

Rheometers

Rheometer in a glovebox

When safety matters

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Keywords

HAAKE MARS iQ Rheometer series, HAAKE Viscotester iQ Rheometer series, glovebox



Figure 1: The HAAKE Viscotester iQ Rheometer can be conveniently transferred to the glovebox via an antechamber.

Operation of the Thermo Scientific™ HAAKE™ Viscotester iQ and HAAKE MARS™ iQ Rheometer series were successfully tested in a glovebox under an argon gas atmosphere.

The drive unit bearings of both rheometer series “Air” versions were operated with argon gas from an external compressed gas cylinder. The hose connection between the gas cylinder and the rheometer is made via a feedthrough in the glovebox.

The compact and portable HAAKE Viscotester iQ (Air) Rheometers use a liquid cooled Peltier system for temperature control of the sample. Liquid cooling is carried out via a compact heat exchanger device directly attached to the rheometer. The cooling liquid, which consists of deionized water and an additive, is circulating in a closed system. Depending on the size of the glovebox, the HAAKE Viscotester iQ (Air) may be transferred into the glovebox via an antechamber once it has been dismantled into the two main components: measuring head and bottom stage with temperature control module plus heat exchanger (Figure 1). This eliminates the need to exchange the atmosphere inside the glovebox from air to argon after the glovebox has been fully opened and closed.

HAAKE Viscotester iQ (Air) Rheometers can be operated directly via the touchscreen, without the need for a separate PC with control software. Alternatively, for more comprehensive experimental settings and functionalities, the instruments can be connected to a PC with a control software.

HAAKE MARS iQ (Air) Rheometers can be equipped with an air (gas) cooled Peltier system for temperature control of the sample,¹ without the need for any external heat exchanger or chiller. The Peltier system uses a fan to direct the gas flow through a heat exchanger for cooling and to remove the excess heat to the environment. This accessory also performs under argon atmosphere. HAAKE MARS iQ (Air) Rheometers can also be operated from the touchscreen panel to some extent, but the rheometers always need to be connected to a PC with control software.

For both rheometer series, the connection between instrument and PC is made via an ethernet cable. When operating the instruments in a glovebox, the ethernet cable will connect the rheometer inside the glovebox with the PC outside the glovebox via a feedthrough. Alternatively, a wireless connection between rheometer and PC can be established via a Wi-Fi router.

Ordering information

| Description | Catalog number |
|---|----------------|
| Gas valve, controllable for reduced air consumption | 222-2541 |
| Wi-Fi router | 222-2539 |

References

1. Küchenmeister-Lehrheuer C, Nijman J, Universal Air-Cooled Peltier Temperature Module, Thermo Fisher Scientific product information P078.

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