

haze-gard i Pro

The objective standard for not only a clear but crystal clear view

Transparent products can have a milky or fuzzy appearance dependent on its light scattering behaviour. The haze-gard i Pro quantifies the visual perception with objective measurement criteria:

- Total transmittance
- Transmission haze
- Clarity

Drop-resistant, scratch-resistant and excellent readability are typical requirements for mobile phone cover glass.

The Pro-version of the haze-gard i is designed for toughest requirements where an advanced performance is needed:

- Objective control of haze < 0.3%
- Repeatability & Reproducibility of +/- 0.01 %

In order to guarantee the advanced performance at very low haze levels an additional calibration point at haze equal to 0.1% is added in the production process and can be verified with an optional low haze checking standard (4798).

At these very low haze levels environmental changes such as light flickering caused by fluorescent light tubes need to be minimized. A black magnetic cover can easily be attached to the instrument top and will ensure that the open measurement port is in the shade.

The repeatability of the measurement results is supported by an auto-averaging of 3 readings at the low haze mode.

Global communication

Haze and transmittance control according to international standard methods with one unit:

- ASTM D1003 - illuminants C and A
Non-compensated method
- ISO 13468 - illuminant D65
Compensated method

haze-gard i displays all results simultaneously - well prepared for any customer specification.

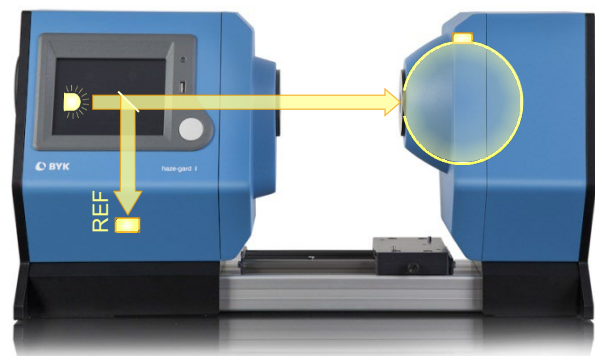
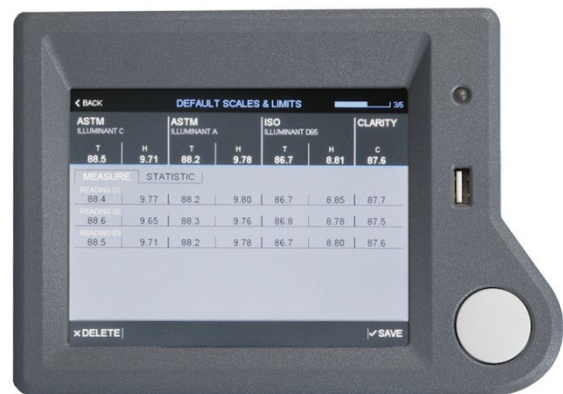
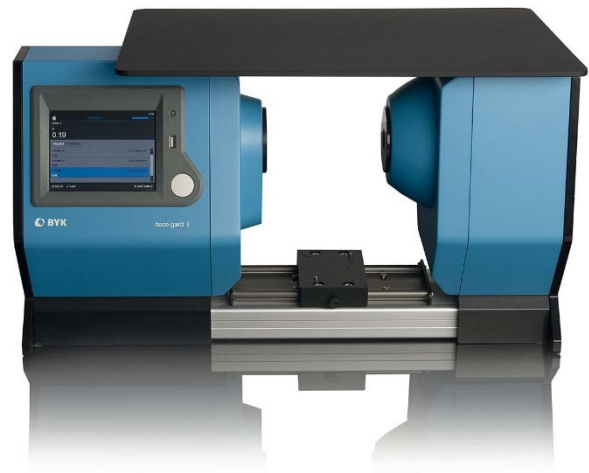
Reliable and Precise

With state-of-the-art optics and LED technology the haze-gard i delivers an unprecedented performance:

- Reference beam, self-diagnosis and enclosed optics.
- LED light source assures long-term stable results for many years: 10 year warranty on the lamp life !
- Automatic, long-term calibration - operator friendly and safe.

Superior repeatability and inter-instrument agreement are guaranteed.

New!



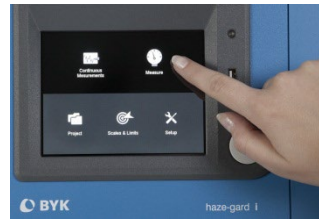
Smart and Fast

The new touch display is designed to be intuitive and easy to use for any task:

- Large touch display in color.
- Symbols to select a menu function.
- Dedicated measurement button.
- Footswitch allows hands-free operation.

Measurement data can be analyzed and saved in projects directly in the haze-gard i for efficient work management:

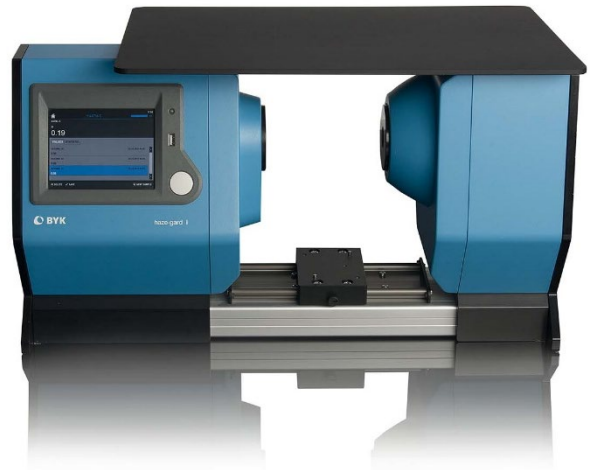
- Large instrument memory (5000 readings).
- Complete statistics with averaging, min / max, standard deviation.
- Limit input for different product specifications with colorful Pass/Fail analysis.



Open and Flexible

The open measurement compartment let's you work freely to analyze any sample size:

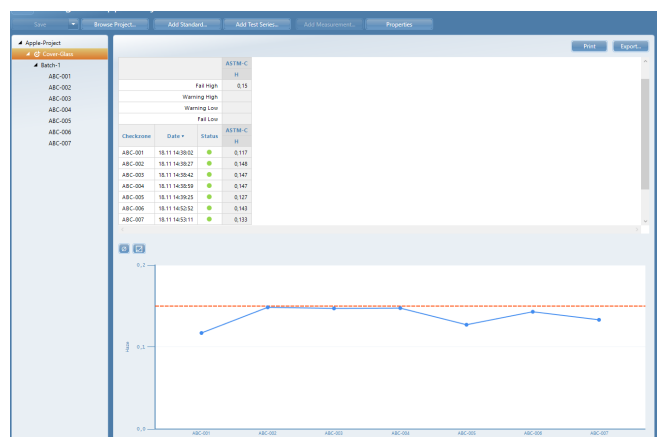
- Open design for small and large specimens.
- Fast change and positioning of samples.
- Versatile sample holder for films and sheets.
- Sample holders for taber abrasion test and cuvettes for liquids optional.
- Customized sample holders can be easily attached.



smart-lab haze for data analysis

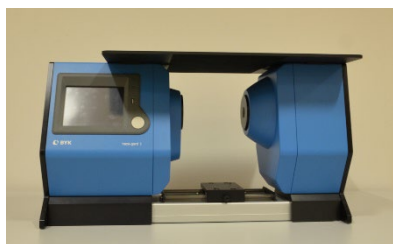
Whatever the task, smart-lab haze will do it for you. From simple data tables of single test series to trend reports over time - anything is possible.

- Define your product specifications in standard management by setting up product groups with Pass/Fail limits.
- Measure your products online and get instant QC reports displayed: Data table with statistic and line graph including Pass/Fail coloring.
- Manage your lab work in projects to show production process stability using trend reports.
- Transfer product specs and projects to haze-gard i and vice versa for daily work management.



Horizontal or vertical set-up

Sample handling in any position is convenient and allows you highest flexibility.



In compliance with:

Standards

ASTM	D1003, D1044
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ISO	13468, 14782
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Ordering Information

Cat. No.	Description
4797	haze-gard i Pro

Comes complete with:

haze-gard i pro
Guide carriage for sample holders
Clarity calibration standard (4776)
Foot switch
Black, magnetic cover to keep measurement port in the shade
Power cord and USB-cable
smart-lab Haze software with 2 licenses for download (4865)
Traceable certificate
Manual
Half day training

System requirements:

Operating system: Windows 10 v. 1607
Microsoft® .NET Framework 4.72
Hardware: Core 2 Duo, 2.5 GHz, i7 recommendet, or equivalent
Memory: 4-8 GB RAM, 16 GB recommendet
Hard-disk capacity: 4 GB during installation
Monitor resolution: 1280 x 1024 pixel or higher
Interface: free USB-port or network access

Technical Specifications

Illuminants	CIE-C, CIE-A (ASTM D1003) CIE-D65 (ISO 13468, ISO 14782)
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Spectral Response	CIE luminosity function y
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Geometry	0° / diffuse
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Measurement Area	ø 18 mm (0.7 in)
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Sample Port	ø 25.4 mm (1.0 in)
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Measurement Range	0 – 100 %
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Repeatability	± 0.1 units (standard deviation)
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Reproducibility	± 0.4 units (standard deviation)
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Haze < 0.3 %	
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R&R	10% of measured value or > 0.01%
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Memory	5000 readings
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Interface	LAN, USB 2.0, additional front USB-port for memory stick
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Power Supply	115/230V self adapting
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Operating Temperature	+10 to 40 °C (+50 to 104 °F)
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Storage Temperature	0 to 50 °C (+32 to 122 °F)
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Dimensions	62 x 33 x 22 cm (24 x 13 x 9 in)
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Weight	18 kg (40 lbs)
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Training

BYK-Gardner offers you more than just an instrument. We train you in the operation of the haze-gard i and data analysis. A half-day training course for haze-gard i operation and smart-lab haze software is included.

Versatile sample holders for specific needs



Easy replacement of holders for different applications.



Special holder for very thin films

Ordering Information

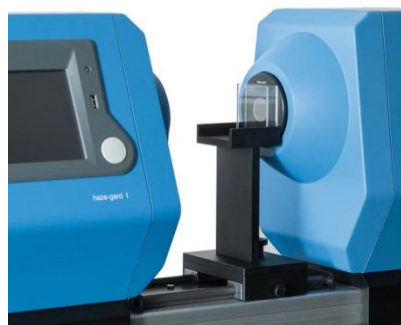
Cat. No.	Description
4784	Thin Film Holder, for 4775
4785	Taber Abrasion Holder, for 4775
4786	Cuvette Table, for 4775
6180	Cuvette for Liquids, 2.5 mm
6182	Cuvette for Liquids, 5 mm
6183	Cuvette for Liquids, 10 mm
6189	Cuvette for Liquids, 20 mm
4865	BYKWARE smart-lab haze

Accessories

Special holder for very thin films
For evaluation of abrasion resistance with the hazemeter
For measurement of liquids
Path length 2.5 mm, edge length 50 mm
Path length 5 mm, edge length 50 mm
Path length 10 mm, edge length 50 mm
Path length 20 mm, edge length 50 mm
Software for professional analysis and documentation



The measurement of haze is used to determine abrasion resistance of transparent materials. The haze-gard i Abrasion Holder facilitates positioning of the abraded area in the measurement beam.



Liquids are best measured using cuvettes and the cuvette table.



Certified

Please refer to section
Preventive Maintenance

Ordering Information

Cat. No.	Description
4776	Clarity Calibration Standard, for 4775
4777	Clarity Reference Standard, for 4775
4798	Haze Standard 1, for 4797
4790	Haze Standard 1, for 4775
4791	Haze Standard 5, for 4775
4792	Haze Standard 10, for 4775
4793	Haze Standard 20, for 4775
4794	Haze Standard 30, for 4775
4795	Haze Standard Set, for 4775
4778	Transmittance Standard 10, for 4775
4779	Transmittance Standard 30, for 4775
4780	Transmittance Standard 50, for 4775
4781	Transmittance Standard 70, for 4775
4782	Transmittance Standard 90, for 4775
4783	Transmittance Standard Set, for 4775

Accessories

Replacement Standard for clarity, certificate included
Test standard for checking purposes, certificate included
Approx. 0.1% haze, for checking purposes, certificate included
Approx. 1% haze, for checking purposes, certificate included
Approx. 5% haze, for checking purposes, certificate included
Approx. 10% haze, for checking purposes, certificate included
Approx. 20% haze, for checking purposes, certificate included
Approx. 30% haze, for checking purposes, certificate included
Set of 5 pieces in hard box, certificate included
Approx. 10% total transmittance, for checking purposes, certificate included
Approx. 30% total transmittance, for checking purposes, certificate included
Approx. 50% total transmittance, for checking purposes, certificate included
Approx. 70% total transmittance, for checking purposes, certificate included
Approx. 90% total transmittance, for checking purposes, certificate included
Set of 5 pieces in hard box, certificate included