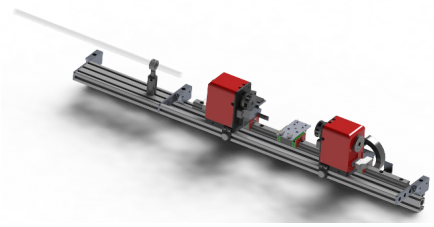
Config #1 Holding System LBS6x10
Good for short or rapid exchange catheter, allows drop loading/ unloading, increased production rate.



Config #2 Holding System LBS6x10
Good for medium-long catheters, more secured holding force.

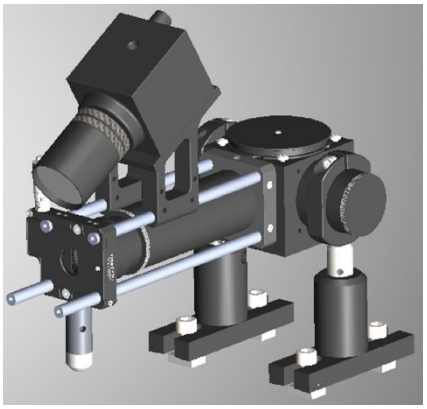


Config #3 Holding System LBS6x10
Good for very long catheters.

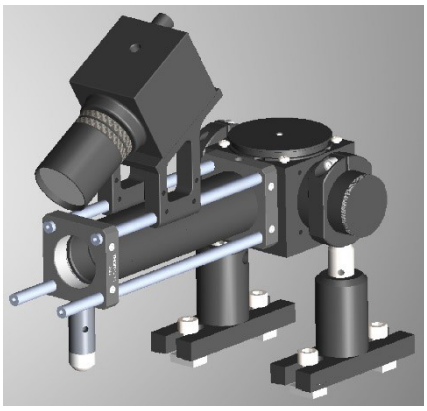


Config #4 LBS6x20 Sample Holding System
Dual spindles sit on precision rail (similar to LBS4000).

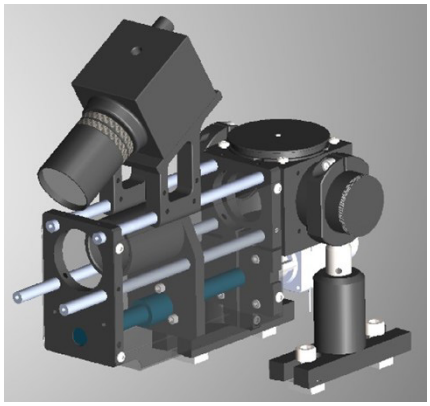
LBS6000 BEAM DELIVERY SYSTEM



LBS6100 produces a parallel beam. The original beam is expanded by 2.4x. The beam is then shaped with a mechanical slot with adjustable width before reaching the catheter. Good for FEP shrink tube applications.



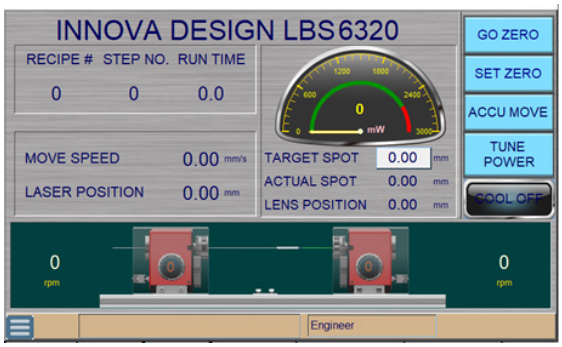
LBS6200 is manually focused with a stackable lens system. A lens with 4" FL is used. A total of 8 spot sizes can be configured. Excellent for consistency and budgetary application.



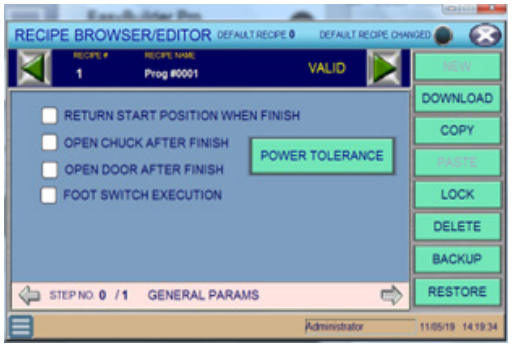
LBS6300 uses a motorized lens. A 4" FL lens is driven by a lead screw and a stepper motor. The system features fast and automatic lens position calibration when the laser bonder is turned on. This guarantees the spot size consistency. It also features spot-size out-of-spec warning for the user. This allows spot size to be programmed in every step of a recipe.

USER INTERFACE

LBS6000 laser bonders possess intuitive and highly dynamic user interfaces, which are easy to learn. Four security levels are built into the software: Supervisor, Engineer, Administrator, and Super Admin. Each level has progressively more access privileges. Super Admin can access almost all machine settings and reset passwords.



ULBS HMI Main Screen – Supports English, Chinese, and Spanish



ULBS Recipe Editor

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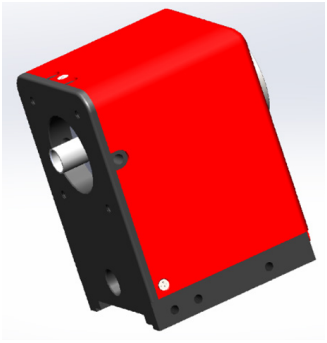
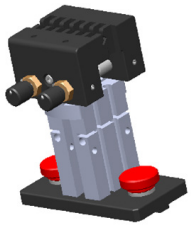
LBS6000 SPINDLES, CHUCKS & CLAMPS

LBS6000 can have one or two direct drive spindles. The spindle is controlled by a servo stepper controller that will control both the rotation of the spindle and the open/close action of the segmented chuck. Every time the laser bonder is turned on, it will check how many spindles are installed and the corresponding configurations (left, right, or both). A spindle can be disconnected while the power is on. The power must be turned off before plugging in a spindle. The following shows the base direct drive spindle. All chucks can be directly installed on the shaft of the spindle. The hollow shaft has a 10mm bore.

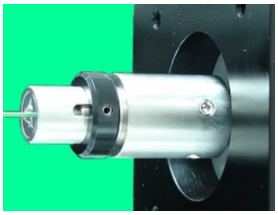


Base direct drive spindle



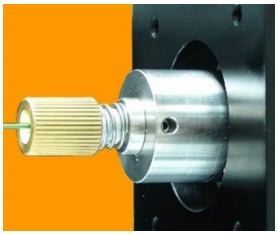
Catheter Guiding Clamp

CHUCK OPTIONS



The precision gapless micro chuck directly holds the distal support mandrel.

The power open segmented chuck has a 0-1/4" opening. The plastic segment can directly hold the tubing and mandrel, making it easy to insert samples.



The Tuohy Borst chuck and soft rubber ring makes direct contact with tubing.

The Luer lock chuck directly holds and rotates the catheter with a pre-molded luer.