MRSI Systems, part of Mycronic Group, is the leading manufacturer of fully automated, high-speed, high-precision and flexible eutectic and epoxy die bonding systems. We offer “one-stop-shop” solutions for research and development, low-to-medium volume production, and high-volume manufacturing of photonic devices such as lasers, detectors, modulators, AOCs, WDM/DCM, TO-Cans, Optical transceivers, LDAs, VPRs, sensors, and optical switches. With over 30 years of experience in the industry and our worldwide local technical support team, we provide the most effective systems and assembly solutions for all packaging levels including chip-on-wafer (Cow), chip-on-carrier (CoC), PCB, and gold-box packaging. For more information visit www.mrsisystems.com.

Mycronic is a Swedish high-tech company engaged in the development, manufacture and marketing of production equipment with high precision and flexibility requirements for the electronics industry. Mycronic headquarters is located in Täby, north of Stockholm and the Group have subsidiaries in China, France, Germany, Japan, Singapore, South Korea, the Netherlands, United Kingdom and the United States. Mycronic (MYCR) is listed at Nasdaq Stockholm. www.mycronic.com

Specifications are subject to change without notice. October 2019

Ultimate Speed Scaling Applications 1.5 Micron
MRSI Systems has been serving optoelectronic and microelectronic customers for the past 35 years and understands their requirement to scale efficiently in today's fast-paced marketplace.

Applications are found across a wide range of market segments, such as life & health sciences, aerospace, defense, automotive, lighting, communications, and more.

MRSI’s “one-stop-shop” die bonding solutions help our customers to enable just-in-time supply and fast-pace innovations of critical components for high-growth market segments. The MRSI-HVM and MRSI-H provide industry-leading high-speed for high-volume manufacturing.

These die bonding solutions are built with the same hardware and software platforms configured to minimize process deviations, reduce NPI cost, and increase ROI for customers with MRSI’s long proven product reliability and global customer support.

MRSI-H DIES BONDER

APPLICATIONS

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Standard</th>
<th>Heated Base</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>CoC/CoB/CoL</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>SiC Silicon Photonics</td>
<td>✔</td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>3D Die Stacking</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Flip-to-Fill Bonding</td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>ACC/RCC</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>CoG Box</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>TO-TOSA, ROISA</td>
<td>✔</td>
<td>✔</td>
<td></td>
</tr>
<tr>
<td>TO-ELM-ELM</td>
<td></td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

PROCESSES

- Multi-die Multi-Processes ✔ ✔ ✔
- Epitaxial Epoxys Bonding ✔ ✔
- Encapsulating Dispensing ✔
- UV Curing ✔
- Localized Heating ✔
- Flip-Chip Bonding ✔
- Co-planarity Bonding ✔ ✔

FEATURES AND OPTIONS

- Composite Base ✔ ✔ ✔
- Single Canopy/Head ✔ ✔
- Heated Head ✔
- Single Ultrabit Eutectic Station ✔ ✔
- On-the-fly Tool Change ✔ ✔
- Remote Auto Tool Change ✔
- TO-PEC-200/400 Head ✔
- Dual TO 0° & 90° Eutectic Station ✔
- Output Stage ✔
- Inline Conveyor ✔ ✔
- Input GP/WP & Wafer ✔ ✔

MRSI-H-DIE BONDER

- Bonding large dies for high-power laser diodes, which are used in advanced photonics such as industrial lasers, optical fiber amplifications, lighting, and sensors
- Carries key technological building blocks from our field proven, flexible and high-speed MRSI-HVM platform
- Delivers industry leading throughput, superior flexibility, and accuracy
- Enables our high-power laser diodes and other photonics customers to scale up their business
- Capable of die bonding single emitter CoS, Laser Diode bar on submount, and die on C-mount in one machine

MRSI-H-TO

- Capability of processing complex TO cans at high-speed without tool changeover
- TO handler combined with pick and place head for dual parallel processing
- “On-the-fly” auto tool changer has twelve vacuum tips/collets integrated on the bonding head for zero-time tool change between dies, which is ideal for multi-die TO products such as WDM & EML-TOs
- Capability of both epoxy and eutectic die bonding

Values

- Industry leading high-speed for high-volume manufacturing
- Industry leading high-accuracy for better assembly yield and future higher density packaging
- Industry leading high-flexibility for true multi-die multi-process production in high-volume, high-mix manufacturing
- Industry leading local technical support teams and application expertise
- 35+ years of experiences in industry with reliable 24/7 field operations