

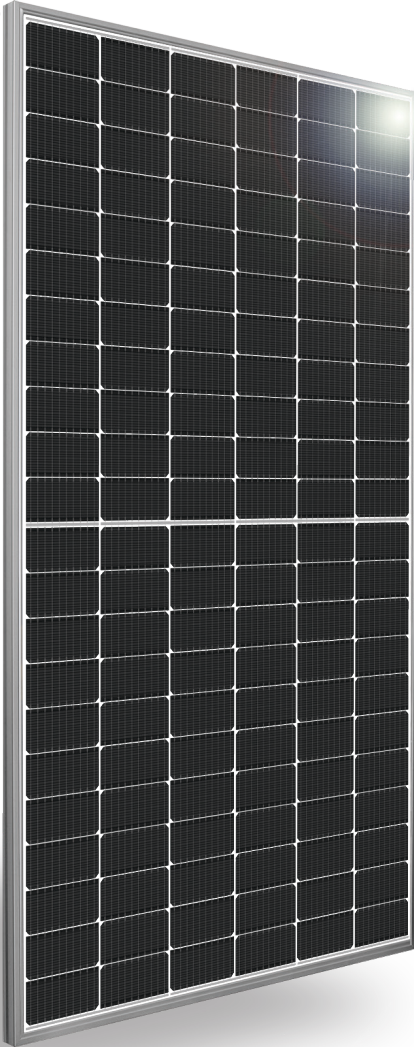
MIN. GAP: 3/8"

PRSOL20250112

SILFAB COMMERCIAL NTC



SIL-520 QM



INTRODUCING NEXT-GENERATION N-TYPE CELL TECHNOLOGY

- Exclusively Manufactured in the USA
- Increased Performance in High Temperatures
- Enhanced Durability
- Lower Temperature Coefficient
- Reduced Degradation Rate
- Industry-Leading Warranty



SILFABSOLAR.COM

City of Puyallup Building REVIEWED FOR COMPLIANCE

BSnowden
01/29/2025
11:29:51 AM

City of Puyallup Development & Permitting Services ISSUED PERMIT	
Building	Planning
Engineering	Public Works
Fire	Traffic

Full-Sized legible color report is required to be provided by the Permittee on site for all Inspections



ELECTRICAL SPECIFICATIONS		520 QM	
Test Conditions		STC	NOTC
Module Power (Pmax)	Wp	520	384
Maximum power voltage (Vpmax)	V	40.48	37.24
Maximum power current (Ipmax)	A	12.85	10.31
Open circuit voltage (Voc)	V	47.52	43.71
Short circuit current (Isc)	A	13.65	10.96
Module efficiency	%	21.9%	20.2%
Maximum system voltage (VDC)	V		1500
Series fuse rating	A		25
Power Tolerance	Wp		0 to +10

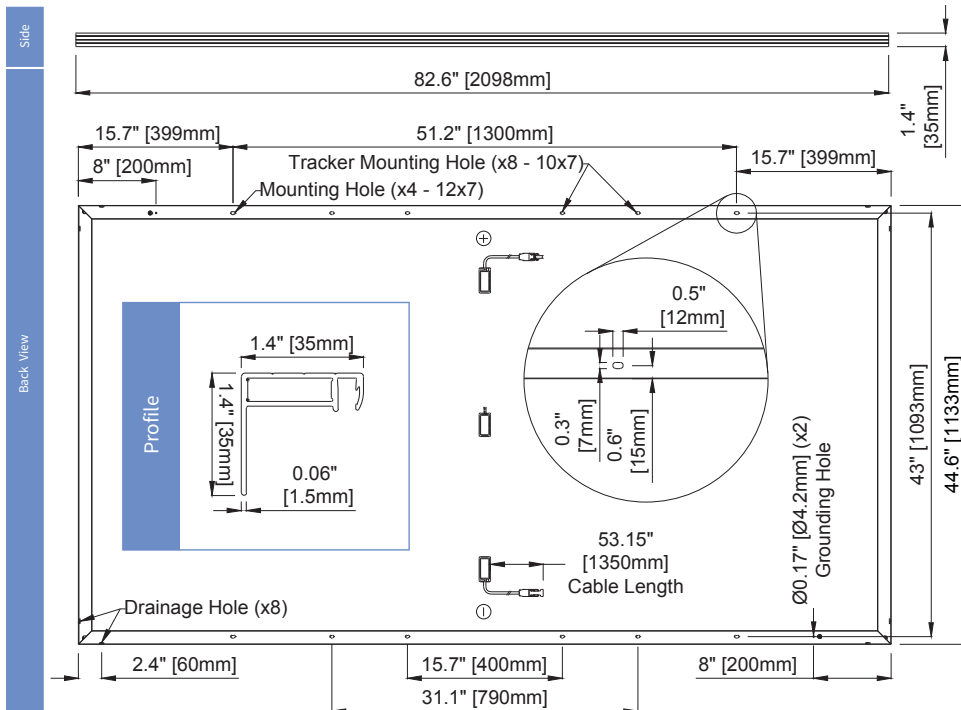
Measurement conditions: STC 1000 W/m² • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ≤ 3%
 Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by 0 to +10W.

MECHANICAL PROPERTIES / COMPONENTS	METRIC	IMPERIAL
Module weight	26.2kg ± 0.2kg	57.8lbs ± 0.4lbs
Dimensions (H x L x D)	2098 mm x 1133 mm x 35 mm	82.6 in x 44.6 in x 1.37 in
Maximum surface load (wind/snow)*	2400 Pa rear load / 5400 Pa front load	50.1 lb/ft ² rear load / 112.8 lb/ft ² front load
Hail impact resistance	Ø 25 mm at 83 km/h	Ø 1 in at 51.6 mph
Cells	132 Half cells - N-Type Silicon solar cell 182 mm x 91 mm	132 Half cells - N-Type Silicon solar cell 3.58 x 7.16 in
Glass	3.2 mm high transmittance, tempered, DSM antireflective coating	0.126 in high transmittance, tempered, DSM antireflective coating
Cables and connectors (refer to installation manual)	1350 mm, Ø 5.7 mm, EVO2 from Staubli	53.15 in, Ø 0.22 in (12AWG), EVO2 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV white backsheet	
Frame	Anodized Aluminum (Silver)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP68 rated, three diodes	

TEMPERATURE RATINGS		WARRANTIES	
Temperature Coefficient Isc	+0.04 %/°C	Module product workmanship warranty	25 years**
Temperature Coefficient Voc	-0.24 %/°C	Linear power performance guarantee	30 years
Temperature Coefficient Pmax	-0.29 %/°C		≥ 98% end 1st yr
NOCT (± 2°C)	45 °C		≥ 94.7% end 12th yr
Operating temperature	-40/+85 °C		≥ 90.8% end 25th yr
			≥ 89.3% end 30th yr

CERTIFICATIONS		SHIPPING SPECS	
Product	UL 61215***, UL 61730***, CSA C22.2#61730***, IEC 61215***, IEC 61730***, IEC 61701 (Salt Mist Corrosion), IEC 62716 (Ammonia Corrosion), CEC Listing***, UL Fire Rating: Type 1	Modules Per Pallet:	29 or 29 (California)
Factory	ISO9001:2015	Pallets Per Truck	24 or 23 (California)
		Modules Per Truck	696 or 667 (California)

- * ⚠ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.
- ** 12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at silfabsolar.com
PAN files generated from 3rd party performance data are available for download at: silfabsolar.com/downloads
- *** Certification and CEC listing in progress.



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Residential Power Optimizer

USA Domestic Content Eligible*

For North America

U650



POWER OPTIMIZER



SolarEdge's USA-manufactured residential offering for PV power optimization at the module level

- / Eligible for domestic content: SolarEdge USA-manufactured Power Optimizers*, when paired with certain SolarEdge inverters, are intended to be eligible for the enhanced federal income tax credit for domestic content
- / Specifically designed to work with SolarEdge residential inverters
- / Superior efficiency (99.5%)
- / Mitigates diverse types of module mismatch loss, from manufacturing tolerance to partial shading
- / Faster installations with simplified wire management and easy assembly using a single bolt
- / Flexible system design for maximum space utilization
- / Compatible with a wide range of modules, including high-powered and bifacial PV modules
- / Advanced safety:
 - / Patented Sense Connect technology, designed to automatically detect and prevent potential electric arcs at the connector level before an arc is created
 - / Patented SafeDC™ – module-level voltage shutdown, for installer and firefighter safety
 - / Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

* Manufactured by SolarEdge with the intent to be eligible for inclusion under the elective safe harbor in calculating the Domestic Cost Percentage under the "Rooftop (MLPE)" category (under IRS Notice 2024-41). The PCBA, Electrical Parts, Enclosure and Production are domestically manufactured to meet the requirements of eligibility to be considered for the ITC domestic content bonus adder. SolarEdge does not provide tax and/or legal advice. You should consult with your own legal and/or tax advisor(s) regarding the eligibility of your project for the ITC or PTC, including the 10% domestic content bonus, to determine how the applicable rules apply to your particular project. The forward-looking statements in this datasheet are accurate as of the date herein and are subject to change. For more information, please contact your local SolarEdge sales representative.

/ Residential Power Optimizer

USA Domestic Content Eligible for North America

U650

	U650	Units
INPUT		
Rated Input DC Power ⁽¹⁾	650	W
Absolute Maximum Input Voltage (Voc)	60	Vdc
MPPT Operating Range	8 – 60	Vdc
Maximum Input Current (Maximum Isc of Connected PV Module)	15	Adc
Maximum Input Short Circuit Current ⁽²⁾	18.75	Adc
Maximum Efficiency	99.5	%
Weighted Efficiency	98.6	%
Overvoltage Category	II	
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)		
Maximum Output Current	15	Adc
Maximum Output Voltage	60	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR INVERTER OFF)		
Safety Output Voltage per Power Optimizer	1 ± 0.1	Vdc
STANDARD COMPLIANCE		
Photovoltaic Rapid Shutdown System	CSA C22.2#330; NEC 2014 – 2023	
EMC	FCC Part 15 Class B; IEC 61000-6-2; IEC 61000-6-3	
Safety	CSA C22.2#107.1; IEC 62109-1 (Class II safety); UL 1741	
Material	UL 94 V-0, UV Resistant	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2013-05	
INSTALLATION SPECIFICATIONS		
Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	129 x 155 x 30 / 5.07 x 6.10 x 1.18	mm / in
Weight	720 / 1.6	gr / lb
Input Connector	MC4	
Input Wire Length	0.1 / 0.32	m / ft
Output Connector	MC4	
Output Wire Length	(+) 2.3, (-) 0.10 / (+) 7.54, (-) 0.32	m / ft
Operating Temperature Range ⁽³⁾	-40 to +85	°C
Protection Rating	IP68 / NEMA6P	
Relative Humidity	0 – 100	%

(1) The Rated Power of the module at STC will not exceed the power optimizer's Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
 (2) The Maximum Input Short Circuit Current is adjusted for worst case conditions of ambient temperature, irradiance, bifacial gain, and so on, in accordance with NEC and CSA.
 (3) Power derating is applied for ambient temperatures above +85°C / +185°F. Refer to the [Power Optimizers Temperature Derating](#) technical note for details.

PV System Design Using a SolarEdge Inverter ⁽⁴⁾	SolarEdge Home Wave / Hub Single Phase	Three Phase for 208V Grid	Three Phase for 277/480V Grid	Units
Minimum String Length (Power Optimizers)	8	10	18	
Maximum String Length (Power Optimizers)	25		50 ⁽⁵⁾	
Maximum Usable Power Delivered per String	5700	6000	12,750	W
Maximum Allowed Connected Power per String ⁽⁶⁾⁽⁷⁾	Inverters with Rated AC Power ≤ 5700W	Per the inverter's maximum input DC power ⁽⁸⁾	15,000	W
	Inverters with Rated AC Power of 6000W	5700		
	Inverters with Rated AC Power ≥ 7600W	6800, only when connected to at least two strings		
Parallel Strings of Different Lengths or Orientations	Yes			

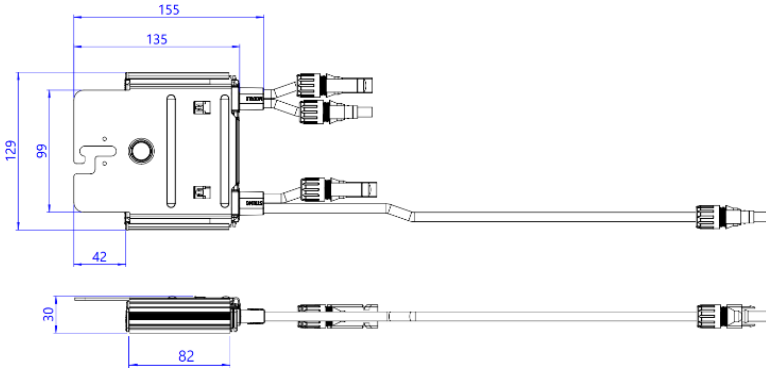
(4) It is not allowed to mix S-series and P-series Power Optimizers in new installations in the same string.
 (5) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.
 (6) For the 208V grid, the maximum is permitted only when the difference in connected power between strings is 1,000W or less.
 (7) For the 240V or 277/480V grids, the maximum is permitted only when the difference in connected power between strings 2,000W or less.
 (8) Refer to the [Single String Design Guidelines](#) application note for more details.

/ Residential Power Optimizer

USA Domestic Content Eligible for North America

U650

U650 (Flat Bracket)



SolarEdge is a global leader in smart energy technology. By leveraging world-class engineering capabilities and with a relentless focus on innovation, SolarEdge creates smart energy solutions that power our lives and drive future progress.

SolarEdge developed an intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. The SolarEdge DC optimized inverter maximizes power generation while lowering the cost of energy produced by the PV system.

Continuing to advance smart energy, SolarEdge addresses a broad range of energy market segments through its PV, storage, EV charging, UPS, and grid services solutions.

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Cautionary Note Regarding Market Data and Industry Forecasts: This brochure may contain market data and industry forecasts from certain third-party sources. This information is based on industry surveys and the preparer's expertise in the industry and there can be no assurance that any such market data is accurate or that any such industry forecasts will be achieved. Although we have not independently verified the accuracy of such market data and industry forecasts, we believe that the market data is reliable and that the industry forecasts are reasonable.

Three Phase Inverters for the 120/208V Grid For North America

SE10KUS / SE17.3KUS



INVERTERS

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for superior efficiency and longer strings
- Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- Integrated arc fault protection and rapid shutdown for NEC 2014 – 2023, per article 690.11 and 690.12
- Built-in module-level monitoring with Ethernet, wireless or cellular communication for full system visibility
- Integrated Safety Switch
- UL 1741 SA and SB certified, for CPUC Rule 21 grid compliance

/ Three Phase Inverters for the 120/208V Grid⁽¹⁾

For North America

SE10KUS / SE17.3KUS

Model Number	SE10KUS	SE17.3KUS	
Applicable to inverters with part number	SEXK-USX2IXXX		
OUTPUT			
Rated AC Power Output	10000	17300	W
Maximum Apparent AC Output Power	10000	17300	VA
AC Output Line Connections	3W + PE, 4W + PE		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-N)	105 – 120 – 132.5		
AC Output Voltage Minimum-Nominal-Maximum ⁽²⁾ (L-L)	183 – 208 – 229		
AC Frequency Minimum-Nominal-Maximum ⁽²⁾	59.3 – 60 – 60.5		
Continuous Output Current (per Phase)	27.8	48.25	Aac
GFDI Threshold	1		
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
THD	≤ 3		
Power Factor Range	+/- 0.85 to 1		
INPUT			
Maximum DC Power (Module STC)	17500	30275	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC+ to DC-	600		
Operating Voltage Range	370 – 600		
Maximum Input Current	27.8	48.25	Adc
Maximum Input Short Circuit Current	55		
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	167kΩ Sensitivity ⁽³⁾		
CEC Weighted Efficiency	97	97.5	%
Night-time Power Consumption	< 4		
ADDITIONAL FEATURES			
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)		
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection		
Rapid Shutdown	NEC 2014 – 2023, built-in		
RS485 Surge Protection Plug-in	Supplied with the inverter, built-in		
AC, DC Surge Protection	Type II, field replaceable, built-in		
DC Fuses (Single Pole)	25A, built-in		
Smart Energy Management	Export Limitation		
DC SAFETY SWITCH			
DC Disconnect	Integrated		
STANDARD COMPLIANCE			
Safety	UL 1741, UL 1741 SA, UL 1741 SB, UL 1699B, CSA C22.2, Canadian AFCl according to T.I.L. M-07		
Grid Connection Standards	IEEE 1547-2018, Rule 21, Rule 14 (HI)		
Emissions	FCC Part 15 Class A		
INSTALLATION SPECIFICATIONS			
AC Output Conduit size /AWG range	¾" or 1" / 6 - 10 AWG		
DC Input Conduit size / AWG range	¾" or 1" / 6 - 12 AWG		
Number of DC inputs pairs	4		
Dimensions with Safety Switch (H x W x D)	31.8 x 12.5 x 11.8 / 808 x 317 x 300		
Weight with Safety Switch	78.2 / 35.5		
Cooling	Fans (user replaceable)		
Noise	< 62		
Operating Temperature Range	-40 to +140 / -40 to +60(4)		
Protection Rating	NEMA 3R		
Mounting	Bracket provided		

(1) For 277/480V inverters refer to the [Three Phase Inverters for the 277/480V Grid for North America datasheet](#).

(2) For other regional settings please contact SolarEdge support.

(3) Where permitted by local regulations.

(4) For power derating information refer to the [Temperature Derating](#) technical note for North America.



PANELCLAW®

clawFR 10 Degree 5 Degree and Dual Tilt Component Cut Sheets

PR SOL20250112

6000013_Rev04

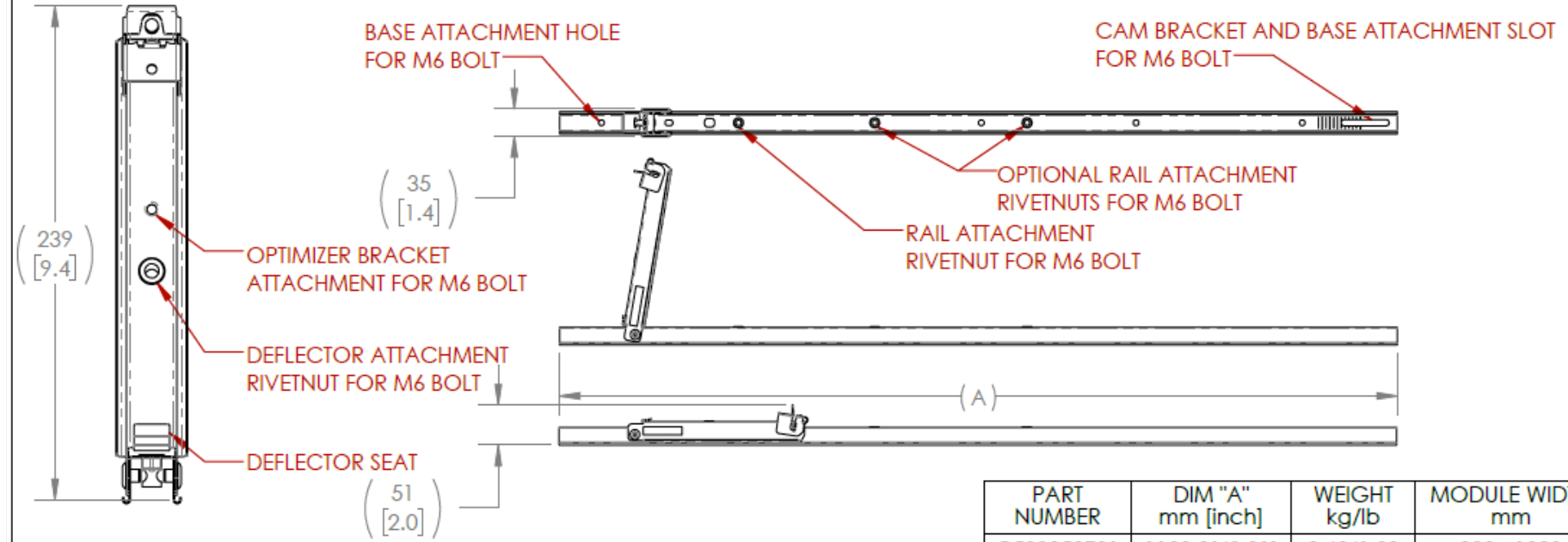
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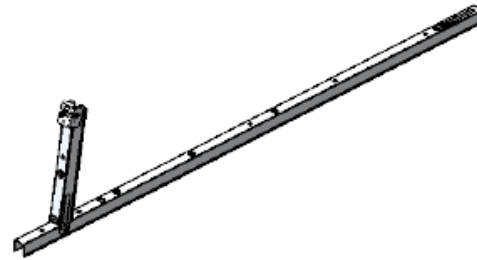
Component Cut Sheet

10 Degree and Dual Tilt "Module Connector"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00548	INITIAL RELEASE	21-JAN-19	JA
B	C00619	UPDATED PARTS, UPDATED BALLAST RAIL TO RAIL	29-MAY-20	JA
C	C00650	ADDED -03, -04, -08	13-JAN-21	JA



PART NUMBER	DIM "A" mm [inch]	WEIGHT kg/lb	MODULE WIDTH mm
C500050701	1100.0[43.31]	0.63/1.39	990 - 1030
C500050702	1140.0[44.88]	0.64/1.42	1031 - 1070
C500050703	1180.0[46.46]	0.66/1.46	1071 - 1110
C500050704	1220.0[48.03]	0.68/1.49	1111 - 1150
C500050708	1380.0[54.33]	0.74/1.64	1270 - 1310



5000507XX

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MATERIAL
STEEL W/ZAM COATING

DIMENSIONS ARE IN mm [INCHES]


PANELCLAW
1600 Osgood St., Suite 2023
North Andover, MA 01845
Phone: 978.688.4900
Fax: 978.688.5100
www.panelclaw.com

**MODULE CONNECTOR,
10 DEGREE, CFR**

SIZE	DWG. NO.	REV
A	C5000507XX	C

SCALE: NONE WT SEE TABLE kg/lb SHEET 1 OF 1

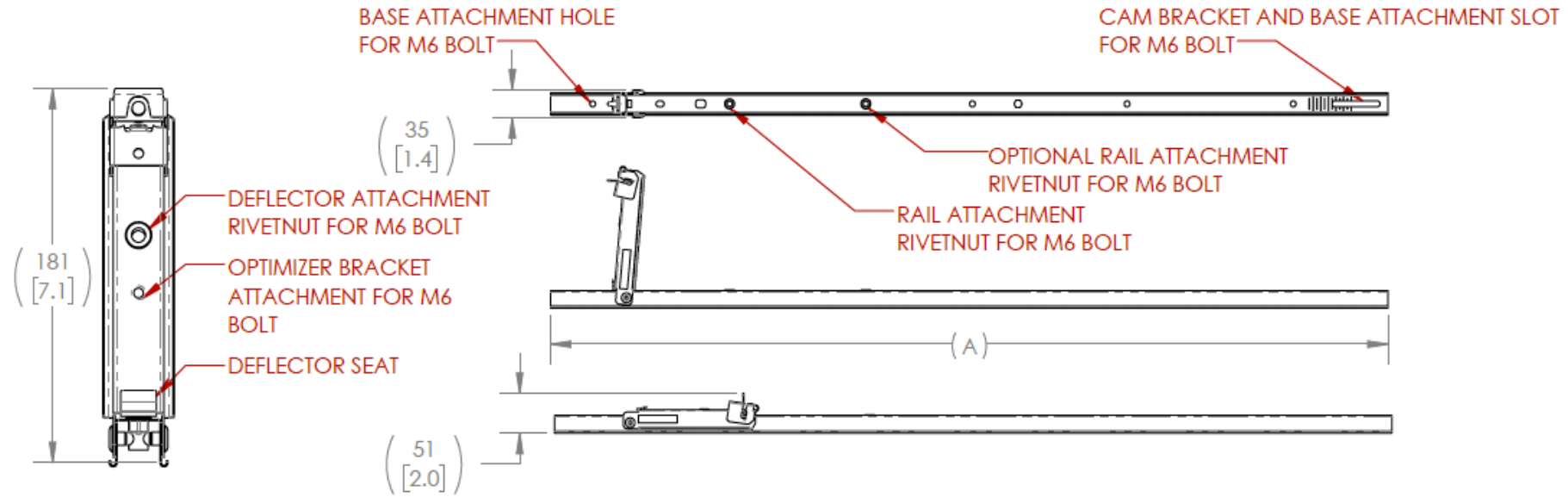
PR SOL20250112



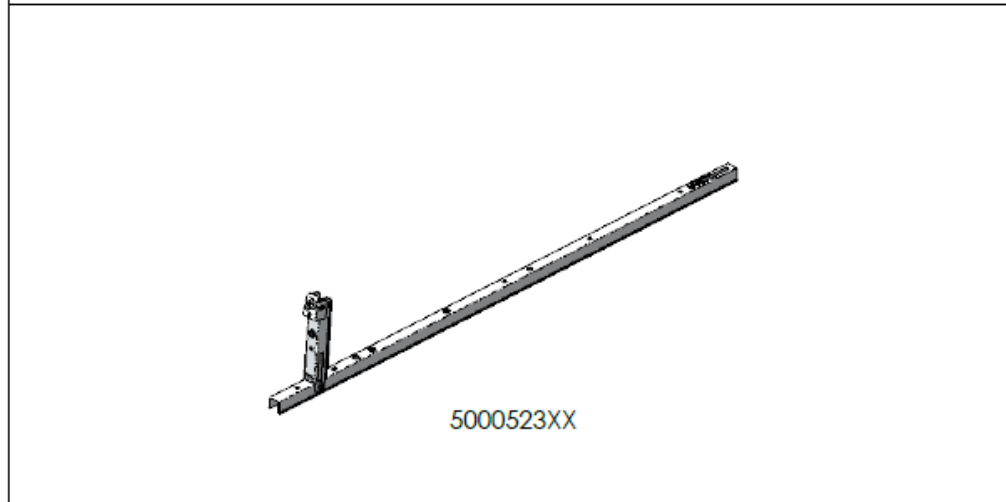
Component Cut Sheet

5 Degree "Module Connector"

REVISION				
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00583	INITIAL RELEASE	02-JUL-19	JA
B	C00619	PART UPDATED	29-MAY-20	JA
C	C00650	ADDED -03, -04, -08	11-JAN-21	JA



PART NUMBER	DIM "A" mm [inch]	WEIGHT kg/lb	MODULE WIDTH mm
C500052301	1100.0[43.31]	0.59/1.30	990 - 1030
C500052302	1140.0[44.88]	0.61/1.34	1031 - 1070
C500052303	1180.0[46.46]	0.62/1.38	1071 - 1110
C500052304	1220.0[48.03]	0.64/1.41	1111 - 1150
C500052308	1380.0[54.33]	0.71/1.56	1270 - 1310



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<p>MATERIAL</p> <p>STEEL W/ZAM COATING</p>		<p>MODULE CONNECTOR, 5 DEGREE, CFR</p>	
SIZE	DWG. NO.	REV	
A	C5000523XX	C	
DIMENSIONS ARE IN mm [INCHES]		SCALE: NONE	WT SEE TABLE kg/lb SHEET 1 OF 1

PRSOL20250112



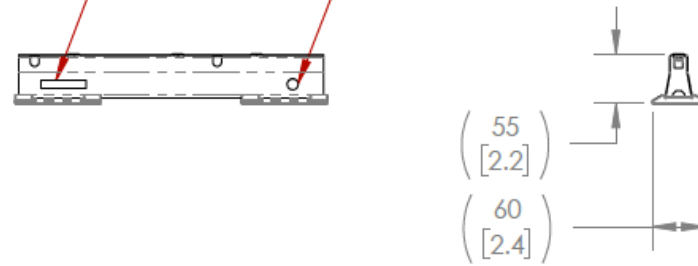
Component Cut Sheet

Dual Tilt "Base"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00548	INITIAL RELEASE	21-JAN-19	JA

VENDOR CODE, DATE CODE,
PART NUMBER AND REVISION CODE

ORIENTATION MARKER



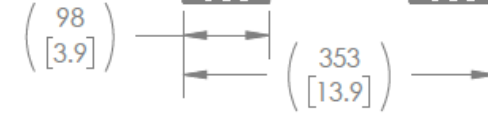
3X RIVETNUTS
FOR M6 BOLT

MA CONNECTOR HOLES
FOR M6 BOLT

PANELCLAW LOGO

UL 2703 TEST LAB LOGO

UL 2703 SYSTEM RATING

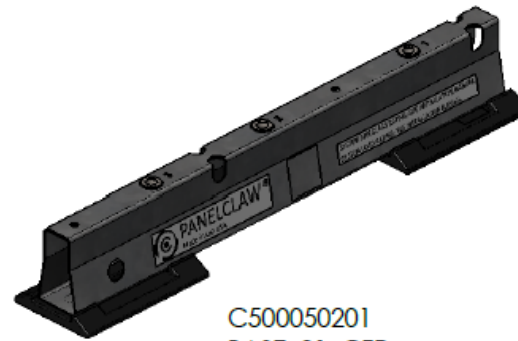


4X SHIM PAD
ATTACHMENT HOLE

OPTIONAL SLOT FOR
ROOF PROTECTION PAD

ROOF
PROTECTION PAD

CLAWFR DUAL TILT BASE 27MM[10"]



C500050201
BASE, 01, CFR

PART NUMBER	WEIGHT kg/lb
500050201	0.37/0.81

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MATERIAL
STEEL W/ZAM COATING;
TPV (Thermoplastic
Vulcanizate)

DIMENSIONS ARE IN mm [INCHES]

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Fax: 978.688.5100
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BASE, 01, CFR

SIZE	DWG. NO.	REV
A	C500050201	A

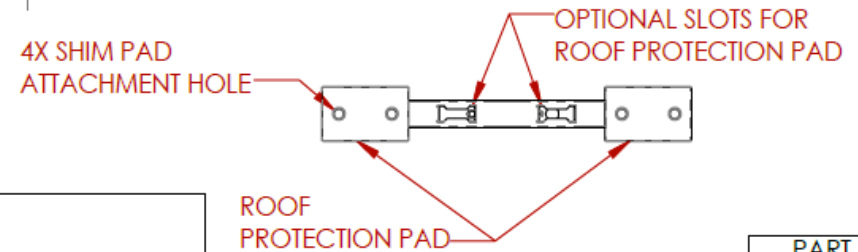
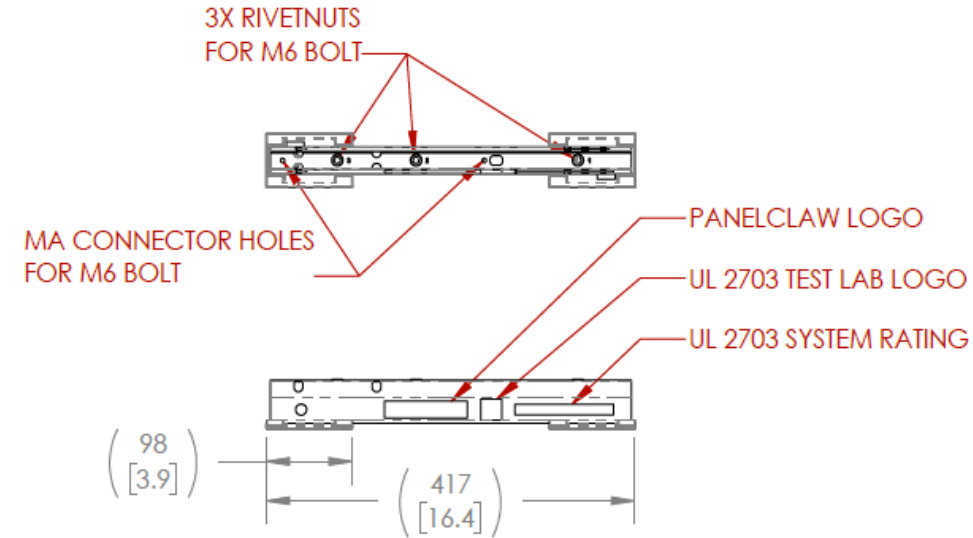
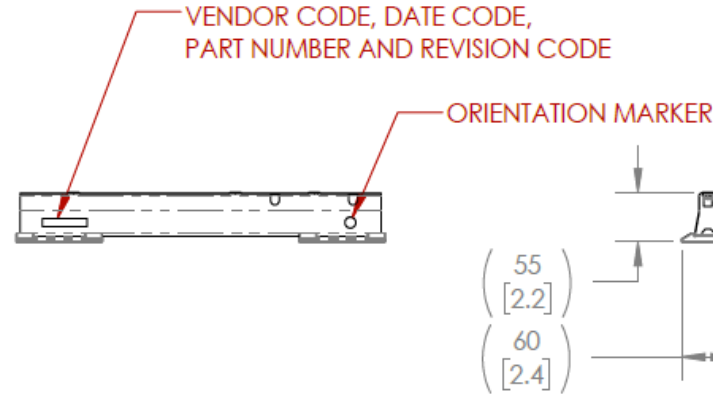
SCALE: NONE WT SEE TABLE kg/lb SHEET 1 OF 3

PR SOL20250112



Component Cut Sheet

5 Degree (all spacing options) and 10 Degree 11.4" row gap spacing option
"Base"



CLAWFR 5 DEGREE BASE 18CM[7"]
 CLAWFR 5 DEGREE BASE 28CM[11"]
 CLAWFR 10 DEGREE BASE 29CM[11"]



C500050202
BASE, 02, CFR

PART NUMBER	WEIGHT kg/lb
500050202	0.42/0.93

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 TPV (Thermoplastic Vulcanizate)

DIMENSIONS ARE IN mm [INCHES]

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 North Andover, MA 01845
 Phone: 978.688.4900
 Fax: 978.688.5100
 www.panelclaw.com

PANELCLAW		
BASE, 02, CFR		
SIZE A	DWG. NO. C500050202	REV A

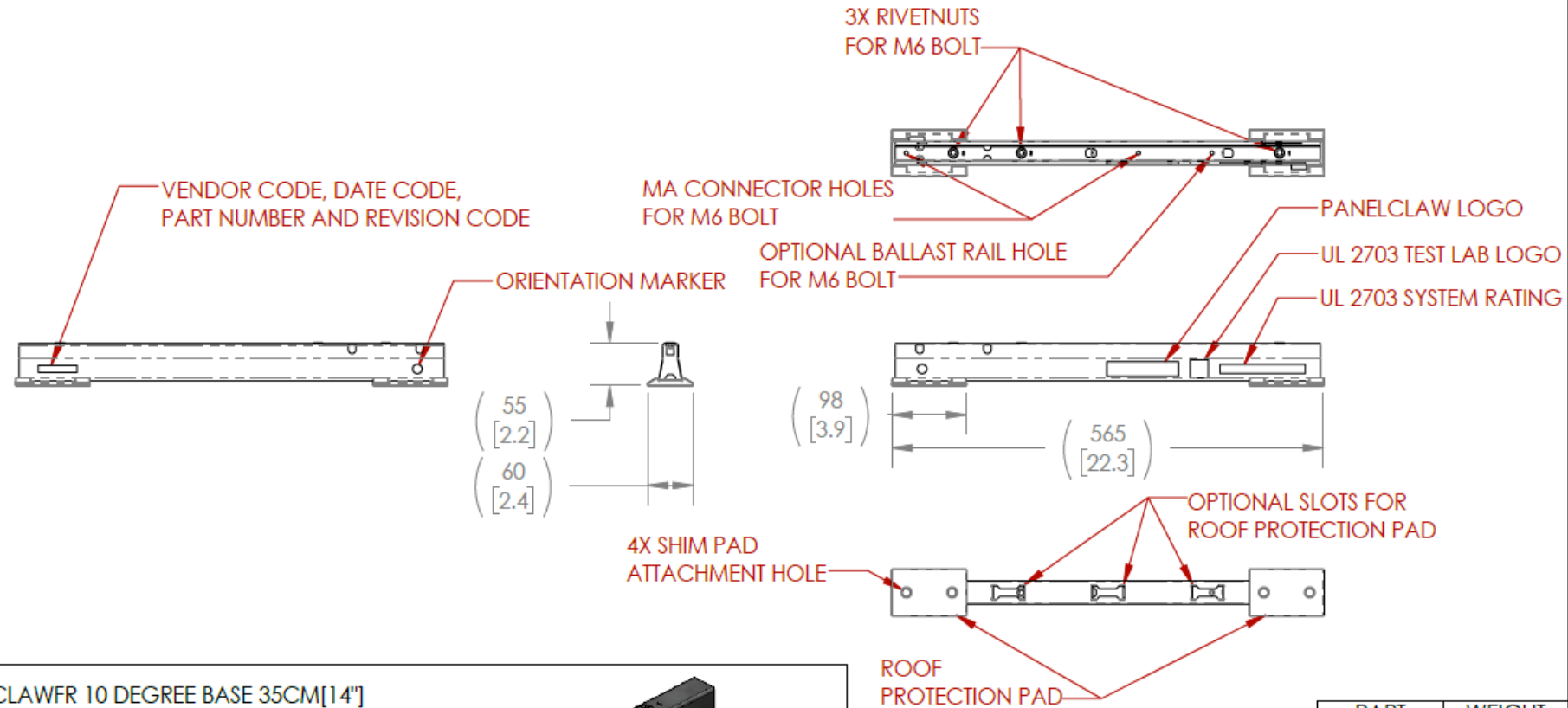
SCALE: NONE WT SEE TABLE kg/lb SHEET 2 OF 3

PRSOL20250112



Component Cut Sheet

10 Degree (13.9 and 17.4 row gap spacing options)
"Base"



CLAWFR 10 DEGREE BASE 35CM[14"]
CLAWFR 10 DEGREE BASE 44CM[17"]



C500050203
BASE, 03, CFR

PART NUMBER	WEIGHT kg/lb
500050203	0.55/1.21

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MATERIAL
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TPV (Thermoplastic Vulcanizate)

DIMENSIONS ARE IN mm [INCHES]

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Fax: 978.888.5100
www.panelclaw.com

PANELCLAW

BASE, 03, CFR

SIZE	DWG. NO.	REV
A	C500050203	A

SCALE: NONE WT SEE TABLE kg/lb SHEET 3 OF 3

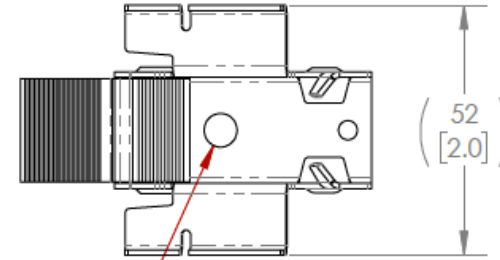
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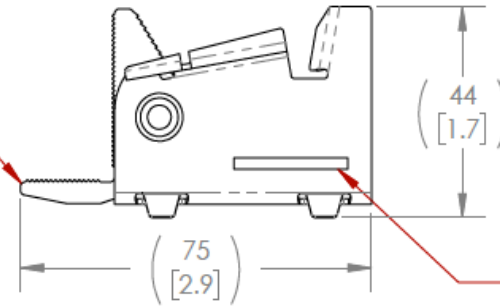
Component Cut Sheet

10 Degree and Dual Tilt "Cam"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00548	INITIAL RELEASE	21-JAN-19	JA

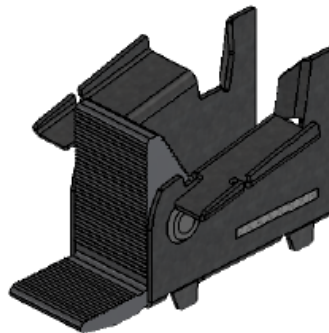


MODULE CONNECTOR AND BASE ATTACHMENT HOLE FOR M6 BOLT




MODULE SEAT

PART NUMBER AND REVISION CODE



PRSOL20250112

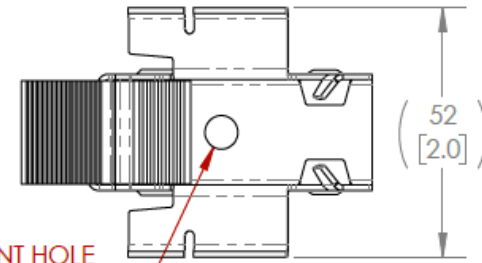
PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF PANELCLAW. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF PANELCLAW IS PROHIBITED.	 PanelClaw, Inc. 1600 Osgood St., Suite 2023, North Andover, MA 01845 Phone: 978.688.4900 Fax: 978.688.5100 www.panelclaw.com		
	PANELCLAW CAM, 10 DEGREE, CFR		
MATERIAL STEEL W/ZAM COATING; ALUMINUM	SIZE A	DWG. NO. C5000500	REV A
DIMENSIONS ARE IN mm [INCHES]	SCALE: NONE	WT 0.08/0.17 kg/lb	SHEET 1 OF 1



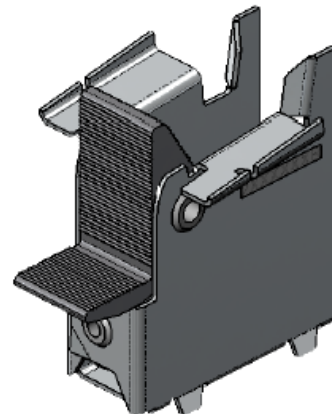
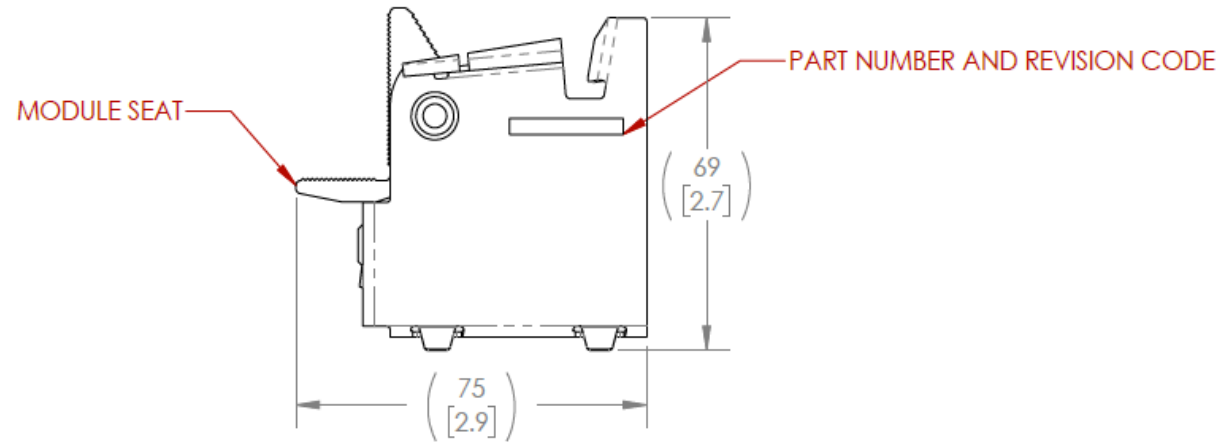
Component Cut Sheet

5 Degree "Cam"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00583	INITIAL RELEASE	02-JUL-19	JA



MODULE CONNECTOR AND BASE ATTACHMENT HOLE
FOR M6 BOLT



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MATERIAL
STEEL W/ZAM COATING;
ALUMINUM

DIMENSIONS ARE IN mm [INCHES]



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PANELCLAW

CAM, 5 DEGREE, CFR

SIZE	DWG. NO.	REV
A	C5000515	A

SCALE: NONE WT: 0.11/0.24 kg/lb SHEET 1 OF 1

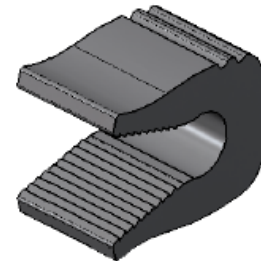
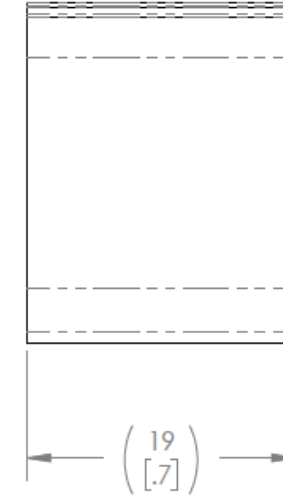
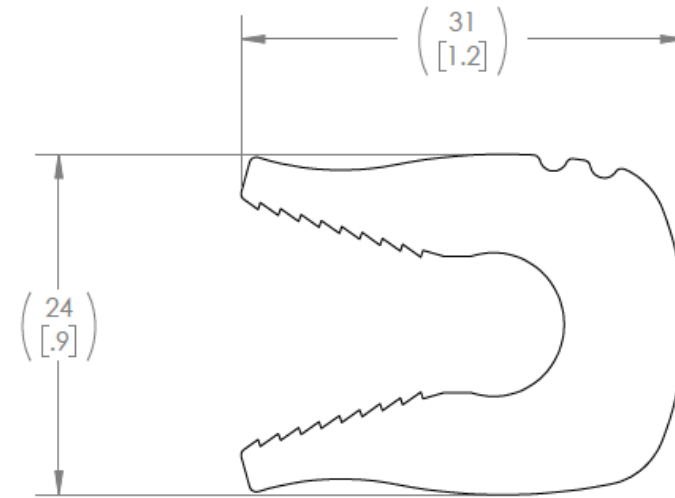
PRSOL20250112



Component Cut Sheet

“Claw”

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00548	INITIAL RELEASE	21-JAN-19	JA



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MATERIAL
 ALUMINUM

CAM CLAW, CFR

SIZE	DWG. NO.	REV
A	C2000673	A

PRSOL20250112

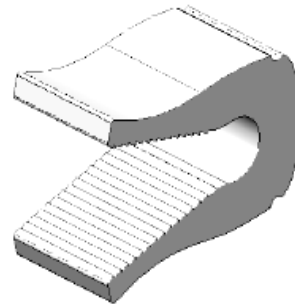
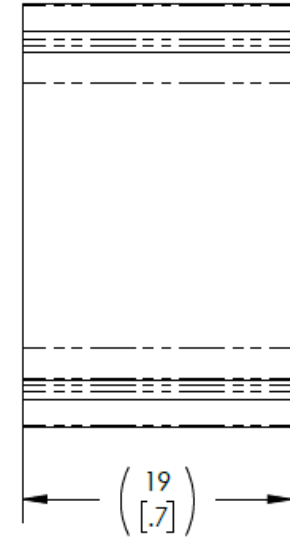
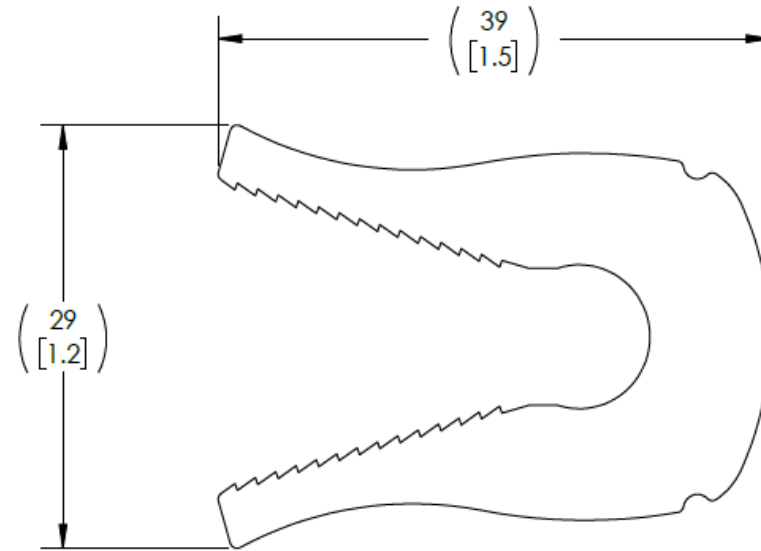


Component Cut Sheet

“Claw, CS”

For use with modules that have smaller flanges.


		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00629	INITIAL RELEASE	14-SEP-20	JA



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MATERIAL
 ALUMINUM

DIMENSIONS ARE IN mm [INCHES]


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 CAM CLAW, CS, CFR

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SIZE	DWG. NO.	REV
A	C2000815	A

SCALE: NONE WT 0.03/0.06 kg/lb SHEET 1 OF 1

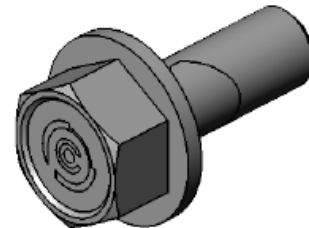
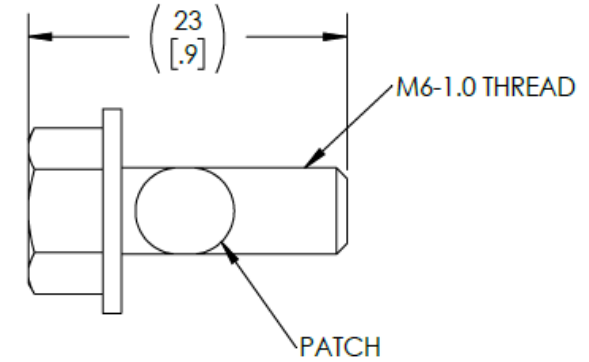
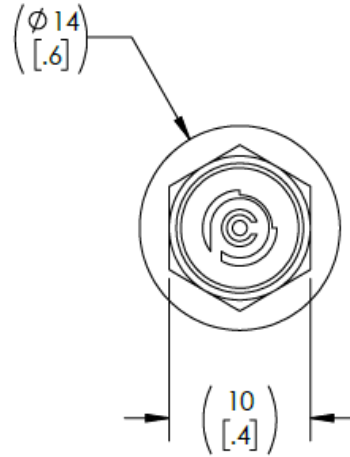
PR SOL20250112



Component Cut Sheet

"M6X16 Bolt"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00629	INITIAL RELEASED	14-SEP-20	JA



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MATERIAL
 STEEL

DIMENSIONS ARE IN mm [INCHES]



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PANELCLAW®
BLT, HEX FLG, TRI, M6X16, ST, PATCH

SIZE	DWG. NO.	REV
A	C2000697	A

SCALE: NONE WT 0.007/.015 kg/lb SHEET 1 OF 1

PRSOL20250112



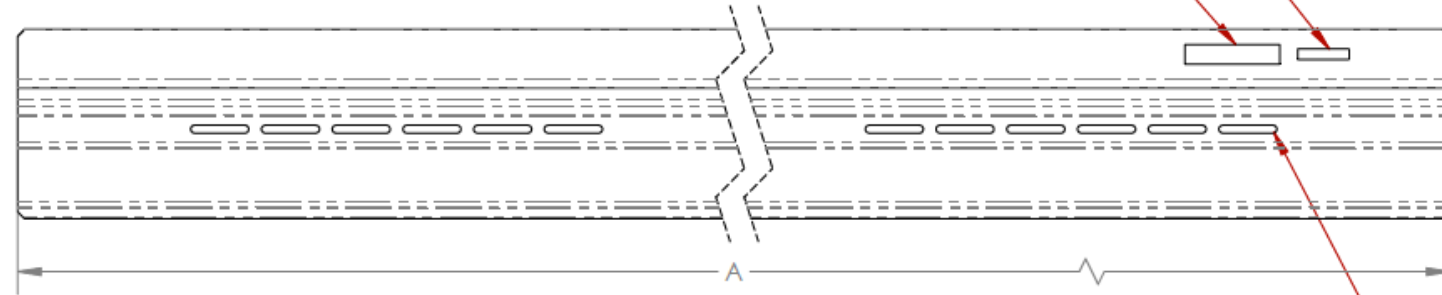
Component Cut Sheet

10 Degree "Deflector"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00604	INITIAL RELEASE	07-FEB-20	JA
B	C00629	UPDATED ISO VIEWS	14-SEP-20	JA
C	C00635	ADDED -05, -06, -07	19-APR-21	JA

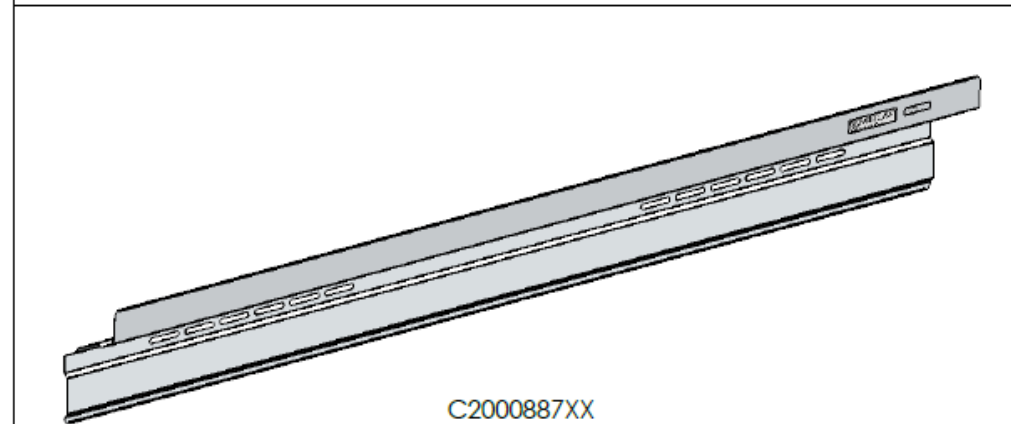
VENDOR CODE, DATE CODE, PART NUMBER, AND REVISION CODE

PANELCLAW LOGO



12X SLOT
FOR M6 BOLT

PART NUMBER	DIM "A" mm [in]	WEIGHT kg/lb
C200088701	1732[68.2]	1.38/3.03
C200088702	2056[81.0]	1.64/3.61
C200088703	2132[83.9]	1.70/3.74
C200088704	2232[87.9]	1.78/3.92
C200088705	2332[91.8]	1.84/4.10
C200088706	2432[95.8]	1.94/4.28
C200088707	2532[99.7]	2.02/4.46



C2000887XX

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MATERIAL
STEEL W/ ZAM COATING


PANELCLAW
 DEFLECTOR, 10D, CFR

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SIZE	DWG. NO.	REV
A	C2000887XX	C

DIMENSIONS ARE IN mm [INCHES] SCALE: NONE WT SEE TABLE kg/lb SHEET 1 OF 1

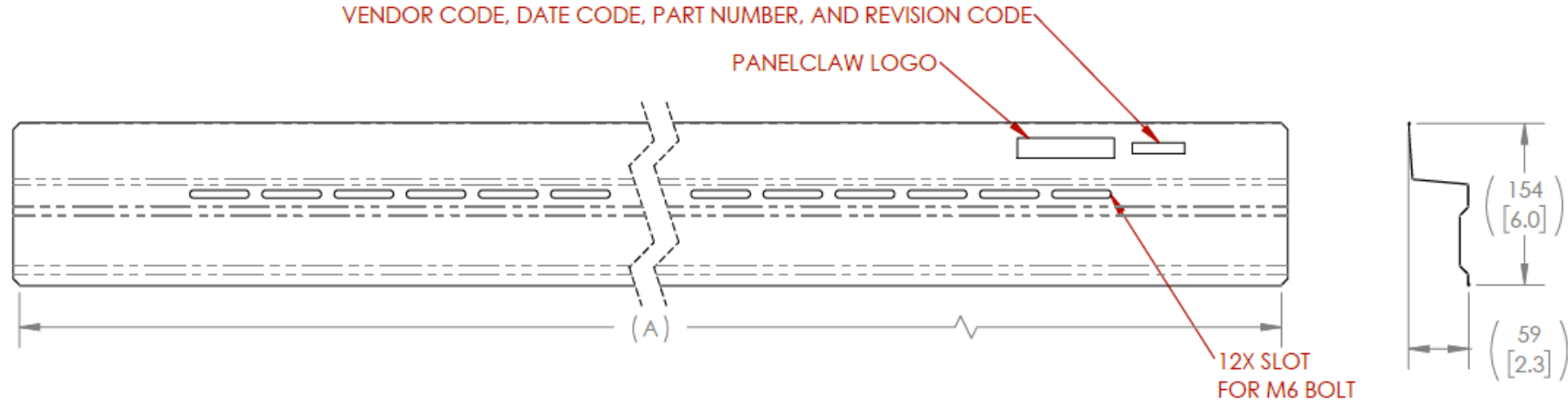
PR SOL20250112



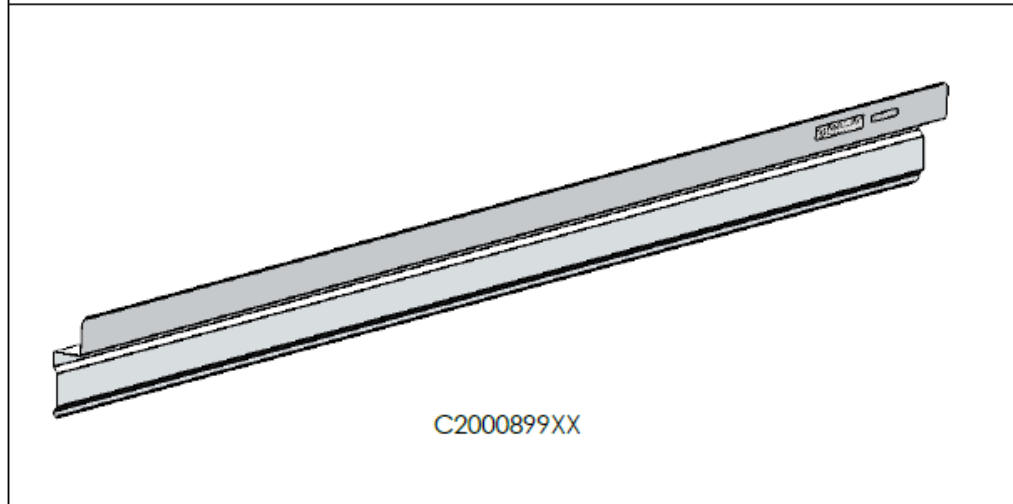
Component Cut Sheet

5 Degree "Deflector"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00604	INITIAL RELEASE	07-FEB-20	JA
B	C00635	ADDED -05, -06, -07	19-APR-21	JA




PART NUMBER	DIM "A" mm [inch]	WEIGHT kg/lb
C200089901	1732[68.2]	1.11/2.44
C200089902	2056[81.0]	1.34/2.96
C200089903	2132[83.9]	1.37/3.02
C200089904	2232[87.9]	1.43/3.16
C200089905	2332[91.8]	1.50/3.31
C200089906	2432[95.7]	1.57/3.45
C200089907	2532[99.7]	1.63/3.60



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MATERIAL
STEEL W/ ZAM COATING

DIMENSIONS ARE IN mm [INCHES]



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PANELCLAW
DEFLECTOR, 5D, CFR

SIZE	DWG. NO.	REV
A	C2000899XX	B

SCALE: NONE WT: SEE TABLE kg/lb SHEET 1 OF 1

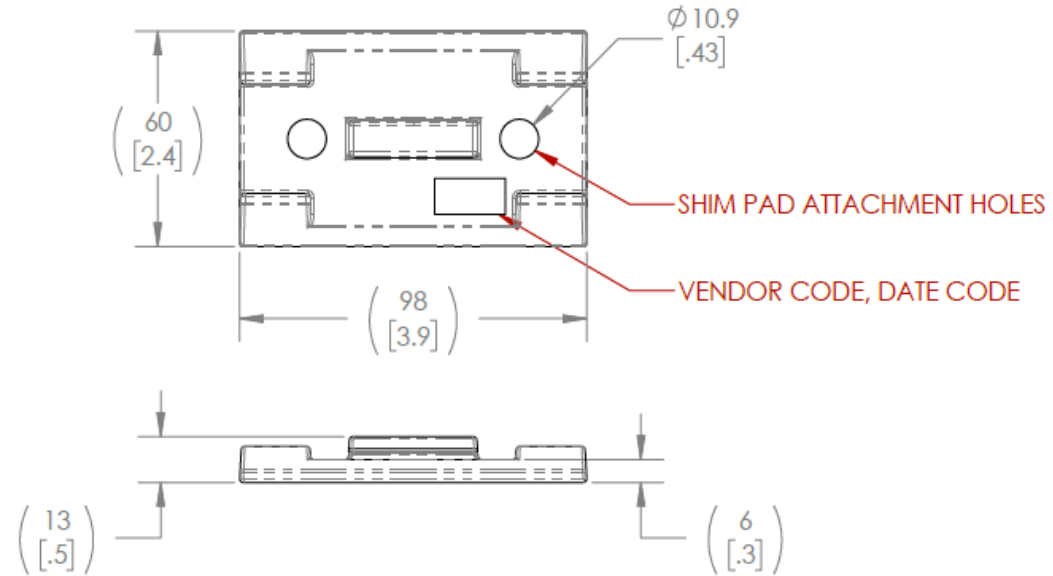
PR SOL20250112



Component Cut Sheet

Universal "Roof Protection Pad"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00548	INITIAL RELEASE	21-JAN-19	JA



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MATERIAL
 TPV (Thermoplastic Vulcanizate)

DIMENSIONS ARE IN mm [INCHES]



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PANELCLAW

**ROOF PROTECTION PAD,
 BASE, CFR**

SIZE	DWG. NO.	REV
A	C2000678	A

SCALE: NONE	WT 0.04/0.08 kg/lb	SHEET 1 OF 1
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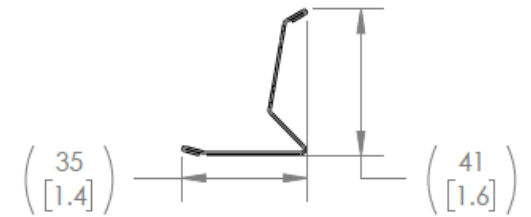
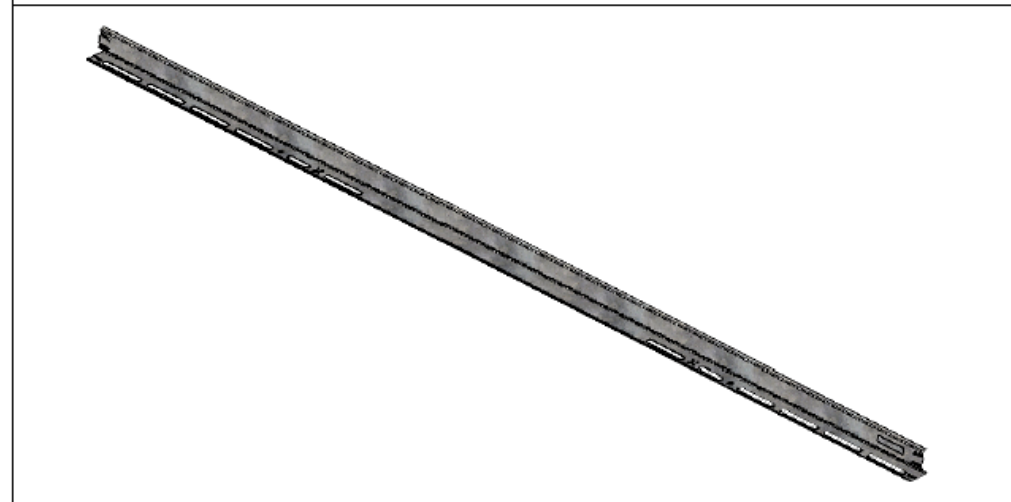
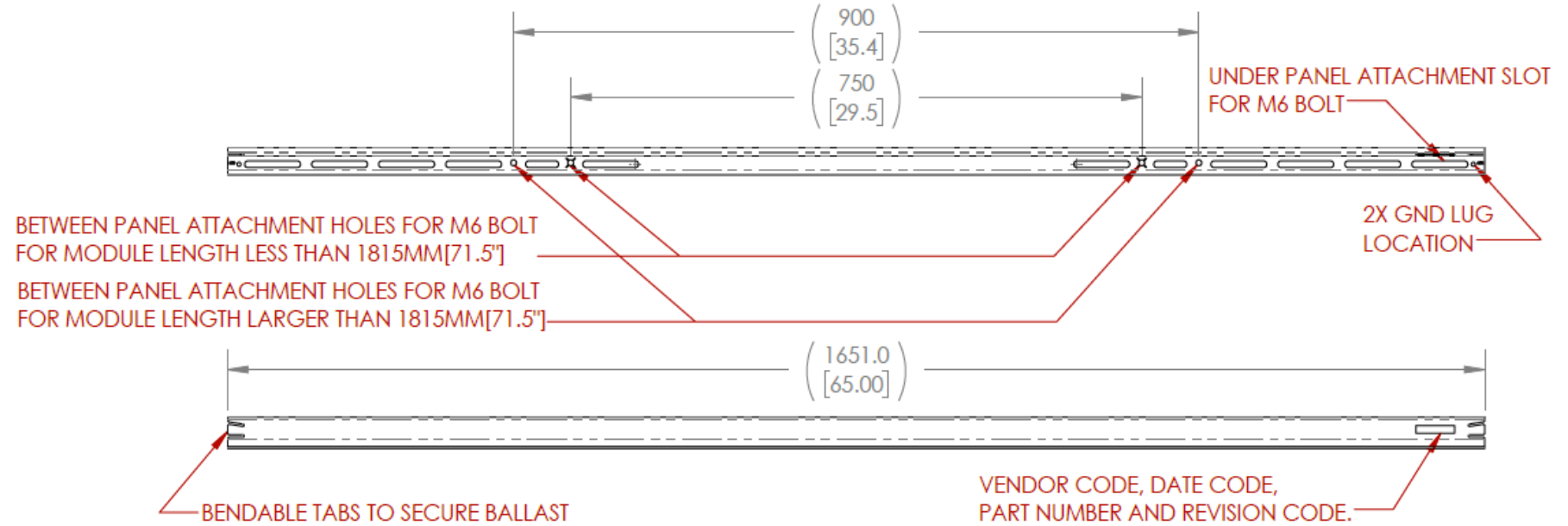
PRSOL20250112



Component Cut Sheet

Universal "Rail"

REVISION				
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00548	INITIAL RELEASE	21-JAN-19	JA
B	C00575	UPDATED PART NAME	15-JUL-19	JA



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MATERIAL
STEEL W/ZAM COATING

DIMENSIONS ARE IN mm [INCHES]


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RAIL, CFR

SIZE	DWG. NO.	REV
A	C2000695	B

SCALE: NONE WT 0.79/1.75 kg/lb SHEET 1 OF 1

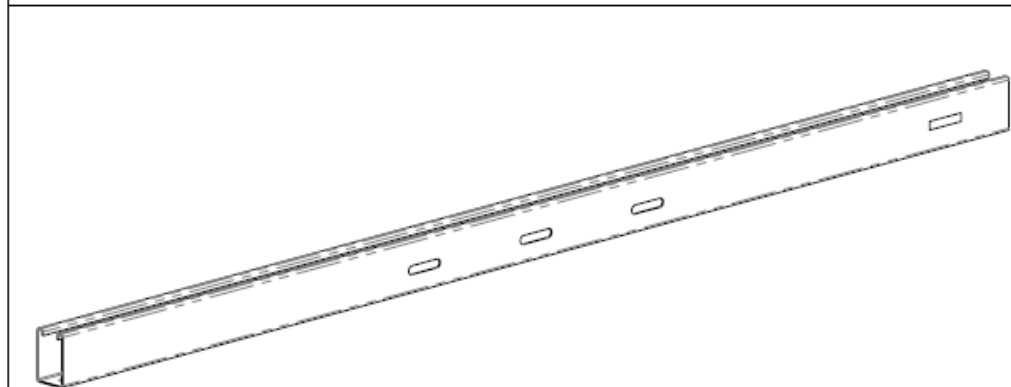
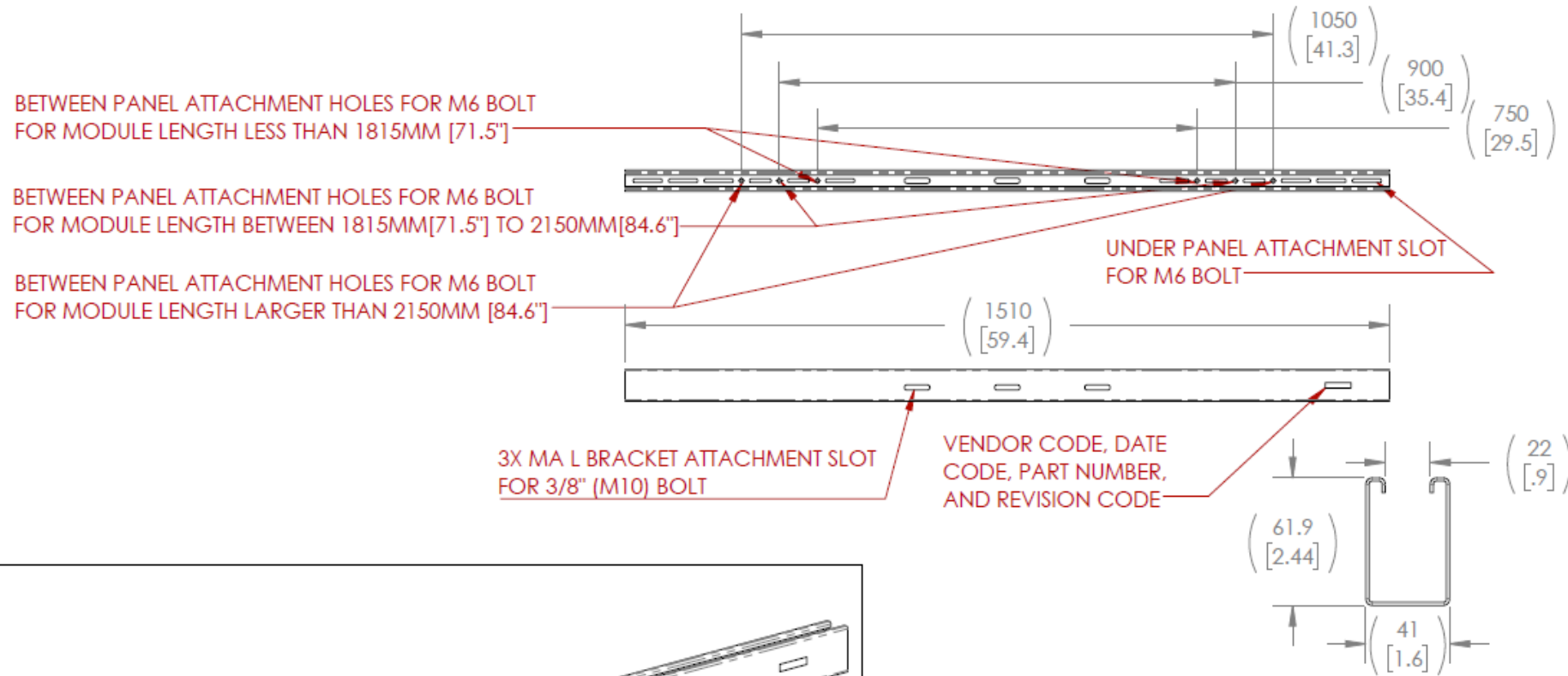
PR SOL20250112



Component Cut Sheet

Universal "MA Strut"

		REVISION		
REV.	ECO#	DESCRIPTION	DATE	APPROVED
A	C00650	INITIAL RELEASE	10-MAY-21	JA



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MATERIAL
STEEL W/ ZAM COATING

DIMENSIONS ARE IN mm [INCHES]

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PANELCLAW
MA STRUT, 2500, CFR

SIZE	DWG. NO.	REV
A	C2000930	A

SCALE: NONE WT 3.21/7.07 kg/lb SHEET 1 OF 1

PR SOL20250112



For Questions or Feedback Contact sales@panelclaw.com

PRSOL20250112

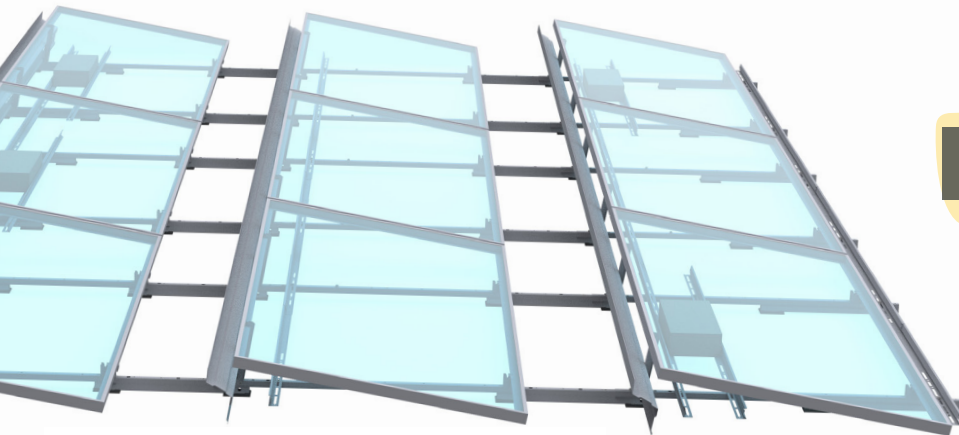
clawFR®

10



Flat Roof Racking Specialists

PanelClaw® is the only major racking provider in North America focused exclusively on flat roof racking. Our 11+ years of focus on flat roof result in a competitive advantage for our partners. No one knows more about flat roof racking than PanelClaw; no one delivers a more thoroughly tested and reliable platform; and no one matches our level of service. Our mission is to accelerate the deployment of flat roof PV and the best way to do this is to continue to lower its life-cycle cost while maintaining the highest levels of reliability. The clawFR platform is the result of this experience and commitment to flat roof.



Engineered for Speed

- Single M6 bold hardware kit
- No tool module attachment method
- 90 degree single-module tilt-up feature
- Flexible order of operations installation process allows for optimized coordination of building trades on the roof
- Integrated roof protection pads
- 10" plus access ways between modules
- Only 1 ground lug required per array

SYSTEM COMPONENTS

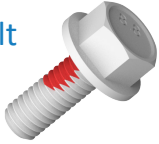
Base



Rail



M6 Bolt



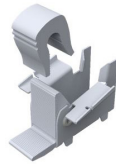
Module Connector



Wind Deflector



Cam Bracket
w/ Cam Claw



Applications

< 5° slope flat roofs (up to 7° possible w/engineering review)

Roof Type Compatibility

Membrane, tar and gravel, ballasted, BUR, concrete, asphalt (not compatible with metal roofs)

3 Shade Ratio Options

1.7:1 | 2.0:1 | 2.5:1

Platform Load

~ 2.0 - ~ 12.0 psf

Module Orientation

Landscape

Module Attachment

Airy point flange mounted

Basic Wind Speed

Up to 190 mph
(>190 mph by approval)

Wind Exposure Category

B and C (D required engineering review)

USGS Seismic Categories

A, B, C, D (others require engineering review)

Building Height

No building height limitations

Corrosion Resistance

ZAM coating provides 5x better resistance than G90

Warranty and Certifications

25 year warranty

ANSI/UL 2703-2015 Listed

System Fire Rating

Class A with Type 1 and

Type 2 modules

Intelligent Component Design

- A single Ballast Rail part number covers all compatible 60 and 72 cell modules
- The Base does not change with module changes
- The wind deflector has 2 part numbers that cover all 72 cell module lengths
- The Module Connector and Deflector each have 2 part numbers have cover all compatible 72 cell modules

Safety and Reliability

clawFR has been tested well beyond code requirements in the US. In addition to wind tunnel testing and ANSI/UL 2703-2015 listing, we have completed a battery of reliability and performance tests which can all be found at panelclaw.com.



PANELCLAW®

(978) 688.4900 | sales@panelclaw.com

panelclaw.com



Made in USA

O&M Features

Construction designed specifically for O&M, and to assist providers

- Recessed Deflector allows for easy access to module connections and optimizer equipment
- ZAM coating with 5x better corrosion resistance than G90
- If mechanical roof attachments are needed, they are always placed in the North/South module gaps for easy O&M inspection

clawFR®

10°

8

7

6

5

4

3

2

1

D

D

C

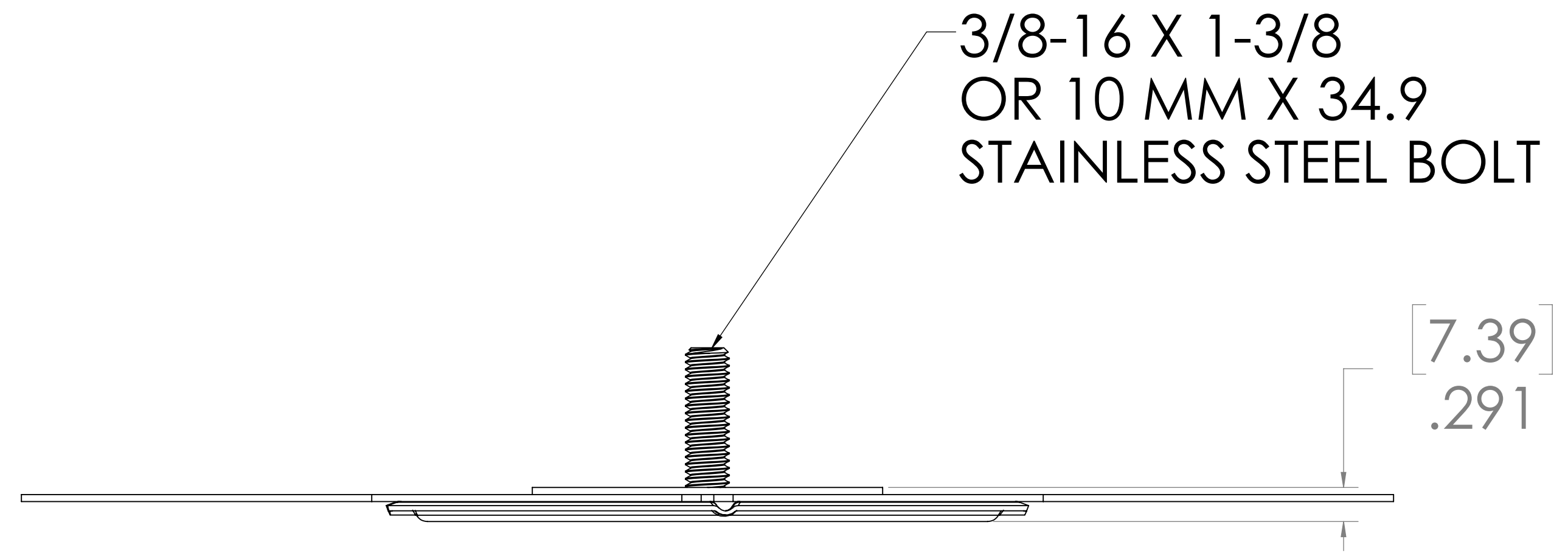
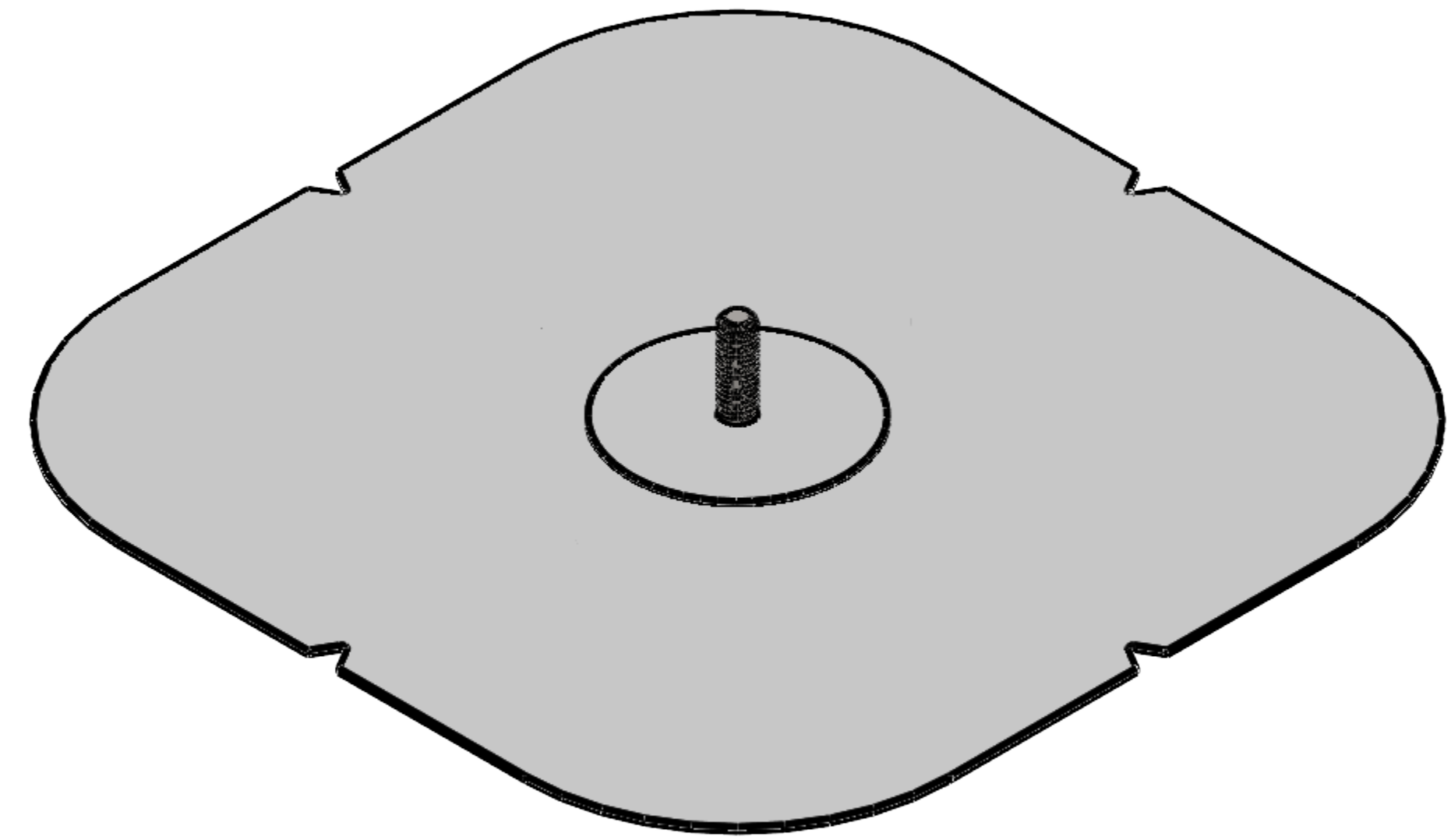
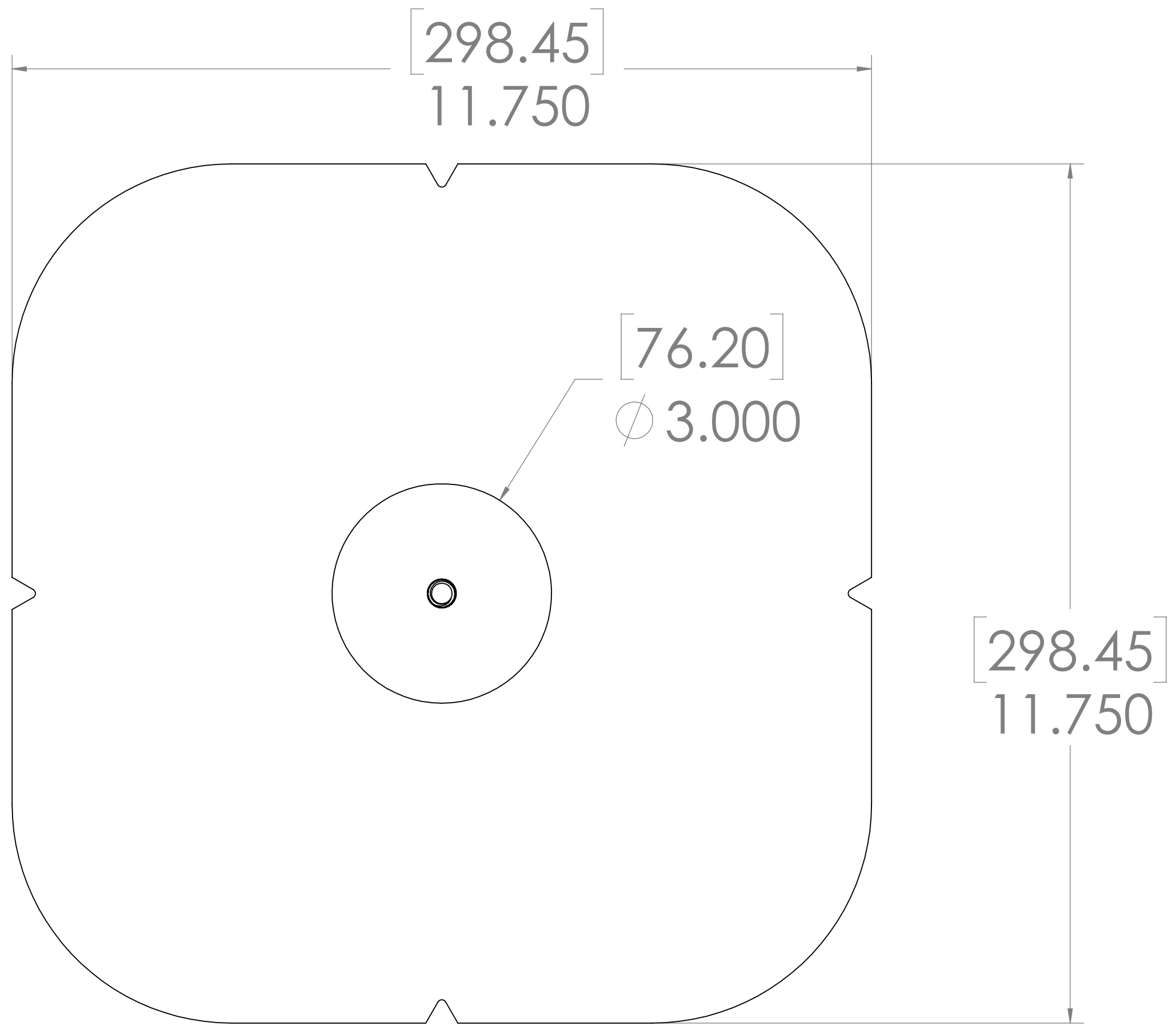
C

B

B

A

A



PR SOL20250112

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UNLESS OTHERWISE SPECIFIED:		DRAWN	NAME	DATE
DIMENSIONS ARE IN INCHES		CHECKED		
TOLERANCES:		ENG APPR.		
FRACTIONAL ±		MFG APPR.		
ANGULAR ± MACH ± BEND ±		Q.A.		
TWO PLACE DECIMAL ±		COMMENTS:		
THREE PLACE DECIMAL ±				
INTERPRET GEOMETRIC TOLERANCING PER:				
MATERIAL				
FINISH				
NEXT ASSY	USED ON			
APPLICATION	DO NOT SCALE DRAWING			

TITLE:		
U-ANCHOR 2400		
SIZE	DWG. NO.	REV
D		
SCALE: 1:2	WEIGHT:	SHEET 1 OF 1

PRSOL20250112



Description

The U2400-TPO is a lightweight rooftop attachment system consisting of an U-Anchor 2000 Series plate and cover membrane. The cover membrane and separator disk are factory sealed to the top of the plate. The U2400-TPO provides a fastened, watertight, warranted attachment for TPO single-ply membranes.

Advantages

- Extremely strong and lightweight.
- Fast installation, approximate rate of 12 per man hour.
- Installs on any surface from flat to vertical.

U-Anchor Attachment

The U2400-TPO is attached by lifting the flashing to expose the fastening hole on the plate. Then, fastening through the roofing assembly and into the structural decking with 2-8 approved fasteners, as directed by project specific engineering. The membrane cover is then hot air welded around the perimeter to the roof membrane. After verifying the seam integrity with a probe, seam sealer maybe required per roofing manufacturer's specifications.

Project-specific data is required to determine the correct type of fastener and number needed to secure each U-Anchor. An ANSI/SPRI FX-1 Pull Test is recommended to measure the pull-out resistance of fasteners included in the load path, (for example, substrate -> fasteners -> the U-Anchor -> other components.)

Equipment Attachment

To securely mount your rooftop equipment to the U-Anchor, after its installed, the connection nut must be tightened to approximately 20-25 ft.-lbs.

Use a calibrated torque wrench during install to ensure appropriate results are achieved.

Refer to product documentation for detailed installation and component requirements.

Testing

Results are based on plate performance only.

- Ultimate Load - Shear: 4,339 lbs
- Ultimate Load - Tension: 2,713 lbs

Tested in accordance with ICC AC467

Individual roof deck assembly tests available upon request as application specific results may vary.

Listings

- ICC-ES Evaluation Report ESR-4152

Warranty

- 20 Year Limited Material Only Warranty.
Subject to terms and conditions.

Product Specifications

Bolts

- 3/8"-16 x 1.5" Bolt*
- Material Type: 304 Stainless Steel

Plate

- Outer Diameter: 5.5"
- Fastener Hole Diameter: 0.265" (8 holes)
- Fastener Hole Pattern: 4.125" Diameter
- Steel Thickness: 0.047" (1.194mm)
- Material Type: Galvanized Steel G90

Cover Membrane

- Manufacturer: Brand or Non-Brand Specific*
- Color: Default White*
- Length: 11.75"
- Width: 11.75"
- Thickness: Default 60 mil*

Patents

- Visit www.anchorp.com/patents

Packaging Specifications

- Sold Individually OR Full Box Quantity
- Individual Weight: Approx. 0.75 lbs
- Full Box Quantity: 10 units
- Box Weight: Approx. 10 lbs
- Box Dimensions: 13" x 11" x 13"
- Full Pallet Quantity: 50 boxes
- Pallet Dimensions: 48" x 40" x 66"

* Specified option is standard. Custom options may be available for additional charge. Lead times may apply depending on roofing manufacturer and product availability.

All representations herein are premised on proper installation and use of approved components. Failure to properly install or use of unapproved components voids all Anchor Products representations.

Anchor Products systems are included in many roofing manufacturers' guarantees! Please contact us for more information.





ANCHOR PRODUCTS™
 PO Box 1551
 Colleyville, TX 76034
 www.anchorcorp.com
 (888) 575-2131

Title:

**U-Anchor U2400,
 Mechanically Attached,
 Single-Ply Flashing
 (PVC/TPO/KEE/TPA)**

DRAWN BY: ANCHOR PRODUCTS TECHNICAL SUPPORT

REQUEST DATE:

CATEGORY:

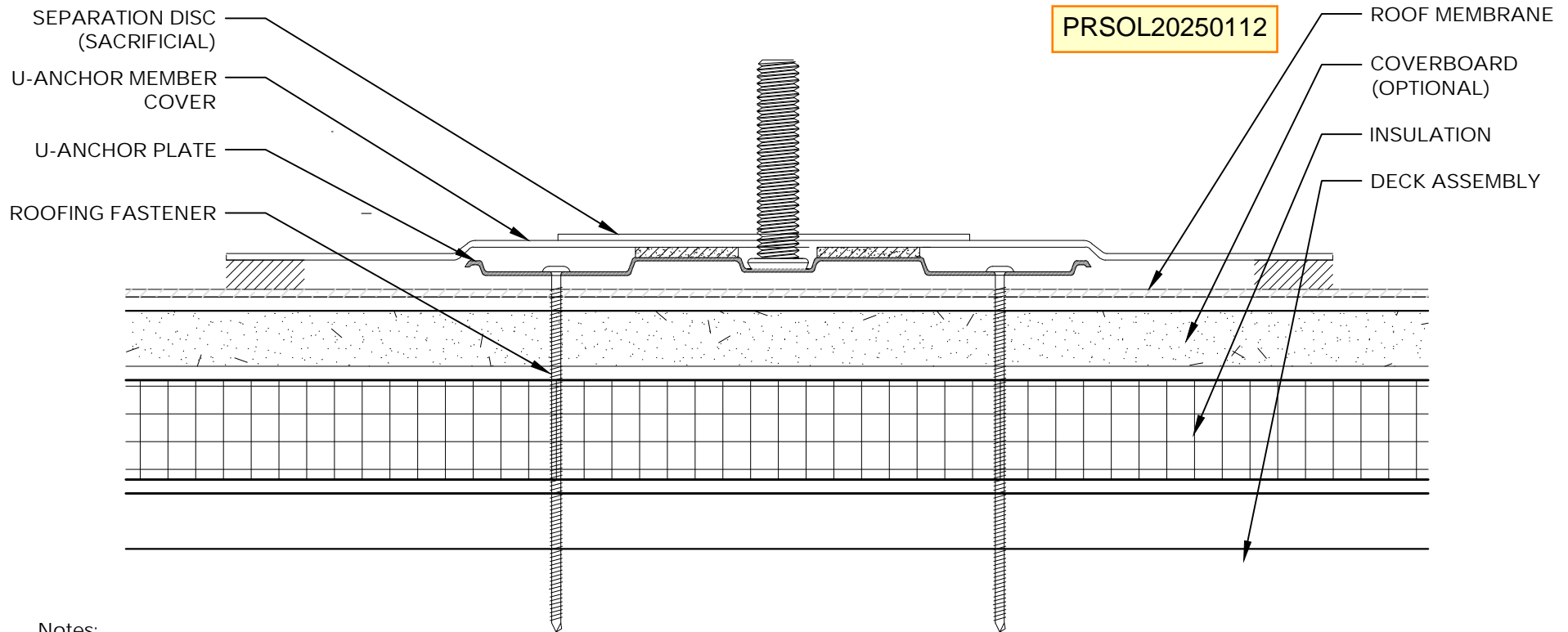
Single-Ply MA

REVISION DATE: 03/01/19

DRAWING NO.:

AP.2400.SP.MA.01a

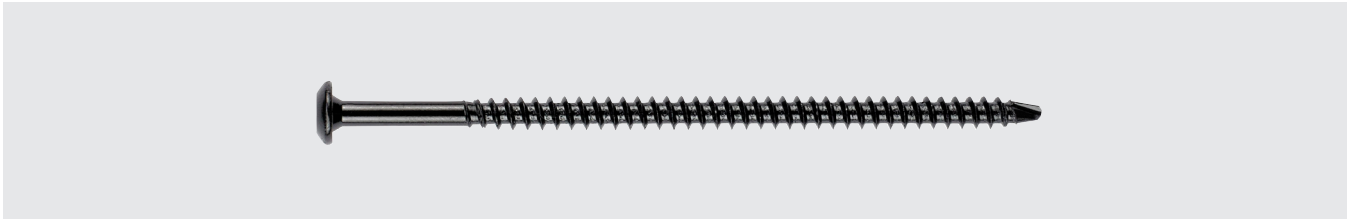
SCALE: NTS



Notes:

1. ANCHOR PRODUCTS DETAIL DRAWINGS: REFER TO THE ROOFING AND FASTENER MANUFACTURERS AND OTHER RELATED PUBLISHED DOCUMENTATION, PRODUCT DATA SHEETS (PDS) AND SAFETY DATA SHEETS (SDS) FOR ADDITIONAL INFORMATION. ALL DETAIL DRAWINGS AND RELATED INSTALLATION GUIDELINES ARE PROVIDED BY ANCHOR PRODUCTS FOR THE SOLE PURPOSE OF CONVEYING ASSEMBLY STRUCTURE. ACCORDINGLY, THE DETAIL DRAWINGS ARE NOT OFFERED, AND SHOULD NOT BE CONSIDERED, AS A SUBSTITUTE FOR PROFESSIONAL DESIGN SERVICES.
2. TO ENSURE WARRANTIES CAN BE MAINTAINED, MOST ROOFING MANUFACTURERS REQUIRE THE FLASHING BE MADE OF THE SAME TYPE AND BRAND. MOST ROOFING MANUFACTURERS REQUIRE THAT THE INSTALLATION OF THE U-ANCHOR BE PERFORMED BY AN AUTHORIZED CONTRACTOR.
3. FASTENERS MUST BE INSTALLED PER THE FASTENER MANUFACTURER'S REQUIREMENTS FOR EACH SPECIFIC DECK TYPE FOR POSITIONING, DECK PENETRATION DEPTH, AND OTHER NECESSARY STANDARDS.
4. SEAM WELDS MUST COMPLY WITH THE ROOFING MANUFACTURER'S REQUIREMENTS. THE AREA SHOULD BE CLEANED AND FREE OF DEBRIS AS PER THE ROOFING MANUFACTURERS SPECIFICATION. TYPICAL SEAM WELDS ARE A MINIMUM 1.5". SEAMS MUST BE PROBED TO ENSURE A SUFFICIENT WELD HAS BEEN ACHIEVED. USE CUT EDGE SEALANT AS MANDATED BY THE ROOFING MANUFACTURER.
- 5.

#14 Phillips Head DEKFAST™ DF-#14-PH3



Features and Benefits

- Extra stable #3 Phillips drive, recessed in truss head
- Low profile truss head can be used for clip attachment in applications where head height is important
- 10 threads per inch for ease of installation in concrete roof decks
- The proprietary asymmetric reduced drill point provides for ultimate pull-out values by producing a minimum opening. Thread engagement is superior as compared to standard drill points
- Cathodic epoxy e-coat

Application

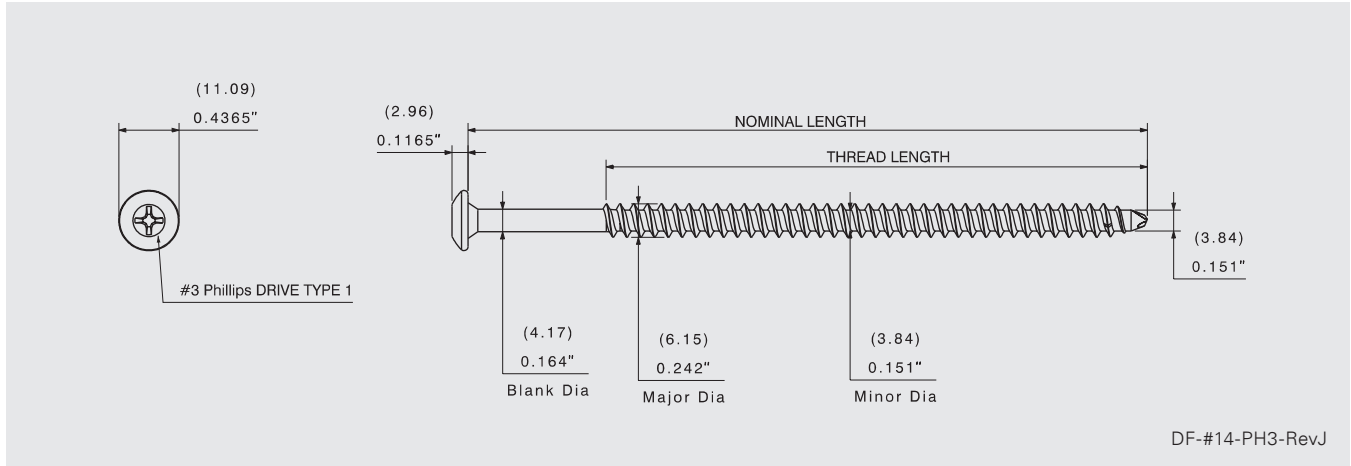
Insulation and membrane attachment to steel, wood and structural concrete decks

Product Selection

Material No.	Fastener Length	Thread Length*	Description	Carton Wt. (lbs.)	Carton Qty.
1202602	1-1/4"	Full	DF-#14x1-1/4-PH3-E0999-B	12	1,000
1203249	2"	Full	DF-#14x2-PH3-E0999-B	19	1,000
1203528	3"	Full	DF-#14x3-PH3-E0999-B	24	1,000
1203578	4"	Full	DF-#14x4-PH3-E0999-B	30	1,000
1203605	5"	4"	DF-#14x5-PH3-E0999-B	45	1,000
1203632	6"	4"	DF-#14x6-PH3-E0999-B	46	1,000
1203659	7"	4"	DF-#14x7-PH3-E0999-B	28	500
1203810	8"	4"	DF-#14x8-PH3-E0999-B	31	500
1204081	9"	4"	DF-#14x9-PH3-E0999-B	34	500
1202260	10"	4"	DF-#14x10-PH3-E0999-B	38	500
1202597	11"	4"	DF-#14x11-PH3-E0999-B	41	500
1202600	12"	4"	DF-#14x12-PH3-E0999-B	45	500

*Note – Thread length measured from tip of the drill point to end of the threads.

#14 Phillips Head DEKFAST™ DF-#14-PH3



DF-#14-PH3-RevJ

Coating and Corrosion

15/15 Kesternich per FM 4470
800 hour salt spray per ASTM B117
Cathodic epoxy e-coat

Approvals



State of Florida: FL20311

16-0712.08

Performance Data^{1,2}

Material Strength

Tensile	3300 lbf / 14679 N
Shear	2100 lbf / 9341 N
Torsional	110 lbf-in / 12.43 N-m

Pull Out Strength Steel

18 Ga (1.2 mm):	900 lbf / 4003 N
20 Ga (0.9 mm):	635 lbf / 2825 N
22 Ga (0.8 mm):	457 lbf / 2033 N

¹ SFS-SC12250.10.17

² SFS 5509.18

Pull Out Strength Wood

2x dimensional lumber (1" penetration) (25.4 mm):	605 lbf / 2691 N
3/4" (19.1 mm) FR Plywood (through penetration):	590 lbf / 2624 N

Pull Out Strength Concrete

4000 psi (1" penetration) (25.4 mm):	850 lbf / 3781 N
---	------------------

DECK AT PSE
TODD ROAD:
20GA

Installation and Application Considerations

Tools: 2000–2500 rpm screw guns with hardened #3 Phillips bit. For structural concrete, 3/16" carbide bit and 1500 rpm max screw guns, or hammer drills in the hammer mode. Structural concrete to be predrilled with standard 3/16" carbide bit to minimum 1/2" deeper than fastener penetration. The standard carton package includes one #3 Phillips bit.

Material:

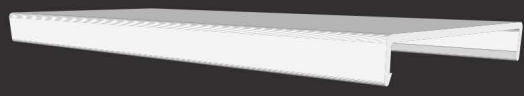
- Steel thickness from 22 ga (0.030 in.) through 18 ga (0.048 in.): Min penetration: 3/4"
- Wood 2x (1-1/2" thick): Min penetration: 1"
- Plywood and OSB: Min through penetration: 3/4"
- Structural Concrete: Min penetration: 1"

HIT A
HOME RUN
WITH

RAYTRAY™ v2

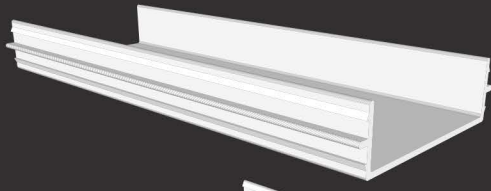
SOLAR WIRE MANAGEMENT SYSTEM

CAP



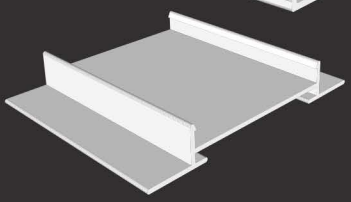
+

TRAY



+

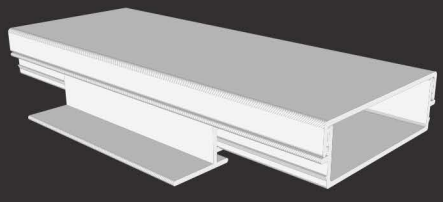
BASE



=

RAYTRAY™

SOLAR WIRE MANAGEMENT SYSTEM



RayTray™
info@raytraysolar.com
www.raytraysolar.com



Conforms to UL Std 870
Control No. 4009754

RAYTRAY™ v2

SOLAR WIRE MANAGEMENT SYSTEM

PRSOL20250112

RayTray™ is a protective enclosure manufactured with a durable RPVC polymer to ensure a neat and comprehensive routing method for jumper, home run, and equipment-grounding conductor cables.

RayTray™ is the product of a collaborative effort between solar installers and electrical, structural, and polymer engineers. The result is a wire management system that is simple, durable, cost effective, and ETL listed for use in PV arrays.

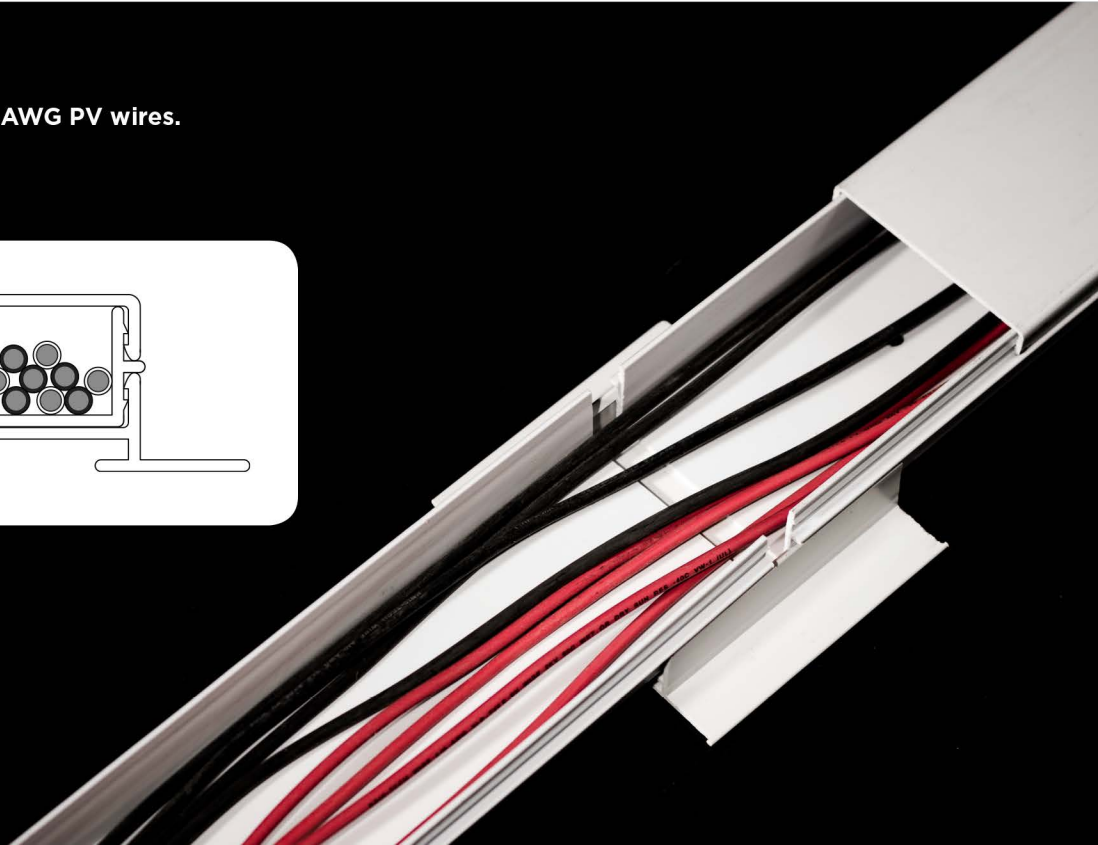
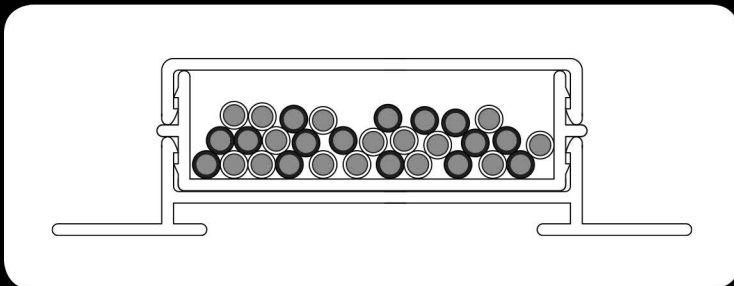
RayTray™ is

- Simple and easy to install
- Durable and UV resistant
- Low Cost
- Versatile
- ETL listed to UL 870 Standard
- Made in the USA

RAYTRAY™ SPECIFICATIONS

Product	Solar Wire Management System
Material	Non-metallic RPVC polymer. UV rating: F1
Listing	ETL Intertek conforms to UL Std 870. Voltage rating: 1000 VDC
Installation	Flat roofs with pitch < 8 degrees. Standing seam metal roofs
Internal Wiring	Maximum of thirty #10 AWG wires/tray. RHW, USE, or PV wire. Maximum wire size: #6 AWG
Grounding	Non-metallic RPVC polymer requires no grounding
Material Dimensions	Overall height: 2", width: 8", length of tray and cap: 8', length of base: 6"
Maximum Support Interval	4'3"
Warranty	25-year warranty against defects in materials and workmanship

RayTray™ is rated to hold thirty #10 AWG PV wires.
Maximum wire size is #6 AWG.



CONNECTING THE COMPONENTS

SNAP AND CONNECT



Assembling RayTray™ is easier than connecting modules in a string. Snap a RayTray™ base onto one end of a tray; add a base in the middle of the tray, and another at the opposite end. Be sure to leave a one-inch gap between sections of tray to allow for expansion and contraction. Keep the base between tray sections fixed in place by inserting a rivet into one side of the tray.

CAP AND PROTECT



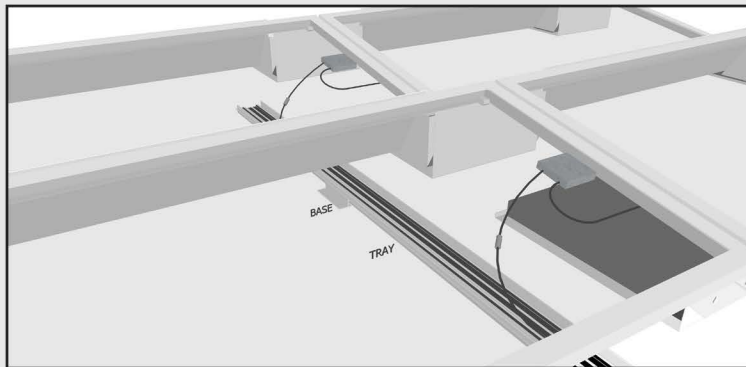
Once your home runs are in place, snap on the cap. The cap should span the gap left for expansion by at least six inches.

AN EASY CHANGE IN DIRECTION



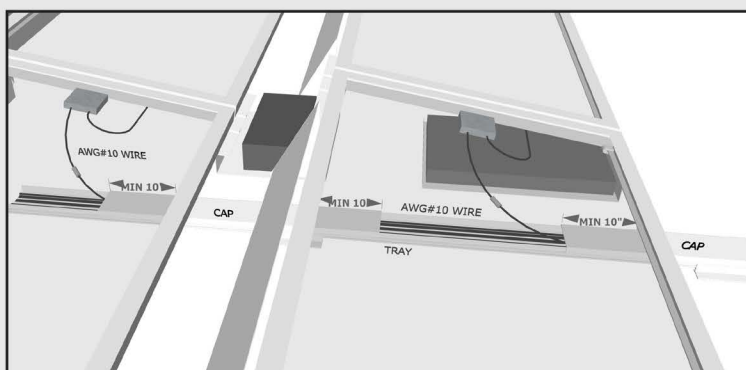
Most runs will go in one direction. But when you need to change direction, RayTray™ can accommodate. RayTray™ is cut easily with a hacksaw or a reciprocating saw. Make some simple cuts, insert a plastic rivet, and you will have a secure and stable T-fitting or elbow. A file or deburring tool quickly gets rid of sharp edges.

PRSOL20250112



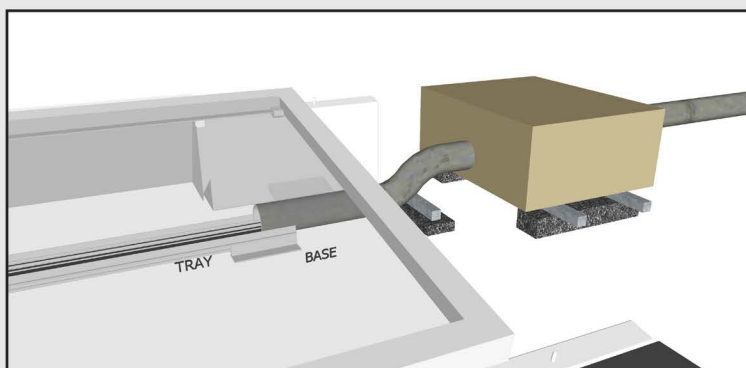
KEEP THOSE HOME RUNS IN LINE

RayTray™ keeps your home runs organized, secure, and protected. No more worries about home runs getting stepped on or rubbing and abrading on racking. Simply pick your route, snap together your RayTray™ trays and base supports, slide under the array, and drop in your home runs. Alternatively, lay the RayTray™ out and drop in your home runs before the modules are installed. Array cabling is neat and organized. Your crew will thank you. Your inspector will be pleased. And your client will be thrilled at how professional everything looks.



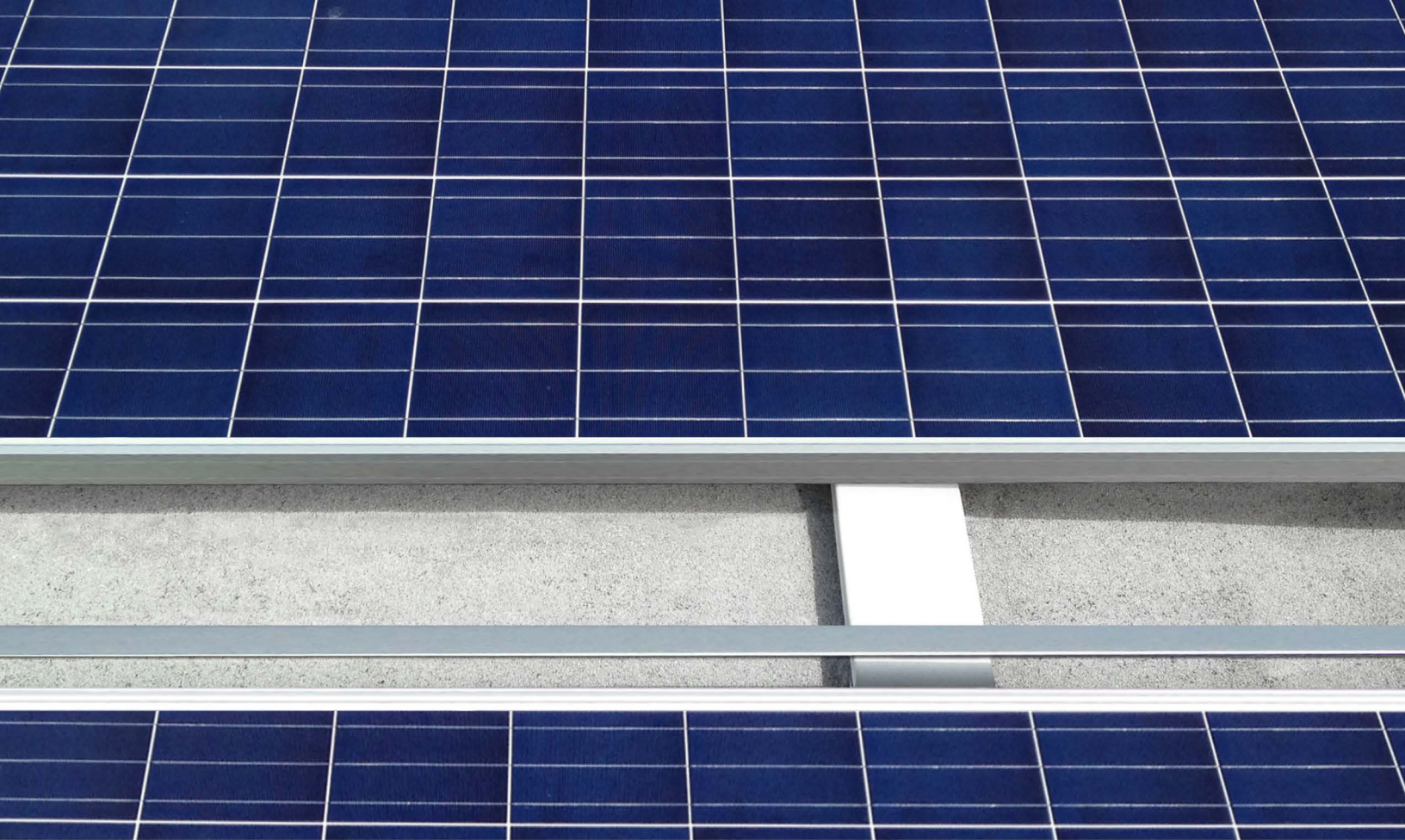
PROTECTION ENHANCED

Your home runs are in, your connections are made, and now you want to protect the wires and tidy things up. If you begin with RayTray™, you're already there. No unsightly bundles. No haphazard wires. Organize as you build. When the build is done and tested, finish up by snapping on the protective caps, which will not only protect and enhance your work but also prolong the life of your client's investment.



A STELLAR TRANSITION

You have been there before and you're not excited about being there again. Use RayTray™ to organize the chaos. Aggregate your home runs into RayTray™ and they're ready to transition into pipe when you are. Home runs will be organized and accessible.



PRSOL20250112

RAYTRAY™ v2

SOLAR WIRE MANAGEMENT SYSTEM

info@raytraysolar.com

RayTray™

Sunlight resistant wire management system

Cables permitted: RHW, USE, PV

Max wire size: AWG #6

Max support interval: 4'-3"

Consult manufacturer for proper installation



Intertek

Conforms to UL Std 870
Control No. 4009754



Made in the U.S.A.

WWW.RAYTRAYSOLAR.COM