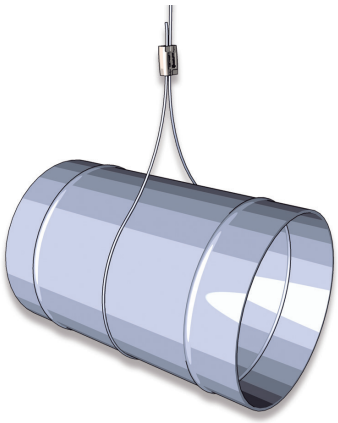
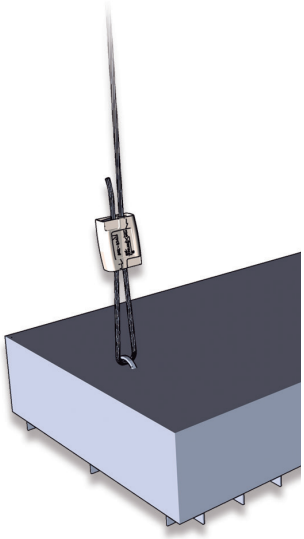
PREFORMED LINE PRODUCTS

maXtensor®

Suspension Connectors for Industrial Applications





For Suspending

HVAC Ductwork | Cable Trays | Pipes

Lighting | Signage | Drop Ceilings

maXtensor®

Adjustable/Removable Tensioner (MX2-IND)

The **Adjustable/Removable Tensioner (mx2-ind)** for suspending loads in industrial applications allows for the holding/ suspension of protruding structural elements such as beams, metal structures and any other protruding element found in an industrial/commercial building, as well as using false or suspended ceilings and other hollows in the framework that are accessible and resistant.

Features and Benefits

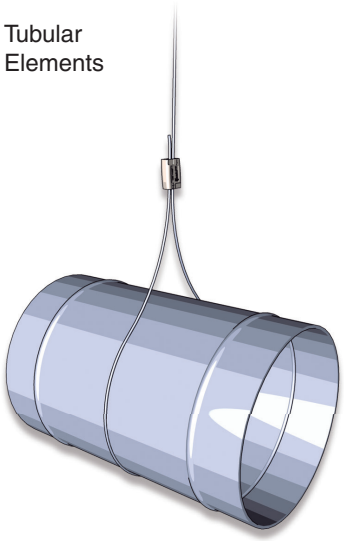
- Recommended max. load: see calculation page
- Range of diameter: 0.060" - 0.098" (1.5 to 2.5 mm)
- Ideal for use on: 1/16" wire rope
- Easy to install, without difficult adjustments of nuts and screws.
- Does not require the use of tools, and therefore reduces the risk of accidents of materials falling during overhead installation.
- Reduces installation time by 80%.
- Can be handled safely as it is light to carry and easy to install.

APPLICATIONS

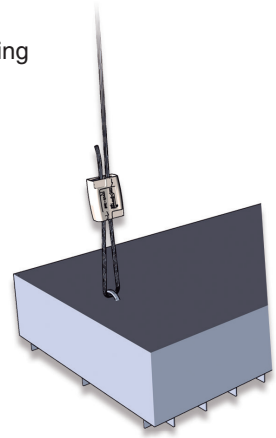
These products are used for suspension of air-conditioning ducts, cable trays for electrical wiring, pipes, gas exhaust ducts, lighting, board signs, and signage.

In general, any application that requires the holding and/or suspension of loads.

Tubular Elements



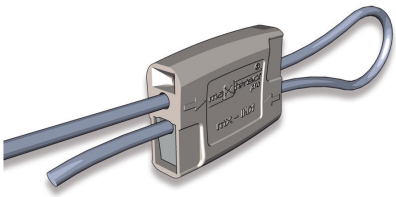
Lighting



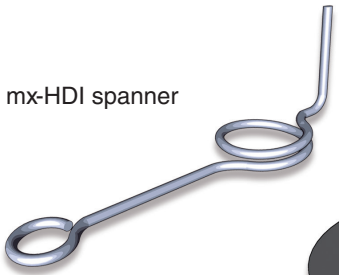
Trays

The height of the load is adjusted using the mx-HDI loosening spanner by unlocking the tensioner's lock system. It also has the mx-HDIM loosening spanner for greater ease-of-use; this spanner has an additional straight point for the application of higher de-tensioning loads.

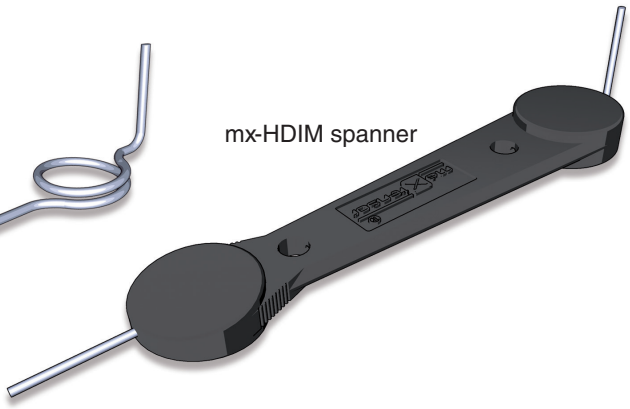
mx2-ind tensioner



mx-HDI spanner



mx-HDIM spanner



CABLES AND TERMINATIONS

LOOP CABLE

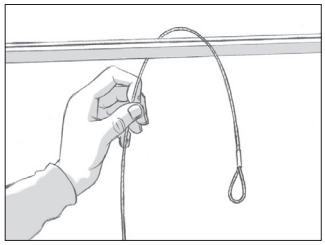
Range of diameter: 1.5, 2.0, 2.5, 3.0, 4.0 mm
(.060, .078, .098, .118, .157 in)

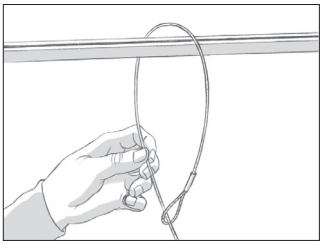
Available Lengths: 1, 3, 6 m (3.3, 9.8, 19.5 ft)

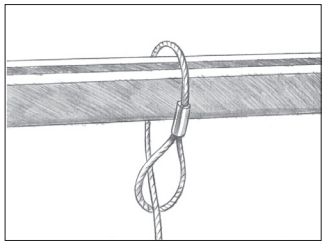
See methods of calculation and permissible loads.
Other available lengths on request.

Catalog Number	End	Diameter mm (in)	Length m (ft)	Used with Connector
MX15-LP1	Loop	1.5 (.060)	1 (3.3)	MX2-IND
MX15-LP3	Loop	1.5 (.060)	3 (9.8)	MX2-IND
MX15-LP6	Loop	1.5 (.060)	6 (19.5)	MX2-IND
MX20-LP1	Loop	2.0 (.078)	1 (3.3)	MX2-IND
MX20-LP3	Loop	2.0 (.078)	3 (9.8)	MX2-IND
MX20-LP6	Loop	2.0 (.078)	6 (19.5)	MX2-IND
MX25-LP1	Loop	2.5 (.098)	1 (3.3)	MX2-IND
MX25-LP3	Loop	2.5 (.098)	3 (9.8)	MX2-IND
MX25-LP6	Loop	2.5 (.098)	6 (19.5)	MX2-IND
MX30-LP1	Loop	3.0 (.118)	1 (3.3)	MX2-DT
MX30-LP3	Loop	3.0 (.118)	3 (9.8)	MX2-DT
MX30-LP6	Loop	3.0 (.118)	6 (19.5)	MX2-DT
MX40-LP1	Loop	4.0 (.157)	1 (3.3)	MXL2
MX40-LP3	Loop	4.0 (.157)	3 (9.8)	MXL2
MX40-LP6	Loop	4.0 (.157)	6 (19.5)	MXL2

HOW TO APPLY







TOGGLE

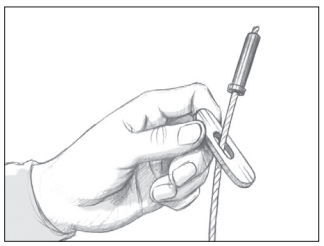
Range of diameter: 1.5, 2.0, 2.5 mm
(.060, .078, .098 in)

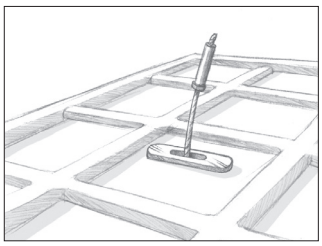
Available Lengths: 1, 3, 6 m (3.3, 9.8, 19.5 ft)

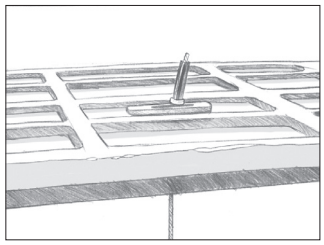
See methods of calculation and permissible loads.

Catalog Number	End	Diameter mm (in)	Length m (ft)	Used with Connector
MX15-TG1	Toggle	1.5 (.060)	1 (3.3)	MX2-IND
MX15-TG3	Toggle	1.5 (.060)	3 (9.8)	MX2-IND
MX15-TG6	Toggle	1.5 (.060)	6 (19.5)	MX2-IND
MX20-TG1	Toggle	2.0 (.078)	1 (3.3)	MX2-IND
MX20-TG3	Toggle	2.0 (.078)	3 (9.8)	MX2-IND
MX20-TG6	Toggle	2.0 (.078)	6 (19.5)	MX2-IND
MX25-TG1	Toggle	2.5 (.098)	1 (3.3)	MX2-IND
MX25-TG3	Toggle	2.5 (.098)	3 (9.8)	MX2-IND
MX25-TG6	Toggle	2.5 (.098)	6 (19.5)	MX2-IND

HOW TO APPLY







CABLES AND TERMINATIONS

THREADED BOLT M6

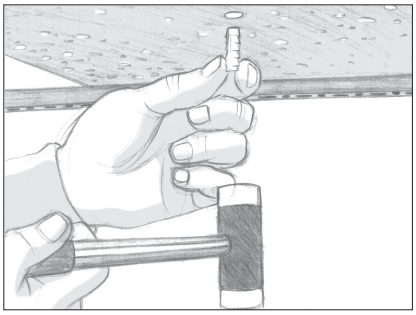
Range of diameter: 1.5, 2.0, 2.5 mm
(.060, .078, .098 in)

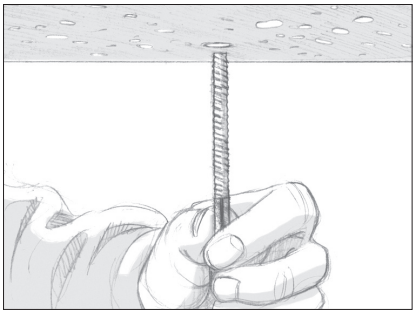
Available Lengths: 1, 3, 6 m (3.3, 9.8, 19.5 ft)

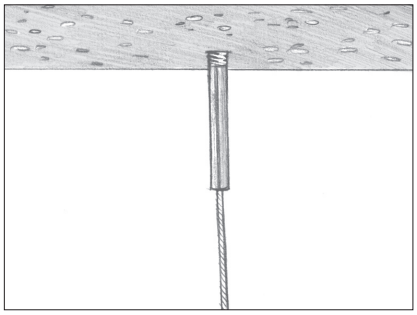
See methods of calculation and permissible loads.
Other available lengths on request.

Catalog Number	End	Diameter mm (in)	Length m (ft)	Used with Connector
MX15-TD1	Threaded	1.5 (.060)	1 (3.3)	MX2-IND
MX15-TD3	Threaded	1.5 (.060)	3 (9.8)	MX2-IND
MX15-TD6	Threaded	1.5 (.060)	6 (19.5)	MX2-IND
MX20-TD1	Threaded	2.0 (.078)	1 (3.3)	MX2-IND
MX20-TD3	Threaded	2.0 (.078)	3 (9.8)	MX2-IND
MX20-TD6	Threaded	2.0 (.078)	6 (19.5)	MX2-IND
MX25-TD1	Threaded	2.5 (.098)	1 (3.3)	MX2-IND
MX25-TD3	Threaded	2.5 (.098)	3 (9.8)	MX2-IND
MX25-TD6	Threaded	2.5 (.098)	6 (19.5)	MX2-IND

HOW TO APPLY





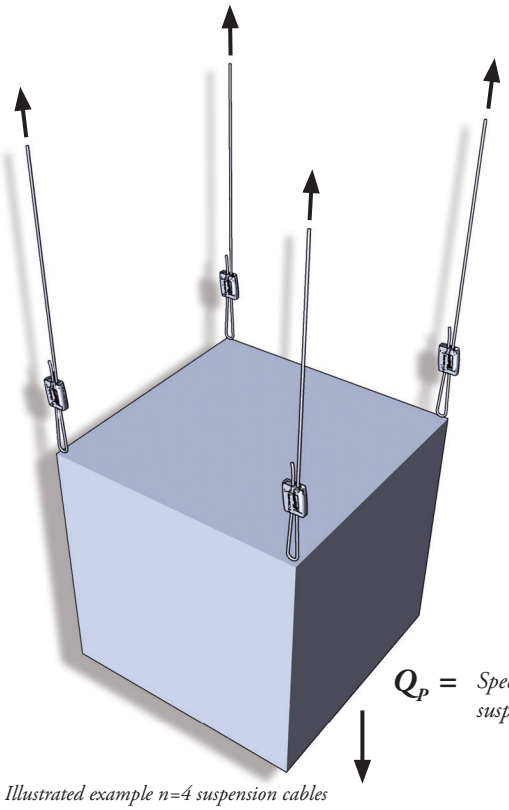


CALCULATIONS

Method of calculation for specific load:

$$C_T = \frac{Q_P}{n} \leq C_m$$

Key	
C_T	Work load that will be supported by the suspension cable (kg)
C_m	Maximum work load of the selected
Q_P	Specific load to be suspended (kg)
Q_R	Evenly distributed load (kg·m)
d	Distance between suspension cables (m)
n	No. of the same suspension cables used
n_R	No. of suspension cables that support the load for each stretch of distance "d"



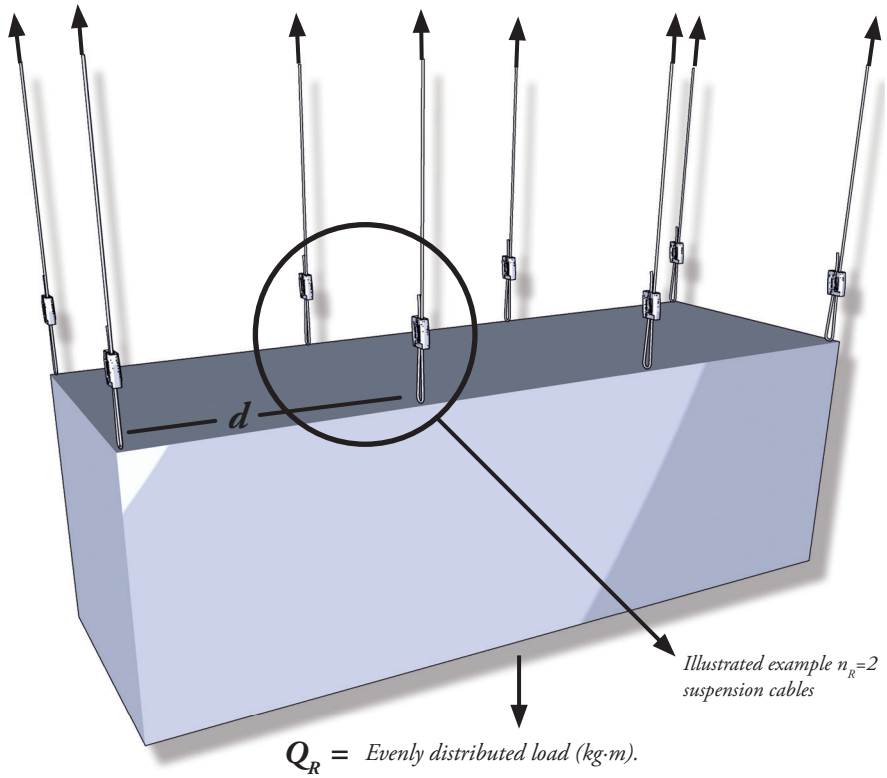
Q_P = *Specific load to be suspended (kg).*

Illustrated example n=4 suspension cables

Method of calculation for evenly distributed load:

$$C_T = \frac{Q_R \cdot d}{n_R \cdot \cos \Theta} \leq C_m$$

The formulas given on this page should only be applied when the layout of the cable to suspend the load is vertical. Otherwise, use the method of calculation of the angle between the cable and the vertical.
C_T will be the value of the minimum load that any additional accessory used with the cable should support, as well as any other building element used as a support. A safety factor of 3:1 or 5:1 is recommended depending on the criteria considered appropriate for each case.



Illustrated example n_R=2 suspension cables

Q_R = *Evenly distributed load (kg·m).*

CALCULATIONS

Method of calculation to consider the effect of suspending loads with a non-vertical cable directions:

The previous formulas should only be used when the layout of the cable for suspending the load is vertical. If the cable forms an angle in relation to the vertical, the effect of this angle needs to be taken into account, because it reduces the recommended maximum load and its value depends on this angle.

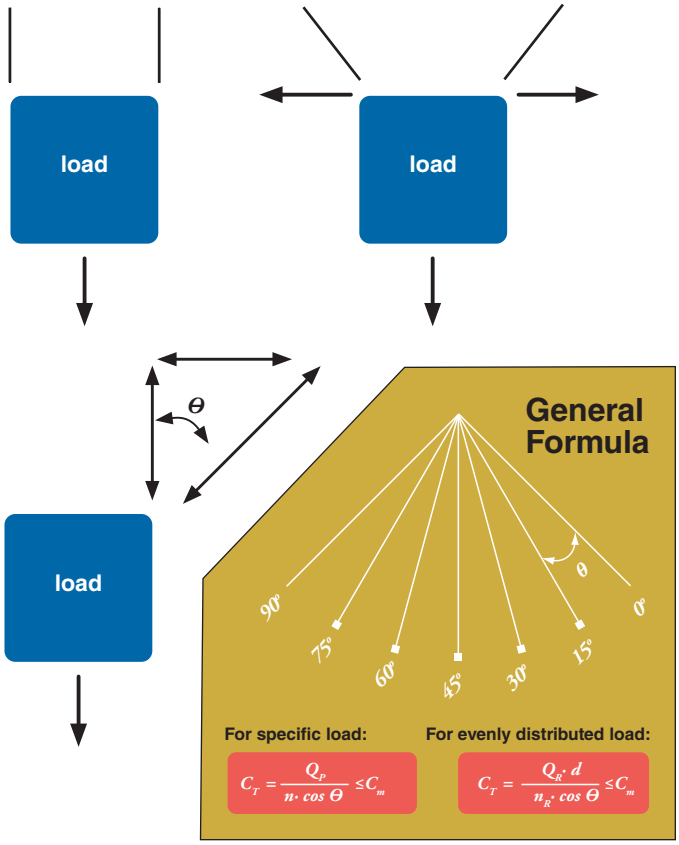
Why is the recommended maximum load reduced when a load is suspended with a cable in a direction that forms an angle with the vertical?

It is very simple. When a load is suspended in these conditions, the cable is subjected to a composition of forces: the corresponding vertical load + the lateral force component that falls on it:

The combination of these forces increases the tension on the cable. The greater the angle of the cable on the vertical, the greater the lateral component.

We can say that the tension on the cable is the hypotenuse of the triangle formed by the vertical load and the horizontal lateral force. Therefore, the tension load on the cable can be calculated by using the following formula:

Cable load =
Value of suspended load / cos (Θ)



Data and maximum load for the suspension cables supplied by Maxtensor:

The recommended vertical maximum load values in accordance with the safety coefficient are shown in the table to the right.

Type of cable	C_m (kg)	
	Safety Coeff. μ = 5:1	Safety Coeff. μ = 3:1
Ø 1'5 (7 x 7 wires)	30	50
Ø 2 (7 x 7 wires)	45	75
Ø 2'5 (7 x 7 wires)	60	100

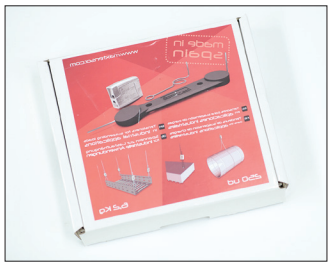
The recommended maximum load values in accordance with the angle and the safety coefficient are shown in the table below.

Type of cable	C_m (kg)									
	0º		15º		30º		45º		60º	
	μ=5:1	μ=3:1	μ=5:1	μ=3:1	μ=5:1	μ=3:1	μ=5:1	μ=3:1	μ=5:1	μ=3:1
Ø 1'5 (7 x 7 wires)	30	50	29	48	26	43	21	35	15	25
Ø 2 (7 x 7 wires)	45	75	43	72	39	65	32	53	22,5	38
Ø 2'5 (7 x 7 wires)	60	100	58	97	52	87	42	71	30	50

maXtensor®

IMPORTANT RECOMMENDATIONS FOR USE

- **It is necessary to carry out the inspections required to verify that the structural element used to suspend the loads can resist the weight of the load to be suspended.** The anchoring base varies depending on the type of construction and the materials used in its construction. It is the customer's responsibility, and NOT the responsibility of MAXTENSOR® to assess the resistance of the anchoring base so that the loads transmitted by the MAXTENSOR® SUSPENSION ACCESSORIES are supported safety, as well as compliance with the current legal provisions corresponding to each installation.
- **Do not exceed the maximum loads recommended by MAXTENSOR.** While MAXTENSOR® provides technical information and general advice on its SUSPENSION ACCESSORIES, the customer is solely responsible for selecting the product that is appropriate for each specific application. All recommended load values(C_m) are for static loads. (C_m)
- **Ensure that the load is correctly distributed among all the MAXTENSOR SUSPENSION ACCESSORIES.** To do this, verify that the cables of all the MAXTENSOR SUSPENSION ACCESSORIES are under load.
- **Only use the steel cable supplied in the MAXTENSOR SUSPENSION ACCESSORY.** The recommended values correspond with the results of the tests carried out with the cables supplied by MAXTENSOR. MAXTENSOR is not liable if cables other than those supplied by MAXTENSOR are used.
- **Always verify that the self-locking system of the adjustable/removable tensioner (mx2-ind) for suspending loads is completely interlocked.** To do so, it is advised to apply manual tension on the load after its installation to verify this..
- **MAXTENSOR SUSPENSION ACCESSORIES SHOULD NOT BE USED AS A LOAD LIFTING SYSTEM UNDER ANY CIRCUMSTANCES.**
- **Do NOT use the adjustable/removable tensioner (mx2-ind) to connect cables together. In this case, the reduction in the load capacity of the adjustable/removable tension (mx2-ind) would be 50%.**
- **Area of use:** The MAXTENSOR SUSPENSION ACCESSORIES are specially designed for suspending loads inside buildings and in a dry environment. Consult MAXTENSOR regarding their installation outdoors or in areas of high humidity or moisture.
- **Do NOT apply lubricants or paint** on any MAXTENSOR SUSPENSION ACCESSORY, as this may impede its correct operation and/or reduce its load capacity.
- **MAXTENSOR SUSPENSION ACCESSORIES are to be kept clean so that is does not become locked or its load capacity is not reduced.**
- **It is recommended to wear safety gloves and glasses when handling and installing.**
- If the end of the cable is blunt, it is recommended to cut the point to make it easier to install in the **adjustable/removable tensioner (mx2-ind). However, ensure that the cable protrudes at least 50 mm in length** for possible adjustments.
- **It the user instructions are not followed, the MAXTENSOR SUSPENSION ACCESSORIES may not work correctly. MAXTENSOR SUSPENSION ACCESSORIES comply with the manufacturer's specifications, and the latter is not liable for any damage caused to persons or property due to their incorrect use.**



PACKAGING INFORMATION

- Plastic bag in a reinforced cardboard box
- Color-coded label for reference and ease of identification
- **Packaging size**: 30 x 25 x 7 cm
- **Packaging weight**: 6.2 kg
- **Contents of the box**: 250 units MAXTENSOR MX2-IND

PREFORMED LINE PRODUCTS

Global Headquarters
Preformed Line Products Company
660 Beta Drive
Cleveland, Ohio 44143

Mailing Address
P.O. Box 91129
Cleveland, Ohio 44101

Telephone: 440.461.5200
Fax: 440.442.8816
Website: preformed.com
Email: inquiries@preformed.com

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