Strength Cable Guide



Keeping strength cables and belts tensioned properly is not part of the product warranty and should be maintained by the facility. This document will walk you through how to properly tension Matrix strength cables and belts and, also show you examples of damaged cables.

Cables can stretch over their life and should be checked WEEKLY for proper tension and inspected for damage. Without proper tension, users will lose some range of motion and excess wear to the cables can occur.

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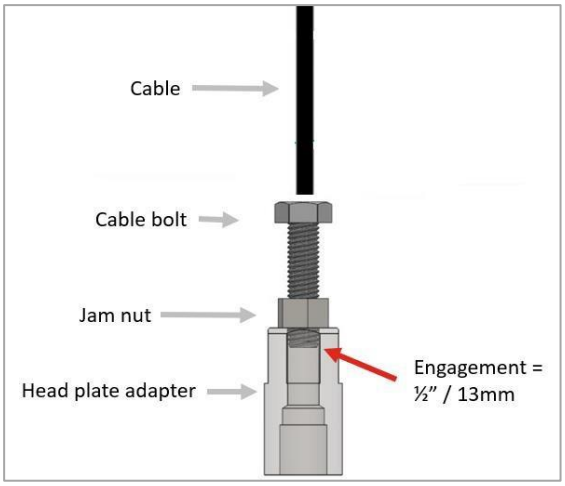
Strength Cable Bolt Engagement

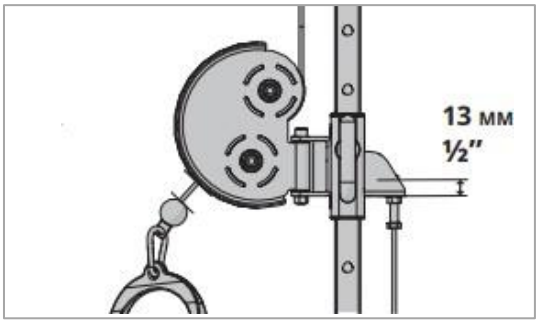
Strength cables may have different size cable bolts that connect to the top plate or head plate adapter on weight stacks. For this reason, it is important to follow these steps when tensioning cables to ensure your cable has enough engagement to not be a safety concern.

Remove and measure the cable bolt. Measure from the top of the bolt head to the bottom of the bolt. Remember the bolt length as you screw the bolt into the head plate adapter/sleeve (axle). **A minimum of ½" (13mm) must be engaged at all times.**

Example: *The bolt measures 2 ½" (63.5mm) in length (top of bolt head to bottom of threads). Attached the cable bolt to the head plate adapter/sleeve (axle) by screwing it down so 2" (51mm) of the bolt is still showing. From there you will check the tension of your cable. If the cable needs tension, you will screw the bolt down giving it further engagement. If it is too tight and there is no other way to adjust tension (see tensioning procedures in the following pages) you must replace the cable. Do not unscrew to reduce the required ½" (13mm) of engagement.*







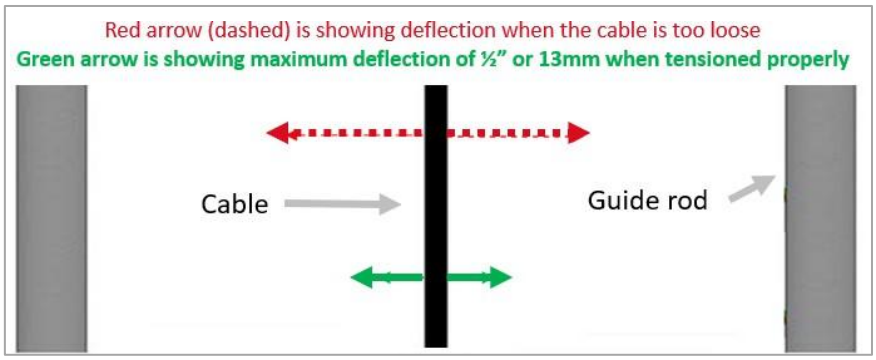
Strength Cable Tensioning

Cables can stretch over their life. It's important to check for proper tension and inspect for damage. Without proper tension, users will lose some range of motion and excess wear to the cables can occur.

Single Stations

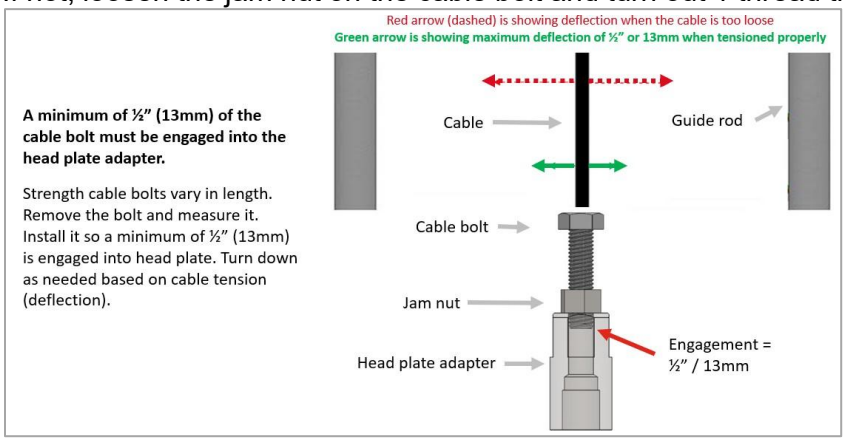
Check for Proper Tension:

1. Unpin the weight stack pin from the stack.
2. **From the midway point of the cable bolt and top of weight stack,** use your finger to move the cable from side to side. You should see no more than ½" (13mm) of deflection (about the width of your finger) before the top weight plate starts to move or you feel resistance from the cable.
3. If you have more than ½" (13mm) of deflection, follow the tensioning procedure on the following pages.



Tensioning Procedure:

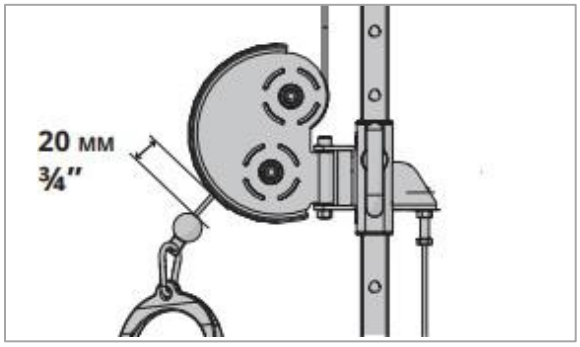
1. Unpin the weight stack pin from the stack.
2. Remove the cable bolt from the head plate adapter.
3. Turn down the cable bolt so ½" (13mm) of the bolt is engaged into the head plate adapter (see image below)
4. Check cable tension. If you have no more than ½" (13mm) deflection the cable is tensioning properly (see checking for proper tension procedure above)
   - If you have too much deflection, turn the cable bolt down a few turns and check tension again. Do this until proper deflection is achieved.
5. Tighten jam nut down the cable bolt so it is tight to the head plate adapter. You must secure it with a wrench. Finger tight is not good enough.
6. Use the weight stack pin and pin 50-60 lbs. then perform 5-7 reps to set/stretch the cable.
7. Check for proper tension
8. Check to make sure the weight stack pin goes into each weight plate. If the pin touches the bayonet, that is fine as long as the pin can be inserted completely.
   - If not, loosen the jam nut on the cable bolt and turn out 1 thread then recheck.



Functional Trainers

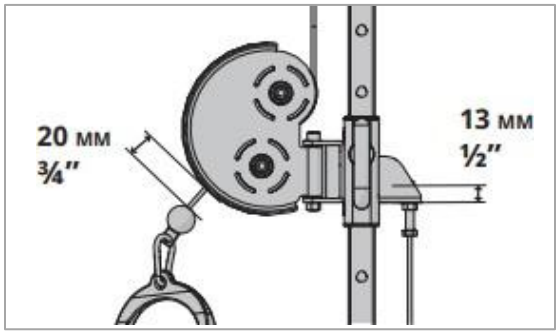
Check for Proper Tension:

1. Proper tension should leave **20mm of clearance** at the widest point on the pulley guard as pictured below.



Cable Tensioning Procedure:

1. Install the bolt to ½" (13mm) of engagement to the pulley carriage.
2. Check the cable ball end measurement. Proper tension should leave ¾" (20mm) of clearance at the widest point on the pulley guard.
3. Adjust the cable bolt down as needed. Always ensure to tighten the jam nut with a wrench when you are done.



Functional Trainer - Cable Routing

The cable length should be 8265mm. If unit was manufactured prior to July 2021, the cable was 8230mm and should be changed to this longer cable.

1. Remove pulley 7 using a 5mm Allen key and 13mm socket and wrench. Be careful not to lose the spacers on each side of the pulley. They may fall when you remove the pulley.
2. Starting at #1 (Figure 1), install the cable bolt to the adjustable pulley. Do not tighten the bolt jam nut.
3. Route the cable as shown (Figure 1) ensuring that the cable is sitting on each pulley and not routed over cable keepers.
4. Re-install pulley 7.
5. Install the Cable Protection Components
6. Secure the carabiner to the cable head with a zip tie.
7. See Cable Tensioning Procedure to properly set the cable tension.

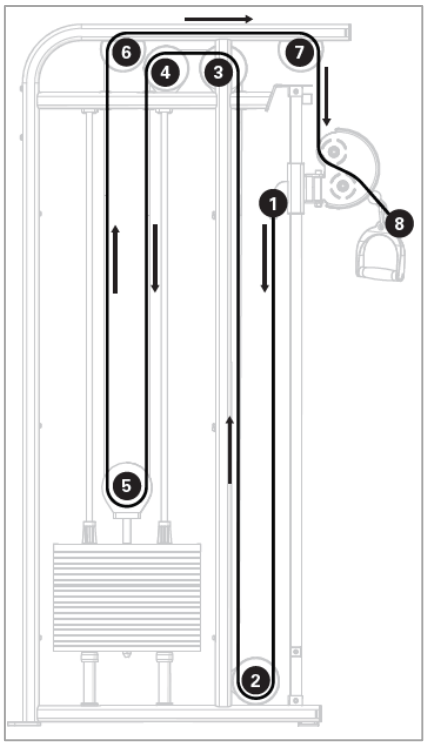


Figure 1

Identifying Damaged Cables

It is important for a facility to check cable conditions weekly. If any of the following are noticed, please put the unit “out of order” and contact Vision Fitness for a replacement cable.

Fractures:

Casing can crack or fracture under strains during use. Any crack in the casing merits cable replacement even if no wire rope is exposed. Be especially observant for fractures near the components on the cable assembly.



Twisting/Binding:

Inspect casing to ensure wire rope is not twisting within its casing. Any sign of the cable twisting should be replaced immediately.



Bulging:
Internal wire rope strands can break within and coil causing a bulge to appear. Cable should retain the same outside diameter throughout.



Frayed/Exposed Wire:
Any exposed wire rope protruding through the casing or at either end.



Flattened:
A section of cable is compressed and will not retain its shape (outside diameter).



Bent:
Cable has 'kink' and prohibits cable from laying straight. Wire rope may be unraveling beneath casing and is compromised warranting replacement.



Ends Separating:
Watch for component end of cable to pull away from cable assembly - look for exposed wire rope. Often times the oil from inside the cable jacket will start to leak out which can cause the cable to become brittle over time.



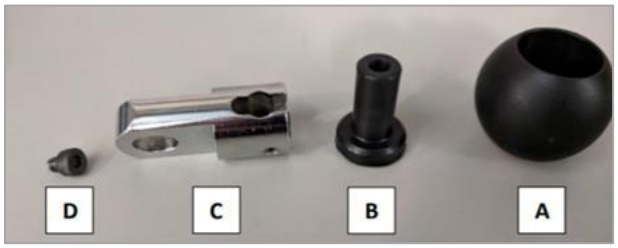
Damaged Cable Protection Components:
The cable protection components help protect the cable. If access wear is seen, replace components as shown on next page.

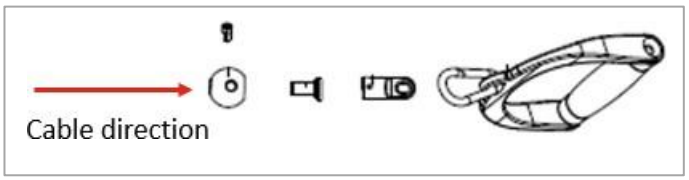


Functional Trainer Cable Protection Components

If damage to the **stain relief** is found, contact Customer Technical Support, and request a replacement. Installing this is very simple. See the following assembly instructions.

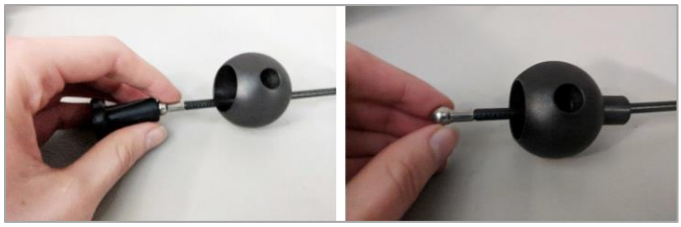
A	Ball stop
B	Strain relief
C	Eyelet
D	Locking screw



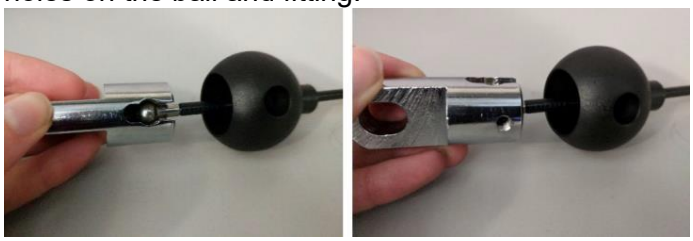


Assembly Instructions

1. Slide the ball stop and then the strain relief onto the cable. The strain relief fits inside the ball stop and extends out the other side.



2. Place the cable end into the eyelet end fitting. Pull the ball up into the end fitting and line up the screw holes on the ball and fitting.



3. Apply Vibra-Tite thread locker (red) to the bolt. Next, use a 4mm Allen wrench to attach the socket head screw to secure the assembly.

