

Cable Ties for Special Environments

Material Selection Ordering Guide

Thomas & Betts offers Ty-Rap® cable ties and accessories in a wide variety of materials, each suited for specific environments. The purpose of this document is to assist you in choosing the best material for your particular application. The effects of weathering, flame, chemicals, extreme temperatures, and radiation on the different materials are clearly presented in the following tables to simplify this process. Once you have determined the most suitable material, you can choose from the wide variety of Ty-Rap® cable ties, identification ties, mounting bases, lashing ties, etc., offered by Thomas & Betts.

How to use Table 1:

Table 1 simplifies the material selection process by giving the relative performance ratings of the materials offered by Thomas & Betts. For example, if your application is in an extremely cold environment, four materials will answer your need: Fluoropolymer, nylon 12, Halar® (*), and stainless steel. Then, cost may be your next most important criteria, so out of those four options, nylon 12 would be the most cost effective. However, if tensile strength is important, then stainless steel would be the better choice.

Refer to tables 2 (page C33) and 3 (pages C34-C36) for more detailed information regarding physical properties of the materials and chemical resistance of the materials respectively.

It is extremely difficult to provide data on all the possible combinations or conditions that can occur. This information is based on data provided by the manufacturers of the specific materials listed and is provided only as a general guide. No specific recommendation is intended. As each application may differ, cable tie samples should be tested in the intended application by the user to determine suitability.

* Halar® is the trademark of Solvay Solexis, Inc.

TABLE 1

Available Materials

5 = Most Suitable 1 = Least Suitable

	Natural 66 Nylon	Weather Resistant 66 Nylon	Heat Stabilized Natural 66 Nylon	Flame Retardant 66 Nylon	Weather Resistant Nylon 12	Weather Resistant Polypropylene	Fuoro- polymer	Halar®	Stainless Steel	Weatherable Acetal
Ultraviolet Resistance	1	4	1	1	4	4	5	5	5	4
Radiation Resistance	1	1	1	1	1	1	4	4	5	1
Low Temperature	3	3	3	2	4	3	4	4	5	4
High Temperature	3	3	4	3	2	2	4	4	5	2
Flammability	3	3	3	4	1	1	4	4	5	1
Tensile Strength	3	3	3	3	2	1	3	3	5	2
Relative Cost	Low	Low	Low	Med	Med	Low	High	High	High	High
Chemical Resistance	See Table 3									

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Perfect for outdoor applications!



Colour — Black
For use in temperatures ranging from -40°F to 221°F (-40°C to 105°C)

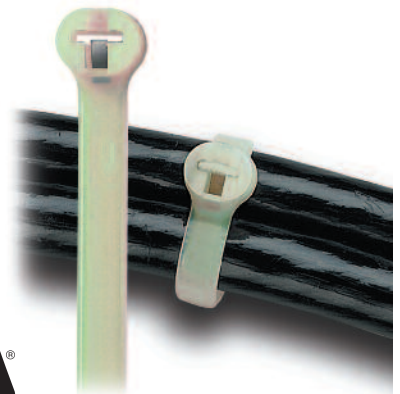
- Ideal for Industrial OEM and MRO (includes, but not limited to industrial, lawn/garden/farming equipment, recreation vehicles, heavy equipment)
- Can be placed in environments requiring heat stabilization and UV resistance
- Provides a smooth, low-profile look and offers unlimited tensioning range for a perfect fit
- Features an oval head on every original Ty-Rap® Cable Tie
- Quicker to install and less expensive than metallic fasteners, lacing cord or tape
- Made of UV resistant, heat-stabilized nylon



Bulk Cat. No.	Length (in./mm)	Tensile Strength (lb./N)	Bulk Pkg.
Ty-Rap® Heat Stabilized/Ultraviolet Resistant Cable Ties			
TY23MX-A	3.62/91.95	18/80.07	1,000
TY24MX-A	5.50/139.70	40/177.90	
TY25MX-A	7.31/185.67	50/222.40	
TY27MX-A	13.40/340.36	120/533.80	500

Beat the heat!

- Ideal for Industrial OEM and MRO (includes, but not limited to metal processing, paper mills, lighting and commercial construction markets with high temperature environments up to 302°F (150°C))
- Provides a smooth, low-profile look and offers unlimited tensioning range for a perfect fit
- Features an oval head on every original Ty-Rap® Cable Tie
- Quicker to install and less expensive than metallic fasteners, lacing cord or tape
- Made of extra high-temperature resistant nylon



Colour — Light Green
For use in temperatures ranging from -40° to 302°F (-40° to 150°C)

Bulk Cat. No.	Length (in./mm)	Tensile Strength (lb./N)	Bulk Pkg.
Ty-Rap® Extra High-Temperature Cable Ties			
TYHT23M	3.62/91.95	18/80.07	1,000
TYHT25M	5.50/139.70	40/177.90	
TYHT27M	7.31/185.67	50/222.40	
TYHT28M*	13.40/340.36	120/533.80	1,000

*UR Pending



Detectable using metal detection and X-ray detection systems and visions systems.

Polypropylene parts are also bouyant in liquid application.

Material — Polyamide (Nylon 6.6) or Polypropylene

Colour — Blue

For use in temperatures ranging from -40°F to 185°F (-40°C to 85°C).

Cat. No.	Length (in./mm)	Body Width (in./mm)	Max. Wire Bundle Dia. (in./mm)	Tensile Strength (lb./N)	Base Material	Std. Pkg.
Ty-Rap® Detectable Cable Ties						
TY523M-NDT	3.62/91.95	0.09/2.29	0.63/16.00	18/80	Nylon	100
TY525M-NDT	7.31/186.00	0.19/4.70	1.75/44.40	50/220		50
TY527M-NDT	13.40/340.00	0.27/6.86	3.50/89.00	120/540		100
TY528M-NDT	14.20/36.00	0.19/4.70	4.00/102.00	50/220	Polypropylene	100
TY523M-PDT	3.62/91.90	0.09/2.29	0.63/16.00	18/80		50
TY525M-PDT	7.31/186.00	0.19/4.70	1.75/44.40	30/135		100
TY527M-PDT	13.40/340.00	0.27/6.86	3.50/89.00	60/267		50
TY528M-PDT	14.20/36.00	0.19/4.70	4.00/102.00	30/135	100	100



Make safety a priority!

This material meets UL 94V-0 flammability rating.

Colour — White

For use in temperatures ranging from -40°F to 185°F (-40°C to 85°C).

Cat. No.	Length (in./mm)	Body Width (in./mm)	Max. Wire Bundle Dia. (in./mm)	Marking Pad Size (in./mm) W x H	Tensile Strength (lb./N)	Std. Pkg.
Ty-Rap® Cable Ties – Flame Retardant Nylon 6.6						
TY23MFR	3.62/91.95	0.09/2.29	0.63/16.00	N/A	18/80.07	1,000
TY232MFR	8.00/203.20	0.09/2.29	2.00/50.80		40/177.90	
TY24MFR	5.50/139.70	0.14/3.56	1.13/28.70		50/222.40	
TY25MFR	7.31/185.67	0.18/4.57	1.75/44.45		120/533.80	500
TY28MFR	14.20/360.68	0.18/4.57	4.00/101.60		18/80.07	
TY272MFR†	8.00/203.20	0.27/6.86	2.00/50.80			
TY27MFR	13.20/335.28	0.27/6.86	3.50/88.90		0.81 x 0.36/20.57 x 9.1	
TY53MFR	4.00/101.60	0.09/2.29	0.63/16.00	0.78 x 1/19.81 x 14.00		
TY153MFR	4.35/110.49	0.10/2.54	0.63/16.00			

† Not UL Recognized Models.



This material provides very good resistance to ultraviolet light and chemical exposure. Nylon 12 is a lower, moisture-absorbing material than 6.6 nylon and the effect of water on properties is much less.

Colour — Black

For use in temperatures ranging from -40°F to 185°F (-40°C to 85°C).

Std. Cat. No.	Bulk Cat. No.	Length (in./mm)	Body Width (in./mm)	Max. Wire Bundle Dia. (in./mm)	Tensile Strength (lb./N)	Std. Pkg.	Bulk Pkg.
Ty-Rap® Nylon 12 Cable Ties – Ultraviolet and weather-resistant!							
TYC525MX	TYC25MX	7.31/185.67	0.18/4.57	1.75/44.45	35/155.70	100	1,000
–	TYC28MX	14.20/360.68		4.00/101.60			
–	TYC272MX	8.00/203.20	0.27/6.86	2.00/50.80	85/378.10	–	500
TYC527MX	TYC27MX	13.20/335.28		3.50/88.90			
–	TYC29MX	30.00/762.00	0.30/7.62	9.00/228.60		–	



Engineered to withstand high temperatures!

Material meets ASTM D4066 PA121.

Colour — Green Tint

For use in temperatures ranging from -40°F to 221°F (-40°C to 105°C).

Cat. No.	Length (in./mm)	Body Width (in./mm)	Max. Wire Bundle Dia. (in./mm)	Tensile Strength (lb./N)	Std. Pkg.
Ty-Rap® Heat Stabilized Ties					
TYH23M	3.62/91.95	0.09/2.29	0.63/16.00	18/80.07	1,000
TYH232M	8.00/203.20		2.00/50.80		
TYH24M	5.50/139.70	0.14/3.56	1.13/28.70	40/177.90	
TYH242M	8.19/208.03		2.00/50.80	30/135	
TYH26M	11.10/281.94	0.18/4.57	3.00/76.20	50/222.40	500
TYH25M	7.31/185.67		1.75/44.45		
TYH253M	11.40/289.56		3.00/76.20		
TYH28M	14.20/360.68	0.27/6.86	4.00/101.60	120/533.80	500
TYH27M	13.20/335.28		3.50/88.90		
TYH272M	8.75/222.25	0.30/7.62	2.00/50.80		
TYH29M	30.00/762.00		9.00/228.60		

Cable Ties for Special Environments



Many factors combine to determine the useful life of a cable tie, but none is as important as chemical exposure. Polypropylene cable ties are ideally suited for chemical environments.



Cat. No.	Body Width (in./mm)	Length (in./mm)	Max. Wire Bundle Dia. (in./mm)	Tensile Strength (lb./N)	Std. Pkg.
Ty-Rap® Weather-Resistant Polypropylene Ties					
TYP23MX	0.09/2.29	3.62/91.95	0.63/16.00	18/80.07	1,000
TYP25MX	0.18/4.57	7.01/178.05	1.75/44.45	30/133.40	
TYP28MX		13.92/353.57	4.00/101.60	60/266.90	500
TYP27MX	0.27/6.86	13.17/334.52	3.5088.90		

Colour – Black



Ty-Rap® cable ties, made of Halar®, are designed for use in air-handling spaces. Due to its UL 94V-0 flammability rating and low-smoke density characteristics, Halar® material is most suitable in applications where flame resistance and smoke generation is a concern.



Std. Cat. No.	Bulk Cat. No.	Body Width (in./mm)	Length (in./mm)	Max. Wire Bundle Dia. (in./mm)	Tensile Strength (lb./N)	Std. Pkg.	Bulk Pkg.
Halar®* Cable Ties							
TYV523M**	TYV23M**	0.09/2.29	3.62/91.95	0.63/16.00	18/80.07	100	1,000
TYV525M⁽¹⁾	TYV25M⁽¹⁾	0.18/4.57	7.31/185.67	1.75/44.45	50/222.40		

* Solvay Solexis, Inc. registered trademark.

Colour – Maroon

** CSA Certified Natural 6/6 Nylon Cable Ties are suitable for use in air handling spaces in accordance with rules 12-010 (3), (4) and (5), and 12-020 of the CEC.

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Fluoropolymer cable ties offer high-radiation resistance and temperature stability to 338°F. Also, fluoropolymer provides excellent resistance to ultraviolet light and meets UL flammability rating 94V-0.



Std. Cat. No.	Bulk Cat. No.	Body Width (in./mm)	Length (in./mm)	Max. Wire Bundle Dia. (in./mm)	Tensile Strength (lb./N)	Std. Pkg.	Bulk Pkg.
Ty-Rap® Nylon 12 Cable Ties – Ultraviolet and weather-resistant!							
TYZ523M**	TYZ23M**	0.09/2.29	3.62/91.95	0.625	18/80.07	100	1,000
TYZ525M⁽¹⁾	TYZ25M⁽¹⁾	0.18/4.57	7.31/185.67	1.750	50/222.40		
TYZ528M	TYZ28M	0.18/4.57	14.19/360.43	4.000	50/222.40	50	100
TYZ527M	TYZ27M	0.27/6.86	13.38/339.85	3.500	120/533.80		

Colour – Aqua

** CSA Certified Natural 6/6 Nylon Cable Ties are suitable for use in air handling spaces in accordance with rules 12-010 (3), (4) and (5), and 12-020 of the CEC.

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