

# Thermo Scientific HAAKE RheoScope: Universal Holder for optical components for contrast enhancement and customized set-ups

Cornelia Küchenmeister and Fritz Soergel, Thermo Fisher Scientific, Material Characterization, Karlsruhe, Germany

## Key words

Thermo Scientific HAAKE MARS, Thermo Scientific HAAKE RheoScope (Module), Half Circle Diaphragm, Optical filters

The optionally available Universal Holder can be mounted as an additional segment either in the light tube or in the camera tube of any Thermo Scientific HAAKE RheoScope 1 or HAAKE RheoScope Module (Fig. 1). This modification can be made by the user without requiring any tools.

Using this holder in the light tube with a Half Circle Diaphragm provides a contrast enhancement particularly with low contrast samples containing different components with similar refractive indices e.g. oil-in-oil emulsions, chocolate melt or chocolate spread with different kinds of fat.

Fig. 2 shows microscopic images of a dispersion of mineral oil in silicone oil at a defined shear rate, using the Half Circle Diaphragm (Fig. 2 left) and using a standard set-up without the Half Circle Diaphragm (Fig. 2 right).

A plate/plate measuring geometry with 35 mm diameter, polished rotor surface and a measuring gap of 100  $\mu\text{m}$  was used. A significant contrast enhancement can be seen with the Half Circle Diaphragm – particularly for smaller droplets. This contrast enhancement improves also the accuracy of a subsequent particle size distribution determination using an image analysis software (e.g. SPIP software [1]).

The Universal Holder can also be used for individual measuring set-ups with 12.5 mm metric thread standard filters (e.g. [www.edmundoptics.de](http://www.edmundoptics.de)) e.g. for wavelength-dependent investigations using color filters, long pass or short pass filters.

## Order information

222-2074 Optional segment for RheoScope light tube and/or camera tube, Universal Holder for Half Circle Diaphragm and 12.5 mm standard filters, included: Half Circle Diaphragm and mounting ring for 12.5 mm standard filters (filters not included)

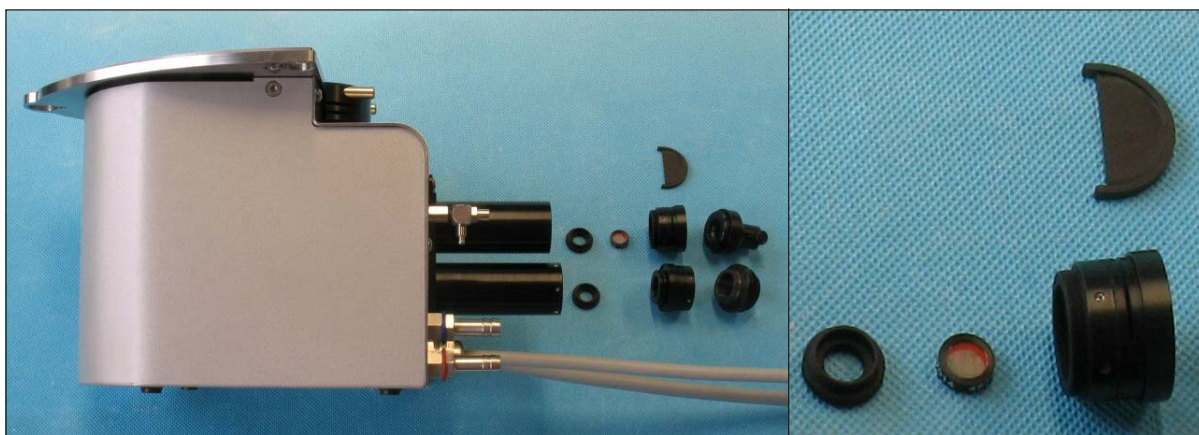


Fig. 1: Optional segment for HAAKE RheoScope light tube and/or camera tube (left), content of delivery of Universal Holder (right): Universal Holder, Half Circle Diaphragm and mounting ring for 12.5 mm standard filters (filter not included).

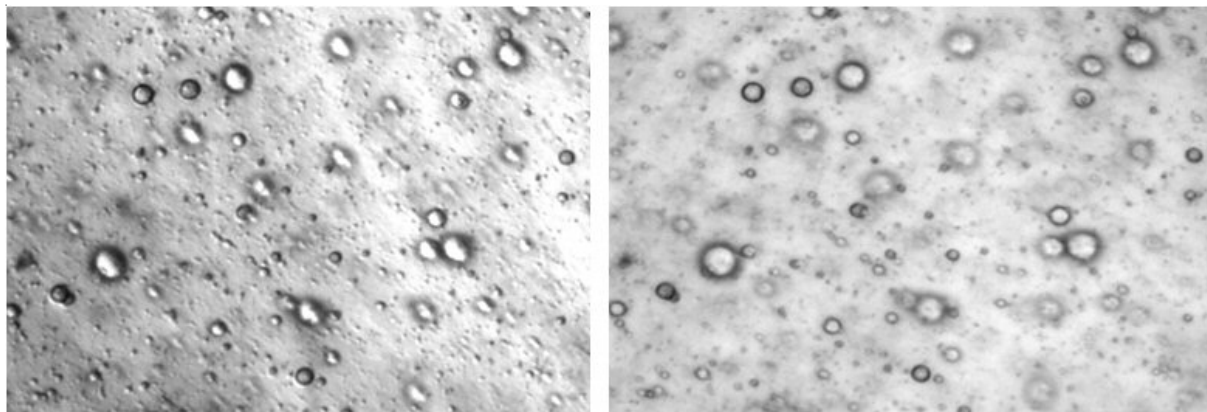


Fig. 2: Images taken on an o/o emulsion (plate/plate measuring geometry, gap 100  $\mu\text{m}$ ) using the Half Circle Diaphragm (left) and without the Half Circle Diaphragm (right).

## References

- [1] Thermo Fisher Scientific Product information P009  
 “SPIP software for analysis of HAAKE RheoScope images“ Cornelia Küchenmeister, Philippe Sierro, Fritz Soergel (2009)

[thermoscientific.com/mc](http://thermoscientific.com/mc)

© 2013 Thermo Fisher Scientific Inc. Copyrights in and to all photographs of instruments are owned by Thermo Fisher Scientific. This document is for informational purposes only. Specifications, terms and pricing are subject to change. Not all products are available in every country. Please consult your local sales representative for details.

### Material Characterization

#### Benelux

Tel. +31 (0) 76 579 55 55  
 info.mc.nl@thermofisher.com

#### China

Tel. +86 (221) 68 65 45 88  
 info.mc.china@thermofisher.com

#### France

Tel. +33 (0) 1 60 92 48 00  
 info.mc.fr@thermofisher.com

#### India

Tel. +91 (20) 6626 7000  
 info.mc.in@thermofisher.com

#### Japan

Tel. +81 (45) 453-9167  
 info.mc.jp@thermofisher.com

#### United Kingdom

Tel. +44 (0) 1606 548 100  
 info.mc.uk@thermofisher.com

#### USA

Tel. +1 603 436 9444  
 info.mc.us@thermofisher.com

#### International/Germany

Dieselstr.4  
 76227 Karlsruhe  
 Tel. +49 (0) 721 4 09 44 44  
 info.mc.de@thermofisher.com

**Thermo**  
 SCIENTIFIC  
 Part of Thermo Fisher Scientific