

CT INNOVATIONS

Do Better. Be Better.



TOUGHMesh

Our DNA

With over 130 years of combined electrical and mechanical support systems experience, the CT Innovations leadership team set out to build an agile company that's focused on and dedicated to customers, not shareholders. In our view, great service is not a luxury. It is a necessity that too few deliver.

At CT Innovations, we focus on one thing, and one thing only - our customers' needs. We believe in taking action, being easy to do business with, and being held accountable by those we serve. We are not all things to all people. We will; however, always strive to be our customers' preferred supplier in our space, and to be recognized as a company that consistently provides superior value, service, and innovation.

Company Motto:
“Do Better. Be Better.”



CTI Model

Actions over Buzzwords

Responsiveness

Flexibility

Experience

All too often, suppliers try to make their product fit a bucket with fancy words and charts, delivering little actual value to the customer. At CTI we flipped that script. We started with the customer's needs, and built the product around it.



Project Savings

Product value is often determined by a project's success. Whether its material, installation efficiency, engineering support, product availability, or just the ease of doing business, CT Innovations represents maximum savings.

Innovation

With engineering and field installation at our core, CT Innovations is focused on bringing value back to a stagnate market place. There is buzzword innovation, and there's innovation that actually delivers value.

Market Awareness

With more than 130yrs of electrical and mechanical field experience, CT Innovations has built its reputation by directly engaging with the market to continuously address limitations and proactively provide solutions.

Time Savings

With an ever increasing shortage of skilled workers, time management is more important than ever. From preliminary layouts and BOM building, to procurement and product installation, CTI can provide solutions.

Accountability

While most manufacturers today like to point fingers and avoid ownership, CT Innovations believes in accepting responsibility for one's actions and finding solutions to best service our customers' needs.

Subject Matter Experts

Would you like to talk to a manufacturer with actual experience? With experts skilled in product design, project coordination and field installation, CTI believes educating customers on relevant products and solutions dramatically improves a project's success.



Ensure Your Success

Who is more passionate and motivated to see your project succeed, you and your immediate team or a random supplier's customer service provider? The answer is easy. You care far more than a disconnected entity. Yet in today's electrical and mechanical industry, we are still 100% reliant on the actions and initiative of our suppliers. Let that sink in. Remembering that employee turnover is at an all-time high and skilled labor is at an all-time low, how do you de-risk your project schedules with items outside your control?

At CTI we want to empower our customers by providing the essential tools needed to be successful and self-sufficient. That is why we have and will continue to invest heavily in providing an easy-to-use, fully integrated e-commerce platform. These online interfaces provide important features such as resource dashboards, secure messaging, shipment notifications, and other self-service tools at your fingertips. Our priority is the customer and customers require a better class of service, with timely, accurate, and easy-to-access information.



▶ **Web Based Portals**

A streamlined and convenient way to access information, products, and services. By providing a centralized online platform, web portals enable our customers to easily find and access relevant information and resources, such as account details, product catalogs, support materials, and more.



▶ **Instant Tracking**

Stay informed about the status and whereabouts of shipments in real-time. This technology provides the status, location, expected delivery date & time, and any potential delays or issues that may arise during the order process. Increased visibility provides our customers greater control and peace of mind, knowing that they are always in the loop.



▶ **Automated Documentation**

Eliminate the need to navigate numerous web pages and call multiple different people to retrieve project documentation. With 24/7 availability, CTI customers can access the resources and information they need at any time, without having to wait for support staff to be available.



▶ **Simplified Transactions**

Our customers now have the ability to easily and intuitively build out or upload a project BOM and submit it for quote. Build with peace of mind as CTI put safeguards and checks in place to ensure the accuracy of your BOMs. In addition, every line item on a RFQ will generate a submittal or cutsheet for individual or bulk download.



CT INNOVATIONS





Experience That Applies

Staying ahead of the competition requires more than just a product or service – it demands a partnership with a company that embodies responsiveness and experience. At CT Innovations, we take pride in being your trusted ally in achieving unparalleled success. Experience the difference with CT Innovations:

- 1. Real-Time Solutions:** In a world where market dynamics change at the speed of light, responsiveness is key. Our team is always ready to adapt and provide swift solutions to your challenges. Whether it's a last-minute change in project scope or a sudden market shift, we're here to keep you one step ahead.
- 2. Proven Expertise:** Experience isn't just about the number of years in business; it's about the depth of knowledge gained over time. With over 130 years of industry experience, we have honed our skills, mastered industry trends, and amassed a wealth of knowledge to serve you better. Our seasoned professionals bring unparalleled expertise to every project, to ensure superior outcomes.
- 3. Reliable Support:** When you choose CT Innovations, you gain a partner who is committed to your success. Our track record of reliability and consistency speaks volumes. Count on CTI to meet deadlines, exceed expectations, and provide dependable support every step of the way.
- 4. Risk Mitigation:** Experience equips the CTI team to foresee potential risks and develop strategies to mitigate them. By partnering with CT Innovations, you're investing in proactive risk management, reducing costly setbacks, and ensuring a smoother journey toward your project goals.
- 5. Customized Solutions:** Responsiveness doesn't mean one-size-fits-all solutions. We understand that each client has unique needs. Our team listens intently to your specific requirements and tailors solutions to fit your business. Your success is our top priority, and we leave no stone unturned in crafting bespoke strategies for you.
- 6. Industry Connections:** Over the years, we've built a robust network of industry connections and collaborations. This network provides CTI with valuable resources and insights that we pass on to you. By working with us, you gain access to a world of opportunities and partnerships that can drive your business forward.
- 7. Future-Proofing:** With a responsive and experienced partner like CTI, you can future-proof your business. CTI continuously adapts to emerging trends and technologies, ensuring that your business strategies remain relevant, competitive, and profitable.




Engineering Services:

Optimization Delivered

Engineering Services is a highly experienced group of engineers dedicated to better servicing our customer's needs and providing turnkey solutions. With extensive backgrounds in electrical, structural, and mechanical engineering, this globally integrated team is ready to help deliver projects on schedule and to budget.




Discover Massive Savings with CTI's TSS Calculator




TOUGH SUPPORT SAVINGS

- #### 1. Improve Critical Path Schedules




2,295 Hours Saved

✓ Condense project duration, and enhances the ability to meet deadlines by identifying and prioritizing the design & installation tasks that directly influence project completion time.
- #### 2. Reduce Construction Complexity






308.4K Pieces Removed

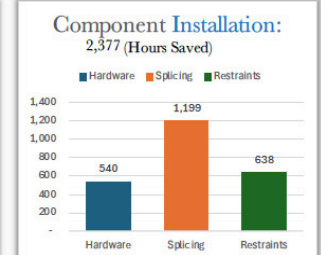
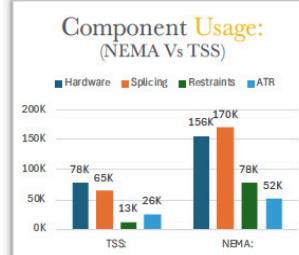
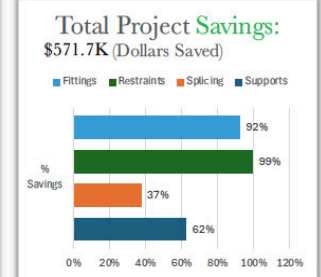
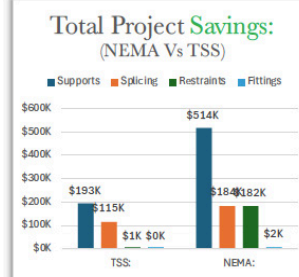
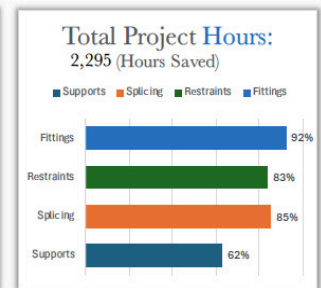
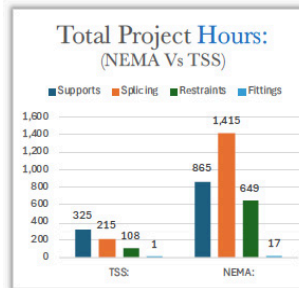
✓ Minimize the potential for errors, facilitate better resource allocation, and increase project manageability by drastically
- #### 3. Minimize Project Expenditures



\$571.7K Dollars Saved

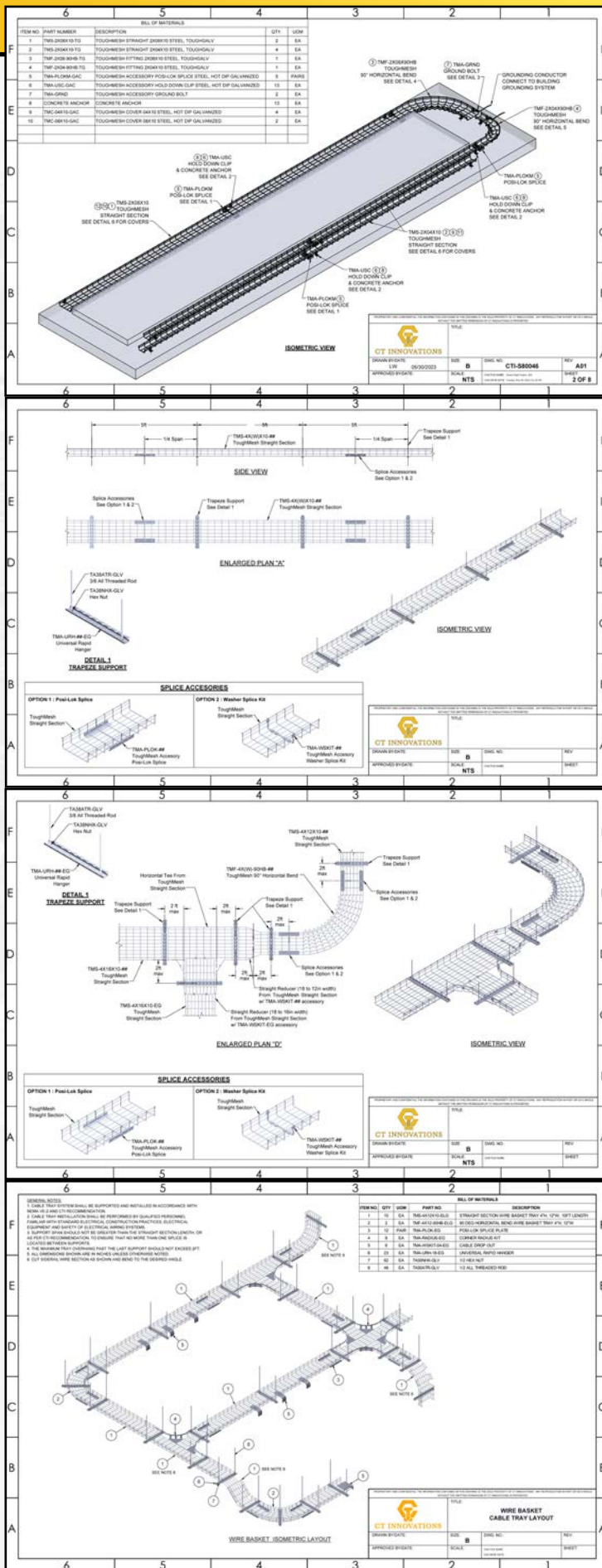
✓ Maximize profitability, resource utilization, and enhance the project's resilience against unforeseen challenges or budget constraints through material and labor management.



Services Available:

- Dynamic Load Calculations
- Static Load Calculations
- Support Optimization
- Shop Drawings
- Installation Details
- BOM Take-Offs
- Plan Drawings
- PE Stamps
- Cable Tray Layout
- Trayfill Calculation
- Specification Review
- Site Support
- 3D Model Generation
- Pipe Rack Design
- HVAC Rack Design
- MEP Rack Design
- ETO Product Design
- Seismic & NF Certification
- NEMA Certification
- IEC Certification
- UL Certification
- Pull & Slip Tests
- Salt Spray Tests
- Wind Certification





Minimize Risk
MAXIMIZE
Profitability

TOUGH

SUPPORT SAVINGS

Support Structure & Design

- Longer Support Spans
- Self Supporting Fittings
- Reduce Support Clashing
- Minimize Materials
- Design Services

Installers & Construction

- Tool-Less Splice Plates
- Pre-made Fittings
- 70% Less Hardware
- 50% Less Supports
- 100% Less Tray Clamps

Value & Simplicity

TOUGH Support Savings represents CTI's project optimization recommendations. Derived from years of working alongside end users, EPC's, engineers, distribution, and cable tray installers, CTI set out to create customer value from customer feedback. These manufacturer recommendations are fully compliant with NEMA VE 2 guidelines and supersede industry standard practices. Rest assured that each recommendation underwent extensive application testing to validate product longevity and project practicality.

Project Optimization

- Engineering Resources
- Design Hours
- Logistic Costs
- Material Handling
- Construction Schedule
- Site Resources
- Project Schedule
- Raw Material Content



ElectroGalvanized



Painted



HotDipGalvanized



304 Stainless







TOUGHGalv



316 Stainless

Inspection & Review

-  : No 3rd Party Delays
-  : No Touchups Required
-  : Eliminate Zn Whiskers
-  : 40yr Offshore Lifespan
- Automated Consistency

Procurement & Expediting

- Estimate Quicker
- Quantify LessBuy Less
- Ship & Expedite Less
- Coordinate & Manage Less
- Instant Project Tracking



TOUGHMesh:

Differentiate

Wirebasket re-imagined: With decades of commercial and industrial basket experience, CT Innovations compiled the major shortcomings of the product range and developed a full line of solutions to drive usable innovation resulting in actual project savings. Often viewed as a commodity, CT Innovations put forth the effort to give designers and installers critical stand alone benefits and solutions not seen in the industrial, institutional, and data construction segments.



TIM

Key Benefits

- Reduce Supports & Anchors
- Reduce Labor & Inconsistencies
- Save Time With Tool-less Accessories
- Maximum Site Adaptability
- Reduce Field Cutting & Maximize Safety
- Superior Finish Options

TOUGHMesh Standards

Underwriters Laboratories (UL)

CT Innovations cable tray systems are UL Classified for use as an equipment grounding conductor as denoted by the UL logo on the label below. CTI product labels are supplied affixed to every straight section and fitting.

When a separate grounding cable wire is installed with the cable tray system; the tray is not required to be UL Classified.

A cable tray system meeting the requirements of NEMA VE 1 Section 5.1 may provide adequate safe electrical performance. Consult CT Innovations for product recommendations on the correct methods of bonding and grounding our cable tray systems to NFPA 70 (NEC).

NFPA 70 : National Electrical Code (NEC)

CT Innovations cable tray systems comply with the requirements of NFPA 70. Cable tray systems have been tested to Section 318-3(c) as suitable use as and electrical equipment grounding conductor (E.G.C.)

NEMA VE 1 : Testing & Certification

CT Innovations cable tray systems are manufactured, tested, and certified in accordance with and compliance to industry standard NEMA VE-1.

Our published cable tray design loads are based upon testing in compliance with NEMA VE 1, Section 5.2 Load Testing, loading to destruction and include the specified 1.5 factor of safety.

Ladder tray rungs are tested to NEMA VE 1, Section 5.4 Rung Load Capacity. Although this test is optional, CT Innovations believes it important to verify the performance of the rung to ensure the safe and reliable restraint of the cables. CT Innovations has load tested both faces of the rung to ensure superior performance when installed horizontally and vertically.

Link Connectors and other connecting plates are tested for electrical continuity in compliance with NEMA VE 1 Section 4.7 Bonding and Section 5.1 Electrical Continuity of Connections. Measured resistance is across the joint is less than 0.00033W meeting specified NEMA VE 1 electrical continuity performance.



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TMS-4X12X10-TG

Span (ft):	Load (lbs/ft):
5	107.9



WARNING

DO NOT USE AS A WALKWAY, LADDER OR SUPPORT FOR PERSONNEL. USE ONLY AS A MECHANICAL SUPPORT FOR CABLES, TUBING, AND RACEWAYS.

Min Area: 1.68

Finish: TOUGHGalv

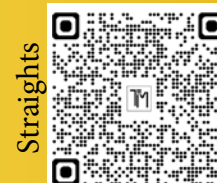
Note: All cables installed in this support product shall be in compliance with NEC regulations.



NMX-J-511-ANCE-2011

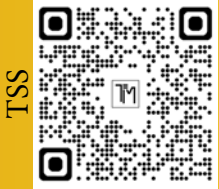
Please contact your local rep with any questions or concerns about this product.

Product Data Sheets:



TOUGHMesh Properties

Design Recommendations:



TOUGH Support Savings (TSS) represents the most optimal blueprint for tray installation & design ensuring you get the most out of our product.



Optimize your next project: The TSS Calculator breaks down the CTI advantage around material savings, complexity reduction, and the removal of labor hours.

Finish Information:



- Electroplated zinc finish applied after fabrication
- Recommended Application: Indoor
- ASTM B633



- Stainless steel 304 finish applied before fabrication
- Recommended Application: Indoor / outdoor / industrial / offshore
- ASTM: A580/A580M



- Painted finish applied after fabrication
- Recommended Application: Indoor
- ASTM: N/A
- Provide RAL # for specific colors



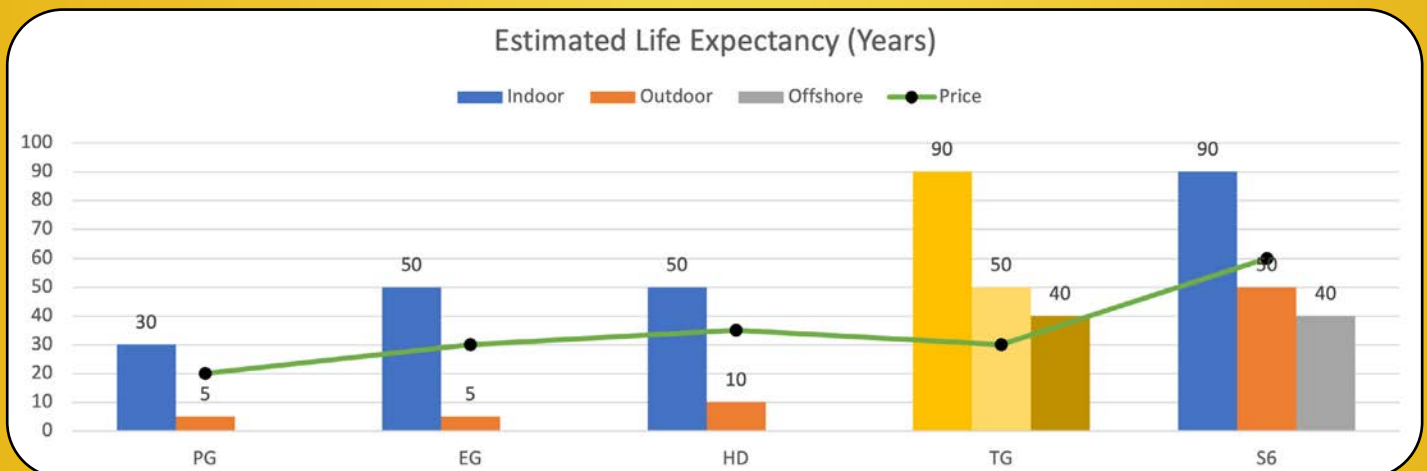
- TOUGHGalv finish applied before fabrication
- Recommended Application: Indoor / outdoor / industrial / offshore
- ASTM B997



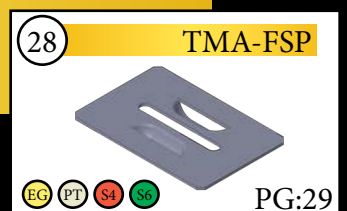
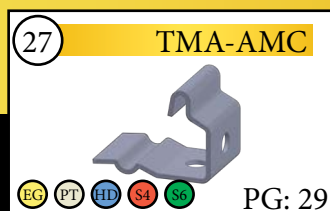
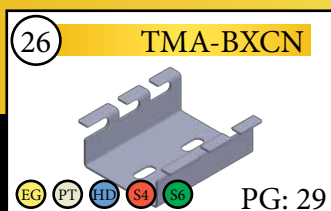
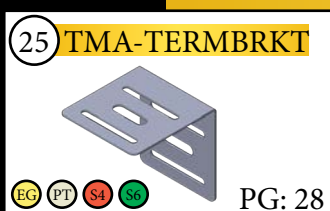
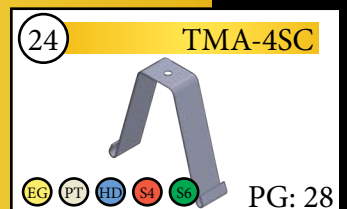
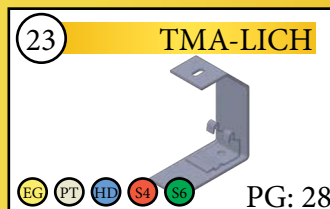
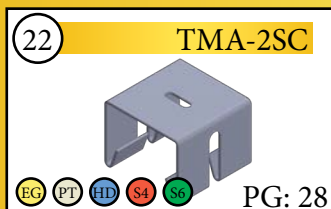
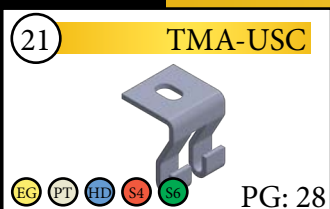
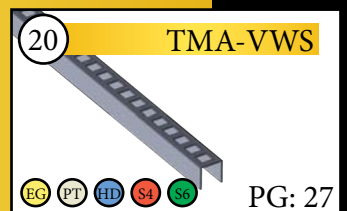
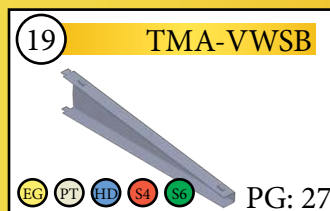
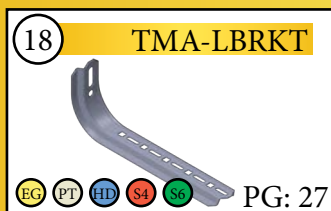
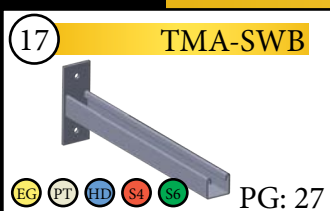
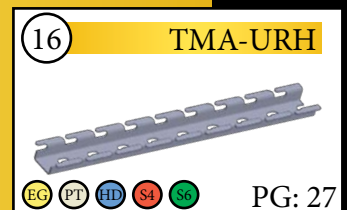
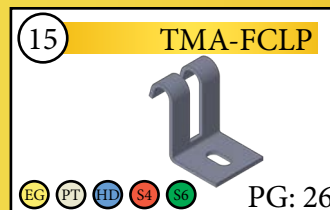
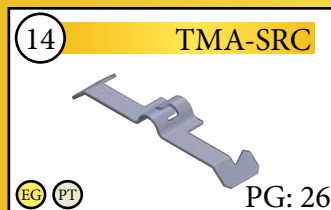
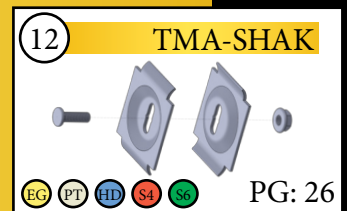
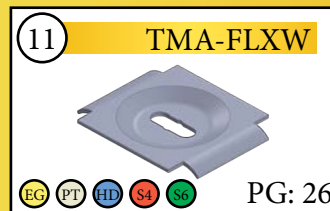
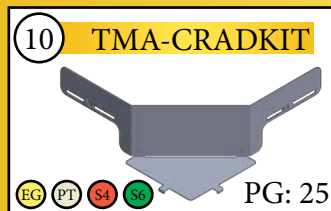
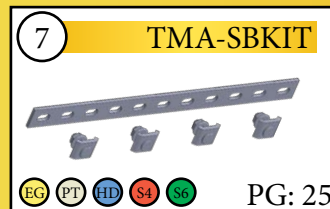
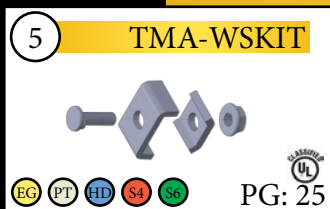
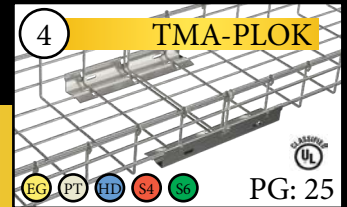
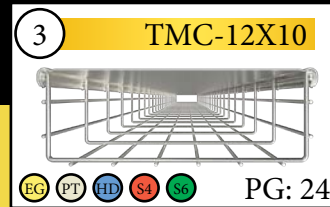
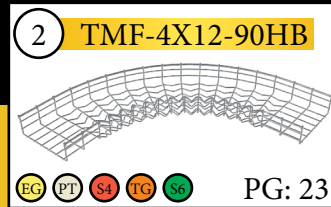
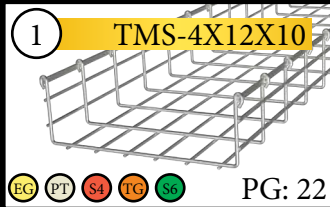
- Hot Dip Galvanized finish applied after fabrication
- Recommended Application: Indoor / outdoor / industrial
- ASTM: A123



- Stainless steel 316 finish applied before fabrication
- Recommended Application: Indoor / outdoor / industrial / offshore
- ASTM: A580/A580M



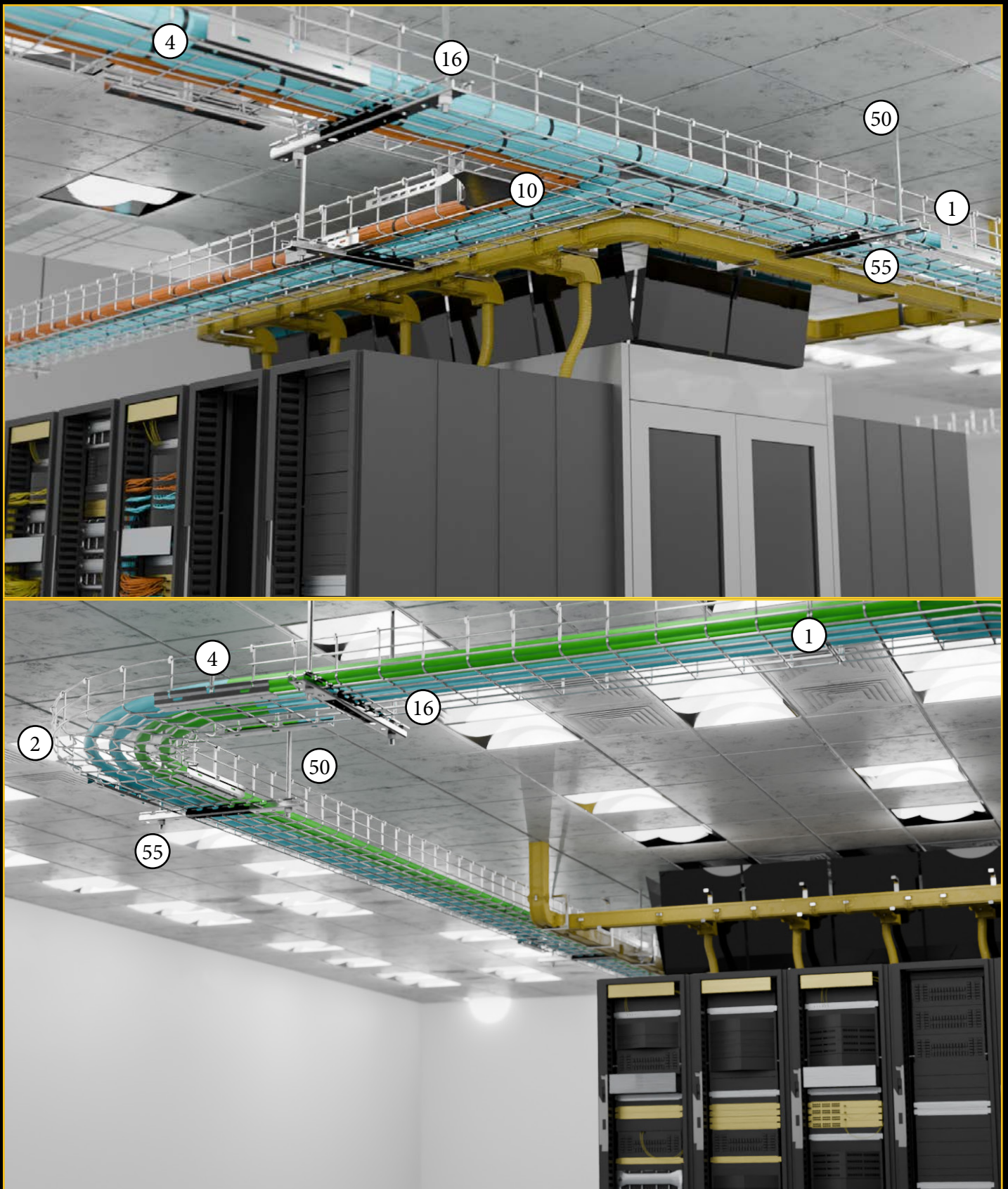
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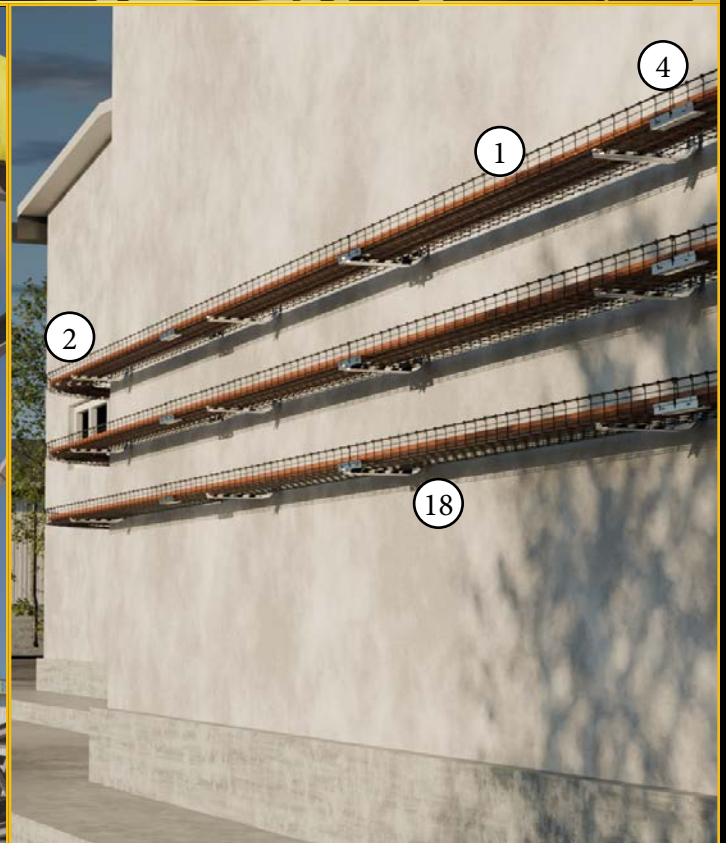
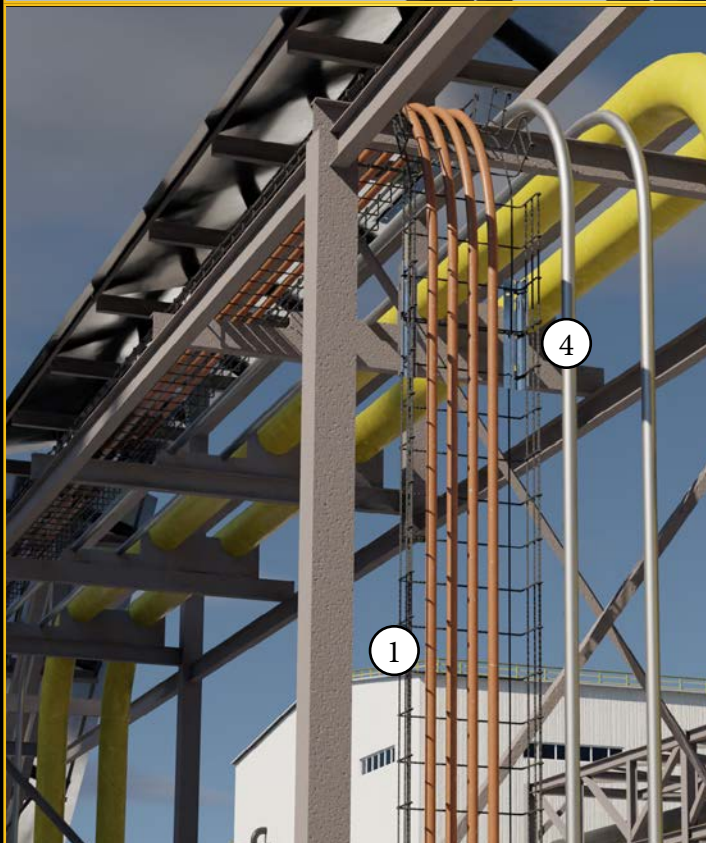
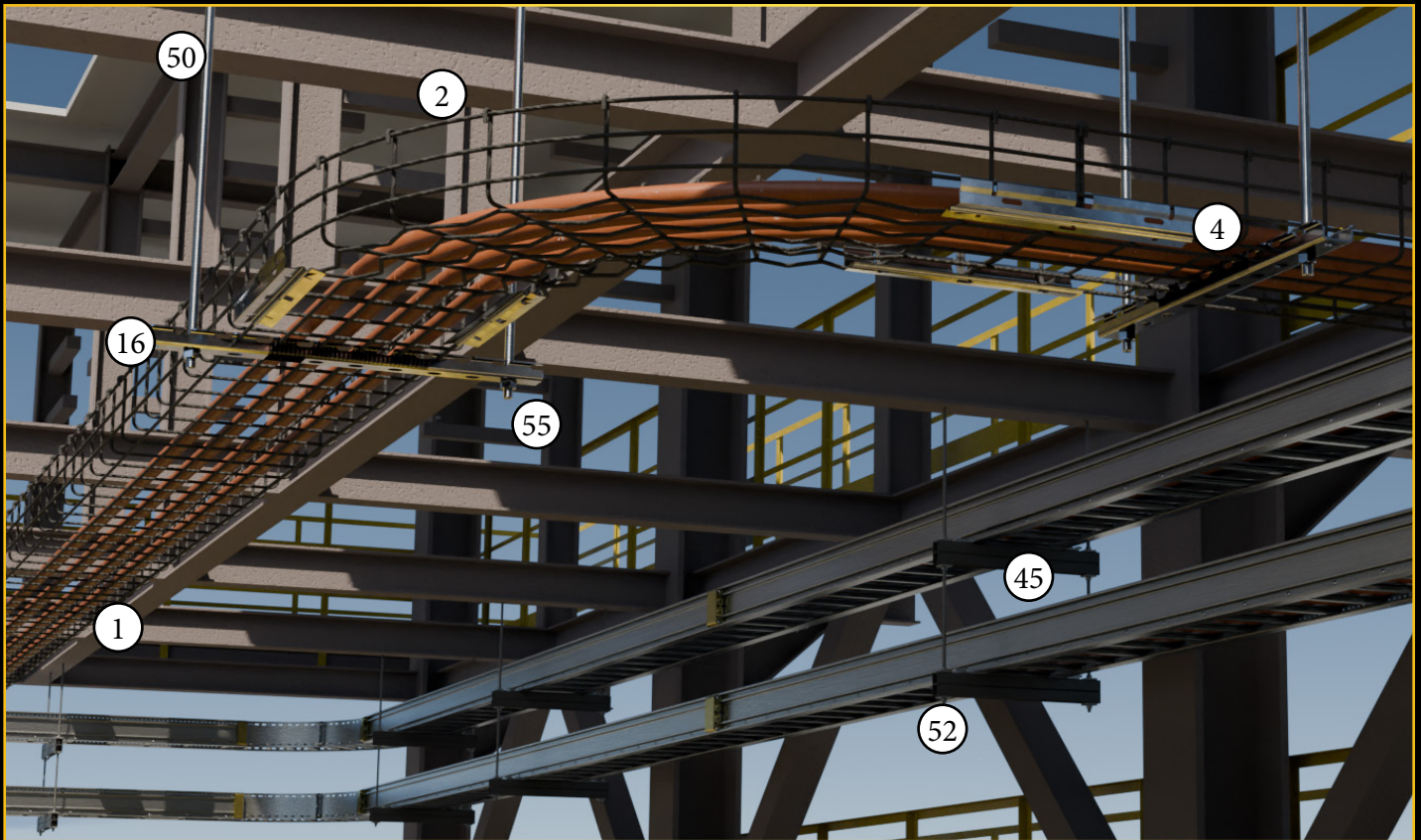
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Application: Data Center



Application: Energy



Finish Recommendation

Know Your Environment

EG

ElectroGalvanized

PT

Painted

HD

HotDipGalvanized

S4

304 Stainless

TG

TOUGHGalv

S6

316 Stainless



Indoor



Outdoor



Solar



Industrial



Offshore

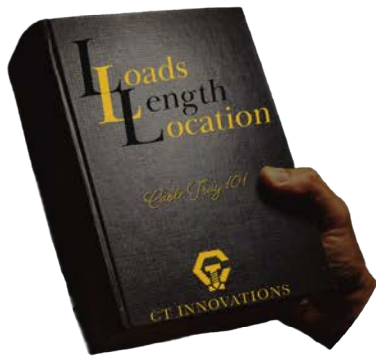


Food & Bev

	Indoor	Outdoor	Solar	Industrial	Offshore	Food & Bev
EG						
PT						
HD						
S4						
TG						
S6						

Tray Selection

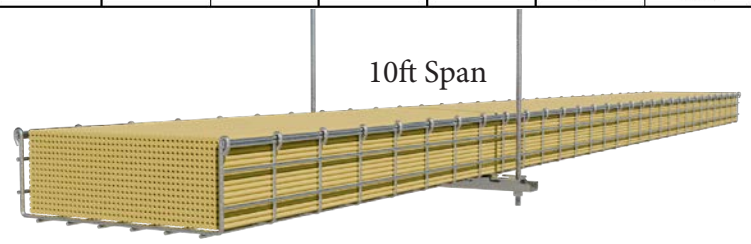
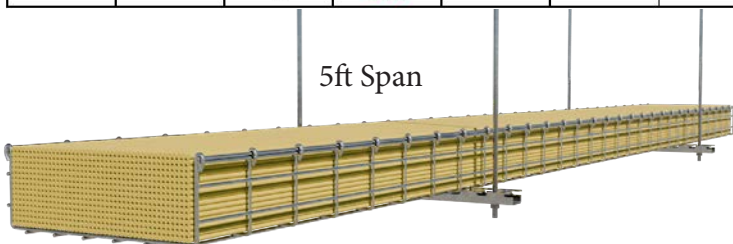
Know Your Loads



LOAD of cables (lbs/ft)	20-100 A=50 B=75 C=100	50-150 A=50 B=75 C=100 C+=145
LENGTH of support span (ft)	5-10 STANDARD 10FT LENGTHS	10-20 STANDARD 10FT & 12FT & 20FT LENGTHS
LOCATION of product (environment)		
FOR MORE INFORMATION		

*NEC article 392 states that tray cable shall not break the top plane of the cable tray system. The example below illustrates a 4x12 mesh system completely filled with CAT 6 cable on a 5ft span and a 10ft span. CTI has engineered and tested a more rigid system to span up to 10ft, reducing support quantity up to 50%.

Tray Size	Tray Run (ft)	Tray Support Span (ft)	Supports Required (#)	Tray Fill Area (In ²)	Cat 6 Outside Diameter (in)	Cat 6 X-Sectional Area (In ²)	Cat 6 Weight (lbs/ft)	Cable QTY @ 100% fill (#)	Cable load @ 100% fill (lbs/ft)	NEC 50% fill QTY (#)	NEC 50% fill load (lbs/ft)	max design load @ span (lbs/ft)	max design QTY @ span (#)
4x12 ToughMesh	1000	5	200	48	0.230	0.042	0.026	1155	30	578	15	108	4154
		10	100									30	1154



TOUGHMesh: Straights

NEMA: 5A, 5B, & 5C



ElectroGalvanized



Painted



HotDipGalvanized



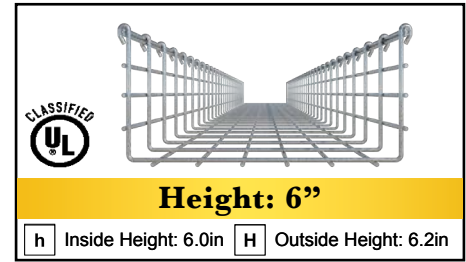
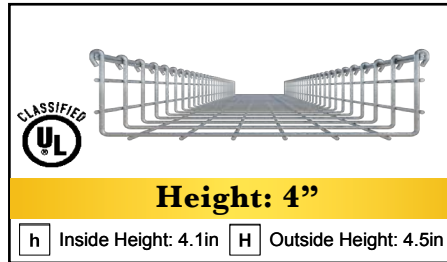
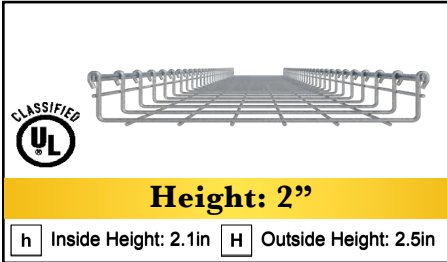
304 Stainless



TOUGHGalv



316 Stainless



Submittals



TMS-4X12X10-TG

Product Series & Type
 TMS = TOUGHMesh Straight

Height
 2 = 2"
 4 = 4"
 6 = 6"

Inside Width
 02 = 2" 16 = 16"
 04 = 4" 18 = 18"
 06 = 6" 20 = 20"
 08 = 8" 24 = 24"
 10 = 10" 30 = 30"*
 12 = 12" 36 = 36"*

Length
 10 = 10'

Finish

*Please contact CTI for special requests
 **Not UL Classified as EGC

Basket Size H X W	Load (lbs/ft) 5ft	Load (lbs/ft) 10ft	Reccomended Splices			Est. Cable Fill QTY (50% fill)		Nominal Area (in ²) Inside Basket	Physical Weight (lbs)	
			Washer Splice Kits	Posi-Lok Mini	Posi-Lok	CAT 6 (.25in)	CAT 6A (.28in)		10ft sections	
2X2 **	15	11	2			40	32	4		4.5
2X4 **	18	18	2	2		81	64	8		6.7
2X6	24	14	2	2		122	97	12		7.5
2X8	31	13	3	2		163	129	16		8.7
2X10	46	18	3	2		203	162	20		10.6
2X12	55	17	3		2	244	194	24		12.8
2X16	117	31	4		2	326	259	32		19.3
2X18	117	33	4		2	366	292	36		19.7
2X20	123	36	4		2	407	324	40		24.8
2X24	132	37	4		2	489	389	48		27.8
4X4	62	15	4	2		163	129	16		8.7
4X6	66	18	4	2		244	194	24		10.5
4X8	78	18	5	2		326	259	32		12.8
4X10	78	18	5	2		407	324	40		18.4
4X12	108	30	6		2	489	389	48		19.3
4X16	123	36	6		2	652	519	64		24.8
4X18	127	37	6		2	733	584	72		25.7
4X20	137	38	7		2	815	649	80		27.8
4X24	145	40	7		2	978	779	96		28.4
6X8	62	29	6	2		489	389	48		19.3
6X10	62	36	6	2		611	487	60		23.8
6X12	117	36	7		2	733	584	72		24.8
6X16	133	38	7		2	978	779	96		27.8
6X18	144	37	7		2	1100	877	108		29.3
6X20	146	36	8		2	1222	974	120		30.9
6X24	148	37	8		2	1467	1169	144		35.2

TOUGHMesh: C2G Fittings

Pre-Formed Radiused Fittings



ElectroGalvanized



Painted



HotDipGalvanized



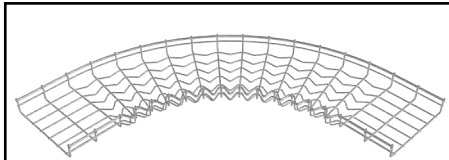
304 Stainless



TOUGHGalv

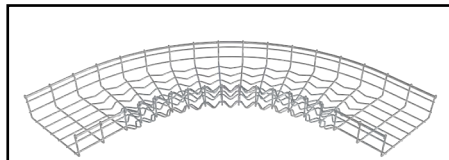


316 Stainless



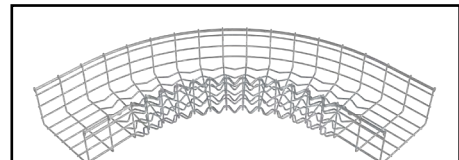
Height: 2"

h Inside Height: 2.1in H Outside Height: 2.5in



Height: 4"

h Inside Height: 4.1in H Outside Height: 4.5in



Height: 6"

h Inside Height: 6.0in H Outside Height: 6.2in

P.D.S.



TMF-4X12-90HB-TG



Product Series & Type
TMF = TOUGHMesh Fitting

Height
2 = 2"
4 = 4"
6 = 6"

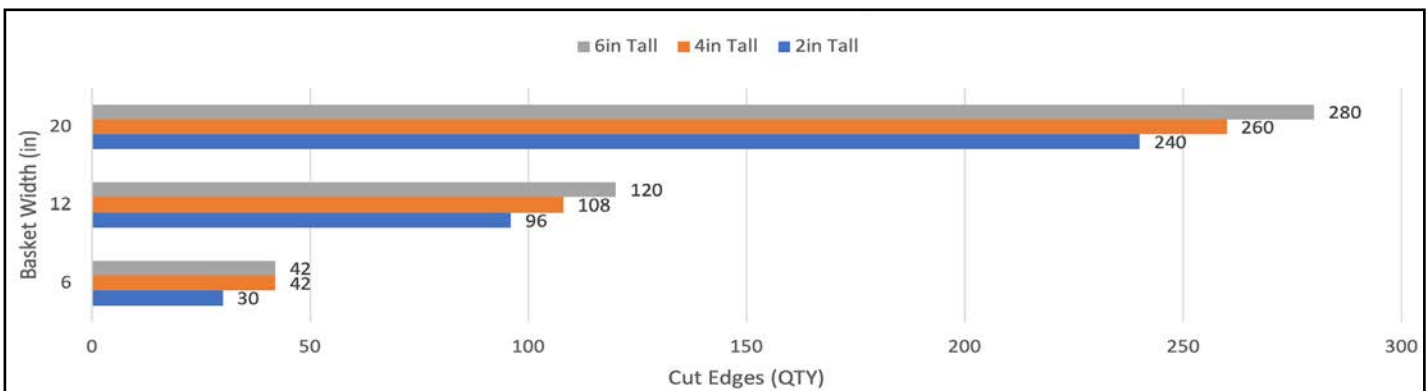
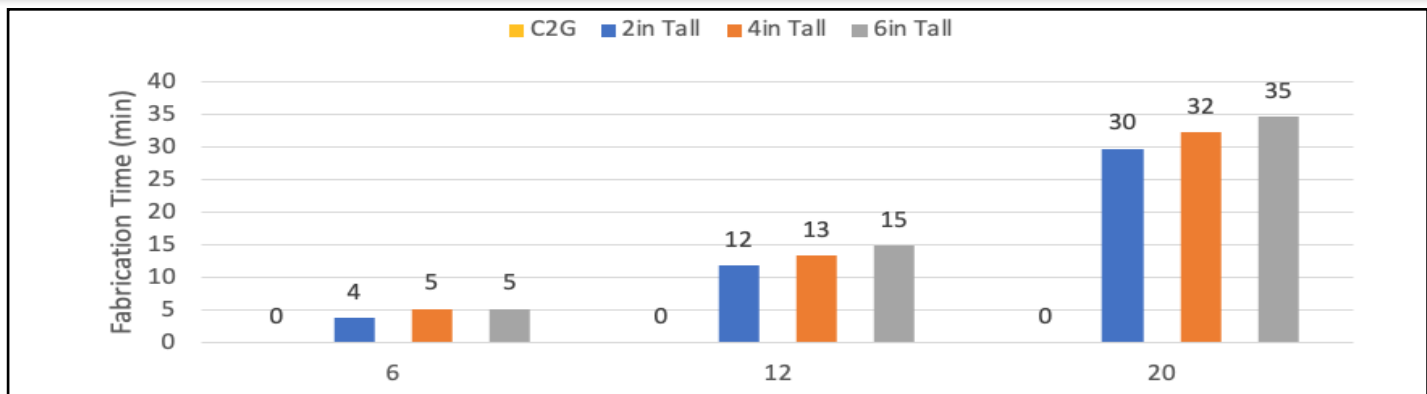
Inside Width
02 = 2" 12 = 12"
04 = 4" 16 = 16"
06 = 6" 18 = 18"
08 = 8" 20 = 20"
10 = 10"

Angle
45 = 45°
90 = 90°

Style
HB = Horz Bend

Finish
EG TG
PT S6
S4

*Please contact CTI for special requests



SPEED

SAFETY

TOUGHMesh: Covers

Snap-On



ElectroGalvanized



Painted



HotDipGalvanized



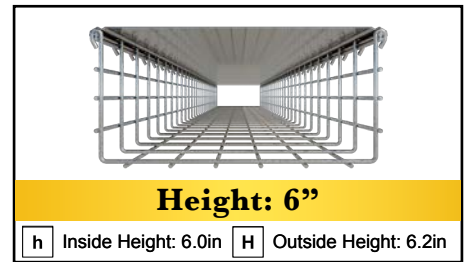
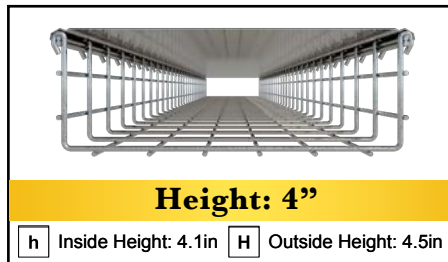
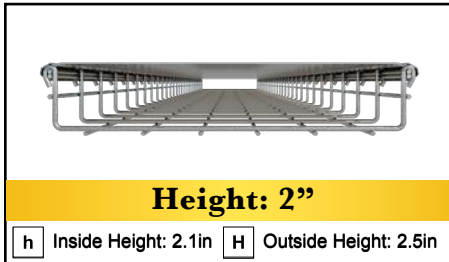
304 Stainless



TOUGHGalv



316 Stainless



TMC-12X10-EG

Submittals



Product Series & Type
TMC = TOUGHMesh Cover

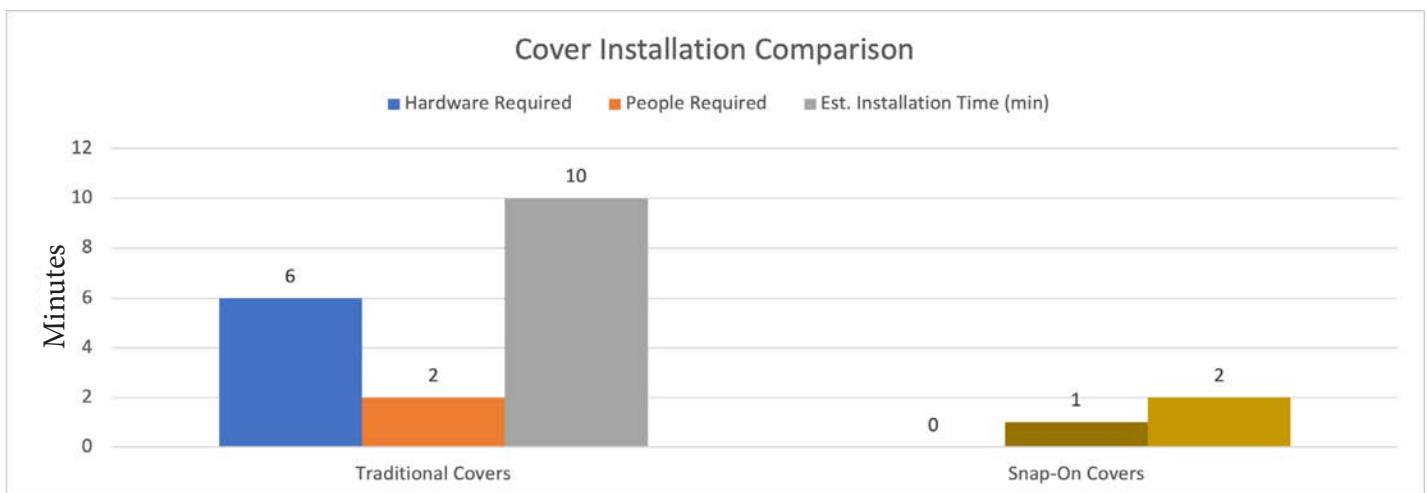
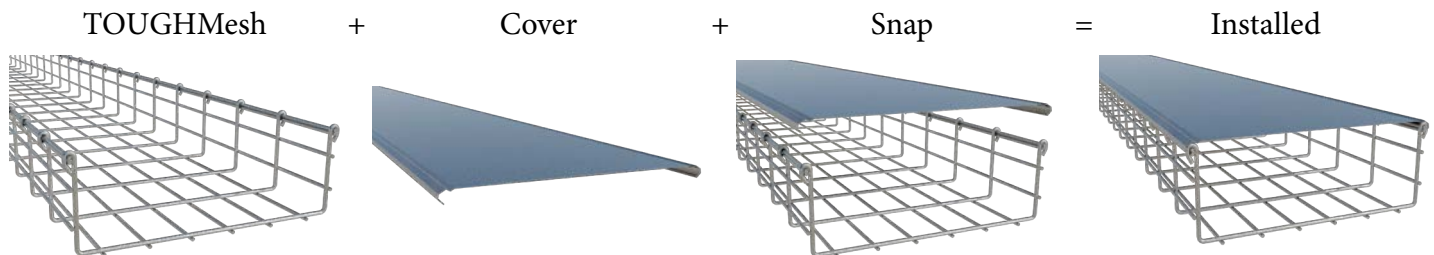
Inside Width
02 = 2" 12 = 12"
04 = 4" 16 = 16"
06 = 6" 18 = 18"
08 = 8" 20 = 20"
10 = 10" 24 = 24"

Length
10 = 10'

Finish
EG S4
PT S6



*Please contact CTI for special requests
**Not recommended for high impact






*Times may vary based on experience and conditions



TOUGHMesh: Accessories

Splices & Kits



POSI-LOK SPLICE PLATES

(EG) (HD) (S4) (S6) (PT)	PLOK	PLOKM	<p>Used to quickly fix mesh sections together without tools</p> <p>Type: Splicing Furnished: Pairs Material: Steel Hardware Size: N/A Hardware Finish: N/A</p> 	Catalog Number	Widths
				TMA-PLOK-(F)	12in - 36in
	X2	X2		TMA-PLOKM-(F)	4in - 10in
				(F) Insert finish: EG, HD, S4, S6, PT	
				Example: TMA-PLOK-EG	

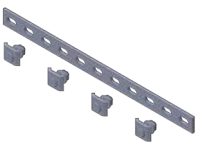

WASHER SPLICE KITS

(EG) (HD) (S4) (S6) (PT)		X50	<p>Used to fix mesh sections together at union locations</p> <p>Type: Splicing Furnished: Bag 50 Material: Steel Hardware Size: 6mm Hardware Finish: ZN or SS</p> 	Catalog Number	Widths
				TMA-WSKIT-(F)	ALL
				Example: TMA-WSKIT-EG	
				(F) Insert finish: EG, HD, S4, S6, PT	



HOLD DOWN KITS

(EG) (HD) (S4) (S6) (PT)		X50	<p>Used to restrain accessories and components to mesh system</p> <p>Type: Splicing Furnished: Bag 50 Material: Steel Hardware Size: 6mm Hardware Finish: ZN or SS</p> 	Catalog Number	Widths
				TMA-HDKIT-(F)	ALL
				Example: TMA-HDKIT-EG	
				(F) Insert finish: EG, HD, S4, S6, PT	

SPLICE BAR KITS

(EG) (HD) (S4) (S6) (PT)	SBKIT	EXSBKIT	<p>Used to connect tray sections in need of extra cable load & expansion</p> <p>Type: Splicing Furnished: Pair Material: Steel Hardware Size: HDKIT Not Included Hardware Finish: ZN or SS</p>	Catalog Number	Widths
				TMA-SBKIT-(F)	ALL
	X2	X2		TMA-EXSBKIT-(F)	ALL
				(F) Insert finish: EG, HD, S4, S6, PT	
				Example: TMA-SBKIT-EG	

CORNER KITS (HT'S & HX'S)

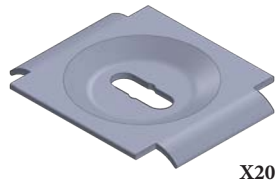
(EG) (S4) (S6) (PT)	CSBKIT	CRADKIT	<p>Used to connect tray sections in need of extra cable load & expansion</p> <p>Type: Splicing Furnished: Pair Material: Steel Hardware Size: HDKIT Not Included Hardware Finish: ZN or SS</p>	Catalog Number	Widths
				TMA-CSBKIT-(F)	ALL
	X2	X2		TMA-CRADKIT-(H)-(F)	ALL
				(H) Insert Height: 2,4,6	
				(F) Insert finish: EG, S4, S6, PT	
		Example: TMA-CSBKIT-EG			

TOUGHMesh: Accessories

Guides & Clamps

FLAT CROSS WASHER

- EG
- HD
- S4
- S6
- PT



Used to secure mesh system to support or directly to ATR

Type: Clamps & Guides
Furnished: Bag 20
Material: Steel
Hardware Size: N/A
Hardware Finish: N/A

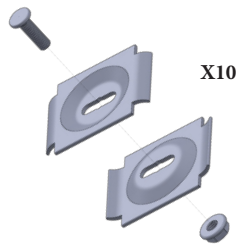
Catalog Number	Widths
TMA-FLXW-(F)	ALL

Example: *TMA-FLXW-EG*

(F) Insert finish: EG, HD, S4, S6, PT

HORIZONTAL ADJUSTABLE

- EG
- HD
- S4
- S6
- PT



Used to fix mesh sections together while allowing horizontal flexibility

Type: Clamp & Guides
Furnished: Bag 10
Material: Steel
Hardware Size: 6mm
Hardware Finish: ZN or SS

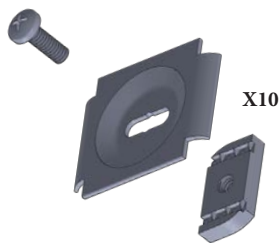
Catalog Number	Widths
TMA-SHAK-(F)	ALL

Example: *TMA-SHAK-EG*

(F) Insert finish: EG, HD, S4, S6, PT

MESH TO STRUT KITS

- EG
- HD
- S4
- S6
- PT



Used to restrain mesh system directly to strut, ideal for vertical applications

Type: Clamps & Guides
Furnished: Bag 10
Material: Steel
Hardware Size: 6mm
Hardware Finish: ZN or SS

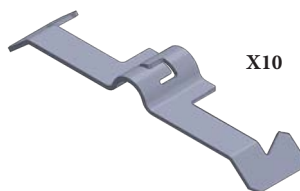
Catalog Number	Widths
TMA-WLKIT-(F)	ALL

Example: *TMA-WLKIT-EG*

(F) Insert finish: EG, HD, S4, S6, PT

STRUT RETENTION CLIP

- EG
- PT



Used to restrain mesh system to strut without tools

Type: Clamps & Guides
Furnished: Bag 10
Material: Steel
Hardware Size: N/A
Hardware Finish: N/A



Catalog Number	Widths
TMA-SRC-(F)	4" - 24"

Example: *TMA-SRC-EG*

(F) Insert finish: EG, PT

FLOOR CLIP

- EG
- HD
- S4
- S6
- PT



Used to restrain mesh system directly to a surface

Type: Clamps & Guides
Furnished: Bag 10
Material: Steel
Hardware Size: Accepts 3/8"
Hardware Finish: N/A

Catalog Number	Widths
TMA-FCLP-(F)	ALL

Example: *TMA-FCLP-EG*

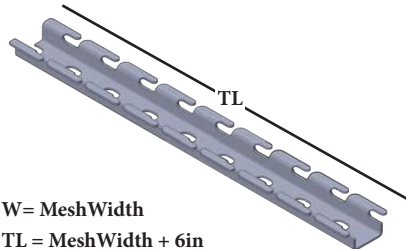
(F) Insert finish: EG, HD, S4, S6, PT

TOUGHMesh: Accessories

Supports & Hangers

UNIVERSAL RAPID HANGER

EG
HD
S4
S6
PT



W = MeshWidth
TL = MeshWidth + 6in

Used to support mesh system without the use of guides & clamps

Type: Supports & Hangers
Furnished: Each
Material: Steel
Hardware Size: Accepts 3/8"
Hardware Finish: N/A

Catalog Number Widths

TMA-URH-(W)-(F) ALL

Example: TMA-URH-12-EG

(W) Insert Mesh Width:

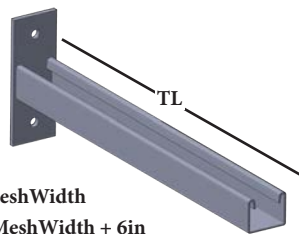
06, 08, 10, 12, 16, 18, 20, 24, 120

(F) Insert finish: EG, HD, S4, S6, PT

*Note: contact CTI for custom widths

STRUT WALL BRACKET

EG
HD
S4
S6
PT



W = MeshWidth
TL = MeshWidth + 6in

Used to support mesh systems from vertical structure

Type: Supports & Hangers
Furnished: Each
Material: Steel
Hardware Size: Accepts 3/8"
Hardware Finish: N/A

Catalog Number Widths

TMA-SWB-(W)-(F) ALL

Example: TMA-SWB-12-EG

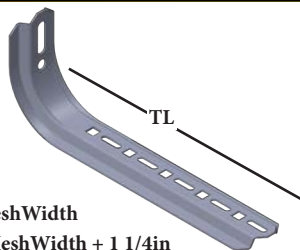
(W) Insert Mesh Width:

06, 08, 10, 12, 16, 18, 20, 24

(F) Insert finish: EG, HD, S4, S6, PT

L BRACKET

EG
HD
S4
S6
PT



W = MeshWidth
TL = MeshWidth + 1 1/4in

Used to restrain mesh system directly to strut; ideal for vertical applications

Type: Supports & Hangers
Furnished: Each
Material: Steel
Hardware Size: **HDKIT Not Included**
Hardware Finish: N/A

Catalog Number Widths

TMA-LBRKT-(W)-(F) ALL

Example: TMA-LBRKT-12-EG

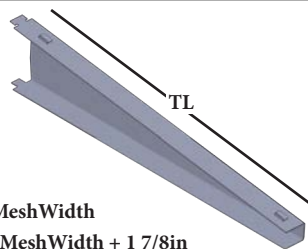
(W) Insert Mesh Width:

06, 08, 10, 12, 16, 18, 20, 24

(F) Insert finish: EG, HD, S4, S6, PT

VERTICAL WALL SUPPORT BRACKET

EG
HD
S4
S6
PT



W = MeshWidth
TL = MeshWidth + 1 7/8in

Used to restrain mesh system to strut without tools

Type: Supports & Hangers
Furnished: Each
Material: Steel
Hardware Size: N/A
Hardware Finish: N/A

Catalog Number Widths

TMA-VWSB-(W)-(F) ALL

Example: TMA-VWSB-12-EG

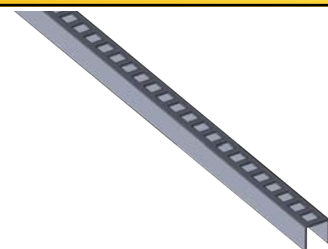
(W) Insert Mesh Width:

06, 08, 10, 12, 16, 18, 20, 24

(F) Insert finish: EG, HD, S4, S6, PT

VERTICAL WALL SUPPORT STANDARD

EG
HD
S4
S6
PT



Used to anchor VWSB to structure for multi-layered installations

Type: Supports & Hangers
Furnished: Each (10ft long)
Material: Steel
Hardware Size: N/A
Hardware Finish: N/A

Catalog Number Widths

TMA-VWS-(F) ALL

Example: TMA-VWS-EG



(F) Insert finish: EG, HD, S4, S6, PT

*Note: contact CTI for custom lengths


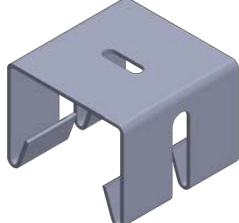
TOUGHMesh: Accessories

Supports & Hangers


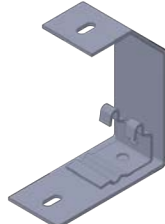
UNIVERSAL SUSPENSION CLIP

		<p>Used to quickly suspend mesh system from ATR</p> <p>Type: Supports & Hangers Furnished: Bag 10 Material: Steel Hardware Size: Accepts 3/8" Hardware Finish: N/A</p>	<p>Catalog Number Widths</p>
			<p>TMA-USC-(F) ALL</p>
			<p>Example: <i>TMA-USC-EG</i></p>
			<p>(F) Insert finish: EG, HD, S4, S6, PT</p>
			<p>*Note: to be used in pairs</p>



2" SUSPENSION CLIP

		<p>Used to hang 2in wire mesh systems from ATR</p> <p>Type: Clamp & Guides Furnished: Bag 10 Material: Steel Hardware Size: Accepts 1/4" Hardware Finish: N/A</p>	<p>Catalog Number Widths</p>
			<p>TMA-2SC-(F) 2"</p>
			<p>Example: <i>TMA-2SC-EG</i></p>
			<p>(F) Insert finish: EG, HD, S4, S6, PT</p>


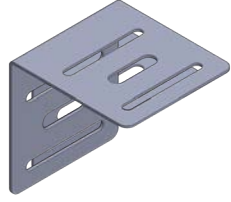
2" LAY IN CABLE HANGER

		<p>Used to hang 2in - 6in wire mesh system with snap in clip hanger</p> <p>Type: Supports & Hangers Furnished: Each Material: Steel Hardware Size: Accepts 1/4" Hardware Finish: N/A</p>	<p>Catalog Number Widths</p>
			<p>TMA-LICH-(F) 2" - 6"</p>
			<p>Example: <i>TMA-LICH-EG</i></p>
			<p>(F) Insert finish: EG, HD, S4, S6, PT</p>

4" SUSPENSION CLIP

		<p>Used to hang 4in wire mesh systems from ATR</p> <p>Type: Clamps & Guides Furnished: Each Material: Steel Hardware Size: Accepts 1/4" Hardware Finish: N/A</p>	<p>Catalog Number Widths</p>
			<p>TMA-4SC-(F) 4"</p>
			<p>Example: <i>TMA-4SC-EG</i></p>
			<p>(F) Insert finish: EG, HD, S4, S6, PT</p>

TERMINATION BRACKET

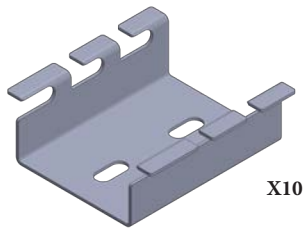
		<p>Used to restrain mesh system directly to a surface</p> <p>Type: Splicing Furnished: Each Material: Steel Hardware Size: HDKIT Not Included Hardware Finish: N/A</p>	<p>Catalog Number Widths</p>
			<p>TMA-TERMBRKT-(F) ALL</p>
			<p>Example: <i>TMA-TERMBRKT-EG</i></p>
			<p>(F) Insert finish: EG, S4, S6, PT</p>

TOUGHMesh: Accessories

Adapters & Drop Outs

BOX CONNECTOR

EG
HD
S4
S6
PT



Used to directly support mesh system or accessories

Type: Adapters
Furnished: Bag 10
Material: Steel
Hardware Size: Accepts 1/4"
Hardware Finish: N/A

Catalog Number	Sizes
TMA-BXCN-(F)	ALL
Example: TMA-BXCN-EG	
(F) Insert finish: EG, HD, S4, S6, PT	

ACCESSORY MOUNTING CLIP

EG
HD
S4
S6
PT



Used to support mesh systems accessories off the side

Type: Adapters
Furnished: Bag 10
Material: Steel
Hardware Size: Accepts 1/4"
Hardware Finish: N/A

Catalog Number	Sizes
TMA-AMC-(F)	ALL
Example: TMA-AMC-EG	
(F) Insert finish: EG, HD, S4, S6, PT	

FIXTURE SUPPORT PLATE

EG
S4
S6
PT



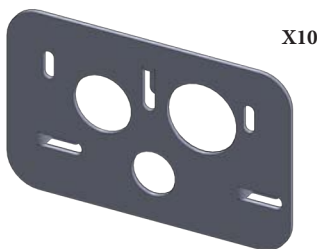
Used to restrain fixtures or hanging products from mesh system

Type: Adapters
Furnished: Bag 10
Material: Steel
Hardware Size: Accepts 1/4"
Hardware Finish: N/A

Catalog Number	Sizes
TMA-FSP-(F)	4" - 24"
Example: TMA-FSP-EG	
(F) Insert finish: EG, S4, S6, PT	

CONDUIT PLATE

EG
S4
S6
PT



Used to restrain conduit to mesh system

Type: Adapters
Furnished: Bag 10
Material: Steel
Hardware Size: **HDKIT Not Included**
Hardware Finish: N/A

Catalog Number	Sizes
TMA-STBU-(F)	ALL
Example: TMA-STBU-EG	
(F) Insert finish: EG, S4, S6, PT	
*Note: Plate fits: 3/4, 1, & 1 1/4 conduit	

DROP OUT

EG
S4
S6
PT



Used to minimize cable stress upon drop out locations

Type: Drop Out
Furnished: Each
Material: Steel
Hardware Size: **HDKIT Not Included**
Hardware Finish: N/A

Catalog Number	Sizes
TMA-CBLD-(W)-(F)	4" - 24"
Example: TMA-CBLD-12-EG	
(W) Insert Mesh Width:	
06, 08, 10, 12, 16, 18, 20, 24	
(F) Insert finish: EG, S4, S6, PT	

TOUGHMesh: Accessories

Inserts & Jhooks

BLIND END

EG

S4

S6

PT



Used to close off end of mesh system run

Type: Inserts
Furnished: Each
Material: Steel
Hardware Size: HDKIT Not Included
Hardware Finish: N/A

Catalog Number	Widths
TMA-BLIND-(H)-(W)-(F)	ALL

Example: *TMA-BLIND-4-12-EG*

(H) Insert Height: 2, 4, 6
(W) Insert Mesh Width:
06, 08, 10, 12, 16, 18, 20, 24
(F) Insert finish: EG, S4, S6, PT

CABLE BARRIER

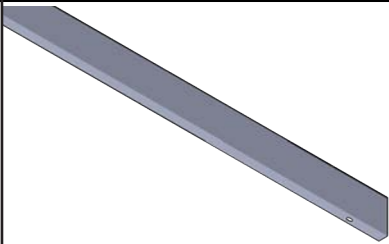
EG

HD

S4

S6

PT



Used to separate or organize cables in a mesh system run

Type: Inserts
Furnished: Each
Material: Steel
Hardware Size: HDKIT Not Included
Hardware Finish: N/A

Catalog Number	Widths
TMA-CBAR-(H)-(F)	ALL

Example: *TMA-CBAR-4-EG*

(H) Insert Height: 2, 4, 6
(F) Insert finish: EG, HD, S4, S6, PT

CABLE BRIDGE

EG

HD

PT



Used to avoid crossing cables directly over other sensitive cables

Type: Inserts
Furnished: Each
Material: Steel
Hardware Size: HDKIT Not Included
Hardware Finish: N/A

Catalog Number	Widths
TMA-CBRG-(F)	6" - 24"

Example: *TMA-CBRG-EG*

(F) Insert finish: EG, HD, PT

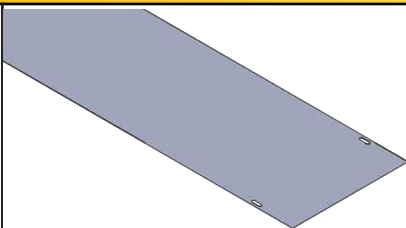
CABLE LINER

EG

S4

S6

PT



Used to support & protect sensitive cables from environment

Type: Inserts
Furnished: Each
Material: Steel
Hardware Size: HDKIT Not Included
Hardware Finish: N/A

Catalog Number	Widths
TMA-METI-(W)-(F)	ALL

Example: *TMA-METI-12-EG*

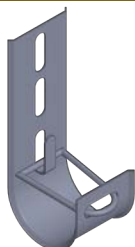
(W) Insert Mesh Width:
06, 08, 10, 12, 16, 18, 20, 24
(F) Insert finish: EG, S4, S6, PT

J HOOKS

EG

HD

PT



Used to support small cables off of mesh system or structure

Type: Jhooks
Furnished: Each
Material: Steel
Hardware Size: Accepts 1/4"
Hardware Finish: N/A

Catalog Number	Widths
TMA-JHOOK-(D)-(F)	ALL

Example: *TMA-JHOOK-100-EG*

(D) Insert Diameter: **100, 150, 200, 400**
(F) Insert finish: EG, HD, PT

TOUGHMesh: Accessories

Grounding & Rooftop Blocks

GROUNDING LUG



X10

Used to ground mesh system to structure

Type: Grounding
Furnished: Bag 10
Material: Tin plated Copper
Hardware Size: Accepts 4/0
Hardware Finish: N/A

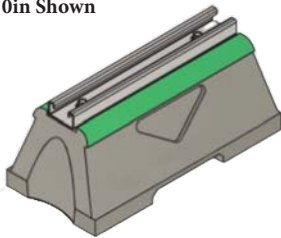


Catalog Number	Widths
TMA-GRND	ALL

NON-PENETRATING B-SERIES ROOFTOP SUPPORT



*10in Shown



Used to support strut fixtures and cable tray systems

Type: Support
Furnished: Each
Material: Rubber & Steel
Hardware Size: 3/8 HHCS
Hardware Finish: ZN

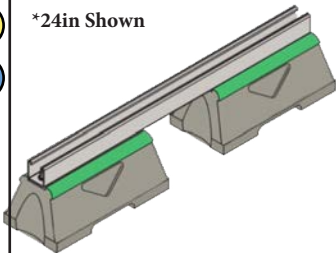
Catalog Number	Width	Load
TSRB-B-10-(F)	10in	2500lbs
TSRB-B-24-(F)	24in	5000lbs
TSRB-B-36-(F)	36in	7500lbs
TSRB-B-48-(F)	48in	10000lbs

(F) Insert Finish: ZN or HD

NON-PENETRATING C-SERIES ROOFTOP SUPPORT



*24in Shown



Used to support strut fixtures and cable tray systems

Type: Support
Furnished: Each
Material: Rubber & Steel
Hardware Size: 3/8 HHCS
Hardware Finish: ZN

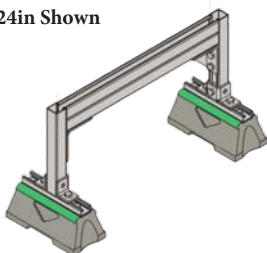
Catalog Number	Width	Load
TSRB-C-28-(F)	28in	1491lbs
TSRB-C-42-(F)	42in	994lbs
TSRB-C-50-(F)	50in	835lbs
TSRB-C-60-(F)	60in	696lbs

(F) Insert Finish: ZN or HD

NON-PENETRATING D-SERIES ROOFTOP SUPPORT



*24in Shown



Used to support cable tray systems with heavier loads

Type: Support
Furnished: Each w/ Hardware
Material: Rubber & Steel
Hardware Size: 3/8 HHCS
Hardware Finish: ZN

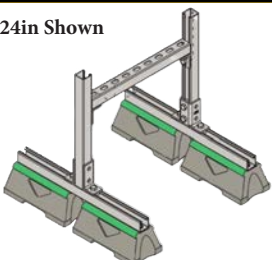
Catalog Number	Width	Load
TSRB-D-24-(F)	24in	3500lbs
TSRB-D-36-(F)	36in	3250lbs

(F) Insert Finish: ZN or HD

NON-PENETRATING E-SERIES ROOFTOP SUPPORT



*24in Shown



Used to support cable tray systems with adaptability

Type: Support
Furnished: Each w/ Hardware
Material: Rubber & Steel
Hardware Size: 3/8 HHCS
Hardware Finish: ZN

Catalog Number	Load
TSRB-E-(H)-(W)-(L)-(F)	750-2000lbs

(H): 23, 29, 41, 53

(W): 18, 24, 36, 48

(L): 24, 36

(F): ZN, HD

Example: TSRB-E-41X18X36-HD

TOUGHMesh: Accessories

Trapeze Fixings

CABLE KITS

EG



Used to directly suspend TOUGHMesh system from structure

Type: Support
Furnished: Each
Material: Steel
Hardware Size: N/A
Hardware Finish: N/A

Catalog Number	Load
TTA-CABLEKIT-4-(L)	495lbs
TTA-CABLEKIT-5-(L)	715lbs

(L) Length: **05, 10, 15, 20**

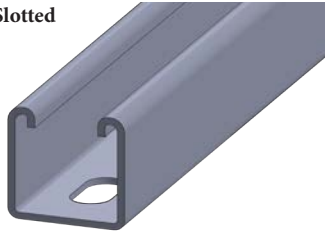
*Safety Factor 5:1

Example: TTA-CABLEKIT-4-05

12G OR 14G 1 5/8 SINGLE CHANNEL

ZN

12G Slotted



Metal framing used to erect supports, & create structure

Type: Channel
Furnished: Each
Material: Steel, Stainless, Aluminum
Hardware Size: 3/8" & 1/2"
Hardware Finish: Zinc, Stainless

Catalog Number	Type	Length
TC(G)158-(L)-(F)	Solid	10ft
TC(G)158S-(L)-(F)	Slots	20ft

(G) Gauge: **2,4**

(L) Length: **120, 240**

(F) Finish: **ZN, HD, S4, S6, AL**

12G Example: TC2158S-120-ZN

HD

S4

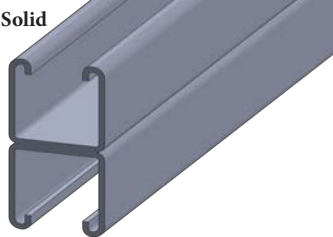
S6

PT

12G OR 14G 1 5/8 DOUBLE CHANNEL

ZN

14G Solid



Metal framing used to erect supports, & create structure

Type: Channel
Furnished: Each
Material: Steel, Stainless, Aluminum
Hardware Size: 3/8" & 1/2"
Hardware Finish: Zinc, Stainless

Catalog Number	Type	Length
TC(G)158H-(L)-(F)	Solid	10ft
TC(G)158SH-(L)-(F)	Slots	20ft

(G) Gauge: **2,4**

(L) Length: **120, 240**

(F) Finish: **ZN, HD, S4, S6, AL**

14G Example: TC4158H-240-HD

HD

S4

S6

PT

12G OR 14G 7/8 SINGLE CHANNEL

ZN

12G Solid



Shallow Metal framing used to erect supports, & create structure

Type: Channel
Furnished: Each
Material: Steel, Stainless, Aluminum
Hardware Size: 3/8" & 1/2"
Hardware Finish: Zinc, Stainless

Catalog Number	Type	Length
TC(G)078-(L)-(F)	Solid	10ft
TC(G)078S-(L)-(F)	Slots	20ft

(G) Gauge: **2,4**

(L) Length: **120, 240**

(F) Finish: **ZN, HD, S4, S6, AL**

12G Example: TC2078-120-ZN

HD

S4

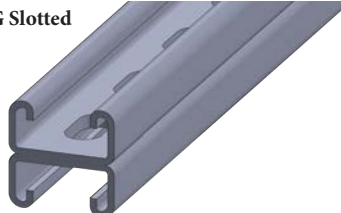
S6

PT

12G OR 14G 7/8 DOUBLE CHANNEL

ZN

14G Slotted



Shallow Metal framing used to erect supports, & create structure

Type: Channel
Furnished: Each
Material: Steel, Stainless, Aluminum
Hardware Size: 3/8" & 1/2"
Hardware Finish: Zinc, Stainless

Catalog Number	Type	Length
TC(G)078H-(L)-(F)	Solid	10ft
TC(G)078SH-(L)-(F)	Slots	20ft

(G) Gauge: **2,4**

(L) Length: **120, 240**

(F) Finish: **ZN, HD, S4, S6, AL**

14G Example: TC4078SH-240-ZN

HD

S4

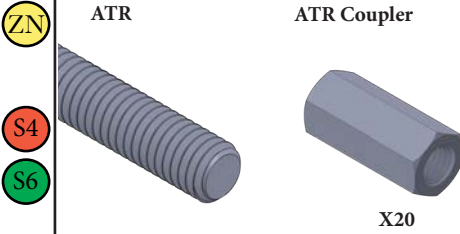
S6

PT

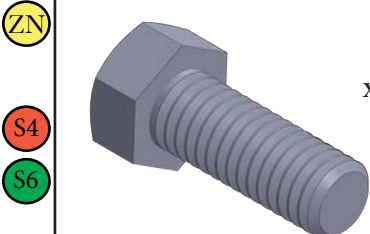
TOUGHMesh: Accessories

Trapeze Fixings

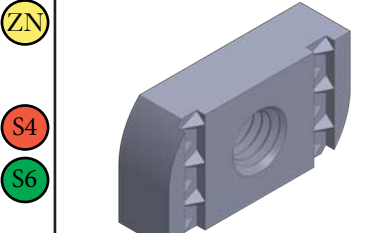
ALL THREAD ROD & COUPLER

	<p>ATR</p> <p>ATR Coupler</p> <p>X20</p>	<p>Used to hang or connect cable tray systems to structure</p> <p>Type: Hardware Furnished: Each / Bag 20 Material: Steel / Stainless Hardware Size: 1/4", 3/8" & 1/2" Hardware Finish: Zinc, Stainless</p>	<table border="1"> <thead> <tr> <th>Catalog Number</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>TA(D)X144-ATR-(F)</td> <td>ATR</td> </tr> <tr> <td>TA(D)CP-(F)</td> <td>Coupler</td> </tr> </tbody> </table> <p>(D) Insert Dia: 25, 38, 50 (F) Insert Finish: ZN, S4, S6</p>	Catalog Number	Type	TA(D)X144-ATR-(F)	ATR	TA(D)CP-(F)	Coupler
	Catalog Number	Type							
TA(D)X144-ATR-(F)	ATR								
TA(D)CP-(F)	Coupler								

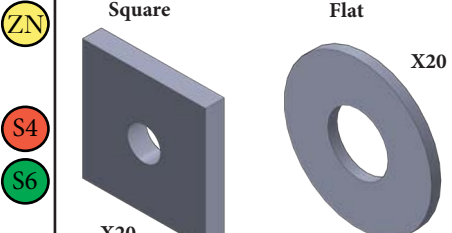
HEX HEAD CAP SCREWS

	<p>X20</p>	<p>Used to secure accessories to tray & strut systems</p> <p>Type: Hardware Furnished: Bag 20 Material: Steel / Stainless Hardware Size: 1/4", 3/8", & 1/2" Hardware Finish: Zinc, Stainless</p>	<table border="1"> <thead> <tr> <th>Catalog Number</th> <th>Thread</th> </tr> </thead> <tbody> <tr> <td>TA(D)HX(L)-(F)</td> <td>Course</td> </tr> </tbody> </table> <p>(D) Dia (in): 25, 38, 50 (L) Length: 075, 100, 125, 150, 200 (F) Finish: ZN, S4, S6 <i>Example: TA38HX100-ZN</i></p>	Catalog Number	Thread	TA(D)HX(L)-(F)	Course
	Catalog Number	Thread					
TA(D)HX(L)-(F)	Course						

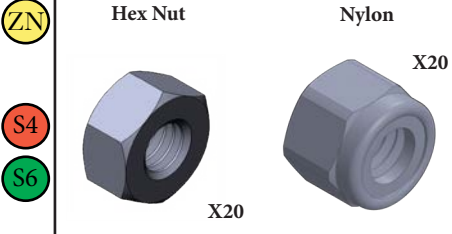
CHANNEL NUTS

	<p>X20</p>	<p>Used to secure accessories to strut profiles</p> <p>Type: Hardware Furnished: Bag 20 Material: Steel / Stainless Hardware Size: 1/4", 3/8", & 1/2" Hardware Finish: Zinc, Stainless</p>	<table border="1"> <thead> <tr> <th>Catalog Number</th> <th>Spring Type</th> </tr> </thead> <tbody> <tr> <td>TA(D)NC-(F)</td> <td>None</td> </tr> <tr> <td>TA(D)NCS-(F)</td> <td>Standard</td> </tr> <tr> <td>TA(D)NCSS-(F)</td> <td>Short</td> </tr> </tbody> </table> <p>(D) Dia (in): 25, 38, 50 (F) Finish: ZN, S4, S6</p>	Catalog Number	Spring Type	TA(D)NC-(F)	None	TA(D)NCS-(F)	Standard	TA(D)NCSS-(F)	Short
	Catalog Number	Spring Type									
TA(D)NC-(F)	None										
TA(D)NCS-(F)	Standard										
TA(D)NCSS-(F)	Short										

FLAT & SQUARE WASHERS

	<p>Square</p> <p>X20</p>	<p>Used to distribute large loads and act as a shim when securing fixtures</p> <p>Type: Hardware Furnished: Bag 20 Material: Steel / Stainless Hardware Size: 1/4", 3/8" & 1/2" Hardware Finish: Zinc, Stainless</p>	<table border="1"> <thead> <tr> <th>Catalog Number</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>TF(D)W-(F)</td> <td>Flat</td> </tr> <tr> <td>TF(D)WSQ-(F)</td> <td>Square</td> </tr> </tbody> </table> <p>(D) Insert Dia: 25, 38, 50 (F) Insert Finish: ZN, S4, S6</p>	Catalog Number	Type	TF(D)W-(F)	Flat	TF(D)WSQ-(F)	Square
	Catalog Number	Type							
TF(D)W-(F)	Flat								
TF(D)WSQ-(F)	Square								

HEX & NYLON NUTS

	<p>Hex Nut</p> <p>X20</p>	<p>Used to secure ATR, Hex Head Cap Screws, and other bolts</p> <p>Type: Hardware Furnished: Bag 20 Material: Steel / Stainless Hardware Size: 1/4", 3/8" & 1/2" Hardware Finish: Zinc, Stainless</p>	<table border="1"> <thead> <tr> <th>Catalog Number</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>TA(D)HX-(F)</td> <td>Hex Nut</td> </tr> <tr> <td>TA(D)HN-(F)</td> <td>Nyloc</td> </tr> </tbody> </table> <p>(D) Insert Dia: 25, 38, 50 (F) Insert Finish: ZN, S4, S6</p>	Catalog Number	Type	TA(D)HX-(F)	Hex Nut	TA(D)HN-(F)	Nyloc
	Catalog Number	Type							
TA(D)HX-(F)	Hex Nut								
TA(D)HN-(F)	Nyloc								



Rev: F

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