NYFORS®

CLEAVEMETER 3D™

Product sheet | Nyfors Teknologi AB

CLEAVEMETER 3D™

Optical fiber end-face interferometer with three-dimensional surface topography reconstruction

- Full resolution surface topography reconstruction
- 2D view of surface topography and pointwise slope
- 3D view of surface topography with camera and lighting control
- Extremely accurate, operator independent measurements of cleave angle and surface flatness over arbitrary diameters
- Optional pass/fail indication of cleave angle for fast operation in production environments

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THE CLEAVEMETER 3D™ is a non-contact interferometer designed for inspecting the end-faces of cleaved or polished optical fibers with cladding diameters of 125µm to 1200µm. It gives immediate and precise information on important end-face properties such as flatness, perpendicularity, hackles and dust. Based on the NYFORS CLEAVEMETER 2™ design, in addition to producing sharp fringe patterns it also generates three-dimensional images of the cleaved fiber end.

When used in this mode, the surface topography is reconstructed from the fringe pattern and presented graphically as a three-dimensional image of the fiber end. By rotating the image and adjusting the scale and contrast, the surface quality and cleave angle at different points can be analyzed in close detail, allowing for a more comprehensive understanding and accurate interpretation of the data and the cleaving process.

While this capability is always important to cleave quality analysis, it can be even especially helpful when analyzing cleaving of fibers with complicated structures such as polarization maintaining fibers, or micro-structured fibers. Information on surface topography can also be saved to a file for further analysis using third party software.

Extremely accurate measurements of both cleave angle and surface flatness over arbitrary diameters can be performed on the reconstructed end-face surface. These measurements are carried out automatically, with full operator independence. This makes the system well suited not only for detailed cleave quality analysis in laboratory environments, but also for close production monitoring.

In addition to cleave angles, the system can also be used to measure a number of other properties such as plane angles, fiber diameters and the distance between points. The software allows the user to view the pointwise slope across the whole fiber end-face, a very useful tool for spotting small scale irregularities and crack propagation behaviour.

Adaptor plates are available for both perpendicular and angled cleave measurements. The mechanical design is compatible with all NYFORS automatic fiber cleavers and accepts the fiber holders used with those machines as well as those of major splicer manufacturers. Custom made adaptor plates are available upon request.

THE CLEAVEMETER 3D™ comes in a small, ergonomic bench-top design and connects to the USB port of a PC running the host application. Additional options are available including Autofocus for fast and automated focusing of the camera, and a Shutter Option. This option allows the user to temporarily eliminate the interference patterns for a more detailed view of the end face.

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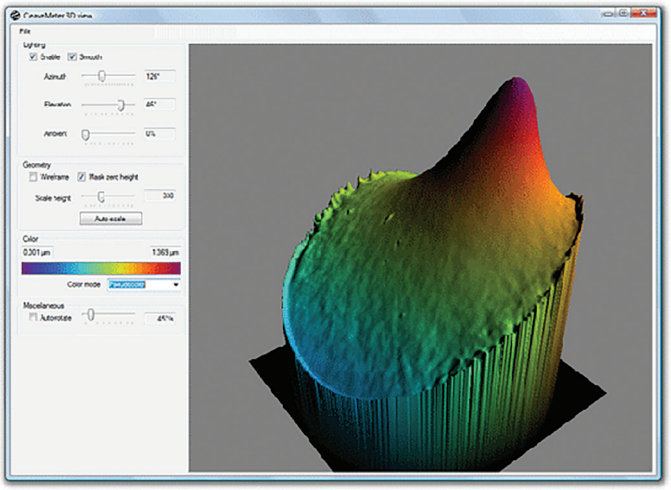

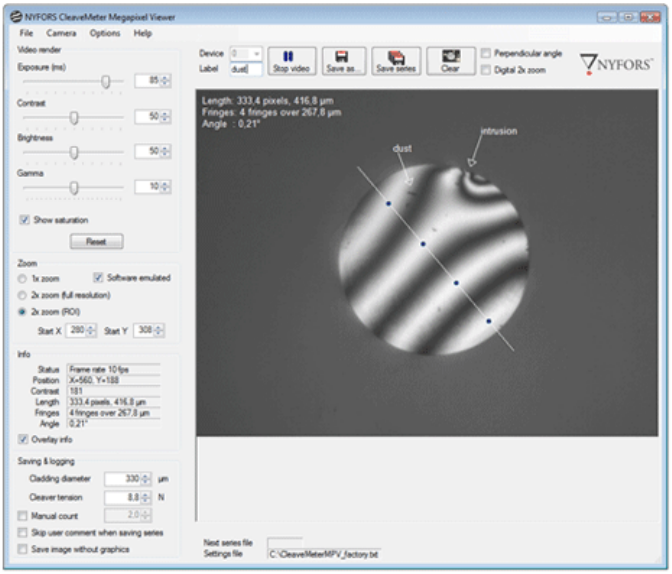

TECHNICAL DATA	3D	3D HD
Fiber cladding	125-1200µm	125-2000µm
Camera resolution	1280x1024 pixels	2592x1944 pixels
Image scale	1.25µm per pixel	1.07µm per pixel
Image file format	8-bit JPEG, PNG, TIFF, BMP/24-bit BMP for surface topography	
PC connection	USB 2.0 port	USB 2.0 port
Power supply	Through USB port	Through USB port
Dimensions	97 mm (W) x 179 mm (D) x 142 mm (H)	
Weight	1.6 kg	1.6 kg

NYFORS part number CLEAVEMETER 3D: 30100013
NYFORS part number CLEAVEMETER 3D HD OPTION: 30100035
NYFORS part number CLEAVEMETER SHUTTER OPTION: 30100036
NYFORS part number CLEAVEMETER AUTOFOCUS OPTION: 30100037

CLEAVE ANGLE ACCURACY

Absolute accuracy	0.01 degrees standard deviation*
Relative accuracy	5 %

* This level of accuracy requires the adaptor plate angle error to be measured/ compensated for on each individual CLEAVEMETER™ the holder is used with. For more information about system accuracy, please contact us at info@nyfors.com.

Selection Guide

Fiber-specific adaptor plates are required in order to properly align different fiber sizes to the center of the CLEAVEMETER™ optical system field of view. They are not included in delivery and should be ordered separately. Adaptor plates are available for use with NYFORS automatic fiber cleavers and fiber holders of major splicer manufacturers such as Ericsson and Fujikura. Below you find a selection of the most common types and dimensions. NYFORS generic adaptor plates are compatible with NYFORS LD fiber clamps and Ericsson FSU-clamps. Please select adaptor plate to match fiber cladding diameter and angle adaptor plate (optional) to match fiber tilt angle.

For more information about available adaptor plates and custom sizes, please contact us at **info@nyfors.com.**

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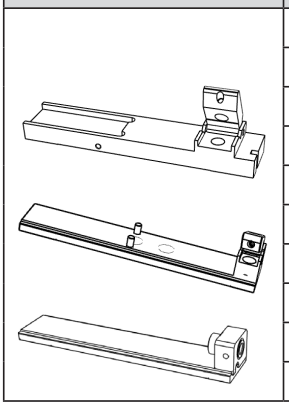
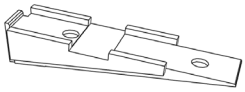
ACCESSORIES FOR CLEAVEMETER							
Adaptor plate	Type	Cladding diameter	Article number	Article description	CM 2	CM 3D	CM 3D+
	FJK	115-210µm	30100001	Adaptor plate, FJK, 115-210µm	•	•	
	FJK	200-529µm	30100002	Adaptor plate, FJK, 200-529µm	•	•	
	FJK	510-800µm	30100003	Adaptor plate, FJK, 510-800µm	•	•	
	FJK	800-1200µm	30100004	Adaptor plate, FJK, 800-1200µm	•	•	
	NYFORS	Customer Specified	30100007	Adaptor plate, NYFORS, Generic	•	•	
	Ferrule	Customer Specified	30100020	Adaptor plate, Ferrule, Generic	•	•	
	FSMA	-	30100024	Adaptor plate, FSMA	•	•	
	SMA	-	30100027	Adaptor plate, SMA	•	•	
	FITEL	115-210µm	30100022	Adaptor plate, FITEL, 115-210µm	•	•	
	FITEL	200-529µm	30100023	Adaptor plate, FITEL, 115-210µm	•	•	

Angle adaptor plate	Angle	Article number	Article description			
	4°	30100021	Angle adaptor plate, 4deg	•	•	
	8°	30100009	Angle adaptor plate, 8deg	•	•	
	15°	30100008	Angle adaptor plate, 15deg	•	•	
	Customer Specified	30100010	Angle adaptor plate, Generic	•	•	

Options	Type	Article number	Article description			
	Premium license	30100014	Premium SW License	•		
	Shutter Option	30100036	CLEAVEMETER Shutter Option	•	•	•
	Autofocus Option	30100037	CLEAVEMETER Autofocus Option		•	

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