INSTRUMENTATION FOR MINIMALLY-INVASIVE FOREFOOT SURGERY
The aim of the surgical approach to Hallux Valgus referred to as “minimally invasive” is the same as that of open-air surgery:

1st shaft

M1:
- to reduce the prominence of the medial side of the 1st metatarsal head;
- to perform osteotomy of the basis of M1;
- to perform distal osteotomy of M1;
  - with translation or not,
  - with correction of excess DMAA (Distal Metatarsal Articular Angle), by realignment of the distal articular surface of the 1st metatarsal.

MTP joint:
- to perform lateral arthrolysis of the MTP joint (Metatarsophalangeal joint).

P1:
- to perform every type of osteotomies: varisation, derotation, shortening.

Lesser rays:
- to perform Distal Metatarsal Mini Invasive Osteotomies (DMMO).
- to perform lesser toes deformities corrections.

The type of surgery is based on the use of specific equipment (Manual instruments, Fluoroscope, and appropriate power system) to allow the use 1 or 3 mm incisions (minimally invasive approaches). The FH ORTHOPEDICS manual instruments are ideally suited to the specific requirements of this type of surgery: a complete instrumentation and a wide range of specifics burrs.

Inrasp:

> Simple, compact instrumentation.
> 7 essential instruments:
  - 2 rasps to extract bone debris.
  - Separator and retractors to ease the surgical procedure.

> Precise indications
> Innovative techniques

Burrs

Burrs dedicated to each indications
(see indications board on the back)

- Wedge 3.1 x 13 mm // ref. 256 016
- Wedge extra 4.1 x 13 mm // ref. 256 017
- Straight Shannon 2.0 x 12 mm // ref. 256 018
- Short Shannon 2.0 x 8 mm // ref. 256 019
- Long Shannon 2.0 x 12 mm // ref. 256 020
- Percutaneous chevron 3.0 x 20 mm // ref. 258 156
- Percutaneous chevron 2.5 x 14 mm // ref. 258 157
- Percutaneous chevron 2.0 x 20 mm // ref. 264 425

- Precise indications
- Innovative techniques

A complete solution

Rasp, 1.5 mm width (ref. 258 158)
- The rasps were designed to extract small bone debris (and not to rasp the bone) produced when reducing the volume of the 1st metatarsal head by the use of burr.
- They have different orientations (angle: 15°) and are available in 2 widths (1.5 mm and 3 mm).
- Anatomic handle for efficient ergonomy.

Rasp, 3 mm width (ref. 258 159)
INSTRUMENTATION FOR MINIMALLY INVASIVE FOREFOOT SURGERY

>>>> Surgical knife

Beaver handle (ref. 254 327) + Beaver blade 3 mm (ref. 266 510)

1st mini-incision using Beaver surgical knife

Lateral release using the Beaver surgical knife

To permit minimal invasive approaches.

It consists of a blade holder **75 mm long** perfectly adapted to MIS gestures.

The Beaver blades used have the advantage of permitting an incision in the line of the surgical knife over a width of **between 1 to 3 mm**.

>>>> Separator

Periosteal elevators (ref. 258 160)

Use of fluoroscopy to monitor the position of raspatory

To elevate the soft tissues and create a "working" area.

To work directly in contact with the bone.

1 elevator and 1 raspatory assembled in one unique instrument.

>>>> Retractors

Percutaneous osteotomy bone lever (ref. 258 163)

Bottom retractor (ref. 258 161)

Top retractor (ref. 258 162)

**Percutaneous bone lever** is designed to displace easily (lateral translation) the 1st shaft osteotomy, by percutaneous approach.

**Retractors** are used to create a "working area" by exposing the metatarsal head for osteotomy procedure by mini-open approach.
The power system and burrs:

A handpiece should be used.
8 specific burrs have been designed. Depending on their shape they enable the surgeon to perform osteotomies or bone resections.

>> Single use;
>> Individually sterile packed;
>> Protection by a silicone ring;
>> Easy identification thanks to the color coded;
>> Connection possibility : rounded end for Jacob chuck;
>> Rotation rate : 1500 to 8000 RPM (max); the use of a torque reducer is highly recommended.

A complete surgical technique is also available:
"Minimally Invasive Surgery", a document produced by the GRECMIP group (Research and Study Group for Minimally Invasive Foot Surgery) and the TALUS group from GECO (www.geco-medical.org).

### OSTEOTOMIES

<table>
<thead>
<tr>
<th>Ref.</th>
<th>MIS BURR (BOX OF 5)</th>
<th>INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>256016</td>
<td>WEDGE BURR 3.1x13mm MIS</td>
<td>Metatarsal osteotomy with substantial level of correction (10 to 20°); to flatten and thin thicker bone; to contour in certain cases.</td>
</tr>
<tr>
<td>256018</td>
<td>STRAIGHT SHANNON BURR 2.0 x 12 mm MIS</td>
<td>Primary metatarsal osteotomy of M1 or osteotomy of P1, neutral level of correction (&lt; 10°).</td>
</tr>
<tr>
<td>256019</td>
<td>SHORT SHANNON BURR 2.0 x 08 mm MIS</td>
<td>All surgical bone procedures of the lesser toes (R2 to R3) - clawes of toes, burt, clinodactyly, shortening, soft corn.</td>
</tr>
<tr>
<td>256020</td>
<td>LONG SHANNON BURR 2.0 x 12 mm MIS</td>
<td>Metatarsal osteotomy of M1 or osteotomy of P1 allowing the maximal correction of angle (10°) DMMO (Distal Metatarsal Mini Invasive Osteotomy) - Contouring of metatarsal heads; (R2 to R5)</td>
</tr>
<tr>
<td>258156</td>
<td>PERCUTANEOUS CHEVRON BURR 3.0 x 20 mm MIS II</td>
<td>Percutaneous chevron type osteotomy, with shortening effect.</td>
</tr>
<tr>
<td>258157</td>
<td>PERCUTANEOUS CHEVRON BURR 2.5 x 14 mm MIS II</td>
<td>Percutaneous chevron type osteotomy.</td>
</tr>
<tr>
<td>264425</td>
<td>PERCUTANEOUS CHEVRON BURR 2.0 x 20 mm MIS II</td>
<td>Percutaneous chevron type osteotomy, without shortening effect.</td>
</tr>
</tbody>
</table>

### BONE RESECTION

<table>
<thead>
<tr>
<th>Ref.</th>
<th>MIS BURR (BOX OF 5)</th>
<th>INDICATIONS</th>
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</thead>
<tbody>
<tr>
<td>256017</td>
<td>WEDGE BURR EXTRA 4.1 x 13 mm MIS</td>
<td>To shave and reduce (the medial part of the M1 head) as primary procedure; cheilectomy of Hallux Rigidus.</td>
</tr>
</tbody>
</table>

### INCISION

<table>
<thead>
<tr>
<th>Ref.</th>
<th>MIS BURR (BOX OF 5)</th>
<th>INDICATIONS</th>
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</thead>
<tbody>
<tr>
<td>264259</td>
<td>BEAVER BLADES (ROUNDED) 1 mm be POD (BOX x 24)</td>
<td>Small incision of 1mm for lateral rays</td>
</tr>
<tr>
<td>266510</td>
<td>BEAVER BLADES (ROUNDED) 3 mm be POD (BOX x 25)</td>
<td>Incision / Arthrolysis / Tenotomy</td>
</tr>
<tr>
<td>268147</td>
<td>BEAVER BLADES (POINTED) 3 mm be POD (BOX x 25)</td>
<td>Incision / Arthrolysis / Tenotomy</td>
</tr>
<tr>
<td>258158</td>
<td>RASP THICK. 1.5 MM MIS II be POD</td>
<td></td>
</tr>
<tr>
<td>258159</td>
<td>RASP THICK. 3 MM MIS II be POD</td>
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</tr>
<tr>
<td>258160</td>
<td>ELEVATOR - RASPATORY MIS II be POD</td>
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</tr>
<tr>
<td>258161</td>
<td>BOTTOM RETRACTOR MIS II be POD</td>
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<tr>
<td>258162</td>
<td>TOP RETRACTOR MIS II be POD</td>
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<tr>
<td>258163</td>
<td>PERCUTANEOUS OSTEOTOMY BONE LEVER MIS II be POD</td>
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<tr>
<td>254327</td>
<td>BEAVER HEX. HANDLE 7.5 CM D. 0.5 CM MIS II be POD</td>
<td></td>
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<tr>
<td>258164</td>
<td>BOX FOR MIS FOOT INSTRUMENTS MIS II be POD</td>
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