



3form Suspend is a flexible yet refined hardware system of stainless steel and black oxide cables and components engineered specifically for 3form materials that allow you to create your custom suspension solution, including vertical partitions, horizontal shelving, and more.



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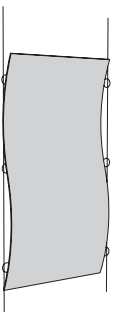
Overview

Solution Overview


Many different installations and applications are possible by selecting the appropriate connectors and components. This document will outline a few different possibilities to provide an idea on which components are most appropriate for your unique installation. For cable hardware that is not attached at the bottom please see the Shapes category of hardware. The top and bottom attachments can happen at the ceiling, floor, or wall. Some of the different options are shown below:



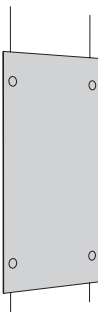
**Side Fastening**  
see page 4




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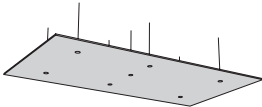
**Top and Bottom Fastening**  
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**Drill Thru Fastening**  
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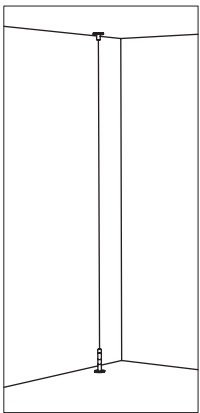
**Shelving**  
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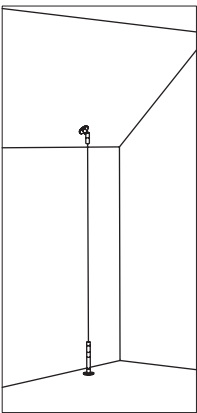
**Ceiling Installation**  
see Shapes  
Solution Document

Cable Fixation

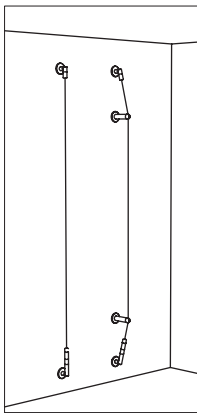
3form’s cable connector collection is designed for ease of use and installation versatility. The jointed connectors increase the range of applications, allowing cables to be fixed to inclined and vertical surfaces. Our cable track system also adds flexibility to installations by allowing users to adjust cable connections anywhere along the track.



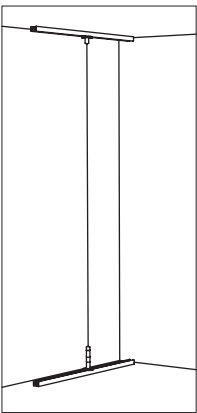
Ceiling to Floor



Inclined Surface


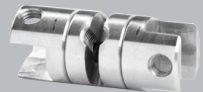
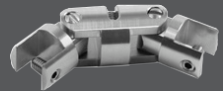








Vertical Surface

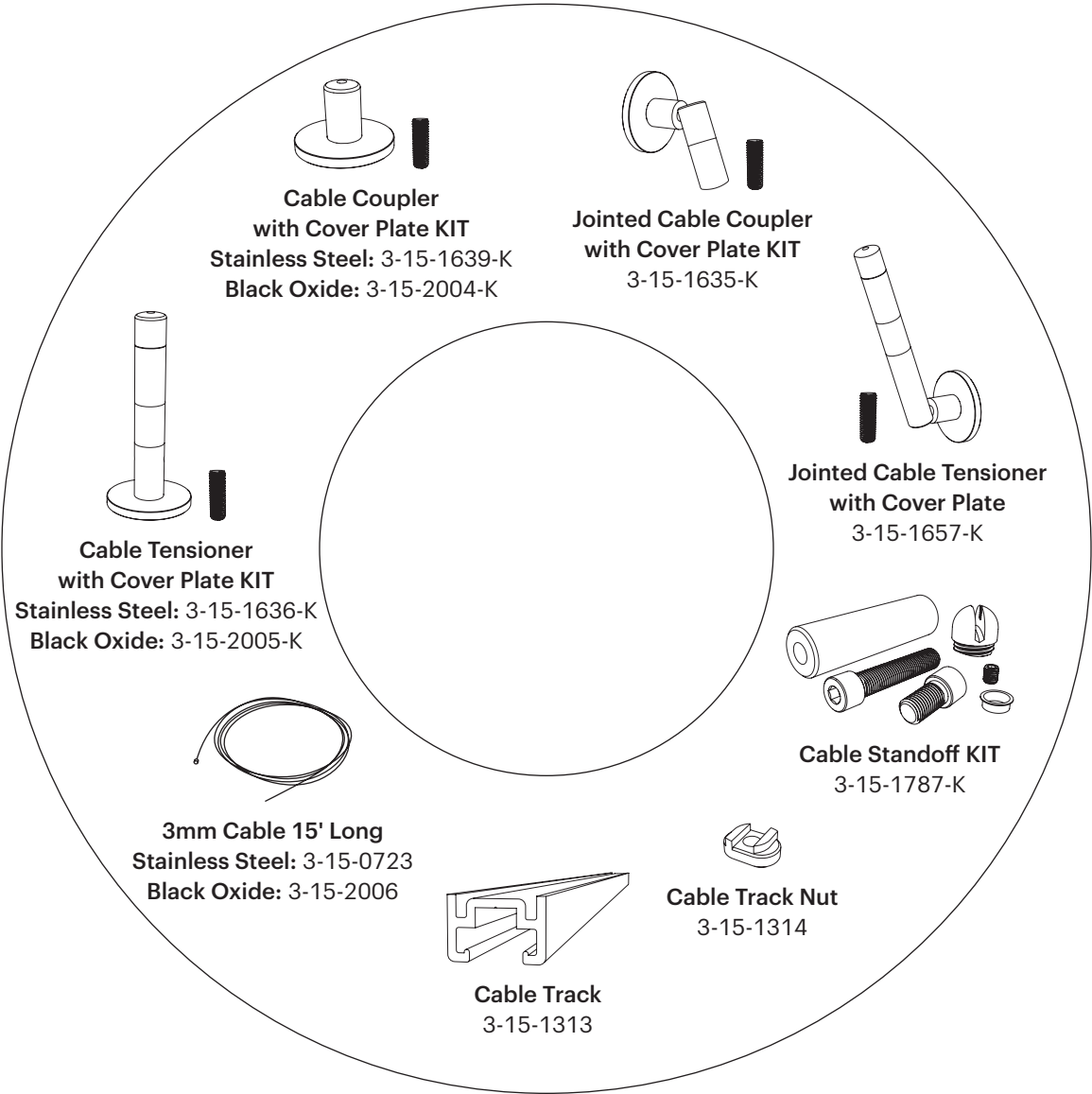


Track Installation


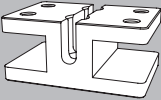
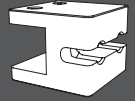
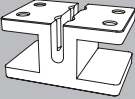

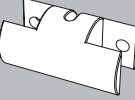
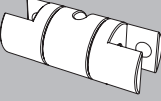
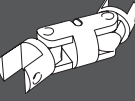
## Overview by Application

Application	Gauge	Part Numbers	Part Names	Finish	Image	Page
Side Fastening	1/4"	3-15-1997 3-15-1998	Single Panel Connector Double Panel Connector	Black Oxide		4
Side Fastening	1/4"	3-15-1995 3-15-1996	Single Panel Connector Double Panel Connector	Stainless Steel		4
Side Fastening	3/8"	3-15-2002 3-15-2003	Single Panel Connector Double Panel Connector	Black Oxide		4
Side Fastening	3/8"	3-15-1999 3-15-2001	Single Panel Connector Double Panel Connector	Stainless Steel		4
Side Fastening	1/2"	3-15-0748 3-15-0747	Single Panel Connector Double Panel Connector	Stainless Steel		4
Swivel Connection	1/8" -1/4"	3-15-0750-K	3/4" Double Swivel Connector	Stainless Steel		6
Corner Connection	3/8" -1/2"	3-15-1682	Double Panel Hinged Connector	Stainless Steel		6
Top and Bottom Fastening	1/4"	3-15-0753-K 3-15-1784-K 3-15-1781-K	3/4" Top Gripper 1/8"-1/4" Top Gripper 1/4" Surface Bracket	Stainless Steel		7
Top and Bottom Fastening	3/8"	3-15-1782-K 3-15-1785-K	3/8" Surface Bracket 3/8" Top Gripper	Stainless Steel		7
Top and Bottom Fastening	3/8" -1/2"	3-15-0749-K 3-15-0066-K 3-15-1790-K	1" Top Gripper Top Gripper for M8 Threaded Rod Fixed Surface Bracket for M8	Stainless Steel		7
Top and Bottom Fastening	1/2"	3-15-1783-K 3-15-1786-K	1/2" Surface Bracket 1/2" Top Gripper	Stainless Steel		7
Drill Thru	1/4"	3-15-0756-K	3/4" Drill Thru Connector with 12mm Cap	Stainless Steel		9
Drill Thru	3/8"	3-15-0769-K	3/4" Drill Thru Connector with 18mm Cap	Stainless Steel		9

Suspend Base Components



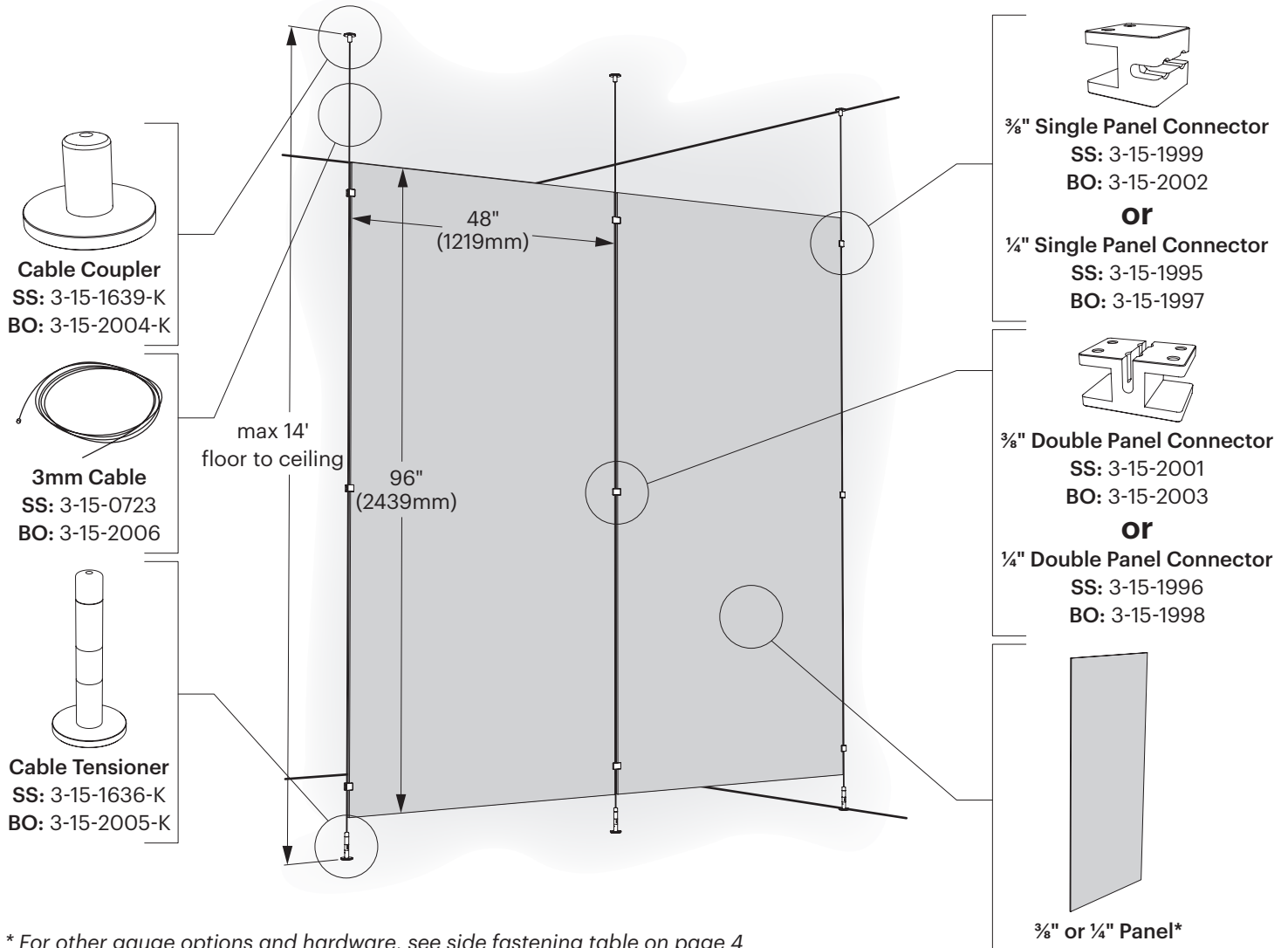
## Side Fastening Components

Gauge	Image	Description	Finish	Part Number
1/4"		Single Panel Connector	Stainless Steel	3-15-1995
			Black Oxide	3-15-1997
		Double Panel Connector	Stainless Steel	3-15-1996
			Black Oxide	3-15-1998
3/8"		Single Panel Connector	Stainless Steel	3-15-1999
			Black Oxide	3-15-2002
		Double Panel Connector	Stainless Steel	3-15-2001
			Black Oxide	3-15-2003
1/2"		Single Panel Connector	Stainless Steel	3-15-0748-K
		Double Panel Connector	Stainless Steel	3-15-0747-K
1/8" -1/4"		3/4" Double Swivel Connector	Stainless Steel	3-15-0750-K
3/8" -1/2"		Double Panel Hinged Connector	Stainless Steel	3-15-1682



## Side Fastening: *Floor to Ceiling*

Inspired by SimpleSpec 200.08, this solution is our most popular and exciting installation for Suspend. Select your panel type and design and let this lightweight and alloy hardware create a partition to your space.



\* For other gauge options and hardware, see side fastening table on page 4

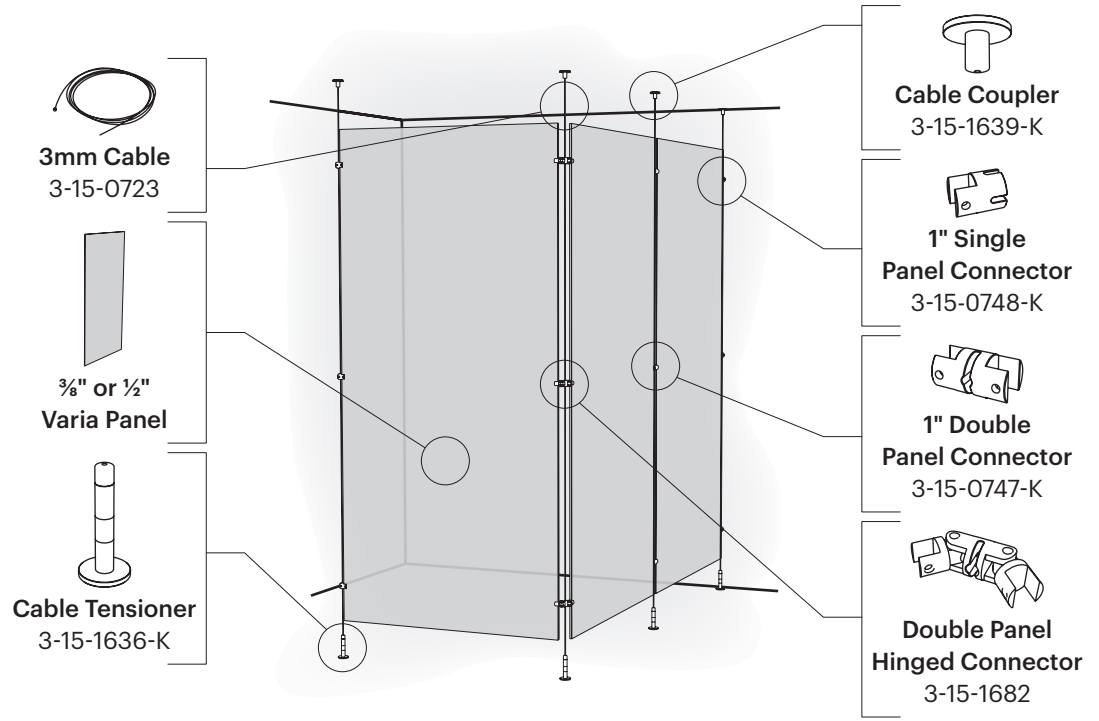
**Note:** You should only anchor Suspend into drywall when you are using a Cable Track on the ceiling or attaching to a wall in a low-traffic area. Any time you fasten cable to drywall you should not exceed 60 lbs. of tension and weight. This means your cable should have some slack, otherwise you risk pulling the anchors out of the drywall. Smooth cable connectors have a maximum weight of 50 lbs per connector.

## Side Fastening: *Unique Conditions*

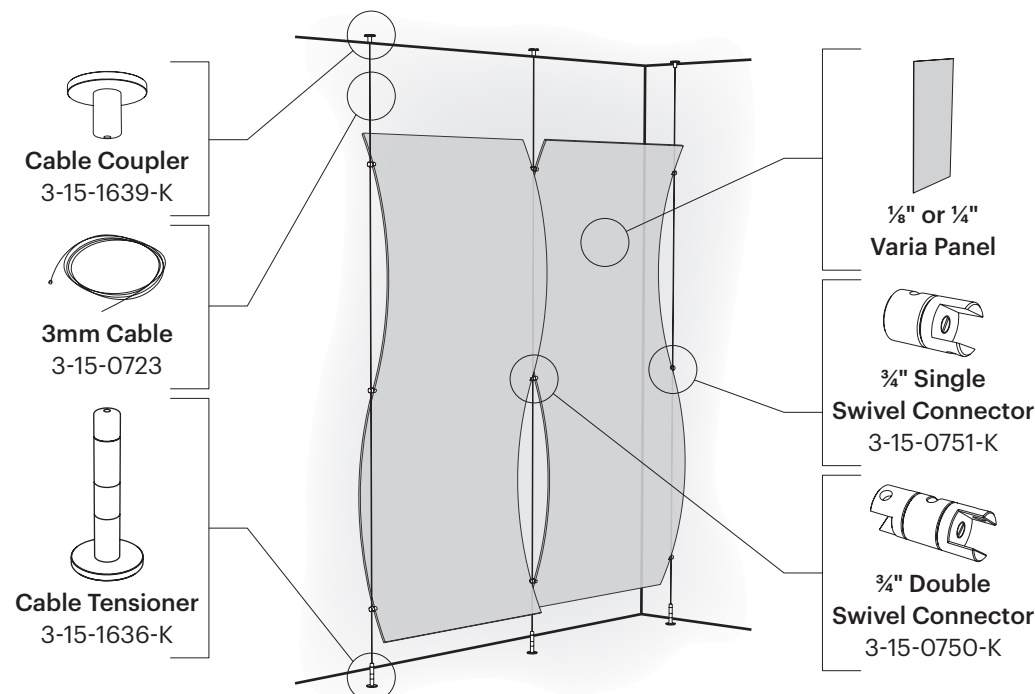
### Corner Condition

Using the double panel hinged connector allows for 90° turns and creating many possibilities for application.

**Note:** The max weight per connector is 25 lbs. Consider this when deciding how many connectors you need for a specific size of panel. Find material weights on the Material Specification Sheets at 3form My Downloads. Also consider panel deflection when determining the number of connections needed for any configuration.



### Cold Formed Swivel Connection

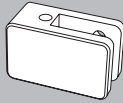
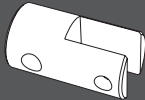
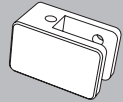

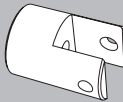



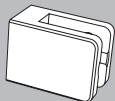

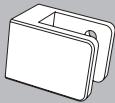

The top-to-bottom installation depicted below takes advantage of the natural flexibility of thin gauge ( $\frac{1}{8}$ ") Varia and the freely rotating Swivel Connectors for dramatic effect. To create the flexing of the material, span approximately 32" of Varia between 30" of cable. Additionally, after the panel is in place the undulation of the panels can easily be switched by simply "pushing" on the convex portion and "pulling" on the concave portion. The panel will flip between the two. The more subtle the curving, the easier it flips between the two positions.

**Note:** The maximum weight per connector is 25 lbs.



## Top and Bottom Fastening Components

Top Fastening				
Gauge	Image	Description	Finish	Part Number
1/8" -1/4"		1/8"-1/4" Top Gripper	Stainless Steel	3-15-1784-K
		1/4" Top Gripper	Stainless Steel	3-15-0753-K
3/8"		3/8" Top Gripper	Stainless Steel	3-15-1785-K
1/2"		1/2" Top Gripper	Stainless Steel	3-15-1786-K
3/8" -1/2"		Top Gripper for M8 Threaded Rod	Stainless Steel	3-15-0066-K
		1" Top Gripper	Stainless Steel	3-15-0749-K

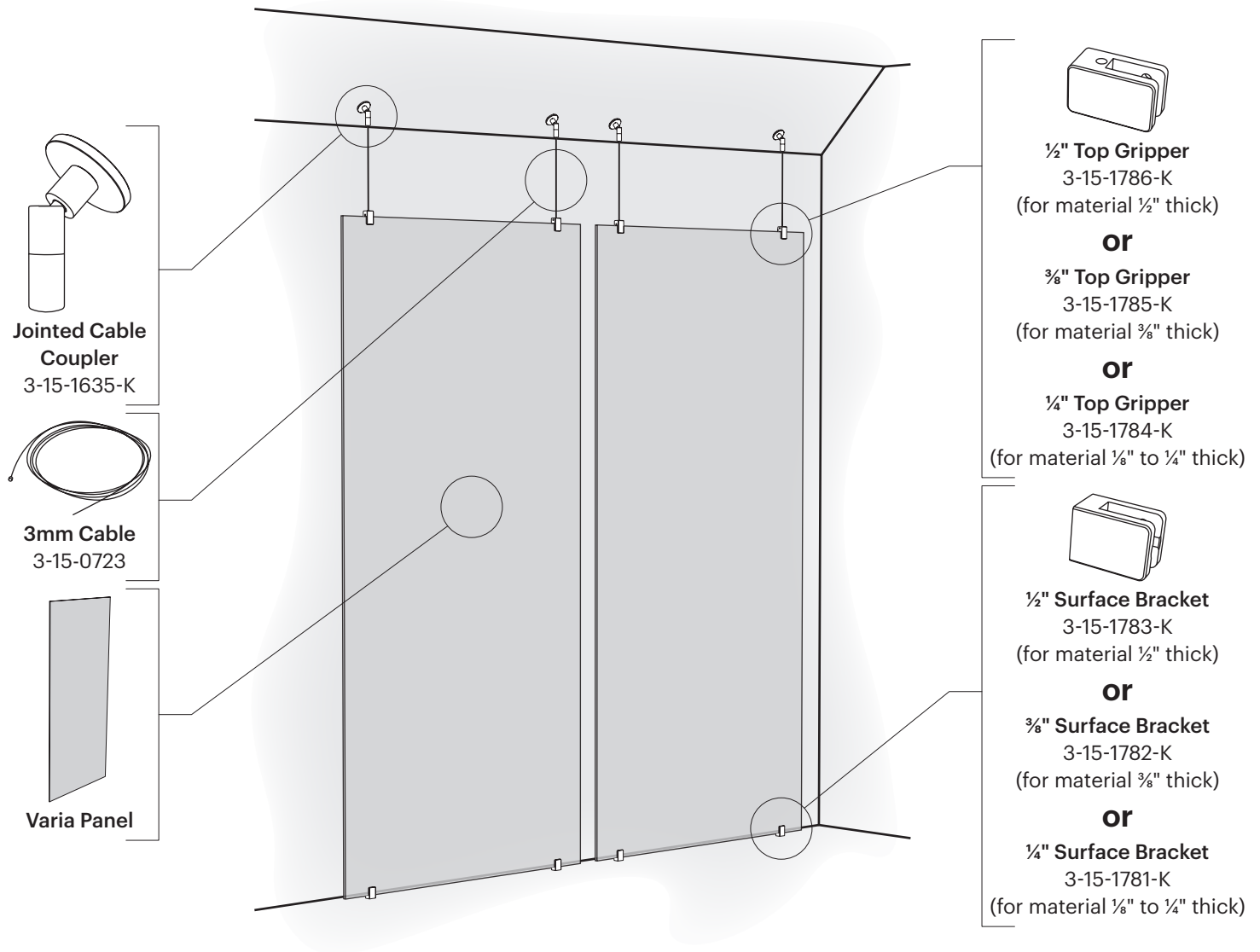
Bottom Fastening				
Gauge	Image	Description	Finish	Part Number
1/8" -1/4"		1/4" Surface Bracket	Stainless Steel	3-15-1781-K
3/8"		3/8" Surface Bracket	Stainless Steel	3-15-1782-K
1/2"		1/2" Surface Bracket	Stainless Steel	3-15-1783-K
3/8" -1/2"		Fixed Surface Bracket for M8	Stainless Steel	3-15-1790-K

## Top and Bottom Fastening: *Smooth Collection*

In this solution the cables only run from the ceiling to the top of the panels, and then the panels are held in place on the floor with the Fixed Surface Bracket.

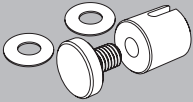
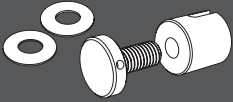
**Note:** Weight limit for drill thru Top Grippers is 70 lbs.

Weight limit for set screw (non drill thru) Top Grippers is 50 lbs.



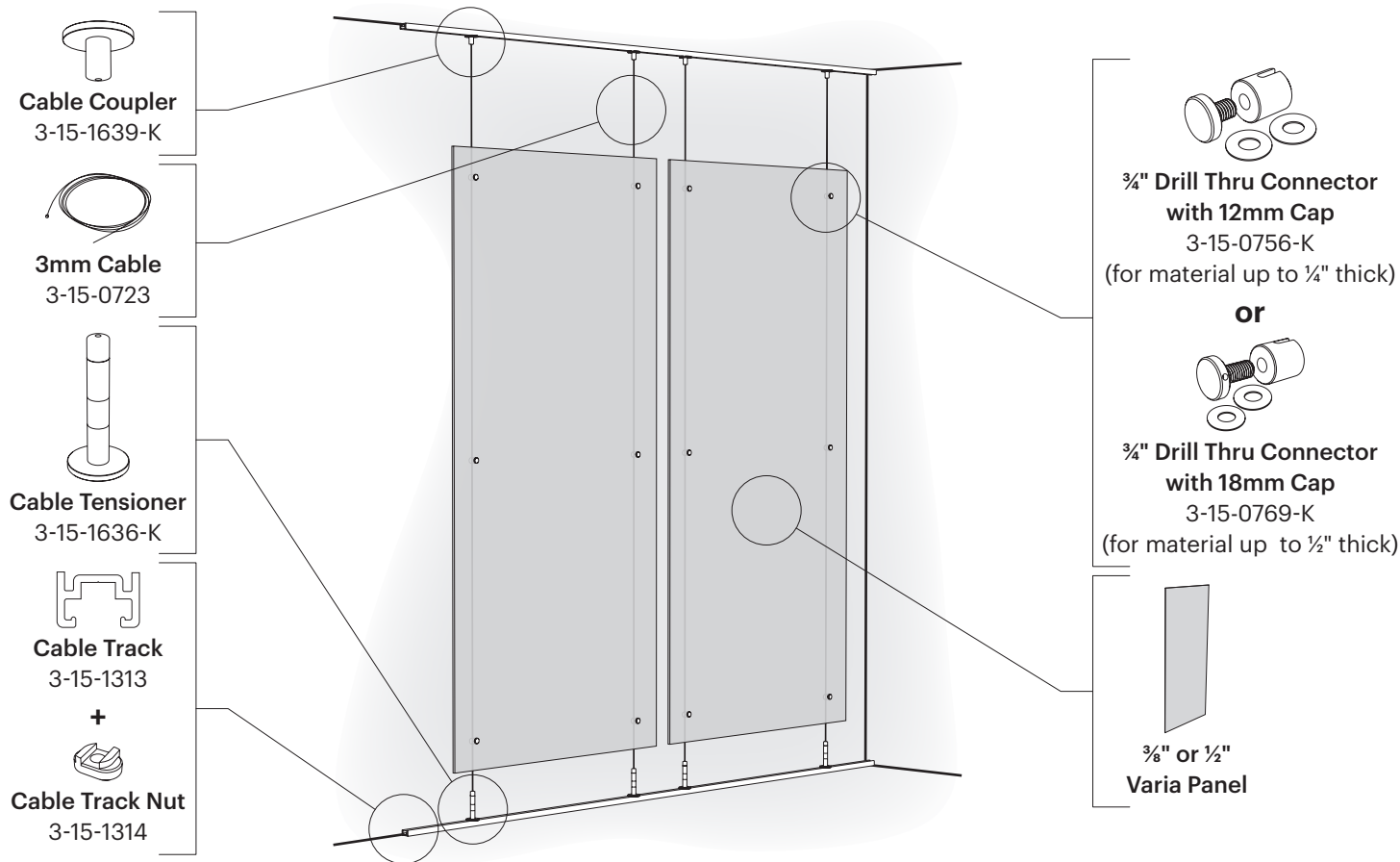
**Note:** With flat panels the weight should always be suspended from the top, not resting on the floor. Otherwise the panels will bow. If the panel is being mounted from the ceiling, as in this solution, the Top Grippers **must** be used with drill thru attachments and not simply set screws.

Drill Thru Fastening Components

Gauge	Image	Description	Finish	Part Number
1/4"		3/4" Drill Thru Connector with 12mm Cap	Stainless Steel	3-15-0756-K
3/8" -1/2"		3/4" Drill Thru Connector with 18mm Cap	Stainless Steel	3-15-0769-K

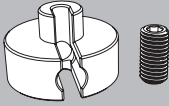
Drill Thru Fastening: *Curve Collection*

In this solution the cables are attached to the ceiling with the Cable Track and run behind the panels instead of to the side through use of the Drill Thru connectors. This provides a different aesthetic and more support.



**Note:** The max weight per connector is 25 lbs. Consider this when deciding how many connectors you need for a specific size of panel. Find material weights on the Material Specification Sheets at 3form My Downloads. Also consider panel deflection when determining the number of connections needed for any configuration.

Shelving Components

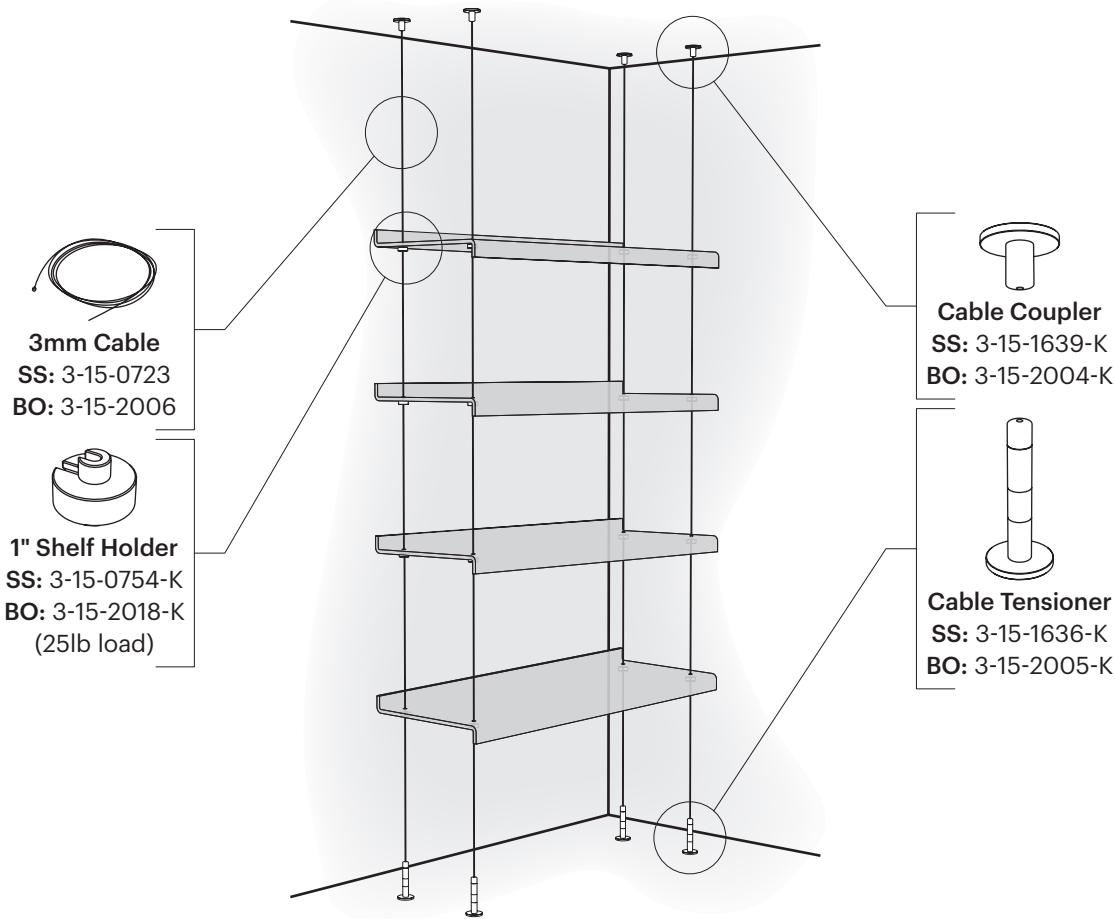
Gauge	Image	Description	Finish	Part Number
1/2"		1" Shelf Holder (25lb load)	Black Oxide	3-15-2018-K
-1"			Stainless Steel	3-15-0754-K

Shelving: Curve Collection

3form Suspend also provides a great solution for shelving applications. To counter the natural flexibility of Varia, a line bend or radius edge must be introduced along the edge to prevent deflection.

Similarly, the width of the shelf span should be limited to 36"; the depth should be limited to 12"; the material gauge should be 3/8" with 1.5" of panel hanging below the line bends; the maximum weight placed on each shelf should be 30 lbs.; the maximum number of shelves per 4-cable assembly is 4.

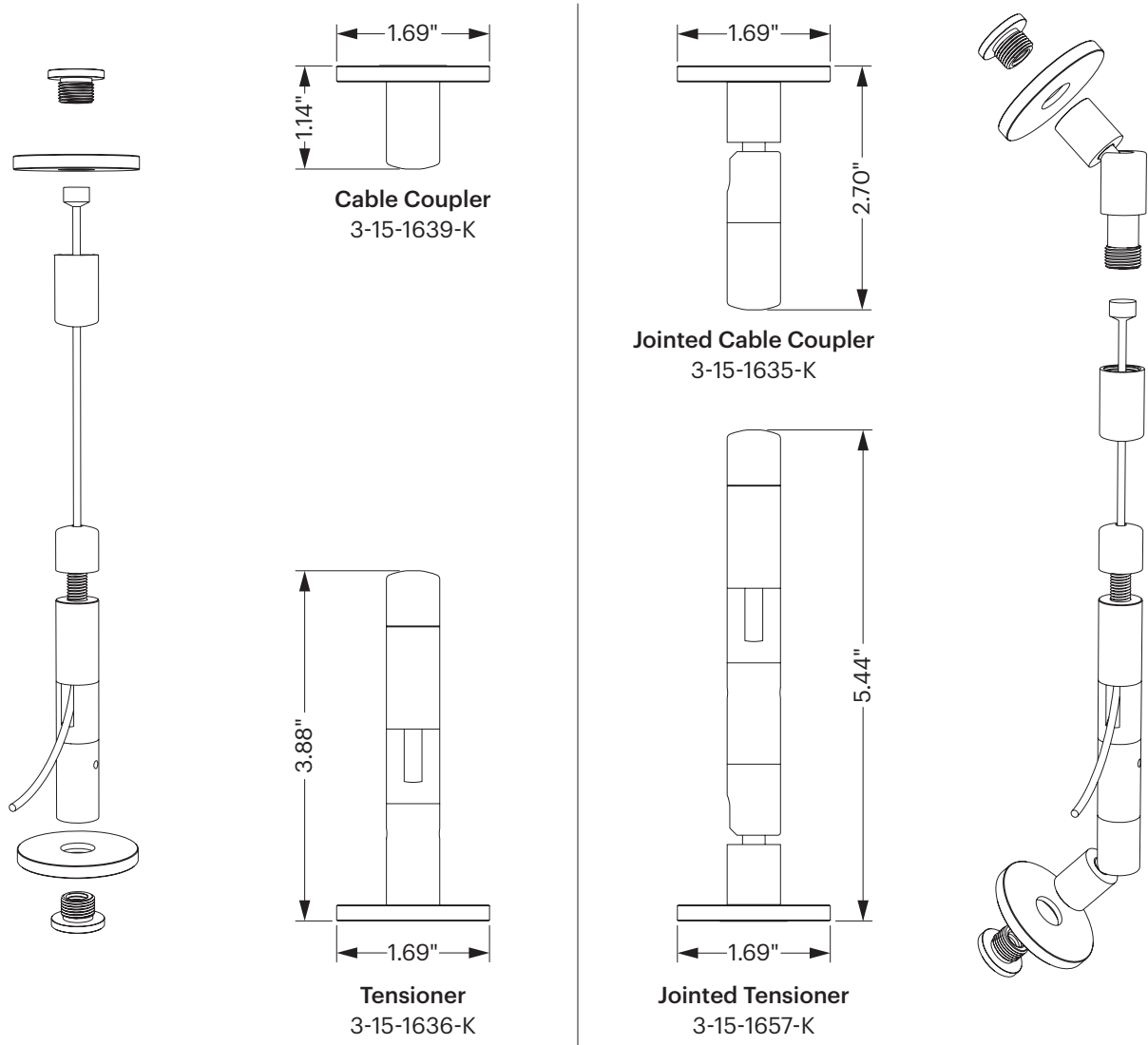
**Note:** The maximum weight per connector is 25 lbs.



## Installation

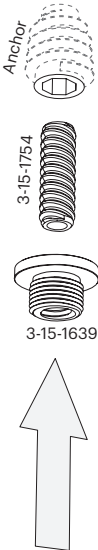
### Cable Anchoring and Attachment

There are two types of cable connectors: straight and jointed. The straight connectors are for ceiling to floor applications. The jointed connectors can pivot in any direction, allowing cables to be mounted to walls and inclined ceilings with any incline angle. The connectors are very easy to install, as shown on the next few pages. All the cable connectors have M8 internal threads, which is compatible with ICC-rated concrete anchors. The total weight experienced by each 3mm cable should not exceed 225 lbs. but ideally should be between 150 lbs to 200 lbs. If tension in the cable exceeds 400 lbs. the cable tensioner will begin to unwind. You should only anchor cables into drywall when you are using a Cable Track on the ceiling or attaching to a wall in a low-traffic area. Any time you fasten cable to drywall you should not exceed 60 lbs. of tension and weight. This means your cable should have some slack, otherwise you risk pulling the anchors out of the drywall.



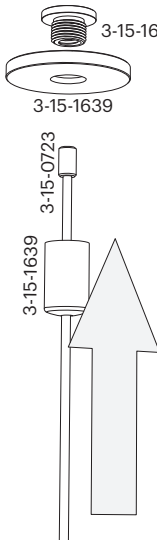
Installation  
Cable Coupler and Tensioner

1



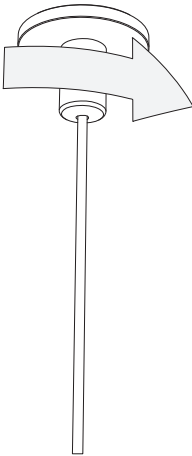
Install the base support to the ceiling or surface using the M8 rod provided with the appropriate anchor for the substrate.

2



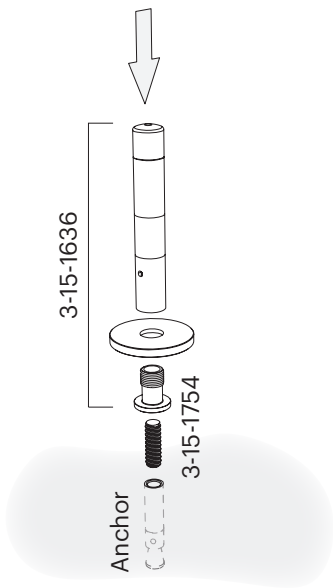
Pull the length of the cable through the cap so the swaged end catches inside.

3



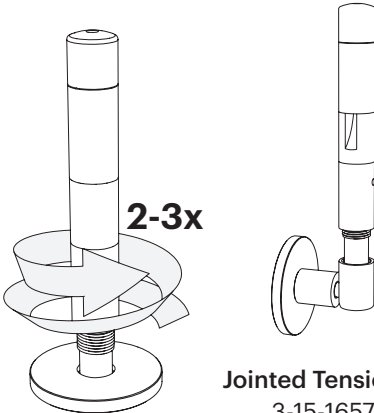
Put the cover plate over the base support and screw the cap to the base as shown above.

4



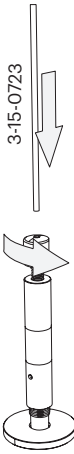
Install the base support to the floor using the M8 rod provided with the appropriate anchor for the substrate. Install the cover plate over the base support.

5



Screw the tensioner onto the base support with 2 or 3 rotations. **Do not** screw it all the way down at this point.

6



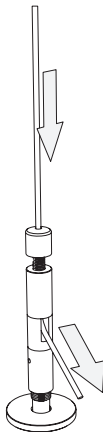
Unscrew the safety cap on the top of the tensioner on the floor. Thread the cable through the safety cap and push it into the threaded plunger at the top of the tensioner.



Installation

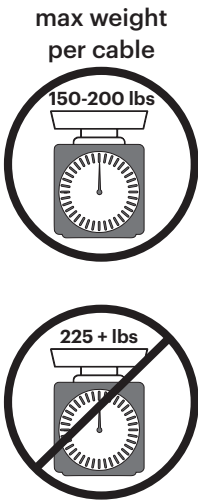
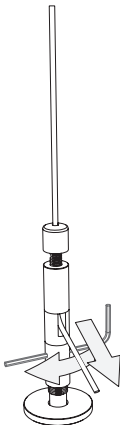
Cable Coupler and Tensioner

7



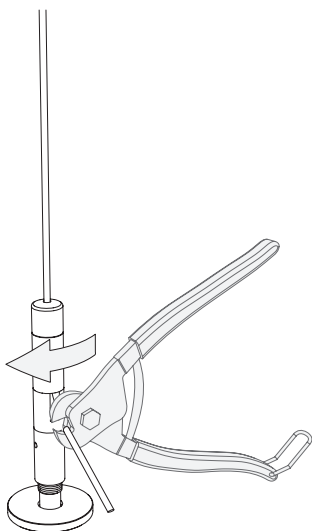
Pull all excess cable through the side exit on the tensioner. Mount components and panels to cable before completing the next steps.

8



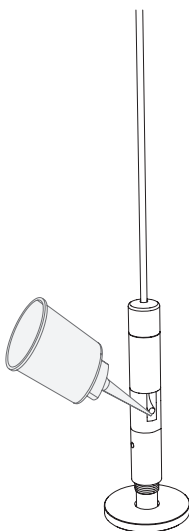
Do not tension to more than 225 lbs or 60 lbs if the cable is anchored into drywall. If you do not have the appropriate tools to measure the tension this will be an estimate, but be careful not to over-tighten.

9



Screw on safety cap and cut the cable.

10

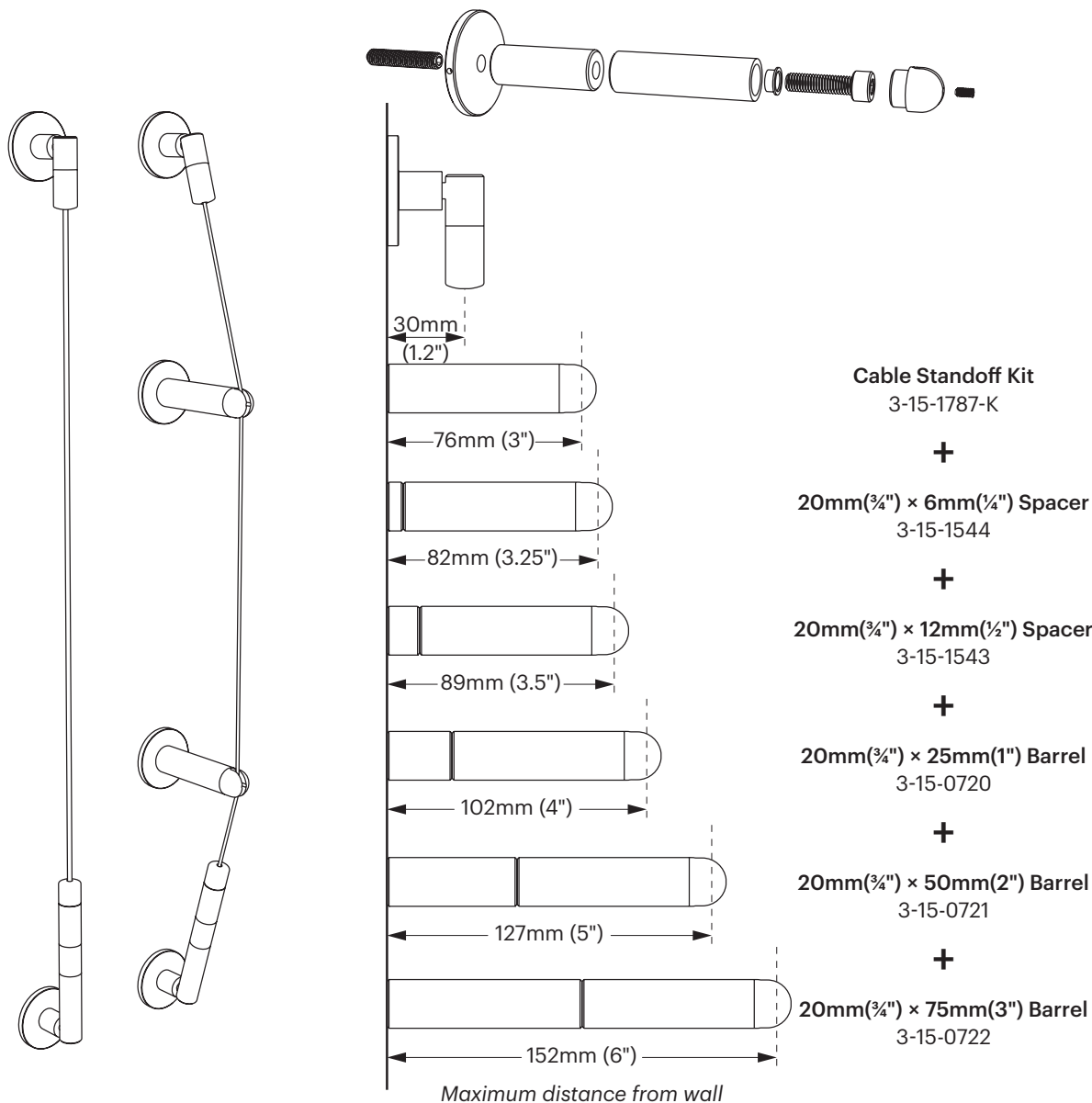


Put a drop of super glue at end of cut cable to keep from fraying.

Installation

Single Vertical Surface

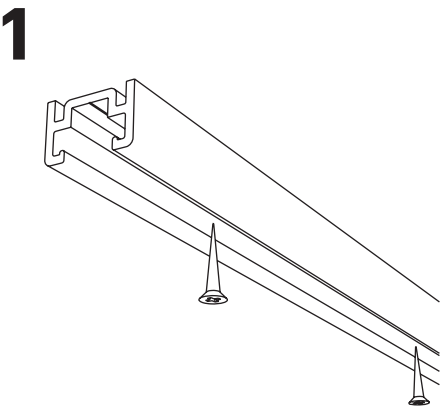
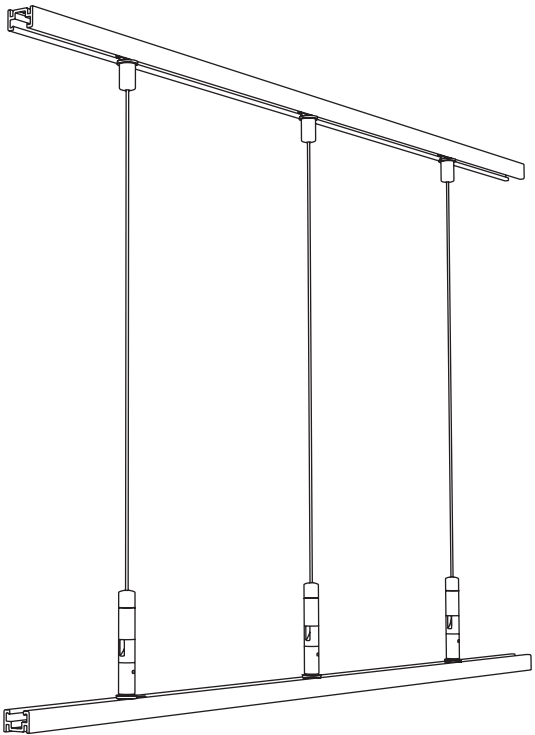
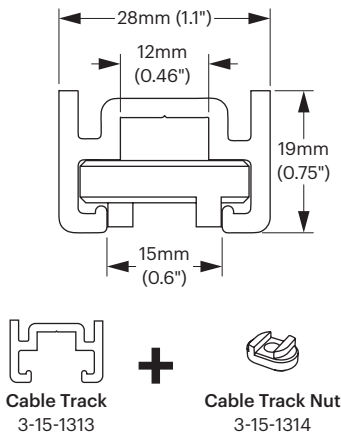
As mentioned previously you now have the option to mount cables vertically from wall-to-wall, ceiling-to-wall, or wall-to-floor. When installing the top and bottom of a tensioned cable on a single surface you can either use the Jointed Tensioner alone or with an added Cable Standoff Assembly as shown below. For applications where the top connections are fixed into drywall as the vertical substrate, weight should be limited to 60 lbs per top connection with the use of M8 toggle bolts as anchors. Use the Cable Standoff Assembly with different spacers or barrels to accomplish different distances from the wall. For stability, standoffs should be no greater than 6" from the wall.



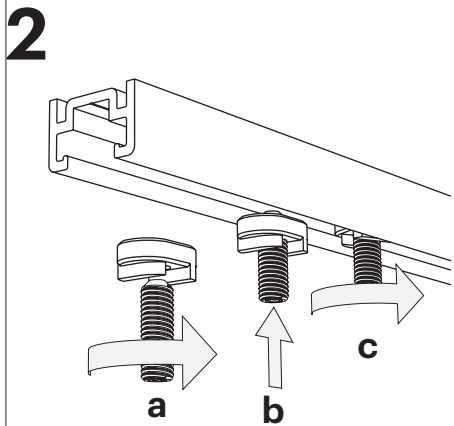
## Installation

### Cable Track

3form's Cable Track system is easy to install and use with our cable connectors. The cable tracks come in 8' lengths, but they can be joined together to the desired length. A Cable Track must be used if you ever attach cable to a drywall ceiling. Any time you fasten cable to drywall you should not exceed 60 lbs. of tension and weight per cable. This means your cable should have some slack, otherwise you risk pulling the anchors out of the drywall. See below for Cable Track installation instructions.

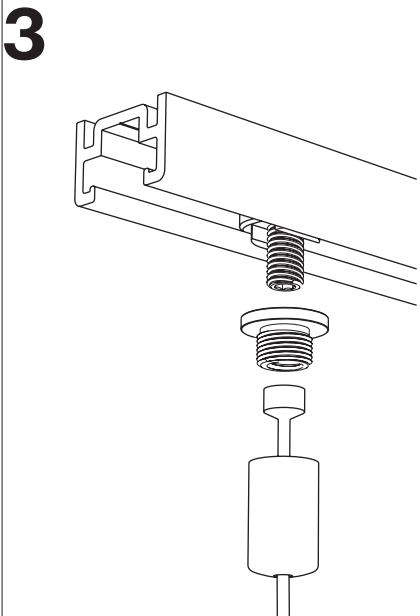


Install the track on the surface using appropriate screws and anchors for the substrate. Space the screws no greater than 16" apart.



#### Cable Track Nut Placement

- a** Screw the threaded rod a few rotations into the nut.
- b** Insert the nut into the profile.
- c** Rotate the nut clockwise and tighten the threaded rod until it secures the nut in place.



Install the coupler or tensioner without the cover plate.