Nano Arthroscopy

Small, Made Smaller







The Next Generation of Nano Arthroscopy Is Here

The state-of-the-art NanoNeedle Scope 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.

A pioneer in Nano arthroscopy, Arthrex has designed the next generation of needle scope visualization systems. The NanoNeedle Scope is a significant improvement in surgical imaging ergonomics and visualization quality.

The NanoNeedle Scope provides an alternative to MRI imaging and second-look arthroscopy and offers precise, direct image-guided visualization of injections.

The NanoNeedle Scope Handpiece Kit and System seamlessly connect with the Synergy $^{UHD4^{\circ}}$ 4K system for full OR and EMR image management integration.



Table of Contents

NanoNeedle Visualization System	04
NanoNeedle Scope	06
Nano Arthroscopy Cannulas and Insertion Kit	08
Nano Arthroscopy Hand Instruments	10
NanoScopic™ Bone Prep	13
NanoScope™ Mobile Cart Options	14
NanoResection™ Devices	17
Arthroscopy Powered Resection and	
Fluid Management System	20

NanoNeedle Visualization System

The NanoNeedle Visualization System is a medical-grade, 3-in-1, chip-on-tip disposable camera system. With an intuitive tablet control unit, the system features the latest technologies in 1 mm imaging sensors, LED lighting, image management, and OR integration. A network-based system allows for bidirectional communication to your facility EHR, PACS, Synergy Surgeon™ app, and SurgeonVault® system.

NanoScope™ Console Specifications

- Medical-grade camera control unit and camera card edge
- 400 × 400 resolution on a 13 inch, 3-in-1 camera control unit

- Network capabilities to connect to facility's health record, PACS, and Synergy Surgeon app
- Built-in microphone for video dictation without an external microphone
- HDMI output to extend the video signal to in-room displays and integration systems
- Printing capabilities and brightness adjustment

NanoNeedle Camera Specifications

- 400 × 400 resolution with 120° field of view
- 3 mm × 100 mm depth of field
- 125 mm, 180 mm, and 250 mm lengths



Consisting of the NanoScope™ console and the NanoNeedle Scope, the Nano Arthroscopy System features the latest technologies in small imaging sensors, LED lighting, image management, and OR integration.

The NanoNeedle Scope is an all-in-one, chip-on-tip camera system offering surgeons the ergonomic benefits of a pencil-style handpiece.

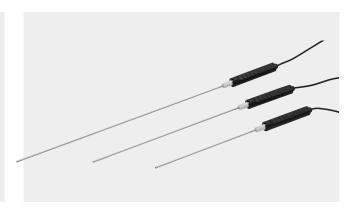
NanoScope Console



- Portable control unit, including documentation and data management
- 13 in touchscreen monitor
- Rechargeable battery-powered
- Medical-grade device
- Ethernet, USB, and HDMI ports and wireless network capabilities
- DICOM
- Integrated microphone

Product Description	Item Number
NanoScope console	VAR- 3200-0030
NanoScope console battery supply replacement	150-0012-00-A

NanoNeedle Scope



- Chip-on-tip technology
- Headless design
- 1.9 mm scope diameter
- 0° direction of view
- 120° field of view
- Integrated LED light source
- Lightweight and well-balanced
- 3 different lengths: 125 mm, 180 mm, and 250 mm

Product Description	Item Number
NanoNeedle Scope, 125 mm	AR- 3210-0043
NanoNeedle Scope, 180 mm	AR- 3210-0044
NanoNeedle Scope, 250 mm	AR- 3210-0045

NanoNeedle Scope

Sheath Kits, Access Kits, and Working Cannulas

NanoNeedle Scope Sheath Kits



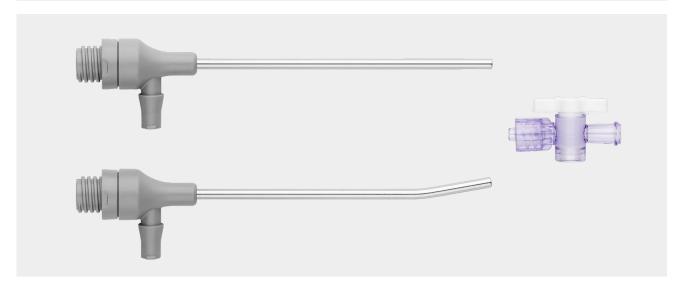
Surgeons can select the ideal sheath system to suit their specialty, site of care, and flow requirements independently of the NanoNeedle Scope. Options include the diagnostic sheath kit with an outer diameter of 2.4 mm and high-flow operative sheaths with a larger outer diameter (3.3 mm) for higher flow rates and increased joint distention. Each system is packaged sterile and contains a straight sheath as well as a 10° angled sheath to provide a 10° viewing angle.

Components

- One straight inflow sheath with sharp obturator, single use, sterile
- One 10° angled inflow sheath with flexible blunt cannulated obturator, single use, sterile
- One stopcock, sterile

Product Description	Item Number
NanoNeedle Scope Diagnostic Sheath Kit, 125 mm (outer diameter 2.4 mm)	AR- 3210-0050
NanoNeedle Scope High-Flow Operative Sheath Kit, 125 mm (outer diameter 3.3 mm)	AR- 3210-0051
NanoNeedle Scope High-Flow Operative Sheath Kit, 125 mm, with crown tip and fenestration cutout (outer diameter 3.3 mm)	AR- 3210-0052
NanoNeedle Scope Diagnostic Sheath Kit, 180 mm (outer diameter 2.4 mm)	AR- 3210-0054
NanoNeedle Scope High-Flow Operative Sheath Kit, 180 mm (outer diameter 3.3 mm)	AR- 3210-0055
NanoNeedle Scope High-Flow Operative Sheath Kit, 180 mm, with crown tip and fenestration cutout (outer diameter 3.3 mm)	AR- 3210-0058

NanoNeedle Scope Access Kits



The NanoNeedle Scope access kits contain both inflow sheaths and essential components for precise joint access.

Components

- One straight inflow sheath with sharp obturator, sterile
- One 10° angled inflow sheath with flexible blunt cannulated obturator, single use, sterile
- One spinal needle stylet, sterile
- One guidewire, sterile
- One stopcock, sterile

Product Description	Item Number
NanoNeedle Scope High-Flow Operative Sheath Kit, 125 mm	AR- 3210-0053
NanoNeedle Scope Diagnostic Sheath Kit, 180 mm	AR- 3210-0056
NanoNeedle Scope High-Flow Operative Sheath Kit, 180 mm	AR- 3210-0057

NanoNeedle Scope Working Cannulas

The NanoNeedle Scope working cannulas are designed to facilitate the insertion of the NanoNeedle Scope, as well as Nano hand instruments and smalldiameter shaver blades. They all feature a flexible plastic dam to prevent fluid loss and have a knurl pattern at the distal end to ensure the cannula stays in position during instrument removal.

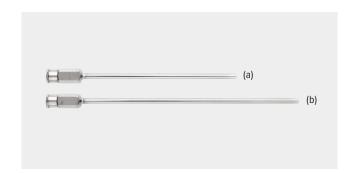
Components

One working cannula with blunt obturator, outer diameter 3.8 mm / inner diameter 3.4 mm, sterile

Product Description	Item Number
NanoNeedle Scope working cannula, 5 cm	AR- 3210-0059
NanoNeedle Scope working cannula, 1.5 cm	AR- 3210-0063



Nano Arthroscopy Cannulas and Insertion Kit



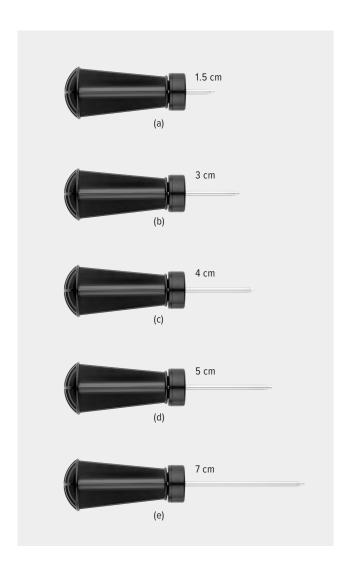
Outflow Cannulas

The outflow cannula can be inserted through the NanoCannula for aspiration of fluid and resected soft tissue. It connects to syringes or suction tubing.

Components

Outflow cannula, 2.4 mm outer diameter, sterile

Product Description	Item Number
Outflow cannula, 7 cm (a)	AR- 1090S-70-1
Outflow cannula, 10 cm (b)	AR- 1090S-100-1



Nano Arthroscopy Cannulas

The Nano arthroscopy cannula features a flexible plastic dam to prevent fluid loss. The cannula is designed to facilitate the insertion of the NanoNeedle Scope, as well as Nano hand instruments.

The included Tegaderm $^{\mathsf{m}}$ skin adhesive is placed over the NanoCannula to maintain cannula position during instrument removal.

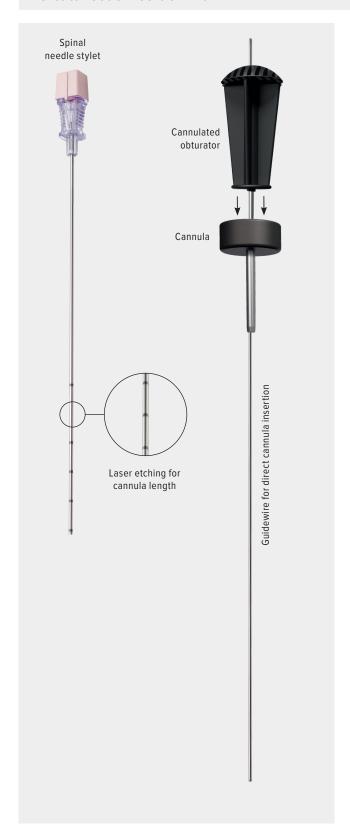
Components

- NanoCannula and cannulated obturator, 2.7 mm inner diameter / 3.4 mm outer diameter, sterile,
- Tegaderm skin adhesive, sterile

Product Description	Item Number
NanoCannula, 1.5 cm length (a)	AR- 1090C-15-1
NanoCannula, 3 cm length (b)	AR-1090C-30-1
NanoCannula, 4 cm length (c)	AR-1090C-40-1
NanoCannula, 5 cm length (d)	AR-1090C-50-1
NanoCannula, 7 cm length (e)	AR- 1090C-70-1

Tegaderm is a trademark of 3M Medical.

Percutaneous Insertion Kit



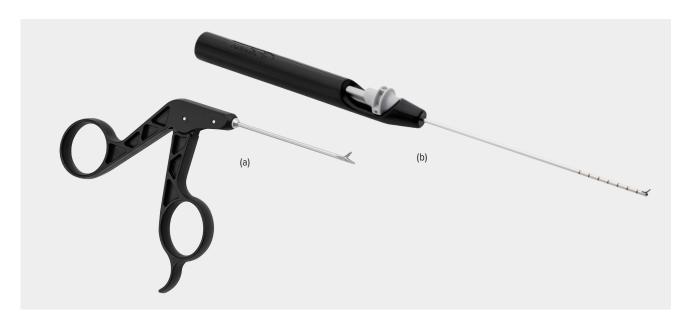
The Percutaneous Insertion Kit was designed for cannula insertion and measuring the appropriate cannula length.

Components

- Calibrated spinal needle stylet, sterile
- Guidewire, sterile

Product Description	Item Number
Percutaneous Insertion Kit	AR- 1090PK-1

Nano Arthroscopy Hand Instruments



Harnessing 20 years of excellence, Arthrex has engineered the next generation of instruments for diagnostic, resection, and extraction procedures.

The NanoProbe is an articulating, retractable-hook probe used for diagnostic procedures. The NanoBiter, NanoScissor, and NanoGrasper are small arthroscopic soft-tissue resection instruments. Just 2 mm in diameter, they are designed for atraumatic insertion through tight joint spaces. These instruments are sharp and engineered to efficiently resect meniscal tissue and other soft-tissue structures.



Product Description	Item Number
NanoBiter, straight (a)	AR- 10911D-1
NanoBiter, 15° up	AR- 10922D-1
NanoGrasper, straight	AR- 10913D-1
NanoScissor, straight	AR- 10915D-1
NanoProbe, retractable (b)	AR- 10100N

Nano Arthroscopy Hand Instruments, 70 mm Working Length, 2 mm Diameter, Sterile

Product Description	Item Number
NanoBiter, straight	VAR- 10901D-1
NanoBiter, 15° up	VAR- 10902D-1
NanoGrasper, straight	VAR- 10903D-1
NanoScissor, straight	VAR-10905D-1



Product Description

NanoBiter Punch



Product Description

NanoBiter, 15° up



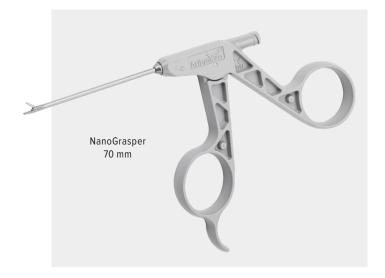
Product Description

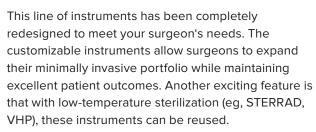
NanoGrasper



Product Description

NanoScissor







Key Features

- Bendability: Contour for patient-specific anatomic structures using the Nano bending tool
- Reusability: Compatible with STERRAD and VHP sterilization
- **Sharpness:** Reusable instruments for greater sharpness and precision
- **Size:** Ergonomically designed for extremities and available in 2 lengths-70 mm and 130 mm-for expanded applications.

Nano 2 mm Bendable Instruments

Nano Instrumentation, 130 mm Shaft Length, Sterile

Product Description	Item Number
NanoBiter straight tip, 130 mm straight shaft, bendable, w/ FlushPort	VAR- 10911F-1
NanoGrasper straight tip, 130 mm straight shaft, bendable, w/ FlushPort	VAR- 10913F-1
NanoRetriever tip, 130 mm straight shaft, bendable, w/ FlushPort	VAR- 10914F-1
NanoScissor tip, 130 mm straight shaft, bendable, w/ FlushPort	VAR- 10915F-1
Nano BirdBeak® retriever tip, 130 mm straight shaft, bendable, w/ RushPort	VAR- 10916F-1
Nano BirdBeak grasper tip, 130 mm straight shaft, bendable, w/ RushPort	VAR- 10917F-1
Bending tool	VAR- 10900

Nano Instrumentation, 70 mm Shaft Length, Sterile

Product Description	Item Number
NanoBiter straight tip, 70 mm straight shaft, bendable, w/ FlushPort	VAR- 10901F-1
NanoGrasper straight tip, 70 mm straight shaft, bendable, w/ FlushPort	VAR- 10903F-1
NanoRetriever tip, 70 mm straight shaft, bendable, w/ FlushPort	VAR- 10904F-1
NanoScissor tip, 70 mm straight shaft, bendable, w/ RushPort	VAR- 10905F-1
Nano BirdBeak retriever tip, 70 mm straight shaft, bendable, w/ FlushPort	VAR- 10906F-1
Nano BirdBeak grasper tip, 70 mm straight shaft, bendable, w/ FlushPort	VAR- 10907F-1
Bending tool	VAR- 10900

2.8 mm Nano Suction Punches

Ideal for Nano arthroscopy, the Nano suction punch allows surgeons to achieve optimal resection and aspiration. Available in 2 sizes with 3 different cutting window configurations, this device can rotate 360° for up, side, or down window resection.

Reusable and autoclavable, the Nano suction punch can accommodate all joints. Moreover, the Nano suction punch integrates with the GraftNet™ device to collect aspirated tissue, making it ideal for tissue biopsies.

Item Number
AR- 10920F-1
AR- 10921F-1
AR- 10922F-1
AR- 10930F-1
AR- 10931F-1
AR- 10932F-1









Bullet Tip (c, f)

NanoScopic[™] Bone Prep



- Bendability: Contour instruments in the Nano bone prep line using the new Nano resusable bending tool
- Sharpness: Limited use instruments are sharp and precise
- Size: Ergonomically designed for extremities, instruments in this line are available in 2 lengths—7 cm and 10 cm—for expanded applications

Product Description	Item Number
30° Chondral pick, 7 cm (a)	AR-1091CP-70-1
30° Chondral pick, 10 cm	AR-1091CP-100-1
Cup curette, 7 cm (b) Cup curette, 10 cm	AR-1091CC-70-1 AR-1091CC-100-1
Ring curette, 7 cm (c)	AR-1091RC-70-1
Ring curette, 10 cm	AR-1091RC-100-1
Elevator, 7 cm (d)	AR-1091E-70-1
Elevator, 10 cm	AR-1091E-100-1



NanoScope[™] Mobile Cart Options

Product Description	Item Number
Mobile cart	AR- 3502-CRT



Synergy Vision™ Imaging System



Experience the Synergy Vision imaging system, an allin-one option featuring high dynamic range (HDR) 4K visualization with wide-view imaging and fluorescence while supporting the NanoNeedle Scope and video integration.

Key Features and Benefits

The Synergy Vision imaging system was designed with the latest technology to deliver optimal and revolutionary results.

- Pano[™] Scope: Quickly and easily switch between traditional 30° and 70° views to a 45° ultrawide view at the touch of a button. The Pano scope allows surgeons to visualize more anatomy on a single screen while minimizing the need for additional portals or scopes.
- Nano Vision™ Functionality: The NanoNeedle Scope integrates directly to the Synergy Vision console as either a primary or secondary view allowing for a simultaneous 4K and Nano visualization on the same screen.
- **Synergy Vision Connect™ Console:** Allowing for 6 inputs and 4 outputs, the Synergy Vision Connect system offers built-in OR integration capabilities for in-room switching and routing.
- HDR: The Synergy Vision imaging system offers HDR for enhanced contrast of surgical anatomy and ideal visualization.
- Fluorescence Imaging: Switch to fluorescence 4K imaging with the touch of a button. Easily toggle through different modes and colors, depending on the fluorescence application and individual surgeon preference.

Synergy Tablet Controller

Our unique and innovative "tablet" interface allows users to remotely and efficiently enter patient information, surgeon preferences, and image management settings once. The Synergy tablet controller may help reduce cost, shorten OR times, and increase efficiency.

Synergy 4K Consoles

Product Description	Item Number
Synergy Vison console	VAR- 3200-0026
Synergy Vision Connect console (a)	VAR- 3200-0027
Synergy Vision tablet (b)	VAR- 3200-1016
Synergy digital documentation tablet	VAR- 3200-1021

Nano Vision™ Functionality

Experience the Synergy Vision imaging system, an all-in-one product featuring high dynamic range, 4K visualization with wide-view imaging, and fluorescence while supporting the NanoNeedle Scope and video integration.

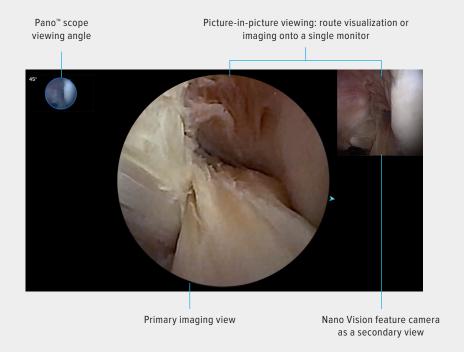
The Synergy Vision™ imaging system, via a built-in port to connect a NanoNeedle Scope, supports Nano Vision functionality, which features simultaneous use of 4K and Nano visualization, giving surgeons access to additional views and allowing them to see more of the anatomy than with a traditional single-camera view.

Key Features and Benefits

Nano arthroscopy offers a variety of benefits, including:

- Customized anesthetic options (eg, light sedation vs general anesthetic)
- Appropriate for a variety of settings, including procedure rooms, hospitals, surgery centers, etc*
- Same-day diagnostic and surgical treatment options
- Potential to reduce facility costs
- Opportunity to redirect or increase cases in underused treatment and procedure rooms
- Ability to decrease or eliminate medical workup, monitoring, and general anesthetic complications
- Ancillary surgical views not seen with a single 4K camera



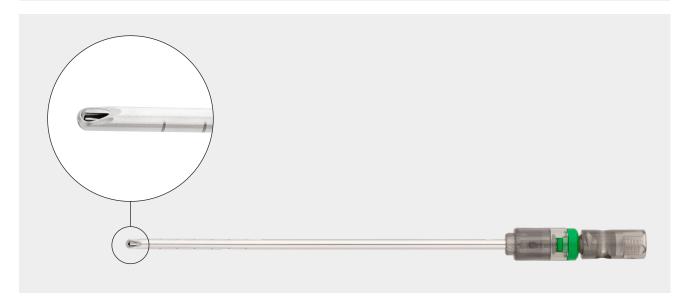


^{*}Please refer to the Coding and Reimbursement Guide for the NanoScope™ Operative Arthroscopy System (OF1-000119) for additional information.

NanoResection™ Devices

Efficient Resection Devices Made Smaller

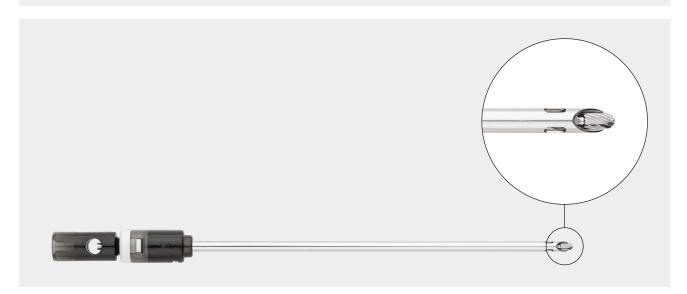
Synergy^{Resection™} Console



- 2.8 mm in diameter and 11 cm in length
- Teardrop-shaped window to reduce clogging
- Smooth cutting windows for clean resection

Product Description	Item Number
Nano Sabre shaver, sterile	AR- 9280NSR-1

Nano Oval Burr



- 2.8 mm in diameter and 11 cm in length
- Extended burr head for distal tip cutting capabilities
- 10 sharp flutes for smooth and efficient resection

Product Description	Item Number
Nano oval burr, sterile	AR- 9280NOT-1

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.

	Description	1 (Ø mm)	2 (Ø mm)	3 (Ø mm)	3.5 (Ø mm)
S. Atti	PoweRasp™ Resector, Small Hub Ideally suited for soft-tissue, osteochondral, and osteophyte resection and bony site preparation				AR- 9350PR
	PowerPick™ Drill, Small Hub Excellent for microdrilling osteochondral defects (1 mm refers to the drill tip diameter; the outer diameter of the shaft is 3.5 mm with a step down to 3.25 mm)	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; 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; 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- 93000BT	AR- 93500BT
10-flute	Round Burr, Small Hub Ideally suited for soft-tissue, osteochondral, and osteophyte resection and bony site preparation			AR- 9300RBT	AR- 9350RBT

Color bars reflect family color shown on the adapter.

Synergy^{Resection} Console



- Multifunctional shaver system
- Operation of 2 handpieces simultaneously
- Automatic detection of handpiece
- Control via 1 or 2 foot pedals
- Three different oscillating modes: standard, efficient, aggressive
- Shaver: FWD/REV: 8000 rpm max; OSC: 3000 rpm max

Product Description	Item Number
Synergy ^{Resection} console	VAR- 8305

Shaver Handpiece



Arthrex's unique double-sealed shaver handpiece is robust and reliable with a light, ergonomic feel, and 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
Shaver handpiece, Nano arthroscopy	VAR- 8330SJ

Footswitches



Product Description	Item Number
Footswitch, APS II, standard (a)	VAR- 8310
Synergy ^{Resection} Wireless Footswitch (b)	AR- 8315W
Footswitch, APS II, multifunction, corded (c)	VAR- 8315C

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 smallprofile visualization with Nano arthroscopy in the OR or treatment room.

Product Description	Item Number
DualWave™ arthroscopy pump (a)	VAR- 6480
DualWave pump video cart (b)	AR- 6481
Continuous Wave™ 4 arthroscopy pump (c)	VAR- 6485
Continuous Wave 4 pump cart	AR- 6485PC
Nanoscope console mounting kit	5010- 1500



Tubing for DualWave[™] Pump

Main Pump Tubing

Product Description and Note	Item Number
DualWave Outflow Tubing for AR-6480, qty. 10 The DualWave outflow tubing allows the DualWave arthroscopy pump to regulate both inflow and outflow in the joint space. By controlling both aspects, distention is maintained at the highest level, resulting in maximum visualization.	AR- 6430
DualWave Outflow Tubing Set with ReDeuce™ Tubing System for AR-6480, qty. 10 The combination set comes with both AR-6421 and AR-6430 packaged together. This simplifies preparation by reducing the number of items needed in the OR to set up the DualWave pump. Fewer tubing packages reduce ordering and simplify inventory tracking, providing a direct price reduction.	AR- 6435

Gravity Tubing

	Product Description and Note	Item Number
(a) (b)	Gravity Tubing, 2 spikes, 20 per box (a) Gravity Tubing, 4 spikes, 10 per box (b) Gravity tubing is compatible with all arthroscopic sheaths and cannulas and is able to maintain proper distention even in complicated surgical cases that demand high flow. It is 13 ft working length and 14.2 ft total length.	AR- 6412 AR- 6414

Tubing for Continuous Wave[™] **Pump**

Main Pump Tubing

Product Description and Note	Item Number
Main Pump Tubing for VAR-6480 or VAR-6485, Sterile, Qty. 10 This set is for those who prefer a complete tubing set and want to replace the fluid bags after each case. Each tubing set comes with an independently packaged press-fit Luer lock to allow for tubing length adjustment if used in conjunction with the extension tubing. If used alone, the set must be discarded after each case.	AR- 6410

Extension Tubing

 Product Description and Note	Item Number
Extension Tubing, Sterile, Qty. 20 This unique tubing provides an economical option to reduce tubing costs by allowing the main pump tubing to remain in use for the entire surgical day. The exclusive backflow valve prevents contaminated fluid from reaching the main pump tubing. The main pump tubing and fluid bags no longer need to be discarded after each surgical case.	AR- 6220

2-Piece Pump Tubing System

Product Description and Note	Item Number
2-Piece Pump Tubing with Connector for AR-6480 or AR-6485, Sterile, Oty. 10 The 2-piece pump tubing maintains sterility due to the design of the patient-side tubing and the touch-proof connector. Leaving the pump-side tubing in place the entire day saves on fluid because the remaining fluid does not need to be discarded after terminating each surgical case.	AR- 6411
2-Piece Patient Tubing, Sterile, Qty. 20 The 2-piece patient tubing set contains a backflow restrictor, saving tubing costs and setup time by requiring only patient tubing to be discarded and passed off from the sterile field after and before each case.	AR- 6421

Inflow Tubing

Product Description and Note	Item Number
Continuous Wave 4 Inflow Tubing	AR- 6413

Accessories

	Product Description and Note	Item Number
Arthrex Naste Collection	Waste Collection Bag, Qty. 10 The waste collection bag can be hung from the AR-6481 pump cart and can hold up to 10 liters of waste fluid. At the end of a surgical case, simply seal the bag and dispose.	AR- 6431



This is not veterinary advice and Arthrex recommends that veterinarians be trained in the use of any particular product before using it in surgery. A veterinarian must always rely on his or her own professional clinical judgment when deciding whether to use a particular product. A veterinarian must always refer to the package insert, product label and / or instructions for use before using any Arthrex product. Products may not be available in all markets because product availability is subject to the regulatory and / or veterinary practices in individual markets. Please contact your Arthrex representative if you have questions about availability of products in your area.



Arthrex manufacturer, authorized representative, and importer information (Arthrex eIFUs)



US patent information

arthrexvetsystems.com