4. Hob cutters
Hob cutters for gears

Gear cutting is a very high precision operation. It can be performed in multiple ways. The best one is the most efficient in terms of time and cost, depending on:

- The quantity of pieces to be cut
- The type of pieces
- The shape of the tooth profile
- The machine
- The habits and the know-how

For many years, Louis Bélet manufactures all kinds of gear cutting hobs. All have been tested and approved by our reference customers to their whole satisfaction.

Z² - Tooth by tooth gear cutters

Easy to set up, Perfect shape

Tooth by tooth gear cutting is a simple process, fast and economical for prototyping and small scale productions. This process allows cutting of all types of toothing, including deep teeth and asymmetrical profiles. Louis Bélet produces tooth by tooth gear cutters as circular mills or T-slot end mills, the dimensions being customized according to customer’s needs. A perfect profile is guaranteed on the tool.

ORIGIN - Hobs for epicyclic and Involute teeth

Fast cutting, Clean cutting

The « Origin » hobs are characterized by the high precision of the profile as well as the geometry of the whole tool. The bore tolerance (H3), the perpendicularity and the parallelism of the sides of the mill are essential features. Louis Bélet goes further than just producing high quality tools. Listening carefully to the needs of our customers, we help them solving the troubles they may have in gear cutting. «Origin» hobs differentiate themselves especially in very small modules.
Hob cutters for gears

**REVOLUTION - Hobs for asymmetrical gears**
Fast cutting, Positioning drawing

Our « Revolution » hobs allows the cutting of gears which have a special profile: non symmetrical, too deep or simply not feasible using a classical gear cutting hob. The hob is delivered with the positioning drawing.

**E₂F - Hobs for frontal gear cutting**
Easy to set up, Perfect shape, Short cycles, Burrs avoided

Frontal gear cutting creates sometimes a burr problem. The «E₂F» hobs from Bélet decrease drastically these burrs by integrating roughing and finishing teeth, while guaranteeing a perfect final shape of the desired profile.

**TRINITY - Hobs for conical gears**
Positionning drawing, All kinds of profiles possible

Cutting conical pinions or gears is also a specialty from Louis Bélet. Our Trinity tool allows cutting of all kinds of conical gears, whatever the tooth shape and the module are. These hobs can be used on any gear cutting machine.

**Request a quotation**
You may send a request for a quotation for hob cutters via our online form. Our technical office shall analyse your requirements and can recommend the suitable hob cutter for your application

> [www.goo.gl/AVQHQ6](http://www.goo.gl/AVQHQ6)
Hob cutters for gears

Customized profile

Bélet is able to design hobs according to any conceivable profile in a very short timeframe. Prototypes can then be produced with the final profile of the teeth.

We calculate in house the profiles of the hobs thanks to a special software bundle developed by our means. Thus, there is no intermediate, ensuring a high reactivity and an optimisation of the profiles starting from the prototyping step.

NIHS Profiles

One special feature associated with the NIHS norms is a sharp tip of the tooth. Bélet’s hobs allows the cutting of pointed teeth without any modification of the standard machining settings.

Gears of less than 12 teeth

The cutting of small gears with a low number of teeth is often linked with an issue regarding the deepness of the toothing. Unless accepting a not deep enough tooth bottom, it is often necessary to use a hob for asymmetric cutting, which then increases the cost of production.

Bélet solved this issue by designing hobs allowing the cutting of deep teeth. Grooves may also appear on the bottom of the teeth. In that case, we apply a correction to reduce these grooves without modifying the tooth profile.

Non symmetrical profiles

The flexibility of our profiling process allows the creation of the most various gear cutting hobs. Non symmetrical toothing have been tested. The advantage is to be able to use a hob cutter instead of a special « setting hob ». The lifespan of the tool is much longer and the setting the machine is easier.

It’s not possible to cut all profiles with this technique, so a study is performed at the stage of the quotation.
Hob cutters for gears

Standard dimensions of gear cutting hobs

<table>
<thead>
<tr>
<th>Ø External</th>
<th>Thickness</th>
<th>Ø Bore</th>
<th>Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>4</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>3.5</td>
<td>12</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>3.5</td>
<td>12 / 15</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>3.5</td>
<td>12 / 15</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>3.5</td>
<td>12 / 15</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>4.5</td>
<td>12 / 15</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>4.5</td>
<td>12 / 15</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>3.5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>5</td>
<td>4.5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>4.5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>4.5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>4.5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>6</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>12</td>
<td>8</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>4</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>6</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>8</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>6</td>
<td>6</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>6</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>8</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>10</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>12</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>6</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>8</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>10</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>12</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>24</td>
<td>15</td>
<td>8</td>
<td>15</td>
</tr>
</tbody>
</table>

Other dimensions or teeth number available upon customer’s request.