



Water Cooling System Laser Head Cooling User Manual

User Manual

For the water cooling solution for RGB Lasersystems laser heads

Version: 1.0

Date: 08.09.2026

This document is protected by copyright. Do not copy or publish this document or parts of it without written permission of RGB Lasersystems GmbH. Product specifications and descriptions in this manual are subject to change without notice. RGB Lasersystems GmbH will not be responsible for errors and omissions in this manual or for direct or incidental damages in connection with the use of this device or information.

© 2026 RGB Lasersystems GmbH
Hauptstraße 35
93342 Saal an der Donau
Germany

Telephone: +49 9441 1750 33 - 0
Website: www.rgb-lasersystems.com
E-Mail: <mailto:sales@rgb-photonics.com>

Contents

1 Introduction	1
2 Installation	2
2.1 Components	2
2.2 Setup Instructions	4
2.3 Pump Specifications	5
3 Maintenance	5
3.1 Routine checks.....	5
3.2 Longer periods of non-use	5

1 Introduction

The water cooling solution for RGB Lasersystems laser heads is designed to remove heat from the laser head and support stable operation of the laser system.

The setup combines a water-cooled laser base plate with an Alphacool Eisstation, radiator, cooling tubes and the required connectors. Together, these components form a closed cooling circuit through which the coolant circulates continuously.

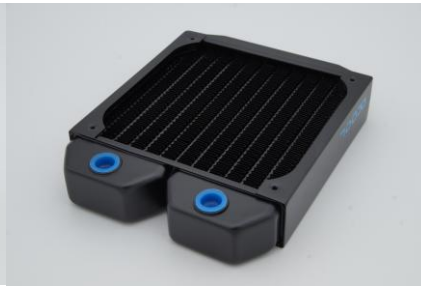


2 Installation

2.1 Components



Eisstation



Radiator



Tubes and Connectors



Alphacool coolant



Laser head

Before installation, make sure that the following parts are available:

1. Eisstation with power supply
2. Radiator
3. Small and large cooling tubes in the required lengths
4. Adapter blocks
5. Small and large connectors
6. Push-on hose fittings for the water-cooled laser head.
7. [Alphacool Tec Protect 2 Clear 1000 ml coolant](#) (article no. 18651).

Required coolant

The coolant is supplied ready to use. Do not dilute it or replace it with tap water.



All components (except Alphacool coolant)

2.2 Setup Instructions

Before assembly, make sure that all required components are available and that the laser system is switched off.

1. Screw the small hose fittings into the water-cooling base plate of the laser head.
2. Push the small tubes onto the connectors until they are fully seated.
3. Connect the small tubes to the adapter blocks.
4. Attach the large connectors to the large cooling tubes and tighten them securely.
5. Remove the protective caps from the radiator and screw the large connectors into the radiator ports.
6. Screw the large connectors into the IN and OUT ports of the Eisstation.
7. Connect the cooling loop in the following order:

Eisstation OUT → Radiator → Laser Head → Eisstation IN

8. Make sure that all tubes are fully connected and are free from kinks, twists or mechanical tension.
9. Open the fill port of the Eisstation and fill the reservoir with the specified coolant.
10. Connect the Eisstation to the power supply and switch on the pump.
11. As the coolant starts circulating and the level drops, add more coolant as required. Do not allow the pump to run dry, and do not fill the reservoir completely. Leave sufficient space for coolant expansion. 5mm buffer in the reservoir is sufficient.
12. Allow trapped air to leave the cooling circuit, then close the fill port securely.
13. Check all connections for leaks before switching on the laser system.

The small tubes are secured by the push-fit connection and will not disconnect due to pump pressure alone. However, accidental pulling or other mechanical loads may disconnect the tube. Avoid tensile and bending loads on the connection. For applications exposed to vibration or frequent handling, a suitable miniature retaining clamp may be used as an additional safeguard against accidental pull-out.

Note: When long tubes are used, position the Eisstation, radiator and laser head at approximately the same height to ensure reliable pump operation.



Water cooling setup (AI-generated schematic illustration; actual component appearance may differ)

2.3 Pump Specifications

The following specifications apply to the pump used in the Eisstation.

Parameter	Specification
Dimensions	61 × 60 × 21 mm
Weight	150 g
Supply voltage	12 V
Max. power consumption	10.4 W
Max. pump head	3.70 m
Max. differential pressure	Approx. 0.36 bar

3 Maintenance

Regular inspection helps ensure reliable operation of the cooling system.

3.1 Routine checks

1. Check all hose connections for leaks.
2. Check hoses for kinks, cracks or visible damage.
3. Check the coolant level and top up with the specified coolant if required.
4. Keep the radiator free of dust to maintain proper airflow.

3.2 Longer periods of non-use

Drain the coolant from the cooling lines before longer periods of non-use.

Before restarting the system, refill the cooling circuit and check all connections for leaks.