Tornier BIO-RSA®
Bony Increased Offset
Reversed Shoulder Arthroplasty

System overview
Reversed lateralization

Today’s reversed shoulder arthroplasty patient demands more from their shoulder replacement. And while reversed technology has revolutionized shoulder replacement for patients worldwide, scapular notching, rotational limitations and prosthetic instability can be persistent clinical issues—in addition to restoring the patient’s own natural shoulder contour.

Pioneered by Professor Pascal Boileau (Nice, France), this technique, termed bony increased-offset for reversed shoulder arthroplasty, is designed to achieve lateralization of the glenoid implant through a novel approach—using the patient’s own native bone.
The Tornier BIO-RSA technique

Used in conjunction with Stryker’s Reversed Shoulder System, a simple auxiliary instrument set is used to create the graft from the patient’s humerus.

1. The humeral pin guide is placed over the humerus for positioning of the guide wire.
2. The graft reamer is used to create the outside edges of the graft.
3. The drill is fed over the guide wire to create a hole in the center of the graft.
4. A cut guide is placed over the graft and a saw blade is used to create a 7mm or 10mm graft.
5. The bone graft is placed over the long post baseplate (25mm post length).
6. Holes are drilled in the glenoid to ensure a bleeding interface between the graft and the baseplate.
7. The long post baseplate and graft are impacted into the glenoid.
8. Screws are placed through the baseplate and graft to secure fixation of the baseplate to the glenoid.

Benefits of a lateralized reversed prosthesis

Lateralizing the glenoid implant through the use of specialized components has been a viable approach to addressing common issues associated with reversed shoulder arthroplasty. Tornier BIO-RSA is associated with:

• Low rates of scapular notching
• Improved shoulder rotation
• Improved shoulder contour
• Low rates of instability
• Significantly reduced scapular notching
• Improved internal/external rotation

Using Tornier BIO-RSA to achieve lateralization

The Tornier BIO-RSA technique uses the patient’s own native bone to lateralize the prosthesis.

• When the bone heals, Grammont’s Principle is observed by maintaining the center of rotation at the bone/baseplate interface
• This ideal center of rotation eliminates destructive forces that lead to glenoid loosening

The following results were observed on 34 patients with an average follow-up of 13 months by Boileau et al.:

- Significant reduction in scapular notching
- No reported instability
- No instances of glenoid loosening
- Improved anterior elevation and rotation mechanics
- Demonstrated graft healing

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<thead>
<tr>
<th></th>
<th>Pre-op</th>
<th>Post-op</th>
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<tbody>
<tr>
<td>Anterior elevation</td>
<td>72°</td>
<td>142°</td>
</tr>
<tr>
<td>External rotation</td>
<td>10°</td>
<td>18°</td>
</tr>
<tr>
<td>Internal rotation</td>
<td>L4</td>
<td>L3</td>
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<tr>
<td>Constant score</td>
<td>27</td>
<td>63</td>
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<tr>
<td>SSV</td>
<td>27%</td>
<td>73%</td>
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</tbody>
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Highlights – Tornier BIO-RSA clinical results

- Average constant score improvement (up 36 from 27)
- Average subjective shoulder value (up 46% from 27%)
- Mean active anterior elevation (improvement of 70°)
- Percentage of grafts healed to the native glenoid as shown radiographically
The Tornier BIO-RSA technique
**Tornier BIO-RSA instrumentation**

Used in conjunction with the Aequalis Reversed Shoulder System, only a few additional instruments are needed to perform the Tornier BIO-RSA procedure. The Tornier BIO-RSA instrumentation set (YKAD100) includes the following items:

<table>
<thead>
<tr>
<th>P/N</th>
<th>Description</th>
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<tbody>
<tr>
<td>MWB360</td>
<td>Humeral pin guide (for Ø2.5mm pin)</td>
</tr>
<tr>
<td>MWB361</td>
<td>Tornier BIO-RSA graft reamer (dia. 29mm)</td>
</tr>
<tr>
<td>MWB362</td>
<td>Cannulated drill bit (dia. 8.3mm)</td>
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<td>MWB363</td>
<td>Large Tornier BIO-RSA cutting guide</td>
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<tr>
<td>MWB364</td>
<td>Extra-large (XL) Tornier BIO-RSA cutting guide</td>
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<tr>
<td>MWB366</td>
<td>Tornier BIO-RSA bone graft remover</td>
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