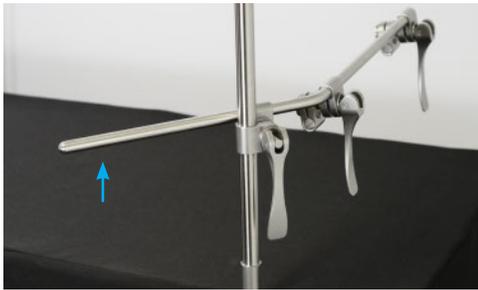


**!** Crossbar sticks out and in the way.



**✓** Rotate crossbar, point excess length out of the way, lower crossbar height as needed.



**DETAILS:**

The crossbar was designed for versatility, it can be raised and lowered while also being rotated. The key is to remember to rotate the crossbar so that if there is any excess length, it is pointing out of the way.

**!** No room to add a handle or joint to the crossbar.



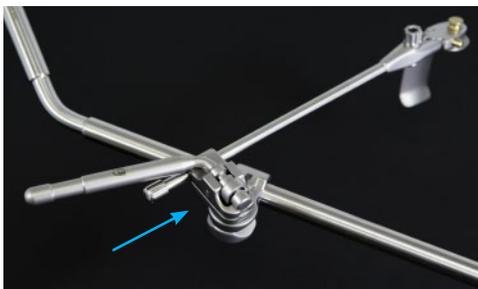
**✓** Before locking, rotate crossbar cam joint handles out of the way so that they do not block the crossbar.



**DETAILS:**

Handles or cam joints can be attached between the two crossbar cam joints as long as the cam joint handles are locked out of the way.

**!** The retractor handle won't reach far enough.



**✓** Attach handle joint so that the "pinch" is inside the frame. It will provide more reach.



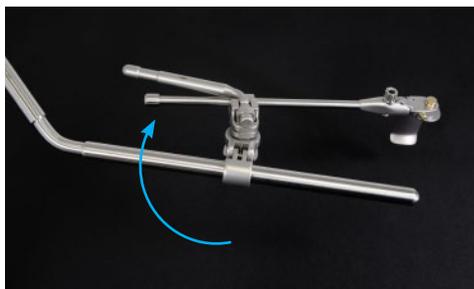
**DETAILS:**

If this is still not enough room, move angled arms closer to the operative site. Longer handles may also be available.

**!** The handle sticks out in the working area.



**✓** Rotate handle away from you, and rotate blade so that it still retracts in the desired position.



**DETAILS:**

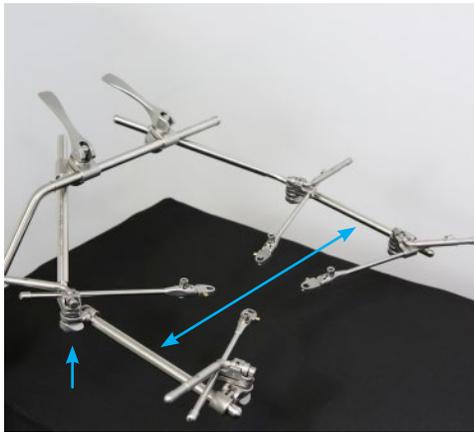
Retractor handles and blades can rotate 360°. Handles do not have to lock in the direction of retraction. If using S-Lock® blades and handles, the blade can be locked in any orientation to the handle to prevent swivel.



**There's no room to retract further.**



**Open up the angled arms to create a wider frame and point handles away from your working space.**



#### DETAILS:

If the angled arms are set up too close, retraction space may be limited.

**TIP:** For even more retraction room, attach handle joints with the "pinch" on the outside of the frame.

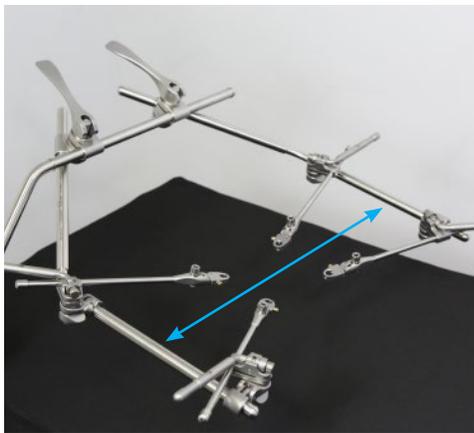
The handle joints can take up retraction space and handle can reach maximum retraction when it runs into the joint.



**Retractor is too high, feels like I'm working in a tunnel.**



**Lower crossbar and / or angled arms, keeping the frame low, wide, and parallel to the ground for an even setup.**



#### DETAILS:

If angled arms and crossbar are positioned too high, handles will be forced to angle downward to reach the incision, creating a "tunnel effect" and causing handles to stick up. The crossbar only needs to be about 5cm (2") above the patient and the angled arms can go lower, as long as they don't touch the patient or block imaging. Quick Angle handles also lower the overall profile.



**Difficulty removing the handle from the frame.**



**"Pinch" the back of the cam joint using thumb and index finger. Gently lift up off of arm.**



#### DETAILS:

Thompson's clip-on handles clip securely onto the frame and will not fall off.

Newer handles ( top images ) have a built-in "pinch" feature, however older generation handles ( bottom images ) may cause some difficulty when trying to un-clip the handle from the frame.