



SURGICAL
TECHNIQUE

enovis™

LYNC®

PIP & DIP INTRAMEDULLARY IMPLANTS

HAMMER TOE SYSTEMS



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Novastep® S.A.S is a manufacturer of orthopedic implants and does not practice medicine. This surgical technique was prepared in conjunction with licensed health care professionals. The treating surgeon is responsible for determining the appropriate treatment, technique(s), and product(s) for each individual patient.

See package insert for complete list of potential adverse effects, contraindications, warnings and precautions.

A workshop training is recommended prior to performing your first surgery. All non-sterile devices must be cleaned and sterilized before use.

Multi-component instruments must be disassembled for cleaning. Please refer to the corresponding assembly/disassembly instructions, if applicable. Please remember that the compatibility of different product systems has not been tested unless specified otherwise in the product labeling.

The surgeon must discuss all relevant risks including the finite lifetime of the device with the patient.

Some implants / instruments are not available in all territories. For more information, please contact your local sales representative.

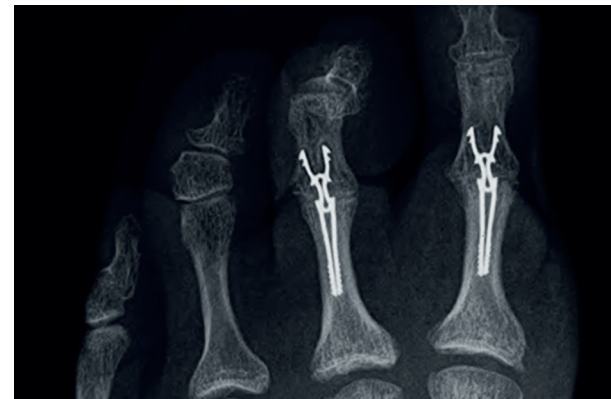
INDICATIONS

Intramedullary implants are indicated for arthritis and bone alignment defaults (hammertoe, claw toe and mallet toe) in toes.

NOTE: Detailed information on each medical device is provided in the instruction for use. Refer to the instruction for use for a complete list of side effects, warnings, precautions for use and directions for use.

CONTRAINDICATIONS

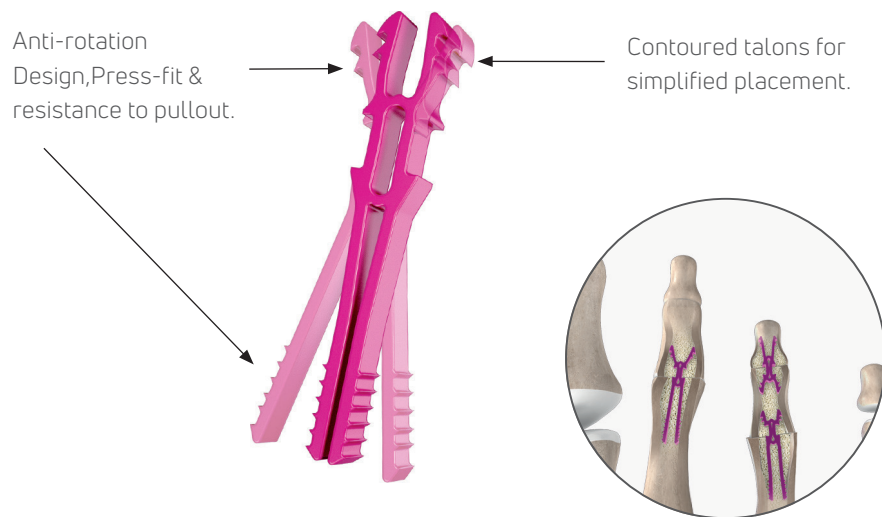
- . Bone destruction or poor bone quality, likely to impair implant stability.
- . Hypersensitivity to titanium.



HAMMER TOE SYSTEM

Lync® is a range of intramedullary implant specifically designed for arthrodesis of the proximal and distal interphalangeal joint of the foot. It is particularly recommended for the treatment of hammertoes. Its anti rotation design reduce the risks of rotation and pullout. Its expansion capacity and the notched grooves allow effective intraoperative anchorage to prevent migration.

KEY FEATURES



INDICATION

Intramedullary implants are indicated for arthritis and bone alignment defaults (hammertoe, claw toe and mallet toe) in toes.

FEATURES

- . Initial anchorage by means of mechanical expansion of the implant.
- . Interphalangeal gap reduction by compression, anchorage due to press-fit fixation.
- . Mechanical resistance to pullout and rotation.
- . No freezing. The implant may be used at ambient temperature.
- . Anodized pure titanium (Nickel free) - Radiopaque.

PROXIMAL INTER-PHALANGEAL ARTHRODESIS

1.1 APPROACH

Make a transverse incision to expose the joint. The extensor is cut transversely, leaving a distal central strip free. Dorsal arthrolisis is performed by cutting the internal and external ligaments. A plantar flexor tenolysis procedure may also be utilized (**FIGURE 1**).

1.2 PREPARATION OF THE PROXIMAL PHALANX (P1)

Resect the proximal phalangeal head with an oscillating saw (about 2-3 mm).

The plantar plate and the lateral ligaments may be released with a periosteal elevator or with a cutter to facilitate joint distraction. (**FIGURE 2**).

Prepare the proximal phalangeal canal using the drill bit. Drill until the cutting flutes are buried into the bone fragment. (**FIGURE 3**).

TIP: In case of a narrow canal, the drill bit may be used in a reciprocating fashion to widen the pathway.

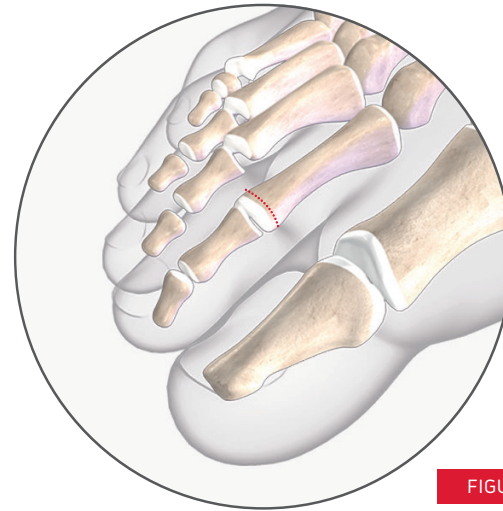


FIGURE 1

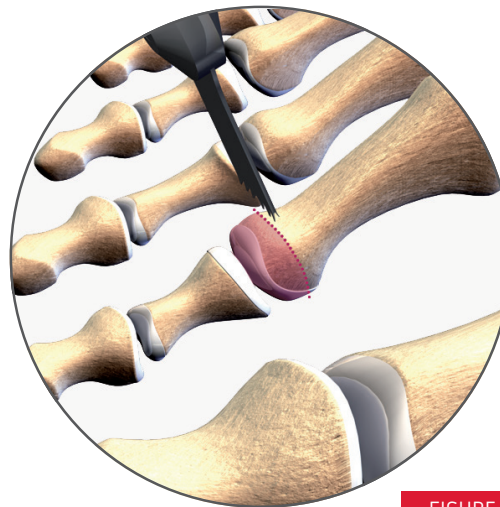


FIGURE 2

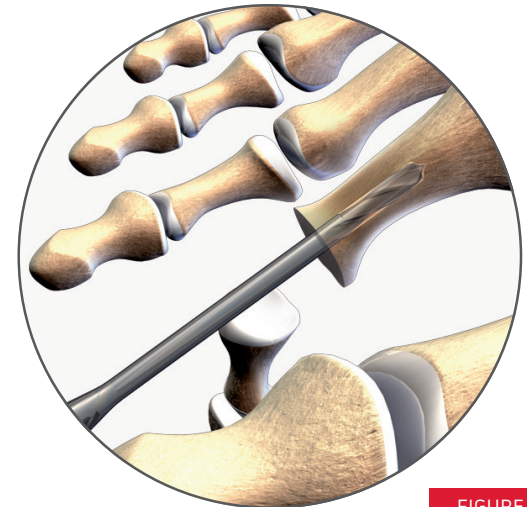


FIGURE 3

1.3 PREPARATION OF THE DISTAL PHALANX (P2)

Minimally resect the distal phalangeal head. (FIGURE 4). it is also possible to manually denude the cartilage using the provided Surfacing Reamer.

Prepare the proximal phalangeal canal using the drill bit (FIGURE 5).

🔖 **TIP:** In case of a narrow canal, the drill bit may be used in a reciprocating fashion to widen the pathway.

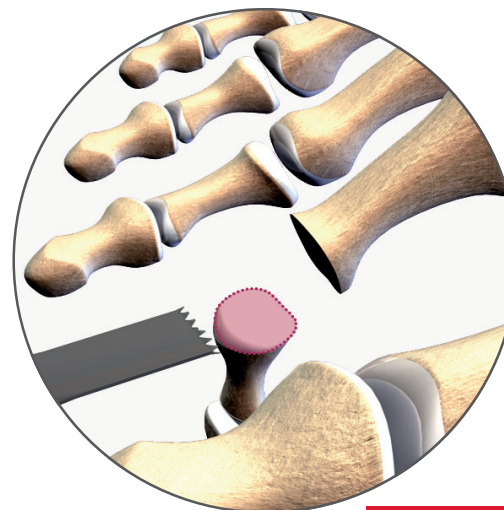


FIGURE 4

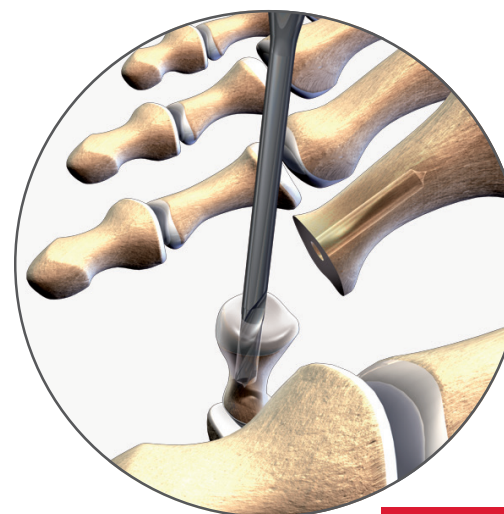


FIGURE 5

Finalize the medullary canal preparation by making a reciprocating movement with the rasp until the rasp shoulder is flush with the plane of the resected bony surface. (FIGURE 6).

🚩 **TIP:** To avoid creating an oversized medullary canal, do not use the rasp in the proximal phalanx.

To avoid creating an oversized medullary canal, do not use the rasp in the proximal phalanx. (FIGURE 7).



FIGURE 6

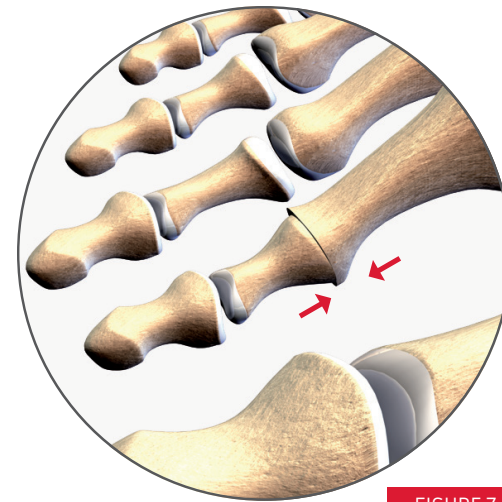


FIGURE 7

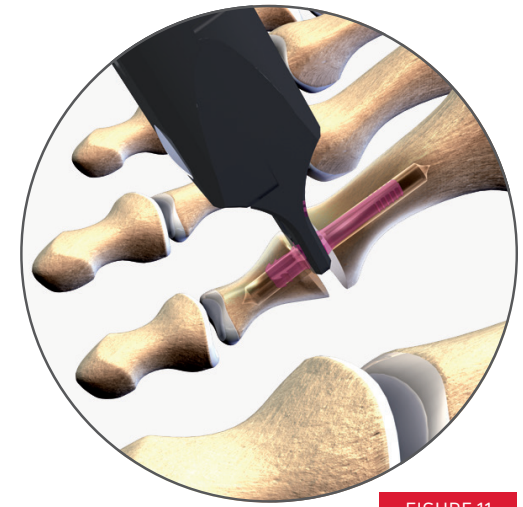
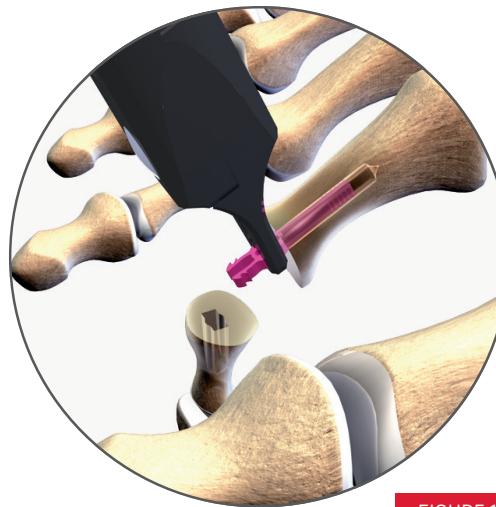
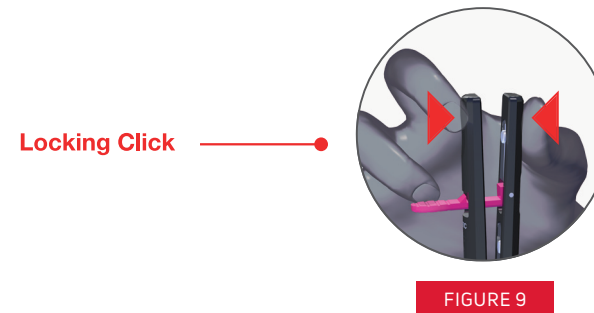
1.4 IMPLANT INSERTION

Capture the implant by positioning the tip of the forceps on the oval flats of the Lync® and ensure that the implant is situated at 90° with respect to the instrument in all planes. (FIGURE 8)

Press on the forceps handles until you hear a click to lock the implant in place. (FIGURE 9).

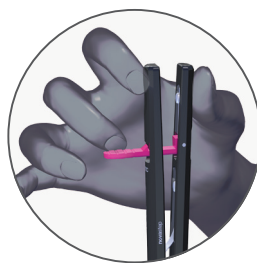
Insert the implant into the proximal phalanx until the forceps touch the bony surface. Do not remove the forceps at this stage of the insertion. (FIGURE 10).

Slide the distal phalanx back on to the distal implant legs. Maintain the forceps in position. (FIGURE 11).

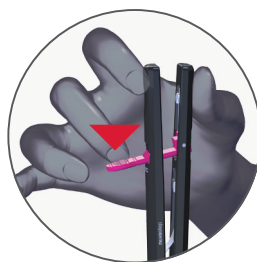


To ensure proper anchorage, spread the proximal and distal legs of the implant by depressing the pink forceps lever while simultaneously closing the forceps handles. The notched grooves on the implant legs will engage with the inner walls of the medullary canal to achieve stable primary fixation. (FIGURE 12)

LOCKED



FORCEPS UNLOCKED



IMPLANT EXPANSION

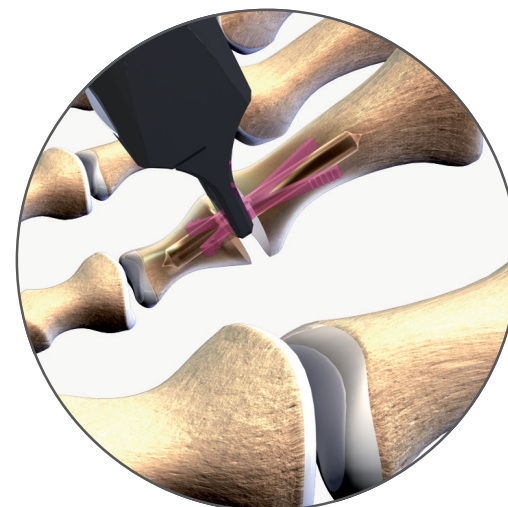
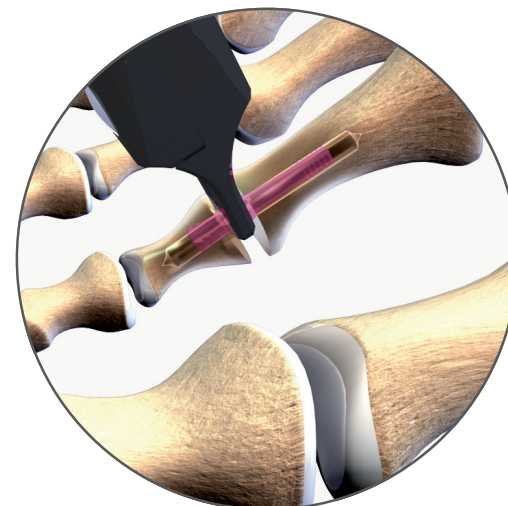
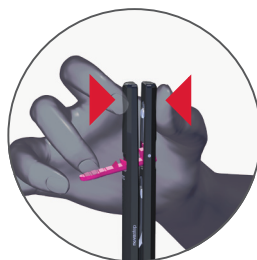


FIGURE 12

1.5 IMPLANT IMPACTION

Remove the forceps from the implant and manually compress the middle and proximal phalanges. The implant will now be fully anchored by press-fit in the intramedullary canal. (**FIGURE 13 A & B**)

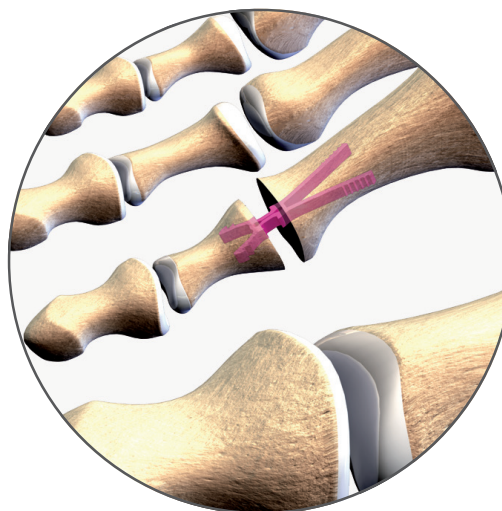


FIGURE 13A

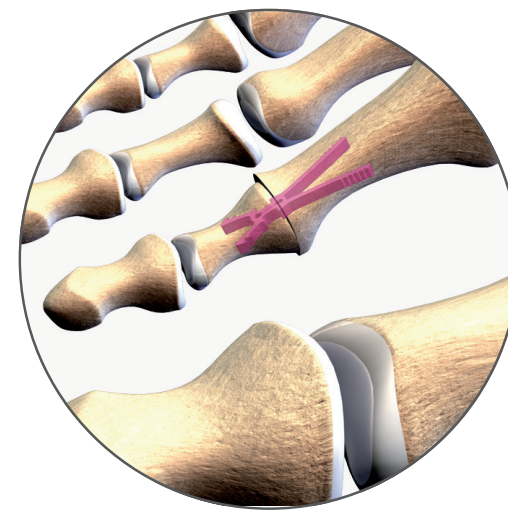


FIGURE 13B

DISTAL INTER-PHALANGEAL ARTHRODESIS

2.1 APPROACH

Make a transverse incision to expose the joint. The extensor is cut transversely, leaving a distal central strip free. Dorsal arthrolysis is performed by cutting the internal and external ligaments. A plantar flexor tenolysis procedure may also be utilized (**FIGURE 14**).

2.2 PREPARATION OF THE DISTAL PHALANX (P3)

Resect the distal phalangeal head to reach the cancellous bone (about 1 mm). Prepare the distal phalangeal canal using the drill bit. (**FIGURE 15**).



FIGURE 14

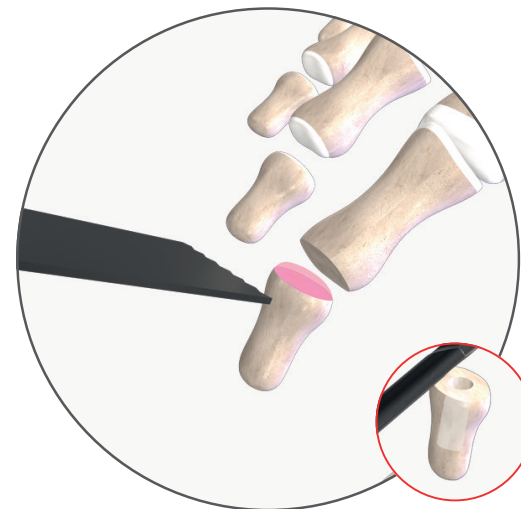


FIGURE 15

📌 **TIP:** Take care to keep as much bone as possible. In case of narrow canal, the drill bit may be used in a reciprocating fashion to widen the pathway.

2.3 PREPARATION OF THE MIDDLE PHALANX (P2)

Resect the middle phalangeal head with an oscillating saw (about 2 mm). Release of the plantar plate and the lateral ligaments facilitates joint distraction. Prepare the medullary canal for implant insertion by creating a pilot hole with the drill bit and then use the rasp to finalize the opening by pushing it through the canal, using a reciprocating movement, until the rasp shoulder is flush with the plane of the resected bony surface. (FIGURE 16)

TIP:

- . Spare as much bone as possible.
- . In case of narrow canal (P3), the drill bit may be used in a reciprocating fashion to widen the pathway.
- . To avoid creating an oversized medullary canal, do not use the rasp in the distal phalanx (P3).



FIGURE 16

2.4 IMPLANT INSERTION

Grasp the implant using the Lync® forceps (Steps specified under the Proximal Interphalangeal Arthrodesis heading - Section 1.4).

NOTE: Ensure that the implant is situated at 90° with respect to the instrument in all planes.

Attention: Positioning of the Distal Interphalangeal Implant (DIP) is reversed in relation to the Proximal Interphalangeal Implant (PIP). Be sure to insert the narrower legs of the DIP implant on the distal side (P3), and the wider legs into the middle phalanx (P2). (**FIGURE 17**).

Insert the implant into the distal phalanx (P3) until the forceps touch the bony surface. Do not remove the forceps at this stage of the insertion. (**FIGURE 18**).



FIGURE 17



FIGURE 18

Slide the medial phalanx (P2) back on to the shorter implant legs. Maintain the forceps in position.

To ensure proper anchorage, spread the proximal and distal legs of the implant by depressing the purple forceps lever while simultaneously closing the forceps handles (Steps specified under the Proximal Interphalangeal Arthrodesis heading - section 1.4). The notched grooves on the implant legs will engage with the inner walls of the medullary canal to achieve reliable fixation. (FIGURE 19)

2.5 IMPLANT IMPACTION

Remove the forceps from the implant and manually compress the distal (P3) and the medial (P2) phalanges. The implant will now be fully anchored by press-fit in the intramedullary canal. (FIGURE 20)

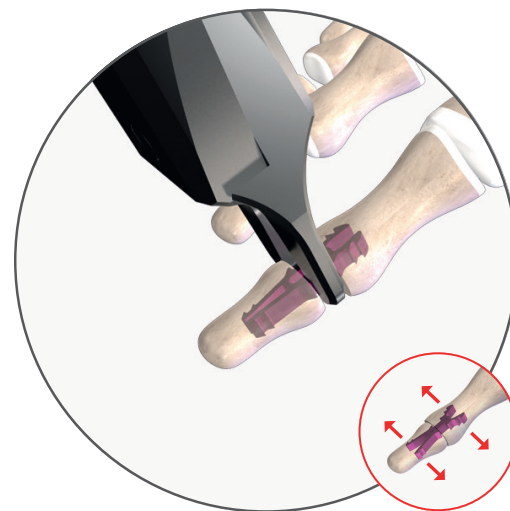


FIGURE 19

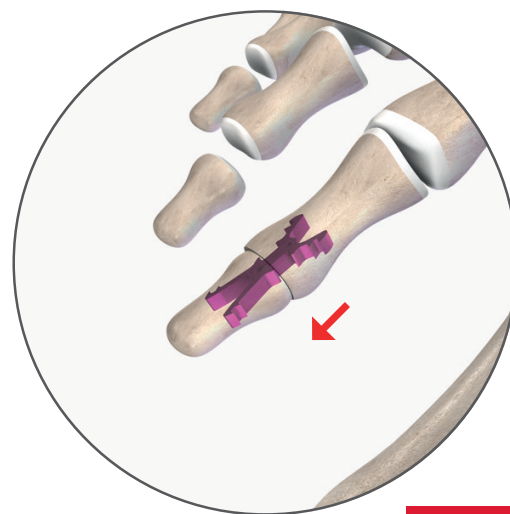


FIGURE 20

LYNC®

REFERENCE	DESCRIPTION
CM010030	LYNC® S0
CM010031	LYNC® S10
CM010010	LYNC® M0
CM010011	LYNC® M10
CM010040	LYNC® DIP

INSTRUMENTATION

REFERENCE	DESCRIPTION
XFP04001	FORCEPS
XDB01003	DRILL BIT Ø2.3
XRA01002	RASP
XHA01001	AO HANDLE
XRE01002	SURFACING REAMER - OPTIONAL



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REFERENCE: LYN-ST-ED9-06-25-EN