

NanoScope

Nano Operative Arthroscopy System





NanoScope™ micro arthroscopy system: 1.9 mm diameter with 2.2 mm inflow sheath



a small size with a big vision

(2.2 mm)



Arthroscope: 4.0 mm diameter with 5.9 mm inflow sheath

The Future of Arthroscopy Is Nano



The state-of-the-art NanoScope™ operative arthroscopy system uses high-definition, chip-on-tip image sensor technology to provide surgeons with a needle-sized, single-use camera system. The portability of the imaging system allows the surgeon to perform minimally invasive arthroscopy in the operating room using the NanoScope system as the main camera or as an adjunct to a traditional camera in a treatment room or in the physician's office.

Arthrex helped to pioneer operative arthroscopy and is once again the pioneer of nano operative arthroscopy. Our 2-mm-diameter Nano instrumentation for tissue palpation, resection, extraction, and repair fits through a small, 2.7 mm cannula.

The NanoScope system provides a new option to MRI imaging, second-look arthroscopy, and image-guided injections that can be placed precisely under video image control.

The NanoScope handpiece kit and system seamlessly connects with the Arthrex Synergy^{UHD4™} 4K system for full OR and EMR image management integration.

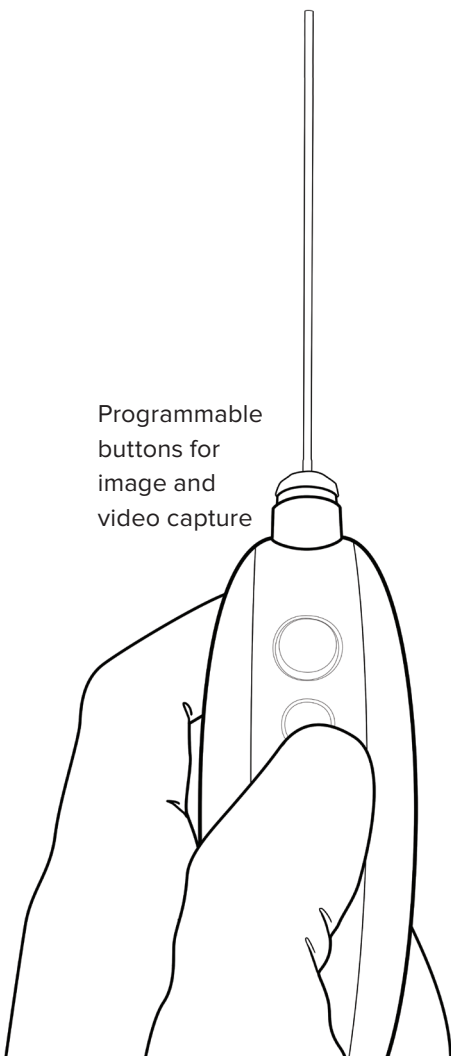
NanoScope Camera Specifications

- 400 × 400 resolution with 120° field of view
- 3 mm × 100 mm depth of field
- 0.21 mm inflow channel

NanoScope Console Specifications

- Medical-grade camera control unit and camera card edge
- 400 × 400 resolution on 13 inch, 3-in-1 camera control unit
- Network capabilities to facility health record, PACS, and Synergy Surgeon App™ software
- Built-in microphone for video dictation without an external microphone
- HDMI output to extend the video signal to in-room displays and integration systems

Programmable buttons for image and video capture





Arthrex®

Surgeon Surgeon Arthroscopy

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71%

End Case

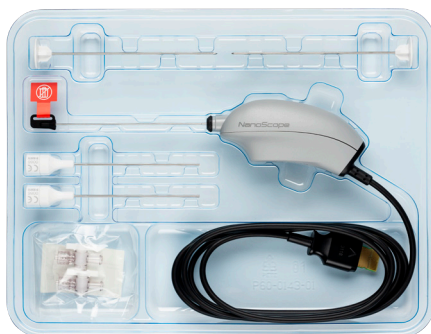
NanoScope™ Visualization System

The Synergy NanoScope visualization system is the first medical-grade, 3-in-1, chip-on-tip disposable camera system. The NanoScope system combines the latest technologies in 1 mm imaging sensors, LED lighting, image management, and OR integration with an intuitive tablet control unit. Our network-based system allows for bidirectional communication to your facility EHR, PACS, Synergy Surgeon App™ program, and SurgeonVault® system.

Product Description	Item Number
NanoScope Tablet Control Unit (a)	AR-3200-0030
NanoScope Camera Head and Cable Kit, single-use (b)	AR-3210-0040
NanoScope Arthroscopy Patient Prep Kit (c)	74312-01M
MSK Mobile Cart (d)	AR-3502-CRT
NanoScope Console Mount	ATX-2601



- Tablet Control Unit Components (a)**
- 13 in HD monitor
 - Handpiece connector
 - Microphone
 - Ethernet, USB, and HDMI ports



- Single-Use Camera Kit Components (b)**
- Disposable camera
 - 2 inflow cannulas
 - 1 sharp obturator
 - 1 blunt obturator
 - 2 fluid stopcocks



- Patient Prep Kit Components (c)**
- (4) 30 cc Syringes
 - 10 cc syringe w/ 25 ga needle
 - 1 IV bag adapter
 - 11 blade mini scalpel
 - Disposable floor drape
 - 2 sterile towels
 - 1 elastic bandage



Mobile Cart (d)

Economic Impact

Nano arthroscopy is a cost-effective alternative to standard arthroscopy. A single-use camera component eliminates procedure delays due to equipment cleaning, processing, and sterilization without costly maintenance, repairs, or upgrades related to traditional video stacks. The minimally invasive approach and unlimited access to joint spaces make the NanoScope system the instrument of choice for less invasive arthroscopic procedures.

Nano Arthroscopy 2 mm Single-Use Instrumentation

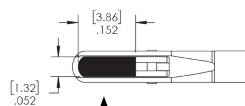
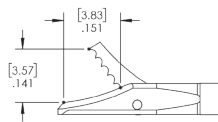
Harnessing 20 years of engineering excellence in designing arthroscopic hand instrumentation, Arthrex has produced the next generation in tissue resection and extraction instruments that are sharp and strong enough to resect and remove meniscal tissue. The low-profile tip design facilitates safe introduction into most tight joint spaces without the need for a limb holder.

Knee, Hip, and Shoulder Nano Instrumentation, 130 mm Shaft Length, Single-Use Sterile Pack	Item Number
NanoBiter Punch, straight (a)	AR-10911D-1
NanoBiter Punch, 15° up (b) inserted percutaneously	AR-10922D-1
NanoGrasper, straight (c)	AR-10913D-1
NanoScissor, straight (d)	AR-10915D-1
Retractable NanoProbe (e)	AR-10100N

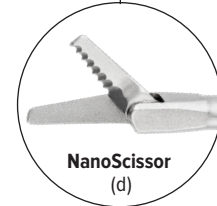
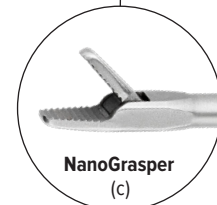
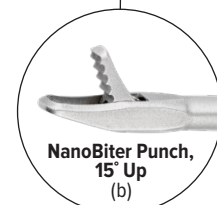
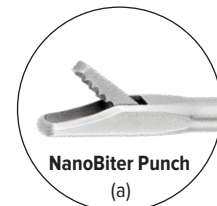
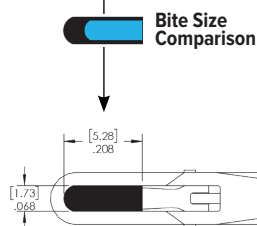
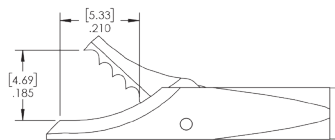
Small Joint Nano Instrumentation, 70 mm Shaft Length, Single-Use Sterile Pack	Item Number
NanoBiter Punch, straight (a)	AR-10901D-1
NanoBiter Punch, 15° up (b)	AR-10902D-1
NanoGrasper, straight (c)	AR-10903D-1
NanoScissor, straight (d)	AR-10905D-1
Retractable NanoProbe (e)	AR-10100N

The NanoBiter punch provides greater access to treat the most challenging pathology without sacrificing resection efficiency.

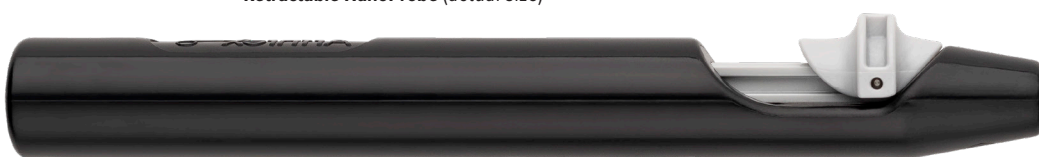
NanoBiter



3.4 mm Straight Punch



Retractable NanoProbe (actual size)

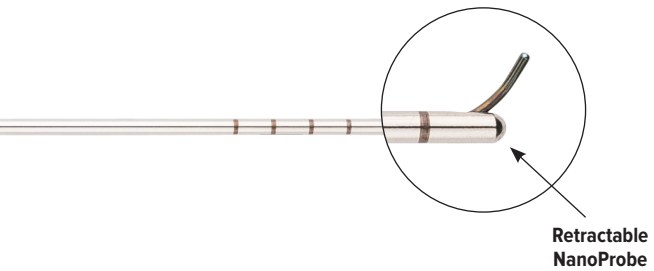




Small Joint NanoBiter Punch, 70 mm
(actual size)



Standard-Length, Single-Use Nano Arthroscopy Instrument, 130 mm
(actual size)



**Retractable
NanoProbe**

2.7 mm-Diameter NanoCannula and Insertion Kits

The 2.7 mm NanoCannula features a flexible plastic dam to prevent fluid loss. The cannula is designed to facilitate the insertion of the NanoProbe and Nano^{Resection}™ and excision hand instrumentation as well as small-diameter shaver blades. The included Tegaderm™* skin adhesive is placed over the NanoCannula to maintain cannula position during instrument removal.

Product Description	Item Number
2.7 mm NanoCannula and Cannulated Obturator, 1.5 cm length	AR-1090C-15-1
2.7 mm NanoCannula and Cannulated Obturator, 3 cm length	AR-1090C-30-1
2.7 mm NanoCannula and Cannulated Obturator, 4 cm length	AR-1090C-40-1
2.7 mm NanoCannula and Cannulated Obturator, 5 cm length	AR-1090C-50-1
2.7 mm NanoCannula and Cannulated Obturator, 7 cm length	AR-1090C-70-1
Nano Arthroscopy Percutaneous Insertion Kit (includes calibrated spinal needle-stylet and 18 ga guidewire for direct cannula insertion)	AR-1090PK-1
2.4 mm Resected Tissue Aspiration NanoCannula, 7 cm length (a)	AR-1090S-70
2.4 mm Resected Tissue Aspiration NanoCannula, 10 cm length (b)	AR-1090S-100

(7 cm and 10 cm lengths for various joint sizes)

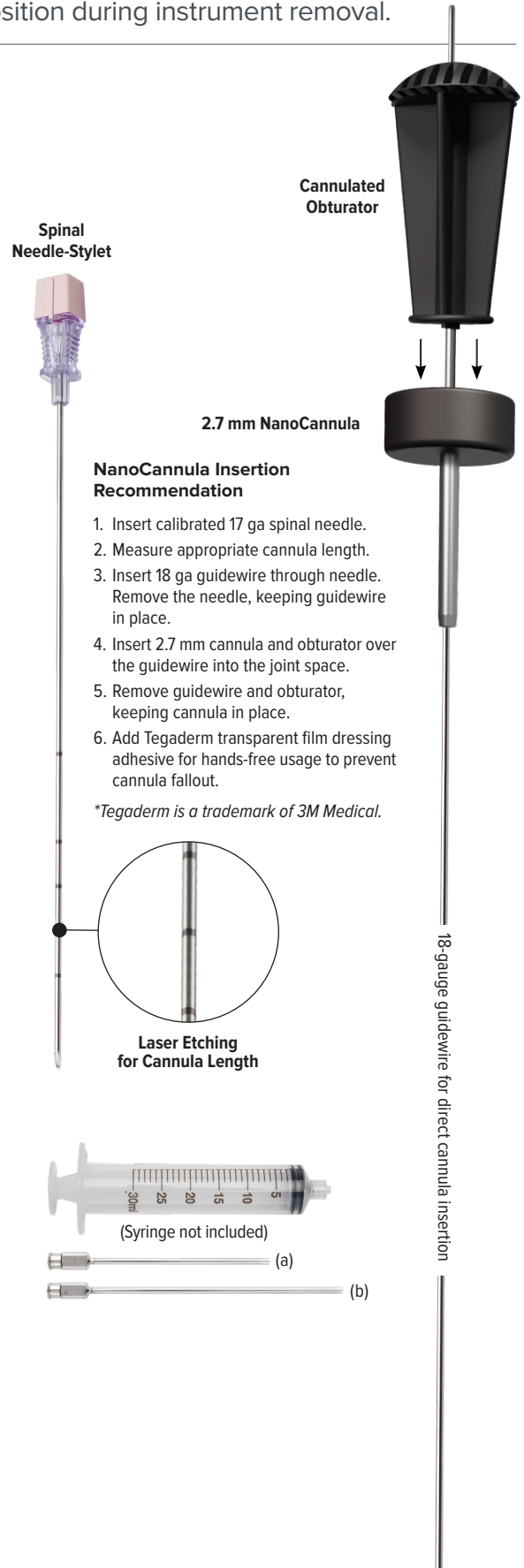
Key Features and Benefits

2.7 mm NanoCannula and Insertion Kit

- 2.7 mm designed to facilitate the insertion of the Nano arthroscopy instrumentation
- Working lengths (1.5, 3, 4, 5, and 7 cm)
- Needle-sized access into the joint space
- Percutaneous insertion over 18 ga nitinol guidewire
- Includes optional Tegaderm adhesive per cannula to maintain cannula position and prevent fallout

2.4 mm Inflow or Outflow NanoCannula

- Can be inserted through the 2.7 mm working cannulas for aspiration of fluid and resected soft tissue
- Connects to syringes or suction tubing













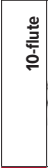



NanoCannula Insertion Recommendation

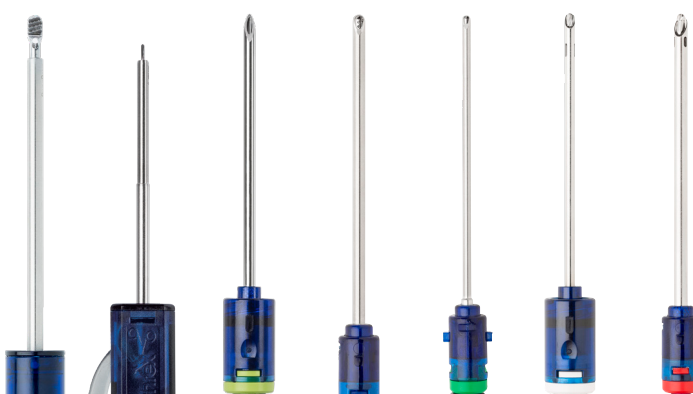
1. Insert calibrated 17 ga spinal needle.
2. Measure appropriate cannula length.
3. Insert 18 ga guidewire through needle. Remove the needle, keeping guidewire in place.
4. Insert 2.7 mm cannula and obturator over the guidewire into the joint space.
5. Remove guidewire and obturator, keeping cannula in place.
6. Add Tegaderm transparent film dressing adhesive for hands-free usage to prevent cannula fallout.

*Tegaderm is a trademark of 3M Medical.

Nano Shaver Small-Hub Blade and Burr Options

The Nano arthroscopy small-hub shaver handpiece, blades, and burrs allow for efficient minimally invasive tissue resection and debridement. The low-profile tip design facilitates safe introduction into most tight joint spaces without the need for a limb holder. The foot-control shaver handpiece is a high-speed, high-torque accessory. The small diameter and light weight of the handpiece and blades make the NanoScope™ operative arthroscopy system one of the most versatile resection tools available.

	Family Color, Blade Image, and Description	1 (Ø mm)	2 (Ø mm)	3 (Ø mm)	3.5 (Ø mm)
	 PoweRasp™ Resector, Small Hub Ideally suited for soft tissue, osteochondral and osteophyte resection, or bony site preparation				AR-9350PR
	 PowerPick™ Drill, Small Hub Excellent for microdrilling osteochondral defects <i>(1 mm refers to the drill tip diameter; the outer diameter of the shaft is 3.5 mm with a stepdown to 3.25 mm)</i>	AR-9100PP-00 (0°) AR-9100PP-45 (45°)			
	 Torpedo™ Shaver Blade Tapered tip and scissor-like cutting action facilitate rapid, aggressive soft-tissue resection				AR-9350TD
	 Dissector, Small Hub Sharp, teardrop-shaped outer window. The toothed inner cutting window aggressively attacks tissue, grabbing it and drawing it into the cutting area			AR-9300DS	AR-9350DS
	 Sabre, Small Hub Sharp, teardrop-shaped outer window. The smooth inner cutting window leaves crisp, clean edges for a more anatomic appearance following resection		AR-9200SR	AR-9300SR	AR-9350SR
 10-flute	 Oval Burr, Small Hub Designed for rapid, aggressive bone resection in notchplasty, distal clavicle, and subacromial decompression procedures			AR-9300BT	AR-9350BT
 10-flute	 Round Burr, Small Hub Ideally suited for soft tissue, osteochondral and osteophyte resection, or bony site preparation			AR-9300BT	AR-9350BT





Arthrex’s unique double-sealed shaver handpiece is robust and reliable with a light, ergonomic feel, and it comes with or without touch-control options. With high-performance motors and the use of cutting-edge materials, Synergy^{Resection}™ shaver handpieces are a great addition to the OR and procedure rooms.



Product Description	Item Number
Synergy ^{Resection} Console	AR-8305
Shaver Handpiece, Nano arthroscopy (a)	AR-8330SJ
Low-Profile Footswitch (b)	AR-8310
Cordless Gas Pedal Footswitch (c)	AR-8315W
Corded Gas Pedal Footswitch (d)	AR-8315C

Apollo^{RF}® SJ50 Probe: Features and Benefits

- 360° edge control for precise debridement
- Anatomic 50° tip configured to reach and ablate tissue efficiently
- Reduced probe dimension length (11 cm) and diameter (3.3 mm) for ease of access in small joints
- Low default ablation setting of 4 for reduced energy delivery
- Optimized aspiration to remove tissue particulate and maintain optimal fluid temperatures

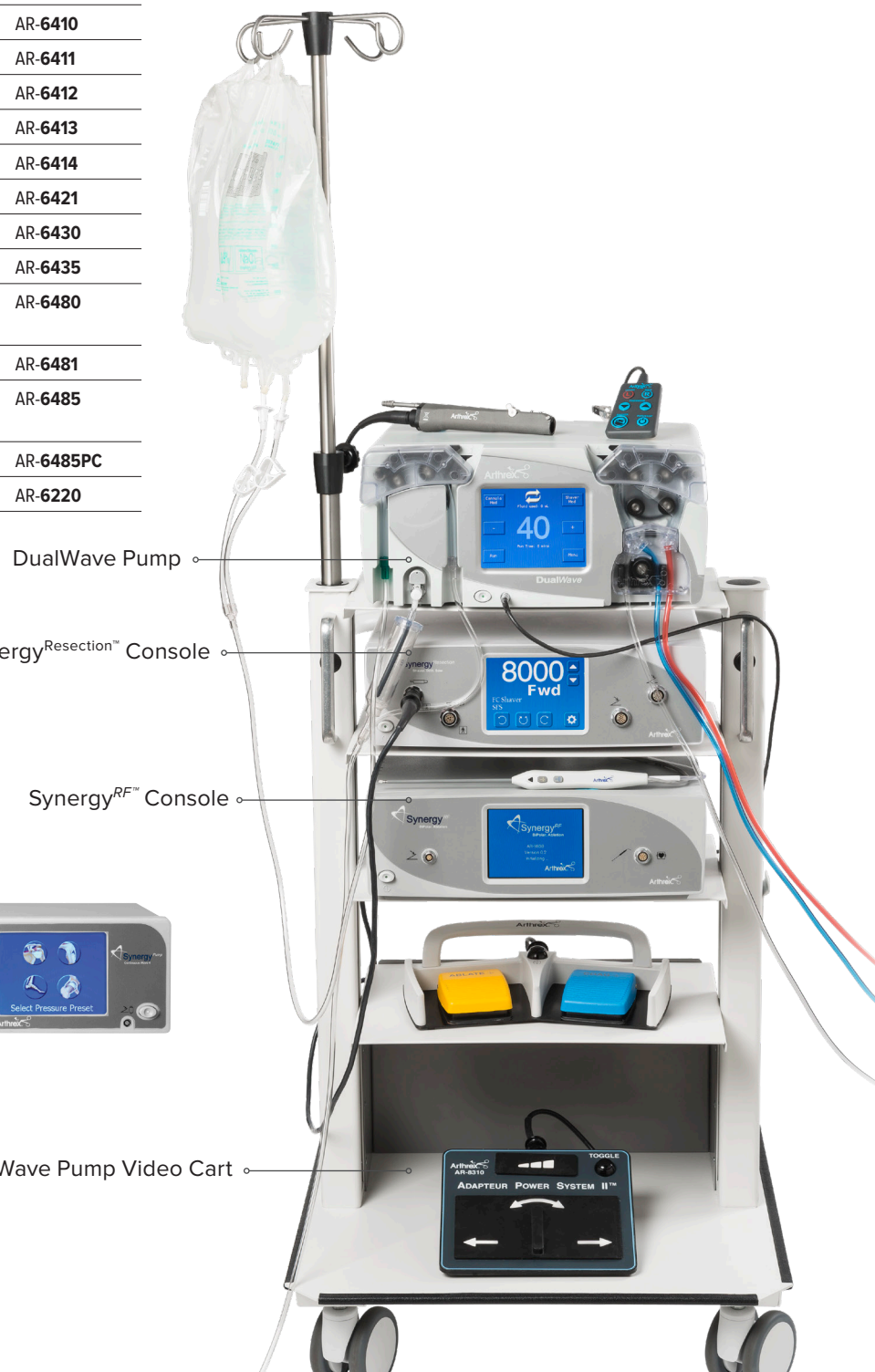
Edge Control Feature >



Arthroscopy Powered Resection and Fluid Management System

Arthrex's comprehensive portfolio of powered resection and fluid management products provides options for all procedure types and settings. Whether it's controlling distention during complex arthroscopic procedures or providing simple gravity flow during office procedures, Arthrex is dedicated to offering unique solutions for safe and reliable joint distention, tissue resection, and small-profile visualization with nano arthroscopy in the OR or treatment room.

Product Description	Item Number
Waste Collection Bag	AR-6215
Main Pump Tubing	AR-6410
ReDeuce™ Pump Tubing	AR-6411
Arthrex Gravity Tubing Set	AR-6412
Continuous Wave™ 4 Inflow Tubing	AR-6413
Gravity Tubing, 4 spikes	AR-6414
ReDeuce Patient Tubing	AR-6421
DualWave™ Outflow Tubing	AR-6430
DualWave Outflow Tube Set w/ ReDeuce Tubing System	AR-6435
DualWave Inflow, Outflow, and Suction Pressure-Sensing Pump System	AR-6480
DualWave Pump Video Cart	AR-6481
Continuous Wave 4 Fluid Inflow Pressure-Sensing Pump System (e)	AR-6485
Continuous Wave 4 Pump Cart	AR-6485PC
Extension Tube Set	AR-6220



DualWave Pump

Synergy^{Resection} Console

Synergy^{RF} Console

Continuous Wave 4 Pump System
Inflow-only pressure-sensing pump system (e)



DualWave Pump Video Cart





Revolutionizing Arthroscopy

**Nano arthroscopy surgical skills learning opportunities
(contact your local Arthrex representative to schedule):**

- Arthrex US Agency Wet Labs
- Arthrex US and EU Mobile Labs
- Arthrex ArthroLab™, Naples, FL
- Arthrex ArthroLab, Munich, Germany
- Arthrex ArthroLab, Singapore

See cadaveric surgical demonstrations at www.arthrex.com.



All patient/case details in demo screenshots are fictitious.



This description of technique is provided as an educational tool and clinical aid to assist properly licensed medical professionals in the usage of specific Arthrex products. As part of this professional usage, the medical professional must use their professional judgment in making any final determinations in product usage and technique. In doing so, the medical professional should rely on their own training and experience and should conduct a thorough review of pertinent medical literature and the product's directions for use. Postoperative management is patient-specific and dependent on the treating professional's assessment. Individual results will vary and not all patients will experience the same postoperative activity level or outcomes.

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