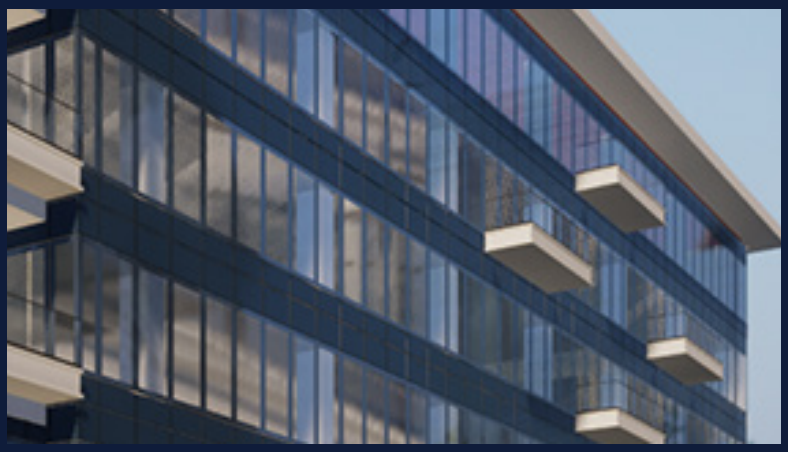
Solar Spandrel



ClearVue^{PV} Spandrel delivers striking architectural design and maximizes renewable energy generation across the building façade.

ClearVue^{PV} Spandrel can be produced in construction thicknesses and project-specific sizing to integrate seamlessly with framing systems for low maintenance.

ClearVue^{PV}

Solar Spandrel

ClearVue^{PV} black spandrel solutions deliver excellent reliability, efficiency, and performance for building sustainability.

Reliable
power generation efficiency

Excellent ROI
through operational cost reductions + significant energy offsets

Tolerant
of extreme environmental conditions

ClearVue full cover spandrel is engineered to replicate traditional black glass spandrel. We offer two options of all black solar spandrel so you can balance desired building aesthetics with power generation and carbon offset goals. First, we offer a pure black spandrel option the prioritizes a unified smooth black appearance. Second, if energy generation is the priority, our high-efficiency spandrel increases energy generation performance.

Benefits

- Up to 19 watts peak per square foot dependent on installation conditions and desired design
- Fire certified by TÜV SÜD under the EN 13501-1:2018 A2-s1, d0 classification rating for combustibility
- ClearVue solar spandrel glass is IP68 water resistant for a long lifespan
- Can be formed into double glazed units to match vision glass
- Silicon solar cells deliver a proven track record of reliability and longevity
- Patent-pending thermally bridged junction box delivers increased reliability and ability to use a weather-proof silicon bead seal at the façade face
- Can be integrated with ClearVue^{PV} vision glass

ClearVue^{PV} Pure Black Spandrel Specifications

Shingled Cell Double Glass Module

ClearVue's proprietary silicon cell design provides a pure black uniform appearance (without lines or squares) spandrel solution that delivers excellent performance and a beautiful aesthetic.

Product Features

- Up to 300 watts peak per panel dependent on installation conditions and desired design
- Pure black design
- Product can be tailored to support custom size requirements up to 6ft x 4ft and thickness up to 0.4in + 0.4in laminated dependent upon structural design
- IP68-rated water resistance
- Fire certified by TÜV SÜD under the EN 13501-1:2018 A2-s1, d0 classification rating for combustibility
- 1000V or 1500V system voltage available
- High resistance to high temperatures, high humidity, sand, acid, and alkali environmental conditions

TYPICAL MECHANICAL SPECIFICATIONS

Cell Type	Mono Crystalline	Mono Crystalline
Solar Cells	296 (37*8)	152 (38*4)
Module Dimension (ft/in)	5ft x 4ft x 0.55in or 0.29in	2ft x 4ft x 0.29in
Weight (Lbs)	127lbs or 62lbs	28lbs
Front Glass (in)	0.25in Tempered coated glass or 0.13in	0.13 Semi tempered coated glass
Interlayer	Black PVB or POE	EVA/POE/PVB
Back Glass (in)	0.25in Tempered glass or 0.13in	0.13in Semi tempered glass
Junction Box	IP68 Rated, 2 bypass diodes	IP68 Rated, 1 by-pass diode
Connector	MC4 (or equiv)	MC4 (or equiv)
Frame	No Frame	No Frame
Maximum Load Capacity (Pa)	112.7psf(back side)/112.7psf(front side) or 75.2psf	50psf wind load/50psf snow load

TYPICAL ELECTRICAL CHARACTERISTICS

	Size	5ft x 4ft x 0.55in or 0.29in	2ft x 4ft x 0.29in
STC: Air Mass AM 1.5, Ir-radiance 93W/ft^2 Cell temperature 77°F	Max Power at STC (P_{max})	300W	180W
	Open Circuit Voltage (V_{oc})	50.49V	51.10V
	Short Circuit Current (I_{sc})	7.72A	3.26A
	Voltage at Max Power Point (V_m)	40.71V	41.94V
	Current at Max Power Point (I_m)	7.37A	3.10A
	Power Tolerance	0~+5W	0~+3%
	Module Efficiency	18.1%	18.1%
NMOT: Air Mass AM 1.5, Ir-radiance 74.3W/ft^2 Ambient temperature 68°F, wind speed 3.2ft/s	Max Power at NMOT (P_{max})	224W	98W
	Open Circuit Voltage (V_{oc})	47.66V	48.34V
	Short Circuit Current (I_{sc})	6.23A	2.63A
	Voltage at Max Power Point (V_m)	37.62V	39.34V
	Current at Max Power Point (I_m)	5.95A	2.50A
	Power Tolerance	0~+5%	0~+3%

ClearVue^{PV} Pure Black Spandrel Specifications

Shingled Cell Double Glass Module

TEMPERATURE COEFFICIENTS

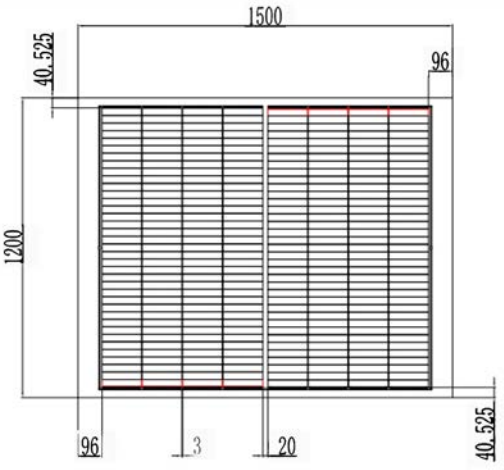
		5ft x 4ft	2ft x 4ft
Temperature Coefficient of P_{max}	%/°C	-0.35	-0.36
Temperature Coefficient of V_{oc}	%/°C	-0.28	-0.29
Temperature Coefficient of I_{sc}	%/°C	0.046	0.05

WORKING CONDITIONS

		5ft x 4ft	2ft x 4ft
Maximum System Voltage (With S)	V	1000DC (IEC)	1000CE (IEC)
Maximum System Voltage (Without S)	V	1500DC (IEC)	1500DC (IEC)
Operating Temperature	°F	-40~+185	-40~+185
Nominal Operating Cell Temperature	°F	113 ± 37	113 ± 35
Maximum rated current	A	15	20

ENGINEERING DRAWINGS 5ft x 4ft

FRONT VIEW

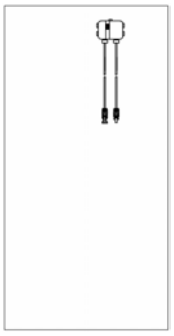


BACK VIEW

2ft x 4ft

FRONT VIEW

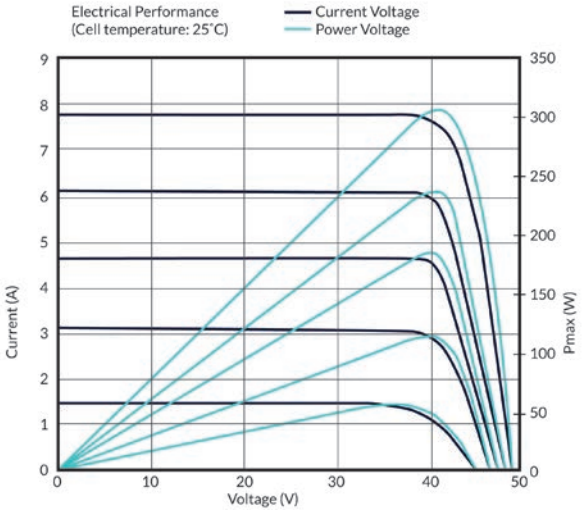
BACK VIEW



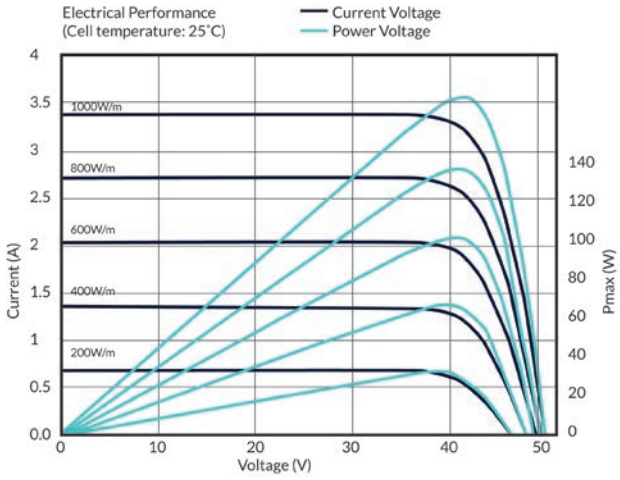
ClearVue^{PV} Pure Black Spandrel Specifications

Shingled Cell Double Glass Module

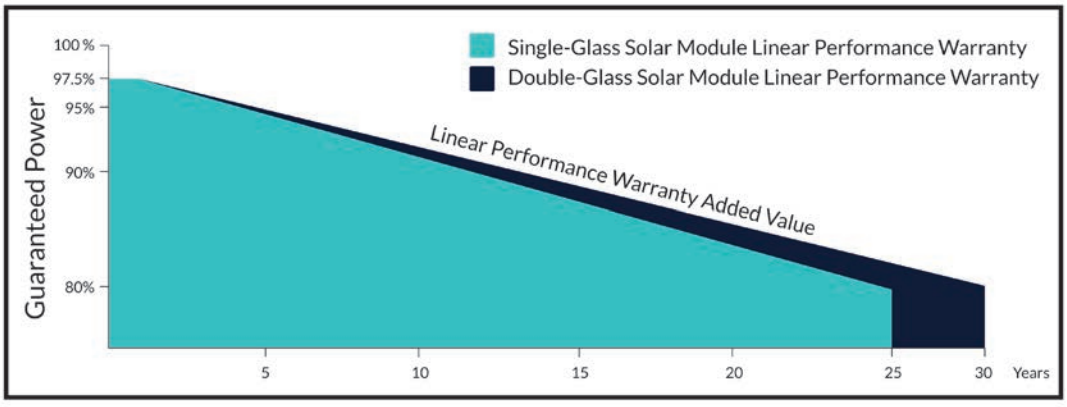
ELECTRICAL CURVES 5ft x 4ft



2ft x 4ft



LINEAR PERFORMANCE



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ClearVue^{PV} High Efficiency Spandrel Specifications

Black Double Glass Module

ClearVue^{PV} High Efficiency Spandrel extends on-site energy generation to new heights with monocrystalline silicon cells that provide an all black uniform appearance.

Product Features

- Up to 19 watts peak per square foot, dependent on installation conditions and desired design
- Integrates Multiple-Busbar (MBB) technology, to deliver higher power output
- Product can be tailored to support custom size requirements up to 8ft x 13ft and thickness up to 0.4in + 0.4in laminated dependent upon structural design; thicker variants available upon request
- Fire certified by TÜV SÜD under the EN 13501-1:2018 A2-s1, d0 classification rating for combustibility
- 1000 or 1500V system voltage available
- IP68-rated water resistance
- Half-Cell Cutting Technology to lower the output power losses caused by shading
- High resistance to high temperatures, high humidity, sand, acid, and alkali environmental conditions

TYPICAL MECHANICAL SPECIFICATIONS

Cell Type	Mono Crystalline
Solar Cells	120 (6*20)
Module Dimension (ft/in)	3.4ft x 5.8ft x 0.24in
Weight (Lbs)	56.2lbs
Front Glass (in)	0.1in Semi tempered coated glass
Interlayer	EVA/POE/PVB
Back Glass (mm)	0.1in Semi tempered glass
Junction Box	IP68 Rated, 3 by-pass diodes
Connector	Multi-Contact MC4 (or equiv)
Frame	No Frame
Maximum Load Capacity (Pa)	50psf wind load/50psf snow load

TYPICAL ELECTRICAL CHARACTERISTICS

STC: Air Mass AM 1.5, Ir-radiance 93W/ft^2 Cell temperature 25°C	Max Power at STC (P_{max})	370W
	Open Circuit Voltage (V_{oc})	41.27V
	Short Circuit Current (I_{sc})	11.35A
	Voltage at Max Power Point (V_m)	34.20W
	Current at Max Power Point (I_m)	10.82A
	Power Tolerance	0~+3%
	Module Efficiency	20.1%
NMOT: Air Mass AM 1.5, Ir-radiance 74.3W/ft^2 Ambient temperature 20°C, wind speed 1m/s	Max Power at NMOT (P_{max})	277W
	Open Circuit Voltage (V_{oc})	38.5V
	Short Circuit Current (I_{sc})	9.15A
	Voltage at Max Power Point (V_m)	31.4V
	Current at Max Power Point (I_m)	8.81A
	Power Tolerance	0~+3%

TEMPERATURE COEFFICIENTS

Temperature Coefficient of P_{max}	%/°C	-0.42
Temperature Coefficient of V_{oc}	%/°C	-0.33
Temperature Coefficient of I_{sc}	%/°C	0.04

WORKING CONDITIONS

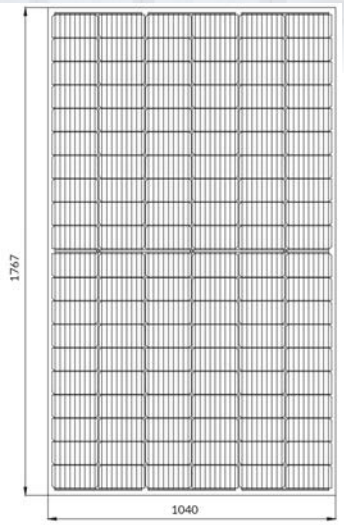
Maximum System Voltage (With S)	V	1000CE (IEC)
Maximum System Voltage (Without S)	V	1500DC (IEC)
Operating Temperature	°F	-40~+185
Nominal Operating Cell Temperature	°F	113 ± 37
Maximum rated current	A	20

ClearVue^{PV} High Efficiency Spandrel Specifications

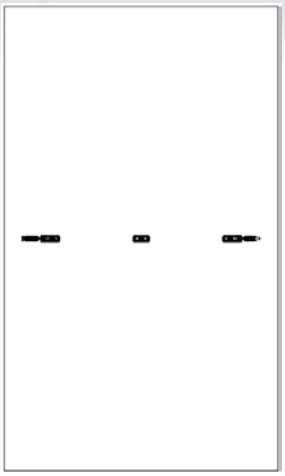
Black Double Glass Module

ENGINEERING DRAWINGS (mm)

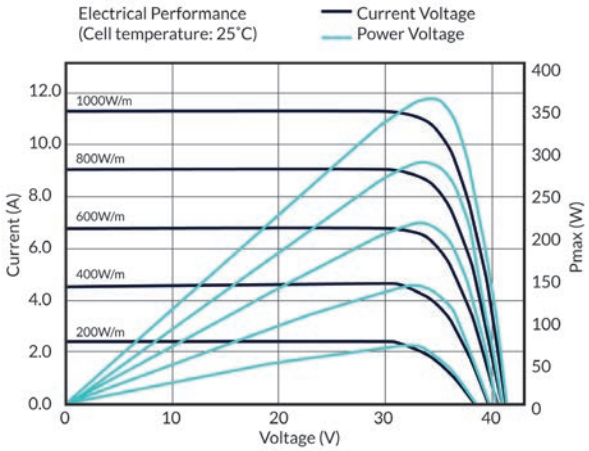
FRONT VIEW



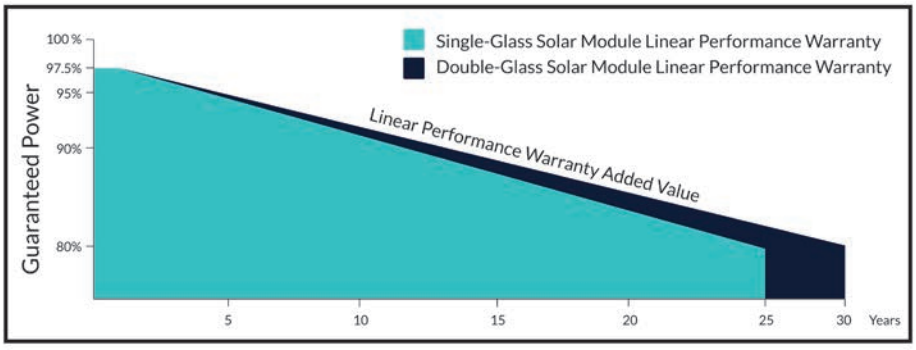
BACK VIEW



ELECTRICAL CURVES



LINEAR PERFORMANCE



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Quality Control & Quality Assurance

Testing & Inspection
Visual inspection of solar cells and testing for quality & performance

Electroluminescence
Inspection and testing of interlayer and solar wafers

Environmental & Stress Testing
Water infiltration, weight bearing, impact, heat, cold, and humidity

Safety & Fire Testing
PV safety, fire classification, fire performance of external cladding

We are dedicated to delivering high-performance, high-quality, long-lasting, and safe façade solutions.

Quality and Safety

ClearVue^{PV} Vision Glass, Spandrel, Skylight, Balustrade, and Cladding products are engineered to meet and/or exceed industry standards for quality, lifespan, and safety.

By undergoing rigorous testing, compliance, and certifications, our solar façade solutions demonstrate the reliability and suitability for deployment in diverse building envelope applications. This ensures optimal energy production, fire resistance, and thermal efficiency. Adherence to these standards underscores our commitment to deliver high-quality, dependable products that contribute to sustainable and resilient built environments.

Certifications & Compliance

ClearVue^{PV} Spandrel

- 30-year linear power performance warranty
- 12-year product warranty
- High resistance to high temperatures, high humidity, sand, acid, and alkali environmental conditions
- Fire certified by TÜV SÜD under the EN 13501-1:2018 A2-s1, d0 classification rating for combustibility
- Reliable seal and IP68 connectors

TESTING STANDARDS

IEC 61215-1	Terrestrial photovoltaic modules - Design qualification and type approval - Part 1 test requirements
IEC 61215-1-1	Terrestrial photovoltaic modules - Design qualification and type approval - Part 1-1: Special requirements for testing of crystalline silicon photovoltaic modules
IEC 61215-2	Terrestrial photovoltaic (PV) modules - Design qualification and type approval - Part 2: Test procedures
IEC 61730-1	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction
IEC 61730-2	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing
EN 13501-1:2018	Fire classification of construction products and building elements - Achieved A2-s1, d0
AS 4284	Testing of the building facade (Q3 2024)
AS/NZS 1530.3	Fire tests on building materials, components, and structures; Part 3: Ignitability, flame propagation, heat release, and smoke release
Clean Energy Council (CEC) of Australia	Certification - Approved for installation and meets safety standards
ISO	9001 Certified manufacturing facility
UL 61730	PV module safety testing (Q4 2024)

COMPLIANCE & CERTIFICATIONS

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