CO₂ Lavage System
A Better Way to Clean Bone

Reduced Debris Arthroplasty™
Reduced Opportunity For Micro-Emboli
Increased Cement Penetration Into the Bone Bed

Tibia After Resection
Tibia After Pulsatile Saline Lavage
Same Tibia After CarboJet CO₂ Lavage

Photos courtesy of: Richard “Dickey” Jones, MD, Orthopedic Specialists, Dallas, TX
Cleaner is Better

Why Use CarboJet CO₂ Compressed Gas Lavage to Clean Bone?

- Increased Cement Penetration Into the Bone Bed
- Reduced Opportunity for Micro-emboli

A compressed CO₂ gas jet is more effective at removing fluid and fluid-suspended debris from a porous matrix than a liquid cleaning jet. The liquid jet is useful for “washing” of gross debris, but is much less effective at removing fluid debris in the interstices of cancellous bone.

The fluid jet works in a porous structure by incremental mixing, dilution and displacement. The compressed gas jet accomplishes fluid-debris removal by creating strong, fluctuating pressure gradients, displacing debris rapidly and more thoroughly.

Saline lavage is effective at removing gross debris, but fluid mixing in the interstices of bone prevents thorough cleaning.

A compressed gas jet effectively displaces fluid and fluid-suspended debris, thereby cleaning and drying porous structures.

“CarboJet lavage provides my patients with a much cleaner, drier bone bed allowing for better cement penetration and hence a better mechanical interface between bone and implant for secure long-term fixation.”

Richard “Dickey” Jones, MD, Orthopedic Specialists, Dallas, TX

The CarboJet CO₂ Lavage System, in clinical use since 1993, has been used safely on tens of thousands of joint replacement patients. Compressed CO₂ gas has been employed as an insufflation medium in laparoscopic procedures for many years and is readily available at all hospitals.

“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

Indications include hip resurfacing, unicompartmental knee replacement, and any implant procedure that requires good cement bed preparation.
## Instruments/Attachments

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-100-2001</td>
<td>CarboJet CO₂ Tube Set, Sterile Packed (each)</td>
</tr>
<tr>
<td>25-200-2000</td>
<td>CarboJet Instrument Set (includes 1 ea. of the following 7 items)</td>
</tr>
<tr>
<td>25-200-0200</td>
<td>– CarboJet Handpiece</td>
</tr>
<tr>
<td>25-200-0220</td>
<td>– CarboJet Angled Tip Nozzle (peg holes, shoulder)</td>
</tr>
<tr>
<td>25-200-0230</td>
<td>– CarboJet Wide-Angle Nozzle (knee)</td>
</tr>
<tr>
<td>25-200-0242</td>
<td>– CarboJet Femoral Canal Suction Tube (12mm dia.)</td>
</tr>
<tr>
<td>25-200-0244</td>
<td>– CarboJet Femoral Canal CO₂ Nozzle</td>
</tr>
<tr>
<td>25-200-0246</td>
<td>– CarboJet 40 degree Nozzle (knee, glenoid)</td>
</tr>
<tr>
<td>25-200-0300</td>
<td>– CarboJet Sterilization Tray</td>
</tr>
</tbody>
</table>

## CO₂ Pressure Regulators

<table>
<thead>
<tr>
<th>Catalog No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-200-0100</td>
<td>CarboJet Pressure Regulator (with CGA 320 tank connection)</td>
</tr>
<tr>
<td>25-200-0110</td>
<td>CarboJet Pressure Regulator (with CGA 940 pin-index yoke tank connection)</td>
</tr>
</tbody>
</table>

---

**Expect Innovation.**

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