

# PowerLine L100 SHG/L400

## Laser systems for high-speed material processing and PV applications

The PowerLine L series was specifically designed for material processing applications requiring high average power and high pulse energy. Examples are thin film removal on glass and flexible materials, silicon processing, surface treatment.

The Nd:YAG lasers are efficiently diode pumped and designed for industrially reliable 24/7 operation. The laser sources are available at 1064 nm (PowerLine L 400) and 532 nm (PowerLine L 100 SHG).

Standard configuration includes a fiber delivery to the processing head. The 532 nm uses a high performance SHG assembly with intracavity harmonic generator crystal for highly efficient frequency conversion.

### 1000 Times more powerful than a cw laser

The unique principle of q-switching make peak pulse performances possible that are a 1000 times higher than the cw laser power. This process is repeated with frequencies up to 50,000 Hz. The pulse lengths are in the range of 50 to 300 ns.

### High performance scan head

The PowerLine L standard configuration includes a fiber outcoupling and scan head assembly supporting scan speeds of up to 10 m/sec depending on focal length.



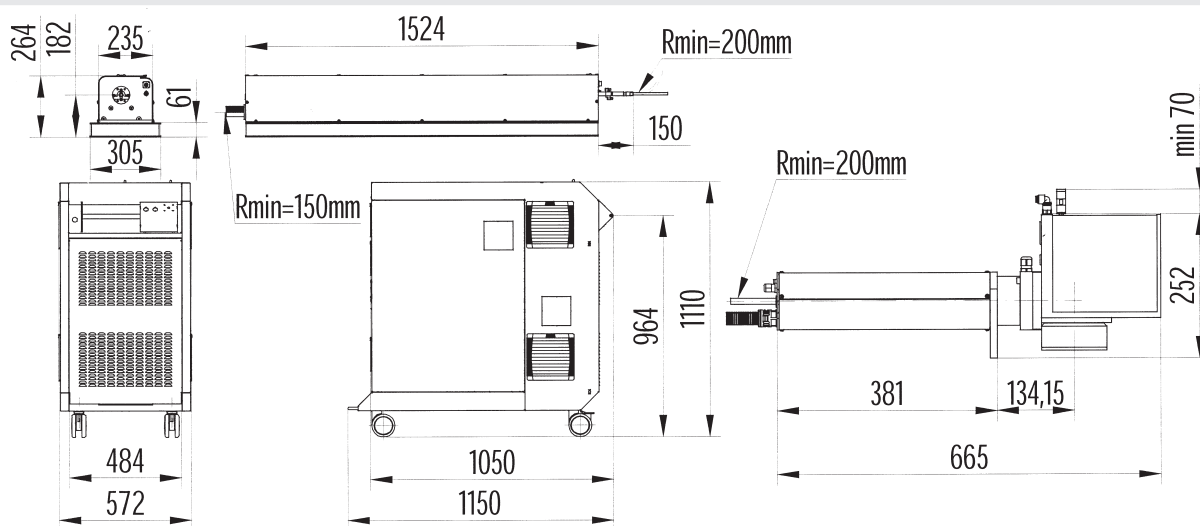
The scan heads offered are high performance precision devices supporting very high accuracies. The safety shutter and safety circuit incorporated into the laser head and supply unit are further simplifying integration, meeting EN ISO 13849-1 standard.

### Features

- high ablation rates
- high performance scan heads
- fiber beam delivery - round, square and rectangular (patent pending)
- top hat beam profiles
- high peak power / short pulse width
- excellent pulse-to-pulse stability
- easy integration / ROFIN control unit (RCU)
- long-term stable 24/7 industrial operation

*Within the ROFIN group, ROFIN-BAASEL Lasertech is responsible for the laser micro market. The wide range of products includes laser systems for high precision welding, cutting, structuring and drilling. The complete product development is carried out in-house in direct cooperation with customers. Numerous innovations worldwide and more than 33,000 lasers and laser systems in use all over the world indicate the creative energy and product quality of the ROFIN group for more than 35 years.*

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## Specifications

| Laser                             |     | PowerLine L 100 SHG   | PowerLine L 400                         |
|-----------------------------------|-----|---|---|
| <b>Beam characteristics</b>       |     |   |   |
| Wavelength                        | nm  | 532   | 1064                                    |
| Max. output power                 | W   | 100   | 325                                     |
| Pulse frequency                   | kHz | 6 - 50  | 6 - 50 kHz and cw                       |
| Pulse width (nominal)             | ns  | 100 at 10 kHz   | 70 at 10 kHz                            |
| Pulse peak power                  | kW  | > 80 at 10 kHz  | > 420 at 10 kHz                         |
| Pulse energy                      | mJ  | 10 at 10 kHz  | 30 at 10 kHz                            |
| Beam delivery                     |     | fiber optics and scanner head                                     |   |
| Beam quality                      |     | multimode   | multimode                               |
| Beam profile                      |     | flat top  | flat top                                |
| Pulse to pulse stability          |     | < 3 % rms up to 30 kHz  | < 3 % rms up to 15 kHz                  |
| <b>Utility</b>                    |     |   |   |
| Electrical                        |     | 400 V - 3P + N + PE<br>16 A - 50/60 Hz                            | 400 V - 3P + N + PE<br>32 A - 50 / 60 H |
| Power consumption                 | kW  | 3   | 4                                       |
| Cooling                           |     | water / water   | water / water                           |
| <b>Measures</b>                   |     |   |   |
| Weight laser source               | kg  | 107   | 107                                     |
| Weight supply unit                |     | 150   | 150                                     |
| Dimensions laser source w x h x d | mm  | 1530 x 264 x 305  | 1530 x 264 x 305                        |
| Dimensions supply unit w x h x d  | mm  | 572 x 1110 x 1150   | 572 x 1110 x 1150                       |
| <b>Options</b>                    |     |   |   |
| Scanner system                    |     | RS 20   | RS 25                                   |
| F-Theta lens                      |     | f = 255 mm  | f = 160 or 254 mm                       |
| Spot shape                        |     | round, square and rectangular (patent pending) beam shape options |   |

Selected options and detailed technical specifications on request. All data are subject to change without further notice. © ROFIN-BAASEL/POWERLINE/0810/E/1.0/M4.0/ROBI-ARTMANN-LIDCOARGEL200

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