Q.PEAK DUO BLK ML-G10+ SERIES

385 - 410 Wp | 132 Cells
20.9 % Maximum Module Efficiency

MODEL Q.PEAK DUO BLK ML-G10+

6 busbar
cell technology

12 busbar
cell technology

Breaking the 20 % efficiency barrier

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9 %.

A reliable investment

Inclusive 25-year product warranty and 25-year linear performance warranty[1].

Enduring high performance

Long-term yield security with Anti LeTID Technology, Anti PID Technology[2] and Hot-Spot Protect.

Extreme weather rating

High-tech aluminium alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).

Innovative all-weather technology

Optimal yields, whatever the weather with excellent low-light and temperature behaviour.

The most thorough testing programme in the industry

Qcells is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new “Quality Controlled PV” of the independent certification institute TÜV Rheinland.

[1] See data sheet on rear for further information.
[2] APT test conditions according to IEC / TS 62804-1:2015, method A (–1500 V, 96 h)

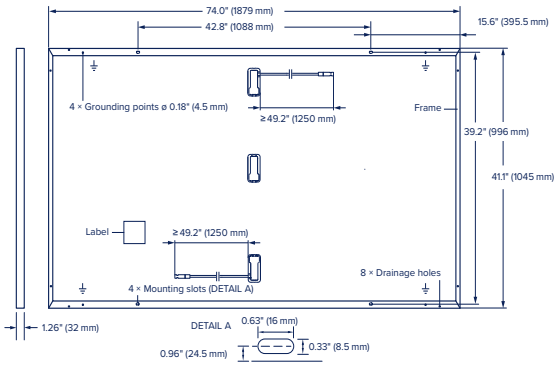
The ideal solution for:

Rooftop arrays on residential buildings

Q.PEAK DUO BLK ML-G10+ SERIES

Mechanical Specification

Format	74.0 in × 41.1 in × 1.26 in (including frame) (1879 mm × 1045 mm × 32 mm)
Weight	48.5 lbs (22.0 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodised aluminium
Cell	6 × 22 monocrystalline Q.ANTUM solar half cells
Junction box	2.09-3.98 in × 1.26-2.36 in × 0.59-0.71 in (53-101 mm × 32-60 mm × 15-18 mm), IP67, with bypass diodes
Cable	4 mm² Solar cable; (+) ≥ 49.2 in (1250 mm), (−) ≥ 49.2 in (1250 mm)
Connector	Stäubli MC4; IP68

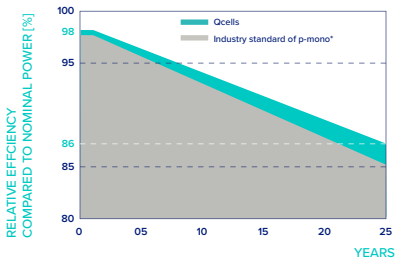


Electrical Characteristics

POWER CLASS				385	390	395	400	405	410
MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC[1] (POWER TOLERANCE +5 W / −0 W)									
Minimum	Power at MPP[1]	P_{MPP}	[W]	385	390	395	400	405	410
	Short Circuit Current[1]	I_{SC}	[A]	11.04	11.07	11.10	11.14	11.17	11.20
	Open Circuit Voltage[1]	V_{OC}	[V]	45.19	45.23	45.27	45.30	45.34	45.37
	Current at MPP	I_{MPP}	[A]	10.59	10.65	10.71	10.77	10.83	10.89
	Voltage at MPP	V_{MPP}	[V]	36.36	36.62	36.88	37.13	37.39	37.64
	Efficiency[1]	η	[%]	≥19.6	≥19.9	≥20.1	≥20.4	≥20.6	≥20.9
MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT[2]									
Minimum	Power at MPP	P_{MPP}	[W]	288.8	292.6	296.3	300.1	303.8	307.6
	Short Circuit Current	I_{SC}	[A]	8.90	8.92	8.95	8.97	9.00	9.03
	Open Circuit Voltage	V_{OC}	[V]	42.62	42.65	42.69	42.72	42.76	42.79
	Current at MPP	I_{MPP}	[A]	8.35	8.41	8.46	8.51	8.57	8.62
	Voltage at MPP	V_{MPP}	[V]	34.59	34.81	35.03	35.25	35.46	35.68

[1]Measurement tolerances P_{MPP} ±3%; I_{SC}; V_{OC} ±5% at STC: 1000 W/m², 25±2 °C, AM 1.5 according to IEC 60904-3 • [2]800 W/m², NMOT, spectrum AM 1.5

Qcells PERFORMANCE WARRANTY

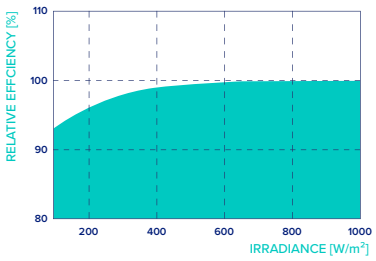


At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Qcells sales organisation of your respective country.

*Standard terms of guarantee for the 5 PV companies with the highest production capacity in 2021 (February 2021)

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m²).

TEMPERATURE COEFFICIENTS

Temperature Coefficient of I_{SC}	α	[%/K]	+0.04	Temperature Coefficient of V_{OC}	β	[%/K]	−0.27
Temperature Coefficient of P_{MPP}	γ	[%/K]	−0.34	Nominal Module Operating Temperature	NMOT	[°F]	109±5.4 (43±3 °C)

Properties for System Design

Maximum System Voltage	V_{SYS}	[V]	1000 (IEC) / 1000 (UL)	PV module classification	Class II
Maximum Series Fuse Rating		[A DC]	20	Fire Rating based on ANSI / UL 61730	TYPE 2
Max. Design Load, Push / Pull[3]		[lbs / ft²]	75 (3600 Pa) / 55 (2660 Pa)	Permitted Module Temperature on Continuous Duty	−40 °F up to +185 °F (−40 °C up to +85 °C)
Max. Test Load, Push / Pull[3]		[lbs / ft²]	113 (5400 Pa) / 84 (4000 Pa)		

[3] See Installation Manual

Qualifications and Certificates

UL 61730, CE-compliant,
Quality Controlled PV - TÜV Rheinland,
IEC 61215:2016, IEC 61730:2016,
U.S. Patent No. 9,893,215 (solar cells),

C Certified US UL 61730 CE TÜVRheinland CERTIFIED www.tuv.com ID 1111220277

Qcells pursues minimizing paper output in consideration of the global environment.

Note: Installation instructions must be followed. Contact our technical service for further information on approved installation of this product.

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ENPHASE

DATA SHEET

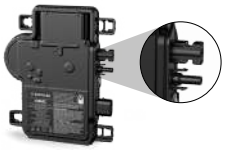
IQ8MC Microinverter

Our newest IQ8 Series Microinverters are the industry's first microgrid-forming*, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC), which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55-nm technology with high-speed digital logic and has superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.

Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.

Enphase 25 year limited warranty

IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to the IQ8 Series Microinverters that have integrated MC4 connectors.

UL CERTIFIED SAFETY

IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conforms with various regulations when installed according to the manufacturer's instructions.

*Meets UL 1741 only when installed with IQ System Controller 2 or 3.

Easy to install

- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple two-wire cabling

High productivity and reliability

- Produces power even when the grid is down*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB)

NOTE:

- IQ8 Microinverters cannot be mixed together with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative. An IQ Gateway is required to make these changes during installation.

IQ8MC Microinverter

INPUT DATA (DC)	UNITS	IQ8MC-72-M-US
Commonly used module pairings [1]	W	260–460
Module compatibility	—	To meet compatibility, PV modules must be within the following max. input DC voltage and max. module I_{sc}. Module compatibility can be checked at https://enphase.com/installers/microinverters/calculator.
MPPT voltage range	V	25–45
Operating range	V	18–58
Min./Max. start voltage	V	22/58
Max. input DC voltage	V	60
Max. continuous operating DC current	A	14
Max. input DC short-circuit current	A	25
Max. module I_{sc}	A	20
Overvoltage class DC port	—	II
DC port backfeed current	mA	0
PV array configuration	—	Ungrounded array; no additional DC side protection required; AC side protection requires max 20 A per branch circuit

OUTPUT DATA (AC)	UNITS	IQ8MC-72-M-US @240 VAC	IQ8MC-72-M-US @208 VAC
Peak output power	VA	330	315
Max. continuous output power	VA	320	310
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	208, single-phase (L-L), 120°
Min./Max. grid voltage [2]	V	211–264	183–229
Max. continuous output current	A	1.33	1.49
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short circuit fault current over three cycles	Arms	2.70	
Max. units per 20 A (L-L) branch circuit [3]	—	12	10
Total harmonic distortion	%	<5	
Overvoltage class AC port	—	III	
AC port backfeed current	mA	18	
Power factor setting	—	1.0	
Grid-tied power factor (adjustable)	—	0.85 leading ... 0.85 lagging	
Peak efficiency	%	97.4	97.2
CEC weighted efficiency	%	97.0	96.5
Nighttime power consumption	mW	33	25

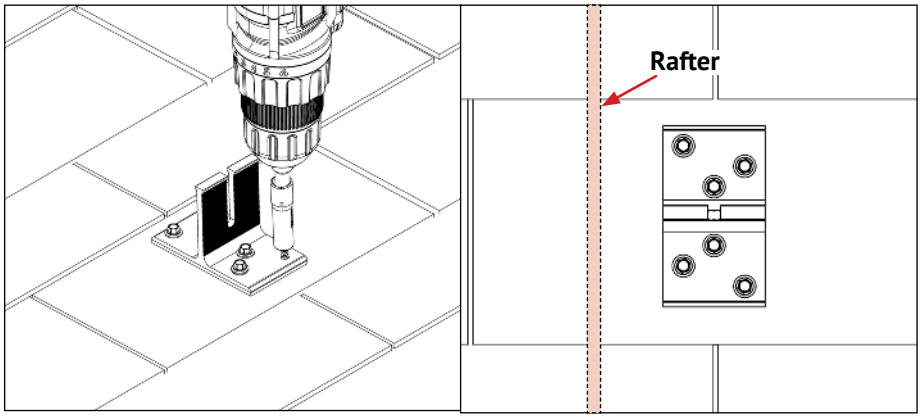
MECHANICAL DATA	UNITS
Ambient temperature range	-40°C to 65°C (-40°F to 149°F)
Relative humidity range	4% to 100% (condensing)
DC connector type	Stäubli MC4
Dimensions (H × W × D); Weight	212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2"); 1.1 kg (2.43 lbs)
Cooling	Natural convection – no fans
Approved for wet locations; Pollution degree	Yes; PD3
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure
Environ. category; UV exposure rating	NEMA Type 6; outdoor

COMPLIANCE	
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01. This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV systems for AC and DC conductors when installed according to the manufacturer's instructions.

(1) No enforced DC/AC ratio.
(2) Nominal voltage range can be extended beyond nominal if required by the utility.
(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

Revision history

REVISION	DATE	DESCRIPTION
DSH-00049-4.0	February 2024	Added information about IEEE 1547 interconnection standard requirements.
DSH-00049-3.0	October 2023	Included NEC 2023 specification in the “Compliance” section.
DSH-00049-2.0	September 2023	Updated module compatibility information.
DSH-00049-1.0	May 2023	Preliminary release.



INSTALLING STRONGHOLD ATTACHMENT WITH BUTYL BASE TO DECK:
When installing the attachment to the decking instead of the rafter (direct-to-deck), install 4 additional screws on the remaining screw holes on the attachment

Note:

- **Additional deck screws are NOT included in the KIT. Must be purchased separately.**
- **Maintain stock of additional deck screws from Unirac Kits in case of direct-to-deck installation.**

⚠ CAUTION

1. **Allowable attachment spans may change for direct-to-deck applications.**
2. **Unirac recommended spans are only valid with Unirac supplied screws.**

UNIRAC®

ASCE 7-16	II	30 ft	Ss = 1.25	60 Cell	Portrait	Cross-Slope	NXT	STRONGHOLD BUTYL OSB
Design Standard	Risk Category	Roof Height	Seismic	Module Type	Orientation	Rail Direction	Rail Type	Attachment

SPAN TABLES

Maximum Allowable Rail Spans for Rooftop Solar Panels Parallel to the Roof Surface (inches)

Ground Snow Load (psf)	Wind Exposure Category	Roof Tilt Angle (deg)	Panel Exposure	Basic Wind Speed (mph)																																				
				90			95			100			105			110			115			120			130			140			150			160			170			180		
				Roof Wind Zone																																						
				1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
0	B	0-7	Interior	33	33	32	33	33	29	33	33	26	33	33	23	33	30	21	33	27	19	33	25	17	29	21	14	24	17	12	21	15	10	18	13	9	16	11	8	14	10	7
			Exposed	33	30	21	33	26	18	33	23	16	30	21	15	27	19	13	24	17	12	22	16	11	18	13	9	16	11	8	13	10	7	12	8	6	10	7	5	9	6	X
		7-20	Interior	33	33	28	33	31	25	33	27	22	33	24	20	33	22	18	31	20	16	29	18	15	24	15	13	20	13	11	17	11	9	15	10	8	13	9	7	12	8	6
			Exposed	33	22	18	31	20	16	27	17	14	24	16	13	22	14	12	20	13	11	18	12	10	15	10	8	13	8	7	11	7	6	10	6	5	9	5	X	8	5	X
		20-27	Interior	34	34	33	34	34	28	34	33	24	34	30	21	34	27	18	34	24	16	34	22	15	33	19	13	28	16	11	24	14	9	21	12	8	18	10	7	16	9	6
			Exposed	34	27	18	34	24	16	34	21	14	34	19	13	30	17	12	27	16	11	25	14	10	21	12	8	18	10	7	15	9	6	13	8	5	12	7	4	10	6	4
		27-45	Interior	34	34	34	34	34	34	34	34	31	34	34	27	34	34	24	34	31	21	31	28	19	26	23	15	22	20	13	19	17	11	17	15	9	15	13	8	13	12	7
			Exposed	34	34	24	33	30	21	30	27	18	27	24	16	24	22	14	22	20	13	20	18	11	17	15	9	14	13	8	12	11	7	11	10	6	9	8	5	8	7	4
	C	0-7	Interior	33	32	22	33	28	20	33	25	18	32	23	16	29	20	14	26	19	13	24	17	12	20	14	10	17	12	8	14	10	7	13	9	6	11	8	5	10	7	5
			Exposed	29	20	14	25	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	X	8	6	X	7	5	X	6	X	X
		7-20	Interior	33	24	19	33	21	17	29	19	15	26	17	14	24	15	12	22	14	11	20	13	10	16	11	9	14	9	7	12	8	6	10	7	5	9	6	5	8	5	X
			Exposed	24	15	12	21	13	11	19	12	10	17	11	9	15	10	8	14	9	7	13	8	7	11	7	6	9	6	5	8	5	X	7	X	X	6	X	X	5	X	X
		20-27	Interior	34	29	20	34	26	17	34	23	15	34	21	14	33	19	12	30	17	11	27	15	10	23	13	9	19	11	7	16	9	6	14	8	5	13	7	5	11	6	4
			Exposed	33	18	12	29	16	11	26	15	10	23	13	9	21	12	8	19	11	7	17	10	7	14	8	6	12	7	5	11	6	4	9	5	X	8	X	X	7	X	X
		27-45	Interior	34	34	26	34	32	22	32	29	20	29	26	17	26	23	15	24	21	14	22	19	12	18	16	10	15	14	8	13	12	7	12	10	6	10	9	5	9	8	5
			Exposed	26	23	15	23	21	13	21	18	12	19	17	10	17	15	9	15	14	8	14	12	7	12	10	6	10	9	5	9	8	5	7	7	4	7	6	X	6	5	X
	D	0-7	Interior	33	27	18	33	24	16	29	21	15	26	19	13	24	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	X	8	6	X
			Exposed	24	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	X	8	6	X	7	5	X	6	X	X	5	X	X
		7-20	Interior	31	20	16	27	17	14	24	16	13	22	14	12	20	13	10	18	12	9	16	10	9	14	9	7	12	7	6	10	6	5	9	6	X	8	5	X	7	X	X
			Exposed	20	13	10	17	11	9	16	10	8	14	9	7	13	8	7	12	7	6	10	7	5	9	6	X	7	5	X	6	X	X	6	X	X	5	X	X	X	X	X
		20-27	Interior	34	24	16	34	21	14	34	19	13	30	17	11	27	15	10	25	14	9	22	13	9	19	11	7	16	9	6	14	8	5	12	7	5	10	6	4	9	5	X
			Exposed	27	15	10	24	14	9	21	12	8	19	11	7	17	10	7	16	9	6	14	8	5	12	7	5	10	6	4	9	5	X	8	X	X	7	X	X	6	X	X
		27-45	Interior	34	30	21	30	27	18	27	24	16	24	21	14	22	19	12	20	18	11	18	16	10	15	14	8	13	12	7	11	10	6	10	9	5	8	8	5	7	7	4
			Exposed	22	19	12	19	17	11	17	15	9	16	14	8	14	13	8	13	11	7	12	10	6	10	9	5	8	7	4	7	6	4	6	6	X	5	5	X	5	X	X
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			Exposed	24	22	18	24	20	16	24	17	14	24	16	13	22	14	12	20	13	11	18	12	10	15	10	8	13	8	7	11	7	6	10	6	5	9	5	X	8	5	X
		20-27	Interior	31	31	31	31	31	28	31	31	24	31	30	21	31	27	18	31	24	16	31	22	15	31	19	13	28	16	11	24	14	9	21	12	8	18	10	7	16	9	6
			Exposed	31	27	18	31	24	16	31	21	14	31	19	13	30	17	12	27	16	11	25	14	10	21	12	8	18	10	7	15	9	6	13	8	5	12	7	4	10	6	4
		27-45	Interior	33	33	33	33	33	33	33	33	31	33	33	27	33	33	24	33	31	21	31	28	19	26	23	15	22	20	13	19	17	11	17	15	9	15	13	8	13	12	7
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			Exposed	24	20	14	24	18	13	23	16	11	20	15	10	18	13	9	17	12	8	15	11	8	13	9	6	11	8	5	9	7	X	8	6	X	7	5	X	6	X	X
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			Exposed	24	15	12	21	13	11	19	12	10	17	11	9	15	10	8	14	9	7	13	8	7	11	7	6	9	6	5	8	5	X	7	X	X	6	X	X	5	X	X
		20-27	Interior	31	29	20	31	26	17	31	23	15	31	21	14	31	19	12	30	17	11	27	15	10	23	13	9	19	11	7	16	9	6	14	8	5	13	7	5	11	6	4
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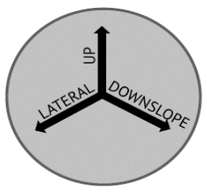
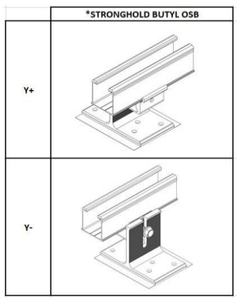
		27-45	Interior	33	33	26	33	32	22	32	29	20	29	26	17	26	23	15	24	21	14	22	19	12	18	16	10	15	14	8	13	12	7	12	10	6	10	9	5	9	8	5
			Exposed	26	23	15	23	21	13	21	18	12	19	17	10	17	15	9	15	14	8	14	12	7	12	10	6	10	9	5	9	8	5	7	7	4	7	6	X	6	5	X
	D	0-7	Interior	24	24	18	24	24	16	24	21	15	24	19	13	24	17	12	22	15	11	20	14	10	16	12	8	14	10	7	12	9	6	10	7	5	9	7	X	8	6	X
			Exposed	24	17	12	21	15	10	19	13	9	17	12	8	15	11	8	14	10	7	13	9	6	11	8	5	9	6	X	8	6	X	7	5	X	6	X	X	5	X	X
		7-20	Interior	24	20	16	24	17	14	24	16	13	22	14	12	20	13	10	18	12	9	16	10	9	14	9	7	12	7	6	10	6	5	9	6	X	8	5	X	7	X	X
			Exposed	20	13	10	17	11	9	16	10	8	14	9	7	13	8	7	12	7	6	10	7	5	9	6	X	7	5	X	6	X	X	6	X	X	5	X	X	X	X	X
		20-27	Interior	32	24	16	32	21	14	32	19	13	30	17	11	27	15	10	25	14	9	22	13	9	19	11	7	16	9	6	14	8	5	12	7	5	10	6	4	9	5	X
			Exposed	27	15	10	24	14	9	21	12	8	19	11	7	17	10	7	16	9	6	14	8	5	12	7	5	10	6	4	9	5	X	8	X	X	7	X	X	6	X	X
		27-45	Interior	34	30	21	30	27	18	27	24	16	24	21	14	22	19	12	20	18	11	18	16	10	15	14	8	13	12	7	11	10	6	10	9	5	8	8	5	7	7	4
			Exposed	22	19	12	19	17	11	17	15	9	16	14	8	14	13	8	13	11	7	12	10	6	10	9	5	8	7	4	7	6	4	6	6	X	5	5	X	5	X	X

* Cells with an astrisks indicates that the L-foot must be oriented in the Y- direction as indicated in the image below.

X Cells with an "X" indicates that the module clamp's allowable capacity is exceeded and a 3-rail system may be required. Contact Unirac Engineering Services for support.



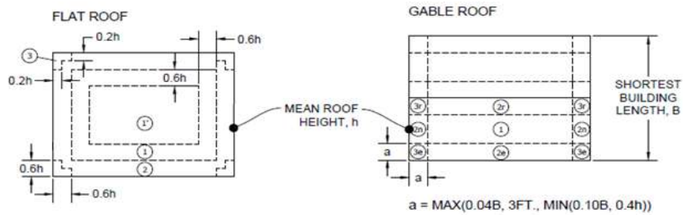


Grouping of ASCE 7-16 Roof Zones (Gable and Flat)

Roof Tilt 0°-7°
- Roof Zone 1 = 1
- Roof Zone 2 = 2
- Roof Zone 3 = 3

Roof Tilt 7°-27°
- Roof Zone 1 = 1, 2e
- Roof Zone 2 = 2n, 2r, 3e
- Roof Zone 3 = 3r

Roof Tilt 27°-45°
- Roof Zone 1 = 1, 2e, 2r
- Roof Zone 2 = 2n, 3r
- Roof Zone 3 = 3e

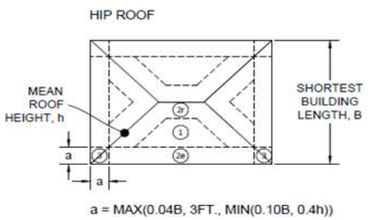


Grouping of ASCE 7-16 Roof Zones (Hip)

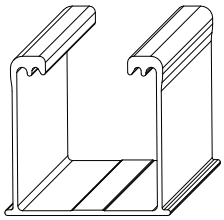
Roof Tilt 7°-20°
- Roof Zone 1 = 1
- Roof Zone 2 = 2r
- Roof Zone 3 = 2e, 3

Roof Tilt 20°-27°
- Roof Zone 1 = 1, 2e, 2r
- Roof Zone 2 = 2e, 2r, 3
- Roof Zone 3 = N/A

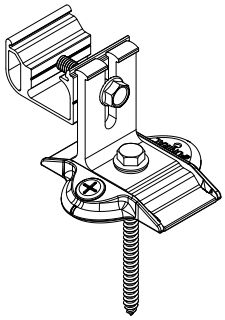
Roof Tilt 27°-45°
- Roof Zone 1 = 1
- Roof Zone 2 = 2r, 2e
- Roof Zone 3 = 3



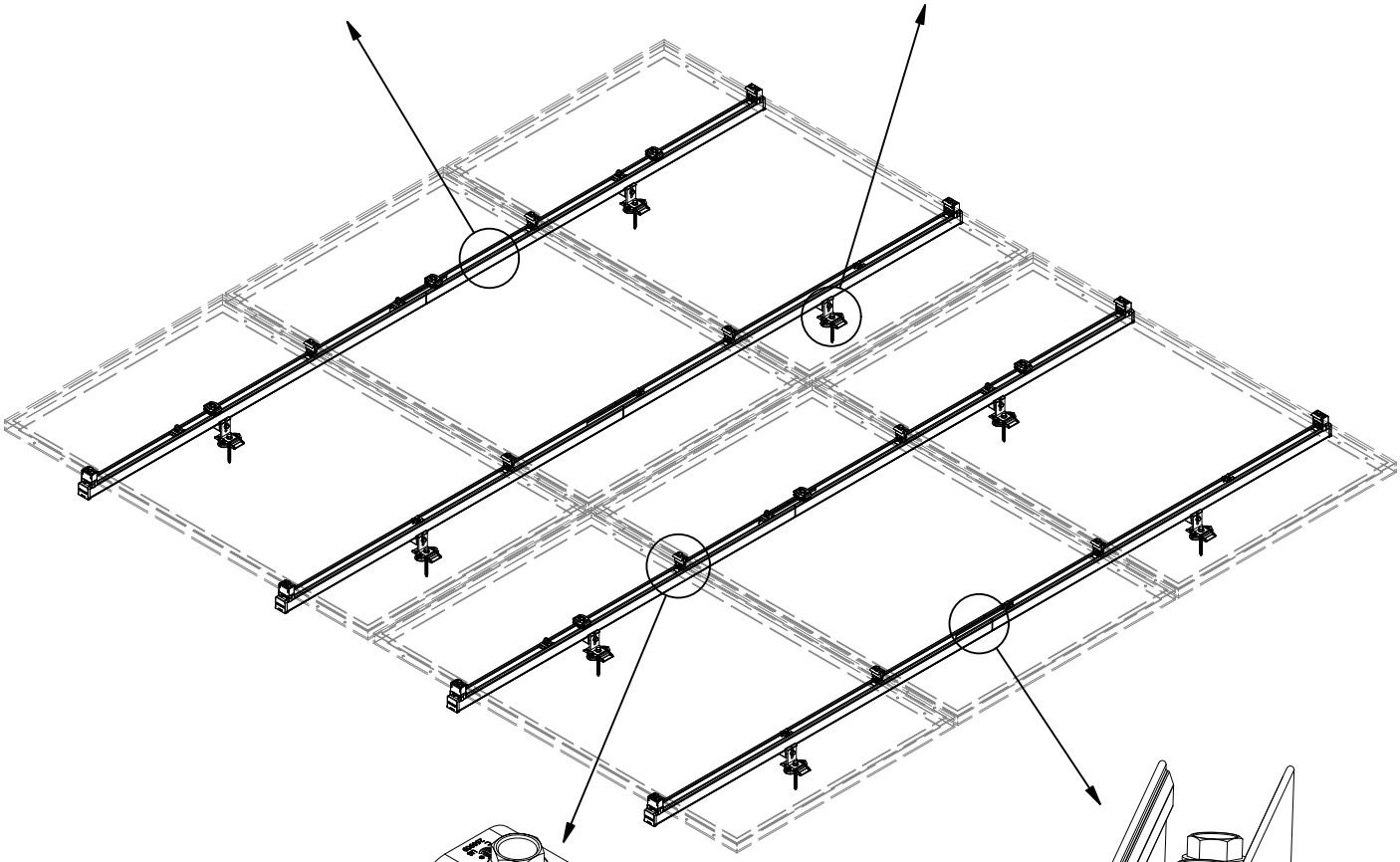
**Wind loads used to generate the span tables for modules with maximum dimensions of 67in x 40.1in (60 Cell) and 80in x 41in (72 Cell) are based on ASCE 7-16, Section 29.4.4 with Provisions from SEAOC PV2-2017

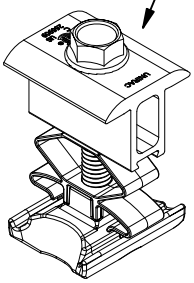


RAIL
SEE PAGE NH-P01

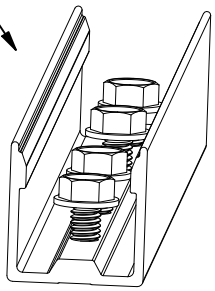


STRONGHOLD ATTACHMENT KIT
SEE PAGE NH-A04





COMBO CLAMP
SEE PAGE NH-A03



RAIL SPLICE
SEE PAGE NH-P02

UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
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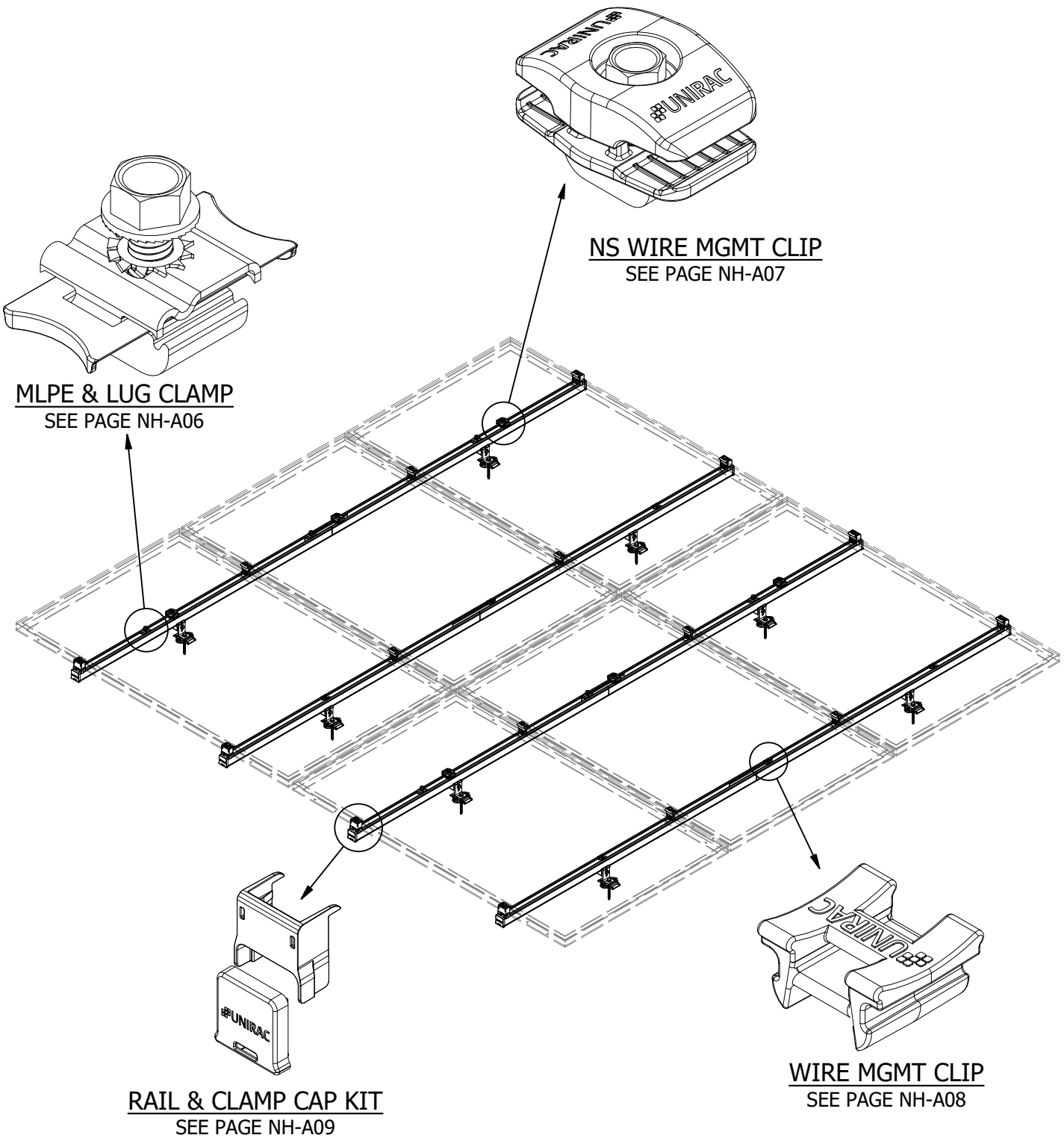
PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	MODULE ASSEMBLY
REVISION DATE:	9/30/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

NH-A01
SHEET



NS WIRE MGMT CLIP
SEE PAGE NH-A07

MLPE & LUG CLAMP
SEE PAGE NH-A06

RAIL & CLAMP CAP KIT
SEE PAGE NH-A09

WIRE MGMT CLIP
SEE PAGE NH-A08

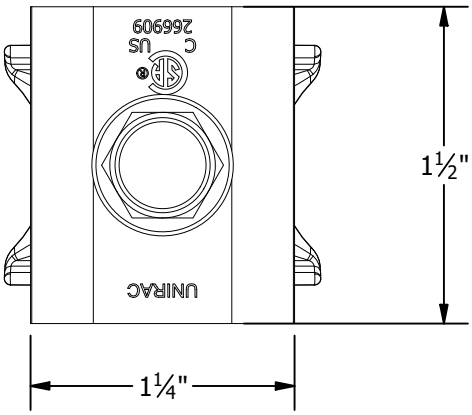
UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

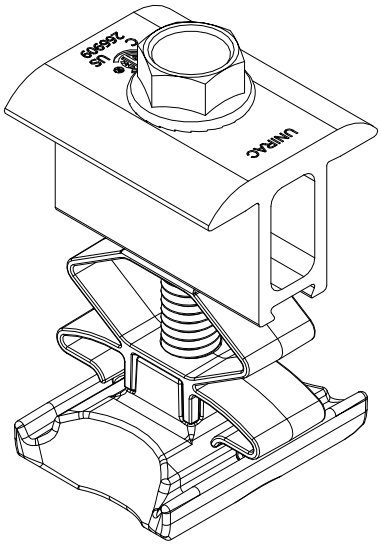
PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	MODULE ASSEMBLY
REVISION DATE:	9/30/2021

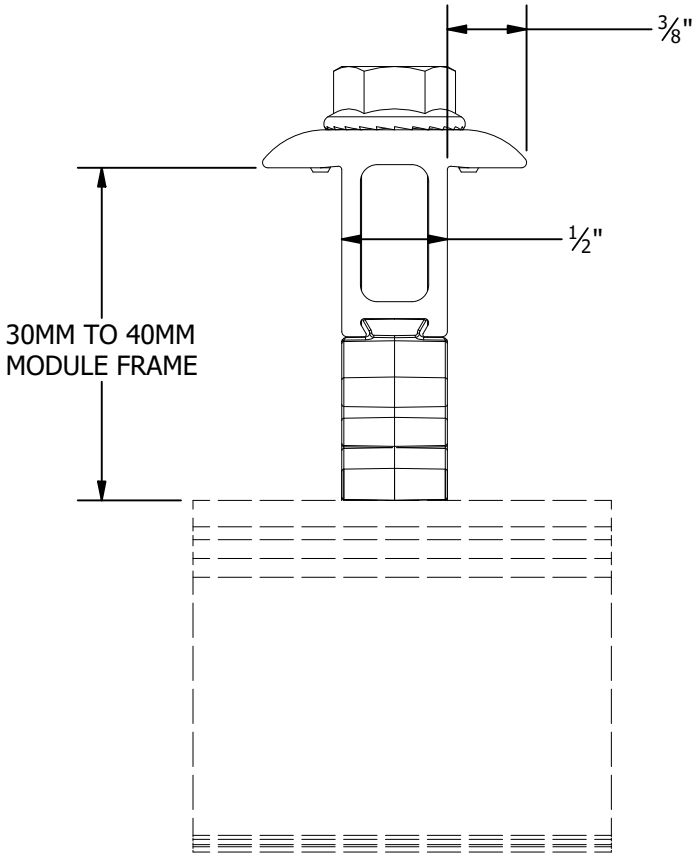
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

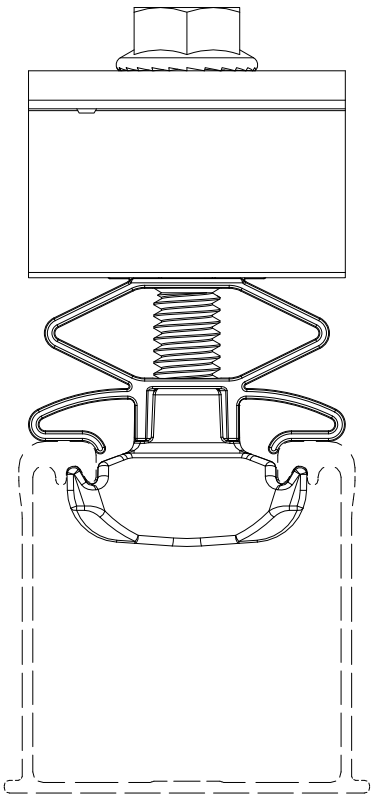
NH-A02
SHEET

PART # TABLE	
P/N	DESCRIPTION
CCLAMPM1	NXT HORIZON COMBO CLAMP - MILL
CCLAMPD1	NXT HORIZON COMBO CLAMP - DARK









PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PART & ASSEMBLY
DESCRIPTION:	COMBO CLAMP
REVISION DATE:	9/30/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS

LEGAL NOTICE

NH-A03

SHEET

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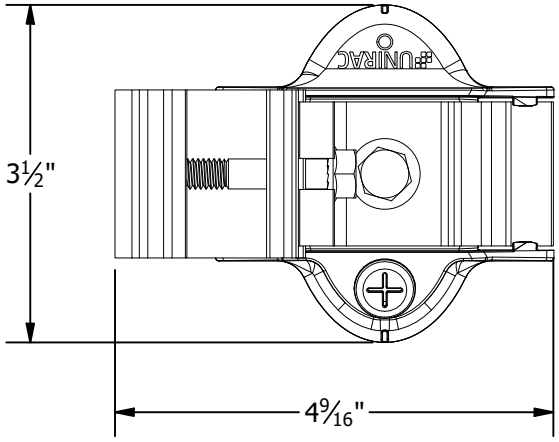
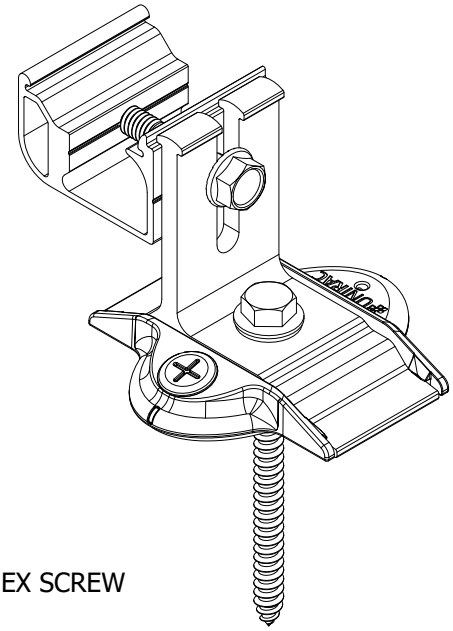
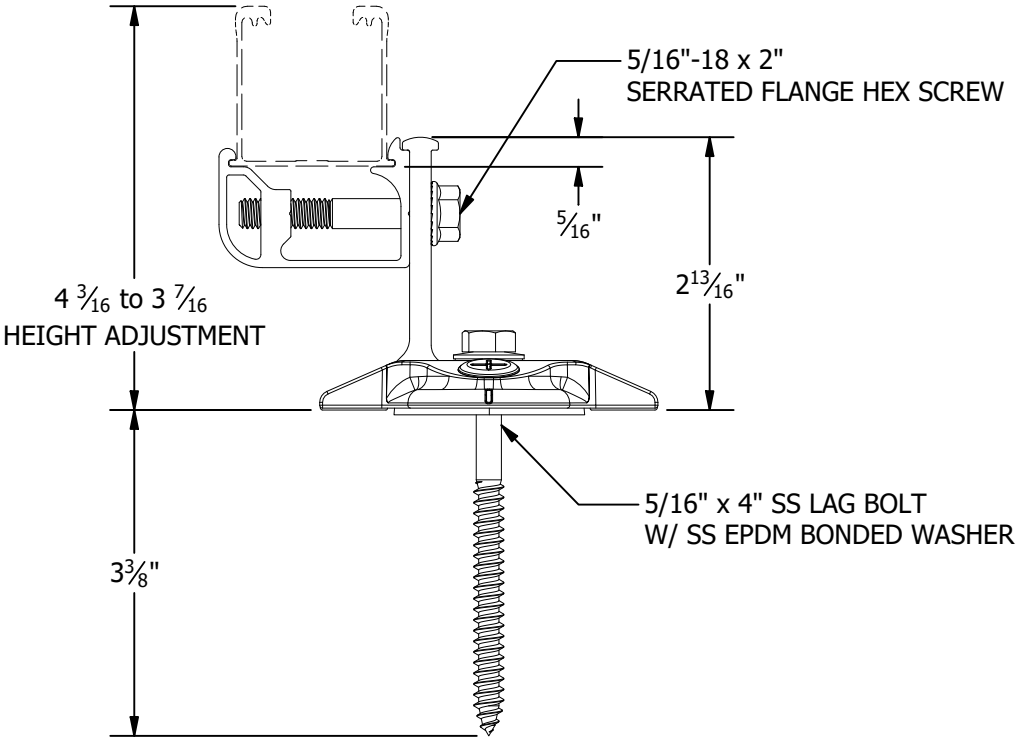
PART # TABLE	
P/N	DESCRIPTION
SHCPKTM1	STRONGHOLD ATT KIT COMP MILL
SHCPKTD1	STRONGHOLD ATT KIT COMP DRK
SHCPKTM1-NS	STRONGHOLD ATT COMP MILL (NS)
SHCPKTD1-NS	STRONGHOLD ATT COMP DRK (NS)







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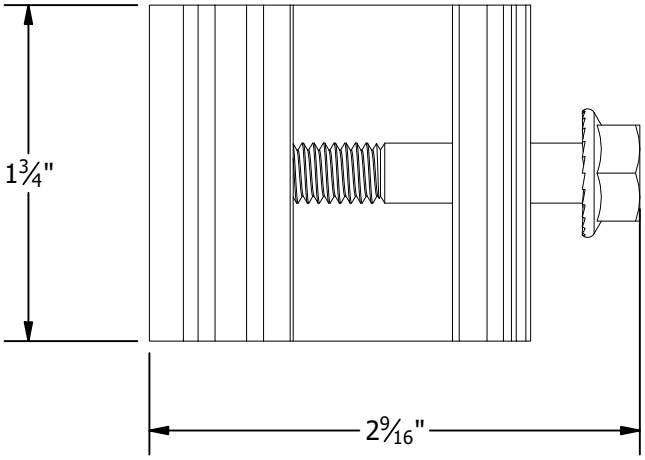
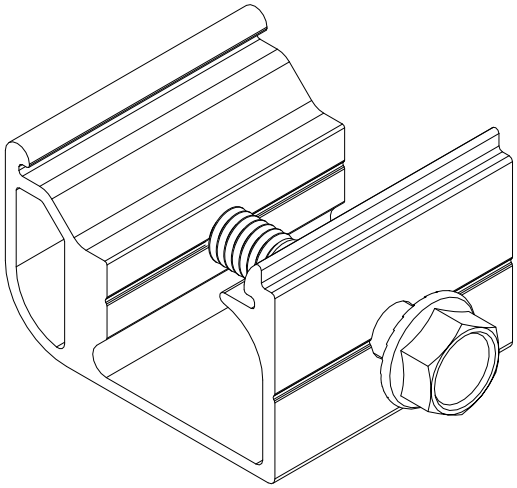
PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PARTS ASSEMBLY
DESCRIPTION:	STRONGHOLD ATTACHMENT
REVISION DATE:	9/22/2021

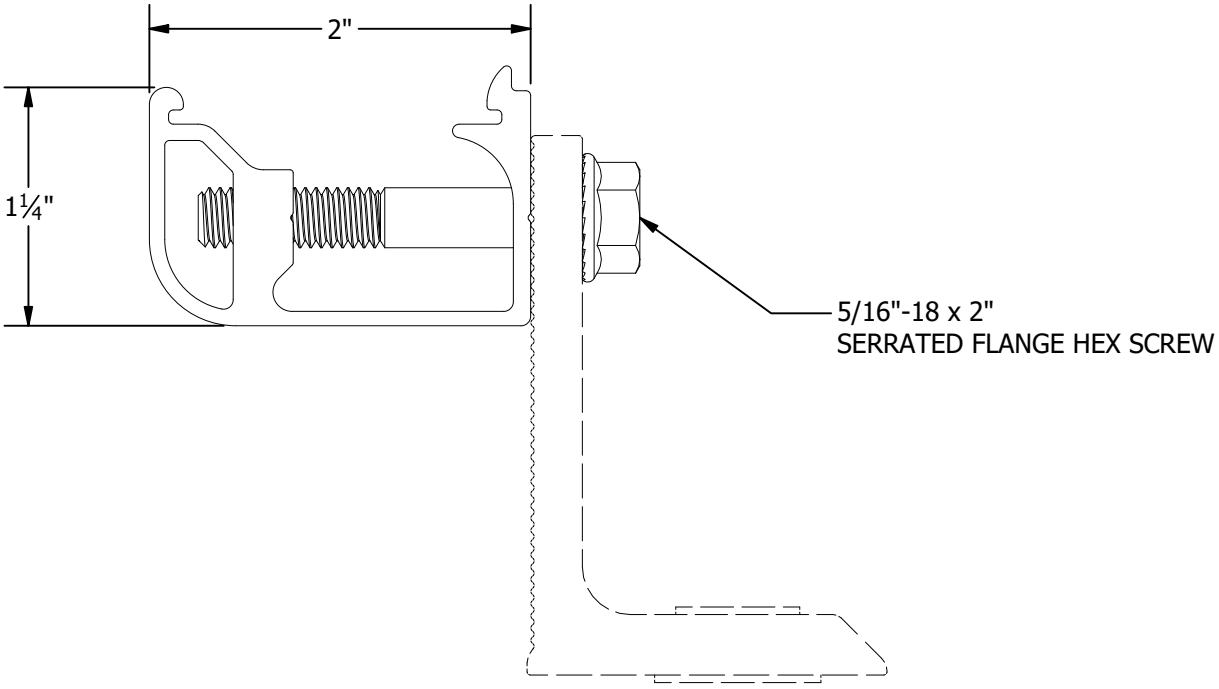
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

NH-A04
SHEET

PART # TABLE	
P/N	DESCRIPTION
SHCLMPM1	STRONGHOLD RAIL CLAMP MILL
SHCLMPD1	STRONGHOLD RAIL CLAMP DRK







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WWW.UNIRAC.COM

PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PARTS ASSEMBLY
DESCRIPTION:	STRONGHOLD RAIL CLAMP
REVISION DATE:	9/22/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

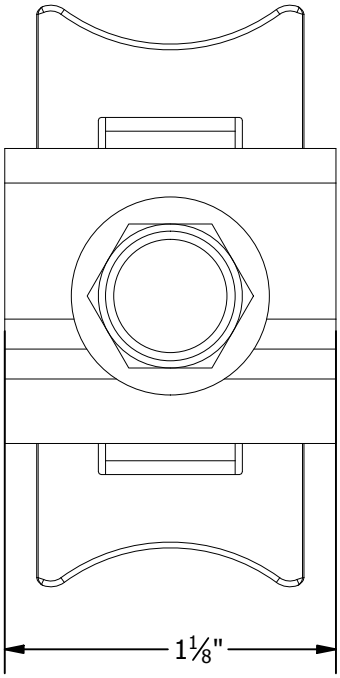
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

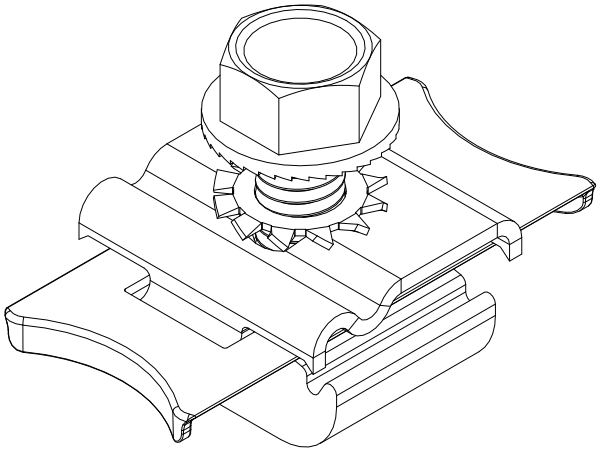
LEGAL NOTICE

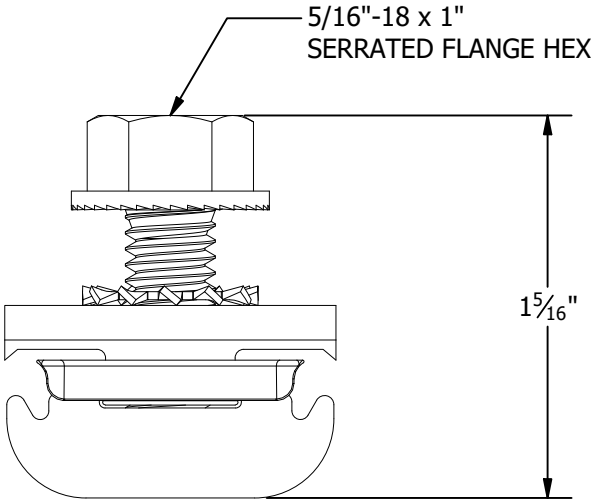
NH-A05

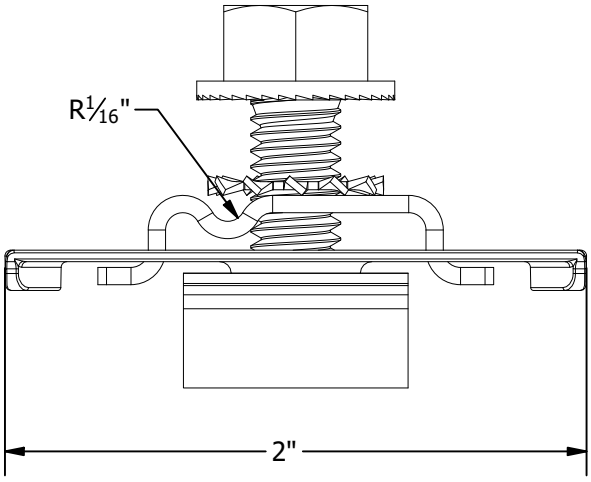
SHEET

PART # TABLE	
P/N	DESCRIPTION
LUGMLPE1	NXT HORIZON MLPE & LUG CLAMP









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PHONE: 505.242.6411
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PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PARTS ASSEMBLY
DESCRIPTION:	MLPE & LUG CLAMP
REVISION DATE:	9/22/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

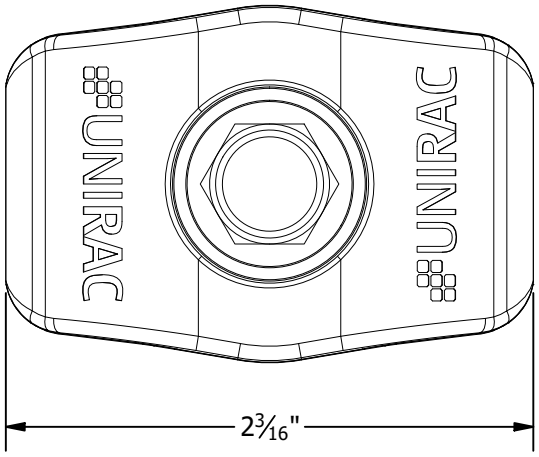
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

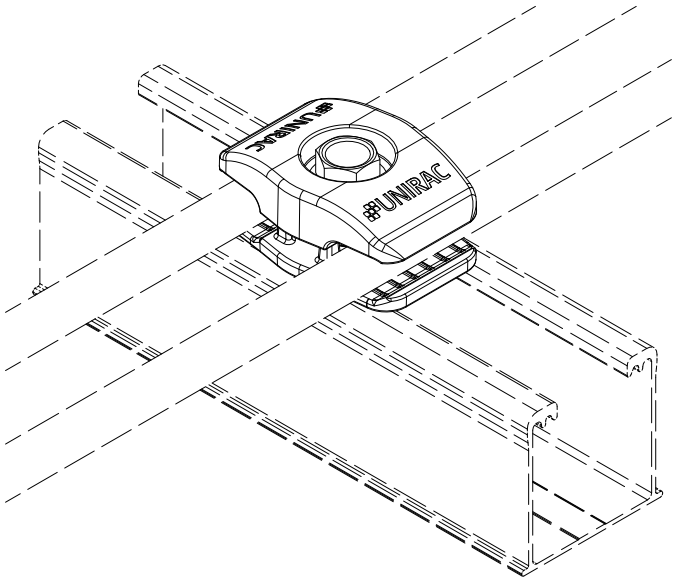
LEGAL NOTICE

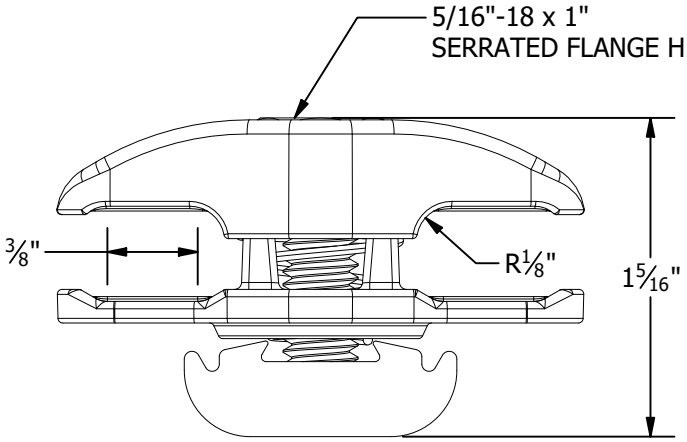
NH-A06

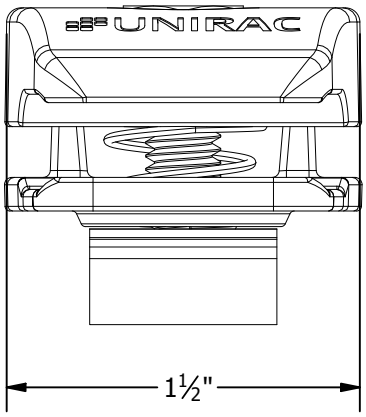
SHEET

PART # TABLE	
P/N	DESCRIPTION
WRMCNSD1	NXT HORIZON NS WIRE MGMT CLIP









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PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PARTS ASSEMBLY
DESCRIPTION:	NS WIRE MGMT CLIP
REVISION DATE:	9/22/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

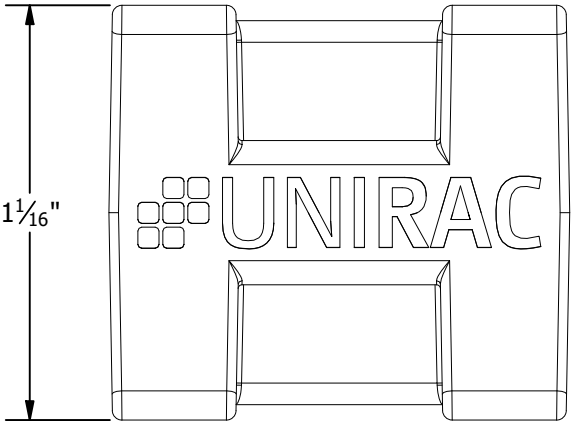
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

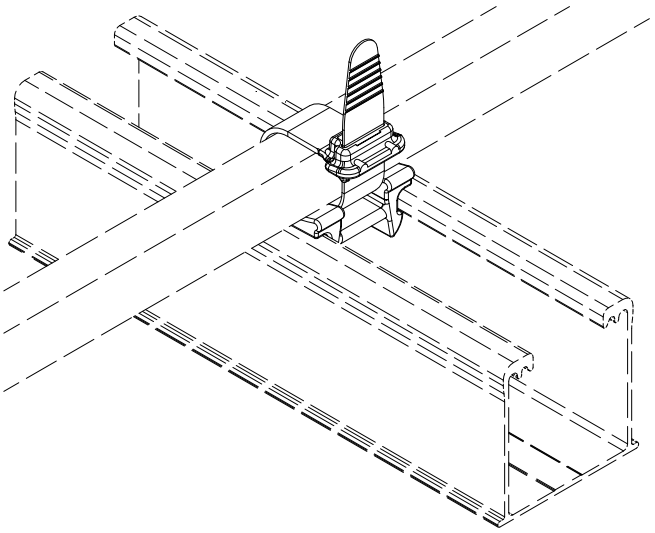
LEGAL NOTICE

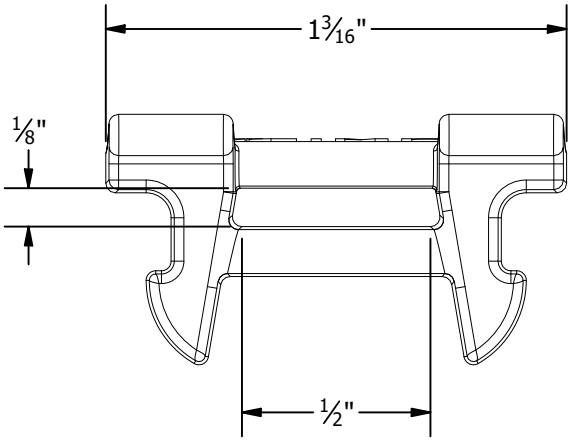
NH-A07

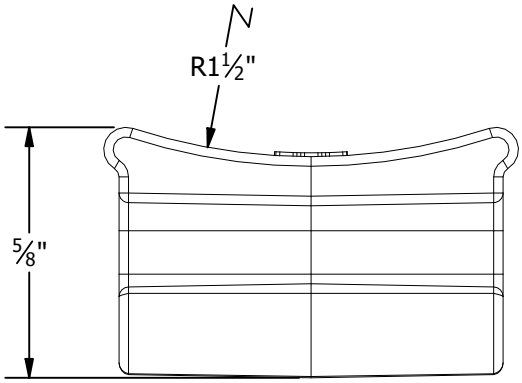
SHEET

PART # TABLE	
P/N	DESCRIPTION
WRMCLPD1	NXT HORIZON WIRE MGMT CLIP









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PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PARTS
DESCRIPTION:	WIRE MGMT CLIP
REVISION DATE:	10/27/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

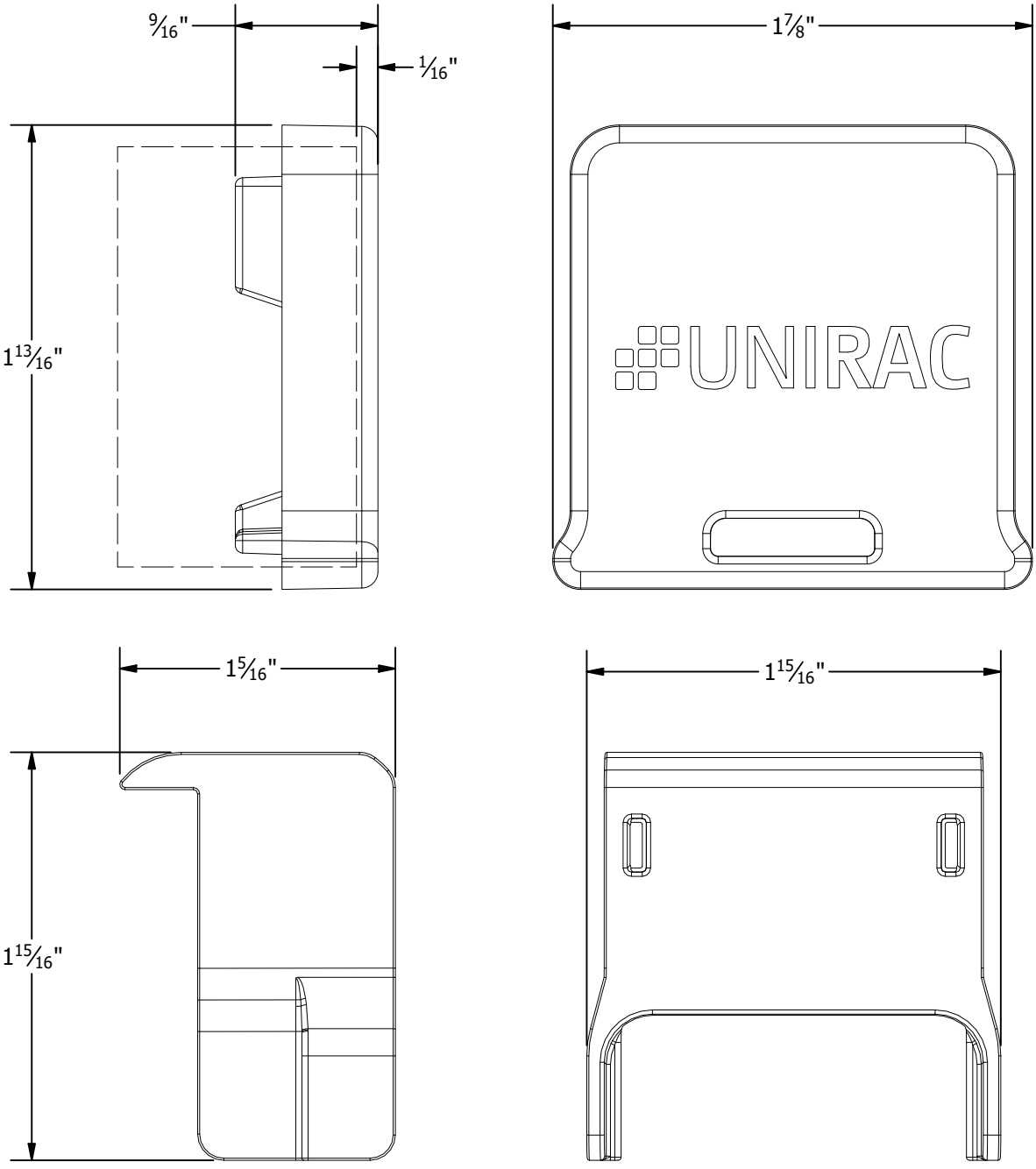
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

LEGAL NOTICE

NH-A08

SHEET

PART # TABLE	
P/N	DESCRIPTION
ENDCAPD1	NXT HORIZON RL & CLMP CAP KIT



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PHONE: 505.242.6411
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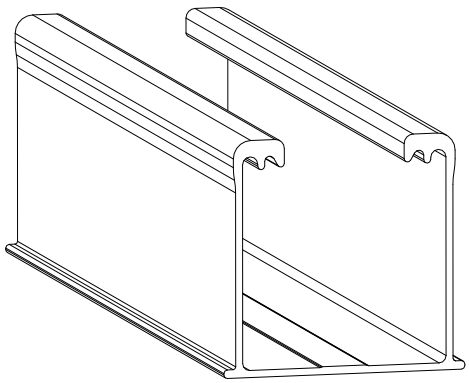
PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PARTS
DESCRIPTION:	RAIL & CLAMP CAP
REVISION DATE:	9/15/2021

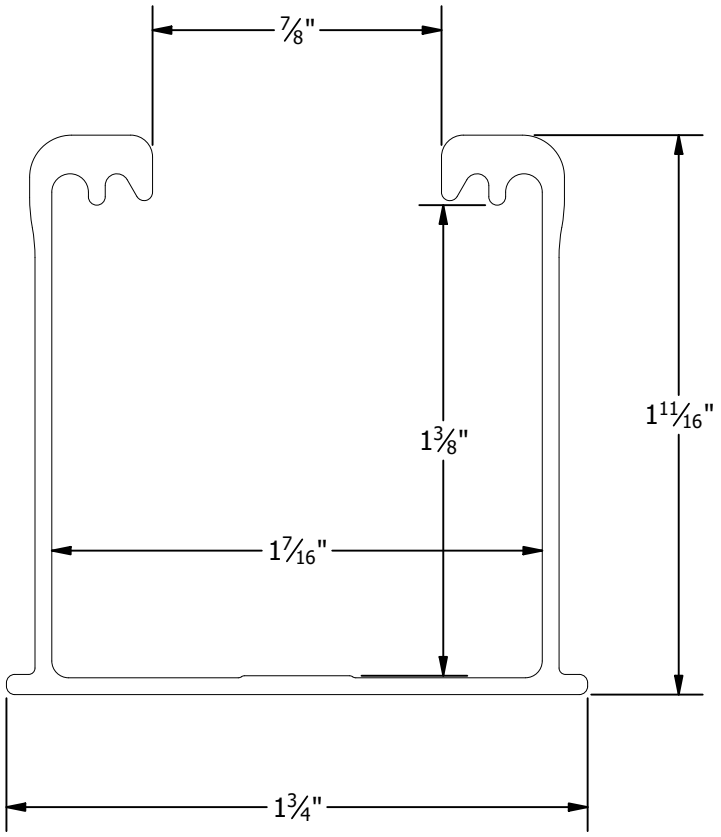
DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

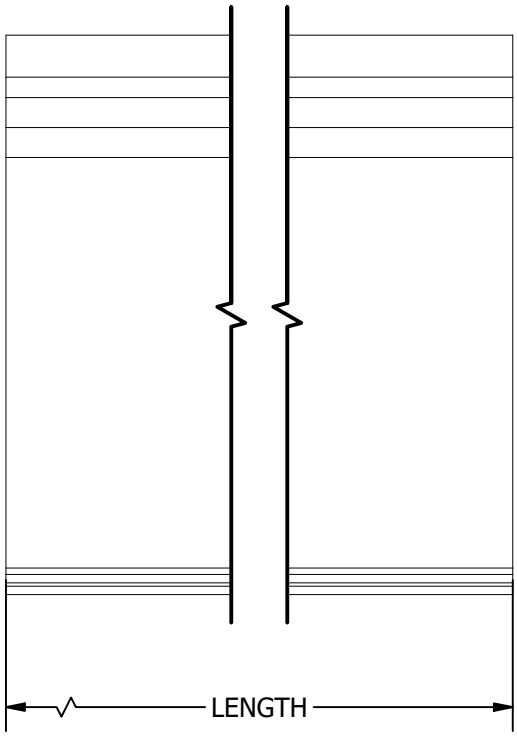
NH-A09

SHEET

PART # TABLE		
P/N	DESCRIPTION	LENGTH
084RLM1	NXT HORIZON RAIL 84" MILL	84"
084RLD1	NXT HORIZON RAIL 84" DARK	84"
168RLM1	NXT HORIZON RAIL 168" MILL	168"
168RLD1	NXT HORIZON RAIL 168" DARK	168"
208RLM1	NXT HORIZON RAIL 208" MILL	208"
208RLD1	NXT HORIZON RAIL 208" DARK	208"
246RLM1	NXT HORIZON RAIL 246" MILL	246"
246RLD1	NXT HORIZON RAIL 246" DARK	246"







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ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PART DETAIL
DESCRIPTION:	RAIL
REVISION DATE:	9/13/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

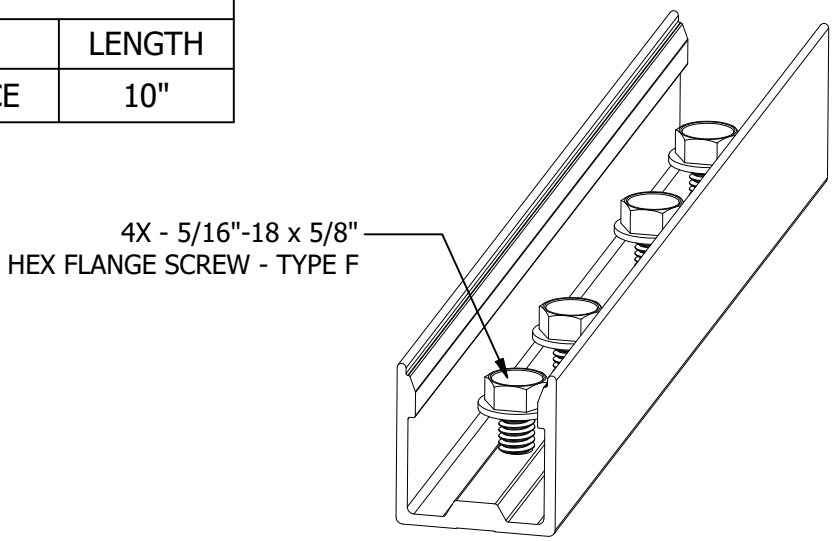
PRODUCT PROTECTED BY ONE OR MORE US PATENTS

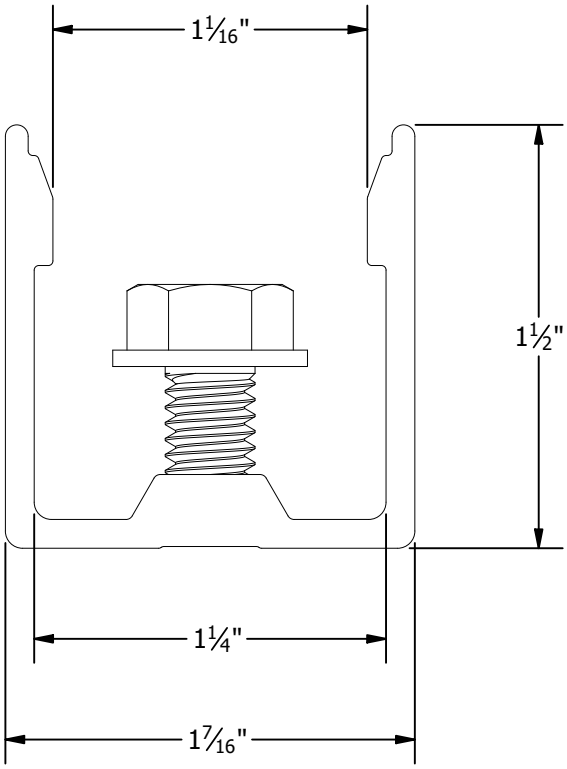
LEGAL NOTICE

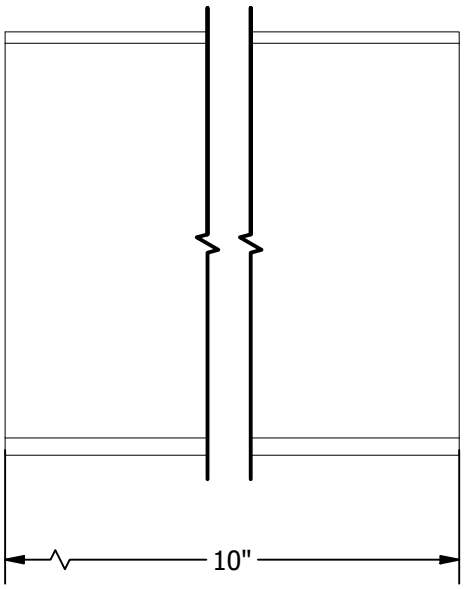
NH-P01

SHEET

PART # TABLE		
P/N	DESCRIPTION	LENGTH
RLSPLCM1	NXT HORIZON RAIL SPLICE	10"







UNIRAC
1411 BROADWAY BLVD. NE
ALBUQUERQUE, NM 87102 USA
PHONE: 505.242.6411
WWW.UNIRAC.COM

PRODUCT LINE:	NXT HORIZON
DRAWING TYPE:	PART DETAIL
DESCRIPTION:	RAIL SPLICE
REVISION DATE:	9/22/2021

DRAWING NOT TO SCALE
ALL DIMENSIONS ARE NOMINAL

PRODUCT PROTECTED BY ONE OR MORE US PATENTS

LEGAL NOTICE

NH-P02

SHEET

IQ Combiner 4/4C

The **IQ Combiner 4/4C** with IQ Gateway and integrated LTE-M1 cell modem (included only with IQ Combiner 4C) consolidates interconnection equipment into a single enclosure. It streamlines IQ Microinverters and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

X-IQ-AM1-240-4C

X2-IQ-AM1-240-4C (IEEE 1547:2018)

X-IQ-AM1-240-4

X2-IQ-AM1-240-4 (IEEE 1547:2018)

Smart

- Includes IQ Gateway for communication and control
- Includes Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), included only with IQ Combiner 4C
- Includes solar shield to match Enphase IQ Battery aesthetics and deflect heat
- Supports Wi-Fi, Ethernet, or cellular connectivity
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Mounts on single stud with centered brackets
- Supports bottom, back and side conduit entry
- Allows up to four 2-pole branch circuits for 240VAC plug-in breakers (not included)
- 80A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the IQ Combiner SKU's
- UL listed
- X2-IQ-AM1-240-4 and X2-IQ-AM1-240-4C comply with IEEE 1547:2018 (UL 1741-SB, 3rd Ed.)

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

IQ Combiner 4/4C

MODEL NUMBER	
IQ Combiner 4 X-IQ-AM1-240-4 X2-IQ-AM1-240-4 (IEEE 1547:2018)	IQ Combiner 4 with IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 ± 0.5%) and consumption monitoring (± 2.5%). Includes a silver solar shield to match the IQ Battery and IQ System Controller 2 and to deflect heat.
IQ Combiner 4C X-IQ-AM1-240-4C X2-IQ-AM1-240-4C (IEEE 1547:2018)	IQ Combiner 4C with IQ Gateway printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 ± 0.5%) and consumption monitoring (± 2.5%). Includes Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the IQ Battery and IQ System Controller and to deflect heat.

ACCESSORIES AND REPLACEMENT PARTS (not included, order separately)	
Supported microinverters	IQ6, IQ7, and IQ8. (Do not mix IQ6/7 Microinverters with IQ8)
Communications Kit COMMS-CELLMODEM-M1-06 CELLMODEM-M1-06-SP-05 CELLMODEM-M1-06-AT-05	 - Includes COMMS-KIT-01 and CELLMODEM-M1-06-SP-05 with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year Sprint data plan - 4G based LTE-M1 cellular modem with 5-year AT&T data plan
Circuit Breakers BRK-10A-2-240V BRK-15A-2-240V BRK-20A-2P-240V BRK-15A-2P-240V-B BRK-20A-2P-240V-B	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220 Circuit breaker, 2 pole, 15A, Eaton BR215B with hold down kit support Circuit breaker, 2 pole, 20A, Eaton BR220B with hold down kit support
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 4/4C
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 4/4C (required for EPLC-01)
X-IQ-NA-HD-125A	Hold-down kit for Eaton circuit breaker with screws
Consumption monitoring CT (CT-200-SPLIT/CT-200-CLAMP)	A pair of 200A split core current transformers

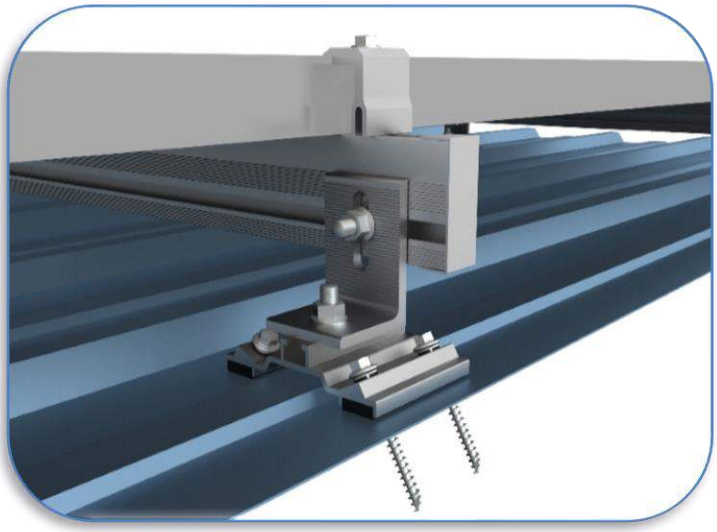
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240VAC, 60 Hz
Eaton BR series busbar rating	125A
Max. continuous current rating	65A
Max. continuous current rating (input from PV/storage)	64A
Max. fuse/circuit rating (output)	90A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation/95A with IQ Gateway breaker included
IQ Gateway breaker	10A or 15A rating GE/Siemens/Eaton included
Production metering CT	200A solid core pre-installed and wired to IQ Gateway

MECHANICAL DATA	
Dimensions (WxHxD)	37.5 cm x 49.5 cm x 16.8 cm (14.75 in x 19.5 in x 6.63 in). Height is 53.5 cm (21.06 in) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40°C to +46°C (-40°F to 115°F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20A to 50A breaker inputs: 14 to 4 AWG copper conductors • 60A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors • Always follow local code requirements for conductor sizing.
Altitude	Up to 3,000 meters (9,842 feet)

INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	IEEE 802.11b/g/n
Cellular	CELLMODEM-M1-06-SP-05, CELLMODEM-M1-06-AT-05 (4G based LTE-M1 cellular modem). Note that an Mobile Connect cellular modem is required for all Enphase Energy System installations.
Ethernet	Optional, IEEE 802.3, Cat5E (or Cat6) UTP Ethernet cable (not included)

COMPLIANCE	
Compliance, IQ Combiner	CA Rule 21 (UL 1741-SA) IEEE 1547:2018 - UL 1741-SB, 3rd Ed. (X2-IQ-AM1-240-4 and X2-IQ-AM1-240-4C) CAN/CSA C22.2 No. 107.1, Title 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Gateway	UL 60601-1/CANCSA 22.2 No. 61010-1

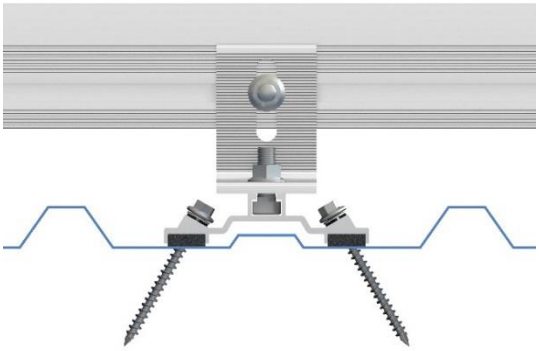
EZ GRIP METAL DECK MOUNT



Make your next metal roof attachment without the daunting task of locating the truss. SunModo's EZ Grip Metal Deck Mount installs into 26 gauge sheet metal, 1/2 plywood or 7/16 OSB roof decking material.

SunModo's EZ Grip Metal Deck Mount installs in just minutes into sheet metal, plywood or OSB roof decking. The four included 1/4 x 3" Hex Washer Head Self-tapping Screws have the length to penetrate though 1-1/2 inches of insulation while still piercing completely through the roof decking. And since the four screws are guided by the aluminum extruded base to penetrate at a 30-degree angle, the Metal Roof Deck Mount Kit offers superior attachment performance. 1/4-20 Self-drilling screws can be used for attachments into 26 gauge minimum thickness metal roofs.

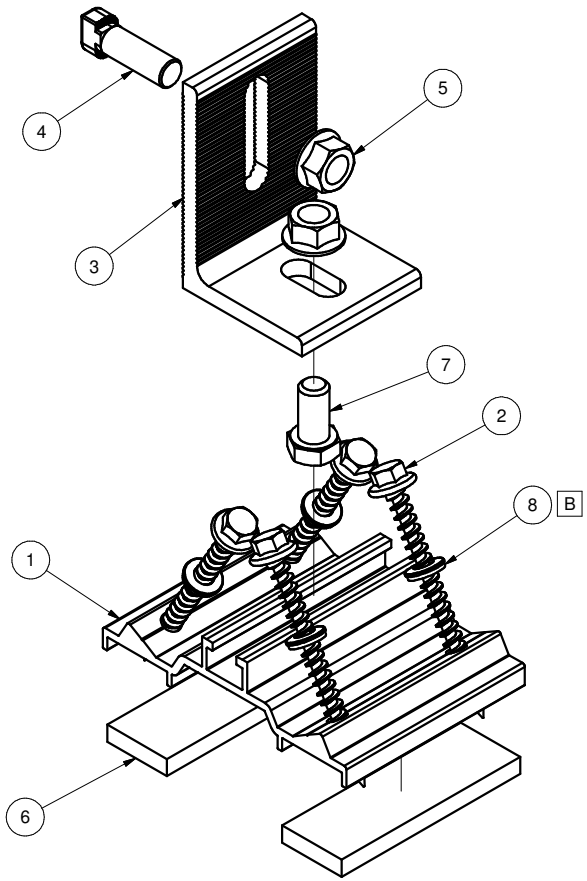
The EZ Grip Metal Deck Mount is designed to fit on the most popular R-Panel and U-Panel trapezoidal types of metal roofs. The aluminum extruded base easily clears roof profiles 7/16" tall by 1-1/2" wide. The EPDM gaskets on the washers and on the aluminum extruded base combine to provide a water tight seal at the roof penetration site.



Features and Benefits

- Attaches into 1/2 plywood or 7/16 OSB roof decking material using four 1/4 x 3" Hex Washer Head Self-tapping Screws
- Attaches into 26 gauge minimum thickness sheet metal using four 1/4 x 2" Hex Washer Head Self-drilling Screws
- Angled penetrations provide superior attachment performance
- A wide variety of L-feet and attachment options are available
- Passed the High-Velocity Hurricane Zone (HVHZ) –TAS 100(a) Wind-Driven Rain Test

REVISIONS			
REV	DESCRIPTION	BY	DATE
A	INITIAL RELEASE	LWF	10/16/2018
B	ADD B15019-001	LWF	10/24/2018



IN 1/2" PLYWOOD		
LOAD DIRECTION	**FOS=2**	**FOS=3**
UPLIFT	345	230
LATERAL.PERP. TO SLOT	140	95
LATERAL.PARALLEL TO SLOT	265	175
IN 7/16" OSB		
LOAD DIRECTION	**FOS=2**	**FOS=3**
UPLIFT	190	125
LATERAL.PERP. TO SLOT	125	85
LATERAL.PARALLEL TO SLOT	135	90

NOTES
* Factor of Safety as shown
* Torque at 3/8" T-Bolt = 15ft.lbs (20 N.m)
* All loads in pounds force
* Values valid only for conditons equal or better than test conditions
* Values valid only when product is used in accordance with SunModo installation instruction and other technical documentation
* The kit as shown in the BOM. For alternative configurations, contact SunModo

4 1/4" Deck Screws in Min 7/16" OSB

	ITEM	PART NUMBER	DESCRIPTION	QTY
B	8	B15019-001	SEALING WASHER .26 ID X .50 X .125	4
	7	B15018-001	HEX CAP SCREW 3/8-16 X 3/4	1
	6	C50001-001	GASKET, EPDM, WITH ADHESIVE	2
	5	B15003-001	FLANGE NUT 3/8-16	2
	4	B20007-002	T-BOLT 3/8-16X1.0", 304 SS	1
	3	A20062-001	L FOOT	1
	2	B15039-001	HEX WASHER HEAD LAG BOLT 1/4X3	4
	1	A50224-001	METAL ROOF DECK MOUNT	1

MATERIAL: SEE NOTES

Third Angle Projection:

GENERAL SPECIFICATIONS
All Dimensions in inches [millimeters]
Tolerances
X.XXX ±0.01 [0.25mm]
X.XX ±0.02 [0.50mm]
X.X ±0.039 [1.0mm]
Unless otherwise spec'd
Break all sharp edges .010-.020 unless otherwise specified.

DRAWN BY: LWF
DATE: 10/16/2018
CHECKED BY:
APPROVALS:

SunModo Corp.

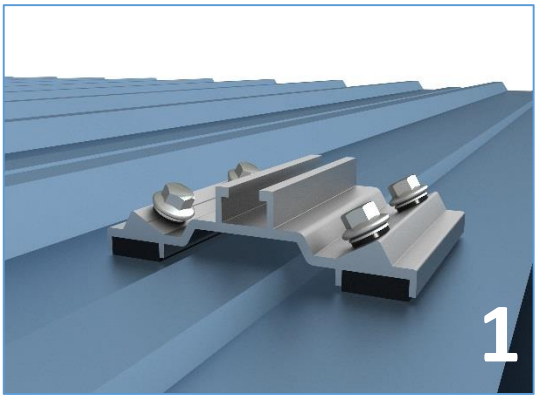
14800 NE 65TH STREET, VANCOUVER WA 98682

TITLE: METAL ROOF DECK MOUNT KIT

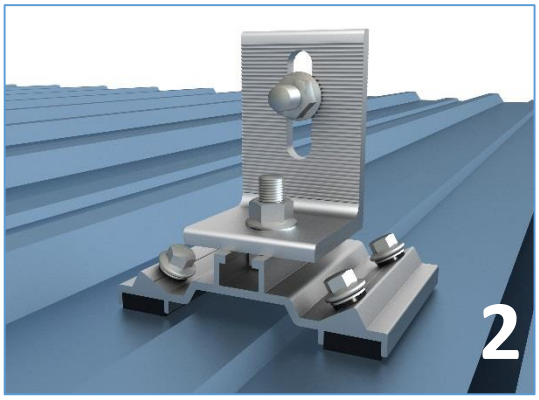
B | DRAWING NUMBER: K50532-001 STRUCTURE

SCALE: NONE | SHEET 1 of 1

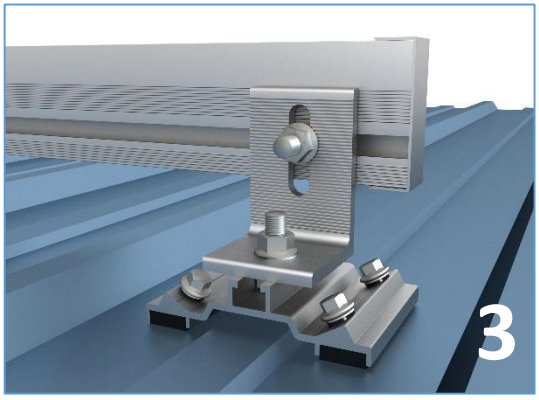
EZ Grip Metal Mount Kit (K50532-001 & K50532-002):
These Installation Instructions are for attaching the EZ Grip Metal Mount Kit into 1/2" plywood, 7/16" OSB or 26ga sheet metal roof decking material. The SunModo EZ Grip Metal Mount Kit comes complete with Mount, 1/4 x 3" or 1/4 x 1-1/2" Hex Washer Head Lag Bolts, L-Foot and 3/8" Hardware.



Locate desired location for the EZ Grip Metal Mount. Install using the four 1/4 x 3" or 1/4 x 1-1/2" Hex Washer Head Lag Bolts supplied.



Secure the L-Foot to the Mount using the 3/8" Hardware supplied. Torque to 15 ft. lbs.



Using the 3/8" hardware supplied attach the Rail to the L-Foot. Torque to 15 ft. lbs.

Installation Notes:

1. Tools Required: Drill, torque wrench, sockets set, tape measure, string line or laser line.
2. The use of an impact driver is strongly discouraged for all stainless nut and bolt hardware.
3. Installer shall use anti-seize compound, such as Permatex anti-seize. Lubricant is recommended for all stainless steel threaded parts.