

TEST RESULTS and REPORT

for

**Danyang Honghai Optical Glasses
Co.,Ltd (dba Eyelock)**

HF602

by



COLTS | Laboratories™

Precision Testing. Definitive Results.

**COLTS Laboratories maintains A2LA accreditation to ISO/IEC 17025 for the tests listed on Certificate # 1612.01.
Any tests not included on this certificate have been identified on the appropriate test result page.**

Also Certified for testing by the Safety Equipment Institute

Z-DHO031920-01

- Unless otherwise stated, results in this report apply only to the samples tested and not to lots from which they were taken.
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- Unless otherwise requested, test samples will be discarded 21 days from the report date.

COLTS Laboratories

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**PRODUCT
RESULTS
SUMMARY**

A2LA Accredited Certificate # 1612.01

**Danyang Honghai Optical Glasses Co.,Ltd (dba Eyelock)
DH0031920-01**

COLTS Project ID	Test/Models(s)	Results Pass / Fail	Reason	Page
Z-DHO031920-01-01	ANSI Z87.1-2015 Goggle High Impact Base Model HF602 Clear Indirect Vent Frame, Clear Lens (U6)	Pass		1
Z-DHO031920-01-02	ANSI Z87.1-2015 - 7.2.1.1 Transmittance Requirements (U) HF602 Clear Indirect Vent Frame, Clear Lens (U6)	Pass		6

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**Report
Summary**

A2LA Accredited Certificate # 1612.01

Report To:

Danyang Honghai Optical Glasses
Co.,Ltd (dba Eyelock)
No. 88 Highway 122, Development Zone
Danyang City, Jiangsu Province 212300 China

Project

of Model(s): HF602
Report of: ANSI Z87.1-2015
Project ID(s): Z-DHO031920-01-01



Attn: Sam Zhu

Date: March 23, 2020

Product Description: Clear Indirect Vent Frame, Clear Lens (U6)

On March 19, 2020, COLTS Laboratories received Goggles: HF602 from Danyang Honghai Optical Glasses Co.,Ltd (dba Eyelock) . From March 23, 2020 through March 23, 2020 COLTS Laboratories tested these Goggles in accordance with ANSI Z87.1-2015 to the following test protocol: ANSI Z87.1-2015 Goggle High Impact Base Model.

Detailed test results are included.

Final Conclusion:

The Goggles: HF602 (Clear Indirect Vent Frame, Clear Lens (U6)) do comply with ANSI Z87.1-2015 for the test(s) included in this report.

COLTS makes all statements of conformity (Pass/Fail) based on actual values reported, unless otherwise stated.

Please contact us should you have any questions concerning this report.

Respectfully submitted,

COLTS Laboratories

Daryl Neely
Vice-President & COO

Dale Payne
Technical Services Manager

Report To: Danyang Honghai Optical Glasses Co.,Ltd
(dba Eyelock)
Project No: Z-DHO031920-01-01



Sample ID:
HF602
Clear Indirect Vent Frame, Clear Lens (U6)

A2LA Accredited Certificate # 1612.01

Report Date: 3/23/2020

Lab Temp (C): 23

Lab Rh: 53

Report of: ANSI Z87.1-2015

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Quality	5.1.1	Protector lenses shall be free of: striae, bubbles, waves and other visible defects which would impair the wearer's vision.	Acceptable	Pass
Luminous Transmittance	5.1.2	Clear lenses shall have a luminous transmittance of not less than 85%. Luminous Transmittance	Acceptable	Pass
		Left Eye	91.3%	Pass
		Right Eye	91.4%	Pass
Haze - Clear Lenses Only	5.1.3	Clear plano lenses shall not exhibit more than 3% haze. Haze	Acceptable	Pass
		Left Eye	0.15%	Pass
		Right Eye	0.12%	Pass
Goggle Refractive Power, Astigmatism, Resolving Power, Prism and Prism Imbalance for Plano Protectors	5.1.4	The tolerance on refractive power, astigmatism and resolving power shall be as indicated below. The tolerance on prism and prism imbalance shall be as indicated below. Filter lenses of shade 9 or higher are exempt from this section.		
		Refractive Power ($\pm 0.06D$)	Acceptable	Pass
		Left Eye	+0.010	Pass
		Right Eye	+0.010	Pass
		Astigmatism (0.06 Max)	Acceptable	Pass
		Left Eye	0.020	Pass
		Right Eye	0.020	Pass
		Resolving Power (20 Min)	Acceptable	Pass
		Left Eye	Acceptable	Pass
		Right Eye	Acceptable	Pass
		Complete Prism (0.25 Max)	Acceptable	Pass
		Left Eye	0.050	Pass
		Right Eye	0.050	Pass
		Prismatic Imbalance	Acceptable	Pass
		Vertical (0.125 Max)	0.00	Pass
		Horizontal Base In/Out (In 0.125 Max; Out 0.50 Max)	0.10 in	Pass

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Sample ID:
HF602
Clear Indirect Vent Frame, Clear Lens (U6)

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Report of: ANSI Z87.1-2015

Test/Property	Paragraph	Requirement	Test Results	Acceptance
Physical Requirements	5.2	Protectors shall be free from: projections, sharp edges or other defects which are likely to cause discomfort or injury during use.	Acceptable	Pass
Ignition (Goggle)	5.2.2	Protectors shall not ignite or continue to glow once the rod is removed. Each externally exposed material (exclusive of textiles or elastic bands) shall be tested.		
		Lens	Acceptable	Pass
		Frame/Shell	Acceptable	Pass
		Other	Acceptable	Pass
				Vent cover
Corrosion Resistance of Metal Components	5.2.3	Metal components used in protectors shall be corrosion resistant to the degree that the function of the protector shall not be impaired by the corrosion and the protector can be worn as intended. Lenses and electrical components are excluded from these requirements. Corrosion Resistant	N/A	N/A
Minimum Coverage Area	5.2.4	The frames, lens housings or carriers and lens(es) shall cover an area of not less than 40 mm (34 mm for small head sizes) in width and 33 mm (28 mm for small head sizes) in height (elliptical) in front of each eye, centered on the geometrical center of the lens.		
		Minimum Coverage Area	Acceptable	Pass
Required Protector Markings (Goggles)	5.3	All protectors shall bear the permanent and legible markings in specified locations. Protector markings shall be placed in relatable proximity to each other on the product.		
		Manufacturer's marks or logos are exempt from the proximity requirement if they are clearly present elsewhere on the product.		
		Markings permanent, legible and in relatable proximity	Acceptable	Pass
		Markings representative of other standards shall not interfere with or be intermixed with the markings required by this standard.	Acceptable	Pass
		Replaceable Lens Markings	Acceptable	Pass
		In relatable proximity	Acceptable	Pass
		Manufacturer's Mark or Logo	Acceptable	Pass
		Z87 Mark	Acceptable	Pass
+ Mark	Acceptable	Pass		
		Lens Type (multiple claim sequence W,U,L,R,V,S)	Acceptable	Pass

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Test/Property	Paragraph	Requirement	Test Results	Acceptance
Required Protector Markings (Goggles)	5.3	All protectors shall bear the permanent and legible markings in specified locations. Protector markings shall be placed in relatable proximity to each other on the product.		
		Manufacturer's marks or logos are exempt from the proximity requirement if they are clearly present elsewhere on the product.		
		Goggle Frame Markings	Acceptable	Pass
		In relatable proximity	Acceptable	Pass
		Manufacturer's Mark or Logo	Acceptable	Pass
		Z87 Mark	Acceptable	Pass
		+ Mark	Acceptable	Pass
Use (multiple claim sequence D3,D4,D5)	N/A	N/A		
Markings assessed using artwork supplied by customer				
Vented Goggles	5.4.1	If the goggle is equipped with adjustable ventilation, the protector shall be tested in the maximum open position. Maximum open position	N/A	N/A
Direct Ventilation	5.4.1.1	The vented portion of the goggle shall be such that the openings exclude spherical objects 1.5 mm (0.06 in.) in diameter or greater. 1.5 mm spherical object excluded	N/A	N/A
Indirect Ventilation	5.4.1.2	The vented portion of the goggle shall be such that no direct straight-line passage from the exterior to the interior of the goggle exists. No direct straight-line passage	Acceptable	Pass
Aftermarket Components and Accessories	5.6	All original equipment manufacturers (OEM) and non-OEM aftermarket components not sold with the original device shall be tested. Aftermarket Components and Accessories	Manufacturer requirement	Not testable
Lateral (Side) Coverage	6.1.3	Impact rated protectors shall provide continuous lateral coverage (i.e. no openings greater than 1.5mm in diameter) from the vertical plane of the lenses tangential to a point not less than 10 mm posterior to the corneal plane and not less than 10 mm in height (or 8 mm for the smaller headform) above and not less than 10 mm in height (or 8 mm for the smaller headform) below the horizontal plane centered on the eyes of the headform.		
		Lateral (Side) Coverage	Acceptable	Pass

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Test/Property	Paragraph	Requirement	Test Results	Acceptance
High Mass Impact	6.2.2	The complete device shall meet the protector acceptance criteria when impacted by a pointed projectile weighing a minimum of 500 g (17.6 oz) dropped from a height of at least 127 cm (50.0 in.).		
		Left Eye Sample 1	Acceptable	Pass
		Left Eye Sample 2	Acceptable	Pass
		Right Eye Sample 3	Acceptable	Pass
		Right Eye Sample 4	Acceptable	Pass
High Velocity Impact (Goggles)	6.2.3	When tested in accordance with Section 9.12, the complete device shall meet the protector acceptance criteria when impacted by a 6.35 mm (0.25 in) diameter steel ball traveling at 250 feet per second.		
		Left Eye Center	250 fps	Pass
		Left Eye 30°	251 fps	Pass
		Right Eye Center	251 fps	Pass
		Right Eye 30°	253 fps	Pass
		One Side 90° at 10mm Above (H - 8mm)	252 fps	Pass
Opposite Side 90° at 10mm Below (H - 8mm)	252 fps	Pass		
Penetration Test (lenses only)	6.2.4	Lenses for all complete devices shall meet the protector acceptance criteria when penetrated by a weighted needle with a minimum total weight of 44.2 g (1.56 oz) dropped from a height of at least 127 cm (50.0 in.).		
		Left Eye Sample 1	Acceptable	Pass
		Left Eye Sample 2	Acceptable	Pass
		Right Eye Sample 3	Acceptable	Pass
		Right Eye Sample 4	Acceptable	Pass

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Report To:

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Co.,Ltd (dba Eyelock)
No. 88 Highway 122, Development Zone
Danyang City, Jiangsu Province 212300 China

Project

of Model(s): HF602
Report of: ANSI Z87.1-2015
Project ID(s): Z-DHO031920-01-02



Attn: Sam Zhu

Date: March 23, 2020

Product Description: Clear Indirect Vent Frame, Clear Lens (U6)

On March 19, 2020, COLTS Laboratories received Goggles: HF602 from Danyang Honghai Optical Glasses Co.,Ltd (dba Eyelock) . From March 23, 2020 through March 23, 2020 COLTS Laboratories tested these Goggles in accordance with ANSI Z87.1-2015 to the following test protocol: ANSI Z87.1-2015 - 7.2.1.1 Transmittance Requirements (U).

Detailed test results are included.

Final Conclusion:

The Goggles: HF602 (Clear Indirect Vent Frame, Clear Lens (U6)) do comply with ANSI Z87.1-2015 for the test(s) included in this report.

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Technical Services Manager

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Test/Property	Paragraph	Requirement	Test Results	Acceptance
Optical Radiation Protector Requirements	7	Optional transmittance characteristics of a protector are represented by a scale/shade number indicating its ability to filter optical radiation. They shall meet the requirements, including markings, of Tables 6, 7, 8 and 9, if claims of compliance are made. Special purpose filters shall meet the requirements of Table 10.		
		Transmittance	Acceptable	Pass
		Markings	Acceptable	Pass
Marking assessed using artwork supplied by customer				
Protectors with Clear Lenses	7.1	Clear plano, reader, magnifier and prescription lenses shall have a luminous transmission of not less than 85%. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		Transmittance	Acceptable	Pass
Ultraviolet Filter Lenses - Transmission Requirements	7.2.1.1	When tested in accordance with Section 9.2, plano, reader, magnifier and prescription lenses that are marked as ultraviolet filter lenses shall comply with requirements of Table 7. Representative test lenses of plano power may be substituted for prescription, reader or magnifier lenses in this test.		
		U.V. Far	Acceptable	Pass
		Left Eye	0.007%	Pass
		Right Eye	0.006%	Pass
		U.V. Near	Acceptable	Pass
		Right Eye	0.021%	Pass

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APPENDIX 1
ANSI Z87.1 - 2015 Measurement Uncertainty Values

Section	Requirement	Uncertainty
5.1.2	Luminous Transmittance	0.19%
5.1.3	Haze	0.08%
5.1.4	Refractive Power & Astigmatism	0.018D
5.1.4	Prism	0.048Δ
5.4.3.1	Welding Protectors – Transmittance of Non-Lens Area	0.000017%
5.1.5	Refractive Power & Astigmatism and Prism for Rx Protectors and Mganifiers	See 5.1.4
5.4.5	Minimum Lens Thickness	0.1 mm
5.5.1	Replaceable Lenses – Goggles	0.1 mm
5.5.2	Replaceable Lenses – Welding Helmets and Handshields	0.1 mm
7.2.1.1	Transmission Requirements	Table 6 (Welding Filters) See 7.3 Table 7 EFUV 0.0000551% NUV 0.0000576% Table 8 (IR) 0.010395% Table 9 (VIS) See 7.1.3 W1.3 – W10 Table 10 Tinted 0.41% Extra Dark 0.0001944%
7.2.1.2	Visible Light Filters	Visible Light 0.19% UVA 0.0000576% UVB 0.0000551%
7.2.2	Transmittance of Non-lens Components	0.000017%
7.3	Automatic Darkening Welding Filter Lenses	W1.3 – W3.0 0.19% W4 0.0018287% W5 0.0003283% W6 0.0003605% W7 0.0000961% W8 0.0001944% W9 0.0000459% W10 0.0000706% W11 0.0000068% W12 0.0000055% W13 0.0000028% W14 0.0000017% EFUV 0.0000551% NUV 0.0000576% IR 0.010395%
7.3.3	Switching Index	0.0192 mSec