

User Guide

Vaisala K-PATENTS®
Cooling Cover PR-14038

PR-43



Cooling Cover User Guide

1 Introduction

The cooling cover adds water cooling to a PR-43 refractometer when the refractometer temperature threatens to rise too high for its electrical components. A cooling cover is needed when the ambient temperature is over 45 °C (113 °F) or the refractometer internal temperature alarm has been triggered, which happens when the internal temperature rises over 65 °C (149 °F). It is recommended to use cooling cover when internal temperature rises above 60 °C (140 °F). The cooling cover is installed between the cover plate and the sensor cover.

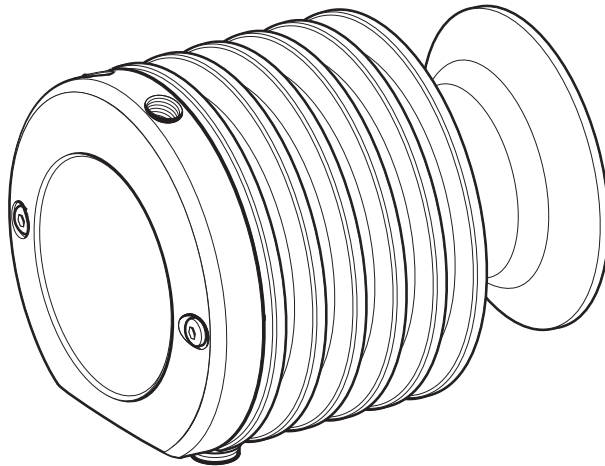


Figure 1.1 Cooling cover

1.1 Disposal

When wishing to dispose of an obsolete instrument, please observe local and national regulations and requirements for the disposal of electrical and electronic equipment. The cooling cover can be recycled with other metallic waste of the same type.



2 Installation

2.1 Installing the cooling cover

The cooling cover delivery contains the following parts:

- Cooling cover
- 2 x screw M4x25 Torx DIN7895
- O-ring PR-14002-FPM
- desiccant (dryer)
- 2 x M5x20 pulling screw

Important: Before opening refractometer the cover and touching the electronic parts, ensure that the working table and the person are grounded. Wear wrist or foot grounding equipment.



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Figure 2.1 Grounding the work environment

To install the cooling cover:

1. Remove the cover plate retaining screws.
2. Remove the cover plate with M5x20 pulling screws.

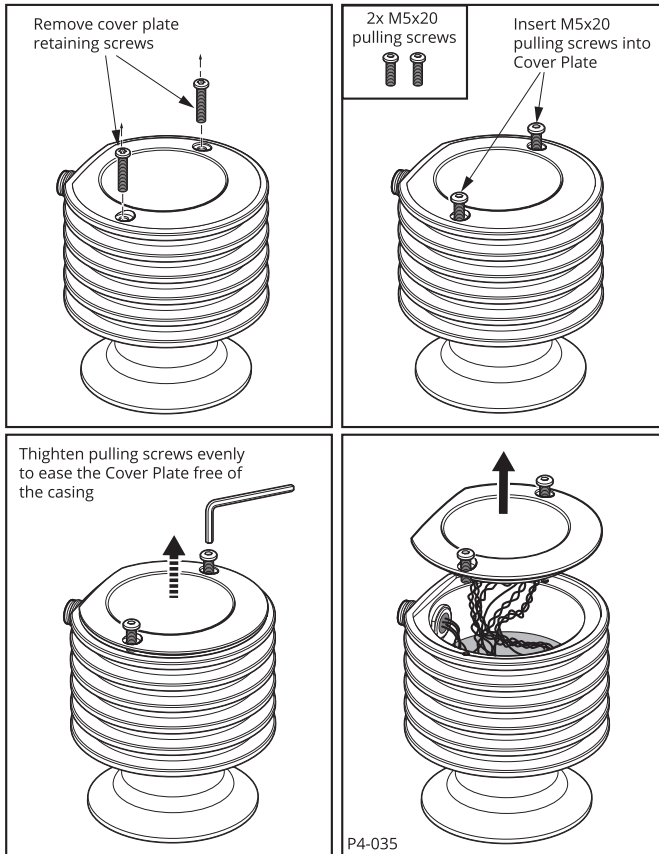
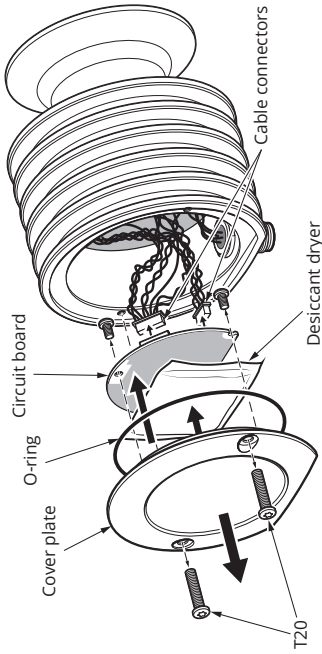
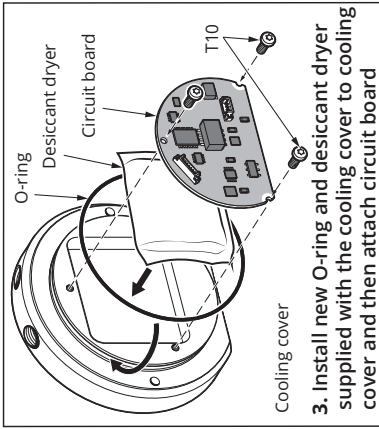
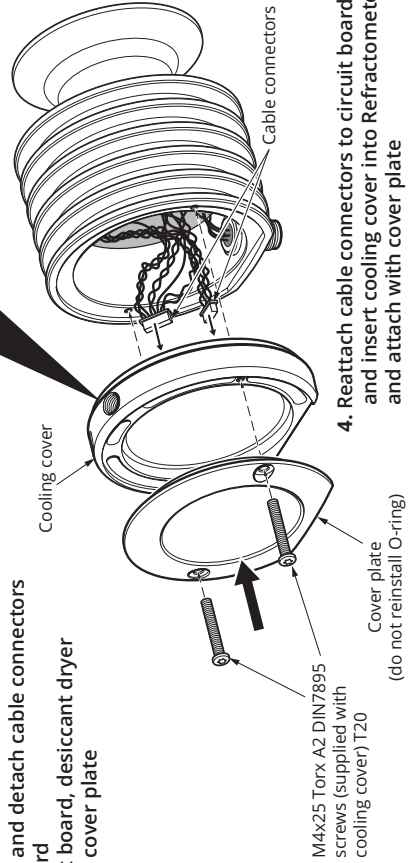


Figure 2.2 Removing the cover plate with pulling screws

3. Detach the cable connectors from the circuit board. Then unscrew the circuit board. Remove the desiccant and O-ring, they are not needed any more.
4. Add the new O-ring and the new desiccant to the cooling cover (fold the edges of the desiccant under the package to make it fit the slot) and screw on the circuit board. Reattach the cable connectors to the circuit board.
5. Insert cooling cover into the refractometer, add cover plate and fasten with the new longer screws. Note that there is no O-ring between the cover plate and the cooling cover.



1. Remove cover plate and detach cable connectors from the circuit board
2. Then remove circuit board, desiccant dryer and O-ring from the cover plate



4. Reattach cable connectors to circuit board and insert cooling cover into Refractometer and attach with cover plate

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2.2 Connecting cooling water

Cooling water recommendations	
Temperature	5-25°C (41-77°F)
Pressure	max. 6 bar (87 psi)
Flow	max. 0.25 l/min (0.7 GPM)

The flow can be quite a bit below maximum as long as the sensor internal temperature stays below 60°C (140°F). Vaisala recommends that used water is directed to a drain.

The coolant connection is a 1/8 in NPT female thread. Connect inlet to one and outlet to the other connection, it does not matter which way they are connected, because the cooling cover is symmetrical.

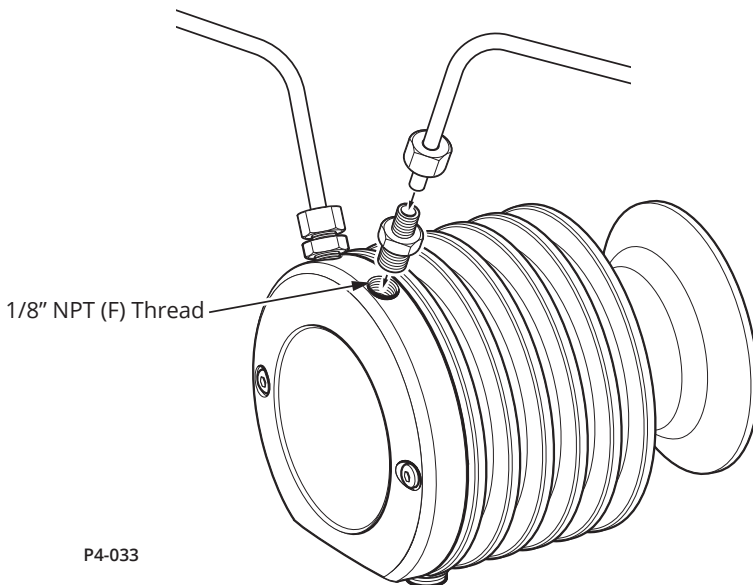


Figure 2.3 Connecting the coolant hose

2.3 Removing the cooling cover

If you want to remove the cooling cover, use the two M5x20 pulling screws: first remove the cover plate retaining screws and the cover plate. Then remove the cooling cover with the pulling screws.

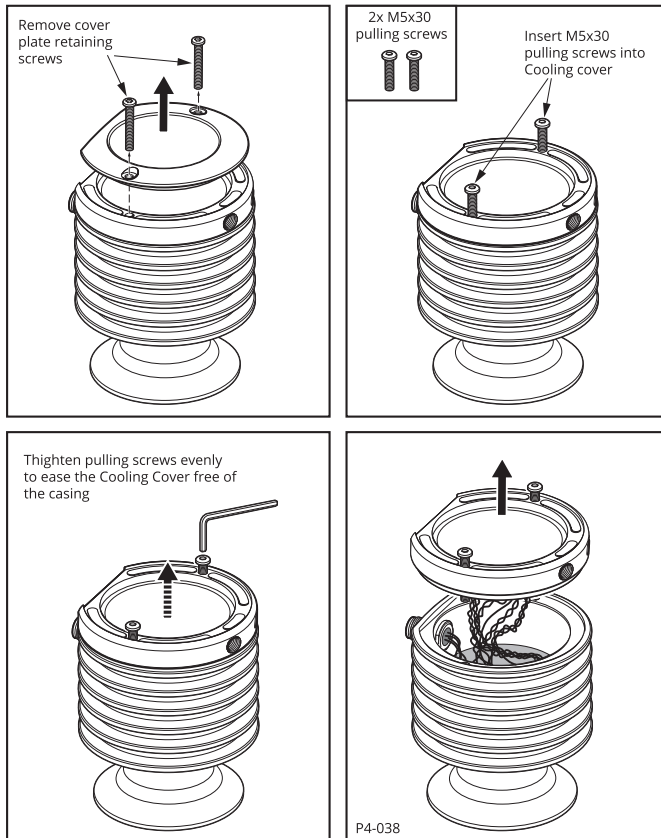


Figure 2.4 Removing the cooling cover with pulling screws

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