CarboJet®

CO₂ Bone Preparation System

A Better Way to Clean Bone

Increase Cement Penetration¹,²
Increase Bone-Cement Interface Strength³
Reduce Opportunity for Micro-Emboli⁴
Facilitate Tourniquet-free TKA⁵
Reduce OR Time and Cost⁶

Nozzles are available for use in TKA, UKA, THA, TSA and other cemented reconstructive applications.
Aseptic loosening is now recognized as the predominant failure mode in primary knee arthroplasty. A recent study of 938 primary knees found that aseptic loosening was the most common mechanism of failure, accounting for 28% of all failures. In UKA, aseptic loosening accounted for more than 60% of failures. These data underscore the importance of achieving optimal cement fixation via meticulous cleaning and drying of the bone bed.

CarboJet’s CO₂ gas jet quickly and thoroughly cleans and dries the bone bed by bringing blood, saline and, most importantly, fatty marrow elements to the surface where they are easily collected and removed. Cleaning and drying with CarboJet takes no more time than is typically required for drying with lap sponges. The superior cleaning achieved with CarboJet improves cement penetration depth thus offering the potential for a reduction in bone cement interface stress and increased cement mantle toughness. Increased bone-cement interface strength is the result.

CarboJet has been proven to be safe and effective in multiple clinical studies and in tens of thousands of joint reconstructions. Discover why so many surgeons are making CarboJet a standard part of their cement technique.

Cement mantle toughness correlates with cement penetration depth. Bone-cement interface strength is 58% higher with CarboJet cleaning versus saline lavage.

In UKA, the CarboJet nozzle provides excellent access for cleaning and drying posterior aspects of both the tibial and femoral surfaces.

CarboJet bone preparation provides for increased cement penetration and a Grade A cement mantle in all cemented arthroplasty cases.

“I have made gas jet lavage with CarboJet the critical last step in bone preparation in all my cemented arthroplasty cases. The removal of additional marrow elements that could otherwise form embolic debris during cement pressurization is important to patient safety.”

H.M. “Mac” Reynolds, MD, Oakland, CA, USA

Bone bed prepared with pulsatile saline lavage. Arrows indicate radiolucent lines.

Bone bed prepared with syringe saline lavage and CarboJet CO₂ Bone Preparation System.

B/C FPO.

Do NOT print red dieline.

UKA x-rays courtesy of Dennis McGee MD, Boise, ID, USA. TKA x-rays courtesy of H.M Reynolds MD, Oakland, CA, USA.
### Simple Instrumentation

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Product Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-100-2001</td>
<td>Carbojet CO₂ Tubeset, Sterile Packed (each)</td>
<td></td>
</tr>
<tr>
<td>25-200-0200</td>
<td>CarboJet Handpiece</td>
<td></td>
</tr>
<tr>
<td>25-200-0220</td>
<td>CarboJet Angled Tip Nozzle (peg holes, shoulder)</td>
<td></td>
</tr>
<tr>
<td>25-200-0230</td>
<td>CarboJet Wide-Angle Nozzle (knee)</td>
<td></td>
</tr>
<tr>
<td>25-200-0242</td>
<td>CarboJet Femoral Canal Suction Tube (12mm dia.)</td>
<td></td>
</tr>
<tr>
<td>25-200-0244</td>
<td>CarboJet Femoral Canal CO₂ Nozzle</td>
<td></td>
</tr>
<tr>
<td>25-200-0246</td>
<td>CarboJet 40 Degree Nozzle (knee, glenoid)</td>
<td></td>
</tr>
<tr>
<td>25-200-0300</td>
<td>CarboJet Sterilization Tray</td>
<td></td>
</tr>
</tbody>
</table>

**CO₂ Regulator/Adaptor Options:**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Product Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-200-0110</td>
<td>CarboJet Pressure Regulator (with CGA 940 pin-index yoke tank connection)</td>
<td></td>
</tr>
<tr>
<td>25-200-0150*</td>
<td>CarboJet Boom/Headwall Source CO₂ Adaptor, (with DISS connection, Extension hose. Set source pressure to 50psi)</td>
<td></td>
</tr>
<tr>
<td>25-200-0162*</td>
<td>CarboJet Boom/Headwall Source CO₂ Regulated-Adaptor (with DISS connection, Extension Hose. Min Inlet Pressure: 72psi, Max: 300psi)</td>
<td></td>
</tr>
</tbody>
</table>

For more information:

Phone  (805) 384-2748  
Toll-Free  (800) 827-5775  
Fax  (805) 384-2792  
Website  www.kinamed.com

820 Flynn Road, Camarillo, CA 93012-8701

Caution: Federal law restricts this device to sale by or on the order of a physician. Prior to use of a Kinamed device, please review the instructions for use and surgical technique for a complete listing of indications, contraindications, warnings, precautions, and directions for use.

* Not CE Marked