



	Test Report issued by the following Laboratory: Laser Product Safety L.L.C. CARAT Laboratory 3290A Green Level West Road Cary, North Carolina 27519-9443, USA	 
TEST REPORT IEC 60825-4:2009-06 SAFETY OF LASER PRODUCTS - PART 4: LASER GAURDS		
Report reference No..... :	LPS170555-000	
Tested by (name and signature)	Robert W. Wilcox	
Approved by (printed name and signature)	Kenneth J. Puckett, LSO	
Date of issue	2017-04-26 (8 pages, not including Attachments)	
Testing Laboratory name	Laser Product Safety LLC CARAT Laboratory	
Address	3290A Green Level West Road, Cary, North Carolina, 27519, USA	
Report Type	Informative Report.	
Testing Location Address.....	Same as above.	
Applicant's name	Vistamatic LLC	
Address	11713 NW 39 th St. Coral Springs, FL 33065	
Test specification		
Standard.....	IEC 60825-4:2009-06	
Non-published test method	N/A	
Non-standard test method	N/A	
Test Report		
Test Report No.....	LPS_60825-4.1	
TR originator	LPS LLC	
Master TR	Dated November 2010	
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Type of Product Tested	Laser Cell Window
Manufacturer's Trademark.....	
Model Number.....	Model VBL
Manufacturer Name.....	Vistamatic LLC
Address	11713 NW 39 th St. Coral Springs, FL 33065





Copy of the Marking Plate and Product Label information:





GENERAL INFORMATION:	
All measurements and testing procedures is to be done in accordance with IEC 60825-4:2009-06.	Test procedures that were deemed applicable were performed.

Test item particulars	
Equipment mobility	Stationary
Protection Class of equipment	Class I
Mass of equipment (kg).....	< 18 kg
Possible test case verdicts	
Test case does not apply to the test object	N/A
Test item does meet the requirement	P(ass)
Test item does not meet the requirement	F(ail)
Testing	
Date of receipt of test item	2017-04-30
Date(s) of performance of test	2017-05-11
<p>General remarks:</p> <p>This report shall not be reproduced except in full without the written approval of the testing laboratory.</p> <p>“(See Attachment #)” refers to additional information appended to the report. “(See appended table)” refers to a table appended to the report. Throughout this report a point (comma) may be used as the decimal separator. The test results presented in this report relate only to the item(s) tested. List of test equipment must be kept on file and available for review.</p>	





General product information and considerations:

The unit covered by this report is a glass window intended to house an industrial laser. The window basically consists 2 panes, 1/4 in. tempered clear glass and 1 pane, 5/32 in. annealed clear glass. Sandwiched between the glass are stainless steel spacer bars, hot melt sealant, steel dampers and polymeric blocks. The unit employs three (3) pieces of glass sealed together using a hot melt sealant. On all three (3) pieces Avery HP 700 Vinyl is laid to allow no visibility in a closed position. These windows are intended to serve as part of the protective housing scheme; since doors, hatches, windows, removable and non-removable panels, interlocked and non-interlocked panels are all part of the protective housing scheme. Laser guards are a stand-alone and typically proprietary, item for special purpose application. In this investigation the windows were exposed to a free space collimated cw or pulsed CO2 industrial laser, a Holmium 2100nm YAG, a YAG 1064nm, a KTP 532nm and an Excimer 353nm laser at various power levels and the results documented.

Attachment 1 – Test Record
Attachment 2 – Installation Manual
Attachment 3 – Product Details
Attachment 4 – Film Coating Datasheet
Attachment 5 – Construction Illustration
Attachment 6 – Photographs





IEC 60825-4:2009-06			
Clause	Requirement – Test	Result - Remark	Verdict
4.0	Laser Processing Machines		P
4.1	Design requirements	The windows are intended to serve as an integral part of protective housing scheme. In the intended installation and application, the window is not intended to be exposed to laser radiation. However the windows were exposed to a free space laser beam. See Attachment 1.	N/A
4.1.1	General requirements	No hazard. See Attachment 1.	P
4.1.2	Consumable parts of laser guards	Not a laser guard.	N/A
4.2.1	General	No hazard. See Attachment 1.	P
4.2.2	Active laser guards	The window is not considered an active laser guard. It is part of the protective housing scheme.	N/A
4.2.2a	Protection time	The window is not considered an active laser guard. It is part of the protective housing scheme.	N/A
4.2.2b	Visible or audible warning	The window is not considered an active laser guard. It is part of the protective housing scheme.	N/A
4.3	Validation		N/A
4.3.1	Validation of performance	No hazard. See Attachment 1.	P
4.3.1.1	FEL	No hazard. See Attachment 1.	P
4.3.1.2a	Reproducing the conditions	No hazard. See Attachment 1.	P
4.3.1.2b	Creating the conditions	No hazard. See Attachment 1.	P
4.4	User Information	See Attachment 2 for Manual.	P
4.4.1	Maintenance, cleaning, repair, etc..	See Attachment 2 for Manual.	P





IEC 60825-4:2009-06			
Clause	Requirement – Test	Result - Remark	Verdict
4.4.2	Actuation of the safety control system	See Attachment 2 for Manual.	P
5.0	Proprietary Laser Gaurds	The window is not considered an active laser guard. It is part of the protective housing scheme.	N/A
5.1	Design requirements	The window is not considered an active laser guard. It is part of the protective housing scheme.	N/A
5.2	Performance requirements	No window at or beyond its rear surface below 200W direct exposure. See Attachment 1.	P
5.3	Specification requirements	No hazard. See Attachment 1.	P
5.4	Test Requirements	No hazard. See Attachment 1.	P
5.4.1	General	No hazard. See Attachment 1.	P
5.4.2	Sample testing	No hazard. See Attachment 1.	P
5.5	Labeling Requirments		P
5.5.1	Placement on rear	All labels are placed on the rear surface of the door.	P
5.5.2	Orientation	The rear surface is clearly identified.	P
5.5.3	Bold coloured outline		N/A
5.5.4	Full PEL specification	The window is not considered an active laser guard. It is part of the protective housing scheme.	N/A
5.5.5	Manufacturer's name, date and place of manufacture	See page for 3 for label information.	P
5.6	User Information		P
5.6a	Description of the permitted uses of the laser guard;	Provided. See Attachment 2.	P





IEC 60825-4:2009-06			
Clause	Requirement – Test	Result - Remark	Verdict
5.6b	Description of the form of mounting and connection of the laser guard;	Mounting information is provided. See Attachment 2.	P
5.6c	Information on the installation of the laser guard – for active laser guards this shall include interface and supply requirements for the guard;	Installation information is provided. See Attachment 2.	P
5.6d	Maintenance requirements, including for example details of inspection and test procedures, cleaning, replacement or repair of damaged parts;	Maintenance and inspection information is provided. See Attachment 2.	P
5.6e	Instructions, that after any actuation of the safety control system of an active guard, the cause shall be investigated, checks shall be made for damage, and the necessary remedial action to be taken before resetting the control system.	The window is not considered an active laser guard. It is part of the protective housing scheme.	N/A
5.6f	The labels in 5.5 and their location. If only part of the front surface of the guard is a guard, this area shall be identified.		N/A
5.6g	A statement of compliance with this standard		P





ATTACHMENT 1 TEST RECORD



TEST RECORD:

Method: A single 12.0 in.² panel of the Model VBL window material was mounted vertically as in intended normal operation and in normal intended installation. Under the conditions noted and tabulated below, a free space, collimated laser beam was directed at the front of the equipment under test (EUT), exposing the EUT to laser radiation in three (3) directions, normal (0°), positive diagonal (+45°), and negative diagonal (-45°). Laser radiation transmittance, T_λ , passing through to the rear of the product was measured directly on the surface of the window for the three (3) directions of exposure, documented and tabulated. The optical density, (OD) of the filter material was determined, documented and tabulated.

FIGURE 1 shows the test configuration. The laser aperture was located at 100.0 mm from the front surface of the equipment under test (EUT). The figure below shows a side view of the EUT and test setup configuration.

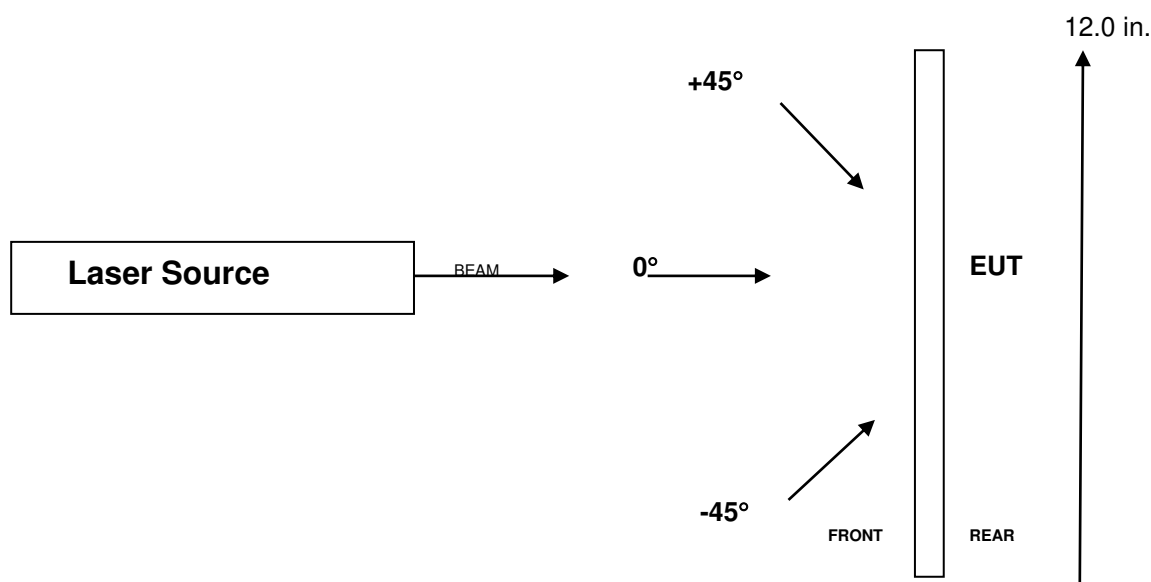
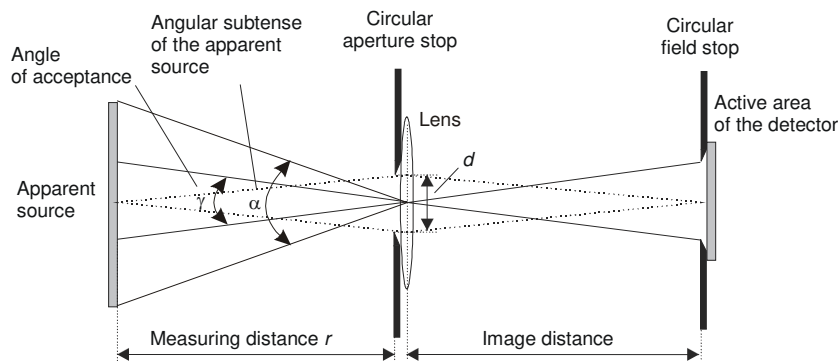


FIGURE 2 shows a basic radiometric test and measurement configuration and technique for characterizing the distribution of laser radiation emissions in free space. The collimated laser beams used in this investigation we all under 1000um in diameter.



IEC 413/07

FIGURE 1

Results:

Room Ambient: 23.5°C

Model	EUT configuration	Laser type	Wave-Length	Output Power	Exposure duration	Angle from normal	Measured T_A	OD
VBL	vertical	CO2	10.6um	75W cw	10s	0°	2.6×10^{-4}	3.5
VBL	vertical	CO2	10.6um	75W cw	10s	+45°	2.5×10^{-4}	3.5
VBL	vertical	CO2	10.6um	75W cw	10s	-45°	2.5×10^{-4}	3.5
VBL	vertical	YAG	1064nm	30W cw	10s	0°	7.2×10^{-5}	4.1
VBL	vertical	YAG	1064nm	30W cw	10s	+45°	6.9×10^{-5}	4.1
VBL	vertical	YAG	1064nm	30W cw	10s	-45°	6.9×10^{-5}	4.1
VBL	vertical	KTP	532nm	30W cw	10s	0°	2.6×10^{-6}	5.5
VBL	vertical	KTP	532nm	30W cw	10s	+45°	2.3×10^{-6}	5.6
VBL	vertical	KTP	532nm	30W cw	10s	-45°	2.0×10^{-6}	5.6
VBL	vertical	Holmium	2100nm	15W pk	10s	0°	5.8×10^{-6}	5.2
VBL	vertical	Holmium	2100nm	15W pk	10s	+45°	5.6×10^{-6}	5.2
VBL	vertical	Holmium	2100nm	15W pk	10s	-45°	5.5×10^{-6}	5.2
VBL	vertical	Excimer	353nm	15W pk	10s	0°	6.5×10^{-7}	6.2
VBL	vertical	Excimer	353nm	15W pk	10s	+45°	6.6×10^{-7}	6.1
VBL	vertical	Excimer	353nm	15W pk	10s	-45°	6.6×10^{-7}	6.1





ATTACHMENT 2 INSTALLATION MANUAL





Technical Details Manual

Contents

1. Warranty Statement
2. Quality Assurance Statement
3. Cross Section of Vistamatic VS1
4. Cross Section of Vistamatic VS2
5. Hollow Metal Frame Fixing Detail
6. Hollow Metal Frame suggested Cut-out (if purchased by Vistamatic®)
7. Hardwood Bead Fixing Detail
8. Lead Door Bead Fixing Detail
9. Square Panel Cut-out
10. Oblong Panel Cut-out
11. Vistamatic Sizes and Restrictions
12. Glazing Options
 - a. Safety Glass
 - b. Toughened Safety Glass
 - c. Laminated Safety Glass
 - d. Fire Resistant Glass
 - e. Other Glazing: Laser, X-Ray Protective Glass, Tamper Proof
13. Fitting Instruction
14. Cleaning Instructions
15. Quality Specifications
16. Terms and Conditions for Warranty
17. Certificates

VISTAMATIC LLC
5645 Coral Ridge Drive, #279
Coral Spings, FL, 33076
T: 866 466 9525 F: 866 861 9135
E: info@vistamatic.com www.vistamatic.com

Laser Product Safety LLC
Cary, NC USA

Vistamatic LLC
Model VBL





Specifying VISTAMATIC Vision Panels

**** NOTE TO SPECIFIER **** This master specification section has been prepared by Vistamatic, LLC for use in the preparation of a project specification section covering switchable privacy glass.

This specification is a part of the SpexPlus™ system, which comprises a fully architectural master specification that can be used to specify all project requirements.

The following should be noted in using this specification:

- Hypertext links to specific websites are included after manufacturer names and names of organizations whose standards are referenced within the text, to assist in product selection and further research. Hypertext links are contained in parenthesis and shown in blue., e.g: (www.spexplus.net)

- Optional text requiring a selection by the user is enclosed within brackets, e.g. "Section [09 0000.] [_____]"

- Items requiring user input are enclosed within brackets, e.g. "Section [____-____]"

- Optional paragraphs are separated by an "OR" statement, e.g.:

****OR****

- Sustainable requirements are included for projects requiring LEED certification, and are included as green text. For additional information on LEED, visit the U.S. Green Building Council website at www.USGBC.org.

For assistance on the use of the products in this section, contact Vistamatic, LLC by calling toll-free 1-866-466-9525, by e-mail at USsales@VISTAMATIC.com, or visit their website at www.VISTAMATIC.com.

For assistance with obtaining or using the SpexPlus™ Master Specification System, contact SpexPlus by calling 1-888-877-SPEX (1-88-877-7739), by e-mail at chaney@spexplus.net, or visit the website at www.SpexPlus.net.





Specifying VISTAMATIC Vision Panels

PART 1 GENERAL

1.1 SUMMARY

Edit the following paragraphs to include only those items specified in this section.

A. Section Includes:

1. Switchable privacy glass vision panels.

Coordinate the following paragraphs with other sections in the project manual.

B. Related Sections:

1. Division 01: Administrative, procedural, and temporary work requirements.
2. Section [06 4600 - Wood Trim] [____ - ____]: Wood frames to receive glass panels.
3. Section [08 1113 - Hollow Metal Doors and Frames] [____ - ____]: Steel doors and frames to receive glass panels.
4. Section [08 1116 - Aluminum Doors and Frames] [____ - ____]: Aluminum doors and frames to receive glass panels.
5. Section [08 1416 - Flush Wood Doors] [08 1433 - Stile and Rail Wood Doors] [____ - ____]: Wood doors to receive glass panels.
6. Section [08 1513 - Laminated Plastic Doors] [____ - ____]: Laminated plastic doors to receive glass panels.
7. Section [08 8000 - Glazing] [____ - ____]: Glazing accessories.

1.2 REFERENCES

In the following paragraphs, retain only those reference standards that are used elsewhere in this section.

A. ASTM International (ASTM) C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.

B. American National Standards Institute (ANSI) Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.

C. Consumer Product Safety Commission (CPSC) 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

D. Underwriters Laboratories (UL):

1. 10B - Standard for Fire Tests of Door Assemblies.
2. 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

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Specifying VISTAMATIC Vision Panels

1.3 SYSTEM DESCRIPTION

A. Switchable Privacy Glass Vision Panels: Patented dual-position safety vision panels providing for privacy and for observation without disturbance.

1.4 SUBMITTALS

Limiting submittals to only those actually required helps to minimize liability arising from the review of submittals. Minimize submittals on smaller, less complex projects. Include the following for submission of shop drawings, product data, and samples for the Architect's review.

A. Submittals for Review:

1. Shop Drawings: Include elevations and details showing joint locations, transitions, and terminations, and anchoring details.
2. Product Data: Include preparation instructions and recommendations, Storage and handling requirements, and installation methods.
3. Samples: [12 x 12] [____ x ____] inch glass samples.

Include the following for submissions of quality control submittals. These submittals are intended for the Owner's record purposes and are not intended to be reviewed by the Architect.

B. Quality Control Submittals:

1. Certificates of Compliance: Manufacturer's certification that products furnished comply with specified requirements.

Include the following for submission of sustainable design submittals for LEED Regional Materials credit. Verify with Vistamatic, LLC that distance from manufacturing location to project site is within the required 500 mile radius.

C. Sustainable Design Submittals:

1. Regional Materials.

Include the following for submission of closeout submittals for the Owner's record purposes.

D. Closeout Submittals:

1. Operation and Maintenance Data: Maintenance instructions including recommendations for periodic checking and adjustment of cable tension and periodic cleaning and maintenance of components.

1.5 QUALITY ASSURANCE

The following paragraph specifies a minimum level of experience required of the parties performing the work of this section. Retain if required, and edit to suit project requirements.

- A. Manufacturer Qualifications: Primary products furnished by single manufacturer with minimum ten years of experience.
- B. Installer Qualifications: Minimum [three] [__] years [documented] experience in work of this Section.
- C. Switchable Privacy Glass: Tested and labeled to CPSC 16 CFR 1201.

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Specifying VISTAMATIC Vision Panels

Include the following for full size mock-ups for review of construction, coordination of work of several sections, testing, or observation of operation.

D. Mockup:

1. Size: One typical switchable glass unit.
2. Show glass and glazing accessories.
3. Locate [where directed.] [_____].
4. Approved mockup may [not] remain as part of the Work.

1.6 DELIVERY, STORAGE AND HANDLING

A. Delivery glass with temporary label on each light identifying manufacturer, glass type, quality, and nominal thickness.

B. Store glass in areas least subject to traffic and falling objects. Keep storage area dry.

C. Stack individual panels on edge leaned slightly against upright supports with separators between panels.

1.7 PROJECT CONDITIONS

A. Maintain temperature, humidity, and ventilation within limits recommended by glass manufacturer.

B. Do not install products under environmental conditions outside manufacturer's limits.

1.8 WARRANTIES

A. Furnish manufacturer's lifetime warranty providing coverage against handle mechanism failure due to faulty workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Contract Documents are based on products by Vistamatic LLC; 4373 NW 124th Avenue, Coral Springs, FL 33065, phone 866-466-9525, fax 866-861-9135, email USsales@vistamatic.com, www.VISTAMATIC.com.

Edit the following to indicate whether or not substitutions will be permitted for the products in this section.

B. Substitutions: [Under provisions of Division 01.] [Not permitted.]

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Specifying VISTAMATIC Vision Panels

2.2 MATERIALS

Edit the following to indicate required panel type. If multiple types are required, show locations on Drawings or in Schedule at end of section.

A. Switchable Privacy Glass Vision Panels:

Include the following for VISTA-Max™ VISTAMATIC® Vision Panels with sandblasted lines incorporating the Impact Absorption System (IAS) damper system that glides the privacy control pane (middle sheet of glass). Maximum size is 40 X 40 inches.

1. VS1 Max: Vistamatic Vision Panel with one side handle, sandblasted lines incorporating IAS damper system.
2. VS2 Max: Vistamatic Vision Panel with two side handle, sandblasted lines incorporating IAS damper system.
3. VSN1 Max: Vistamatic Vision Panel with one side handle, sandblasted lines with wording incorporating IAS damper system.
4. VSN2 Max: Vistamatic Vision Panel with two side handle, sandblasted lines with wording incorporating IAS damper system.

Include the following for VISTA-Max™ VISTAMATIC® Vision Panels with vinyl lines for near or total blackout effect, incorporating the Impact Absorption System (IAS) damper system that glides the privacy control pane (middle sheet of glass). Maximum size is 40 X 40 inches.

5. VW1 Max: Vision Panel with one side handle, white vinyl lines (blackout) incorporating IAS damper system.
6. VW2 Max: Vistamatic Vision Panel with two side handle, white vinyl lines (blackout) incorporating IAS damper system.
7. VB1 Max: Vistamatic Vision Panel with one side handle, black vinyl lines (blackout) incorporating IAS damper system.
8. VB2 Max: Vistamatic Vision Panel with two side handle, black vinyl lines (blackout) incorporating IAS damper system.

Include the following for SuperMax™ VISTAMATIC® Vision Panels with a small mullion down center of panel and two working mechanisms, sandblasted lines, incorporating the Impact Absorption System (IAS) damper system that glides the privacy control pane (middle sheet of glass). Maximum size is 80 X 40 inches or equivalent square footage.

9. VS1 SuperMax: Vistamatic Vision Panel with two one-side handle, small mullion down center of panel and two working mechanisms, sandblasted lines incorporating IAS damper system.
10. VS2 SuperMax: Vistamatic Vision Panel with two two-side handles, small mullion down center of panel, and two working mechanisms, sandblasted lines incorporating IAS damper system.

Include the following for SuperMax™ VISTAMATIC® Vision Panels with a small mullion down center of panel and two working mechanisms, and vinyl lines for near or total blackout effect, incorporating the Impact Absorption System (IAS)

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Specifying VISTAMATIC Vision Panels

damper system that glides the privacy control pane (middle sheet of glass). Maximum size is 80 X 40 inches or equivalent square footage.

11. VW1 SuperMax: Vistamatic Vision Panel with one side handle, small mullion down center of panel, and two working mechanisms, white vinyl lines incorporating IAS damper system.

12. VW2 SuperMax: Vistamatic Vision Panel with two side handle, small mullion down center of panel, and two working mechanisms, white vinyl lines incorporating IAS damper system.

13. VB1 SuperMax: Vistamatic Vision Panel with one side handle, small mullion down center of panel, and two working mechanisms, black vinyl lines (blackout) incorporating IAS damper system.

14. VB2 SuperMax: Vistamatic Vision Panel with two side handle, small mullion down the center of panel and two working mechanisms, Black Vinyl Lines (Blackout) incorporating IAS damper system.

Include the following for MAX-XL® VISTAMATIC® Vision Panels with sandblasted lines, bottom 1/2 solid sandblast (handle located 30-3/4 inches from top) incorporating the Impact Absorption System (IAS) damper system that glides the privacy control pane (middle sheet of glass). Maximum size is 80 X 40 inches.

15. Max XL1: Vistamatic Vision Panel with one side handle, sandblasted lines, bottom 1/2 solid sandblasted, handle located

30-3/4 inches from top), incorporating IAS damper system.

16. Max XL2: Vistamatic Vision Panel with two side handle, sandblasted lines, bottom 1/2 solid sandblasted, handles located 30-3/4 inches from top), incorporating IAS damper system.

Include the following for VISTA-Slide™ VISTAMATIC® Window with sandblasted vertical lines, moving side to side. Maximum size is 80 X 48 inches.

17. VistaSlide1: Vistamatic Window with one side handle, sandblasted vertical lines.

18. VistaSlide2: Vistamatic Window with two side handle, sandblasted vertical lines.

Include the following for VISTA-Slide™ VISTAMATIC® Window with vinyl vertical lines for near or total blackout, moving side to side. Maximum size is 80 X 48 inches.

19. VistaSlideVW1: Vistamatic Window with one side handle, vinyl white vertical lines.

20. VistaSlideVW2: Vistamatic Window with two side handle, vinyl white vertical lines.

21. VistaSlideVB1: Vistamatic Window with one side handle, vinyl black vertical lines (blackout).

22. VistaSlideVB2: Vistamatic Window with two side handle, vinyl black vertical lines (blackout).

Include the following for VistaPORT® VISTAMATIC® Vision Port with sandblasted lines (15-3/4 inch diameter only).

23. VistaPORT1: Vistamatic Vision Panel with one side handle, sandblasted lines.

24. VistaPORT2: Vistamatic Vision Panel with two side handle, sandblasted lines.

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Specifying VISTAMATIC Vision Panels

Edit the following to indicate required glass size. If more than one size is required, show sizes on Drawings or in Schedule at end of section. Refer to VISTAMATIC® technical literature for maximum glass sizes. Contact VISTAMATIC® for custom sizes.

B. Panel Size: [] x [] inches.

C. Panel Composition: Triple glazed panels, 11/16 inch (17.46 mm) thick, with 1/4 inch (6 mm) thick tempered glass outer panes.

Edit the following to indicate required pattern and opacity. The VISTAMATIC® product lines offers a choice of opacities providing for seamless transition from clear to opaque (allowing light through), black/white (as blackout effect), or with pictures or logos. If more than one type is required, show types on Drawings or in Schedule at end of section.

D. Panel Opacity and Pattern: [Natural sandblasted lines.] [Black vinyl lines.] [] color lines.] [Custom pattern to be selected.] Edit the following to indicate required glass type. Typical glazing is heat treated float glass or safety glass depending on exposure. Specialty glasses are also available as noted below. If more than one type is required, indicate types on Drawings or in Schedule at end of section.

E. Glass Types:

1. Heat-treated float glass: ASTM C1048; Type I (transparent flat glass).
2. Safety glass: [3/8 inch (10 mm) thick tempered glass.] [3/4 inch (19 mm) thick tempered glass.] [1/4 inch (6 mm) thick tempered glass.] [1/2 inch (12 mm) thick tempered glass.]
3. Bullet resistant glass: 3/4 inch (19 mm) thick laminated glass.
4. Fire safety glass: [Firelite NT 3/16 inch (5 mm) thick fire resisting [20] [45] minute minimum.] [Pyroguard C730 1/4 inch (6 mm) thick fire resisting 20 minute.]
5. Leaded (x-ray radiation protection) glass: [1/16 inch (2.1 mm) thick leaded glass.] [1/16 inch (2.4 mm) thick leaded glass.] [1/8 inch (2.9 mm) thick leaded glass.]
6. Laser protection glass: Laser polymer.
7. Polycarbonate: [3/8] [1/2] inch thick scratch resistant polycarbonate.
8. Film: 3M Scotchshield Ultra Safety and Security Window Film.

Edit the following to indicate required options. Identify locations on Drawings or in Schedule at end of section.

F. Special Features:

1. Key locking knob.
2. Key locking knob and ligature free knob.
3. Lever handle.
4. Slim line lever handle operation for sliding doors.
5. Fire resistance; [20] [45] minute with hose stream, tested to UL 10B or 10C.
6. X-ray radiation protection.

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Specifying VISTAMATIC Vision Panels

7. Laser protection.
8. Pictogram/logo.
9. High security.
10. [Single] [Double] side handle operation.
11. Framing for doors.

2.3 ACCESSORIES

- A. Glazing Accessories: Specified in Section [08 8000.] [_____.]

2.4 FABRICATION

- A. Fabricate glazing units in required sizes with edge and face clearances, edge and surface conditions, and bite in accordance with manufacturer requirements and reference standards, to comply with system performance requirements.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine openings for proper size, plumb, square, and level.
- B. Verify that openings conform to details; dimensions, and tolerances indicated on approved Shop Drawings.

3.2 PREPARATION

- A. Clean surfaces to receive glass units prior to installation.
- B. Prepare surfaces using methods recommended by manufacturer.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions and approved Shop Drawings.
- B. Set glazing without bending, twisting, or forcing of units.
- C. Do not allow glass to rest on or contact framing members.

Include the following for patterned glass

- D. Install patterned glass units with pattern in same direction in all openings.

Include the following for insulated glass.

E. Insulating Glass Units:

1. Use glazing gaskets of sufficient size and depth to completely cover glass seal or metal channel frame.
2. Do not use putty or glazing compounds.
3. Do not grind, nip, cut, or alter edges or corners.

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Specifying VISTAMATIC Vision Panels

4. Install with tape or gunnable sealant in wood sash.

Include the following for fire-rated glass.

F. Fire Resistant Glass: Install in accordance with UL design requirements.

Include the following for bullet resisting glass.

G. Bullet Resisting Material: Use glazing material which will permit expansion and contraction of material in frame.

3.4 CLEANING

A. Clean glass surfaces; remove temporary labels and foreign matter.

3.5 ADJUSTING

A. Replace cracked, broken, and imperfect glass, and glass that has been improperly installed.

3.6 PROTECTION

A. Protect installed products until completion of project.

3.7 SCHEDULE

Include the following for a schedule listing the products in this section. Coordinate with Part 2 - Products. The following may assist in developing a schedule.

MARK	PANEL TYPE	PANEL SIZE	PANEL OPACITY AND PATTERN	GLASS TYPE	SPECIAL FEATURES
A	VS1 MAX; VISTAMATIC Vision Panel with one side handle, sandblasted lines.	24 x 24 inches	Custom pattern to be selected	Heat-treated float glass	Key locking knob

-END OF SECTION-





ATTACHMENT 3 PRODUCT DETAILS





Product Details:

Vistamatic Vision Panel with Vinyl and Handle (Code VB1 or VW1)

Unit must be in closed position for testing

Unit make-up

Glass:

2 x ¼ Tempered Clear Glass

1 x 5/32 Annealed Clear Glass

Hole:

1 x hole in from of unit

Vinyl:

Avery Dennison HP 700 High Performance

Interior of unit:

Stainless Steel Spacer bars

Hot Melt Sealant

Dampers – Steel

Plastic Blocks

The unit is manufactured with three pieces of glass sealed together using a Hot Melt sealant. On all three pieces Avery HP 700 Vinyl is laid to allow no visibility in a closed position.





ATTACHMENT 4 FILM COATING DATASHEETS





Avery Dennison® HP 700 High Performance Calendered Series

Opaque Permanent Kraft
(formerly: A6 Opaque Series – 78#)
Revision: 9 Dated: 03/13/17

Uses:

Avery Dennison® HP 700 series calendered films are premium quality, flexible, opaque solid color vinyl films (available in a number of finish options), designed for use in a wide range of sign making applications. This product is ideal for a variety of intermediate term outdoor projects.



Face: calendered film
3.0 mil (76 µm) gloss, matte
2.8 mil (71 µm) high gloss



Adhesive: Permanent Clear
Acrylic



Liner: 78# Bleached Kraft



Durability: Up to 6 years

**Application
Surfaces:**

Flat, Simple Curves

Features:

- Outstanding durability and outdoor performance
- Dimensionally stable liner for easy converting
- Medium gloss finish
- Excellent conversion on CAD plotters
- Easy cutting & weeding
- Good dimensional stability
- Good UV, temperature, humidity, and salt-spray resistance

Conversion:

- Thermal Die-Cutting
- Flat Bed Sign-Cut
- Drum Roller Sign-Cut
- Steel Rule Die-Cutting
- Thermal Transfer

Common Applications:

- Trucks
- Trailers
- Cars & Vans
- Banners
- Architectural Signage
- Directional Signage
- Trains & light rail
- Buses
- Outdoor advertising

Product Data Sheet

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Avery Dennison® HP 700 High Performance
Calendered Series
Opaque Permanent Kraft
(formerly: A6 Opaque Series – 78#)
Revision: 9 Dated: 03/13/17

Physical Characteristics:

Property	Value
Caliper, face	3.0 mil (76 µm) gloss, matte 2.8 mil (71 µm) high gloss
Caliper, adhesive	1.0mil (25 µm)
Dimensional stability	<0.03"(0.765mm)
Tensile at Yield	9.0 - 15.0 lb/in (1.6 - 2.7 kg/cm)
Elongation	100% min.
Gloss	at 60° high gloss 90±10 gloss 70 matte <20
Adhesion: 15 min.	3.0 lbs/in (525 N/m)
24 hr.	4.4 lbs/in (770 N/m)
Flammability	Self Extinguishing
Shelf-Life	2 years from date of manufacture (when stored at the following temperatures and humidity conditions 68°-77° F (20° - 25° C) and 50±5% R. H.)
Durability	Reference color and warranty charts in this data sheet.
Min. Application Temperature	50° F (10° C)
Service Temperature	-40° to 180°F (-40° to 82° C) (Reasonable range of temperatures which would be expected under normal environmental conditions)
Chemical resistance	Resistant to most mild acids, alkalis, and salt solutions.

Data represents average values where applicable, and is not intended for specification purposes.

Warranty:
This Warranty applies to the Product listed in this Data Sheet. All statements, technical information (including physical and chemical characteristics) and recommendations about Avery Dennison products are based upon tests believed to be reliable but do not constitute a guarantee or warranty. All Avery Dennison products are sold subject to the Purchaser's assent and agreement that Purchaser is responsible for, and has independently determined, the suitability of such products for its purposes or its customer's purposes. Avery Dennison products are warranted to be free from defects in material and workmanship (i) for two years from the date of manufacture, or (ii) from the date of manufacture until the expiration of the period stated on the specific Product Data Sheet in effect at the time of delivery. Such time periods are subject in either case to the proper storing and application of said product, and the failure to properly store or apply the product, including without limitation the failure to follow any applicable Instructional Bulletin, negates any warranty. It is expressly agreed and understood that Avery Dennison's sole obligation and Purchaser's exclusive remedy under this warranty, under any other warranty, express or implied, or otherwise, shall be limited exclusively to (a) repair or replacement of defective product without charge at Avery Dennison's plant or at the location of the product (at Avery Dennison's election), or (b) in the event repair or replacement are not commercially practical, a credit amount up to the price of the product taking into account the defect in the product in Avery Dennison's sole discretion.

THE WARRANTY EXPRESSLY SET FORTH ABOVE IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR USE AND/OR NON-INFRINGEMENT. SELLER SPECIFICALLY DISCLAIMS AND EXCLUDES ALL OTHER SUCH WARRANTIES. NO WAIVER, ALTERATION, ADDITION OR MODIFICATION OF THE FOREGOING CONDITIONS SHALL BE VALID UNLESS MADE IN WRITING AND MANUALLY SIGNED BY AN OFFICER OF AVERY DENNISON.

AVERY DENNISON'S LIABILITY FOR DEFECTIVE PRODUCTS SHALL NOT EXCEED THE PURCHASE PRICE PAID THEREFOR BY PURCHASER AND IN NO EVENT SHALL AVERY DENNISON BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES WHETHER FORESEEABLE OR NOT, CAUSED BY DEFECTS IN SUCH PRODUCT, WHETHER SUCH DAMAGE OCCURS OR IS DISCOVERED BEFORE OR AFTER REPLACEMENT OR CREDIT, AND WHETHER OR NOT SUCH DAMAGE IS CAUSED BY AVERY DENNISON'S NEGLIGENCE.

All sales and contracts for sale of Products are subject to Purchaser's assent and agreement to this Warranty. Avery Dennison hereby objects to any terms or conditions contained in any purchase order or other communication of any kind from the Purchaser that is conflicting, inconsistent or additional to this Agreement.

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Avery Dennison® HP 700 High Performance
Calendered Series
Opaque Permanent Kraft
(formerly: A6 Opaque Series – 78#)
Revision: 9 Dated: 03/13/17

Colors Cross Reference:

HP 700 Series Name	Item #'s	Vertical Durability Zone 1 Years	HP 700 Series Name	Item #'s	Vertical Durability Zone 1 Years
HP 700-100-O High Gloss Transparent	51000	4	HP 700-570-O Berry	64700	6
HP 700-101-O White (with blue liner)	60110	6	HP 700-625-O Majestic Blue	65250	6
HP 700-102-O Matte White (with blue liner)	60200	6	HP 700-630-O Olympic Blue	65300	6
HP 700-103-O Clear	60300	4	HP 700-640-O Light Blue	65400	6
HP 700-105-O True White (with blue liner)	60500	6	HP 700-643-O Cascade Blue	65430	6
HP 700-110-O High Gloss White (with blue liner)	51100	6	HP 700-655-O Medium Blue	65730	6
HP 700-170-O High Gloss Black	51700	6	HP 700-670-O Vivid Blue	65700	6
HP 700-180-O Matte Black	60800	6	HP 700-683-O Royal Blue	65830	6
HP 700-190-O Black	60900	6	HP 700-687-O Impulse Blue	65870	6
HP 700-210-O Primrose Yellow	61100	6	HP 700-695-O Dark Blue	65950	6
HP 700-215-O Gold	62470	1	HP 700-715-O Real Teal	61500	6
HP 700-225-O Rubber Duckie	61250	6	HP 700-720-O Teal	66200	6
HP 700-235-O Yellow	61350	6	HP 700-758-O Iguana Green	66580	1
HP 700-250-O Dark Yellow	61500	6	HP 700-770-O Kelly Green	66700	6
HP 700-253-O Imitation Gold	62500	6	HP 700-778-O Green	66780	6
HP 700-315-O Tangerine	63150	5	HP 700-780-O Yellow Green	66800	6
HP 700-380-O Bright Orange	61800	5	HP 700-785-O Forest Green	66850	6
HP 700-413-O High Gloss Red	64130	4	HP 700-793-O Dark Green	66930	6
HP 700-430-O Cardinal Red	63300	6	HP 700-801-O Silver	60770	1
HP 700-440-O Red	63400	6	HP 700-830-O Slate Gray	60300	6
HP 700-445-O Pink Red	63450	6	HP 700-835-O Medium Gray	60350	6
HP 700-450-O Dark Red	63500	6	HP 700-850-O Dark Gray	60500	6
HP 700-470-O Burgundy	63700	6	HP 700-870-O Butterscotch Gray	60700	6
HP 700-508-O Soft Pink	64080	6	HP 700-890-O Beige	62200	6
HP 700-515-O Blossom	64150	6	HP 700-983-O Dark Brown	62830	6
HP 700-519-O Blush	64190	6	HP 700-989-O Chocolate Brown	62900	6
HP 700-565-O Purple	64850	6			

NOTE: Some color fade may occur in severe environmental areas. Reference IB 1.30 for durability guidelines.

Discontinued Colors:

HP 700 Series Name	Item #'s	Vertical Durability Zone 1 Years	Date	HP 700 Series Name	Item #'s	Vertical Durability Zone 1 Years	Date
HP 700-425-O Tomato Red	63250	5	01/01/16	HP 700-873-O Carmel	62730	6	01/01/16
HP 700-432-O True Red	63320	6	01/01/16	HP 700-901-O High Gloss Dark Yellow	62910	4	01/01/16
HP 700-460-O Spectra Red	63600	6	01/01/16	HP 700-222-O High Gloss Yellow	52220	4	01/01/16
HP 700-608-O Vibrant Blue	65080	4	01/01/16	HP 700-230-O High Gloss Lemon	52300	4	01/01/16
HP 700-765-O Olive Green	66550	6	01/01/16	HP 700-413-O High Gloss Burgundy	54130	4	01/01/16
HP 700-960-O Terra Cotta	62600	6	01/01/16	HP 700-687-O Dark Navy Blue	65870	6	01/01/16

Revisions are italicized
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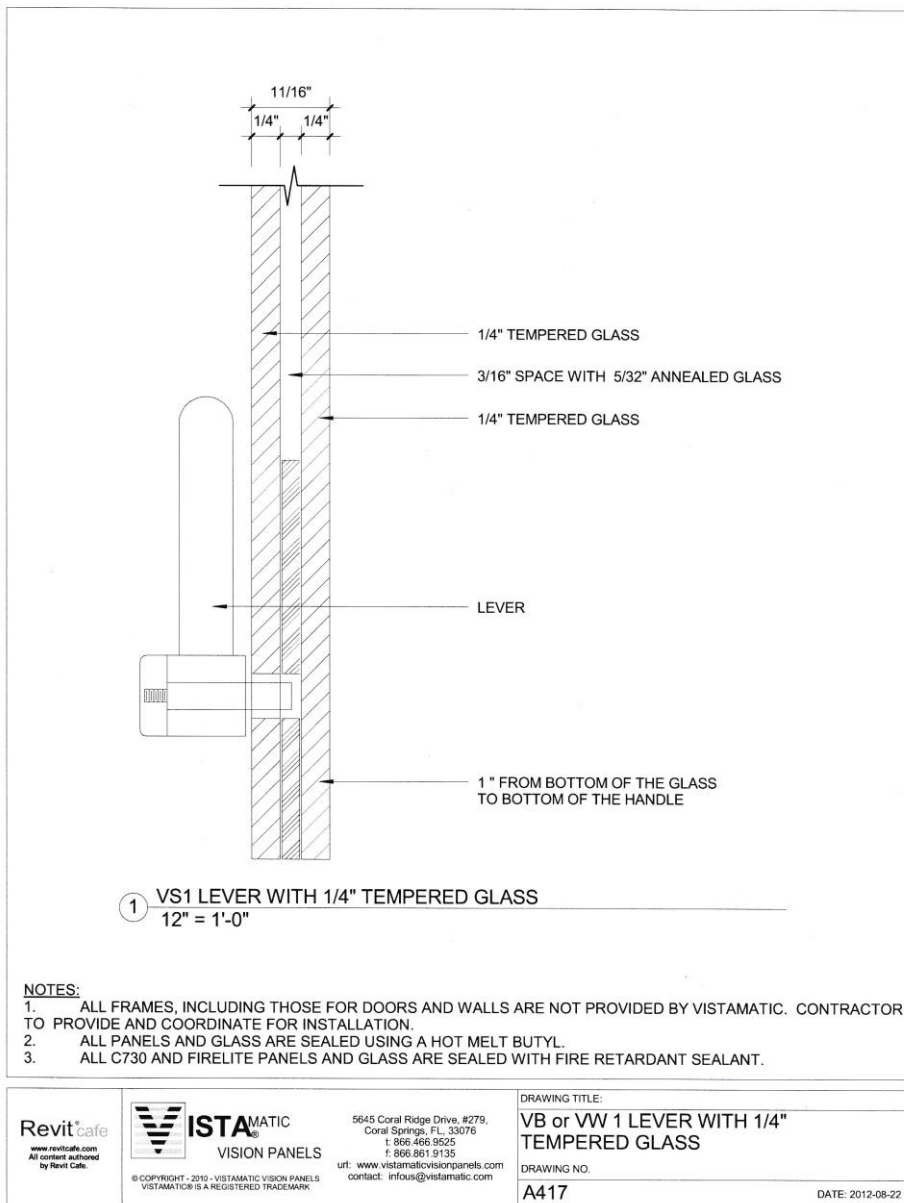
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ATTACHMENT 5 CONSTRCUTION ILLUSTRATION







ATTACHMENT 6 PHOTOGRAPHS OF EUT





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Laser Product Safety LLC
Cary, NC USA

Vistamatic LLC
Model VBL



TR originator: LPS LLC

TR No.: LPS_60825-4.1