

OMCO SOLAR®**omco Choice™**

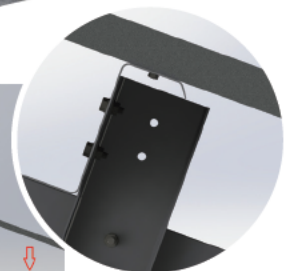
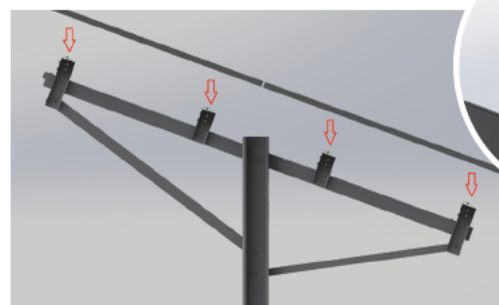
Direct-Bolt Mounting System

Pre-Assembled Tilt Brackets

- Optimizes packaging and shipping
- Reduces on-site labor requirements
- Accelerates total build time
- Eliminates loose hardware

Integrated Grounding

- Eliminates third party grounding devices
- Accelerates assembly



www.omcosolar.com

Manufacturing:	OEM direct, shipped to project sites from OMCO Solar's manufacturing facilities, conveniently located nationwide.
Pre-assembly:	Each rack consists of pre-assembled components, which reduces the bill of material items, allowing rapid site staging and installation.
Materials:	Galvanized steel, per ASTM A653 - latest edition
Hardware:	Zinc-coated to 15 microns per UL 2703, the hardware arrives pre-sorted for easy identification. Additional plating options are available for corrosive environments.
Module compatibility:	OMCO Solar racks are optimized for all commercially available framed solar modules.
In-field flexibility:	Built-in adjustability features account for post misalignment and terrain elevation changes with no additional components. Proprietary custom slot configurations come standard on every fixed-tilt mounting system.
Table configuration:	2-in-portrait is standard, other configurations evaluated per site-specific requirements
Terrain articulation:	Accommodates up to 20% grade change
Foundation options:	Driven piles (C-posts or I-beams)
Tilt angle:	Accommodates from 5° - 45°
Wire management:	Integrated wire management system
Bonding/grounding:	UL 2703 compliant
Post-tolerances:	East to West tolerance 3/4" or 0.75" 1° North to South tolerance 3/4" or 0.75" 1°
Load capacities:	Wind - up to 180 MPH Snow - up to 90 PSF
Certifications:	ISO 9001:2015 standard, UL 2703 Ed. 1, CPP wind tunnel-tested, NEC compliant
Warranty:	20-year limited warranty



- ✓ Reduced lead times
- ✓ Lower shipping costs
- ✓ Responsive customer service
- ✓ Enhanced flexibility

OMCO SOLAR®

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Phoenix, AZ 85043

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144HC M10 NTYP SL Bifacial Module

144 Half-Cut Monocrystalline 565W – 595W

23.02%

Utilizes the latest M10 size super high efficiency N-type silicon solar cells. Half cut design further reduces cell to module (CTM) losses.

Stability & Looks

3.2mm fully tempered frontside glass for superior hail resistance. Enhanced frame design to withstand higher wind, snow, and other mechanical stresses. Framed Glass-Backsheet aesthetic is ideal for high visibility

High Energy Yield

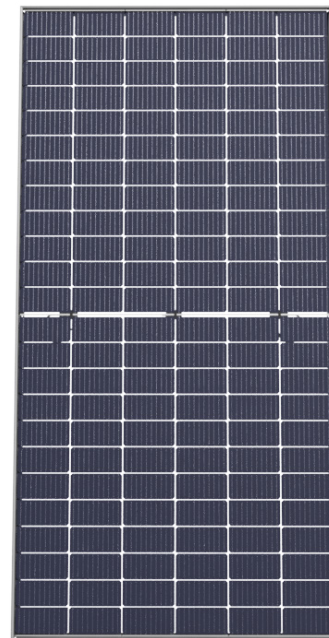
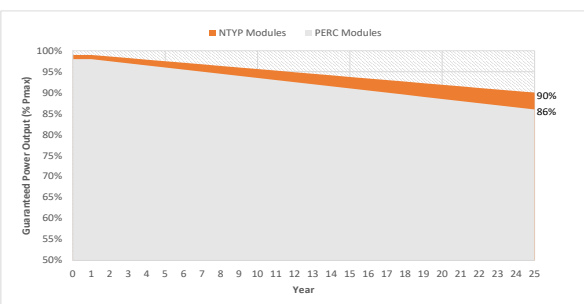
Highest efficiency, Excellent Bifaciality & Low temperature coefficient of N-type Silicon Solar Cells enable High Energy yield

High Reliability

N-type silicon solar cells result in low LID, reducing annual degradation and guaranteeing more power throughout the lifetime.

No Compromise Guarantee

15 Year Product Warranty
25 Year Linear Performance Guarantee



Highly efficient N-type Silicon Solar Cells

Low LCOE enabled by High Power Output & Low BOS Cost

1% First year degradation & 0.4% Annual Power degradation

World-class Quality

- Heliene's fully automated manufacturing facilities with state-of-the-art robotics and computer aided inspection systems ensure the highest level of product quality and consistency
- All manufacturing locations are compliant with international quality standards and are ISO 9001 certified
- Heliene modules have received Top Performer rankings in several categories from PV Evolution Labs (PV EL) independent quality evaluations

Bankable Reputation

- Established in 2010, Heliene is recognized as highly bankable Tier 1 manufacturer of solar modules and has been approved for use by the U.S. Department of Defense, U.S. Army Corps of Engineers and from numerous top tier utility scale project debt providers
- By investing heavily in research and development, Heliene has been able to stay on the cutting edge of advances in module technology and manufacturing efficiency

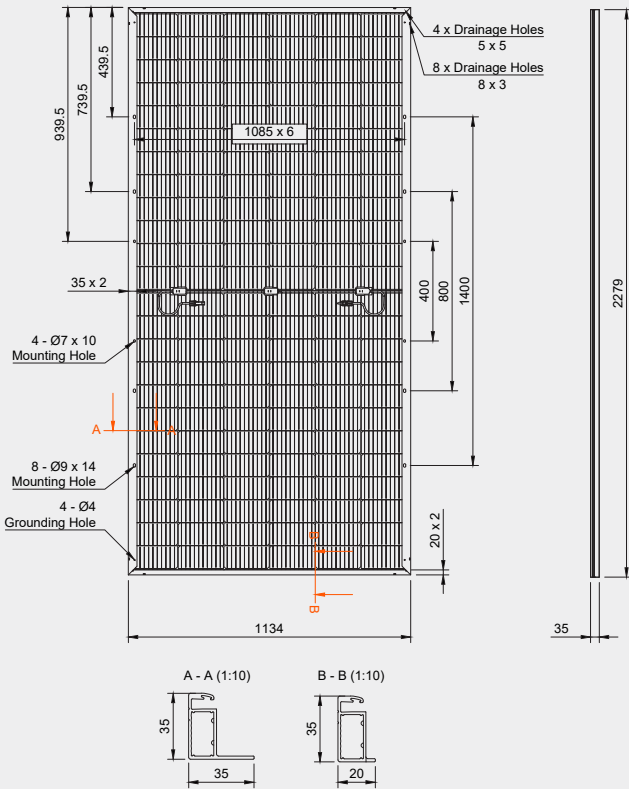
Local Sales, Service, and Support

- With sales offices across the U.S. and Canada, Heliene prides itself on unsurpassed customer support for our clients. Heliene has become the brand of choice for many of the leading residential installers, developers and Independent Power Producers due to our innovative technology, product customization capability and just in time last-mile logistics support
- Local sales and customer support means answered phone calls and immediate answers to your technical and logistics questions. We understand your project schedules often change with little warning and endeavor to work with you to solve your project management challenges

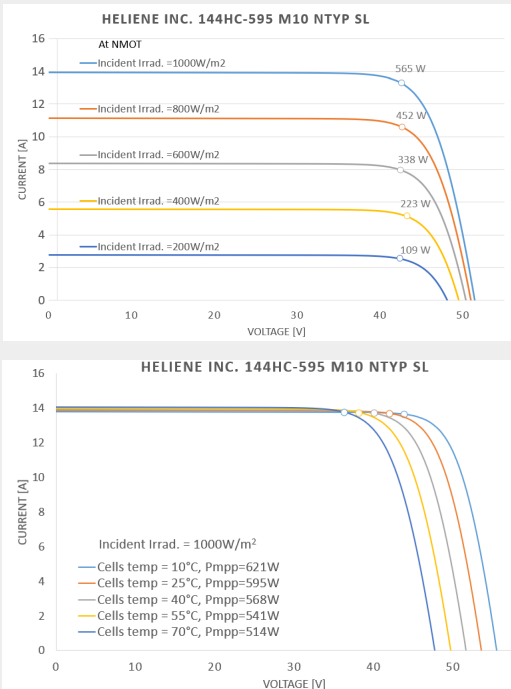




Dimensions for 144HC M10 NTYP SL Bifacial Series Modules



I-V Curves for 144HC M10 NTYP SL Bifacial Series Modules



Electrical Data (STC)

Peak Rated Power*	P _{mpp} (W)	595	590	585	580	575	570	565
Maximum Power Voltage	V _{mpp} (V)	45.20	44.96	44.93	44.74	44.48	44.24	43.98
Maximum Power Current	I _{mpp} (A)	13.16	13.12	13.03	12.99	12.95	12.91	12.87
Open Circuit Voltage*	V _{oc} (V)	53.40	53.25	53.12	52.97	52.83	52.69	52.55
Short Circuit Current**	I _{sc} (A)	13.86	13.83	13.79	13.75	13.71	13.67	13.64
Module Efficiency	Eff (%)	23.02	22.83	22.64	22.44	22.25	22.06	21.86
Maximum Series Fuse Rating	MF (A)	30	30	30	30	30	30	30
Power Sorting Range		[- 0/+3%]						
Bifaciality Factor***		80 ± 5%						
STC - Standard Test Conditions: Irradiation 1000 W/m ² - Air mass AM 1.5 - Cell temperature 25 °C,								
*P _{mpp} Production Tolerance ± 3%, V _{oc} Production Tolerance ± 3%, **I _{sc} Production Tolerance ± 4%								
***Bifaciality Factor= Pmpp _{rear} /Pmpp _{front} where Pmpp _{rear} and Pmpp _{front} are tested at STC								

Electrical Data (NMOT)

Maximum Power	P_{mpp} (W)	452	448	444	440	437	433	429
Maximum Power Voltage	V_{mpp} (V)	43.28	43.05	43.02	42.84	42.59	42.36	42.11
Maximum Power Current	I_{mpp} (A)	10.44	10.41	10.32	10.28	10.25	10.22	10.19
Open Circuit Voltage	V_{oc} (V)	51.13	50.99	50.86	50.72	50.59	50.45	50.32
Short Circuit Current	I_{sc} (A)	11.18	11.15	11.11	11.08	11.05	11.02	11.00
NMOT - Nominal Module Operating Temperature: Irradiance at $800 \text{ W}/\text{m}^2$, Ambient Temperature 20°C , Wind speed 1 m/s								

Mechanical Data

Solar Cells	144 Half Cut, M10x, N-type Cells
Module Construction	Framed Glass-Backsheet
Backsheet	Transparent Backsheet (White Pattern Optional)
Dimensions (L x W x D)	2279 x 1134 x 35 mm (89.72 x 44.65 x 1.38 inch)
Weight	29.2 kg (64.3 lbs)
Frame	Double Webbed 15-Micron Anodized Aluminum Alloy
Glass	3.2mm Fully Tempered, High-Transmission, PV Solar Glass with Anti Reflective Coating
Junction Box	IP-68 rated with 3 bypass diodes
Output Cables	4mm ² (12 AWG), 0.3-meter Symmetrical Cables - other cable lengths optional
Connectors	Multi-Contact/ Stäubli MC4

Certifications

UL Certification	UL61215, UL61730, CSA C22.2 No. 61730
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Temperature Ratings

Nominal Module Operating Temperature (NMOT)	$+42^{\circ}\text{C}$ ($\pm 2^{\circ}\text{C}$)
Temperature Coefficient of P_{max}	$-0.30\%/^{\circ}\text{C}$
Temperature Coefficient of V_{oc}	$-0.25\%/^{\circ}\text{C}$
Temperature Coefficient of I_{sc}	$0.045\%/^{\circ}\text{C}$

Maximum Ratings

Operational Temperature	-40°C to $+85^{\circ}\text{C}$
Max System Voltage	1500V
Mech. Load Test (Front)	113 psf / 5400 Pa
Mech. Load Test (Back)	50 psf / 2400 Pa
Fire Type	Type 1

Packaging Configuration

Modules per Pallet 40' Container:	31 pieces
Modules per 40' Container:	620 pieces
Modules per Pallet 53' Trailer:	28 pieces
Modules per 53' Trailer:	644 pieces



250/275kW V2, 1500Vdc String Inverters for North America



CPS SCH275KTL-DO/US-800

The 250/275 kW high power CPS three-phase string inverters are designed for ground-mount applications. The units are high performance, advanced, and reliable inverters designed specifically for the North American environment and grid. High efficiencies, wide operating voltages, broad temperature ranges, and NEMA Type 4X enclosure enable this inverter platform to operate at high performance across many applications. The SCH275KTL inverters include a selectable active power of either 250 kW or 275 kW (factory default) with 12 MPPTs and are available with either 36 fused PV string inputs or 24 unfused PV string inputs. The CPS FlexOM solution enables communication, controls and remote product upgrades.

Key Features

- **Anti-PID function**
- **Reactive Power at Night function**
- CPS FlexOM Gateway enables remote firmware upgrades
- Integrated DC disconnect switch
- Protection functions for enhanced reliability and safety
- Selectable max AC active power of 250 kW or 275 kW
- UL 1741-SA certified to CA Rule 21, including SA14-SA18
- 12 MPPTs with 36 fused inputs or 24 unfused inputs
- Copper and Aluminum compatible AC connections
- NEMA Type 4X outdoor rated, tough tested enclosure
- Full power capacity up to 42°C
- Standard 5-year warranty with extensions to 20 years
- Supported comm protocols (Modbus RTU, TCP/IP, PLC, **CAN**)
- UL 1741-SB and IEEE 1547-2018 certified

Model Name	CPS SCH275KTL-DO/US-800-36 V2	CPS SCH275KTL-DO/US-800-24 V2
DC Input		
Max. DC input voltage range	1500 V	
Operating DC input voltage range	500-1450 Vdc	
Start-up DC input voltage / power	550 Vdc / 500 W	
MPPT voltage range for Pnom @ PF>0.99 ¹	900-1300 Vdc	
Number of MPP trackers	12	
Max. PV input current (clipping point)	30 A per MPPT	
Production Limits	36.5 kW/MPPT or 275 kW total output	
Max. PV short-circuit current	600 A, 50 A per MPPT	
Number of DC inputs	36 fused inputs, 3 per MPPT	24 non-fused inputs
DC disconnection type	Load-rated DC switches	
DC surge protection	Type II	
AC Output		
Max AC output power (selectable ²) @ PF>0.99	250 kW / 275 kW	
Max. AC apparent power	275 kVA	
Rated output voltage	800 Vac	
Output voltage range ³	704-880 Vac	
Grid connection type	3-phase / PE	
Max. AC output current @ 800 Vac	198.5 A	
Rated output frequency	60 Hz	
Output frequency range ³	57-63 Hz	
Power factor	>0.99 (±0.8 adjustable)	
Current TRD @ rated load	< 3%	
Max. OCPD rating	300 A	
AC surge protection	Type II	
System and Performance		
Max. efficiency	99.0%	
CEC efficiency	98.5%	
Standby / night consumption	5 W	
Environment		
Enclosure protection degree	NEMA 4X	
Cooling method	Variable speed cooling fans	
Operating temperature range	-22°F to 140°F / -30°C to 60°C (derate from 107°F / 42°C)	
Non-operating temperature range	-40°F to 140°F (-40°C to 60°C)	
Operating humidity	0-100%	
Operating altitude	8202 ft / 2500 m (no derating)	
Audible noise	< 80 dBA @ 1 m and 77°F (25°C)	
Display and Communication		
User interface and display	LED indicators, Wi-Fi and app	
Inverter monitoring	Modbus RS485 / PLC ⁴ / CAN	
Site-level monitoring	CPS FlexOM (1 per 32 inverters)	
Modbus data mapping	SunSpec / CPS	
Remote diagnostics / firmware upgrade functions	Standard / (with FlexOM Gateway)	
Mechanical		
Dimensions (H × W × D)	27.2 × 41.3 × 15.7 (690 × 1050 × 400 mm)	
Weight	Inverter: 262 lbs (119 kg)	
Mounting / installation angle	Vertical installation	
AC termination	Stud type terminal (wire range: 4/0 AWG - 750 kcmil AL/CU, lugs not supplied)	
DC termination	36 fused input: screw clamp fuse holder (wire range #14-#8 AWG CU) 24 non-fused input: screw clamp terminal (wire range #14-#8 and #6-#4 AWG CU) ⁵	
Fused string inputs (3 per MPPT) ⁶	25 A fuses provided (values up to 30 A acceptable)	
Safety		
Certifications and standards	UL1741-SA/SB Ed.3, CSA-C22.2 NO.107.1-16, IEEE1547a-2014, IEEE 1547-2018; FCC PART 15	
Selectable grid standard	IEEE 1547a-2014, IEEE 1547-2018, CA Rule 21, ISO-NE	
Smart-grid features	Volt-RideThru, Freq-RideThru, Ramp-Rate, Specified-PF, Volt-VAR, Freq-Watt, Vol-Watt	
Protection Functions		
Reactive Power at Night	Yes	
Anti-PID function	Yes	
Insulation resistance monitoring	Yes	
Onboard fault oscillography	Yes	
PV MPPT current monitoring	Yes	
Residual current monitoring	Yes	
Output short-circuit protection	Yes	
Output overvoltage protection	Yes	
Warranty		
Standard	5 years	
Extended terms	10, 15, and 20 years	

1) See user manual for information regarding MPPT voltage range when operating at non-unity PF.

2) Inverter is factory set to 275 kW by default. Contact CPS to enable the 250 kW setting.

3) The output voltage range and output frequency range may differ according to the specific grid standard.

4) CPS AC-PLC Kit required for AC PLC communication.

5) One threaded hole per MPPT for connecting #6-#4 AWG CU.

6) Fused string inputs only applicable to the SCH275KTL 36-input model.

PADMOUNT

**Thousands of transformers.
In stock. Ready to ship.**

Maddox padmount transformers are constructed with the highest quality materials and built in accordance with the highest industry standards including NEMA, ANSI C.57, DOE, and IEEE as applicable. They are ideal for commercial and industrial applications: data centers, solar step-up, utility projects, manufacturing facilities, shopping centers, etc.

Maddox stocks and builds padmount transformers for projects of any size, customized however you need them. With thousands of new and remanufactured units in stock and ready-to-ship, Maddox is ready to power your project on.



Design

HV Bushing Config:

1. Dead front or live front
2. Loop feed or radial feed

Fluid Options:

1. Type II mineral oil
2. Envirotemp™ FR3™

Standard Gauge/ Accessory Package:

1. Pressure relief valve
2. Pressure vacuum gauge
3. Liquid temp & level gauges
4. Drain & sample valve
5. Adjustment taps

Switch Options:

1. 2 position LBOR switch
2. 4 position LBOR switch (V-blade or T-blade)
3. (3) 2 position LBOR switches

Fusing Options:

1. Bayonets w/ isolation links or CLFs

Construction:

1. 5-legged core
2. Rectangular wound copper or aluminum windings
3. Carbon reinforced or stainless steel tank
4. Steel divider between HV & LV cabinets
5. Penta-head captive bolt

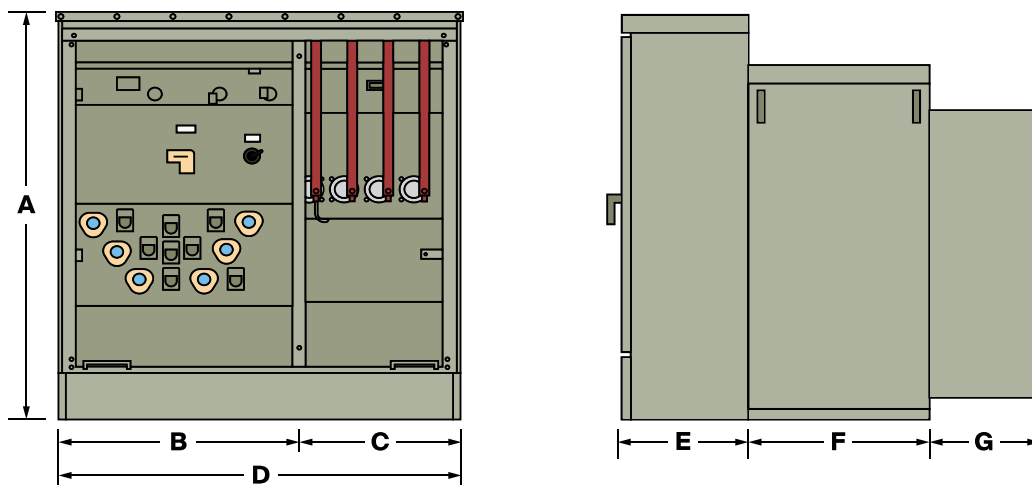
Optional Design Features & Accessories:

1. Gauges w/ contacts
2. External drain and sample valve
3. Electrostatic shielding
4. K-factor design
5. Step-up design
6. Surge-arresters

Available Ratings

Sizes (kVA)	45 75 112.5 150 225 300 500 750 1000 1250 1500 1750 2000 2250 2750 3000 3750 5000
Frequency	60 Hz or 50 Hz
Cooling Class	ONAN or KNAN
Temp Rise	55°C 65°C 55/65°C
Voltages	Available in Δ or Y configuration
600V	208 240 416 480 600
2.5kV – 5kV	2400 4160 4800
15kV	12000 12470 13200 13800 14400
25kV	20780 21600 22900 24940 26400
35kV	33000 34500

Outline & Approximate Dimensions



kVA	A	B	C	D	E	F	G	Gallons	Weight (Lbs)
300	59"	29.5"	22"	51.5"	20.5"	24"	10"	196	4,056
500	59"	33"	26.5"	59.5"	24"	26.5"	10"	210	5,023
750	73"	36"	29"	65"	24"	26.5"	10"	358	7,664
1000	73"	36"	29"	65"	24"	27"	10"	354	8,530
1500	73"	36"	35.5"	71.5"	24"	33.5"	10"	410	10,782
2000	75"	39.5"	28"	67.5"	24"	35"	27"	433	12,490
2500	78"	39.5"	35.5"	75.5"	24"	37.5"	22.5"	545	14,246
3000	84"	30.5"	32"	62.5"	24"	37.5"	38"	550	14,014
3750	75"	50.5"	30"	80.5"	25.5"	42"	38"	730	17,785

Inside & Common Accessories



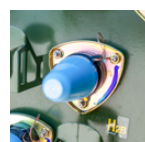
Bayonet Fuses



Loadbreak Switch



Tap-changer



Bushings



Drain Sample Valve



Gauges

NEMA Standards for Liquid-Filled Transformers

These are industry sound levels for liquid filled transformers like padmounts, substations, and polemounts.

Self-Cooled, Two Winding kVA Rating	Average Decibels (dB)
45-500	56
501-700	57
701-1,000	58
1,001-1,500	60
1,501-2,000	61
2,001-2,500	62
2,501-3,000	63
3,001-4,000	64
4,001-5,000	65
5,001-6,000	66
6,001-7,500	67
7,501-10,000	68



PHOENIX FENCE

EDMONTON

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 FAX: (780) 447-2512
 TOLL FREE: 1-800-661-9847
 E-MAIL: phoenix@phoenixfence.ca

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 PHONE: (403) 259-5155
 FAX: (403) 259-2262
 TOLL FREE: 1-888-220-2525
 E-MAIL: calgary@phoenixfence.ca

WEBSITE: www.phoenixfence.ca

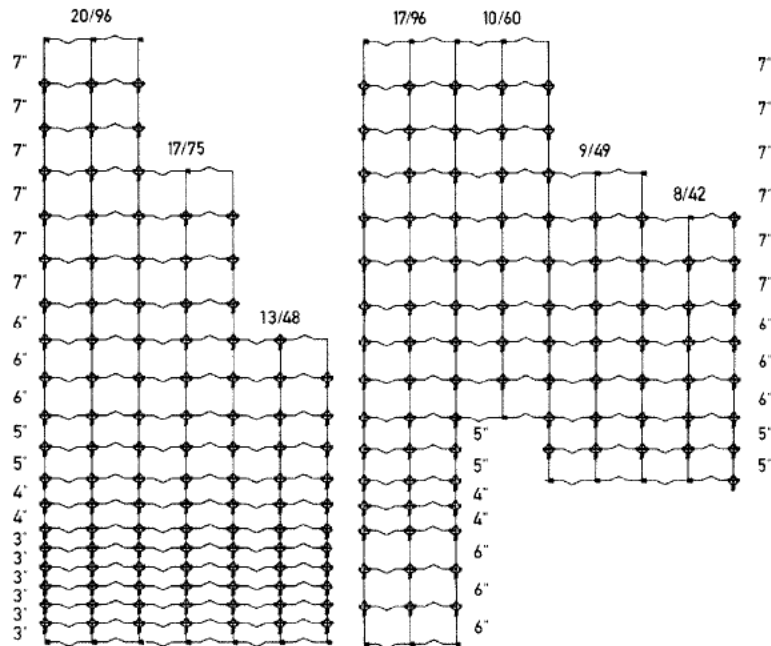
Fixed Knot Fence Specifications

Wire	Gauge	Tensile Strength	Breaking Load	Galvanization
Line Wires	12 ½ ga.	Hi-Tensile 179K-210K	1350 lbs – 1584 lbs	.85 oz.-1.4oz. per sq.ft.
Stay Wires	12 ½ ga.	Med-Tensile 125K-145K	943 lbs – 1094 lbs	.85 oz.-1.4oz. per sq.ft.
Knot Wires	13 ga.	Low Tensile 72K-95K	438 lbs – 580 lbs	.85 oz.-1.4oz. per sq.ft.

Wire Type	Length	Weight
20/96/6	330'	386 lbs
20/96/6	500'	585 lbs
20/96/12	330'	276 lbs
20/96/12	660'	552 lbs
17/96/6	330'	346 lbs
17/96/6	500'	525 lbs
17/96/12	330'	247 lbs
17/75/6	330'	318 lbs
17/75/12	330'	229 lbs
10/60/6	330'	205 lbs
10/60/12	660'	293 lbs
9/49/12	660'	256 lbs
13/48/6	330'	220 lbs
8/42/12	660'	220 lbs

Order Nomenclature:

The first number indicates the number of horizontal wires, while the second number indicates the height of the fence. The last number is the distance between vertical stays.
 Eg. 20/96/12 is a roll with 20 horizontal wires, is 96" high, with vertical stays 12" apart



FIXED-KNOT fencing is designed

specifically for wildlife and is not a domestic livestock fence being used as a wildlife fence. Here is the ultimate in fencing for all animals, large or small, wild or domestic. FIXED-KNOT, a North American product, gives excellent control for animal containment, exclusion and protection from predators.

FIXED-KNOT Hi-Tensile fencing is the best of its kind. Exceeding Class 3 galvanizing assures three times the life over conventional hinge joint fencing. The combination of Hi-Tensile wire (which provides three times the strength of conventional 12 1/2 ga. Wire) and fixed knot vertical stays allow fence installation using 20' post centers.

FIXED-KNOT vs. Hinge lock

Fixed lock (game fence) has continuous horizontal (line) and vertical (stay) wires, and the wires are fastened together using a fixed lock knot. Hinge lock (farm fence) has continuous horizontal (line) wires and vertical wires that are wrapped between the line wires using a hinge lock. The fixed knot is considerably stronger

