TECHNICAL REMINDER

NEMOST®

Growing Device

Indication

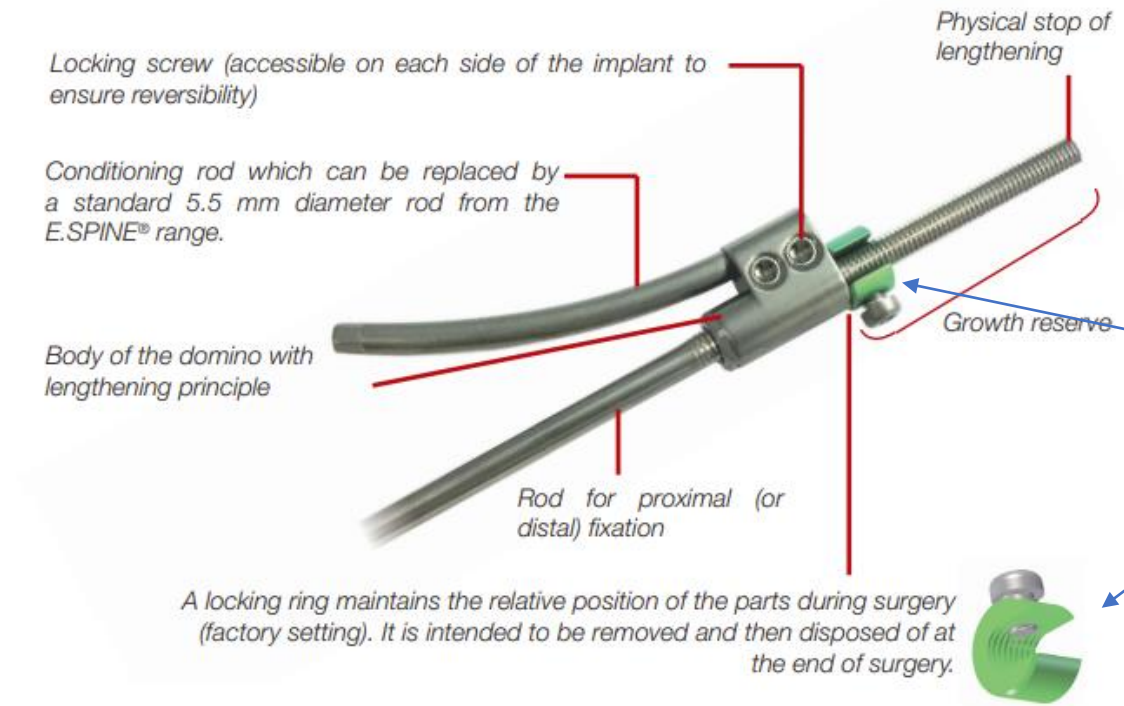
The NEMOST implant is intended for the fusionless surgical treatment of early onset scoliosis in children of RISSER 0 as a first-intent treatment.

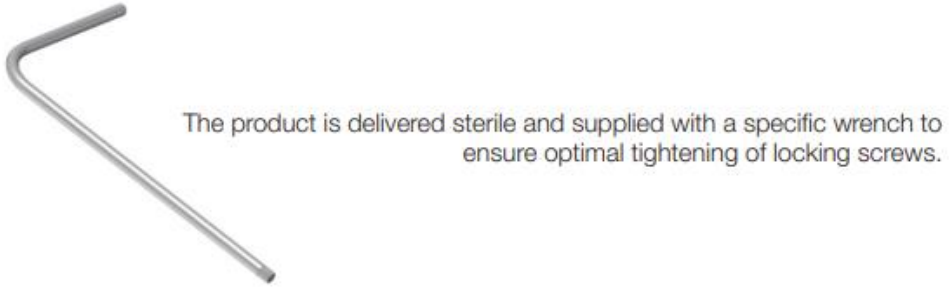
Be careful with <u>rigid Curves:</u>

- Progressive pre-operative correction by external methods (Halo-Gravity)
- Use per-operative traction under neuromonitoring

Doing this may help to reduce the force of per operative correction needed and avoid excessive pre-load in the NEMOST device

Unpacking the device

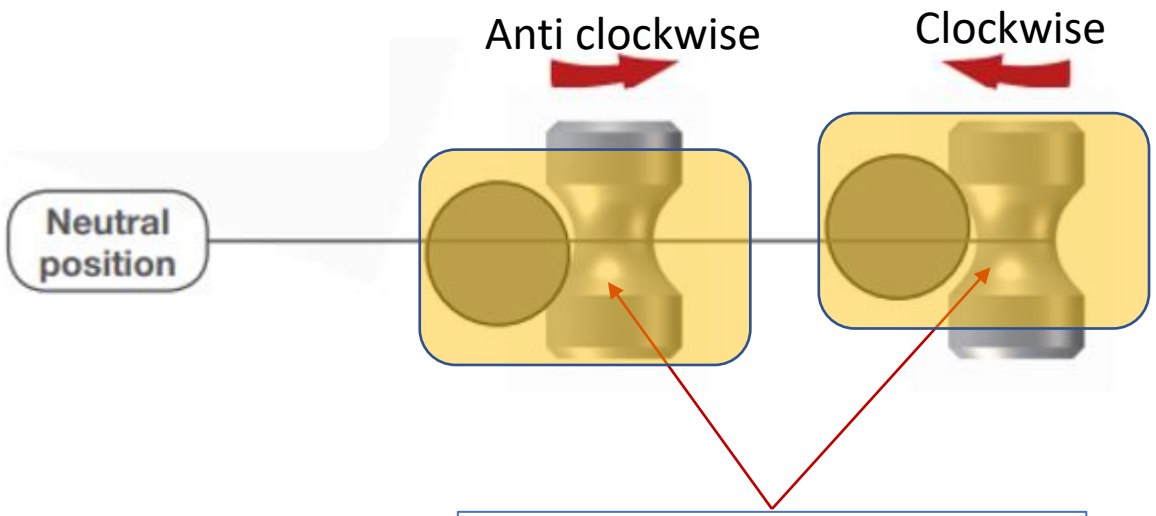




The product is delivered sterile and supplied with a specific wrench to ensure optimal tightening of locking screws.

Scrub nurses should be reminded not to distmantle the green blocker from the assembly before handling the device to the surgeon

Releasing / Locking the smooth rod



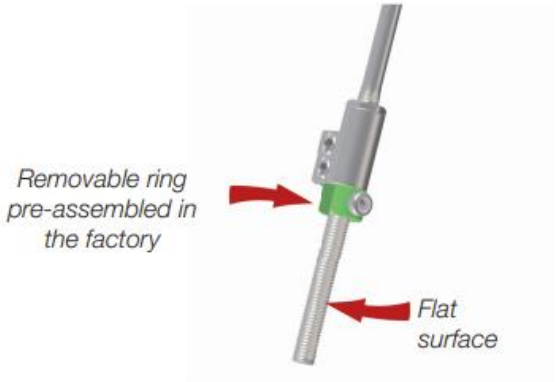
Full tightening clock wise or anti-clockwise will lock the smooth rod.
(Heads of the set screws are coming out of the domino as shown)

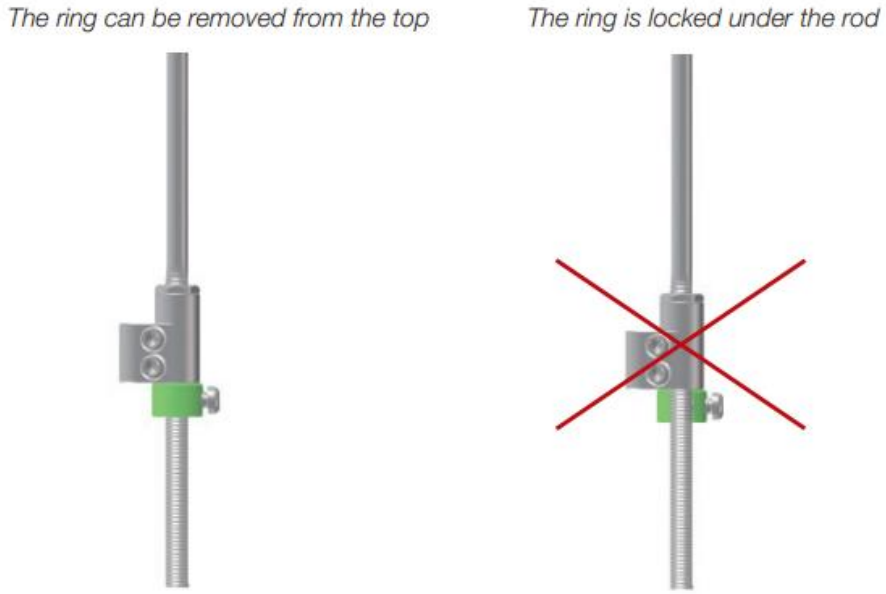
In order to release the rod, both set screws have to be in a neutral position
(Heads of the set screws are flush with the body of the domino)

Set screws are designed with a « diabolo » shape (eccentric screws).

Unpackaging : To release the smooth rod, one set screw must be turned clockwise and the other one anticlockwise so that both set screws are flush with the body of the domino, the two set screws are in the neutral position and the smooth rod can be released from the domino.

Adjusting the green blocker





The green blocker is attached to the notched rod and its orientation is given by the flat surface machined along the rod.

As the NEMOST device can be used in multiple direction (upward, downward, left and right), the orientation must be be carefully checked to allow its removal at the end of the surgery.

To change the position of the green blocker, the sterile wrench (provided in the sterile pack) must be used to disconnect the blocker and reconnect it in the appropriate orientation

Selection of the NEMOST size – 50 or 80mm ?

« Who can do more can do less »

Age and potential of growth is the major criteria for decision
Usually patient aged of less than 10Y should receive NEMOST 80mm

Nevertheless, NEMOST 80mm should be difficult to implant in the following situations :

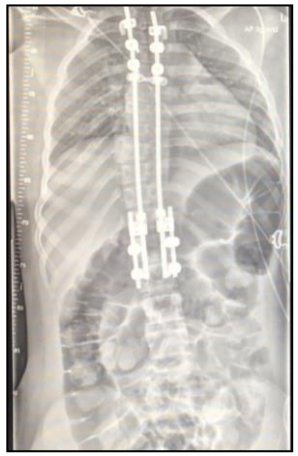
- Very tiny patient (closure of the wound)
- Conflict with the anatomy (local lordosis)
- Upward or downward orientation of the NEMOST (see next slide)

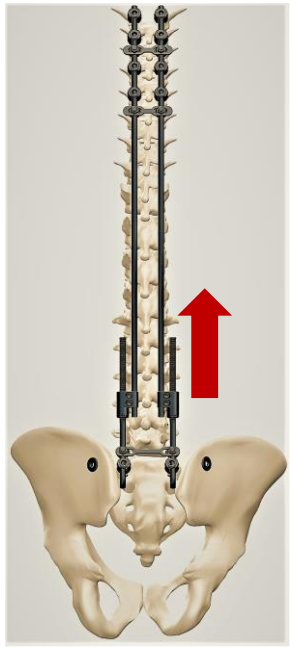
When NEMOST 80mm is used, it should be placed closer to the TL junction to avoid a kyphotic effect during its extension.
In any case, a very careful lordotic bending of the smooth rod is required to limit this effect.

Which orientation for the NEMOST ?

Lumbar distal foundation

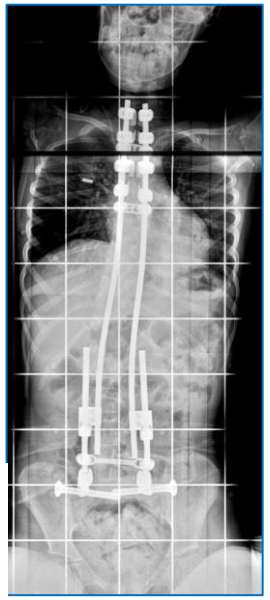
Notched part downwards and medial





Pelvic distal foundation

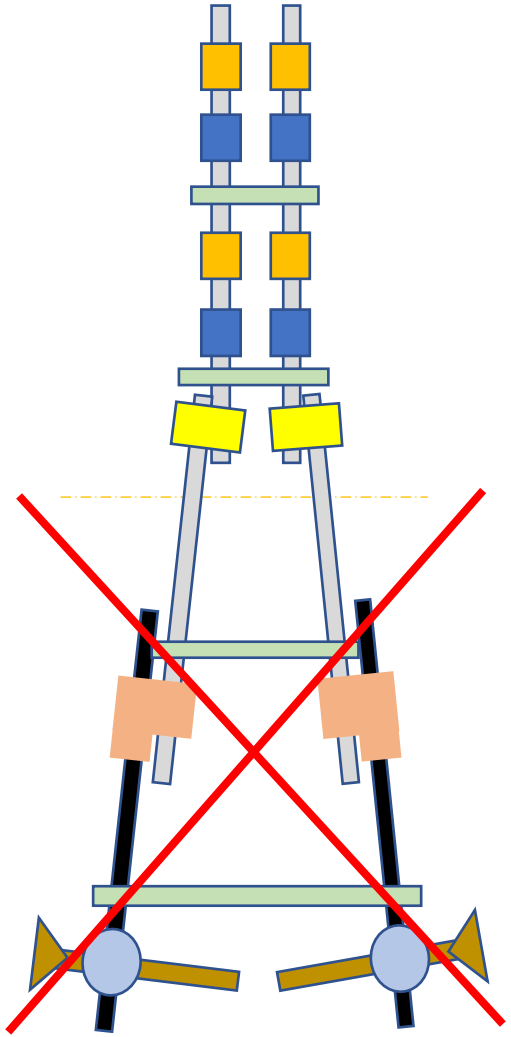
Notched part upwards and lateral

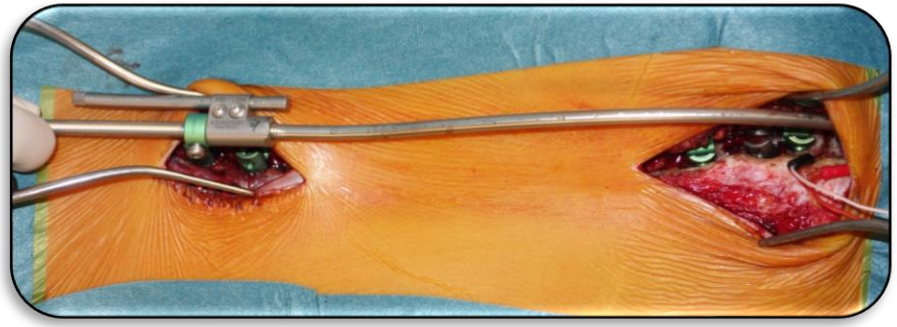


Notched parts downwards configuration is more difficult to perform in case of important lordosis.
Nemost should be placed higher in the TL area to facilitate the connection of the smooth rods to the pedicular screws.

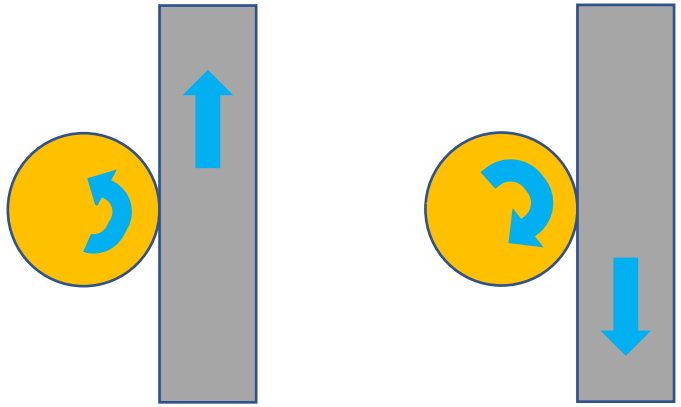
Mistakes to avoid

- Never bend the notched rods
- Avoid torsional constraints on the NEMOST (flat surface)
  - Use short thoracic rods
- NEMOST rods must be as parallel as possible
- Never put a crosslink above the Nemost dominos
- Don’t forget to remove the green locking rings

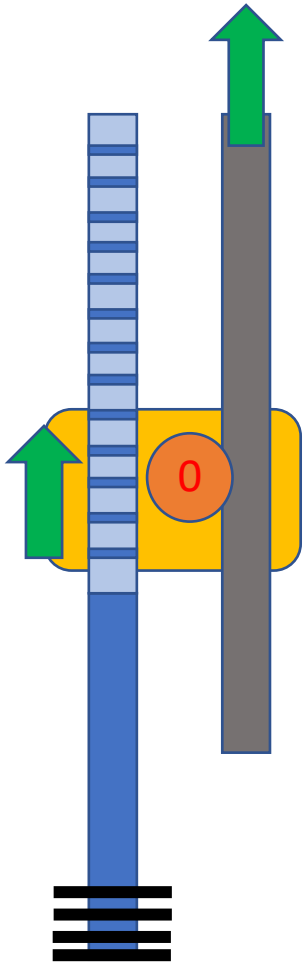




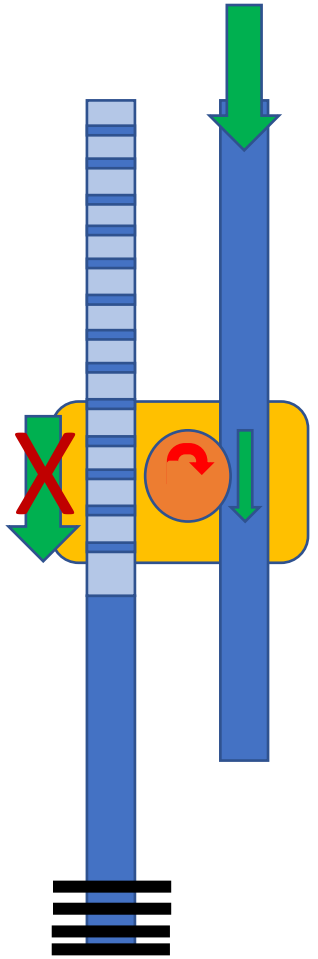
Final set screw tightening



Due to the lateral contact between the smooth rod and the diabolo set screw, when forces are applied on the smooth rod, they tend to rotate the set screws clockwise or anti-clockwise (friction)

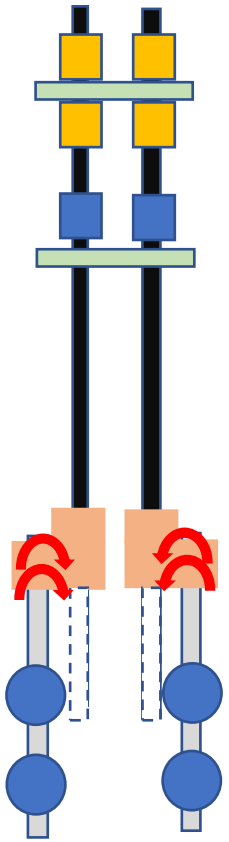


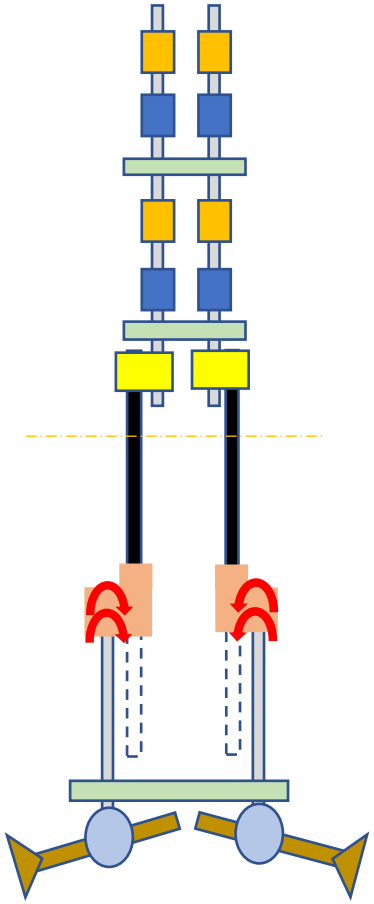
When a distraction force is applied on the construct, the ratchet mechanism authorizes constuct elongation.
(very limited force on the diabolo set screw)

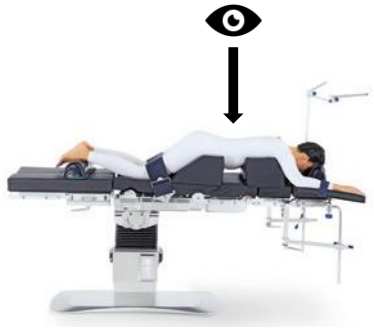


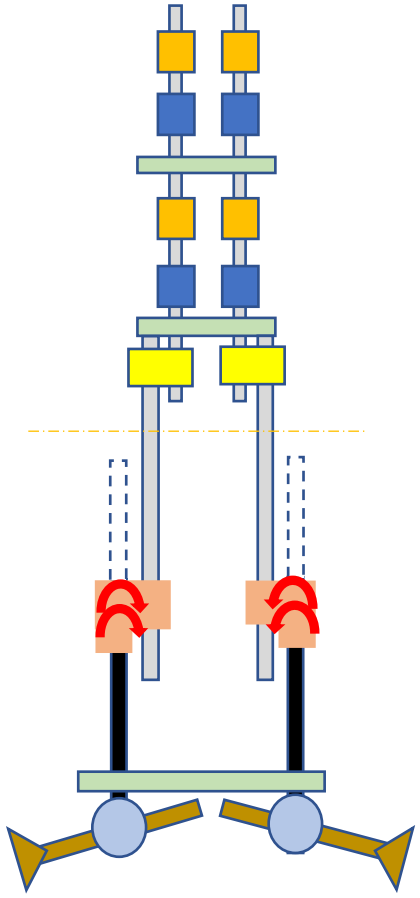
When a compression force is applied on the construct, the ratchet mechanism is locked.
(Forces are going through the smooth rod and tend to rotate the set screw)

Final set screw tightening









The direction of set screw tightening is made so that the force on the smooth rod will tend to rotate the set screw in the direction of “extra” tightening

When looking at patient’s back :

Clockwise direction on the left side and anti clockwise direction on the right side