

Technical Bulletin

Issue: Protection of ti100P Optics #0031

Date: 17 December 2019

Description: The combination of high peak output power and a small beam diameter on the ti100P laser makes it an absolute necessity to keep the laser's output optic clean. Any debris on the output optic that is subject to the beam exiting the laser will quickly damage the optic, resulting in catastrophic failure of the laser.

For this reason, standard ti100P lasers are shipped with a BE-300, BE-400, or BE-500 expander attached. The expander provides a larger beam at its output optic and a flexible seal between the expander and the laser's front plate to protect laser's output optic from contamination and damage.

Operating the Ti100P Without a BE-xxx Expander

For customers that choose to operate the ti100P without the factory installed beam expander, the following practices must be followed:

1. Operate the laser in a clean, dry environment
2. Enclose and seal the beam path – the use of O-rings or a dust seal equivalent is required
3. Use low pressure nitrogen or very clean air to purge the beam path to further prevent dust ingress
4. Use of fume extraction and an air knife to deflect process debris away from the laser output of the beam path
5. Take steps to prevent condensation (see Technical Bulletin #0012b)

Important Note: It is the customer's responsibility to eliminate the possibility of optics contamination due to environmental conditions including, but not limited to, dust, debris, smoke, and condensation. These contaminants cause severe laser damage that is not covered under warranty and leads to expensive repair costs.

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